Oracle® Financial Services Funds Transfer Pricing Cloud Service

User Guide

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9 Technical Documents

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About This Content

This guide provides information on the Oracle Financial Services Funds Transfer Pricing Cloud Service (OFS FTPCS).

Audience

This guide is intended for the users of Oracle Financial Services Funds Transfer Pricing Cloud Service (OFS FTPCS).

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- Oracle Financial Services Profitability and Balance Sheet Management Cloud Service
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2

Getting Started

This chapter introduces the Funds Transfer Pricing Cloud Service, followed by the instructions to get started with the cloud service, and instructions to use the Admin Console.

Topics:

- Getting Started with Oracle Cloud: Oracle Cloud is the industry's broadest and most integrated cloud provider, with deployment options ranging from the public cloud to your data center. Oracle Cloud offers best-in-class services across Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS).
- Funds Transfer Pricing Cloud Service: Funds Transfer Pricing Cloud Service provides an account/ledger level funds transfer pricing engine with 14 industry best practice transfer pricing methods, supporting the entire balance sheet. The key outputs include transfer rate, multiple add-on rates, all-in TP rate and related funds charges and credits. In addition, this service provides a break identification engine and the ability to calculate economic loss/gain due to breaks.
- Introduction to Admin Console: Use the Admin Console to perform System Configuration and Identity Management. It is a single point of access to manage identity functions and view administrative features such as Metering, Audit Trail Report and other miscellaneous configuration details in the Profitability and Balance Sheet Management Cloud Service (PBSMCS).

2.1 Getting Started with Oracle Cloud

This chapter introduces to the Oracle Cloud, Users and Roles, User Groups, User Management, and Session Time Out configuration.

Topics:

- Welcome to Oracle Cloud
- Managing Application Users
- Managing User Groups
- User Management
- Configuring Session Timeout
- #unique_21

2.1.1 Welcome to Oracle Cloud

Oracle Cloud is the industry's broadest and most integrated cloud provider, with deployment options ranging from the public cloud to your data center. Oracle Cloud offers best-in-class services across Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS).

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2.1.1.1 About Oracle Cloud

Oracle Cloud is one of the few cloud providers that can offer a complete set of cloud services to meet all your enterprise computing needs.

Use the Oracle Infrastructure as a Service (IaaS) offering to quickly set up the virtual machines, storage, and networking capabilities you need to run just about any kind of workload. Your infrastructure is managed, hosted, and supported by Oracle.

Use the Oracle Platform as a Service (PaaS) offering to provision ready-to-use environments for your enterprise IT and development teams, so they can build and deploy applications, based on proven Oracle databases and application servers.

Use the Oracle Software as a Service (SaaS) offering to run your business from the Cloud. Oracle offers cloud-based solutions for Human Capital Management, Enterprise Resource Planning, Supply Chain Management, and many other applications, all managed, hosted, and supported by Oracle.

2.1.1.2 Supported Web Browsers

Oracle Financial Services Cloud Services support the latest version of Google Chrome, Microsoft Edge and Mozilla Firefox.

For more details, see Oracle Software Web Browser Support Policy.

2.1.1.3 Order Oracle Cloud Applications

You can order Oracle Cloud Applications (Software as a Service) offerings by contacting Oracle Sales. After your order is processed, you can then activate your services.

To order a subscription to Oracle Cloud Applications:

1. Go to - Oracle Financial Services Risk and Finance Solutions .
2. Scroll down and select the Cloud Service that you are subscribed to.
3. Review the features and capabilities of the service and read the Datasheet.
4. When you are ready to order, scroll up and click **Request a Demo**.
5. You can either write an email or click **Request Now** to receive a call from Sales.
6. Enter your **Business email**, select the confirmation check box, and click **Continue**.
7. Provide a description and click **Request Now**.

After your interaction with the Oracle Sales team to order the Oracle Cloud Application best suited to your requirements, you will receive an email with a link to activate the service you have ordered.

2.1.2 Getting Started with your Cloud Service

To get started, you must activate the subscribed Cloud Service.

After activating the cloud service, you can log in as an administrator and perform the following tasks.

- Create and Activate New Cloud Account
- Access the Cloud Account

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- Access Oracle Identity and Access Management (IAM) Console
- Onboard new application users for the subscribed cloud services.

After the administrator successfully adds an application user, they can log in and activate their cloud account and use the subscribed cloud services provisioned by the administrator.

Choosing Between a New or Existing Cloud Account

Every administrator in a cloud account (tenancy) has access to all subscriptions within that account. To ensure that new administrators cannot access existing subscriptions, you should activate new subscriptions in a separate tenancy by creating a new Oracle Cloud Account. If separate access controls are not needed, you may add new subscriptions to an existing Oracle Cloud Account.

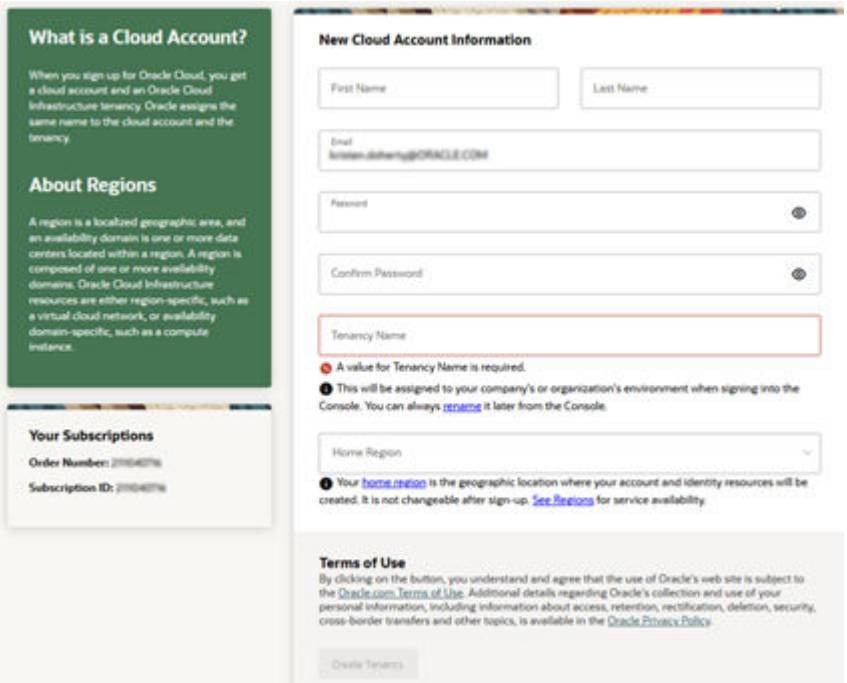
2.1.2.1 Create and Activate New Cloud Account

After you subscribe to the cloud service, you will receive a **Welcome to Oracle Cloud** email with details to create and activate your cloud account.

To create and activate a new cloud account:

1. Click **Create New Cloud Account** in the email.
2. Complete the **New Cloud Account Information** to sign up.

Figure 2-1 New Cloud Account Information page



3. Enter the following details:
   - **First Name** and the **Last Name** of the person who will be the cloud administrator.
   - **Email** address of the person who will be the cloud administrator. Instructions to log into the new Oracle Cloud Account will be sent to this email address.
   - **Password** to access the new cloud account.
   - **Tenancy Name**: New **Tenancy Name** to be associated with the cloud account.

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> **Note**
>
> You cannot modify the tenancy name after it is created. Hence, ensure to provide a valid tenancy name, based on your organization's requirements and naming conventions.

- **Home Region**: Select the **Home Region**, where the account is located. Check the service availability before selecting the home region.
  For assistance regarding home region selection, contact Oracle support. Existing customers have to ensure that the identity resources are located in the home region.

> **Note**
>
> You can subscribe to additional regions but you cannot modify the home region, after provisioning your tenancy.

4. Click **Create Tenancy** to access the **New Cloud Creation Confirmation** page.

   After successful activation, the cloud account administrator will receive a **Get Started Now with Oracle Cloud** email.

2.1.2.1.1 Add to an Existing Oracle Cloud Account

If you already have a cloud account associated with your administrator user name, you can add the newly subscribed cloud service to that account.

To add an existing Cloud account:

1. In the welcome email, click **Add** to add an existing cloud account.
2. Perform the steps as mentioned in the Access the Oracle Cloud Infrastructure Identity and Access Management (IAM) console.

2.1.2.2 Accessing the Cloud Account

An Administrator can access the Cloud Account activated and associated with their email address.

After your new cloud account is created and activated, you will receive a **Get Started Now with Oracle Cloud** email, to the email address provided while creating the account.

To access your Cloud account:

1. In the **Get Started Now with Oracle Cloud** email, click **Sign In**.
2. Enter the **Tenancy** name and click **Continue**.
3. Enter the **Username** and **Password** to log in to the **OCI Console** .

   Use the same **Username** and the **Password** that you provided during activation setup.
4. After successful login, proceed with the multi-factor authentication. Select the configured authentication mode and enter the OTP generated using the Oracle Mobile Authenticator application.

   Once the MFA is successfully completed, you can access the **Environment Page**.

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2.1.2.3 Subscribing to a Disaster Recovery Infrastructure Region

In Oracle Cloud Infrastructure (OCI), a Disaster Recovery (DR) region is a secondary, geographically separate region that helps ensure service continuity.

To maintain high availability, you must subscribe to a DR region as part of your disaster recovery strategy.

For information on how to subscribe to a DR Infrastructure region, see Subscribing to an Infrastructure Region.

2.1.2.4 Create an Environment

After logging into the Oracle Cloud Infrastructure Console, an Administrator can create one or multiple environments/instances for different user groups.

To create an environment/instance:

1. Log in to **Oracle Cloud Infrastructure Console** (OCI).

   You can view the list of all the environments (instances) provisioned for the one or multiple cloud applications, with the following details:

   - **Name**: The cloud application's instance name.
   - **Type**: The instance type.
   - **Life cycle status**: The instance status.
   - **Region**: The region from where the specific instance is active.
   - **Application URL**: The URL to access the instance.
2. From **My Applications**, click the application in which you want to create an environment. Example: Oracle Financial Services Crime and Compliance Management Anti Money Laundering.
3. On the **Overview** page, click **Environments**.
4. From the **Compartments** drop-down list, select the compartment in which you want to create an environment.
5. Click **Create**, to access the list of cloud services to which the customer has subscribed and the region from where these services are operated.
6. (Optional). Select the **Region** to host the OCI environment/instance, from the drop-down list.

   If you are not sure about the region, contact My Oracle Support (MoS).

   > **Note**
   >
   > You can select the region only for the first environment/subscription and for the additionally added instances, the region cannot be modified.
7. Enter the following **Environment Details**, and click **Create**.
   - **Name**: The name of the new environment or instance.

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> **Note**
>
> You cannot modify the environment name after the environment is created. Hence, ensure to provide a valid environment name, based on your organization's requirements and naming conventions.

- **Instance type**: Select one of the following instances:
  - **Production**: If the environment is used for Production activities.
  - **Non-production**: If the environment is used for testing and development purposes. For example, a sandbox environment.
- **Admin email**: The administrator email ID used to log in to the Cloud Console. You can also enter a different email ID that needs to be part of the cloud tenancy. For more details, see Managing Users.
- **Admin first name** and **Admin last name**: The first and last names of the Administrator.

The environment details are added to the Oracle Cloud Infrastructure Classic Console under the **Environments** tab (LHS menu). It may take a few hours for the status to change to Active. If there are any issues, you can raise a service ticket with My Oracle Support (MoS).

After the environment is set to **Active**, click the environment name to view the **Environment details**. Click the Service console URL under **Environment Information** to create users and groups.

2.1.2.5 Access Oracle Identity and Access Management

Oracle Cloud Infrastructure Identity and Access Management (IAM) provides identity and access management features such as authentication, single sign-on (SSO), and identity life cycle management for Oracle Cloud as well as Oracle and non-Oracle applications, whether SaaS, cloud-hosted, or on-premises. Employees, business partners, and customers can access applications at any time, from anywhere, and on any device in a secure manner.

IAM integrates with existing identity stores, external identity providers, and applications across cloud and on-premises to facilitate easy access for end users. It provides the security platform for Oracle Cloud, which allows users to securely and easily access, develop, and deploy business applications such as Oracle Human Capital Management (HCM) and Oracle Sales Cloud, and platform services such as Oracle Java Cloud Service, Oracle Business Intelligence (BI) Cloud Service, and others.
Administrators and users can use IAM to help them effectively and securely create, manage, and use a cloud-based identity management environment without worrying about setting up any infrastructure or platform details.

To add users to your Cloud Services, navigate to the **Oracle Identity and Access Management (IAM)** Console.

To access the **IAM** Console:

1. Log in to Cloud.Oracle.com, to view all the details pertaining to your cloud order.

   Access the service link from the console to start using your subscriber cloud service.
2. Enter the **Cloud Account Name** and click **Next** to access the **IAM Console**.
3. Click **Change tenancy** option if you want to use a different tenancy.
4. Ensure that the displayed identity domain matches the expected value.

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> **Note**
>
> Cloud environments are created under the **Default** identity domain. If you need to assign your environment to a different identity domain, raise a Service Request.

5. Log in with your **Username** and **Password**.

As an Administrator, you can create and manage users with different access rights to the Cloud Service.
For example, the IAM Administrator has superuser privileges for an Oracle Identity and Access Management Domain. This administrator can create users, groups, group memberships, and so on.

2.1.2.6 Activate Application User Account

A user provisioned by their administrator can use the specific cloud services they have subscribed to.

When an administrator completes provisioning an application user, the user receives an account activation email from Oracle.

To log in and activate your application user account:

1. Open the email received from Oracle and review the information about your service in the email.
2. Click **Activate Your Account**. You will be prompted to change your password on the initial log in.
3. Enter your new credentials in the **Reset Password** window to activate your account. After the password is successfully reset, a **Congratulations** message is displayed.
4. Access the Application URL shared by the administrator.
5. Enter your credentials to sign in to your account and access the **Welcome Page**.

2.1.3 Managing Application Users

An application user can access the subscribed cloud services, based on the roles and groups assigned to them

An administrator can create application users using IAM. They can also batch import several users using a `.CSV` file.

After users are created, they are synced from IAM to the Cloud Service.

You can map the application users to existing groups based on the roles that they require and their access levels. The access level provided to an application user is based on the following:

- **Groups**: Groups are seeded (available out-of-the-box) by your cloud service. Administrators can also create new groups in IAM. After groups are created, they are synced from IAM to the cloud service. You can map the groups to roles using the subscribed cloud service.
- **Roles**: Roles are seeded by the cloud service. Administrators can also create new roles using the cloud service and assign existing functions to these new roles.
- **Functions**: Functions are seeded by the cloud Service. Administrators cannot create new functions; however, they can use the existing functions.

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2.1.3.1 User Summary- Application Users

View the list of existing application users in the User Summary.

You can view the details of a user and map the user to one or more user groups.

- To view the **User ID** and **Username** of the selected User - Select the **Username** in the **User Summary** page and select **Details**.
- To search for a specific User, type the first few letters of the required **Username** in the **Search** box and click **Search**.
- Using the navigation buttons at the bottom of the summary page, you can browse to the different pages. Also, you can enter the number of entries to be listed on a single page in the **Records** box or use the buttons to increase or decrease the number of entries.
- Enter the page number in the **View Bar Control** and jump to the required page.

2.1.3.2 Creating New Application Users

After you log in to the IAM console, the first task is to create additional user accounts.

You should assign specific user groups to the user accounts that you are creating. There are seeded user groups available with the respective services, users must be mapped to one or more of the user groups, depending on the role that they perform.

For example, you can create a user for each member of your team. Each member can then sign into the account with their credentials. You can also assign each user to specific user groups and apply specific security policies or roles to each group.
You can create the users and map the users to groups for your service. After creating the users, the users will receive a Welcome email. The users must activate their accounts and enter a new password to access the services.

To create users in the IAM Console:

1. In the IAM Console, select **Domains** (Identity domain) to view the list existing domains.
2. Click the required **Domain Name**, to access the **Domain Details** page.
3. In the left pane, click **Users** and select **Create user**, to proceed with the user creation.
4. Enter the following details:
   - **First Name**, **Last Name** and a valid **Username** and the **Email ID**.

   > **Note**
   >
   > – The username should be alphanumeric and cannot exceed 20 characters. You can enter only hyphen (-) and underscore (_) as special characters.
   >
   > – Uncheck the **Use the email address as the username** check box, as you can only set the username as the login ID and currently setting the email address as the login ID is not supported.

5. Select the user groups according to your user-specific groups or access, in the **Groups (Optional)**.

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> **Note**
>
> After a user logs in to a specific cloud service, the user to user-group mapping created in the **IAM Console** will onboard into the master and mapping tables. Later, if you deselect (remove) a user from a group in **Assign User to Groups** after provisioning, ensure that you also unmap the user from the corresponding user-group in the **Admin Console**. This is a mandatory step to complete the unmapping process.

6. After entering the required information, click **Create** to create and add the new user to the User Summary.

You can also batch import several users using a `.CSV` file.

2.1.3.3 Creating a New User Group

Create groups to manage user access to applications and resources.

To create a user group :

1. In the IAM Console, click **Profile** and select **Identity Domain**.
2. In the Identity Domain left pane, click **Groups** and select **Create group**.
3. Enter the **Group Name** and the **Group Description**.
4. Select **User can request access**, to allow users to request access to this group.
5. Check the check box adjacent to each user to add that user to the group.
6. Click **Create** to create the new user group with the selected users.

After creating the user group, you must assign various permissions to the group, using one of the following methods:

- Write at least one policy to give group permission to either the tenancy or a compartment. While writing the policy, specify the group using the unique group name or the group's OCID.
- Assign the group to an application.

2.1.3.4 Assign Groups to Users

Assign a specific group to a user, based on the roles required for the user.

Ensure to create a group, before assigning users to the group.

To map a user to a group using the IAM Console :

1. In the IAM Console, select **Domains** (Identity domain) to view the list existing domains.
2. Click the required **Domain Name**, to access the **Domain Details** page.
3. Click a specific **User name** to view the user details and assign a group to that particular user.
4. In the left pane, click **Groups** to access the list of groups associated with a user.
5. In the **Groups** pane, click **Assign User to Groups** to view the list of available groups.
6. Check the check box adjacent to each group, to assign the user to that group.
7. After selecting all the required Groups, click **Assign user**.

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The user is assigned to the selected groups. You can access the list of groups associated with a user, in the respective **User Details** page.

To dissociate an user from a group, select the group and click **Remove User from the Group**.

2.1.3.5 Bulk Import Application Users

As an administrator, you can batch import user accounts using a `.CSV` file.

> **Note**
>
> Before importing the user accounts, create a `.CSV` file that is properly formatted for the import.

To import user accounts :

1. In the IAM Console left pane, click **Users** and select **More Actions** and select **Import Users**.
2. Click **Browse** to locate and select the `.CSV` file containing the user accounts to import.

   > **Note**
   >
   > Click **Download sample file** in the dialog box to download a sample file and perform the accounts upload.

3. Verify that the path and name of the selected `.CSV` is updated in the **Select a file to import**, and click **Import**.

   > **Note**
   >
   > Oracle IAM cannot import a user account if a mandatory value such as user's first name, last name, or username, is missing. In such cases, Oracle IAM will skip the incomplete account and proceed to the next account in the `.CSV` file.

When Oracle IAM evaluates and imports the user accounts, the imported accounts are updated in the **Jobs**. You can also get information related to the successful/incomplete imports if the import was not completed due to system errors.

For information on how to import and export users, groups, and Oracle application roles into and out of an identity domain, see Transferring Data.

2.1.4 Managing User Groups

User groups are seeded (available out-of-the-box) by the cloud service. Groups are mapped to roles using the cloud service by the same user that was created using IAM.

Administrators can also create new groups in IAM. After groups are created, they are synced from IAM to the cloud service. You can map the groups to roles using the subscribed cloud service.

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2.1.4.1 Map Application with the User Groups

After creating a group, you can map the required applications with the group.

To map the application to a user group, log in to IAM and follow these steps:

1. Go to the Navigation menu in the enter the **Domains** in the Search bar to view the **Domains** list.
2. Select the **Default Domain** and then from the LHS menu, select **Oracle Cloud Services**, to view the list of Cloud Services.
3. Select the Cloud Services you are subscribed to (Syntax: **<Cloud_service_name>xxxx-prd** and **<Cloud_service_name>xxxx-nprd**, where **Description** is mentioned as your registered cloud service).
4. From the LHS menu, select **Users** and click **Assign Users**.
5. Select the user and click **Assign**.

2.1.4.2 Map Users to Groups

Log in to IAM as an administrator, and map users to user groups.

To map a user to a user group:

1. Select the **User Name** in the **Users Summary**.
2. Select **Mapped Groups**.
3. Select the **User Group Name**.

> **Note**
>
> To select a user group, select the check-box corresponding to the user group. To select all user groups displayed on the page, select the check-box marked **Select All**.

4. Click **New Mapping** to map the user to the selected user group.

   Or

   Click **Unmap** to remove the user group-role mapping.

   If you need to authorize an unmap request, refer to Unmap User from Group.

> **Note**
>
> User-group mapping changes from IAM will take some time to sync with your Cloud Service. If these changes are made during the active user session, then it will be reflected on the next login.
> After a user signs into the cloud service, the user to user-group mapping created in the IAM Console will onboard into the master and mapping tables. If you unmap a user from a group in the Admin Console, navigate to the associated console and open **Assign User to Groups**. Deselect the user corresponding to the user group and click **Finish**. This is a mandatory step to complete the unmapping process.
>
> For more information, refer to Unmap User from Group.

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After you click **New Mapping**, the list of user groups you can map the user to appears in the **Available Groups Summary**.

5. Select a **User Group**.

> **Note**
>
> If the logged-in user has both administration and authorization entitlements, an authorization view toggle button is available. Enable this button to complete the authorization.

6. Click **Map**.

> **Note**
>
> If the logged-in user has both administration and authorization entitlements, an authorization view toggle button is available. Enable this button to complete the authorization.

2.1.4.3 Map Roles to User Group

You can map roles to a user group using Admin Console.

To map roles to the user group:

Before mapping the roles to an user group, ensure that the roles are created in the Admin console.

1. From the **Identity Management** tab, Click **Groups** to access the **Groups Management** page.
2. Search for the specific group.
3. Click the **User Group** and click **New Mapping** under the **Mapped Roles** tab.
4. Search for required role names created in **Roles Management** and click **New Mapping** to map each role.
5. Log in as a user with the authorization role and authorize the mapped roles in the **Authorization View**.

A user group is created in the IAM Portal and is mapped to a role created in the Admin Console.

2.1.4.4 Unmap User from Groups

Unmap a user from a specific group to revoke the associated functions.

Log in to IAM as an administrator to authorize and unmap a user from a specific user group.

To authorize the unmapping of a user from a user group:

1. Click **Unmapped Groups**.
2. Click the **User Group Name** to select the User Group.
3. Click **Authorize** or **Reject** to approve or reject an unmapping request.

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2.1.5 User Management

During implementation, you prepare your Oracle Application's Cloud Service for the Service Users. The decisions made during this phase determine how you manage users by default. Most of these decisions can be overridden. However, for efficient User Management, Oracle recommends that you configure your environment to reflect both enterprise policy and support most or all users.

For more information, see the View List of Application Users and User Roles and Privileges.

2.1.5.1 Application Users

During implementation, you can use the Create User task to create Test Service Users. By default, this task creates a minimal person record and a user account. After implementation, you should use the Hire an Employee Task to create Service Users. The Create User Task is not recommended after the implementation is complete.

For more information, see Create Application Users.

2.1.5.2 User Roles and Privileges

Oracle Financial Services Funds Transfer Pricing Cloud Service (FTPCS) Users are assigned roles through which they gain access to functions and data. Users can have any number of roles.

The following table shows User Personas and the tasks they can perform:

Table 2-1 User Roles and Privileges

IAM Administrator	FTPCS Application Administrator	FTPCS Business User
Create Users	Map users to OOB User Groups	Manage FTPCS
Map Users to OOB User Groups	Create User Groups and Roles	Configure
Create User Groups	Map Users to User Groups	
	Map Roles to User Groups	
	Map Functions to Roles	

2.1.5.2.1 Role Based Access Control

Role-based security in Oracle Financial Services Funds Transfer Pricing Cloud Service Controls who can do what and to which data.

The following table provides examples of role-based access.

Table 2-2 Examples of Role Based Access

Role Assigned to a User	Functions which Users with this Role can Perform	Set of Data which Users with the Role can Access when performing the Function
Application Administrators	Perform Application Administrator activities	User Group with Administration Roles across all Service Features

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Table 2-2 (Cont.) Examples of Role Based Access

Role Assigned to a User	Functions which Users with this Role can Perform	Set of Data which Users with the Role can Access when performing the Function
Business Users	Access to the Application to perform tasks	User Group with Business Tasks' Roles across all Service Features

2.1.5.2.2 User Groups and Activities

The following table provides the information on the User Groups and related activities.

Table 2-3 User Groups and Activities

User Groups	UGFTPADMIN READ	UGFTPADMIN WRITE	UGFTPANALYST READ	UGFTPANALYST READ	UGFTPAUDIT READ	UGFTPAUDIT WRITE
Operations And Processes						
Standard Process						
FTP Lookup Table						
Break Identification Process						
Cash Flow Edits Process						
Scheduler						
Dashboard						
Define Batch						
Define Task						
Schedule Batch						
Monitor Batch						
Object Administration						
Export Object						
Import Object						
Import Legacy Object						
Analytics						
Home Page						
SQL Query Browser						
Raw Data Analysis						

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Table 2-3 (Cont.) User Groups and Activities

User Groups	UGFTPADMIN READ	UGFTPADMIN WRITE	UGFTPANALYST READ	UGFTPANALYST READ	UGFTPAUDIT READ	UGFTPAUDIT WRITE
Operational Analysis						
Data Insights						
Processed Data Insights						
Balance Reconciliation						
Reference Data						
Interest Rates						
Rate Lock Option Volatility Curve						
Currency Rates						
Currency						
Dimension Management						
Attribute						
Member						
Hierarchy						
Holiday Calendar						
Maintenance						
Preferences						
Payment Pattern						
Reprice Pattern						
Behavior Pattern						
Propagation Pattern						
Replicating Portfolio						
Filter						
Cash Flow Edits						
Management Ledger Configuration						
Break Identification Configuration						

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Table 2-3 (Cont.) User Groups and Activities

User Groups	UGFTPADMIN READ	UGFTPADMIN WRITE	UGFTPANALYST READ	UGFTPANALYST READ	UGFTPAUDIT READ	UGFTPAUDIT WRITE
Assumption Specification						
Transfer Pricing Rule						
Prepayment						
Prepayment Rules						
Prepayment Models						
Add-On Rate Rule						
Alternate Rate Output Mapping Rule						
Data Management Tool						
Data Model Extension						
Data File Administration						
Data File Specification						
Data File History						
File Upload and Download						
Data Management Interface						
Designer View						
Data View						
Data Quality Framework						
Data Quality Rules						
Data Quality Groups						
Execution Summary						
Data Verification						
Data Housekeeping						

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Table 2-3 (Cont.) User Groups and Activities

User Groups	UGFTPADMIN READ	UGFTPADMIN WRITE	UGFTPANALYST READ	UGFTPANALYST READ	UGFTPAUDIT READ	UGFTPAUDIT WRITE
Rate Card						
Products						
Rate Reports						
Rate Report Template						
Account Audit						
Admin Tools						
Custom PL SQL						
Real Time Transfer Pricing						
Process Tuning Configuration						
Modelling						
Non Maturity						
Non Maturity Products Data Creation Process						
Non Maturity Products Model Analysis						

In addition to this, Custom User Groups can be created and managed as per requirement.

2.1.5.2.3 User Roles and Activities

The following User Roles are seeded in the PBSM Cloud Service to facilitate the activities expected from the users mapped to the seeded User Groups:

- Funds Transfer Pricing Administrator
- Funds Transfer Pricing Application Analyst
- Funds Transfer Pricing Application Auditor
- FTP BI Data Steward
- FTP BI Analyst
- FTP BI Auditor
- FTP BI LOB Head

In addition to this, Custom User Roles can be created and managed as per requirement.

The user roles Funds Transfer Pricing Application Administrator, Funds Transfer Pricing Application Analyst, and Funds Transfer Pricing Application Auditor are required to access the

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main application for view, edit and other purposes, based on the User Persona accessing the same. An Analyst User Persona can view all FTP Screens and Edit-specific Screens. Similarly, an Admin Persona can view and edit all PFT Screens. These different Persona tasks are facilitated by the User Roles. Thus, these three User Roles facilitate the accesses and activities for the corresponding User Groups that are mentioned in the below table.

The User Roles of - FTP BI Data Steward, FTP BI Analyst, FTP BI Auditor and FTP BI LOB Head - are seeded BI Roles to be used for the users to access the Analytics Menu in the FTP Application. These four roles are created to facilitate Analytics access for four different types of User Persona. These roles can be mapped to any User Group to provide the Analytics access to users under the User Group.

2.1.5.2.4 Persona, User Group, Access Type and Role Code Mapping

This table lists the reports that the Data Steward, Application Analyst, and Application Auditor personas can access.

Table 2-4 User Persona and Analytics Menu Access Details

Level 1 Menu	Level 2 Menu
Home Page	
SQL Query Browser	
Raw Data Analysis	• Staging Instrument Data • Staging Instrument Supplementary Data • Staging Ledger Data • Processing Instrument Data • Processing Instrument Supplementary Data • Processing Ledger Data
Operational Analysis	• Dimensions Registry • Currency Rates • Interest Rate Curves • Data Quality Checks • File Uploads • Groups and Roles
Data Insights	• Pre-Process Data Analysis • Cash Flow Edits
Processed Data Insights	
Balance Reconciliation	
Account Audit	

2.1.5.2.5 User Persona and Analytics Menu Access Details

The following table provides the information on the User Persona and access within Analytics menu.

Table 2-5 User Persona and Analytics Menu Access Details

IAM User Group Code	Mapped Role Code	User Access Type	Persona	Analytics Application Role
UGFTPBIADMIN	FTPBIADMIN	R/W	Data Steward	DV Content Author
UGFTPBIANALYST	FTPBIANALYST	R/W	Application Analyst	DV Content Author
UGFTPBIAUDIT	FTPBIAUDIT	R	Application Auditor	DV Consumer

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Table 2-6 Analytics Menu Access Privileges

Level 1 Menu	Level 2 Menu	Level 3 Menu	Level 4 Menu	Persona
Funds Transfer Pricing	Analytics	Home Page		Data Steward, Application Analyst, Application Auditor
		SQL Query Browser		Data Steward, Application Analyst
		Raw Data Analysis		Data Steward, Application Analyst, Application Auditor
		Operational Analysis	Dimensions Registry	Data Steward, Application Analyst, Application Auditor
			Currency Rates	Data Steward, Application Analyst, Application Auditor
			Interest Rate Curves	Data Steward, Application Analyst, Application Auditor
			Data Quality Checks	Data Steward, Application Analyst, Application Auditor
			File Uploads	Data Steward, Application Analyst, Application Auditor
			Groups and Roles	Data Steward, Application Analyst, Application Auditor
		Data Insights	Pre-Process Data Analysis	Data Steward, Application Analyst, Application Auditor
			Cash Flow Edits	Data Steward, Application Analyst, Application Auditor
		Processed Data Insights	Processed Data Insights	Data Steward, Application Analyst, Application Auditor

2.1.5.2.6 User Group and User Role Mapping

The following table lists the seeded mapping of User Groups to the User Roles.

Table 2-7 User Group and User Role Mapping

User Group	Mapped User Role
Funds Transfer Pricing Application Administrator	Funds Transfer Pricing Application Administrator
Funds Transfer Pricing Application Analyst	Funds Transfer Pricing Application Analyst
Funds Transfer Pricing Application Auditor	Funds Transfer Pricing Application Auditor

The BI User Roles of FTP BI Data Steward, FTP BI Analyst, FTP BI Auditor, FTP BI LOB Head are not mapped OOTB to any seeded User Group but can be mapped to any User Group to

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provide the Analytics access to users under than User Group. Customers can custom User Groups and map the seeded or Custom User Roles as it suites the requirement.

2.1.6 Configuring Session Timeout

Session timeout automatically signs you out of a logged in session after a set time period, for various reasons such as inactive session for a specific time frame.

After you complete your tasks, you can sign out of your application. However, sometimes you might get automatically signed out due to session timeouts.

When you sign in using your credentials, you are authenticated to use the application, and a session is established. But, for security purposes, your session is configured to be active for a predefined duration, which is called the session timeout period. Your sessions can expire due to various reasons, such as an inactive session for a specific time period. In such cases, you are automatically signed out of the application. Your timeout periods may vary on certain pages. For example, you may observe a longer timeout period on pages that automatically refresh or user portal/tabs that open in separate windows or tabs.

The various session timeouts and the configuration details are as follows:

Timeout Type	Description	Configurable	Timeout Duration
Session Lifetime Timeout	After authenticating to the application, your current session remains active for a predefined duration, referred to as the session lifetime timeout period. Your session ends after this period, even if you're using the application.	Yes	8 Hours (Default value)
Inactive Session Timeout	After authenticating to the application, if your session is idle or inactive for a specific time, the System automatically terminates the session, and you are signed out of the session.	No	60 Minutes
Browser Inactivity Timeout	After authenticating to the application, if your browser session is idle or inactive for a specific time, the System automatically terminates the session, and you are signed out of the session.	No	60 Minutes

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2.1.6.1 How to configure Session Lifetime Timeout?

You can configure the Session Lifetime Timeout using your Identity Domain Settings in OCI Console.

Ensure that you have the Security Administrator Role mapped to access and modify the settings.

To configure the session timeout:

1. Log in with your **Security Administrator Account**.
2. Navigate to the Domain page. Click **Settings** and select **Session Settings**.
3. Specify the **Session Duration** under **Session Limits**. Enter the required value. By default, this is set to 480 Minutes.

Figure 2-2 Session Settings

2.2 Funds Transfer Pricing Cloud Service

Funds Transfer Pricing Cloud Service (FTPCS) under Profitability and Balance Sheet Management Cloud Service (PBSMCS) provides an account/ledger level Funds Transfer Pricing Engine with 14 industry best practice Transfer Pricing Methods, supporting the entire Balance Sheet. The key outputs include Transfer Rate, multiple Add-On Rates, all-in TP Rate and related funds Charges and Credits. In addition, this Service provides a Break Identification Engine and the ability to calculate Economic Loss/Gain due to breaks.

2.2.1 Key Features

The Key Features in the Funds Transfer Pricing Cloud Service are as follows:

- The Analytics Module comes with a host of analytical capabilities that includes but not limited to Raw Data Analysis, SQL Query Browser, and Processed Data Insights.
  The Analytics Module provides deep Data Insights/Data Trends for the selected time duration and Processing Dimensions, which will enable user to leverage Data Visualization/Business Intelligence capabilities for quicker and precise decision making.
- **Transfer Pricing Standard Process Set up Wizard**
  Standard process UI flow is revamped with an organized Scenario-based calculations selection.

  Even a new user would also be able to set up the whole Flow as per the selected Scenario, as only relevant calculation options are available that too with a guided Wizard Flow.
- **Data Model Extension**

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Pre-defined DB columns with different Data Types are already provided as placeholders. User can activate these and give them any logical name as per their business need. These can be used in various functions as to define Alternate Rate Output Mapping.

Along with placeholder DB Columns, five Management Ledger Tables are also given which can be activated and used to post FTP Rates, Charges/Credits and respective numbers against offset units.

Business Benefit: User does not need to stick to Seeded Column List for various Rate, Charge/Credit calculations but can enhance the list by registering placeholder Columns for any Column Type Balance, Rate, Date, Simple/Key Dimension.

- **Cash Flow Edits**
  CASH FLOW EDITS are used to check if Instrument Data is good to use for Cash Flow generation for Market Value, Economic Value calculations or any of the Cash Flow methods like Average Life, Duration, and so on. Cash Flow Edits checks are organized in various groups and sub-groups and user has the flexibility to add new sub-groups, create new checks under those sub-groups.

  User can only run the data through selected sub-groups of checks rather than running whole set of available checks. It enhances the performance and takes less time to execute.

- **Filter Creation**
  Filter Creation UI flow is made more intuitive and user friendly. Rather than opening multiple pop-ups for Table, Column, Operation, and Range Selection, users can now perform all the operations within a single UI.

  Business Benefit: Single UI Flow, will reduce lot of operational errors and would be much quicker to define.

- **Interest Rate Curves**
  User has the ability to define different IRC formats (Rate Format, Compounding Frequency, Accrual, for different Term Points.

  Additionally, along with defining Term Points in traditional way with Unit and Frequency, user has an option to define Date-Based Term Point, based on respective Bond Maturity from which Rate has been derived.

  Business Benefit: User does not need to stick to single Rate Format but can use different Formats for different Term Points with a restriction of maximum two Rate Formats per Interest Rate Curve.

- **Enhanced User Interface**
  Along with above features, all UIs' are revamped with Redwood theme, which is giving a fresh look to the whole Application. Additionally, from the UI components positioning perspective also, frequently used Buttons and Text Fields are kept at the top of the screen for easy accessibility.

2.2.2 User Groups

The following table provides the information on the User Groups and the related activities:

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Table 2-8 User Groups and Activities

User Groups	Activities
FTP Administartor	CRUD Privileges to the following modules: • Standard Process • Cash Flow Edits Process • Scheduler • BI Home Page • SQl Query Browser • Raw Data Analysis • Data Insights • Processed Data Insights • Interest Rates • Currency • Currency Rate • Dimension Management • Holiday Calendar • Preferences • Behavior Pattern • Propagation Pattern • Replicating Portfolio • Filter • Cash Flow Edits • Management Ledger Configuration • Transfer Pricing Rule • Add-On Rate Rule • Data Model Extension • Data File Administration

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Table 2-8 (Cont.) User Groups and Activities

User Groups	Activities
FTP Application Analyst	CRUD Privileges: • Standard Process • Cash Flow Edits Process • Scheduler • BI Home Page • SQl Query Browser • Raw Data Analysis • Data Insights • Processed Data Insights • Interest Rates • Currency • Currency Rate • Dimension Management • Holiday Calendar • Preferences • Behavior Pattern • Propagation Pattern • Replicating Portfolio • Filter • Cash Flow Edits • Transfer Pricing Rule • Add-On Rate Rule • Data Model Extension • Data File Administration READ Privilege: • Management Ledger Configuration
FTP Application Auditor	• READ privileges for all application-specific modules: • Review/Analyze Results • Review Process Logs • View Reports

In addition to this, custom user groups can be created and managed as per requirement. For more information, see the User Roles and Privileges section.

2.2.3 Guidelines for working with Funds Transfer Pricing

This topic describes an approach to designing and building applications based on your Security Role and the tasks it enables you to perform.

2.2.4 Launching Funds Transfer Pricing

You can launch Funds Transfer Pricing from the Web Browser.

To open Funds Transfer Pricing, perform the steps as follows:

1. In the Web browser, click the link provided by Oracle.
2. Enter your user name and password.

   If requested, select an application.

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The password is case-sensitive.

3. Click Sign In.

   The Funds Transfer Pricing Cloud Service Home Page is displayed.

Figure 2-3 Funds Transfer Pricing Cloud Service Home Page

2.2.4.1 Funds Transfer Pricing Cloud Service Home Page

When you log in, you see the Funds Transfer Pricing home page.

The home page contains these main areas:

Figure 2-4 Menu Items

- Navigator Screen to access the Menu Items.
- to navigate to Admin Console
- US-English Display the Language of the service.
- FTP QAUSER The User Name menu with your user name in the header.
- Click it to view setup information.
- Shows the details of Last Login Date and Time.

For more information about help and learning assistance, see Funds Transfer Pricing Cloude Service documents.

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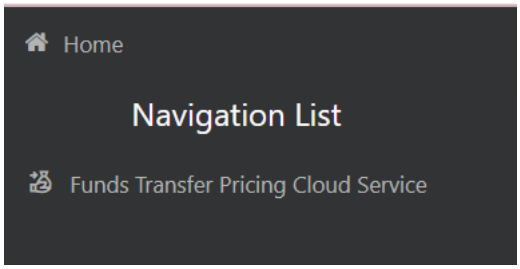
Figure 2-5 Navigator Screen Icon

Click the icon to display the navigator screen. This screen serves as a sitemap of the application features and displays links to all of the pages you can access. Use the navigator screen to navigate among the rules and processes required to define, review, and analyze the application, and to report results.

Figure 2-6 Navigation Path



PBSM Funds Transfer Pricing Cloud Service navigation paths are displayed in the List of Navigation Paths. Access all these pages through the FTP Administrator, FTP Auditor, or FTP Analyst Responsibility.

2.2.4.1.1 Common Icons

Use the icons to view and analyze data and related information for each feature.

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Figure 2-7 Common Icons

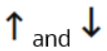
Icon Name	Icon	Uses
Add		Click Add icon to build a new rule.
Refresh		Click to refresh the Summary Page.
Help		Click to view the Help.
Multiple Delete		Select one or more rules in the table and then click the (-) icon at the top right of the Summary Page to delete more than one rule at the same time.
Search		To Search the rule(s).
List View		To view the Rule Summary Page items in List View.
Table View		To view the Rule Summary Page items in Table View.
Ascending and Descending		To sort the rules on Rule Summary Page.
Action		Click to perform view various action options.

Figure 2-8 Common Icons (continued)

Icon Name	Icon	Uses
View/Edit		Click in the Action column and select View/Edit to view or edit the contents of a rule in Read/Write format. Depending on User Privileges, the rule will open in either View or Edit mode.
Copy or Save As		Click in the Action column and select Save As to create a copy of an existing rule.
Delete		Click in the Action column and select Delete to delete an existing rule.
Execute		To execute a process.
Execution Details		To view the execution details of the process.
Add New		Click Add icon to add new items on Rule screen.

2.2.4.1.2 Common Feature Controls

Many feature screens in Cash Flow Engine include the controls discussed in this topic.

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2.2.4.1.2.1 Audit Trail

The Audit Trail container is a standard footer container for every PBSM rule type. It displays Created By, Creation Date, Last Modified By, and Modification Date on the Audit Trail tab.

2.2.4.1.2.2 User Comments

The User Comments tab may be used to add comments to any rule, subject to a maximum of 4000 characters.

2.3 Introduction to Admin Console

Use the Admin Console to perform System Configuration and Identity Management.

Admin Console is the single point of access to manage identity functions and view administrative features such as Metering, Audit Trail Report and other miscellaneous configuration details in the Cloud Service.

2.3.1 Accessing Admin Console

Access Admin Console from the home page of Financial Services Analytical Applications.

To access the Admin Console, ensure that the cloud administrator grants you administrative privileges by mapping your user account to the Identity Administrator and Identity Authorizer user groups. These user groups are seeded in Oracle Identity and Access Managment (IAM).

Before logging into the Admin Console, ensure that:

> **Note**
>
> - If the Cloud Administrator has granted only Identity Management privileges and no other cloud application privilege, you will be automatically redirected to the Admin Console specific to subscribed cloud service, after a successful login.
> - After a user signs in to the Cloud Service, the user to user-group Mapping created in the IAM Console will onboard into the Master and Mapping Tables. If you unmap a user from a group in the Admin Console, go to the IAM Console and open the **Assign User to Groups**. Unselect the user corresponding to the user group and click **Finish**. This step is mandatory to unmap the user.

To access the Admin Console:

1. Enter the application URL in the browser's address bar to access the Oracle Cloud Account Sign In page.
2. Enter the username and password on the Login page to log in to the **Financial Services Analytical Applications**.

   After successfully logging in, you can view the **Financial Services Analytical Applications** homepage and the list of subscribed cloud applications. Click **Navigation** to hide the Applications Navigation List.
3. Click **Admin Console** at the top of the Financial Services Analytical Applications home page.

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In the Admin Console, you can view the **System Configuration** and **Identity Management** tabs. Use these tabs to perform the following tasks:

- **Administrator Tasks**:
  - View the **Metering Report**, **Audit Trial Report**, **Object Storage**, and **Object Authentication (OAUTH)** credential details in the **System Configuration** tab.
  - Perform the Identity and Access Management operations in the **Identity Management** tab.
- **Authorizer Tasks**:
  - Authorize the Identity and Access Management Operations in the **Identity Management** tab.

2.4 System Configuration

Administrators can monitor the usage of service units and user activities through the System Configuration.

With System Configuration, administrators can view the consumption of service units. You can also view the following:

- The Audit Report to see what actions the users have performed in the application and when they have performed them
- The provisioned object storage details and the OAuth authentication details
- The production instance URL and the email ID of the login user

The components are as follows:

- **Metering**: Click **Metering** to view the usage of services using the Metering Report.
- **Audit Trail Report**: Click **Audit Trail Report** to view details such as the user's login and logout information, the action they performed, the status of the actions, and the date and time of each action.
- **Component Details**: Click **Component Details** to view details such as the Object Storage, Pre-Authenticated Request (PAR) URL, and OAuth authentication details.
- **Configurations**: Click **Configurations** to specify the instance name and the user(s) who receive emails related to operations tasks.

2.4.1 Metering

View annual usage of transactions and report types.

Use the **Metering** page to view the annual unit usage of the number of transactions and the number of report types within your cloud service.

The following table shows the methodology employed to measure the usage of each of the products.

Table 2-9 Metering Methodology

Product	Metering Methodology
Transaction Monitoring Cloud Service	Number of transactions per month.
Regulatory Reporting Cloud Service	Number of templates configured of a country or jurisdiction for filing to a regulator.

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Table 2-9 (Cont.) Metering Methodology

Product	Metering Methodology
Know Your Customer (KYC) Cloud Service	Count of Risk Assessments created for both KYC Onboarding and KYC Continuous Monitoring in the production environment. Metering excludes the deployment initiation batch (first time risk assessment of all existing customers for a client).
Customer Screening Cloud Service	Sum of customers screened via batch per day and via real time for a duration of one month.
Transaction Filtering Cloud Service	Sum of transaction messages screened via real time for a duration of one month.
Compliance Agent Cloud Service	Number of experiments run.
Investigation Hub Cloud Service	Pooled Named User (Defined as an individual authorized by you to access the hosted service, regardless of whether the individual is actively accessing the hosted service at any given time during one calendar month).
iHub Real-time Customer Screening	Pooled Named User (Defined as an individual authorized by you to access the hosted service, regardless of whether the individual is actively accessing the hosted service at any given time during one calendar month).
Studio Cloud Service	Number of Transactions
Monitor Cloud Service	Pooled Named User (Defined as an individual authorized by you to access the hosted service, regardless of whether the individual is actively accessing the hosted service at any given time during one calendar month).
Automated Scenario Calibration Cloud Service	Number of transactions per month
AI Assistant Cloud Service (AIACS)	Number of cases having AI generated narrative

2.4.2 Component Details

Use Component Details to view the object storage standard and archive details, and OAUTH authentication details.

Object storage is used for data to which you require fast, immediate, and frequent access. Archive storage is used for data which you do not access regularly but must be retained and preserved for long periods of time.

With every instance of the application provisioned, two buckets are provisioned: a standard storage bucket and an archive storage bucket. The data files that you want to load into the application for processing must be uploaded to the standard storage bucket. The files are automatically moved to the archive storage bucket after a period of 7 days.

To access Component Details:

1. Login to the Admin Console.
2. Go to the **System Configuration** tab and click **Component Details**.

   You can access the following tabs from the Component Details tab:

   - **OCI Console** : Access the **OCI Console URL** from the **OCI Console** tab.

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- **Object Storage Standard** : When you provision an instance of the application, two buckets, a standard storage bucket and an archive storage bucket are automatically provisioned. The objects data that you want to load into the application for processing must be uploaded to the standard storage bucket.
  Access and copy the following details related to the objects which are currently in use and require fast, immediate, and frequent access.
  - **Object Store Bucket Name**: The logical container in which objects are stored
  - **Pre-Authenticated URL (PAR URL)**: Request that enables you to access a bucket without providing any credentials
- **Object Storage Archive** : Archive storage is used for storing objects that are not actively in use but need to be retained and preserved for extended periods. Objects are automatically moved from standard to archive storage after 7 days.
  Access and copy the following details related to the archived objects.
  - **Object Store Bucket Name**: The logical container in which objects are stored
  - **Pre-Authenticated URL (PAR URL)**: Request that enables you to access a bucket without providing any credentials
- **OAUTH Creds** : Use OAUTH credentials (Client ID and Client secret) are used for implementing authentication in cloud services.
  Access and copy the following OAUTH credentials:
  - **OAUTH Client ID**: ID of the OAuth client used for OAuth authentication performed by IAM during any API calls.
  - **OAUTH Client Secret**: Password of the OAuth client secret used for OAuth authentication performed by IAM during any API calls

2.4.3 Audit Trail Report

Use the Audit Trail Report to check user activities, including logins, added actions, their status, and associated machine names.

To generate an Audit Trail Report:

1. Log in to the **Admin Console**.
2. Go to **System Configuration** and click **Audit Trail Report** to access the **Audit Trail Report** page.
3. Enter the following values and click **Search** to generate the **Audit Trail Report** for all users or a specific user, to view a specific audit trail report.

Table 2-10 Audit Trail Report Filters

Field	Description
User Name	Enter or Search for a user name to view the report for the selected user.
Action	Select the Action from the list of actions to generate a report for a specific action.
From Date	Select the start date for the report.
To Date	Select the end date for the report.
Action Detail	Enter the string to search and filter the audit trail report for a specific action.

You can get the following details from an **Audit Trail Report**.

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Table 2-11 Audit Trail Report Details

Field	Description
User Name	The user name selected in the **User Name** filter field.
Action Details	The action selected in the **Action Detail** filter field.
Action Code	The type of action performed by the user.
Status	The status of the action performed. The values are **Successful** or **Failure**.
Action Subtype	The sub type of the action.
Operation Time	The date and time of the action performed.

4. To download the report, click **Download** and select your preferred file format (PDF or Excel). The report will be saved automatically to your system's default download folder.
5. Click **Reset** to clear all values from the filter fields and enter new search criteria.

2.4.4 Configurations

Use the Configurations page to update user preferences, master encryption key, notification preferences, and allowed email domains.

You can set the user preferences such as time zone and locale, master encryption key, notification configuration details, and update allowed email domains using the **Configurations** page.

To update the configuration details from the **System Configuration** tab:

1. Click the **Configurations** tile, to view and edit the user preferences, master encryption key and the notification details.
2. Click the required tab and modify the details.

- Preferences
- Master Encryption Key
- Notification Configuration
- Email Domains

Preferences

Select the following details in the **Preferences** tab and click **Save** to update the details.

- **Time Zone** - The time zone displayed in the application.
- **Locale** - The language to access the application. The default value is **en - US English**.
- **Date Format** - The format in which the date is displayed.

Master Encryption Key

Enter the **Master Encryption key** and click **Save** to update the key value.

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Notification Configuration

Enter the number of days after which the notification will be deleted automatically, and click **Save**.

Email Domains

Enter the allowed email domains, and click **Save**. Separate domains with commas, omitting the '@' symbol. Example: oracle.com, gmail.com.

> **Note**
>
> Only users with the domains specified here will receive email notifications. To allow all domains, leave the field blank.

2.4.5 Reports For Download

The Reports for Download tile in the Admin Console consists of a set of pre-defined and pre-configured reports that are available for download. You can use the functions in the interface such as filter and sort to segregate the data and drill down to the details of the reports. You can then investigate the information, analyze, and export the data in CSV format.

In the Admin Console, you can download reports from Reports for Download in the System Configuration tab.

2.4.5.1 Prerequisites

To use Reports for Download from the Admin Console, your user profile must be mapped to the Data Maintenance Admin group to access the Reports for Download menu.

2.4.5.2 Access Reports for Download

To access the Data View window, click **Reports for Download** in the **System Configuration** tab. The **Data Reporting - Data View Page** is displayed.

2.4.5.3 Data Reporting - Data View

You can view the list of reports available for download, from the Data Entry window. Use one of the following criteria to view various reports.

- To search reports, click the Search field to display the search criteria pop-up. Enter search terms in the Name, Description, or Created By fields, or use a combination of the fields, and click Search.
  The search result displays reports that match the criteria.
- To sort reports, click the Sort By drop-down and select from the options: Name, Description, or Created By.
  The reports are displayed in ascending order for the selected option.
- To view the report creation and modification details, click the More Options (three dots) icon of a report to display the pop-up with the details for the following:
  - **Created By** - Displays the User ID of the user who created the report.
  - **Created Date** - Displays the date and time of the creation of the report.

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- **Last Modified By** - Displays the User ID of the user who last modified the report.
- **Last Modified Date** - Displays the date and time of the last modification of the report.
- **Authorizer** - Displays the User ID of the authorizer who approved the report to be displayed in the window.
- **Authorizer Comments** - Displays the comments entered by the authorizer when approving the report to be displayed in the window.

- To view a report, mouse over the record, and the hidden menu appears. Click View from the menu.
  The details for the selected report are displayed in the Data Entry window.

2.4.5.4 View the Report Details

The Data Entry window is the interface where you can apply filter conditions (optional) on the reports and export the details.

You can apply the filter conditions (optional) to the reports in the Attributes Selection tab, and the results are displayed in the Data Preview tab from where you can export the report in the CSV format.

The procedure to view report details is described as follows:

1. In the **Data View** window, click **Attributes Selection**.
   The Attributes Selection tab displays the details for the database table name in View Name and the table columns in Attribute Name. Expand View Name to display the columns in Attribute Name.
2. Click **Apply**.
   The Data Preview tab displays the report details. The number of records displayed in the Data Preview tab is pre-configured in the system. However, you can export the details in the CSV format by clicking Download CSV.

2.4.5.5 Apply a Custom Filter to the Data View

In addition to the reports that you can view, you can also use the filter provided in the Data View window to custom filter the data in the reports for analysis purposes.

To apply a custom filter to the data view, follow these steps:

1. Click **Launch Filter** Condition to display the Filter Condition window.
2. Select **AND** or **OR** from the drop-down.
3. Select the required report column from **Select a Column**.
4. Select the required condition from **Select a Condition**.
5. Click **+ Condition** to add more conditions and click **+ Group** to add more groups.

   Repeat the selection procedure to add details. To remove a condition or group, click Remove.
6. Click **Apply** in the **Filter Condition** window to save the custom filter condition.
7. Click **Apply** in the **Attributes Selection** tab.

   The Data Preview tab displays the results of the Attributes filtered in the Attributes Selection tab. The number of records displayed in the preview is pre-configured in the system. However, you can export the details in the CSV format by clicking Download CSV.

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2.5 Identity Management

Using Identity Management, administrators can manage fine-grained and coarse-grained entitlements. Coarse-grained entitlements consist of fewer functions than fine-grained entitlements. Authorizers can authorize the entitlement mappings.

The various **components** of Identity Management are:

- **Users**: A user is a person who has access to **Admin Console** and can perform specific actions based on the user group or groups they are mapped to. Before you can map a user to a user group, your Administrator must have created and authorized the user. After the user is authorized, they are added in the Users Summary. Click **Users** to access the **Users Summary** page.
- **Groups**: Groups are a set of users who can perform specific activities. For example, the administrator role performs administrative activities. Any user who belongs to a specific user group can access the roles mapped to that user group.
  To add a user group, click **Add** in the **Groups** tile. Click **Groups** to view the list of user groups in Groups Summary.
- **Roles**: Roles are a set of functions grouped together and having specific privileges. Any user who belongs to a specific role can access functions mapped to that role. Click **Add** to add a role or click **Roles** to view the list of roles in **Roles Summary**.
  To add a user role, click **Add** in the **Roles** tile. Click **Roles** to view the list of user groups in Roles Summary.
- **Folders**: Folders are used to control access rights on defined list of objects. They are mapped to a specific Information Domain. Click **Folders** to view the list of folders and edit the access rights in Folders Summary.
- **Functions**: Functions enable users to perform a specific activity. Any user who belongs to a specific function can access the folders mapped to the function. Click **Functions** to view the list of functions in Functions Summary.

> **Note**
>
> Only those user groups and roles which are authorized are displayed in the **Groups Summary** page and **Roles Summary** page, respectively.

Use the following guidelines to manage user creation and group mappings between IDCS/OCI and the Admin Console.

- Create users only in IDCS/OCI.
- You can map users to groups in IDCS/OCI, in the Admin Console, or in both. The system automatically syncs user-to-group mappings from IDCS/OCI to the Admin Console, but not the other way around.
- To unmap a user from a group, manually remove the mapping in both IDCS/OCI and the Admin Console.

2.5.1 Users Summary Page

The Users Summary page shows the list of available users. You can view the details of a user and map the user to one or more user groups.

To access the Users Summary page:

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1. Click **Identity Management** tab in the **Admin Console** page.
2. Click the **Users** tile to access the **Users Summary** page.
3. Select a specific user name in the **Users Summary** page and then click **Details** to view the associated **User ID** and **User Name**.
4. Select a user name and click **Mapped Groups** to view the list of groups that are mapped to the particular user.

   To map/unmap a user group, refer to Mapped and Unmapped Groups.

   To search for a specific user, type the first few letters of the user name that you want to search in the Search box and click **Search**. The results will show users matching your input.

   At the bottom of the page, adjust the number of entries displayed per page using the up and down arrows in the Records box. To navigate between pages in the View bar, use these buttons:

   - **First page** to go to the first page.
   - **Previous page** to go back.
   - **Next page** to move to the next page.
   - **Last page** to go to the last page.

   You can directly navigate to a specific page by entering its number in the View bar and pressing **Enter**.

2.5.1.1 User Details

In the User Details, you'll find the User ID and User Name of the selected user from the User Summary page.

- Click a specific user listed in the **User Summary** page and then click **Details** to view the **User ID** and the **User Name** of that user.

2.5.1.2 Mapped/Unmapped Groups

As an Administrator, you can map/unmap a user to/from a user group from the **Users Summary** page.

To map/unmap a user to a user group:

1. Select the user name in the **Users Summary** page.
2. Select **Mapped Groups** to access the list of groups mapped to the selected user.
3. To map a user group:
   a. Click **New Mapping**.

      The list of user groups you can map the user to appears in the **Available Groups** page.

   b. Click **Map**.

      A confirmation message is displayed after successful mapping. The mapping will be completed after authorization.
4. To unmap a user group:
   a. Select the check box corresponding to a user group or click **Select All** to choose all available user groups.

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b. Click **Unmap**.

A confirmation message will be displayed after successful unmapping. The unmapping will be completed after authorization.

5. After mapping/unmapping a user group, ensure to authorize it accordingly. To authorize a mapping/unmapping:
   a. In **Mapped Groups**, select the user-user group mapping or unmapping that requires authorization.
   b. Click **Authorize/Reject** to approve or cancel the mapping/unmapping request.
6. Click on **New Mapping** and then switch to **Authorization View** to retrieve the pending authorization.

> **Note**
>
> Any other user from the requestor is required to authorize any new mapping requests.

2.5.1.3 Available Groups

Click New Mapping to view the list of user groups you can map to the user.

To select a user group, select the check box corresponding to the user group. To select all user groups, click **Select All**.

2.5.2 Groups Summary Page

The Groups Summary page shows the list of available groups. You can view the details of a group and map the group to one or more user roles.

To access the Groups Summary page:

1. Click the **Identity Management** tab in the **Admin Console** page.
2. Click the **Groups** tile, to access the **Groups Summary** page.
3. Select a specific group name in the **Groups Summary** page and then click **Details** to view the associated **Group ID**, **Group Name** and Group Description.
4. Select a group name and click **Mapped Roles** to view the list of roles that are mapped to the particular group.

   To map/unmap roles, refer to mapped/unmapped roles.

   To search for a specific user group, type the first few letters of the user group name that you want to search in the Search box and click **Search**. The results will show users matching your input.

   At the bottom of the page, adjust the number of entries displayed per page using the up and down arrows in the Records box. Use the navigation buttons, to go to the first page, last page, previous page and next page. You can also directly navigate to a specific page by entering its number in the View bar and pressing **Enter**

2.5.2.1 Group Details

In the Group Details, you'll find the Group ID, Group Name, and Group Description of the selected user group.

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- Click a specific group name listed in the **Group Summary** page and then click **Details** to view the **Group ID**, **Group Name**, and **Group Description** of that user group.

2.5.2.2 Mapped/Unmapped Roles

As an Administrator, you can map/unmap a role to/from a user group from the **Groups Summary** page.

To map/unmap roles to user groups:

1. Select the user group in the **Groups Summary** page.
2. Select **Mapped Roles** to access the list of roles mapped to the user group.
3. To map roles to user groups:
   a. Click **New Mapping**.

      The list of user roles you can map the group to is displayed in the **Available Roles** page.

   b. Select the check box corresponding to a user role or click **Select All** to select all the available user roles.

   c. Click **Map**.

      A confirmation message is displayed after successful mapping. The mapping will be completed after authorization.
4. To unmap roles from user groups:
   a. Select the check box corresponding to a user role or click **Select All** to select all the available user roles.

   b. Click **Unmap**.

      A confirmation message is displayed after successful unmapping. The unmapping will be completed after authorization.
5. After mapping/unmapping a role, ensure to authorize it accordingly. To authorize a mapping/unmapping:
   a. In **Mapped Roles**, select the role-user group mapping or unmapping that requires approval.

   b. Click **Authorize/Reject** to approve or cancel the mapping/unmapping request.

2.5.2.3 Available Roles

Click New Mapping to view the list of roles you can map to the user group.

To select a role, select the check box corresponding to the role. To select all roles, select the check box marked **Select All**.

2.5.2.4 Create custom groups

You can create custom groups to cater to specific tasks within the application.

While seeded groups support a broader range of application and scenarios, custom groups enable the precise grouping of users for targeted and specialized application usage.

Example: You can create a user group which assigns the role of uploading files. This way you have a dedicated user or a standalone user that is not accessing the application but is just ingesting data.

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You can create new groups using the following:

1. PBSM Admin Console
2. IDCS

   When you create new groups in PBSM Admin Console, you can have them sync with IDCS automatically or create groups separately in PBSM Admin Console and IDCS. To automatically sync with IDCS, select the **Enable Group Sync** option on the **Configurations** page of PBSM Admin Console.

   After creating the group, assign the required permissions to it and add the roles. For information, see Creating a New User Group.

2.5.3 Roles Summary Page

The Roles Summary page shows the list of available user roles. You can view the details of a role and map the role to one or more user functions.

To access the **Roles Summary** page:

1. Click the **Identity Management** tab in the **Admin Console** page.
2. Click the **Roles** tile, to view the **Roles Summary** page.
3. Select a specific role name in the **Roles Summary** page and then click **Details** to view the associated **Role Code**, **Role Name**, and Role Details.
4. Select a role name and click **Mapped Functions** to view the list of functions that are mapped to the particular role.

   You can also unmap a role from a specific function. To map/unmap functions, refer to mapped/unmapped functions.

   To search for a specific role, type the first few letters of the role name that you want to search in the Search box and click **Search**.

   At the bottom of the page, adjust the number of entries displayed per page using the up and down arrows in the Records box. To navigate between pages in the View bar, use these buttons:

   - **First page** to go to the first page.
   - **Previous page** to go back.
   - **Next page** to move to the next page.
   - **Last page** to go to the last page.

   You can directly navigate to a specific page by entering its number in the View bar and pressing **Enter**.

2.5.3.1 Roles Details

Access Roles Details, to view the Role Code, Role Name, and Role Description of the selected role.

- Click a specific role listed in the **Roles Summary** page and then click **Details** to view the **Role Code**, **Role Name**, and **Role Description** of that role.

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2.5.3.2 Mapped/Unmapped Functions

As an Administrator, you can map/unmap a role to/from a function user group from the **Roles Summary** page.

To map/unmap roles to functions:

1. Select the role name in the **Roles Summary** page.
2. Select **Mapped Functions** to access the list of functions mapped to the specific role.
3. To map roles to functions:
   a. Click **New Mapping**.

      The list of user functions you can map the role to appears in the **Available Functions** page.

   b. Select the check box corresponding to a function or click **Select All** to select all the available functions.

   c. Click **Map**.

      A confirmation message is displayed after successful mapping. The mapping will be completed after authorization.
4. To unmap roles from functions
   a. Select the check box corresponding to a function or click **Select All** to select all the available functions.

   b. Click **Unmap**.

      A confirmation message is displayed after successful unmapping. The unmapping will be completed after authorization.
5. After mapping/unmapping a function, ensure to authorize it accordingly. To authorize a mapping/unmapping:
   a. In **Mapped Functions**, select the role-function mapping or unmapping that requires approval.

   b. Click **Authorize/Reject** to approve or cancel the mapping/unmapping request.

2.5.3.3 Available Functions

Click New Mapping to view the list of functions that you can map to a role.

To select a function, select the check box corresponding to the function. To select all functions, click **Select All**.

2.5.4 Functions Summary Page

The **Functions Summary** page shows the list of available functions. You can view the function details.

To access the **Functions Summary** page:

1. Click the **Identity Management** tab in the **Admin Console** page.
2. Click the **Functions** tile to access the **Functions Summary** page.
3. Select a specific function name in the **Functions Summary** page and then click **Details** to view the associated **Function ID**, **Function Name**, and **Function Description**.

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To search for a specific function, type the first few letters of the function name that you want to search in the search box and click **Search**.

At the bottom of the page, adjust the number of entries displayed per page using the up and down arrows in the Records box. Use the navigation buttons, to go to the first page, last page, previous page and next page. You can also directly navigate to a specific page by entering its number in the View bar and pressing **Enter**.

2.5.4.1 Function Details

Using the Function Details options, you can view the Function ID, Function Name, and Function Description from the Functions Summary page.

- Click a specific function listed in the **Functions Summary** page and then click **Details** to view the **Function ID**, **Function Name**, and the **Function Description** of that function.

2.5.5 Folders Summary Page

Create multiple folders, store objects and assign access rights based on the security level of the user.

The **Folders Summary** page shows the list of available groups. You can view the details of a group and map the group to one or more user roles.

To access the **Folders Summary** page:

1. Click **Identity Management** tab in the **Admin Console** page.
2. Click the **Folders** tile to access the **Folders Summary** page.

   The **Folders Summary** page is displayed.

   Select a specific folder name in the **Folders Summary** page and then click **Details** to view the associated **Folder ID**, **Folder Name** and **Folder Type**. For more information refer to Folder Details

   To search for a specific folder, type the first few letters of the folder name that you want to search in the search box and click **Search**.

   At the bottom of the page, adjust the number of entries displayed per page using the up and down arrows in the Records box. Use the navigation buttons, to go to the first page, last page, previous page and next page. You can also directly navigate to a specific page by entering its number in the View bar and pressing **Enter**.

2.5.5.1 Folder Details

In the Folder Details, you'll find the Folder ID, Folder Name, and Folder Type of the selected folder from the Folders Summary page.

- Click a specific folder name listed in the **Folders Summary** page and then click **Details** to view the **Folder ID**, **Folder Name**, and **Folder Type** of that user.

2.5.5.2 Editing Folder Details

You can edit the Folder Type from the folder details page.

1. Click **Edit** on the **Folder Details** page.
2. Set the Folder Type to one of the following options:

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- **Public** - These folders are accessible to all users.
- **Private** - These folders can be viewed only by the users associated with that folder.
- **Shared** - These folders can be accessed by users mapped to specific user groups. These user groups are mapped to specific roles that are associated with the folder.

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3
Data Administration

This chapter introduces the Data Model Extension, Data File Specification, File Upload and Download, Data Maintenance Interface, and Data Quality Framework topics.

Data Administration Topics:

- Data Model Extension: The PBSM Cloud Service provides OOTB placeholder Columns and Tables that can be configured to use as custom Columns, Custom Dimensions, and Custom Management Ledger Tables as suitable to the business requirements. However, these Columns and Table are placeholder items and must be registered before use. The Data Model Extension module enables you to register these Columns and Tables.
- Data File Administration: This topic covers the Data File Specification, Data File History, and File Upload and Download functionalities.
- Data Maintenance Interface: Data Maintenance Interface (DMI) helps to design a Data Form in a user-specified format. Further, it allows to perform maintenance activities using the Designed Form.
- Data Quality Framework: Data Quality Framework consists of a scalable rule-based engine which uses a single-pass integration process to standardize, match, and duplicate information across global data.
- Data Verification: Data Verification UI allows you to carry out small edits on the imported data. You can also add few entries manually using this UI.
- Data Housekeeping: The Data Housekeeping UI helps you to delete data, drop partitions and truncate sub-partitions, and archive the data from selected tables.
- Balance Reconciliation: Balance Reconciliation module helps you to Reconcile the selected processing/instrument/account balances against the Management Ledger. If any differences are found, you will have the flexibility to choose significant differences and create plug entries for those in the Ledger_Instruments table.
- Redaction Framework: Oracle Data Redaction provides selective, on-the-fly redaction of sensitive data in database query results prior to display by applications.
- Configure Cash Flow Edits Rule: The Cash Flow Edits Configuration Window allows you to configure a new Cash Flow Edits Rule.
- Cash Flow Edits ProcessThe Cash Flow Edits Process allows you to verify the accuracy and check the completeness of your Instrument Table Data.

3.1 Data Model Extension

Customization of Physical Data Model is restricted in the Cloud Service. However, there may be a need to extend the Data Model to meet multiple business requirements. For this purpose, the Cloud Service provides OOTB placeholder Columns and Tables that can be configured to use as custom Columns, Custom Dimensions, and Custom Management Ledger Tables as suitable to the business requirements.

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> **Note**
>
> The Management Ledger tables are applicable only to Profitability and Balance Sheet Management Cloud Services.

These placeholder Columns and Tables must be registered before use. The Data Model Extension Module allows you to do the following types of registrations:

- Dimensions Registration
- Columns Registration
- Management Ledger Registration
- Pending Registration

After registration, you can start loading the data in the selected placeholder Columns and Tables and use them to define the Rules and Assumptions for further processing and reporting.

Appropriate user roles must be created and maintained for the users to perform the registration and registration approval processes.

To register the placeholder Columns and Tables, from the LHS Menu, select **Data Management Tools**, and then select **Data Model Extension** to display the DataModel Extension summary screen.

The Data Model Extension summary screen displays the following tiles:

- Dimensions
- Columns
- Management Ledger
- Pending Registration

Using this UI, you do the registration of Dimensions, Columns, and Management Ledger Tables. After the registration is done, the detail will be sent to the Supervisor or Approver User who either approves or rejects the registration.

> **Note**
>
> Configuration of custom columns, dimension and tables must be same across all your environments. For example: If ‘Key Placeholder Dimension 01’ is registered as ‘Custom Dimension One’ in development environment then it must be same in all other environments to avoid logical mismatches. Hence, it is recommended to always use Object Migration for Data Model Extensions to keep environments synchronized.

3.1.1 Registering Dimensions

Through the Dimension Registration UI, you register two types of Dimensions; Simple Dimensions and Key Processing Dimensions that are explained in the following topics.

Dimensions are the Placeholder Columns and Tables. The column names appear in the Instrument Tables as Physical Column Names. The Data Model Extension UI allows you to define the Logical Layer with details Name, Description, and the purpose of the column. After these columns are defined, they appear in the drop-down lists in the application screens as

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UDPs (User Defined Properties) that you can use. This process of defining the Dimensions is called Registering.

3.1.1.1 Register a Simple Dimension

Simple Dimensions are list of values that support neither attributes nor hierarchies.

Simple Dimensions are list of values that support neither attributes nor hierarchies. Their three key uses are:

- Reserved for use within the Analytical Application Engines
- Stratifying your data for process or report filtering purposes
- Serving as list of values when used as attributes

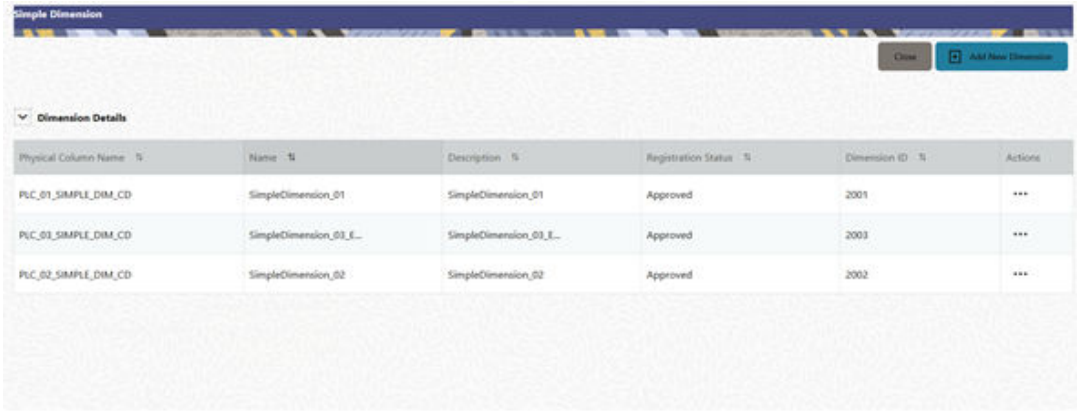
The Cloud Service Data Model comes with a set of placeholder Simple Dimensions for configuration and use. The member details of simple dimensions are stored in two tables:

- A code table (For example, FSI_SIMPLE_DIM_01_CD)
- A Multi-Language Support table (for example, FSI_SIMPLE_DIM_01_MLS)

To register a Simple Dimension:

1. Navigate to the summary screen, and click the **Simple Dimensions** tile to display the **Simple Dimension** summary screen.

Figure 3-1 Simple Dimension summary screen



The Simple Dimension summary screen displays the summary of existing Simple Dimensions with the Physical Column Names, Name, Description, Registration Status, Dimension ID details, and Actions icon.

2. Click **Add New Dimension** to collapse the Dimension Details summary and to display the dimension details.

   When you click **Add New Dimension**, the UI displays **Save** and **Submit for Approval** buttons.

3. Enter the following details:
   - **Name** (mandatory): Specify the required logical name of the dimension.
   - **Description** (mandatory): Specify the required description of the dimension.

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- **Comment**: Specify the required maker/checker comment. Note that special characters *, newline, and double quotes are not allowed.
  The **Details** section displays the Physical Column and Data Type information that the dimension uses for user reference. As and when a registration takes place successfully and the physical column is utilized, the next registration process proceeds to take the next-in-numerical-order physical column available for registration.

4. Click **Save**. The details are saved as a Draft and displayed on the summary screen. You can change the Name, Description, and Comments later by double clicking the details.
5. Click **Submit for Approval** to send the Dimension Details for approval. Or select a Name from the list and click the Actions icon to View, View, Edit, Submit for Approval or Delete the simple dimension.

   Or

   Select a Name from the list and click the Actions icon to View, View, Edit, Submit for Approval or Delete the simple dimension.

> **Note**
>
> - You can delete a registration when it is in Draft state.
> - If the selected Dimension is in Approved state, then the Actions menu displays only View, Edit, and Submit for Approval actions.

3.1.1.1.1 View a Simple Dimension

To view a Simple Dimension, perform the following steps.

To view a Simple Dimension, perform the following steps:

1. Click the **Actions** Icon against the selected Simple Dimension to expand the Actions Menu.
2. Click **View** to see the details of the selected Simple Dimension.

3.1.1.1.2 Edit a Simple Dimension

To edit a Simple Dimension, perform the following steps:

1. Click the **Actions** Icon against the selected Simple Dimension to expand the Actions Menu.
2. Click **Edit** to display the selected Dimension details in edit mode.
3. Edit the following details:
   a. **Name**: This is mandatory.
   b. **Description**: This is mandatory.
   c. **Comment**: Specify the required maker/checker comment. Note that special characters *, newline, and double quotes are not allowed.
4. Click **Save** to save the details as a draft.
5. Click **Submit for Approval** to send the Dimension Details for approval.

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> **Note**
>
> - When you edit an already approved Dimension, the Dimension must be submitted for approval again. You cannot delete or edit the Dimension again.
> - Additionally, if you edit an approved Dimension, then the Actions Icon displays only the View option for the Dimension.

3.1.1.1.3 Delete a Simple Dimension

To delete a Simple Dimension, perform the following steps:

1. Click the **Actions** Icon against the selected Simple Dimension to expand the Actions Menu.
2. Click **Delete** to delete the Dimension.

> **Note**
>
> You can only delete a Dimension that is in Draft stage. The Actions Menu does not display the Delete action for an approved dimension.

3.1.1.2 Register a Key Processing Dimension

Key Processing Dimensions have the following features:

- Accessible as modeling dimensions for all of the Cloud Service Analytical Engines.
- Expressed as columns in nearly all of your Business Fact Tables.
- Support both attributes and hierarchies.

Metadata for Key Processing Dimensions is stored in four tables:

- A base table (For example, **DIM_<Dimension Name>_B**)
- A translation table (For example, **DIM_<Dimension Name>_TL**)
- An attribute table (For example, **DIM_<Dimension Name>_ATTR**)
- A hierarchy table (For example, **DIM_<Dimension Name>_HIER**)

Base tables store basic information about each Dimension Member and Translation Tables store names and descriptions for each Dimension Member in multiple languages.

Attribute Tables store one or many attribute values for each Dimension Member. Hierarchy Tables store one or more hierarchies for each dimension (you may define as many hierarchies as you wish for any dimension that supports hierarchies).

The DM Extension Module enables you to create Custom Dimensions as required by the business. To register a Key Processing Dimension:

1. Navigate to the summary screen, and click the **Key Processing Dimension** tile to display the Key Processing Dimension summary screen.

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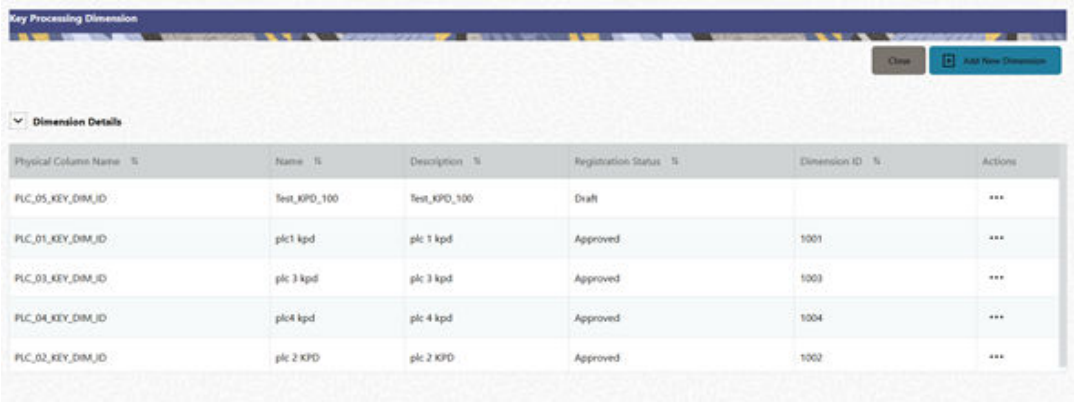
Figure 3-2 Key Processing Dimensions summary screen



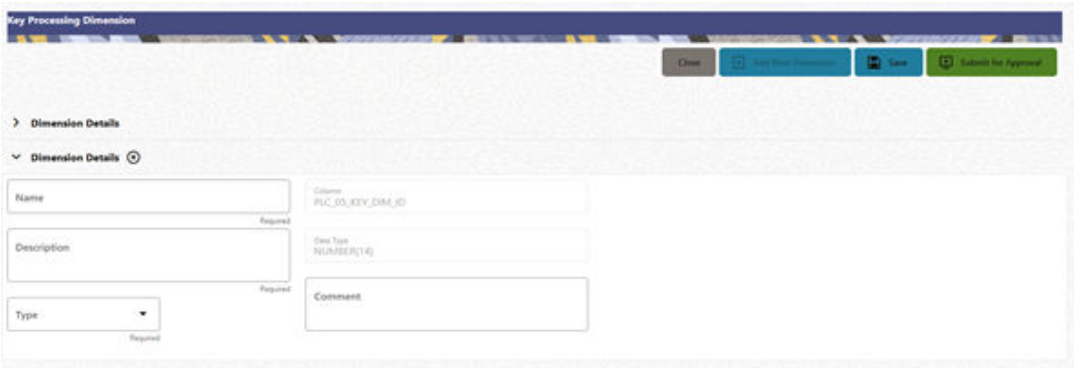
The summary screen displays the summary of existing Key Processing Dimensions with the details Physical Column Names, Name, Description, Registration Status, Dimension ID, and Actions icon.

The Actions icon displays the **View** button. You can click the **View** button and see the Dimension Details in View Only mode.

The registration of a dimension happens after the dimension is approved. The Dimension ID is displayed only for the approved dimensions.

2. Click **Add New Dimension** to collapse the Dimension Details summary and to display the dimension details.
When you click **Add New Dimension**, the UI displays the **Save** and **Submit for Approval** buttons.

Figure 3-3 Key Processing Dimension screen



3. Enter the following details:
   - **Name**: This is a mandatory field. Specify the required logical name of the dimension.
   - **Description**: This is a mandatory field. Specify the required description of the dimension.
   - **Type**: This is a mandatory field. Select a relevant Dimension Type.
     - **Product** (Prod): Select this option if you want to use the placeholder Dimension to define Business Rules and Assumptions.
     - **Organization** (Org): Select this option if you want to use the Placeholder Dimension to define a new Organization structure.

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  - **Other**: Select this option if you want to use the placeholder Dimension for any other purpose.

- **Comment** Specify the required maker/checker comment. Note that special characters *, newline, and double quotes are not allowed.

The **Details** section displays the Physical Column and Data Type information that the dimension uses for user reference. As and when a registration is successful and the physical column is utilized, the next registration process proceeds to take the next-in-numerical-order physical column available for registration.

4. Click **Save** to save the details. The details are saved as a Draft and displayed on the summary screen. You can change the Name, Description, and Comments later by double clicking the details.
5. Click **Submit for Approval** to send the Dimension Details for approval.
   Or

   Select a **Name** from the list and click the **Actions** Icon to View, Edit, Submit for Approval or Delete the key processing dimension.

> **Note**
>
> - You can delete a registration when it is in Draft state.
> - If the selected Dimension is in Approved state, then the Actions Menu displays only View, Edit, and Submit for Approval actions.

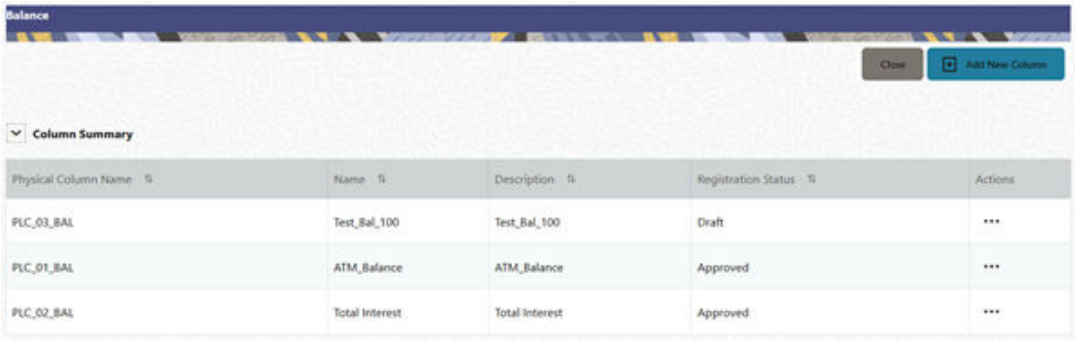
3.1.2 Registering Columns

The Placeholder Columns are categorized under the different domains to be used for different purposes.

The procedures to register the listed Columns are similar. To register a column:

1. Navigate to the Summary screen, and click a **Column** tile to display the Column Summary screen.

Figure 3-4 Column Summary screen



The summary screen displays the summary of existing Columns with the details Physical Column Names, Name, Description, Registration Status, and Actions icon.

The registration of a Column happens after the Column is approved.

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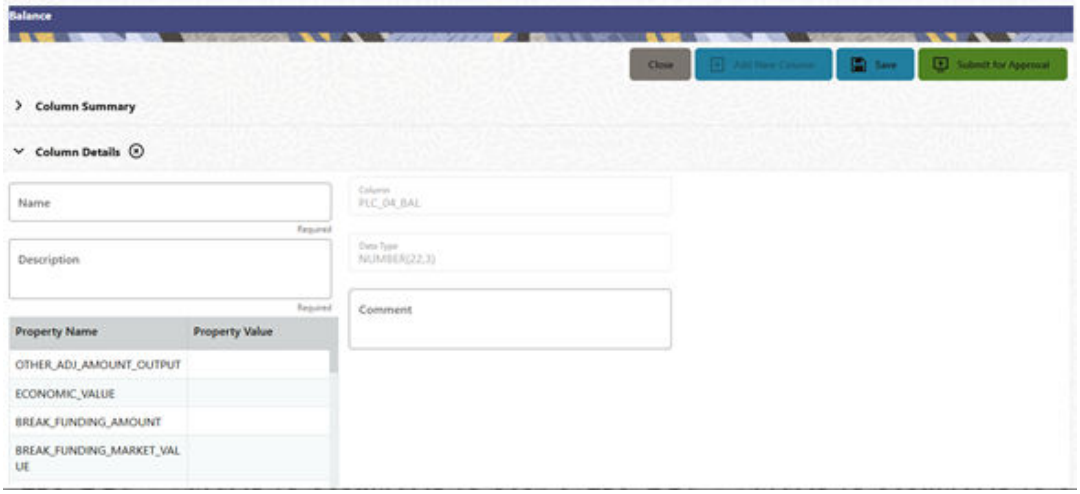
2. Click **Add New Column** to collapse the Column Summary and to display the Column Details.
When you click **Add New Column**, the UI displays the **Save** and **Submit for Approval** buttons.

Figure 3-5 Column Screen



3. Enter the following details:
   - **Name**: This is mandatory. Specify the required logical name of the column.
   - **Description**: This is a mandatory field. Specify the required description of the column.
   - **Property Name**: This is an optional field used to select a relevant Property from the drop-down list, as applicable to the Column.
   - **Property Value**: Double click to display a drop-down where you can select Yes if it is applicable to the Column.
   - **Comment**:Specify any maker/approver comment. Note that special characters *, newline, and double quotes are not allowed.
     The **Details** section displays the Physical Column and Data Type Information that the column uses for user reference. As and when a registration takes place successfully and the Physical Column is utilized, the next registration process proceeds to take the next-in-numerical-order physical column available for registration.
4. Click **Save**. The details are saved as a Draft and are displayed on the Summary screen. You can change the Name, Description, and Comments later by double clicking the details.
5. Click **Submit for Approval** to send the column details for approval.
OR

   Select a **Name** from the list and click the **Actions** icon to View, Edit, Submit for Approval, or Delete the Column. Editing, Submitting for Approval, or Deleting procedures are similar to Dimension Edit, Submit for Approval, or Delete procedures.

> **Note**
>
> - You can delete a registration when it is in Draft state.
> - If the selected Column is in *Approved* state, then the Actions menu displays only View, Edit, and Submit for Approval actions.

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Domain Types

The below domain types are available for each of the Cloud Service:

Table 3-1 Domain Types

Profitability and Balance Sheet Management Cloud Service Domain Types	Accounting Standards Cloud Service Domain Types	Climate Change Analytics Cloud Service Domain Types
• DATE • RATE • VOLUME • CHAR • LONG_DESCRIPTION • FLAG • BALANCE	• DATE • RATE • VOLUME • CHAR • LONG_DESCRIPTION • FLAG • BALANCE • SHORT_NAME • SHORT_NUMBER • SHORT_DESCRIPTION • CODE_CURRENCY • PERCENT • LOCALE_CD • TIMESTAMP • NAME • LEAF • OBJECT_ID • SYSTEM_IDENTIFIER	• BALANCE • CHAR • CODE • DATE • FLAG • LEAF • NUMBER • RATE • PERCENT • LONG_DESCRIPTION • SHORT_DESCRIPTION • COUNTERPARTY_BALANCE • COUNTERPARTY_RATE • COUNTERPARTY_PERCENT • COUNTERPARTY_CHAR

3.1.3 Registering a Management Ledger

This is applicable only to Profitability and Balance Sheet Management Cloud Services.

PBSM Cloud Service is contains the default Management Ledger (FSI_D_MANAGEMENT_LEDGER). However, you can add up to five other Management Ledgers to the Service.

To view and edit the Management Ledger:

1. Navigate to the Summary screen, and click the **Management Ledger** tile to display the **Edit Management Ledger** screen.

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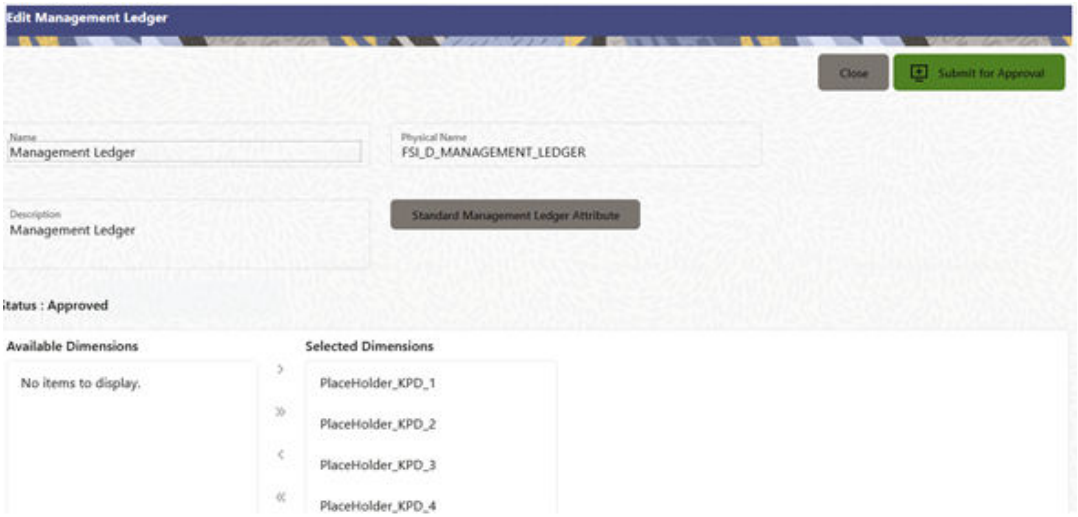
Figure 3-6 Edit Management Ledger Screen



This screen displays the following details of the Management Ledger as follows:

- **Name** (non-editable)
- **Physical Name** (non-editable)
- **Description** (non-editable)

> **Note**
>
> When you create the custom Key Processing Dimensions, these dimensions are available for mapping to Management Ledger table and available in the **Available Dimensions** box. You must select them and move to **Selected Dimension** box, then send for approval. After approval, you can see the custom Key Processing Dimensions in the Data File Specification UI while loading the data.

2. Click **Standard Management Ledger Attribute** to collapse and see the available Standard Dimensions, Standard Columns, and Approved Dimensions.

   The Standard Dimensions section shows the Key Processing Dimensions that are available OOTB for the Management Ledger. In addition to this, the screen enables the selection of custom Key Processing Dimensions for the Management Ledger through a shuttle box component that displays the registered custom dimensions in the Available Dimensions and the Selected Dimensions boxes. You can select from the **Available Dimensions** box and move them to the **Selected Dimension** box using the **Move** button. Additionally, you can remove the Selected Dimensions by clicking the **Move Back** button.

   The Standard Columns comprises of the OOTB Ledger-level Simple Dimensions and Admin Columns. The Approved Dimensions shows the list of Custom Dimensions approved for the Management Ledger.

3.1.3.1 Adding a Management Ledger

To add a new Management Ledger, perform the following steps:

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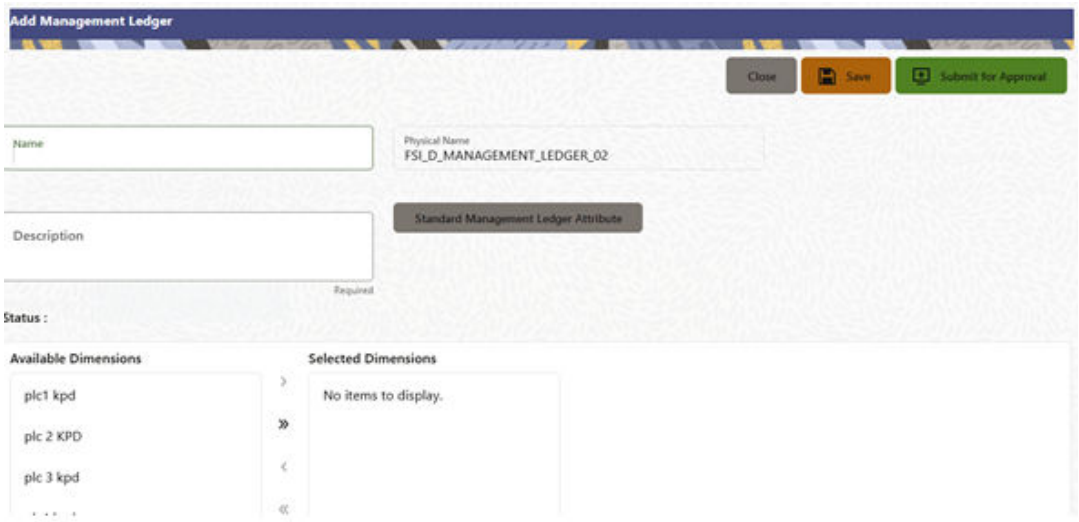
1. Navigate to the Summary screen, and click the **Add Management Ledger** tile to display the Add Management Ledger screen.

Figure 3-7 Add Management Ledger Screen



2. Enter the following details:
   - **Name**: This is a mandatory field. Specify the logical name of the Management Ledger.
   - **Description**: This is a mandatory field. Specify the description of the Management Ledger.
3. Select the applicable Dimensions from the **Available Dimensions** box and click the **Move** button to move them to Selected Dimensions box. The selected Dimensions are included as the additional activated Key Processing Dimensions for the Management Ledger.
4. Click **Submit for Approval** to send the column details for approval.

   The details are sent to the Supervisor or Approver for approval. The newly added Management Ledger is displayed on the summary screen in a new tile.

> **Note**
>
> - You can delete a registration when it is in Draft state.
> - If the selected Management Ledger table is in *Approved* state, then the Actions Menu displays only View, Edit, and Submit for Approval actions.

3.1.4 Approving or Rejecting the Registrations

The Supervisor or Approver can see the Dimensions or Columns or Management Ledgers that are ready for approval on the Data Model Extension summary screen.

To approve the Dimensions, Columns, and Management Ledgers, perform the following steps:

1. Navigate to the **Data Model Extension** summary screen.

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Figure 3-8 Data Model Extension Summary Screen

The Dimensions and Columns that are ready for approval are displayed in one tile and the Management Ledgers that are ready for approval are displayed in another tile against the **Pending Approval** Table.

2. Click on any Tile to open to the **Pending Dimension** and **Column Registration** screen or **Approve Management Ledger Registration** screen.
3. Enter a comment and click the **Approve** or **Reject** buttons.
4. Select **OK**.
   a. The approved Dimension or Column or Management Ledger is displayed in the summary screen with *Approved* status.
   b. Select **Cancel** to keep the Dimension or Column or Management Ledger in a Pending for Approval Status.
5. Click **Reject** to reject the registration. Complete the approval process. The Registration will be marked with status Rejected in the summary screen.
6. After it is approved or rejected, the registration is available for further modification by the Maker and can be submitted again.

   A registration cannot be deleted after it has passed the Draft State and is currently in Pending, *Approved* or *Rejected* state.

> **Note**
>
> After approval, you can use them in the Data File Specifications and start loading the data in the selected placeholder Columns and Tables. The physical columns and tables pre-exist in the Data Model and mapped in loaders, registration just enables them for your use. Hence, apart from registering and approving them no other change is expected to be be performed.

3.2 Data File Administration

This topic covers the following sub-topics:

- Data File Specification: The Data File Specification module helps you to load the data from your systems to the PBSM Cloud Services.

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- Data File History: The Data File History UI allows you to see the data files that are uploaded to the staging tables and their status.
- File Upload and Download Utility: The File Upload and Download Utility enables you to upload or download files to the Object Store.

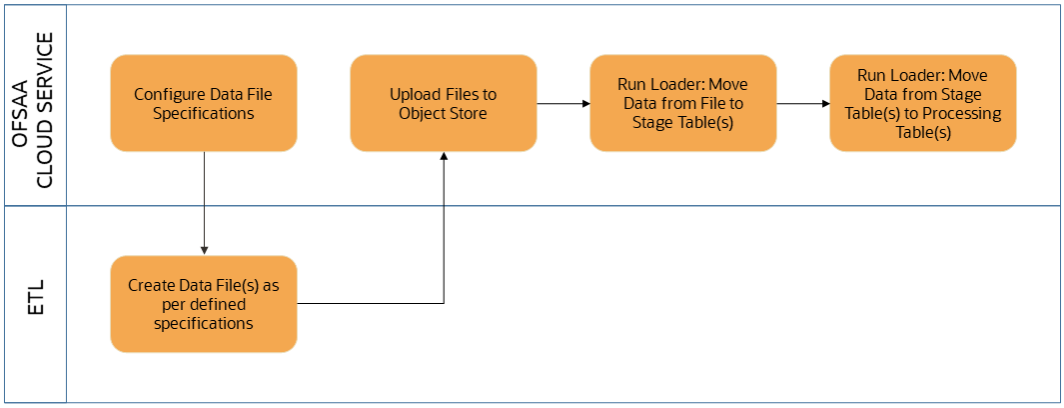
3.2.1 Data File Specification

The (OFSAA or Oracle) Cloud Services use following categories of data:

- Account or Instrument
- Management Ledger
- Transaction Summary
- Dimensions and Hierarchies
- Market data like Interest Rate, Currency Exchange Rate

The following illustration depicts the process of loading data from your systems into the Cloud Services:

Figure 3-9 Loading External Data



Oracle Cloud Services uses Oracle's Object Store service to transfer data between your machine/laptop and its databases. Object Storage service allows storing the files as objects in a highly secure, scalable, and durable way. Files can be uploaded through a web console; however, it is possible to do so only with files up to 1 GB.

Uploaded data files are temporarily stored in the Object Storage for data loaders to read and move them to the corresponding database tables for further use by the individual services.

Before the files can be created and uploaded, format, column order and other properties must be defined using data file Specifications user interface. This chapter discusses the supported formats and contents of the data file that is being imported into the Object Storage.

For information on uploading files, see the File Upload and Download section. For information on running the Data Loaders, see the Data Loaders section.

The three supported formats for the data files are TXT, DAT, and CSV. These files contain the name of the table for which the specifications are being created.

Ensure that there are no duplicate records in a single data file. If there are duplicate records, then the data file upload results in a failure.

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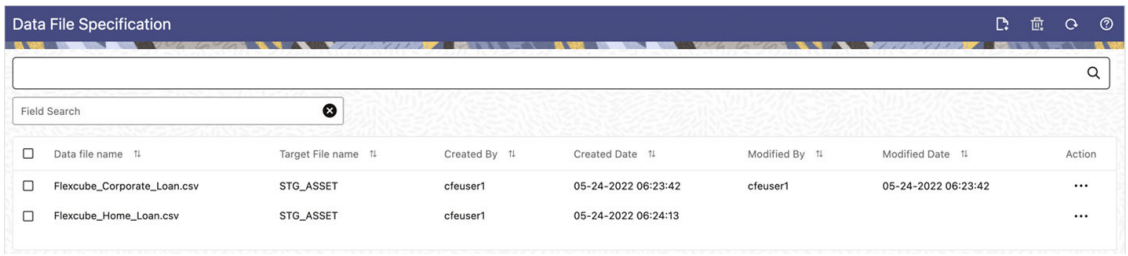
To open the Data File Specification window, navigate to the **Data Management Tools**, select **Data File Administration**, and then select **Data File Specification** to display the Data File Specification summary page.

Figure 3-10 Data File Specification summary screen



The summary page of Data File Specification displays the Search Criteria pane, Specific Search pane, and the already created data files and their details.

3.2.1.1 Searching for a Data File Specification

There are two Search Panes provided to search the data files on the summary Page.

To search the data file:

1. Click the **Search** icon to collapse (display) the Criteria window.
2. Data File Name and/or Target File Name and click **Search** to display the data file names that match the criteria.
3. Click **Cancel/Reset** to remove the filter criteria on the Search window and refresh the window.
4. Click **Search** after entering the search criteria.
   The search results are displayed in a table containing all the data files that meet the search criteria with the following details:
   - **Data File Name**: The name of the data file.
   - **Target File Name**: The target file name.
   - **Created By**: Displays the name of the user who created the data file.
   - **Created Date**: Displays the date and time at which the data file was created.
   - **Modified By**: Displays the name of the user who last modified the data file.
   - **Modified Date**: Displays the date and time at which a data file was last modified.
5. Click on the **Action** icon against the Data File Name to do further actions as follows:
   - **View**: Click View to view the contents of a data file in read-only format.
   - **Edit**: Click the Edit icon to modify a previously saved data file. Note that you cannot change the file name.
   - **Save As**: Click Save As to create a copy of the selected data file.
   - **Delete**: Click Delete to delete the selected data file.
6. Click on the **Action** icon against the Data File to do further actions **View**, **Edit**, **Save As**, and **Delete** on the selected data file.

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The other method to search a data file is using the **Field Search** pane. You can enter any one of the details of a data file and press the **Enter** key to display the details of the data file.

3.2.1.2 Creating a Data File Specification

The Data File usually contains the Name of the Physical Table on which the specifications are being created and the columns included in the file.

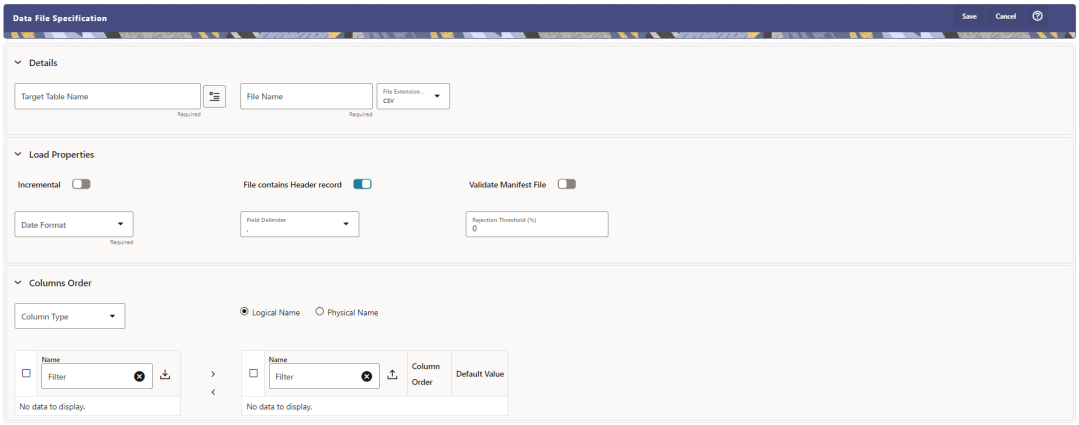
For the complete list of available columns, see the Data Requirements as follows:

- Profitability and Balance Sheet Management Cloud Service: Doc ID: 28694909.1
- IFRS 9 Cloud Service: Doc ID: 2959143.1

To create a new Data File Specification:

1. Navigate to the Data File Specification summary page and click the **Add** icon to open the Data File Specification window.

Figure 3-11 Data File Specification



2. Under the Details section of the screen, enter the following details:
   a. Click on **Target Table Name** to open a list **Category – Table Names**. The tables are categorized into different groups and are as follows:
      - Transaction Summary
      - Ledger
      - Others
      - Schedule o Instruments

      Each of the above **Categories** lists the **Tables** available for data loading. The list of categories is dependent on the Metadata from the Seeded Tables that come with the various Cloud Services and may differ from that shown above based on the services you have subscribed.
   b. Select a **Table** from the list for which you want to create the Data File Specification.
   c. Enter a unique **Name** for Data File Specification with an extension of the file format. The formats supported are TXT, CSV, and DAT types.
3. Under the **Load Properties** Section of the screen, enter the following details:
   a. Select the **Incremental** toggle switch if the data in the file is incremental. If the data is a complete load, then do not select this switch.

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This flag identifies if the Data File is incremental or fresh accounts. In the case of incremental accounts, if account 1 is loaded as part of the Data File 1 and needs a correction. In that case, the account is corrected and will be uploaded as part of Data File 2. In this case, Data File 2 is the incremental file.

b. Select **File contains Header record** toggle switch if the file contains a Header Record.

c. Select **Validate Manifest File** toggle switch if you want to validate the data in the Data File. This validation checks the Checksum of the file, the number of records that are being loaded from the file and other additional details such as Date Format and so on. To use this toggle switch, a prerequisite is to generate a manifest file for the Data File that is being created and it must be uploaded using the File Upload process. For more details, see the File Upload and Download section.
This validation checks the Checksum of the file using **MD5Sum** algorithm, the number of records that are being loaded from the file and other additional details such as Date Format and so on.

This is an optional step. However, if you want to generate a manifest file in JSON format, then enter the following details and save it as a .manifest file. A sample JSON file format is as follows:

```
{"file_name":"test.dat","as_of_date":"2022-03-24","checksum":"2587cdb6a2b8
7835c6adfce627671486","record_count":"10","rejection_threshold":"0"}
```

> **Note**
>
> Ensure that the name of the manifest file is same as the Data File with .manifest extension. For example, if the Data File Name is input_20241210_asset.csv, then the manifest file must be named input_20241210_asset.csv.manifest.

Table 3-2 MANIFEST File Details

Property Name	Notes
file_name	Full name of the file, without the leading path. Not validated; Only for information purposes.
as_of_date	Date for which file contains the data; Not validated; Only for information purposes.
checksum	Mandatory. The checksum of the file will be validated before loading commences.
record_count	Mandatory. The number of records in the file (ignoring header-record); will be validated after SQL*Loader completes.
rejection_threshold	Limit for % of records rejected, for calling the loading as “failed”. This can also be set from the UI.

d. Select the **Date Format** from the drop-down list to indicate the Date Format used in the Data File.

e. Select the **Delimiter** used in the Data File.

f. Select the **Rejection Threshold**. You should enter a number that is greater than or equal to zero.
The Rejection Threshold is used to check the allowed percentage of rows that can be rejected in a Data File. As an example, if you define a 10% Rejection Threshold for a

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Data File that has 1000 rows, then the Data File Upload fails if more than 100 rows are rejected. If the number of rows rejected is less than 100, then Data File Upload succeeds.

4. Under the **Columns Order** section of the screen, enter the following details. If you enter zero, then none of the records from the Data File should fail.

   a. Select the relevant option for Column Type from the following options:

      - **Key Columns**: The Key Columns are the primary keys of the record. A table displays the Key Columns available for the selected Target Table Name. By default, the primary keys will be selected.
      - **Other Columns**: If you select the Other Columns, all remaining columns (key dimensions, simple dimensions, dates, measures, and so on) for the selected Target Table are displayed. Select the applicable columns from the list and click the Move button to display them in the table on the right-hand side.

   b. There are two option to add other columns to the definition as follows:

      i. Within the selected Column Type, Column Names can be re-ordered by dragging and dropping. The columns are always ordered by their type, that is, Key Columns will appear before the Dimension Columns and Dimension Columns will always appear before the Other Columns.

      ii. You can download the template available in the left pane, arrange the columns as required in the downloaded file and upload to the right pane.

   After saving a definition, if you add a new Dimension Column then it will appear in the order before the remaining Other Columns.

   For example, assume that the initial definition is saved with the below columns:

Figure 3-12 Column Preview

After this, if a new Dimension Column (say Product Id) is selected, it will push the Other Columns down in order.

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Figure 3-13 Columns Preview

The same order must be followed while preparing the Data File.

The default value for each Column can also be given in the table except for Date Columns. If the Column Value is null in the Data File, then the default value is used.

c. Select Logical Name or Physical Name to display the logical or physical names for the columns in the table.

5. Click **Save**. The newly created file will be listed on the Data File Specification summary screen.
6. On the summary screen, click on the **Action** icon against the File Name to perform further actions **View**, **Edit**, **Save as**, and **Delete**.

After you create the Data File, you must upload the file into the Object Store using the File Upload and Download option. If you have created a MANIFEST file for the Data File, you must upload the MANIFEST file too. For more information and procedure to upload or download the file, see the File Upload and Download section.

3.2.1.3 Creating the Data File

After the Data File Specification is defined, follow the below mentioned guidelines to prepare the Data Files:

- Columns to be included in the Data File must be as per the Data File Specification.
- Name of the Data File can be user defined. The following example gives an idea of what the Data File Name can be:
  - Data File Specification Name is “Asset.dat”
  - The As of Date is 06-July-2022
  - Name of file uploaded to object store can be like “input_20220706_loanasset.dat” or “input_20220706_asset.dat”

  The prefix (input_yyyymmdd) is mandatory in actual file name when uploaded to Object Store but is not required while you enter the name in the Task Parameters UI against the Data File Name.
- Unique Data Validations:
  - Instrument Data Files: Account Numbers must be unique across the data files for a single As of Date.
  - Management Ledger Data Files: The combination of KPDs and Simple Dimensions must be unique across the data files for a single As of Date.

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  - Transaction Summary Data Files: The combination of Account Numbers and KPDs must be unique across the data files for a single As of Date.
- Permitted Delimiters are comma (,) and pipeline (|).
- Data Validations:
  - Number fields: only numbers and dot (.) are allowed.
  - Description fields: comma (,) pipeline (|), single quotes (‘’), and double quotes (“ “) are not supported.
  - Any nullable fields which are mapped in the Data File Specification definitions should not skipped in the Data File.
  - The column order in the Data File should be in sync with the order defined in the Data File Specification definition.
  - Field Enclosures: Only double quotes (“”) are considered as Field Enclosures.

See the following sample files for your reference:

- input_20151009_asset.dat
- input_20150330_ASSETTXN.dat
- input_20220110_STGML.dat

For more information about the data required by the Profitability and Balance Sheet Management Cloud Services, see the Data Requirements available at the Doc ID: 2869409.1.

3.2.1.4 Data Loaders

Oracle Financial Services Cloud Service’s Data Loaders are used to move the data from one stage to another stage and in turn update the underlying Database Tables.

Oracle Financial Services Cloud Services support the following types of Data Loaders:

- **Dimension Data Loaders**: The Dimension Data Loaders are used to populate the Dimension Members, Attributes, and Hierarchies from the Staging Dimension Tables to the Dimension Tables registered with the Cloud Services.
- **Instrument Data Loaders**: The Instrument Data Loaders are used to move the data from the files to the staging instrument tables.
- **Management Ledger Data Loaders**: The Management Ledger Data Loaders are used to move the data from the files to the staging Ledger tables and then to the processing Ledger tables.
- **Transaction Summary Data Loaders**: The Transaction Summary Data Loaders are used to move the data from the files to the staging Ledger tables and then to the processing Transaction Summary tables.

> **Note**
>
> Ensure that the instrument and ledger data adhere to the following precision guidelines:All Balance columns – NUMBER(22,3), Rate – NUMBER(15,9), Frequency – NUMBER(5), Volume – NUMBER(30), Number – NUMBER(30), and Percent – NUMBER(10,6).

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3.2.1.4.1 Dimension Data Loader

The Dimension Loader procedure populates Dimension Members, Attributes, and Hierarchies from Staging Dimension Tables into the Dimension Tables registered with the Cloud Services. You can view the Members and Hierarchies loaded by the Dimension Loader though the Cloud Service screens.

The Data File Specification is not applicable to Dimension Data Loaders. The file format and the file names are static in nature.

The following illustration depicts the process of Dimension Loading.

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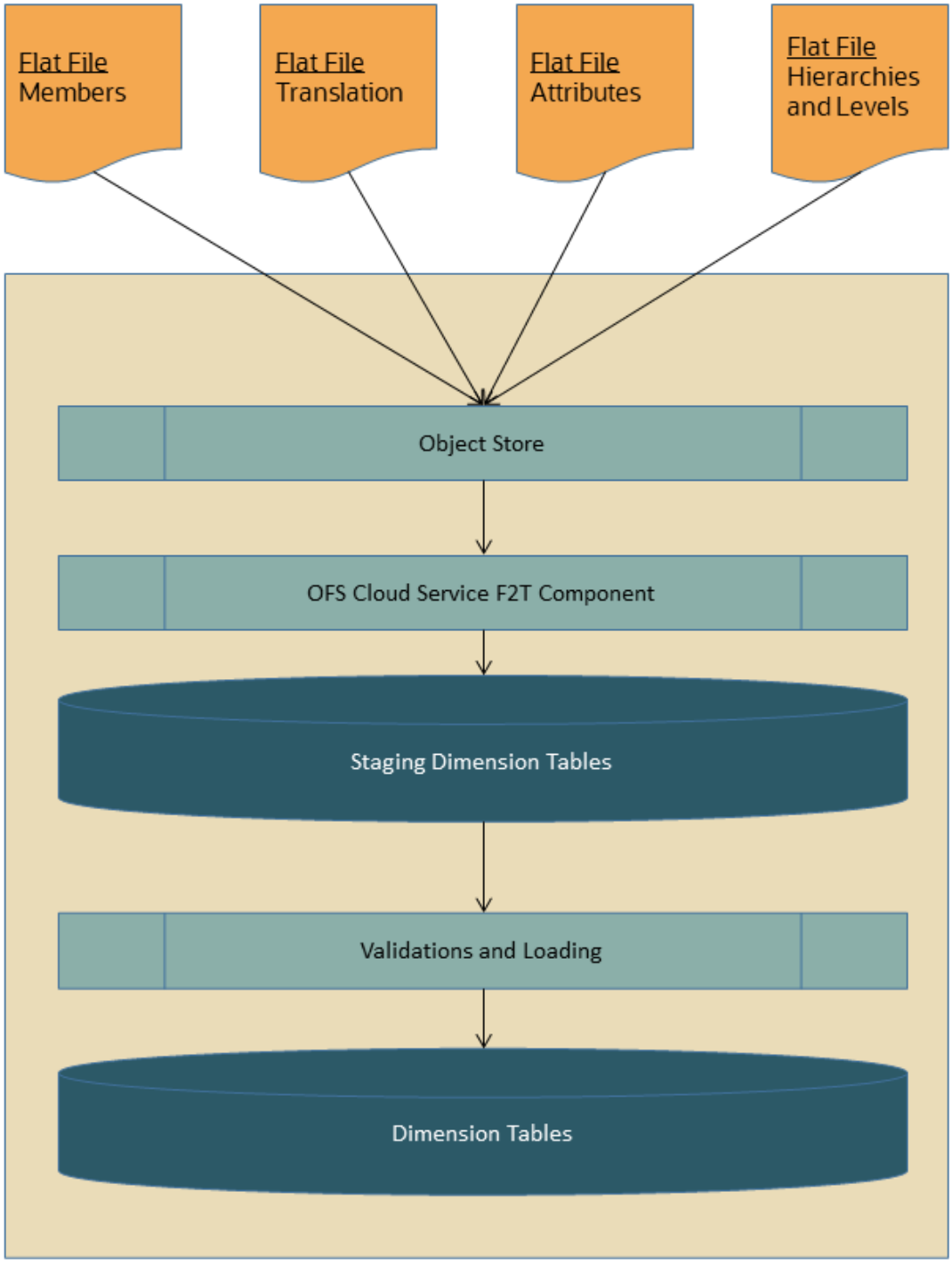
Figure 3-14 Dimension Loading Process



The Dimension Loader is used to:

- Load the Dimension Members and their Attributes from the Staging area into the Dimension Tables that are registered with OFS Cloud Service framework.
- Create Hierarchies for Key Dimensions in the Cloud Service.

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- Load Hierarchical relationships between Key Dimension Members within the Hierarchies from the Staging area into the Cloud Service.

The following are the features of Dimension Loader:

- Loading Simple Dimensions from Staging Tables.
- Multiple Hierarchies can be loaded from Staging Tables.
- Validations of Members and Hierarchies are similar to that of being performed within the Cloud Service Screens.

Before you start the Dimension Loader, you must upload the Data Files that have the Dimension details.

As part of the File Definition, it is required Dimension Identifier for both Key and Simple Dimensions.

To get the correct DIMENSION ID to be used for the data file definition, you should use the SQL Query Browser and following query under OFSAAMETA schema the REV_DIMENSIONS_B table:

```
SELECT
dimension_id,
member_b_table_name,
member_tl_table_name,
dimension_active_flag,
simple_dimension_flag,
user_defined_flag,
write_flag,
dimension_editable_flag,
key_dimension_flag
FROM
ofsaameta.rev_dimensions_b
WHERE
dimension_active_flag = 'Y';
```

Then for the dimension table desired, available in REV_DIMENSIONS_B.MEMBER_B_TABLE_NAME or REV_DIMENSIONS_B.MEMBER_TL_TABLE_NAME table columns, the End User should pick up the correct value displayed in REV_DIMENSIONS_B.DIMENSION_ID to be used for correct input file definition.

The following sections list the sample files that you can use to build the Dimension Data. The name of the Data Files must be same as mentioned below and the File Extension must be .DAT. Click on each Data File Name to open a Sample Data File.

3.2.1.4.1.1 For Key Dimensions

The following is a list of sample files that you can use to build the Dimension Data.

The name of the Data Files must be same as mentioned below and the file extension must be .DAT. The value of column HIERARCHY_CODE must not contain space in files STG_DIMENSIONS_HIER_INTF, STG_HIERARCHIES_INTF and STG_HIERARCHY_LEVELS_INTF. HIERARHY_CODE must be in capital letters. Click on each Data File Name to open a Sample Data File.

Stage Dimension Loaders (Task 1):

- input_stg_dimensions_attr_intf.dat

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- input_stg_dimensions_b_intf.dat
- input_stg_dimensions_tl_intf.dat
- input_stg_dimensions_hier_intf.dat

Stage Hierarchy Loaders (Task 2):

- input_stg_hierarchies_intf.dat
- input_stg_hierarchy_levels_intf.dat

> **Note**
>
> Any column description that contains a ",", then it should be enclosed within "" (double quotes). For example, Account, Type should be "Account, Type".

To load the Dimensions:

1. Define a new Batch and save it.
2. Add the following Tasks to the above Batch:

Table 3-3 Dimension Loading Process Tasks

Task Code	Task Name	Component	Parameters	Parent Task
1	Stage Dimension Loader	Stage Dimension Loader	All parameters are automatically generated.	
2	Stage Hierarchy Loader	Stage Hierarchy Loader	All parameters are automatically generated.	1

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Table 3-3 (Cont.) Dimension Loading Process Tasks

Task Code	Task Name	Component	Parameters	Parent Task
3	Stage DRM Loader	Stage DRM Loader	• **Dimension Name**: Select the relevant one or more dimensions. • **Sync Stage and Dimension**: – **Yes**: The record(s) that is/are already present will be overwritten by the incoming dimension loader. – **No**: The new records will be merged to the existing records. • **Force Member Delete**: This is used only when the above flag is Yes. – **Yes**: This allows you to delete a members even if is referred in hierarchies. – **No**: No records will be deleted.	2

Note

The above Tasks must be executed in the same order.
The **File to Stage** task must precede the **Stage to Processing** task in a batch.

The Stage DRM Loader allows you to select a Dimension.

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3. Execute the Batch.

> **Note**
>
> This method of loading dimensions will be deprecated in future releases. Recommended approach is in the following section.

Dimension Loader with ZIP File Support

To to upload the Dimension data using a zip file:

1. Create a Folder.
2. Follow the naming convention for the DAT files as follows and save them:
   - DIMENSIONS_ATTRIBUTES
   - DIMENSIONS_BASE
   - DIMENSIONS_HIERARCHIES
   - DIMENSIONS_TRANSLATION
   - HIERARCHIES
   - HIERARCHY_LEVELS
3. Place all the DAT files inside the folder.
4. Zip the folder.
5. Create a Batch.
6. Create a Task with the Component name as **Dimension and Hierarchy Loader**.
7. Enter the Zipped Folder Name along with the extension. For example, DIMENSIONS.ZIP.
8. Execute the Batch.

For detailed instructions on Creating a Batch, Defining a Task, Execute the Task, and Schedule a Batch, see Scheduler Services.

3.2.1.4.1.2 For Simple Dimensions

The following is a list of sample files that you can use to build the Dimension Data.

The name of the Data Files must be same as mentioned below and the File Extension must be .DAT. Click on each Data File Name to open a Sample Data File.

Stage Dimension Loaders (Task 1):

- input_stg_dimensions_b_intf.dat
- input_stg_dimensions_tl_intf.dat

> **Note**
>
> Any column description that contains a ",", then it should be enclosed within "" (double quotes). For example, Account, Type should be "Account, Type".

To load the Dimensions, perform the following steps:

1. Define a new Batch and save it.

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2. Add the following Tasks to the above Batch:

Table 3-4 Dimension Loading Process Tasks

Task Code	Task Name	Component	Parameters	Parent Task
1	Stage Dimension Loader	Stage Dimension Loader	All parameters are automatically generated.	
2	Stage DRM Loader	Stage DRM Loader	• **Dimension Name**: Select the relevant one or more dimensions. • **Sync Stage and Dimension**: – **Yes**: The record(s) that is/are already present will be overwritten by the incoming dimension loader. – **No**: The new records will be merged to the existing records. • **Force Member Delete**: This is used only when the above flag is Yes. – **Yes**: This allows you to delete a members even if is referred in hierarchies. – **No**: No records will be deleted.	1

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> **Note**
>
> The above Tasks must be executed in the same order.
> The **File to Stage** task must precede the **Stage to Processing** task in a batch.
>
> The Stage DRM Loader allows you to select a Dimension.

3. Execute the Batch.

> **Note**
>
> This method of loading dimensions will be deprecated in future releases. Recommended approach is in the following section.

Dimension Loader with ZIP File Support

To to upload the Dimension data using a zip file:

1. Create a Folder.
2. Follow the naming convention for the DAT files as follows and save them:
   - DIMENSIONS_BASE
   - DIMENSIONS_TRANSLATION
3. Place all the DAT files inside the folder.
4. Zip the folder.
5. Create a Batch.
6. Create a Task with the Component name as **Dimension and Hierarchy Loader**.
7. Enter the Zipped Folder Name along with the extension. For example, DIMENSIONS.ZIP.
8. Execute the Batch.

For detailed instructions on Creating a Batch, Defining a Task, Execute the Task, and Schedule a Batch, see Scheduler Services.

3.2.1.4.1.3 Clear and Back up Dimension Data

This process helps you to clear or delete the existing Dimension Data from the relevant Dimension tables using the Scheduler Services.

Before clearing the data from the Dimension tables, the service creates a back up of the table.

To clear the Dimension Data:

1. Navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**.
2. Create the Batch and save it.
3. Navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Task**.
4. Select the created Batch and create a Task with **Clear Dimension Members** as Component.
5. Select the Dimension Name that you want to delete. You can select one or more Dimension Names.

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6. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**.
   The service first creates a backup of the existing Dimension table and then deletes the Dimension Member entries for the selected Dimensions.

While deleting the data from the tables, there are no validations. The back up files are suffixed with As Of Date and Current Time Stamp.

The following table gives the sample actual and backed up table names:

Table 3-5 Sample Table Names

Dimension Type	Actual Table Name	Backup Table Name
Simple Dimension	FSI_ACCRUAL_BASIS_CD	FSI_ACCRUAL_BASIS_CD_<AS_OF_DATE>_<CURRENTTIMESTAMP>
	FSI_ACCRUAL_BASIS_MLS	FSI_ACCRUAL_BASIS_MLS_<AS_OF_DATE>_<CURRENTTIMESTAMP>
Key Dimension	DIM_COMMON_COA_ATTR	DIM_COMMON_COA_ATTR_<AS_OF_DATE>_<CURRENTTIMESTAMP>
	DIM_COMMON_COA_B	DIM_COMMON_COA_B_<AS_OF_DATE>_<CURRENTTIMESTAMP>
	DIM_COMMON_COA_HIER	DIM_COMMON_COA_HIER_<AS_OF_DATE>_<CURRENTTIMESTAMP>
	DIM_COMMON_COA_TL	DIM_COMMON_COA_TL_<AS_OF_DATE>_<CURRENTTIMESTAMP>

3.2.1.4.1.4 Data Preparation Guidelines

While creating the data files, ensure the following:

- Ensure the data files are in TXT, DAT, or CSV formats.
- Ensure that there are no duplicate records in a data file.
- Data file names are in the prescribed format.
- Use only comma (,) and/or pipeline (|) as delimiters.
- Only double quotes (“”) are used as Field Enclosures.
- The language code must be as per BCP 47 format. For example, **en-US**.
- In the file for hierarchies, there must be no empty space or special characters for HIERARCHY_CODE.
- Dimension member name must not contain **&** character.

3.2.1.4.2 Instrument and Ledger Data Loaders

After the Data Files are uploaded to the Object Store, the Data Loaders are used to move the data from the files to the standing tables and then to processing tables.

File to Stage

To load the Data to Staging Tables:

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1. Define a new Batch and save it.
2. Add the following Tasks to the above Batch:

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Table 3-6 Data Loader – File to Stage Data

Task Code	Task Name	Component	Parameters
1 *	Custom Task Name *	Stage Data Loader	**Table Name**: select the stage table name from the available list. **Data File Specification**: select the data file specification definition from the available list. **Data File Name**: free text where file name uploaded to the object store to be provided. This is optional. • When the Data File Name is not provided, Stage Loader fetches the file from object store with the selected Data File Specification name. • If name of file is different from Data File Specification, then put exact file name including extension but excluding the prefix. **Note** You can also zip the file and then upload. Ensure the file name in the zip file is inline with the Data File Name in the Task Parameters UI. • **Folder Name**: Enter the physical folder name. This is the location where file saved in

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Table 3-6 (Cont.) Data Loader – File to Stage Data

Task Code	Task Name	Component	Parameters
			the Object Store. For more information, see File Upload and Download Utility. You can use the MIS Date in the input file name for easier identification.

* Task Code and Task Name in the above table are for illustration purpose only. You can name them as per your requirements.

Table 3-7 Sample Data File Specification and File Name

Data File Specification	Data File Name in Task Parameters UI	File in Object Store
Asset_Loan.dat	Asset_Loan_1.dat	input_yyyymmdd_Asset_Loan_1.dat
Asset_Loan.dat	Not entered	input_yyyymmdd_Asset_Loan.dat

To upload multiple files using same Data File Specification, add separate tasks for each file within the batch.

3. Execute the Batch for the As-of-Date used in the Data File.
For detailed instructions on Creating a Batch, Defining a Task, Execute the Task, and Schedule a Batch, see Scheduler Services.

Profitability and Balance Sheet Management Cloud Service - Stage to Processing

To load the Data from Staging Tables to Processing:

1. Define a new Batch and save it.
2. Add the following Tasks to the above Batch:

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Table 3-8 Data Loader – Stage to Processing Data

Task Code	Task Name	Component	Parameters
1 *	Custom Task Name *	Select the relevant Component depending on the Data that you want to process. The options are: • Instrument Data Loader • Ledger Data Loader • Transaction Summary Loader **Note** The system validates the DATA_SOURCE_CODE column from the staging table against the FSI_INSTRUMENT_DATA_SOURCE_CD table. If the data source is enabled, its INSTRUMENT_DATA_SOURCE_CD is pushed to the FSI tables; otherwise, a default value of -1 is assigned.	**Stage Table**: Select the stage table name from the available list. **Data File Specification**: Select the Data File Specification name from the available list. **Folder Name**: Enter the folder or prefix for the data file. This field is optional. A trailing / is automatically appended if missing. **Data File Name**: Enter the name of the data file to be processed. Supports / within the file name to represent subfolders.

Climate Change Analytics Cloud Service - Stage to Processing

CCACS is delivered with out-of-the-box seeded batches to load the data from Staging tables to Processing tables. The user can define custom batches using the following components.

For the list of seeded batches, see the MOS page 2930308.1.

1. Add the following Tasks to the Batch:

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Table 3-9 Data Loader – Stage to Processing Data

Task Code	Task Name	Component	Parameters
1 *	Custom Task Name *	Select the relevant Component depending on the Data that you want to process. The options are: • CCA Processing Loader	For CCA Processing Loader: select the stage table name and data file name.

3.2.1.4.3 Generic Data Loader

The Data Loader service allows the user to load the required data by the Cloud Service to enrich the data. In this service, first you upload the data, and then run a batch to propagate the data into the processing layer.

To load the data:

1. From the LHS menu, select **Data Management Tools**, select **Data File Administration**, and then select **File upload and download** to display the File Upload/Download screen. The File Upload/Download screen displays the list of files that are uploaded to the Object Store and displays the following details for each file:
   - **File ID**: The unique file id. This is auto generated during upload.
   - **Prefix**: The prefix added to the file name.
   - **File Name**: The name of the uploaded file.
   - **Stripe Name**: The unique identifier for storing the files.
   - **Uploaded Date**: The file upload date.
   - **Download File**: Click the Download icon to download a copy of the file.
   - **Delete**: Click Delete to delete the uploaded file.
2. Click **Drag and Drop** to browse and select a file for upload from the local directory. You can also browse to the local directory from the File Explorer and select file and drop it here.

   The File Upload/Download service supports upload of TXT, DAT, and CSV format files.

   Name of the data file must follow the format as given below:
   - A prefix as **input_yyyymmdd** where the date format is related to the As of Date (i.e., 02-May-2023 becomes 20230502).
   - As per the data that you want to upload, upload the relevant data file from the table:

Table 3-10 Data File

Data	Data File Name	Object Store File Name
Exchange Rates	stg_exchange_rates.dat	input_20230622_stg_exchange_rates.dat
Behavior Patterns	stg_behavior_pattern.dat	input_20230502_stg_behavior_pattern.dat
Payment Patterns	stg_payment_pattern.dat	input_20241024_stg_payment_pattern.dat
Reprice Patterns	stg_reprice_pattern.dat	

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> **Note**
>
> The file name is case-sensitive.

For more information about File Upload and Download, see File Upload and Download Utility.

The following are the sample files for reference:

- stg_exchange_rates.dat
- input_20230701_bploaderdata.csv
- input_20241024_stg_payment_pattern.dat
- Sample Reprice Patterns data fileinput_20241024_stg_reprice_pattern.dat

3. After selecting the file to upload, click **Upload**.
   The UI displays a confirmation message *Upload successful*.
4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Schedule Batch**.
5. Create a new Batch with a new Task with Generic Data Loader as Component.

Table 3-11 Loader Type

Seeded Batch Component	Loader Type Parameter
Generic Data Loader	Exchange Rates
Generic Data Loader	Behavior Patterns
Generic Data Loader	Payment Patterns

6. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**.
7. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**.
8. Select the **Batch** and then select the **MISDATE** and the **Batch name**. There may be multiple executions of the Data Loader batch. Select the latest execution and click **Start Monitor**.
   The UI displays the status of the batch.

For more details about Scheduler processes, see the Scheduler Services.

3.2.1.4.4 Interest Rates Loader

The Interest Rates Data Loader allows the users to load the Interest Rate Curves that are consumed by the Oracle Financial Services Cloud Services.

Loading the Interest Rate Data consists of three tasks as follows:

- Stage Loader
- Stage Validator
- Processing Loader

To upload the Interest Rate Data file:

1. From the LHS menu, select **Data Management Tools**, select **Data File Administration**, and then select **File upload and download** to display the File Upload/Download screen.

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2. Click **Drag and Drop** to browse and select a file for upload from a local directory. You can also browse to the local directory from the File Explorer, select the file, and drop it.
The File Upload/Download service supports uploading csv, txt, and dat format files.

   Oracle supports the delimiters **,**(comma) and **|** (pipe) in the file.

   Name of the Data File must follow the format as given below:

   - A prefix as **INPUT_YYYYMMDD** where the date format is related to the As of Date (i.e., 02-October-2023 becomes 20231002).
   - A suffix as _**FILENAME.csv**.
   - An example of Data File Name could be:
     INPUT_20231002_IRC_<DATAFILENAME>.csv.
     The order of the columns in the input file must be as follows:
     - INTEREST_RATE_NAME
     - EFFECTIVE_DATE (Date format: MM-DD-YYYY)
     - INTEREST_RATE_TERM
     - INTEREST_RATE_TERM_MULT
     - INTEREST_RATE
     - RATE_DATA_SOURCE_CODE
     - MATURITY_DATE (Date format: MM-DD-YYYY) (Mandatory for Data based Term Point enabled IRC)

   For more information about File Upload and Download, see File Upload and Download Utility section.

3. After selecting the file to upload, click **Upload**.
The UI displays a confirmation message: Upload successful and insert the data into the Stage tables.

   At this stage, the **Stage Validation** begins and performs the following checks:

   - **Records in the Stage table**: Stage Validation fails when no records are found in the uploaded file and no execution happens after this point.
   - **IRC definitions exist**: If there are single IRC definitions in the file, the validator passes and displays a warning message along with the Interest Rate Code for which definitions are missing.
   - **Invalid Terms check** (Term details not found): If there are extra terms available in incoming file: A warning message is displayed in the View Logs: Term details not found in the definition: Interest Rate Name: Standard25, Interest RateCd:25, Interest Rate Term: 270 D, 3 M.

   Warnings are displayed in the View Log.

   If there are multiple rows in the data file and one of the rows does not have the required information or wrong information, the validator leaves that record and proceeds with the remaining records. However, the log displays summary error messages with total number of records, records skipped, records rejected, records read, and records discarded. It does not display which particular records are failed or rejected.

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> **Note**
>
> The As of Date is used to load the file and the Effective Date in the file can be different. The data is loaded based on the Effective Date and if any value exists for corresponding Effective Date, then the loader will update. This also helps to push the IRC History data from on-prem to SaaS, and in the SaaS environments one tenant to other tenant.
> The Interest Rate Attribute must be created on the UI prior to loading the historical rates. Interest Rate loader is to load rates on pre-existing IRC.

If any new terms are found in the Data file, then loader will create the new terms and loads the data for those new terms also.

4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**. For more details, see Define Batch.
5. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Task**. For more details, see Define Tasks.
   a. Task Type: REST
   b. Component:
      - IRC Data Loader (this component is a combination of Stage Loader, Stage Validator, and Processing Loader.
        or
      - Select the following components.
        – Stage Loader: IRCLoader Stage Loader
        – Stage Validator: IRCLoader Stage Validator
        – Processing Loader: IRCLoader Processing Loader

      > **Note**
      >
      > To simplify the flow, the above three components are merged into one task component 'IRC Data Loader'; you can configure your batches to use this integrated components as these three individual components will be deprecated Release 25B onwards.

   c. Loader Type: By default Interest Rate Loader is selected.

      > **Note**
      >
      > For Funds Transfer Pricing Cloud Service, Rate Lock Option Volatility is also available.

   d. File Name: INPUT_20231002_IRC_<DATAFILENAME>.csv
6. Select the seeded batch and click **Edit Parameters**. In the Dynamic Parameters pop-up window, change the date to the relevant As-of-Date, and then save the batch.
7. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**.

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8. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**. For more information, see Monitor Batch.
9. Select the **Batch** and then select the **MISDATE** and the **Batch name**. There may be multiple executions of the Exchange Rate Data Loader batch. Select the latest execution and click **Start Monitor**.
   The UI displays the Status of the batch.

3.2.1.4.5 Interest Rates Definition Loader

The Interest Rates Definition Loader allows the users to load the Interest Rate Curves definition that are consumed by the Oracle Financial Services Cloud Services.

Loading the Interest Rate Data consists of three tasks as follows:

- Stage Loader
- Stage Validator
- Processing Loader

To upload the Interest Rate Definition file:

1. From the LHS menu, select **Data Management Tools**, select **Data File Administration**, and then select **File upload and download** to display the File Upload/Download screen.
2. Click **Drag and Drop** to browse and select a file for upload from a local directory. You can also browse to the local directory from the File Explorer, select the file, and drop it.
   The File Upload/Download service supports uploading csv, txt, and dat format files.

   Oracle supports the delimiters **,**(comma) and **|** (pipe) in the file.

   Name of the Data File must follow the format as given below:

   - A prefix as **INPUT_YYYYMMDD** where the date format is related to the As of Date (i.e., 02-October-2023 becomes 20231002).
   - A suffix as _**FILENAME.CSV**.
   - An example of Data File Name could be:
     INPUT_20231002_IRCS_<DATAFILENAME>.csv.
     The order of the columns in the input file must be as follows:
     - INTEREST_RATE_CD
     - IRC_NAME
     - IRC_DESC
     - ISO_CURRENCY_CD
     - DATE_BASED_TERM_POINTS
     - DISPLAY_FOR_ALL_CCY_FLG
     - RISK_FREE_RATE_FLG
     - TERM o MULTIPLIER
     - RATE_FORMAT
     - COMPOUNDING_BASIS
     - ACCRUAL_BASIS

   For more information about File Upload and Download, see File Upload and Download Utility section.
3. After selecting the file to upload, click **Upload**.

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The UI displays a confirmation message: Upload successful and insert the data into the Stage tables.

At this stage, the Stage Validation begins and performs the following checks:

- INTEREST_RATE_CD: Code does not exists. Allows only numbers, max 10 digits.
- IRC_NAME: name don't exist. Allows only Alphanumeric space _ , . - &.
- IRC_DESC: Description. Allow only - Alphanumeric space _ , . - & / ! # @ $ % ? ( ) [ ].
- ISO_CURRENCY_CD: Only accept active currency.
- DATE_BASED_TERM_POINTS: N or null for normal, Y for Date Base.
- DISPLAY_FOR_ALL_CCY_FLG: Y for Display for all currency, N or null for not.
- RISK_FREE_RATE_FLG: Y for Risk free rate, 0 or null for not.
- TERM: Allows 1 to 9999.
- MULTIPLIER: Allow D, M, Y.

Warnings are displayed in the View Log.

4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**. For more details, see Define Batch.
5. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Task**. For more details, see Define Tasks.
   a. Task Type: REST
   b. Component:
      - IRC Data Loader (this component is a combination of Stage Loader, Stage Validator, and Processing Loader.
      - Loader Type: By default **IRC Historical Data** is selected. You must select **IRC Definition** irc definition loader.
      - File Name: INPUT_20231002_IRCS_<DATAFILENAME>.csv
6. Select the seeded batch and click **Edit Parameters**. In the Dynamic Parameters pop-up window, change the date to the relevant As-of-Date, and then save the batch.
7. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**.
8. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**. For more information, see Monitor Batch.
9. Select the **Batch** and then select the **MISDATE** and the **Batch name**. There may be multiple executions of the Exchange Rate Data Loader batch. Select the latest execution and click **Start Monitor**.
   The UI displays the Status of the batch.

3.2.1.4.6 Rate Lock Option Volatility Loader

This Loader is applicable only for Funds Transfer Pricing Cloud Service.

The Volatility Rates Data Loader allows the users to load the Volatility Rate Curves that are consumed by the Oracle Financial Services Funds Transfer Pricing Cloud Service.

To upload the Interest Rate Data file:

1. From the LHS menu, select **Data Management Tools**, select **Data File Administration**, and then select **File upload and download** to display the File Upload/Download screen.

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2. Click **Drag and Drop** to browse and select a file for upload from a local directory. You can also browse to the local directory from the File Explorer, select the file, and drop it.
The File Upload/Download service supports uploading csv, txt, and dat format files.

   Oracle supports the delimiters **,**(comma) and **|** (pipe) in the file.

   Name of the Data File must follow the format as given below:

   - A prefix as INPUT_YYYYMMDD where the date format is related to the As of Date (i.e., 02-October-2023 becomes 20231002).
   - A suffix as _FILENAME.CSV.
   - An example of Data File Name could be: INPUT_20231002_ FTP_VOLATILITY _<DATAFILENAME>.csv. The order of the columns in the input file must be as follows:
     - RATE_LOCK_VOLITILITY_NAME
     - EFFECTIVE_DATE (Date format: MM-DD-YYYY)
     - CONTRACT_RATE_TERM
     - CONTRACT_RATE_TERM_MULT
     - EXPIRY_RATE_TERM
     - EXPIRY_RATE_TERM_MULT
     - INTEREST_RATE
     - RATE_DATA_SOURCE_CODE

   The following illustration is a sample Rate Lock Option Volatility loader data file.

Figure 3-15 Rate Lock Volatility Loader Sample File

RATE_LOCK_VOLITILITY_NAME	EFFECTIVE_DATE	CONTRACT_RATE_TERM	CONTRACT_RATE_TERM_MULT	EXPIRY_RATE_TERM	EXPIRY_RATE_TERM_MULT	INTEREST_RATE	RATE_DATA_SOURCE_CODE
Rate102	08-14-2023	1	Y	1	M	11.1411	TEST_LOADER
Rate102	08-14-2023	1	Y	6	M	16.1422	TEST_LOADER
Rate102	08-14-2023	3	Y	1	M	31.1433	TEST_LOADER
Rate102	08-14-2023	3	Y	6	M	36.1444	TEST_LOADER
Rate102	08-15-2023	1	Y	1	M	11.1555	TEST_LOADER
Rate102	08-15-2023	1	Y	6	M	16.1566	TEST_LOADER
Rate102	08-15-2023	3	Y	1	M	31.1577	TEST_LOADER
Rate102	08-15-2023	3	Y	6	M	36.1588	TEST_LOADER
Rate102	08-16-2023	1	Y	1	M	11.1699	TEST_LOADER
Rate102	08-16-2023	1	Y	6	M	16.161	TEST_LOADER
Rate102	08-16-2023	3	Y	1	M	31.1611	TEST_LOADER
Rate102	08-16-2023	3	Y	6	M	36.1612	TEST_LOADER
Rate102	08-16-2023	2	Y	1	M	31.1611	TEST_LOADER
Rate102	08-16-2023	3	Y	9	M	36.1612	TEST_LOADER
Rate106	08-14-2023	3	Y	1	M	31.143	TEST_LOADER
Rate107	08-14-2023	3	Y	6	M	36.144	TEST_LOADER
Rate107	08-15-2023	1	Y	1	M	11.155	TEST_LOADER
Rate108	08-15-2023	1	Y	6	M	16.156	TEST_LOADER
Rate1001	08-14-2023	1	M	15	D	111.101	TEST_LOADER
Rate1001	08-11-2023	1	M	15	D	112.101	TEST_LOADER
Rate1001	08-14-2023	3	M	25	D	111.101	TEST_LOADER
Rate1001	08-11-2023	5	M	45	D	112.101	TEST_LOADER

   For more information about File Upload and Download, see File Upload and Download Utility section.

3. After selecting the file to upload, click **Upload**.
The UI displays a confirmation message: Upload successful and insert the data into the Stage tables.

   At this stage, the **Stage Validation** begins and performs the following checks:

   - **Records in the Stage table**: Stage Validation fails when no records are found in the uploaded file and no execution happens after this point.
   - **Rate Lock Volatility definitions exist**: If there are single Rate Lock Volatility definitions in the file, the validator passes and displays a warning message along with the Rate Lock Volatility Code for which definitions are missing.

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- **Invalid Terms check** (Term details not found): If there are extra terms (Contract or Expiry terms) available in incoming file: A warning message is displayed in the View Logs: *Term details not found in the definition : Rate Lock Volatility : Rate101, Code : 101, Details : Effective Date :14-AUG-23, Contract Term :3 M, Expiry Term :25 D Effective Date :11-AUG-23, Contract Term :5 M, Expiry Term :45 D*

Warnings are displayed in the View Log.

If there are multiple rows in the data file and one of the rows does not have the required information or wrong information, the validator leaves that record and proceeds with the remaining records. However, the log displays summary error messages with total number of records, records skipped, records rejected, records read, and records discarded. It does not display which particular records are failed or rejected.

> **Note**
>
> The As of Date is used to load the file and the Effective Date in the file can be different. The data is loaded based on the Effective Date and if any value exists for corresponding Effective Date, then the loader will update. This also helps to push the Rate Lock Volatility Historical data from on-prem to SaaS. Rate Lock Option Volatility loader is to load rates on pre-existing Rate Lock Option Volatility.

4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**. For more details, see Define Batch.
5. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Task**. For more details, see Define Tasks.
   - **Task Type**: REST
   - **Component**: IRC Data Loader (this component is a combination of Stage Loader, Stage Validator, and Processing Loader.
   - **Loader Type**: By default Interest Rate Loader is selected. Select Rate Lock Option Volatility option.
   - **File Name**: INPUT_20231002_ FTP_VOLATILITY_<DATAFILENAME>.csv
6. Select the seeded batch and click **Edit Parameters**. In the Dynamic Parameters pop-up window, change the date to the relevant **As-of-Date**, and then save the batch.
7. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**. For more information, see Execute Batch.
8. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**. For more information, see Monitor Batch.
9. Select the **Batch**, **MISDATE** and the **Batch name**. There may be multiple executions of the Exchange Rate Data Loader batch. Select the latest execution and click Start Monitor. The UI displays the Status of the batch.

3.2.1.4.7 Generating Holidays for Holiday Calendar using Scheduler

The **Generate Holidays** option on the **Holiday Calendar Definition** page allows you to generate Holiday for a definition at a time. Using the Scheduler Service, you can generate the Holidays for multiple Calendar definitions in bulk.

To execute the batch, navigate to **Operations and Processes** , select **Scheduler**, and then select **Schedule Batch**.

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You can also define new batch to execute any Holiday Calendar Generation by the following these steps:

1. Navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**.
2. Create a new Batch with a new Task with Holiday Generator as Component.

   For the selected From to To date parameters, you can generate Holidays for single or multiple calendar definitions.
3. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**.
4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**.
5. Select the **Batch** and then select the **MISDATE** and the **Batch name**. There may be multiple executions of the Data Loader batch. Select the latest execution and click **Start Monitor**.

   The UI displays the status of the batch.

   For more details about Scheduler processes, see the Scheduler Services.

3.2.1.4.8 Gather Stats of Database Tables

The **PBSMCS Processing Tables – Gather Statistics** utility gathers and updates statistics for database tables (such as FSI_D_ASSET, FSI_D_LIABILITY, etc.).

If the target table is partitioned by **As_of_Date**, then statistics are gathered only for that specific partition. If the partition contains sub-partitions, then utility will also gather statistics for all relevant sub-partitions.

This utility is useful after data reload operations. In scenarios where a **delete file** operation is performed using the *File Upload and Download* utility, it is recommended to schedule the **Gather Statistics** utility.

To Gather Stats of database tables, following these steps:

1. Navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**.
2. Create a new batch by entering Code, Name and Description. Save the batch.
3. Navigate to **Define Task**.
4. Select the Batch created above from the **Batch** drop-down list.
5. Click the **Add** button from **Actions** drop-down.
6. Enter the following details in the Task Details Section:
   - **Task Code:** Enter a Code for the task.
   - **Task Name:** Enter Name for the task. The Task Name must be alphanumeric and must not start with a number. The Task Name must not exceed 60 characters in length. The Task Name must not contain any special characters except underscore (_).
   - **Description:** Enter the Task Description. Special characters are not allowed in Task Description. Words like Select From or Delete From (identified as potential SQL injection vulnerable strings) should not be entered in the Description.
7. Select **Component** as **Transform Data**.
8. Select **Batch Service URL** as **DMT_Service**.
9. Select “**PBSMCS Processing tables gather statistics**” from **Name** drop-down list.

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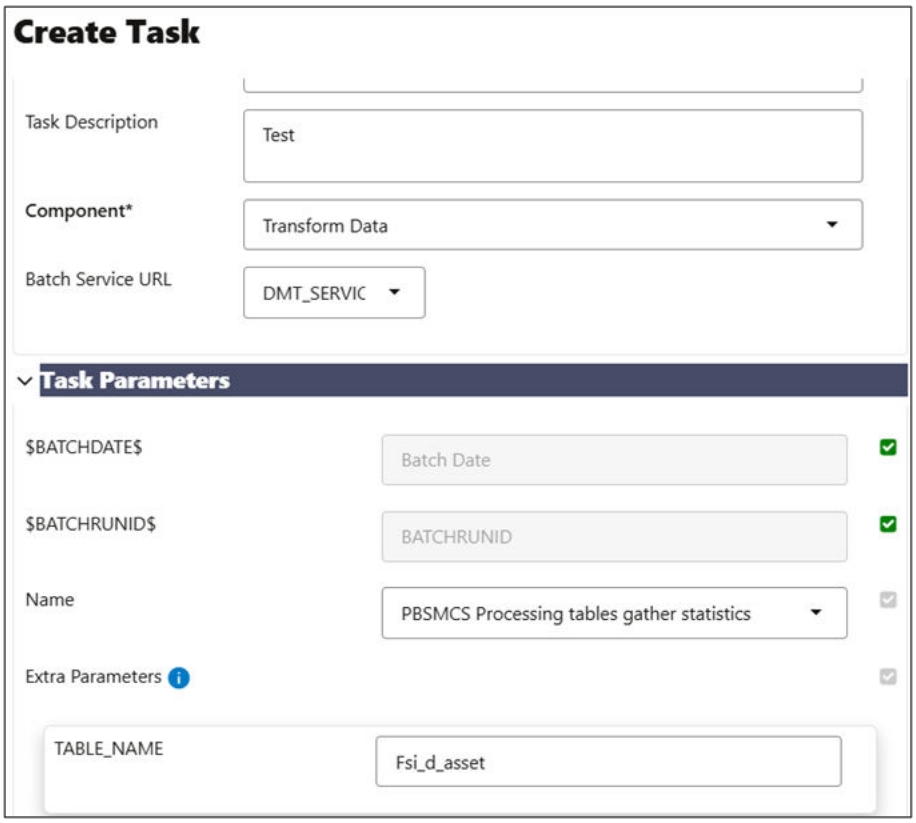
10. In the **Extra Parameter** field, enter the table name on which the gather stats to be done. You can enter only one table at a time. Individual tables need to be added in task and executed. Wildcard characters are not supported in Table Name.

> **Note**
>
> Do not select any value in **Use Effective Date** field.

Figure 3-16 Create Task



11. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**.
12. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**.
    The UI displays the status of the batch.

    For more details about Scheduler processes, see the Scheduler Services.

3.2.2 File Upload and Download Utility

The File Upload and Download Utility enables you to upload or download files to the Object Store. Complete the following steps to Upload or Download a file.

- Upload or Download File from Object Store Using Console
- Uploading/Downloading a File Using Utility
- Uploading/Downloading a File Using PAR URL

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3.2.2.1 Upload or Download File from Object Store Using Console

1. From the left menu, click **Common Object Maintenance**.
2. Click **Data Management** in the left navigation pane.

   The **File Upload and Download** page is displayed. The files that are uploaded to the Object Store are listed here. The following details are provided for each File.

   - **File ID** - The unique file ID associated with the file. This is auto-generated during the upload.
   - **Prefix** - The prefix is added to the file name.
   - **File Name** - The name of the file that is uploaded. This is automatically updated after you select the file.
   - **Stripe Name** - The unique identifier for storing a collection of files. Collection examples: Project, organization, tenant.
   - **Uploaded Date** - The file upload date.
   - **Download File** - Click to download a copy of the uploaded file.
   - **Delete** - Click to delete the file.

Related Topics

- Uploading/Downloading a File Using Utility
  Complete the following steps to upload or download files using the Utility.
- Uploading/Downloading a File Using PAR URL
  Complete the following steps to upload or download a file using the PAR URL.

3.2.2.2 Uploading/Downloading a File Using Utility

Complete the following steps to upload or download files using the Utility.

1. Click **Upload** on the **File Upload/Download Summary** screen.
2. Click **Drag and Drop** to browse and select a file for upload from the local directory.

   You can also browse to the local directory from the **File Explorer** and select the file and drop it here.

   The file name is automatically updated in the **Selected File** field.
3. **Prefix**: You can upload a file with or without a prefix. If you need to upload two files that have the same name, use different prefixes to keep them unique.

   Use the left pane to view the prefix hierarchy and identify the exact folder where your file is stored.

   - By default, the **Summary** page shows only files without a prefix.
   - To display all files (with and without prefixes), select the **Show All Files** check box.
     - While this check box is selected, the prefix navigation in the left pane is locked.
     - To resume using the left pane, clear the check box.
4. Click **Upload** to upload the selected file.

   A confirmation message is displayed after successful upload and the file is listed in the Uploaded Files list.
   Downloading file(s)

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Complete the following steps to download a single file.

a. Click the **Actions** menu corresponding to the file you want to download and select **Download.**

b. Specify a name (optional) and file type (optional).

c. Click **Save**.

Complete the following steps to download multiple files at once.

a. Select the checkbox corresponding to each file you want to download.

b. Click the **Download Multiple Files** icon (top right corner).

c. Specify a name for the compressed folder type.

d. Click **Save**

Deleting file(s)

Complete the following steps to delete single file.

a. Click the **Actions** menu corresponding to the file you want to delete and select **Delete.**

b. Select **Yes** to confirm the deletion.

Complete the following steps to delete multiple files at once.

a. Select the checkbox corresponding to each file you want to delete.

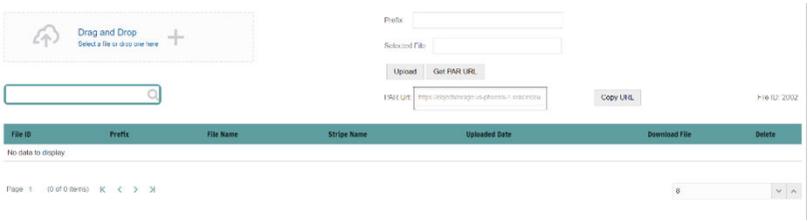
b. Click the **Delete Multiple Files** icon (top left corner).

c. Select **Yes** to confirm the deletion.

3.2.2.3 Uploading/Downloading a File Using PAR URL

Complete the following steps to upload or download a file using the PAR URL.

Figure 3-17 Get PAR URL



1. Click **Drag and Drop** to browse and select a file for upload from the local directory.

   You can also browse to the local directory from the File Explorer and select the file and drop it. The file name is automatically updated in the **Selected File** .

2. Enter the **Prefix** to be added to the file name.

3. Click **Get PAR URL**, to generate the PAR URL and File ID which are required to upload the file.

   You can also generate PAR URL using Rest API. For more information refer to, Calling the API to Generate the URL.

4. Copy the PAR URL and note the related File ID.

5. Upload the file content referred with the specific PAR URL into the object store using the Console, CLI, or SDK.

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To upload using the CLI, enter the following curl command directly in local Gitbash.

```
curl -X PUT --data-binary '@<local-filename>' <unique-PAR-URL>
```

You can also use the following command.

```
curl -T '<Filepath>' -X PUT <PAR_URL>
```

6. Scan the file referred with the specific File ID (obtained in Step 3) using Console, CLI, or SDK.

   Use the following CURL command, to Scan using CLI:

```
curl -k --location --request PUT 'https://<Host:Port>/<Tenant-ID>/utils-
service/v1/file/scan/<FileID>' \
--header 'ofs_tenant_id: <Tenant-ID>' \
--header 'ofs_service_id: <Service-ID>' \
--header 'ofs_workspace_id: <WorkspaceId>' \
--header 'Authorization: Bearer <Generated_Token>'
```

   To generate a bearer token, refer to Generate access token.

   A confirmation message is displayed after successful upload and the file is listed in the Uploaded Files list.

3.2.3 File Upload Automation

To simplify the file upload process, configure and execute the File Upload automation utility.

File Upload automation can be implemented by completing the following steps in sequence.

- Step 1: Generate Access Token
- Step 2: Generate PAR URL
- Step 3: Upload file to Object Store
- Step 4: Scan the file to ensure Upload was Successful

3.2.3.1 Step 1: Generate Access Token

Generate the Access Token for your Profitability and Balance Sheet Management Cloud Service by:

1. Submitting a RESTful API Post Request to your Oracle IAM environment as defined in the Identity Cloud Service User Guide. For information, see OAuth Runtime Tokens REST Endpoints.

Note that a sample code snippet has been provided below using cURL to generate the access token for Basic Authorization and assign it to a variable for use within a script:

```
access_token=`curl -s --insecure -H "Authorization: Basic $ENCODED" -H
"Content-Type:application/x-www-form-urlencoded;charset=UTF-8" --request
POST $IDCS_URL -
d"grant_type=password&username=$USERNAME&password=$PASSWORD&scope=urn:opc:idm:
__myscopes__urn:opc:resource:expiry=9153600" | python -c "import sys,
json;print(json.load(sys.stdin)['access_token'])"`
```


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3.2.3.2 Step 2: Generate PAR URL

Generate the PAR URL for your Profitability and Balance Sheet Management Cloud Service by:

1. Submitting a RESTful API Post Request to your Cloud Service as defined in the Calling the API to Generate the URL section.

Note a sample code snippet has been provided below using cURL to generate the PAR URL and assign it to a variable for use within a script:

PAR URL Generation Code Snippet

```
curl --location --insecure --request POST "$FILEUPLOADURL" --header
"Authorization: Bearer $access_token" --header 'Content-Type: application/
json' --data-raw "{
    \"fileName\": \"$1\",
    \"fileSize\": \"$2\",
    \"mimeType\": \"$3\"
}" >> "$HOME"/FILEUPLOAD_UTIL/"$1"_PARURLresponse.out 2>&1
```

PAR URL Variable Assignment Code Snippet

```
grep -oE '(https)[^ ]*' "$HOME"/FILEUPLOAD_UTIL/"$1"_PARURLresponse.out >
"$HOME"/FILEUPLOAD_UTIL/"$1"_PARURLresponse1.csv
    while IFS="," read -r H1 H2
    do
        URLtrim="$H1"
        FinalPAR=${URLtrim::-1}
          echo -e "\n PAR_URL is $FinalPAR"
    done < "$HOME"/FILEUPLOAD_UTIL/"$1"_PARURLresponse1.csv
```

PAR URL Variable Assignment Code Snippet – Used in File Scanning Step

```
grep -oE '(fileId)[^ ]*' "$HOME"/FILEUPLOAD_UTIL/"$1"_PARURLresponse.out >
"$HOME"/FILEUPLOAD_UTIL/"$1"_PARURLresponse2.csv
    while IFS="," read -r F1 F2
    do
        FILEIDtrim="$F1"
        FINALFILEID=`echo "$FILEIDtrim"| sed -r 's/^.{8}//'`

        echo -e "\n FILE ID is $FINALFILEID"
    done < "$HOME"/FILEUPLOAD_UTIL/"$1"_PARURLresponse2.csv
```

3.2.3.3 Step 3: Upload file to Object Store

Upload the file to the Object Store of your Profitability and Balance Sheet Management Cloud Service by:

1. Submitting a RESTful API Post Request to your Cloud Service as defined in the Uploading/Downloading a File Using PAR URL topic.

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Note a sample code snippet has been provided below using cURL to upload the file:

```
curl -T "$HOME"/FILEUPLOAD_UTIL/"$1" -X PUT "$FinalPAR"
```

3.2.3.4 Step 4: Scan the file to ensure Upload was Successful

Scan the file that was uploaded to the Object Store of your Profitability and Balance Sheet Management Cloud Service by:

1. Submitting a RESTful API Put Request to your Cloud Service as defined by the code snippet below:

File Scanning Code Snippet – Using File ID from Step 2 – Generate PAR URL

```
if [ $last_error -eq 0 ]; then
        echo -e "\n *****Scanning the File *****"
        curl -k --location --request PUT "$SCANURL/$FINALFILEID" --header
'ofs_tenant_id: $TENANT' --header 'ofs_service_id: OFS_FTP' --header
'ofs_workspace_id: WS001' --header "Authorization: Bearer $access_token"
        last_error=$?
        if [ $last_error -eq 0 ]; then
            echo -e "\n ***File Upload is Successful please check File
Upload / Download UI***"
        else
            echo "Scan failed"
            exit -2;
        fi
    else
        echo "Upload failed"
        exit -3;
    fi
```

3.2.3.5 Automating the File Upload Process Using File Upload Utility

This section provides the procedure including the script to automate the process of uploading input data files using the File Upload utility.

You can download this script from this MoS Doc ID 2927077.1.

3.2.3.5.1 Executing the File Upload Automation Script

File Upload Automation script assists you to upload the files seamlessly.

Complete the following procedure to execute the file upload automation script.

Python 3.10 is required to access data elements from the API JSON responses.

1. Extract the **FILEUPLOAD_UTIL.zip** file located in the **$HOME** directory.
2. Copy the Data Loader input file (text file) to the **$HOME/FILEUPLOAD_UTIL** directory.
3. Edit the script **Env_setup.sh** file to update the following environment variables.
   - **IAM URL** - The Service Instance URL to access your IAM console.
     You can get the IAM URL from the following menu:

     Oracle Cloud Infrastructure Console > Identity Cloud.

     Syntax: `<IAM-url>/oauth2/v1/token`

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- **Encoded** - The **<OAuth Client ID>:<OAuth Client Secret>** encoded using **base64encode**
  To extract and encode the Client ID and Client Secret, refer to the following steps:
  a. Login to **Admin Console**.
  b. Go to **System Configuration** tab, and click **Component Details** tile.
  c. Click **OAUTH Creds** tab to view and copy the **OAUTH Client ID** and **OAUTH Client Secret** details.
  d. Using any **base64encode** utility, encode <OAUTH Client ID>:<OAUTH Client Secret>.
  Example (Input OAUTH Client ID and Client Secret):

  ```
  ftptenant-prd_APPID:99140e14-4d30-4e86-85fb-09501fe45fe0
  ```

  Example (Encoded OAUTH Client ID and Client Secret):
  `ZnRwcWExMDEyMzEtcHJkX0FQUElEOjBkMmU5MDBiLTlhYjItNGFmOS05OWM0LTEwNTYyMDVkYWYwNQ==`
- **Username** - The Username to access the application.

  > **Note**
  >
  > The user should have appropriate roles and privileges. For more information about roles and priveleges, refer to #unique_149.

- **Password** - The password to login to the application.
- **Tenant** - The tenant associated with the application.
- **PBSM Host** - Details of the PBSM host on which the application is hosted.
  Sample Env_setup.sh

  ```
  IDCS_URL=https://idcs-xyz123.identity.c9xyz.oc9xyz.com/oauth2/v1/token
  ENCODED=ZnRwbWFydXAxNDIyMzEtcHJkX0FQUElEOjk5MTQwZTE0LTRkMzAtNGU4Ni04NWZiLTA5NTAxZmU0NWZlMA==
  USERNAME=<user_name>
  PASSWORD=<password>
  TENANT=<tenant-prd>
  PBSMHOST=dc.pbsmcloud.us-xxxxx -1.ocs.oc-test.com
  ```

4. Execute **PBSMCS_PAR_fileupload.sh** with the following parameters –
   - **filename** - The file to be uploaded
   - **filesize** - The file size in Bytes
   - **Mimetype** - The mimetype of the file.

   Format: `Filename<space>Filesize<space>mimetype`

   Example: `./PBSMCS_PAR_fileupload.sh input_20150101_filename_example_8007.txt 334 text/plain`

   This script generates the access token and the PAR URL. It also uploads the file into the object store and scans the file too.

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> **Note**
>
> To upload multiple files, you must execute the script for each file, separately.

Once the script is executed succesfully, the file is uploaded and added to the list of files in the File Upload/Download page. To access the File Upload/Download page refer to Upload or Download File from Object Store Using Console.

3.2.4 Generating PAR URL for File Operations

The PAR URL for File Operations API creates a PAR File that you can use to perform file operations in the Object Store for end-to-end integrations.

3.2.4.1 Generating PAR URL for File Upload

Generate PAR URL for File Upload

You can use this REST API to generate the PAR URL for File Upload. See the following sections for information on how to perform the POST operation.

- End Point Details
- Calling the API to Generate the URL

3.2.4.1.1 End Point Details

- **Method** – POST
- **URL** - `https://<HOST_NAME:PORT>/<TENANT>/utils-service/v1/file/uploadfile/parURL?prefix=<prefix>`
- **Content-Type** - Application/Json

3.2.4.1.2 Calling the API to Generate the URL

To call the API:

1. Open a relevant tool, such as via cURL command.
2. Prepare a cURL command with the authentication token and other details. For more information refer to the following code.

   Syntax

```
curl -k --location --request POST 'https://<hostname>/<TENANT-ID>/utils-service/v1/file/uploadfile/parURL?prefix=' \
--data-raw '{"fileName": "<remote filename>", "fileSize": <file size>, "mimeType": "<file type>"}' \
--header 'ofs_remote_user: <USERID>' \
--header 'locale: en-US' \
--header 'ofs_tenant_id: <TENANT-ID>' \
--header 'ofs_workspace_id: WS001' \
--header 'content-type: application/json' \
--header 'Authorization: Bearer <TOKEN>'
```


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Example (truncated)

```
curl -k --location --request POST 'https://<hostname>/<TENANT-ID>/utils-
service/v1/file/uploadfile/parURL?prefix=' \
--data-raw '{"fileName": "idcs_log1.txt", "fileSize": 100, "mimeType":
"text/plain"}' \
--header 'ofs_remote_user: cneadmin' \
--header 'locale: en-US' \
--header 'ofs_tenant_id: aaitestdev1001-prd' \
--header 'ofs_workspace_id: WS001' \
--header 'content-type: application/json' \
--header 'Authorization: Bearer
eyJ4NXQjUzI1NiI6Ildia25rQUR5TUZIMlhlQ1pKcTY1c3o4VzdEVWhKa0s4MldYY0hadk4wWkk
iLCJ4
...
...
sQXj0iohsSIEmQXVwwjhhqnc4eJNnmCjx8Tb7TXjx1MIQLeOIcfrIj5gkzoMKX94_7USxHv-6Lh
Bzw'
```

3.2.4.1.2.1 Request JSON Parameters

This section provides the list of parameters in the JSON Request.

Table 3-12 Request JSON Parameters

Name	Type	Required	Description
fileName	STRING	Yes	The name of the file to be uploaded. The following are the conditions for to enter in this field: • Must start with an Alphanumeric Character • Allowed characters are alphabets, numbers, and special characters - hyphen(-), dot(.), and underscore(_) • Length of characters must not be greater than 255 characters
fileSize	INTEGER	Yes	The size of the file (in Bytes) to be uploaded. The size of the file should be greater than 1 Byte and should be less than 10 TB. It is recommended to use multipart upload for uploading files of size more than 100 MB. For more information about uploading large objects and multipart uploads, refer to Working with Pre-Authenticated Requests.
mimeType	STRING	Yes	The mime type to be uploaded. The following mime types are allowed: • Text/CSV • Text/plain • DAT

Request JSON Sample

```
 [{
"fileName": "File.csv",
"fileSize": 7654,
"mimeType": "text/csv"
}]
```


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3.2.4.1.2.2 Response JSON Parameters

This section provides the list of parameters in the JSON Response.

Table 3-13 POST JSON Response

Name	Type	Description
fileName	STRING	The name of the file to be uploaded.
uploadURL	STRING	The generated pre-authenticated URL to upload a file.
fileId	INTEGER	The unique File Identifier.

Response JSON Sample

```
{
   "payload": {
       "uploadURL": "https://objectstorage.us-phoenix-1.oraclecloud.com/p/
bdSI-hzigiAoUU0lyEKnuk0YGs05L172gt_woZAgqNFYmUFQeexV3BDfTO97mhBI/n/
oraclegbudevcorp/b/fsgbu_pbsm_cndevcorp_ftpqa101231-prd_default/o/default/
2023-01-31/jfr/f9ce031f-4a42-471d-b4da-d0577f3eca15",
       "createUser": "user1",
       "stripeName": "default",
       "fileId": 5025,
       "createDate": "2023-01-31T09:14:16",
       "token": "",
       "status": "success"
   }
}
```

3.2.4.1.3 Viewing List of Uploaded Files

Run the following cURL command to generate and view all the files that are uploaded using PAR URL.

Syntax

```
curl -k --location --request GET 'https://<hostname>/<TENANT-ID>/utils-
service/v1/listfiles stripeName=default' \
--header 'locale: en-US' \
--header 'ofs_remote_user: <user id>' \
--header 'ofs_tenant_id: < TENANT-ID >' \
--header 'ofs_workspace_id: WS001' \
--header "Authorization: Bearer <TOKEN>'
```

Example

```
curl -k --location --request GET 'https://dc.pbsmcloud.us-phoenix-1.ocs.oc-
test.com/aaitestdev1001-prd/utils-service/v1/listfiles?stripeName=default' \
--header 'locale: en-US' \
--header 'ofs_remote_user: cneadmin' \
--header 'ofs_tenant_id: aaitestdev1001-prd' \
```


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```
--header 'ofs_workspace_id: WS001' \
--header "Authorization: Bearer ${TOKEN}"
```

Response

```
      {"payload":
[{"v_file_name":"Idcs_log3.txt","n_file_id":9916,"d_upload_date":"31-JAN-23
      06:33:43 AM","v_stripe_name":"default"},
{"v_file_name":"Idcs_log4.txt","n_file_id":9917,"d_upload_date":"31-JAN-23
      06:40:25 AM","v_stripe_name":"default"}],"count":2}
```

3.2.4.2 Generating PAR URL For File Download

You can use this REST API to generate the PAR URL for File Download. See the following sections for information on how to perform the post operation.

- Calling the API to Generate PAR URL for File Download Using File Name
- Calling the API to Generate PAR URL for File Download Using File ID

3.2.4.2.1 Calling the API to Generate PAR URL for File Download Using File Name

To call the API:

1. Open a relevant tool, such as via the cURL command.
2. Prepare a cURL command with the authentication token and other details. For more information refer to the following code.

   Syntax

   ```
   curl -k --location --request GET < 'https://<hostname>/<TENANT-ID>/utils-
   service/v1/file/download?fileName=<file name>&stripeName=default&prefix=' \
    --header 'ofs_remote_user: <userid>' \
    --header 'locale: en-US' \
    --header 'ofs_tenant_id: <TENANT-ID>' \
    --header 'ofs_workspace_id: WS001' \
    --header "Authorization: Bearer <TOKEN>"
   ```

   Example

   ```
   curl -k --location --request GET 'https://<hostname>/<TENANT-ID>/utils-
   service/v1/file/download?fileName=test3GB.xml&stripeName=default&prefix=' \
    --header 'ofs_remote_user: cneadmin' \
    --header 'locale: en-US' \
    --header 'ofs_tenant_id: aaitestdev1001-prd' \
    --header 'ofs_workspace_id: WS001' \
    --header "Authorization: Bearer ${TOKEN}"
   ```

   Response

   ```
    {"payload":{"downloadURL":"https://objectstorage.us-
   phoenix-1.oraclecloud.com/p/8R68eVcQAxQjNjK__S04MZjS-
   v4BqEbWSILvu0w40kJNrzfKeCB8vWBwugW5XvsK/n/oraclegbudevcorp/b/
   fsgbu_pbsm_cndevcorp_aaitestdev1001-prd_default/o/default/2023-01-20/rnz/
   ```


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```
6c023e75-09e2-4265-815e-32cedcd2415e?
httpResponseContentDisposition=ATTACHMENT%3B%20filename%3Dtest3GB.xml"}}
```

3.2.4.2.2 Calling the API to Generate PAR URL for File Download Using File ID

To call the API, follow these steps:

1. Open a relevant tool, such as via the cURL command.
2. Prepare a cURL command with the authentication token and other details. For more information, refer to the following code.

Syntax

```
curl -k --location --request GET ' 'https://<hostname>/<TENANT-ID> /utils-
service/v1/file/downloadfile/<file id>' \
--header 'ofs_remote_user: <userid>' \
--header 'locale: en-US' \
--header 'ofs_tenant_id: < TENANT-ID> ' \
--header 'ofs_workspace_id: WS001' \
--header "Authorization: Bearer <TOKEN>"
```

Example

```
curl -k --location --request GET 'https://<hostname>/<TENANT-ID>/utils-
service/v1/file/downloadfile/9916' \
--header 'ofs_remote_user: cneadmin' \
--header 'locale: en-US' \
--header 'ofs_tenant_id: aaitestdev1001-prd' \
--header 'ofs_workspace_id: WS001' \
--header "Authorization: Bearer ${TOKEN}"
```

Response

```
{"payload":{"downloadURL":"https://objectstorage.us-
phoenix-1.oraclecloud.com/p/
gTxxzhqLEea4Or2TRkBqTqHxt_JogVFa9G_0wtN8NYy_op0Zk4lvKGDxxeXGhLq7/n/
oraclegbudevcorp/b/fsgbu_pbsm_cndevcorp_aaitestdev1001-prd_default/o/
default/2023-01-31/fae/2d63d2fe-2090-4fb7-a4c8-9940d22987db?
httpResponseContentDisposition=ATTACHMENT%3B%20filename%3DIdcs_log3.txt"}}
```

3.2.5 Deleting A File

Delete (DELETE) API helps to delete an uploaded file.

For more information about the Delete API, refer to Endpoint Details.

You can delete a file using one of the following methods:

- Using File ID
- Using File Name
- Delete multiple Files using File Names
- Delete files using a prefix value

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3.2.5.1 End Point Details

- **Method** – POST
- **URL** - `https://<HOST_NAME:PORT>/<TENANT>/utils-service/v1/file/uploadfile/parURL?prefix=<prefix>`
- **Content-Type** - Application/Json

3.2.5.2 Deleting a File Using the File ID

Delete a file from the object store, using the file ID as the reference.

To delete a file:

1. Open a relevant tool, such as via cURL command.
2. Prepare a cURL command with the authentication token and other details. For more information refer to the following code.

   Syntax

   ```
   curl -k --location --request POST 'https://<hostname>/<TENANT-ID>/utils-service/v1/file/deletefile/{fileId}
   --header 'ofs_remote_user: <USERID>' \
   --header 'locale: en-US' \
   --header 'ofs_tenant_id: <TENANT-ID>' \
   --header 'ofs_workspace_id: WS001' \
   --header 'content-type: application/json' \
   --header 'Authorization: Bearer <TOKEN>'
   ```

   Example (truncated)

   ```
   curl -k --location --request POST 'https://<hostname>/<TENANT-ID>/utils-service/v1/file/deletefile/5
   --header 'ofs_remote_user: cneadmin' \
   --header 'locale: en-US' \
   --header 'ofs_tenant_id: aaitestdev1001-prd' \
   --header 'ofs_workspace_id: WS001' \
   --header 'content-type: application/json' \
   --header 'Authorization: Bearer
   eyJ4NXQjUzI1NiI6Ildia25rQUR5TUZIMlhlQ1pKcTY1c3o4VzdEVWhKa0s4MldYY0hadk4wWkk
   iLCJ4
   ...
   ...
   sQXj0iohsSIEmQXVwwjhhqnc4eJNnmCjx8Tb7TXjx1MIQLeOIcfrIj5gkzoMKX94_7USxHv-6Lh
   Bzw'
   ```

   Response

   ```
   {"payload":"File Deleted Successfully"}
   ```


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3.2.5.3 Deleting a File Using Filename

Delete a file from the object store, using the file name as the reference.

To delete a file:

1. Open a relevant tool, such as via cURL command.
2. Prepare a cURL command with the authentication token and other details. For more information refer to the following code.

Syntax

```
curl -k --location --request POST 'https://<hostname>/<TENANT-ID>/utils-
service/v1/file/deletefilename/{filename}?prefix=<foldername>
--header 'ofs_remote_user: <USERID>' \
--header 'locale: en-US' \
--header 'ofs_tenant_id: <TENANT-ID>' \
--header 'ofs_workspace_id: WS001' \
--header 'content-type: application/json' \
--header 'Authorization: Bearer <TOKEN>'
```

> **Note**
>
> Prefix is an optional parameter.

Example (truncated)

```
curl -k --location --request POST 'https://<hostname>/<TENANT-ID>/utils-
service/v1/file/deletefilename/test.txt?prefix=folder1
--header 'ofs_remote_user: cneadmin' \
--header 'locale: en-US' \
--header 'ofs_tenant_id: aaitestdev1001-prd' \
--header 'ofs_workspace_id: WS001' \
--header 'content-type: application/json' \
--header 'Authorization: Bearer
eyJ4NXQjUzI1NiI6Ildia25rQUR5TUZIMlhlQ1pKcTY1c3o4VzdEVWhKa0s4MldYY0hadk4wWkk
iLCJ4
...
...
sQXj0iohsSIEmQXVwwjhhqnc4eJNnmCjx8Tb7TXjx1MIQLeOIcfrIj5gkzoMKX94_7USxHv-6Lh
Bzw'
```

Response

```
{"payload":"File Deleted Successfully"}
```

3.2.5.4 Deleting Multiple Files Using Filenames

Delete multiple files from the object store, using the file names as the reference.

To delete multiple files:

1. Open a relevant tool, such as via cURL command.

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2. Prepare a cURL command with the authentication token and other details. For more information refer to the following code.

   Syntax

```
curl -k --location --request POST 'https://<hostname>/<TENANT-ID>/utils-
service/v1/file/deletefilenames/{filenames}
--data-raw '[filenames]' \
--header 'ofs_remote_user: <USERID>' \
--header 'locale: en-US' \
--header 'ofs_tenant_id: <TENANT-ID>' \
--header 'ofs_workspace_id: WS001' \
--header 'content-type: application/json' \
--header 'Authorization: Bearer <TOKEN>'
```

   Example (truncated)

```
curl -k --location --request POST 'https://<hostname>/<TENANT-ID>/utils-
service/v1/file/deletefilenames
--data-raw '["filename1.txt","filename2.txt","filename3.txt"]' \
--header 'ofs_remote_user: cneadmin' \
--header 'locale: en-US' \
--header 'ofs_tenant_id: aaitestdev1001-prd' \
--header 'ofs_workspace_id: WS001' \
--header 'content-type: application/json' \
--header 'Authorization: Bearer
eyJ4NXQjUzI1NiI6Ildia25rQUR5TUZIMlhlQ1pKcTY1c3o4VzdEVWhKa0s4MldYY0hadk4wWkk
iLCJ4
...
...
sQXj0iohsSIEmQXVwwjhhqnc4eJNnmCjx8Tb7TXjx1MIQLeOIcfrIj5gkzoMKX94_7USxHv-6Lh
Bzw'
```

   Response

```
{"payload":"File Deleted Successfully"}
```

3.2.5.5 Delete files using a prefix value

Delete files from the object store, using a prefix value as the reference.

To delete files using a prefix value:

1. Open a relevant tool, such as via cURL command.
2. Prepare a cURL command with the authentication token and other details. For more information refer to the following code.

   Syntax

```
curl -k --location --request POST 'https://<hostname>/<TENANT-ID>/utils-
service/v1/file/deleteprefix/<prefix_value>
--header 'ofs_remote_user: <USERID>' \
--header 'locale: en-US' \
--header 'ofs_tenant_id: <TENANT-ID>' \
--header 'ofs_workspace_id: WS001' \
```


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```
--header 'content-type: application/json' \
--header 'Authorization: Bearer <TOKEN>'
```

Example (truncated)

```
curl -k --location --request POST 'https://<hostname>/<TENANT-ID>/utils-
service/v1/file/deleteprefix/prefixvalue1
--header 'ofs_remote_user: cneadmin' \
--header 'locale: en-US' \
--header 'ofs_tenant_id: aaitestdev1001-prd' \
--header 'ofs_workspace_id: WS001' \
--header 'content-type: application/json' \
--header 'Authorization: Bearer
eyJ4NXQjUzI1NiI6Ildia25rQUR5TUZIMlhlQ1pKcTY1c3o4VzdEVWhKa0s4MldYY0hadk4wWkk
iLCJ4
...
...
sQXj0iohsSIEmQXVwwjhhqnc4eJNnmCjx8Tb7TXjx1MIQLeOIcfrIj5gkzoMKX94_7USxHv-6Lh
Bzw'
```

Response

```
{"payload":"Files Deleted Successfully"}
```

3.2.6 Data File History

The Data File History screen in the OFS Cloud Service allows you to see the data files that are uploaded to the staging tables and their status.

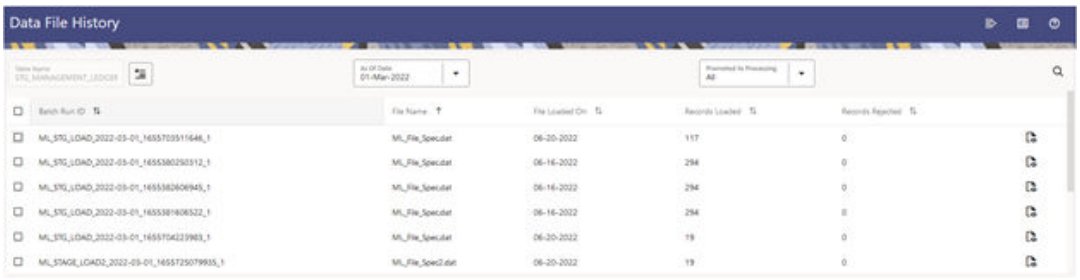
The Data File History summary screen allows you to do the following:

- Search for data files for which the stage data loader batch is already executed.
- Move the data from stage to processing tables.
- Delete the data from the stage or processing tables.
- Scan for invalid members.
- Create invalid members.

To open the Data File History window:

1. Navigate to the **Data Management Tools**, select **Data File Administration**, and then select **Data File History** to display the Data File History summary screen.

Figure 3-18 Data File History summary screen



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The summary screen displays the following information of the data files:

- **Batch Run ID**: The ID used to run the batch.
- **File Name**: The data file name.
- **File Loaded On**: The date on which the data file is loaded.
- **Records Loaded**: The number of records loaded using the data file.
- **Records Rejected**: The number of records that are rejected from the data file.
- **View Details** (Icon): Select a Batch Run ID and click the details of the data file.

The following illustration is a sample of the data file's details.

Figure 3-19 File Details

- **Promote selected files to Processing** (button): To promote the selected file or files for processing. This triggers the Batch Scheduler and queues the selected file or files for processing.
- **Advanced Actions** (button): There are four options in the Advances Actions. The following table explains the four options and the related information that is required to complete the actions:

Table 3-14 Advanced Actions

	As Of Date	Table Name	Data File Specification	File Name(s)	Comments / Notes
Delete Data from Staging	Required	Required	Required	Optional	Required
Delete Data from Processing	Required	Required	Required	Required	Required
Scan for Invalid Members	Required	Required	Required	Optional	Not applicable
Create Invalid Members	Required	Required	Required	Optional	Not applicable

  - Click **Delete/Scan/Create** button as applicable.
    - **Delete Data from Staging**: The staging data uploaded from a data file will be deleted.

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* **Delete Data from Processing**: The processing data uploaded from a file will be deleted.
* **Scan for Invalid Members**: To scan the staging data and identifying the dimension member codes present in the staging table, but not present in the corresponding dimension tables.
* **Create Invalid Members**: To populate the dimension tables with members identified in the above scan.

- **Help** (Button): Click the Help icon to view the Data File History help.

Scan for Invalid Members and Create Invalid Members is also possible using the Scheduler Services.

Table 3-15 Scan and create Invalid Members

Task Code	Task Name	Component	Parameters
1 *	Scan_Staging_for_Invalid_Members	Scan_Staging_for_Invalid_Members	• Table Name • Data File Specification: select the Data File Specification name from the available list. • Data File Name • Fail When Invalid Members
	Create_Invalid_Members	Create_Invalid_Members	• Table Name • Data File Specification: select the Data File Specification name from the available list. • Data File Name

* Task Code in the above table is for illustration purpose only. You can name them as per your requirements.

Promoting a Data File for Processing

By promoting a Data File for processing, you insert the Data from the staging tables to the processing tables.

To promote a Data File for processing:

1. Click on the **Table Name** icon to display the **Category – Table Names** window. This window displays the Stage Table Names where data is already loaded. The tables are categorized into different groups and are as follows:
   - Transaction Summary
   - Ledger
   - Others
   - Schedule
   - Instruments

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Each of the above categories lists the tables available to which the data is loaded. The list of categories is dependent on the Metadata from the seeded tables that come with the various OFS Cloud Services and may differ from that shown above based on the services you have subscribed.

2. Select the **Table** for which you want to see the File History from the list.
3. Select the relevant **As Of Date** from the drop-down list. This drop-down list displays different As-of-Dates. These dates are based on processed or not processed data loading. For example, if you have already processed some data on a previous date, this drop-down displays that date and displays the current date.
4. Click on **Promoted to Processing** and select the following options:
   - **All**: To display all the Data Files that are specified on the selected As-of-Date.
   - **Yes**: To display only the Data Files that are already specified and processed on the selected As-of-Date.
   - **No**: To display only the Data Files that are specified but are in the queue to be processed on the selected As-of-Date.
5. Click the **Search** icon to display the Data Files information as per the option you selected in the previous step.
6. Select one of more **Batch Run IDs** that you want to promote for processing and click the **Promote selected files to Processing** button. This triggers the Batch Scheduler and schedules the Batch for processing. You can monitor the status using the Monitor Batch screen.

Reloading a Data File

OFS Cloud Services allow you to reload a Data File. For the detailed instructions on Reloading the Data File, see the Scheduler Service section.

> **Note**
>
> While defining the Task, ensure that you select Delete Data Loader from the Component drop-down list.

3.3 Data Maintenance Interface

Data Maintenance Interface (DMI) helps to design a Data Form in a user-specified format. Further, it allows to perform maintenance activities using the Designed Form.

Form Builder

Form Builder allows the user to build a form to maintain the underlying data.

Data Entry

This allows the user to maintain the data either through the form that has been defined or do a bulk upload using the excel upload mechanism. A strong data governance process is enabled through an approval workflow of the data maintained.

Process of DMI Windows

The DMI Process starts with a user creating forms in the Form Builder. After the creation of forms, a user with Authorization Privileges authorizes the forms. The Authorized Forms are then used by users to enter data into the database.

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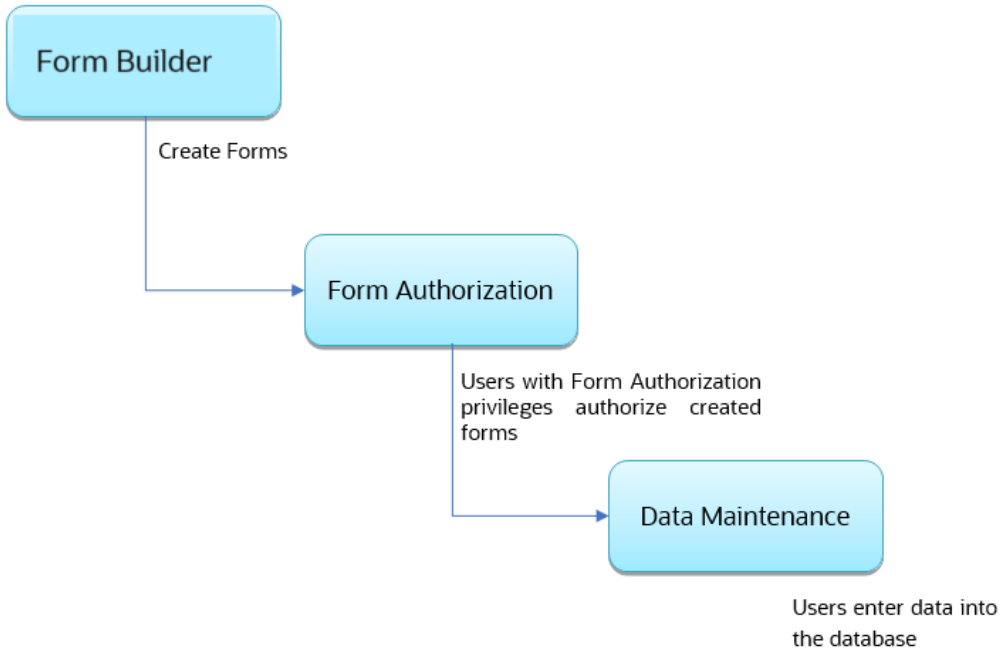
Figure 3-20 DMI Process Flowchart



User Role Mapping and Access Rights

User access to the DMI UI and the ability to perform functions in it is dependent on the mapping of the user profile to the roles and the access rights assigned.

To access the DMI features and edit forms, you must be mapped to the following roles:

Table 3-16 User Role Mapping for Data Maintainence Interface

Role Code	Role Name	Functionality
DMIDSGNREAD	Data Designer Read	Assign this role to the user to access the Configure View menu from Navigation Tree. NOTE: The mapping of this role does not allow view, edit, and add actions.
DMIDSGNAUTH	Data Designer Auth	Assign this role to the user to Authorize, Excel Upload, and Designer Summary.
DMIDSGNREJ	Data Designer Reject	Assign this role to the user to Reject, Excel Upload, and Designer Summary.
DMIDGNFORM	Data Designer Form	Assign this role to the user to Create Designer Form Definition.
DMIDGNTEMPLATE	Data Designer Template	Assign this role to the user to Create Excel upload Definition.

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Table 3-16 (Cont.) User Role Mapping for Data Maintainence Interface

Role Code	Role Name	Functionality
DMIDSGNDEL	Data Designer Delete	Assign this role to the user to Delete, Excel upload, and Designer Summary.
DMIDGNVIEW	Data Designer View	Assign this role to the user to Create View Definition.
DMIDSGNWRITE	Data Designer Write	Assign this role to the user to Add, Edit and Copy all kinds of definitions in Designer screen.
DMIDATAREAD	Data Entry Read	Assign this role to the user to access the Data View menu from the Navigation Tree. NOTE: The mapping of this role does not allow view, edit, and add actions.
DMIDATAALL	Data All Summary	Assign this role to view the list of all Component Records in Data Entry Screen.
DMIDATAWRTE	Data Entry Write	Assign this role to the user to Add, Edit Records in Data Entry Screen.
DMIDATADEL	Data Entry Delete	Assign this role to the user to Delete a Record Summary Data Entry Screen
DMIDATAAUTH	Data Entry Auth	Assign this role to Authorize a Record Summary in Data Entry Screen.
DMIDATAREJ	Data Entry Reject	Assign this role to Reject a Record Summary in Data Entry Screen.
DMIDGNAUTO	Enable Auto Approve	The user mapped to this function will have access to create Auto Approved Forms
DMIDGNAMND	Enable editing of approved forms	User with this role can edit/ amend approved forms.

> **Note**
>
> All the DMI roles are mapped to a single group, Data Maintenance admin group. If a user is mapped to this group all the DMI roles are automatically assigned to the user.

3.3.1 Access the Data Maintenance Interface

To access the Data Maintenance Interface (DMI):

1. Login to your Oracle Cloud account, with the required credentials to access DMI.
2. Select an application, to access the DMI for that application.

   For example, to access DMI for CFECS, select **Cash Flow Engine Cloud Service (CFECS)**.

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> **Note**
>
> The navigation steps vary for different applications. Refer to the respective application documentation for accessing Data Maintenance Interface.

3. Click **Data Management Tools** and click **Data Management Interface**, to access DMI menu.
4. Click one of the following menu items to access the respective pages:
   - Form Builder - Access form definition summary and also create various types of form definitions.
   - Data Entry

3.3.2 User Role Mapping and Access Rights

User access to the DMI UI and the ability to perform functions in it is dependent on the mapping of the user profile to the roles and the access rights assigned.

To access the DMI features and edit forms, you must be mapped to the following roles:

Table 3-17 User Role Mapping for Data Maintainence Interface

Role Code	Role Name	Functionality
DMIDSGNREAD	Data Designer Read	Assign this role to the user to access the Configure View menu from Navigation Tree. NOTE: The mapping of this role does not allow view, edit, and add actions.
DMIDSGNAUTH	Data Designer Auth	Assign this role to the user to Authorize, Excel Upload, and Designer Summary.
DMIDSGNREJ	Data Designer Reject	Assign this role to the user to Reject, Excel Upload, and Designer Summary.
DMIDGNFORM	Data Designer Form	Assign this role to the user to Create Designer Form Definition.
DMIDGNTEMPLATE	Data Designer Template	Assign this role to the user to Create Excel upload Definition.
DMIDSGNDEL	Data Designer Delete	Assign this role to the user to Delete, Excel upload, and Designer Summary.
DMIDGNVIEW	Data Designer View	Assign this role to the user to Create View Definition.
DMIDSGNWRITE	Data Designer Write	Assign this role to the user to Add, Edit and Copy all kinds of definitions in Designer screen.
DMIDATAREAD	Data Entry Read	Assign this role to the user to access the Data View menu from the Navigation Tree. NOTE: The mapping of this role does not allow view, edit, and add actions.

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Table 3-17 (Cont.) User Role Mapping for Data Maintainence Interface

Role Code	Role Name	Functionality
DMIDATAALL	Data All Summary	Assign this role to view the list of all Component Records in Data Entry Screen.
DMIDATAWRTE	Data Entry Write	Assign this role to the user to Add, Edit Records in Data Entry Screen.
DMIDATADEL	Data Entry Delete	Assign this role to the user to Delete a Record Summary Data Entry Screen
DMIDATAAUTH	Data Entry Auth	Assign this role to Authorize a Record Summary in Data Entry Screen.
DMIDATAREJ	Data Entry Reject	Assign this role to Reject a Record Summary in Data Entry Screen.
DMIDGNAUTO	Enable Auto Approve	The user mapped to this function will have access to create Auto Approved Forms
DMIDGNAMND	Enable editing of approved forms	User with this role can edit/ amend approved forms.
DATASECURITY	Data Security	Assign this role to the user to view unredacted data in the Personal Information (PI) columns (if the **Redaction** toggle is turned on in the **Data Exporter** UI). If this toggle is turned off, data appears redacted for all users regardless of their role. For information on how full and partial redaction are performed, see Redaction Functions in Data Security Management Guide.

> **Note**
>
> All the DMI roles are mapped to a single group, Data Maintenance admin group. If a user is mapped to this group all the DMI roles are automatically assigned to the user.

3.3.3 Form Builder

Access the list of Form definitions already created in the environment.

The Form Definitions Summary lists all the existing Form Definitions in the application.

You can create forms from the Form Designer View. The forms in the application are created with details configured for data maintenance and require authorization for use after creation. You can also edit, view, and delete forms, from the Forms Definitions Summary, based on the assigned roles and privileges. For more information, refer User Role Mapping and Access Rights.

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To view the Form Definitions Summary:

1. Click **Data Maintenance Interface**.
2. Click **Form Builder** in the DMI navigation list to access the **Form Definitions Summary**.

   The following details are included the Summary page.

   - **Name** - The unique name of the Form Definition
   - **Description** - The Form Definition description.
   - Type - The form definition type:
     - **Excel Upload** – creates form based on uploaded Excel Sheet.

       > **Note**
       >
       > Microsoft Office 2016 Standard version as well as Office 365 version are supported.

     - **Data Exporter** – creates form based on an entity table.
     - **Data Entry** – creates the form based on the entities, attributes and rulesets provided by the user.
   - **Status** - The processing status of the form definition. The various processing statuses are:
     - **Draft** – when the form is under development and is yet to be submitted for approval.
     - **Pending Approval** – When the approval is pending.
     - **Approved** – When the form definition is approved.
   - **Created By** - The Username of the logged in User who created the form.
   - **Actions** - View, copy or edit or amend a form definition.
   - **Info** - The form definition details including:
     - Created Date
     - Last Modified By
     - Authorizer
     - Authorizer comments

   Use **Search** to quickly access the required forms or check the Forms tile to view a list of existing forms. To search for a specific Form Definition, input search terms in the **Form Name** or **Description** field, or use a combination of both, and click **Search**. Click **Cancel** to clear the search criteria and view all form records.

   Sort the Form Definition based on **Name**, **Description**, and **Created By** fields. You can also sort the page in ascending/descending order.

   To filter and view Form definitions with a specific processing status, click the respective status name at the top of the page.

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3.3.3.1 Creating New Forms in Form Builder

Form creation involves selecting entities, displaying columns with attributes on the form, and if required, selecting authorization of data. Security settings provide for the creation of specific-user access for the forms and authorization.

To add a form :

1. In the **DMI Summary** page, click **Add**, to access the **Designer - Configure page**.
2. Select the form definition type as follows:
   - **Excel Upload** – creates form based on uploaded Excel sheet.
   - **Data Exporter** – creates form based on an entity table.
   - **Data Entry** – creates the form based on the entities, attributes and rulesets provided by the user.

   For more information about creating various form definitions:
   - Creating Forms Using Excel Upload
   - Creating forms using Data Exporter
   - Creating Forms Using Data Entry

3.3.3.1.1 Creating Forms Using Excel Upload

Excel Upload Definition Type creates new forms based on the uploaded Excel file that has column names as per the table in the application data source.

While creating forms using Excel Upload, you can also modify the mapping for the attributes. After the new form is approved from the Forms Definition Summary Page, users with the necessary role and permission can perform Data Entry for the records updated by the Excel file.

> **Note**
>
> Microsoft Office 2016 Standard version as well as Office 365 version are supported.

You can view/modify data in the personal information (PI) columns based on the assigned roles. For more information about the roles, refer to User Role Mapping and Access Rights.

To create forms using Excel Upload:

1. Select Excel Upload in the Create Form Definition page and add the following details.
   - **Code** - The unique Form code. This value is auto-generated.
   - **Name** - The Form Name. You can enter between 3 to 100 characters. Only alphabets, numbers, spaces, and underscores are allowed.
   - **Description** - The Form Definition description. You can enter between 3 to 100 characters. Only alphabets, numbers, spaces, and underscores are allowed
   - **Auto Map Entities** - Enable this option to to auto map the attributes in the Excel file with the attributes in the Entity Table.

   At any point of time during the form creation, click **Save** to add the new form to the Form Summary. The form is saved in the **Draft** format. Click **Actions** and select **Edit**, to update the form definition.

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2. Click **Continue** to access the **File Upload** tab.
3. In the **File Upload** tab, enter the following details:
   - **Template Name** and **Description** for the excel template.
   - Click **Drag and Drop** and select the excel file to update the required table.

   > **Note**
   >
   > You can also drag and drop the required excel file to the **Drag and Drop** area.

   The excel file is uploaded and a confirmation box is displayed, and the **Mapped Entities Tab** is displayed.
4. After entering the **File Upload** information, click **Continue** to access the **Mapped Entities** tab.
5. In the **Mapped Entities** tab, select the **Primary Entity** name of the table that needs to be modified.

   > **Note**
   >
   > Only the tables data which can be edited are displayed in the **Entity** drop-down list.

   If the table has Child tables, the Child tables are displayed in the **Mapped Entities** tab. You can select the required child tables for which data should be input during data entry.
6. Select **Enable Bulk Authorization** if you want to enable the bulk authorization of all the records when you edit an approved Form from Data Entry.
7. Enable **Auto Approve** if you want the Forms Definition to be automatically approved from Forms Definition Summary page and is enabled for data entry.

   Alternatively, you can also get the form approved manually. For manual approval, disable the auto approve option.

   A user with the required role can then perform the data entry without the need for an approval process. For more information, see User Role Mapping and Access Rights.
8. Click **Continue**, to proceed with the **Mapped Attributes** tab.
9. Click the drop-down arrow corresponding to the table in the Entity Name.

   The source attributes from the table and the mapped attributes from the Excel file are displayed. If the selected table has Child tables, the Child tables that you select from the Mapped Entities tab are also displayed in the **Mapped Attributes** tab. You can configure the attributes for the master table and its child tables here.
10. Click the required mapping in the **Override Mapping Column** and enter the required attribute name if you want to change the default mapping.
11. To activate data security, Select the check box next to the **Attribute Name**, in the **Mapped Attributes** Column.
12. Click the **Lock** icon adjacent to a specific attribute name, to configure a specific data security condition.

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The condition that you configure is applicable when a user performs the data entry for the table records for each approved Forms Definition from the Data Entry Page. For more information, refer Enabling Data Security for New Form Definitions.

13. Click **Continue** to proceed to the **User Security** tab.
14. Select the user or user groups who can perform data entry to maintain the data in the table.

    For more information about adding user security, refer to Enabling User Security for New Form Definitions.
15. Click **Data Preview** to preview the form data.
16. Click **Save** if you want to save the forms definition in draft format. The form is added to the **Form Summary** with **Draft** status.
17. Click **Submit** if you want to submit the Forms Definition for manual/auto approval.

    For more information refer to Approving and Rejecting New Form Definitions. After approval/auto approval, the form is added to the **Form Definition Summary**.

3.3.3.1.2 Creating Forms Using Data Entry Option

Use the Data Entry option to create a Forms Definition and select the table and attributes that you want to modify.

You can enter the values for the table records in the approved Forms Definition from Data Entry, after the new Forms Definition is approved from the Forms Definition Summary Page.

You can view/modify data in the personal information (PI) columns based on the assigned roles. For more information about the roles, refer to User Role Mapping and Access Rights.

To create a forms definition:

1. Select **Data Entry** in Create New Form Definition page and enter the required details.
2. Enter the following details:
   - **Code** - Unique form code. This value is auto-generated.
   - **Name** - The form name. You can enter between 3 to 100 characters. Only alphabets, numbers, spaces, and underscores are allowed.
   - **Description** - The form definition description. You can enter between 3 to 100 characters. Only alphabets, numbers, spaces, and underscores are allowed.
   - **Threshold** - The maximum number edits allowed per row.
3. Click **Continue** to access the **Entities tab**.
4. Select the table that you want to modify in the **Primary Entity** Field.

> **Note**
>
> Only the tables data which can be edited are displayed in the **Entity** drop-down list.

If the selected table have child tables, the child tables is also displayed. You can select the required Child tables for which you wish to input the data during data entry.

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> **Note**
>
> You can select up to four child tables only for each master table.

5. Select **Enable Bulk Authorization**, if you want to enable the bulk authorization of records while performing data entry.
6. Enable **Auto Approve** if you want the Forms Definition to be automatically approved from Forms Definition Summary page and is enabled for data entry.

   Alternatively, you can also get the form approved manually. For manual approval, disable the auto approve option.

   A user with the required role can then perform the data entry without the need for an approval process. For more information, see User Role Mapping and Access Rights.
7. Click **Continue**, to proceed with the **Attributes** tab.
8. Select the **Filter** from the existing filters in the drop-down list or click **Filter** to apply a new attribute filter to the form definition.
9. Click the drop-down arrow corresponding to the table in the **Entity Name**, to view the attributes in the entity table.

   If your table has child tables, the Child tables that you select from the Entities tab also gets displayed in the Attributes tab.
10. Select the attributes for which you want to modify the data from the **Attribute Name**.
11. Select **Participate in Data Security** if you want to configure a specific condition.
12. Click the **Lock** icon adjacent to a specific attribute name, to configure a specific data security condition.

    The configured condition is applicable when a user enters data in table for each approved Forms Definition from the Data Entry Page. For more information, refer Enabling Data Security for New Form Definitions.
13. Enter **Select Columns** to search and select specific columns.
14. Click **Continue** to access the **Ruleset** tab.

    The list of attributes associated with the parent and the Child tables are displayed in the Ruleset tab.
15. Assign permission to add data during data entry for those attributes that are set to Editable/Read-only mode. You cannot modify the key fields set in read-only mode.
16. Click Continue and proceed to the **User Security** tab.
17. Click **User Security** to select the user or user groups who can perform data entry to maintain the data in the table.

    For more information about adding user security, refer to Enabling User Security for New Form Definitions.
18. Click **Submit** if you want to submit the Forms Definition for manual/auto approval.

    For more information refer to Approving and Rejecting New Form Definitions. After approval/auto approval, the form is added to the **Form Definition Summary**.

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3.3.3.1.3 Creating Forms Using Data Exporter

Forms created using Data Exporter are used to export table data to `CSV` or `JSON` format.

While creating forms using Data exporter, you can also include filters and dynamic placeholders to view and export specific set of data.

To create forms using Data Exporter:

1. Select **Data Exporter** in Create New Form Definition page.
2. Enter the following details:
   - **Source** - Select the input source as table/view.
   - **Code** - Unique Form Code. This is auto-generated.
   - **Name** - The name of the form in Form Name. You can enter between 3 to 100 characters. Only alphabets, numbers, spaces, and underscores are allowed.
   - **Description** - The Form Definition description. You can enter between 3 to 100 characters. Only alphabets, numbers, spaces, and underscores are allowed.
   - **Row Limit Per File** - The number of maximum table rows allowed per file. The minimum number of rows is 100 and the maximum limit is 100000.

     For example, if you have 500 rows in a table and the row limit is set to 100, then the table is split into 5 files.
3. Click **Continue** to proceed with the **Entity and Attributes Details** tab.
4. **Compress File**: Keep this option selected to automatically compress files into a .zip archive when downloading. Example: If you have 500 rows in a table and the row limit is set to 100, then the table is split into 5 files. With the **Compress File** option enabled, the user can download these 5 files compressed into a single .zip file.
5. **Redaction**: Keep this option selected to redact personal information (PI) from users who do not have the DATASECURITY role. For more details, see User Role Mapping and Access Rights.

   For information on how full and partial redaction are performed, see Redaction Functions in Data Security Management Guide.
   - The redacted data is displayed as stored in the database. Example: For the number data type, if the redacted data is appearing as 0, the Data Preview window shows the data as 0. Similarly, for the VARCHAR data type, if the redacted data is appearing empty in the database, the Data Preview window shows the data as empty.
   - If the report contains redacted data, the user must have the DATASECURITY role to download it from the **Forms Definition – Summary** page.
6. Select the table that you want to modify in the **Entity** Field.

   If the selected table have child tables, the child tables is also displayed. You can select the required Child tables for which you wish to input the data during data entry.

   > **Note**
   >
   > You can select up to four Child tables only for each Master table.
7. Select the **Filter** from the existing filters in the drop-down list or click **Filter** to apply a new attribute filter to the form definition.

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8. Click **Select columns** to view only specific columns.
9. Enable **Auto Approve** if you want the Forms Definition to be automatically approved from Forms Definition Summary page and is enabled for data entry.

   Alternatively, you can also get the form approved manually. For manual approval, disable the auto approve option.

   A user with the required role can then perform the data entry without the need for an approval process. For more information, see User Role Mapping and Access Rights.
10. Click the drop-down arrow corresponding to the table in the **Entity Name**, to view the source attributes from the table and the mapped attributes from the Excel file.

    If the selected table has Child tables, the Child tables that you select from the Mapped Entities tab are also displayed in the **Attributes** tab. You can configure the attributes for the master table and its child tables.
11. Click **Continue** to access the **Data Preview** tab preview the form data.
12. Click **Submit** if you want to submit the Forms Definition for manual/auto approval.

    For more information refer to Approving and Rejecting New Form Definitions. After approval/auto approval, the form is added to the **Form Definition Summary**.

3.3.3.1.4 Creating Data Filters for New Form Definitions

Filters help to view and export specific set of data from data exporter forms.

Complete the following steps if you want to add filters to the Forms Definition:

1. Click **Filter**, to access the **Filter Condition** pane.
2. Enter/ select the following details.
   - **Column** - Select the column from the applying the filter.
   - **Condition** - Select one of the following filter conditions, to filter the column data.
     - **Comparison** - '=', '!=', '< >', '>', '<', >=, <=,'IN', 'NOT IN', 'ANY', 'BETWEEN', 'LIKE', 'IS NULL', and 'IS NOT NULL'.
   - **Type** - Select one of the following filter types.
     - **Static** - Select Static, to enter a value and execute the filter using only one value. You cannot change the value at a later point.
     - **Dynamic** - Select Dynamic, to change the filter value when needed.
       After setting the filter type to Dynamic, select the **Placeholder** and set one of the default seeded values, to process the filter.

     > **Note**
     >
     > Only values that are already seeded in the Database table, are displayed in the Placeholder drop-down list.

   - **Filter Value** - Select/enter the filter value.

     > **Note**
     >
     > For Language Placeholder the default locale language is displayed and cannot be modified.

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3. Click **Add** to add a new Filter expression. You can add multiple Filter expressions to the same filter.

   The filter is added to the list of filters.

   Mouse-over the place holder filter, to view more details about the filter.

4. Click **Validate** to verify the filter condition is valid.

   A confirmation is message is displayed, if the filter is valid.

5. Click **Apply**, to add the new filter to the filter condition.
6. Click **Reset**, to clear all the filter expressions and create a new expression.
7. Click **Delete** to delete an existing filter expression.
8. Click **Edit** to modify a filter expression. After editing the expression, click **Validate**, to verify if the condition is valid.
9. Click **Apply** to add the filter expression to the form definition.

3.3.3.1.5 Enabling Data Security for New Form Definitions

Data security conditions allows you to apply certain filters when a user performs the data entry for the table records for each approved Forms Definition from the Data Entry page.

Consider that you configure the condition `COUNTRY_NAME = 'INDIA'` for the reference table **DIM_COUNTRY**. When a user performs the data entry for this Forms Definition from the Forms Definition - Summary Page and enters a country name other than 'INDIA', the record gets rejected by the application when another user approves this record.

Complete the following steps to configure Data Security for the Forms Definition:

1. Select the check box next to the **Attribute Name**, in the **Mapped Attributes** Column.

   > **Note**
   >
   > Data Security information must be configured for each attribute name, separately.

2. Click the **Lock** icon, to access the **Data Security page**.
3. Select the **Reference Table** based on which you want to build your condition from the Reference Table drop-down list.
4. Select the required column, condition, and filter value, and build the required expression.
5. Click **Apply**, to enable the data security for the new form definitions.

3.3.3.1.6 Enabling User Security for New Form Definitions

The User Security option helps you to select the users/user groups who can add, edit, delete and/or authorize data entry.

To enable user security:

- Select the required user group or user to assign permissions from the **Map Users / Groups**, to complete the user security configuration.

  When you select the user group or user, the permissions for each approved Forms Definition are displayed. These permissions are the actions that the selected user group or user can perform while performing Data Entry.

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Table 3-18 Permissions in the Map Users / Groups Pane

Option	Description
Add /Edit	Add or modify records in an approved Forms Definition
Delete	Delete records in an approved Forms Definition
Authorize	Authorize the records in an approved Forms Definition
Duration From	Optional. Select the start date for which the permissions are available to the user or user group.
Duration To	Optional. Select the end date for which the permissions are available to the user or user group.

> **Note**
>
> If you select a user group for User Security, you can view the users mapped to that group by clicking the **Users** icon.

3.3.3.2 Approving and Rejecting New Form Definitions

You can validate and approve the new Forms Definition if you have the required role assigned to you.

If the configuration in the Forms Definition is incorrect, you can reject the Forms Definition. The rejected Forms Definition changes into Draft status. You can then request the required user to edit the Forms Definition and submit it for approval again.

You can also view, copy, and edit each Forms Definition from the Forms Definition – Summary page by clicking Menu. These actions are available based on the roles assigned to you. For more information, refer User Role Mapping and Access Rights.

3.3.3.2.1 Approving a Forms Definition

You can approve new forms based on the assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights.

To approve a Forms Definition:

1. In the Form Builder, click **Menu** in the Forms Definition that is in **Pending Approval** status, and then click **Approve**, to access the **Configure page**.
2. Click **Approve** and then enter the required description for the approval in the Comments field.
3. Click **Submit**, to approve the form definition and view it in the **Data Entry page**.

   Once the form is approved, you can edit/amend the approved forms if you have **DMIDGNAMND** role assigned.

3.3.3.2.2 Rejecting a Forms Definition

You can reject new forms based on the assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights.

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To reject a Forms Definition:

1. In the Form Builder, click **Menu** in the Forms Definition that is in **Pending Approval** status, and then click **Reject**, to access the **Configure page**.
2. Click **Reject** and then enter the required description for the approval in the Comments field.
3. Click **Submit**.

   The Forms Definition is rejected, moved to **draft** status. The form definition is displayed in Forms Definition Summary page. You can then edit the Forms Definition in draft status and submit it for approval again.

   For more information on editing a Forms Definition, see Editing Form Definitions.

3.3.3.3 Managing Form Definitions

You can view, edit, copy, and delete the existing Form Definitions from the Form Definition Summary Page, based on the assigned roles.

To check about the assigned roles, refer to User Role Mapping and Access Rights.

In the Summary Page, highlight a specific Definition and click **Action**. The following options are displayed:

Table 3-19 Action Details

Action	Description
View	View the **Member details** for a specific Member Definition.
Edit/Amend	Edit/amend the **Member details** of a form definition.
Copy	Copy the Member Definition Details and create another Member Definition by changing Alphanumeric Code, Numeric Code and Name.
Re-Upload	Upload a new Excel sheet for an Excel upload form definition. You need to delete the attached excel sheet before uploading the new data.
Delete	
Approve	If you have the required role, you can approve a new Form that is in Awaiting Approval status. For more information, refer to Approving a Forms Definition.
Reject	If you have the required role, you can approve a new Form that is in Awaiting Approval status. For more information, refer to Rejecting a Forms Definition.

3.3.3.4 Viewing Form Definitions

You can view the form definition details using the View option, based on the assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights.

You can view the details of an individual Form Definition:

1. Highlight the Form Definition and click **Action**.
2. Click **View**, to access the **Form Definition page** with the selected Form definition details.

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3.3.3.5 Editing/Amending Form Definitions

You can modify both approved and rejected form definitions, based on the assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights. Forms that are already approved cannot be edited. You can amend the approved forms if you have **DMIDGNAMND** role assigned.

> **Note**
>
> You cannot amend an approved form, if the form has any pending data entry activity.

To edit individual form details:

1. Highlight the form definition and click the **Action**.
2. Click **Edit**, to access the **Form Definition page** with the details.

   To modify an approved form, click **Amend**.
3. Update the required information and click **Submit**.

   You can also **auto-approve** the form during submission.

   The modified form definition is updated in the form design summary.

3.3.3.6 Copying Form Definitions

You can copy individual Definition Details, to recreate another new Definition, if you have assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights.

To copy an existing form definition:

1. Highlight the Definition and click **Action**.
2. Click **Copy**, to view the **Form Definition Page**.
3. Edit the unique information and modify details like entity table, attribute filters, user and data security details and click **Save**, to create a new form definition.

3.3.3.7 Deleting Form Definitions

You can delete the form definitions that are in Draft status, based on the assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights.

To delete a form definition :

1. Highlight the form definition and click the **Action**
2. click **Delete**.

   The selected form definition is deleted after confirmation.

3.3.4 Data Entry

The Data Entry feature of Data Maintenance Interface (DMI) enables you to maintain or modify the table data by using the Forms Definition that is created and approved from Forms

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Definition Summary page. For more information on Forms Definitions, see Creating Forms Definition.

If the approved Forms Definition is created by using the designer option, a user with the necessary role can add or modify the records in the table as per the configuration in the Forms Definition. These records are then sent to another user with the necessary permission for final approval.

If the approved Forms Definition is created by using an Excel file, a user with the necessary permission can verify and approve the records that are modified with the values from the Excel file. If the records modified by the Excel file are incorrect, the user can reject the records. The rejected record can be modified by a different user with the necessary role and can be sent for the final approval again. The Forms Definitions that are created by using an Excel file are labeled with an Excel icon in Data Entry.

3.3.4.1 Viewing Data Entry

You can view records based on the assigned roles. For more information about the roles, refer to User Role Mapping and Access Rights.

Complete the following steps to view Data entry:

1. Login to your Oracle Cloud account, with the required credentials to access DMI.
2. Select an application, to access the DMI for that application.

   For example, to access DMI for CFECS, select **Cash Flow Engine Cloud Service (CFECS)**.

   > **Note**
   >
   > The navigation steps vary for different applications. Refer to the respective application documentation for accessing Data Maintenance Interface.

3. Click **Data Management Tools** and click **Data Management Interface**.

   The **Navigation List** is displayed.

4. Click **Data Entry**.

   The **Data Entry page** is displayed. All the approved forms are displayed in the Data Entry page. Forms in Draft and Awaiting Approval status can be accessed from the Form Builder page.

3.3.4.2 Adding Data to Table – Forms Created Using Data Entry

If the Forms Definition is created using the designer option, the user with the necessary role can add or delete records and also update the values for the table records as per the configuration in the Forms Definition.

These records are then submitted for approval to another user with the necessary role. For more information, refer to User Role Mapping and Access Rights.

To update/delete data in the table records:

1. Highlight the record and click the **Action**.
2. Click **Edit**, to update the records.

   The records are classified based on the following Status:

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- **Draft** – Records that are created but not submitted. In Draft state, you can add new rows or delete/edit an existing row submitted for auto-approval.
- **Ready** – Records that are approved. You can only edit the records.

For adding/deleting records and editing existing draft or Ready records, refer to the following sections:

Related Topics

- Adding/Editing a Draft Record
  You can add a record to the table or edit a record set in the Draft status. The added record is set to Draft status.
- Deleting Draft Records

3.3.4.2.1 Adding/Editing a Draft Record

You can add a record to the table or edit a record set in the Draft status. The added record is set to Draft status.

When adding/editing a draft record, the data is displayed as entered in the UI. You can view/ modify data in the personal information (PI) columns based on the assigned roles. For more information about the roles, refer to User Role Mapping and Access Rights.

To add or edit a draft record:

1. Select **Draft** from the **Status** drop-down list, to view all the entity records set to **Draft** status.
2. To add a new record, click **Add**.

   A new entry set to **Draft** status is added to Entity details page. This entry is empty. Edit the record to add the attribute details.
3. To edit a record, click **Edit** next to the record.
4. In the **Edit** page, enter the values in the attributes that you want to modify and click **OK**.

   You can repeat the steps for all the records for which the data needs to be entered.
5. To modify all the entries in a specific column, click **Bulk Update**.
   a. Select the column to modify the data.
   b. Enter the new value and click **OK**.
6. Click the modified record in draft status, and then click **Submit for Approval** or **Submit with Auto Approval**.

   If the record is submitted with auto approval, it is approved instantaneously.

   If the record is submitted for approval, is sent for approval, and is changed to **Awaiting status**. A user with the necessary role can approve these records. For more information, see Approving and Rejecting Records after Data Entry.

   After approval, the status is changed from **Draft** to **Ready** status. Refer Editing Approved Records, to edit the records in **Ready** status.

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> **Note**
>
> If the user has configured the **Participate In Data Security** option while creating a Forms Definition, you must enter the value as per the configured condition. If you enter a value that does not meet the condition, then the record is rejected by the application and the approval gets failed. You can view the details of the rejection by using the Audit trail option for each record. For information on the Participate In Data Security option, see Enabling Data Security for New Form Definitions.

3.3.4.2.2 Deleting Draft Records

You can delete the records in Draft status. If the record is approved and moved to Ready status, it cannot be deleted.

1. Select **Draft** from the Status drop-down list.

   The entity records with Draft status are displayed for entering data are displayed.

2. Select a record and click **Delete**.

   To delete multiple records, select all the required records and click **Delete**.

   To bulk delete all the records, select the Check box on the Header. All the records are selected. Then, click **Delete**.

3.3.4.2.3 Editing Approved Records

The approved records are set to Ready Status.

When editing records in Ready Status, the data is displayed as stored in the database. You can view/modify data in the personal information (PI) columns based on the assigned roles. For more information about the roles, refer to User Role Mapping and Access Rights.

When you edit the record, it is moved to Draft Status.

1. Select **Ready** from the Status drop-down list, to view the entity records with Ready status are displayed.
2. To edit a record, click **Edit** next to the record.
3. Update the values for the attributes that you want to modify and click **OK**.

   You can repeat the steps for all the records for which the data needs to be entered.

4. To modify all the entries in a specific column, click **Bulk Update**.
   a. Select the column to modify the data.
   b. Enter the new value and click **OK**.
5. Click the modified record in draft status, and then click **Submit for Approval** or **Submit with Auto Approval**.

   To submit multiple records, select all the required records and click **Submit**.

   To bulk submit all the records, select the check-box on the header. All the records are selected. Then, click **Submit**.

   If the record is submitted with auto approval, it is approved instantaneously. The record is sent for approval and is changed to Awaiting status. A user with the necessary role can approve these records. For more information, see Approving and Rejecting Records after Data Entry.

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> **Note**
>
> If the user has configured the Participate In Data Security option while creating a Forms Definition, you must enter the value as per the configured condition. If you enter a value that does not meet the condition, then the record is rejected by the application and the approval gets failed. You can view the details of the rejection by using the Audit trail option for each record. For information on the Participate In Data Security option, see Enabling Data Security for New Form Definitions.

3.3.4.3 Forms Created Using Excel Upload

When a Forms Definition created using an Excel file is approved from Forms Definition Summary Page, the table records in the selected table are updated using the data in the Excel file.

The records are set to **Awaiting** status for the approved forms definition in data entry page. You can verify the records modified by the Excel file records and approve them if you are assigned to the necessary role. If the records modified by the Excel file are incorrect, you can reject the records. The status of the rejected records is changed to Draft. A user with the necessary role can edit the records in draft status and submit them for approval again.

- To approve records, see Approving a Draft Record.
- To reject records, see Rejecting a Record.
- To edit a record in draft status, see Editing a Rejected Record.

3.3.4.4 Approving and Rejecting Records

A user with the necessary role can approve or reject the edited records.

For more information related to user roles, refer to User Role Mapping and Access Rights.

3.3.4.4.1 Approving Draft Records

You can approve the records set to Draft status.

To approve records :

1. In the **Data Entry** page, select **Draft** from the **Status** drop-down list.

   The entity records with Draft status are displayed.
2. Select the required record.

   You can select multiple records, to perform bulk Approval. Bulk Approval is enabled only if Bulk Authorization is activated during Form Creation.
3. Enter the required comment in the Comments Field, and then click **Approve**.

   The record is approved successfully with the values from the Excel file.

3.3.4.4.2 Rejecting a Record

You can reject an record set to Awaiting status.

To reject a record :

1. Click **Menu** in the required Forms Definition from the Data Entry page.
2. Click **Edit**.

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The Entity Details page is displayed. The records that are waiting for the final approval are displayed here.

Select the required record, and then click **Reject**.

You can select multiple records to perform bulk rejection. Bulk rejection is enabled only if Bulk Authorization is activated during Form Creation.

3. Enter the required comment in the Comments field, and then click **Reject**.

   The record is rejected, and the status is changed to **Draft**. A user with the necessary role can now edit the record.

3.3.4.4.3 Editing a Rejected Record

You can edit the records that are in draft status and send them approval to the user with the necessary role.

To edit a record:

1. Select **Draft** from the **Status** drop-down list.
2. Click **Edit** in the record that you want to edit.
3. Modify the required attributes, and click **OK**.
4. Select the record and then click **Send for Approval**.

   The modified record is now moved to **Awaiting** status. A user with the necessary role can approve the record.

> **Note**
>
> If the user has configured the **Participate In Data Security** option while creating a Forms Definition, you must enter the value as per the configured condition. If an incorrect value is entered, the record gets rejected by the application and the approval is failed. You can view the details of the rejection by using the Audit Trail option for each record. For information on the Participate In Data Security option, see Enabling Data Security for New Form Definitions.

3.3.4.5 Exporting Data Exporter Form Definitions

After creating data exporter form definitions, you can export or download the reports to CSV or JSON format.

To export or download a report:

- In the Data Entry summary page, click **Action** next to the data exporter form to be exported and select one of the following options
  - Custom Export - export the report only for selected attributes. You can also create and apply filter conditions to specific columns to generate customized reports.
  - Export - export the report for all the attributes. A complete report including all the records and attributes is generated.

3.3.4.5.1 Custom Exporting Data Exporter Forms

When you create forms using Data Exporter option, you can export the report to .CSV format.

To custom export data exporter forms :

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1. Click **Action** next to the form to be exported and click **Custom Export**, to view the **Data Exporter - Configure** page.
2. Click **Start**, to access the **Entity and Attributes** tab.
3. Select the attributes to be added to the custom report.
4. Click **Continue**, to view the **Filters** tab.
5. Set the filter conditions for specific columns and click Continue to view the **Data Preview** tab.
6. Select the report file format (.CSV or JSON) and also the number of records per page.
7. View the list of records to validate the data.
8. Click **Export** to export the report in CSV format.

   The Data export request will be submitted.
9. Proceed to the Data entry page to view the status of the form and download the report.

3.3.4.5.2 Exporting Data Exporter Forms

Forms created using Data Export option can be exported as a .CSV file or a JSON file.

Export Data Exporter forms:

1. Click **Action** next to the form to be exported and click **Export**.

   The Data export request is submitted.
2. Proceed to the Data entry page to view the status of the form and download the report.

3.3.4.5.3 Viewing Data Exporter Report Status

View the status of all the reports generated based on a Data Exporter form.

To view report status:

- Click **Action** next to the form to be exported and click **Status/Download**, to view the status of all the reports generated for a specific data exporter form.

3.3.4.5.4 Downloading Reports

You can download the reports exported as .CSV file.

If the report contains redacted data, you must have the DATASECURITY role to download it. See User Role Mapping and Access Rights.

To download a report:

1. Click **Data View**.

   The **Data Entry page** is displayed.
2. Click **Action** next to the form to be exported and click **Status/Download**, to access the **Data exporter Report Status** page.
3. Click the **Download** icon adjacent to a report to download the report to the local directory in `.CSV` format.

   You can also copy the link to download the report. Enter the link in a Web browser, to access the report.

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3.3.4.6 Perform Excel Re-upload on an Approved Excel Form Definition

After an Excel form definition is uploaded and approved using the Form Designer/Builder screen, you can re-upload the Excel file with additional data, if needed.

To do this, use the **Data View** screen.

> **Note**
>
> - You can re-upload Excel files for both manual and auto approved forms.
> - This action depends on your assigned user role. To verify your permissions, refer to User Role Mapping and Access Rights.

To perform an Excel re-upload

1. On the Data View screen, click the action button corresponding to the Excel form and select **Excel Upload**. The **Excel Upload** UI appears.

   > **Note**
   >
   > If you have records in draft or awaiting status, you cannot re-upload the Excel file.

2. Click **Drag and Drop** and select the Excel file you want to upload. Note: Make sure the file matches the correct form definition. To ensure your file uses the right format, download the template using the **File Template** button.
3. Review the information shown in the Data Preview section.
4. Click **Submit** for approval.

3.3.4.6.1 Approving and Rejecting Re-Uploaded Excel Forms

You can approve or reject re-uploaded Excel form definitions, but only for forms that were uploaded and approved manually. (The Maker-Checker validation applies to this action).

Forms that were auto-approved cannot be manually approved or rejected.

To approve or reject Excel Upload records

1. On the Data View screen, click the action button corresponding to the Excel form and select **Approve/Reject** Files.

   The **Pending Approval** page appears.
2. Click Preview to review the record being approved or rejected.
3. Enter your review comments.
4. Click **Approve** or **Reject** as appropriate.
5. Click the refresh button to view the status, once the process is completed.

The **Excel Upload** UI appears, displaying the Upload History, including:

- File Name
- Processing Status

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- Uploaded Data Count
- Approval Comments
- Date of creation
- Total Number of Uploads
- Completed Uploads

3.3.5 Adding DMI Tasks in Scheduler Service

The Data maintenance Interface is now integrated with the Scheduler services and you can use Scheduler services, to process form definitions created using Data Exporter.

By using Scheduler Services for DMI automation, you can automate and streamline the data processing for form definitions created using the Data Exporter options.

Ensure that you have the assigned roles to perform automated data exporter form download.

To schedule a DMI task for form definitions created using Data Exporter:

1. Log in to your **Cloud services** and access **Scheduler Services**.
2. Select **Define Batch**, to view the list of existing batches.
3. In the Define Batch page, click **Create**, to access the **Create Batch** page.
4. Enter the generic Batch information (**Code, Batch Name, Batch Description, and Batch Parameters**), and click **Save** to create a new Batch and proceed with creating a new Task.
5. In the **Left Navigation list**, select **Define Tasks**, to access the list of existing tasks.
6. In the Define Task page, select the **DMI Batch** to associate the new task
7. Click **Add**, to **Create a new task**.
8. Enter the generic Task details (**Task Code, Task Name and Task Description**), and the following DMI specific details:
   - **Component** - Select Data Maintenance Interface, to assign this as a DMI specific task.
   - **Report Template** - Select **Pre-defined template**, to access the following DMI specific template parameters.
     - **App ID** - The unique application ID of the application utilizing the Scheduler services for task automation.
     - **Module Name** - Select the module required for the DMI tasks, from the list of Seeded modules.
     - **Report Code** - Select the Report code to be added to the generated report.
     - **Report Type** - Set the report type to `CSV/JSON`.
     - **Available Place holders** - (Optional). Select the placeholder required for the report.
     - **Placeholder Values** - (Optional). Enter the placeholder values to be included in the generated report.
     - **Additional Filters** - (Optional). Enter the filters to be applied to the data, to generate reports with specific information. For details, see Dynamically export relevant records.
     - **Report Name Prefix** - (Optional). Enter the unique prefix to be added to the report name for easy identification of the report.

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- **Report Name** - (Optional). Provide a name for the report to be generated.

> **Note**
>
> If the export definition was created before 24D release, you must recreate it. This is required because an enhancement in Scheduler Services now captures the base URL as part of the definition.

9. Click **Save** to create a new DMI specific task, and proceed with scheduling the batch.
10. In the Left Navigation list, select **Schedule Batch**, to access the list of batches.
11. Select the DMI batch for execution and click **Execute**.
12. During batch execution, click **Monitor Batch**, to check the progress.
13. Select the **Batch** and the **Run ID** to access the required task, and click **Start Monitor** to view the task execution progress in the **Visualizations** tab.
14. Click **List View** to view the task execution details of all the executed tasks.

    After the task execution is complete, the generated report is saved to the object store.
15. Click **View Execution Logs** corresponding to the DMI task, to view the execution log information.
16. Scroll to the required **Batch Run Id** and **copy the log details to clipboard**.
17. Paste the copied log information to a notepad, to get the PAR URL for downloading the report.
18. Paste the PAR URL in a Web browser, to download the report to the local directory.

3.4 Data Quality Framework

Data Quality Framework consists of a scalable rule-based engine which uses a single-pass integration process to standardize, match, and duplicate information across global data.

Topics:

- Introduction to Data Quality Framework
- Roles and Functions for Managing DQ Framework
- Data Quality Rules
- Data Quality Groups
- Adding a DQ Check Task
- Execution Summary

3.4.1 Introduction to Data Quality Framework

Data Quality Framework consists of a scalable rule-based engine which uses a single-pass integration process to standardize, match, and duplicate information across global data.

Data Quality Framework within the Infrastructure system facilitates you to define rules and execute them to query, validate, and correct the transformed data existing in an environment. This framework includes the following components:

- Data Quality Rules - Data Quality Rules allows you to create a DQ (Data Quality) definition and perform Data Quality checks using Single column and Multi-column checks.

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- Data Quality Groups - Data Quality Groups facilitates you to logically group the defined DQ definitions.

3.4.2 Roles and Functions for Managing DQ Framework

The following roles and function are required to create, view and manage the Rules and Groups in DQ Framework.

Role	Action
DQACC - DQ Access	Data Quality Rule Access Role
DQADVND - DQ Advanced	Data Quality Rule Advanced Role
DQAUTH - DQ Authorize	Data Quality Rule Authorize Role
DQAUTOAUTHR - DQ Auto Authorize Rulw	Data Quality Auto Authorize Rule
DQREAD - DQ Read	Data Quality Rule Read-only Role
DQWRITE - DQ Write	Data Quality Rule Write Role

Functions	Action
DQ_SUMM - Data Quality Rule Summary	Access DQ Rule Summary
DQ_GP_EXEC - Execute Data Quality Group	Execute DQ Rule Group
DQ_GP_ADD - Add Data Quality Group	Add DQ group
DQ_ADD - Add Data Quality Rule	Add DQ Rule
DQ_EDT - Data Quality Edit Rule	Edit DQ Rule
DQ_VIW - Data Quality View Rule	View DQ Rule
DQ_GP_VIW - Data Quality View Rule Group	View DQ Rule Group
DQ_GP_DEL - Data Quality Delete Rule Group	Delete DQ Rule Group
DQ_DEL - Data Quality Delete Rule	Delete DQ Rule
DQ_AUTH - Data Quality Authorisation Rule	Authorize DQ Rule
DQ_GP_EDT - Data Quality Edit Rule Group	Edit DQ Rule Group
DQ_GP_ADD -Data Quality Add Rule Group	Add DQ Rule Group
DQAUTOAUTH - Data Quality Auto Authorize	Save the Rule/Group in authorized state
DQ_PURGE - DQ Rule Purge	Purge the DQ Rule
DQ_GP_SUMM - Data Quality Group Summary	Access DQ Group Summary
DQ_GP_EXEC - Data Quality Execute Rule Group	Execute DQ Rule
DQ_GP_PURGE - DQ Group Purge	Purge the DQ Group
DQ_GP_AUTH - DQ Group Authorisation	Authorize DQ Group
DQ_EXE_SUMMARY- DQ Execution Summary	Access DQ Execution Summary
DQ_EXE_ASSIGN - DQ Execution Assignment	Enable Data correction in the execution summary

3.4.3 Data Quality Rules

Data Quality Rules allows you to create a DQ (Data Quality) definition using data quality checks based on single column or multiple columns of a single base table. The defined Data Quality Rules can be logically grouped and executed together.

3.4.3.1 Data Check Definitions

Data Check definitions included the Data Quality Rules help in performing data quality check and correction.

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You can include the following Data quality checks in the DQ Rule.

- **Single Column Check** - You can set the Check Type to Single Column Check during DQ Rule creation. This check will perform Data Quality Check on only one column selected during Rule creation. For more details about the various Single column Checks, refer to Single Column Data Check Definitions.
- **Multi Column Check** -You can set the Check Type to Multi Column Check during DQ Rule creation. This check will perform Data Quality Check on one or more columns of a single base table, selected during Rule creation. For more details about the various Multi-column Checks, refer to Multi Column Data Check Definitions.

3.4.3.1.1 Single Column Data Check Definitions

Single Column Data Checks help to perform data quality check on only one column selected during DQ Rule creation.

You can include the following Data Quality checks in the DQ Rule, if the check type is set to Single Column Check.

- **Range Check** - Range Check identifies if the base column data falls outside a specified range of Minimum and Maximum value. Range check can be enabled only if the base column has date or number value.
  - Select the check-box to enable the Range check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - If the selected Base Column is of **Date** type, select Minimum and Maximum date range. If the selected base column is of **Number** type, enter the Range value. You can specify numeric, decimal, and negative values for number Data type.
  - Check the Inclusive check-box, to include the specified date/value during the data check.
  - Click **Edit** to add specific filter expressions, as additional conditions. For more information, refer to Creating Expressions.
  - Select the **Assignment** option. The Assignment option is enabled only if Warning/ Information is selected as the Warning level.
    * Select the Assignment Type from the drop-down list. For more information, see Assignment Types.
    * Specify the **Assignment Value**.
    * Select the **Message Severity** as 1 or 2 from the drop-down list.
    * Select a pre-defined Message to be displayed from the drop-down list.
      To enter a specific message other than the listed pre-defined messages, select **Custom Message**, in the Message drop-box and enter the required **Custom Message**.
- **Null Value Check** -Null Value Check checks identifies if there is any null value in the selected column.
  - Select the check-box to enable the Null Value check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - Click **Edit** to add specific filter expressions, as additional conditions.
  - Select the **Assignment** option. The Assignment option is enabled only if Warning/ Information is selected as the Warning level.

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        * Select the Assignment Type from the drop-down list. For more information, see Assignment Types.
        * Specify the **Assignment Value**.
        * Select the **Message Severity** as 1 or 2 from the drop-down list.
        * Select a pre-defined Message to be displayed from the drop-down list.
          To enter a specific message other than the listed pre-defined messages, select **Custom Message**, in the Message drop-box and enter the required **Custom Message**.

- **Blank Value Check** -Null Value Check checks identifies if there is any entry in the selected column is blank.
  - Select the check-box to enable the Blank Value check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - Click **Edit** to add specific filter expressions, as additional conditions.
  - Select the **Assignment** option. The Assignment option is enabled only if Warning/ Information is selected as the Warning level.
    * Select the Assignment Type from the drop-down list. For more information, see Assignment Types.
    * Specify the **Assignment Value**.
    * Select the **Message Severity** as 1 or 2 from the drop-down list.
    * Select a pre-defined Message to be displayed from the drop-down list.
      To enter a specific message other than the listed pre-defined messages, select **Custom Message**, in the Message drop-box and enter the required **Custom Message**.
- **Data Length Check** -Data Length Check checks for the length of the base column data using a minimum and maximum value and identifies if it falls outside the specified range.
  - Select the check-box to enable the Data Length check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - Enter the Minimum and maximum values for validation.
  - Click **Edit** to add specific filter expressions, as additional conditions.
- **Duplicate Check** - Duplicate Check can be used when a combination of column is unique and identifies all the duplicate data of the base table in terms of the columns selected for the duplicate check.
  - Select the check-box to enable the Duplicate Check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - Click **Edit** to add specific filter expressions, as additional conditions.
  - Click **Edit** and select the required column to be added to the **Column List**, for duplicate check validation.
- **Custom Check/Business Check**- Custom Check/Business Check is a valid SQL query to identify the data with the query specified as the Custom/business SQL. You can define the SQL, but the Select clause of the query has to follow the order as specified in the template of the Custom Check panel.
  Sample Template : `"SELECT 'N_COUNTRY_SKEY' PKNAMES, N_COUNTRY_SKEY PK1, null PK2, null PK3, null PK4, null PK5, null PK6, null PK7, null PK8, V_COUNTRY_DESC ERRORCOL FROM DIM_COUNTRY WHERE N_COUNTRY_SKEY >50"`

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- Select the check-box to enable the Custom Check.
- Set the warning level to **Severity**, **Warning** or **Information**.
- Enter the SQL Query to perform the custom check.

- **Column Reference/Specific Value Check** - Column Reference / Specific Value Check compares the base column data with another column of the base table or with a specified direct value using the list of pre-defined operators.
  - Select the check-box to enable the Column Reference check.
  - Set the warning level to **Severity**, **Warning** or **Information**. Column reference check can be enabled only if the base column has date or number value.
  - Select the **Mathematical Operator** from the drop-down list.
  - Select the **Filter Type** as one of the following:
    - Select **Specific Value** and specify the Value. You can specify numeric, decimal, and negative values for number Data type.
    - Select **Another Column** and select Column Name from the drop-down list.
  - Click **Edit** to add specific filter expressions, as additional conditions.
  - Select the **Assignment** option. The Assignment option is enabled only if Warning/ Information is selected as the Warning level.
    - Select the Assignment Type from the drop-down list. For more information, see Assignment Types.
    - Specify the **Assignment Value**.
    - Select the **Message Severity** as 1 or 2 from the drop-down list.
    - Select a pre-defined Message to be displayed from the drop-down list. To enter a specific message other than the listed pre-defined messages, select **Custom Message**, in the Message drop-box and enter the required **Custom Message**.
- **List of Value** - List of Value Check verifies the values where a dimension / master table is not present. This check identifies if the base column data is not matching with any value or code specified in a list of values.
  - Select the check-box to enable the List of Value check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - Select **Input Values** and specify the List of Values. You can specify numeric or String values.
  - Click **Edit** to add specific filter expressions, as additional conditions.
  - Select the **Assignment** option. The Assignment option is enabled only if Warning/ Information is selected as the Warning level.
    - Select the Assignment Type from the drop-down list. For more information, see Assignment Types.
    - Specify the **Assignment Value**.
    - Select the **Message Severity** as 1 or 2 from the drop-down list.
    - Select a pre-defined Message to be displayed from the drop-down list. To enter a specific message other than the listed pre-defined messages, select **Custom Message**, in the Message drop-box and enter the required **Custom Message**.

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- **Referential Integrity Check** - Referential Integrity Check identifies all base column data which has not been referenced by the selected column of the referenced table. Here, the reference table and columns are user specified.
  - Select the check-box to enable the Referential Integrity Check.
  - Set the warning level to **Severity**, **Warning** or **Information**. Column reference check can be enabled only if the base column has date or number value.
  - Select the **Table** (Referential Integrity Check dimension table) from the drop-down list. The base table selected under the Select grid is excluded from the drop-down list.
  - Select the Column from the drop-down list. The list displays those columns that have the same Data Type as that of the Base Column selected under Select grid.
  - Select the **Is Composite Key** check-box if the base column is part of a Composite Key.
  - Click **Edit** to add specific filter expressions, as additional conditions.

3.4.3.1.2 Multi Column Data Check Definitions

Multi Column Data Check definitions help in data quality checks and correction of one or more columns of a single table, selected during Rule creation.

3.4.3.1.3 Assignment Types

To populate the Assignment Type details, select any of the below Assignment Type option from the dropdown list and do the following:

- **No Assignment** - This assignment is selected by default and does not have any target column update, but the message details are pushed.
- **Direct Value** - Enter the **Assigned Value**. You can specify number, date or string values, as required.
- **Another Column** - Select the required Column as **Assigned Value** from the drop-down list.
- **Expression** - Specify the required expression in the Specify Expression Page. For more information, refer to Creating Expressions.

3.4.3.2 Creating Expressions

You can define an expression in the Expression Builder to combine two selected tables.

The expression builder includes the following sections:

- **Entities** - consists of the Entities folder with the list of tables that you selected from the Entity Groups folder. Double-click the Entities folder to view the selected dimension tables (Product and Segment tables).
- **Functions** – The 2 types of functions are,
  - **Database Functions** - consists of functions that are specific to databases.
  - **User Defined Functions** - use these functions along with Operators to specify the join condition.
- **Operators** - Consists of the function operators categorized into folders. The various types of operators are,
  - **Arithmetic** - +, -, %, * and /

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- **Comparison** - '=', '!=', '< >', '>', '<', >=, <=,'IN', 'NOT IN', 'ANY', 'BETWEEN', 'LIKE', 'IS NULL', and 'IS NOT NULL'.
- **Logical** - 'NOT', 'AND' and 'OR'
- **Set** - UNION, UNION ALL, INTERSECT and MINUS
- **Other** - The Other operators are 'PRIOR', '(+)', '(' and ')'.

To specify the join condition:

1. Select the **Entity** of the fact table to which you want join the dimension entities.
2. Select a **Function** depending on the database type.
3. Select the **Operator** you want to use for the join condition.
4. Select the **Second Entity** from the Entities pane that you want to join with the first entity. You can also select more than one table and link to the fact table.

   The defined expression is displayed in the Expression pane. Click **Reset** to reset the values.
5. Click **OK**.

   The defined expression is validated as per the selected table and entity definition and on successful validation, it is added to the DQ Rule.

3.4.3.3 DQ Rules Summary

The Data Quality Rule Summary page contains the list of user-defined Data Quality Rules with details such as Name, Status, Folder, Is Executed, Version, Is Grouped, Check Type and Base table.

Refer to the following procedure to view DQ Rules Summary and the relevant details:

- Click **Data Quality Rules**, to access the Data Quality Rules Summary.

  The Data Quality Rules Summary page with the following details is displayed.
  - **Name** - The Unique Identifier Name of the Data Quality Rule.
  - **Status** - The Approval status of the specific rule.
    - **Approval** - The Rule is approved and ready for execution. The approved rules can be grouped further for execution.
    - **Pending for Approval** - The rule requires approval and can be executed only after approval.
    - **Draft** - A defined rule is set to**Draft** status until it is submitted for approval by the creator.
    - **Rejected** - The rejected rules are sent back to the creator with the Approver comments.
  - **Folder** - The folder associated with the rule.
  - **Version** - The current active version of the rule.
    When a new definition is created, it will be saved as version 1 and once it is authorized, it will be in Active status. After you modify any DQ Rule and save, it will be saved with version as highest available version +1. For example, if you modify a DQ Rule of version 2 and the highest version available is 4, after you save the definition, its version becomes 5. Only the latest version will be in Active status.
  - **Check Type** - Select one of the following check types:

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  - **Single Column Check** - define conditions based on individual checks on a single column. For more information, refer to Single Column Data Check Definitions.
  - **Multi Column Check** - define conditions based on multiple columns of a single base table. These checks are not pre-defined and can be specified (user-defined) as required. For more information, refer to Multi Column Data Check Definitions.
- **Base Table** - The base table within the environment, associated with the rule.
- **Created By** - The login name of the user who created the rule.
- **Created Date** - The rule creation date.
- **Action** - Click **Action**, to view, approve, reject edit, or delete the rule.

To search for a particular rule, enter the first few letters of the rule name in the Search column.

You can also sort the rule summary based on the Status, Folder name, check type, record status, Rule name and Select table.

To sort the Summary based on the Status, click **Status** in the Search bar, and select the required status.

3.4.3.4 Creating DQ Rule

You can create a Data Quality Rule Definition by specifying the DQ Definition details along with the entity details and the type of data quality check to be performed on the selected base table. You can also define the required search conditions to query and correct the transformed data.

1. To create a DQ Rule, click **Add Rule** on the DQ Rules Summary.

   The Data Quality Rules page with DQ Group Details and DQ Rules Mapping tab is displayed.

2. Click **Start**, to enter the following basic details for the new DQ Rule.

   - **Name** - The unique identifier name for the rule.
     The name should start with alphabet and should not be more than 50 characters.

     Blank space ( ), **Underscore (_)** and **Hyphen (-)** are allowed as special characters.
   - **Description** - The description/details for the rule.
     The description should start with alphabet and should not be more than 250 characters.
   - **Folder** - Select the folder present in the current environment, to be associated with the rule.
   - **Check Type** - Select one of the following check types for the rule.
     - **Single Column** - Select Single column to perform data quality check only on one column. For more information, refer to Single Column Data Check Definitions.
     - **Multi-Column** - Select Multi-Column to perform data quality check on more than one column in a single table. For more information, refer to Multi Column Data Check Definitions.
   - **Access-type** - Select one of the following Access types.
     - **Read-only** - only the creator can edit the rule. Other users can only view the rule.
     - **Read-Write** - all users can view, modify any fields (including Access Type), and also delete the DQ Rule.
   - Check **Auto DQ Group Required** option, to create a new DQ group, for this Rule.

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The new group will be associated only with the created DQ rule. The group name will be set as <DQ_Rule_Name_group>, and this group will have only Read-only access.

- Check **Auto Assignment**, to execute the rule, and also perform the assignment.

> **Note**
>
> The Auto Assignment is applicable only to the Auto DQ Group.

- Click **Continue** to proceed with the Entity Selection page.

3. Enter/select the following entities:
   - **Table** - Select the basic table on which the rule is executed.
   - If the rule is a single-column rule, select the **Base Column**, to be included for the rule execution. Base column will not be present for Multi-Column rule.
     You can search table and columns based on their physical and logical names, using the toggle button.
   - Select the **Identifier Columns** required to execute the rule.
     The default primary key fields present in the selected entity table are automatically added as identifier columns. They cannot be deleted.
     - To select multiple columns, click **Edit**.
     - Select the required columns from the **Available Members** pane and move them to **Selected Members** pane.
   - Click **Edit**, to include the filter expression.
     The **Specify Expression** page is displayed. For more information refer to Creating Expressions.
     - Select the entities to be included in the filter expression and click **OK**.
4. Click **Continue**, to proceed with the **Data Check Definitions**.
5. Select the required Data Check Definitions, to validate the data.

   Enter/select the required information for each Data Check Definition. For more information about each Data check type, refer to Data Check Definitions.
6. Click **Submit**, to submit the new DQ Rule for approval.

   The DQ Rule is saved with the status **Pending for Approval**, in the Rules Summary and a confirmation message is displayed.

   While creating the DQ Rule, you can also click **Save As Draft**, to save the new incomplete DQ Rule at any point of time and resume the process at a later point. A confirmation message is displayed, after the draft is saved successfully.

   The new Rule added to the DQ Rules Summary, and is set to **Draft** Status in the DQ Rules Summary.

> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, the Rule will be auto-approved.

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3.4.3.5 Editing DQ Rules

You can update all the definition details except for the Definition Name, Check Type, Table, and the Base Column selected.

You can only edit the DQ rules that are set to **Draft, Approved** and **Rejected** status. You cannot edit the rules that are set to **Pending for Approval** status.

To edit the required Data Quality Rule definition details:

1. Click **Action** adjacent to the DQ Rule to be modified.
2. Click **Edit**, to modify the DQ Rule.
3. Click **Start** to edit the **DQ Rule Details**.
4. Modify the description and click **Continue** to proceed with editing the Entity Selection details.

   You can also click **Save as Draft**, to save the changes and proceed with Submission later.
5. Modify the Filter expression and click **Continue** to proceed to **Data Check Definitions** page.
6. Add/remove the data checks required during rule execution and click **Submit**, to submit the modified rule for approval.

   The rule is updated and added to the DQ Rules Summary. A confirmation message is displayed.
   The Rule is set to **Pending for Approval** state.

> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, the Rule will be auto-approved.

3.4.3.6 Approving/Rejecting a Data Quality Rule

An authorizer can approve a user-defined Data Quality Rule definition or reject an inappropriate DQ Definition listed within the Data Quality Rule Summary.

You should be mapped to DQ Authorizer function role to approve or reject a DQ Definition.

> **Note**
>
> You can only approve those DQ Rules that are set to **Pending for Approval** status.
> If the user has **DQAUTOAUTH** Role assigned, the DQ rule will be auto-approved.

To view a Data Quality rule, and approve/ reject Data Quality rule:

1. Click **Action** adjacent to the DQ Rule to be approved/rejected.
2. Click **Preview**, to view the DQ Rule.

   All the details pertaining to the selected rule is displayed.
3. Click **Approve/Reject**, after reviewing the rule.
4. Enter valid reason for approval or rejection.

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5. Click **Approve/Reject**.

   The DQ Rule is approved/rejected and a confirmation message is displayed.

3.4.3.6.1 Bulk Approving/Rejecting Data Quality Rules

An authorizer can approve multiple user-defined Data Quality Rule definitions or reject an inappropriate DQ Definition listed within the Data Quality Rule Summary.

You should be mapped to DQ Authorizer function role to approve or reject a DQ Definition.

> **Note**
>
> You can only approve those DQ Rules that are set to **Pending for Approval** status. If the user has **DQAUTOAUTH** Role assigned, the DQ rule will be auto-approved.

> **Note**
>
> When you initiate bulk approval/rejection, all the selected rules are approved/rejected based on the user input. If you want to stop the approval/rejection of one specific rule, cancel the whole process and restart again.

To view several Data Quality rules, and approve/ reject them:

1. Filter Rule Summary, to view only the rules with **Pending For Approval** Status.

   All the rules that need be approved/rejected are displayed.

2. Select the rules for approval/rejection.

   You can select all the rules displayed in a page, by clicking the check box next to the **Name** header. To select all the rules in the Summary, with **Pending** Status, select **Click All Rules in Summary** link.

3. Click **View Details**, to view the Rule details of all the selected rules.

   All the rule details, and base table for the selected rules are displayed. Review the details and add appropriate comments and click **OK**.

   You can also **Proceed without Viewing** the details.

4. Click **Approve/Reject**.

   The selected DQ Rules are approved/rejected and a confirmation message is displayed.

3.4.3.7 Deleting a Data Quality Rule

You can remove the Data Quality Rule definition(s) that are not grouped in the Data Quality Framework. A grouped and non-executed Data Quality Rule definition can still be deleted by unmapping the same from all the associated group(s).

To delete a DQ Rule:

1. Click **Action** adjacent to the DQ Rule to be approved/rejected.
2. Click **Delete**, to delete the DQ Rule.

   The selected rule is set to **Pending for Approval** status and is deleted after approval.

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> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, the Rule will be auto-deleted.

3.4.3.8 Purging a Data Quality Rule

You can delete a Data Quality Rule definition permanently from the setup.

You can purge only those DQ Rules that are deleted after approval.

To delete a DQ Rule:

1. Click **Action** adjacent to the deleted DQ Rule.
2. Click **Purge**, to delete the DQ Rule from the setup.

   The selected rule is is deleted permanently after confirmation.

3.4.4 Data Quality Groups

Data Quality Groups facilitates you to logically group the defined DQ Definitions .

DQ Group Definitions can be executed through Scheduler Services. For more information, refer to Adding a DQ Check Task .

3.4.4.1 DQ Groups Summary

The Data Quality Groups Summary displays the list of user-defined Data Quality Groups with the other details such as Name, Folder, Creation Date, Created By, Last Modification Date, Last Modified By, Last Run Date, and Last Run Status. .

You can create and execute DQ Group definitions and view, modify, copy, refresh, or delete DQ Group definitions within the Data Quality Groups Summary.

- Click **Data Quality Groups**, to access the Data Quality Groups Summary.

  The Data Quality Rules Summary with the following details is displayed.

  - **Name** - The Unique Identifier Name of the Data Quality Group.
  - **Status** - The Approval status of the specific group.
    - **Approval** - The group is approved and ready for execution.
    - **Pending for Approval** - The group requires approval and can be executed only after approval.
    - **Draft** - A defined group is set to **Draft** status until it is submitted for approval by the creator.
    - **Rejected** - The rejected rules are sent back to the user with the Approver comments.
  - **Version** - The current active version of the group.
    When a new definition is created, it will be saved as version 1 and once it is authorized, it will be in Active status. After you modify any DQ Group and save, it will be saved with version as highest available version +1. For example, if you modify a DQ Group of version 2 and the highest version available is 4, after you save the definition, its version becomes 5. Only the latest version will be in **Active** status.
  - **Folder** - The folder associated with the group.

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- **Created Date** - The group creation date.
- **Created By** - The login name of the user who created the Group.
- **Last Run Date** - The last date on which the DQ Group was executed.
- **Last Run Status** - The last execution state if the specific DQ Group.
  - **Success** - The last execution of the selected DQ Group was completed successfully.
  - **Failed** - The last execution did not complete.
  - **NA** - The DQ Group was not executed.
- **Action** - Click **Action**, to view, approve, reject, edit, execute, delete, or view the dependency of the group.

To search for a particular group, enter the first few letters of the group name in the Search column.

You can also sort the groups summary based on the Status, Folder name, record status and group name.

3.4.4.2 Creating DQ Groups

You can create a DQ Group definition by defining the DQ Definition details and mapping the required DQ Rules which are authorized and approved within the system.

The DQ Group definition is flexible and purpose driven. Groups can be created for different subject areas such as Credit and Market or it can be application specific like Basel II, Economic capital.

1. To create a DQ Group, click **Add Group** in the DQ Group Summary.

   The Data Quality Group page with DQ group Details and DQ Rules Mapping tab is displayed.

2. Click **Start**, to enter the following basic details for the new DQ Group.
   - **Name** - The unique identifier name for the groups.
     The name should start with alphabet and should not be more than 50 characters.

     Blank space ( ), **Underscore (_)** and **Hyphen (-)** are allowed as special characters.
   - **Folder** - Select the folder present in the current environment, to be associated with the group.
   - **Description** - The description/details for the group.
     The description should start with alphabet and should not be more than 250 characters.
   - Check **Auto Assignment**, to execute the group, and also perform the assignment.
   - **Access-type** - Select one of the following access types.
     - **Read-only** - Only the creator can edit the group. Other users can only view the group.
     - **Read-Write** - All users can view, modify any fields (including Access Type), and also delete the DQ Group.
3. Click **Continue** to proceed with the Data Rules Mapping page.

   The list of available rules are displayed in the Data Rules Mapping page.

4. Select the Rules to be added to the new DQ Group.

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5. Click **Submit**, to submit the new DQ Group for approval.

   The DQ Groups is saved with the status **Pending for Approval**,in the Group Summary and a confirmation message is displayed.

   While creating the DQ Group, you can also click **Save As Draft**, to save the new incomplete DQ Group at any point of time and resume the process at a later point. A confirmation message is displayed, after the draft is saved successfully.

   The new Group added to the DQ Groups Summary, and is set to **Draft** Status in the DQ Groups Summary.

> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, they can save and approve the DQ Group, immediatly after creating it.

3.4.4.3 Editing DQ Groups

You can modify all the details of a saved Data Quality Group Definition, except the Group name.

To edit the required Data Quality Group Definition details:

1. Click **Action** adjacent to the DQ Group to be modified.
2. Click **Edit**, to modify the DQ Group.
3. Click **Start** to edit the **DQ Group Details**.
4. (Optional). Modify the description and click **Continue** to proceed with adding/deleting the rules associated with the DQ Group.
5. Add/remove the DQ Rules associated with the DQ Groups and click **Submit**, to submit the modified group for approval.

   The group is updated and added to the DQ Groups Summary. A confirmation message is displayed.
   The Group is set to **Pending for Approval** state.

> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, they can save and approve the DQ Group, immediatly after creating it.

3.4.4.4 Approving/Rejecting a Data Quality Group

An authorizer can approve a user-defined Data Quality Group definition for further execution or reject an inappropriate DQ Definition listed within the Data Quality Rule Summary.

You should be mapped to DQ Authorizer function role to approve or reject a DQ Definition.

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> **Note**
>
> You can only approve those DQ Rules that are set to **Pending for Approval** status. If the user has **DQAUTOAUTH** Role assigned, they can save and approve the DQ Group, immediatly after creating it.

To view a Data Quality Group, and approve/ reject it:

1. Click **Action** adjacent to the DQ Groups to be approved/rejected.
2. Click **Preview**, to view the DQ Groups.

   All the details pertaining to the selected rule is displayed.
3. Click **Approve/Reject**, after reviewing the groups.
4. Enter valid reason for approval or rejection.
5. Click **Approve/Reject**.
6. The DQ Group is approved/rejected and a confirmation message is displayed.

3.4.4.4.1 Bulk Approving/Rejecting Data Quality Groups

An authorizer can approve multiple user-defined Data Quality Groups or reject an inappropriate DQ Groups listed within the Data Quality Group Summary.

You should be mapped to DQ Authorizer function role to approve or reject a DQ Definition.

> **Note**
>
> You can only approve those DQ Groups that are set to **Pending for Approval** status. If the user has **DQAUTOAUTH** Role assigned, the DQ group will be auto-approved.

> **Note**
>
> When you initiate bulk approval/rejection, all the selected groups are approved/ rejected based on the user input. If you want to stop the approval/rejection of one specific group, cancel the whole process and restart again.

To view several Data Quality groups, and approve/ reject them:

1. Filter Group Summary, to view only the groups with **Pending For Approval** Status.

   All the groups that need be approved/rejected are displayed.
2. Select the groups for approval/rejection.

   You can select all the groups displayed in a page, by clicking the check box next to the **Name** header. To select all the groups in the Summary, with **Pending** Status, select **Click All Groups in Summary** link.
3. Click **View Details**, to view the Group details of all the selected Groups.

   All the group details, and base table for the selected groups are displayed. Review the details and add appropriate comments and click **OK**.

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You can also **Proceed without Viewing** the details.

4. Click **Approve/Reject**.

   The selected DQ groups are approved/rejected and a confirmation message is displayed.

3.4.4.5 Executing DQ Groups

You can execute an approved Data quality group.

To execute a data quality group:

1. Click **Action** adjacent to the DQ Group to be modified.
2. Click **Execute** to access the **Execute Group** page.
3. Enter/select the following details:
   - The **Threshold** percentage for the maximum number of errors permissible during the DQ check. By default, this is set to 100.
   - Set **Fail If Threshold Breaches** to **TRUE**, to abort the job and not include the failure records in the DQ table, when the DQ check errors are more than the set threshold value.
     If the **Fail If Threshold Breaches** is set to **FALSE**, the DQ group will be executed and the failure records will be inserted in the DQ Result tables.
   - Set **Stop Insert on Threshold Breach** to **Y** , to the stop the execution when there is a thereshold breach. The execution will be stopped even if **Fail If Threshold Breaches** is set to **False**.
   - Enter the **Additional Parameters** required for the Run DQ Rule filtering criteria for execution in the pattern: Key#Data type#Value; Key#Data type#Value; and so on.
   - Set the **Rule Execution Connection** value. By default this is set to **Data**.
   - Set the **Result Store Connection** value. By default, this is set to **Data**.
   - Select **As of Date** to execute to DQ group.
4. After providing the required details, click **Run**, to begin the execution.

3.4.4.6 Deleting a Data Quality Group

You can remove the Data Quality Group definition(s) that are not grouped in the Data Quality Framework. A grouped and non-executed Data Quality Rule definition can still be deleted by unmapping the same from all the associated group(s).

To delete a DQ Group:

1. Click **Action** adjacent to the DQ Group.
2. Click **Delete**, to delete the DQ Group.

   The selected group is deleted after confirmation.

> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, the Group will be auto-deleted.

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3.4.4.7 Purging a Data Quality Group

You can delete a Data Quality Group definition permanently from the setup.

To delete a DQ Group:

1. Click **Action** adjacent to the deleted DQ Group.
2. Click **Purge**, to delete the DQ Group from the setup.

   The selected Group is is deleted permanently after confirmation.

3.4.5 Adding a DQ Check Task

You can add a new DQ check Task in the Scheduler Services and add the task to a Batch Definition, for execution.

For more information about adding a task to the Batch and about Scheduler Services, refer to Scheduler Services documentation.

To add new task using the Define Tasks page in Scheduler Services, perform the following steps:

1. Click **Define Tasks** from the Header panel.
2. Select the **Batch**, to add new task.
3. Click **Add**, to add a new DQ task in the **Create Task** page.
   - Complete all the generic details in the Create Task Page. For more information refer to Adding a Task.
   - Select the **Task Type** as DQ Task.
   - Select the **Group** to perform the DQ check.
   - Enter the **Threshold** percentage for the maximum number of errors permissible during the DQ check. By default this value is set to 100.
   - Set **Fail If Threshold Breaches** to **TRUE**, to abort the job and not include the failure records in the DQ table, when the DQ check errors are more than the set threshold value.

     If 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.
   - Enter the **Additional Parameters** required for the Run DQ Rule filtering criteria for execution in the pattern: Key#Data type#Value; Key#Data type#Value; and so on.
4. Click **Save** to add the new DQ task to the selected Batch.

3.4.6 Execution Summary

The Execution Summary provides the consolidated list of executed DQ batches, for the last 30 days .

You can also view the consolidated details related to the total number of records analysed, total number of passed records and the pass percentage and total number of error records and their percentage.The number of error records categorized based on the Data checks is also displayed as a pie chart.

To view the Execution Summary Details:

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- Click **Execution Summary**, to access the consolidated Execution Summary.

  The Execution Summary page with the following details is displayed.

  - **Batch ID** - The Unique Identifier Name of the particular Batch in which the DQ group is added for Data Quality Check.
  - **Process Instance ID** - The unique identifier of the execution process.
  - **DQ Group** - The DQ group associated with the Batch for Data Quality check.
  - **DQ Group Desc** - The DQ group description.
  - **FICMIS Date** - FICMIS Date refers to the date with which the data for the execution would be filtered. In case the specified MIS date is not present in the target table, execution completes with the message **No Records found**.
  - **Execution Date** - The last execution date of the Batch.
  - **Scanned Records** - The total number of records scanned for Data Quality check.
  - **Erroneous Records** - The total number of records that failed the Data Quality check.
  - **Execution Status** - The DQ Batch execution status.
  - **Assignment Status** - The current Assignment status of the DQ Batch.
  - **Action** - Click **Action**, to view the Run Details of the DQ Batch.

  To search for a particular Batch, enter the first few letters of the Batch name in the Search column.

  You can also sort the Execution summary based on the Execution Date, FICMIS Date, Execution status and Group Name, Assignment Status, Batch Id and Process Instance ID.

3.4.6.1 Viewing Run Details

Execution Details page provides the information related to the Data Quality Rule and the Data Quality Check executed during a Batch Execution.

You can also view the consolidated details related to the total number of records analysed, total number of passed records and the pass percentage and total number of erro records and their percentage.
The number of error records categorized based on the Data checks is also displayed as a pie chart.

1. Click **Action** adjacent to the specific Batch.
2. Click **View Run Details**, to access the Run details of the particular Batch execution.

   The Run details of the selected Batch is displayed with the following information.

   - **Rule** - The Rule name of the executed DQ Rule.
   - **Entity** - The Table entity associated with the Rule.
   - **Column** - The column associated for Data Quality check
   - **Check Type** - The type of check performed on the Data.
   - **Consolidated Records Scanned** - The total number of records scanned.
   - **Error Records** - The total number of erroneous records.
   - **Assignment Type** - The assignment type set during the DQ rule creation.
3. Generate and download the report, and perform assignment action based on the report.

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> **Note**
>
> To perform assignment, you must have the **DQ_EXE_ASSIGN** role assigned.

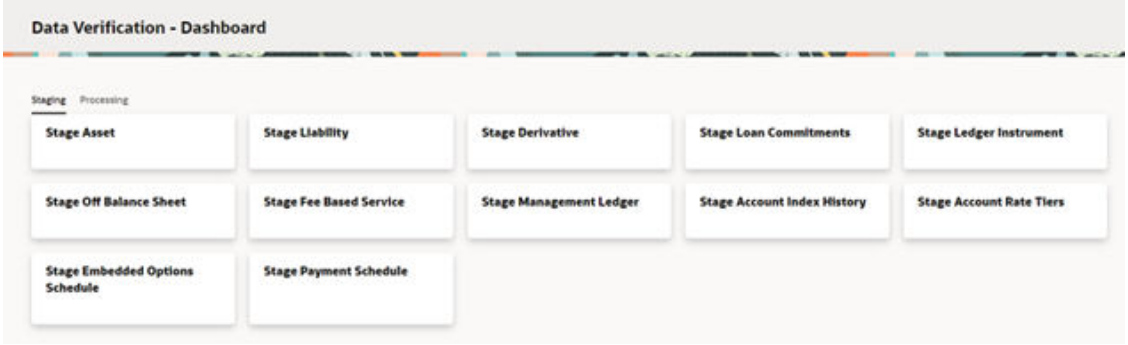
After the assignment process is completed, the Assignment status of the particular DQ Batch is set to **Success**.

3.5 Data Verification

The Data Verification UI helps you to verify the data that is loaded from the source systems to the Cloud Service's stage and processing tables, make minor corrections/adjustment to the data, and add new data directly into the tables. This UI allows you to add one record at a time and is not recommended for high volume additions as entering data is a lengthy process.

To open the Data Verification screen, from the LHS menu, select **Data Management Tool**, and then select **Data Verification**.

Figure 3-21 Data Verification Dashboard



This screen displays two tabs namely Staging and Processing. The Staging tab displays the tables that are in the staging level where you can select a table, see the data, carry out corrections, or add new data. The Processing tab displays the tables that are at the processing level and you can do all the actions similar to Staging tables.

When you select a table, a new window is displayed with a grid where you can see the selected columns.

Figure 3-22 Data Verification – Stage Asset (sample Staging table)

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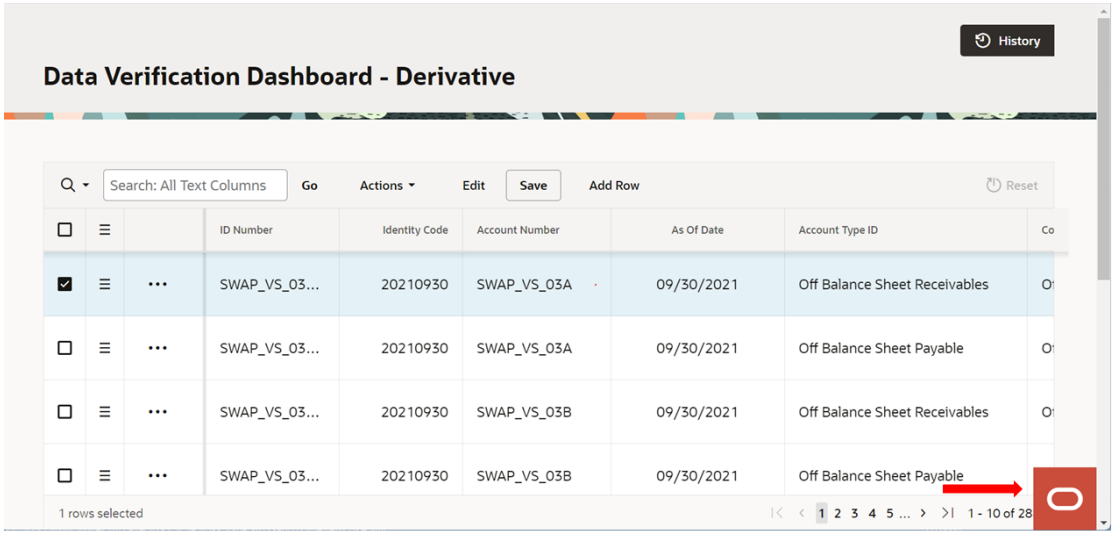
Navigating through Data Verification

Once you select a table and modify or verify your details, you can navigate back to the Dashboard or a specific Table by clicking the O logo at the bottom-right corner. This takes you to the Ask Oracle screen where the Dashboard and all the tables are listed. You can click on the line item that you want to go to that Dashboard.

Figure 3-23 Navigation through Data Verification



Users and Roles

The following roles and functions are required to use the Data Verification UI, edits the data, and add data to the Stage and Processing tables.

Table 3-20 Roles and Role Names

Role	Role Name
RLGADMACC	Data Management Access
RLGADMWRITE	Data Management Write
RLGADMREAD	Data Management Read Only
RLGADMPASRN	Data Management PA Access

The access to the users can be restricted up to table level because all the users need not have access to all the tables.

Add a New Record

To add a new record to a selected stage/processing table, click **Add Row**. Enter/populate the mandatory and the relevant columns and then click Save. When you click **Add Row**, you must enter the mandatory key columns first, and then click ellipsis (…) icon. After this your can click the ellipsis (…) icon to open the Edit Table window, fill the relevant details and then save the details.

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Delete a Row

To delete a row, select the row and click the hamburger icon to collapse the menu where you can select **Delete Row**.

Duplicate a Row

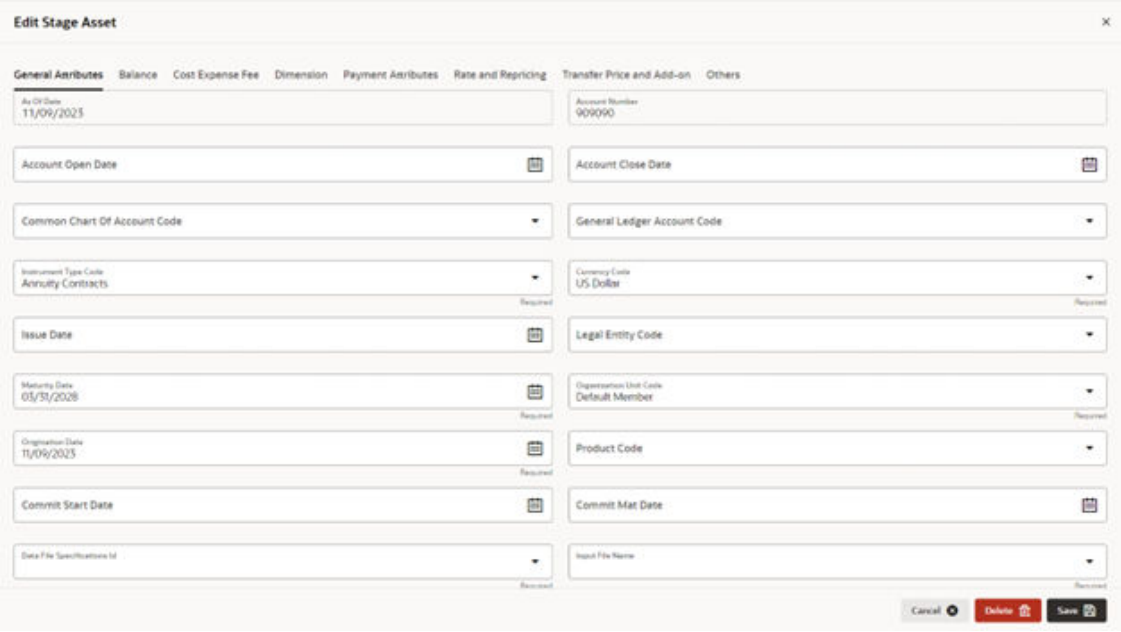
You can select a row and click **Duplicate Row** from the hamburger menu. This creates duplicate row with the same values in the Data Verification - <Table> screen.

Edit a Record

To edit a record, select a row from the Data Verification window. There are two ways in which you can edit the columns from the table.

- Select a row from the Data Verification grid and click the **Edit** button. This enables the columns that are exposed. You can double-click the entry to edit. Editing the key columns in the table is restricted.
- Select a row from the Data Verification grid and click the ellipsis (…) icon, and then click **Edit**. This opens the Edit Table window. This window displays all the columns from the table. The columns are categorized based on their nature and displayed in different tabs. You can select the relevant columns and edit. After you update the relevant details, click **Save**.

Figure 3-24 Sample Edit Table



Actions Menu

The Actions menu displays a list of actions that you can perform on a selected record. Few actions are explained below:

- **Columns**: This displays the Columns window where you reorder the displayed columns, remove form display columns that you don't want to be displayed. If you don't want to display a particular column, select the check-box against the column name, and then click Save.

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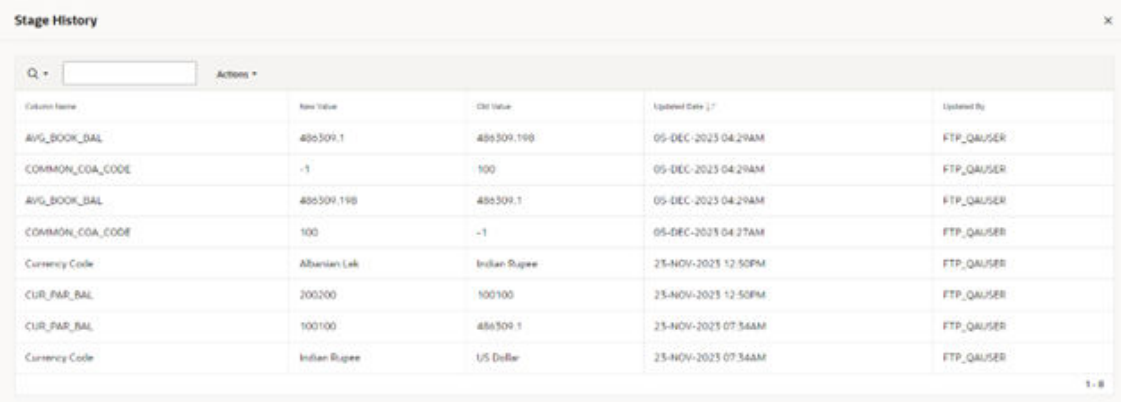
- **Filter**: This helps you to set a criterion to search a particular record.
  You can also set a filter by selecting the Search button on the top-left-corner of the grid. This collapses list of all the columns in the selected table. You can select a column and filter the records based on it.
- **Data**: Displays sorting options.
- **Format**: From here, you can set the number of rows per page to be displayed.
- **Report**: This option allows you to generate and save a report.

View History

This option displays the changes carried out on a selected record. To see the history on a record, select the record, click the ellipsis (…) icon, and then select View History. This displays the history of updates on the selected record with details such as Column Name, New Value, Old Value, Updated Date, and Updated By.

Figure 3-25 History at Record Level



To navigate back to the Dashboard or the selected table's Data Verification screen, you can click on the O logo at the right-bottom corner, and then select Dashboard on the next screen. You can also type the table name for a quick search.

To see the history of all the records on a particular table, select the record and click the History button on the top right-hand corner of the screen. This displays all the updates done on the all the records in the table. A sample screen of the history on the table is as follows:

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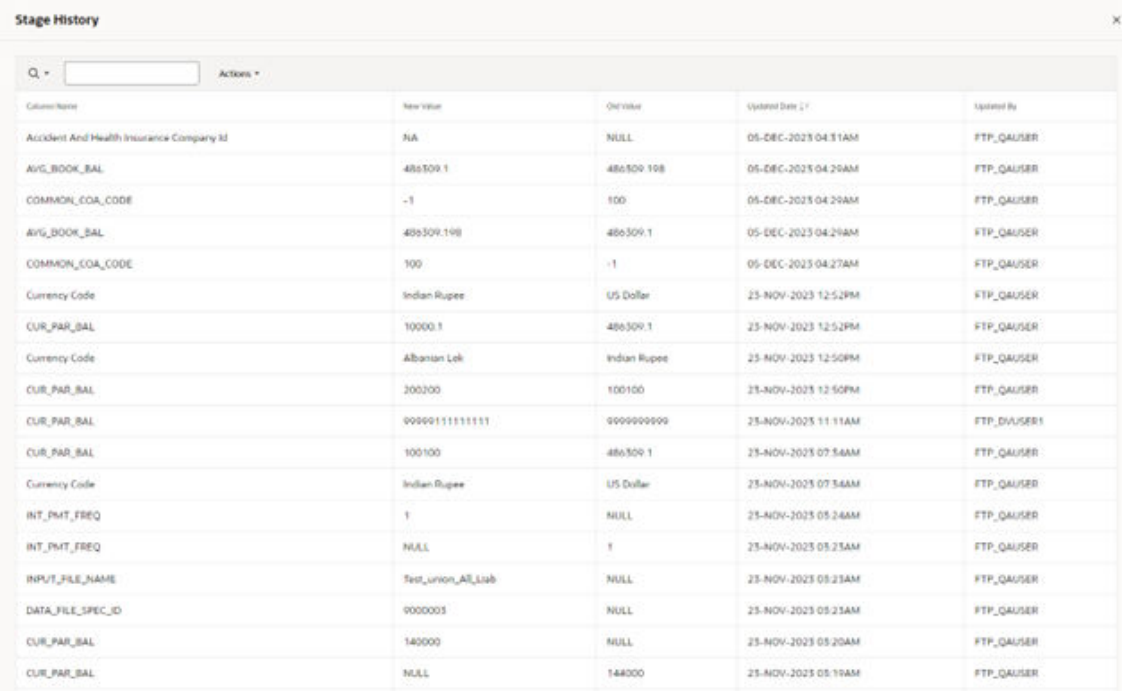
Figure 3-26 History at Table Level



3.6 Data Housekeeping

The Data Housekeeping UI helps you to perform the followings tasks based on user defined criteria:

- Delete data from selected tables
- Drop partitions and truncate subpartitions from selected tables
- Archive the data from selected tables

You can use this as data retention in PBSM cloud services.

To open the Data Housekeeping screen, from the LHS menu, select **Data Management Tool**, and then select **Data Housekeeping**.

Users and Roles

The following roles and functions are required to use the Data Housekeeping UI.

Table 3-21 Roles and Role Names

Role Code	Role Name	Function Code	Function Name
RLDHKANALYST	Data Housekeeping Analyst Role	DHKADD	Create Data Housekeeping Policy
		DHKRUN	Run Data Housekeeping Policy
		DHKDEL	Delete Data Housekeeping Policy
		DHKEDIT	Edit Data Housekeeping Policy

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Table 3-21 (Cont.) Roles and Role Names

		DHKVIEW	View Data Housekeeping Policy
		DHKLOG	View Data Housekeeping Policy execution log
RLDHKAUTH	Data Housekeeping Authorizer Role	DHKAUTH	Authorize Data Housekeeping Policy
		DHKADD	Create Data Housekeeping Policy
		DHKRUN	Run Data Housekeeping Policy
		DHK	Delete Data Housekeeping Policy
		DHKEDIT	Edit Data Housekeeping Policy
		DHKVIEW	View Data Housekeeping Policy
		DHKLOG	View Data Housekeeping Policy execution log
RLDHKAUDIT	Data Housekeeping Auditor Role	DHKVIEW	View Data Housekeeping Policy
		DHKLOG	View Data Housekeeping Policy execution log

Data Housekeeping Summary

Search Policy

Prerequisites: Predefined Policy

To search for a Policy:

1. You can search a policy is through the **Search** drop-down option. Select **Policy Name**, **Policy Type**, **Seeded Policy Flag**, **Last Execution Status**, and **Created By** from **Search** drop-down.
2. Enter the **Policy Name**, **Policy Type**, **Seeded Policy Flag**, **Last Execution Status**, and **Created By** in Search Criteria and click **Go**.

Rows that contain the string you are searching for are fetched and displayed in the Data Housekeeping Summary.

The Data Housekeeping Summary displays the following information:

New Policy: Click the New Policy icon on the page header to build a new policy.

- **Policy Name**: The policy name.
- **Schedule**: Shows the time when the policy is scheduled.
- **Type**: The Type (Archive, Drop Partition, Delete) of the policy.
- **Seeded Policy Flag:** Shows the type of policy as **Yes** if the policy is seeded.
- **Last Run Date:** The Date and Time when the policy was last modified.

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- **Created Date:** the date when policy was created.
- **Last Execution Status:** The status of policy after execution.
- **Actions:** Click this icon to view a list of actions that you can perform on the Policy.
  - **View:** View existing policy.
  - **Edit:** Edit existing policy. To edit a rule, you must have Read/Write privilege.
  - **Authorize:** Select Authorize to approve the policy for execution.
  - **Withdraw Jobs:** Select Withdraw Jobs to cancel the Job execution.
  - **View Log:** Select View Log to view the audit information of the policy. This information includes pending and running jobs.
  - **Delete:** You can delete policies that you no longer require. Note that only policy owners and those with Read/Write privileges can delete Policies. A policy that has a dependency cannot be deleted. A policy cannot be retrieved after deletion.
  - **Job Execution Details:** Shows the execution details of selected policy.

3.6.1 Create Data Housekeeping Policy

To create a new Data Housekeeping policy, follow these steps:

1. Navigate to the **Data Housekeeping Summary** Page.
2. Click the **New Policy** icon. The **Create Data Housekeeping** Page is displayed.
3. Click **Start** to create a new policy.
4. Enter the required details and Submit.

   Below are the supported Policy Types:

   - Create Drop-Partition Policy
   - Create Archive Policy
   - Create Delete Policy
   - Create Nullify Policy

3.6.1.1 Create Drop Partition Policy

This section provides the details on dropping the partition data from selected tables based on user defined criteria.

To create Drop Partition Policy, follow these steps:

1. Navigate to **New Policy** page.
2. Follow the steps mentioned in below sections:
   a. **Step 1:** Policy Definition
   b. **Step 2:** Selection
   c. **Step 2:** Preview and Submit

Step 1: Policy Definition section

1. From **Policy Details** tab, click **Start**. The **Policy Definition** page is displayed.

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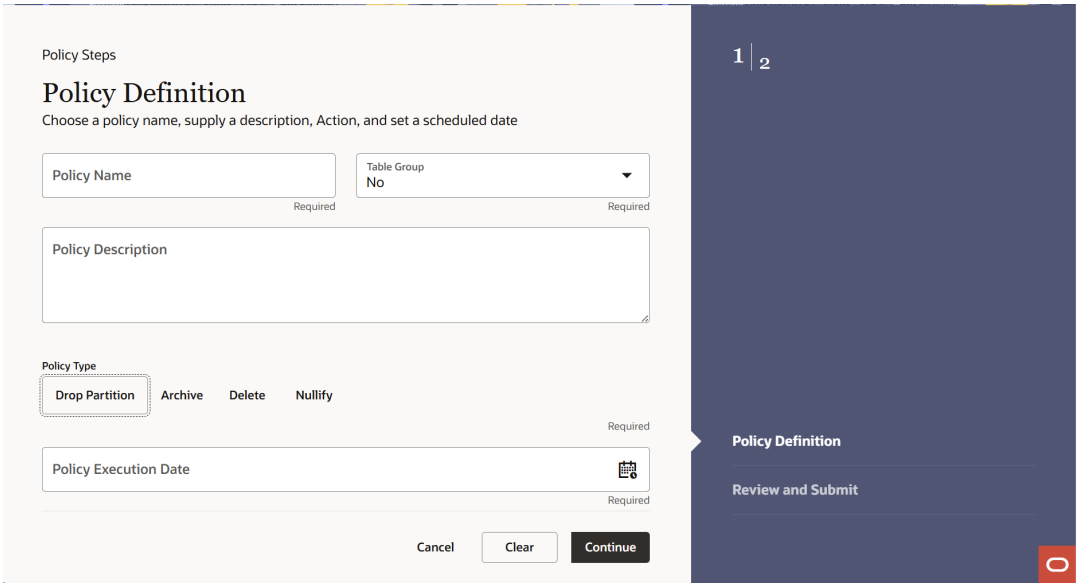
Figure 3-27 Policy Definition section



2. Enter the following details:
   - **Name:** Name of Policy
   - **Description:** Description of Policy
   - **Table Group:** If this option is selected as **No**, then you can select **Policy Type** as **Drop Partition**.
   - **Type:** Type of Policy as Drop Partition
   - **Policy Execution Date:** Select the execution date and time of policy using calendar
3. Click **Continue**.

Step 2: Selection section

1. Navigate to the **Selection** section. The **Selection** window is displayed to define the partitions.
2. Select the **Partition type** as **Drop Partition** or **Truncate Subpartition**.
   a. If **Partition type** is selected as **Drop Partition**, then following window is displayed:

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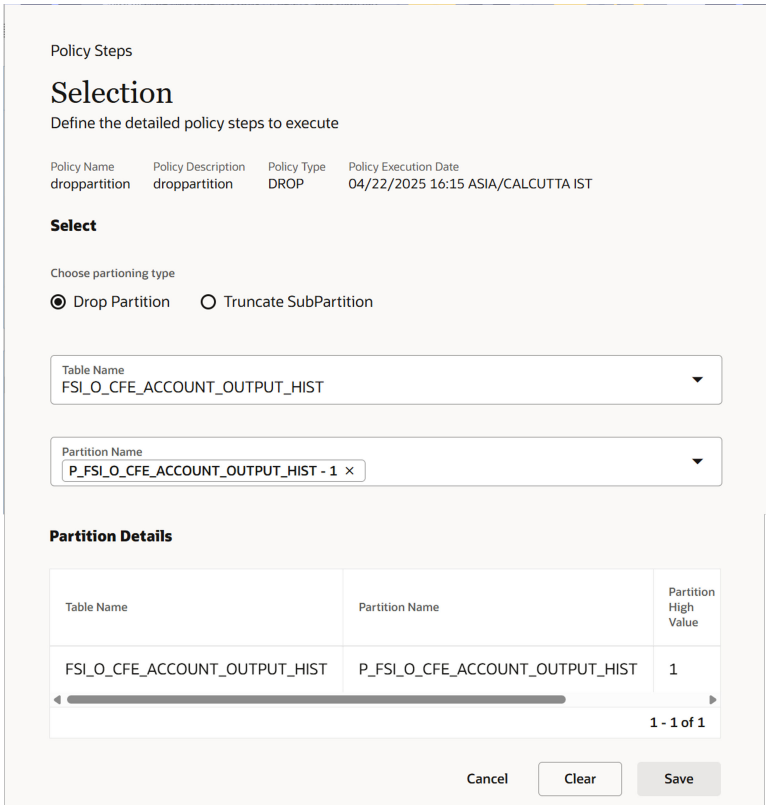
Figure 3-28 Partition type as Drop Partition



b. Select the table(s) for which you want to do the partitions. The list of available partitions is displayed that contain data.

c. Select the **Partition Name**. Partition Name shows the partition of the selected table from the database.
The Partition details will be displayed in **Partition Details** section. This shows the Table Name, Partition Name, column name and metdata on which partition is created. This doesn't show empty partitions.

d. Click **Continue**.

a. If **Partition type** is selected as **Truncate Subpartition**, then following window is displayed:

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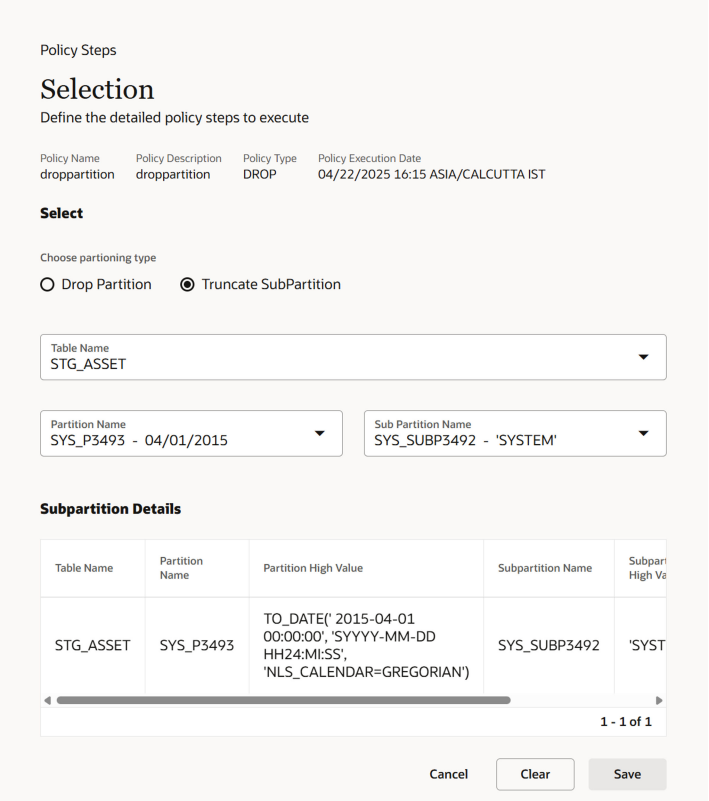
Figure 3-29 Partition type as Truncate Subpartition



b. Select the table(s) for which you want to do the sub partitions. The list of available sub partitions is displayed that contain data.

c. Select the **Sub Partition** Name. Sub Partition Name shows the columns and metadata on which sub-partition has been created.
The Sub Partition details will be displayed in **Subpartition Details** section. This shows the Table Name, Subpartition Name, column name and metdata on which partition is created. This doesn't show empty partitions.

d. Click **Continue**.

> **Note**
>
> If only sub-partition is selected to remove then only data from it will deleted. Sub-partition is not dropped to enable customer re-load data in it, if needed. Sub-partitions in PBSM data model is created with a pre-defined list.

3. Click **Save**.
4. Click **Continue**.

Step 3: Preview and Submit section

1. Navigate to **Preview and Submit** section. Review the policy details.

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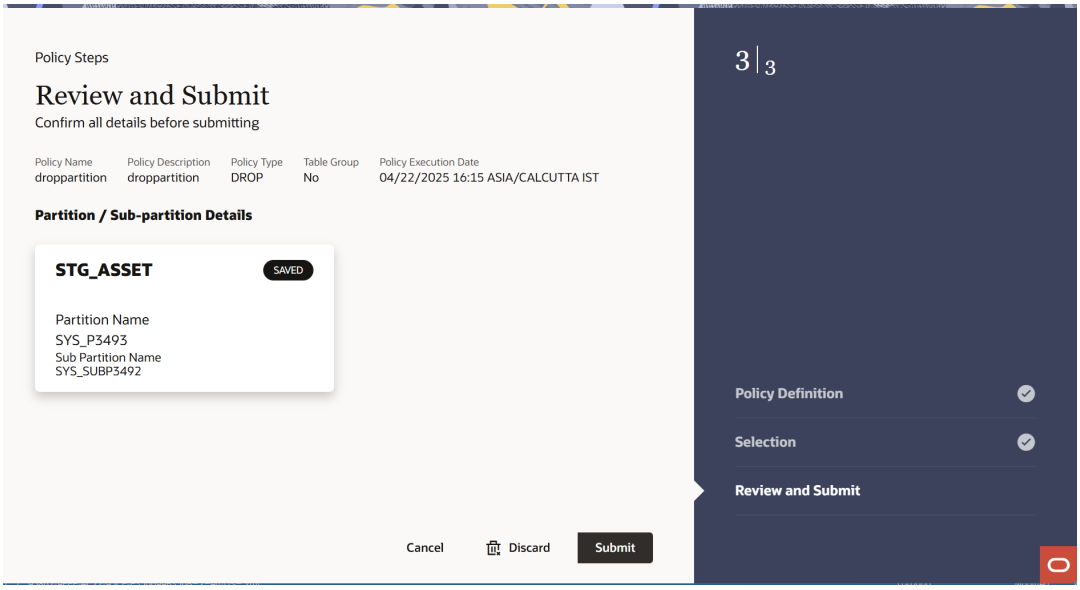
Figure 3-30 Preview and Submit section



2. Click **Submit** to create the policy. The created policy will be displayed on **Data Housekeeping Summary** page.

3.6.1.2 Create Archive Policy

This section provides the details on archiving the data from selected tables based on user defined criteria.

To create Archive Policy, follow these steps:

1. Navigate to **New Policy** page.
2. Follow the steps mentioned in below sections:
   a. **Step 1:** Policy Definition
   b. **Step 2:** Condition
   c. **Step 3:** Preview and Submit

Step 1: Policy Definition section

1. From **Policy Details** tab, click **Start**. The **Policy Definition** page is displayed.

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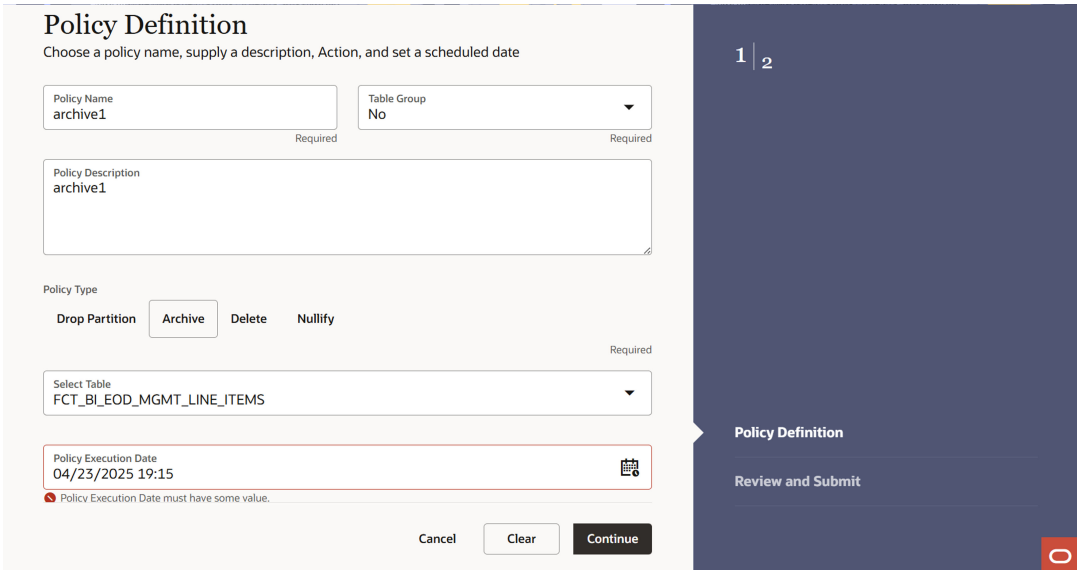
Figure 3-31 Policy Definition section



2. Enter the following details:
   - **Name:** Name of Policy
   - **Description:** Description of Policy
   - **Table Group:** If this option is selected as **No**, then you can select **Policy Type** as **Drop Partition**.
   - **Type:** Type of Policy as Archive
   - **Policy Execution Date:** Select the execution date and time of policy using calendar

Step 3: Conditions

This section allows you to define the conditions(s) to archive the table.

1. Navigate to the **Conditions** section.

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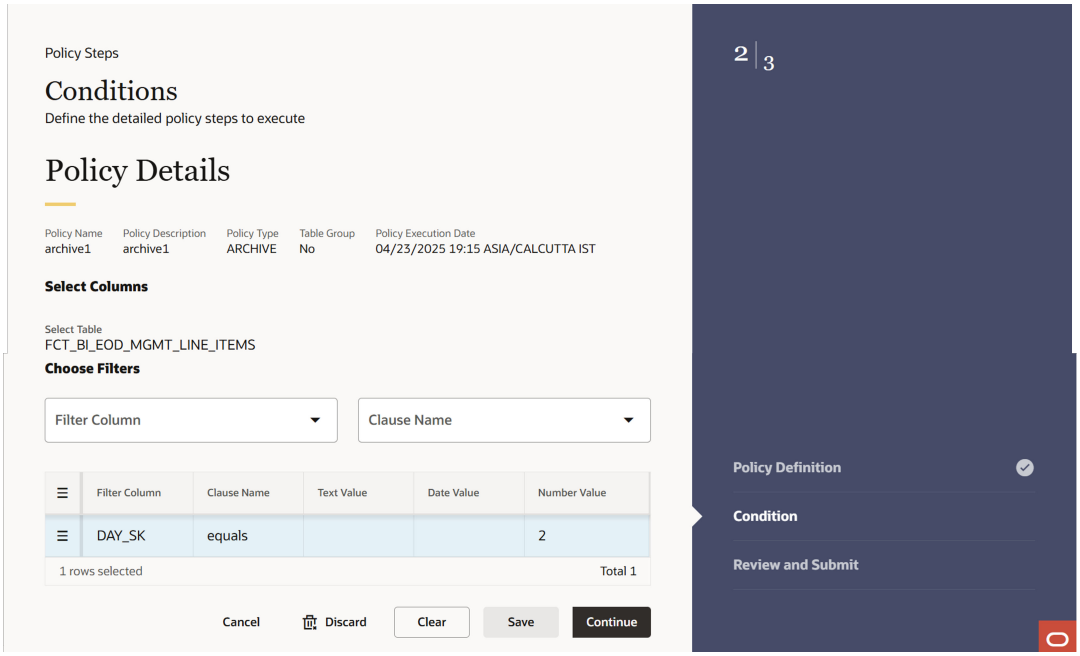
Figure 3-32 Conditions section



2. Select the column(s) using **Filter Column**.
3. Select operator from **Clause Name** drop-down. The list of operators displays based on the selected Column Name.

> **Note**
>
> You must select at least one condition to avoid the full table archive. Use AND if you want to use multiple columns. You can select columns from pre-defined list. Don't use wild card characters. Supported operators are: >, <, <=, and =>.

4. Enter condition value for selected column.
   For example, If you have selected **Column** as **Account Number**, then select **Equals** operator from **Clause Name** drop-down, and enter alphanumeric value in **Value** field.

   Click **Row Actions** icon to view single row, add a new row, create duplicate row, delete row, refresh row, or revert changes.

   To add more conditions, define the condition and click **Save**.
5. Click **Continue**.

Step 3: Preview and Submit section

1. Navigate to **Preview and Submit** section. Review the policy details.

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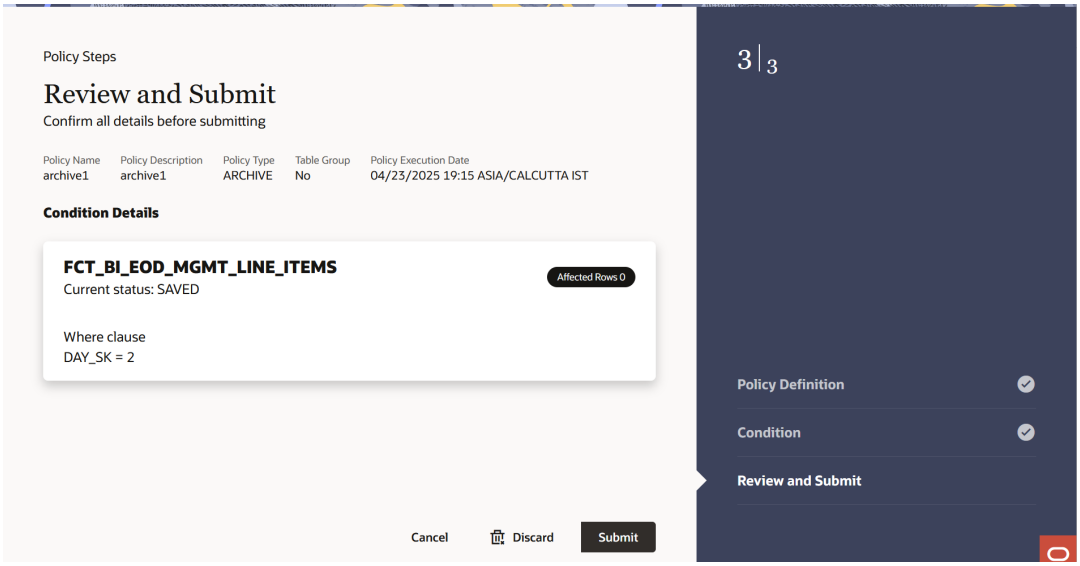
Figure 3-33 Preview and Submit section



2. Click **Submit** to create the policy. The created policy will be displayed on **Data Housekeeping Summary** page.

> **Note**
>
> Data that is archived remains in the same table but is invisible to user. Thus, they cannot be inserted back as it will violate unique constraint of concerned table.

3.6.1.3 Create Delete Policy

This section provides the details on deleting the data from selected tables based on user defined criteria.

To create Delete Policy, follow these steps:

1. Navigate to **New Policy** page.
2. Follow the steps mentioned in below sections:
   a. **Step 1:** Policy Definition
   b. **Step 2:** Condition
   c. **Step 3:** Preview and Submit

Step 1: Policy Definition section

1. From **Policy Details** tab, click **Start**. The **Policy Definition** page is displayed.

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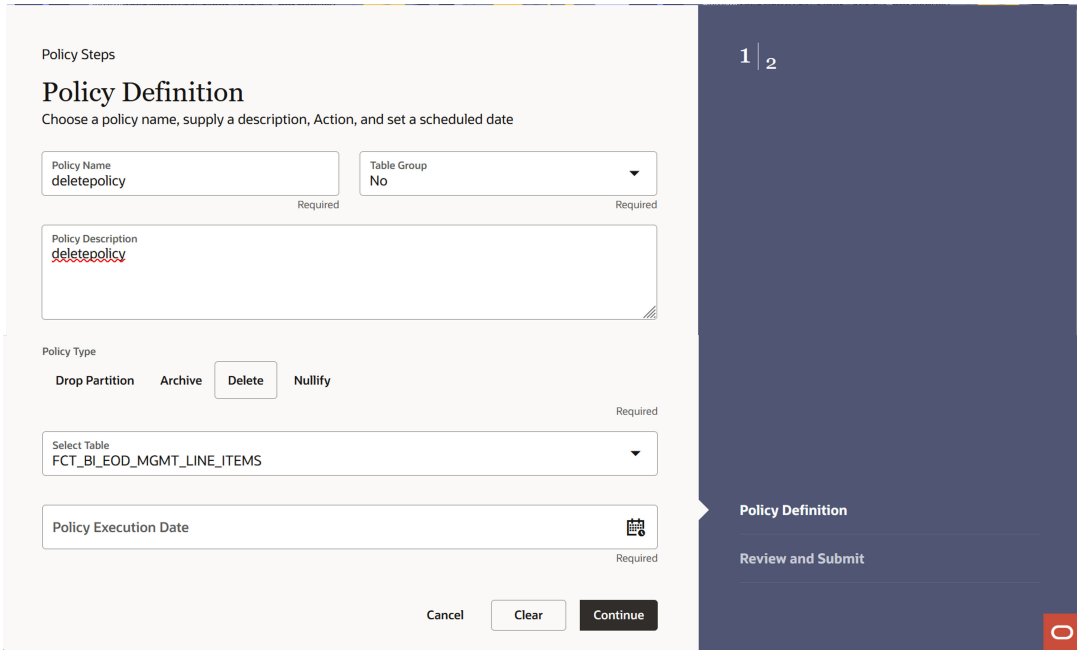
Figure 3-34 Policy Definition section



2. Enter the following details:
   - **Name:** Name of Policy
   - **Description:** Description of Policy
   - **Table Group:** If this option is selected as **No**, then you can select **Policy Type** as **Drop Partition**.
   - **Type:** Type of Policy as **Delete**
   - **Policy Execution Date:** Select the execution date and time of policy using calendar

Step 2: Conditions

This section allows you to define the conditions(s) to Delete the table.

1. Navigate to the **Conditions** section.

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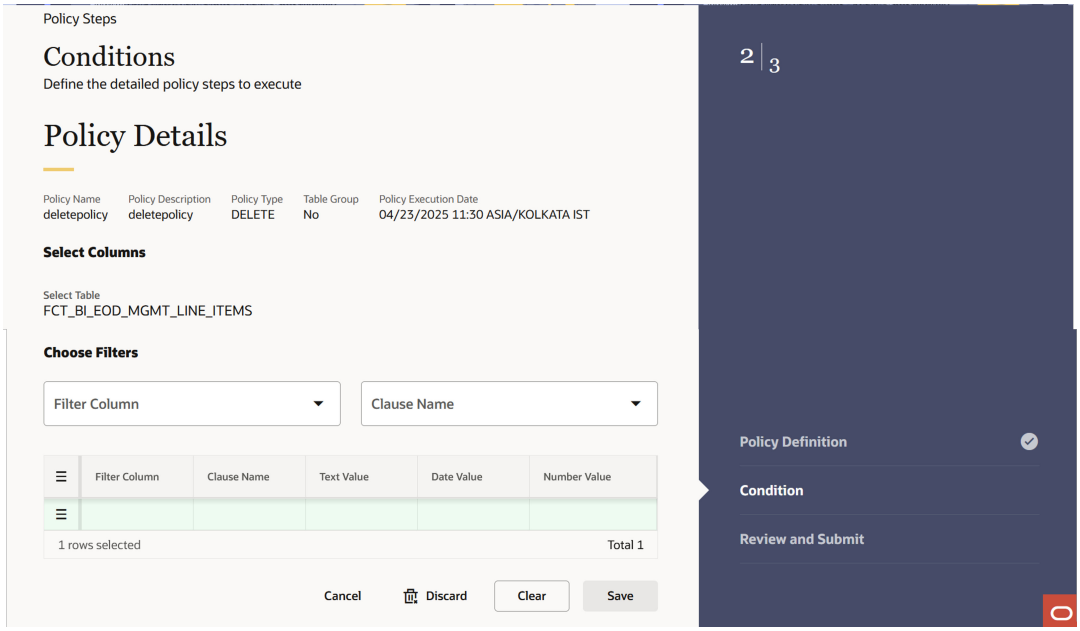
Figure 3-35 Conditions section



2. Select the column(s) using **Filter Column**.
3. Select operator from **Clause Name** drop-down. The list of operators displays based on the selected Column Name.

> **Note**
>
> You must select at least one condition to avoid the full table Delete. Use AND if you want to use multiple columns. You can select columns from pre-defined list. Don't use wlid card characters. Supported operators are: >, <, <=, and =>.

4. Enter condition value for selected column.
   For example, If you have selected **Column** as **Account Number**, then select **Equals** operator from **Clause Name** drop-down, and enter alphanumeric value in **Value** field.

   Click **Row Actions** icon to view single row, add a new row, create duplicate row, delete row, refresh row, or revert changes.

   To add more conditions, define the condition and click **Save**.
5. Click **Continue**.

Step 3: Preview and Submit section

1. Navigate to **Preview and Submit** section. Review the policy details.

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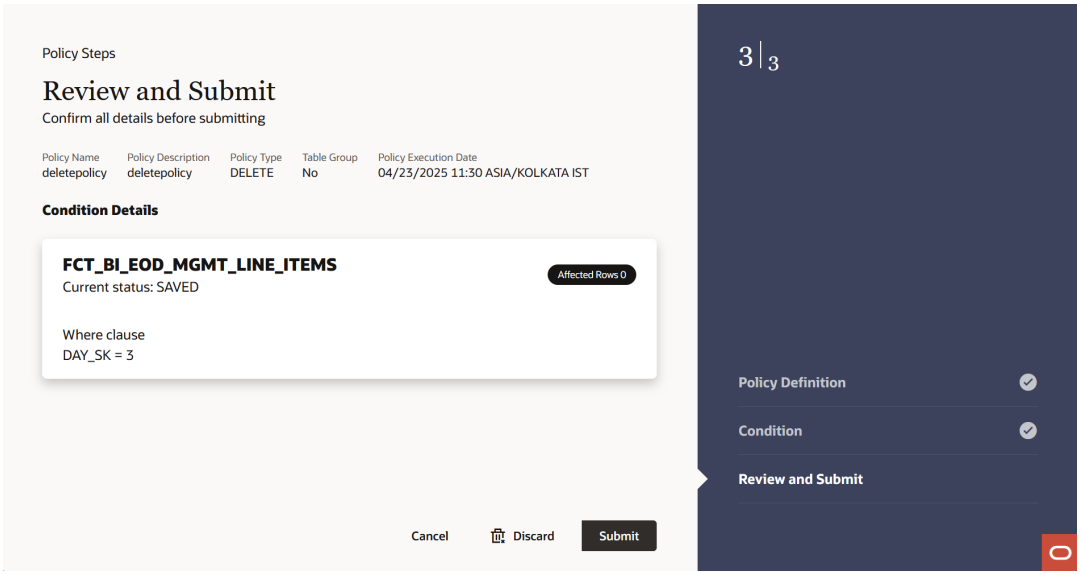
Figure 3-36 Preview and Submit section



2. Click **Submit** to create the policy. The created policy will be displayed on **Data Housekeeping Summary** page.

3.6.1.4 Create Nullify Policy

This section provides the details on nullifying the column from selected tables based on user defined criteria.

To create Nullify Policy, follow these steps:

1. Navigate to **New Policy** page.
2. Follow the steps mentioned in below sections:
   a. **Step 1:** Policy Definition
   b. **Step 2:** Choose Columns
   c. **Step 3:** Condition
   d. **Step 4:** Preview and Submit

Step 1: Policy Definition section

1. From **Policy Details** tab, click **Start**. The **Policy Definition** page is displayed.

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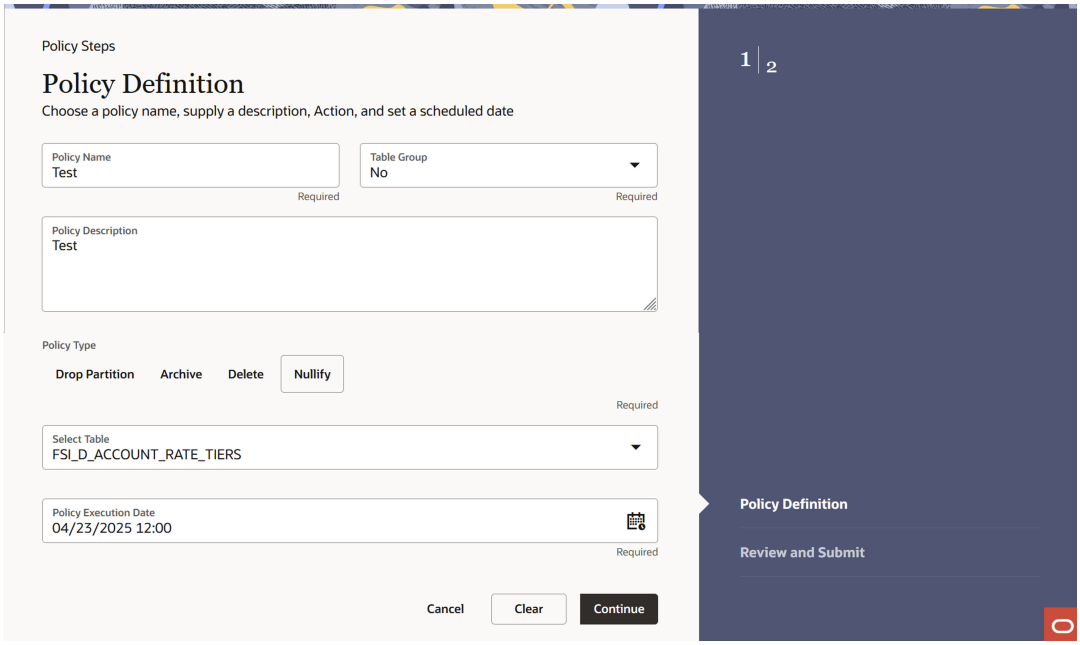
Figure 3-37 Policy Definition section



2. Enter the following details:
   - **Name:** Name of Policy
   - **Description:** Description of Policy
   - **Table Group:** If this option is selected as **No**, then you can select **Policy Type** as **Drop Partition**.
   - **Type:** Type of Policy as Nullify
   - **Policy Execution Date:** Select the execution date and time of policy using calendar

Step 2: Choose Columns section

1. Navigate to the **Choose Columns** section.

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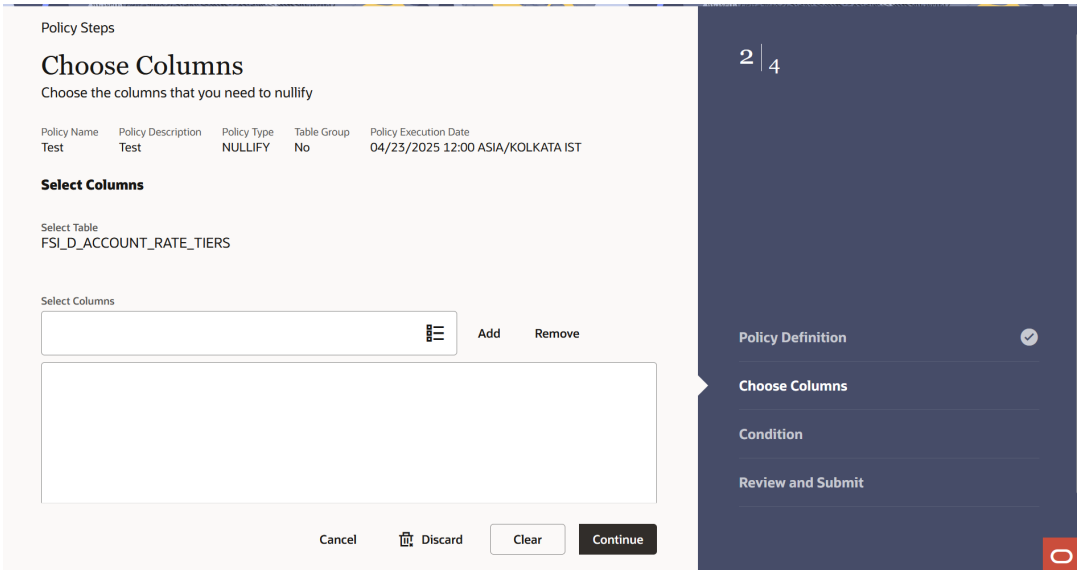
Figure 3-38 Choose Columns



2. To select the columns which you want to nullify, click

Figure 3-39 Search Columns

in Select Columns field. The Search window is displayed.

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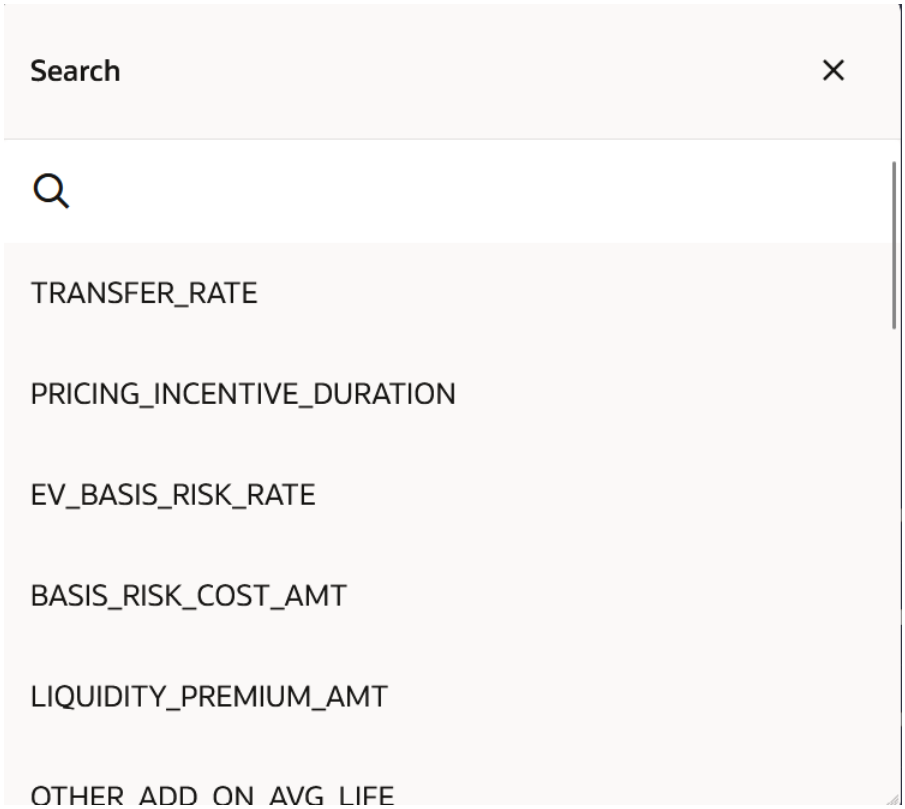
Figure 3-40 Search Columns



3. Select columns and click **Add**.
4. Click **Continue**.

Step 3: Conditions

This section allows you to define the conditions(s) to archive the table.

1. Navigate to the **Conditions** section.

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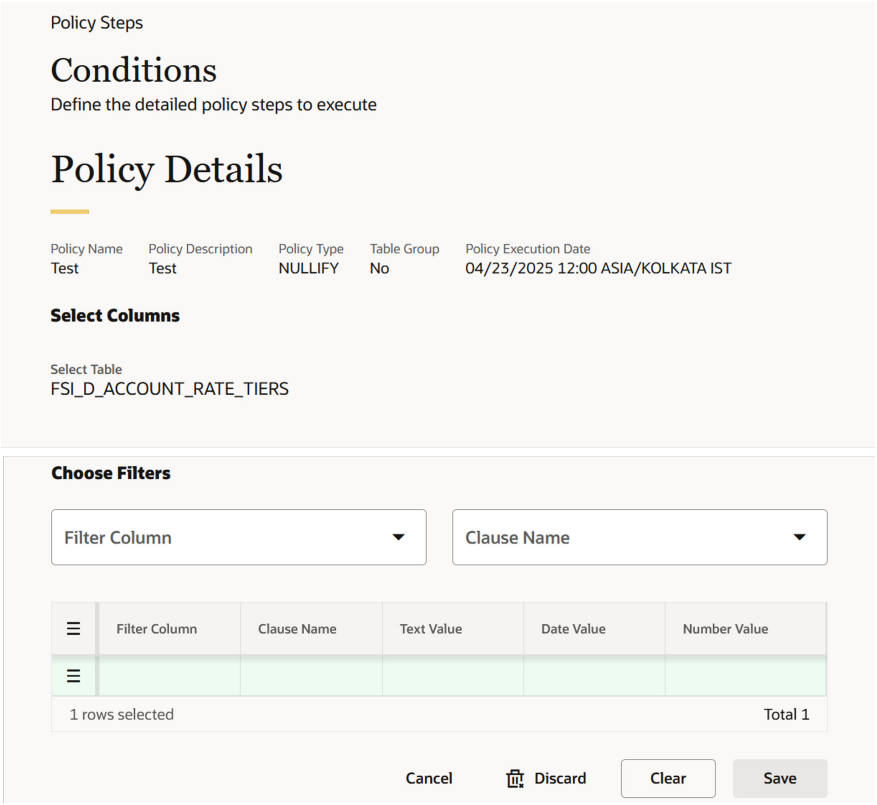
Figure 3-41 Conditions section



2. Select the column(s) using **Filter Column**.
3. Select operator from **Clause Name** drop-down. The list of operators displays based on the selected Column Name.

> **Note**
>
> You must select at least one condition to avoid the full table archive. Use AND if you want to use multiple columns. You can select columns from pre-defined list. Don't use wild card characters. Supported operators are: >, <, <=, and =>.

4. Enter condition value for selected column.
   For example, If you have selected **Column** as **Account Number**, then select **Equals** operator from **Clause Name** drop-down, and enter alphanumeric value in **Value** field.

   Click **Row Actions** icon to view single row, add a new row, create duplicate row, delete row, refresh row, or revert changes.

   To add more conditions, define the condition and click **Save**.
5. Click **Continue**.

Step 4: Preview and Submit section

1. Navigate to **Preview and Submit** section. Review the policy details.

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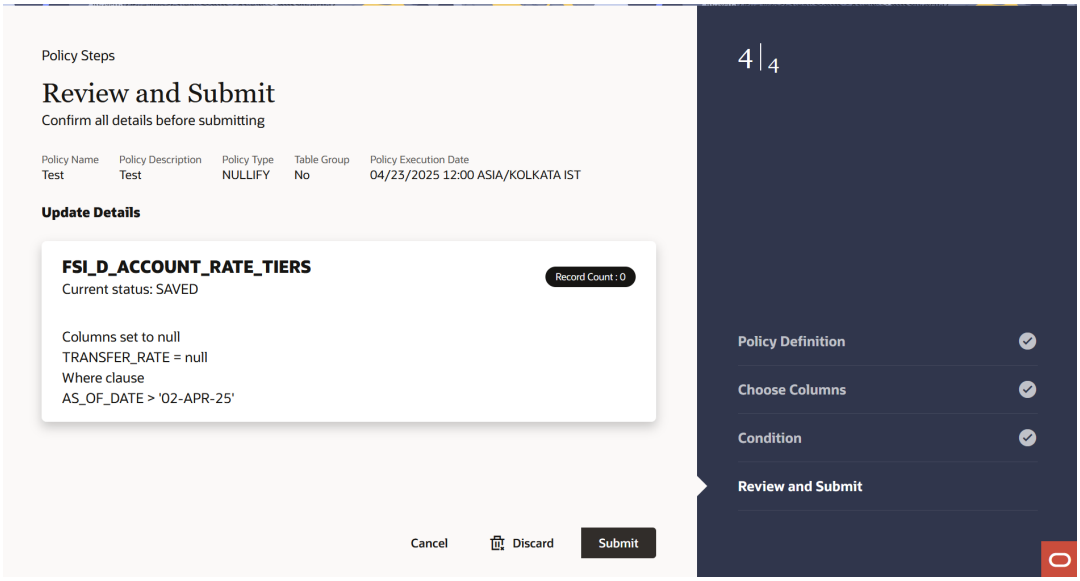
Figure 3-42 Preview and Submit section



2. Click **Submit** to create the policy. The created policy will be displayed on **Data Housekeeping Summary** page.

> **Note**
>
> Data that is archived remains in the same table but is invisible to user. Thus, they cannot be inserted back as it will violate unique constraint of concerned table.

3.6.2 Authorize a Policy

To authorize a policy, follow these steps:

Predefined Data Housekeeping Policy

1. Navigate to the **Data Housekeeping Summary** page
2. Search for a policy that you want to authorize. For further information, see the Data Housekeeping Summary section
3. Click on the **Action** icon against the policy name and select **Authorize**.

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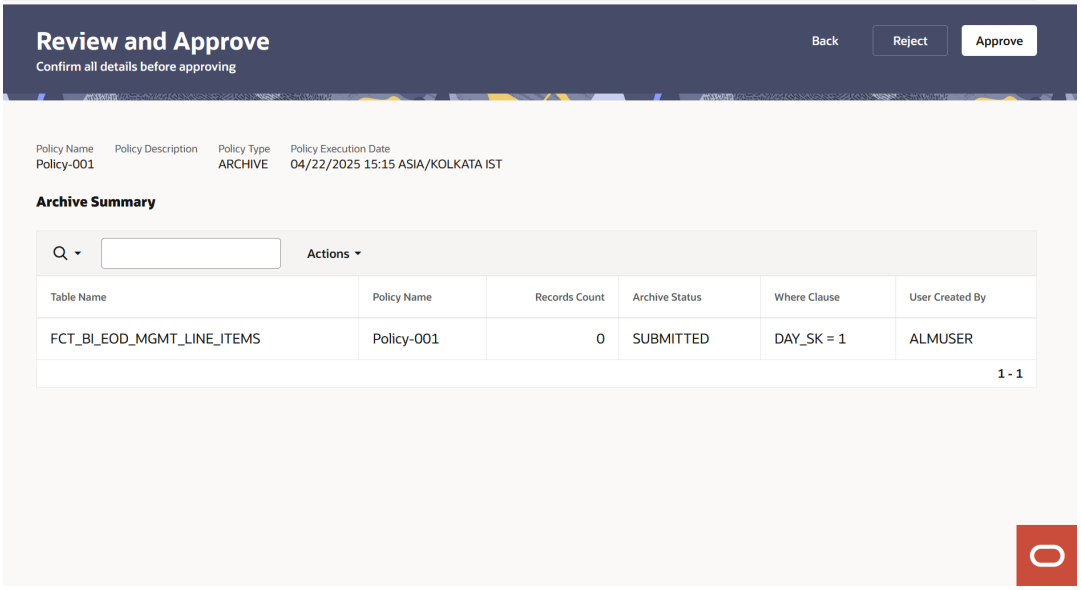
Figure 3-43 Authorize Policy



4. Click **Approve**.
5. Enter Policy comments and click **OK**.

Figure 3-44 Policy Comments

Data Housekeeping policy gets executed on scheduled date and time after authorization. It runs automatically at the defined date and time which was set during the policy creation.

3.6.3 Withdraw a Policy

> **Note**
>
> Policies can be withdrawn if there is more than 15 minutes left in the scheduled time.

To withdraw a policy, follow these steps:

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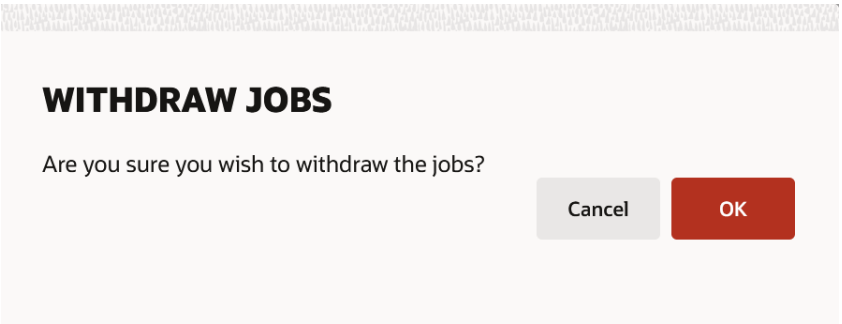
Predefined and approved Data Housekeeping Policy

1. Navigate to the **Data Housekeeping Summary** page
2. Search for a policy that you want to authorize. For further information, see the Data Housekeeping Summary section
3. Click on the **Action** icon against the policy name and select **Withdraw Jobs**.

   A confirmation box is displayed. Click OK.

Figure 3-45 Withdraw Jobs



3.7 Balance Reconciliation

The Profitability and Balance Sheet Management Cloud Service's Balance Reconciliation module helps you to Reconcile the selected processing/instrument/account balances against the Management Ledger. If any differences are found, you will have the flexibility to choose significant differences and create plug entries for those in the Ledger_Instruments table.

> **Note**
>
> All General Ledger Accounts must mandatorily have a Reconciliation product mapped to them.

You can define the dummy attributes for the Product-Currency combinations, whichever General Ledger Account is used for Reconciliation. Default dummy attributes are auto populated based on the linked product ID and currency selected in Reconciliation dimensions.

Reconciliation is a three-step process.

- Reconciliation Definition and Default Attributes setup
- Reconciliation Report verification
- Plug entry creation and writing the Reconciliation differences back to Ledger Instruments table

To access the Balance Reconciliation module, from the LHS Menu, navigate to **Data Management Tools**, and select **Balance Reconciliation**.

The Balance Reconciliation landing screen displays the following two cards:

- Reconciliation Definition
- Default Attributes

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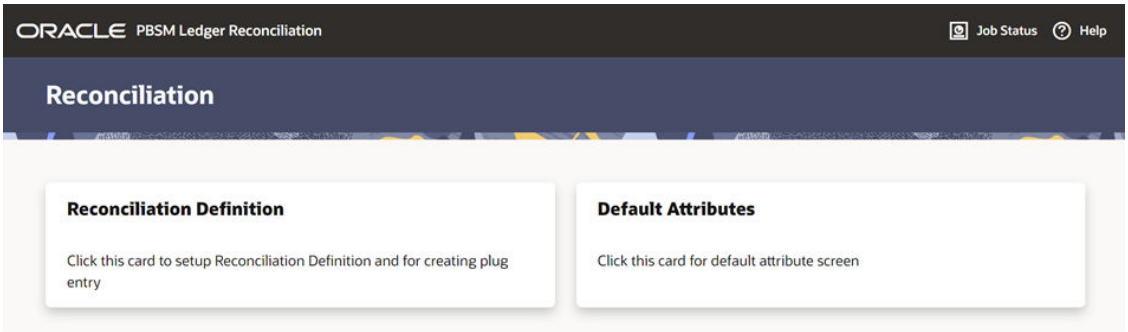
> **Note**
>
> 1. Ledger Balances with Balance Type CD as only 0, will be considered for reconciliation.
> 2. Balance Sheet category will be derived based on Common COA linked as attribute with selected GL account, which subsequently has Account Type defined as attribute of the concerned Common COA.
> 3. Reconciliation Product must be defined as attribute of GL accounts which participate in reconciliation, so system can pick account attributes for the plug entry creation.

Figure 3-46 Reconciliation Landing Screen

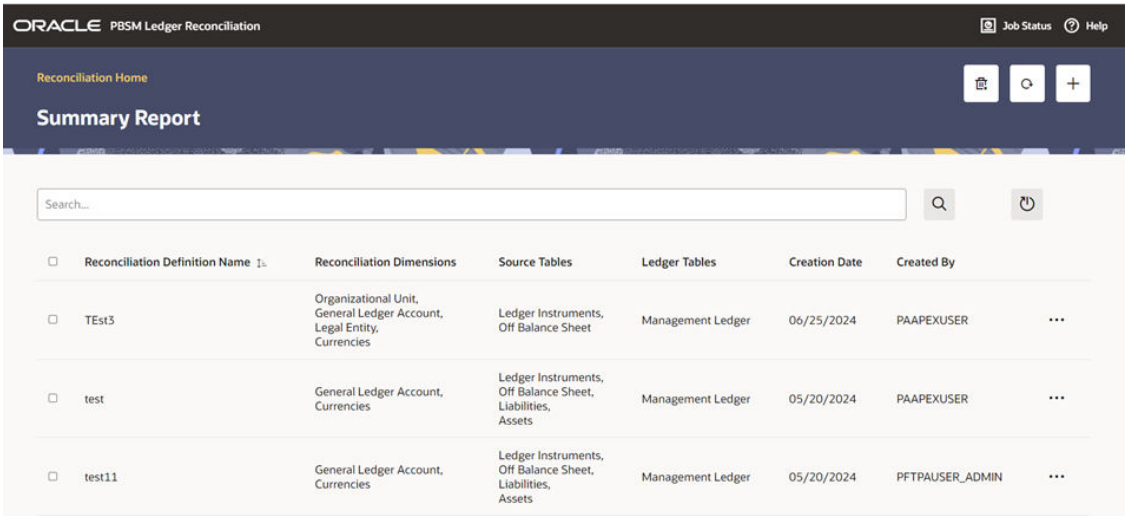


3.7.1 Reconciliation Definition

The Reconciliation Definition summary screen allows you to search for any definitions from the displayed list.

The Reconciliation Definition summary screen is as follows:

Figure 3-47 Reconciliation Definition Summary Screen



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This screen displays the following definition attributes for easy identification:

- Reconciliation Definition Name
- Reconciliation Dimensions across which reconciliation is performed
- Source Tables against which reconciliation is performed
- Ledger Tables
- Creation Date
- Created By
- Actions icon

3.7.1.1 Adding a New Reconciliation Definition

The Create Reconciliation screen allows you to define a new Reconciliation Definition.

To add a new Reconciliation Definition, click the **Add** button on the summary screen.

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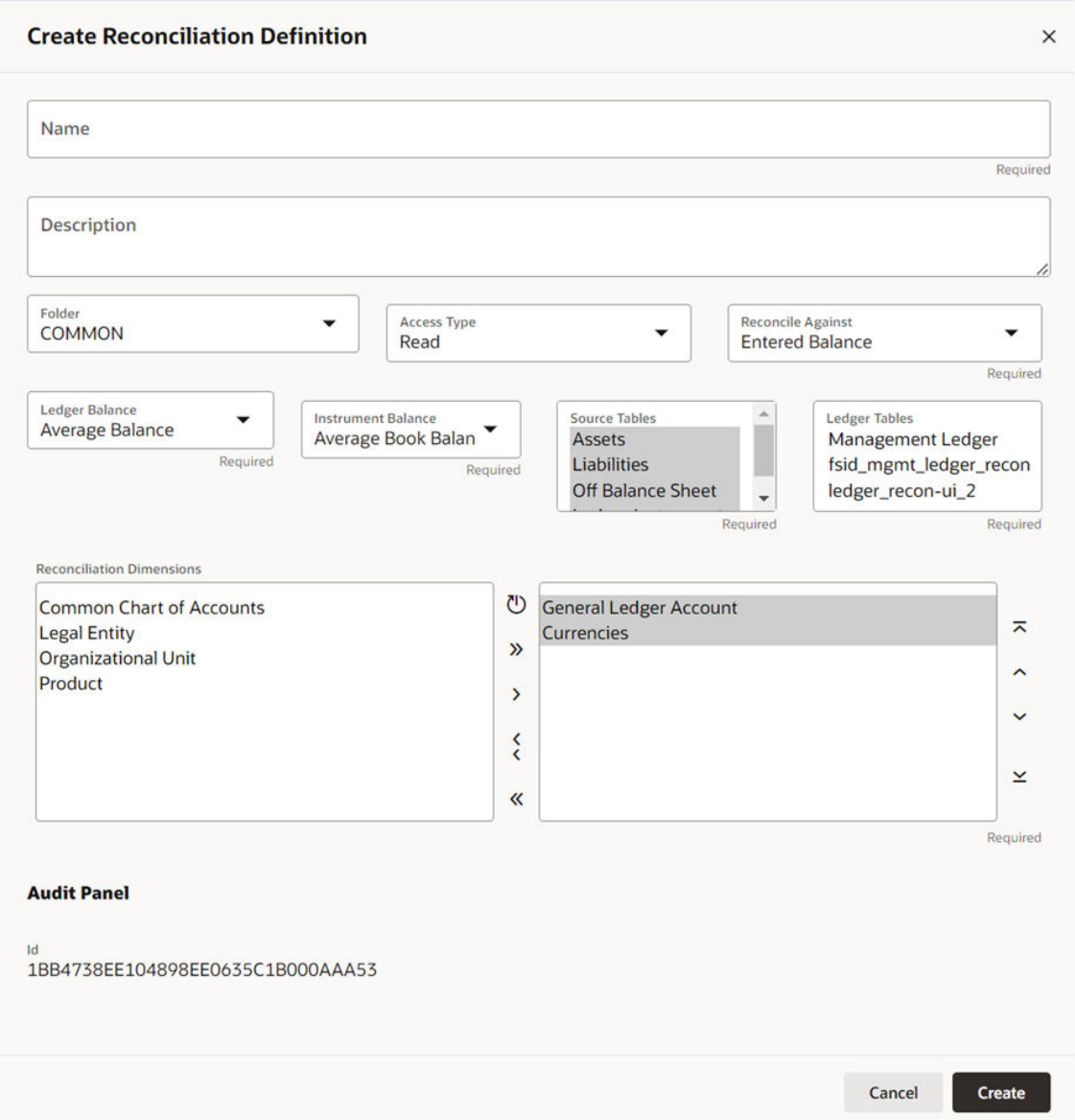
Figure 3-48 Create Reconciliation Definition Screen



Reconciliation Definition set up allows you to choose for which Instrument Table, across which Dimensions and on which Balance Type (Cur Book Bal or Cur Par Bal); you would like to perform reconciliation. For example, you can choose to reconcile against just GL Account ID and Currency or do reconciliation at much granular level by selecting the Org Unit, Legal Entity along with GL Account ID and Currency.

While selecting reconciliation key dimensions, you have the option to choose from activated placeholder dimensions as well along with seeded key dimensions.

Similarly, there is a seeded FSI_D_MANAGEMENT_LEDGER table, which will be used by default for balance reconciliation against selected portfolio of accounts. In case, there are any activated placeholder management ledgers as well, those will also be available for selection and subsequently for balance reconciliation.

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3.7.1.2 Reconciliation Balance

Management Ledger stores balance using Financial Elements, while corresponding Cur/Avg Balance can be picked directly from the dedicated columns in the Instrument Tables. So, you have an option to choose if you want to reconcile against 100 (ending balance)/140 (average balance). In the Management Ledger for FE 100, you can further select between CUR_BOOK_BAL/CUR_PAR_BAL from Instrument table. By Default, CUR_PAR_BAL would remain selected. You are allowed to create plug entries only when comparison is done against ending balance. For Average balance, you can only see the difference report but would not be allowed to create plug entries.

You can choose to reconcile in functional or local currency as per the selection made under ‘Reconcile Against’; Functional or Entered Currency.

You can do the comparison only for Asset, Liability, or can include Ledger Instrument table also. At run time, the As-of-Date can be passed for which Balance Reconciliation will be performed.

3.7.1.3 Actions Performed on Reconciliation Definition

To delete one or multiple Reconciliation Definitions, you can select the checkboxes against each one of them and press the **Delete** button.

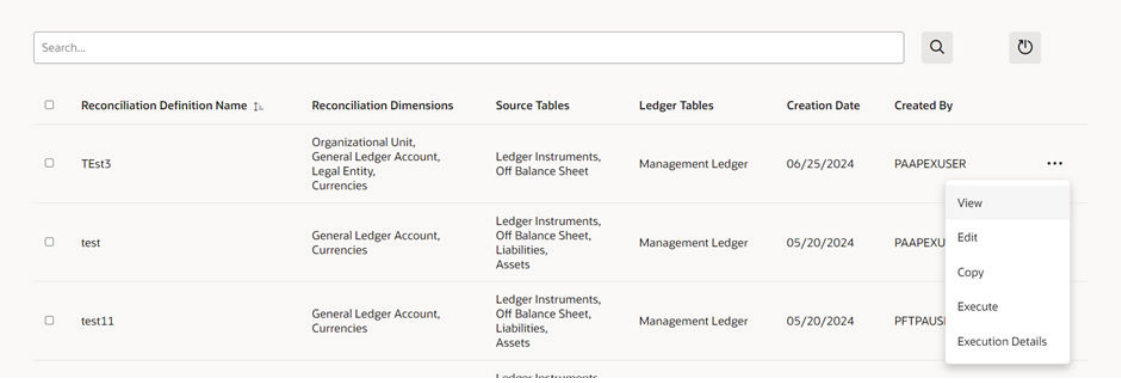
A confirmation message will let you confirm and delete selected definitions.

You can also perform search based on following fields:

- Name
- Reconciliation Dimensions
- Source tables against which reconciliation is performed
- Folder where the reconciliation definition is stored

The following screen display the **Actions** menu from which the different actions that you can perform on existing Reconciliation Definitions.

Figure 3-49 Actions Icon and Different Actions



The following are the actions:

- **View**: Click this action button and view the definition in read only format.

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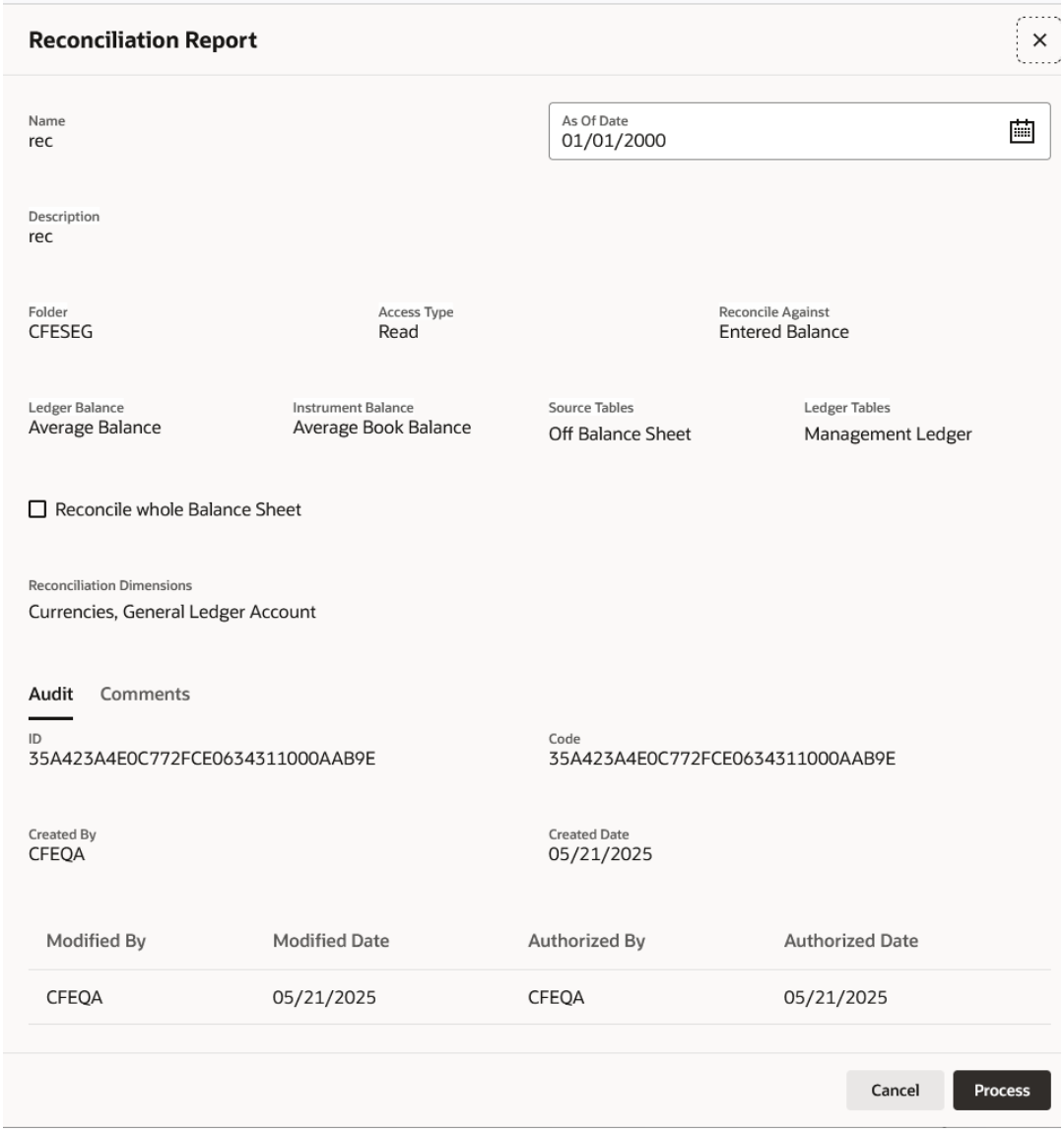
- **Edit**: Click this action button and edit the definition.
- **Copy**: Click this action button and copy the definition to create another definition with similar parameters.
- **Execute**: Click this action button and perform the reconciliation as per the selected parameters.
  As-of-Date is a run time parameter, you can choose for which date reconciliation needs to be performed.

Figure 3-50 Reconciliation Report



If the **Reconcile Whole Balance Sheet** checkbox is selected, the system retrieves all available dimension combinations from both the **FSI_D_MGT_LEDGER** and the selected instrument tables, regardless of whether matching dimension combinations exist between the ledger and the instrument tables.

After clicking **Process**, the Reconciliation Difference Report will be generated as follows:

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Report starts with the summary across Balance Sheet categories and difference buckets pie charts, which can help you to get an idea about the reconciliation difference in a quick glimpse.

Figure 3-51 Reconciliation Difference Report

The detailed report is displayed as follows, where you can filter out insignificant difference using ‘Threshold Percentage’, also threshold can be applied at each row level or for whole Balance Sheet category level. If threshold is applied at Balance Sheet category level, all the rows that belong to the Balance Sheet category which is less than given percentage will be hidden from the Reconciliation Difference Report. A download button allows you to download the Reconciliation Report.

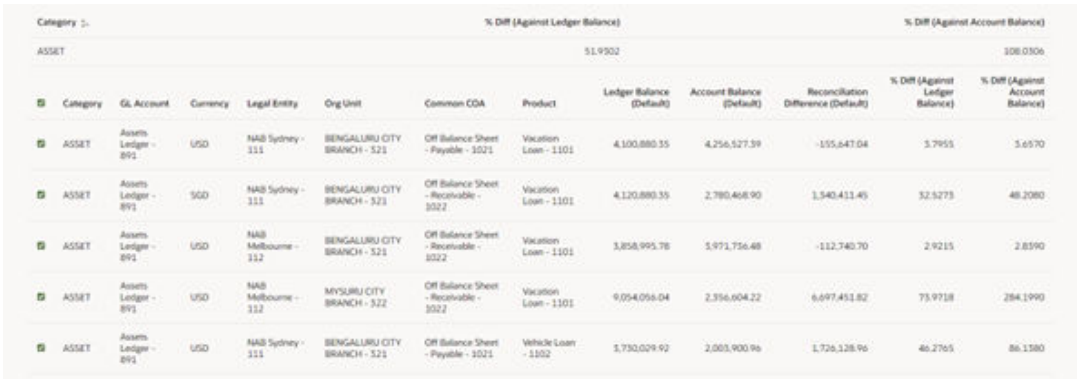
You can select **Filter at Category Level** toggle switch to apply threshold at ‘consolidated difference reports’, which is at balance sheet category level OR can directly apply the threshold to each difference row, which is available at the unique combination of selected key dimensions.

You can select the **ID / Code** toggle switch to see the CD data. By default, the toggle switch displays the ID data.

You can also change the unit of balance to thousands or millions.

You can see difference in both percentage and absolute format.

Figure 3-52 Differences in Percentage and Absolute Formats



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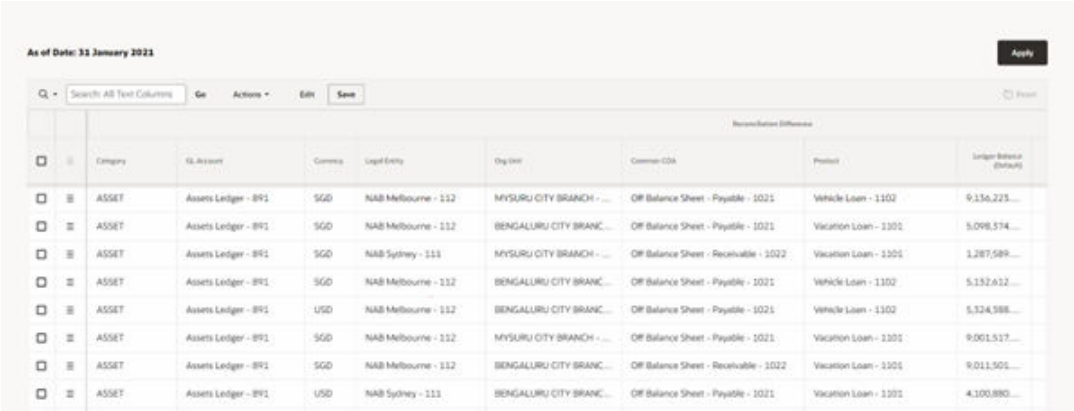
As a next step to create the plug entries for filtered rows, you can click the **Apply** button in extreme right corner. Following a grid appears, along with default attributes fetched from default product attributes: if you like, you can update any of these attributes before plug entries are created for the selected difference records. You can use the **Edit** and **Save** button to edit the default product attributes like Amortization Type, Interest Rate Code, and so on. You cannot edit any Code (CD) or VARCHAR attributes. Only attributes like Number, Rates, Dates, Term can be edited. All types of balances like Org balance, Current/Average balance are same as the reconciliation difference.

After you are convinced with the entered values for all the account attributes, you can click Apply. A job will be submitted and plug entries will be created in the FSI D Ledger Instruments table. To differentiate the plug entries from the customer real accounts, Data source CD will be used, with value 3, which signifies the 'Difference balance entries due to reconciliation performed between account and ledger'.

Figure 3-53 Differences in Percentage and Absolute Formats



- **Weighted Rate Calculations for Plug Entires**: A new task component **Weighted Rate Calculations for Plug Entires** is added. You can use this component to compute balance-weighted average FTP rates for plug entries. When this component is configured, the system can calculate FTP rates based on the weighted average of the underlying accounts in the selected source instrument tables.
  The following configurations are available:
  - **Source Tables**: This option specifies the instrument tables from which the system pulls the underlying accounts for the weighted rate calculation, and the available values include Asset Instruments, Liability Instruments, and Off-Balance Sheet Instruments.
  - **Key Dimensions**: This option defines the dimensional attributes used to group the underlying accounts for the weighted rate computation, and the available values include Product, Common Chart of Accounts, or any other enabled key dimension.
  - **Rates to be Calculated**: This option indicates the types of FTP rates that the system should compute using the weighted methodology, and the available values include Transfer Rate, All-In Transfer Price Rate, and any other enabled rate types.
  - **Balance Column**: This option identifies the balance used as the weighting factor in the calculation, and the available values may include Average Book Balance, Current Par Balance or Current Book Balance and so on.
  - **Target Filter**: This filter enables the users to select the target plug entries for which the rate must be calculated.
  - **Legal Entity Hierarchy**: This option helps to select the Legal Entity Hierarchy.

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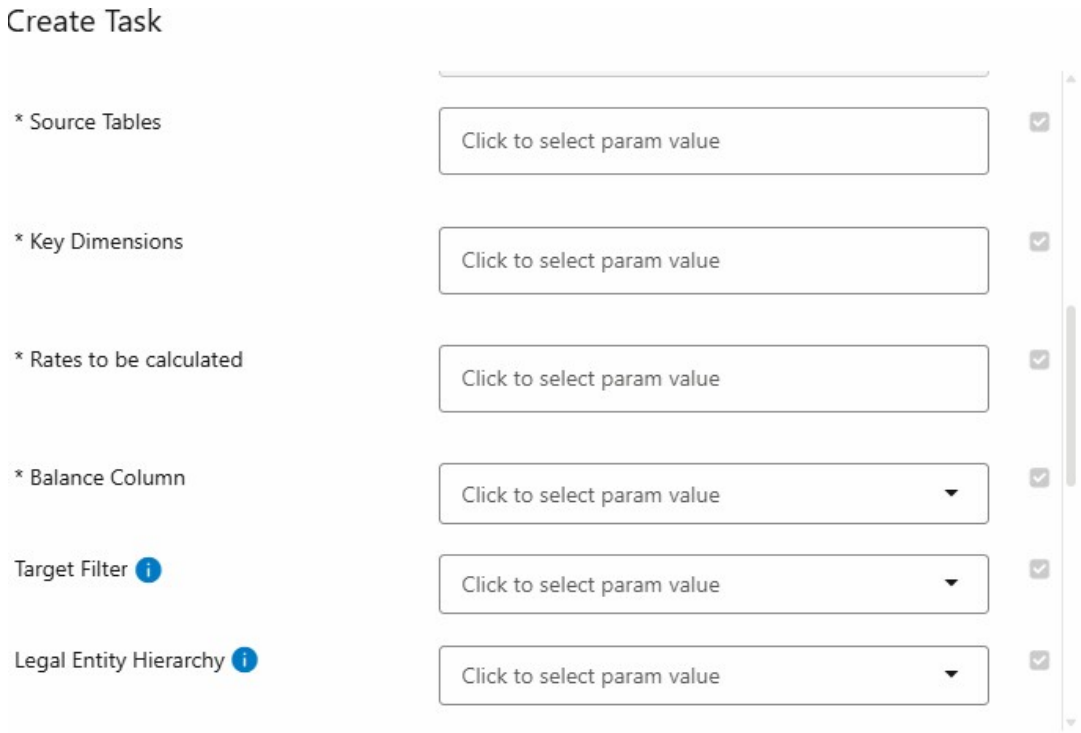
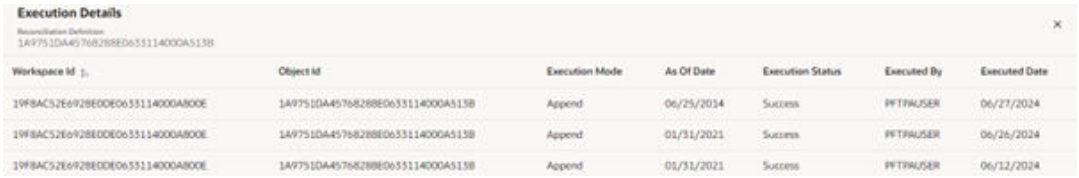
– **Legal Entity**: This option helps to select the legal entity nodes in the chosen Legal Entity Hierarchy.

Figure 3-54 Weighted Rate Calculations for Plug Entires



- **Execution Details**: You can click this action button and view all the runs for a selected definition, along with the user information who has triggered the execution.

Figure 3-55 Excution Details



3.7.2 Duplicate Runs for Same As-of-Date

If for a particular As-of-Date plug entries are already created, you have an option to cancel the latest run and exit without creating any plug entries.

You can append to existing entries for same As-of-Date. This case is possible if different reconciliation definitions are being executed for different instrument tables.

You can delete all the existing plug entries for concerned As-of-Date and create all fresh entries. This case is possible if the intermediate day runs took place locally and finally at night a global run took place.

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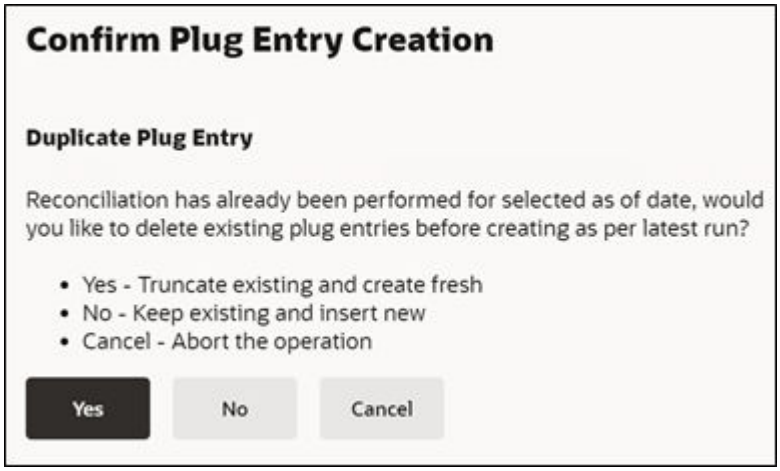
Figure 3-56 Confirm Plug Entry Creation



3.7.3 Historical Difference Report

You can open the Reconciliation Definition in **View** mode and get the Historical Difference Report using the **View Report** button.

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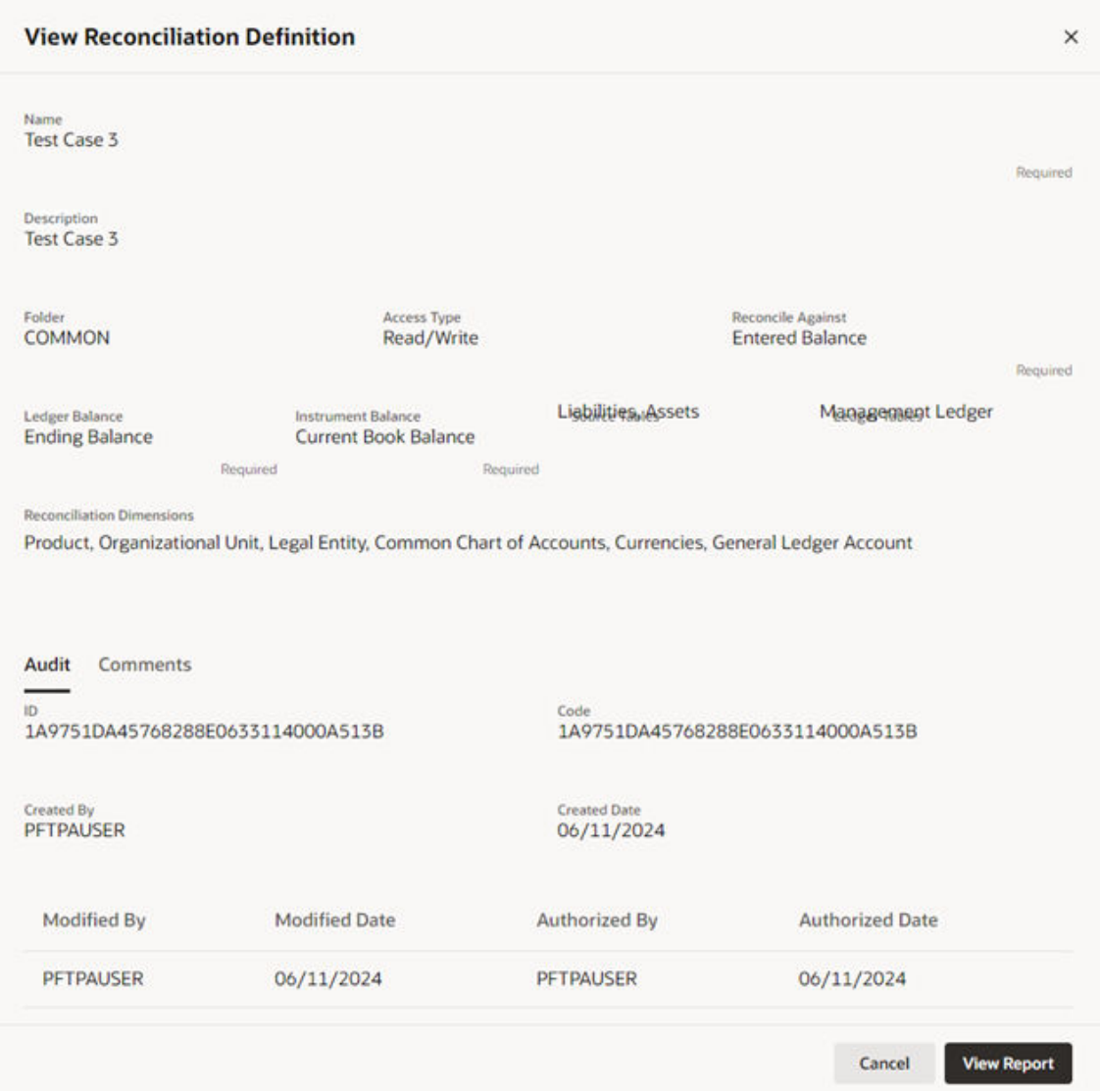
Figure 3-57 View Reconciliation Report



Here you can give a historical period by selecting the **From Date**, **To Date** and fetch all the reconciliation difference records along with the user comments to get the justification for plug entries creation.

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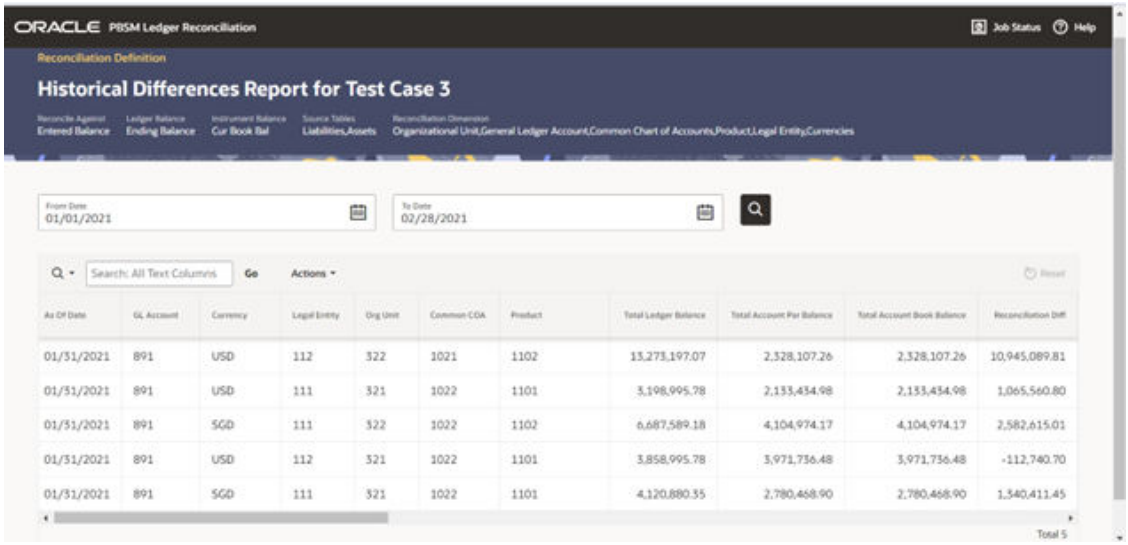
Figure 3-58 Historical Differences Report for FUNCT

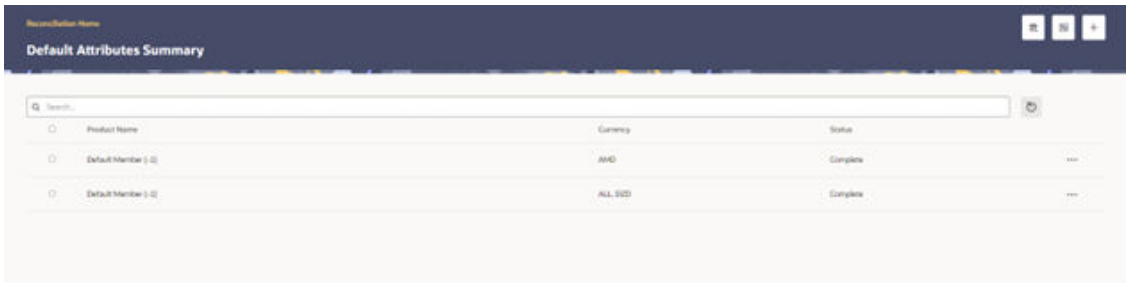


3.7.4 Default Attributes

The following is the Default Attribute Summary screen, where you can find all the default attributes defined for various Product-Currency combinations.

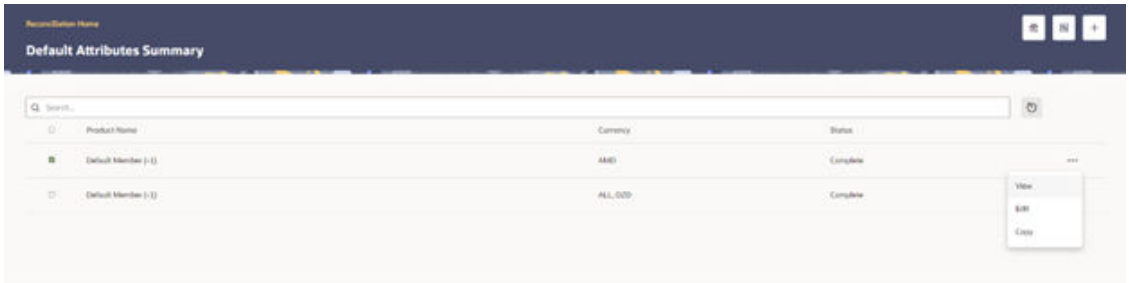
You can select one or multiple Product-Currency combinations and delete at once, by clicking the **Delete** button.

Figure 3-59 Default Attributes Summary



You can view/edit/copy an existing default attribute using respective button inn the Actions icon as follows.

Figure 3-60 Default Attributes Summary – Actions Column



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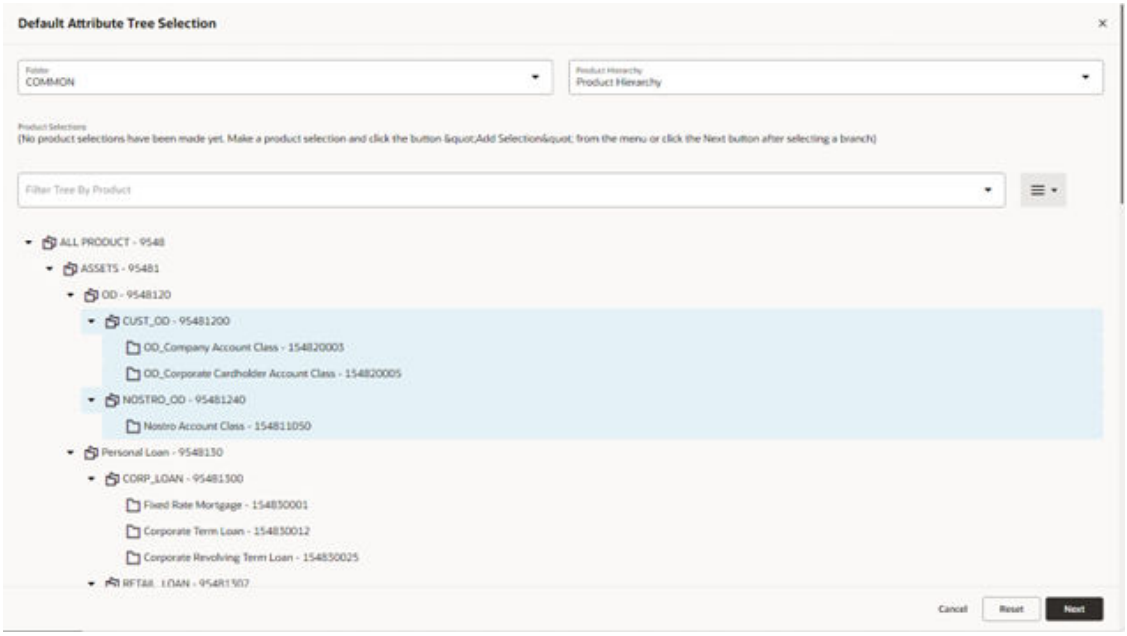
3.7.4.1 Creating a New Product-Currency Combination and Default Attributes

To create a new Product-Currency combination and default attributes for that. You can click the **Add** button, and a slide in pop-up will appear with three tabs:

Figure 3-61 Default Attribute Tree Selection



After select the product, click Save. The **Default Attribute Details** window is displayed.

> **Note**
>
> System auto-populates the default attributes for product-currency combination in **Default Attribute Details** window. You can edit them as required.

Core Product Attributes Tab: Here you can select one or multiple products and one or multiple currencies and start defining core product attributes as follows:

- Amortization Type
- Adjustable Type
- Interest Rate Code
- Net Interest Rate
- Original Term
- Original Term Type

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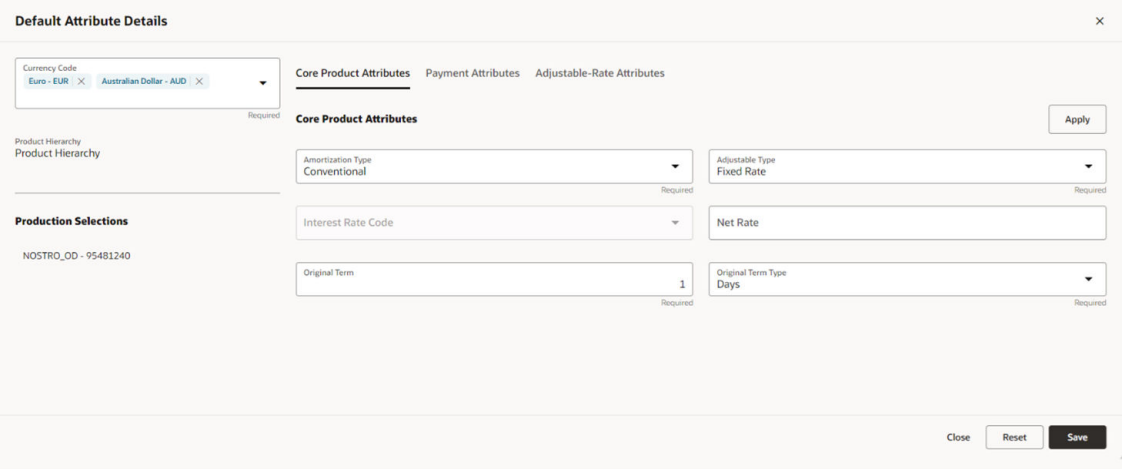
Figure 3-62 Core Product Attributes

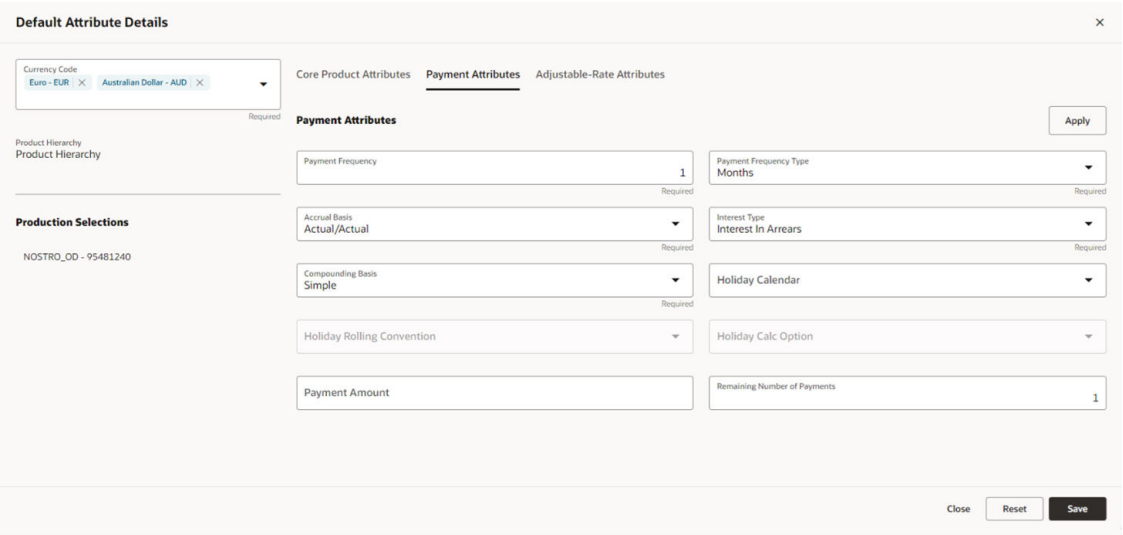


Click **Save** and move to the Payment Attributes tab.

Payment Attributes Tab: To Define payment attributes, you can select this tab and start filling the following details:

- Payment Frequency
- Payment Frequency Type
- Accrual Basis
- Interest Type
- Compounding Basis
- Payment Amount
- Remaining Number of Payments

Figure 3-63 Payment Attributes



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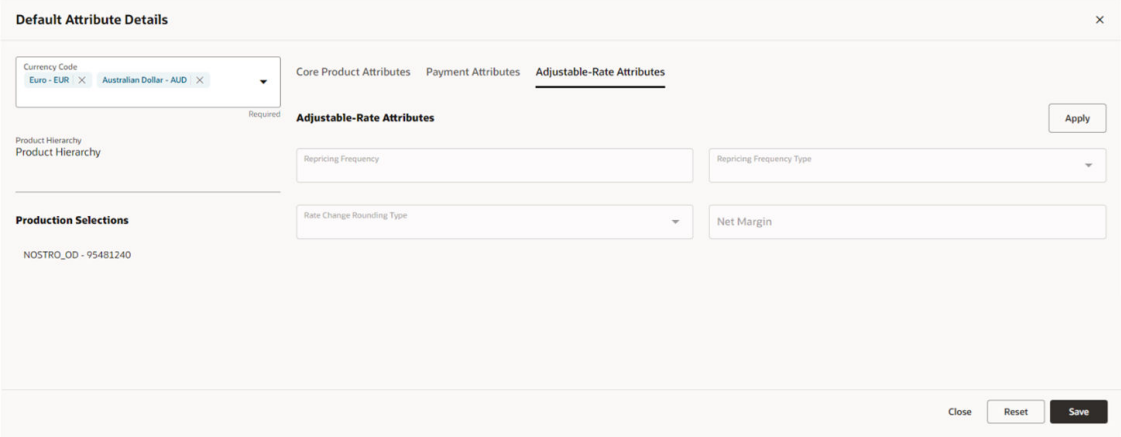
Click **Save** and move to the Adjustable-Rate Attributes tab, which is applicable only for adjustable rate instruments:

Adjustable-Rate Attributes Tab: Here you can define following attributes:

- Repricing Frequency
- Repricing Frequency Type
- Rate Change Rounding Type
- Net Margin

Click **Save** and then click **Save**. The Default Product Attribute for the selected Product-Currency combination is saved.

Figure 3-64 Adjustable-Rate Attributes



3.7.5 Reconciliation using Batch Process

You can do Reconciliation using the Scheduler Services.

To run the Reconciliation using Batch Process, follow these steps:

1. With the Define Batch feature, it is possible to create new batches and review existing ones.
2. Click **+** to create a new batch.
3. In the **Create Batch** screen, enter the following values:
   a. Code (spaces are not allowed in the code section).
   b. Batch Name
   c. Select the Service URL name as **RUN_CMD_SERVICE**.
   d. Click **Save**.
4. In the **Define Task** screen, you can define the tasks related to a specific batch.
   a. Navigate to Define Task.
   b. Select the name of the batch that has been created for this task.
5. Click **+** to create a new task.

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6. In the **Create Task** screen, enter the following values:
   a. Task Code (Spaces are not allowed in the code section). b.
   b. Task Name.
   c. Select the task type as **REST**.
   d. Select the component as **RUNCMD**.
   e. Select Batch Service URL as **RUN_CMD_SERVICE**.
   f. Click **Save**.
7. In the **Task Parameter** section, enter the following values:
   a. Select the Code as **RUN CMD RECONCILIATION**.
   b. Select the Execution Venue as **NATIVE**.
   c. Select the Optional Parameter as **THRESHOLD_OBJECTCODE_OPTION_RECONCILEWHOLEBALANCESHEET** format.
   d. Select the IP as **localhost**.

   The allowed values for the Option are either 0 or 1.

   - **0**: Truncate all existing data for concerned AS_OF_DATE/MIS_DATE for which reconciliation batch is getting executed and insert new data.
   - **1**: Append data on top of existing data for concerned AS_OF_DATE/MIS_DATE to ledger instrument and reconciliation difference Audit table (Table to retain comments for each plug entry).

   Threshold values must be greater than or equal to zero (0), negative values are not supported. Threshold values should be expressed as “threshold >= 0” The threshold will accommodate null values, allowing all data to be inserted into the ledger instrument and reconciliation difference audit tables.

   When a threshold is applied, plug entries will be created only for filtered data into the ledger instrument and reconciliation difference audit tables.

   > **Note**
   >
   > Select the appropriate object code/reconciliation definition to avoid errors in the batch process.

   The optional values should be passed in the following format:
   “THRESHOLD_OBJECTCODE_OPTION_RECONCILEWHOLEBALANCESHEET”

   Example 1: ‘’_F405734331FD795BE053D71A000AD329_0_Y

   (Threshold is null, and object code is: F405734331FD795BE053D71A000AD329, option value is 0, Y indicates Ledger only balances are included in the reconciliation)

   Example1: 12_F405734331FD795BE053D71A000AD329_1_N

   (Threshold is 12, and object code is: F405734331FD795BE053D71A000AD329, option value is 1, N indicated Ledger only balances will not be included in the reconciliation)
8. Schedule the batch using the **Schedule Batch** screen.
   Select the **Name** of the batch that has been created.

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You can use the **Edit Parameters** option to review the batch parameters and make any necessary changes to initializing the batch process.

9. The following tasks should be performed in a manner similar to what was outlined in point number 7.
    a. The **MIS Date** is used as the **As of Date** in the Reconciliation UI. Select the appropriate **MIS Date**.
    b. The values in point 6 are the default values for a specific environment.
    c. After completing the changes, click **Execute** or **Save**.
        i. By clicking **Save**, the definition of the batch will be saved, however, the batch will not be executed.
        ii. By clicking **Execute**, the batch will be executed.

    After the batch is executed, an **Execute Status** dialog is displayed, providing information about the executed batch.

    After the batch is executed, the information about the executed batch will be available in the **Monitor Batch** screen. Select the following options and check the Batch Status.

Sometimes, a batch may fail. The reason for the batch failure could be as follows:

- Entering an incorrect object code.
- Entering an incorrect option value. Only values of 0 or 1 are supported.
- Entering an incorrect threshold value. Only null or a value >= 0 are supported.

> **Note**
>
> Following roles mapping to the SKU User group should be present to enable RUNCMD listing and execution.
>
> - RCMDREAD
> - RCMDADVND

For detailed instructions for defining, executing, and monitoring a Batch, see the Scheduler Service documentation.

3.8 Data Redaction

OFSAAI is enhanced to enable masking of sensitive data and Personal Identification Information (PII) to adhere to Regulations and Privacy Policies.

Oracle Data Redaction provides selective, on-the-fly redaction of sensitive data in database query results prior to display by applications so that unauthorized users cannot view the sensitive data.

The stored data remains unaltered, while displayed data is transformed to a pattern that does not contain any identifiable information.

> **Note**
>
> Redaction is supported only on Oracle database.

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3.8.1 Redaction Functions

Use functions to define the type of redaction to be applied.

To define a redaction function:

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Functions**. The **Redaction Functions Summary** screen appears.
2. Click **Add** and provide the following details:
3. **Redact Function Name**: Specify a name for the function. Example: Email_ID.
4. **Description**: Provide a description for the function. Example: Function to redact email IDs.
5. **Redact Type**: Select the redaction type to be applied.
   - **Full**: You can redact all of the contents of the column data. The redacted value returned to the querying application user depends on the data type of the column. For example, columns of the NUMBER data type are redacted with a zero (0), and character data types are redacted with a single space.
   - **Partial Trailing**: You can hide or obscure a part of the data at the end of a column value. For example, you can redact a Social Security number with asterisks (*), except for the initial 4 digits.

     > **Note**
     >
     > Only VARCHAR and VARCHAR2 are supported.

   - **Partial Leading**: You can hide or obscure a part of the data at the beginning of a column value. For example, you can redact a Social Security number with asterisks (*), except for the last 4 digits.

     > **Note**
     >
     > Only VARCHAR and VARCHAR2 are supported.

     – **No of characters**: (Available only if partial redaction is applied). Specify the number of characters to be redacted.

     > **Note**
     >
     > You can't apply partial redaction to date type columns. Only full redaction is applicable to date type columns.

6. Click **Apply**.

3.8.2 Redaction Policies

You can use policies to map redaction functions to classification codes.

A classification code is a logical abstraction for a table column. Example: Social Security Number. These codes are pre-seeded.

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By mapping classification codes to redaction functions, you can redact the underlying table column.

3.8.2.1 View redaction policies

You can view the defined redaction policies using the Redaction Policies Summary screen.

To view the redaction policies:

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Policies**.

   The **Redaction Policies Summary** screen appears.
2. Enter the text of the second step here.

   See the table below for fields and their description.

Table 3-22 Redaction Policies Summary

Field	Description
Classification Name	Pre-seeded classification code name.
Redact Functions	Redact function name
Version	The latest version of the classification.
Request Type	Types of request: • Refresh: Map redaction as per latest addition of table columns. • Unmap: Remove redaction. • Map: Apply redaction
Status	Policy status
Policy Applied On	Date on which the policy was applied.
Created By	The user who created the policy.
Created Date	Date of creation of the policy.
Actions	You can perform the following actions: a. Edit b. Drop c. Refresh d. View

3. Click the **Actions** menu corresponding to the policy you want to view and select **View**.

The Redaction Policies Preview screen appears containing details of the policy.

3.8.2.2 Create redaction policies

Perform the following steps to create a redaction policy:

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Policies**.

   The **Redaction Policies Summary** screen appears.
2. Click **Add**.
3. Select the classification from the **Classification Name** drop-down list.
4. Select the function to be mapped to the classification name, from the **Redact Function Name** drop-down list.

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5. Click **Map**.

   The affected table and columns are displayed as a result of this mapping.

6. Click **Submit for Approval** or click **Reject** to cancel the mapping.

3.8.2.3 Modify a redaction policy

Perform the following steps to modify a redaction policy.

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Policies**.

   The **Redaction Policies Summary** screen appears.

2. Click the **Actions** menu corresponding to the policy you want to modify and select **Edit**.
3. Select the required function from the **Redact Function Name** drop-down list.
4. Click **Update Map**.

   The screen displays the affected table and columns as a result of this modification.

5. Verify the details and click **Submit for Approval**.

3.8.2.4 Drop a redaction policy

Perform the following steps to drop a redaction policy.

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Policies**.

   The **Redaction Policies Summary** screen appears.

2. Click the **Actions** menu corresponding to the policy you want to drop and select **Drop**.

   The screen displays the affected table and columns as a result of this drop action.

3. Verify the details and click **Submit for Approval**.

3.8.2.5 Refresh a redaction policy

Use the Refresh feature to extend redaction to newly added columns within an existing policy, preserving previous redactions.

To refresh a redaction policy:

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Policies**.

   The **Redaction Policies Summary** screen appears.

2. Click the **Actions** menu corresponding to the policy you want to refresh and select **Refresh**.

   The **Refresh Dialog** appears.

3. Click **Run Refresh**.

3.8.3 Redaction Approval

You can approve or reject the redaction policies, using the Redaction Policies Authorization screen.

You must have the REDACT_AUTH role to approve/reject the policies.

Perform the following steps:

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1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Approval**. The **Redaction Policies Authorization Summary** screen appears listing the policies awaiting approval/rejection.
2. Click the **Actions** menu corresponding to the policy you want to approve/reject. The screen displays the affected tables and columns as a result of approving/rejecting this policy.
3. Verify the details and click **Approve & Execute** to approve the policy. Or, click **Reject** to cancel the policy.
4. Depending on the selection, provide the Approver Comments/Rejected Comments and click the **Approve & Execute**/**Reject** button once again to complete the action.

3.9 Cash Flow Edits

In this section, you can find the details about all Cash Flow Edits.

- Configure Cash Flow Edit Rules: The Cash Flow Edits Configuration window allows you to configure a new Cash Flow Edits Rule and this rule configuration can be used and executed using Cash Flow Edits Process.
- Cash Flow Edits Process: The Cash Flow Edits Process allows you to verify the accuracy and check the completeness of your Instrument Table Data.

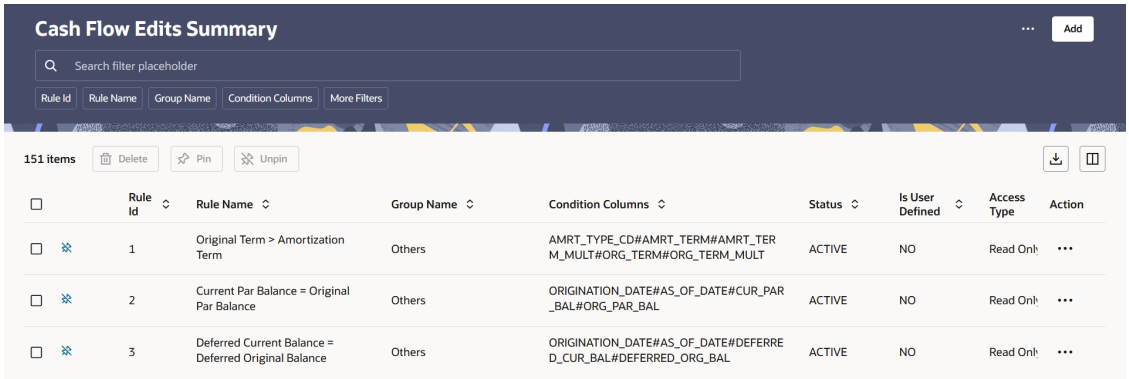
3.9.1 Configure Cash Flow Edits Rule

The Cash Flow Edits Configuration Window allows you to configure a new Cash Flow Edits Rule. Later, this rule configuration can be used and executed using Cash Flow Edits Process UI. 140 rules are seeded as part of OFSA Cloud Service.

Cash Flow Edits Rule Summary

This page is the gateway to all Cash Flow Edits Rules and related functionality. You can navigate to other pages relating to Cash Flow Edits Rules from this point.

Figure 3-65 Cash Flow Edits Summary



Search Cash Flow Edits Rule

Prerequisites: Predefined Cash Flow Edits rule

To search for a Cash Flow Edits Rule, follow these steps:

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Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Cash Flow Edits rules that meet the search criteria.

Or

The other method to search a Cash Flow Edits rule is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Code, Name, Description, Dimension, Hierarchy**, and **Folder** of the Cash Flow Edits rule and click **Search**.

The Cash Flow Edits summary displays the following information:

Actions: Enables you to perform following tasks.

- **Reset:** Clears the selected filters and refreshes the summary page.
- **Help:** Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected rule.

Export: Enables you to download the summary page details in .CSV format.

Columns: Allows you to view the summary page data using a customized list of columns.

Add: Click **Add** icon at the top right of the summary page to build a new Cash Flow Edits rule.

The Cash Flow Edits summary table displays the following columns:

- **Rule Id:** The code of Cash Flow Edits rule.
- **Rule Name:** The Cash Flow Edits Rule's short name.
- **Group:** The Group of Cash Flow Edits Rule.
- **Condition Columns:** The Columns on which of Cash Flow Edits Rule is made.
- **Last Modified By:** The user who last modified the Cash Flow Edits Rule.
- **Last Modified Date:** The Date and Time when the Cash Flow Edits Rule was last modified.
- **Status:** The Status of Cash Flow Edits Rule.
- **Is Editable:** The editable status of Cash Flow Edits Rule.
- **Is User Defined:** The user defined status of Cash Flow Edits Rule.
- **Action:** Click this icon to view a list of actions that you can perform on the Cash Flow Edits Rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Cash Flow Edits rules. To edit a rule, you must have Read/Write privilege.

    > **Note**
    >
    > You cannot edit out-of-box seeded rules.

  - **Save As:** You can reuse a Cash Flow Edits rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.

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– **Delete:** You can delete Cash Flow Edits rules that you no longer require. Note that only Cash Flow Edits Rule owners and those with Read/Write privileges can delete Cash Flow Edits Rules. A Cash Flow Edits Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.

> **Note**
>
> You cannot delete out-of-box seeded rules.

You must create and run Cash Flow Edits processes on your Instrument Table Data before you submit Cash Flow Engine based rules for processing.

Also See:

- Create Cash Flow Edits Rule
- Cash Flow Edits Process Errors

3.9.1.1 Create Cash Flow Edits Rule

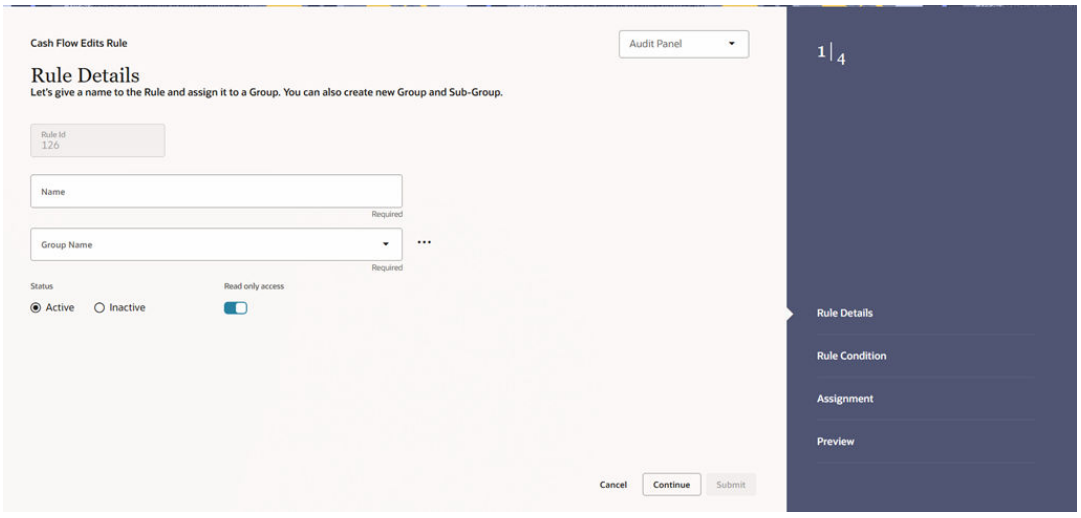
To add a new Cash Flow Edits Rule, follow these steps:

1. Navigate to **Cash Flow Edits Summary** Page.
2. Click the **Add** . The **Rule Details** window is displayed.
3. Follow the steps mentioned in below sections:
   - Step 1: Rule Details
   - Step 2: Rule Condition
   - Step 3: Assignment
   - Step 4: Preview

Step 1: Rule Details

1. Navigate to Rule Details page.

Figure 3-66 Rule Details



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2. Enter the following details:

Table 3-23 List of fields used for Creating Cash Flow Edits Process

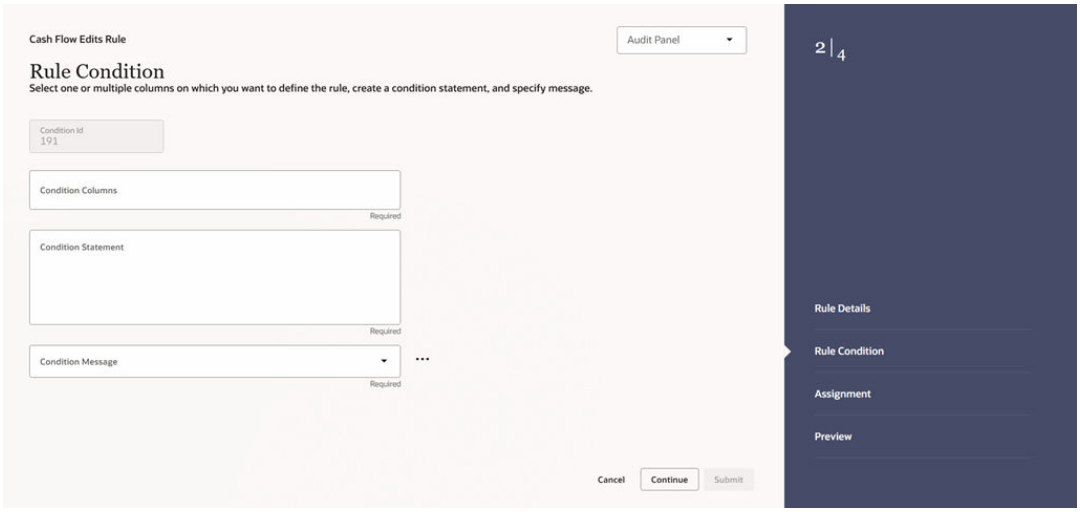
Field	Description
Rule ID	Shows the ID of the Cash Flow Edits Rule. This is an auto generated numeric field. You cannot modify this.
Rule Name	Enter the name of the Cash Flow Edits Rule. This is an alphanumeric field. The maximum length of this field is 1000 characters.
Group Name	Select the Group Name from Group Name drop-down list. For example, Cash Flow. You can add new a Group and Sub Group using Add icon. Adding a Sub Group To add a Sub Group, follow these steps: a. Click Add. The Add Group Window is displayed. b. Enter the following details: • **Group Name:** Name of new Group • **Parent Group:** Select Parent Group • **Group Id** is auto populated. To add a new Group select the 'Praent Group' switch and enter Group Name. These added Group/Sub Group Names will be populated in Cash Flow Edits Details section of Cash Flow Edits Process window.
Status	Set the status of the rule as Active or Inactive.
Access Type	Select the Access Type as Read-Only or Read/ Write.

3. Click **Continue**.

Step 2: Rule Condition

1. Navigate to Rule Condition page.

Figure 3-67 Rule Condition



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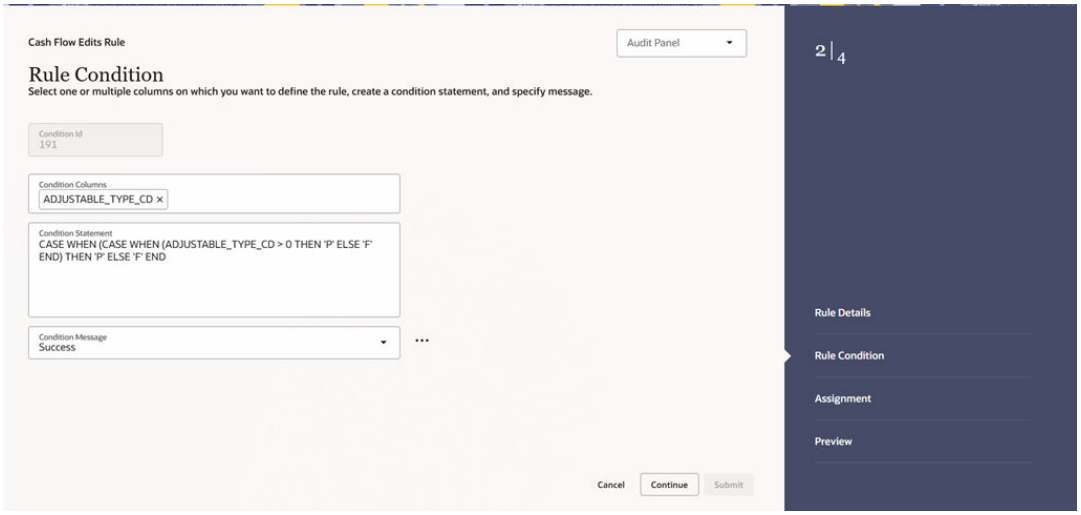
2. Enter the following details:

Table 3-24 List of fields used for Creating Cash Flow Edits Process

Field	Description
Condition ID	This field shows the Condition ID. This is an auto generated numeric field. You cannot modify this.
Condition Columns	Select the Columns using which you want to define the error condition expression.
Condition Statement	This field allows you to define the expression of a rule. You can define condition expression for selected Condition Columns (using the Condition Columns field). When you click the Condition Statement Field, the Expression Window is displayed. Define the condition and click **Save**.
Condition Message	Select the Condition message. You can add a new condition message using Add icon. For more information on Cash Flow Edits messages, see the Cash Flow Edits Execution section. To add a Condition Message, follow these steps: a. Click **Action** icon and select **Add** icon. The **Add Message** window is displayed. Enter the following details: • **Message Type:** Select as Error, Warning, or Information • **Message Description:** Enter the Message details. • **Message ID** is auto populated. b. Click **Save**.

Below is an example:

Figure 3-68 Example



3. Click **Continue**.

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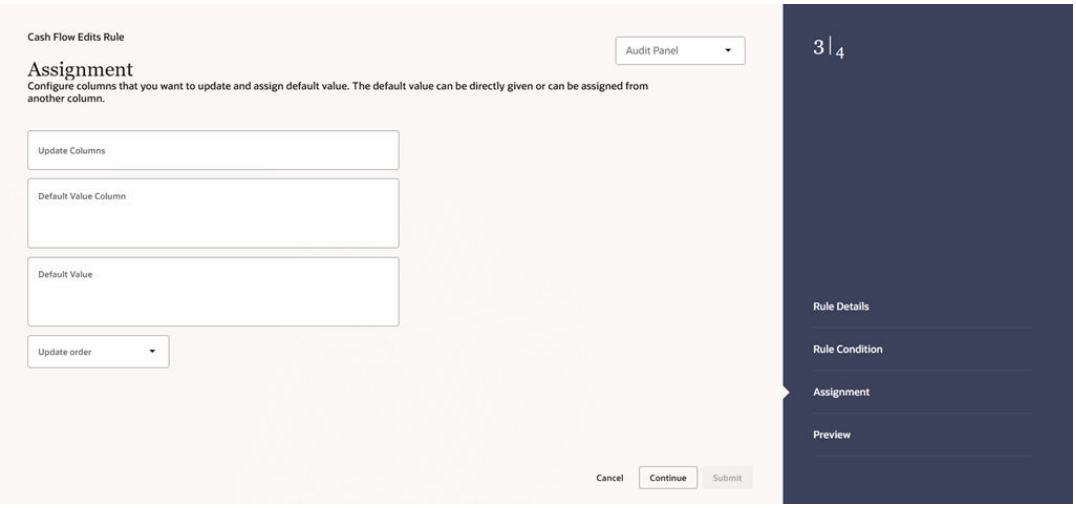
Step 3: Assignment

1. Navigate to Assignment page.

Figure 3-69 Assignment Details



2. Enter the following details:

Table 3-25 List of fields used for Creating Cash Flow Edits Process

Field	Description
Update Columns	Select the columns which you want to update if error condition is met.
Default Value Column	Select the columns from which you want to update columns selected in Update Columns.
Default Value	Enter the values that you want to update the columns selected in Update Columns.
Update Order	If the same column is getting updated by more than one rule then the order in which each rule applies must be selected here.

3. Click **Continue**.

Step 4: Preview

1. Navigate to Preview page. Review the rule details.

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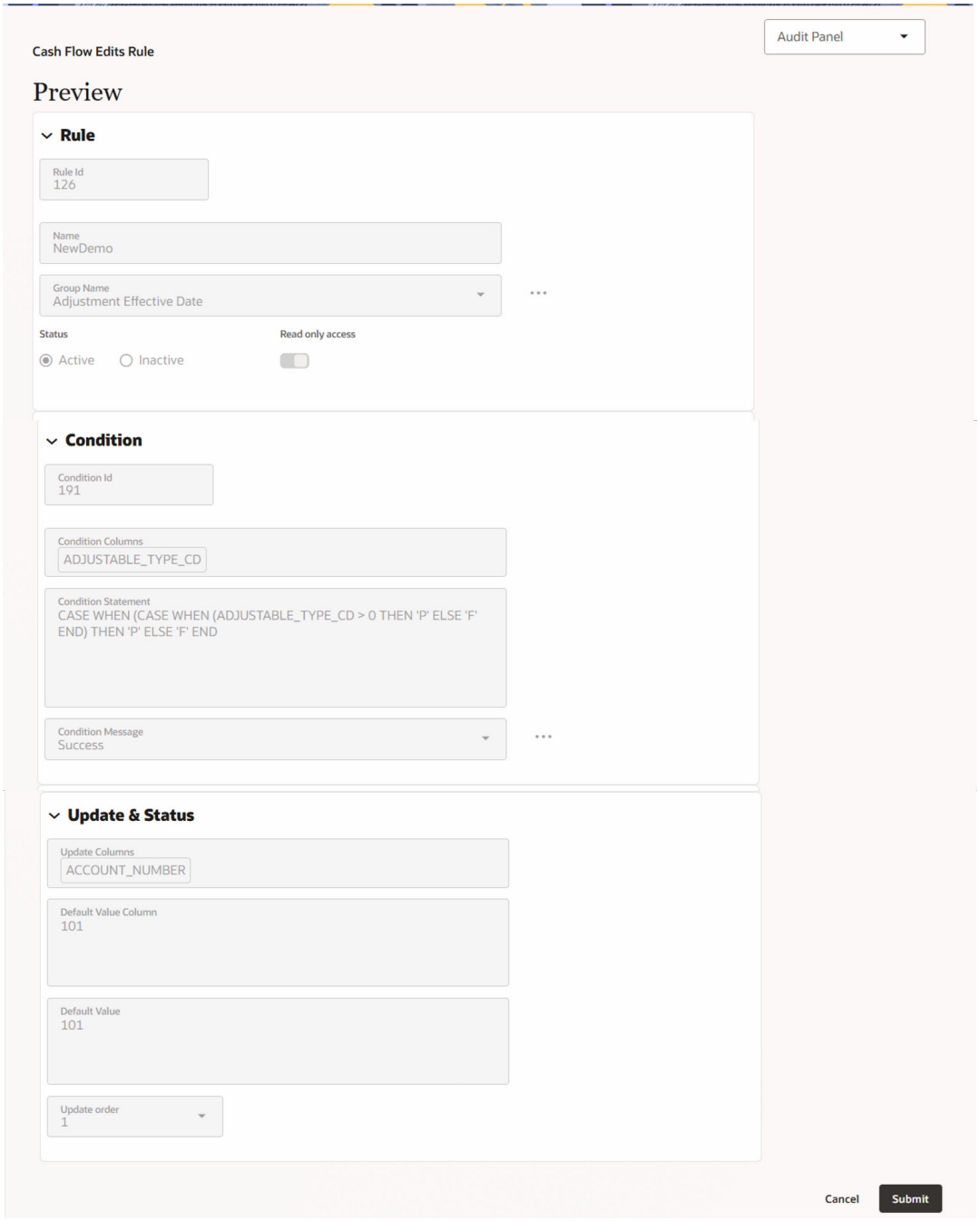
Figure 3-70 Preview



2. Click **Submit** to create the rule. The created rule will be displayed on **Cash Flow Edits Summary** page.

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3.9.1.2 Cash Flow Edits Process Errors

> **Note**
>
> - **Error:** Engine does not process, however sometimes default value can get used for calculations.
> - **Warning:** Engine may use the default value or given wrong data for calculation, results may be incorrect.
> - **Info:** Does not impact any processing but results may not be as expected.

- **Rule ID: 1**

Error Condition	(AMRT_TYPE_CD <> 700 OR (amrt_type_cd = 700 AND amrt_term <> 0)) AND (CASE amrt_term_mult WHEN 'Y' THEN amrt_term * 365 WHEN 'M' THEN amrt_term * 30.41667 ELSE amrt_term END) < (CASE org_term_mult WHEN 'Y' THEN org_term * 365 WHEN 'M' THEN org_term * 30.41667 ELSE org_term END) THEN 'P' ELSE 'F' END
Error Description	Amortization term can only be equal to zero on Non-Amortizing instruments
Assignment	AMRT_TERM = ORG_TERM and AMRT_TERM_MULT = ORG_TERM_MULT
Warning	Original Term > Amortization Term
Error Level	Warning

- **Rule ID: 2**

Error Condition	(ORIGINATION_DATE < AS_OF_DATE and CUR_PAR_BAL is not NULL and ORG_PAR_BAL is not NULL and CUR_PAR_BAL = ORG_PAR_BAL)
Error Description	Instrument has originated in past but Current Par Balance and Original Par Balance are equal
Assignment	
Warning	Current Par Balance = Original Par Balance
Error Level	Warning

- **Rule ID: 3**

Error Condition	(ORIGINATION_DATE < AS_OF_DATE and DEFERRED_CUR_BAL is not NULL and DEFERRED_ORG_BAL is not NULL and DEFERRED_CUR_BAL = DEFERRED_ORG_BAL)
Error Description	Instrument has originated in past but Deferred Current Balance and Deferred Original Balance are equal
Assignment	

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Warning	Deferred Current Balance = Deferred Original Balance
Error Level	Warning

- **Rule ID: 4**

Error Condition	(CUR_GROSS_RATE is NULL or CUR_GROSS_RATE < 0)
Error Description	Current gross rate is negative
Assignment	
Warning	Current Gross Rate < 0
Error Level	Info

- **Rule ID: 5**

Error Condition	(CUR_NET_RATE is NULL or CUR_NET_RATE < 0)
Error Description	Current net rate is negative
Assignment	
Warning	Current Net Rate < 0
Error Level	Info

- **Rule ID: 6**

Error Condition	(ACCRUAL_BASIS_CD is NULL or ACCRUAL_BASIS_CD <1 or ACCRUAL_BASIS_CD >7)
Error Description	Accrual basis code must be between 1 and 7 inclusively
Assignment	ACCRUAL_BASIS_CD = 3
Warning	Invalid Accrual Basis
Error Level	Warning

- **Rule ID: 7**

Error Condition	(AMRT_TYPE_CD is NULL or AMRT_TYPE_CD not in (100, 400, 600, 700, 710, 800, 801, 802, 820, 840, 850, 10, 20))
Error Description	Amortization type must be a valid OFSAA code
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Amortization Type
Error Level	Warning

- **Rule ID: 8**

Error Condition	(AMRT_TYPE_CD = 20 and (PMT_PATTERN_CD is null or PMT_PATTERN_CD <= 0))
Error Description	Amortization type is Payment Pattern but Payment Pattern Code is invalid
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Payment Pattern
Error Level	Warning

- **Rule ID: 9**

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Error Condition	(AMRT_TYPE_CD = 20 and PMT_PATTERN_CD is not null and PMT_PATTERN_CD > 0 and PMT_PATTERN_CD not in (select AMRT_TYPE_CD from fsi_payment_pattern))
Error Description	Amortization type is Payment Pattern but Payment Pattern definition does not exist
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Payment Pattern
Error Level	Warning

- **Rule ID: 10**

Error Condition	(AMRT_TYPE_CD = 10 and (BEHAVIOUR_PATTERN_CD is null or BEHAVIOUR_PATTERN_CD <= 0))
Error Description	Amortization type is Behaviour Pattern but Behaviour Pattern Code is invalid
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Behaviour Pattern
Error Level	Warning

- **Rule ID: 11**

Error Condition	(AMRT_TYPE_CD = 10 and BEHAVIOUR_PATTERN_CD is not NULL and BEHAVIOUR_PATTERN_CD > 0 and BEHAVIOUR_PATTERN_CD not in (select PATTERN_CD from fsi_behaviour_pattern_master))
Error Description	Amortization type is Behaviour Pattern but Behaviour Pattern definition does not exist
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Behaviour Pattern
Error Level	Warning

- **Rule ID: 12**

Error Condition	(AMRT_TYPE_CD in (800, 801, 802) and NOT EXISTS (select 1 from FSI_D_Payment_Schedule WHERE FSI_D_Payment_Schedule.ID_NUMBER=SOURCE_TABLE.ID_NUMBER AND FSI_D_Payment_Schedule.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE AND FSI_D_Payment_Schedule.INSTRUMENT_TYPE_CD = SOURCE_TABLE.INSTRUMENT_TYPE_CD))
Error Description	Cannot find record with matching ID Number, Identity Code and Instrument Type Code in Payment Schedule table
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Payment schedule data
Error Level	Warning

- **Rule ID: 13**

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Error Condition	(AMRT_TYPE_CD in (800, 801, 802) and ORIGINATION_DATE > (select max(PAYMENT_DATE) from FSI_D_Payment_Schedule WHERE FSI_D_Payment_Schedule.ID_NUMBER=SOURCE_TABLE.ID_NUMBER AND FSI_D_Payment_Schedule.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE AND FSI_D_Payment_Schedule.INSTRUMENT_TYPE_CD = SOURCE_TABLE.INSTRUMENT_TYPE_CD))
Error Description	Origination Date is greater than highest date in Payment Schedule
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Payment schedule data
Error Level	Warning

- **Rule ID: 14**

Error Condition	(AMRT_TERM_MULT is NULL or AMRT_TERM_MULT not in ('D', 'M', 'Y'))
Error Description	Amortization term multiplier must be D, M, or Y
Assignment	AMRT_TERM_MULT = M
Warning	Invalid Amortization Term Multiplier
Error Level	Warning

- **Rule ID: 15**

Error Condition	(AMRT_TYPE_CD = 600 AND (NEG_AMRT_EQ_MULT is NULL or NEG_AMRT_EQ_MULT not in ('D', 'M', 'Y')))
Error Description	Negative Amortization Equalization Frequency multiplier must be D, M, or Y
Assignment	NEG_AMRT_EQ_MULT = M
Warning	Invalid Negative Amortization Equalization Frequency Multiplier
Error Level	Warning

- **Rule ID: 16**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_LIMIT is NULL or NEG_AMRT_LIMIT >=200 or NEG_AMRT_LIMIT < 0))
Error Description	Negative Amortization limit value does not fall in a valid range (0 to 200), Applicable to Negative amortization instruments only
Assignment	NEG_AMRT_LIMIT = 0
Warning	Invalid Negative Amortization Limit
Error Level	Warning

- **Rule ID: 17**

Error Condition	(ORG_TERM_MULT is NULL or ORG_TERM_MULT not in ('D', 'M', 'Y'))
Error Description	Original term multiplier must be D, M, or Y

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Assignment	ORG_TERM_MULT= M
Warning	Invalid Original Term Multiplier
Error Level	Warning

- **Rule ID: 18**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_CHG_FREQ is NULL or NEG_AMRT_PMT_CHG_FREQ < 0))
Error Description	Payment Change Frequency cannot be negative, Applicable to Negative amortization instruments only
Assignment	NEG_AMRT_PMT_CHG_FREQ = 0
Warning	Invalid Negative Amortization Payment Change Frequency
Error Level	Warning

- **Rule ID: 19**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_CHG_FREQ_MULT is NULL or NEG_AMRT_PMT_CHG_FREQ_MULT not in ('D', 'M', 'Y')))
Error Description	Negative Amortization Payment Change Frequency Multiplier must be D, M, or Y
Assignment	NEG_AMRT_PMT_CHG_FREQ_MULT = M
Warning	Invalid Negative Amortization Payment Change Frequency Multiplier
Error Level	Warning

- **Rule ID: 20**

Error Condition	(INT_PMT_FREQ_MULT is NULL or INT_PMT_FREQ_MULT not in ('D', 'M', 'Y'))
Error Description	Interest Payment frequency multiplier must be D, M, or Y
Assignment	INT_PMT_FREQ_MULT = M
Warning	Invalid Interest Payment Frequency Multiplier
Error Level	Warning

- **Rule ID: 21**

Error Condition	(PRIN_PMT_FREQ_MULT is NULL or PRIN_PMT_FREQ_MULT not in ('D', 'M', 'Y'))
Error Description	Principal Payment frequency multiplier must be D, M, or Y
Assignment	PRIN_PMT_FREQ_MULT = M
Warning	Invalid Principal Payment Frequency Multiplier
Error Level	Warning

- **Rule ID: 22**

Error Condition	(RATE_CHG_RND_CD is NULL or RATE_CHG_RND_CD < 0 or RATE_CHG_RND_CD > 4)

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Error Description	Rate change round code must be between 0 and 4
Assignment	RATE_CHG_RND_CD = 0
Warning	Invalid Rate Change Rounding Code
Error Level	Warning

- **Rule ID: 23**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and (RATE_SET_LAG_MULT is NULL or RATE_SET_LAG_MULT not in ('D', 'M', 'Y')))
Error Description	Rate Set Lag Multiplier must be D, M, or Y
Assignment	RATE_SET_LAG_MULT = M
Warning	Invalid Rate Set Lag Multiplier
Error Level	Warning

- **Rule ID: 24**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and (REPRICE_FREQ_MULT is NULL or REPRICE_FREQ_MULT not in ('D', 'M', 'Y')))
Error Description	Repricing Frequency Multiplier must be D, M, or Y
Assignment	REPRICE_FREQ_MULT = M
Warning	Invalid Repricing Frequency Multiplier
Error Level	Warning

- **Rule ID: 25**

Error Condition	(RATE_CHG_RND_FAC is NULL or RATE_CHG_RND_FAC < 0 or RATE_CHG_RND_FAC > 1)
Error Description	Rate change round factor must be between 0 and 1
Assignment	RATE_CHG_RND_FAC = 0
Warning	Invalid Rate Change Rounding Factor
Error Level	Warning

- **Rule ID: 26**

Error Condition	(MATURITY_DATE < NEXT_INT_PAYMENT_DATE)
Error Description	Maturity date cannot be before the next interest payment date
Assignment	MATURITY_DATE = (CASE PRIN_PMT_FREQ_MULT WHEN 'Y' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ * 12)) WHEN 'M' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ)) ELSE NEXT_PRIN_PAYMENT_DATE + ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ) END)
Warning	Maturity Date < Next Interest Payment Date

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Error Level	Warning

- **Rule ID: 27**

Error Condition	(MATURITY_DATE < NEXT_PRIN_PAYMENT_DATE)
Error Description	Maturity date cannot be before the next principal payment date
Assignment	MATURITY_DATE = (CASE PRIN_PMT_FREQ_MULT WHEN 'Y' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ * 12)) WHEN 'M' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ)) ELSE NEXT_PRIN_PAYMENT_DATE + ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ) END)
Warning	Maturity Date < Next Principal Payment Date
Error Level	Warning

- **Rule ID: 28**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_EQ_FREQ is NULL or NEG_AMRT_EQ_FREQ < 0))
Error Description	Negative amortization equalization frequency cannot be negative, Applicable to Negative amortization instruments only
Assignment	NEG_AMRT_EQ_FREQ = 0
Warning	Negative Amortization Equalization Frequency < 0
Error Level	Warning

- **Rule ID: 29**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_EQ_FREQ is not null and NEG_AMRT_EQ_FREQ > 0 and NEG_AMRT_EQ_DATE <= greatest(ORIGINATION_DATE, AS_OF_DATE))
Error Description	Negative Amortization equalization date is less than origination date (future origination) or less than the as-of-date (past origination), Applicable to Negative Amortization instruments only
Assignment	NEG_AMRT_EQ_DATE = NEXT_REPRICE_DATE
Warning	Negative Amortization Equalization Date < Origination Date or As of Date
Error Level	Warning

- **Rule ID: 30**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_EQ_FREQ is not NULL and NEG_AMRT_EQ_FREQ > 0 and NEG_AMRT_EQ_DATE > MATURITY_DATE)

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Error Description	Next interest payment date is less than as-of-date (past origination case), As of Date cannot be greater than the origination date and greater than the next payment date.
Assignment	NEG_AMRT_EQ_DATE = NEXT_REPRICE_DATE
Warning	Negative Amortization Equalization Date > Maturity Date
Error Level	Warning

- **Rule ID: 31**

Error Condition	(AS_OF_DATE > ORIGINATION_DATE and AS_OF_DATE >= NEXT_INT_PAYMENT_DATE)
Error Description	Negative Amortization equalization date is after Maturity Date, Applicable to Negative Amortization instruments only
Assignment	NEXT_INT_PAYMENT_DATE = AS_OF_DATE + 1
Warning	Next Interest Payment Date < As of Date
Error Level	Warning

- **Rule ID: 32**

Error Condition	(AS_OF_DATE > ORIGINATION_DATE and AS_OF_DATE >= NEXT_PRIN_PAYMENT_DATE)
Error Description	Next principal payment date is less than as-of-date (past origination case), As of Date cannot be greater than the origination date and greater than the next payment date.
Assignment	NEXT_PRIN_PAYMENT_DATE= AS_OF_DATE + 1
Warning	Next Principal Payment Date < As of Date
Error Level	Warning

- **Rule ID: 33**

Error Condition	(ORIGINATION_DATE >= AS_OF_DATE and ORIGINATION_DATE >= NEXT_INT_PAYMENT_DATE)
Error Description	Next interest payment date is less than origination date (future origination case)
Assignment	NEXT_INT_PAYMENT_DATE = ORIGINATION_DATE + 1
Warning	Next Interest Payment Date < Origination Date
Error Level	Warning

- **Rule ID: 34**

Error Condition	(ORIGINATION_DATE >= AS_OF_DATE and ORIGINATION_DATE >= NEXT_PRIN_PAYMENT_DATE)
Error Description	Next principal payment date is less than origination date (future origination case)

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Assignment	NEXT_PRIN_PAYMENT_DATE= ORIGINATION_DATE + 1
Warning	Next Principal Payment Date < Origination Date
Error Level	Warning

- **Rule ID: 35**

Error Condition	(ORIGINATION_DATE <= AS_OF_DATE and NEXT_REPRICE_DATE <= AS_OF_DATE and REPRICE_FREQ > 0)
Error Description	Next repricing date is less than as-of-date (past origination case)
Assignment	NEXT_REPRICE_DATE = AS_OF_DATE + 1
Warning	Next Reprice Date < As of Date
Error Level	Warning

- **Rule ID: 36**

Error Condition	(ORIGINATION_DATE > AS_OF_DATE and NEXT_REPRICE_DATE < ORIGINATION_DATE and REPRICE_FREQ > 0)
Error Description	Next repricing date is less than the origination date (future origination case)
Assignment	NEXT_REPRICE_DATE = ORIGINATION_DATE + 1
Warning	Next Reprice Date < Origination Date
Error Level	Warning

- **Rule ID: 37**

Error Condition	(AMRT_TYPE_CD = 600 and (ORG_PAYMENT_AMT is NULL or ORG_PAYMENT_AMT = 0) and NEG_AMRT_PMT_DECR_LIFE > 0)
Error Description	Payment decrease life is expressed as a percent of a original payment, Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_DECR_LIFE = 0
Warning	Original Payment Amount = 0 and Negative Amortization Payment Decrease Limit (Life) <> 0
Error Level	Warning

- **Rule ID: 38**

Error Condition	(AMRT_TYPE_CD = 600 and (ORG_PAYMENT_AMT is NULL or ORG_PAYMENT_AMT = 0) and NEG_AMRT_PMT_INCR_LIFE > 0)
Error Description	Payment increase life is expressed as a percent of a original payment, Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_INCR_LIFE = 0
Warning	Original Payment Amount = 0 and Negative Amortization Payment Increase Limit (Life) <> 0
Error Level	Warning

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- **Rule ID: 39**

Error Condition	(ORG_TERM = 0 OR ORG_TERM <> (CASE ORG_TERM_MULT WHEN 'Y' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE)*12 WHEN 'M' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) ELSE (MATURITY_DATE - ORIGINATION_DATE) END))
Error Description	Original term should equal the time between the origination date and the maturity date
Assignment - Default Value	ORG_TERM#ORG_TERM_MULT = If MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END#
Warning	Original Term <> Maturity Date - Orgination Date
Error Level	Warning

- **Rule ID: 40**

Error Condition	(ORIGINATION_DATE is NULL or ORIGINATION_DATE < '1-Aug-1950' or ORIGINATION_DATE > '1-Aug-2099')
Error Description	Origination date must be acceptable
Assignment	ORIGINATION_DATE = 1-Jan-50
Warning	Origination date < 01/01/1950
Error Level	Warning

- **Rule ID: 41**

Error Condition	(INT_PMT_FREQ > (CASE INT_PMT_FREQ_MULT WHEN 'Y' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE)*12 WHEN 'M' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) ELSE (MATURITY_DATE - ORIGINATION_DATE) END))
Error Description	Interest Payment frequency cannot be greater than original term
Assignment - Default Value	INT_PMT_FREQ#INT_PMT_FREQ_MULT = If MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END#
Warning	Interest Payment Freq > Original Term
Error Level	Warning

- **Rule ID: 42**

Error Condition	(PRIN_PMT_FREQ >(CASE PRIN_PMT_FREQ_MULT WHEN 'Y' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE)*12 WHEN 'M' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) ELSE (MATURITY_DATE - ORIGINATION_DATE) END))

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Error Description	Principal Payment frequency cannot be greater than original term
Assignment - Default Value	PRIN_PMT_FREQ#PRIN_PMT_FREQ_MULT= If MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END#
Warning	Principal Payment Freq > Original Term
Error Level	Warning

- **Rule ID: 43**

Error Condition	((CUR_PAYMENT is NULL or CUR_PAYMENT < 0 and CUR_PAR_BAL > 0) or (CUR_PAYMENT > 0 and CUR_PAR_BAL < 0))
Error Description	Current payment and current par balance cannot have opposite signs
Assignment	CUR_PAYMENT = 0
Warning	Current Payment and Current Par Balance have opposite signs
Error Level	Warning

- **Rule ID: 44**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_PMT_CHG_FREQ > 0 and AS_OF_DATE > NEG_AMRT_PMT_ADJUST_DATE)
Error Description	Negative Amortization Payment Adjustment Date is less than the as-of-date (past origination), Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_ADJUST_DATE=NEXT_REPRICE_DATE
Warning	Negative Amortization Payment Adjustment Date < As of Date
Error Level	Warning

- **Rule ID: 45**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_PMT_CHG_FREQ > 0 and AS_OF_DATE < NEG_AMRT_PMT_ADJUST_DATE and NEG_AMRT_PMT_ADJUST_DATE < ORIGINATION_DATE)
Error Description	Negative Amortization Payment adjustment date is less than origination date (future origination), Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_ADJUST_DATE=NEXT_REPRICE_DATE
Warning	Negative Amortization Payment Adjustment Date < Origination Date
Error Level	Warning

- **Rule ID: 46**

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Error Condition	((INT_PMT_FREQ is NULL or INT_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE > AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE and MATURITY_DATE > ORIGINATION_DATE)))
Error Description	Interest Payment frequency is less than or equal to zero, and both maturity date and origination date are valid dates and can be used to calculate payment frequency.
Assignment	NEXT_INT_PAYMENT_DATE#ORG_TERM#ORG_TERM_MULT#INT_PMT_FREQ#INT_PMT_FREQ_MULT#REMAIN_NO_PMTS=MATURITY_DATE#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Interest Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 47**

Error Condition	((PRIN_PMT_FREQ is NULL or PRIN_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE > AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE and MATURITY_DATE > ORIGINATION_DATE)))
Error Description	Principal Payment frequency is less than or equal to zero, and both maturity date and origination date are valid dates and can be used to calculate payment frequency.
Assignment	NEXT_PRIN_PAYMENT_DATE#ORG_TERM#ORG_TERM_MULT#PRIN_PMT_FREQ#PRIN_PMT_FREQ_MULT#REMAIN_NO_PMTS=MATURITY_DATE#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Principal Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 48**

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Error Condition	((INT_PMT_FREQ is NULL or INT_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE <= AS_OF_DATE and NEXT_INT_PAYMENT_DATE > AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE AND MATURITY_DATE < ORIGINATION_DATE and NEXT_INT_PAYMENT_DATE > ORIGINATION_DATE)))
Error Description	Interest payment frequency is less than or equal to zero and maturity date is invalid, but next interest payment date can be used to calculate a valid payment frequency
Assignment	MATURITY_DATE#ORG_TERM#ORG_TERM_MULT#INT_PMT_FREQ#INT_PMT_FREQ_MULT#REMAIN_NO_PMTS=NEXT_INT_PAYMENT_DATE#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Interest Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 49**

Error Condition	((PRIN_PMT_FREQ is NULL or PRIN_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE <= AS_OF_DATE and NEXT_PRIN_PAYMENT_DATE > AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE AND MATURITY_DATE < ORIGINATION_DATE and NEXT_PRIN_PAYMENT_DATE > ORIGINATION_DATE)))
Error Description	Principal payment frequency is less than or equal to zero and maturity date is invalid, but next interest payment date can be used to calculate a valid payment frequency
Assignment	MATURITY_DATE#ORG_TERM#ORG_TERM_MULT#PRIN_PMT_FREQ#PRIN_PMT_FREQ_MULT#REMAIN_NO_PMTS=NEXT_PRIN_PAYMENT_DATE#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Principal Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 50**

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Error Condition	((INT_PMT_FREQ is NULL or INT_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE <= AS_OF_DATE and NEXT_INT_PAYMENT_DATE <= AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE AND MATURITY_DATE < ORIGINATION_DATE and NEXT_INT_PAYMENT_DATE < ORIGINATION_DATE)))
Error Description	Interest payment frequency is less than or equal to zero and all dates which can be used to calculate payment frequency are in the past
Assignment	MATURITY_DATE#NEXT_INT_PAYMENT_DATE#ORG_TERM#ORG_TERM_MULT#INT_PMT_FREQ#INT_PMT_FREQ_MULT#REMAIN_NO_PMTS=AS_OF_DATE + 1#AS_OF_DATE + 1#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Interest Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 51**

Error Condition	((PRIN_PMT_FREQ is NULL or PRIN_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE <= AS_OF_DATE and NEXT_PRIN_PAYMENT_DATE <= AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE AND MATURITY_DATE < ORIGINATION_DATE and NEXT_PRIN_PAYMENT_DATE < ORIGINATION_DATE)))
Error Description	Principal payment frequency is less than or equal to zero and all dates which can be used to calculate payment frequency are in the past
Assignment	MATURITY_DATE#NEXT_PRIN_PAYMENT_DATE#ORG_TERM#ORG_TERM_MULT#PRIN_PMT_FREQ#PRIN_PMT_FREQ_MULT#REMAIN_NO_PMTS=AS_OF_DATE + 1#AS_OF_DATE + 1#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Principal Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 52**

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Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_INCR_CYCLE is NULL or NEG_AMRT_PMT_INCR_CYCLE < 0))
Error Description	Negative Amortization Payment increase limit (cycle) cannot be less than zero, Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_INCR_CYCLE=0
Warning	Negative Amortization Payment Increase Limit (Cycle) < 0
Error Level	Warning

- **Rule ID: 53**

Error Condition	(RATE_CAP_LIFE < CUR_GROSS_RATE and RATE_CAP_LIFE <> 0 and CUR_GROSS_RATE <> 0 and TEASER_END_DATE < AS_OF_DATE)
Error Description	Current gross rate is greater than the rate cap life
Assignment	RATE_CAP_LIFE=CUR_GROSS_RATE
Warning	Rate Cap Life < Current Gross Interest Rate
Error Level	Info

- **Rule ID: 54**

Error Condition	(RATE_CAP_LIFE < CUR_NET_RATE and RATE_CAP_LIFE <> 0)
Error Description	Current net rate is greater than the rate cap
Assignment	
Warning	Rate Cap Life < Current Net Interest Rate
Error Level	Info

- **Rule ID: 55**

Error Condition	(RATE_CHG_MIN is NULL or RATE_CHG_MIN < 0)
Error Description	Minimum rate change cannot be negative
Assignment	RATE_CHG_MIN=0
Warning	Rate Change Minimum < 0
Error Level	Warning

- **Rule ID: 56**

Error Condition	(RATE_DECR_CYCLE is NULL or RATE_DECR_CYCLE < 0)
Error Description	Rate decrease limit (cycle) must not be negative
Assignment	RATE_DECR_CYCLE=0
Warning	Rate Decrease Limit (Cycle) < 0
Error Level	Warning

- **Rule ID: 57**

Error Condition	(RATE_FLOOR_LIFE > CUR_GROSS_RATE and CUR_GROSS_RATE <> 0 and TEASER_END_DATE < AS_OF_DATE)
Error Description	Current gross rate is less than the rate floor

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Assignment	
Warning	Rate Floor Life > Currrent Gross Interest Rate
Error Level	Info

- **Rule ID: 58**

Error Condition	(RATE_FLOOR_LIFE > CUR_NET_RATE)
Error Description	Rate floor life must not be greater than the current net rate
Assignment	RATE_FLOOR_LIFE=CUR_GROSS_RATE
Warning	Rate Floor Life > Currrent Net Interest Rate
Error Level	Info

- **Rule ID: 59**

Error Condition	(RATE_INCR_CYCLE is NULL or RATE_INCR_CYCLE < 0)
Error Description	Rate increase limit (cycle) cannot be less than 0
Assignment	RATE_INCR_CYCLE=0
Warning	Rate Increase Limit (Cycle) < 0
Error Level	Warning

- **Rule ID: 60**

Error Condition	(REMAIN_NO_PMTS is NULL or REMAIN_NO_PMTS < 1)
Error Description	There has to be at least 1 payment left
Assignment	REMAIN_NO_PMTS=1
Warning	Remaining Number of Payments < 1
Error Level	Warning

- **Rule ID: 61**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and (RATE_SET_LAG is NULL or RATE_SET_LAG < 0))
Error Description	Rate set lag cannot be negative
Assignment	RATE_SET_LAG=0
Warning	Rate Set Lag < 0
Error Level	Warning

- **Rule ID: 62**

Error Condition	(TEASER_END_DATE < ORIGINATION_DATE)
Error Description	Teaser End Date cannot be before Origination Date
Assignment	TEASER_END_DATE=ORIGINATION_DATE
Warning	Teaser End Date < Origination Date
Error Level	Warning

- **Rule ID: 63**

Error Condition	(TEASER_END_DATE > MATURITY_DATE)

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Error Description	Teaser End Date cannot be after Maturity Date
Assignment	TEASER_END_DATE=MATURITY_DATE
Warning	Teaser End Date > Maturity Date
Error Level	Warning

- **Rule ID: 64**

Error Condition	(AMRT_TYPE_CD = 710 and ORG_PAR_BAL < CUR_PAR_BAL)
Error Description	Original balance on Rule of 78's instruments should be greater than current balance
Assignment	
Warning	Orginal Par Balance < Current Par Balance
Error Level	Info

- **Rule ID: 65**

Error Condition	(AMRT_TYPE_CD = 600 and (REPRICE_FREQ is NULL or REPRICE_FREQ = 0))
Error Description	Reprice Frequency cannot be zero for Adjustable Negative Amortization instrument
Assignment	
Warning	Adjustable Negative Amortization instrument has Reprice Frequency = 0
Error Level	Info

- **Rule ID: 66**

Error Condition	(REPRICE_FREQ <> 0 and LAST_REPRICE_DATE > NEXT_REPRICE_DATE)
Error Description	Last repricing date is greater than next repricing date
Assignment	LAST_REPRICE_DATE=(CASE REPRICE_FREQ_MULT WHEN 'Y' THEN ADD_MONTHS(NEXT_REPRICE_DATE, -REPRICE_FREQ*12) WHEN 'M' THEN ADD_MONTHS(NEXT_REPRICE_DATE, -REPRICE_FREQ) ELSE NEXT_REPRICE_DATE - REPRICE_FREQ END)
Warning	Last Reprice Date > Next Reprice Date
Error Level	Warning

- **Rule ID: 67**

Error Condition	(ADJUSTABLE_TYPE_CD in (50, 250) and (INTEREST_RATE_CD is NULL or INTEREST_RATE_CD <= 0))
Error Description	Interest rate code must be valid for adjustable rate instruments
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Adjustable Rate instrument has invalid Interest Rate Code
Error Level	Warning

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- **Rule ID: 68**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and INTEREST_RATE_CD > 0 and exists (select 1 from fsi_ircs where fsi_ircs.interest_rate_cd = SOURCE_TABLE.interest_rate_cd and fsi_ircs.volatility_curve_flg > 0))
Error Description	Interest rate code of instrument is not an yield curve. Repricing attributes will be ignored and processed as fixed interest rate;
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Invalid Interest Rate Code. Curve Type is not Interest Rate Curve
Error Level	Warning

- **Rule ID: 69**

Error Condition	(NET_MARGIN_CD is NULL or NET_MARGIN_CD not in (0, 1))
Error Description	Valid net margin codes are 0 or 1.
Assignment	NET_MARGIN_CD=0
Warning	Invalid Net Margin Code
Error Level	Warning

- **Rule ID: 70**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_DECR_CYCLE is NULL or NEG_AMRT_PMT_DECR_CYCLE < 0))
Error Description	Payment Decrease Limit (Cycle) cannot be less than zero. Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_DECR_CYCLE=0
Warning	Negative Amortization Payment Decrease Limit (Cycle) = 0
Error Level	Warning

- **Rule ID: 71**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_DECR_LIFE is NULL or NEG_AMRT_PMT_DECR_LIFE < 0))
Error Description	Payment Decrease Limit (Life) cannot be less than zero. Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_DECR_LIFE=0
Warning	Negative Amortization Payment Decrease Limit (Life) = 0
Error Level	Warning

- **Rule ID: 72**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_PMT_DECR_LIFE <> 0 and CUR_PAYMENT < ORG_PAYMENT_AMT * (1 - NEG_AMRT_PMT_DECR_LIFE/100))

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Error Description	Current payment is less than the minimum payment amount. Applicable to negative amortization instruments only
Assignment	
Warning	Current Payment is less than Life Pay Floor
Error Level	Info

- **Rule ID: 73**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_INCR_LIFE is NULL or NEG_AMRT_PMT_INCR_LIFE < 0))
Error Description	Payment Increase Limit (Life) cannot be less than zero. Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_INCR_LIFE=0
Warning	Negative Amortization Payment Increase Limit (Life) = 0
Error Level	Warning

- **Rule ID: 74**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_PMT_INCR_LIFE <> 0 and CUR_PAYMENT > ORG_PAYMENT_AMT * (1 + NEG_AMRT_PMT_INCR_LIFE/100))
Error Description	Current payment is greater than the maximum payment amount. Applicable to negative amortization instruments only
Assignment	
Warning	Current Payment is greater than Life Pay Cap
Error Level	Info

- **Rule ID: 75**

Error Condition	(ISSUE_DATE > ORIGINATION_DATE)
Error Description	Issue date cannot be greater than origination date
Assignment	ISSUE_DATE=ORIGINATION_DATE
Warning	Issue Date > Origination Date
Error Level	Warning

- **Rule ID: 76**

Error Condition	(REPRICE_FREQ is NULL or REPRICE_FREQ < 0)
Error Description	Repricing frequency must not be negative
Assignment	REPRICE_FREQ=0
Warning	Reprice Frequency < 0
Error Level	Warning

- **Rule ID: 77**

Error Condition	(AMRT_TYPE_CD = 710 and REPRICE_FREQ <> 0)

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Error Description	Rule of 78's instruments are implicitly fixed rate.
Assignment	REPRICE_FREQ=0
Warning	Amortization type is Rule of 78's but Reprice Frequency is not 0
Error Level	Warning

- **Rule ID: 78**

Error Condition	(ORG_PAR_BAL = 0 and (REPRICE_FREQ is NULL or REPRICE_FREQ = 0))
Error Description	For transfer pricing of fixed rate instruments, the original balance should be populated.
Assignment	
Warning	Original Par Balance is 0 for a fixed rate instrument
Error Level	Info

- **Rule ID: 79**

Error Condition	(REPRICE_FREQ <> 0 and TEASER_END_DATE > ORIGINATION_DATE and TEASER_END_DATE > AS_OF_DATE and NEXT_REPRICE_DATE > TEASER_END_DATE)
Error Description	Next repricing date is greater than teaser end date.
Assignment	NEXT_REPRICE_DATE=TEASER_END_DATE
Warning	Next Reprice Date > Teaser End Date
Error Level	Warning

- **Rule ID: 80**

Error Condition	(ADJUSTABLE_TYPE_CD <> 0 and (LRD_BALANCE is NULL or LRD_BALANCE = 0))
Error Description	The balance as of the last repricing date cannot be equal to 0
Assignment	LRD_BALANCE=CUR_PAR_BAL
Warning	Balance on Last Reprice Date = 0
Error Level	Warning

- **Rule ID: 81**

Error Condition	(ADJUSTABLE_TYPE_CD <> 0 and (LAST_REPRICE_DATE < ISSUE_DATE or LAST_REPRICE_DATE < ORIGINATION_DATE))
Error Description	Transfer pricing will not occur when the last repricing date is less than the issue date and origination date
Assignment	LAST_REPRICE_DATE=ORIGINATION_DATE
Warning	Last Reprice Date < Issue/Origination Date
Error Level	Info

- **Rule ID: 82**

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Error Condition	(ADJUSTABLE_TYPE_CD = 0 and REPRICE_FREQ > 0)
Error Description	Repricing frequency and adjustable type code are inconsistent
Assignment	REPRICE_FREQ=0
Warning	Reprice Frequency > 0 for fixed rate instrument
Error Level	Info

- **Rule ID: 83**

Error Condition	(ADJUSTABLE_TYPE_CD <> 0 and (REPRICE_FREQ is NULL or REPRICE_FREQ = 0))
Error Description	Repricing frequency and adjustable type code are inconsistent
Assignment	
Warning	Adjustable Type is not fixed but Reprice Frequency is 0
Error Level	Info

- **Rule ID: 84**

Error Condition	(AMRT_TYPE_CD = 710 and ADJUSTABLE_TYPE_CD <> 0)
Error Description	Rule of 78's instrument should only have a Fixed adjustable type code.
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Amortization type is Rule of 78's but Adjustable Type is not fixed
Error Level	Warning

- **Rule ID: 85**

Error Condition	(AMRT_TYPE_CD = 600 and ADJUSTABLE_TYPE_CD = 0)
Error Description	Negative amortization instruments cannot have fixed adjustable type code
Assignment	AMRT_TYPE_CD=100
Warning	Adjustable Type is fixed rate for Negative amortization instrument
Error Level	Info

- **Rule ID: 86**

Error Condition	(LAST_INT_PAYMENT_DATE > NEXT_INT_PAYMENT_DATE and INT_PMT_FREQ > 0)
Error Description	Last interest payment date is greater than next interest payment date and can be calculated using interest payment frequency

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Assignment	LAST_INT_PAYMENT_DATE=(CASE INT_PMT_FREQ_MULT WHEN 'Y' THEN ADD_MONTHS(NEXT_INT_PAYMENT_DATE, -INT_PMT_FREQ*12) WHEN 'M' THEN ADD_MONTHS(NEXT_INT_PAYMENT_DATE, -INT_PMT_FREQ) ELSE NEXT_INT_PAYMENT_DATE - INT_PMT_FREQ END)
Warning	
Error Level	Warning

- **Rule ID: 87**

Error Condition	(LAST_INT_PAYMENT_DATE > NEXT_INT_PAYMENT_DATE and (INT_PMT_FREQ is NULL or INT_PMT_FREQ <= 0))
Error Description	Last interest payment date is greater than next interest payment date, but cannot be calculated using interest payment frequency.
Assignment	LAST_INT_PAYMENT_DATE=ORIGINATION_DATE
Warning	
Error Level	Warning

- **Rule ID: 88**

Error Condition	(LAST_PRIN_PAYMENT_DATE > NEXT_PRIN_PAYMENT_DATE and PRIN_PMT_FREQ > 0)
Error Description	Last principal payment date is greater than next principal payment date and can be calculated using principal payment frequency
Assignment	LAST_PRIN_PAYMENT_DATE=(CASE PRIN_PMT_FREQ_MULT WHEN 'Y' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, -PRIN_PMT_FREQ*12) WHEN 'M' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, -PRIN_PMT_FREQ) ELSE NEXT_PRIN_PAYMENT_DATE - PRIN_PMT_FREQ END)
Warning	
Error Level	Warning

- **Rule ID: 89**

Error Condition	(LAST_PRIN_PAYMENT_DATE > NEXT_PRIN_PAYMENT_DATE and (PRIN_PMT_FREQ is NULL or PRIN_PMT_FREQ <= 0))
Error Description	Last principal payment date is greater than next principal payment date, but cannot be calculated using principal payment frequency.
Assignment	LAST_PRIN_PAYMENT_DATE=ORIGINATION_DATE
Warning	Last principal payment date > Next principal payment date

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Error Level	Warning

- **Rule ID: 90**

Error Condition	(LAST_INT_PAYMENT_DATE < ORIGINATION_DATE)
Error Description	Last interest payment date cannot be less than the origination date
Assignment	LAST_INT_PAYMENT_DATE=ORIGINATION_DATE
Warning	Last Interest Payment Date < Origination Date
Error Level	Warning

- **Rule ID: 91**

Error Condition	(LAST_PRIN_PAYMENT_DATE < ORIGINATION_DATE)
Error Description	Last principal payment date cannot be less than the origination date
Assignment	LAST_PRIN_PAYMENT_DATE=ORIGINATION_DATE
Warning	Last Principal Payment Date < Origination Date
Error Level	Warning

- **Rule ID: 92**

Error Condition	(LAST_INT_PAYMENT_DATE > AS_OF_DATE and ORIGINATION_DATE <= AS_OF_DATE)
Error Description	Last interest payment date cannot be greater than the as-of-date if the instrument originated in the past.
Assignment	LAST_INT_PAYMENT_DATE=AS_OF_DATE
Warning	Last interest payment date > As of Date
Error Level	Warning

- **Rule ID: 93**

Error Condition	(LAST_PRIN_PAYMENT_DATE > AS_OF_DATE and ORIGINATION_DATE <= AS_OF_DATE)
Error Description	Last principal payment date cannot be greater than the as-of-date if the instrument originated in the past.
Assignment	LAST_PRIN_PAYMENT_DATE=AS_OF_DATE
Warning	Last principal payment date > As of Date
Error Level	Warning

- **Rule ID: 94**

Error Condition	(INTEREST_TIMING_TYPE_CD = 2 and AMRT_TYPE_CD in (100, 400, 600, 710, 800, 840, 850))
Error Description	Interest type can only be arrears for conventionally amortizing instruments.
Assignment	INTEREST_TIMING_TYPE_CD=1

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Warning	Amortization Type is conventional but interest timing is Advance
Error Level	Warning

- **Rule ID: 95**

Error Condition	(INTEREST_TIMING_TYPE_CD is NULL or INTEREST_TIMING_TYPE_CD not in (1, 2, 3))
Error Description	Interest type must be a valid OFSAA code.
Assignment	INTEREST_TIMING_TYPE_CD=1
Warning	Invalid interest timing type
Error Level	Warning

- **Rule ID: 96**

Error Condition	(COMPOUND_BASIS_CD is NULL or COMPOUND_BASIS_CD not in (110, 120, 130, 140, 150, 160, 170))
Error Description	Compounding basis code must be a valid OFSAA code
Assignment	COMPOUND_BASIS_CD=160
Warning	Invalid Compounding Basis Code
Error Level	Warning

- **Rule ID: 97**

Error Condition	(ACCRUAL_BASIS_CD IN (1, 4, 5) and (INT_PMT_FREQ_MULT = 'D' or AMRT_TYPE_CD in (800,801, 802)))
Error Description	Accrual basis code cannot have a 30 day month assumption on instruments defined by a payment schedule
Assignment	ACCRUAL_BASIS_CD=3
Warning	Amortization Type / Accrual Basis Error
Error Level	Warning

- **Rule ID: 98**

Error Condition	(ACCRUAL_BASIS_CD = 7 and (HOLIDAY_CALENDAR_CODE is NULL or HOLIDAY_CALENDAR_CODE <=0 or HOLIDAY_CALC_OPTION_CD is NULL or HOLIDAY_CALC_OPTION_CD not in (1, 2) or HOLIDAY_ROLLING_CONVENTION_CD is NULL or HOLIDAY_ROLLING_CONVENTION_CD not in (2,3,4,5)))
Error Description	Holiday calendar must be give when using Business/252 accrual basis
Assignment	
Warning	Holiday calendar not given for B/252 accrual basis
Error Level	Info

- **Rule ID: 99**

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Error Condition	(AMRT_TYPE_CD = 10 and BEHAVIOUR_TYPE_CD is NULL)
Error Description	Behaviour Type Code is Null, defaulted to 1 (Non-Maturity)
Assignment	BEHAVIOUR_TYPE_CD=1
Warning	Behaviour Type Code is Null
Error Level	Warning

- **Rule ID: 100**

Error Condition	(AMRT_TYPE_CD = 10 and BEHAVIOUR_TYPE_CD not in (1,2,3))
Error Description	Behaviour Type Code is invalid, defaulted to 1 (Non-Maturity)
Assignment	BEHAVIOUR_TYPE_CD=1
Warning	Invalid Behaviour Type Code
Error Level	Warning

- **Rule ID: 101**

Error Condition	(AMRT_TYPE_CD = 10 and BEHAVIOUR_TYPE_CD = 2 and (BEHAVIOUR_SUB_TYPE_CD is NULL or BEHAVIOUR_SUB_TYPE_CD not in (201, 202, 203)))
Error Description	Behaviour Sub Type should be 201 or 202 or 203 when Behaviour Type is Non-Performing
Assignment	BEHAVIOUR_SUB_TYPE_CD=201
Warning	Invalid Behavior Sub Type Code
Error Level	Warning

- **Rule ID: 102**

Error Condition	(AMRT_TYPE_CD = 10 and BEHAVIOUR_TYPE_CD = 3 and (BEHAVIOUR_SUB_TYPE_CD is NULL or BEHAVIOUR_SUB_TYPE_CD not in (305, 306)))
Error Description	Behaviour Sub Type should be 305 or 306 when Behaviour Type is Devolvement and Recovery
Assignment	BEHAVIOUR_SUB_TYPE_CD=305
Warning	Invalid Behavior Sub Type Code
Error Level	Warning

- **Rule ID: 103**

Error Condition	(AMRT_TYPE_CD = 840 and RESIDUAL_AMOUNT < 0)
Error Description	Residual Amount cannot be less than 0 for Lease instrument
Assignment	RESIDUAL_AMOUNT=0
Warning	Invalid Residual Amount for Lease instrument
Error Level	Warning

- **Rule ID: 104**

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Error Condition	(AMRT_TYPE_CD = 840 and RESIDUAL_AMOUNT > CUR_PAR_BAL)
Error Description	Residual Amount cannot be higher than Current Par Balance for Lease instrument
Assignment	RESIDUAL_AMOUNT=0
Warning	Invalid Residual Amount for Lease instrument
Error Level	Warning

- **Rule ID: 105**

Error Condition	(AMRT_TYPE_CD = 850 and MATURITY_AMOUNT > 0 and ADJUSTABLE_TYPE_CD > 0)
Error Description	Annuity instrument with maturity amount must have fixed interest rate
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Invalid Adjustable Type for Annuity with Maturity Amount
Error Level	Warning

- **Rule ID: 106**

Error Condition	(MOA_EXPECTED_BAL > 0 and (MOA_OFFSET_PERCENT is NULL or MOA_OFFSET_PERCENT < 0))
Error Description	Expected balance is greater than 0 but offset percentage is less than 0
Assignment	MOA_OFFSET_PERCENT=0
Warning	Invalid offset percent
Error Level	Warning

- **Rule ID: 107**

Error Condition	((MOA_EXPECTED_BAL * MOA_OFFSET_PERCENT/100) > CUR_PAR_BAL)
Error Description	Calculated Offset Balance is higher than Current Par Balance
Assignment	
Warning	Calculated Offset Balance > Current Par Balance
Error Level	Info

- **Rule ID: 108**

Error Condition	(ADJUSTABLE_TYPE_CD = 10 and (REPRICE_PATTERN_CD is NULL or REPRICE_PATTERN_CD <= 0))
Error Description	Invalid reprice pattern code given for instrument
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Invalid reprice pattern code
Error Level	Warning

- **Rule ID: 109**

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Error Condition	(ADJUSTABLE_TYPE_CD = 10 and REPRICE_PATTERN_CD > 0 and REPRICE_PATTERN_CD not in (select ADJUSTABLE_TYPE_CD from fsi_reprice_pattern))
Error Description	Invalid reprice pattern code given for instrument
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Invalid reprice pattern code
Error Level	Warning

- **Rule ID: 110**

Error Condition	(ADJUSTABLE_TYPE_CD = 0 and (ORG_PAYMENT_AMT is NULL or ORG_PAYMENT_AMT <= 0))
Error Description	Original payment amount is required for fixed-rate instruments
Assignment	ORG_PAYMENT_AMT=CUR_PAYMENT
Warning	Invalid Original Payment Amount
Error Level	Warning

- **Rule ID: 111**

Error Condition	(PERCENT_SOLD < 0 or PERCENT_SOLD > 99)
Error Description	Percent Sold must be greater than or equal to zero and less than 100
Assignment	PERCENT_SOLD=0
Warning	Invalid Percent Sold
Error Level	Warning

- **Rule ID: 112**

Error Condition	(CUR_PAR_BAL is NULL or CUR_PAR_BAL = 0)
Error Description	Instruments with Current Par Balance zero are not processed.
Assignment	
Warning	Current Par Balance = 0
Error Level	Warning

- **Rule ID: 113**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and AMRT_TYPE_CD <> 700)
Error Description	Embedded option is supported only for non-amortizing instrument
Assignment	EMBEDDED_OPTIONS_FLG=0
Warning	Invalid embedded options flag
Error Level	Warning

- **Rule ID: 114**

Error Condition	(ADJUSTABLE_TYPE_CD = 0 and TP_EFFECTIVE_DATE > ORIGINATION_DATE)

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Error Description	TP Effective Date must not be after Origination Date for fixed rate instrument
Assignment	
Warning	Invalid TP Effective Date
Error Level	Info

- **Rule ID: 115**

Error Condition	(ADJUSTABLE_TYPE_CD = 0 and TP_EFFECTIVE_DATE < ORIGINATION_DATE)
Error Description	TP Effective Date must not be before Origination Date for fixed rate instrument
Assignment	
Warning	Invalid TP Effective Date
Error Level	Info

- **Rule ID: 116**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and TP_EFFECTIVE_DATE > LAST_REPRICE_DATE)
Error Description	TP Effective Date must not be after Last Reprice Date for non-fixed rate instrument
Assignment	
Warning	Invalid TP Effective Date
Error Level	Info

- **Rule ID: 117**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and TP_EFFECTIVE_DATE <= NEXT_REPRICE_DATE)
Error Description	TP Effective Date must not equal to Next Reprice Date for non-fixed rate instrument
Assignment	
Warning	Invalid TP Effective Date
Error Level	Info

- **Rule ID: 118**

Error Condition	(TP_EFFECTIVE_DATE is not NULL and TP_EFFECTIVE_DATE < '01-JAN-1970')
Error Description	TP Effective Date is before '01-JAN-1970'
Assignment	TP_EFFECTIVE_DATE=ORIGINATION_DATE
Warning	Invalid TP Effective Date
Error Level	Info

- **Rule ID: 119**

Error Condition	(TP_EFFECTIVE_DATE > MATURITY_DATE)
Error Description	TP Effective Date is after maturity date
Assignment	TP_EFFECTIVE_DATE=ORIGINATION_DATE
Warning	Invalid TP Effective Date
Error Level	Info

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- **Rule ID: 120**

Error Condition	(ADJUSTABLE_TYPE_CD = 0 and ADJ_EFFECTIVE_DATE > ORIGINATION_DATE)
Error Description	Adjustment Effective Date must not be after Origination Date for fixed rate instrument
Assignment	
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 121**

Error Condition	(ADJUSTABLE_TYPE_CD = 0 and ADJ_EFFECTIVE_DATE < ORIGINATION_DATE)
Error Description	Adjustment Effective Date must not be before Origination Date for fixed rate instrument
Assignment	
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 122**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and ADJ_EFFECTIVE_DATE > LAST_REPRICE_DATE)
Error Description	Adjustment Effective Date must not be after Last Reprice Date for non-fixed rate instrument
Assignment	
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 123**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and ADJ_EFFECTIVE_DATE <= NEXT_REPRICE_DATE)
Error Description	Adjustment Effective Date must not equal to Next Reprice Date for non-fixed rate instrument
Assignment	
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 124**

Error Condition	(ADJ_EFFECTIVE_DATE is not NULL and ADJ_EFFECTIVE_DATE < '01-JAN-1970')
Error Description	Adjustment Effective Date is before '01-JAN-1970'
Assignment	ADJ_EFFECTIVE_DATE=ORIGINATION_DATE
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 125**

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Error Condition	(ADJ_EFFECTIVE_DATE > MATURITY_DATE)
Error Description	Adjustment Effective Date is after maturity date
Assignment	ADJ_EFFECTIVE_DATE=ORIGINATION_DATE
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 10001**

Error Condition	(OPTION_RFR_IRC_CD > 0 and exists (select 1 from fsi_ircs where fsi_ircs.RISK_FREE_RATE_FLG is null or fsi_ircs.RISK_FREE_RATE_FLG = 0 and fsi_ircs.INTEREST_RATE_CD=SOURCE_TABLE.OPTION_RFR_IRC_CD))
Error Description	Risk Free Interest Rate Curve is not defined as Risk-Free.
Assignment	
Warning	Invalid Risk Free Interest Rate Curve
Error Level	Error

- **Rule ID: 10002**

Error Condition	(OPTION_RFR_IRC_CD > 0 and exists (select 1 from fsi_ircs where fsi_ircs.ISO_CURRENCY_CD != SOURCE_TABLE.ISO_CURRENCY_CD and fsi_ircs.INTEREST_RATE_CD=SOURCE_TABLE.OPTION_RFR_IRC_CD))
Error Description	Currency of risk free Interest Rate Curve is different from currency of instrument record.
Assignment	
Warning	Invalid Risk Free Interest Rate Curve
Error Level	Error

- **Rule ID: 10003**

Error Condition	(OPTION_VOL_IRC_CD > 0 and exists (select 1 from FSI_VOL_SURFACE_MASTER where FSI_VOL_SURFACE_MASTER.ISO_CURRENCY_CD != SOURCE_TABLE.ISO_CURRENCY_CD and FSI_VOL_SURFACE_MASTER.VOL_SURFACE_SYS_ID=SOURCE_TABLE.OPTION_VOL_IRC_CD))
Error Description	Currency of Volatility Surface is different from currency of instrument record.
Assignment	
Warning	Invalid Volatility Surface
Error Level	Error

- **Rule ID: 10004**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and STRIKE_TYPE_CD not in (1,2))
Error Description	Strike Type must be Rate or Price for instruments with embedded options.

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Assignment	
Warning	Invalid Strike Type for Embedded Option
Error Level	Error

- **Rule ID: 10005**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and EXERCISE_TYPE_CD not in (1,2,3))
Error Description	Exercise type for instrument with embedded options must be American, Bermudan or European.
Assignment	
Warning	Invalid Exercise Type for Embedded Option
Error Level	Error

- **Rule ID: 10006**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and EXERCISE_TYPE_CD = 1 and OPTION_START_DATE <= AS_OF_DATE)
Error Description	Option Start Date for an American option must be after As of Date.
Assignment	
Warning	Invalid Option Start Date for American Option
Error Level	Info

- **Rule ID: 10007**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and OPTION_TYPE_CD not in (1,2))
Error Description	Option Type must be Call or Put for instrument with Embedded Option.
Assignment	
Warning	Invalid Option Type for Embedded Option
Error Level	Error

- **Rule ID: 10008**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and STRIKE_TYPE_CD = 2 and nvl(STRIKE_IRC_CD,0) < 1)
Error Description	Strike type is Rate for instrument with Embedded Option but Strike Interest Rate Curve is not available.
Assignment	
Warning	Invalid Strike Interest Rate Curve for Embedded Option
Error Level	Error

- **Rule ID: 10009**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and STRIKE_TYPE_CD = 2 and nvl(RATE_LOOKUP_CD,0) not in (1,2,3,4))

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Error Description	Strike type is Rate for instrument with Embedded Option but Rate Lookup Code is not available.
Assignment	
Warning	Invalid Rate Lookup Code for Embedded Option
Error Level	Error

- **Rule ID: 10010**

Error Condition	(EXCHG_OF_PRINCIPAL is NULL OR EXCHG_OF_PRINCIPAL not in (0,1))
Error Description	Invalid Exchange of Principal flag
Assignment - Default Value	1
Warning	Invalid Exchange of Principal flag.
Error Level	Warning

- **Rule ID: 10011**

Error Condition	(ACCOUNT_TYPE in (150, 200, 350, 400, 610, 620) and AMRT_TYPE_CD not in (10, 820, 801, 700, 802))
Error Description	Invalid Amortization Type.
Assignment	
Warning	Invalid Amortization Type for non earning assets and liabilities
Error Level	Warning

- **Rule ID: 10012**

Error Condition	(ACCOUNT_TYPE in (150, 200, 350, 400, 610, 620) and (CUR_NET_RATE <> 0 or CUR_GROSS_RATE <> 0))
Error Description	Interest Rate of non earning assets and liabilities must be 0.
Assignment	
Warning	Invalid Interest Rate for non earning assets and liabilities
Error Level	Warning

- **Rule ID: 10013**

Error Condition	(ACCOUNT_TYPE in (150, 200, 350, 400, 610, 620) and ADJUSTABLE_TYPE_CD <> 0)
Error Description	Adjustable Type of non earning assets and liabilities must be 0.
Assignment	
Warning	Invalid Adjustable Type for non earning assets and liabilities
Error Level	Warning

- **Rule ID: 10014**

Error Condition	(ACCOUNT_TYPE in (150, 200, 350, 400, 610, 620) and INTEREST_TIMING_TYPE_CD <> 1)
Error Description	Interest timing type of non earning assets and liabilities must be Arrears.

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Assignment	
Warning	Invalid Interest timing type for non earning assets and liabilities
Error Level	Warning

- **Rule ID: 10015**

Error Condition	(ADJUSTABLE_TYPE_CD in (50, 250) and not exists (select 1 from fsi_ircs where fsi_ircs.interest_rate_cd = SOURCE_TABLE.interest_rate_cd and nvl(fsi_ircs.volatility_curve_flg,0) = 0))
Error Description	Interest rate code of instrument does not exist. Repricing attributes will be ignored and processed as fixed interest rate.
Assignment	
Warning	Wrong Interest Rate Code for adjustable rate instrument
Error Level	Warning

- **Rule ID: 10016**

Error Condition	(ORG_INT_PAYMENT_DATE is NULL OR ORG_INT_PAYMENT_DATE < ORIGINATION_DATE)
Error Description	Invalid Original Interest Payment Date
Assignment	
Warning	Invalid Original Interest Payment Date
Error Level	Warning

- **Rule ID: 10017**

Error Condition	(ORG_PRIN_PAYMENT_DATE is NULL OR ORG_INT_PAYMENT_DATE < ORIGINATION_DATE)
Error Description	Invalid Original Principal Payment Date
Assignment	
Warning	Invalid Original Principal Payment Date
Error Level	Warning

- **Rule ID: 10018**

Error Condition	(ADJUSTABLE_TYPE_CD = 300 and AMRT_TYPE_CD in (600, 850, 840))
Error Description	Amortization Type of Tiered Rate Account must not be negative amortization, annuity, and lease
Assignment	
Warning	Tiered rate functionality does not apply to negative amortization, annuity, and lease amortization types
Error Level	Warning

- **Rule ID: 10019**

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Error Condition	(ADJUSTABLE_TYPE_CD = 300 and nvl(INTEREST_TIMING_TYPE_CD,1) != 1)
Error Description	Interest Timing Type of Tiered Rate Account must be Interest in Arrears
Assignment	
Warning	Interest Timing Type of Tiered Rate Account cannot be Interest in Advance or Set in Arrears
Error Level	Warning

- **Rule ID: 10020**

Error Condition	(ADJUSTABLE_TYPE_CD NOT IN (0, 50, 250))
Error Description	Adjustable Type of tiers must be Fixed, Floating or Other Adjustable
Assignment	
Warning	Adjustable Type of tier must be Fixed, Floating or Other Adjustable
Error Level	Warning

- **Rule ID: 10021**

Error Condition	(ADJUSTABLE_TYPE_CD = 300 and EXISTS (select 1 from FSI_D_ACCOUNT_RATE_TIERS WHERE FSI_D_ACCOUNT_RATE_TIERS.ID_NUMBER= SOURCE_TABLE.ID_NUMBER AND FSI_D_ACCOUNT_RATE_TIERS.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE AND (select SUM(CUR_PAR_BAL) from FSI_D_ACCOUNT_RATE_TIERS WHERE FSI_D_ACCOUNT_RATE_TIERS.ID_NUMBER= SOURCE_TABLE.ID_NUMBER AND FSI_D_ACCOUNT_RATE_TIERS.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE) != SOURCE_TABLE.CUR_PAR_BAL))
Error Description	Tiered Rate Accounts Current Par Balance mismatch
Assignment	
Warning	Sum of CUR_PAR_BAL of tiers is different from CUR_PAR_BAL of account
Error Level	Info

- **Rule ID: 10022**

Error Condition	(ADJUSTABLE_TYPE_CD = 300 and EXISTS (select 1 from FSI_D_ACCOUNT_RATE_TIERS WHERE FSI_D_ACCOUNT_RATE_TIERS.ID_NUMBER= SOURCE_TABLE.ID_NUMBER AND FSI_D_ACCOUNT_RATE_TIERS.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE AND (select SUM(ORG_PAR_BAL) from FSI_D_ACCOUNT_RATE_TIERS WHERE FSI_D_ACCOUNT_RATE_TIERS.ID_NUMBER= SOURCE_TABLE.ID_NUMBER AND FSI_D_ACCOUNT_RATE_TIERS.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE) != SOURCE_TABLE.ORG_PAR_BAL))

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Error Description	Tiered Rate Accounts Original Par Balance mismatch
Assignment	
Warning	Sum of ORG_PAR_BAL of tiers is different from ORG_PAR_BAL of account
Error Level	Info

- **Rule ID: 10023**

Error Condition	(ADJUSTABLE_TYPE_CD IN (50, 250) AND (INTEREST_RATE_CD is NULL or INTEREST_RATE_CD <= 0))
Error Description	Adjustable Rate tier has invalid Interest Rate Code
Assignment	
Warning	Interest rate code must be valid for adjustable rate tiers
Error Level	Warning

- **Rule ID: 10024**

Error Condition	(ADJUSTABLE_TYPE_CD IN (50, 250) AND (NEXT_REPRICE_DATE is NULL or NEXT_REPRICE_DATE <= AS_OF_DATE) AND REPRICE_FREQ > 0)
Error Description	Adjustable Rate tier has invalid Next Reprice Date
Assignment	
Warning	Next Reprice Date must be valid for adjustable rate tiers
Error Level	Warning

- **Rule ID: 10025**

Error Condition	(ADJUSTABLE_TYPE_CD IN (50, 250) AND (REPRICE_FREQ_MULT is NULL or REPRICE_FREQ_MULT not in ('D','M','Y')))
Error Description	Adjustable Rate tier has invalid Reprice Frequency Multiplier
Assignment	
Warning	Repricing Frequency Multiplier must be D, M, or Y for adjustable rate tiers
Error Level	Warning

- **Rule ID: 10026**

Error Condition	(ADJUSTABLE_TYPE_CD IN (50, 250) AND (REPRICE_FREQ is NULL or REPRICE_FREQ <= 0))
Error Description	Adjustable Rate tier has invalid Reprice Frequency
Assignment	
Warning	Repricing Frequency must not be negative for adjustable rate tiers
Error Level	Warning

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- **Rule ID: 10027**

Error Condition	(ADJUSTABLE_TYPE_CD = 300 and NOT EXISTS (select 1 from FSI_D_ACCOUNT_RATE_TIERS WHERE FSI_D_ACCOUNT_RATE_TIERS.ID_NUMBER= SOURCE_TABLE.ID_NUMBER AND FSI_D_ACCOUNT_RATE_TIERS.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE))
Error Description	Rate tier details of account is not available
Assignment	
Warning	Adjustable Type of account is Tiered Rate but data of Account Rate Tiers is not available
Error Level	Warning

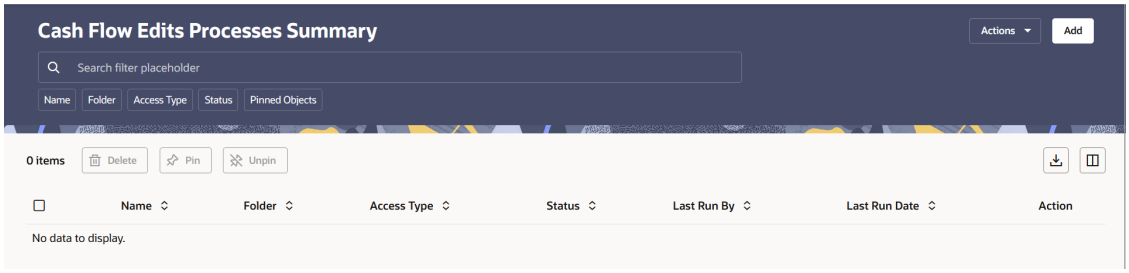
3.9.2 Cash Flow Edits Process

This module discusses the procedure for validating and cleansing your Instrument Table Data before you process it to generate Cash Flow-based results. The Cash Flow Edits Process allows you to verify the accuracy and check the completeness of your Instrument Table Data.

Cash Flow Edits Process Summary

This page is the gateway to all Cash Flow Edits Process Rules and related functionality. You can navigate to other pages relating to Cash Flow Edits Process Rules from this point.

Figure 3-71 Cash Flow Edits Process Summary Page



Search Cash Flow Edits Process

Prerequisites: Predefined Cash Flow Edits Process

To search for a Cash Flow Edits Process, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Cash Flow Edits Process Rules that meet the search criteria.

Or

The other method to search a Cash Flow Edits Process is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Id, Name, Group, Condition Column,** or **Is User Defined** of the Cash Flow Edits Process and click **Search**.

The Cash Flow Edits Process summary displays the following information:

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Add: Click **Add** icon at the top right of the summary page to build a new Cash Flow Edits Process.

Actions: Enables you to perform following tasks.

- **Refresh:** Retains the selected filters and refreshes the summary page with latest status.
- **Reset:**Clears the selected filters and refreshes the summary page.
- **Help:**Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple processes in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected process.

Export: Enables you to download the summary page details in **.CSV** format.

Columns: Allows you to view the summary page data using a customized list of columns.

The Cash Flow Edits Process summary table displays the following columns:

- **Name:** Displays the Cash Flow Edits Process's short name.
- **Folder:** Displays the Folder name where the Cash Flow Edits Process is saved.
- **Access Type:** Displays the access type of process. It can be Read-Only or Read/Write.
- **Last Run By:** Displays the Name of the user who last runs the Cash Flow Edits Process.
- **Last Run Date:** Displays the Date and Time when Cash Flow Edits Process was run last.
- **Status:** Displays the status of the Cash Flow Edits Process.
- **Action:** Displays the following list of actions that can be performed on the selected Cash Flow Edits Process.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Cash Flow Edits Processes. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Cash Flow Edits Process rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Cash Flow Edits Process rules that are no longer required. Click on the **Action** icon against the Cash Flow Edits Process Name and select **Delete** to delete an existing Cash Flow Edits Process. A process cannot be retrieved after deletion.

    > **Note**
    >
    > A Cash Flow Edits Process cannot be retrieved after deletion. Restrictions on deleting Cash Flow Edits Process Rules are:
    >
    > * You cannot delete Cash Flow Edits Process Rules if you have only Read privileges. Only users with Read/Write privileges and Cash Flow Edits Process owners can delete Cash Flow Edits Process Rules.
    > * You cannot delete a Cash Flow Edits Process that has a dependency.

  - **Dependency Check:** You can check dependencies for rules to know where a particular Cash Flow Edits Process has been used. This also prevents accidental deletion of rules having dependencies. Click on the **Action** icon against the Cash Flow

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Edits Process Name and select Dependency Check to generate a report on all Rules that utilize your selected Cash Flow Edits Process.

- **Execute:** Select Execute to execute an existing Cash Flow Edits Process. After clicking Execute, the Run Parameter Execution window is displayed. Select As of Date (Execution Date) and Legal Entity, and then click Run.
- **Execute Details:** Select Execute Details to view execution details of the Cash Flow Edits Process.

Also See:

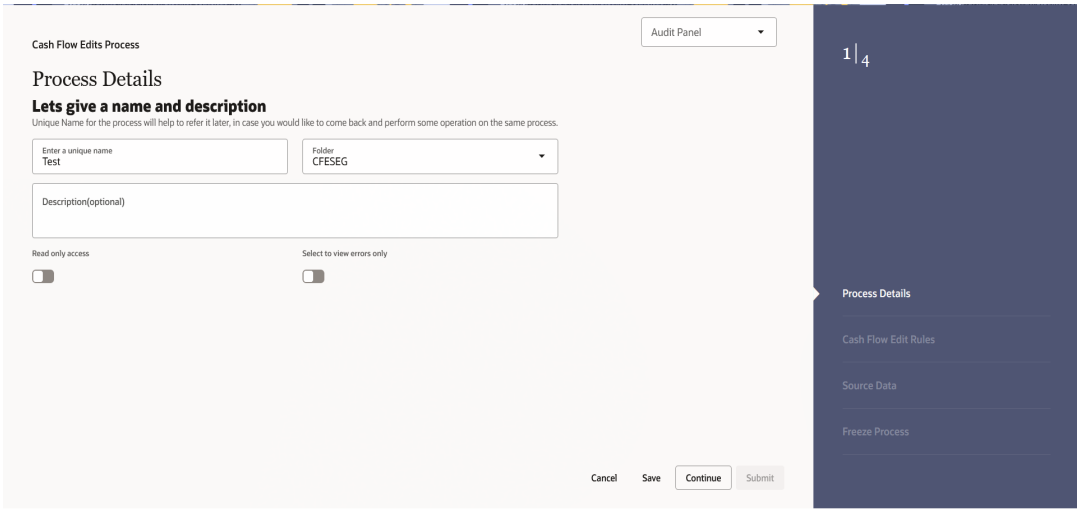
- Create Cash Flow Edits Process
- Execute Cash Flow Edits Process
- View Cash Flow Edits Process Execution Details

3.9.2.1 Create Cash Flow Edits Process

Creating a Cash Flow Edits Process is a one-step process. You define both the attributes that uniquely describe a particular Cash Flow Edits Process and the data to be validated or cleansed by that process on the Create Cash Flow Edits Process Page.

1. Navigate to the **Cash Flow Edits Process Summary** Page.
2. Click the **Add** icon. The **Create Cash Flow Edits Process** Page is displayed.

Figure 3-72 Process Details



3. Enter the process details as shown in the following table:

Table 3-26 List of Process details used for Creating Cash Flow Edits Process

Field	Description
Name	Enter the name of the Cash Flow Edits Process.
Description	Enter the description of the Cash Flow Edits Process.

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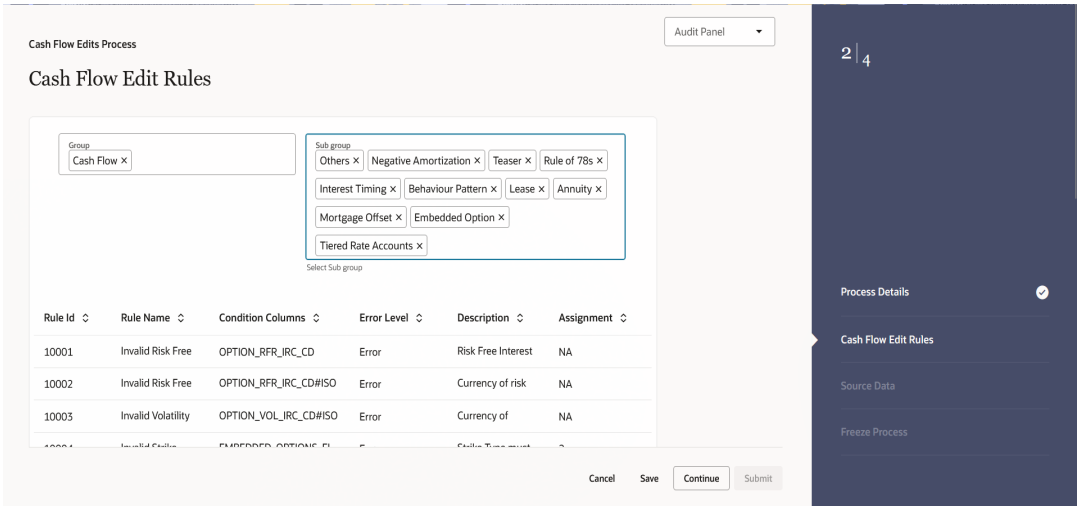
Table 3-26 (Cont.) List of Process details used for Creating Cash Flow Edits Process

Field	Description
Select to view errors only	Selecting this parameter allows you to view the results of running a Cash Flow Edits Process before the system updates the underlying records in the Instrument tables. The default value of this parameter is checked.
Folder	Enter the Folder details where Cash Flow Edits Process needs to be saved.
Access Type	Select the Access Type as Read-Only or Read/ Write.

4. Click **Apply** to navigate to the **Cash Flow Edits Rules** section.

Figure 3-73 Cash Flow Edits Rules



5. Enter the Cash Flow Edits Rules details shown in the following table:

Table 3-27 List of Cash Flow Edits Rules details used for Creating Cash Flow Edits Process

Field	Description
Group	Select the group of Cash Flow Edits Rules that you want to include in the process. For example, Cash Flow
Sub Group	Select the sub group of Cash Flow Edits Rules that you want to include in the process. The value of this field varies based on the selected Group. The list of Rules with conditions is displayed.

The details of the process for the selected group and sub-group are listed on the screen for reference.

6. Click **Apply** to navigate to the **Source Data** section.

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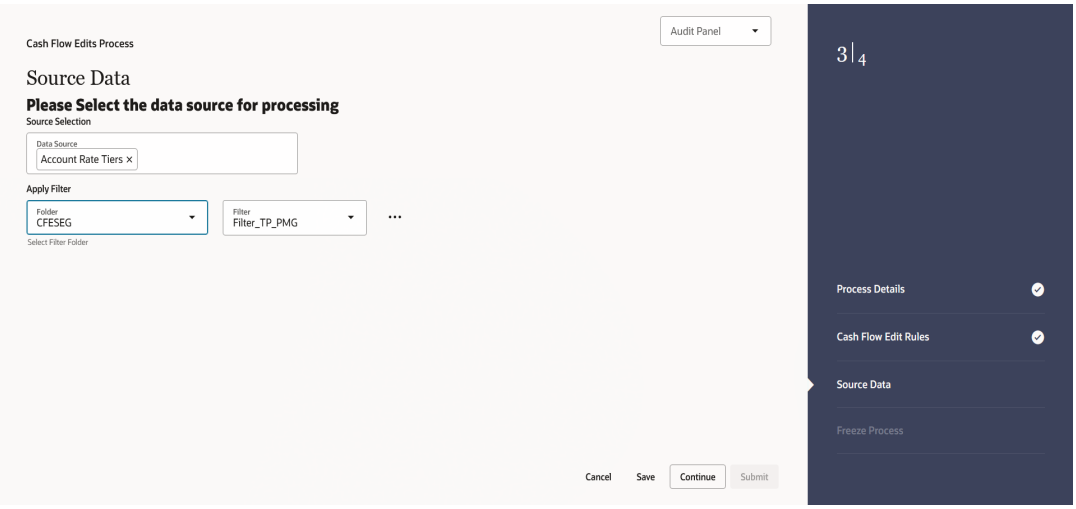
Figure 3-74 Source Data



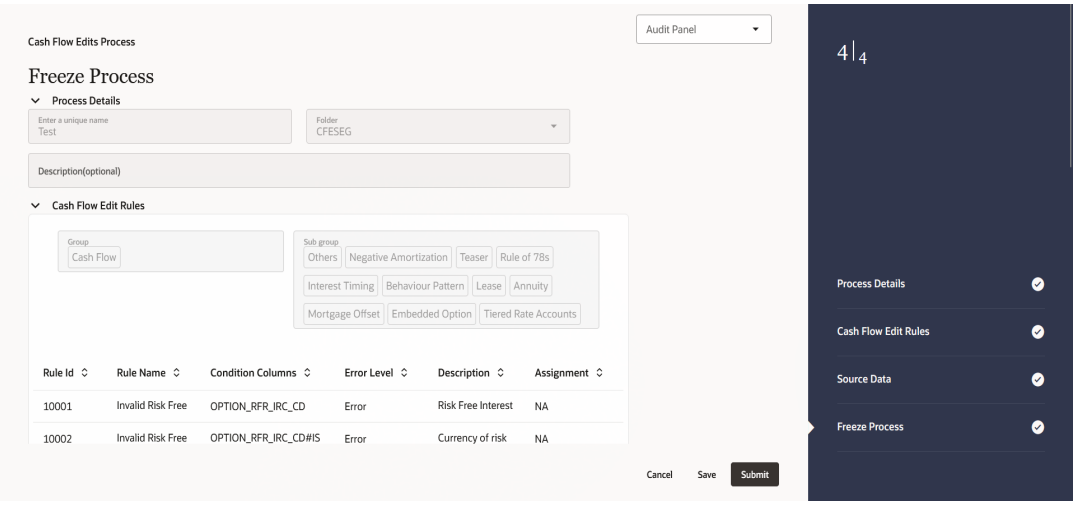
7. Enter the Source Data details as shown in the following table:

Table 3-28 List of Source Data details used for Creating Cash Flow Edits Process

Field	Description
Data Source	This field allows you to select the Instrument tables that must be included in a Cash Flow Edits Process.
Data Filter Folder	Select the Folder from which you want to apply Data Filter.
Data Filter	This field allows you to select a subset of data for processing by selecting a filter that was previously created. Click **Action** button next to Data Filter to add, edit or view the Data Filter.

8. Click **Apply** to navigate to the **Freeze Process** section.

Figure 3-75 Freeze Process



9. Click **Save** on the **Freeze Process** Window after verifying all the details.

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10. The Cash Flow Edits Process is saved and the Summary Page is displayed.

3.9.2.2 Executing Cash Flow Edits Process

Execute a Cash Flow Edits Process to check the accuracy and the completeness of your Instrument Table Data. When run in Preview Mode, you can view the results of running a Cash Flow Edits Process by querying the FSI_O_CFE_EDITS_MESSAGES_HIST table for generated errors before the system updates the underlying records in the Instrument tables.

You can execute Cash Flow Edits Process using following methods:

- Cash Flow Edits Process UI
- Scheduler Service

3.9.2.2.1 Using Cash Flow Edits Process UI

To execute the Cash Flow Edits Process, follow these steps:

1. Navigate to the **Cash Flow Edits Process Summary** Page.
2. Search for a process.
3. Click on the **Action** icon against the Cash Flow Edits Process Name and select Execute to execute an existing Cash Flow Edits Process. The **Run Parameter Execution** window is displayed.
4. Here, Default Legal Entity Member (as mentioned in the Application Preference UI) gets populated in the **Run Execute Details** window. You can modify the **As of Date (Execution Date)** and **Legal Entity**, and then click **Run**.

> **Note**
>
> You can select multiple Legal Entities in list view of hierarchy browser at a time for execution. In hierarchy mode you can select one Legal Entity at leaf or parent level. When parent Legal Entity is selected, then data of selected entity along with its child and descendants are processed.

5. The **Cash Flow Edits Run Confirmation** Page is displayed. The status of the process is displayed in the **Status** Column. After completion of the process, you can navigate to the Execution Details Page by selecting the **Execution Details** option under the **Action** Column.

> **Note**
>
> You can view the results of running a Cash Flow Edits Process before the system updates the underlying records in the Instrument tables, provided you selected Preview Mode while defining it. If the Process runs in Preview Mode, query the FSI_O_CFE_EDITS_MESSAGES_HIST table for any generated errors

3.9.2.2.2 Using Scheduler Service

A batch with following details gets automatically created when Cash Flow Edits Process is saved:

- **Code:** Process Id of Cash Flow Edits Process

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- **Name:** Name of Cash Flow Edits Process
- **Description:** Description of Cash Flow Edits Process

To execute the batch, navigate to Operations and Processes , select Scheduler, and then select Schedule Batch.

You can also define new batch to execute any Cash Flow Edits Process by following these steps:

1. Navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**.
2. Define a new batch.
3. Enter the Batch Name and Description, and then Save the batch.
4. To add a task, navigate to **Define Task**.
5. Select the Batch from the **Batch** drop-down list on the **Define Task** Window.
6. Click the **Add** button.
7. Define the task with below details:
   - **Task Code:** Must be same as the Process Id of Cash Flow Edits Process
   - **Task Name:** This can be same a name of the Cash Flow Edits Process or something else
   - **Task Description:** This can be same a name of the Cash Flow Edits Process or something else
   - **Task Type:** REST
   - **Component:** Cash Flow Edits
   - **Process Name:** Select one value from the list
   - **Legal Entity Hierarchy:** Select one value from the list
   - **Legal Entity:** Select one value from the list
8. **Save** and **Execute** the batch with Batch ID and MIS Date.

For more information, see the Scheduler Service.

3.9.2.3 Viewing Execution Details of Cash Flow Edits Process

To view the execution details of the Cash Flow Edits Process, follow these steps:

1. Navigate to the **Cash Flow Edits Process Summary** Page.
2. Search for a Process.
3. Click on the **Action** icon against the Cash Flow Edits Process Name and select **Execution Details**. The **Execution Details** window is displayed.
4. Click any **Execution ID** to view the log details. The **Log Viewer** Window shows the complete details of process along with Batch Run ID Information.
5. Click **Download** to export the details of cash flow edits in **csv** format. This will help you to understand errors found in instrument data.
6. If process is executed in '**Non-preview**' mode, then records which are modified by Cash Flow Edits Process can be identified by looking at columns `CF_EDITS_BATCH_RUN_ID` and `UPDATED_BY_CF_EDITS` in instrument processing table.

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4
Administrative Tools

This topic covers the following sub-topics:

- PLSQL Extension
- Data Foundation Integration

4.1 Custom PLSQL Extension

Financial Institutions are required to meet various statutory, regulatory and management reporting requirements that are released by the central banks of the geographies in which they operate. Quite often, these requirements are specific to the given region, and more importantly, compliance with these regulations are time bound. PBSM intends to allow customers to introduce custom PL/SQL code into the cloud services that helps them meet these statutory, regulatory, or even internal management requirements.

This a feature allows you to extend the functionality of the cloud service via custom PL/SQLs (subject to appropriate restrictions and controls), to complement/extend current calculation capabilities.

4.1.1 PLSQL Starter Kit

The Starter Kit is bundled with pre-packaged set of artefacts which will assist in the following:

- Creation of application specific factory bundled database objects for example – Tables, Synonyms, Functions, Procedures, etc.
- Bundles sample data which the you can choose to deploy.
- Bundles pre-packaged archival scripts along with basic validations.

Prerequisite: You should have a database schema created (referred to as Sandbox Database Schema in this document) in one of their local on-premises Data Center. For more information, see PLSQL Starter Kit Installation section.

4.1.2 Steps to introduce Custom PLSQLs

Support for Custom PLSQL is a workflow-based capability.

The different stages involved are:

- Generate, Download and Install the Starter Kit
- Develop Custom PLSQL Extensions
- Extract and Submit the Custom PLSQLs for Oracle Due Diligence
- Request for Archive Deployment of the Custom PLSQLs on the preferred PBSM SaaS Instance
- Access User Extension through Scheduler

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4.1.2.1 Generate, Download and Install the Starter Kit

PLSQL Starter Kit can be generated using Cloud Service User Interface located under the LHS menu ‘Admin Tools’. UI has options to Include Custom tables & Include data for all Custom tables as optional selections while generating a Starter Kit. The UI will display the current Status and previously generated Starter Kit Status details. The UI has a Download button using which you can download the generated Starter Kit.

Starter Kit will assist you to set up a sandbox database schema on your preferred on-premises database. Linux Shell operating environment is required to run the Starter Kit installation and deployment.

Refer Installation Guide for more details on system requirements and installation and deployment steps.

Starter Kit Components:

- Installation Guide: To assist users on how to Install Starter Kit artefacts.
- Deploys pre-packaged create table DDLs, insert DMLs & archive validation scripts.
- Archival scripts: for generating Custom PLSQL archives.

4.1.2.2 Develop Custom PLSQL Extensions

After installing the starter kit, you can develop Custom PLSQL extensions as per your business / functional requirements on the sandbox database schema which was created by using the Starter Kit. You must test the developed extensions in your sandbox database schema with test data. Thereafter, generate Custom PLSQL Archives using the Starter Kit bundled archival scripts. Custom PLSQL extensions are validated by the Archive Validation Scripts during the archival process.

Archives are generated with a Project ID or Project name, which is accepted as an input parameter during the archival script execution. The Project ID or name will be used while baselining the scripts by Oracle.

You must submit the full archive, including all earlier Custom extensions, every time against a project ID; Oracle will not merge one archive with previous archive submissions (if any) for a project ID.

Rules to be followed while developing custom PL/SQL extension objects are listed below:

- Naming Conventions to be followed while developing Custom PLSQL Extensions.
- Tables should not be altered or dropped.
- Seeded Data should not be altered or deleted.

See the following table for more details.

Table 4-1 Rules

SL No.	Rules	Details
1	Naming Conventions to be used while creating Custom Extensions	Please use a suffix while naming the PLSQL objects with “_CUSTOM” Example: FN_UPD_FSI_D_ASSETS_**CUSTOM**
2	Operations Allowed on Starter Kit Objects	Refer Appendix Section B

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Table 4-1 (Cont.) Rules

SL No.	Rules	Details
3	Creation of Global Temporary Tables (Dynamic Tables within Custom PLSQLs using execute immediate)	Allowed
4	Creation of Views	Allowed
5	Creation of Synonyms	Allowed
6	Creation of Functions	Allowed
7	Creation of Procedures	Allowed
8	Creation of Packages	Allowed
9	Creation of Materialized Views	Not Allowed

For more details on the process of submitting the archive, see Appendix 5.1.1.

4.1.2.3 Extract and Upload the Custom PLSQL Archive

Users can use the PLSQL Archive Summary User Interface to upload the archive. Please refer the PLSQL Archive Summary section of this document for more details.

4.1.2.4 Submit the Custom PLSQLs for Oracle Due Diligence

Oracle Due Diligence is an Oracle internal process to validate the submitted archives and confirm that the archives are ready for deployment on a target PBMS SaaS Instance. Refer the PLSQL Archive Summary Submit for Due Diligence section of this document for more details.

> **Note**
>
> For detail refer appendix ….. (Processing for submitting Custom PLSQL Archives to Oracle).

4.1.2.5 Submit Archive for Deployment

Using the Submit for Deployment option users can choose to deploy the Custom PLSQLs onto their SaaS instance. Please refer the PLSQL Archive Summary Archive Deploy section of this document for more details.

4.1.2.6 Access User Extension through Scheduler

You can access the Customer PLSQL Extension using the Scheduler service.

To access User Extension using the scheduler service:

1. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**. For more details, see Define Batch.
2. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Task**. For more details, see Define Tasks.
   a. **Task Type**: REST
   b. **Component**: Select **Execute Custom PLSQL**.

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c. Under Task Parameters, select/enter the following:

   i. **CustomPLSQL Definition**: Select the relevant PLSQL function.

   ii. **Consumer Group**: There are 3 option which the user can select.

      i. High

      ii. Medium

      iii. Low
      The default selection is Medium. The use can choose the appropriate Consumer Group.

Figure 4-1 Consumer Group

When executing this function, the parameter will be assigned to the selected function as show below. It is mandatory to develop Customer PLSQL extensions with BatchID and MisDate as the first 2 parameters.

For example: Given below function signature:

```
create or replace FUNCTION FNUPDATERECORD (BatchID Varchar2,
                                                                    MisDate
Varchar2,

vCurrency varchar2,

vBalance number) return number is
```

The wrapper will be created in the following fashion:

```
DECLARE
                batchid     VARCHAR2(32767) :=
'user_extension_2024-09-30_16';
                misdate     VARCHAR2(32767) := '20240930';
                vCurrency    VARCHAR2(32767) := 'USD';
                vBalance     number := '100';
                vreturn     NUMBER(30);
BEGIN
                vreturn := fnupdaterecord(
                batchid     => batchid,
                misdate     => misdate,
                vCurrency    => vCurrency,
                vBalance    => vBalance);
END;
```

   iii. **CustomPLSQL Params**: Enter the required parameters for selected PLSQL function. If there are multiple parameters use comma separator. For example: USD,200.

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3. Save the Task.
4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**. For more information, see Execute Batch.
5. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**. For more information, see Monitor Batch.
6. Select the Batch and then select the **MISDATE** and the **Batch name**. Select the latest execution and click **Start Monitor**.
   The UI displays the Status of the batch.

4.1.3 PLSQL Starter Kit User Interface

The PLSQL Starter Kit UI will allow users to generate a Starter Kit. UI has options to Include Custom tables & Include data for all Custom tables. The UI will display the current status and previously generated Starter Kit Status. The UI has a Download button using which you can download the generated Starter Kit.

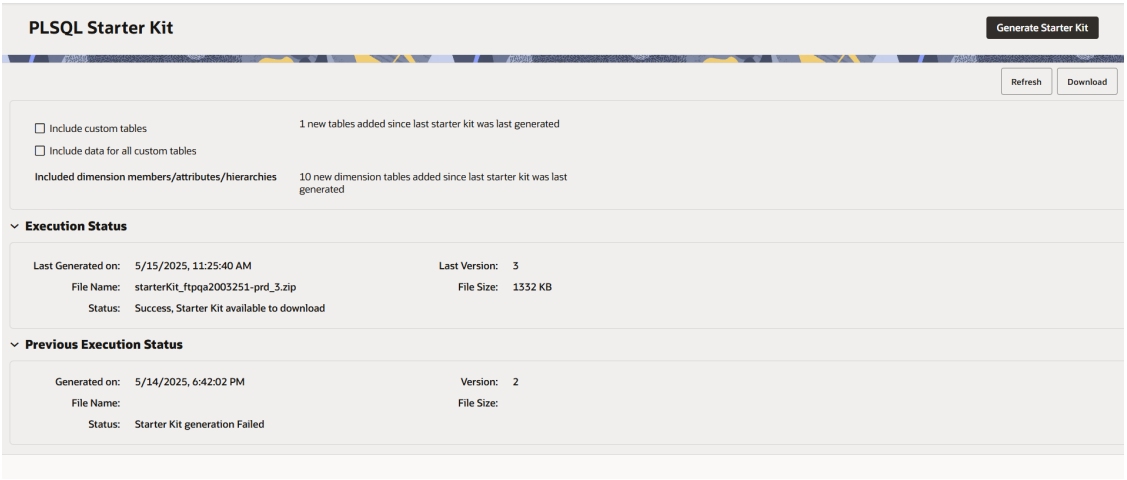
User must be mapped to below groups to access PLSQL Starter Kit UI:

- UG_GEN_STARTER_KIT_ADMIN
- UG_GEN_STARTER_KIT_ANALYST

For more details on mapping user groups, refer to Managing User Groups.

From the LHS menu, select **Admin Tools**, and then select **PLSQL Starter Kit**.

Figure 4-2 PLSQL Starter Kit



The PLSQL Starter Kit UI displays the following details:

- **Include Custom tables**: Check box indicates whether to include Custom Tables added as part of the Data Model Extensions User Interface. When Checked Starter Kit Generation will include Custom Tables added as part of the Data Model Extension UI.
- **Include data for all Custom tables**: Check box indicates whether to include data of the Custom Tables. When Checked Starter Kit Generation will include Custom Tables data.
- **Included dimension members/attributes/hierarchies**: These are included by default.
- **Execution Status**:

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  - **Last Generated on**: Displays the date of starter kit generation.
  - **Last Version**: Displays the Version number if starter kit.
  - **File Name**: Displays the Starter Kit File Name.
  - **File Size**: Displays the Starter Kit File Size.
  - **Status**: Displays the Status of Starter Kit Generation.
- Previous Execution Status shows the details of a previously generated Starter Kit:
  - **Generated on**: Displays the date of starter kit generation.
  - **Version**: Displays the Version number if starter kit.
  - **File Name**: Displays the Starter Kit File Name.
  - **File Size**: Displays the Starter Kit File Size.
  - **Status**: Displays the Status of Starter Kit Generation.
- Click **Generate Starter Kit** button to start generating the Starter Kit.
- **Refresh** button can be used to refresh the page to view the latest Status.
- **Download** button can be used to download the latest generated Starter Kit.

4.1.4 PLSQL Starter Kit Installation

Users who wish to install Starter Kit should download the StarterKit installer.

> **Note**
>
> For more information, see the PLSQL Starter Kit UI in the User Guide.

The following steps guide you to install the PLSQL Extension Starter Kit.

> **Note**
>
> The installer supports both fresh and upgrade installations.

Installation Tasks	Description
Verify the system requirements	This will entail the prerequisites required to start with the installation of Stater Kit.
Configure and create a Database Schema	Starter Kit installation requires a Database Schema. For more information, see the Create and Configure Database Schema Creation.
Configure Environment Variables	For more information. see the .profile Changes.
Install StarterKit	For instructions to install the Starter Kit, see Installation of Starter Kit.
Create User Extensions	For instructions, see Create PLSQL Extensions.

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4.1.4.1 Verify the System Requirements

The following tables list the pre-installation checklist items.

Client Machine Requirements

Operating System	Linux Server 8.6+
Software to be installed	• Oracle Client Version 19.17.0.0.0 and above • ksh • jq version 1.6 • Zip 3.0 • UnZip 6.00 • rsync version 3.1.3 • dos2unix

Server Requirements

Database Name	Oracle Database 19c Enterprise Edition Release 19.26.0.1.0 – Production or above
Oracle Database Instance Settings	Ensure that the following database instance settings are configured: • NLS_CHARACTERSET to AL32UTF8 • NLS_LENGTH_SEMANTICS to BYTE • OPEN CURSORS limit to greater than 1000

4.1.4.2 Configure and Create a Database Schema

Creation of a Database Schema requires sysdba access.

Log in as sys user and create an Oracle schema. This schema will be used by the Starter Kit during installation to deploy the Starter Kit objects.

Sample syntax to create a database schema:

```
create user <username> identified by <password>
```

> **Note**
>
> - `<username>` refers to the actual schema user name.
> - `<password>` refers to the actual schema password.

Example:

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```
create user skituser identified by password123
```

Assign Tablespace and Quota to the Schema created.

DEFAULT TABLESPACE	Default Users tables or Assign any permissible existing valid tablespace.
TEMPTABLESPACE	Default TEMP or Any Permissible existing valid temporary tablespace name.
QUOTA	Enter the quota to be set on the DEFAULTTABLESPACE attribute for the schema/ user. By default, the quota size is set to 500M. Minimum: 500M or Unlimited on default Tablespace.

Sample syntax to assign tablespace and quota to a database schema:

```
alter user <<username>> DEFAULT TABLESPACE <<USERS>> quota unlimited on
<<USERS>>;
```

Note

- <username> refers to the actual schema user name.
- <USERS> refers to the actual default tablespace.

Example:

```
alter user skituser DEFAULT TABLESPACE USERS quota unlimited on USERS;
```

4.1.4.2.1 Assign Grants for Schema

Provide the following grants:

- grant create SESSION to <<username>>;
- grant create PROCEDURE to <<username>>;
- grant create SEQUENCE to <<username>>;
- grant create TABLE to <<username>>;
- grant create VIEW to <<username>>;
- grant create SYNONYM to <<username>>;
- grant create TYPE to <<username>>;

4.1.4.3 Configure Environment Variables

Do the following changes in the .profile file.

Table 4-2 .profile File Changes

Description	Example Value
set ORACLE_HOME pointing to the appropriate Oracle Client installation.	export ORACLE_HOME=/scratch/oraofss/app_client19c/product/ 19.0.0/client_1

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Table 4-2 (Cont.) .profile File Changes

Description	Example Value
Set the PATH	export PATH=/scratch/oraofss/app/product/19.0.0/dbhome_1/bin:$PATH
Set the STARTER_KIT_HOME	export STARTER_KIT_HOME=/scratch/iutusrext/shome
Set TNS_ADMIN pointing to the folder where tnsnames.ora file exists.	TNS_ADMIN=$HOME/tns

Example (.profile)

```
#!/bin/bash
export ORACLE_HOME=/scratch/oraofss/app/product/19.0.0/dbhome_1
export PATH=/scratch/oraofss/app/product/19.0.0/dbhome_1/bin:$PATH
echo "PATH $PATH"
export STARTER_KIT_HOME=/scratch/iutusrext/shome
export TNS_ADMIN=$HOME/tns
```

Login to the Linux terminal and execute the .profile.

```
. ./.profile
```

4.1.4.4 Install StarterKit

To install the starterkit:

1. Create a directory and copy the generated starterkit zip file and unzip it.
2. mkdir -p <dir_name>
   Example:

   ```
   mkdir -p starterKit
   ```

3. Copy the downloaded starterkit zip file into the created directory.
4. cd <dir_name>

   ```
   cd starterKit
   ```

5. unzip <starterKitzipfilename>
   Example:

   ```
   unzip starterKit_cappsalm10dec-prd_20.zip
   ```

6. Assign EXECUTE permission installer script using the command:

   ```
   chmod 755 *
   ```

7. rm <starterKitzipfilename>
   Example:

   ```
   rm starterKit_cappsalm10dec-prd_20.zip
   ```


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Ensure that the path specified in $STARTER_KIT_HOME exists. If it doesn't exist create the STARTER_KIT_HOME directory.STARTER_KIT_HOME is the same as what is mentioned in .profile in the Pre-installation Checklist section.

mkdir -p <starterkithome>

Example:mkdir -p shome

Edit the initParam.props file present inside starterKit/attributes folder.

Table 4-3 initParam.props file

Parameter Name	Parameter Desc
HOST	Schema name where starterkit is installed. Same schema which was created in section. *Assign Grants for Schema*
DB_HOST	Database Host name
DB_PORT	Database Port number
DB_SERVICE_NAME	Database Service Name or SID
LOG_PATH	ABSOLUTE Log path where log files should reside.
EXTRACTOR_DUMP_HOME	ABSOLUTE Extractor Dump Home Folder path where export dump and import dump resides.
EXP_DUMP	Extractor Export Dump Folder name where extracted scripts reside.
	Note Values are defaulted and should not be changed.
PAR_HOME	ABSOLUTE PAR Home path
MANIFEST_FSAPPS_CREATE_SCRIPTS	Name of manifest file create scripts deployment.
	Note Values are defaulted and should not be changed.
MANIFEST_FSAPPS_INSERT_SCRIPTS	Name of manifest file insert scripts deployment.
	Note Values are defaulted and should not be changed.

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Table 4-3 (Cont.) initParam.props file

Parameter Name	Parameter Desc
IMP_DUMP	Extractor Import Dump Folder name.

> **Note**
>
> Values are defaulted and should not be changed.

Sample initParam.props file

```
#Enter HOME Schema name
HOST=custom
#Enter DB Host name
DB_HOST=<DB HOST IP ADDRESS>
#Enter DB Port number
DB_PORT=<DB PORT NUMBER>
#Enter DB Service Name or SID
DB_SERVICE_NAME=NXG19PDB
#Provide ABSOLUTE Log path
LOG_PATH=/scratch/iutusrext/shome/logs
#Sleep param value
SLEEP_VAL=sleep 3
#Provide ABSOLUTE Extractor Dump Home Folder path
EXTRACTOR_DUMP_HOME=/scratch/iutusrext/objExtDump
#Extractor Export Dump Folder name
EXP_DUMP=expDump
#Extractor Import Dump Folder name
IMP_DUMP=impDump
#Provide ABSOLUTE PAR Home path
PAR_HOME=/scratch/iutusrext/parDump
#Manifest fsapps for create scripts deployment
MANIFEST_FSAPPS_CREATE_SCRIPTS=manifest_fsapps_create.sql
#Manifest fsapps for insert DML scripts deployment
MANIFEST_FSAPPS_INSERT_SCRIPTS=manifest_fsapps_insert.sql
```

Installation of starter kit

Navigate to the starter kit directory.

1. In case of upgrade installation of starterkit of version 25.03.01 or above on top of version 25.02.02 or below. Run the following script: `F_CEXTN_ARCHIVE_HANDLE_ERRORS.sql` in the paths `/objectExtractor/scripts/create` and `/objectExtractor/scripts/insert` in the upgrade version of starterkit has to be executed before applying the upgrade.

   You can ignore this step in case of fresh installation.

2. Run the command to invoke `setup.sh` as follows:
   `. ./setup.sh`

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During its run this shell prompts you to enter the username, password, etc. of the database in which the Starter Kit files are to be deployed. Please provide them carefully.

3. Verify the execution status by running the following query:
`select * from setup_info`

   Check the column F_STATUS for value S (Success).

   In case of failure, this column will be updated with value F (Failed).

   Additionally, verify the `starterkit.log` file. The log path is mentioned in the properties file against the LOG_PATH parameter.

   In case of upgrade installation, ignore the following message: *ORA-01430: column being added already exists in table* that appears in the installation log file `update_install_fsapps_create_script.log`.

4.1.4.5 Create PLSQL Extensions

The following object types can be used while developing User-Extensions:

- Sequence
- Procedure
- Function
- Package
- Type

Follow the naming convention and usage instruction mentioned in the User Guide while developing the User Extensions.

Generate an Archive of Created User Extensions

Create a par File

The par file list the object that need to be extracted during archival process. The par file is a newline delimited file. The par file path is passed a parameter during archive.

```
FN_UPD_FSI_D_ASSETS_CUSTOM

FN_UPD_FSI_D_LIABILITY_CUSTOM

CUSTOM_NO_SEQ_CUSTOM
```

To execute the archive, execute the following command:

```
cd $STARTER_KIT_HOME/bin
 . ./archive.sh SILENT "par file absolute path" "project_name"
```

Example:

```
. ./archive.sh SILENT "/scratch/devextusr/sampleobjects.par" "project_1"
```

The archived file will be present under path mentioned against the parameter `EXTRACTOR_DUMP_HOME` and `EXP_DUMP` in the init.props file.

For Example given the below values in the init.props file

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`EXTRACTOR_DUMP_HOME=/scratch/iutusrext/objExtDump`

`EXP_DUMP=expDump`

`<EXTRACTION_ID>:` This generated by the Archive.

The path will be created as follows:

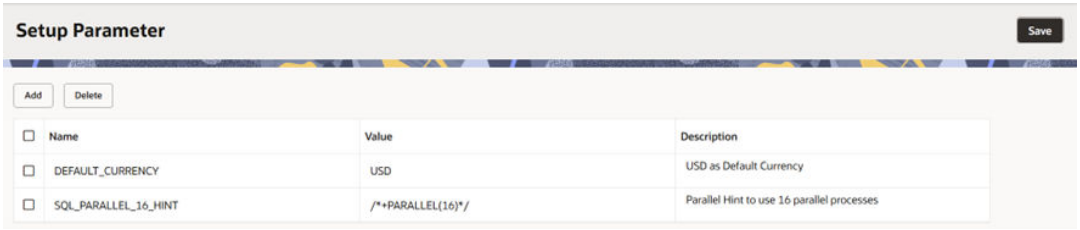
`/scratch/iutusrext/objExtDump/expDump/8/OFS_ALMCS_USER_EXT_2000_29.10.01_1.tar.gz`

4.1.5 PLSQL Properties

The Custom PLSQL Properties (Setup Parameters) user interface is used to capture placeholder configuration which might be required during the development of custom PLSQL extensions.

1. To access Custom PLSQL Properties user interface, select **Admin Tools**, and then select **Custom PLSQL Properties**.
   The Custom PLSQL Properties – Setup Parameters window is displayed.

Figure 4-3 Setup Parameter



2. Click **Add** to define a new custom parameter and enter the following details:
   - **Name**: Configuration parameter key or name. Name can accept up to 200 characters.
   - **Value**: Configuration parameter value. Value can accept up to 1000 characters.
   - **Description** (not mandatory): Provide a description for the parameter and value added. Description can accept up to 1000 characters.
3. Click **Save**.
4. If you want to edit an already defined parameter, select the checkbox against the Name and change the **Name** or **Value**.
   If the Name is already defined, then the system displays a message *Parameter name already exists*.

Example

The following is an example of how to consume the Custom PLSQL Properties parameter and its value:

- Declare a local variable (lv) in the Custom PLSQL extension definition for parameter SQL_PARALLEL_16_HINT for eg: lv_sql_parallel_16_hint
- Using a SELECT statement fetch the value of the SQL_PARALLEL_16_HINT parameter and assign it to the local variable defined.

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Example:

```
lv_sql_parallel_16_hint setup_master.parameter_value%TYPE;
select parameter_value into lv_sql_parallel_16_hint from setup_master
where parameter_name=" SQL_PARALLEL_16_HINT";
```

4.1.6 Object Migration

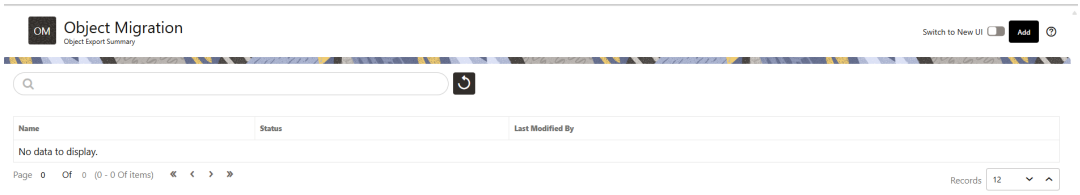
The Custom Archives objects can be Exported / Imported from one setup to another setup using the **Object Migration** framework. The Object Type **Custom Archives** is available in **Object Migration Export** window.

For more information, see the Object Migration section.

To export the Custom Archive objects, follow these step:

1. Click **Add** in the **Object Export Summary** page to view the Migration Definition page.

Figure 4-4 Object Export Summary page



2. Enter the following details, in the Migration Definition page.

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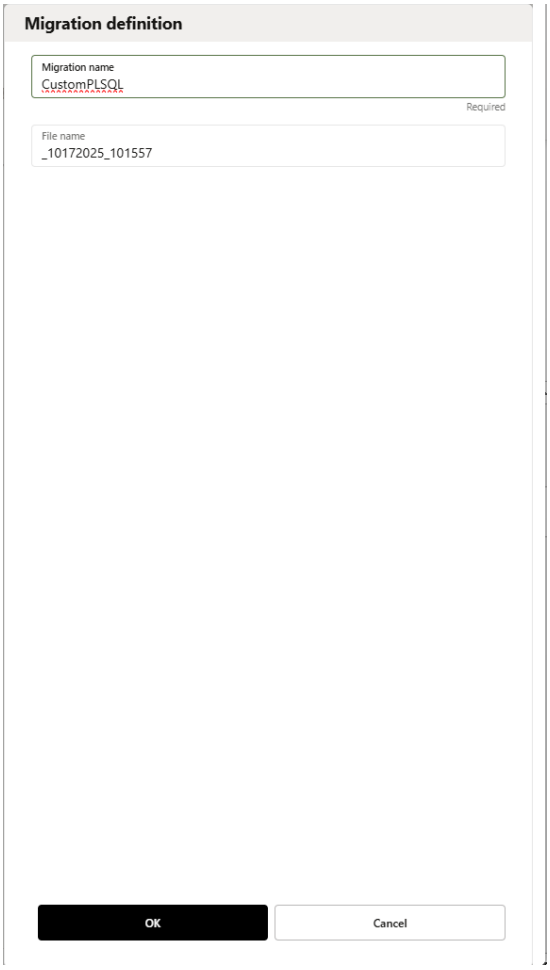
Figure 4-5 Migration Definition Page



- **Migration Name:** Enter the code of the export of objects to be migrated definition. This is a unique identifier.
- **File Name:** The system auto-creates the file name of the objects that can be used to export the definition in the following format:
  - For Business Objects: Migration Name_BO_Time Stamp_Tenant_Release Version (time stamp format: MMDDYYY HHMMSS)
    Example: EXP_DQRULE_BO_07312025_162240_zqvzly-prd_25_09_01.DMP
  - For Identity Objects: Migration Name_IDM_Time Stamp_Tenant_Release Version (time stamp format: MMDDYYY HHMMSS)
    Example: EXP_DQRULE_IDM_07312025_162240_zqvzly-prd_25_09_01.DMP

3. Click **Ok** to save the details and view the Object Selection Page.
4. Click **Add Member** icon to include Migration objects to the definition.
5. Select the Object Type as **Custom Archive** from the **Object Types** drop-down list.

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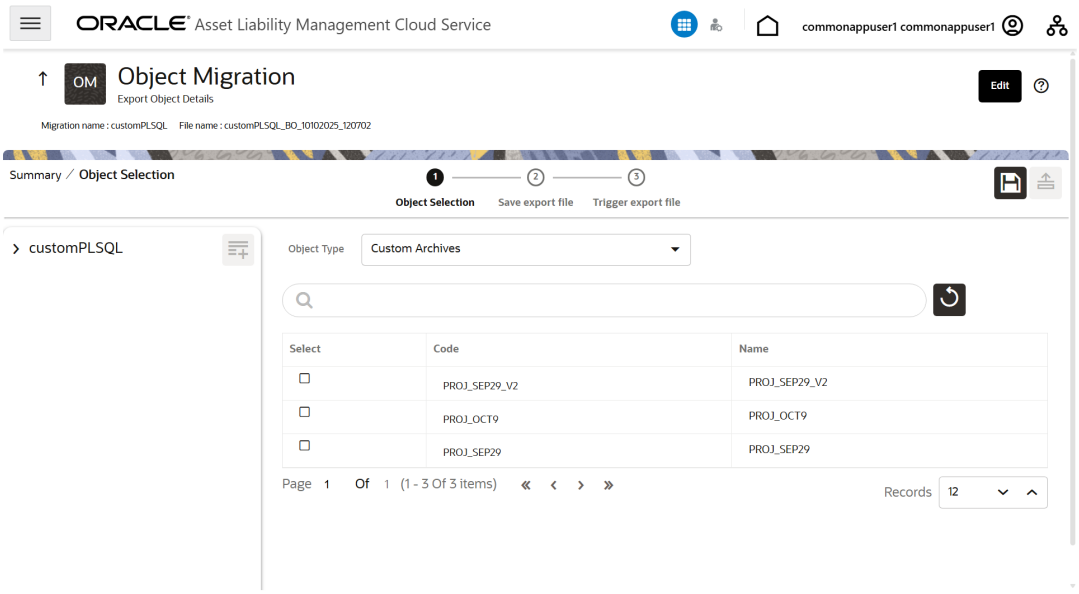
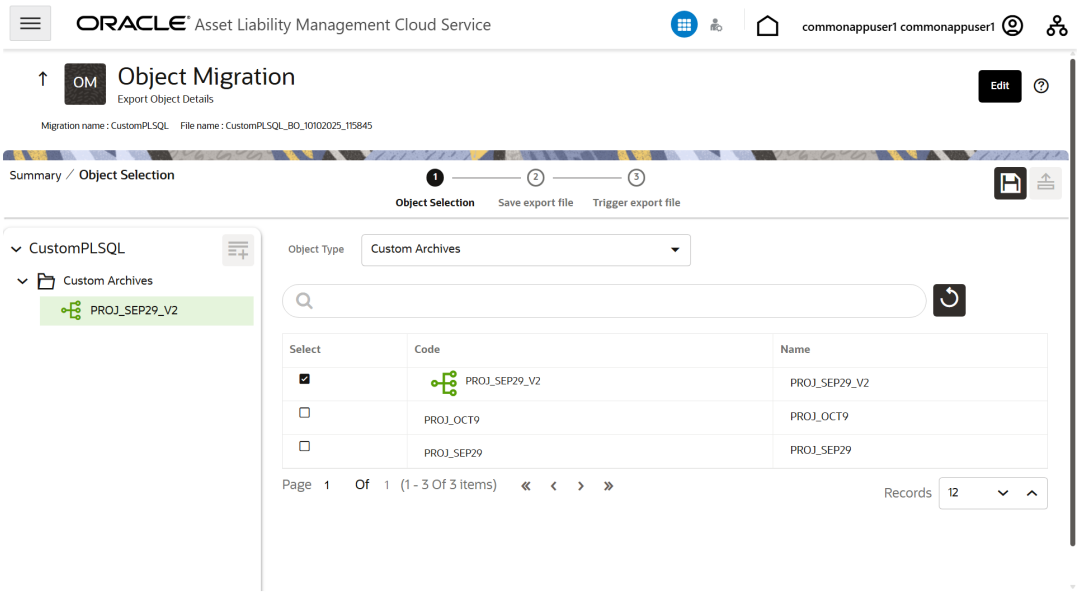
Figure 4-6 Add Object



6. Select the objects to be added to the Migrate Definition and click **Save**, to create a new migration object. To select all objects, click the check box adjacent to Code. The selected objects appear under Selected Objects on the right.

Figure 4-7 Create a new migration object



Click **Show Details** to view the details.

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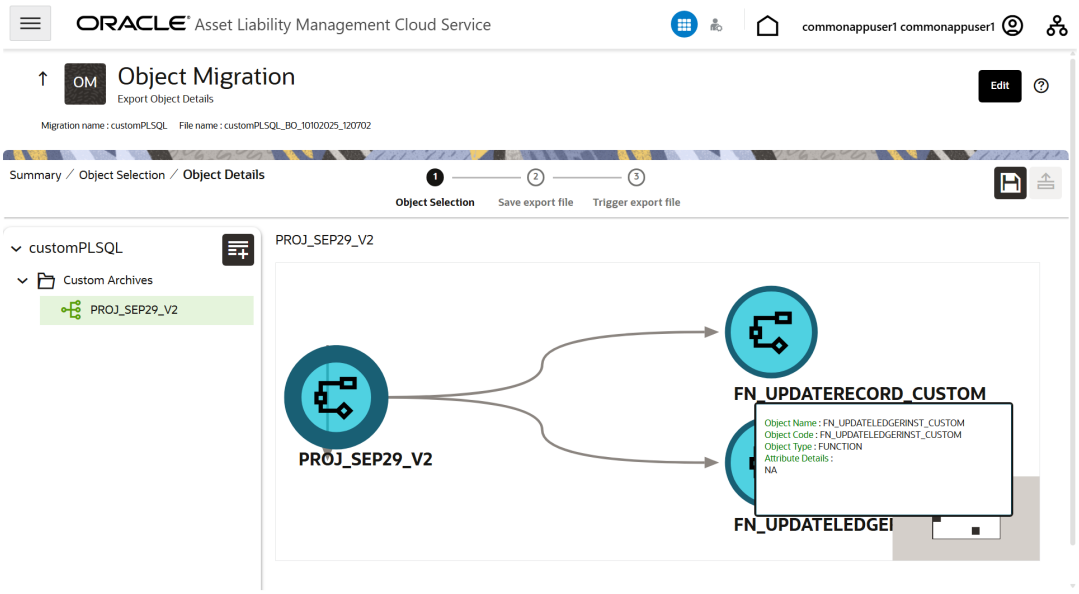
Figure 4-8 View Details



A confirmation message is displayed, when the definition is saved successfully. The new migration definition is listed in the Object Export Summary Page and the status is set to Saved.

7. You can also click **Export**, to export the object.

You can use the Export dump generated to import in a target environment. For more information on Import, see the Object Migration.

4.1.7 Appendix

This appendix covers the following topics:

- Process for Submitting of Custom PLSQL Archives to Oracle
- Frequently Asked Questions
- Custom PLSQL Master Tables List

4.1.7.1 Process for Submitting of Custom PLSQL Archives to Oracle

This section explains the process to be followed for submitting the customer developed Custom PLSQL extensions to Oracle.

The process is a workflow-based approach and is broadly categorized as follows:

- Uploading the Custom PLSQL Extensions as an Archive

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4.1.7.1.1 Uploading the Custom PLSQL Extensions as an Archive

This section explains the following questions on Custom PLSQL Extensions – what, how to generate an archive and where to upload the archive.

Custom PLSQL Extensions

Custom PLSQL Extensions here refers to the database objects that users may have created in their On-premises data center on a database schema containing of application objects which were created using the Starter Kit generated using Oracle's PLSQL Starter Kit User Interface.

Custom database Object Types are limited to the following:

Table 4-4 Database Object Types

Functions
Procedures
Packages
Views (Materialized Views not Supported)
Global Temporary Tables
Synonyms

Generating an Archive

Users are required to use the archive scripts bundled as part of the Starter Kit utility to generate Custom PLSQL extension archive.

For more details on How to Generate Custom PLSQL Extension Archive, see the Installation Guide.

Upload the Archive

Customerscan use the PLSQL Archive Summary user interface to upload the Custom PLSQL extension archive. The Project ID / Name will be considered as the main identifier for every archive.

Table 4-5 Project ID or Name Details

Product ID	The Project Name / ID used while generating the Archive using Starter Kit Archive scripts

Project Name is a argument passed when executing the `archive.sh` shell. The project name should be a valid alpha numeric string.

- Project name can contain alphabets (A-Z, a-z).
- Project name can contain numbers (0-9).
- Spaces are NOT allowed.
- Underscore is allowed. Other special character (other than underscore) are not allowed.

Examples:

Valid project name sample: **Project_ALMCS_01**

Invalid project name sample: **Project ALMCS 01 $@**

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The project name is an identifier used to tag and logical groups objects for given submission. User can use the same project name when executing the archival process. When the same name is used all objects that are previously submitted using this project name will also be archived.

4.1.7.2 Frequently Asked Questions

This topic covers the frequently asked questions.

1. **What to expect during custom PLSQL archive deployment request?**
   Answer:
   a. Submitted archives should always be cumulative of all earlier submissions. If a custom artefact is no longer required, it should be excluded from the archive.
      i. Sequence value will not be reset during a subsequent archive-deploy request.
   b. If the archive omits database functions that were included in the earlier version of the archive and such functions are referred within one or more batches the archive deployment will be aborted.
      i. Such batches need to be modified to remove dependency tasks or tasks which are no longer required and then request for deployment.
   c. All database functions will be available for inclusion into a batch under the batch component name “Custom PLSQL Definition”.
2. **What is the signature for database Functions?**
   Answer:

   On-prem and SaaS signature comparison of Data Transformation parameters

   ICC - On-Prem Parameters

Parameter Name	Data type
BatchID	Varchar2
MisDate	Varchar2

   ICC - SaaS Parameters

Parameter Name	**Data type**
BatchID	Varchar2
MisDate	Varchar2

   Batch Id: This is a mandatory parameter expected in the custom PLSQL function. Value will be submitted by the application during runtime.

   MisDate: This is a mandatory parameter expected in the custom PLSQL function. Value will be submitted by the application during runtime.

   Sample PLSQL Function with expected parameters in the Custom PLSQL Extension is mentioned below for reference:

   Default declaration of the function will be as follows:

```
create or replace FUNCTION FNUPDATERECORD_CUSTOM (BatchID Varchar2, MisDate
Varchar2, custom_param1 varchar2)
```

   return number is

```
vstatus number;
```


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```
/*
```

Signature of function with AUTHID CURRENT_USERwhen redaction is enabled is provided below:

```
create or replace FUNCTION FNUPDATERECORD_CUSTOM (BatchID Varchar2, MisDate
Varchar2, custom_param1 varchar2)
```

return number authid current_user is

```
vstatus number;
```

authid current_user: The user extension function should be created with AUTHID CURRENT_USER invoker rights. DML operation on any redacted tables will be allowed only for functions defined with AUTHID CURRENT_USER invoker rights.

Batch Id: This is a mandatory parameter expected in the custom PLSQL function. Value will be submitted by the application.

Misstate: This is a mandatory parameter expected in the custom PLSQL function. Value will be submitted by the application.

custom_param1: Optional parameters which custom PLSQL functions can have to meet their requirements. You have to provide the parameter value during Batch definition under the Custom PLSQL Parameter field. This field is available in the UI at the time of defining the Task.

```
*/

begin
```

/* Functional requirement based DML operations */

/* Calling Logger */

```
PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE(Piv_message => Message ',
Piv_msg_severity_cd => 20);

commit;

return 1;
```

Exception

```
PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE(Piv_message => 'ERROR IN FUNCTION ',
Piv_msg_severity_cd => 75);

return 0;

end;
```

3. **How will the custom database functions or procedures or packages access parameters?**
Answer:

The parameters are batch run ID, Task ID, component ID, MisDate, tenant ID, workspace ID, service ID, process ID, etc.

These parameters are generally used for logging by the Logger functions. The application passes these parameter values into the logger table during runtime and custom PLSQL functions need not have to pass these parameters explicitly.

However, if the custom procedures still want to include these parameter they can do so by using the below parameter names in the custom procedures

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Parameter Name	Description	Data type
Gv_workspace_id	Workspace Id	Varchar2
Gv_tenant_id	Tenant Id	Varchar2
Gv_service_id	Service Id	Varchar2
Gv_process_id	Process id	Varchar2
Gv_batch_run_id	Batch Run Id	Varchar2
Gv_misdate	Misdate	Varchar2

4. **How to perform Logging?**
Answer:

To perform Logging, use below Package:

Package Name	Parameter No	Parameter Name	Data Type	Details
PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE	1	Piv_message	VARCHAR2	
	2	Piv_msg_severity_cd	VARCHAR2 DEFAULT 20	20 for Info 75 for Error

   a. Add your message in the **Piv_message** field.

   b. The **Piv_msg_severity_cd** should be fixed to 20 for Information type messages and 75 for Error messages.

For more details on sample PLSQL function, see Question 2.

Other Examples:

/* Calling Logger */

```
PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE(Piv_message => 'My Custom message here' ',
Piv_msg_severity_cd => 20);

PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE(Piv_message => SQLCODE ',
Piv_msg_severity_cd => 20);

PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE(Piv_message => SQLERRM ',
Piv_msg_severity_cd => 20);
```

5. **How to view the view the logs in the starter kit schema?**
Answer: To view the logs in Starter Kit Schema, use below query:

```
SELECT * FROM AAICL_MESSAGE_LOG
```

4.1.7.3 Custom PLSQL Master Tables List

For downloading the Custom PLSQL Master Tables list (Custom_PLSQL_Master_Table_List.xls), refer to the Doc ID: 2869409..

4.1.7.4 Redaction DDLs [Data Definition Language]

Starter kit bundles redaction policy ddls for all the objects extracted as part of Starter Kit Generation. Redaction policy DDLs will be extracted and bundled as part of Starter Kit only if a redaction policy is enforced for an object using the redaction framework UI.

Please refer to Data Redaction on how to enable redaction using redaction framework user interface.

How to use the redaction policy DDLs bundled in the Starter Kit [Optional]:

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- Redaction policy DDLs are bundled in a separate folder named redaction in the Starter Kit.
- Redaction policy DDLs can be executed in the schema where Starter Kit bundled objects are installed.
- Redaction policy DDLs are NOT executed as part of Starter Kit installation and needs to be executed manually.

Steps to execute:

1. Copy the redaction.sql available in the redaction folder to any user specified folder.
2. Login to database schema user where Starter Kit objects are installed.
   Example: sqlplus <schema_username>/<schema_password> @<db_service_name>
3. For logging enable spooling of execution logs:
   Example: spool <absolute_folderpath_for_logging>/redaction.log
4. Execute the redaction.sql from the sqlplus prompt.
   Example: @<absolute_path_of_redaction.sql>

4.1.7.5 Index DDLs [Data Definition Language]

Starter kit bundles index DDL's from tables that have indexes as part of Starter Kit Generation. These scripts can be executed manually by following the below steps.

Steps to execute:

- Copy the `manifest_fsapps_Table_Index_create.sql` available in the IndexDDL folder to any user specified folder.
- Logan to database schema user where Starter Kit objects are installed.
  Example: `sqlplus <schema_username>/<schema_password> @<db_service_name>`
- For logging enable spooling of execution logs:
  Example: `spool <absolute_folderpath_for_logging>/IndexDDL.log`
- Execute the `manifest_fsapps_Table_Index_create.sql` from the sqlplus prompt.
  Example: `@<absolute_path_of_ manifest_fsapps_Table_Index_create.sql.sql>`

4.1.7.6 Partition DDLs [Data Definition Language]

Starter kit bundles partition DDL's from tables that have partitioning enabled as part of Starter Kit Generation. These scripts can be executed manually by following the below steps.

Steps to execute:

- Copy the `manifest_fsapps_Partition_Table_create.sql` available in the partitionDDL folder to any user specified folder.
- Log into database schema user where Starter Kit objects are installed.
  Example: `sqlplus <schema_username>/<schema_password> @<db_service_name>`
- For logging enable spooling of execution logs:
  Example: `spool <absolute_folderpath_for_logging>/PartitionDDL.log`
- Execute the `manifest_fsapps_Table_Index_create.sql` from the sqlplus prompt.
  Example: `@<absolute_path_of_ manifest_fsapps_Partition_Table_create>`

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4.2 PLSQL Archive Summary

PLSQL Archive Summary User Interface allows customers to introduce custom PLSQLs into the PBSM cloud service.

The PLSQL Archive Summary UI enables you to perform the following:

- Upload of a Custom PLSQL archive.
- Submit the uploaded archive for Due Diligence process.
- Submit the archive for Deployment

Submit the archive for Deployment. Here, Archive refers to a zip extension file containing custom objects like PLSQL functions, procedures, packages, synonyms etc. For more information, see Custom PLSQL Extension.

Other features that are provided as part of the PLSQL Archive Summary are:

- View History of archives processed.
- Refresh or Reload of the archive details page to view the latest updated status.
- View Contents of an uploaded archive.
- Download an archive.
- Discard an archive.
- View Logs of Archive Upload, Due Diligence process and Archive Deployment.

Users must be mapped to the below groups to access the PLSQL Archive Summary:

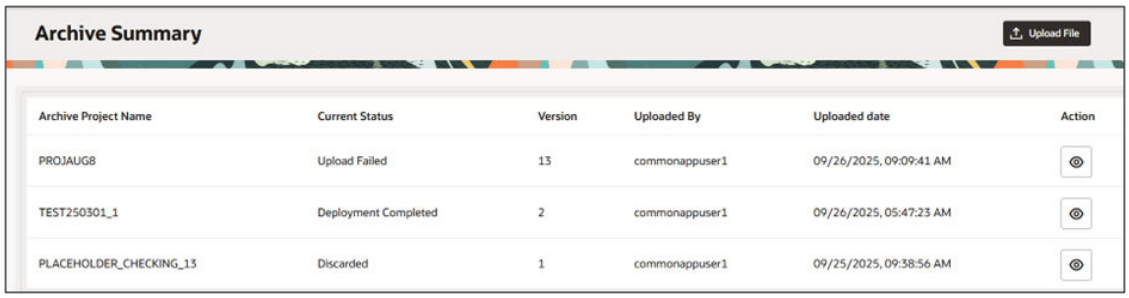
- UG_GEN_STARTER_KIT_ADMIN
- UG_GEN_STARTER_KIT_ANALYST

From the LHS menu, select **Admin Tools**, and then select **PLSQL Archive Summary**.

4.2.1 PLSQL Archive Summary

This page is the gateway to all PLSQL Archive Projects and related functionality. You can navigate to other pages relating to PLSQL Archive Projects from this point.

Figure 4-9 PLSQL Archive Summary



- **Archive Project Name:** Shows the name of Archive project
- **Current Status:** Displays the current status of archive project as Upload Failed, Upload Successful, etc.

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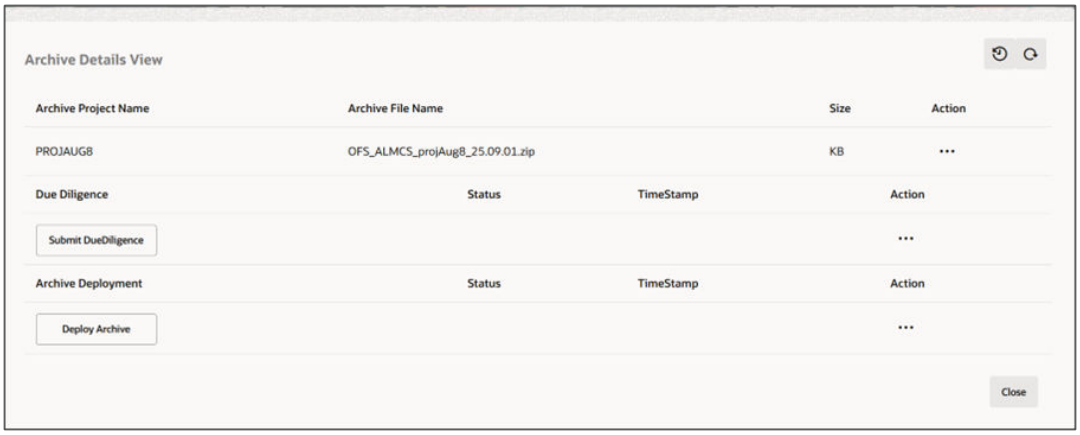
- **Version:** Shows the Current or Latest version of Archive
- **Uploaded by:** The user who last modified the Archive.
- **Uploaded Date:** The Date and Time when the archive was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Archive.

Figure 4-10 View Archive Details



The View Archive Details page shows following details:

- **Archive Project Name:** Displays a unique number for the selected archive
- **Archive File Name:** Shows the name of Archive file.
- **Archive Size:** Shows the size of Archive file.

Click Action icon to view a list of actions that you can perform on the Archive.

Figure 4-11 History

Shows the list of all the versions that were processed for the selected Archive Project Name. The **Archive History** window is displayed with basic details like the Archive Project Name, App Name, Version of archive, Upload date, Deleted status, and Deployment status of archive.

Figure 4-12 Archive History window

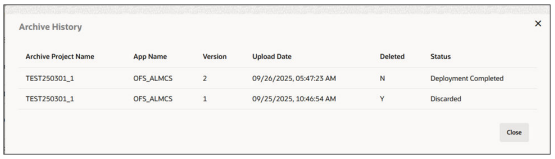


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Figure 4-13 Refresh

Refreshes the latest status of due diligence & archive deployment. This is a reload of the view details page data contents. In case a due diligence / archive deployment is in progress, then you can use the refresh button to reload the page to see the updated status whether successful, failed or discarded.

Figure 4-14 Download

Allows you to download of the selected archive.

Figure 4-15 Discard Archive

Allows you to discard the selected archive.

Figure 4-16 View Contents

To view the contents of the selected archive/ version. The **Archive Content** window displays the contents of the archive in the current release with Object Names and Object Types.

Figure 4-17 Archive Content window

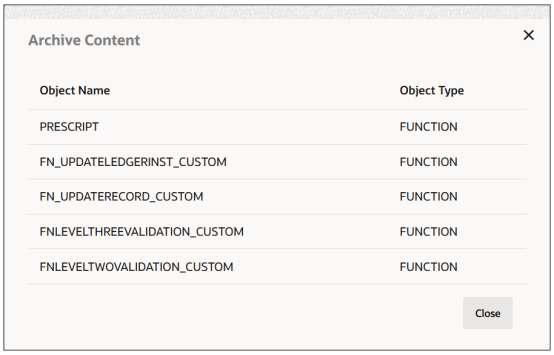

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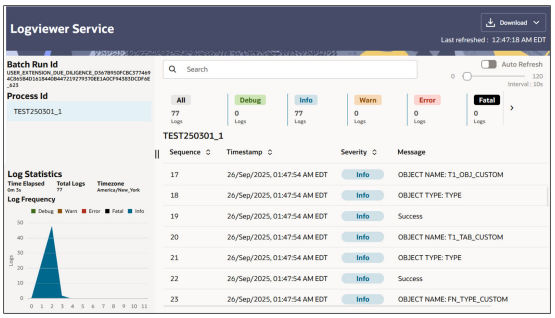
Figure 4-18 View Archive Log	Allows you to access the log details. The Log View window displays the below log details: View log of the archive upload - Shows the archive upload logs. View log of the due diligence step - Shows the different diligence checks performed on each object and their status. View log of the archive deployment step – Shows the deployment status at overall and each object level. **Figure 4-19 Log View window** 
Submit for Due Diligence	The **Submit for Due Diligence** button allows you to submit the selected archive for processing the archive diligence checks.
Deploy Archive	The **Deploy Archive** button allows you to invoke the deployment process of the selected archive.

4.2.2 Upload Custom PLSQL User Extension Archives

The Upload File button on PLSQL Archive Summary page is used to upload a custom PLSQL archive.

> **Note**
>
> Only Starter Kit generated archives will be uploaded via the Archive Summary Upload File option. Only ZIP file are supported for upload.

To upload the file, follow these steps:

1. Navigate to **Archive Summary** page.
2. Click Upload File button. The **Upload Archive File** window is displayed.

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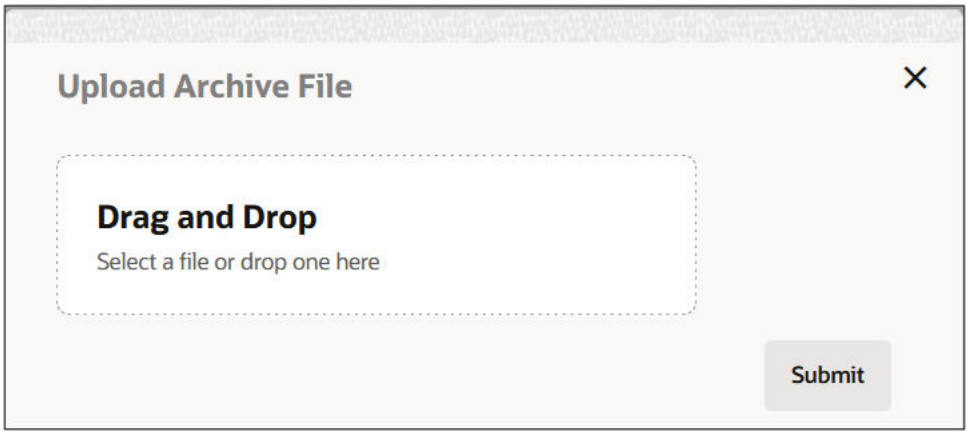
Figure 4-20 Upload Archive File window



3. Select the locally stored zip archive for upload and click **Submit**.

4.2.3 Submit Custom PLSQL User Extension Archives

Custom PLSQL extensions post successful upload via the PLSQL Archive Summary page is available for consumption for due diligence processing and deployment in next stages.

First, submit the custom archive for a series of due diligence checks using the Submit for Due Diligence button,

Second, deploy the custom archive in the specified environment.

Using the **View Archive Details** window, you can access the Due Diligence and Archive Deployment for submission of Custom PLSQL user extensions.

Click **View**

Figure 4-21 View

icon on the corresponding archive project from the **PLSQL Archives Summary** page to access the **View Archive Details** window.

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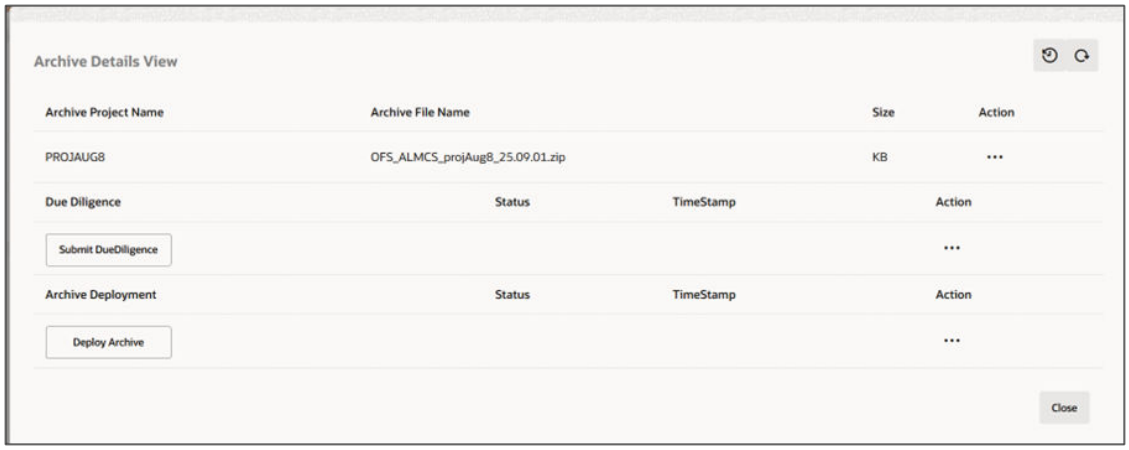
Figure 4-22 View Archive Details window



4.2.3.1 Submit for Due Diligence

In Due diligence, Custom PLSQL archive contents will go through a series of checks before being moved or considered for deployment into the preferred Cloud Service tenant.

Below is the list of checks:

Check Type	Description	Status
Naming Convention	Naming Conventions to be used while creating Custom Extensions. Objects names will be validated for the presence of "_CUSTOM" as suffix Example: FN_UPD_FSI_D_ASSETS_CUSTOM	Success/Fail
Dependency	This checks if the user-extensions are mapped to any existing batch definitions	Completed
Difference	Checks to validate that submitted archives should always be cumulative of all earlier submissions.	Success/Fail
Keyword	Validates for whitelisted keywords within the user extension	Success/Fail
Security	Security Scans	Success/Fail

To perform check on Archive project, follow these steps:

1. Navigate to **Archive Summary** page.
2. Click the **View**

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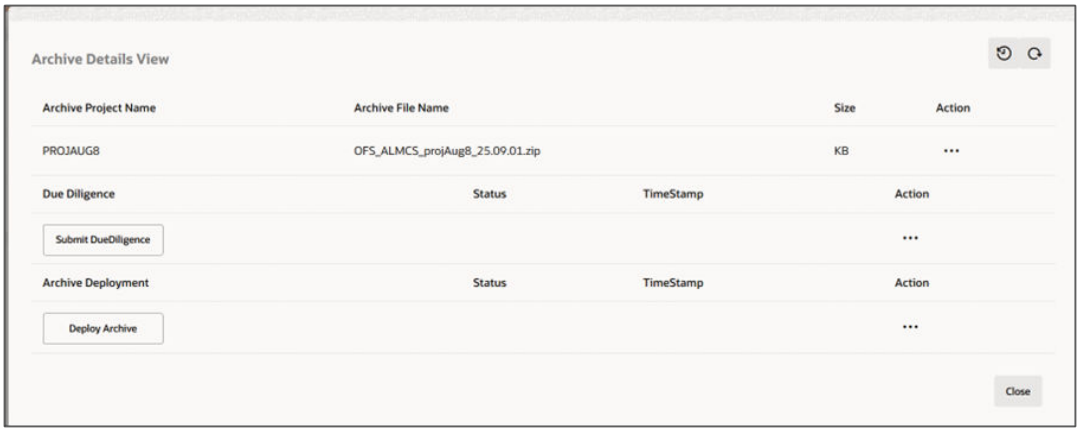
Figure 4-23 View

icon under Action. The **Archive Details View** window is displayed.

Figure 4-24 Archive Details View



3. Click **Select DueDiligence**. The status of Archive is displayed. For more information on status, see Table Status Details. Click **Ok**.

Figure 4-25 Status of Archive

4. Click **Action**

Figure 4-26 Action

icon next to **Select DueDiligence** button to view a list of actions. Below actions can be performed:

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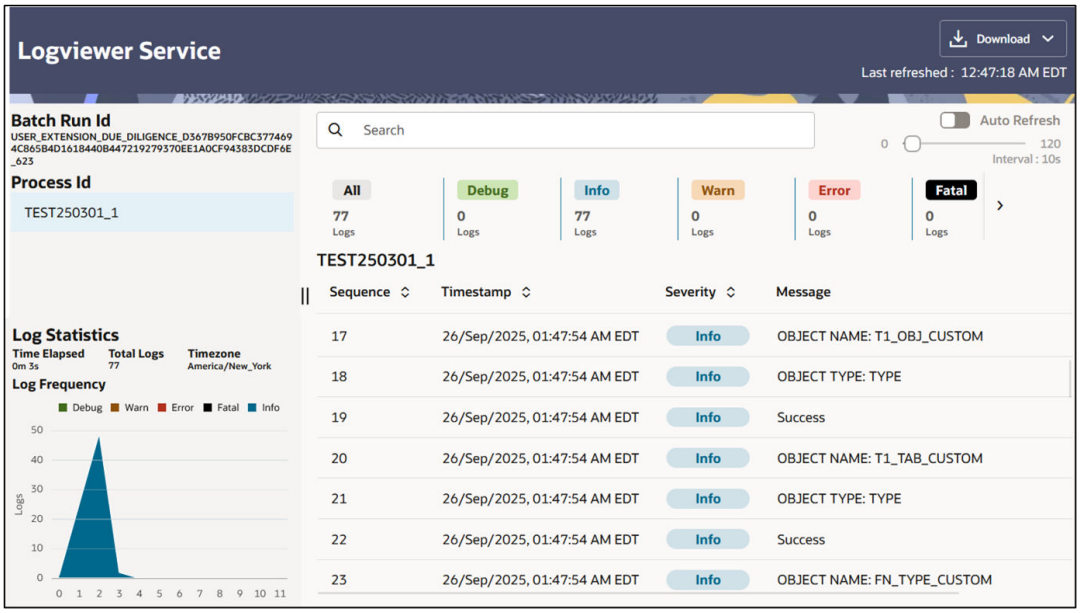
- **Discard:** This will allow users to discard the selected archive. You cannot Discard an Archive if it is in Deployment stage.
- **View Log:** Allows you to access the log details post Due Diligence check.

Figure 4-27 Logviewer Service



4.2.3.2 Deploy Archive

Post successful completion of Due Diligence checks, you can deploy an Archive.

> **Note**
>
> Archive Deployment will not be enabled is there are errors in Due Diligence checks.

To deploy an Archive, follow these steps:

1. Navigate to **Archive Summary** page.
2. Click the **View**

Figure 4-28 View

icon under Action. The **Archive Details View** window is displayed.

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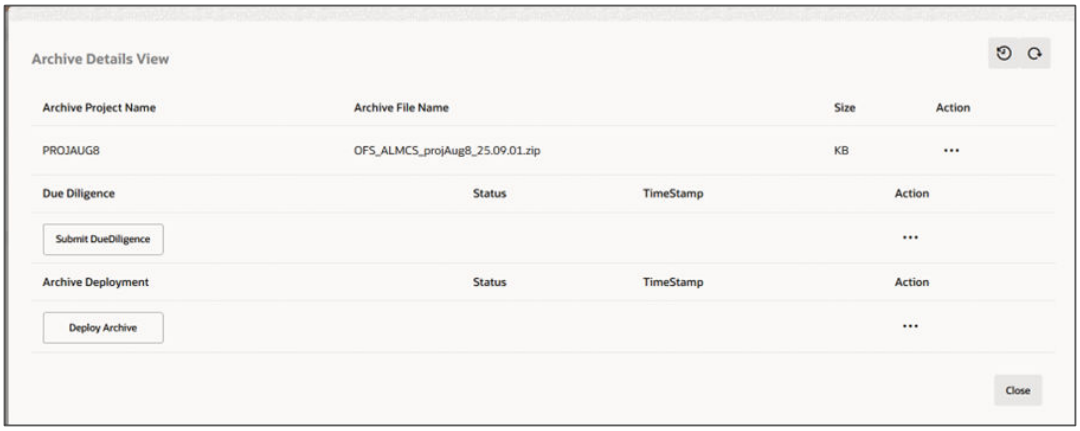
Figure 4-29 Archive Details View



3. Click **Deploy Archive**. The deploy status of Archive is displayed. Click **Ok**.

Figure 4-30 Status of Archive

4. Click **Action**

Figure 4-31 Action

icon next to Select **Deploy Archive** button to view a list of actions. Below actions can be performed:

- **Discard:** This will allow users to discard the selected archive. You cannot Discard an Archive if it is in Deployment stage.
- **View Log:** Allows you to access the log details post Due Diligence check.

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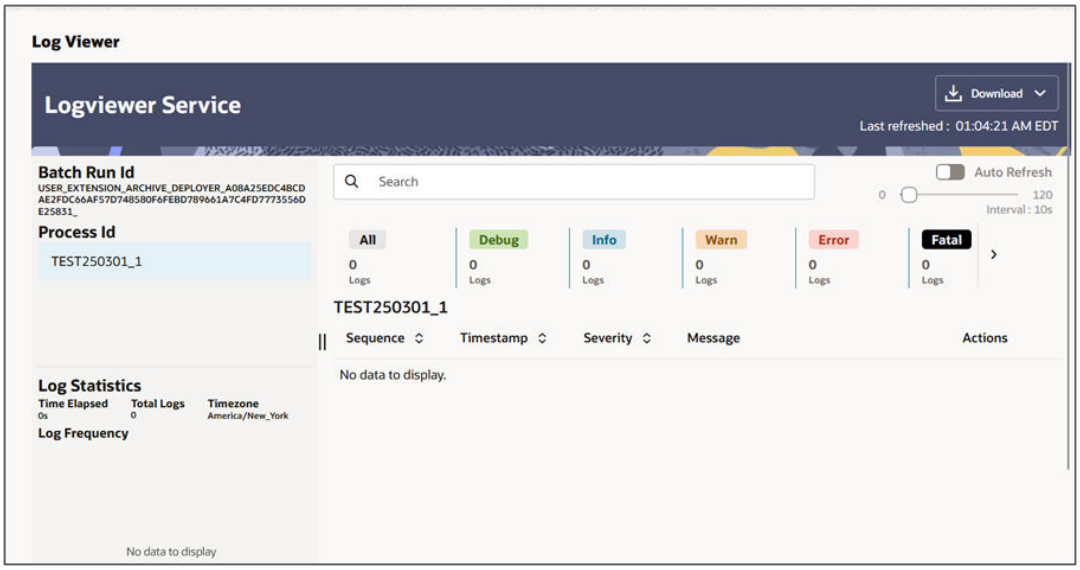
Figure 4-32 Log Viewer



4.3 Data Foundation Integration

This chapter is applicable if you have subscribed to Data Foundation Cloud Service (DFCS) along with Profitability and Balance Sheet Management Cloud Service (PBSMCS) and you want to bring data into PBSMCS from DFCS. Below topics are covered here:

- Data Services Subscriptions: DFCS has pre-built connectors (called Application Data Services or ADS) to supply data to from its database to PBSMCS database. To use this feature the connection between both cloud services must be activated by configuring the required parameters from Data Services Subscriptions UI.
- ADS Run History: When the jobs to move data from DFCS to PBSMCS are executed, the progress and information of previous executions can be viewed from ADS Run History UI.

To access the Data Foundation services, from the LHS menu, select **Admin Tools**, select **Data Foundation Integration**, and then select any of the menu options.

4.3.1 User Group for Managing Data Foundation Integration

User must be mapped to below user group to access Data Services Subscriptions, ADS Run History, create Scheduler batches and execute them.

Table 4-6 User Group

USER	ROLE CODE	FUNCTION	Role Name	Role Description
ADMIN	ADS_ADMIN_ROLE	DFBADSSCBR,DFBADSEXEC,DFBADSVW	Application Data Service Administrator	This role helps to Subscribe, Update, View and Execute the Application Data Service
BATCH EXECUTOR	DFBADSEXEC_ROLE	DFBADSEXEC, DFBADSVW	Application Data Service Executor	This role helps to Execute the Application Data Service

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Table 4-6 (Cont.) User Group

USER	ROLE CODE	FUNCTION	Role Name	Role Description
BATCH VIEWER	DFBADSVW_ROLE	DFBADSVW	Application Data Service Viewer	This role helps to View the Application Data Service

> **Note**
>
> Unmap DFCS_PBSM_INTEGRATION to any user mapped to application after upgrading to 25C.

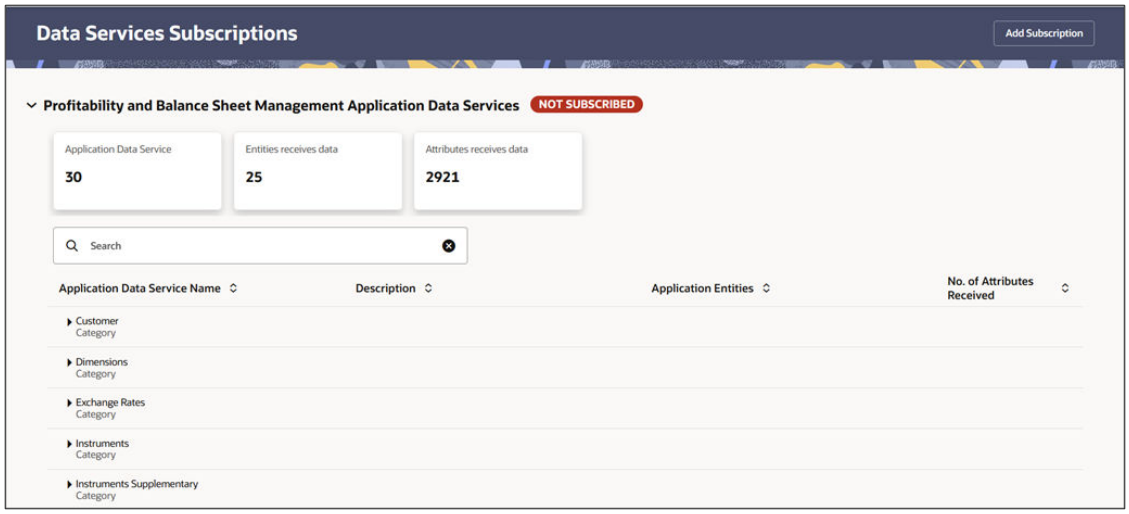
4.3.2 Data Services Subscription

It is necessary to have the subscription to the Data Foundation Cloud Service to operate.

To fill in subscription details of Data Foundation Services, select **Admin Tools**, select **Data Foundation Integration**, and then select **Data Services Subscriptions**.

The Data Services Subscriptions dashboard is displayed.

Figure 4-33 Data Services Subscriptions dashboard



The dashboard displays the following details:

- **Application Data Service**: Displays the total number of ADS or Connectors present.
- **Entities receives data**: The number entities receiving data.
- **Attributes receives data**: The number of attributes receiving data.
- **Publisher**: The Data Foundation Cloud Service tenant name. This option will be available if you have subscribed for Data Service subscription.
  You can expand each of the Application Data Service Name to see the Name, Description, Application Entities, Number of Attributes received.

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Figure 4-34 Data Services Subscriptions top pane

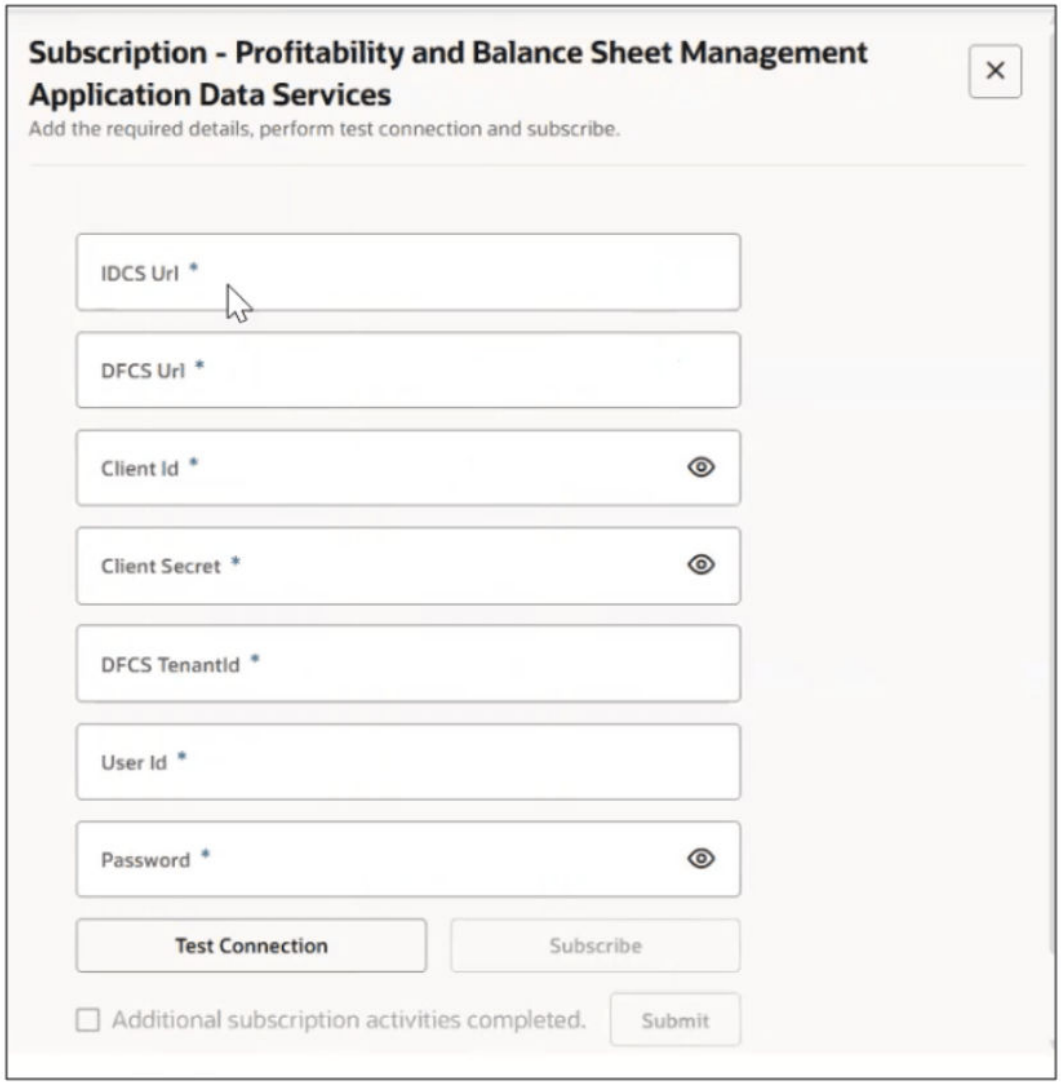
Application Data Service Name	Description	Application Entities	No. of Attributes Received
Customer Category			
Customer Party Hierarchy	Data Service for Customer Party Hierarchy	Staging Customer Hierarchy	11
Customer Master Party Master	Data Service for Customer Master Party Master	Staging Customer	10

4.3.3 Add a Subscription

To add a Subscription, follow these steps:

1. Navigate to Data Services Subscriptions page.
2. Click **Add Subscription** button. The Subscription window is displayed.

Figure 4-35 Subscription window



3. Enter the following fields (all fields are mandatory):

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Table 4-7 Application Data Service

Field	Description
IDCS URL	The URL of the **Identity Cloud Service (IDCS)** instance used for authentication. This allows PBSMCS to authenticate securely with DFCS. **Note** For more information on how to obtain the IDCS URL, see Get the OAuth Client ID and Client Secret section in the #unique_303 chapter.
DFCS URL	The base URL of the **Data Foundation Cloud Service (DFCS)** instance. It specifies the source environment from which PBSMCS will receive data. **Note** For more information on how to obtain the IDCS URL, see Get the OAuth Client ID and Client Secret section in the #unique_303 chapter.
Client ID	A unique identifier registered in IDCS for the application (PBSMCS). It is used as part of the OAuth2 authentication process when establishing a connection with DFCS. **Note** For more information on how to obtain the IDCS URL, see Get the OAuth Client ID and Client Secret section in the #unique_303 chapter.
Client Secret	A confidential key associated with the Client ID. It is used to authorize the PBSMCS application to access DFCS data securely. **Note** For more information on how to obtain the IDCS URL, see Get the OAuth Client ID and Client Secret section in the #unique_303 chapter.

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Table 4-7 (Cont.) Application Data Service

Field	Description
DFCS Tenant ID	The unique identifier for your DFCS tenant environment. It ensures that the connection and data transfer are scoped correctly to your organization's DFCS instance. **Note** DFCS and PBSMCS must use the same tenant type (**-prd** or **-nprd**). Cross-tenant usage is not supported. For example, if DFCS is a production tenant then the subscriber tenant must also be a production tenant.
User ID	The DFCS application user's login ID authorized to access and retrieve data from the DFCS environment. This user must have the appropriate roles and permissions for data publishing. **Note** The User ID is case-sensitive and must be created in lowercase letters.
Password	The corresponding password for the DFCS User ID. It is used during authentication to validate the user's access when connecting PBSMCS to DFCS.

4. After entering the details, click **Test Connection**. If all the details are correct, then the **Subscribe**button will get enabled.

   Note
   This checks if the current credentials are working or if there's a connection issue.

5. Once the credentials are entered correctly, you can click **Update Credentials** to save your changes.
6. If successful, a message *"Operation successfully connected"* appears at the top of the pane, and the **Subscribe** button is enabled.
7. If the test fails, recheck and verify the entered details.
8. Click **Subscribe**.
9. When the subscription starts, a message *"Please Contact Oracle Support to Complete Additional Activities"* will appear.

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> **Note**
>
> Subscription completion may take a few minutes.

10. If you've already subscribed, you can unsubscribe from the service or make changes to your subscription, click **Unsubscribe**. The pop-up message informs you that unsubscribing from the **DFCS Tenant** is **permanent** and **cannot be undone**.
    You have two options:
    a. **Cancel**: If you change your mind and do not want to unsubscribe, click the **Cancel** button. This will close the prompt and allow you to continue using the service.
    b. **Yes, Continue**: If you're sure you want to unsubscribe, click the **Yes, Continue** button. This will confirm the action and unsubscribe you from the service permanently.
11. After the subscription is completed, raise a **Service Request (SR)** with the DFCS Tenant details and PBSMCS Tenant details to finalize the additional subscription process. The additional subscription is applicable for the existing subscribed users.

> **Note**
>
> When you are raising the SR for additional subscription process, you must provide the IDCS URL and DFCS URL details in SR details. The SR should be raised under DFCS product.

12. Once the SR is processed and confirmation is received, select the **Additional Subscription Activities Completed** check box to upload the wallet details. After this step, you will be connected to the Data Foundation Cloud Service tenant. For Wallet Upload, contact to Oracle Support.
13. Click **Submit** to complete the subscription.

After the subscription is successful, in the dashboard, expand the Application Data Service Name and verify if the ADS Pipeline Code is displayed for the services.

Figure 4-36 Data Services Subscriptions top pane

You can expand each of the Application Data Service Name to see the Name, Description, Application Entities, Number of Attributes received, and ADS pipeline code.

> **Note**
>
> ADS pipeline code is displayed only when you have subscribed for DFCS.

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4.3.4 Edit a Subscription

If you are already subscribed, then click **Edit Subscription** to edit the User Id and Password. You cannot edit IDCS URL, DFCS URL, Client Id, Client Secret, and DFCS Tenant Id as they are already populated after subscription.

To edit a Subscription, follow these steps:

1. Update the **User ID** and/or **Password** if required.
2. Click **Update Credentials** to save the changes.

For more information, see Add a Subscription.

If you are already subscribed, click **Edit Subscription** to update the User ID and Password. Note that fields such as **IDCS URL, DFCS URL, Client ID, Client Secret,** and **DFCS Tenant ID** cannot be edited, as they are mapped/ created by the admin during the initial subscription.

You can also click **Check for Extension** if extensions have been already published.

You can Unsubscribe an exiting Subscription using the **Unsubscribe** button.

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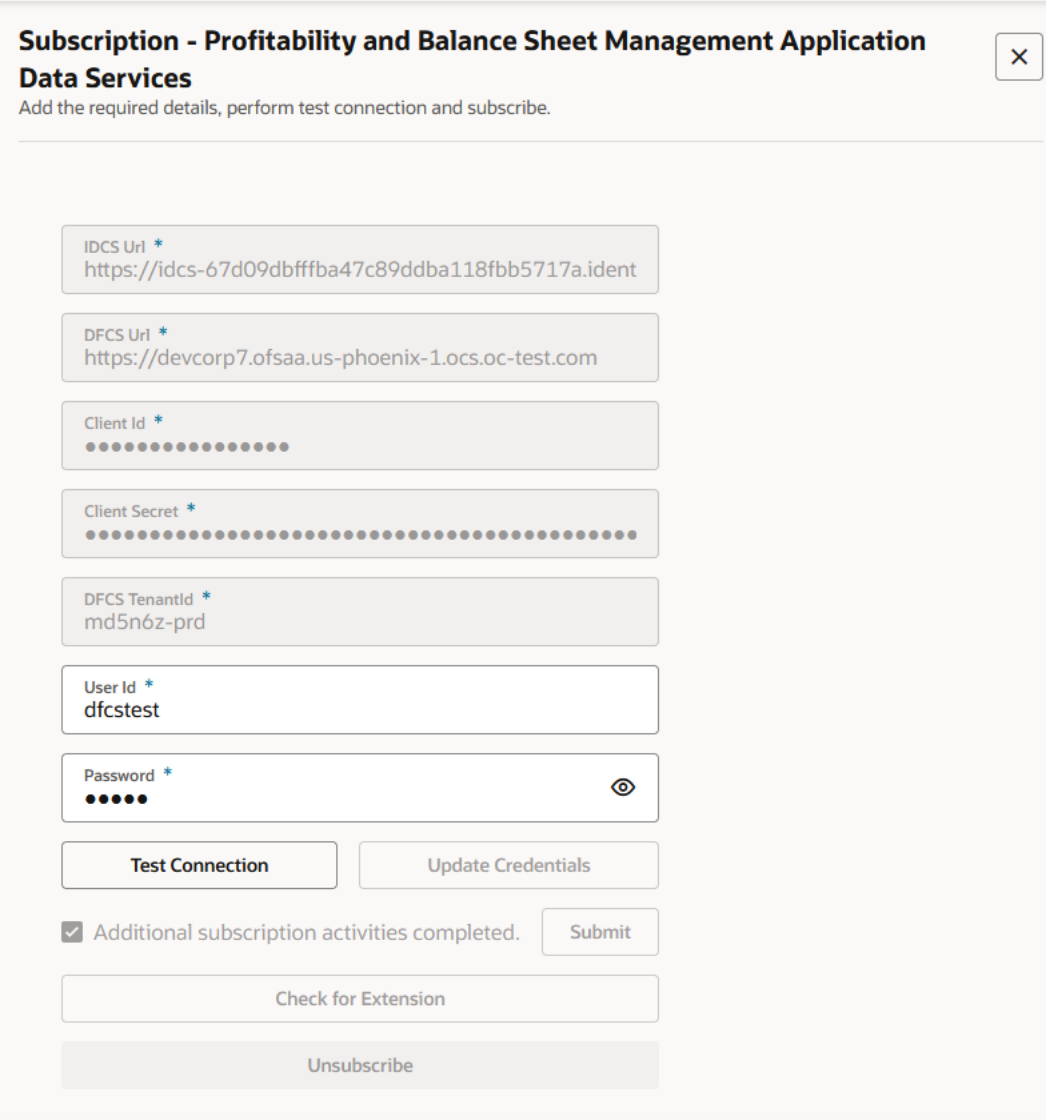
Figure 4-37 Subscription window



4.3.5 Refresh the Extension from DFCS

After subscribing to Application Data Services (ADS), you may need to apply **extensions** to include additional data elements or custom mappings. The following steps outline how to verify, extend, and execute the required processes.

Check for Extension (PBSMCS - Subscriber)

- After completing the ADS Extension in the DFCS setup, click **Check for Extension**. A confirmation message appears: **Do you want to proceed with the extension?**
- Click **Confirm** to proceed.
- Then click **Submit** to finalize the confirmation.

Refresh ADS

- Click **Extend ADS** to trigger the extension of Application Data Services.

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- This updates the existing process specific to the extensions.

4.3.6 ADS Run History

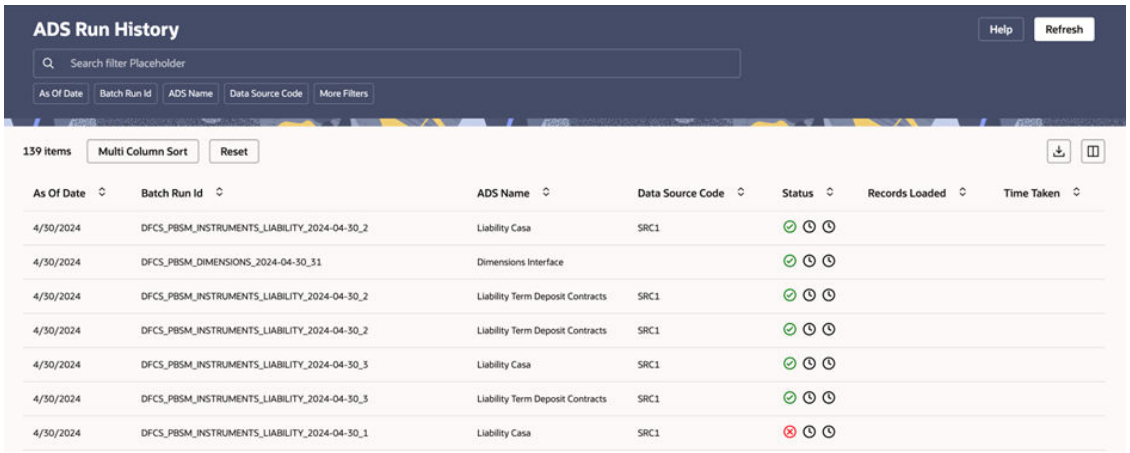
The ADS Run History provides information related to Batches that have been processed to move data from DFCS to PBSM.

> **Note**
>
> For the user to be able to see the ADS History, the user must be mapped to a group that has the required role (RLADSHISTVIEW). Role is not mapped in the OOTB set up.

To open the ADS Run History, from the LHS menu, , select **Admin Tools**, select **Data Foundation Integration**, and then select **ADS Run History**.

The ADS Run History page is displayed.

Figure 4-38 ADS Run History



This UI allows you to apply various filters namely, As Of Date, Batch Run Id, ADS Name, and Data Source Code. The default view of ADS Run History displays the mentioned details. You can click **More Filters** which are Data Load Status, Batch Name, Task Name, and Task Id to change the view from default.

You can click the icons under Status to see the status of the batch. The status displays Passed, Failed, and Pending status icons.

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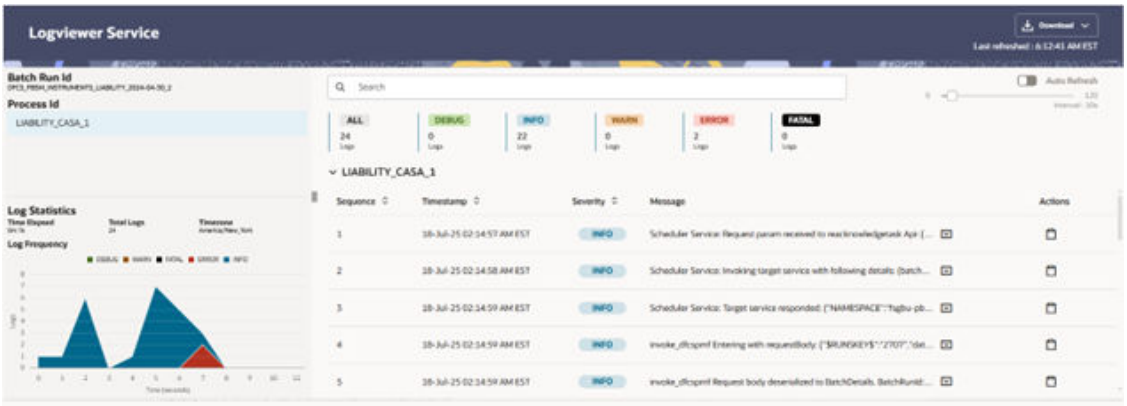
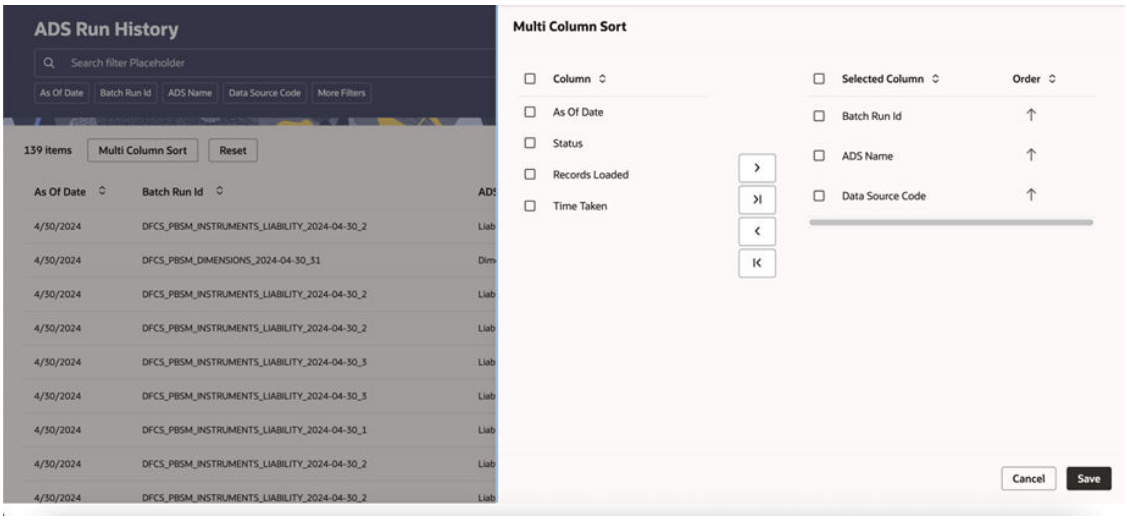
Figure 4-39 Log Viewer Service



The Multi Column Sort allows you to define different columns to be displayed in the UI.

Figure 4-40 Multi Column Sort



Select the required Columns and move them to the **Selected Columns** box and then click **Save**. You can also define the order of the column appearance by selecting ascending or descending setting the order. The ADS Run History UI displays the rows as per selection.

If you click **Reset**, all the filters, columns order will be reset and the ADS Run History UI displays the default view.

You can download the ADS Run History in Excel (.xlsx) format using the **Download** icon.

Click the **Columns** icon to select or deselect the columns you want to display in the ADS Run History data.

4.3.7 Create and Execute Batch

To create and execute the batch:

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1. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**. For more details, see Define Batch.
2. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Task**. For more details, see Adding a Task.
   Refer to the following table for Component and Parameters to be defined for different tasks.

Table 4-8 Components and Parameters

Component	Parameters	Target Tables
PBSM_DFCS_Data_Transfer_instruments	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Data File Specification Id**: This displays list of seeded and user defined DFS definitions. Select one relevant value for the selected ADS. **Data Source Id**: This displays members of 'Instrument Data Source' dimension. Select one value from LOV. Instrument data belonging to this source only will be moved from DFCS to PBSM. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage Assets Stage Liabilities Stage Derivatives Stage Fee Based Services Stage Loan Commitments Stage Off Balance Sheet
PBSM_DFCS_Data_Transfer_Dimensions	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage Dimensions Interface
PBSM_DFCS_Data_Transfer_ExchangeRates	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Rate Data Source Id**: This displays members of 'Rate Data Source' dimension. Select one value from LOV. Data belonging to this source only will be moved from DFCS to PBSM. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage Exchange Rates

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Table 4-8 (Cont.) Components and Parameters

Component	Parameters	Target Tables
PBSM_DFCS_Data_Transfer_InterestRates	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Rate Data Source Id**: This displays members of 'Rate Data Source' dimension. Select one value from LOV. Data belonging to this source only will be moved from DFCS to PBSM. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage IRC Rate History
PBSM_DFCS_Data_Transfer_InstrumentSupplementary	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Data File Specification Id**: This displays list of seeded and user defined DFS definitions. Select one relevant value for the selected ADS. **Data Source Id**: This displays members of 'Instrument Data Source' dimension. Select one value from LOV. Instrument data belonging to this source only will be moved from DFCS to PBSM. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage Account Index History Stage Account Rate Tiers Stage Embedded Options Schedule Stage Payment Schedule
PBSM_DFCS_Data_Transfer_Transaction_Summary	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Data File Specification Id**: This displays the list of DFS rules defined for a Staging table. Select one relevant value for the selected ADS. **Data Source Id**: This displays members of 'Transaction' dimension. Select one value from LOV. Instrument data belonging to this source only will be moved from DFCS to PBSM. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage Asset Transaction Stage Liability Transaction Stage Fee Based Transaction Stage Off Balance Sheet Transaction

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Table 4-8 (Cont.) Components and Parameters

Component	Parameters	Target Tables
PBSM_DFCS_Data_Transfer_Customer	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Data Source Id**: This displays members of 'Customer' dimension. Select one value from LOV. Instrument data belonging to this source only will be moved from DFCS to PBSM. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage Customer Hierarchy Stage Customer Master
PBSM_DFCS_Data_Transfer_Management_Ledger	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Data File Specification Id**: This displays the list of DFS rules defined for a Staging table. Select one relevant value for the selected ADS. **Data Source Id**: This displays members of 'Transaction' dimension. Select one value from LOV. Instrument data belonging to this source only will be moved from DFCS to PBSM. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage Management Ledger

3. Select the seeded batch and click **Edit Parameters**. In the Dynamic Parameters pop-up window, change the date to the relevant As-of-Date, and then save the batch.
4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**. For more information, see Schedule Batch.
5. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**. For more information, see Monitor Batch.
6. Select the **Batch**, **MISDATE** and the **Batch name**. Select the latest execution and click **Start Monitor**.

4.3.8 List of Seeded Data File Specifications

The following pre-defined Data File Specifications are available for your use. You can choose to use them or your own definition while creating the batch as explained in previous section.

- ADS_Account_Index_History.csv
- ADS_Account_Rate_Tiers.csv
- ADS_Asset_Bill_Contracts.csv
- ADS_Asset_Cards.csv

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- ADS_Asset_Investments.csv
- ADS_Asset_Leases_Contracts.csv
- ADS_Asset_Loan_Contracts.csv
- ADS_Asset_Overdraft_Accounts.csv
- ADS_Embedded_Options_Schedule.csv
- ADS_Fee_Based_Service_Other_Services.csv
- ADS_Ledger_Instrument_General_Ledger_Data.csv
- ADS_Liability_Borrowings.csv
- ADS_Liability_Casa.csv
- ADS_Liability_Prepaid_Cards.csv
- ADS_Liability_Term_Deposit_Contracts.csv
- ADS_Loan_Commitments_Commitment_Contracts.csv
- ADS_Payment_Schedule.csv
- ADS: Off Balance - Letter Of Credit Contracts.csv
- ADS: Off Balance - Credit Line Details.csv
- ADS: Derivative - Foreign Exchange Contracts.csv
- ADS: Derivative - Forwards Contracts.csv
- ADS: Derivative - Option Contracts.csv
- ADS: Derivative - Swaps Contracts.csv
- ADS: Off Balance Sheet Transaction Summary - Account Cost Summary.csv
- ADS: Liability Transaction Summary - Account Cost Summary.csv
- ADS: Fee Based Service Transaction Summary - Account Cost Summary.csv
- ADS: Asset Transaction Summary - Account Cost Summary.csv
- ADS: Management Ledger.csv

4.4 Data Extraction

The Data Extraction feature allows you to extract the data which can used as input for another downstream service for processing. You can download the processed/unprocessed data from processing area and make it accessible to downstream service.

This is a two-step process.

Dataset: Allows Admin to define the set of tables/columns for data extract.

Extract Data: Allows Analyst to extract the data from defined datasets.

Table 4-9 User Roles

Module Name	Role Code
Dataset	RLCADSADMIN
	RLCADSANALYST
	RLCADSAUDIT

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Table 4-9 (Cont.) User Roles

Module Name	Role Code
Export Data	RLCADEADMIN RLCADEANALYST RLCADEAUDIT

4.4.1 Datasets

The Dataset UI enables an Admin to specify the selection of tables and columns.

Datasets Summary

This page is the gateway to all Dataet Rules and related functionality. You can navigate to other pages relating to Dataset Rules from this point.

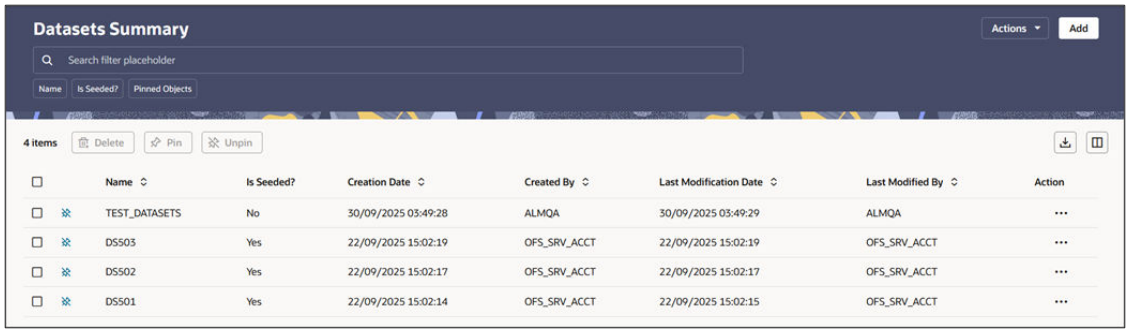
Search Dataset

Prerequisites: Predefined Dataset

To search for a Dataset:

- Enter the **Dataset Name, Is Seeded,** or **Pinned Objects** in Search Criteria and click **Search icon**.
- Rows that contain the string you are searching for are fetched and displayed in the Datasets Summary.

Figure 4-41 Datasets Summary



The Datasets Summary displays the following information:

Add: Click the Add button on the page header to build a new dataset rule.

Actions: Enables you to perform following tasks.

- **Search:** Allows to search a dataset.
- **Reset:** Clears the selected filters and refreshes the summary page.
- **Help:** Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected rule.

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Export: Enables you to download the summary page details in .CSV format.

Columns: Allows you to view the summary page data using a customized list of columns.

The Datasets summary table displays the following columns:

- **Name**: The dataset name.
- **Is Seeded**?: Shows Yes if the Dataset is seeded.
- **Created Date:** The Date and Time when the dataset was created.
- **Created By:** Displays the Name of the user who created the dataset.
- **Last Modified By:** Displays the Name of the user who last modified the dataset.
- **Last Modification Date:** The Date and Time when the dataset was last modified.
- **Actions:** Click this icon to view a list of actions that you can perform on the dataset.
  - **View:** View existing dataset Rule.
  - **Edit:** Edit existing dataset Rule. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a dataset rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete datasets that you no longer require. Note that only dataset Rule owners and those with Read/Write privileges can delete rules. A dataset Rule that has a dependency cannot be deleted. A dataset Rule cannot be retrieved after deletion.
  - **Dependency Check Information:** You can check dependencies for rules to know where a particular dataset Rule has been used. This also prevents accidental deletion of rules having dependencies. Click on the **Action** icon against the dataset Rule Name and select Dependency Check to generate a report on all Rules that utilize your selected dataset Rule.

4.4.1.1 List of Seeded Datasets

Below is the list of seeded datasets:

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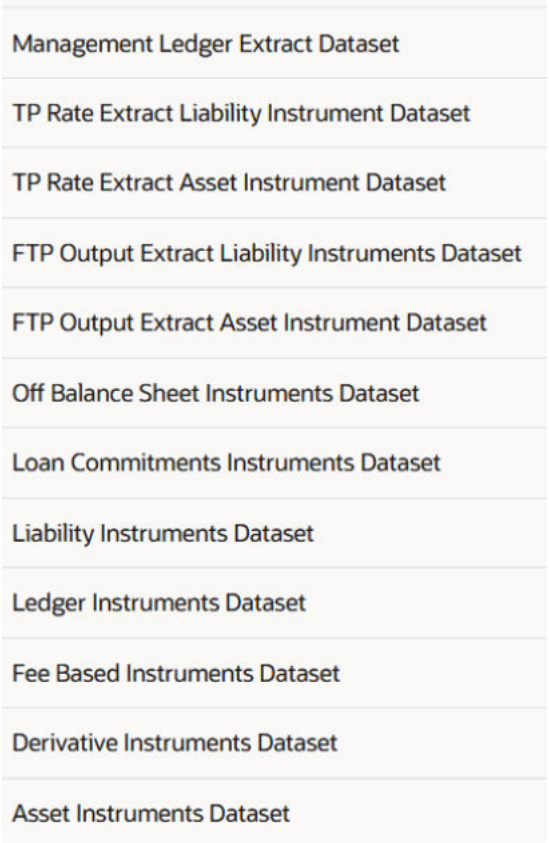
Figure 4-42 List of Seeded Datasets



4.4.1.2 Creating a Dataset

To create a dataset, follow these steps:

1. Navigate to **Datasets Summary** page.
2. Click the **Add** button. The **Dataset** window is displayed.
3. Enter the following dataset details in the **Basic Information** section:

Figure 4-43 Basic Information

- **Name:** Enter unique dataset name.
- **Description:** Enter brief description for data set.

4. Enter the following table information in the **Table Selection** section:

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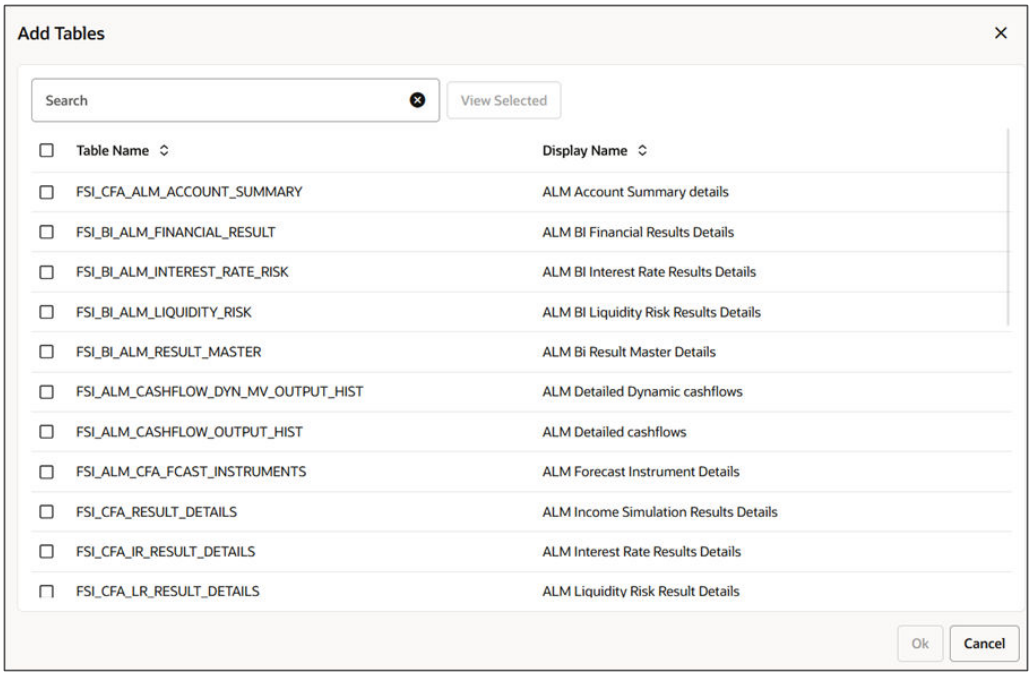
Figure 4-44 Table Selection

To add Table(s), follow these steps:

a. Click **Add** button in Tables Selection section. The **Add Tables** window is displayed.

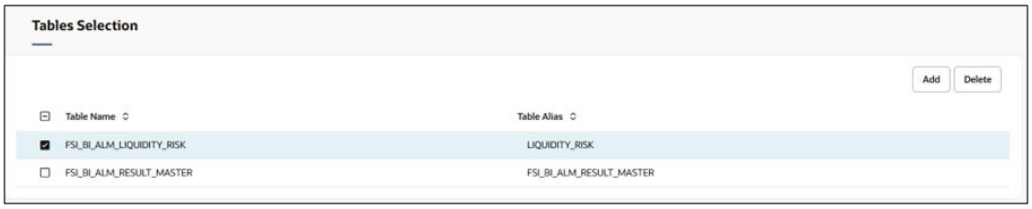
Figure 4-45 Add Tables window



b. Select the table(s). You can select multiple tables at a time. Click **View Selected** button to view the list of selected tables. Click **Ok**.

c. Edit the Table Alias as required.

Figure 4-46 Table Alias



d. You can add a table multiple times, but Table Alias should be unique, as mentioned in below:

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Figure 4-47 Table Alias

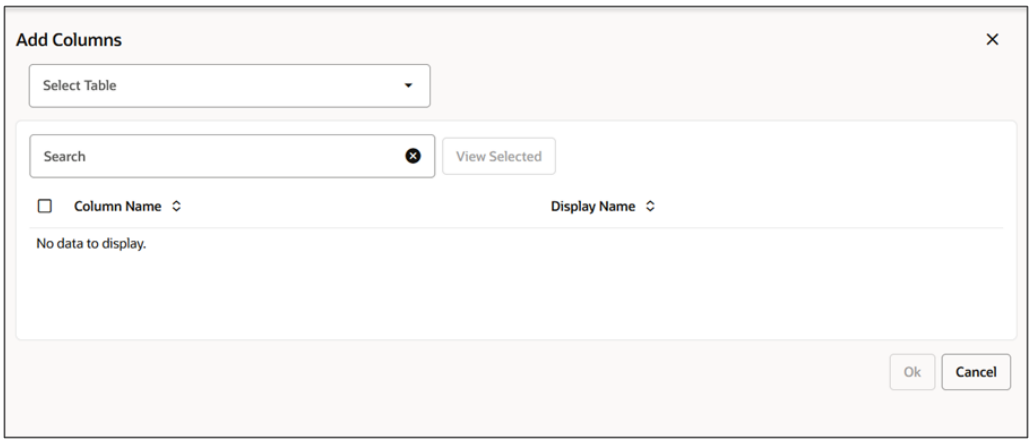
> **Note**
>
> The maximum limit of Alias is 128 characters and alias must start with a letter or underscore, and contain only letters, digits, or underscores. If the table alias is same, then an error message is displayed after clicking **Save** button.

5. Enter the following Column details of selected tables in the **Columns Selection** section:

   To add Column(s), follow these steps:

   a. Click **Add** button in **Columns Selection** section. The **Add Columns** window is displayed. Here, the list of columns is displayed based on the selected tables.

Figure 4-48 Add Columns window



   b. Select the Table. The list of columns is displayed based on selected tables from **Tables Selection** section.

   c. You can use Search feature to search the columns

   d. Select the Column(s). The Display Name can be logical name of the column.

   e. Click **View Selected** button to view the list of selected columns. Click **Ok**.

> **Note**
>
> If you change the table alias in Tables Selection section, then it gets updated in Columns Selection section automatically.

6. Update the **Other Details** section for required joins/conditions.

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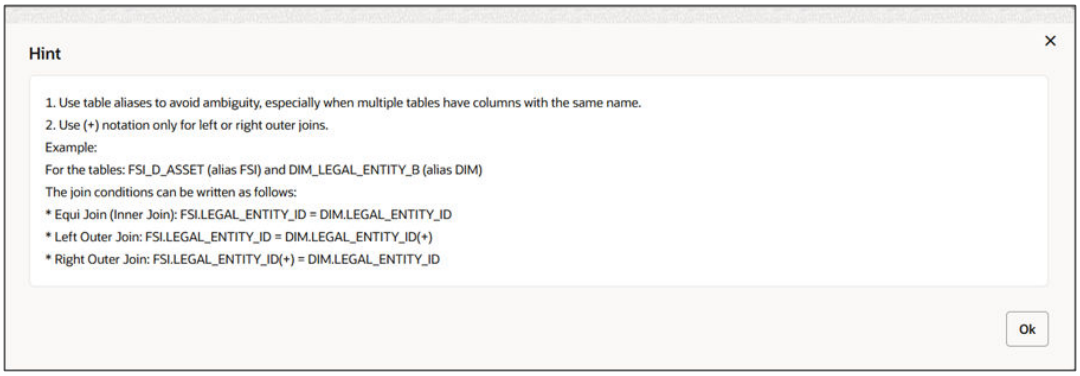
> **Note**
>
> If more than one table is selected, then it is mandatory to update the conditions in Other Details section, else an error message is displayed while saving the dataset.

You can click **Hint** icon to view the hints before defining a condition. Below is a sample of Hint:

Figure 4-49 Sample of Hint



Use filters as required.

You can click **Hint** icon to view the hints before defining a filter. Below is a sample of Hint:

Figure 4-50 Sample of Hint

7. Click **Save**.

4.4.2 Export Data

The export Data allows analyst to extract data in text format. The text format export options are CSV, JSON, Parquet, or XML.

This page is the gateway to all Export Data Rules and related functionality. You can navigate to other pages relating to Export Data Rules from this point.

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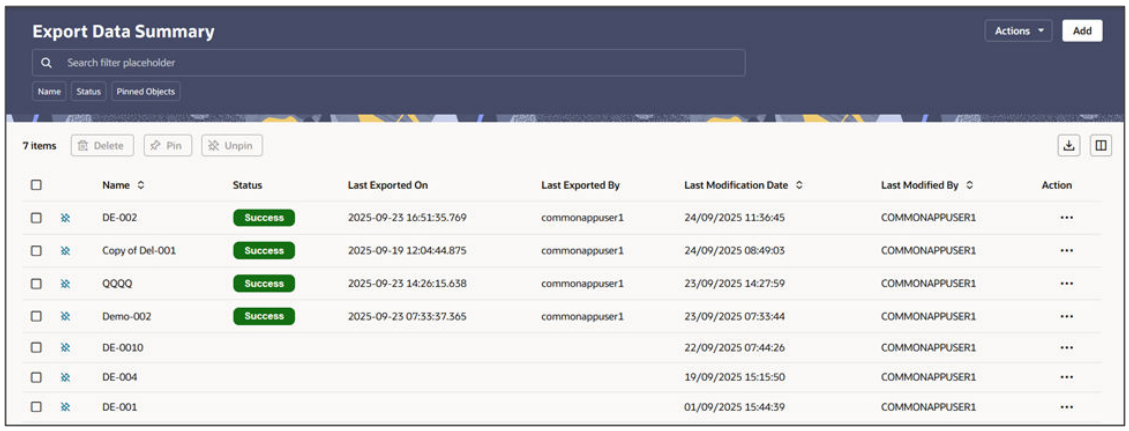
Search Export Data Rule

Prerequisites: Predefined Export Data Rule

To search for an Export Data Rule, You can search a rule is through the **Search** field. Enter the **Export Data Name, Status,** or **Pinned Objects** [IN1] in Search Criteria and click **Search icon**.

Figure 4-51 Export Data summary



Rows that contain the string you are searching for are fetched and displayed in the Export Data Summary page

The Export Data Summary displays the following information:

Add: Click the **Add** button on the page header to build a new Export Data rule.

Actions: Enables you to perform following tasks.

- **Search:** Allows you to search an Export Data rule.
- **Reset:** Clears the selected filters and refreshes the summary page.
- **Help:** Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected rule.

Export: Enables you to download the summary page details in .CSV format.

Columns: Allows you to view the summary page data using a customized list of columns.

The Export Data summary table displays the following columns:

- **Name**: The export data rule name.
- **Status**: Shows the execution status of Export Data rule as Success, Failed, or In Progress
- **Last Exported On:** The Date and Time when the Data was last exported.
- **Last Exported By:** Displays the Name of the user who last exported the data.
- **Last Modified By:** Displays the Name of the user who last modified the Export Data rule.
- **Last Modification Date:** The Date and Time when the Export Data rule was last modified.
- **Actions:** Click this icon to view a list of actions that you can perform on the Export Data rule.

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- **View:** View existing Export Data rule.
- **Edit:** Edit existing Export Data Rule. To edit a rule, you must have Read/Write privilege.
- **Save As:** You can reuse an Export Data rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
- **Delete:** You can delete rules that you no longer require. Note that only Export Data rule owners and those with Read/Write privileges can delete rules. An Export Data rule that has a dependency cannot be deleted. An Export Data rule cannot be retrieved after deletion.
- **Dependency Check Information:** You can check dependencies for rules to know where a particular Export Data rule has been used. This also prevents accidental deletion of rules having dependencies. Click on the **Action** icon against the Export Data rule Name and select Dependency Check to generate a report on all Rules that utilize your selected Export Data rule.
- **Export Data:** Select Export Data to export an existing Export Data rule.
- **View Export Details:** Select View Export Details to view export details of the rule.

4.4.2.1 Creating the Export Data Rule

To create a export data rule, follow these steps:

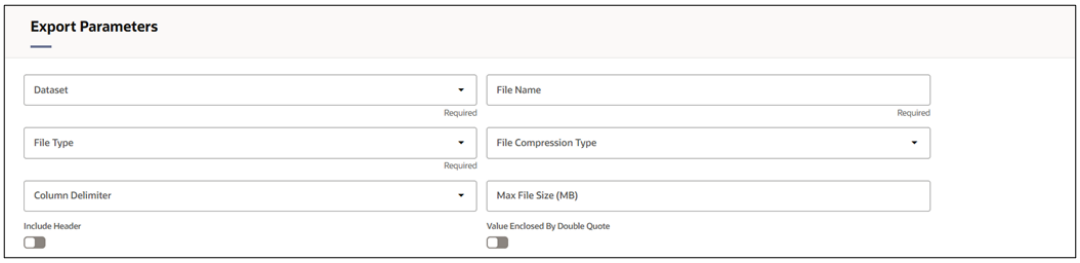
1. Navigate to **Export Data Summary** page.
2. Click the **Add** button.
3. Enter the following Export Data details in the Basic Information section:

Figure 4-52 Basic Information section

- **Name:** Enter unique export data rule name. This is a mandatory field.
- **Description:** Enter brief description of rule.

4. Enter the parameter details in the **Export Parameters** section:

Figure 4-53 Export Parameters section



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- **Dataset:** Select the Dataset which was defined in Datasets UI.
- **File Type:** Select the type of file. It can be CSV, JSON, Parquet, and XML
- **File Compression Type:** Define the compression type for the selected file. The supported File Compression Type is Gzip.
- **File Name:** Enter the logical name for table.
- **Column Delimiters:** This field is applicable if the selected file type is CSV. The supported Column Delimiters are Comma (,) and Pipe(|). You can use this to separate data within a row.
- **Max File Size:** Define the maximum file size. The minimum file size limit is 10 MB and maximum limit is 1GB.
- **Include Header:** This field is applicable if the selected file type is CSV. If this toggle is turned **ON**, then the exported CSV file will include headers for the exported table columns.
- **Value Enclosed By Double Quote:** This field is applicable if the selected file type is CSV. If this toggle is turned **ON**, then the fields will be double quoted in exported CSV file.

5. Enter the table and column details in the **Tables and Columns** section:

Figure 4-54 Tables and Columns section

To add **Table(s)** and **Column(s)**, follow these steps:

a. Click **Add** button in Tables and Columns section. The **Select Columns** window is displayed.

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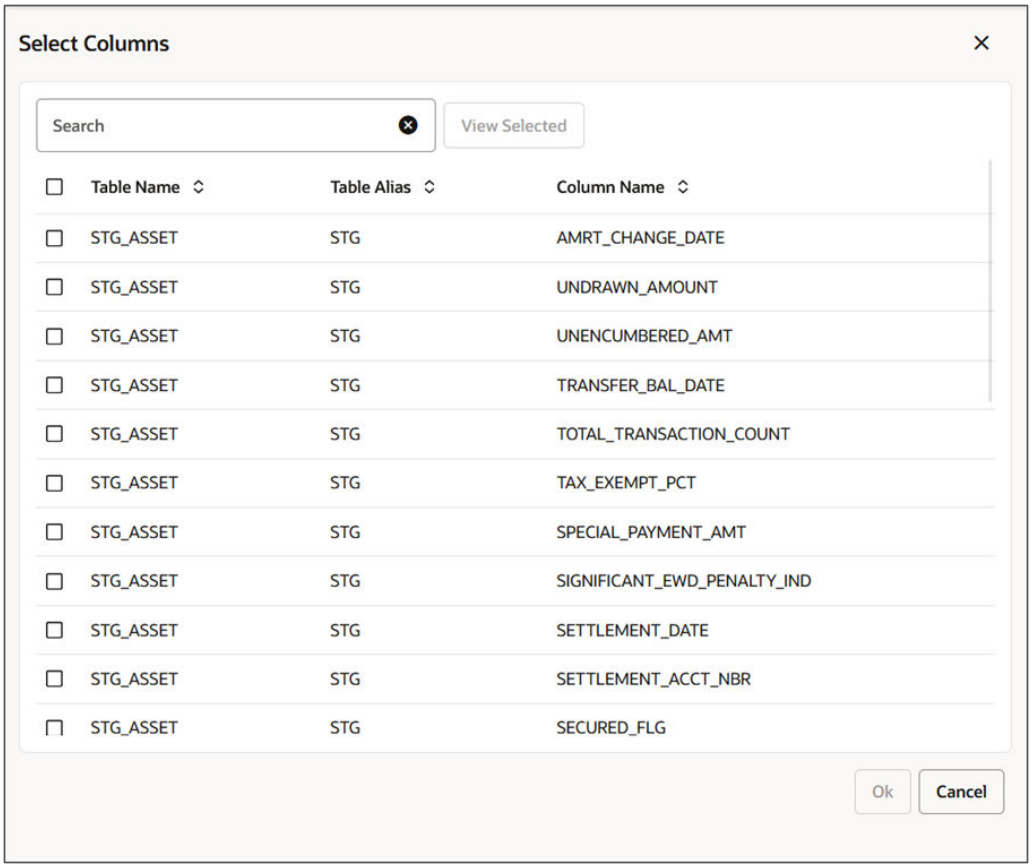
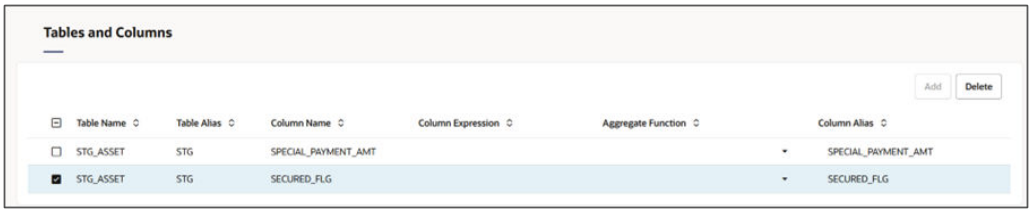
Figure 4-55 Select Columns window



b. Select the tables and columns. Click **OK**.

Figure 4-56 Tables and Columns section



c. You can edit the **Column Alias** name if required. The **Column Alias** name should be unique.

d. Add the **Column Expression**.

You can also include dynamic parameters in column expression if needed.

For example:

```
FSI_D_ASSET.ACCOUNT_NUMBER = '##ACC_VAL1##'
```

If multiple parameters are required, then separate them using commas (,). For example:

```
FSI_D_ASSET.ACCOUNT_NUMBER IN
('##ACC_VAL1##','##ACC_VAL2##','##ACC_VAL3##')
```

These dynamic parameters will be replaced with actual values during the execution through the Scheduler Service UI or Export Data UI.

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For more details, see the Exporting the Data section.

e. Define the **Aggregate Function**.

6. Update the **Other Details** section for Filters, Groups, and/or Orders.

Figure 4-57 Other Details section

- Use **filters** as required.
  You can also include dynamic parameters for Filter queries if needed.

  For example:

  ```
  FSI_D_ASSET.ACCOUNT_NUMBER = '##ACC_VAL1##'
  ```

  If multiple parameters are required, then separate them using commas (,). For example:

  ```
  FSI_D_ASSET.ACCOUNT_NUMBER IN
  ('##ACC_VAL1##','##ACC_VAL2##','##ACC_VAL3##')
  ```

  These dynamic parameters will be replaced with actual values during the execution through the Scheduler Service UI or Export Data UI.

  For more details, see the Exporting the Data section.

  You can click **Hint** icon to view the hints before defining a filter. Below is a sample of Hint:

Figure 4-58 Sample of Hint

- Use **Group By** to group the data.
  You can also include dynamic parameters for Group By queries if needed.

  For example:

  ```
  FSI_D_ASSET.ACCOUNT_NUMBER = '##ACC_VAL1##'
  ```


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If multiple parameters are required, then separate them using commas (,). For example:

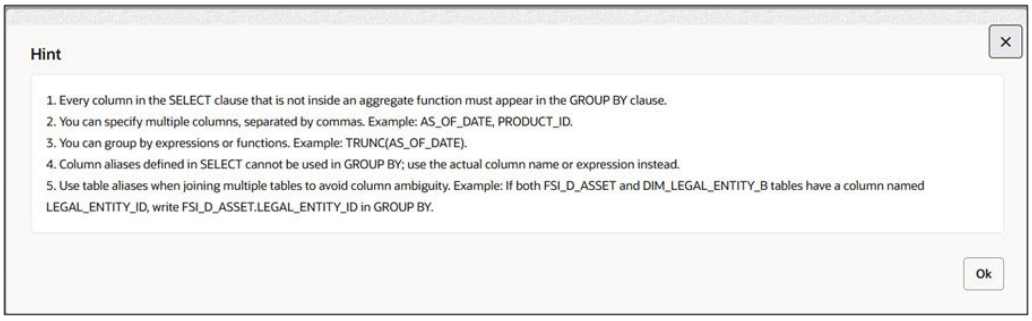
```
FSI_D_ASSET.ACCOUNT_NUMBER IN
('##ACC_VAL1##','##ACC_VAL2##','##ACC_VAL3##')
```

These dynamic parameters will be replaced with actual values during the execution through the Scheduler Service UI or Export Data UI.

For more details, see the Exporting the Data section.

You can click **Hint** icon to view the hints before defining a filter. Below is a sample of Hint:

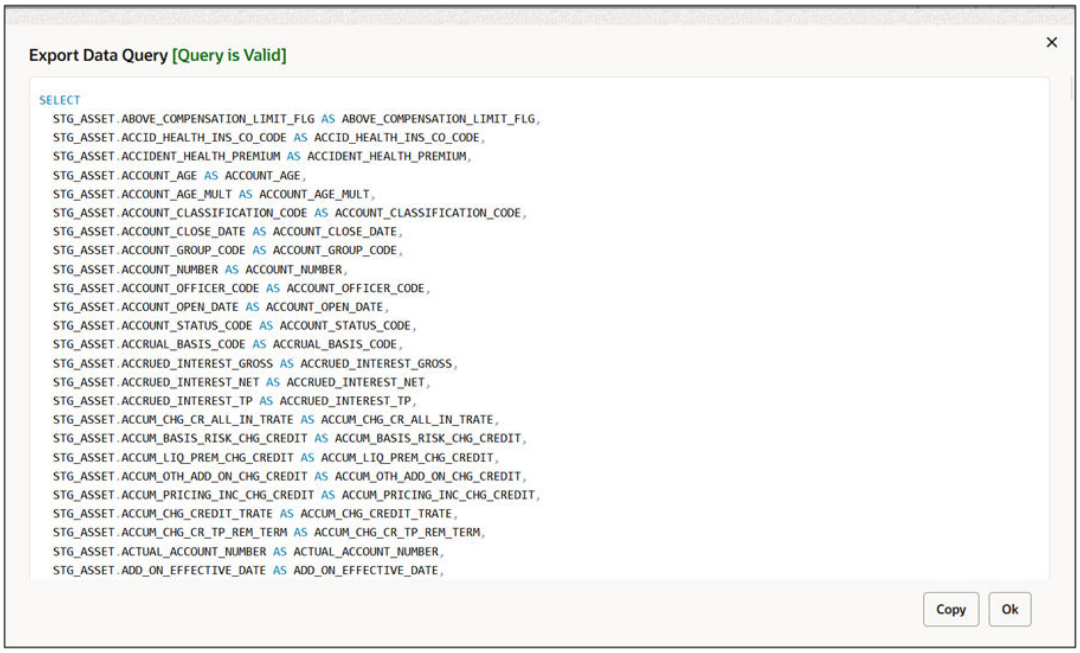
Figure 4-59 sample of Hint



- Use **Order By** to arrange the data.

7. Click **Save**. You can click **Preview Query** button to view the defined rule in query format.

Figure 4-60 Preview Query



You can copy the query using the **Copy** button. Click **Ok** to continue.

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4.4.2.2 Exporting the Data

You can export the data using the following methods:

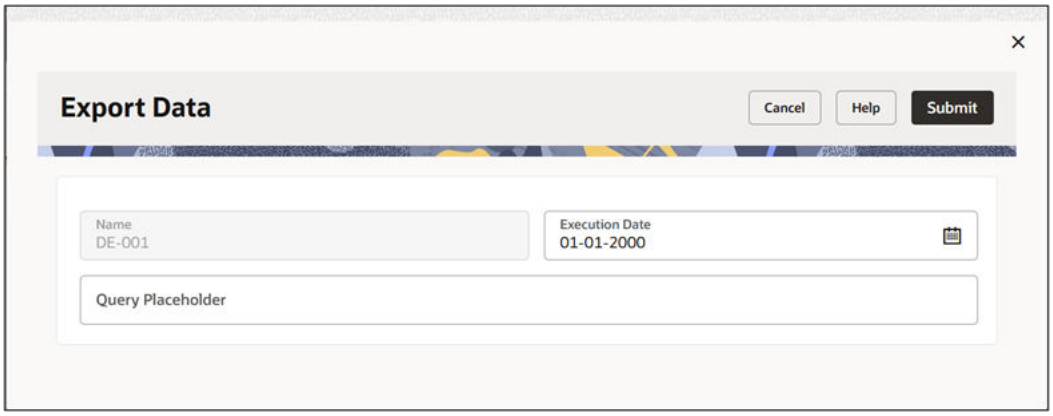
- Export Data Summary UI
- Scheduler Service

4.4.2.2.1 Using Export Data Summary UI

To Export the data, follow these steps:

1. Navigate to **Export Data Summary** page.
2. Click on the **Action** icon against the Export Data Rule Name and select Export Data to export data. The **Export Data** window is displayed.

Figure 4-61 Export Data window



3. Select the **Execution Date** . Enter the Name/Value parameters in Query Parameter field, if required. These represent the actual values for dynamic parameters. For more information, see the Other Details section.

   For example: ACC_VAL1=1, ACC_VAL2=2.

   If multiple parameters are used, then separate them with commas (,).
4. Click **Submit**. The Status of execution can be Success, Failed or In Progress.

4.4.2.2.2 Using Scheduler Service

To export the data using Scheduler Service, follow these steps:

1. Navigate to **Operations and Processes** menu, and select **Scheduler**.
2. Define a new batch.
3. Enter the Batch Name and Description, and then Save the batch.
4. To add a task, navigate to **Define Task**.
5. Select the Batch from Batch drop-down list on **Define Task** window.
6. Click the **Add** button.
7. Define the Task Code, Task Name, and Description.

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8. Select Components as “**Data Extraction**”.Input the following mandatory parameters:
   - **Export Data Name:** Select the Export Data rule from drop-down list.
   - **Query Placeholder:** Enter the Name/Value parameters in this field. These represent the actual values for dynamic parameters. For more information, see the Other Details section.
     For example: ACC_VAL1=1, ACC_VAL2=2.

     If multiple parameters are used, then separate them with commas (,).
9. Save and Execute the batch with Batch ID and MIS Date.

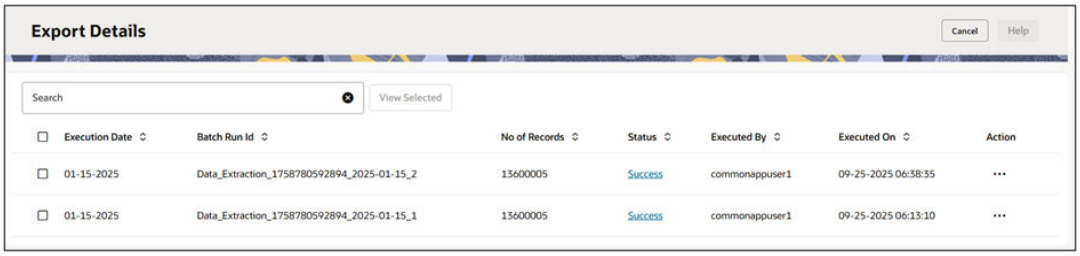
   For more information, see the Scheduler Service.

4.4.2.3 Viewing Export Details

To view the data export details, follow these steps:

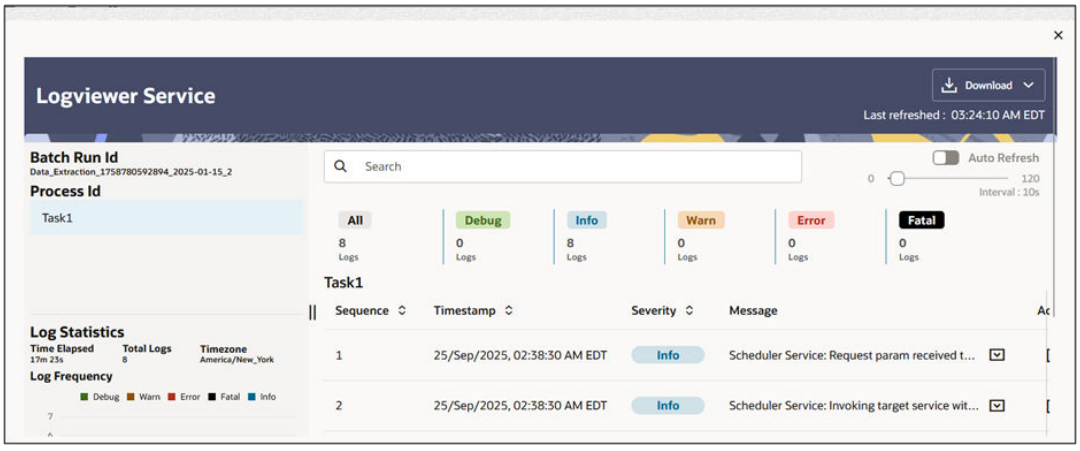
1. Navigate to **Export Data Summary** page.
2. Click on the **Action** icon against the Export Data Rule Name and select **View Export Details**. The **Export Details** window is displayed.

Figure 4-62 Export Details window



3. Click any **Status** to view the log details. The **Log Viewer Service** window shows the complete details of data export along with Batch Run ID Information.

Figure 4-63 Log Viewer Service Window



4. Following two options are available for download:
   - **Download Manifest:** Manifest file contains the export details in JSON format.

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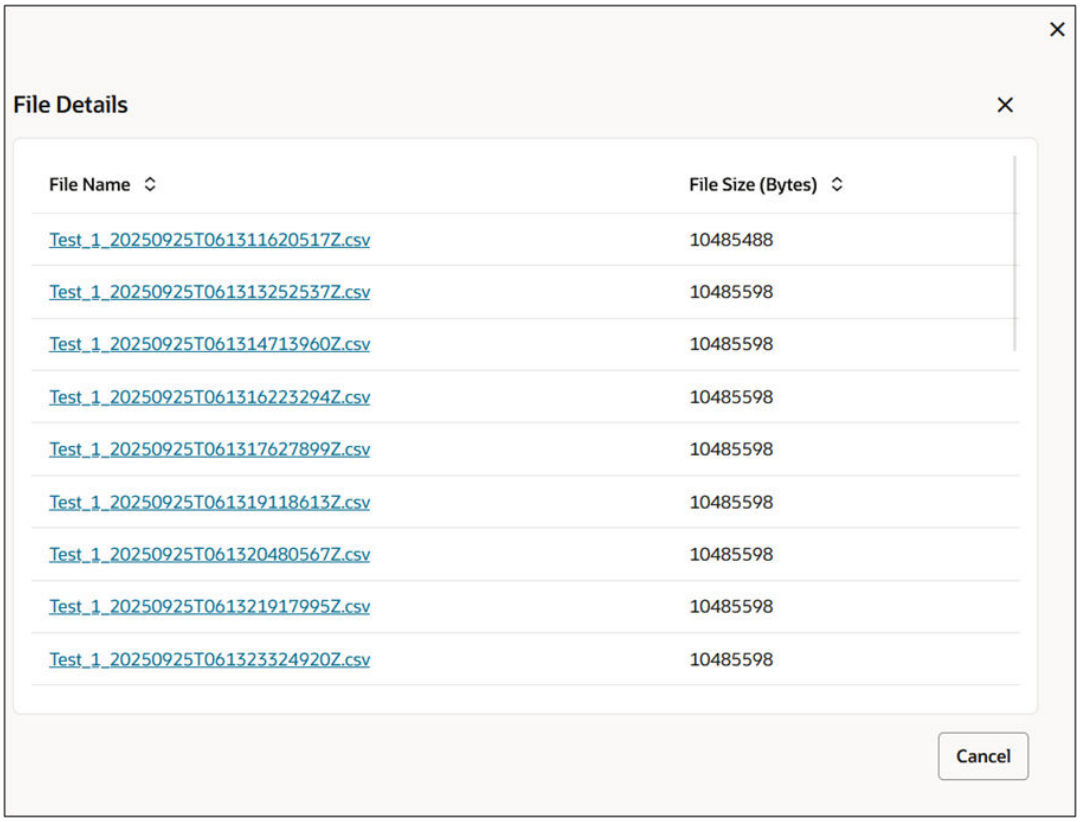
- **Download Files:** Allows you to download the exported files.

Figure 4-64 Download Options



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5

On-prem to SaaS Migration

You can migrate data and metadata from a Source on-premise instance to a Target Profitability and Balance Sheet Management Cloud Service.

Topics:

- Introduction to On-prem to SaaS Migration
- Part 1 - Metadata Migration
- Part 2 - Data Migration
- Pre-mapped Dimensions for Migration
- Deprecated Columns in Data Tables

5.1 Introduction

Introduction to On-Premise to SaaS migration

You can migrate data and metadata from a Source on-premise instance to a Target Profitability and Balance Sheet Management Cloud Service.

This migration comprises :

- Metadata Migration - to migrate the supported metadata (Configuration, Rules and Processes).
- Data Migration - to Migrate Data from Supported tables.

5.1.1 Supported Applications

List of Supported Applications

Currently, this migration utility supports Oracle Financial Services Profitability Management and Funds Transfer Pricing.

In future, Oracle will support Oracle Financial Services Asset Liability Management.

5.1.2 Supported Data Tables

List of Supported Data Tables

Table 5-1 Supported Data Tables

Table Type	Source Name	Target Table Name
Instrument	FSI_D_BORROWINGS	FSI_D_LIABILITY
Instrument	FSI_D_LOAN_CONTRACTS	FSI_D_ASSET
Instrument	FSI_D_OTHER_SERVICES	FSI_D_FEE_BASED_SERVICE
Instrument	FSI_D_TERM_DEPOSITS	FSI_D_LIABILITY
Instrument	FSI_D_TRUSTS	FSI_D_FEE_BASED_SERVICE

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Table 5-1 (Cont.) Supported Data Tables

Table Type	Source Name	Target Table Name
Instrument	FSI_D_INVESTMENTS	FSI_D_ASSET
Instrument	FSI_D_MUTUAL_FUNDS	FSI_D_FEE_BASED_SERVICE
Instrument	FSI_D_ANNUITY_CONTRACTS	FSI_D_LIABILITY
Instrument	FSI_D_CREDIT_CARDS	FSI_D_ASSET
Instrument	FSI_D_MM_CONTRACTS	FSI_D_ASSET
Instrument	FSI_D_ASSET_BACK_SEC	FSI_D_ASSET
Instrument	FSI_D_CREDIT_LINES	FSI_D_ASSET
Instrument	FSI_D_LEDGER_STAT_INSTRUMENT	FSI_D_LEDGER_INSTRUMENT
Instrument	FSI_D_MORTGAGES	FSI_D_ASSET
Instrument	FSI_D_RETIREMENT_ACCOUNTS	FSI_D_LIABILITY
Instrument	FSI_D_GUARANTEES	FSI_D_OFF_BALANCE_SHEET
Instrument	FSI_D_MERCHANT_CARDS	FSI_D_FEE_BASED_SERVICE
Instrument	FSI_D_ACCOUNT_RATE_TIERS	FSI_D_ACCOUNT_RATE_TIERS
Instrument	FSI_D_BREAK_FUNDING_CHARGES	FSI_D_BREAK_FUNDING_CHARGES
Instrument	FSI_D_LEASES	FSI_D_ASSET
Transaction Profitability	FSI_D_OTHER_SERVICES_TXNS	FSI_D_FEE_BASED_SERVICE_TXNS
Transaction Profitability	FSI_D_MERCHANT_CARDS_TXNS	FSI_D_FEE_BASED_SERVICE_TXNS
Transaction Profitability	FSI_D_MUTUAL_FUNDS_TXNS	FSI_D_FEE_BASED_SERVICE_TXNS
Transaction Profitability	FSI_D_RETIREMENT_ACCTS_TXNS	FSI_D_LIABILITY_TXNS
Transaction Profitability	FSI_D_INVESTMENTS_TXNS	FSI_D_ASSET_TXNS
Transaction Profitability	FSI_D_BORROWINGS_TXNS	FSI_D_LIABILITY_TXNS
Transaction Profitability	FSI_D_GUARANTEES_TXNS	FSI_D_OFF_BALANCE_SHEET_TXNS
Transaction Profitability	FSI_D_LEASES_TXNS	FSI_D_ASSET_TXNS
Transaction Profitability	FSI_D_ANNUITY_TXNS	FSI_D_LIABILITY_TXNS
Transaction Profitability	FSI_D_MORTGAGES_TXNS	FSI_D_ASSET_TXNS
Transaction Profitability	FSI_D_CASA_TXNS	FSI_D_LIABILITY_TXNS
Transaction Profitability	FSI_D_LOAN_CONTRACTS_TXNS	FSI_D_ASSET_TXNS
Transaction Profitability	FSI_D_MORTGAGE_BACK_SEC_TXNS	FSI_D_ASSET_TXNS
Transaction Profitability	FSI_D_TRUSTS_TXNS	FSI_D_FEE_BASED_SERVICE_TXNS
Transaction Profitability	FSI_D_TERM_DEPOSITS_TXNS	FSI_D_LIABILITY_TXNS
Transaction Profitability	FSI_D_CREDIT_LINES_TXNS	FSI_D_ASSET_TXNS
Transaction Profitability	FSI_D_CREDIT_CARDS_TXNS	FSI_D_ASSET_TXNS
Transaction Profitability	FSI_D_MM_CONTRACTS_TXNS	FSI_D_ASSET_TXNS
Derivative Instruments	FSI_D_FORWARD_RATE_AGMTS	FSI_D_DERIVATIVE
Derivative Instruments	FSI_D_FX_SWAPS	FSI_D_DERIVATIVE
Derivative Instruments	FSI_D_SWAPS	FSI_D_DERIVATIVE

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Table 5-1 (Cont.) Supported Data Tables

Table Type	Source Name	Target Table Name
Derivative Instruments	FSI_D_FUTURES	FSI_D_DERIVATIVE
Derivative Instruments	FSI_D_CAPFLOORS	FSI_D_DERIVATIVE
Derivative Instruments	FSI_D_FX_CONTRACTS	FSI_D_DERIVATIVE
Rate Card Products	FSI_D_PM_GENERATED_INSTRMTS	FSI_D_PM_GENERATED_INSTRMTS
Commitments	FSI_D_LOAN_COMMITMENTS	FSI_D_LOAN_COMMITMENTS
Interest rate curve	FSI_IRC_RATE_HIST	FSI_IRC_RATE_HIST
Payment Schedule	FSI_D_PAYMENT_SCHEDULE	FSI_D_PAYMENT_SCHEDULE
Exchange Rate	FSI_EXCHANGE_RATE_HIST	FSI_EXCHANGE_RATE_HIST
Volatility Curves	FSI_IRC_VOLATILITY_RATE_HIST	FSI_IRC_VOLATILITY_RATE_HIST
Economic Indicators	FSI_ECO_IND_HIST_RATES	FSI_ECO_IND_HIST_RATES
Ledger Class	FSI_D_MANAGEMENT_LEDGER	FSI_D_MANAGEMENT_LEDGER

5.1.3 Supported Migration Object Types

List of Supported Migration Object Types

The supported Migration object types are:

Common Objects

- Attribute Filter
- Currency
- Currency Rates
- Data Filter
- Dimensions - Members and Attributes
- Expressions
- Group Filter
- Hierarchies
- Hierarchy Filter
- Holiday Calendar
- Interest Rate Curve

PFT

- Allocation Model
- Allocation Specification
- Static table Driver

FTP

- Add-on Rate Rule
- Rate lock Volatility curve

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> **Note**
>
> This will be migrated along with the interest rate curves.

- Standard Process

> **Note**
>
> Prepayment Rule and Alternate Rule must be migrated manually.

- Transfer Pricing Rule

> **Note**
>
> Replicating Portfolio must be migrated manually.

5.2 Metadata Migration

Introduction about Metadata Migration

Metadata migration utility helps to migrate business configurations, rules and assumptions from an on-premise OFSAA environment to SaaS environment. This helps to reduce the migration time and also complete the migration efficiently.

5.2.1 On-Premise Tasks

On-Premise to SaaS Migration involves configuring Map Dimensions and Map tables, and creating and exporting metadata and data objects in the Source/On-Premise setup.

Complete the following tasks in the sequential order, in the On-Premise/Source setup:

1. Prerequisites
2. SaaS Migration Planner Configuration Tasks
3. SaaS Migration Planner Export Tasks

5.2.1.1 Prerequisites

Prerequisites for On-Premise environment

User Groups

Ensure that the users are assigned to the following appropriate user groups:

- **Object Export Administrator**-View, edit and delete Map Dimensions, Map Tables and Object definitions.
- **Object Export Analyst**-View the details of Map Dimensions, Map tables and Object definitions.

On-Premise Environment Specific Prerequisites

- The source/On-Premise environment hosting the licensed and supported OFSAA Applications, must be on v8.0.7.8.0 or later.

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- Optional (Recommended). If the Licensed Applications are installed on different OFSAA Instances, merge all the instances existing in the same information domain into a single OFSAA Instance. This will ensure that there are no duplicate Object IDs across various source instances, during migration. For assistance, contact Oracle Support.
- Apply the patch **36768686**.

5.2.1.2 Accessing Map Dimensions and Map Tables

Use the Configuration window to define and manage the Map Dimensions and Map tables.

To access the **Configuration window**:

1. Login to the On-Premise setup with valid credentials. Ensure that you have the User Groups assigned to perform On-Premise to SaaS Migration.
2. In the LHS Navigation list, click **Common Object Maintainance** > **Object Administration** > **SaaS Migration Planner** > **Configuration**.

   The list of pre-existing (seeded and manually created) Dimension Mappings and Instrument Mappings, are displayed. Access the following tabs to create and manage Dimension Mappings and Instrument Mappings.

   - Map Dimensions Tab
   - Map tables Tab

5.2.1.2.1 Map Dimensions

Map Dimensions tab includes the list of existing Dimension Mappings.

Ensure that you have the User Groups assigned to perform On-Premise to SaaS Migration.

To access the Map Dimensions tab from the Configuration window :

1. Click **Map Dimensions**.

   All the Dimension Mappings created in the specific environment are displayed with the following details:

   - **Source Dimension**-The dimension present in the Source/On-Premise setup.
   - **Target Dimension**-The Target dimension mapped to a specific Source dimension.
   - **Key Dimensions**-Indicates if the selected Target Dimension is a key dimension.
   - **Export Dimension**-Indicates the Export Status of the specific Dimension.
   - **Mapping Type**-Indicates if the selected Dimension Mapping is a SystemDimension Mapping or a Custom Dimension Mapping.
     - **System** - Pre-seeded Dimension Mappings.
     - **Custom**-Created by the user. For more information, refer to Adding a new Dimension Mapping.
   - **Action**
     - **View**-View the details of a specific Dimension Mapping.
     - **Edit**-Modify the Source and Target Dimension and also the Export Dimension status. For a system Dimension Mapping, you can only change the Export Dimension status. The Source and the Target dimensions are non-editable.
     - **Delete**-Delete the selected Dimension Mapping. You cannot delete a System Dimension Mapping.

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2. To search for a specific entry, enter a keyword in the **Search box**.

   Click **Search Settings**, to filter the search columns. The specified search criteria are displayed in the Search box, based on the set filter.

5.2.1.2.1.1 Adding a New Dimension Mapping

Create a Dimension mapping to link a source dimension present in the On-Premise setup, to a target dimension in the SaaS setup.

Ensure that you have the User Groups assigned to perform On-Premise to SaaS Migration.

To add a new Dimension mapping:

1. Click **Add**, in the Configuration window.
2. Select the following Details, in the **Add Dimension Mapping** pop-up window:
   - **Source Dimension**-Select the Source Dimension in the On-Premise environment.
   - **Target Dimension**-Select the Target Dimension in the SaaS environment.
   - **Export Flag**-Select **Yes** to export the Mapped Dimension.

   > **Note**
   >
   > For a complete list of exportable Pre-seeded Dimensions, refer Pre-mapped Dimensions for Migration.

3. Click **Save**.

   The new mapping is added to the Dimension Mappings Summary.

5.2.1.2.2 Map Tables

Map tables tab includes the list of existing Instrument Mappings.

Ensure that you have the User Groups assigned to perform On-Premise to SaaS Migration.

To access the Map tables tab from the Configuration window:

1. Click **Map tables**.

   All the Instrument Mappings created in that environment are displayed with the following details:
   - **Table Type**-The table type.
   - **Source Table**-The table present in the Source/On-Premise setup.
   - **Target Table**-The Target table mapped to a specific Source Dimension.
   - **Mapping Type**-Indicates if the selected table is a System or a Custom table.
     - **System**-Pre-seeded table.
     - **Custom**-Created by the user. For more information, refer to Adding new Instrument Mapping .
   - **Mapped Columns Count**-The number of columns mapped in the selected table and the total number of columns.
   - **Action**
     - **View**-View the details of a specific Instrument Mapping.

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- **Edit**-Modify the Source and Target table. For a System Instrument Mapping, the Source and the Target tables are non-editable.
- **Delete**-Delete the selected Instrument Mapping. You cannot delete a Pre-seeded Instrument Mapping

2. To search for a specific entry, enter a keyword in the **Search box**.

   Click **Search Settings**, to filter the search columns. The specified search criteria are displayed in the Search box, based on the set filter.

5.2.1.2.2.1 Adding a New Instrument Mapping

To migrate the tables from On-Premise to SaaS environment, map the source's table and columns to the respective table and columns of the destination.

Ensure that you have the User Groups assigned to perform On-Premise to SaaS Migration.

To add a new Instrument mapping,

1. Click **Add**.
2. Select the following details, in the **Table Mapping** pane.
   - **Table Type** - Table classification.
   - **Source Table** - Instrument and ledger tables in the On-Premise setup.
   - **Target Table** - Instrument and ledger tables in the SaaS setup.

   > **Note**
   >
   > The seeded tables are already mapped and can't be changed.

3. Select the Source and Target columns, in the **Column Mapping** pane.

   > **Note**
   >
   > You can modify the source and column mapping only for custom table mappings.

   Click **Search Settings**, to filter the search columns. The specified search criteria are displayed in the Search box, based on the set filter.

   Click **Show Unmapped Rows**, to view the rows that require mapping.
4. Click **Save** to create a new Instrument Mapping.

   The new mapping is added to the Instrument Mappings Summary.

5.2.1.3 Export Definitions

Create and configure Export Definitions from Export screen.

To access the Export Definition Summary:

1. Log in to the On-Premise setup with valid credentials. Ensure that you have the User Groups assigned to perform On-Premise to SaaS Migration.
2. In the LHS Navigation list, click **Common Object Maintenance** > **Object Administration** > **SaaS Migration Planner** > **Export**, to access the **SaaS Migration Planner-Export** window.

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The **Export Object Summary** screen includes the export object definitions, with the following details:

- **Name**-The Export Definition name.
- **Application**-The application associated with the Export Definition.
- **Export Status**-The migration status of the Export Definition.
  - **Export Completed**
  - **Archive to be refreshed**
  - **Export has not started**
- **Created By**-The login name of the user who created this object migration.
- **Creation Date**-Export Definition creation date.
- **Last Exported On**-The Last Exported Date.
- **Action**
  - **View**-View the details of a specific Export Definition.
  - **Edit**-Modify the Name and the Object types.
  - **Create/Refresh Archive**-Refresh the archived file for a Exported Object.
  - **Download Archive**-Download the archive file for an ExportedDefinition to a Local Directory. Import this archive file to your SaaS environment, for importing the Metadata objects.
  - **View Log**-View the Export log details.
  - **Delete** - Delete the selected Export Definition.

5.2.1.3.1 Creating a New Export Definition

An Export definition includes multiple objects of different object types that you can migrate from the On-Premise to SaaS environment.

Ensure that you have the User Groups assigned to perform On-Premise to SaaS Migration.

To create a new export definition:

1. Click **Add**.
2. Select/enter the following **Export Definition** details.
   - **Name** - The unique identifier for the Export definition.

     > **Note**
     >
     > The special characters - **~`!@#%^*()+=|:;\"<>'?/** are not allowed.

   - **Application** - The application for adding the object types to the definition.
     The object types included in the application are listed in the **Object Types** pane.
   - **Description** - The detailed description of the export definition.
3. Include the required Object Types to the export definition.

   When you add an object type, all the dependent objects in the hierarchy are also included. But, when you remove an object type, you must remove the dependent objects manually.

   You can add/remove all the objects associated with the listed object types.

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To add/remove objects for a specific object type, click **Action** and select the required option.

- **Add all Objects**
- **View and Select Objects**
- **Remove all Objects**

4. Click **Save** to create a new Export definition.

   The new definition is added to the Export definition Summary.

5.2.2 Import Legacy Object

Add the archived file from the Local Directory and import the metadata objects to the SaaS environment.

To download the Archive Files to Target (SaaS) environment:

1. Prerequisites
2. Accessing Import Summary page
3. Import Archive file
4. Import Meta data Objects
5. Verify import status

5.2.2.1 Prerequisites

Prerequisites for Target (SaaS) environment

User Groups

Ensure that the users are assigned to **Onprem Migration Admin** Group.

5.2.2.2 Accessing Import Summary

All the archive files added to the SaaS environment are displayed.

To access the Import Summary:

1. Login to the SaaS environment with valid credentials. Ensure that you are assigned to **Onprem Migration Admin** group, to trigger the On-Premise to SaaS Migration.
2. In the LHS Navigation list, click **Operation and Processes** > **Object Administration** > **Import Legacy Object**.

   All the archives created in the specific environment are displayed with the following details:

   - **Name**-The Export Definition Name.
   - **Version**-The version of a specific export definition. When the same archive file is downloaded more than once a new version is created and added to the Import Summary page.
   - **Status**-The import status of a export definition.
     - **Ready to Import**
     - **Ongoing**
     - **Completed**

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  - **Cancelled**
- **Import Initiated On**-The date and time at which the import began.
- **Import Completed On**-The date and time at which the import was completed.
- **Action**
  - **Details**-View the details of a specific Export Definition archive.

3. To search for a specific entry, enter a keyword in the **Search box**.

   Click **Search Settings**, to filter the search columns. The specified search criteria are displayed in the Search box, based on the set filter.

5.2.2.3 Importing Archive File

Import the archive file from the Local Directory, to import the Metadata objects to the SaaS environment.

Ensure that you are assigned to **Onprem Migration Admin** group, to trigger the On-Premise to SaaS Migration..

To download archive file, from the Import Summary page:

1. Click **Import New Archive**, to access the **Import New** pane.
2. Click **Browse** and select the archive file required for Metadata Import, from theLocal Directory.
3. Click **Upload**.

   The archive file is included to the list of archives, in the Import Summary page.

5.2.2.4 Importing Metadata Objects

Import Metadata Objects, using the archive files added to the SaaS environment.

To import the Metadata Objects, from the **Import Summary**.

1. Click **Action** and **Details**, adjacent to the archive, to access the **Object Details**.

   The list of Object Types included are listed with the following information:

   - **Object Type**
   - **# of Objects**
   - **# of Imported**
   - **# of Failed**
   - **# of Skipped**
   - **Status**
   - **Details**
2. You can perform the following tasks in the Object Details pane:
   - Click **Details**, to view the Import Status of a specific Object Type.
   - Click **Cancel All** in the **Object Details** pane, to abort the import of all the objects.
3. After importing all the objects, click **Complete**, to update the status of the specific Object Type in the Import Summary.

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5.2.2.5 Import Status

All the Metadata Objects included in archive, under a specific object type are displayed.

To view the import status of the Metadata Objects:

1. In the Object Details pane, click **Details**, to view the Import Status of a specific Object Type.

   All the objects included in the archive, under a specific object type are listed.

   - Source Definition Code
   - Source Definition Name
   - Import Status
   - Destination Definition Code
   - Retry
   - Skip
2. To filter and view the objects based on the Import status, select one of the following **Filter** options:
   - Not Started
   - Ongoing
   - Completed
   - Failed
   - Skipped
3. Enable **Overwrite object if already Exist**, to replace an object with the same Source Definition Name.
4. You can perform the following tasks:
   - To import all the objects, click **Start Import**.
   - To restart the import of an object with **Failed**status, click **Retry** adjacent to that object.
   - To retry the import of all the objects, click **Restart all Import**.
   - To skip the import of an object with **Failed**status, click **Skip** adjacent to that object.
   - To skip the import of all the objects, click **Skip all Import**.

5.3 Data Migration

Data Object Migration involves moving all the user details, seeded and custom tables, from On-premise to SaaS environment.

Complete the following tasks sequentially, for a successful Data Migration:

1. Complete the Prerequisites
2. Update the Properties file with the required user, table and column details, and filter conditions.
3. Export/re-export the data from On-premise environment.
4. Import the data to SaaS environment.

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5.3.1 Prerequisites

Prerequisites for exporting and importing Data Objects.

Prerequisites for Export

Complete the following tasks before exporting the Data Objects from the On-Premise environment:

- Create a Physical Directory in the Database Server with sufficiently large disk space to hold the exported data files (.CSV files), in the UNIX environment.
  Example: `mkdir '/home/ofsa_export_dir'`

  > **Note**
  >
  > Using `CHMOD` command, give Write permission to Oracle Processes , for the new physical directory.
  > Example : `chmod -R 777 /home/ofsa_export_dir`

- Log in to the Database with SYS Privileges and execute the following tasks in SQLPLUS command.
  - Create a Database Directory pointing to the Physical Directory.
    Example: `create or replace directory OFSA_EXPORT_DIR as '/home/ofsa_export_dir'.`
  - Grant the `INFODOM-SCHEMA-USER` write permissions to `OFSA_EXPORT_DIR`.
    Example `GRANT READ, WRITE ON DIRECTORY OFSA_EXPORT_DIR TO <INFODOM-SCHEMA-USER>;`

Prerequisites for Import

After exporting the data from the On-Premise environment, complete the following tasks:

> **Note**
>
> The following steps are required only if the physical directory is not a shared mount.

- Archive all the generated `CTL` and `CSV` files and the archive file name should be **`ofsa_export_dir.zip`**.
  Example - `zip -r ofsa_export_dir.zip ofsa_export_dir`
- Move generated `ofsa_export_dir.zip` from Database Server to `$FIC_HOME/utility/Data_Export_to_SaaS/data_dumps` directory in the On-Premise environment.

5.3.2 Properties Files

Properties file used in the On-Premise to SaaS migration contain the user input details. You can also configure the tables to be exported.

The OFSAA Administrator must update all the required details in the following properties file, before initiating the migration.

1. user-input.properties

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2. pbsm_export_table.properties
3. pbsm_export_table_filter.properties

5.3.2.1 User-input.properties

The User-input.properties file is located in `<$FIC_HOME>/utility/Data_Export_to_SaaS/conf` directory. The properties details are:

Table 5-2 Properties File Details

Field Name	Details
INFODOM	Information domain name of the On-premise environment.
DB_SERVER_DIRECTORY_NAME	Database server directory created using the SQLPLUS command. For more information refer to , Prerequisites.
IDCS_URL	Identity Cloud Service URL. Contact your IDCS administrator for details.
SAAS_USERNAME	SaaS UI Login user name
SAAS_ENCODED_PASSWORD	SaaS UI login user password encoded in base-64.
ENCODED_CLIENT_ID_AND_SECRET	Client ID:Client Secret encoded in base-64. Contact your IDCS administrator for details.
SAAS_APPLICATION_HOST_URL	URL to access SaaS UI
TENANT_ID	SaaS tenant ID. Contact your IDCS administrator for details.
SERVICE_ID	One of the following SaaS Service IDs: • OFS_PFT - Profitability Management Cloud Service • OFS_FTP - Fund Transfer Price Cloud Service
EXPORT_DIRECTORY_PATH	(Optional). The mount point location detail available in APP server. If EXPORT_DIRECTORY_PATH is not used, comment the option.
ENABLE_CONCURRENCY	Export and import multiple tables, simultaneously.

> **Note**
>
> Ensure that the export and import are not performed, simultaneously.

5.3.2.2 pbsm_export_table.properties

The `pbsm_export_table.properties` includes all the Seeded tables to be exported. You can add the Custom table to be exported to the SaaS environment.

The `pbsm_export_table.properties` file is located in `<$FIC_HOME>//utility/Data_Export_to_SaaS/conf` directory.

Modify the following details:

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- **Custom tables**-Add the custom tables to be exported.
- **Export Flag**-Set to **Y**, to export the table. The Export Flag for all the Seeded tables are set to **Y**, by default.
  Example
  - `FSI_D_BORROWINGS = Y`
  - `FSI_D_ANNUITY_CONTRACTS = Y`
  - `FSI_D_CASA = N`

5.3.2.3 pbsm_export_table_filter.properties

The pbsm_export_table_filter.properties enables to configure the Filter Criteria required for data export.

Using the Properties file, you can configure the Filter Criteria for both Seeded and Custom tables.

This file is located in `<$FIC_HOME>//utility/Data_Export_to_SaaS/conf` directory.

Modify the required filter criteria, before exporting the data.

Example

- `FSI_D_BORROWINGS = AS_OF_DATE = TO_DATE('21-Jun-2022','DD-MON-YYYY')`
- `FSI_D_ANNUITY_CONTRACTS = AS_OF_DATE = TO_DATE('21-Jun-2022','DD-MON-YYYY') AND LEGAL_ENTITY_ID = 1`

5.3.3 Migration Execution Scripts

Execute the specific Shell Scripts, to migrate the data objects from On-Premise to SaaS environment.

Execute the following scripts, for Data Migration:

1. Export-data.sh
2. Re-export-data.sh
3. Import-data.sh
4. finalize.sh
5. generate-report.sh

5.3.3.1 Export-data.sh

Execute `export-data.sh` script, to validate and generate the data export `.csv` and `.ctl` files.

`export-data.sh` is located in `<$FIC_HOME>/utility/Data_Export_to_SaaS/bin` directory. Using export-data.sh script, you can migrate the data only once. To export a particular combination multiple times, execute re-export-data.sh.

Example : `./export-data.sh`

5.3.3.2 Re-export-data.sh

Execute `re-export-data.sh` script, to validate and regenerate the data export `.csv` and `.ctl` files.

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re-export-data.sh is located in <$FIC_HOME>/utility/Data_Export_to_SaaS/bin directory. Using re-export-data.sh script, you can migrate the data, multiple times.

Example : ./re-export-data.sh

5.3.3.3 Import-data.sh

Execute import-data.sh script, to move data into the Target SaaS environment.

import-data.sh is located in <$FIC_HOME>/utility/Data_Export_to_SaaS/bin directory.

Example : ./import-data.sh

5.3.3.4 finalize.sh

Execute finalize.sh script, to apply the transformations to the data loaded into the Target SaaS environment.

finalize.sh is located in <$FIC_HOME>/utility/Data_Export_to_SaaS/bin directory.

Syntax: ./finalize.sh <Start_Date DDMMYYYY> <End_Date DDMMYYYY>

> **Note**
>
> - The start date and end date are optional parameters.
> - To transform the data for a specific time period, ensure to enter both the start and end date.
> - If you provide only one date, it is considered as the start date.
> - The finalize.sh script can be executed any number of times, but it is recommended to execute after all the data migration is complete.

Example: ./finalize.sh 01122023 31122023

Transformations Post Data Migration

Executing finalize.sh triggers the following data transformations.

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Table 5-3 Transformations post data migration

SaaS/Target Table	SaaS-Column	Transformations Post Data Migration
FSI_D_ASSET, FSI_D_LIABILITY, FSI_D_FEE_BASED_SERVICE, FSI_D_DERIVATIVE, FSI_D_LEDGER_INSTRUMENT, FSI_D_LOAN_COMMITMENTS, FSI_D_OFF_BALANCE_SHEET, FSI_D_ACCOUNT_RATE_TIERS, FSI_D_BREAK_FUNDING_CHARGES, FSI_D_PM_GENERATED_INSTRMTS	**AMRT_TYPE_CD**	• If **AMRT_TYPE_CD** is between 1000 and 69999, the corresponding value is set to 20 • If **AMRT_TYPE_CD** is between 70000 and 99999, the corresponding value is set to 10 • If **AMRT_TYPE_CD** is either 400 or 500, the corresponding value is set to 100 • In all other scenarios, the **AMRT_TYPE_CD** value is retained
FSI_D_ASSET, FSI_D_LIABILITY, FSI_D_FEE_BASED_SERVICE, FSI_D_DERIVATIVE, FSI_D_LEDGER_INSTRUMENT, FSI_D_LOAN_COMMITMENTS, FSI_D_OFF_BALANCE_SHEET, FSI_D_ACCOUNT_RATE_TIERS, FSI_D_BREAK_FUNDING_CHARGES, FSI_D_PM_GENERATED_INSTRMTS	**PMT_PATTERN_CD**	If **AMRT_TYPE_CD** is between 1000 and 69999, the **PMT_PATTERN_CD** value is set to the **AMRT_TYPE_CD** value. In all other scenarios, it is set to NULL.
FSI_D_ASSET, FSI_D_LIABILITY, FSI_D_FEE_BASED_SERVICE, FSI_D_DERIVATIVE, FSI_D_LEDGER_INSTRUMENT, FSI_D_LOAN_COMMITMENTS, FSI_D_OFF_BALANCE_SHEET, FSI_D_ACCOUNT_RATE_TIERS, FSI_D_BREAK_FUNDING_CHARGES, FSI_D_PM_GENERATED_INSTRMTS	**BEHAVIOUR_PATTERN_CD**	If **AMRT_TYPE_CD** is between 70000 and 99999, the **BEHAVIOUR_PATTERN_CD** is set to the **AMRT_TYPE_CD** value. Otherwise, it is set to NULL.

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Table 5-3 (Cont.) Transformations post data migration

SaaS/Target Table	SaaS-Column	Transformations Post Data Migration
FSI_D_ASSET, FSI_D_LIABILITY, FSI_D_FEE_BASED_SERVICE, FSI_D_DERIVATIVE, FSI_D_LEDGER_INSTRUMENT, FSI_D_LOAN_COMMITMENTS, FSI_D_OFF_BALANCE_SHEET, FSI_D_ACCOUNT_RATE_TIERS, FSI_D_BREAK_FUNDING_CHARGES, FSI_D_PM_GENERATED_INSTRMTS	**ADJUSTABLE_TYPE_CD**	• If **ADJUSTABLE_TYPE_CD** is 30, the corresponding value is set to 50 • If **ADJUSTABLE_TYPE_CD** >= 500, the corresponding value is set to 10 • In all other cases, the value of **ADJUSTABLE_TYPE_CD** is retained
FSI_D_ASSET, FSI_D_LIABILITY, FSI_D_FEE_BASED_SERVICE, FSI_D_DERIVATIVE, FSI_D_LEDGER_INSTRUMENT, FSI_D_LOAN_COMMITMENTS, FSI_D_OFF_BALANCE_SHEET, FSI_D_ACCOUNT_RATE_TIERS, FSI_D_BREAK_FUNDING_CHARGES, FSI_D_PM_GENERATED_INSTRMTS	**REPRICE_PATTERN_CD**	If **ADJUSTABLE_TYPE_CD** is >= 500, then the **REPRICE_PATTERN_CD** is set to the **ADJUSTABLE_TYPE_CD** value. In all other cases, it is set to NULL.
FSI_D_ASSET, FSI_D_LIABILITY, FSI_D_FEE_BASED_SERVICE, FSI_D_DERIVATIVE, FSI_D_LEDGER_INSTRUMENT, FSI_D_LOAN_COMMITMENTS, FSI_D_OFF_BALANCE_SHEET, FSI_D_ACCOUNT_RATE_TIERS, FSI_D_BREAK_FUNDING_CHARGES, FSI_D_PM_GENERATED_INSTRMTS	**COMPOUNDING_BASIS_CD**	If **COMPOUNDING_BASIS_CD** is either 200 or 999, the corresponding value is set to 160. Otherwise, the value of **COMPOUNDING_BASIS_CD** is retained.
FSI_D_ASSET, FSI_D_LIABILITY	**OPTION_EXPIRY_DATE**	The **OPTION_EXPIRY_DATE** column in the target table is updated with the values from the **OPTION_EXPIRY_DATE** column in the FSI_D_EMBEDDED_OPTIONS_SCH table.

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Table 5-3 (Cont.) Transformations post data migration

SaaS/Target Table	SaaS-Column	Transformations Post Data Migration
FSI_D_ASSET, FSI_D_LIABILITY	**STRIKE_VALUE**	The **STRIKE_VALUE** column in the target table is updated with the values from the **STRIKE_VALUE** column in the FSI_D_EMBEDDED_OPTIONS_SCH table.
FSI_D_ASSET, FSI_D_LIABILITY	**STRIKE_IRC_CD**	The **STRIKE_IRC_CD** column in the target table is updated with the values from the **STRIKE_IRC_CD** column in the FSI_D_EMBEDDED_OPTIONS table.
FSI_D_ASSET, FSI_D_LIABILITY	**EXERCISE_TYPE_CD**	The **EXERCISE_TYPE_CD** column in the target table is updated with the values from the **EXERCISE_TYPE_CD** column in the FSI_D_EMBEDDED_OPTIONS table.
FSI_D_ASSET, FSI_D_LIABILITY	**RATE_LOOKUP_CD**	The **RATE_LOOKUP_CD** column in the target table is updated with the values from the **RATE_LOOKUP_CD** column in the FSI_D_EMBEDDED_OPTIONS table.
FSI_D_ASSET, FSI_D_LIABILITY	**STRIKE_TYPE_CD**	The **STRIKE_TYPE_CD** column in the target table is updated with the values from the **STRIKE_TYPE_CD** column in the FSI_D_EMBEDDED_OPTIONS table.
FSI_D_ASSET, FSI_D_LIABILITY	**OPTION_TYPE_CD**	The **OPTION_TYPE_CD** column in the target table is updated with the values from the **OPTION_TYPE_CD** column in the FSI_D_EMBEDDED_OPTIONS table.
FSI_D_ASSET, FSI_D_LIABILITY	**OPTION_START_DATE**	The **OPTION_START_DATE** column in the target table is updated with the values from the **OPTION_START_DATE** column in the FSI_D_EMBEDDED_OPTIONS table.
FSI_D_ASSET, FSI_D_FEE_BASED_SERVICE, FSI_D_LEDGER_INSTRUMENT, FSI_D_LOAN_COMMITMENTS, FSI_D_OFF_BALANCE_SHEET	**ACCOUNT_TYPE**	**ACCOUNT_TYPE** is searched sequentially in the following tables and the value is updated. 1. Product 2. Common COA 3. General Ledger If **ACCOUNT_TYPE** is not present in any of the above mentioned tables, it is set to 100.
FSI_D_LIABILITY	**ACCOUNT_TYPE**	**ACCOUNT_TYPE** is searched sequentially in the following tables and the value is updated. 1. Product 2. Common COA 3. General Ledger If **ACCOUNT_TYPE** is not present in any of the above mentioned tables, it is set to 300.

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Table 5-3 (Cont.) Transformations post data migration

SaaS/Target Table	SaaS-Column	Transformations Post Data Migration
FSI_D_DERIVATIVE	**ACCOUNT_TYPE**	For the given **LEG_TYPE** values, the following **ACCOUNT_TYPE** values are configured. • If **LEG_TYPE** is 1, set **ACCOUNT_TYPE** as 310 • If **LEG_TYPE** is 2, set **ACCOUNT_TYPE** as 110 • In all other cases, set **ACCOUNT_TYPE** as 800

5.3.3.5 generate-report.sh

Execute `generate-report.sh` script, to to generate a HTML report containing list of all the exported and imported table details.

`generate-report.sh` is located in `<$FIC_HOME>/utility/Data_Export_to_SaaS/bin` directory.

The final HTML reports are saved to `<FIC_HOME>/utility/Data_Export_to_SaaS/report` directory.

Example : `./generate-report.sh`

5.4 Pre-Mapped Dimensions for Migration

Pre-mapped dimensions with associated On-Premise and SaaS Dimension tables.

Table 5-4 Migratable Pre-Seeded Dimensions

Dimension	On-Premise Dimension Table	SaaS Dimension Table
Accidental Health Insurance Company	FSI_ACCID_HEALTH_INS_CO_CD	FSI_ACCID_HEALTH_INS_CO_CD
Account Group	FSI_ACCOUNT_GROUP_CD	FSI_ACCOUNT_GROUP_CD
Account Officer	FSI_ACCOUNT_OFFICER_CD	FSI_ACCOUNT_OFFICER_CD
Account Type	FSI_ACCOUNT_TYPE_CD	FSI_ACCOUNT_TYPE_CD
Accrual Basis	FSI_ACCRUAL_BASIS_CD	FSI_ACCRUAL_BASIS_CD
Adjustable Type	FSI_ADJUSTABLE_TYPE_CD_V	FSI_ADJUSTABLE_TYPE_CD_V
Adjustment Type Code	FSI_ADJUSTMENT_TYPE_CD	FSI_ADJUSTMENT_TYPE_CD
Advice Type	FSI_ADVICE_TYPE_CD	FSI_ADVICE_TYPE_CD
Agent Bank	FSI_AGENT_BANK_CD	FSI_AGENT_BANK_CD
Aggregate Method	FSI_AGGREGATE_METHOD_CD	FSI_AGGREGATE_METHOD_CD
Amortization Method	FSI_AMORT_METHOD_CD	FSI_AMORT_METHOD_CD
Amortization Type	FSI_AMORTIZATION_TYPE_CD_V	FSI_AMORTIZATION_TYPE_CD_V
Annual Fee	FSI_ANNUAL_FEE_CD	FSI_ANNUAL_FEE_CD
Application Analyst	FSI_APPLICATION_ANALYST_CD	FSI_APPLICATION_ANALYST_CD
Authorization Device Type	FSI_AUTH_DEVICE_TYPE_CD	FSI_AUTH_DEVICE_TYPE_CD
Autopay Instruction Type	FSI_AUTOPAY_INSTR_TYPE_CD	FSI_AUTOPAY_INSTR_TYPE_CD
Balance Type	FSI_BALANCE_TYPE_CD	FSI_BALANCE_TYPE_CD
Bank	FSI_BANK_CD	FSI_BANK_CD

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Table 5-4 (Cont.) Migratable Pre-Seeded Dimensions

Dimension	On-Premise Dimension Table	SaaS Dimension Table
Branch	FSI_BRANCH_CD	DIM_BRANCH_B
Behavior Subtype Code	FSI_BEHAVIOUR_SUB_TYPE_CD	FSI_BEHAVIOUR_SUB_TYPE_CD
Behavior Type Code	FSI_BEHAVIOUR_TYPE_CD	FSI_BEHAVIOUR_TYPE_CD
Billing Method	FSI_BILLING_METHOD_CD	FSI_BILLING_METHOD_CD
Break Identification Code	FSI_BREAKAGE_TYPE_CD	FSI_BREAKAGE_TYPE_CD
Calendar Rolling Convention Code	FSI_CAL_ROLLING_CONVENTION_CD	FSI_CAL_ROLLING_CONVENTION_CD
Cash Flow Code	FSI_CASH_FLOW_TYPE_CD	FSI_CASH_FLOW_TYPE_CD
Channel	FSI_DISTRIBUTION_CHANNEL_CD	FSI_CHANNEL_CD
Chargeoff Reason	FSI_CHARGE_OFF_REASON_CD	FSI_CHARGE_OFF_REASON_CD
Collateral	FSI_COLLATERAL_CD	FSI_COLLATERAL_CD
Commit Option Type	FSI_COMMIT_OPTION_TYPE_CD	FSI_COMMIT_OPTION_TYPE_CD
Commitment Type	FSI_COMMITMENT_TYPE_CD	FSI_COMMITMENT_TYPE_CD
Common Chart of Accounts	DIM_COMMON_COA_B	DIM_COMMON_COA_B
Compounding Basis Code	FSI_COMPOUND_BASIS_CD	FSI_COMPOUND_BASIS_CD
Consolidation Code	FSI_CONSOLIDATION_CD	FSI_CONSOLIDATION_CD
Corporate Agreement	FSI_CORPORATE_AGREEMENT_CD	FSI_CORPORATE_AGREEMENT_CD
Country	DIM_COUNTRY_B	FSI_COUNTRY_CD
Credit Life Insurance Company	FSI_CREDIT_LIFE_INS_CO_CD	FSI_CREDIT_LIFE_INS_CO_CD
Credit Rating	FSI_CREDIT_RATING_CD	FSI_CREDIT_RATING_CD
Credit Status	FSI_CREDIT_STATUS_CD	FSI_CREDIT_STATUS_CD
CWB Status	FSI_CWB_STATUS_CD	FSI_CWB_STATUS_CD
Data Source	FSI_INSTRUMENT_DATA_SOURCE_CD	FSI_INSTRUMENT_DATA_SOURCE_CD
Data Source Code	FSI_DATA_SOURCE_CD	FSI_DATA_SOURCE_CD
Direct Deposit Account Type	FSI_DIR_DEPOS_ACCT_TYPE_CD	FSI_DIR_DEPOS_ACCT_TYPE_CD
Direct Indicator Code	FSI_DIRECT_IND_CD	FSI_DIRECT_IND_CD
Disbursement Method	FSI_DISBURS_METHOD_CD	FSI_DISBURS_METHOD_CD
Delinquency Status	FSI_DELINQUENCY_STATUS_CD	FSI_DELINQUENCY_STATUS_CD
Deposit Type	FSI_DEPOSIT_TYPE_CD	FSI_DEPOSIT_TYPE_CD
Documentation	FSI_DOCUMENTATION_CD	FSI_DOCUMENTATION_CD
Exception	FSI_EXCEPTION_CD	FSI_EXCEPTION_CD
Existing Borrower Code Dimension	FSI_EXIST_BORROWER_CD	FSI_EXIST_BORROWER_CD
Fiduciary Agreement	FSI_FIDUCIARY_AGREEMENT_CD	FSI_FIDUCIARY_AGREEMENT_CD
Financial Element	DIM_FINANCIAL_ELEMENTS_B	DIM_FINANCIAL_ELEMENTS_B
Funding Status	FSI_FUNDING_STATUS_CD	FSI_FUNDING_STATUS_CD
Funding Type	FSI_FUNDING_TYPE_CD	FSI_FUNDING_TYPE_CD
Futures Subtype Code	FSI_FUTURES_SUBTYPE_CD	FSI_FUTURES_SUBTYPE_CD
Futures Type Code	FSI_FUTURES_TYPE_CD	FSI_FUTURES_TYPE_CD

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Table 5-4 (Cont.) Migratable Pre-Seeded Dimensions

Dimension	On-Premise Dimension Table	SaaS Dimension Table
General Ledger Account	DIM_GENERAL_LEDGER_B	DIM_GENERAL_LEDGER_B
Geographic Location	FSI_GEOGRAPHIC_LOC_CD	DIM_GEOGRAPHIC_LOC_B
Geographic State	FSI_GEOGRAPHIC_LOC_STATE_CD	FSI_GEOGRAPHIC_LOC_STATE_CD
Holiday Calc	FSI_HOLIDAY_CALC_OPTION_CD	FSI_HOLIDAY_CALC_OPTION_CD
Instrument Type	FSI_INSTRUMENT_TYPE_CD	FSI_INSTRUMENT_TYPE_CD
Interest Dividends Option	FSI_INT_DIVIDENDS_OPTION_CD	FSI_INT_DIVIDENDS_OPTION_CD
Interest Payment Method	FSI_INT_PAYMENT_METHOD_CD	FSI_INT_PAYMENT_METHOD_CD
Interest Timing Type Code	FSI_INTEREST_TIMING_TYPE_CD	FSI_INTEREST_TIMING_TYPE_CD
Investor Type	FSI_INVESTOR_TYPE_CD	FSI_INVESTOR_TYPE_CD
IR Option Type	FSI_IR_OPTION_TYPE_CD	FSI_IR_OPTION_TYPE_CD
IRA Funding Status Code Dimension	FSI_IRA_FUNDING_STATUS_CD	FSI_IRA_FUNDING_STATUS_CD
Issuer	FSI_ISSUER_CD	FSI_ISSUER_CD
Joint Agreement	FSI_JOINT_AGREEMENT_CD	FSI_JOINT_AGREEMENT_CD
Lien Position	FSI_LIEN_POSITION_CD	FSI_LIEN_POSITION_CD
Liquidity Class	FSI_LIQUIDITY_CLASS_CD	FSI_LIQUIDITY_CLASS_CD
Leg Type	FSI_LEG_TYPE_CD	FSI_LEG_TYPE_CD
Legal Entity	DIM_LEGAL_ENTITY_B	DIM_LEGAL_ENTITY_B
Loan Type	FSI_LOAN_TYPE_CD	FSI_LOAN_TYPE_CD
Margin Agreement	FSI_MARGIN_AGREEMENT_CD	FSI_MARGIN_AGREEMENT_CD
Market Segment Code	FSI_MARKET_SEGMENT_CD	FSI_MARKET_SEGMENT_CD
Merchant Class	FSI_MERCHANT_CLASS_CD	FSI_MERCHANT_CLASS_CD
Merchant Chain	FSI_MERCHANT_CHAIN_CD	FSI_MERCHANT_CHAIN_CD
Multiplier Code	FSI_MULTIPLIER_CD	FSI_MULTIPLIER_CD
Net Margin	FSI_NET_MARGIN_CD	FSI_NET_MARGIN_CD
Occupancy	FSI_OCCUPANCY_CD	FSI_OCCUPANCY_CD
Option Decision Type	FSI_OPTION_DECISION_TYPE_CD	FSI_OPTION_DECISION_TYPE_CD
Option Exercise Code	FSI_OPTION_EXERCISE_CD	FSI_OPTION_EXERCISE_CD
Option Strike Type	FSI_OPTION_STRIKE_TYPE_CD	FSI_OPTION_STRIKE_TYPE_CD
Option Rate Lookup Type	FSI_OPTION_RATE_LOOKUP_CD	FSI_OPTION_RATE_LOOKUP_CD
Option Type Code	FSI_OPTION_TYPE_CD	FSI_OPTION_TYPE_CD
Organizational Unit	DIM_ORG_UNIT_B	DIM_ORG_UNIT_B
Overdraft Protection	FSI_OVERDRAFT_PROTECTION_CD	FSI_OVERDRAFT_PROTECTION_CD
Outside Info Source	FSI_OUTSIDE_INFO_SOURCE_CD	FSI_OUTSIDE_INFO_SOURCE_CD
Ownership Type	FSI_OWNERSHIP_TYPE_CD	FSI_OWNERSHIP_TYPE_CD
Parent Service	FSI_PARENT_SERVICE_CD	FSI_PARENT_SERVICE_CD
Pay Ahead	FSI_PAY_AHEAD_CD	FSI_PAY_AHEAD_CD

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Table 5-4 (Cont.) Migratable Pre-Seeded Dimensions

Dimension	On-Premise Dimension Table	SaaS Dimension Table
Pay Equivalent Compounding Convention Code	FSI_PAY_EQUI_COMPOUND_CONV_CD	FSI_PAY_EQUI_COMPOUND_CONV_CD
Payment Type	FSI_PAYMENT_TYPE_CD	FSI_PAYMENT_TYPE_CD
Plan	FSI_PLAN_CD	FSI_PLAN_CD
Pledged Status	FSI_PLEDGED_STATUS_CD	FSI_PLEDGED_STATUS_CD
Prev Delq Statu	FSI_PREV_DELQ_STATUS_CD	FSI_PREV_DELQ_STATUS_CD
Product	DIM_PRODUCTS_B	DIM_PRODUCTS_B
Product Type Code	FSI_PRODUCT_TYPE_CD	FSI_PRODUCT_TYPE_CD
Property Purpose	FSI_PROPERTY_PURPOSE_CD	FSI_PROPERTY_PURPOSE_CD
Property Sub Type	FSI_PROPERTY_SUB_TYPE_CD	FSI_PROPERTY_SUB_TYPE_CD
Purpose	FSI_PURPOSE_CD	FSI_PURPOSE_CD
Rate Change Rounding Code	FSI_RATE_CHG_ROUNDING_CD	FSI_RATE_CHG_ROUNDING_CD
Rate Data Source	FSI_RATE_DATA_SOURCE_CD	FSI_RATE_DATA_SOURCE_CD
Reason Closed	FSI_REASON_CLOSED_CD	FSI_REASON_CLOSED_CD
Relationship Type	FSI_RELATIONSHIP_TYPE_CD	FSI_RELATIONSHIP_TYPE_CD
Roll Facility	FSI_ROLL_FACILITY_CD	FSI_ROLL_FACILITY_CD
Rollup Signage	FSI_ROLLUP_SIGNAGE_CD	FSI_ROLLUP_SIGNAGE_CD
School Code	FSI_SCHOOL_ID_CD	FSI_SCHOOL_ID_CD
Service Option	FSI_SERVICE_OPTION_CD	FSI_SERVICE_OPTION_CD
Service Source	FSI_SERVICE_SOURCE_CD	FSI_SERVICE_SOURCE_CD
Servicing Agent	FSI_SERVICING_AGENT_CD	FSI_SERVICING_AGENT_CD
Settlement Account Service Code	FSI_SETTLEMENT_ACCT_SERV_CD	FSI_SETTLEMENT_ACCT_SERV_CD
Solicit Source	FSI_SOLICIT_SOURCE_CD	FSI_SOLICIT_SOURCE_CD
Standard Industrial Classification Code	FSI_SIC_CD	FSI_SIC_CD
Student Year in School	FSI_STUDENT_YR_IN_SCHOOL_CD	FSI_STUDENT_YR_IN_SCHOOL_CD
Swap Class	FSI_SWAP_CLASS_CD	FSI_SWAP_CLASS_CD

5.5 Deprecated Columns in Data Tables

List of deprecated columns in Data tables

1. FSI_D_ANNUITY_CONTRACTS
2. FSI_D_BORROWINGS
3. FSI_D_BREAK_FUNDING_CHARGES
4. FSI_D_CASA
5. FSI_D_CREDIT_CARDS
6. FSI_D_CREDIT_LINES
7. FSI_D_FUTURES
8. FSI_D_FX_CONTRACTS

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9. FSI_D_GUARANTEES
10. FSI_D_INVESTMENTS
11. FSI_D_LEASES
12. FSI_D_LEDGER_STAT_INSTRUMENT
13. FSI_D_LOAN_COMMITMENTS
14. FSI_D_LOAN_CONTRACTS
15. FSI_D_MERCHANT_CARDS
16. FSI_D_MM_CONTRACTS
17. FSI_D_MORTGAGES
18. FSI_D_MUTUAL_FUNDS
19. FSI_D_OTHER_SERVICES
20. FSI_D_RETIREMENT_ACCOUNTS
21. FSI_D_SWAPS
22. FSI_D_TERM_DEPOSITS
23. FSI_D_TRUSTS

5.5.1 FSI_D_ANNUITY_CONTRACTS

List of deprecated Columns in FSI_D_ANNUITY_CONTRACTS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_NET_BOOK_BAL_C
10. COMMISSION_ON_COLLECTION
11. CONVEXITY_C
12. CUR_NET_BOOK_BAL_C
13. CUR_NET_PAR_BAL_C
14. CUR_YIELD DURATION_C
15. DV01_C
16. EBANKING_EXP
17. MARGIN_T_RATE
18. MARKET_VALUE_CLEAN_C
19. MODIFIED_DURATION_C

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20. ORG_NET_BOOK_BAL_C
21. ORG_NET_PAR_BAL_C
22. RATE_DECR_YEAR
23. RATE_INCR_YEAR
24. TAX_EXEMPT_PCT

5.5.2 FSI_D_BORROWINGS

List of deprecated Columns in FSI_D_BORROWINGS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_NET_BOOK_BAL_C
10. BACKUP_LIQUID_COST
11. CALL_PRICE
12. COLLATERAL_MKT_VALUE
13. COLLATERAL_NOMINAL_VALUE
14. COMMISSION_ON_COLLECTION
15. CONTRIB_AFTER_CAPITAL_CHG
16. CONVEXITY_C
17. CUR_NET_BOOK_BAL_C
18. CUR_NET_PAR_BAL_C
19. CUR_YIELD
20. DEPOSIT_FLOAT
21. DIST_FR_LIFE_CAP_C
22. DRAWN_AMT
23. DURATION_C
24. DV01_C
25. EBANKING_EXP
26. GROSS_FEE_INCOME
27. MARGIN_T_RATE
28. MARKET_RISK_CAPITAL
29. MARKET_VALUE_CLEAN_C

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30. MISC_ASSET_CHG
31. MISC_LIABILITY_CR
32. MODIFIED_DURATION_C
33. NET_FEE_INCOME
34. NET_INT_MARGIN
35. OP_RISK_CAPITALORG_NET_BOOK_BAL_C
36. ORG_NET_PAR_BAL_C
37. RATE_DECR_YEAR
38. RATE_INCR_YEAR
39. RETURN_ITEMS
40. RETURN_ON_EQUITY
41. RISK_ADJ_AVG_BAL
42. TAX_EXEMPT_PCT
43. TOTAL_FEES
44. TOTAL_TRANSACTIONS
45. UNDRAWN_AMT

5.5.3 FSI_D_BREAK_FUNDING_CHARGES

List of deprecated Columns in FSI_D_BREAK_FUNDING_CHARGES table.

1. ACTUAL_HOLDING_PERIOD
2. AGENCY_FEES
3. ALLOC_EQUITY
4. ALLOC_MISC_1
5. ALLOC_MISC_2
6. ALLOC_MISC_3
7. ALLOC_MISC_4
8. ALLOC_MISC_5
9. APPROVED_AMT
10. ARM_BASE_RATE
11. AVERAGE_LIFE_C
12. AVG_NET_BOOK_BAL_C
13. COMMISSION_ON_COLLECTION
14. CONTRACT_AMT
15. CONTRIB_AFTER_CAPITAL_CHG
16. CONVEXITY_C
17. CUR_NET_BOOK_BAL_C
18. CUR_NET_PAR_BAL_C

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19. CUR_YIELD
20. CURRENT_FEES
21. DEL_LIFE_TIMES
22. DEL_YEAR_TIMES
23. DIST_FR_LIFE_CAP_C
24. DURATION_C
25. DV01_C
26. EBANKING_EXP
27. GROSS_FEE_INCOME
28. MARGIN_T_RATE
29. MARKET_VALUE_CLEAN_C
30. MODIFIED_DURATION_C
31. NET_FEE_INCOME
32. NET_INT_MARGIN
33. ORG_LOAN_TO_VALUE
34. ORG_NET_BOOK_BAL_C
35. ORG_NET_PAR_BAL_C
36. ORG_PAR_BAL_C
37. PARTICIPATION_AMT_SOLD
38. RATE_DECR_YEAR
39. RATE_INCR_YEAR
40. RESERVE_CHARGE_CREDIT
41. RETURN_ITEMS
42. RETURN_ON_EQUITY
43. TAX_EXEMPT_PCT
44. TOTAL_FEES
45. TOTAL_FEES_AT_ORG
46. TOTAL_TRANSACTIONS

5.5.4 FSI_D_CASA

List of deprecated Columns in FSI_D_ANNUITY_CONTRACTS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4

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7. ALLOC_MISC_5
8. ANNUAL_ACCT_FEE
9. AVERAGE_LIFE_C
10. AVG_COLLECT_BAL
11. AVG_NET_BOOK_BAL_C
12. CARDS_ISSUED
13. COMMISSION_ON_COLLECTION
14. CONTRIB_AFTER_CAPITAL_CHG
15. CONVEXITY_C
16. CUR_NET_BOOK_BAL_C
17. CUR_NET_PAR_BAL_C
18. CUR_OVERDRAFT_BAL
19. CUR_YIELD
20. CURRENT_FEES
21. DAILY_LIMIT
22. DAILY_LIMIT_ATM
23. DAILY_LIMIT_POS
24. DEPOSIT_FLOAT
25. DEPOSIT_RESERVES_CHARGE
26. DURATION_C
27. DV01_C
28. EBANKING_EXP
29. GROSS_FEE_INCOME
30. HIGH_BAL
31. INTEREST_CHARGE_CREDIT
32. LAST_DEPOSIT_AMT
33. LAST_WITHDRAW_AMT
34. LOW_BAL
35. MARGIN_T_RATE
36. MARKET_RISK_CAPITAL
37. MARKET_VALUE_CLEAN_C
38. MAX_AMT_GUARANTEED
39. MISC_ASSET_CHG
40. MISC_LIABILITY_CR
41. MODIFIED_DURATION_C
42. NET_FEE_INCOME
43. NET_INT_MARGIN
44. NOT_ON_US_CREDITS

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45. NOT_ON_US_DEBITS
46. OD_CUR_DAYS
47. OD_LIFE_TIMES
48. OD_YEAR_TIMES
49. OP_RISK_CAPITAL
50. ORG_NET_BOOK_BAL_C
51. ORG_NET_PAR_BAL_C
52. PHONE_TRANSACTIONS
53. RATE_DECR_YEAR
54. RATE_INCR_YEAR
55. REQ_VS_COLL_BAL_C
56. REQUIRED_BAL
57. RESIDUAL_AMT_OF_GUARANTEE
58. RETURN_ITEMS
59. RETURN_ON_EQUITY
60. RISK_ADJ_AVG_BAL
61. TAX_EXEMPT_PCT
62. TOTAL_FEES
63. TOTAL_TRANSACTIONS

5.5.5 FSI_D_CREDIT_CARDS

List of deprecated Columns in FSI_D_CREDIT_CARDS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_LLR
4. ALLOC_LLR_CR
5. ALLOC_MISC_1
6. ALLOC_MISC_2
7. ALLOC_MISC_3
8. ALLOC_MISC_4
9. ALLOC_MISC_5
10. ANNUAL_ACCT_FEE
11. AVAILABLE_CREDIT
12. AVERAGE_LIFE_C
13. AVG_NET_BOOK_BAL_C
14. BONUS_AMT
15. CARDS_ISSUED

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16. CASH_BALANCE
17. CASH_RATE
18. CHARGE_OFF_BAL
19. COMMISSION_ON_COLLECTION
20. CONTRIB_AFTER_CAPITAL_CHG
21. CONVEXITY_C
22. CREDIT_BAL_INT_RATE
23. CREDIT_LINE
24. CREDIT_RISK_CAPITAL
25. CUR_CREDIT_LIMIT
26. CUR_NET_BOOK_BAL_C
27. CUR_NET_PAR_BAL_C
28. CUR_YIELD
29. CURRENT_FEES
30. CYCLE_DAY_OF_MONTH
31. DEL_LIFE_TIMES
32. DEL_YEAR_TIMES
33. DISPUTED_TRANSFER_BAL
34. DRAWN_AMT
35. DURATION_C
36. DV01_C
37. EBANKING_EXP
38. FINANCE_CHARGE_BAL
39. GROSS_FEE_INCOME
40. HIGH_BAL
41. LARGEST_OUTST_BAL
42. LAST_PAYMENT_AMT
43. LIMIT_USE_RATIO_C
44. MARGIN_T_RATE
45. MARKET_RISK_CAPITAL
46. MARKET_VALUE_CLEAN_C
47. MERCHANDISE_BAL
48. MERCHANDISE_RATE
49. MERCHANT_INT_RATE
50. MISC_ASSET_CHG
51. MISC_LIABILITY_CR
52. MODIFIED_DURATION_C
53. NET_FEE_INCOME

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54. NET_INT_MARGIN
55. OP_RISK_CAPITAL
56. ORG_NET_BOOK_BAL_C
57. ORG_NET_PAR_BAL_C
58. ORIGINAL_CREDIT_LINE
59. OVER_LIMIT_BAL
60. OVER_LIMIT_CURRENT_CYCLE
61. OVER_LIMIT_LF_TIME
62. PURCH_SPECIAL_SERV_CHARGES
63. RATE_DECR_YEAR
64. RATE_INCR_YEAR
65. RESERVE_CHARGE_CREDIT
66. RETURN_ITEMS
67. RETURN_ON_EQUITY
68. RISK_ADJ_AVG_BAL
69. SPECIAL_PAYMENT_AMT
70. TAX_EXEMPT_PCT
71. TOTAL_CHARGES
72. TOTAL_FEES
73. TOTAL_TRANSACTIONS
74. UNDRAWN_AMT

5.5.6 FSI_D_CREDIT_LINES

List of deprecated Columns in FSI_D_CREDIT_LINES table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. ANNUAL_ACCT_FEE
9. AVAILABLE_CREDIT
10. AVERAGE_LIFE_C
11. AVG_NET_BOOK_BAL_C
12. CASH_BALANCE
13. CHARGE_OFF_BAL

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14. COLLATERAL_MKT_VALUE
15. COLLATERAL_NOMINAL_VALUE
16. COMMISSION_ON_COLLECTION
17. CONTRIB_AFTER_CAPITAL_CHG
18. CONVEXITY_C
19. CREDIT_LINE
20. CUR_CREDIT_LIMIT
21. CUR_NET_BOOK_BAL_C
22. CUR_NET_PAR_BAL_C
23. CUR_YIELD
24. CURRENT_FEES
25. CYCLE_DAY_OF_MONTH
26. DEALER_RES_ORG
27. DEALER_RES_UNEARN
28. DEL_LIFE_TIMES
29. DEL_YEAR_TIMES
30. DISPUTED_TRANSFER_BAL
31. DRAWN_AMT
32. DURATION_C
33. DV01_C
34. EBANKING_EXP
35. FINANCE_CHARGE_BAL
36. GROSS_FEE_INCOME
37. HIGH_BAL
38. INITIAL_DIRCT_COST
39. LARGEST_OUTST_BAL
40. LAST_PAYMENT_AMT
41. LIMIT_USE_RATIO_C
42. LOW_BAL
43. MARGIN_T_RATE
44. MARKET_VALUE_CLEAN_C
45. MERCHANDISE_BAL
46. MERCHANDISE_RATE
47. MODIFIED_DURATION_C
48. NET_FEE_INCOME
49. NET_INT_MARGIN
50. NOTCH1_DOWNGRADE_CF_IMPACT
51. NOTCH10_DOWNGRADE_CF_IMPACT

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52. NOTCH2_DOWNGRADE_CF_IMPACT
53. NOTCH3_DOWNGRADE_CF_IMPACT
54. NOTCH4_DOWNGRADE_CF_IMPACT
55. NOTCH5_DOWNGRADE_CF_IMPACT
56. NOTCH6_DOWNGRADE_CF_IMPACT
57. NOTCH7_DOWNGRADE_CF_IMPACT
58. NOTCH8_DOWNGRADE_CF_IMPACT
59. NOTCH9_DOWNGRADE_CF_IMPACT
60. NTNL_PRIN_AMT
61. ORG_INTEREST_AMT
62. ORG_LOAN_TO_VALUE
63. ORG_NET_BOOK_BAL_C
64. ORG_NET_PAR_BAL_C
65. ORIGINAL_CREDIT_LINE
66. RATE_DECR_YEAR
67. RATE_INCR_YEAR
68. RESERVE_CHARGE_CREDIT
69. RETURN_ITEMS
70. RETURN_ON_EQUITY
71. TAX_EXEMPT_PCT
72. TOTAL_CHARGES
73. TOTAL_FEES
74. TOTAL_FEES_AT_ORG
75. TOTAL_TRANSACTIONS
76. UNDRAWN_AMT

5.5.7 FSI_D_FUTURES

List of deprecated Columns in FSI_D_FUTURES table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. COMMISSION_ON_COLLECTION

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10. CONTRACT_MULTIPLIER
11. CONTRACT_ORG_PRICE
12. CONTRACT_PRICE
13. CONVERSION_FACTOR
14. CONVEXITY_C
15. CUR_YIELD
16. DURATION_C
17. DV01_C
18. EBANKING_EXP
19. MARKET_VALUE_CLEAN_C
20. MODIFIED_DURATION_C
21. NO_OF_CONTRACTS
22. YTM_UNDERLYING_RATE

5.5.8 FSI_D_FX_CONTRACTS

List of deprecated Columns in FSI_D_FX_CONTRACTS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_DAILY_COLL_REQD
10. AVG_NET_BOOK_BAL_C
11. AVG_PEAK_INTRADAY_COLL_USED
12. COLLATERAL_MKT_VALUE
13. COLLATERAL_NOMINAL_VALUE
14. COMMISSION_FEES
15. COMMISSION_ON_COLLECTION
16. CONTRIB_AFTER_CAPITAL_CHG
17. CONVEXITY_C
18. CUR_NET_BOOK_BAL_C
19. CUR_NET_PAR_BAL_C
20. CUR_YIELD
21. DURATION_C

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22. DV01_C
23. EBANKING_EXP
24. GROSS_FEE_INCOME
25. MARGIN_T_RATE
26. MARKET_VALUE_CLEAN_C
27. MODIFIED_DURATION_C
28. NET_FEE_INCOME
29. ORG_NET_BOOK_BAL_C
30. ORG_NET_PAR_BAL_C
31. TAX_EXEMPT_PCT
32. TOTAL_FEES
33. TOTAL_TRANSACTIONS

5.5.9 FSI_D_GUARANTEES

List of deprecated Columns in FSI_D_GUARANTEES table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_NET_BOOK_BAL_C
10. COMMISSION_ON_COLLECTION
11. CONVEXITY_C
12. CUR_NET_BOOK_BAL_C
13. CUR_NET_PAR_BAL_C
14. CUR_YIELD
15. DRAWN_AMT
16. DURATION_C
17. DV01_C
18. EBANKING_EXP
19. GUARANTEE_AMT
20. MARGIN_T_RATE
21. MARKET_VALUE_CLEAN_C
22. MODIFIED_DURATION_C

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23. ORG_NET_BOOK_BAL_C
24. ORG_NET_PAR_BAL_C
25. RATE_DECR_YEAR
26. RATE_INCR_YEAR
27. TAX_EXEMPT_PCT
28. UNDRAWN_AMT

5.5.10 FSI_D_INVESTMENTS

List of deprecated Columns in FSI_D_INVESTMENTS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_DAILY_COLL_REQD
10. AVG_NET_BOOK_BAL_C
11. AVG_PEAK_INTRADAY_COLL_USED
12. COMMISSION_FEES
13. COMMISSION_ON_COLLECTION
14. COMMISSIONS_RATE
15. CONTRIB_AFTER_CAPITAL_CHG
16. CONVEXITY_C
17. CUR_NET_BOOK_BAL_C
18. CUR_NET_PAR_BAL_C
19. CUR_YIELD
20. DISCOUNT_PCT_BOND_TRANS
21. DISCOUNT_PCT_STOCK_TRANS
22. DURATION_C
23. DV01_C
24. EBANKING_EXP
25. GROSS_FEE_INCOME
26. LOAN_VALUE
27. MARGIN_T_RATE
28. MARKET_PRICE

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29. MARKET_VALUE_CLEAN_C
30. MISC_ASSET_CHG
31. MISC_LIABILITY_CR
32. MKT_VS_BOOK_BAL_C
33. MODIFIED_DURATION_C
34. MTM_VALUE
35. NET_FEE_INCOME
36. NET_INT_MARGIN
37. NOMINAL_VALUE
38. OP_RISK_CAPITAL
39. ORG_NET_BOOK_BAL_C
40. ORG_NET_PAR_BAL_C
41. PURCHASE_PRICE
42. RATE_DECR_YEAR
43. RATE_INCR_YEAR
44. RESERVE_CHARGE_CREDIT
45. RETURN_ITEMS
46. RETURN_ON_EQUITY
47. SHARE_VALUE
48. SHARES
49. TAX_EXEMPT_PCT
50. TOTAL_FEES
51. TOTAL_TRANSACTIONS
52. UNENCUMBERED_AMT
53. VOLUME_OF_INSTRUMENTS

5.5.11 FSI_D_LEASES

List of deprecated Columns in FSI_D_LEASES table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_NET_BOOK_BAL_C

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10. COLLATERAL_MKT_VALUE
11. COLLATERAL_NOMINAL_VALUE
12. COMMISSION_ON_COLLECTION
13. CONTRACT_AMT
14. CONTRIB_AFTER_CAPITAL_CHG
15. CONVEXITY_C
16. CUR_NET_BOOK_BAL_C
17. CUR_NET_PAR_BAL_C
18. CUR_YIELD
19. CURRENT_FEES
20. DEALER_RES_ORG
21. DEALER_RES_UNEARN
22. DEL_LIFE_TIMES
23. DEL_YEAR_TIMES
24. DISPOSED_ASSSETS
25. DURATION_C
26. DV01_C
27. EBANKING_EXP
28. GROSS_FEE_INCOME
29. INITIAL_DIRCT_COST
30. INVENTORIED_ASSETS
31. MARGIN_T_RATE
32. MARKET_VALUE_CLEAN_C
33. MODIFIED_DURATION_C
34. NET_FEE_INCOME
35. NET_INT_MARGIN
36. NUM_ASSETS
37. ORG_INTEREST_AMT
38. ORG_LOAN_TO_VALUE
39. ORG_NET_BOOK_BAL_C
40. ORG_NET_PAR_BAL_C
41. RATE_DECR_YEAR
42. RATE_INCR_YEAR
43. RESERVE_CHARGE_CREDIT
44. RESIDUAL_VALUE_RISK
45. RETURN_ITEMS
46. RETURN_ON_EQUITY
47. TAX_EXEMPT_PCT

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48. TOTAL_FEES
49. TOTAL_FEES_AT_ORG
50. TOTAL_TRANSACTIONS

5.5.12 FSI_D_LEDGER_STAT_INSTRUMENT

List of deprecated Columns in FSI_D_LEDGER_STAT_INSTRUMENT table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_NET_BOOK_BAL_C
10. COMMISSION_ON_COLLECTION
11. CONVEXITY_C
12. CUR_NET_BOOK_BAL_C
13. CUR_NET_PAR_BAL_C
14. CUR_YIELD
15. DURATION_C
16. DV01_C
17. EBANKING_EXP
18. MARGIN_T_RATE
19. MARKET_VALUE_CLEAN_C
20. MODIFIED_DURATION_C
21. ORG_NET_BOOK_BAL_C
22. ORG_NET_PAR_BAL_C
23. RATE_DECR_YEAR
24. RATE_INCR_YEAR
25. TAX_EXEMPT_PCT

5.5.13 FSI_D_LOAN_COMMITMENTS

List of deprecated Columns in FSI_D_LOAN_COMMITMENTS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1

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4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. COMMISSION_ON_COLLECTION
10. CONVEXITY_C
11. CUR_NET_PAR_BAL_C
12. CUR_YIELD
13. DURATION_C
14. DV01_C
15. EBANKING_EXP
16. MARGIN_T_RATE
17. MARKET_VALUE_CLEAN_C
18. MODIFIED_DURATION_C

5.5.14 FSI_D_LOAN_CONTRACTS

List of deprecated Columns in FSI_D_LOAN_CONTRACTS table.

1. ACCIDENT_HEALTH_PREMIUM
2. AGENCY_FEES
3. ALLOC_EQUITY
4. ALLOC_LLR
5. ALLOC_LLR_CR
6. ALLOC_MISC_1
7. ALLOC_MISC_2
8. ALLOC_MISC_3
9. ALLOC_MISC_4
10. ALLOC_MISC_5
11. AVERAGE_LIFE_C
12. AVG_NET_BOOK_BAL_C
13. BACKUP_LIQUID_COST
14. CALL_PRICE
15. COLLATERAL_MKT_VALUE
16. COLLATERAL_NOMINAL_VALUE
17. COMMISSION_ON_COLLECTION
18. COMMIT_UTIL_PCT_C
19. CONTRACT_AMT

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20. CONTRIB_AFTER_CAPITAL_CHG
21. CONVEXITY_C
22. CREDIT_LIFE_INS_PREM
23. CREDIT_RISK_CAPITAL
24. CUR_NET_BOOK_BAL_C
25. CUR_NET_PAR_BAL_C
26. CUR_YIELD
27. CURRENT_FEES
28. DEALER_RES_ORG
29. DEALER_RES_UNEARN
30. DEL_LIFE_TIMES
31. DEL_YEAR_TIMES
32. DIST_FR_LIFE_CAP_C
33. DRAWN_AMT
34. DURATION_C
35. DV01_C
36. EBANKING_EXP
37. GROSS_FEE_INCOME
38. INITIAL_DIRCT_COST
39. INTEREST_CHARGE_CREDIT
40. INTEREST_OVERDUE
41. MARGIN_T_RATE
42. MARKET_RISK_CAPITAL
43. MARKET_VALUE_CLEAN_C
44. MISC_ASSET_CHG
45. MISC_LIABILITY_CR
46. MODIFIED_DURATION_C
47. NET_FEE_INCOME
48. NET_INT_MARGIN
49. NOTCH1_DOWNGRADE_CF_IMPACT
50. NOTCH10_DOWNGRADE_CF_IMPACT
51. NOTCH2_DOWNGRADE_CF_IMPACT
52. NOTCH3_DOWNGRADE_CF_IMPACT
53. NOTCH4_DOWNGRADE_CF_IMPACT
54. NOTCH5_DOWNGRADE_CF_IMPACT
55. NOTCH6_DOWNGRADE_CF_IMPACT
56. NOTCH7_DOWNGRADE_CF_IMPACT
57. NOTCH8_DOWNGRADE_CF_IMPACT

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58. NOTCH9_DOWNGRADE_CF_IMPACT
59. OP_RISK_CAPITAL
60. ORG_INTEREST_AMT
61. ORG_LOAN_TO_VALUE
62. ORG_NET_BOOK_BAL_C
63. ORG_NET_PAR_BAL_C
64. PARTICIPATION_AMT_SOLD
65. PRIME_RATE
66. RATE_DECR_YEAR
67. RATE_INCR_YEAR
68. RESERVE_CHARGE_CREDIT
69. RETURN_ITEMS
70. RETURN_ON_EQUITY
71. RISK_ADJ_AVG_BAL
72. TAX_EXEMPT_PCT
73. TOTAL_FEES
74. TOTAL_FEES_AT_ORG
75. TOTAL_TRANSACTIONS
76. UNDRAWN_AMT

5.5.15 FSI_D_MERCHANT_CARDS

List of deprecated Columns in FSI_D_MERCHANT_CARDS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AUTHORIZATION_FEES
9. AVAILABLE_CREDIT
10. AVERAGE_LIFE_C
11. AVG_NET_BOOK_BAL_C
12. AVG_TICKET_BAL
13. BONUS_AMT
14. CASH_BALANCE
15. CASH_RATE

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16. CHARGE_OFF_BAL
17. CHARGEBACK_EXP
18. COMMISSION_ON_COLLECTION
19. CONTRIB_AFTER_CAPITAL_CHG
20. CONVEXITY_C
21. CORRECTION_FEES
22. CREDIT_BAL_INT_RATE
23. CUR_CREDIT_LIMIT
24. CUR_NET_BOOK_BAL_C
25. CUR_NET_PAR_BAL_C
26. CUR_YIELD
27. CURRENT_FEES
28. CYCLE_DAY_OF_MONTH
29. DEL_LIFE_TIMES
30. DEL_YEAR_TIMES
31. DISCOUNT_RATE
32. DISCOUNTED_FEES
33. DURATION_C
34. DV01_C
35. EBANKING_EXP
36. FINANCE_CHARGE_BAL
37. FLOAT_DAYS_YTD
38. FLOAT_MGMT_FEES
39. GROSS_FEE_INCOME
40. LARGEST_OUTST_BAL
41. LAST_PAYMENT_AMT
42. LIMIT_USE_RATIO_C
43. MARGIN_T_RATE
44. MARKET_VALUE_CLEAN_C
45. MEMBER_DUES
46. MERCHANDISE_BAL
47. MERCHANDISE_RATE
48. MERCHANT_CHARGES
49. MODIFIED_DURATION_C
50. NET_FEE_INCOME
51. NET_INT_MARGIN
52. ORG_NET_BOOK_BAL_C
53. ORG_NET_PAR_BAL_C

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54. ORIGINAL_CREDIT_LINE
55. OTHER_EXP
56. OVER_LIMIT_BAL
57. OVER_LIMIT_CURRENT_CYCLE
58. OVER_LIMIT_LF_TIME
59. RATE_DECR_YEAR
60. RATE_INCR_YEAR
61. RESERVE_CHARGE_CREDIT
62. RETURN_ITEMS
63. RETURN_ON_EQUITY
64. TAX_EXEMPT_PCT
65. TOTAL_CHARGES
66. TOTAL_FEES
67. TOTAL_TRANSACTIONS
68. VOLUME_REBATE_AMT
69. WARNING_BULLETINS_EXP

5.5.16 FSI_D_MM_CONTRACTS

List of deprecated Columns in FSI_D_MM_CONTRACTS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_DAILY_COLL_REQD
10. AVG_NET_BOOK_BAL_C
11. AVG_PEAK_INTRADAY_COLL_USED
12. COLLATERAL_MKT_VALUE
13. COLLATERAL_NOMINAL_VALUE
14. COMMISSION_FEES
15. COMMISSION_ON_COLLECTION
16. COMMISSIONS_RATE
17. CONTRACT_QUANTITY
18. CONTRIB_AFTER_CAPITAL_CHG

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19. CONVEXITY_C
20. CUR_NET_BOOK_BAL_C
21. CUR_NET_PAR_BAL_C
22. CUR_YIELD
23. DISCOUNT_PCT_BOND_TRANS
24. DISCOUNT_PCT_STOCK_TRANS
25. DURATION_C
26. DV01_C
27. EBANKING_EXP
28. GROSS_FEE_INCOME
29. LOAN_VALUE
30. MARGIN_AMOUNT
31. MARGIN_T_RATE
32. MARKET_PRICE
33. MARKET_VALUE_CLEAN_C
34. MKT_VS_BOOK_BAL_C
35. MODIFIED_DURATION_C
36. MTM_VALUE
37. NET_FEE_INCOME
38. NET_INT_MARGIN
39. NOMINAL_VALUE
40. ORG_NET_BOOK_BAL_C
41. ORG_NET_PAR_BAL_C
42. PURCHASE_PRICE
43. RATE_DECR_YEAR
44. RATE_INCR_YEAR
45. RESERVE_CHARGE_CREDIT
46. RETURN_ITEMS
47. RETURN_ON_EQUITY
48. SHARE_VALUE
49. SHARES
50. TAX_EXEMPT_PCT
51. TOTAL_FEES
52. TOTAL_TRANSACTIONS
53. UNENCUMBERED_AMT

5.5.17 FSI_D_MORTGAGES

List of deprecated Columns in FSI_D_MORTGAGES table.

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1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_LLR
4. ALLOC_LLR_CR
5. ALLOC_MISC_1
6. ALLOC_MISC_2
7. ALLOC_MISC_3
8. ALLOC_MISC_4
9. ALLOC_MISC_5
10. APPROVED_AMT
11. ARM_BASE_RATE
12. AVERAGE_LIFE_C
13. AVG_NET_BOOK_BAL_C
14. COLLATERAL_MKT_VALUE
15. COLLATERAL_NOMINAL_VALUE
16. COMMISSION_ON_COLLECTION
17. CONTRACT_AMT
18. CONTRIB_AFTER_CAPITAL_CHG
19. CONVEXITY_C
20. CREDIT_RISK_CAPITAL
21. CUR_MIN_PMT
22. CUR_NET_BOOK_BAL_C
23. CUR_NET_PAR_BAL_C
24. CUR_YIELD
25. CURRENT_FEES
26. DEL_LIFE_TIMES
27. DEL_YEAR_TIMES
28. DIST_FR_LIFE_CAP_C
29. DRAWN_AMT
30. DURATION_C
31. DV01_C
32. EBANKING_EXP
33. FIRST_RESET_AGE
34. GROSS_FEE_INCOME
35. MARGIN_T_RATE
36. MARKET_RISK_CAPITAL
37. MARKET_VALUE_CLEAN_C
38. MISC_ASSET_CHG

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39. MISC_LIABILITY_CR
40. MODIFIED_DURATION_C
41. MORT_INS_AMT
42. MORT_INS_CUTOFF
43. MORT_INS_PREMIUM
44. NET_FEE_INCOME
45. NET_INT_MARGIN
46. OP_RISK_CAPITAL
47. ORG_CUST_LTV
48. ORG_LOAN_TO_VALUE
49. ORG_NET_BOOK_BAL_C
50. ORG_NET_PAR_BAL_C
51. PARTICIPATION_AMT_SOLD
52. PREPAY_INDEX_TERM
53. RATE_DECR_YEAR
54. RATE_INCR_YEAR
55. RESERVE_CHARGE_CREDIT
56. RETURN_ITEMS
57. RETURN_ON_EQUITY
58. RISK_ADJ_AVG_BAL
59. TAX_EXEMPT_PCT
60. TOTAL_FEES
61. TOTAL_FEES_AT_ORG
62. TOTAL_TRANSACTIONS

5.5.18 FSI_D_MUTUAL_FUNDS

List of deprecated Columns in FSI_D_MUTUAL_FUNDS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_NET_BOOK_BAL_C
10. COMMISSION_FEES

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11. COMMISSION_ON_COLLECTION
12. COMMISSIONS_RATE
13. CONTRACT_QUANTITY
14. CONTRIB_AFTER_CAPITAL_CHG
15. CONVEXITY_C
16. CUR_NET_BOOK_BAL_C
17. CUR_NET_PAR_BAL_C
18. CUR_YIELD
19. DISCOUNT_PCT_BOND_TRANS
20. DISCOUNT_PCT_STOCK_TRANS
21. DURATION_C
22. DV01_C
23. EBANKING_EXP
24. GROSS_FEE_INCOME
25. LOAN_VALUE
26. MARGIN_AMOUNT
27. MARGIN_T_RATE
28. MARKET_PRICE
29. MARKET_VALUE_CLEAN_C
30. MKT_VS_BOOK_BAL_C
31. MODIFIED_DURATION_C
32. MTM_VALUE
33. NET_FEE_INCOME
34. NET_INT_MARGIN
35. ORG_NET_BOOK_BAL_C
36. ORG_NET_PAR_BAL_C
37. PURCHASE_PRICE
38. RATE_DECR_YEAR
39. RATE_INCR_YEAR
40. RESERVE_CHARGE_CREDIT
41. RETURN_ITEMS
42. RETURN_ON_EQUITY
43. SHARE_VALUE
44. SHARES
45. TAX_EXEMPT_PCT
46. TOTAL_FEES
47. TOTAL_TRANSACTIONS

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5.5.19 FSI_D_OTHER_SERVICES

List of deprecated Columns in FSI_D_OTHER_SERVICES table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_NET_BOOK_BAL_C
10. COMMISSION_ON_COLLECTION
11. CONTRIB_AFTER_CAPITAL_CHG
12. CONVEXITY_C
13. CUR_NET_BOOK_BAL_C
14. CUR_NET_PAR_BAL_C
15. CUR_YIELD
16. CURRENT_FEES
17. DURATION_C
18. DV01_C
19. EBANKING_EXP
20. GROSS_FEE_INCOME
21. MARGIN_T_RATE
22. MARKET_VALUE_CLEAN_C
23. MISC_ASSET_CHG
24. MISC_LIABILITY_CR
25. MODIFIED_DURATION_C
26. NET_FEE_INCOME
27. NET_INT_MARGIN
28. OP_RISK_CAPITAL
29. ORG_NET_BOOK_BAL_C
30. ORG_NET_PAR_BAL_C
31. RATE_DECR_YEAR
32. RATE_INCR_YEAR
33. RETURN_ITEMS
34. RETURN_ON_EQUITY

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35. SAFE_DEPOSIT_BOX_FEE
36. TAX_EXEMPT_PCT
37. TOTAL_FEES
38. TOTAL_TRANSACTIONS

5.5.20 FSI_D_RETIREMENT_ACCOUNTS

List of deprecated Columns in FSI_D_RETIREMENT_ACCOUNTS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_NET_BOOK_BAL_C
10. COMMISSION_ON_COLLECTION
11. CONTRIB_AFTER_CAPITAL_CHG
12. CONVEXITY_C
13. CUR_NET_BOOK_BAL_C
14. CUR_NET_PAR_BAL_C
15. CUR_YIELD
16. CURRENT_FEES
17. DEPOSIT_RESERVES_CHARGE
18. DURATION_C
19. DV01_C
20. EBANKING_EXP
21. GROSS_FEE_INCOME
22. HIGH_BAL
23. LAST_DEPOSIT_AMT
24. LAST_WITHDRAW_AMT
25. LOW_BAL
26. MARGIN_T_RATE
27. MARKET_PRICE
28. MARKET_VALUE_CLEAN_C
29. MAX_AMT_GUARANTEED
30. MKT_VS_BOOK_BAL_C

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31. MODIFIED_DURATION_C
32. NET_FEE_INCOME
33. NET_INT_MARGIN
34. ORG_NET_BOOK_BAL_C
35. ORG_NET_PAR_BAL_C
36. PURCHASE_PRICE
37. RATE_DECR_YEAR
38. RATE_INCR_YEAR
39. RESIDUAL_AMT_OF_GUARANTEE
40. RETURN_ITEMS
41. RETURN_ON_EQUITY
42. TAX_EXEMPT_PCT
43. TOTAL_FEES
44. TOTAL_TRANSACTIONS

5.5.21 FSI_D_SWAPS

List of deprecated Columns in FSI_D_SWAPS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. COMMISSION_ON_COLLECTION
10. CONVEXITY_C
11. CUR_YIELD
12. DURATION_C
13. DV01_C
14. EBANKING_EXP
15. MARGIN_T_RATE
16. MARKET_VALUE_CLEAN_C
17. MODIFIED_DURATION_C
18. RATE_DECR_YEAR
19. RATE_INCR_YEAR

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5.5.22 FSI_D_TERM_DEPOSITS

List of deprecated Columns in FSI_D_TERM_DEPOSITS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_COLLECT_BAL
10. AVG_NET_BOOK_BAL_C
11. COMMISSION_ON_COLLECTION
12. CONTRIB_AFTER_CAPITAL_CHG
13. CONVEXITY_C
14. CUR_NET_BOOK_BAL_C
15. CUR_NET_PAR_BAL_C
16. CUR_YIELD
17. CURRENT_FEES
18. DEPOSIT_FLOAT
19. DEPOSIT_RESERVES_CHARGE
20. DURATION_C
21. DV01_C
22. EBANKING_EXP
23. GROSS_FEE_INCOME
24. HIGH_BAL
25. LAST_DEPOSIT_AMT
26. LAST_WITHDRAW_AMT
27. LOW_BAL
28. MARGIN_T_RATE
29. MARKET_RISK_CAPITAL
30. MARKET_VALUE_CLEAN_C
31. MAX_AMT_GUARANTEED
32. MISC_ASSET_CHG
33. MISC_LIABILITY_CR
34. MODIFIED_DURATION_C

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35. NET_FEE_INCOME
36. NET_INT_MARGIN
37. OP_RISK_CAPITAL
38. ORG_NET_BOOK_BAL_C
39. ORG_NET_PAR_BAL_C
40. RATE_DECR_YEAR
41. RATE_INCR_YEAR
42. REQ_VS_COLL_BAL_C
43. REQUIRED_BAL
44. RESIDUAL_AMT_OF_GUARANTEE
45. RETURN_ITEMS
46. RETURN_ON_EQUITY
47. RISK_ADJ_AVG_BAL
48. TAX_EXEMPT_PCT
49. TOTAL_FEES
50. TOTAL_TRANSACTIONS

5.5.23 FSI_D_TRUSTS

List of deprecated Columns in FSI_D_TRUSTS table.

1. AGENCY_FEES
2. ALLOC_EQUITY
3. ALLOC_MISC_1
4. ALLOC_MISC_2
5. ALLOC_MISC_3
6. ALLOC_MISC_4
7. ALLOC_MISC_5
8. AVERAGE_LIFE_C
9. AVG_NET_BOOK_BAL_C
10. BONDS_BAL
11. COMMISSION_FEES
12. COMMISSION_ON_COLLECTION
13. CONTRIB_AFTER_CAPITAL_CHG
14. CONVEXITY_C
15. CUR_NET_BOOK_BAL_C
16. CUR_NET_PAR_BAL_C
17. CUR_YIELD
18. CURRENT_FEES

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19. DISCOUNT_PCT_BOND_TRANS
20. DISCOUNT_PCT_STOCK_TRANS
21. DURATION_C
22. DV01_C
23. EBANKING_EXP
24. EXPECTED_BAL
25. EXPECTED_BAL_GROWTH_PCT
26. FUNDS_BAL
27. GROSS_FEE_INCOME
28. LOAN_VALUE
29. MARGIN_T_RATE
30. MARKET_VALUE_CLEAN_C
31. MINIMUM_BALANCE
32. MODIFIED_DURATION_C
33. NET_FEE_INCOME
34. NET_INT_MARGIN
35. ORG_NET_BOOK_BAL_C
36. ORG_NET_PAR_BAL_C
37. OTHER_BAL
38. RATE_DECR_YEAR
39. RATE_INCR_YEAR
40. RETURN_ITEMS
41. RETURN_ON_EQUITY
42. STOCK_BAL
43. TAX_EXEMPT_PCT
44. TOTAL_FEES
45. TOTAL_TRANSACTIONS

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6

Business Rules Administration

This chapter introduces you to the following topics.

- Reference Data: This section explains about the baseline configurations like interest rate curves, Currencies set up, Economic indicators on which Various rules/assumptions can be defined. These configurations are referred across various modules and used in subsequent transfer pricing calculations.
- Common Rules: This section explains about rules which are common across all multiple applications in Profitability and Balance Sheet Management Cloud Service suite like ALM, PFT, and FTP.
- Funds Transfer Pricing Specific Rules: This section explains about Funds Transfer Pricing Cloud Service specific modules which are particularly referenced for transfer pricing calculations.
- Modelling: This section covers the Non-Maturity Analysis Model and Non-Maturity Data Creation modules.

6.1 Reference Data

This section explains about the baseline configurations like interest rate curves, Currencies set up, Economic indicators on which Various rules/assumptions can be defined. These configurations are referred across various modules and used in subsequent transfer pricing calculations.

Topics:

1. Currencies: Currencies module allows you to define and maintain the currencies and currency rates.
    - Currencies: Currencies module supports the definitions and maintenance of currencies.
    - Currency Rates: Currency Rates module uses the currencies defined and activated in the Currency module to support the creation and maintenance of Historical Exchange Rates.
2. Interest Rates: The Interest Rate Curve in PBSM Cloud Service allows you to define and manage complex Yield Curve definitions using multiple Rate Formats and other Rate Attributes to give you data storage capabilities appropriate to your market. The Interest Rate Curve supports the creation and maintenance of Historical Rate Data for each Yield Curve you define.
3. Economic Indicators: An Economic Indicator is any economic statistic such as the Consumer Price Index (CPI), growth rate of the Gross Domestic Product (GDP), unemployment rate, Purchasing Managers Index, indices of consumer confidence, and so on.
4. Dimension Management: Dimension Management facilitates you to categorize data into a single object as a Member; define levels and aggregate data to form the Hierarchies, and distinguish each member by defining the required Attributes.

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- Members: Dimension Members refer to the individual items that constitute a dimension when data is categorized into a single object such as Product, Organization, Time, and so on.
- Attributes: Attributes refers to the distinguished properties or qualifiers that describes a Dimension Member.
- Hierarchies: Hierarchies refer to Dimension Members that are arranged in levels, with each level representing the aggregated total of the data from the level below. One dimension type can have multiple hierarchies associated with it.

5. Behavior Patterns: User Defined Behavior Patterns allow you to define Principal Amortization Schedules for Non-Maturity Products in your portfolio.
6. Payment Patterns: User defined payment patterns allow you to define custom repayment patterns for products in your portfolio.

6.1.1 Currencies Setup

Currencies module supports the definitions and maintenance of currencies. Currency definitions are fundamental to the definition of both interest rate yield curves and currency exchange rates.

6.1.1.1 Currency Setup

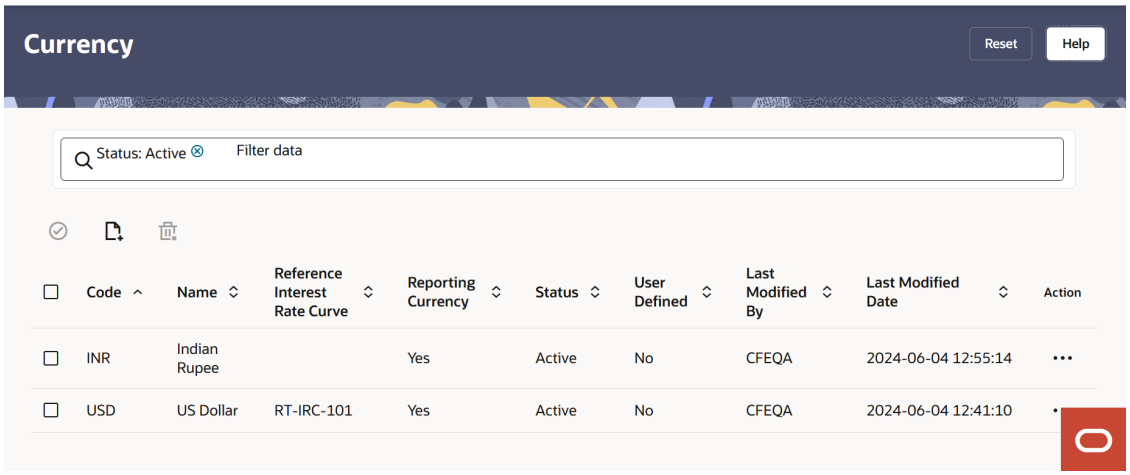
Financial institutions transact business in more than one currency. Transacting business in multiple currencies demands functional capabilities for multi-currency accounting and currency rate management.

Currency module supports the definitions and maintenance of currencies. Currency definitions are fundamental to the definition of both interest rate yield curves and currency exchange rates. A key attribute of every yield curve is the currency with which it is associated, and currency exchange rates can only be established between defined currencies. A comprehensive list of ISO-defined currencies is provided; you can also define and add your user-defined currencies.

Currency Summary

This page is the gateway to all Currencies and related functionality. You can navigate to other pages relating to Currencies from this point.

Figure 6-1 Currency Summary



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Search Currency

Prerequisites: Predefined Currency

To search for a Currency:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Currencies that meet the search criteria.

Or

An alternative method to search a Currency Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Currency Rule Summary. Enter the **Code, Name, Status, Reporting Currency**, or **User Defined** of the Currency and click **Search** .

The Currency Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Currency Rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Activate: Select one or more currency and click Activate icon to change status to active.

- **Code:** The 3-letter ISO code of Currency
- **Name:** The Currency's short name.
- **Reference Interest Rate Curve:** Displays the Reference Interest Rate Curve of Currency
- **Reporting Currency:** Indicates whether currency is marked for use as Reporting Currency
- **Status:** Displays the Active or Inactive status of Currency.
- **User Defined:** Identifies any user-defined currency, that is, a currency not seeded by Cloud Service
- **Action:** Click this icon to view a list of actions that you can perform on the Currency Rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Currency Rules. To edit a rule, you must have Read/Write privilege.
  - **Delete:** You can delete Currency Rules that you no longer require. Note that only Currency Rule owners and those with Read/Write privileges can delete Currency Rules. A Currency Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Dependency Check:** You can perform a dependency check to know where a particular Currency Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Currency Rules that have dependencies. A report of all rules that utilize the selected Currency Rule is generated.

Also See:

- Add a Currency

6.1.1.1.1 Add Currency

To add a Currency, follow these steps:

1. Navigate to **Reference Data** and select **Currency**.

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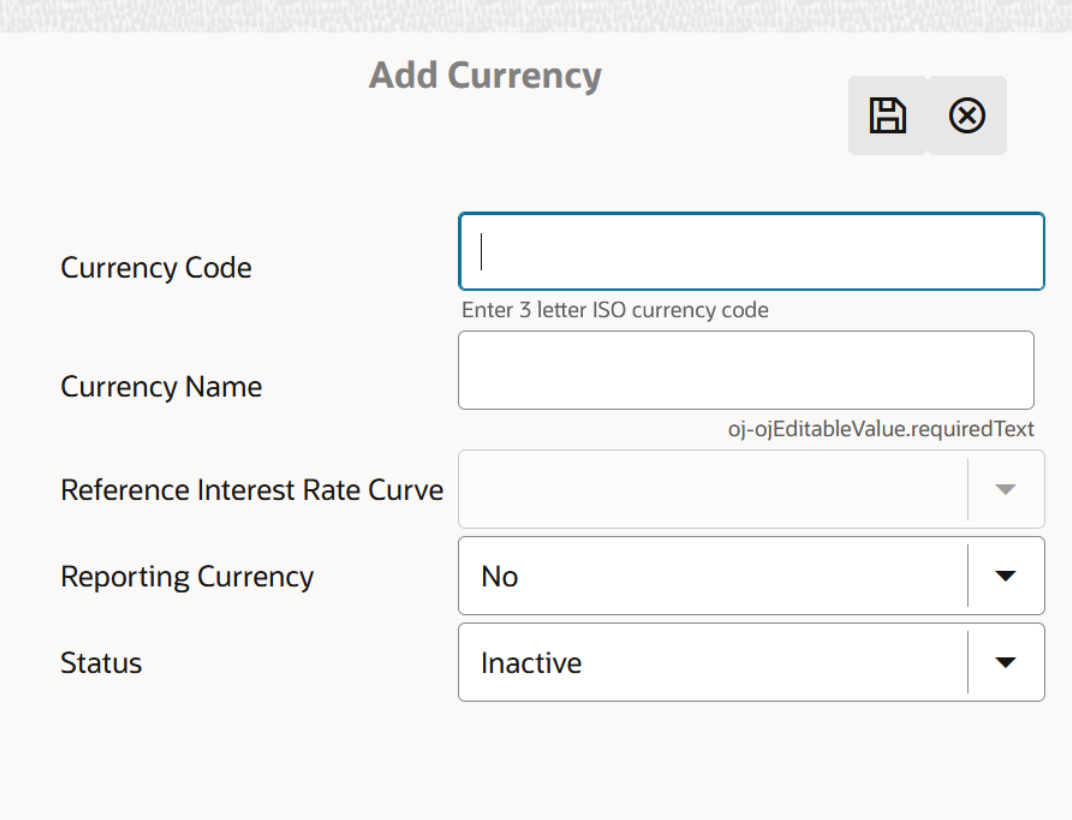
2. Click **Add** icon on Currency summary page. The **Add Currency** page is displayed.

Figure 6-2 Add Currency Page



3. Enter the following details:

Table 6-1 Adding a Currency – Fields and Descriptions

Fields	Description
Currency Code	For seeded currencies, these are ISO Currency Codes. For user-defined currencies, these can be any pure character string (no numbers) up to a length of 3 characters.
Currency Name	For seeded currencies, these are ISO Currency Codes. For user-defined currencies, these can be any string up to a length of 40 characters.
Reference Interest Rate Curve	Reference Interest Rate Curve is the Interest Rate Curve with which currency is associated for exchange rate forecasting purposes. Define multiple yield curves each of which has the same Reference Currency, but a currency can only have one Reference Interest Rate Curve.

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Table 6-1 (Cont.) Adding a Currency – Fields and Descriptions

Fields	Description
Reporting Currency	A reporting currency is an active currency to which balances in other currencies can be consolidated to facilitate reporting. Balances in reporting currencies can be, in turn, consolidated to the functional currency. For example, an American multinational bank might consolidate its holdings in Asian currencies to the Japanese yen (Reporting Currency) and its balances in European currencies to the Euro (Reporting Currency) after which it might consolidate these reporting currencies to the U.S. dollar (Functional Currency).
Status	The status of any currency can be either Active or Inactive. You must Activate a currency before doing the followings: a. Define that currency as a Reference Currency for an Interest Rate curve. b. Enter Exchange Rate data for a currency. c. Define Forecast Rates for that currency. d. Define any other business rule like Prepayment, Transfer Pricing for that currency.

Note

- For the Oracle Financial Services Climate Change Analytics Cloud Service application, select '*Yes*' for the Reporting Currency. This supports the Exchange Rate Conversion in the Currency Rate feature.
- The Reference Interest Rate Curve is not applicable for processing and analytical purposes in Oracle Financial Services Climate Change Analytics Cloud Service.

4. Click **Save**.

6.1.1.2 Currency Rates

Currency Rates Module uses the currencies defined and activated in the Currency Module to support the creation and maintenance of Historical Exchange Rates. In the Currency Rate Window, you can manage historical Exchange Rates between currencies.

To Currency defaults to the Initial Currency selection from the Assumption Management defaults in the Active Preferences Window. You can select another To Currency from the drop-down list that displays all Active Currencies.

Editing Exchange Rate Data

Select the check box on the left-hand side of any row to enable the **Edit** icon. After clicking Edit, the row becomes active to edit the **Effective Date** and (or) the **Exchange Rate**. Click **Save** to save the changes.

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Viewing Exchange Rate Data

By default, both the Floating Currency Rates Pane and the Fixed Currency Rates Pane display the most recent month of historical Exchange Rate Data. You can control the amount of data displayed by selecting a different value from the **Effective Date Range** drop-down list in the **Currency Selection** Window.

From Date and **To Date** can also be modified to view relevant Currency Rates.

Deleting Exchange Rate Data

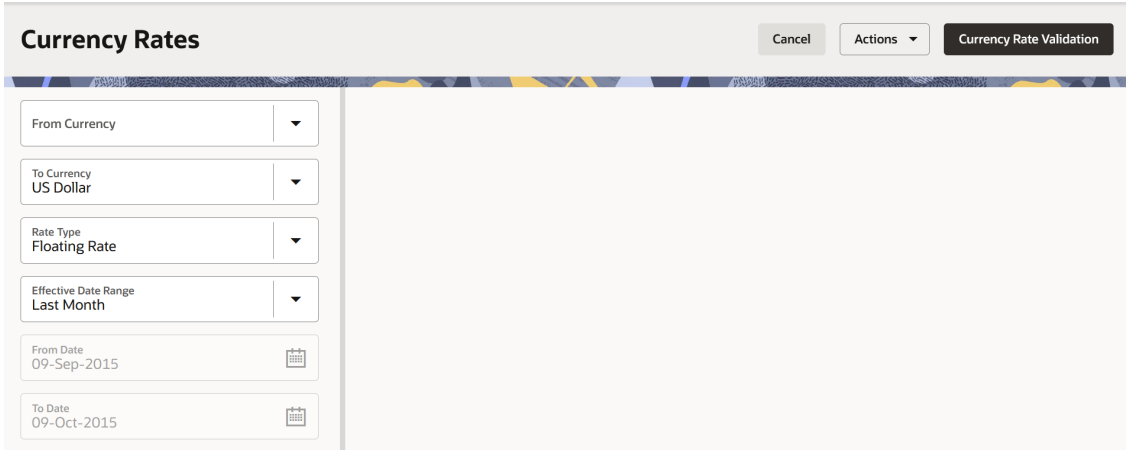
Select one or more check boxes on the left-hand side of any row to enable the **Delete** icon. After clicking Delete, a confirmation message is displayed. Click **Ok**.

6.1.1.2.1 Adding Exchange Rate Data

Based on the Rate Types, you can add the following Exchange Rate Data:

- **Floating Rates**
  Floating Exchange Rates, such as those between the US Dollar (USD), the Pound Sterling (GBP), the Japanese Yen (JPY), and the Euro (EUR), are market-driven and can change from day-to-day, hour-to-hour, or minute-to-minute.
- **Fixed Rates**
  Some countries, especially smaller countries or countries that have experienced significant inflation in the recent past, can wish to “peg” their currency to a larger, more stable currency such as the US Dollar, Japanese Yen, or Euro.

Figure 6-3 Currency Rates



Adding Floating Rate Data

To add the Exchange Rate Data, follow these steps:

1. Select a **From Currency**.
2. Select a **To Currency**.
3. Select **Rate Type** as **Floating Rate** (default selection is Floating Rate).
4. The RHS pane is displayed as Floating Currency Rates.

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5. Select **Effective Date Range** to enter the values in From Date and To Date fields.
6. Select the **Rate Provider**.
7. Currency Rate Pane initially displays a single blank row followed by the most recent month's Exchange Rate data (if any such Exchange Rate Data already exists). To enter a single new Exchange Rate Data Point, enter data into the blank row.

Table 6-2 Floating Currency Rates

Fields	Description
Effective Date	Directly enter a date or select the Calendar icon to choose an effective date for your new Exchange Rate data point. Rate Management Stores the Historical Exchange Rate Data. You cannot enter Exchange Rate data for dates greater than the current date.
Exchange Rate	This must be entered as 1 unit of From Currency are converted to n unit of To Currency.
Status	Status is a read-only display that is updated after the Currency Rates Validation has been run.
Data Origin	The Data Origin is displayed read-only and indicates whether the rates were input through the UI or the Data Loader.

8. Click **Save**.
9. Click **Add** to add additional blank rows to enter the additional Effective Dates and Exchange Rates. After adding the multiple new Exchange Rates, click **Save**.

Adding Fixed Rate Data

To add the Exchange Rate Data, follow these steps:

1. Select a **From Currency**.
2. Select a **To Currency**.
3. Select **Rate Type** as **Fixed Rate**.
4. After selecting a **To Currency** value, the RHS pane is displayed as Fixed Currency Rates.
5. Select **Effective Date Range** to enter the values in From Date and To Date fields.
6. Select the **Rate Provider**.
7. Currency Rate Pane initially displays a single blank row followed by the most recent month's Exchange Rate Data (if any such Exchange Rate Data already exists). To enter a single new Exchange Rate Data Point, enter data into the blank row.

Table 6-3 Fixed Currency Rates

Fields	Description
Effective From Date	Directly enter a date or select the Calendar icon to choose a starting effective date for your new Exchange Rate Data Point.
Effective To Date	Directly enter a date or select the Calendar icon to choose a ending effective date for your new Exchange Rate Data Point.

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Table 6-3 (Cont.) Fixed Currency Rates

Fields	Description
Currency Exchange Rate	This must be entered as 1 unit of From Currency are converted to n unit of To Currency.
Status	Status is a read-only display that is updated after the Currency Rates Validation has been run.
Data Origin	The Data Origin is displayed read-only and indicates whether the rates were input through the UI or the Data Loader.

8. Click **Save**.
9. Click **Add** to add additional blank rows to enter the additional Effective Start and End Dates and Exchange Rates. After adding the multiple new Exchange Rates, click **Save**.

6.1.1.2.2 Currency Exchange Rate Validation

Exchange Rate Validation has the following features:

- Movement of historical Exchange Rates to the Currency Direct Access Table.
- Calculation of inverse Exchange Rates for Reporting Currencies.
- Calculation of triangulated Exchange Rates where possible.

Features of Exchange Rate Validation

The goal of Exchange Rate Validation is to ensure that Exchange Rates from all active currencies to all reporting currencies are available for processing. Some of these rates can come from the validated direct input, others are calculated based on relationships with other rates. To support triangulation, all fixed Exchange Rates are available for all currencies that make up an exchange that needs to be triangulated. Also, a direct Exchange Rate between each Child Currency and each reporting currency is calculated and supplied to support quick access to Exchange Rates. If a Child currency is a Reporting Currency, then Exchange Rates are calculated for all currencies having an exchange relationship with the Parent Currency.

Validating Exchange Rate Relationships

You must run the Exchange Rate Validation Process after adding or modifying Exchange Rate Data. Run the process immediately or schedule one or more to be run in the future.

Each Exchange Rate has one of the following statuses:

Table 6-4 Details of Exchange Rates

Fields	Description
Not Yet Validated	The Exchange Rate has been input or loaded but not yet validated.
Valid	The Exchange Rate has been validated.
Invalid	The Exchange Rate has violated one or more acceptance rules.

Only Exchange Rates in valid status are available for processing and they are not subject to future validation unless you edit them. The Rate Validation Status is displayed in the Currency Rates Window of the Rate Management.

Exchange Rate Validation Criteria

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In the Rate Validation Process, all Exchange Rate relationships in the database are examined for compliance with the following criteria. Error messages and warnings are displayed if one or more criteria are not met.

- If a currency is defined as a Child in a fixed exchange relationship then it must not be in any floating (standard) Exchange Rate Relationship at the same time. Consequently, all floating Exchange Rates to or from the Child Currency must be defined through the Parent Currency. If this criterion is not met then the following message is displayed: Invalid fixed relationship—Child Currency exists in a standard Exchange Rate within the same time period.
- A Child Currency within a fixed relationship must not be a Child Currency in any other Fixed Relationship during the same time period. If this criterion is not met then the following message is displayed: Invalid fixed relationship—Child Currency already exists in a fixed relationship for the same time period.
- A Circular Relationship must not exist. In other words, a Child Currency cannot link back to its Parent in any other fixed rate Relationship within the same time period. If it does, then the following message is displayed: Invalid fixed relationship creates a circular relationship with other fixed Exchange Rates.
- Regarding new Floating (standard) Exchange Rates, from and To currencies must not exist as Child Currencies within any Fixed Exchange Rate Relationships. If this criterion is not met then the following message is displayed: From/To/Both currency(ies) in the new Exchange Rate already exist in a fixed relationship for the same time period.
- If any Exchange Rate is equal to 0, then a warning message is displayed. Generally speaking, 0 is a valid value. You can use it, for example, to designate an Exchange Rate with a currency of a country that no longer exists.

If two Exchange Rate Relationships fail to meet these criteria then both of them will be labeled Invalid. (Exception, if one of the relationships is already in Valid status, then the other one will be labeled Invalid.) For example, if a currency is defined as a Child in a Fixed Rate Relationship and is also defined as being in a Floating Relationship at the same time, then both Fixed and Floating Rates for that currency will be labeled Invalid.

If there are both direct and Inverse Floating Exchange Rates defined for any two currencies (in other words, one currency is both a To and a From Currency in relation to the other), then both relationships will be marked valid.

Running an Exchange Rate Validation

You can run a validation immediately or schedule one or more for later. The Validation Status is displayed in the **Currency Rates** window.

You can execute the Exchange Rate validation using the **Currency Rates Validation** option.

To execute the Exchange Rate Validation, follow these steps:

1. Click **Currency Rates Validation**.

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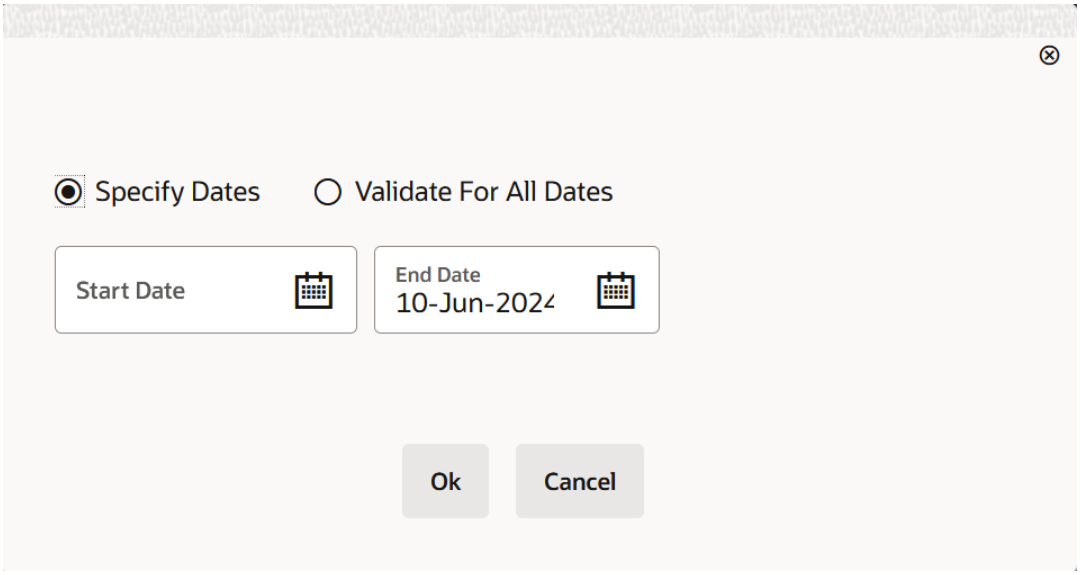
Figure 6-4 Currency Rates Validation



2. To execute Exchange Rate validation from the **Currency Rates** window, the following options are available:
   - **Specify Dates:** After selecting this option, a Select Dates Pane is displayed to enter or verify the Start Date and End parameters. These dates will be passed to the batch for execution.
   - **Validate For All Dates:** Select this option to validate all the rates irrespective of dates.
   - **Start Date:** This defaults to the date of last rate validation.
   - **End Date:** This defaults to the current date.

> **Note**
>
> This option will replace all of the validated Exchange Rate History and can be a time-consuming process depending on the amount of history available to be processed.

6.1.1.2.3 Download

The Download functionality is used to download the Historical Exchange Rates in **.csv** format.

6.1.1.2.4 Importing Currency Rates

To import the Currency Rate, follow these steps:

1. Navigate to the **Currency Rate** page.
2. Click **Actions** drop-down and select **Upload Data**.
3. Select the type of Rate as **Floating** or **Fixed**.
4. Click the **Drag and Drop** option to select the file.

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> **Note**
>
> The excel file, you are uploading should be in a specific format. You can download the template using the **Download Template** option. The Templates for Fixed and Floating Rate Types.
> Currency rates UI bulk upload supports only **YYYY-MM-DD** date format

5. Click **Upload**.

6.1.2 Interest Rates

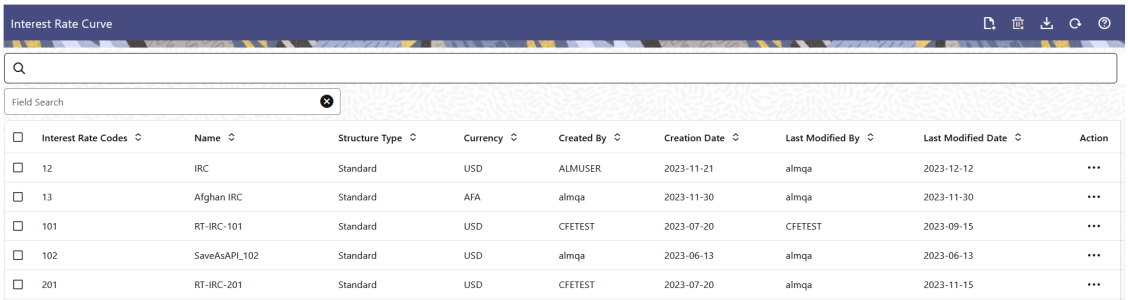
The quality and availability of Interest Rate information vary throughout the world. In many markets, gathering comprehensive rate information is a challenge because of insufficient security types, inconsistent quoting conventions, and lack of liquidity. The Interest Rate Curve in Cloud Service allows you to define and manage complex Yield Curve definitions using multiple Rate Formats and other Rate Attributes to give you data storage capabilities appropriate to your market. The Interest Rate Curve supports the creation and maintenance of Historical Rate Data for each Yield Curve you define.

Historical Interest Rate Data is utilized in the Cloud Service to generate the Transfer Rates, add-On Rates, rates for market value calculations, Option Costs, and Forecasted Interest Rate Scenarios.

Interest Rate Rule Summary

This page is the gateway to all Interest Rate Rules and related functionality. You can navigate to other pages relating to Interest Rate Rules from this point.

Figure 6-5 Interest Rate Curves Summary



Search Interest Rate Rule

Prerequisites: Predefined Interest Rate Rule

To search for an Interest Rate Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Interest Rate Rules that meet the search criteria.

Or

An alternative method to search an Interest Rate Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and

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displayed in the Interest Rate Rule Summary. You can enter the **Interest Rate Code**, **Name**, **Currency**, **Rate Format**, and **Structure Type** of the Interest Rate Rule and click **Search** .

The Interest Rate Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Interest Rate Rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Download: Enables you to download the Interest Rate Summary report in .csv format.

- **Interest Rate Code**: The Interest Rate Curve's Code. The code is a unique number in the range of 1 to 9999999. Hover on a row in the pane to display the Interest Rate Curve's detailed description.
- **Name**: The Interest Rate Curve's short name.
- **Structure Type**: The Structure Type (Standard, Hybrid) of the Interest Rate Curve.
- **Currency**: The Currency (Reference Currency) for which Interest rate curve is defined.
- **Created By**: The Name of the user who created the Interest Rate Curve.
- **Creation Date**: The Date and Time when Interest Rate Curve was created.
- **Last Modified By:** The user who last modified the Interest Rate Rule.
- **Last Modified Date:** The Date and Time when the Interest Rate Rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Interest Rate Rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Interest Rate Rules. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse an Interest Rate Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Interest Rate Rules that you no longer require. Note that only Interest Rate Rule owners and those with Read/Write privileges can delete Interest Rate Rules. An Interest Rate Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Dependency Check:** You can perform a dependency check to know where a particular Interest Rate Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Interest Rate Rules that have dependencies. A report of all rules that utilize the selected Interest Rate Rule is generated.

> **Note**
>
> This is functionality will intended for a future release.

Also See:

- Create Interest Rate Rule

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6.1.2.1 Creating an Interest Rate Curve

To create an Interest Rate Curve, perform the following steps:

1. Click **Add** from the **Interest Rate Curve Summary** page.
2. Enter the following information in the **Interest Rate Curve Details** window.
   - **Interest Rate Code**: When constructing a new Yield Curve, you must specify an Interest Rate Code between 1 and 9999999. Interest Rate Codes are used internally to uniquely identify Yield Curves. When working with Cloud service, you reference Yield Curves by Name, not by Interest Rate Codes. Interest Rate Codes are embedded within your instrument data (for example, the INTEREST_RATE_CD columns within the Instrument Data are populated with Interest Rate Codes). After you have saved a Yield Curve, you cannot modify its Interest Rate Code.
   - **Name**: Provide a unique Name for the Interest Rate Curve.
   - **Description**: You can enter a description for the Interest Rate Curve. You can modify this description at any time using the Edit action.
   - **Display for All Currencies**: This flag allows you to designate certain Interest Rate Curves to make them available for assumption mapping to any currency. Assumption Rules filter the list of Interest Rate Codes based on the currency when defining assumptions for a specific Product/Currency combination. When this option is enabled, the Interest Rate Curve appears in assumption rules for all currencies.
   - **Reference Currency**: Select a Reference Currency for your Interest Rate Curve. You can change the Reference Currency for previously saved Interest Rate Curves though such changes are unlikely. An Interest Rate Curve's Reference Currency is the currency for which your market rates are valid. For example, the Reference Currency for a Prime Rate Yield Curve would be US Dollars. The Reference Currencies drop-down list displays only Active currencies. For more information on Active and Inactive currencies, see the Currency Documentation.
   - **Date Based Term Points**: This toggle switch is applicable only for Standard Structure Type. If you select Structure Type as Hybrid, the toggle switch is disabled. When you select the Date Based Term Points, and add a Term Point, the Historical Rates Tab allows you to define a Custom Date and Rate for each Term Point. By default, the Date is inserted based on the Term that you define. You can change the Date to a custom Date and define the Rate.
   - **Risk-Free**: (Optional) This flag is for tagging the Interest Rate Curve as risk-free. That is Edit Table in new and Edit Modes. It is available for Non-Hybrid Curves and Hybrid Curves.
   - **Structure Type**: This attribute is required for each Yield Curve. Structure Type supports Standard, Hybrid Yield Curve, and Managed Rates Definitions. Hybrid Yield Curves are re-expressions of one or more pre-existing Standard Yield Curves. For more information, see Hybrid Term Structure. Managed Rates are free form, user-defined formula, that is, equation based objects. For more information, see Managed Rates. Standard Interest Rate Curves are used to define the Yield Curve and to add, edit, or delete Historical Interest Rate Data. After you have saved the Yield Curve, you cannot change the selected Structure Type.

> **Note**
>
> IRC Structure Type **Managed Rates** is applicable only to ALMCS.

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- The Interest Rate Curve tabs are:
  - Terms & Attributes
  - Historical Rates
  - Parameters
  - Hybrid Term Structure
  - Managed Rates

  For new Yield Curves, you must begin with the **Terms & Attributes** tab. After you have selected the term structure and attributes for a Yield Curve, you cannot edit them. After assigning the attributes, navigate to the Terms tab to define a term structure for your Yield Curve, for example, an overnight rate, a one-month rate, a three-month rate, and so on. Click **Apply** after defining the term structure and attributes to the Interest Rate Curve.

  > **Note**
  >
  > You must specify an Interest Rate Code and Name in the **Interest Rate Curve Details** window before navigating to the **Terms & Attributes** tab.

  The first time you navigate to the **Terms & Attributes** tab, an initial 1-month term point is provided, but even if this is the only term point you want for the curve, you must click **Apply** to finish term structure specification. In future revisions to the Curve's Definition, navigate directly to the **Historical Rates** tab, but if you modify the term structure, you must always click **Apply** on the **Terms & Attributes** tab before navigating to the **Historical Rates** tab.

  The **Historical Rates** Tab is used to input historical interest rate data. This Tab is used for maintaining the Interest Rates Database. To navigate to the Historical Rates Tab, either click **Apply** on the **Terms & Attributes** tab or select the **Historical Rates** tab if you have already defined your term structure.

  > **Note**
  >
  > You must specify the following before navigating to the **Historical Rates** tab:
  >
  > - An Interest Rate Code, Name, and Reference Currency in the **Interest Rate Code Details** window.
  > - A term structure in the **Terms & Attributes** tab.

6.1.2.1.1 Terms & Attributes

The Terms & Attributes Tab displays the following fields:

- **Adding New Term Points**: Click **Add** to add a new row. (New term points by entering a Term value and selecting a Multiplier (such as 7 days, 2 months, 5 years, and so on). Rate Format, Compounding Basis, and Accrual Basis can be selected for the term point. Zero Coupon Yield, Annual, Actual/Actual are the pre-selected values in UI which you can modify.
  One Yield Curve can have two combinations of attributes. For example, first 3 term points have Zero Coupon Yield, Annual, Actual/Actual attributes and remaining term points are Yield to Maturity, Annual and 30/360.

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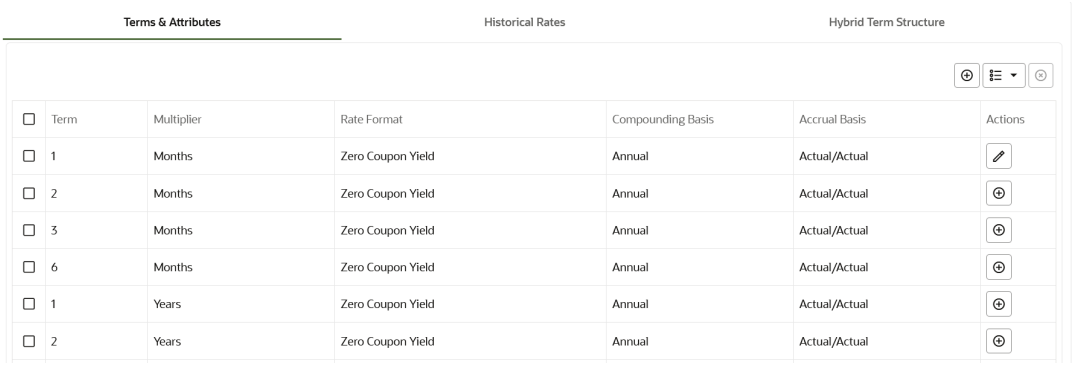
Figure 6-6 Terms and Attributes Tab



Term	Multiplier	Rate Format	Compounding Basis	Accrual Basis	Actions
1	Months	Zero Coupon Yield	Annual	Actual/Actual	
2	Months	Zero Coupon Yield	Annual	Actual/Actual	
3	Months	Zero Coupon Yield	Annual	Actual/Actual	
6	Months	Zero Coupon Yield	Annual	Actual/Actual	
1	Years	Zero Coupon Yield	Annual	Actual/Actual	
2	Years	Zero Coupon Yield	Annual	Actual/Actual	

Click “+” at the term point where you want to modify attributes. Rate Format, Compounding Basis, and Accrual Basis fields are enabled for modification.

- **Rate Format**: You should select either the Zero Coupon Yield or Yield to Maturity Rate Format. Rates entered in the Historical Rates Tab are always entered in the nominal form, such as 5.125% or 6.875%, not as discount factors.
- **Compounding Basis**: Select a Compounding Basis for the term point:
  - Daily
  - Monthly
  - Quarterly
  - Semiannual
  - Annual
  - Simple
  - Continuous
  - At Maturity
- **Accrual Basis**: Select an Accrual Basis for the Yield Curve.
  - 30/360
  - Actual/360
  - Actual/Actual
  - 30/365
  - 30/Actual
  - Actual/365
  - Business/252
- **Deleting Existing Term Points**: To delete an existing term, select the term point (or terms), and click **Delete**.

You can also click **Add Multiple Rows** to select the number of multiple rows that you want to add.

You can construct the Yield Curve's Term Structure. You can specify as many Yield Curve Terms from the 1 day to 100 years range. However, the UI allows only two combinations of Rate Format, Compounding Basis, and Accrual Basis per one Interest Rate Curve Definition.

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The Interest Rate Curve Definition Module automatically selects the combination of Rate Format, Compounding Basis, and Accrual Basis when a new Term Point is greater than the already defined Term Points. For example, if you define two Term Points with 15 Days, one Month Multipliers, and another Term Point with 2 Years Multiplier. When you define a new Term Point with 45 Days Multiplier, the Interest Rate Curve Definition Module automatically selects the combination of Rate Format, Compounding Basis, and Accrual Basis that is selected for the first two Term Points. Similarly, if you define a Term Point, which is greater than the 2 Years Multiplier, then the module selects the combination of Rate Format, Compounding Basis, and Accrual Basis that is selected for the 2 Years Term Point.

6.1.2.1.2 Parameters Tab

Fixed income instruments are used for forecasting and simulating the Cash Flows. The Cash Flow Engine needs interest rate models to simulate the evolution of interest rates. The Cash Flow Engine uses these models as part of the stochastic engine. You can enter the parameters for these models in the following ways:

- Direct input into the UI

The following interest rate models are available:

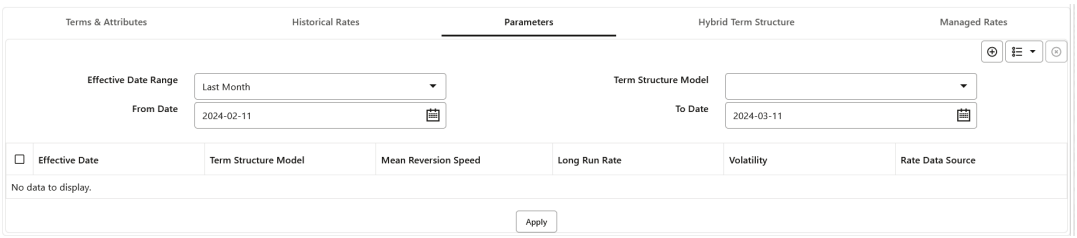
- Extended Vasicek
- Ho and Lee
- Merton
- Vasicek

Parameter

To configure the Parameter, follow these steps:

1. Navigate to Parameters tab of Interest Rate Curve.

Figure 6-7 Parameters Tab on Interest Rate Curve window



2. Enter the Effective Date Range filter.
3. After clicking Add, default parameters for the **Extended Vasicek Model** are displayed for one Effective Date (the System Date on which the Interest Rate Code was created). You can edit these parameters or add new parameters using **Add**.
4. Enter the **Effective Date**. Note that the **Effective Date** cannot be greater than the **Current System Date**.
5. Select the Model from the **Term Structure Model** drop-down list. Effective Date and Term Structure Model combination must be unique within this IRC.
6. The following term structure models of interest rates:
   - Extended Vasicek

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- Ho and Lee
- Merton
- Vasicek

7. The following parameters needed by the models:

Table 6-5 List of supported parameters for Models Term structure models in Interest Rate

Model	Parameter 1	Parameter 2	Parameter 3
Extended Vasicek	Volatility	Mean Reversion Speed	
Ho and Lee	Volatility		
Merton	Volatility		
Vasicek	Volatility	Mean Reversion Speed	Long Run Rate

8. Enter values for **Long Run Rate** and **Volatility** in percentages.
For example, a Long Run Rate of 5% is displayed as 5.000. To maintain the integrity of data, Rate Management restricts the accepted input values. The valid range and the default setting for each parameter.

Table 6-6 Valid Range and Default Values of Interest Rate Parameters

Parameter	Valid Range	Default Value
Volatility	0% to 500%	0.01
Mean reversion speed	0.00 to 500	0.0
Long run rate	0.00% to 500%	0.0

9. Click **Apply**.

6.1.2.1.3 Historical Rates

Use the Historical Rates Tab to define, modify, or view Interest Rate Data. Enter data in simple percentages (such as 5.125, 4.875, and so on).

The **Rate Data Source** Column shows from where the rates are taken from, they are either entered through the User Interface, loaded through the Data Loader, or generated using the Generate Rates of Hybrid IRC.

You can perform the following tasks:

- Add Historical Rates
- Excel Import or Export
- Deletion of Historical Rates

> **Note**
>
> FTP engine supports rate lookup from a future date as well, if engine looks for any particular effective date and that is not found, then next it looks for most recent date available in the past, even if that is not available, then it can pick the rate from most recent future date also.

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6.1.2.1.3.1 Add Historical Rates

By default, the **Historical Rates** Tab displays Interest Rate Data for the past month (for example, for the 30 days leading up to the current date). Click the **Effective Date Range** drop-down list to expand your view to the last 3 months, 6 months, one year, 3 years, 6 years, or all rate data.

6.1.2.1.3.2 Deletion of Historical Rates

To delete Historical Rates entered, select one or more rows and then click **Delete**.

6.1.2.1.3.3 Excel Import or Export

To aid in data entry, use the Excel Import or Export functionality to add or edit rate data to Historical Rates. This is an optional step.

Excel Export:

To export the data, perform the following steps:

1. Click **Export** to export data for the chosen selected effective date range. Within the same block, select Export to Excel, which launches the Excel application and displays the Data Window including headers.

Excel Import:

The excel file exported above can be used as a template to import the Historical Rates.

> **Note**
>
> Ensure that the date format is yyyy-MM-dd in the excel file. For example, 2022-06-13.

1. On the Interest Rates toolbar, click the **Import** icon. Select the file containing the Historical Rates.
2. Data from the file is displayed on the UI. If appending data that pre-existed for the same effective date, the import will overwrite existing data.
3. Add or edit data if required.
4. Click **Apply** to save.

6.1.2.1.4 Hybrid Interest Rate Curves

Hybrid Term Structures allows you to specify the following types of Hybrid Yield Curves:

- Merge
- Spread
- Moving Average
- Custom Weighted Average

Hybrid Yield Curves are built up from either one or more Standard Yield Curves. When you add, modify, or delete any historical rate data from a Standard Yield Curve, the data associated with any related Hybrid Yield Curve must be updated. After defining, the Hybrid Yield Curves can be used like any other Interest Rate Curve in the system. You can reference these curves within the Cloud Service Business Rules that allow the selection of an Interest Rate Code.

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Hybrid Curve Type Spread: A Spread Hybrid Yield Curve is defined as the difference between two standard yield curves. The Spread type of hybrid yield curve is useful in establishing liquidity risk or basis risk yield curves.

- **Merge**: Merge hybrid yield curves represent a blending of two or more underlying yield curves. In constructing a Merge type of Hybrid Yield Curve, specify the percentage weighting applied to each of the underlying Standard Hybrid Yield Curves.
- **Spread**: A Spread hybrid yield curve is defined as the difference between two standard yield curves. The Spread type of Hybrid Yield Curve is useful in establishing liquidity risk or basis Risk Yield Curves.
- **Moving Average**: Moving average Hybrid Yield Curves represent moving average data of a single underlying Standard Yield Curve. These curves are used in Funds Transfer Pricing.
- **Custom Weighted Average**: Custom Weighted Average Rate is the sum of weighted rates as per the defined Custom Weights for the Historical Rates.

6.1.2.1.4.1 Define Hybrid Curve

Defining a Hybrid Curve supports the following different definitions based on the Hybrid Curve Type:

- Hybrid Curve Type as Merge
- Hybrid Curve Type as Spread
- Hybrid Curve Type as Moving Average
- Hybrid Curve Type as Custom Weighted Average

6.1.2.1.4.1.1 Defining a Hybrid Curve with Hybrid Curve Type as Merge

To define a Hybrid Curve, perform the following steps:

1. Select the **Structure Type** as **Hybrid**, and then select the **Hybrid Curve Type** as **Merge**.
2. Select the **Interest Rate Curves** for the hybrid type and click **Apply**. You must select at least two Interest Rate Curve Definitions.

   The screen displays the Hybrid Term Structure Weights for the selected Interest Rate Curves and the Merge type Hybrid Curve.
3. By default, all the Term Points are selected and displayed. You can uncheck one or more Term Points.
4. You can click on the icon next to the Selected Term Structure to see the Term Points for the Interest Rate Curve. A box displays the Term and Multiplier for the select Interest Rate Curve.
5. Enter the Weights for the selected Terms.
6. Click **Apply** to save the Weights in the grid.

6.1.2.1.4.1.2 Defining a Hybrid Curve with Hybrid Curve Type as Spread

To define a Hybrid Curve, perform the following steps:

1. Select the **Structure Type** as **Hybrid**, and then select the **Hybrid Curve Type** as **Spread**.
2. Select the **Interest Rate Curves** for the hybrid type and click **Apply**. Only two Interest Rate Curves are allowed for selection.
3. Click the **Swap** icon to re-order the Interest Rate Curves.

   The screen displays the Hybrid Term Structure Weights for the selected Interest Rate Curves and the Merge type Hybrid Curve.

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4. By default, all the Term Points are selected and displayed. You can uncheck one or more Term Points.
5. Click **Apply** to save the selected Terms.

6.1.2.1.4.1.3 Defining a Hybrid Curve with Hybrid Curve Type as Moving Average

To define a hybrid curve, perform the following steps:

1. Select the **Structure Type** as **Hybrid**, and then select the **Hybrid Curve Type** as **Moving Average**.
2. Select the **Interest Rate Curves** for the hybrid type and click **Apply**. Only one Interest Rate Curve Definition is allowed for selection.

   The screen displays the Hybrid Term Structure Weights for the selected Interest Rate Curves and the Merge type Hybrid Curve.
3. By default, all the Term Points are selected and displayed. You can uncheck one or more Term Points.
4. Enter the Terms and Multipliers for each of the selected Terms.

   OR Optionally, you can select the **Moving Average Term** toggle switch to define the Terms and Multipliers for the selected terms at once.
5. Click **Apply** to save the Terms in the grid.

6.1.2.1.4.1.4 Defining a Hybrid Curve with Hybrid Curve Type as Custom Weighted Average

To define a Hybrid Curve, perform the following steps:

1. Select the **Structure Type** as **Hybrid**, and then select the **Hybrid Curve Type** as **Custom Weighted Average**.
2. Select the **Interest Rate Curves** for the Hybrid Type and click **Apply**. Only one Interest Rate Curve Definition is allowed for selection.

   The screen displays the Hybrid Term Structure Weights for the selected Interest Rate Curves and the Merge type Hybrid Curve.
3. By default, all the Term Points are selected and displayed. You can uncheck one or more Term Points.
4. Enter the Terms and Multipliers for each of the selected Terms.

   OR Optionally, you can select the **Moving Average Term** toggle switch to define the Terms and Multipliers for the selected terms at once.
5. Enter the Weights for the each term and respective Historical Effective Dates. By default, all the Weights are zero. You can change the values as per your requirement.
6. Click **Apply** to save the Terms in the grid.

6.1.2.1.4.2 Generate Hybrid Rates

After a Hybrid Curve is defined, generate the Historical Rates as far back as the Rate Source Curves allow. The Generate Frequency determines the frequency of the historical rates populated with the Generate function. If you select the Generate Frequency as monthly, it generates month-end values only. If you select daily, it generates the maximum number of Historical Values. By default, the Interpolation is selected as Linear and you cannot change it.

To generate the rates, perform the following steps:

1. Select the **Generate Frequency** (Daily, Weekly, Bi-Weekly, or Monthly) and enter the **Specific Date Range** (From Date and To Date). For Custom Weighted Average Hybrid Curve Type, you need to select only the From Date.

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2. Click **Generate**. The rates will be populated and you will be directed to the Historical Rates Tab to view the results.

Generating Hybrid Rates using Scheduler

You can also generate the Hybrid rates using the Scheduler Service.

To generate the Hybrid rates:

1. From the LHS menu, navigate to Operations and Processes, select Scheduler, and then select Create Batch. For more details, Define Batch.
2. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Ceate Task**. For more details, see Define Tasks.
    a. Task Type: REST
    b. Component: IRC Hybrid Scheduler
3. Select the seeded batch and click **Edit Parameters**. In the Dynamic Parameters pop-up window, change the date to the relevant As-of-Date, and then save the batch.
4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**.
5. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**. For more information, see Monitor Batch.
6. Select the **Batch** and then select the **MISDATE** and the **Batch name**. There may be multiple executions of the Hybrid rates batch. Select the latest execution and click **Start Monitor**.
   The UI displays the Status of the batch.

6.1.2.1.5 Managed Rates

Managed rates are IRC objects that are based on a logical and/or mathematical formula instead of being based on a yield curve. This is useful if you do not have a straight forward application function that generates a rate based on a formula. Managed Rates are formula-driven IRC (interest rate curve or yield curve) objects. The Managed Rates UI provides the following functionalities:

- Allows to create a managed rates formula with the help of equation builder.
- You can create a managed rates formula by using existing IRC, Currency, Economic Indicator objects and combining it with various mathematical operators.
- Execute managed rates using Scheduler Service

Managed Rate Formulas

Managed Rates are free form, user-defined formula, that is, equation based objects. You can use a variety of mathematical, logical, or reference functions to define a Managed Rate. Regardless of the complexity of the function, it always return only one numerical value every time when it is evaluated.

For example, there are three basic inputs for Market Rates formulas:

Numerical and mathematical values, including embedded functions (for example, "SUM" or "AVERAGE").

Existing Rate Management objects such as interest rate curves, economic indicators, and foreign currencies

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Reference in time specification, that is, a relative or absolute reference in time either in the past, present, or future.

Note

Formulas are statements. These can be mathematical, logical, or reference one or more Application objects, but it returns a *single* numerical value.

For example:

Formula input: 1+1

Returns: 2

It is not mandatory to include the "=" symbol in the expression as this is already implied.

There is no nominal value of the rate, that is, it cannot be an accrual, day count, compounding, or other rate identities; it is simply a number.

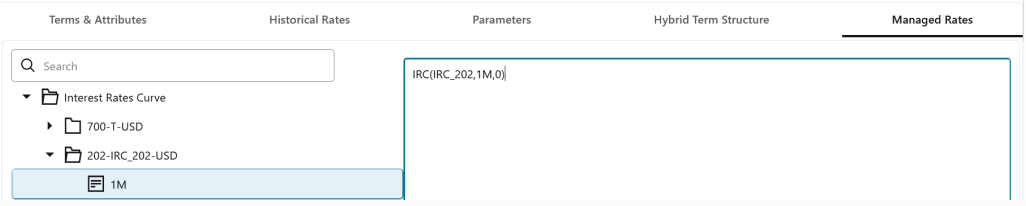
Basic syntax is required if other service objects are reference, then you must specify three distinct components:

1. Object type code or name
2. Object ID
3. Tenor
4. Place in time in the forecast

[Object type code].[Object ID].[Tenor if IRC, 0 if anything else].[Place in time]

For example, suppose you want a formula that refers to an interest rate curve's 1 month tenor on a current basis, then its syntax would look something like this:

Figure 6-8 Example of Managed Rate



Here,

[IRC_202] is the IRC code (Object ID)

[1M] is the Term.

[0] is time. This calculates Past, present or future dates/rates with ease for any term/ tenor and forecast method definition. The default value is 0. [0] means the now. [-1] refers to back one period. [$] refers to constrained time period.

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> **Note**
>
> If the time value falls outside of provided numbers, the Application will refer to the closest matching value. If no value can be retrieved or if the value is null, then the Managed Rate formula will not be evaluated.

Managed Rate Processes

When you validate Managed Rates, it is processed under two conditions:

1. **Managed Rates for Historical Values**

   You can use the entered managed rate to derive one or more historical values as specific points in time at or before the current As-of Date.

   Function is executed at the Rate Management level for Managed Rate functions. Specify one or more historical dates that you want to processed and then execute a batch to derive the associated values. All historical values would be stored in a managed rate historical table.

   If a Managed Rate formula has time references that are constrained, the formula will default to the last available value provided. If no value is provided (e.g. value cannot be retrieved or is null), then no rate will be provided for that historical date.

2. **Managed Rates for Forecasted Values**

   For forecasted values in an ALM process as established in Forecast Rates. Managed Rates will be forecasted using the forecasted base objects like IRC, Currency and Economic Indicator.

   For more information, see Interest Rate Forecast Methods.

To define Managed Rate, follow these steps:

1. Select **Structure Type** as **Managed Rates**.
2. Navigate to **Managed Rates** tab.

   > **Note**
   >
   > This tab will be active only when **Structure Type** is selected as **Managed Rates**.

3. Select the Function type as Interest Rate Curve, Currency, or Economic Indicator to define a formula.
4. Double-click the Function code to move it to Formula section.
5. Update the formula. Use arithmetical operator from Operator to define formula if required.

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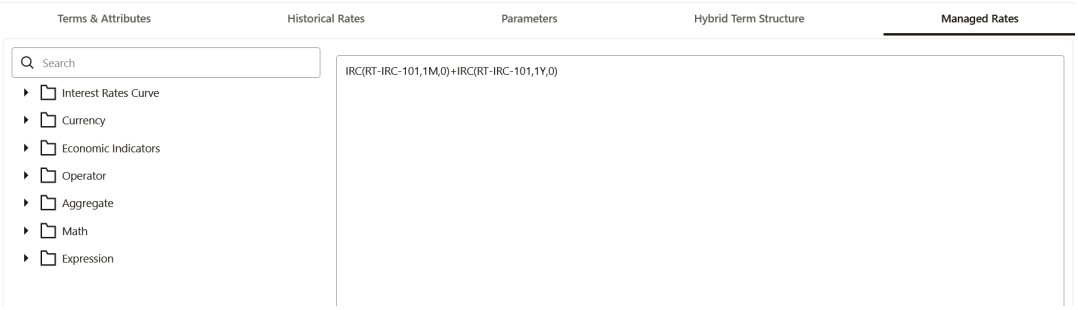
Figure 6-9 Formula section



Interest Rate Curve

This function evaluates rate of selected term point of Interest Rate Curve, in the past, present or future

IRC(Name, Term_Point, Time_Reference)

- **Name**: Must be an existing IRC
- **Term Point**: Must be an existing term point of named IRC
- **Time_Reference**: Time_Reference indicates the rate to be forward or backward looking. This should be zero or positive/negative whole number. If left null, replace with zero. 0 indicates current period, positive value indicate forward time and negative value indicates prior period. It can also be relative (moving) or absolute (fixed). Use '$' symbol for absolute Term Reference.

Currency

This function evaluates exchange rate of selected currency pair in the past, present or future

CCY(From_Currency, To_Currency, Time_Reference)

- **From_Currency**: Three letter code of active currency
- **To_Currency**: Three letter code of reporting currency
- **Time_Reference**: Time_Reference indicates the rate to be forward or backward looking. This should be zero or positive/negative whole number. If left null, replace with zero. 0 indicates current period, positive value indicate forward time and negative value indicates prior period. It can also be relative (moving) or absolute (fixed). Use '$' symbol for absolute Term Reference.

Economic Indicator

This function evaluates value of selected Economic Indicator in the past, present or future

ECOIND(Name,Time_Reference)

- **Name**: Must be an existing Economic Indicator
- **Time_Reference**: Time_Reference indicates the rate to be forward or backward looking. This should be zero or positive/negative whole number. If left null, replace with zero. 0 indicates current period, positive value indicate forward time and negative value indicates prior period. It can also be relative (moving) or absolute (fixed). Use '$' symbol for absolute Term Reference.

Aggregate

This includes the following functions:

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Function	Description
Average	Calculates the average (mean) value of an expression in a result set. AVG(expr) *expr* is any expression that evaluates to a numerical value.
Max	Calculates the maximum value (highest numeric value) of an expression in a result set. MAX(expr) *expr* is any expression that evaluates to a numerical value.
Min	Calculates the minimum value (lowest numeric value) of an expression in a result set. MIN(expr) *expr* is any expression that evaluates to a numerical value.
Median	Calculates the median (middle) value of an expression in a result set. MEDIAN(expr) *expr* is any expression that evaluates to a numerical value.
StdDev	Returns the standard deviation for a set of values. STDDEV(expr) *expr* is any expression that evaluates to a numerical value.
Sum	Calculates the sum obtained by adding up all values satisfying the numeric expression argument. SUM(expr) *expr* is any expression that evaluates to a numerical value.
Geometric Mean	Calculates the the geometric mean of an array or range of positive numeric data. GEOMEAN(expr) *expr* is any expression that evaluates to a numerical value.

> **Note**
>
> At least two values/expression are required to calculate above aggregate functions.

Math

Function	Description
Abs	Calculates the absolute value of a numerical expression. ABS(expr) *expr* is any expression that evaluates to a numerical value.

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Log	Calculates the natural logarithm of an expression. LOG(expr) *expr* is any expression that evaluates to a numerical value.
Log10	Calculates the base 10 logarithm of an expression. LOG10(expr) *expr* is any expression that evaluates to a numerical value.
Mod	Divides the first numerical expression by the second numerical expression and returns the remainder portion of the quotient. MOD(expr, divisor) *expr* is any expression that evaluates to a numerical value. *divisor* is any expression or number by which you want to divide
Power	Takes the first numerical expression and raises it to the power specified in the second numerical expression. POWER(expr, power) *expr* is any expression that evaluates to a numerical value. *power* is the exponent, to which the base expression or number is raised
Round	Rounds a numerical expression to n digits of precision. ROUND(expr, num_digits) *expr* is any expression that evaluates to a numerical value. *num_digits* is the number of digits to which you want to round. Negative rounds to the left of the decimal point; zero or omitted, to the nearest integer.
Round Down	Rounds down a number to either a decimal place or a whole number. ROUNDDOWN(expr, num_digits) *expr* is any expression that evaluates to a numerical value. *num_digits* is the number of digits to which you want to round. Negative rounds to the left of the decimal point; zero or omitted, to the nearest integer.
Round Up	Rounds up a number to either a decimal place or a whole number. ROUNDUP(expr, num_digits) *expr* is any expression that evaluates to a numerical value. *integer* is any positive integer that represents the number of digits of precision.

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Sqrt	Calculates the square root of the numerical expression argument. SQRT(expr) *expr* is any expression that evaluates to a nonnegative numerical value.
Product	Multiplies all numerical expressions given as arguments and returns the product. PRODUCT(expr1, expr2) *expr* is any expression that evaluates to a numerical value.
Quotient	Returns one numerical expression divided by numerical expression, without the remainder. QUOTIENT(expr1, expr2) *expr* is any expression that evaluates to a numerical value. Example: QUOTIENT(5,2). This will return 2, unlike division which returns 2.5
Exponent	Calculates e raised to the power of the numerical expression argument. EXP(expr) *expr* is any expression that evaluates to a numerical value.

Expression

Function	Description
Case(If)	This form of the Case statement evaluates each WHEN condition and if satisfied, assigns the value in the corresponding THEN expression. If none of the WHEN conditions are satisfied, it assigns the default value specified in the ELSE expression. If no ELSE expression is specified, the system will automatically add an ELSE NULL. CASE WHEN request_condition1 THEN expr1 ELSE expr2 END *exprs* is any valid expression.

> **Note**
>
> For IRC Managed Rates, the **Historical Rates** tab is view-only. You cannot add or edit the historical rates.

6. Click **Apply and Validate**. A successful formula validation message is displayed. After clicking **Ok**, you will be navigated back to **Interest Rate** Summary page.
7. Enter **From Date** and **To Date**.
8. Click **Generate**. This button will be activated after successful validation of formula. A batch Id is generated, You can use this Id to monitor the progress in Scheduler Service.
9. After defining and verifying the Managed Rates, you can execute the IRC using scheduler service.

Executing Managed Rates using Scheduler

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To execute the batch, navigate to Operations and Processes and select Scheduler. Select Schedule Batch and search for **Historical Managed Rates** and execute.

OR

You can also define new batch to execute the Managed Rates by the following these steps:

1. Navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch.**
2. Create a new Batch with a new Task with Component as **IRC Managed Rates**.
3. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Schedule Batch** to execute the batch. Select the batch and click Execute. For more details about Scheduler processes, see the Scheduler Services.
4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**. There may be multiple executions of the batch. Select the latest execution and click Start Monitor.
   The UI displays the status of the batch.

6.1.2.2 IRC Data Migration

On-prem to SaaS Migration

Data Export from On-prem

Users have to connect to the database and export the data in the prescribed CSV format. Name of the Data File must follow the format as given below:

- A prefix as INPUT_YYYYMMDD where the date format is related to the As of Date (i.e., 02-October-2023 becomes 20231002).
- A suffix as _FILENAME.CSV.
- An example of Data File Name could be: INPUT_20231002_IRC_<DATAFILENAME>.csv. The order of the columns in the input file must be as follows:
  - INTEREST_RATE_NAME
  - EFFECTIVE_DATE (Date format: MM-DD-YYYY)
  - INTEREST_RATE_TERM
  - INTEREST_RATE_TERM_MULT
  - INTEREST_RATE
  - RATE_DATA_SOURCE_CODE

Data Import to SaaS

For more information on importing the data, see Interest Rates Loader.

SaaS to SaaS Migration

Data Export from SaaS

Users have to export data using the Data Maintenance Interface and select the VW_FSI_IRC_RATE_HIST view. For more information about how to export data using the Data Maintenance Interface, see Data Maintenance Interface.

Data Import to SaaS

For importing the data, see Interest Rates Loader.

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6.1.3 Economic Indicators

An Economic Indicator is any economic statistic such as the Consumer Price Index (CPI), growth rate of the Gross Domestic Product (GDP), unemployment rate, Purchasing Managers Index, indices of consumer confidence, and so on. Such macroeconomic statistics tell us how well the economy has behaved in the past. Some economic indicators are referred to as lagging indicators while others are classified as leading indicators. Leading indicators can provide insights into the future direction of the economy.

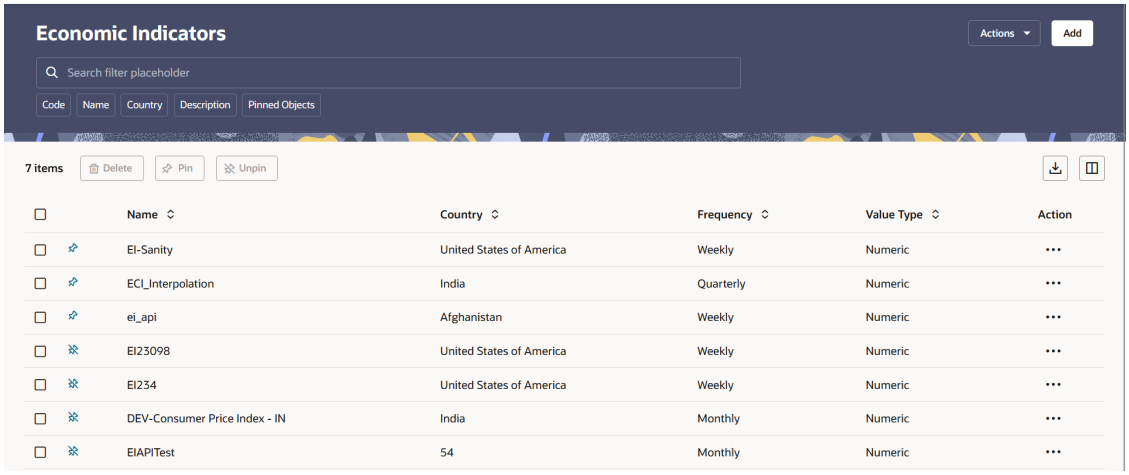
Economic Indicators Module allows you to define and store such historical indicators. It provides baseline from which forecasts of future values can be generated that can affect cash flow calculation for Inflation Indexed Instruments, new business or other modeling assumptions.

To view the Economic Indicators, navigate to Maintenance and then select Economic Indicators, an empty window is displayed. After you have defined one or more Economic Indicators, the Economic Indicators Summary Page shows all the Economic Indicators that you have previously defined.

Economic Indicator Rule Summary

This page is the gateway to all Economic Indicator Rules and related functionality. You can navigate to other pages relating to Economic Indicator Rules from this point.

Figure 6-10 Economic Indicator Summary



Search Economic Indicator Rule

Prerequisites: Predefined Economic Indicator Rule

To search for an Economic Indicator Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Economic Indicator Rules that meet the search criteria.

Or

The other method to search an Economic Indicator Rule is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table.

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Enter the **Code, Name, Description,** and **Country** of the Economic Indicator Rule and click **Search** .

The Economic Indicator Rule summary displays the following information:

Add: Click the Add icon on the page header to build a new Economic Indicator Rule.

Actions: Enables you to perform following tasks.

- **Refresh:** Retains the selected filters and refreshes the summary page with latest status.
- **Reset:**Clears the selected filters and refreshes the summary page.
- **Help:**Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected rule.

Export: Enables you to download the summary page details in .CSV format.

Columns: Allows you to view the summary page data using a customized list of columns.

The Economic Indicator Rule summary table displays the following columns:

- **Name:** The Economic Indicator Rule's name.
- **Country:** The Country of for which Economic Indicator has been defined.
- **Frequency:** The Frequency at which value of Economic Indicator is expected to be updated.
- **Hierarchy:** Hierarchy that is used to define Economic Indicator Rule.
- **Value Type:** The Value Type of an Economic Indicator.
- **Action:** Click this icon to view a list of actions that you can perform on the Economic Indicator Rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Economic Indicator Rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse the Economic Indicator Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Economic Indicator Rules that you no longer require. Note that only Economic Indicator Rule owners and those with Read/Write privileges can delete Economic Indicator Rules. A Economic Indicator Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular Economic Indicator Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Economic Indicator Rules that have dependencies. A report of all rules that utilize the selected Economic Indicator Rule is generated.

Also See:

- Add Economic Indicator Rule

6.1.3.1 Add an Economic Indicator

To add an Economic Indicator, follow these steps:

1. Navigate to the **Economic Indicator Summary** Page.

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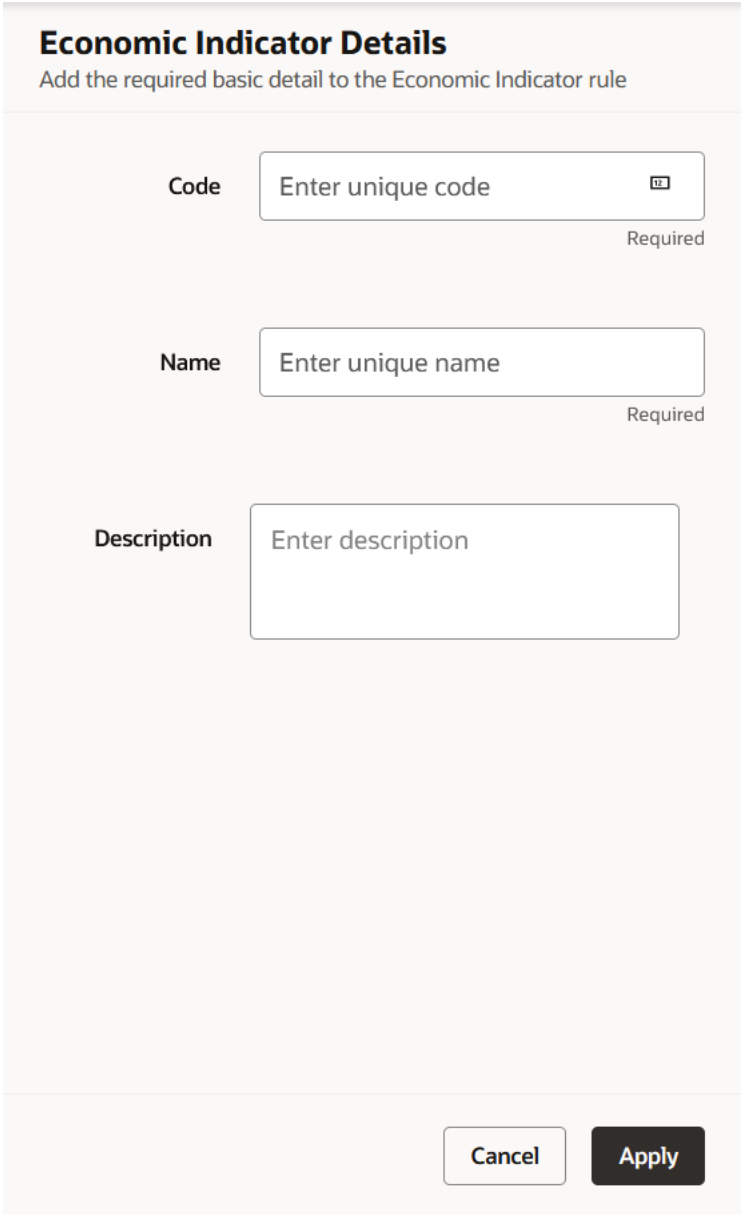
2. Click **Add**.
The **Economic Indicator** Page is displayed.

Figure 6-11 Economic Indicator Details Page



3. Enter the following information in the **Economic Indicator Details** section as tabulated.

Table 6-7 Economic Indicator Window – Fields and Descriptions

Fields	Description
Code	Enter the Code of Economic Indicator. You can click Generate Code Option in Code field to generate the code automatically.

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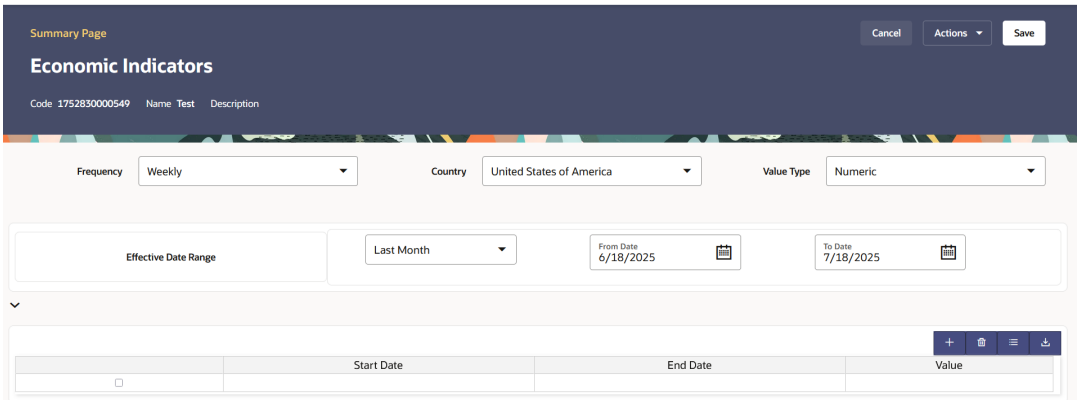
Table 6-7 (Cont.) Economic Indicator Window – Fields and Descriptions

Fields	Description
Name	The name to your Economic Indicator is how you will subsequently refer to your rule within other the PBSM Services. You cannot rename existing Economic Indicators during Edit.
Description	Enter the Description of Economic Indicator. This field allows maximum 300 characters. Do not enter special characters ~, ‘, &, +, @.

4. To build out your Historical Data, enter data within the **Economic Indicators – Historical Data** section. The **Economic Indicators – Historical Data** Section displays a single blank row followed by the most recent period's data (if data has previously been stored in the database).

Figure 6-12 Economic Indicator window



5. Enter the following information:

Table 6-8 Economic Indicator window – Fields and Descriptions

Fields	Description
Country	Select a country to which your Economic Indicator applies from the Country drop-down list. The value set of Countries is drawn from the seeded Country dimension. PBSM is seeded with over 70 country values, and you can add user-defined countries.
Frequency	The frequency of your Economic Indicator must match the frequency which with the indicator's data is made public. Unemployment statistics, for example, are generally released on a monthly frequency. Select a frequency from the Frequency drop-down list. Available frequencies are Weekly, Monthly, Quarterly, Semi-Annually, and Annually.

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Table 6-8 (Cont.) Economic Indicator window – Fields and Descriptions

Fields	Description
Value Type	Select a Value Type from the Value Type drop-down list. Available Value Types are Numeric, Percentage, and Amount. Numeric 0-999999 Percentage -100 to +100 Amount 0-999999
Effective Date Range	Enter effective Start Date and End Date.
Start Date and End Date	Select the Calendar icon immediately adjacent to the Start Date to choose a starting date for your Economic Indicator data point. The application will automatically populate the End Date based on the Economic Indicator's frequency. For example, if your Economic Indicator is an unemployment statistic that has a monthly frequency, select an start date that is the first day of the month that the unemployment rate describes. In this example, the application will automatically populate the End Date with the last day of the month you have selected.
Value	Enter the value for your Economic Indicator (such as the unemployment rate).
Adding a Data Points	Click Add to add a blank row into which you can enter additional Economic Indicator Data.
Adding Multiple Data Points	Click Add to add multiple blank rows into which you can enter additional Economic Indicator Data.
Deleting Data Points	Select one or more check boxes on the left-hand side of any row to enable the Delete icon. After clicking Delete, a confirmation message is displayed to delete the selected rows.
Download Excel	Excel export functionality is used to download the Economic Indicator information in xlsx format. Click Download Excel Option. After downloading, you can modify the value and paste back in the displayed data grid. Note: The date format in the Excel File should be same as provided in Global Preferences. For more information, see the Global Preference Section.

6.1.4 Dimension Management

Dimension Management facilitates you to categorize data into a single object as a Member; define levels and aggregate data to form the Hierarchies, and distinguish each member by defining the required Attributes.

The roles mapped to Dimension Management are as follows:

- Dimension Advanced
- Dimension Authorization
- Dimension Read Only

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- Dimension Write

6.1.4.1 Object Security

Object Security helps to secure data and also to decide what each user can access. You can apply Object Security to various object definitions like Hierarchy definitions, Filters, Expressions and Migration definitions.

You can assign specific user roles and functions to user groups, to implement Object Security. To assign user roles and functions, Seeded User Groups and Seeded User Roles are mapped to the User Groups. If you are using the Seeded User Groups, the security to access objects depends on the associated User Groups.

Map your User Group to the folder in case of public or shared folder, for creating/editing/copying/removing an object in Dimension Management module. You should also be the owner of the folder in case of Private Folder. Additionally, the WRITE role should be mapped to your User Group.

To access the link and the Summary page, map your User Group to ACCESS role. You can view all objects created in Public Folders - Shared Folders to which you are mapped and Private Folders for which you are the owner.

6.1.4.2 Components of Dimension Management

You can create and manage the following Object Definitions using from Dimension Management:

- Members
- Attributes
- Hierarchy

6.1.4.3 Attributes

Attributes refers to the distinguished properties or qualifiers that describes a Dimension Member. Attributes are applicable to key dimensions only.

6.1.4.3.1 Attribute Summary Page

The list of created attribute definitions are displayed in the Attribute Summary.

To view the **Attribute Summary** page, the **OFS_SRV_API** or **DIM_SUMM** role should be mapped to your User Group.

To access the attribute summary page :

1. From the left menu, click **Reference Data.**
2. Select **Dimension Management** and select **Attribute**, to access the The **Attribute Summary Page** .

   The Attribute Summary Page provides the list of attribute Definitions with the following details:

   - **Code** - The Numeric Code assigned to the Attribute Definition.
   - **Name** - The unique Attribute Definition Name.
   - **Data Type** - The Data Type associated with the attribute. The Data Type is set to Date, Dimension, Number or String.

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- **Required** - Select **Yes** or **No** to make this attribute a mandatory value for the associated dimension.
- **Seeded** - Select **Yes**, if the attribute is seeded by the service or **No** if the attribute is created by the user.
- **Action** - Click to view, edit, copy or delete an attribute definition. You can also access the list of objects dependent on this definition.

To filter the summary based on specific search criteria, select and add the required search criteria to the **Search** field and enter/select the specific values.

> **Note**
>
> **Dimension** is a default and mandatory search filter. Select the dimension to access the member definitions available in that dimension. By default the first dimension from the **Dimensions** list is added as the search entry.

6.1.4.3.1.1 Navigating Attribute Summary Page

To access records in a Summary page, you can search, sort and navigate to multiple pages.

6.1.4.3.2 Creating Attribute Definition

To create a new Attribute for a dimension, complete the following steps:

1. Click the **Add** in the Attribute Summary Page.

   The **Add Attribute Definition** Page is displayed.
2. Enter the following **Attribute Details** :
   - **Dimension** - Select the Dimension for which the new Attribute is getting created.
   - **Numeric Code** - The Numeric Code to be assigned to the new Attribute Definition. You can enter any number between 0 and 999,999,999, or click **Generate Code**, to auto-generate a unique code. If you enter the value manually, the system will verify if the value is unique and assigns it.
   - **Name** - The unique Attribute Definition Name. You can enter up to 100 characters. All characters are allowed except " & ' and " ' ".
   - **Alphanumeric Field Value** - The name of physical column name that will be used to store attribute value in the Report Dimension Table. You can enter up to 100 characters. We recommend using only Underscore (“_”) as a special character.
   - **Description** - A brief description about the Attribute Definition. You can enter up to 1000 characters. All characters are allowed except " & ' + @ and ~.
3. Enter the following **Attribute Properties** :
   - **Data Type** - Set the Data Type as Date, Dimension, Number, or String from the drop-down list.

> **Note**
>
> If the data type is **Number**, enter a Scale value >= 0. If it equal to 0, only Integers are enabled. To enable decimal entries, the maximum Scale Value must be > 0 and <= the scale defined for NUMBER in the dimension's underlying attribute table. The maximum value of the NUMBER is set to 22.

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- **Dimension** - (Enabled only for Dimension data type.) Select the Dimension to be associated with the new Attribute Definition.
- **Default Value** - The default value is set based on the selected data type. The Maximum characters allowed in Default Value field for String Data Type is 1000. The default value is mandatory if this attribute is set as a required attribute.

Table 6-9 Data Type and Default Values

Data Type	Default Value
Dimension	Select the Default Value from the drop-down list of members mapped to the selected Dimension
Number	Enter a Numeric Value based on the define Scale.
Date	Set a valid date.
String	Enter the Alphanumeric Value

- **Required Attribute** - Select **Yes**, if this attribute is mandatory for the associated dimension members. To set it as an optional attribute, select **No**.
- **Seeded Value** - Select **Yes**, only when the attribute is seeded out of box by the Cloud Service. For a new attribute, select **No**.

4. After entering the required information, click **Save**, to create a new attribute.

6.1.4.3.3 Managing Attribute Definitions

You can view, edit, copy and delete the existing Attribute Definitions from the Summary Page.

In the Attribute Summary Page, highlight a specific Attribute Definition and click the **Action**. The following Options are displayed.

- **View**- View the **Attribute Details** for a specific attribute definition.
- **Edit**- Edit the **Attribute Details** for a specific attribute definition.
- **Copy**- Copy the definition details and create another attribute Definition by changing the Alphanumeric Code, Numeric Code and Name.
- **Delete**- Delete the Attribute definition.
- **Check Dependency** - View the list of objects dependent on this definition.

Field	Description
View	View the **details** for a selected Attribute.
Edit	Edit theselected Attribute.
Copy	Copy the Attribute Definition Details and create another Attribute Definition by changing the unique values like Alphanumeric Field Value, Numeric Code and Name.
Delete	Delete the selected Attribute.

6.1.4.3.3.1 Viewing Attribute Definition

You can view individual Attribute Definition Details at any given point. The Read Only role should be mapped to your User Group.

To view the existing Attribute Definition details in the Attribute page:

1. Highlight the Attribute Definition and click **Action**.

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2. Click **View** .

   The **Attribute Definition** Page is displayed with the details Code, Name, Data Type, Required and Seeded status.

6.1.4.3.3.2 Modifying Attribute Definition

Modify the Name, Description, or Default Value fields of an Attribute Definition. The Write role should be mapped to your User Group.

To modify an existing Attribute Definition in the Attributes summary:

1. Highlight the Attribute Definition and click **Action**.
2. Click **Edit**, to access the Attribute Definition page.

   Edit the required information and click **Save**.
   You can view the updates in the Attributes summary.

6.1.4.3.3.3 Copying Attribute Definition

The Copy Attribute Definition facilitates you to quickly create a new Attribute Definition based on the existing attributes or by updating the values of the required attributes.

To copy an existing Attribute Definition, the Write role should be mapped to your User Group.

Refer to the following steps, to copy an Attribute Definition.

1. Highlight the Attribute Definition and click **Action**.
2. Click **Copy**.

   The Attribute Definition page is displayed with the details: Code, Name, Data Type, Required and Seeded status.

   Edit the unique information such as Name, Alphanumeric Field Value, Numeric Code and click **Save**.

6.1.4.3.3.4 Deleting Attribute Definition

You can remove the Attribute Definitions which are not required in the system by deleting from the Attributes Summary.

To delete an attribute definition, the Write role should be mapped to your User Group.

1. Highlight the Attribute Definition and click the **Menu** button.
2. Click the **Delete** button.

   The Attribute Definition is deleted after confirmation.

> **Note**
>
> You cannot delete a definition if any dependency like Attribute, Hierarchy or Filter is attached to it. Detach the dependency before deleting the definition.

6.1.4.3.4 Dimensions and Associated Attributes

Dimensions and the associated attributes.

The following tables lists the seeded attributes with the details, associated with each dimension.

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Table 6-10 Dimensions and Associated Seeded Attributes

Attribute Name	Data Type	Mandatory
Dimension - **Common Chart of Accounts**		
Account Type	Dimension	Yes
Accrual Basis	Dimension	No
Rollup Signage	Dimension	Yes
Dimension - **Financial Element**		
Weighting Financial Element	Dimension	No
Account Type	Dimension	Yes
Column Property	Dimension	Yes
Rollup Signage	Dimension	Yes
Dimension - **General Ledger Account**		
Accrual Basis	Dimension	No
Common Chart of Accounts	Dimension	Yes
Rollup Signage	Dimension	Yes
Account Type	Dimension	Yes
Reconciliation Product	Dimension	Yes
Dimension - **Legal Entity**		
Rate Data Source	Dimension	Yes
Group Company Party	String	Yes
Dimension - **Organizational Unit**		
Offset Organizational Unit	Dimension	No
Dimension - **Product**		
Accrual Basis	Dimension	No
Common Chart of Accounts	Dimension	Yes
Rollup Signage	Dimension	Yes
Account Type	Dimension	Yes
Amenability Rate	Dimension	Yes
Interest Rate Sensitivity	Dimension	Yes
Product Time Value	Number	Yes

6.1.4.4 Members

Dimension Members refer to the individual items that constitute a dimension when data is categorized into a single object such as Product, Organization, Time, and so on. Members are available within Dimension Management section.

6.1.4.4.1 Member Summary Page

The list of created member definitions are displayed in the Member Summary.

To view the **Member Summary** page, the **OFS_SRV_API** or **DIM_SUMM** role should be mapped to your User Group.

To access the member summary page:

1. From the left menu, click **Reference Data**.
2. Select **Dimension Management** and select **Members**.

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The **Member Summary page** containing the following details is displayed.

- **Alphanumeric Code**- The alphanumeric code assigned to a member.
- **Numeric Code**- The numeric code assigned to a member.
- **Name**- The unique member name.
- **Is Leaf**- The leaf node status of the member definition.
  - **Yes**- The member is set as a leaf node in any hierarchy and Child cannot be added to this node.
  - **No**- The member is a not a leaf and can have child nodes.
- **Enabled** - The status of the member definition (Yes/No).
- **Action**- Click to view, edit, copy or delete a member definition. You can also access the list of objects dependent on this definition.

To filter the summary based on specific search criteria, select and add the required search criteria to the **Search** field and enter/select the specific values. Use **More Filters** to add additional search criteria.

> **Note**
>
> **Dimension** is a default and mandatory search filter. Select the dimension to access the member definitions available in that dimension. By default the first dimension from the **Dimensions** list is added as the search entry.

6.1.4.4.2 Creating Member Definitions

You can add new Member Definitions from the Member Summary page.

To create a member definition :

1. To create a member definition, click the **Add** in the **Member Summary** page, to access the **Member Details** page.
2. Enter the following **Member Details** :
   - **Dimension**- Select the dimension to be associated with the new Member.
   - **Numeric Code**- The numeric code to be assigned to the new member definition. You can enter the value between 0 and 999,999,999 manually or click **Generate Code**, to auto-generate a unique code.
     If you enter the value manually, it is assigned after validation.
   - **Alphanumeric Field Value**- The alphanumeric Code to be assigned to the new Member Definition.
     You can enter up to 100 characters and enter only Underscore (“_”) as a special character.
   - **Name**- The unique member definition name.
     You can enter up to 100 characters. All characters are allowed except " & ' and " ' ".
   - **Description**- A brief description about the member definition.
     You can enter up to 1000 characters. All characters are allowed except " & ' and " ' ".
   - **Is Leaf**- Check this option if the member is a leaf of another member. By default, it is set to **Yes**.
     - **Yes**- The member can be used as a leaf node in any hierarchy and child cannot be added to this node.

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- **No**-The member is not set as a leaf and can have child nodes.

> **Note**
>
> If a member is set as a non-leaf and is associated with child nodes, it cannot be set as a leaf again.

- **Enabled**- This field is set to **Yes** by default. You can modify the **Enabled** status, after creating the member. To edit a member, refer Editing Member Definition Details.

> **Note**
>
> You can change the option to **No** only when the particular member is not used in any hierarchy. The disabled members will not be displayed in Hierarchy Rules, or utilities which are based on Hierarchies, such as Hierarchy Filters and Hierarchical Assumption Browsers used in applications.

3. (Optional). Click **Copy**, to attach an existing attribute to this new member definition.

   You can also set the attribute values for a new member definition, manually. Enter/select the attribute values in the **Member Attributes** pane. All the attributes associated with the selected dimension are displayed in the Member Attributes pane.

4. Locate the Attribute to be copied and click **Move** and select **Copy**, located under **Actions**.
5. Click **Save**, to create the new Member definition and view it the Member Summary.

   Click **Actions** and select **Edit Member Details** to edit the member details or select **Save and Add New**, to create the new member definition and proceed with adding another definition.

6.1.4.4.3 Managing Member Definitions

You can View, Edit, Copy, and Delete the existing Member Definitions from the Member Summary page.

In the members summary page, highlight a specific Member Definition and click the **Action**. The following Options are displayed:

- **View**- View the **Member Details** for a specific Member Definition.
- **Edit**- Edit the **Member Details** for a specific Member Definition.
- **Copy**- Copy the Member Definition Details and create another Member Definition by changing Alphanumeric Code, Numeric Code and Name.
- **Delete**- Delete the member definition.
- **Check Dependency** - View the list of objects dependent on this definition.

6.1.4.4.3.1 Viewing Member Definition Details

You can view the details of an individual Member Definition, from Member Summary page.

To view a Member Definition, the Read Only Role should be mapped to your User Group.

You can view the details of an individual Member Definition, using the following procedure:

1. Highlight the Member Definition and click the **Action**.
2. Click the **View** button.

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The Member Definition page is displayed with the details Dimension, Alphanumeric Code, Numeric Code, Name, Is Leaf and Enabled status.

6.1.4.4.3.2 Editing Member Definition Details

To edit the existing Member Definition details, the Write role should be mapped to your User Group.

You can edit individual Member Definition Details, using the following procedure:

1. Highlight the Member Definition and click the **Action**.
2. Click the **Edit** button.

   The Member Definition page is displayed with the details Dimension, Alphanumeric Code, Numeric Code, Name, Is Leaf and Enabled status.

   Edit the required information and click **Save**.

6.1.4.4.3.3 Copying Member Definition Details

To copy the Member Definition Details, the Write role should be mapped to your User Group.

You can copy individual Member Definition Details, to recreate another new Member Definition, using the following procedure:

1. Highlight the Member Definition and click the **Action**.
2. Click the **Copy** button.

   The **Member Definition Page** is displayed with the details Dimension, Alphanumeric Code, Numeric Code, Name, Is Leaf and Enabled status.

   Edit the unique information such as Name, Alphanumeric Code, Numeric Code and click **Save**.

6.1.4.4.3.4 Deleting Member Definition Details

To delete a Member Definition, the Write role should be mapped to your User Group.

You can delete individual Member Definition Details, using the following procedure:

1. Highlight the Member Definition and click the **Action**.
2. Click the **Delete** button.

   The Member Definition is deleted after confirmation.

6.1.4.5 Hierarchy

Hierarchies refer to Dimension Members that are arranged in levels, with each level representing the aggregated total of the data from the level below. One dimension type can have multiple hierarchies associated with it. Hierarchies are available within the Dimension Management section.

A Default Hierarchy definition is required to support BI Users to perform multidimensional analysis, in the BI reporting. The hierarchy name of a default hierarchy definitions are suffixed with the term **System Hierarchy**. You can only view the details of the default hierarchy, from the Hierarchy Summary page. All orphan members under their corresponding default hierarchy, are automatically updated, when they are added/deleted to/from the system.

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6.1.4.5.1 Hierarchy Summary Page

The list of existing hierarchy definitions is displayed in the Hierarchy Summary page.

To view the **Hierarchy Summary** page, the **OFS_SRV_API** or **DIM_SUMM** role should be mapped to your User Group.

To access the hierarchies summary page:

1. From the left menu, click **Reference Data**.
2. Click **Dimension Management** and select **Hierarchies**, to access the Hierarchies Summary page containing a list of existing hierarchies with the following details:
   - **Name** - The unique Hierarchy Name.

     > **Note**
     >
     > The name of a default hierarchy is always suffixed with the term **System Hierarchy**.

   - **Folder** - Folder in which the hierarchy is stored.
   - **Dimension** - Dimension associated with the hierarchy.
   - **Tags** - Labels to simplify the data search and locate the required details.
   - **Action** - Click to view, edit, copy or delete a hierarchy definition. You can also access the list of objects dependent on this definition.

6.1.4.5.1.1 Navigating Hierarchy Summary Page

To access records in a Summary page, you can search, sort and navigate to multiple pages.

6.1.4.5.2 Creating Hierarchy Definitions

To create a Hierarchy Definition in the Hierarchy Summary page, complete the following steps:

1. Click **Add** in the **Hierarchy Summary** page. The **Hierarchy Details** page is displayed.
2. Enter the **Hierarchy Details** as described in the following table:

Table 6-11 Field Description

Field	Description
Name	The unique Hierarchy Definition Name.

> **Note**
>
> You can enter up to 100 characters. All characters are allowed except " & ' and " ' ".

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Table 6-11 (Cont.) Field Description

Field	Description
Description	A brief description about the Hierarchy Definition. **Note** You can enter up to 1000 characters. All characters are allowed except " & ' + @ and ~.
Folder	Select the Folder in which the Hierarchy is to be stored.
Dimensions	Select the Dimension to be associated with the new Hierarchy Definition.
Click **Apply**.	
Hierarchy View	The Members associated with the selected Dimension are displayed. You can sort this list in Ascending/Descending order, expand or collapse the list to view in details and search for a specific Member. You can focus on a Member to view the Member Properties. You can add a Child or add a Sibling to an existing Member in the data grid.
Search View	The search results based on the specific keyword entered to search a Member is populated.

Table 6-12 Viewing interactive options for a Member

Icon	Description
Mouse-over a Member to see the following options. Select the required option to take action such as adding a child, deleting a node, paste as child, paste as sibling	
Figure 6-13 Add child, sibling, and leaf	Add a child, sibling and/or leaf.
Figure 6-14 Create and add	Create and a child, sibling and/or leaf to the Member.

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Table 6-12 (Cont.) Viewing interactive options for a Member

Icon	Description
Figure 6-15 Delete/undo delete	Delete a node or undo deletion.
Figure 6-16 Cut and paste child/ siblings	Move child/siblings up or down as required.

To Add a Child to the Hierarchy:

a. In the **Hierarchy View** tab, mouse-over the hierarchy to which you want to add a child and click the **Add child, sibling and leaf** icon.

b. Select **Add Child** option. The **Add Members** page is displayed.

c. Select the required Member and click **Move Right**, to move the Member to the Selected Members panel. To select multiple members, press CTRL and select the members.
The selected members are added to the **Selected Members** pane.

- Click **Move All Right** to move all members listed in the Available Members pane, to the Selected Members pane. Click **Fetch from DB** to select all nodes/ members in the server.
- Select a member and click **Move Left** to deselect a Member. To remove multiple members, press CTRL and select the members.
- To remove all the members from the **Selected Members** pane, click **Move All Left**.
- You can click **Search** button for the required member using Alphanumeric Code, Numeric Code, Name, Description, Attribute Name, or Attribute Value. Enter the search criteria and Click **Search**, in the Search Panel.
- You can also click **Search** button to toggle the display of Numeric Code left, right, or name and click button to display Alphanumeric Code left, right, or name.

d. Click **Add**. The selected member is displayed as child under data grid panel in the **Hierarchy View** tab.

3. **To add a Sibling to the Child in the Hierarchy Definition:**

a. Mouse-over the child to which you want to add a sibling and click the **Add child, sibling and leaf** icon.).

b. Select the option **Add Sibling**.
The **Add Sibling** Page is displayed.

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c. Select the required Members and **Move Right**, to move the Member to the Selected Members panel.
The Member is displayed in the **Selected Members** panel.

d. Click **Add**. The selected Member is added as **Sibling** below the **Parent** under data grid Panel in the **Hierarchy View** tab.

4. **To add a Leaf under a Parent/Child or Sibling**:

a. Mouse-over the Parent or Child and click the **Add child, sibling and leaf** icon.

b. Select **Add Leaf**.
The Add Member Page is displayed.

c. Select the required Members and click **Move Right**, to move the Member to the Selected Members panel.
The Member is displayed in the **Selected Members** panel.

d. Click **Add**. The selected Member is displayed as Leaf below the Parent or Sibling under **Show Hierarchy** Panel in the **Hierarchy View** tab.

5. **To cut and paste Child or Sibling:**

a. Right-click on any node and select **Cut**.

b. Right-click on any node and **Paste as Child** or **Paste as Sibling**.

6. **To Delete/Undelete**

a. Right-click on the node to be deleted and select **Delete Node**.
The node deleted is struck out.

b. Right-click and select **UnDelete** to cancel deletion of the node.

7. To view the Member Properties and Member Attributes of a node in the **Hierarchy View** Panel:

a. Click on a Member.
The properties such as Alphanumeric Code, Numeric Code, Name, Description, Enabled, Is Leaf, Created By, Creation Date, Last Modified By, Last Modification Date, Attribute, and Value of the selected Member are displayed in the Member Properties and Member Attributes Grids.

In the Hierarchies page you can also:

- Click **Collapse** or Expand, to collapse or expand a branch .
- Click **Focus** or **Unfocus**, to focus or unfocus a selected node except the Root Node.
- Click **Sort** to sort the list in ascending or descending order.

8. Click **Save**.
The new Hierarchy Definition is created successfully.

6.1.4.5.2.1 Audit Info

The Audit Info section provides details such as Created By and Modified By Users, Creation and Modification Date, and Authorized By user Details. You can add additional information as comments and tags. Tags are labels that help to simplify the data search and locate the required details.

6.1.4.5.3 Managing Hierarchy Definitions

You can View, Edit, Copy, and Delete the existing Hierarchy Definitions from the Hierarchy Summary page.

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In the Hierarchy Summary page, highlight a specific Hierarchy Definition and click **Action**. The following options are displayed:

- **View** - View the hierarchy details for a specific definition.
- **Edit** - Edit the hierarchy details for a specific definition.
- **Copy** - Copy the hierarchy details and create another definition by changing the unique values like name, description and so on.
- **Delete** - Delete the hierarchy definition.
- **Check Dependency** - View the list of objects dependent on this definition.

6.1.4.5.3.1 Viewing Hierarchy Definition Details

You can view the details of an individual Hierarchy Definition, using the following procedure:

1. Highlight the Hierarchy Definition and click **Action (three dots)**.
2. Click **View**.

   The Hierarchy Definition page is displayed with the details Name, Description, Folder, Dimension, Start Date and Hierarchy View details.

6.1.4.5.3.2 Editing Hierarchy Definition Details

You can edit individual Hierarchy Definition Details at any given point.

To edit the existing Hierarchy Definition Details:

1. Highlight the Hierarchy Definition and click the **Action (three dots)**.
2. Click **Edit**.

   The Hierarchy Definition Page is displayed with the details Name, Description, Folder, Dimension, Start Date and Hierarchy View details.

   Edit the required information and click **Save**.

6.1.4.5.3.3 Copying Hierarchy Definition Details

You can copy individual Hierarchy Definition Details, to recreate another new Member Definition. To copy the Member Definition Details:

1. Highlight the Hierarchy Definition and click **Action**.
2. Click **Copy**.

   The Hierarchy Definition page is displayed with the details Name, Description, Folder, Dimension, Start Date and Hierarchy View details.

   Edit the unique information such as Name, Description, Folder, Dimension, Start Date and Hierarchy View details and click **Save**.

6.1.4.5.3.4 Deleting Hierarchy Definition Details

To delete a Hierarchy Definition:

1. Highlight the Hierarchy Definition and click **Action**.
2. Click **Delete**.

   The Hierarchy Definition is deleted after confirmation.

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> **Note**
>
> You cannot delete a definition if any dependency like Attribute, Hierarchy or Filter is attached to it. Detach the dependency before deleting the definition.

6.1.4.6 Viewing Data in a Summary Page

A Summary page will contain a list of definitions associated with a specific Dimension Data, Filters, Batch or Schedules.

You can search, filter and customize the view to access the required data faster.

6.1.4.6.1 Searching Summary

Search for a specific Definition based on the following criteria. Select/Enter one or more unique values/tag or Leaf and Enabled status associated with the definition and click **Search**.

6.1.4.6.2 Sorting a Summary Page

Sort the list of definitions, to view a specific definition, in a definition Summary .

To sort the various Definitions list:

- **Sort By**: Group the based on the following fields:
  - **Member Summary** - Dimension, Name, Alphanumeric Code, Numeric Code, Enabled and Is Leaf Status, Attribute Name (if the selected Dimension has Dimension Type Attribute) and Attribute Value.
  - **Attribute Summary** - Branch, Name, Code and Data Type.
  - **Hierarchy Summary** - Dimension, Name, Tag and Folders.
  - **Filter Summary** - Name, Folder and Filter Type.
- **Sort Order**: Sort the Complete list in Ascending/Descending order.

6.1.4.6.3 Setting Number of Records per Page

Customize the number of records per page, to access the required record easily.

At the bottom of the page, you can enter the number of entries that are available on a single page in the **Records** box. By default, this value is set to 8. You can increase or decrease the number of entries that are displayed using the up and down arrows.

To access a particular page, enter that page number in the Page Box located at the bottom of the page.

To navigate between pages:

- Use **First page** to view the entries in the first page.
- Use the **Previous page**, to view the entries in the previous page.
- Use the **Next page**,to view the entries in the next page.
- Use the **Last page**, to view the entries in the last page.

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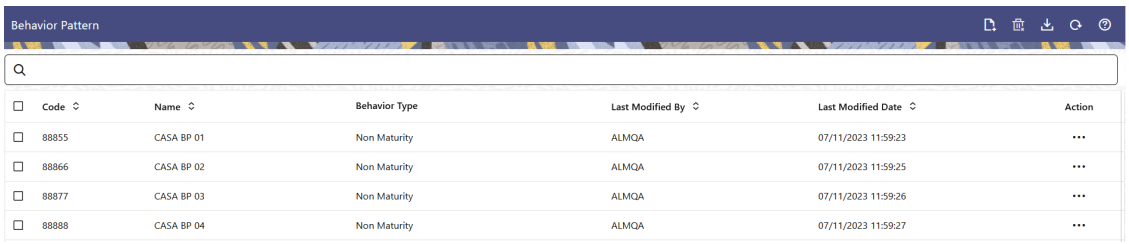
6.1.5 Behavior Patterns

PBSM (Profitability and Balance Sheet Management) Cloud Service's User Defined Behavior Patterns allow you to define Principal Amortization Schedules for Non-Maturity Products in your portfolio. You can utilize a Behavior Pattern to generate Cash Flows by entering the Amortization Type Code as "Behavior Pattern" along with the actual Behavior Pattern Code for the relevant Instrument Records.

Behavior Pattern Summary

This page is the gateway to all Behavior Patterns and related functionality. You can navigate to other pages relating to Behavior Patterns from this point.

Figure 6-17 Behavior Pattern Summary



Search Behavior Pattern

Prerequisites: Predefined Behavior Pattern

To search for a Behavior Pattern:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Behavior Patterns that meet the search criteria.

The Behavior Pattern Summary displays the following information:

- **Code:** Numeric code of the Behavior Pattern
- **Name:** The Behavior Pattern's name.
- **Behavior Type:** The type of Behavior Pattern.
- **Last Modified By:** The user who last modified the Behavior Pattern.
- **Last Modified Date:** The Date and Time when the Behavior Pattern was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Behavior Pattern.
  - **View:** You can view an existing Behavior Patterns.
  - **Edit:** Based on the user privilege assigned, you can edit existing Behavior Patterns. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Behavior Pattern by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Behavior Patterns that you no longer require. A Behavior Pattern that has a dependency cannot be deleted.

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– **Dependency Check:** You can perform a dependency check to know where a particular Behavior Pattern has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Behavior Patterns that have dependencies. A report of all rules that utilize the selected Behavior Pattern is generated.

> **Note**
>
> This is functionality will intended for a future release.

In addition to above actions, you can perform below actions using icons located at top right side of the summary:

- **Add**: Click the Add icon on the page header to build a new Behavior Pattern.
- **Multiple Delete**: Enables you to select and delete one or multiple rules in the tables simultaneously.
- **Download**: Export contents of summary to a CSV file
- **Refresh**: Click refresh icon to reload the summary.
- **Help**: Click help icon to access online guide to use Behavior Pattern.

Also See:

- Creating a Behavior Pattern

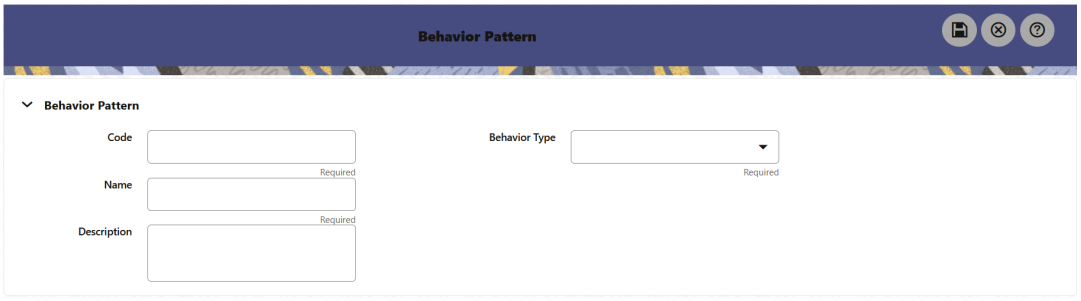
6.1.5.1 Creating Behavior Patterns

You create Behavior Patterns to capture the principal run-off behavior of product types that do not have contractual maturities.

To create a Behavior Pattern, perform the following:

1. Navigate to the **Behavior Pattern Summary** Page.
2. Click **Add** to display the Behavior Pattern Details Page.

Figure 6-18 Behavior Patterns Details Page



3. Enter a unique Numeric Code for the new Behavior Pattern. The code is must be mapped the appropriate instrument record's BEHAVIOUR_PATTERN_CD if Amortization Type is Behavior Pattern to connect the instrument to the appropriate pattern.
4. Enter the **Name** and a **Description** for the pattern.
5. Select the Behavior Pattern Type from the following options:

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- Non Maturity
- Non-Performing
- Devolvement and Recovery.

6. Define the Behavior Pattern Tenor Specifications for the Maturity Branches.
7. The selection of the Behavior Pattern Type made in the previous step determines the information you must provide to successfully define that Pattern Type. For more information, see:
   - Defining Non-Maturity Behavior Patterns
   - Defining Non-Performing Behavior Patterns
   - Defining Devolvement and Recovery Behavior Patterns

> **Note**
>
> The Behavior Pattern Details Page above displays the specifications associated with the Non Maturity Pattern Type. Should you change this value for one of the other two alternatives, Non Performing or Devolvement and Recovery, the payment specifications section corresponding to the new Pattern Type get refreshed. Although you can change your selection of the Pattern Type at any point in this procedure, sometimes this might result in loss of data related to any prior selection.

6.1.5.1.1 Defining Non-Maturity Behavior Patterns

Non-Maturity Behavior Patterns are commonly used for deposit products like Checking, Savings, and Money Market Accounts as well as for Credit Card Accounts. These account types are similar in that they do not have Contractual Cash Flows because Customers have the option to deposit or withdraw any amount at any time (up to any established limits).

When working with Non-Maturity Behavior Patterns, your percentage weights, assigned to maturity terms must add up to 100%.

For Manual Model, you can perform the following steps:

1. In the Behavior Pattern Details Page, select Non Maturity as the Behavior Pattern Type.
2. Select Non-Maturity Products Profile Method as **Manual** or **Non Maturity Products Model**. Based on selected Profile Method, Behavior Pattern UI will vary.

Profile Type as Manual

To define Non Maturity Behavior pattern as manual, follow these steps:

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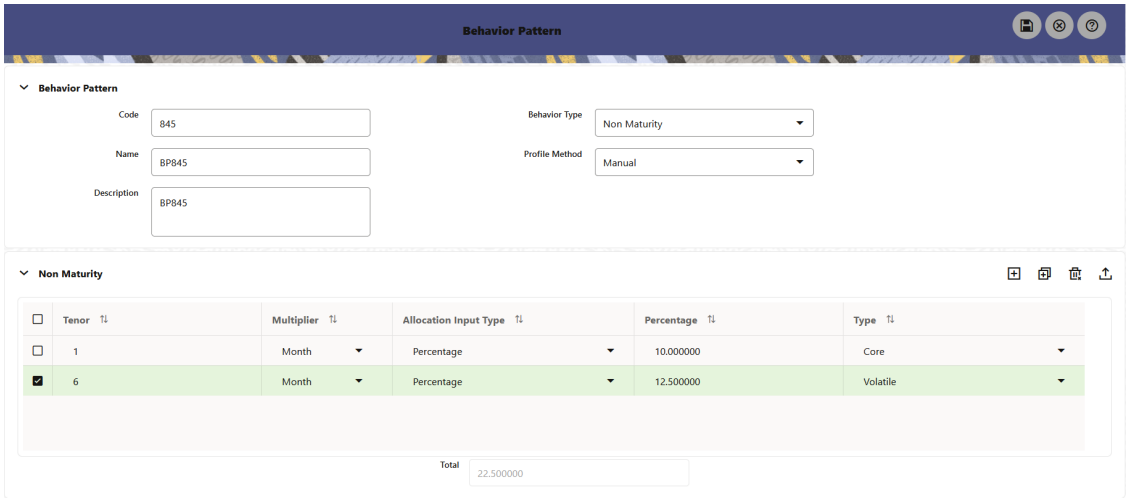
Figure 6-19 Profile Method as Manual



1. Enter or select the following details:
   - **Tenor:** Used to specify the maturity term for the particular row. For example, if “1 Day”is defined, then the applicable percentage of the balance will runoff (mature) on the As- of-Date + 1 Day.
   - **Multiplier:** Theunit of time applied to the tenor. The choices are as follows:
     - Days
     - Months
     - Years
   - **Allocation Input Type:** This field has a default value of Percentage for each maturity tier.
   - **Percentage:** The outstanding balance indicating how much of the outstanding balance will mature on the specified term. Enter a number 0 and 100.

     > **Note**
     >
     > During calculation, the rows with the 0% is ignored and remaining events from pattern are used.

   - **Type:** This allows you to classify the Runoff based on the appropriate type. If you select Percentage under 'Allocation Input Type', this allows you to select Core or Volatile.
2. Click the **Add**icon to add additional payment strips to the Pattern. After defining the initial strip as Volatile, subsequent strips are usually classified as Core with varying maturity terms assigned.

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> **Note**
>
> There is no difference in behavior from a Cash Flow perspective, but the Runoff Amount will be written to a Principal Runoff Financial Element corresponding to the selected Runoff Type.

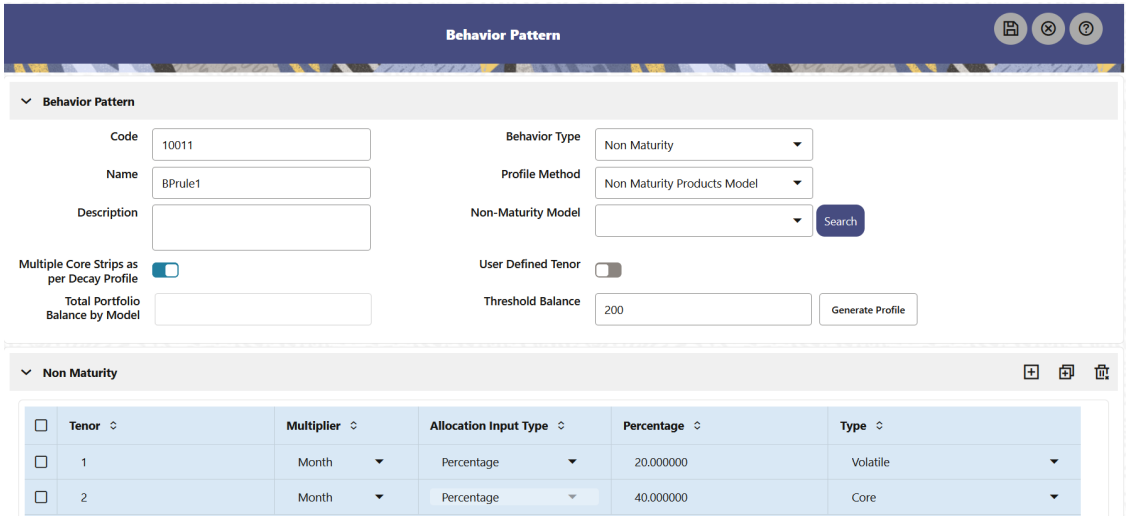
3. Click **Add Multiple Row** icon to open a window. Enter the number of rows you want to add and click Add Rows.
4. To delete a row, select the check box corresponding to the row you want to remove and click the Delete icon.
5. Click **Save**.

The Behavior Pattern is saved and the Behavior Pattern Summary Page is displayed.

Profile Type as Non Maturity Products Model

To define Non Maturity Behavior pattern with Non Maturity Product Model, follow these steps:

Figure 6-20 Profile Method as Non Maturity Products Model



1. Select the **Model** from on **Non Maturity Model** drop-down. You can search Non Maturity Product Model using product and currency criterias after clicking **Search** button.
   You can have single Core or Multiple Core strips based on if decay profile is being used:

   This will be based on model calculated core balance and corresponding Weighted average life based on calculated decay rate.

   Multiple Core and Volatile strips in percentage if “Multiple Core Strips as per Decay Profile” is selected.

   Once model is selected, you can define two types of strip definitions:

   - **Single Core Strip**: The model evaluates the core balance against a total point in time balance.
     - **Core Calculation:**Behavior pattern picks the core from the underlying model which is defined at certain portfolio level. Use the Non-Maturity Deposit Model Weighted Average Life as the tenor.
       The core percentage is calculated as:

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Figure 6-21 Core Calculation

$$\text{Core Percentage} = \left(\frac{\text{NMD Model (Core balance)}}{\text{Total Point in Time balance}} \right) \times 100$$

- **Volatile Percentage:**This is calculated as:

Figure 6-22 Volatile Percentage

$$\text{Volatile Percentage} = 100 - \text{Core Percentage}$$

The tenor for this calculation is set at 1 day and in relation to the strip tenor, with a default maturity assumption of "At Maturity".

- **Multiple Core Strips as per Decay profile:**
  If this is selected, there are following two options:
  - **Using Generate Profile:** You can select to **Generate Profile** with or without thresholds. Strips will be auto- generated based on decay profile frequency. For example, if the NMD model's decay profile is set to a daily frequency, tenors will be auto-populated on a daily basis.
    Total portfolio balance by Model (Model Output): Total balance is the balance available at the latest As of Date in the Historical Period selected for which model is created. For example, if the historical period is from January 1, 2020, to December 31, 2020, and the most recent date is December 31, 2020, the total available balance of all accounts included in the portfolio (based on product and currency) would represent the total Portfolio Balance.

    The **Threshold Balance** option will be active only when the **Multiple Core Strips as per Decay Profile** toggle button is selected. The default value of this field is

    0.0.It accepts only positive numbers or decimals values.

    When you use Decay Rate profile from the selected model, the balance keeps reducing using every period’s decay rate till threshold balance is reached. So, no further strips can be created beyond the Threshold balance.

    It is recommended to give some valid positive value as threshold balance, else after few initial strips, principal will become small and decaying part will be even smaller. If the number of strips reaches to 500 and the remaining balance is negligible, an error message is displayed.

    Once balance is reached equal or less than given threshold, then rest of the balance will run off in immediate next strip.

    For example, if the initial balance was 10,000 and the threshold is set at 500, and the decay profile indicates that the balance reaches 500 or less in the 11th strip, then in the immediate next strip (the 12th strip), the entire remaining balance will be deducted. This is necessary because the system needs to account for 100% of the remaining balance, and there is a check in the BP to ensure that the total of all strips adds up to 100%.

    The system uses the decay profile/decay rate generated by the model and creates Runoff Profile/Strips as per inputs data frequency to the NMD model which can be in Days/Months and Years. If the frequency is in Days, then the tenor of the defined strips would be days else it would be in months/years as per the model definition.

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– **Using User Defined Tenor:**If this is selected, then + icon will be available to add strips.

> **Note**
>
> The **User Defined Tenor** option will be active only when the **Multiple Core Strips as per Decay Profile** toggle button is selected. By default, it will be OFF.

Enter or select the following details:

* **Tenor:** Used to specify the maturity term for the particular row. For example, if “1 Day” is defined, then the applicable percentage of the balance will runoff (mature) on the As-of-Date + 1 Day.
* **Multiplier:** The unit of time applied to the tenor. The choices are as follows:
  * Days
  * Months
  * Years
* **Allocation Input Type:** This field has a default value of Percentage for each maturity tier.
* **Percentage:** The outstanding balance indicating how much of the outstanding balance will mature on the specified term. Enter a number 0 and 100.
* **Type:** This allows you to classify the Runoff based on the appropriate type. If you select Percentage under 'Allocation Input Type', this allows you to select Core or Volatile.
* Click the **Add** icon to add additional payment strips to the Pattern. After defining the initial strip as Volatile, subsequent strips are usually classified as Core with varying maturity terms assigned.

> **Note**
>
> Click **Add Multiple Row** icon to open a window. Enter the number of rows you want to add and click Add Rows.
>
> To delete a row, select the check box corresponding to the row you want to remove and click the Delete icon.

As per the defined tenor/multiplier decay rate percentages will be calculated and populated in core allocation. Core allocation input will be percentage if model is used.

2. Click **Generate Profile**. It creates the Profile Strips as per total and threshold balance. The system uses the decay profile/decay rate generated by the model and creates the strips as per tenors given by the user. E.g. if per month decay rate is 10% and user has defined first strip as 3 months, then total runoff in first strip will be 30%. Similarly subsequent strips allocation will be calculated based on user-defined term points. And Once threshold is reached, system will not do any further calculation but runoff all remaining balance in subsequent strip itself.

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> **Note**
>
> If number of strips generated is more than 500, then system displays error.

3. Click **Save**.

The Behavior Pattern is saved and the Behavior Pattern Summary Page is displayed.

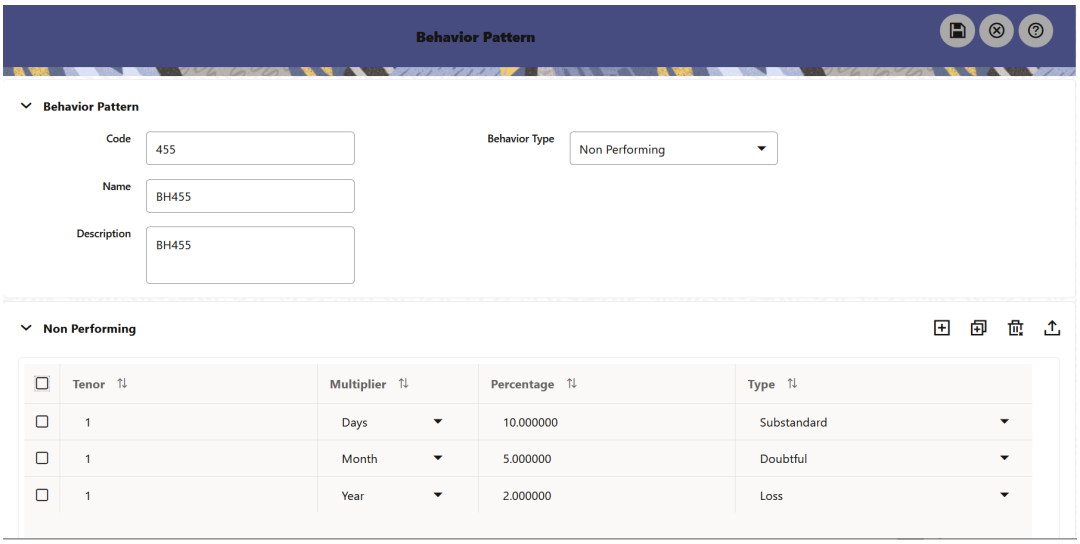
6.1.5.1.2 Defining Non-Performing Behavior Patterns

Non-Performing Behavior Patterns are commonly used for instruments that are classified as non-earning assets. Users can assign expected maturity profiles to these balances classifying them into appropriate categories of Sub Standard, Doubtful, or Loss.

To define the Non-Performing Behavior Patterns, perform the following steps:

1. In the Behavior Pattern Details Page, select **Non-Performing** as the **Behavior Pattern Type**.
2. Click the **Add** icon to open the **Non-Performing Behavior Patterns Summary** Page.

Figure 6-23 Behavior Pattern with Type as Non-Performing



3. Enter or select the following details:
   - **Tenor:** Specify the maturity tenor for the first maturity strip. For example, if “1 Day” is defined, then the applicable percentage of the balance will runoff (mature) on the As-of-Date + 1 Day.
   - **Multiplier:** The unit of time applied to the Tenor. The choices are:
     - Days
     - Months
     - Years
   - **Percentage:** The relative amount of the Principal Balance that will mature on the date specified by the Tenor + Multiplier. The percentage amounts can exceed 100% for Non-Performing Patterns.

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> **Note**
>
> During calculation, the rows with the 0% is ignored and remaining events from pattern are used.

- **Type:** This allows you to classify the Runoff based on the appropriate type. The options are:
  - Substandard
  - Doubtful
  - Loss

> **Note**
>
> There is no difference in behavior from a Cash Flow perspective, but the Runoff Amount will be written to a Principal Runoff Financial Element corresponding to the selected Runoff Type.

4. Click the **Add** icon to add additional payment strips to the Pattern and define appropriate assumptions for each strip.
5. To delete a row, select the check box corresponding to the row(s) you want to remove and click the **Delete** icon.
6. Click **Save**.

The Behavior Pattern is saved and the **Behavior Pattern Summary** Page is displayed.

6.1.5.1.3 Defining Devolvement and Recovery Behavior Patterns

Devolvement and Recovery Behavior Patterns are commonly used for estimating Cash Flows associated with Letters of Credit and Guarantees. These product types are categorized as Off-Balance-Sheet Accounts. Users can assign expected maturity profiles to the related balances classifying them into appropriate categories of Sight Devolvement and Sight Recovery or Usance Devolvement and Usance Recovery. Sight Devolvement and Recovery are the most common types.

To define the Non-Performing Behavior Patterns, perform the following steps:

1. In the **Behavior Pattern Details** Page, select **Devolvement and Recovery** as the Behavior Pattern Type.
2. Click the **Add** icon to open the Non-Performing Behavior Patterns Summary Page.

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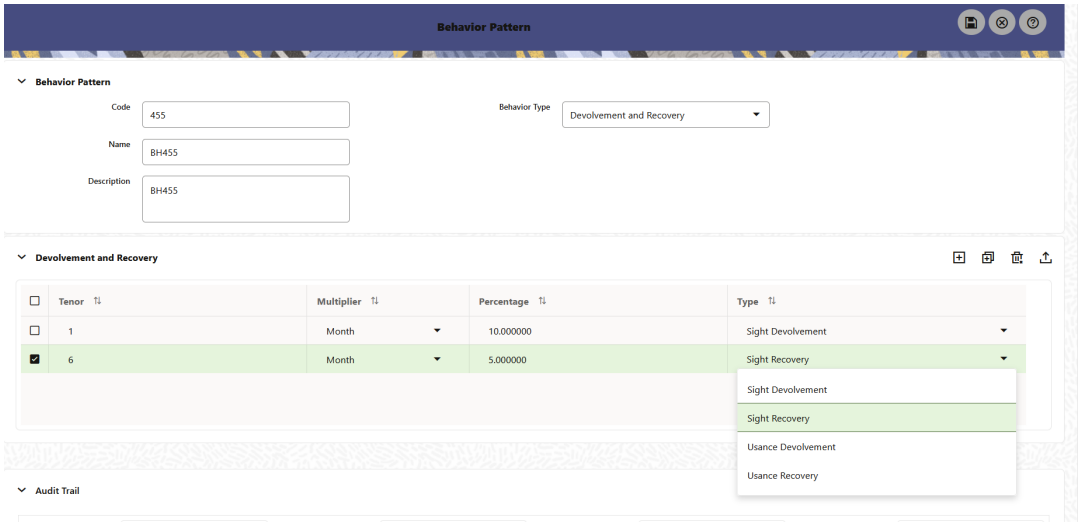
Figure 6-24 Behavior Pattern with Type as Devolvement and Recovery



3. Enter or select the following details:

- **Tenor:** Specify the maturity tenor for the first maturity strip. For example, if “1 Day” is defined, then the applicable percentage of the balance will Runoff (mature) on the As-of-Date + 1 Day.
- **Multiplier:** The unit of time applied to the Tenor. The choices are:
  - Days
  - Months
  - Years
- **Percentage:** The relative amount of the Principal Balance that will mature on the date specified by the Tenor + Multiplier. The percentage amounts can exceed 100% for devolvement and recovery patterns.

> **Note**
>
> During calculation, the rows with the 0% is ignored and remaining events from pattern are used.

- **Type:** This allows you to classify the Runoff based on the appropriate type. The options are:
  - **Sight Devolvement:** indicates the Beneficiary is paid as soon as the Paying Bank has determined that all necessary documents are in order. This is the preferred approach.
  - **Sight Recovery**
  - **Usance Devolvement:** Usance: is a period, which can be between 30 and 180 days after the bill of Lading Date.
  - Usance Recovery

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> **Note**
>
> There is no difference in behavior from a Cash Flow perspective, but the Runoff Amount will be written to a Principal Runoff Financial Element corresponding to the selected Runoff Type.

4. Click the **Add** icon to add additional payment strips to the Pattern and define appropriate assumptions for each strip.
5. To delete a row, select the check box corresponding to the row(s) you want to remove and click the **Delete** icon.
6. Click **Save**.

The Behavior Pattern is saved and the Behavior Pattern Summary Page is displayed.

6.1.6 Payment Patterns

User defined payment patterns allow you to define custom repayment patterns for products in your portfolio. You can include a payment pattern while generating cash flows by entering the payment pattern code for the instrument.

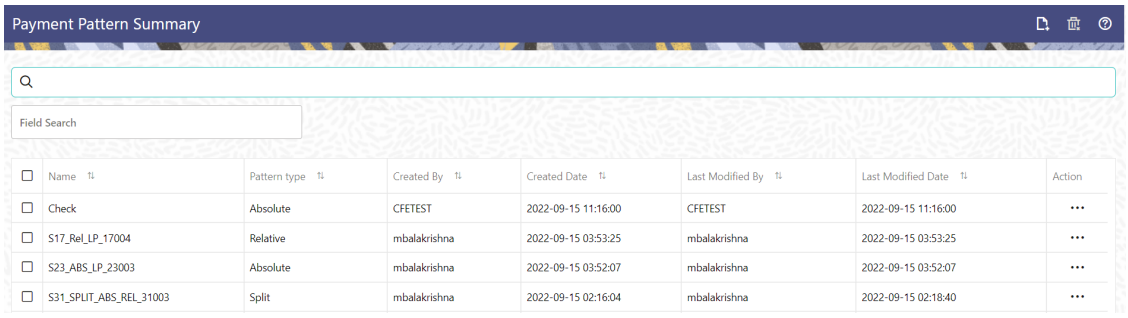
This chapter describes the procedure for capturing instrument payment patterns that are too complex to be accommodated in the standard fields of Instrument tables.

The procedure for working with and managing Payment Patterns is, similar to that of other Oracle assumption rules.

Payment Pattern Summary

This page is the gateway to all Payment Patterns and related functionality. You can navigate to other pages relating to Payment Patterns from this point.

Figure 6-25 Payment Summary



Search Payment Pattern

Prerequisites: Predefined Payment Pattern

To search for a Payment Pattern:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Payment Patterns that meet the search criteria.

Or

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An alternative method to search a Payment Pattern is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Payment Pattern Summary. You can enter the **Code, Name, Description** or **Pattern Type** of the Payment Pattern and click **Search** .

The Payment Pattern Summary displays the following information:

Add: Click the Add icon on the page header to build a new Payment Pattern.

- **Name:** The Payment Pattern's short name.
- **Pattern Type:** The Payment Pattern Type, such as Absolute or Relative.
- **Created By:** The Name of the user who created the Payment Pattern.
- **Created Date:** The Date and Time at which the Payment Pattern was created.
- **Last Modified By:** The user who last modified the Payment Pattern.
- **Last Modified Date:** The Date and Time when the Payment Pattern was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Payment Pattern.
  - Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Payment Patterns. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Payment Pattern by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Payment Patterns that you no longer require. Note that only Payment Pattern owners and those with Read/Write privileges can delete Payment Patterns. A Payment Pattern that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular Payment Pattern has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Payment Patterns that have dependencies. A report of all rules that utilize the selected Payment Pattern is generated.

Also See:

- Creating Payment Patterns

6.1.6.1 Create Payment Patterns

You create payment patterns to capture the repayment behavior of instruments that are too complex to be accommodated through the use of the standard instrument table fields.

To create the payment pattern, do the following:

1. Navigate to the **Payment Pattern** summary page.
2. Click **Add** icon. The **Add Payment Patter**n page is displayed.
3. Enter a Code value for the new payment pattern. You can also click Generate Code Option in Code field to generate the code automatically.

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> **Note**
>
> The code value you assign to the new pattern must be unique. Also, the code must be mapped to the appropriate instrument records (PMT_PATTERN_CD field) to connect the instrument to the appropriate pattern.

4. Enter the Name for pattern.
5. Enter a brief Description for the pattern.
6. Select the Pattern Type: Absolute, Relative, or Split.
7. Select the Payment Type: Conventional, Level Principal, or Non-amortizing.

> **Note**
>
> The Payment Type option is not available for Split Payment Pattern type.

The selection of the payment pattern type made in the previous step determines the information you must provide to successfully define that pattern type. See:

- Defining Absolute Payment Patterns
- Defining Relative Payment Patterns
- Defining Split Payment Patterns

8. Click **Save**.

6.1.6.1.1 Define Absolute Payment Patterns

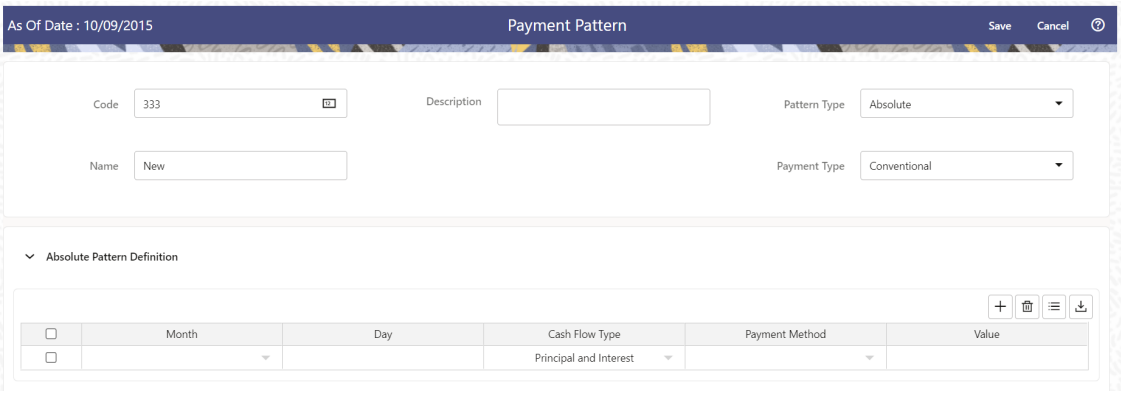
Absolute payment patterns are commonly used for instruments that are on a seasonal schedule, such as agricultural or construction loans that require special payment handling based on months or seasons.

When working with absolute payment patterns, it is sufficient to define payments for one calendar year. Once the term exceeds a year, the payment schedule will loop until the instrument matures.

Prerequisites

Selecting Absolute as the pattern type.

Figure 6-26 Absolute Payment Patterns



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To define absolute payment pattern, do the following:

1. In the **Payment Patterns** page, select **Pattern Type** as **Absolute**.
2. Select the Payment Type from the drop-down list: **Conventional**, **Level Principal**, or **Non-Amortizing**. The Payment Type determines the type of information required to successfully define the Payment Phase.
3. Define the **Payment Phases**. A Payment Phase is a set of payment characteristics that defines the timeline of the instrument's amortization.
   a. Define the following parameters:
      - **Month:** This drop-down list allows you to select the month of the payment phase being defined.
      - **Day:** Used to specify the day of the month the payment is due.
   b. Select the **Cash Flow Type**. The available types depends on the Payment Type. This do not apply to the Non-Amortizing Payment Type.
   Table: Relationship between Cash Flow Type and Payment Types

	Level Principal	Non-Amortizing	Conventional
Principal and Interest	Yes		Yes
Principal Only	Yes		
Interest Only	Yes	Yes	

   c. Select the **Payment Method**. The available Payment Methods depend on the Payment Type. For more information, see: Relation between Payment Method and Payment Types. Payment Methods do not apply to the Non-Amortizing Payment Type.
   d. Enter the Value for the Payment Method you selected in the previous step for applicable Payment Types.
   If you selected the Interest Only Payment Method in the previous step, the Value field does not apply.
4. Click the **Add** icon to add additional Payment Phases to the Pattern. Click Delete icon corresponding to the rows you want to delete.
5. Click **Add Multiple Row** icon to enter the number of rows you want to add and click Go.
6. The **Download Excel** icon helps you to export payment information, modify and paste back in the UI.

> **Note**
>
> A Payment Pattern must have at least one valid Payment Phase to be successfully defined. The system raises a warning if you try to save a Payment Pattern with an incomplete Payment Phase.

7. Click Apply and Save.

The Payment Pattern is saved and the Payment Pattern summary page is displayed.

The following table describes the relationship between Payment Phase properties and Payment Types.

Relationship between Payment Phase Properties and Payment Types

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	Level Principal	Non-Amortizing	Conventional
Month	Yes	Yes	Yes
Day	Yes	Yes	Yes
Payment Method	Yes		Yes
Value	Yes		Yes

The following table describes the relationship between Payment Method and Payment Types.

Relationship between Payment Methods and Payment Types

Payment Method	Level Principal	Non-Amortizing	Conventional
Percentage of Original Balance	Yes		
Percentage of Current Balance	Yes		
Percentage of Original Payment	Yes		Yes
Percentage of Current Payment	Yes		Yes
Absolute Payment	Yes		Yes
Interest Only	Yes		Yes

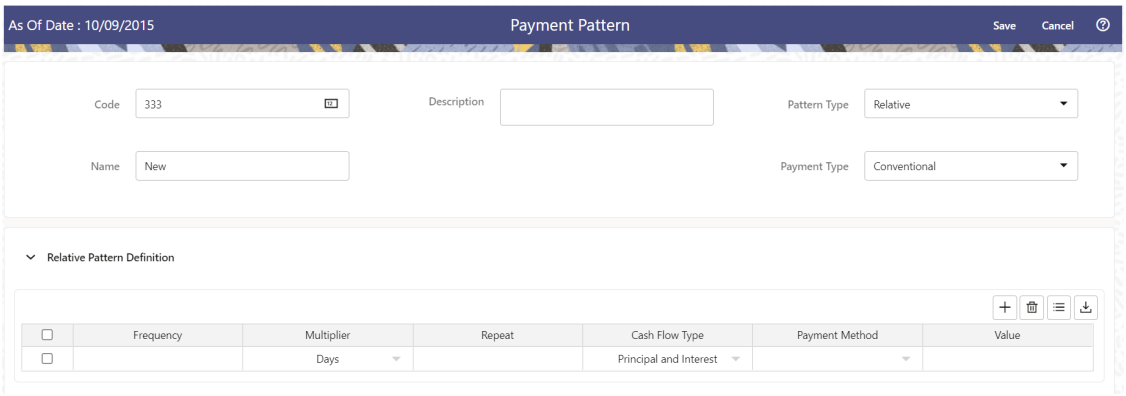
6.1.6.1.2 Define Relative Payment Patterns

You create Relative Payment patterns for instruments that have irregular scheduled payments.

Prerequisites

Selecting Relative as the pattern type.

Figure 6-27 Relative Payment Patterns



To define a relative payment pattern, follow these steps:

1. In the **Payment Patterns** page, select **Pattern Type** as **Relative**.
2. Select the Payment Type from the drop-down list: **Conventional**, **Level Principal**, or **Non-Amortizing**. The Payment Type determines the type of information required to successfully define the Payment Phase.

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The payment type determines the available characteristics for defining the payment amount.

3. Define the **Payment Phase**.
The payment type determines the type of information required to successfully define the payment phase. For more details, see: Relation between Payment Phase Attributes and Payment Types.
   a. Enter the **Frequency** for each payment phase.
   b. Select the appropriate Multiplier for each payment phase from the following options:
      - Days
      - Months
      - Years
   c. Enter the number of times each Payment Phase should be repeated in the Repeat column.
   d. Select the **Cash Flow Type**. The available types depend on the Payment Type. This do not apply to the Non-Amortizing Payment Type.
   Table: Relationship between cash Flow Type and Payment Types

	Level Principal	Non-Amortizing	Conventional
Principal and Interest	Yes		Yes
Principal Only	Yes		
Interest Only	Yes	Yes	

   e. Select the **Payment Method**.
   The available payment methods depend on the payment type. For more details, see Relation between Payment Method and Payment Types. Payment Methods do not apply to the Non-Amortizing Payment Type.
   f. Type the Value for the Payment Method you selected in the previous step for applicable Payment Types.
4. Click the **Add** icon to add additional Payment Phases to the Pattern. Click Delete icon corresponding to the rows you want to delete.
5. Click **Add Multiple Row** icon to enter the number of rows you want to add and click Go.
6. The **Download Excel** icon helps you to export payment information, modify and paste back in the UI.

> **Note**
>
> A Payment Pattern must have at least one valid Payment Phase to be successfully defined. The system raises a warning if you try to save a Payment Pattern with an incomplete Payment Phase.

7. Click **Apply** and **Save**.
The payment pattern is saved and the Payment Pattern home page is displayed.

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> **Note**
>
> It is not necessary to set up relative payment patterns for the complete term of an instrument. The payment pattern automatically repeats until the maturity date. Suppose a payment pattern is created to make monthly payments for the first year and quarterly payments for the next three years. If you apply this pattern to an instrument record with an original term of five years, the payment pattern wraps around and the fifth year is scheduled for monthly payments.
>
> An easy way to set up payment patterns for instruments with varying original terms is to use the repeat value of 999 in the last row of the payment pattern. For example, a payment pattern that pays monthly for the first year and quarterly thereafter, can be set up with two rows. The first row shows 12 payments in one month. The second row shows 999 payments in three months. When this payment pattern is processed it repeats the three-month payment frequency until the maturity date is reached.

The following table describes the relationship between payment phase attributes and payment types.

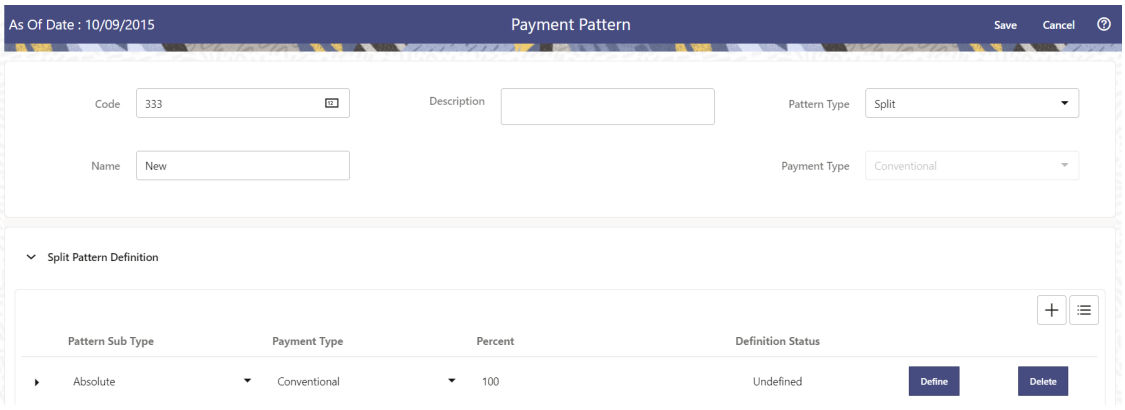
Relationship between Payment Phases and Payment Types

Payment Phase Attributes	Payment Types: Level Principal	Payment Types: Non-Amortizing	Payment Types: Conventional
Frequency	Yes	Yes	Yes
Multiplier	Yes	Yes	Yes
Repeat	Yes	Yes	Yes
Payment Method	Yes		Yes
Value	Yes		Yes

6.1.6.1.3 Define Split Payment Patterns

You can use a Split payment pattern for financial instruments that make principal payments along with two concurrent amortization schedules. Split patterns may be a combination of Absolute and Relative Payment Patterns for example, and contain multiple sets of payment phases under a single amortization code. These patterns could further use a combination of Conventional, Level Principal, and Non-Amortizing Payment Types.

Figure 6-28 Split Payment Patterns



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To define a split payment pattern, follow these steps:

1. In the Payment Patterns page, select Pattern Type as Split.
2. Define Split Pattern definition.
   a. Select the required **Pattern Sub Type** for each leg.
      - Absolute
      - Relative
   b. Select the Payment Type for each Payment Phase or Split.
   c. Enter the Percent value to indicate the percentage weight of the timeline being defined for the individual payment phases (each row). The sum of the percentage weights must total 100%.

> **Note**
>
> The payment pattern term specifications for different payment phases or splits vary depending on whether you select the Absolute or Relative Pattern Type. You can define the term specifications for the splits following the steps described previously for defining payment phases for these patterns. See:
>
> - Define Absolute Payment Patterns
> - Define Relative Payment Patterns

3. Select one of the legs and then select **Define** button to enter pattern details for the leg.
4. Select one of the legs and then select **Delete** button to delete pattern details for the leg.
5. Click the **Add** icon to add additional Payment Phases to the Pattern.
6. Click **Add Multiple Row** icon to enter the number of rows you want to add and click Go.
7. Click **Apply** and **Save**.

The Split payment pattern is saved and the Payment Pattern summary page is displayed.

6.2 Common Rules

This section explains about rules which are common across all multiple applications in Profitability and Balance Sheet Management Cloud Service suite like ALM, PFT, and FTP.

Topics:

1. Preferences: This section covers the procedures to set the Global Preference Settings and User Preference Settings.
2. Holiday Calendars: A Holiday is a day designated as having special significance for which individuals, a government, or some religious groups have deemed that observance is warranted and thus no business is carried on this day.
3. Management Ledger Configuration: This section covers the procedure to define the Functional Currency and the Fiscal Year Start Month for each registered Management Ledger Table.
4. Filters: Filters allow you to select data using the defined expressions.

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6.2.1 Preferences

This section discusses the procedure to set the Global Preference Settings and User Preference Settings.

Topics:

- Select Preferences
- User Preferences
- Application Preferences
- Global Preferences

6.2.1.1 Select Preferences

To configure the User Preferences:

1. Navigate to **Funds Transfer Pricing Cloud Service**, select **Maintenance**, and select **Preferences** to display the Application Preference screen.
2. Select the user from **Show Preferences** for the drop-down list. This has the following options:
   - **All User**: If you have Administrator Privileges, you can define preferences for the All User Group and their individual account, which may be the same or different from the All User Settings.You can also designate the All User Preferences as Editable or Non-Editable on a row-by-row basis. If the individual preference is selected as Is Editable, then End Users can update or override the Administrator's default value for their own individual account. If the Is Editable check-box is deselected, then End Users cannot change the default for their individual account.
   - **End-User**: If you do not have Administrator Privileges, then certain preference items are pre-set by the Administrator and you may not be allowed to change the value. All Application Preference Settings are displayed, regardless of the access privilege.

6.2.1.2 User Preferences

User Preferences Parameters are used to configure the user settings.

To update the User Preferences:

1. Navigate to **Funds Transfer Pricing** and select **Preferences**.
2. Click the **User** tab and enter following values in as described in the following table.

Table 6-13 User Preference settings for FTPCS Application

Parameter	Description
Parameters - General	

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Table 6-13 (Cont.) User Preference settings for FTPCS Application

Parameter	Description
As of Date	All processes reference this date at Runtime to determine the data to include in the process. The As-of-Date value you set in Application Preferences applies to interactive job execution (that is, when you choose to execute a rule directly from a Summary Window). For Batch Processing, the As-of-Date is derived from the Information Date. The As-of-Date is also referenced by some assumptions UI's to display relevant information therein.
Show Execution Parameters	If this option is selected, a pop-up window is displayed whenever you execute a process interactively from a summary screen. Within this pop-up window, you may confirm or modify your Run Execution Parameters (As-of-Date and Legal Entity).
Legal Entity	Similar to As-of-Date, all processes reference Legal Entity at Runtime to determine the data to include in the process. The value of the Legal Entity you set in Application Preferences applies to interactive job execution (that is, when you choose to execute a process directly from a summary screen) and Batch Processing. NOTE: Legal Entity is designed to support implementations that require multi-entity or multi-tenant functionality. If your implementation does not require this functionality, you may utilize the Default Legal Entity in all your processes. Default implies -1 code. The Default Value for the Legal Entity Dimension Column in the instrument data is -1.
Processing – Application Specific Parameters	

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Table 6-13 (Cont.) User Preference settings for FTPCS Application

Parameter	Description
Enable Holiday Calendar Adjustments	Select this option to enable the Holiday Calendar Adjustment capability for the FTP Application. If this option is not selected, the TP Engine ignores all Holiday Calendar information, including instrument level inputs and assumption rule level inputs. The logic for applying Holiday Calendar assumptions is as follows: • If Application Preferences - 'Enable Holiday Calendar Adjustments' check box is on, then the CFE handles these Holiday Calendar assumptions based on the Account Level values first. • If Application Preferences – 'Enable Holiday Calendar Adjustments' check box is on, and if Holiday Calendar inputs are not defined at the Account Level, then the CFE refers to the Product/Currency assumptions (TP rule and Adjustment rule). • If Application Preferences – 'Enable Holiday Calendar Adjustments' check box is on, and if Holiday Calendar inputs are defined at the Account Level AND Product or Currency Assumption level, then the CFE refers to the Account level inputs. • If Application Preferences – 'Enable Holiday Calendar Adjustments' check box is off, then no Holiday Calendar assumptions are applied.
Maximum Number of Instrument records to include in detail cash flow output	This parameter allows administrators to define the maximum number of instrument records that any user can select within a process for outputting detailed cash flows. In Funds Transfer Pricing, the maximum value is 10,000. It is recommended, however, that this value be set to 100 or less.
Assumption Management Defaults	
Default Folder	This parameter allows you to define the default folder selection. The folder selection for all rule types will be defaulted to this selection within the summary page Search screen and when creating a new rule. This selection acts as the starting value for convenience only and users can change to any other available value at their discretion.
Access Type	This parameter allows you to set the default access typesetting. Selections include Read / Write and Read Only. This selection acts as the starting value for convenience only and users can change at their discretion.
Initial Currency	This parameter allows you to select the starting currency to be displayed within all business rules. This selection is made for convenience and can be changed within all business rules at the user's discretion.

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Table 6-13 (Cont.) User Preference settings for FTPCS Application

Parameter	Description
Dimensions and Hierarchies Parameters	
Default Dimension	Transfer Pricing requires users to declare one of the “Product” dimensions as the TP Product dimension. The model is seeded with three possible selections: • Product • Common COA • GL Account Users can also add any placeholder dimension as product dimensions, which would also appear in the above list. Transfer Pricing business rules are based on the Product dimension selected here. The suggested default is the “Product” dimension.
Default Hierarchy	The list of values for the Default Product Hierarchy is based on the Default Product Dimension selection. The hierarchy selected here will be the default hierarchy selection in all business rules that support node-level assumptions. This selection acts as the starting value for convenience only and users can change at their discretion within each business rule.
Organizational Unit Dimension	Reserved for future release.
Migration Parameters	
Ledger Migration - Rate Weighting Element	Select the instrument table balance to use for weighting the rates during the migration process. The following options are available: Average Book Balance, Ending Book Balance, or Custom Balance. If “Custom Balance” is selected, the user is presented with a list of Balance type columns to use as the weighting element. The list of available “Custom Balance” columns is read from the “Portfolio” table classification list.
Custom Ledger Migration	Select any custom leger for migration.
TP Charge/Credit Balance Parameters	
Instrument	Select the Balance to use for calculating the Charge/Credit amount. Choose from Ending Book Balance or Average Book Balance based on selected balance; Charge/Credt calculation takea place as follows: Rate x TP Charge/Credit Balance x Accrual Basis
Custom Charge/Credit	For calculating Instrument level charge/Credit amounts, you may also choose the Custom Balance option; If the Custom Balance is selected, then the user is presented with a list of Balance type columns to choose from.
Ledger Financial Element	Following Financial Element needs to be selected as per the balance used for Ledger Migration, Rate Weighing: Average Book Balance (140), Ending Book Balance (100).

3. Click **Save** to confirm the changes or click **Restore to Default** to reset the custom configuration.

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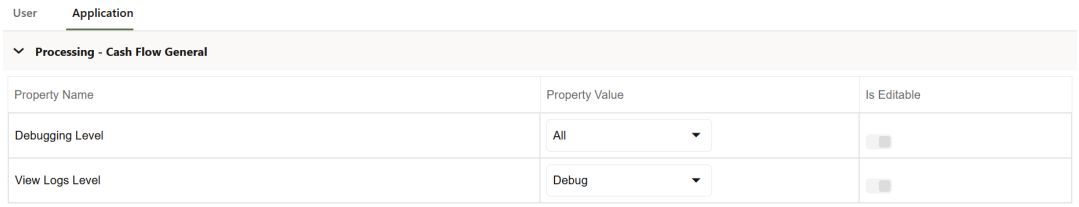
6.2.1.3 Application Preferences

Application Preferences UI allow Administrators and End Users to establish default values, manage other Core Application Parameters that affect the way Business Rules are created and the way Engine Processes are run.

To update the Funds Transfer Pricing Application Preferences:

1. Navigate to **Maintenance** and select **Preferences**.
2. Click **Application** tab.

Figure 6-29 Processing - Cash Flow General section of Application Preference



3. Enable or disable the Legel Entity as per your requirement under Parameters - General:

Fields	Description
Disable Legal Entity	By default, the Legal Entity is enabled. If the "Disable Legal Entity" check-box is checked, then the Legal Entity will no longer be available as a Run-time parameter, subsequently no legal entity filter will be applied; while processing accounts and accounts corresponding to all legal entities will be processed.

4. Enter the following values in Application tab as described in the table:

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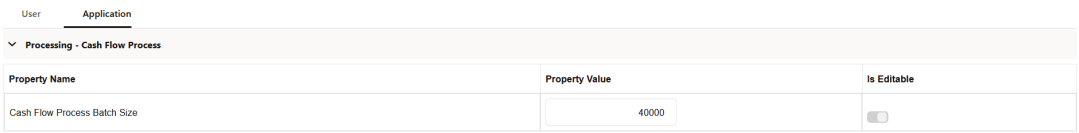
Fields	Description
Debugging Level	The debugging output level determines the amount of SQL that will be written to the processing log. There are eight levels available: a. **Trace**: Designates finer-grained informational events than the DEBUG. b. **All**: All levels including custom levels. c. **Error**: Designates error events that might still allow the application to continue running. d. **Information**: Designates informational messages that highlight the progress of the application at coarse-grained level. e. **Debug**: Designates fine-grained informational events that are most useful to debug an application. f. **Fatal**: Designates very severe error events that will presumably lead the application to abort. g. **Warning**: Designates informational messages that highlight the progress of the application at coarse-grained level. h. **Off**: The highest possible rank and is intended to turn off logging. Note: A log request of level p in a logger with level q is enabled if p >= q. This rule is at the heart of log4j. It assumes that levels are ordered. For the standard levels, we have ALL < DEBUG < INFO < WARN < ERROR < FATAL < OFF.
View Logs Level	This shows the severity of the information telling you how important a given log message is. This shows the View level of the Log. There are three levels available: a. **Information**: Designates informational messages that highlight the progress of the application at coarse-grained level. b. **Debug**: Designates fine-grained informational events that are most useful to debug an application. c. **Off**: The highest possible rank and is intended to turn off logging.

Figure 6-30 Processing - Cash Flow Process section of Application Preference



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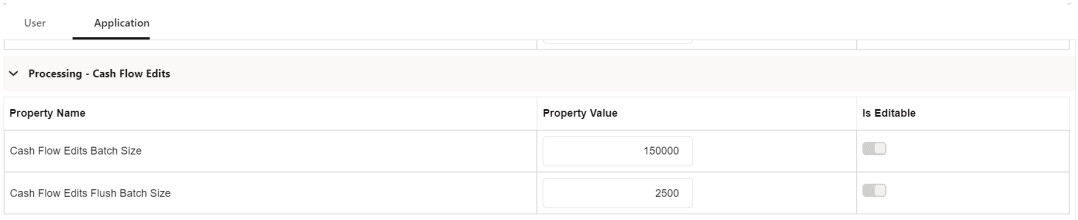
Fields	Description
Cash Flow Process Batch Size	Number of Account or Instruments that must be processed in a single batch. This is used by Cash Flow Engine for performance tuning. The default value of this parameter will be automatically set based on the tenant environment capacity and you can modify if needed.

> **Note**
>
> The following example shows that how below parameter gets used taking 100k records.
> The given "Cash Flow Process Batch Size" values are based on single process execution at a time.
>
> Cash Flow Process Batch Size = Below Cash Flow Process Batch Size/## no of parallel executions ##

T-shirt Size	P	Nano	Micro	XXS	XS	S	M	L	XL	XXL
CFECS - Cash Flow Process										
Cash Flow Process Batch Size	100000	100000	200000	200000	300000	400000	400000	400000	400000	400000

Figure 6-31 Processing - Cash Flow Edits section of Application Preference



Fields	Description
Cash Flow Edits Batch Size	Number of Account or Instruments that must be processed in a single batch. This is used by Cash Flow Edits Engine for performance tuning. Default Value of 150000 is seeded by the service, and you can modify it as needed
Cash Flow Edits Flush Batch Size	Number of records that gets saved or updated in a batch during Cash Flow Process execution. This is used by Cash Flow Engine for performance tuning. Default Value of 2500 is seeded by the service, and you can modify it as needed

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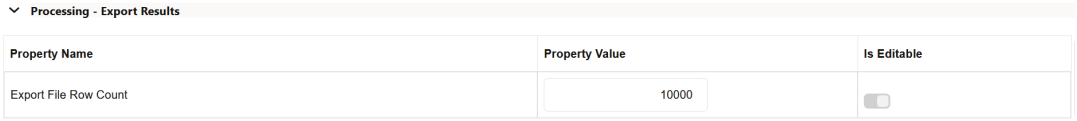
Figure 6-32 Processing - Export Results section of Application Preference



Fields	Description
Export File Row Count	Number of records to be included in one file when cash flow output is exported from database to Object Storage. You must enter value greater than zero Default Value of 10000 is seeded by the service, and you can modify it as needed

5. **Turn-on** the Is Editable status.
6. Click **Save** to confirm the changes.

6.2.1.4 Global Preferences

To set the Global Preferences:

1. From the LHS Menu, navigate to **Maintenance**, select **Preferences**, and **Global Parameters**.
2. Enter following values as described in the following table.
   Is Editable status is disabled since individual users are not expected to modify the following parameters.

Table 6-14 Global Preferences

Parameter	Description
Date Format	Select one value from the following list: • dd-MMM-yy • yyyy/MM/dd • MM/dd/yyyy • dd.MM.yyyy • MM-dd-yyyy • yyyy.MM.dd • yyyy/MMM/dd • dd-MMM-yyyy • dd/MMM/yyyy • yyyy.MMM.dd • dd/MM/yyyy • MM.dd.yyyy • dd-MM-yyyy • yyyy-MM-dd • dd.MMM.yyyy • yyyy-MMM-dd

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Table 6-14 (Cont.) Global Preferences

Parameter	Description
Pagination Count	Pagination Records determine how many rows are displayed on summary and other screens. If you select Pagination Records to be 25 records, then any screen displaying results in a tabular format displays a maximum of 25 records.
Group Company Legal Hierarchy	This displays list of Legal Entity hierarchies that are configured in Dimension Management. Select one hierarchy that must be used to identify the internal (part of the same financial group) customers of the institutions.
Currency Rate Provider	This displays list of providers of Currency Exchange Rate. Value “Default” is seeded and selected as default. If you load Exchange Rates from more than one source like Reuters and Bloomberg then select one which you want the engine to use during processing. Members of dimension Rate Data Source are displayed in the drop-down list.

3. Click **Save** to confirm the changes or click **Restore to Default** to reset the Custom Configuration.

6.2.2 Holiday Calendars

This section discusses the procedure to create a Holiday Calendar and generate a list of the weekend and holiday dates. Individual Cloud Service may consume the Holiday Calendar events in different ways.

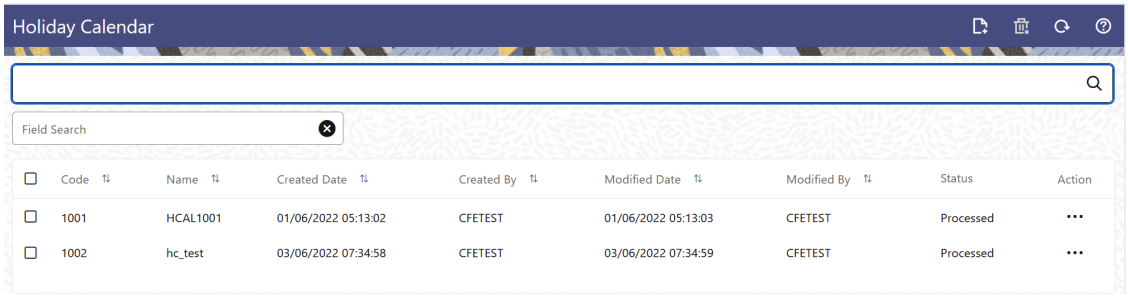
A Holiday is a day designated as having special significance for which individuals, a government, or some religious groups have deemed that observance is warranted and thus no business is carried on this day. The Holiday Calendar Code can range from 1 to 99999.

The **Generate Holiday Calendar** option on the **Holiday Calendar Definition** page allows you to generate the maximum 80 Holiday Calendar definitions at a time. Using the Scheduler Service, you can generate the Holiday Calendar definitions in bulk. For more information, see the Data Loader section.

Holiday Calendar Summary

This page is the gateway to all Holiday Calendars and related functionality. You can navigate to other pages relating to Holiday Calendars from this point.

Figure 6-33 Holiday Calendar Summary



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Search Holiday Calendar Rule

Prerequisites: Predefined Holiday Calendar

To search for a Holiday Calendar:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Holiday Calendars that meet the search criteria.

Or

An alternative method to search a Holiday Calendar rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Holiday Calendar Summary. You can enter the **Code, Name,** and **Description** of the Holiday Calendar and click **Search** .

The Holiday Calendar rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Holiday Calendar rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Code:** The code of Holiday Calendar
- **Name:** The Holiday Calendar's short name.
- **Created Date:** The Date when Holiday Calendar was created.
- **Created By:** The Name of the user who created the Holiday Calendar
- **Last Modified By:** The user who last modified the Holiday Calendar rule.
- **Last Modified Date:** The Date and Time when the Holiday Calendar rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Holiday Calendar rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Holiday Calendar rules. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Holiday Calendar rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Holiday Calendar rules that you no longer require. Note that only Holiday Calendar rule owners and those with Read/Write privileges can delete Holiday Calendar rules. A Holiday Calendar rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Dependency Check:** You can perform a dependency check to know where a particular Holiday Calendar rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Holiday Calendar rules that have dependencies. . A report of all rules that utilize the selected Holiday Calendar rule is generated.

Also See:

- Create Holiday Calendar

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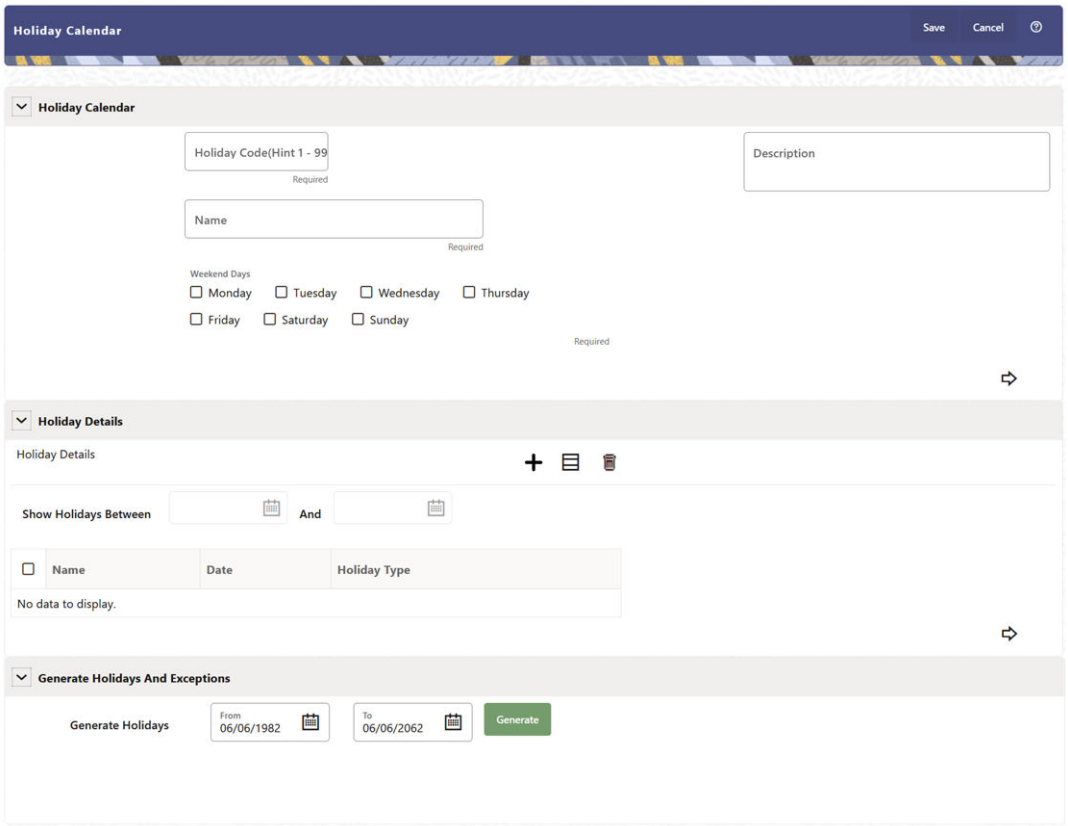
6.2.2.1 Create a Holiday Calendar

You create Holiday Calendars to capture holidays for a given date range for any organization. It is possible to create and use multiple Holiday Calendars.

To create a new Holiday Calendar Rule, follow these steps:

1. Navigate to the Holiday Calendar Summary Page.
2. Click Add icon. The Holiday Calendar Details Page is displayed.
   This page is divided into following sections:
   - Holiday Calendar
   - Holiday Details
   - Generate Holidays And Exceptions

Figure 6-34 Holiday Calender Details Page



3. Enter details in above sections and Click **Save**.

Holiday Calendar section

1. Navigate to Holiday Calendar section.
2. Enter the following details:
   - **Holiday Code:** Enter a code value for the new Holiday Calendar. The code is a Numeric Identifier for the Holiday Calendar. The Code Value must be a number between 1 and 99999. The Code Value you assign to the new Holiday Calendar must be unique.

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- **Name:** Enter the name and a brief description for the Holiday Calendar. The name you assign to the Holiday Calendar must be unique. The name can hold a maximum of 30 characters.
- **Description:** Enter the description of Holiday Calendar Rule.
- **Weekend Days:** In the Holiday Weekend Days checkboxes, select not more than two weekend days.

3. Click **Next** to navigate to **Holiday Details** section.

Holiday Details section

1. Enter the following details in Holiday Details Section:
2. Click **Add** icon. Define the Holiday details for any period within the Holiday range. Enter the following details in Holiday Calendar Grid:
   - **Name:** Name of Holiday
   - **Date:** The date of Holiday
   - **Holiday Type:** Type of Holiday. Two types of holidays can be defined: Fixed and Moving.
     A Fixed Holiday is deemed as a Holiday for every year in the Holiday Period, for that particular day.

     Example

     25th December – Christmas, is a fixed Holiday.

> **Note**
>
> To define a Fixed Holiday, input the Holiday Date for the first occurrence in the date range. For example, if your Date Range runs from 01-JAN-2000 to 31-DEC-2050, you should input the fixed holiday, Christmas, as 25-DEC-2000. The Holiday Calendar Procedure will populate all subsequent 25-DEC entries in the holiday list table (FSI_HOLIDAY_LIST). A HOLIDAY_TYPE code = 0 is a Fixed type holiday, code = 1 is a Moving type Holiday, and code = 2 is a weekend. The Holiday Calendar Procedure will also ensure that Holiday and Weekend entries are not duplicated. For example, if weekends are defined as Saturday/ Sunday and Christmas falls on a weekend day, there will be only one entry in the FSI_HOLIDAY_LIST table. The PREVIOUS_WORKINGDAY and NEXT_WORKINGDAY fields designate the valid prior and following working days, respectively.
>
> A Moving Holiday is deemed as a Holiday only for that particular date and year, and not for every year in the Holiday Period. All occurrences of a Moving Holiday must be input manually.
>
> Example
>
> 10th April 2020 is a Moving Holiday for Good Friday.

   - You can add more Holiday Periods using **Add** icon. Add Multiple icon allows you to add multiple Holiday Periods.
   - Click **Next** to navigate to **Generate Holidays And Exceptions** section.

Generate Holidays And Exceptions Section

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This section is used to execute a Holiday Calendar Definition to generate the Calendar Dates listing the various types of holidays for a given Holiday Period.

1. Enter the following details in Generate Holidays And Exceptions Section:
   - **Generate Holidays:** Enter the Holiday Period in Generate Holidays Section. The Holiday Period can be defined for a range of up to 40 years less than the Current Date and 40 years greater than the Current Date, totally spanning a maximum of 80 years.
2. Holiday List for Holiday ID #1 generated successfully message appears (where #1 is the Holiday Calendar Code).
3. The status of a Holiday Calendar where Holiday Dates have been generated displays as Processed in the Status column in the Summary Page.

In case you do not want to Generate Calendar Dates immediately, you can select that particular Holiday Calendar anytime later from the Summary Page with its status defined, and then click the Generate button to execute the selected Holiday Calendar.

The generated holiday list is no longer valid if:

- There is a change in the definition of the Holiday Calendar.
- There is any update or modification to the Holiday Exceptions defined for that Holiday Calendar.

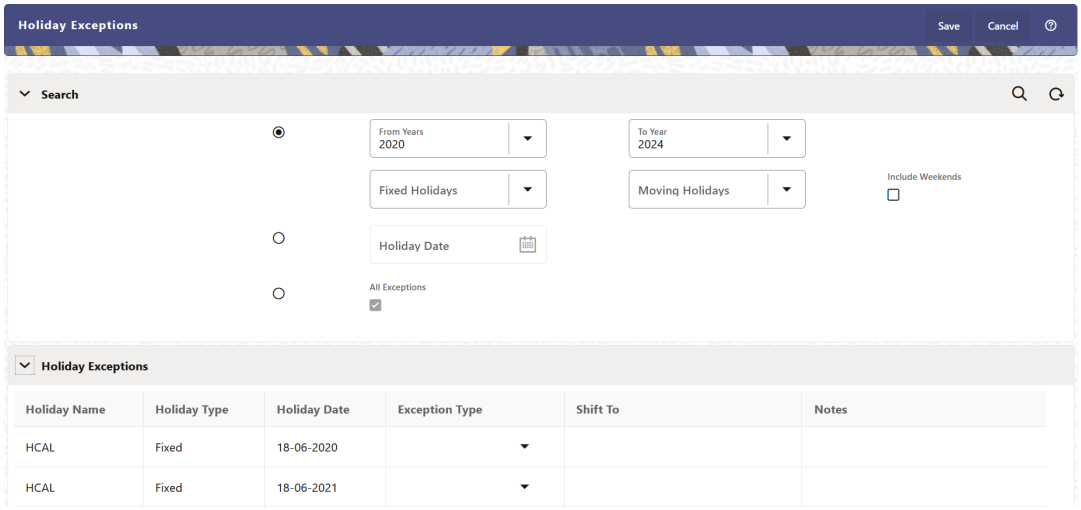
In such a case, you will get a message “This Holiday Calendar has been modified, Please generate the holiday list again.” and the Holiday Calendar state will be changed to defined until the Holiday list is regenerated with the new definition.

6.2.2.2 Holiday Exceptions

You can specify exceptions to Holidays. As a prerequisite, a Holiday Calendar should have been properly defined and the status of the Holiday Calendar on the Summary Page should be Processed. Generating the Holiday list will populate the Holidays (weekends, fixed, and moving) along with the working days. Then, the Exceptions button is enabled. Any changes in the Holiday Definition will disable the Exceptions Button. You must generate the Holiday List again to define or view the exceptions.

1. Click **Exceptions** in the **Generate Holidays And Exceptions** section. The **Holiday Exceptions** window opens.

Figure 6-35 Holiday Exceptions Page



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2. The search section in the **Holiday Exceptions** window has the following fields:
   - **From and To:** Denotes the range of years which is a subset out of the Holiday List generated, for which exceptions are required to be defined.
   - **Fixed Holidays:** You can filter the list of holidays by the type of Fixed Holidays.
   - **Moving Holidays:** You can filter the list of holidays by the type of Moving Holidays.
   - **Holiday Date:** For a particular known Holiday Date, exceptions can be defined.
   - **All Exceptions:** This check box when selected lists all the exceptions, if already defined, for the holidays within the From, To Date Range.
3. The search result gives the list of all holidays based on the selection of the above search criteria fields.
   - In the **Holiday Exceptions** section, there are two types of exceptions that can be defined: Not a Holiday and Shift to.
     - Any Holiday can be marked as not a Holiday, in which case that day is removed from the Holiday List. If you select **Not a Holiday** from the **Exception Type** drop-down, then the Shift to date field is disabled.
     - Spring earlier considered as a Holiday in the Holiday Calendar can be marked as Not a Holiday in the Holiday Exceptions Window. You can write your comments or remarks in the Notes next to the **Exception Type** drop-down list.
   - Any Holiday can be shifted to another day, in which case the earlier declared Holiday is removed from the Holiday List, while the shifted today is included as a Holiday.
   - Once the Holiday Calendar Definition is saved, its status in the Holiday Calendar Summary Page is marked as Defined.

6.2.3 Management Ledger Configuration

This screen enables you to define the Functional Currency and the Fiscal Year Start Month for each registered Management Ledger Table.

To configure the Management Ledger:

1. From the LHS menu , select **Maintenance**, and then select **Management Ledger Configuration**.

   This UI displays the details for each registered Management Ledger. You can modify the Functional Currency and the Start Month Information for each registered Management Ledger Table, but cannot delete the details for an activated Management Leger Table.

   By default, the UI displays a single row corresponding to the OOTB Regular Management Ledger Table (FSI_D_MANAGEMENT_LEDGER). As and when any Placeholder Management Ledger Table is registered, the UI displays an additional row corresponding to the Registered Management Ledger. On registering and activating of all the Management Ledger Tables, the UI displays six rows pertaining to – one row for the OOTB Management Ledger Table and five rows for the registered five placeholder Management Ledger Tables.

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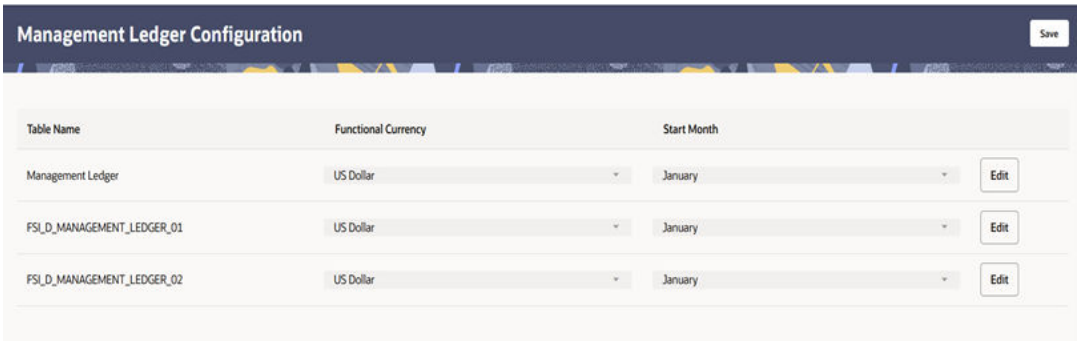
Figure 6-36 Management Ledger Configuration



2. Select the following details:
   - **Functional Currency**: This field allows to select the functional currency that is applicable to the ledger table.
     Accounts and Instruments can be defined across various currencies, but to consolidate the accounts at multiple hierarchy Levels, across units, a common currency is required which you can set here. This currency can be the currency used in the primary economic environment where an entity operates, or in other words, the main currency used by a business unit.

     The default value of Functional Currency for any Management Ledger table is set as 'US Dollar'.
   - **Start Month**: The field is used to select the start month of the fiscal year. The default value of Start Month for any Management Ledger table is set as 'January'.
   - **Table Name**: This field displays the logical name of the Management Ledger table for which you want to input the details. The physical name of the Management Ledger table is displayed in a toolkit on mouse-hover over the logical name of the table.
3. Click **Save**.

6.2.4 Filters

Filters allow you to view and select data using the defined expressions.

6.2.4.1 Filter Definition Types

Filter definitions are created based on the different object types.

The following filter definition types are supported:

- Attribute Filter - filters based on one or more Dimension Type Attributes. For each attribute, you can select one or more values.
- Data element filter -filters the columns based on specific data constraint. These filters are used within other rule types such as Allocation Rules, Transfer Pricing Rules, Asset and Liability Management Rules.
- Group filter - combined filter containing multiple Data element filters logically connected using the **AND** operator.
- Hierarchy filter - filters using Rollup Nodes within a Hierarchy and exclude or include data within an OFSAA Rule.

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6.2.4.2 Filter Summary

The **Filters Summary Page** shows the list of available filters.

- To access the Filter Summary page, click **Maintenance** and select **Filter**.

  The Filter Summary Page provides the list of already created Filter definitions with the following details.

  - **Name** - The unique Filter Name. You can mouse-over the filter name to view more details such as the description of the filter.
  - **Folder** - The folder in which the Filter Definition is stored.
  - **Type** - One of the following Filter Types associated with the Filter Definition. The filter type is selected based on the type of the object that needs to filtered.
    - Attribute Filter
    - Data element filter
    - Group filter
    - Hierarchy filter
  - **Created By** - The login name of the User who created the Filter Definition.
  - **Created Date** - The date of creation.
  - **Action** - Using **Action** (**three dots**), you can perform the following tasks on a selected filter definition.
    - View - View the details of selected filter definition.
    - Edit - Edit a filter definition.
    - Copy - Copy a filter definition.
    - Delete - Delete a filter definition.
    - View SQL - View the SQL statement for a filter definition.
    - Check Dependency - Check the dependent objects associated with the filter definition.

  To filter the summary based on specific search criteria, select and add the required search criteria to the **Search** field and enter/select the specific values.

6.2.4.2.1 Searching Summary

You can search for a specific Definition based on the following criteria. Select/Enter one or more unique values/tag associated with the definition and click **Search**.

- **Name** - Enter unique filter name, to search for a specific definition based on the entered name,
- **Folder** - Select a specific folder to view the definitions stored in that folder.
- **Filter Type** - Select the Filter type, to view all the definitions associated with it.
- **Description** - Enter one or more keywords, to view the definitions containing those keywords.

6.2.4.2.2 Sorting a Summary Page

Sorting helps to view/group the filter definitions sequentially based on the selected criteria

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You can sort/group the Definitions based on the following parameters:

- Filter Type
- Folder
- Name

6.2.4.3 Creating Filter Definitions

To create a Filter definition, complete the following steps:

1. To create a Filter Definition, click the **Add** in the Filter Summary.

   The **Filter Details** Page with the following details is displayed.

   - **Name** - The unique Filter Definition Name.

     > **Note**
     >
     > You can enter up to 120 characters. All allowed characters are **blank space ( )** , **Underscore (_)**,**comma (,)**, **dot (.)** and " **hyphen (-)** .

   - **Folder** - Select the Folder, to save the Filter definition.
   - **Description** - A brief description about the Filter Definition.

     > **Note**
     >
     > You can enter up to 250 characters. All characters are allowed except **" & ", "+ ", "@" and "~"**.

   - **Read-Only** - Select this option to give other users the access to only view the Filter Definition.
   - **Filter Type** - Select one of the following filter types, based on the type of the object that needs to filtered. For more information about creating a filter based on the filter type refer, to the respective sections.
     - Attribute Filter
     - Data Element filter
     - Group filter
     - Hierarchy filter
2. After including all the filters, click **Apply**.

   The new Filter Definition is created successfully and added to the Filter Summary.

6.2.4.3.1 Defining an Attribute Filter

Attribute Filters are created using defined Attributes. Attribute filters facilitates you to filter on one or more Dimension Type Attributes.

For each attribute, you can select one or more values.

1. Select the Filter Type as **Attribute**.
2. Select the required **Dimension** from the drop-down list.

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3. Select the associated **Attribute** from the drop-down list.

   Only those attributes associated with the selected Dimension are displayed.

4. In the **Attributes Value** pane, click **Search**. The list of attribute values associated with the selected Attribute are displayed.

5. Click the **Action** adjacent to the attribute to be added and click **Copy**.

   The selected Attribute value is added the **Attribute Values** pane.

6. After adding the required filters, click **Save**, to add the Filter definition to the Filter Summary page.

   The filter definition is added and a confirmation message is displayed.

   To Delete a Filter, highlight the filter and click **Delete**.

   To view the SQL Query for a filter, highlight the filter and click **View SQL**.

6.2.4.3.2 Defining a Data Element Filter

Data Element Filter is a stored rule that expresses a set of constraints.

Data Element Filters can access most instrument columns and most columns in the Management Ledger. Data Element Filters are used within other rule types such as Allocation Rules, Transfer Pricing Rules, Asset and Liability Management Rules.

Only columns that match the data type of your Data Element selection are displayed in the drop-down list. For example, Balances between 10,000 and 20,000 Accounts opened in the current month Loans with amortization terms greater than 20 years.

Refer to the following steps, to create a Data Element filter:

1. Select the required database table from the **Table Name** drop-down list.
2. Select one or more columns from the **Column Name** to be included in the filter for viewing specific values.

   The columns that are present in the selected Database table are only listed.

3. Select the **Data Element** from the drop-down list.

   The Data elements are listed as a combination of the selected Database table and the selected column

4. Select one of the following Filter Methods to be applied to each data element, add the filter conditions based on the selected method.

   - Specific Values Filter
   - Ranges Filter
   - Another Element Filter
   - Expressions Filter

5. After adding the required filters, click **Save**, to add the Filter definition to the Filter Summary page.

   The filter definition is added and a confirmation message is displayed.

   To Delete a Filter, highlight the filter and click **Delete**.

   To view the SQL Query for a filter, highlight the filter and click **View SQL**.

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6.2.4.3.2.1 Specific Values Filter

You can match a selected database column to a specified value or values, using the Specific Value filter.

You may either include or exclude Specific Values, to view the data.

To create a specific value filter, proceed with the following steps, after selecting the Database table name, column name and the Data element.

1. Select **Specific Values** in the Filter Methods.
2. Enter the required filter value in the **Values** column.
   - When comparing Specific Values for a date type column, select the date using the Calendar control.
   - When comparing Specific Values for a character type column, enter only Character strings.
3. To add another row click **Add** (Plus sign) on the right hand side corner of the **Specific Values** pane. Repeat the previous step, to enter multiple values.
4. To include or exclude the specific values, in the results:
   - To view the results containing the entered specific value, select the value and select **Include**. Click **Add** to add the expression to the filter condition.
   - To view the results without the entered specific value, select the value and select **Exclude**. Click **Add** to add the expression to the filter condition.
5. To delete a value, select the value by clicking the check-box adjacent to the value. Click **Delete**.
6. To view the SQL statement for the specific value, select the value and click **View SQL**.

6.2.4.3.2.2 Ranges Filter

You can match a selected database column to a specified range/ranges of values or to ranges of values.

You may either include or exclude Specific Values, to view the data.

To create a Ranges filter, proceed with the following steps, after selecting the Database table name, column name and the Data element.

1. Select **Ranges** in the Filter Methods.
2. Refer to the following steps, and create a range or multiple ranges, view require data.

   You can use Ranges for data types - Term, Frequency, Leaf, Code, Identity, Date, Numeric and Varchar.

   a. Select the **From Operator** (> or >=), to include the lower limit of the range.
   b. Enter the **Value From** which the Range begins.
   c. Select the **To Operator** (< or <=), to indicate whether to include the specified value in the higher limit of the range.
   d. Enter the **Value To** , to include the higher limit of that range.
3. To include or exclude the specific range, in the results:
   - To view the results containing the entered specific range, select the range and select **Include**. Click **Add** to add the range to the filter condition.

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- To view the results without the entered specific range, select the range and select **Exclude**. Click **Add** to add the range to the filter condition.

4. To delete a range, select the range by clicking the check-box adjacent to the value. Click **Delete**.
5. To view the SQL statement for the specific range, select the range and click **View SQL**.

6.2.4.3.2.3 Creating Another Element Filter

You can match a selected database column to another database column.

When creating an Another Data Element Filter Method, you may only compare a column to other columns that you have already selected (the Data Element drop-down list box will only contain columns that you have already selected).

.

To create an Another Element filter, proceed with the following steps, after selecting the Database table name, column name and the Data element.

1. Select **Another Element** in the Filter Methods.
2. Select a **Table Column**, that needs to be compared with the Data Element Column.
3. Select one of the following mathematical operators for comparison.
   - **=** - Equal to
   - **<>** = Not equal to
   - **<** - Lesser than
   - **>** - Greater than
   - **<=** - Lesser than or equal to
   - **>=** - Greater than or equal to
4. Select a **Data Element**, that needs to be compared with the Table Column.
5. Click **Add** to add the expression to the filter condition.

   To edit an existing Another Element Filter entry, select the entry listed in the **Filter Condition** pane. Modify the expression in the Another Element Pane and click **Update**.

6.2.4.3.2.4 Expressions Filter

Expressions filters help to include calculated conditions in filters.

To create an Expression filter, proceed with the following steps, after selecting the Database table name, column name and the Data element.

Refer to the following steps, to create a Expressions filter:

1. Select **Expressions** in the Filter Methods.
2. Refer to the following steps, to include an expression and filter the data based on the calculated output.
   a. Select one of the **Operator** (> or >=), to process the data in the specific column.
      - **=** - Equal to
      - **<>** - Not equal to
      - **<** - Lesser than
      - **>** - Greater than

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- **<=** - Lesser than or equal to
- **>=** - Greater than or equal to

b. Select the **Expression** for comparing the data in the selected table column.

3. Click **Add** to add the expression to the filter condition.

   To edit an existing Expression Filter entry, select the entry listed in the **Filter Condition** pane. Modify the expression in the Expressions pane and click **Update**.

4. To delete a range, select the range by clicking the check-box adjacent to the value. Click **Delete**.

5. To view the SQL statement for the specific range, select the range and click **View SQL**.

6.2.4.3.3 Defining Group Filter

Group Filters can be used to combine multiple Data Element Filters with a logical "AND".

For each attribute, you can select one or more values.

1. Select the Filter Type as **Group**.
2. Select the checkbox(s) adjacent to the required Data Element Filters in the **Data Element Filter Selection** pane, and click **Add Selected Filters**, to move them to **Selected Filters** pane.

   To select all the filters, click **Select All**.

   To search for a specific filter, enter the few letters from the filter name, and click the **Search**
3. To view the SQL statement of a filter, select the filter and click the eye icon.
4. To remove a filter from the **Selected Filters** pane, select the filter and click the delete icon.
5. After adding the required filters, click **Save**, to add the Filter definition to the Filter Summary page.

   The filter definition is added and a confirmation message is displayed.

6.2.4.3.4 Defining Hierarchy Filter

Hierarchy Filter allows you to utilize Rollup Nodes within a Hierarchy to help you exclude (filter out) or include data within an OFSAA Rule.

For each attribute, you can select one or more values.

1. Select the Filter Type as **Hierarchy**.
2. Select the required **Dimension** from the drop-down list.
3. Select the required **Folder** from which you want to select the Hierarchy.
4. Select the **Hierarchy** from the list of Hierarchies displayed based on the selected Folder.
5. On the Hierarchy view tab, select/unselect the Child/Sibling Members to be included in the Filter.

   For more information about Hierarchy tree, refer Hierarchy Tree .
6. After adding the required filters, click **Save**, to add the Filter definition to the Filter Summary page.

   The filter definition is added and a confirmation message is displayed.

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6.2.4.3.4.1 Hierarchy Tree

The Hierarchy Tree contains a list of available Members associated with the selected Hierarchy.

You can view the list of available members and the child nodes associated with the members, in the **Hierarchy View** tab.

- To select a Member, click the check-box adjacent to the member.

> **Note**
>
> When a Member is selected, all the associated child members are also included in the Hierarchy filter. To include only a specific child member, expand the node and selected the required child member.

- To search for a specific member, click **Search**. Enter the keyword in the **Search Value** and click **Search** adjacent to the Search box.
  The searched members are displayed in the **Search Results** tab.
- You can view a selected tree member in a flat list, in the **Show Members** tab.
- To navigate through the list of available members.
  - Click **Expand/Collapse** to expand/collapse all the nodes. You can also click **Node** next to a member, to expand or collapse a Member node.
  - Click **Sort Ascending/Descending**, to view the list Members in alphabetical order.
  - In Search Results tab, click **Focus/Unfocus**, to select/deselect any specific node.

6.2.4.4 Managing Filter Definitions

You can view, edit, copy, delete and view SQL for the existing Filter Definitions from the Filter Summary.

In the Filter Summary Page, highlight a specific Filter Definition and click the **Action** (three dots). The following Options are displayed.

- View - View the details of selected filter definition.
- Edit - Edit a filter definition.
- Copy - Copy a filter definition
- Delete - Delete a filter definition.
- View SQL - View the SQL statement for a filter definition.
- Check Dependency - Check the dependent objects associated with the filter definition.

6.2.4.4.1 Viewing Filter Definition Details

You can view the details of an individual Filter Definition, using the following procedure:

- Click **Action** (three dots) corresponding to the filter definition you want to view and select **View**.

  The Filter Details page is displayed with the details such as Name, Description, Folder, Filter Type, Filter Conditions and Audit Info.

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6.2.4.4.2 Editing Filter Definition Details

You can edit individual Filter Definition details at any given point. To edit the existing Filter Definition details:

1. Click **Action** (three dots) corresponding to the filter definition you want to edit and select **Edit**.

   The Filter Details page is displayed with the details: Name, Description, Folder, Filter Type, Filter Conditions and Audit Info. .
2. Edit the required information and click **Save**.

6.2.4.4.3 Copying Filter Definition Details

You can copy individual Filter Definition Details, to recreate another new Filter Definition.

To copy a Filter Definition:

1. Click **Action** (three dots) corresponding to the filter definition you want to copy and select **Copy**.

   The Filter Details page is displayed with the details Name, Description, Folder, Filter Type and Filter Conditions.
2. Edit the unique information such as Name, Description, Folder, Filter Type and Filter Conditions, and click **Save**..

6.2.4.4.4 Deleting Filter Details

To delete a Filter Definition:

- Click **Action** (three dots) corresponding to the Filter Definition you want to delete and select **Delete**.

  The Filter Definition is deleted after confirmation.

> **Note**
>
> You cannot delete a definition if any dependency like Attribute, Hierarchy or Filter is attached to it. Detach the dependency before deleting the definition.

6.2.4.4.5 Checking Dependencies

To check the dependencies of a Filter Definition from the Filters Summary:

- Click **Action** (three dots) corresponding to the to the filter definition and select **Check Dependency**

  The list of Dependent Objects is displayed with Object ID, Name, and ID Type of the dependent Objects.

6.2.4.4.6 View SQL

To view SQL of a Filter Definition, perform the following steps:

- Click **Action** corresponding to the Filter Definition and select **View SQL**.

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The SQL statement of Filter Definition is displayed.

6.2.5 Process Tuning

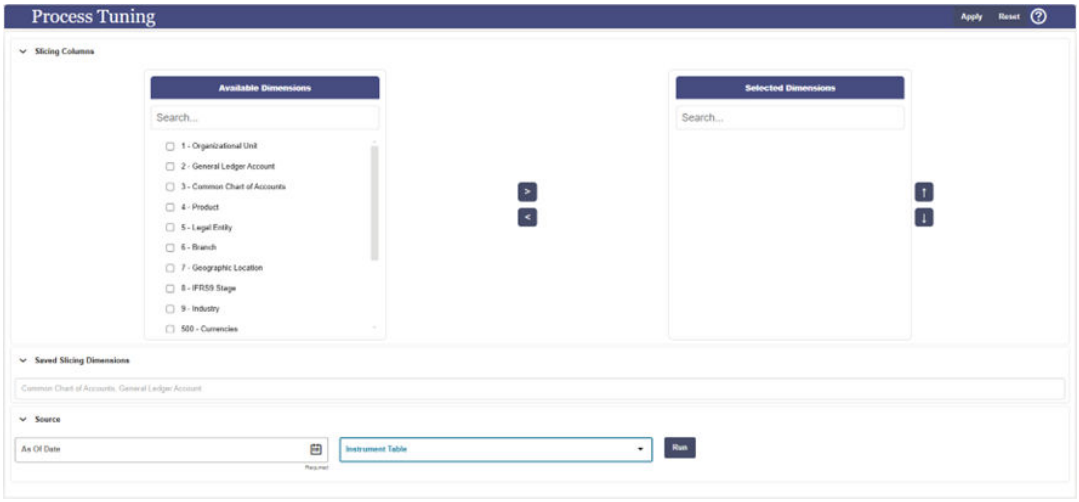
The Processing Tuning UI helps users to enhance engine performance by selecting dimensions across which data is well distributed; it helps to create multiple data slices; all of those can be processed in parallel. The UI displays a list of allowed dimensions for selection to arrive at the combination of slicing dimensions.

Instrument data can be unique for customers. Users can customize by selecting the slicing dimensions as per their requirements instead of slicing the data based on the pre-seeded slicing dimensions.

To open the Process Tuning UI:

1. From the LHS, select **Maintenance**, and select **Process Tuning Configuration**.

Figure 6-37 Process Tuning



2. Select the relevant Dimensions from the Available list of Dimensions and move them to the Selected Dimensions. You can select up to six dimensions. Users are recommended to select the Product and Currency dimensions.
You can arrange them using the top, bottom arrows.
3. Click Apply.
A confirmation message *Slice Dimension has been saved successfully!* is displayed. The selected dimensions are saved in FTP_PROCESS_TUNING_DIM_GROUP_SLICE_MAP table.
4. Under Source part of the screen, select the following:
   - **As of Date**: Select the date for which you want to check the data distribution.
   - **Instrument Table**: The table for which you are defining the slicing dimensions.

   This enables the **Run** button.
5. Click **Run**.
The data distribution insights display number of records across each unique set of selected dimensions.

   After successful selection of the dimensions from the Process Tuning UI, when STP process is executed, engine will consider the selected dimensions and apply for the

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selected instrument tables as part of the process execution. Multiple data slices will be created across selected dimensions, all of these can be processed in parallel.

6.3 Application Specific Rules

This section explains about the Funds Transfer Pricing Cloud Service specific modules which are particularly referenced for transfer pricing calculations.

Topics:

1. Propagation Patterns: The Propagation Pattern allows you to define Source Tables and Lookup Terms required for propagating Transfer Rates and Add-On rates for any applicable Instrument Table from a prior period.
2. Replicating Portfolios: Replicating Portfolios are a special type of Non-Maturity Behavior Patterns and are created and managed directly through Replicating Portfolio UI.
3. Transfer Pricing Rules: Transfer Pricing Rules allow you to specify methodologies for Transfer Pricing your Product Portfolio.
4. Add-On Rate Rules: Add-on Rate Rules allow you to specify Methodologies to calculate Add-on Rates and Breakage Charges for the relevant products in your portfolio.
5. Prepayment Rules: A Prepayment Rule contains methodologies to model the prepayment behavior of various amortizing instruments and quantify the associated Prepayment Risk.
6. Prepayment Models: Prepayment Models can be referenced by a Prepayment Rule to Model Prepayment Behavior of instruments based on a range of instrument level attributes.
7. Alternate Rate Output Mapping Rules: In Oracle Funds Transfer Pricing, you either can output Transfer Pricing Results to the default columns of the application, or to the seeded alternate columns or placeholder alternate columns selected using the Alternate Rate Output Mapping Rule.
8. Transfer Pricing Standard Processes: The Standard Process allows you to calculate Transfer Rates and Add-On Rates.
9. Break Identification: This topic introduces you to configuration and process of Break Identification.
    a. Break Identification Configuration: This section covers the procedure to configure the Break Identification.
    b. Break Identification Processes: The Break Identification Process allows you to determine the data that you want to process, specify the parameters for the process, and execute or run the Break Identification Request and generate results.
10. Rate Cards: Rate card functionality allows the user to select standard products for viewing in their daily FTP Rate report. Administrators schedule a daily FTP run for the selected set of standard products and end users can view daily rates for relevant standard products by defining their Daily rate card reports.
    a. Rate Card Products: Product setup allows Administrators to define the default Product Characteristics for standard products. The Administrator will define these assumptions for Products during the application setup through the user interface.
    b. Rate Card Reports: The Rate Card Report contains a Rate Report definition page and a Report page. The Rate Report definition includes the name of the Rate report, and the set of standard products for which the user wants to fetch the rates.

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6.3.1 Propagation Patterns

The Propagation Pattern allows you to define Source Tables and Lookup Terms required for propagating Transfer Rates and Add-On Rates for any applicable Instrument Table from prior period.

Loan Commitment Propagation

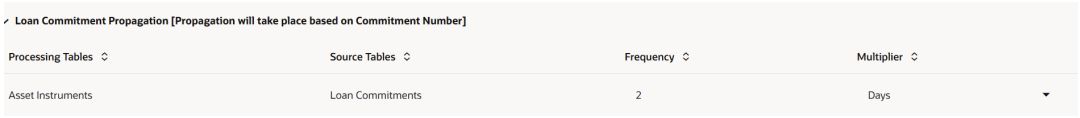
When a Loan Commitment is originated, it has a commitment number rather than an account number. To support the propagation of TP Results for Loan Commitment Contracts, users can choose to match current and prior records based on the commitment number rather than the ID Number. This capability allows users to propagate from month-to-month or day-to-day within the Loan Commitment Table and after the loan is booked, from the Loan Commitment or PM Generated Instrument Table to Asset Table as majorly commitments are for vanilla Loans or Mortgage accounts.

You can enable or disable Loan Commitment Propagation. If this option is enabled, then Loan Commitment Propagation will run after the Standard Propagation.

To define a Loan Commitment Propagation:

1. From the LHS menu, select **Funds Transfer Pricing**, select **Maintenance**, and then select **Propagation Pattern**.

Figure 6-38 Loan Commitment Propagation



The Loan Commitment Propagation section of the screen displays the following information:

- **Processing Table**: This list includes the Seeded Instrument Tables that hold Loan Contracts.
- **Source Table**: This list includes any Instrument Tables that are classified as a Loan Commitment Table. For example, Loan Commitment Contracts.
- **Frequency**: A numeric value multiplied with a Multiplier to calculate the Historical Lag Reference Date for Rate Lookups.
- **Multiplier**: The unit value of the Frequency.

2. Select the check-box option for Loan Commitment Propagation (if applicable).
3. Select the **Source Table** that needs to be associated with each Processing Table.
4. Select the **Target Column** to Match as Commitment Number.
5. Specify the **Historical Lag** between the processing and source tables.
   - Select the Frequency.
   - Select the Multiplier.
6. Click **Save**.

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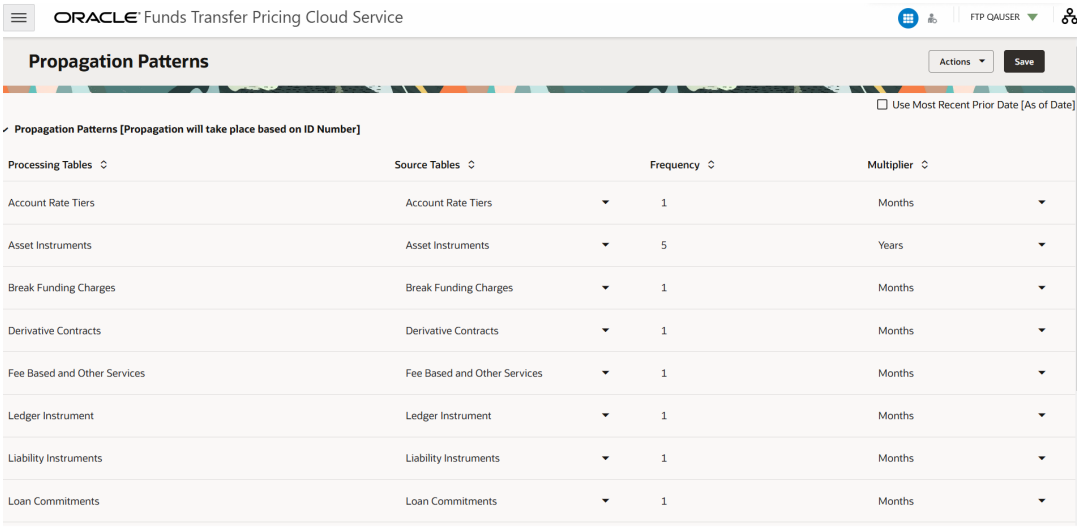
Defining the Propagation Pattern

To define the Propagation Pattern:

1. From the LHS menu, select **Funds Transfer Pricing**, select **Maintenance**, and then select **Propagation Patterns** to display the **Propagation Patterns** page.

Figure 6-39 Propagation Patterns Summary screen



The Propagation Patterns screen displays two sections on the screen based on if the account is a commitment or not (regular account)

2. Enter or select the following:
   - **Use Most Recent Prior Data [As of Date]**: If Use Most Recent Prior Date option is not on, then As-of-Date – Lookback term is calculated to find prior period record. If Use Most Recent Prior Period Date option is on, system picks nearest prior As-of-Date and number of records processed from FSI_PROCESS_RUN_HISTORY and FSI_PROCESS_RUN_HISTORY_DETAILS tables.
   - **Processing Table**: Instrument tables that are enabled for Transfer Pricing or Add-On Rate Processing. These Tables are sorted alphabetically.
   - **Source Table**: Tables that are referenced to obtain the previously calculated Transfer Rates or Add-On Rates.
   - **Frequency**: A numeric value multiplied with a Multiplier to calculate the Historical Lag reference date for rate Lookups.
   - **Multiplier**: The unit value of the Frequency.
3. Select the Source Table that needs to be associated with each Processing Table.

> **Note**
>
> The Source Table for any Propagation Process can be either the same table (if you store multiple periods of instrument data in the same Instrument table) or a separate table (if you store historical records in separate Instrument tables).

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4. Specify the Historical Lag between the Processing and Source Tables.
   a. Select the Frequency.
   b. Select the Multiplier.

> **Note**
>
> The prior period Source data for each Source Table is defined in relation to the current As-of-Date. For instance, if you transfer price monthly, you should specify the historical lag between the Processing and Source Tables as one month. Alternatively, select the “Use Nearest Prior Date" option to have the system automatically determine the prior date.

5. Click **Save**. The Propagation Pattern assumptions that you have defined are saved.
6. Click **Reset** to restore default values. This selection will set the Processing and Source Tables equal to each other and will set the Term and Frequency equal to 1 Month, for all rows.

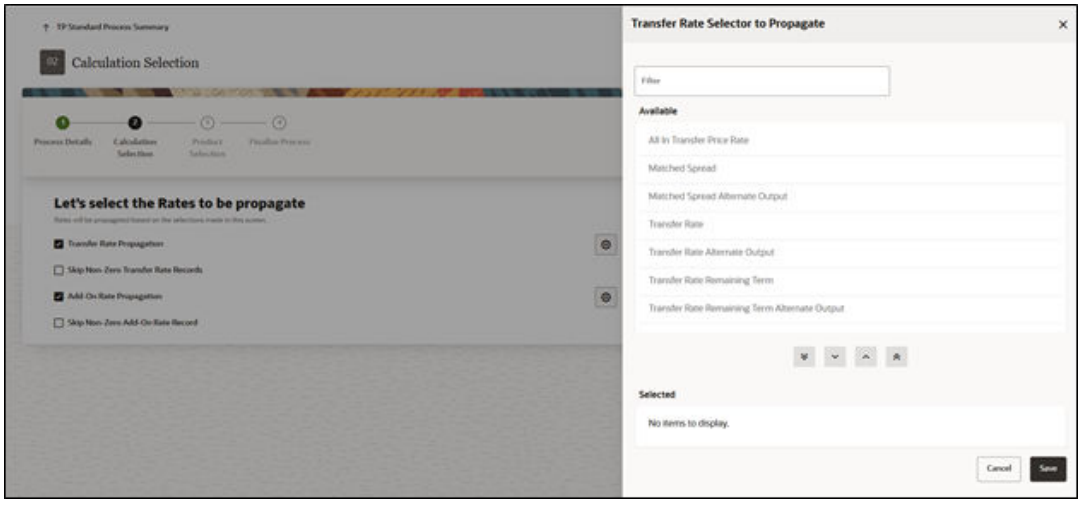
6.3.2 Propagating Transfer Pricing Results

Depending on your requirements, you can choose to propagate Transfer Rates, Add-On Rates by selecting the appropriate Propagation Processing Option in the Transfer Pricing Process.

To propagate the Transfer Pricing Results:

1. Navigate to the **Transfer Pricing Process Calculation Selection** Block.

Figure 6-40 Transfer Pricing Rule - Calculation Selection



2. Select the Propagation parameters:

   From a Standard Transfer Pricing Process, select the Transfer Rate Propagation option and/or Add-On Rate Propagation option. Selecting Transfer Rate Propagation updates all term-related Instrument Records, which have an Instrument-Level History for a prior period with the Transfer Rate that applied in that Prior Period. If Add-On Rate Propagation is selected, then all Add-On outputs (except Breakage Charges) including Rates and Amounts will be propagated.

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> **Note**
>
> If you have pre-populated some Transfer Rates or Add-on Rates before running Propagation and you would like the Propagation Process to skip these records, then select the Skip Non-Zero Transfer Rate Record option and or Skip Non-Zero Add-On rate Record option.

For more information, see Transfer Pricing Process.

Note that, when a table is updated using a Propagation Pattern, an Instrument Record must satisfy the following criteria to receive a Transfer/Add-On Rate:

a. It must be an Instrument that exists in both the Target (processing) Table (with the current As-of-Date) and the Source Table (with the prior period based on a matching ID_NUMBER).

b. The Instrument must also satisfy one of the following conditions:

   It must be a Fixed-Rate (Repricing Freq = 0 in Target Table) Instrument.

   It must be an Adjustable-Rate (Repricing Freq <> 0 in Target Table) Instrument with Target Last Repricing Date <= Prior Period As-of-Date. In other words, it must be an Adjustable-Rate Instrument that has not been Repriced since the prior period.

c. The Matched Spread is also migrated from the prior period record and not recomputed from the Transfer Rate and Current Rate on the Target Table Record.

d. For Add-On Rate Propagation, all rates are propagated regardless of Fixed or Adjustable type. If additional logic is required to control the Propagation of Add-On Rates, data filters should be used to specify the conditions.

6.3.3 Replicating Portfolio

The Tractor Transfer Pricing Method utilizes Replicating Portfolio concept. Replicating Portfolios are a special type of Non-Maturity Behavior Patterns and are created and managed directly through Replicating Portfolio UI.

Through the Replicating Portfolio UI, users can define one or more Core Balance Amounts. Users assign a Term to each Core and Generate Balance Strips at any granularity (for example, Daily or Monthly, depending on the frequency of the Transfer Pricing Process). To maintain the Portfolio over time, users must roll and re-balance the Portfolio to update the Volatile Plug Amount, and if needed, re-balance the Core Amount.

Update the Balance Type when Source Table is the Instrument Table. The Balance Type allows you to select the type of the Balance.

- If the Source is selected as “Management Ledger, then it can be either Average Balance or Ending Balance.
- If the source is selected as either “Instrument” or Aggregate Table”, then it can be Cur Book, Cur Par or Average Balance.

Navigating in the Summary Screen

When you first navigate to the Replicating Portfolio summary screen, the Portfolios stored within your current default Folder are presented in a summary table. The Replicating Portfolio summary screen displays a Search pane and a Replicating Portfolio summary pane.

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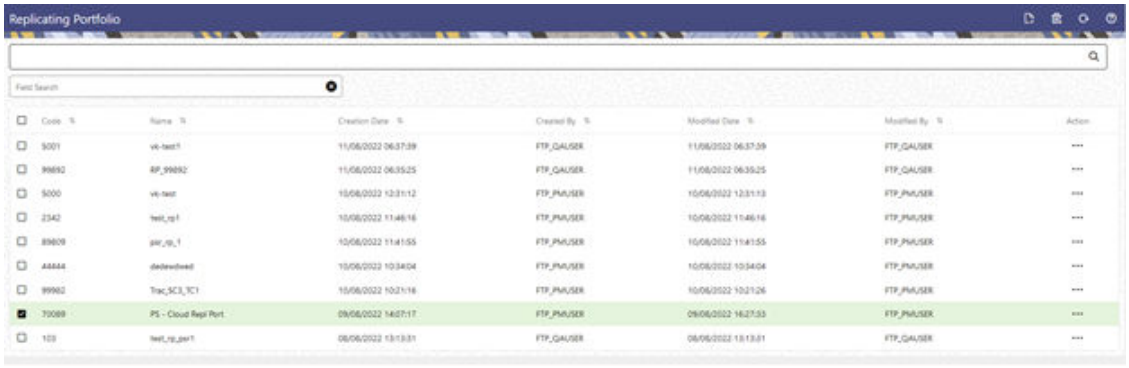
Figure 6-41 Replicating Portfolio summary page



The title bar of the summary page provides several actions for the user. They are:

- **Add**: Click Add icon to build a new Replicating Portfolio.
- **Multiple Delete**: Enables you to select and delete one or multiple rules in the table simultaneously.
- **Refresh**: Click the Refresh button to refresh the Summary Page.
- **Help**: Click the Help icon to view the Replicating Portfolio Help Page.

Search Replicating Portfolio

On the Replicating Portfolio summary, enter your search criteria in the search box and click **Search**. The Replicating Portfolios meeting your search criteria are displayed.

or

An alternative method to search a Replicating Portfolio is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as name, code, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Replicating Portfolio summary. You can enter the Code, Name, Creation Date, Created By, Modified Date, and Modified By of the Replicating Portfolio, partially or fully, and click **Search**.

Replicating Portfolio Summary

The Replicating Portfolio summary presents a table containing all Replicating Portfolio that meet your search criteria.

The Replicating Portfolio summary page displays the following columns:

- **Code**: The Replicating Portfolio code.
- **Name**: Displays name of the Replicating Portfolio.
- **Creation Date**: Displays the date and time when user created the Replicating Portfolio.
- **Created By**: Displays the Name of the user who created the Replicating Portfolio.
- **Modified Date**: Displays the Date and Time at which a Replicating Portfoliowas last modified.
- **Modified By**: Displays the name of the user who last modified a Replicating Portfolio.
- **Action**: Click this icon to view a list of actions that you can perform on the Replicating Portfolio.

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- **View**: Click View in the Action column and select View to view the content of a Replicating Portfolio.
- **Edit**: Click Edit in the Action column and select Edit to edit the content of a Replicating Portfolio.
- **Delete**: You can delete a Replicating Portfolio that you no lunger require. Note that only the replicating portfolio owners and those with Read/Write privileges can delete the replicating portfolios. A replicating fortfolio that has a dependency cannot be deleted.
- **Save As**: Click Save As in the Action column to copy and save the selected Replicating Portfolio with a different Code and Name.

You may select or deselect all the Replicating Portfolios in the summary table by clicking the check-box in the upper left-hand corner of the summary table directly.

6.3.3.1 Creating a Replicating Portfolio

To define a Replicating Portfolio for Tractor Transfer Pricing Method:

1. From the LHS Menu, select Maintenance, and then select Replicating Portfolio.
2. Click the **Add** icon.

Figure 6-42 Replicating Portfolio details section

3. Add the following details:

This table describes various fields in the Replicating Portfolio details sage. You can enter or select the relevant details to populate the screen to define Replicating Portfolio for the Tractor TP Method use.

Table 6-15 Key Terms used in the Replicating Portfolio Details Page

Term	Description
Code	Enter a unique code for the Replicating Portfolio.
Name	Enter a unique name for the Replicating Portfolio.
Description	Enter description for the Replicating Portfolio.
Type	For Replicating Portfolio, the type is defaulted to the core. The Volatile Strip is generated automatically as a Reconciling Plug Entry to Balance the Portfolio. The term of the Plug Entry is defaulted to 1 Day unless a Holiday Calendar is used, in which case the Volatile Amount Maturity can be extended to the next business day.

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Figure 6-43 Replicating Portfolio Definition section

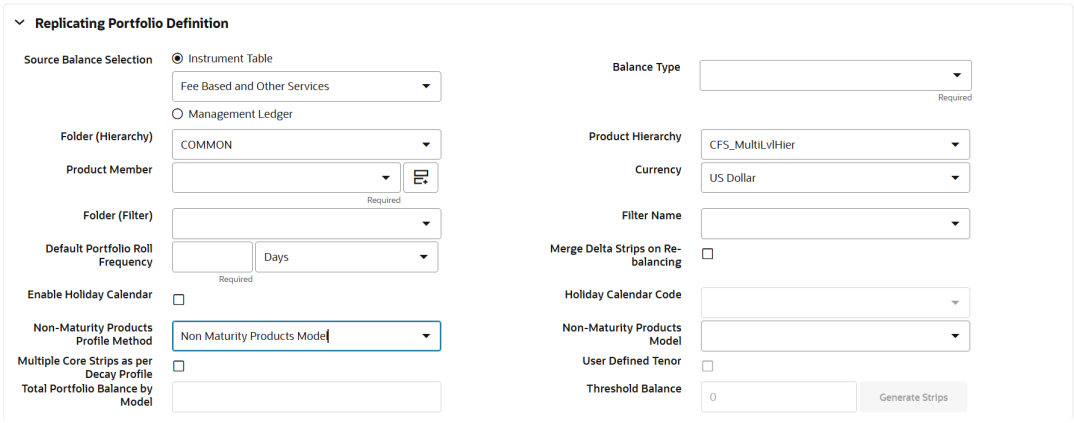

Table 6-16 Key Terms used in the Replicating Portfolio Definition section

Term	Description
Source Balance Selection	The Source Balance selection allows you to use the source as Instrument Table, Aggregate Table (or Ledger Table).
Balance Type	The Balance Type allows you to select the type of balance. It can be either Average Balance or Ending Balance if the source is Management Ledger. In addition, the Cur Par, Cur Book or Average Book Balance if the source is one of the Instrument Tables.
Folder	Select the folder from where you want to pick the Product Hierarchy.
Product Hierarchy	Pick one Product Hierarchy from the selected folder.
Product Member	Select Products for which Replicating Portfolio is being defined.
Currency	Pick one Currency from active List of Currencies.
Folder (Filter)	If any filters are required to define the Portfolio, select the Folder where Filter is stored.
Filter Name	Pick one Filter to enhance the granularity of Replicating Portfolio.
Default Portfolio Roll Frequency	The Default Portfolio Roll Frequency Option allows you to set the default Rolling Frequency of the Replicating Portfolio.
Merge Data Strips on Re-balancing	If Merge Delta Strips on the Re-balancing option are enabled, then the Core Strips will be merged during the rebalancing.
Enable Holiday Calendar	Replicating Portfolio's allow users to enable a Holiday Calendar. If this option is selected, Portfolio Strips will not be generated on weekends or holidays. In addition, during rollover of Maturing Strips, new Maturity Dates will be adjusted to ensure maturities fall only on working days.
Holiday Calendar Code	The Holiday Calendar code allows users to select the applicable holiday calendar.

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Table 6-16 (Cont.) Key Terms used in the Replicating Portfolio Definition section

Term	Description
Non-Maturity Products Profile Method	The following options: • **Manual**: user has to key in all the parameters to define the replicating portfolio strips. • **Model**: Replicating portfolio strips will be auto-configured based on the output of the selected Python model.
Non-Maturity Products Model	Select a Model from the Non-Maturity Products Model drop-down. You can search Non Maturity Product Model using product and currency criteria after clicking **Search** button. You can have single Core or Multiple Core strips based on if decay profile is being used. Single core strip will be based on model calculated core balance and corresponding Weighted average life based on calculated decay rate. Multiple Core and Volatile strips in percentage if “Multiple Core Strips as per Decay Profile” is selected. Once model is selected, you can define two types of strip definitions: • **Single Core Strip**: The model evaluates the core balance against a total point in time balance. **Core Calculation**: Where One Core with NMD Model WAL as Tenor and NMD Model (Core balance/Total Point in Time balance) * 100, will be core percentage and Strip tenor , by default will be 'At Maturity'. • **Multiple Core Strips as per Decay profile**: If this is selected, then user has further two options: – Using Generate Profile: You can select to Generate Profile with or without thresholds. Strips will be auto-generated based on decay profile frequency. For example, if the NMD model's decay profile is set to a daily frequency, tenors will be auto-populated on a daily basis.
Multiple Core Strips as per Decay profile	If this is selected, there are following two options.
User Defined Tenor	If this is selected, then + icon will be available to add strips. Note: The User Defined Tenor option will be active only when the **Multiple Core Strips as per Decay Profile** toggle button is selected. By default, it will be OFF.

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Table 6-16 (Cont.) Key Terms used in the Replicating Portfolio Definition section

Term	Description
Total Portfolio Balance by Model	Total balance is the balance available at the latest As of Date in the Historical Period selected for which model is created. For example, if the historical period is from January 1, 2020, to December 31, 2020, and the most recent date is December 31, 2020, the total available balance of all accounts included in the portfolio (based on product and currency) would represent the total Portfolio Balance.
Threshold Balance	This option will be active only when the **Multiple Core Strips as per Decay Profile**toggle button is selected. The default value of this field is: • 0.0.It accepts only positive numbers or decimals values. • When you use Decay Rate profile from the selected model, the balance keeps reducing using every period's decay rate till threshold balance is reached. So, no further strips can be created beyond the Threshold balance. It is recommended to give some valid positive value as threshold balance, else after few initial strips, principal will become small and decaying part will be even smaller. If the number of strips reaches to 500 and the remaining balance is negligible, an error message is displayed. Once balance is reached equal or less than given threshold, then rest of the balance will run off in immediate next strip. For example, if the initial balance was 10,000 and the threshold is set at 500, and the decay profile indicates that the balance reaches 500 or less in the 11th strip, then in the immediate next strip (the 12th strip), the entire remaining balance will be deducted. This is necessary because the system needs to account for 100% of the remaining balance, and there is a check in the BP to ensure that the total of all strips adds up to 100%. The system uses the decay profile/decay rate generated by the model and creates Runoff Profile/Strips as per inputs data frequency to the NMD model which can be in Days/Months and Years. If the frequency is in Days, then the tenor of the defined strips would be days else it would be in months/years as per the model definition.

4. Make your required selections in the **Source Balance Selection** section.
5. Select the **Balance Type** based on the Source selected.
6. Click **Add Core** (one or more) to input the core amount, associated maturity term, and strip frequency.
7. To delete a row, select the check box corresponding to the row you want to remove and click the **Delete** icon.
8. Click **Save**.

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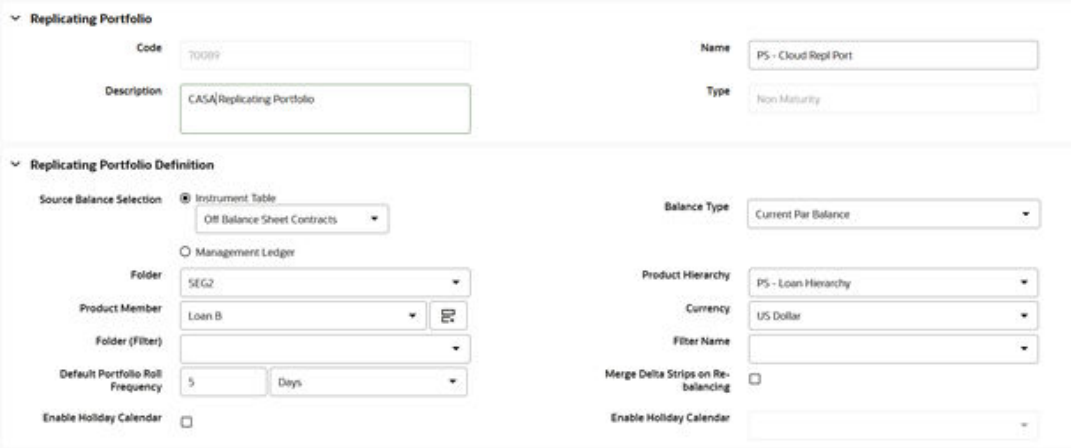
Figure 6-44 Replicating Portfolio Summary Page



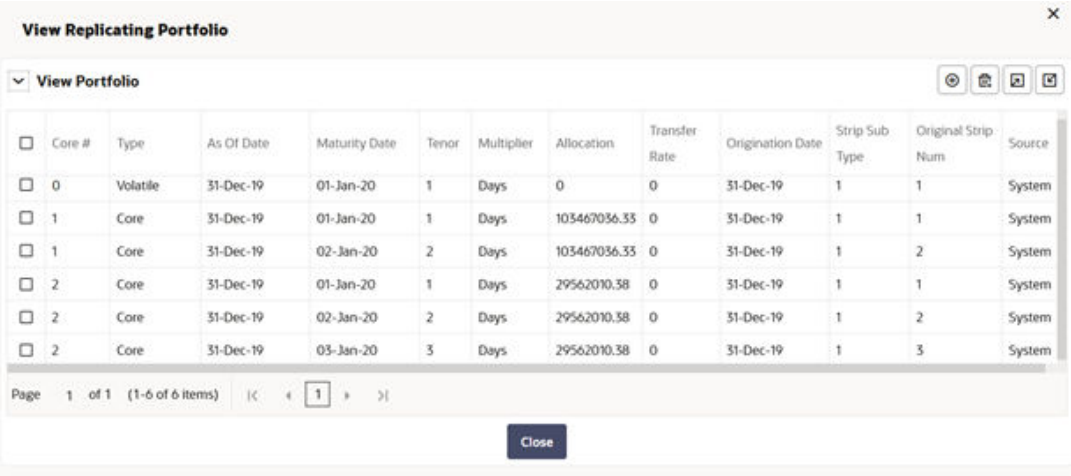
The Replicating Portfolio is saved and the Replicating Portfolio Summary Page is displayed.

9. Return to the Replicating Portfolio in Edit mode and generate the Portfolio.

Figure 6-45 Portfolio Configuration

10. You can view the Portfolio using View action in Portfolio Configuration. There are other actions buttons to roll the Portfolio forward/backward and rebalance as per Changing Balance on each subsequent As-of-Date.

Figure 6-46 View Portfolio



11. In View Portfolio screen, you can modify Strip Balance, add or delete existing Strips. Options are given to export and import the whole Portfolio to an Excel Sheet.

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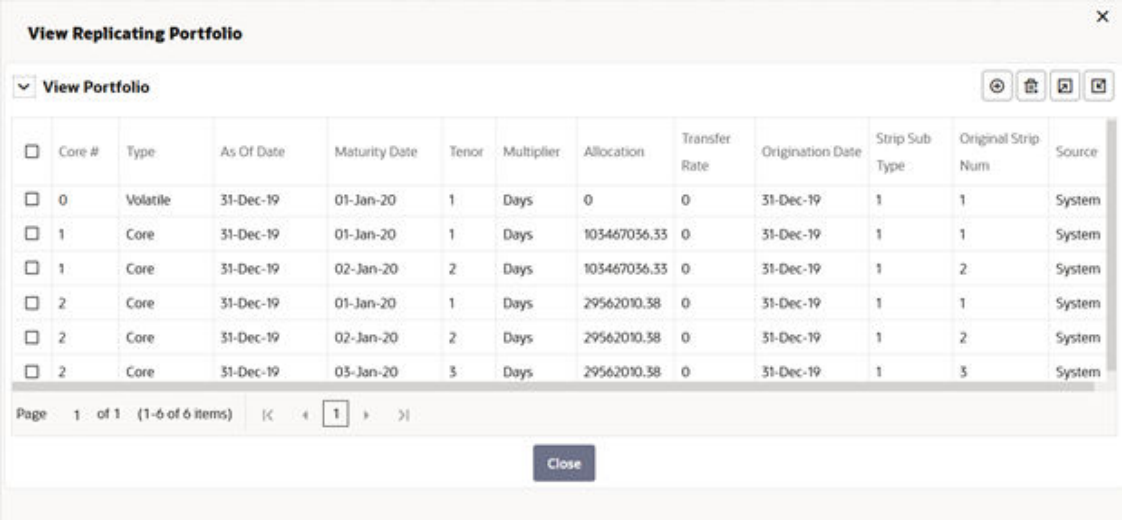
> **Note**
>
> After the Replicating Portfolio is generated and the Volatile Plug is updated for the current period, it is ready for processing by the Funds Transfer Pricing Engine. Funds Transfer Pricing processes utilizing the Tractor TP Method should not be Run until all Replicating Portfolios are updated.

6.3.3.2 Export and Import Replicating Portfolio Data in Excel

There is an option through the Replicating Portfolio > View Portfolio UI to manually edit existing Portfolio Strips through Export and Import of the Active Strip Data.

The following screenshot illustrates the functionality:

Figure 6-47 Replicating Portfolio Viewing page with Collapsed Excel Options



- The Export option works against the entire active Portfolio. For example, a user can currently filter on a specific CORE # or look at results for all Cores. Additionally, the selection of Strips can span multiple pages.
- The import function will replace ALL existing “Active” Strips.
- The Strip Data being imported is validated to confirm that all required data is included. If the data is not complete, for example, it does not provide information for Core #, Strip Type, As-of-Date, Maturity Date, Tenor, Multiplier, Allocation (or Amount), then a warning message is given indicating that “The selected data is incomplete and cannot be imported. Please re-check the data and try again.” The Portfolio can also be edited directly on the View Portfolio screen after new Strips are imported.
- When you click the Strip Source option, the Status Column in the summary table shows the Tagged Strip Records that are created by the system or manually. You can edit these tags for Strips that are manually created or existing Strips after exporting them into Excel.

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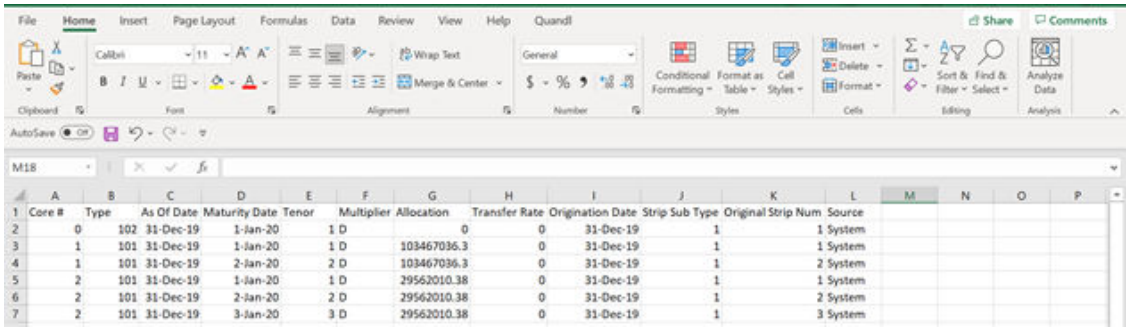
Figure 6-48 Exported Data in Excel



Core #	Type	As Of Date	Maturity Date	Tenor	Multiplier	Allocation	Transfer Rate	Origination Date	Strip Sub Type	Original Strip Num	Source
0	102	31-Dec-19	1-Jan-20	1	D	0	0	31-Dec-19	1	1	System
1	101	31-Dec-19	1-Jan-20	1	D	103467036.3	0	31-Dec-19	1	1	System
1	101	31-Dec-19	2-Jan-20	2	D	103467036.3	0	31-Dec-19	1	2	System
2	101	31-Dec-19	1-Jan-20	1	D	29562010.38	0	31-Dec-19	1	1	System
2	101	31-Dec-19	2-Jan-20	2	D	29562010.38	0	31-Dec-19	1	2	System
2	101	31-Dec-19	3-Jan-20	3	D	29562010.38	0	31-Dec-19	1	3	System

6.3.4 Transfer Pricing Rules

Transfer Pricing Rules allow you to specify methodologies for Transfer Pricing your Product Portfolio. A Transfer Pricing Rule may contain a Transfer Pricing Methodology defined for a particular product or a set of methodologies defined for all products (Dimension Members) in a particular Product Hierarchy.

The Transfer Pricing Rule is a key component of the Transfer Pricing Process. The Transfer Pricing Process uses the Transfer Pricing Methodologies contained in the Transfer Pricing Rules to generate Transfer Rates. Consequently, before processing information for a new period, you need to review and validate the assumptions contained in your Transfer Pricing Rules.

> **Note**
>
> If Transfer Pricing Assumptions are managed at the Parent/Node level, new Product Dimension Members will automatically inherit TP Method assignments.

If new members are added to the applicable Product Dimension, you need to update your Transfer Pricing Rules by defining appropriate methodologies for the new products.

6.3.4.1 Overview of Transfer Pricing Methodologies and Rules

The Transfer Pricing Methodologies supported by Oracle Funds Transfer Pricing Cloud Service can be grouped into the following categories:

Cash Flow Transfer Pricing Methods: Cash Flow Transfer Pricing Methods are used to Transfer Price Instruments that amortize over time. They generate transfer rates based on the Cash Flow characteristics of the instruments.

To generate Cash Flows, the system requires a detailed set of transaction-level data attributes, such as, Origination Date, Outstanding Balance, Contracted Rate, and Maturity Date, which resides only in the Instrument Tables. Consequently, Cash Flow Methods apply only if the Data Source is Account Tables. Data stored in the Management Ledger Table reflects only accounting entry positions at a particular point in time and does not have the required financial details to generate Cash Flows, therefore, preventing you from applying Cash Flow Methodologies to this data.

The Cash Flow Methods are also unique in that Prepayment Rules are used only with these methods. You can select the required Prepayment Rule when defining a Transfer Pricing Process.

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Oracle Funds Transfer Pricing Cloud Service supports the following Cash Flow Transfer Pricing Methods:

- Cash Flow: Average Life
- Cash Flow: Duration
- Cash Flow: Weighted Term
- Cash Flow: Zero Discount Factors

Non-Cash Flow Transfer Pricing Methods: These methods do not require the calculation of Cash Flows. While some of the non-Cash Flow Methods are available only with the Account Tables Data Source, some are available with both the Account and Ledger Table Data Sources.

Oracle Funds Transfer Pricing Cloud Service supports the following Non-Cash Flow Transfer Pricing Methods:

- Moving Averages
- Straight Term
- Spread from Interest Rate Code
- Spread from Note Rate
- Redemption Curve
- Tractor Method
- Caterpillar
- Weighted Average Perpetual
- Unpriced Account
- Transfer Pricing Methods and the Mid-Period Repricing
- Transfer Pricing Methodologies Using Node Level Assumptions
- Transfer Pricing Methodologies using Conditional Assumptions

> **Note**
>
> Asset Liability Management Cloud Service supports the following transfer pricing methods. The other methods will be supported in future versions.
>
> - Moving Averages
> - Straight Term
> - Spread from Interest Rate Code
> - Spread from Note Rate
> - Redemption Curve

Oracle Funds Transfer Pricing Cloud Service also allows Mid-period Repricing. This option allows you to take into account the impact of high market rate volatility while generating transfer prices for your products. However, the mid-period Repricing option applies only to Adjustable Instruments and is available only for following Non-Cash Flow Transfer Pricing Methods:.

- Straight Term

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- Spread from IRC
- Spread from Note Rate
- Redemption Curve

> **Note**
>
> Interest Rate Code given in the Account Data is used for Mid-Period Repricing calculations for spread from Note Rate.

Note on Bulk Updates versus Row by Row Processing: Any Transfer Pricing Method that does not refer to individual account characteristics utilizes a bulk update to assign a single transfer rate to a group of instrument records. Any TP Method that needs to refer to individual account characteristics to process will execute on a row-by-row basis. In general, Bulk updates are faster than row-by-row processing.

The following Transfer Pricing Methods, when not defined through a conditional assumption and not utilizing Mid-Period Repricing, use Bulk Updates:

- Redemption Curve (Assignment Date = As-of-Date only)
- Moving Average
- Spread from Note Rate
- Spread from IRC (Assignment Date = As-of-Date only)

All other Transfer Pricing Methods like Tractor, Caterpillar, and Weighted Average Perpetual are processed row-by-row. When Conditional Assumptions or Mid Period Repricing are used, processing will always be row-by-row, regardless of the Transfer Pricing Method Selection.

> **Note**
>
> Oracle Funds Transfer Pricing Cloud Service also supports rate lookup from a future date if there is no history available for selected IRC, and it only starts from a future rate with respect to As of Date.

6.3.4.1.1 Cash Flow: Average Life

The Average Life Method determines the average life of the instrument by calculating the Effective Term required to repay half of the principal or nominal amount of the instrument. The Transfer Pricing Rate is equivalent to the rate on the associated Interest Rate Curve corresponding to the calculated term.

Figure 6-49 Cash Flow: Average Life

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Figure 6-50 Cash Flow: Average Life Formula

$$\text{Average Life} = \sum_{i=1}^{n} \frac{P_i}{P} t_i$$

Where:

P is the principal

P_i is the principal repayment in coupon i, hence

$\frac{P_i}{P}$ is the fraction of the principal repaid in coupon i, and

t_i is the time from the start of coupon i

Oracle Funds Transfer Pricing Cloud Service derives the Average Life based on the Cash Flows of an instrument as determined by the characteristics specified in the Instrument Table and using your specified Prepayment Rate, if applicable. The average life formula calculates a single term, that is, a point on the yield curve used to transfer the price of the instrument being analyzed. The Average Life Calculation does not differentiate between fixed-rate and adjustable-rate instruments. It applies the same calculation logic to both. It computes the Average Life of the Loan (to maturity).

> **Note**
>
> The Average Life Transfer Pricing Method provides the option to Output the result of the calculation to the Instrument Record (TP_AVERAGE_LIFE). This can be a useful option if you would like to refer to the Average Life as a reference term within an Adjustment Rule.

Users also have the choice to populate the TP_AVERAGE_LIFE column directly with a value computed outside of Oracle Funds Transfer Pricing Cloud Service. If this value is populated, the Funds Transfer Pricing Cloud Service Engine reads the TP_AVERAGE_LIFE and will look up the Funds Transfer Pricing Rate for the given term. In this case, the Transfer Pricing Engine does not generate Cash Flows and will not re-compute the Average Life. It simply uses the value that is provided and lookup the appropriate Funds Transfer Pricing Rate from the specified TP Interest Rate Curve.

6.3.4.1.2 Cash Flow: Duration

The Duration Method uses the Macaulay Duration Formula:

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Figure 6-51 Cash Flow: Duration Formula

$$\text{Duration} = \frac{\sum_{n=1}^{N}\left[\frac{CF_n}{(1+r)^m} \times t_n\right]}{\sum_{n=1}^{N}\left[\frac{CF_n}{(1+r)^m}\right]}$$

In this formula:

- N: Total number of payments from Start Date until the earlier of repricing or maturity
- CFn: Cash Flow (such as Regular Principal, Prepayments, and Interest) in period n
- r: Periodic Rate (Current Rate/Payments per year)
- m: Remaining term to Cash Flow/Active Payment Frequency
- tn: Remaining term to Cash Flow n, expressed in years

Oracle Funds Transfer Pricing Cloud Service derives the Macaulay duration based on the Cash Flows of an instrument as determined by the characteristics specified in the Instrument Table and using your specified Prepayment Rate, if applicable. The Duration Formula calculates a single term, that is, a point on the yield curve used to transfer price the instrument.

- Within the Duration Calculation, the discount rate or current rate, r, is defined in one of three ways, based on how the methodology is set up by the user:
- The current rate is defined as the Current Net Rate if the processing option, "Model with Gross Rates" is not selected and the Current Gross Rate if the option is selected. The current rate is used as a constant discount rate for each cash flow.
- The user may directly input while defining the TP Rule, a constant rate to use for discounts. If specified, this rate is used as a constant discount rate for each flow.
- The user can select to discount the Cash Flows using spot rates from a selected Interest Rate Curve. With this approach, a discount rate is read from the selected interest rate curve corresponding to the term of each cash flow.

> **Note**

NOTE: The Duration Transfer Pricing Method provides the option to Output the result of the calculation to the instrument record (TP_DURATION). This can be a useful option if you would like to refer to the duration as a reference term within an Adjustment Rule.

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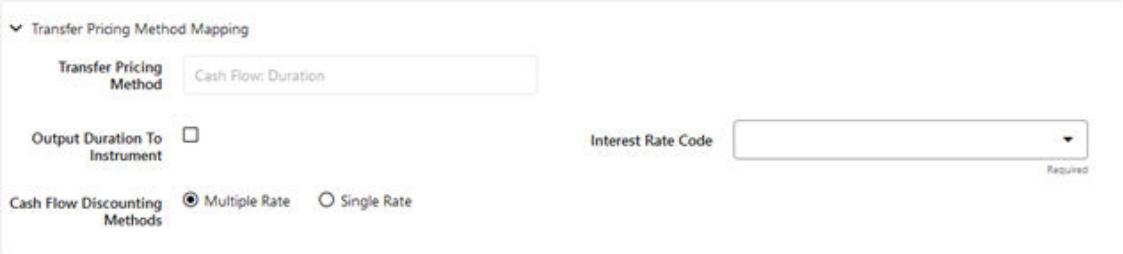
Figure 6-52 Cash Flow: Duration



Users also have the choice to populate the TP_DURATION column directly with a value computed outside of Oracle Funds Transfer Pricing Cloud Service. If this value is populated, the FTP engine reads the TP_DURATION and will look up the FTP Rate for the given term. In this case, the TP Engine does not generate Cash Flows and will not re-compute the DURATION. It simply uses the value that has been provided and look up the appropriate FTP Rate from the specified TP Interest Rate Curve.

6.3.4.1.3 Cash Flow: Weighted Term

The Weighted Term method builds on the theoretical concepts of duration. You can use the Cash flow Duration TP Method approach to the Cash Flow Weighted Term Method. Based on that, the following Cash Flow Discounting Methods are used:

- Multiple Rate
- Single Rate

For more information, see the Working with Transfer Pricing Rules Section.

As shown earlier, duration calculates a weighted-average term by weighting each period, n, with the present value of the Cash Flow (discounted by the rate on the instrument) in that period.

Since the goal of the Weighted Term Method is to calculate a Weighted Average Transfer Rate, it weights the transfer rate in each period, yn, by the present value for the Cash Flow of that period. Furthermore, the transfer rates are weighted by an additional component, time, to account for the length of time over which a transfer rate is applicable. The time component accounts for the relative significance of each strip Cash Flow to the total transfer pricing interest income/expense. The total transfer pricing interest income/expense on any cash flow is a product of that Cash Flow, the transfer rate, and the term. Long-term Cash Flows have a relatively larger impact on the average transfer rate. The Weighted Term method, with Discounted Cash Flow option selected, can be summarized by the following formula:

Figure 6-53 Cash Flow: Weighted Term Formula

$$\text{Weighted-Average} = \bar{y} = \frac{\sum_{n=1}^{N}\left[y_n \times \frac{CF_n}{(1+r)^m} \times t_n\right]}{\sum_{n=1}^{N}\left[\frac{CF_n}{(1+r)^m} \times t_n\right]}$$

In this formula:

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- N: Total number of payments from Start Date until the earlier of repricing or maturity
- CFn: Cash Flow (such as Regular Principal, Prepayments, and Interest) in period n
- r: Periodic Rate (Current Rate/Payments per year)
- m: Remaining term to Cash Flow n/active payment frequency
- tn: Remaining term to Cash Flow n, expressed in years
- yn: Transfer Rate in period n

Within the Cash Flow Weighted Term method definition screen, users can select the Cash Flow type as either Principal + Interest (the default selection) or Principal Only. This selection impacts the CFn in the above formula.

Additionally, users can choose whether or not to discount the cash flows as described above. If the "Cash Flow" option is selected rather than "Discounted Cash Flow", the following simplified formula is applied:

Figure 6-54 Cash Flow: Weighted Term Formula without Discounted Cash Flow

$$\text{Weighted Average} - y - \left(\frac{\Sigma_{n=1}^{N} \left[y_n \times CF \times t_n \right]}{\Sigma_{n-1}^{N} \left[CF \times t_n \right]} \right)$$

For this method, the following options are also provided:

- Cash Flow Weighted Rate
- Cash Flow and Terms Weighted Rate (by default, this will remain selected for all existing definitions)

If Transfer Rate needs to be weighed only by Cash Flow rather than both Cash Flow and term, then Cash Flow Weighted Rate can be selected, and the system will not consider terms (tn) for calculations.

If Cash Flow and Terms Weighted Rate is selected, then both terms, as well as Cash Flow will be used for Weighing Transfer Rate as per calculations shown above.

The discount rate or current rate, r, is defined in one of three ways, based on how the methodology is set up by the user:

- The current rate is defined as the current net rate from the instrument record unless the processing option, "Model with Gross Rates" is selected, in which case, the current gross rate is used. The current rate is used as a constant discount rate for each cash flow.
- The user may directly input while defining the Transfer Pricing Rule, a single constant rate to use for discounts. If specified, this rate is used as a constant discount rate for each cash flow.
- The user can select to discount the cash flows using spot rates from a selected Interest Rate Curve. With this approach, a discount rate is read from the selected Interest Rate Curve corresponding to the term of each Cash Flow.

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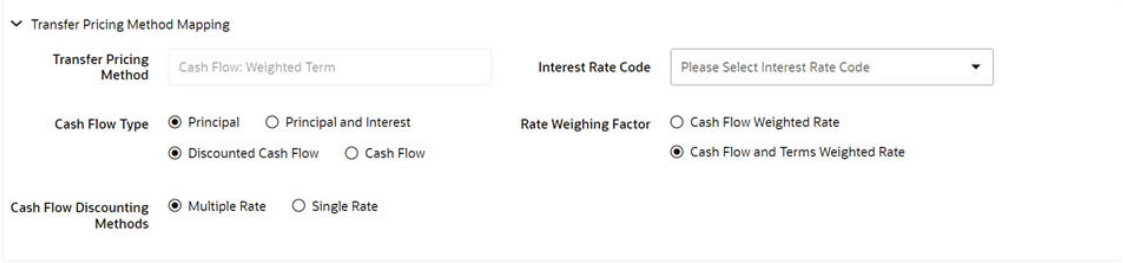
> **Note**
>
> When validating the Cash Flow Weighted Term Transfer Rate, FE 492 (Discount Factor) from detail Cash Flow output is useful. FE 490 (Discount Rate) however, may be incorrect in the detailed Cash Flow output if the Current Net Rate is specified as the discount rate. This condition does not affect the accuracy of the calculated discount factor, only the Audit Table Rate Output for FE 490. If multiple rate discounting (based on IRC) or a single custom rate is specified, then FE 490 will be correct.

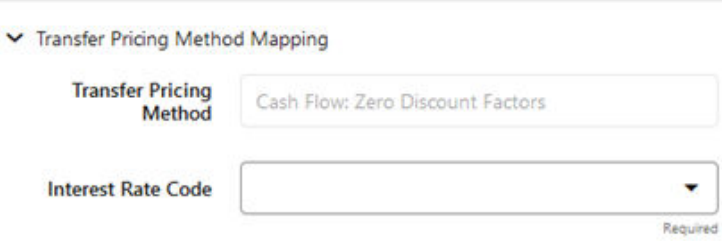
Figure 6-55 Cash Flow: Weighted Term



6.3.4.1.4 Cash Flow: Zero Discount Factors

The Zero Discount Factors (ZDF) Method takes into account common market practices in valuing fixed-rate amortizing instruments. For example, all Treasury Strips are quoted as discount factors. A discount factor represents the amount paid today to receive $1 at maturity date with no intervening Cash Flows (that is, zero-coupons).

Figure 6-56 Cash Flow: Zero Discount Factors



The Treasury Discount Factor for any maturity (as well as all other rates quoted in the market) is always a function of the discount factors with shorter maturities. This ensures that no risk-free arbitrage exists in the market. Based on this concept, one can conclude that the rate quoted for fixed-rate amortizing instruments is also a combination of some set of market discount factors. Discounting the monthly Cash Flows for that instrument (calculated based on the constant instrument rate) by the market discount factors generates the par value of that instrument (otherwise there is arbitrage).

ZDF starts with the assertion that an institution tries to find a funding source that has the same principal repayment factor as the instrument being funded. In essence, the institution strip funds each principal flow using its funding curve (that is, the Transfer Pricing Yield Curve). The

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difference between the interest flows from the instrument and its funding source is the net income from that instrument.

Next, ZDF tries to ensure consistency between the original balance of the instrument and the amount of funding required at origination. Based on the Transfer Pricing Yield used to fund the instrument, the ZDF solves for a Single Transfer Rate that would amortize the funding in two ways:

- Its principal flows match those of the instrument.
- The Present Value (PV) of the funding cash flows (that is, the original balance) matches the original balance of the instrument.

ZDF uses zero-coupon factors (derived from the original transfer rates, see the example below) because they are the appropriate vehicles in strip funding (that is, there are no intermediate Cash Flows between the origination date and the date the particular Cash Flow is received). The zero-coupon yield curve can be universally applied to all kinds of instruments.

This approach yields the following formula to solve for a weighted average transfer rate based on the payment dates derived from the instrument's payment data.

Figure 6-57 Zero Discount Factors = y =

$$100 \times \left[\frac{B_0 - \sum_{n=1}^{N}(B_{n-1} \times DTP_n) + \sum_{n=1}^{N}(B_n \times DTP_n)}{\sum_{n=1}^{N}(B_{n-1} \times DTP_n)} \right] \times p$$

In this formula:

- B0: Beginning balance at the time, 0
- Bn-1: Ending balance in the previous period
- Bn: Ending balance in the current period
- DTPn: Discount factor in period n based on the TP yield curve
- N: Total number of payments from Start Date until the earlier of repricing or maturity
- p: Payments per year based on the payment frequency; (for example, monthly payments gives p=12)

This table illustrates how to derive Zero Coupon Discount factors from monthly pay Transfer Pricing Rates.

Table 6-17 Deriving Zero-Coupon Discount Factors: An Example

Term in Months	(a) Monthly Pay Transfer Rates	(b) Monthly Transfer Rate: (a)/12	(c) Numerator (Monthly Factor): 1+ (b)	(d) PV of Interest Payments: (b)*Sum((f)/100 to current row	(e) Denominator (1 - PV of Int Pmt): 1 - (d)	(f) Zero-Coupon Factor: [(e)/(c) * 100
1	3.400%	0.283%	1.002833	0.000000	1.000000	99.7175
2	3.500%	0.292%	1.002917	0.002908	0.997092	99.4192
3	3.600%	0.300%	1.003000	0.005974	0.994026	99.1053

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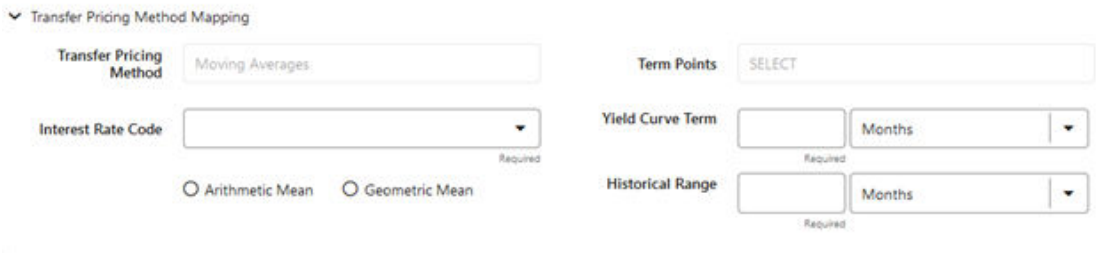
> **Note**
>
> For the ZDF method, the discount factor used for discounting cash flows is output as FE 490, after multiplied by 100.

6.3.4.1.5 Moving Averages

Under this method, a user-definable moving average of any point on the Transfer Pricing Yield Curve can be applied to a transaction record to generate the transfer prices. For example, you can use a 12-month moving average of the 12-month rate to transfer price of a particular product.

Figure 6-58 Moving Averages



The following options become available on the UI along with Arithmetic and Geometric mean, with this method:

- **Interest Rate Code**: Select the Interest Rate Code to be used as the Yield Curve to generate transfer rates.
- **Assignment Date**: The Assignment Date allows you to choose the date from which the Moving Average will be calculated. Choices available are the As of Date, Last Repricing Date, Origination Date, Commitment Start Date, TP Effective Date, or Adj Effective Date. If the selected date is null or 01-Jan-1900, then As of Date will be used as fallback logic.
- **Yield Curve Term**: The Yield Curve Term defines the point on the Interest Rate Code that is used.
- **Historical Range**: The Historical Term defines the period over which the average is calculated.

The following table illustrates the difference between the Yield Curve and Historical Terms.

Table 6-18 Yield and Historical Terms: An Example

Moving Average	Yield Curve Term	Historical Range
Six-month moving average of the 1-year rate	1 year (or 12 months)	6 months
Three-month moving average of the 6-month rate	6 months	3 months

The range of dates is based on the As-of-Date minus the Historical Term plus one, because the Historical Term includes the As-of-Date.

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Table 6-19 Assignment Date and Transfer Rate Calculation

Icons	Description
As Of Date	If the As-of-Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms. As-of-Date is available only if the selected source is Ledger Table.
Last Repricing Date	If the Last Repricing Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms.
Origination Date	If the Origination Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms.
Commitment Start Date	If the Commitment Start Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms.
TP Effective Date	If the TP Effective Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms.
Adjustment Effective Date	If the Adjustment Effective Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms.

> **Note**
>
> If any of the above date values are 01-Jan-1900 or blank or null, then the Oracle Funds Transfer Pricing Cloud Service engine considers the As-of-Date for Transfer Rate calculation.

After you select the date, Oracle Funds Transfer Pricing Cloud Service computes the Historical Rate using the selected date. Oracle Funds Transfer Pricing Cloud Service takes the values of the yield curve points that fall within that range and does a straight average.

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> **Note**
>
> The Moving Averages method applies to either data source: Management Ledger Table or Account Tables.

6.3.4.1.6 Straight Term

When you select the Straight Term method and Standard Term Approach, the Oracle Funds Transfer Pricing Cloud Service derives the Transfer Rate using the last Repricing Date and the next Repricing Date for adjustable-rate instruments, and the Origination Date and the Maturity Date for fixed-rate instruments.

- Standard Calculation Mode:
  - For Fixed Rate Products (Repricing Frequency = 0), use Yield Curve Date = Origination Date, Yield Curve Term = Maturity Date-Origination Date.
  - For Adjustable Rate Products (Repricing Frequency > 0)
  - For loans still in the tease period (tease end date > As-of-Date, and Tease End Date > Origination Date), use Origination Date and Tease End Date - Origination Date.
  - For loans not in the tease period, use the Last Repricing Date and Repricing Frequency.

> **Note**
>
> For loans in the Tease period, the Next Reprice Date should reflect the end of the Tease Period and the Reprice Frequency should reflect the expected Reprice Frequency after the tease period ends.

- Remaining Term Calculation Mode:
  - For Fixed Rate Products, use As-of-Date and Maturity - As-of-Date.
  - For Adjustable Rate Products, use As-of-Date and Next Repricing Date - As-of-Date.

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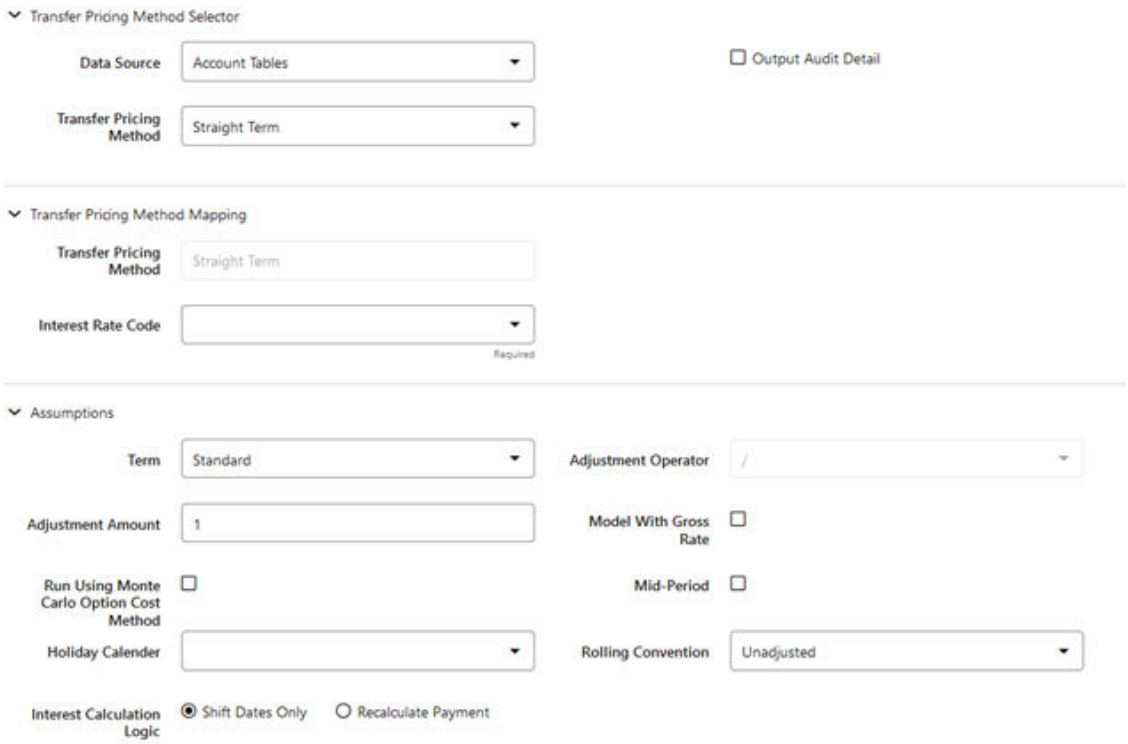
Figure 6-59 Straight Term



In addition to the standard logic used for determining the appropriate “Term”, users also have the option to select either Original Term or Repricing Frequency and also have the option to modify these terms using simple mathematical operators. These options can be useful in cases where the straight term method should be applied to the same record under different circumstances. For example, for calculating the base rate on an adjustable-rate instrument, the standard approach should be used. For the same instrument, users may further want to use the entire Original Term for applying a liquidity premium or other add-on rate. To support the second case, we give the option to directly specify the term to be used, and we further provide the option to modify the term using simple operators, such as +, -, *, /.

The following options become available in the application with this method:

- **Term**: Select from Standard, Original Term, or Reprice Frequency. Standard is the default selection and the resulting Term will follow the above logic. The Original Term and Reprice Frequency options allow users to override the standard logic and specify which term to use.
- **Adjustment Operator**: When either Original Term or Reprice Frequency is selected as the Term, the Adjustment Operator becomes active. The term Adjustment is optional and gives users the ability to modify the term
- **Adjustment Amount**: This input works together with the Adjustment Operator to indicate how the term should be modified.
- **Interest Rate Code**: Select the Interest Rate Code to be used for Transfer Pricing the account.
- **Mid-Period Repricing Option**: Select the check box beside this option to invoke the Mid-Period Repricing option.

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- **Holiday Calendar**: Select whether a Holiday Calendar is applicable for calculating the charges/credits or for calculating Economic Value.
- **Rolling Convention**: Select the appropriate Business Day Rolling Convention if a Holiday Calendar is selected.
- **Interest Calculation Logic**: Select the appropriate option to indicate how the interest payment should be adjusted when a Holiday Date is encountered.

> **Note**
>
> The Straight Term method applies only to accounts that use Account Tables as the Data Source.

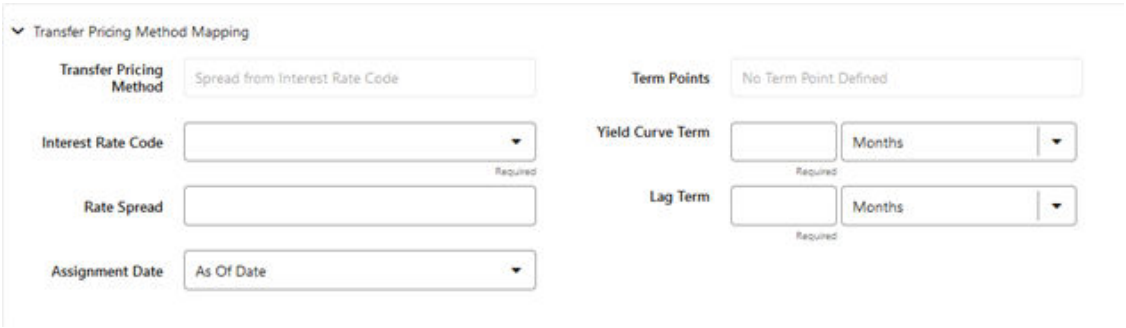
> **Note**
>
> In Straight Term Method calculations when Standard calculation mode is selected at the **Standard Process** configurations, the below effective date selection override logic is determined as follows:
>
> - For Transfer Pricing (TP) calculations, the **TP Effective Date** is used, if present in both fixed and adjustable records.
> - For Add-On calculations using Straight Term TP method, the **Add-On Effective Date** is used, if present in both fixed and adjustable records.

For more information, see the Working with Transfer Pricing Rules section.

6.3.4.1.7 Spread from Interest Rate Code

Under this method, the Transfer Rate is determined as a fixed spread from any point on an Interest Rate Code.

Figure 6-60 Spread from Interest Rate Code



The following options become available on the application with this method:

- **Interest Rate Code**: Select the Interest Rate Code for transfer pricing the account.
- **Yield Curve Term**: The Yield Curve Term defines the point on the Interest Rate Code that will be used to transfer price. If the Interest Rate Code is a single rate, the Yield Curve

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Term is irrelevant. Select Days, Months, or Years from the drop-down list, and enter the number.

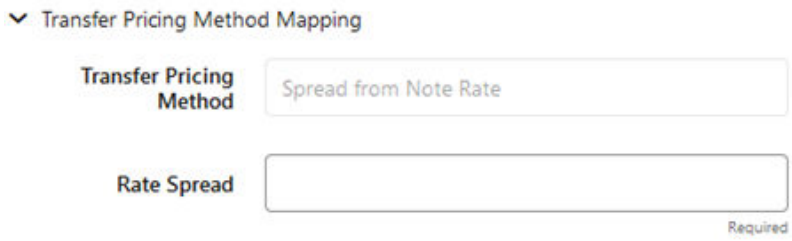
- **Lag Term**: While using a Yield Curve from an earlier date than the Assignment Date, you need to assign the Lag Term to specify a length of time before the Assignment Date.
- **Rate Spread**: The transfer rate is a fixed spread from the rate on the Transfer Rate Yield Curve. The Rate Spread field allows you to specify this spread.
- **Assignment Date**: The Assignment Date allows you to choose the date for which the Yield Curve values are to be picked up. Choices available are the As-of-Date, Last Repricing Date, Origination Date, Adjustment Effective Date, or TP Effective Date.
- **Mid-Period Repricing Option**: Select the check box beside this option to invoke the Mid-Period Repricing option.

> **Note**
>
> The Spread From Interest Rate Code Method applies to either data source: Ledger Table or Account Tables.

6.3.4.1.8 Spread from Note Rate

To generate transfer prices using this method, you need to provide just one parameter: a Rate Spread. This spread is added or subtracted from the Coupon Rate of the underlying transaction to generate the final transfer rate for that record.

Figure 6-61 Spread from Note Rate



While entering the Rate Spread, ensure to input it with the appropriately positive or negative sign, as illustrated in the following table. The first row describes a situation where you are transfer pricing an asset and want to have a positive matched spread for it (the difference between the contractual rate of the transaction and the transfer rate is positive). Here, you should enter a negative rate spread.

Table 6-20 Example of Rate Spread

Account Type	Matched Spread	Sign of Rate Spread
Asset	Negative	Positive (Profitable)
Asset	Positive	Negative (Unprofitable)
Liability or Equity	Positive	Positive (Profitable)
Liability of Equity	Negative	Negative (Unprofitable)

The following option becomes available in the application when you select this method:

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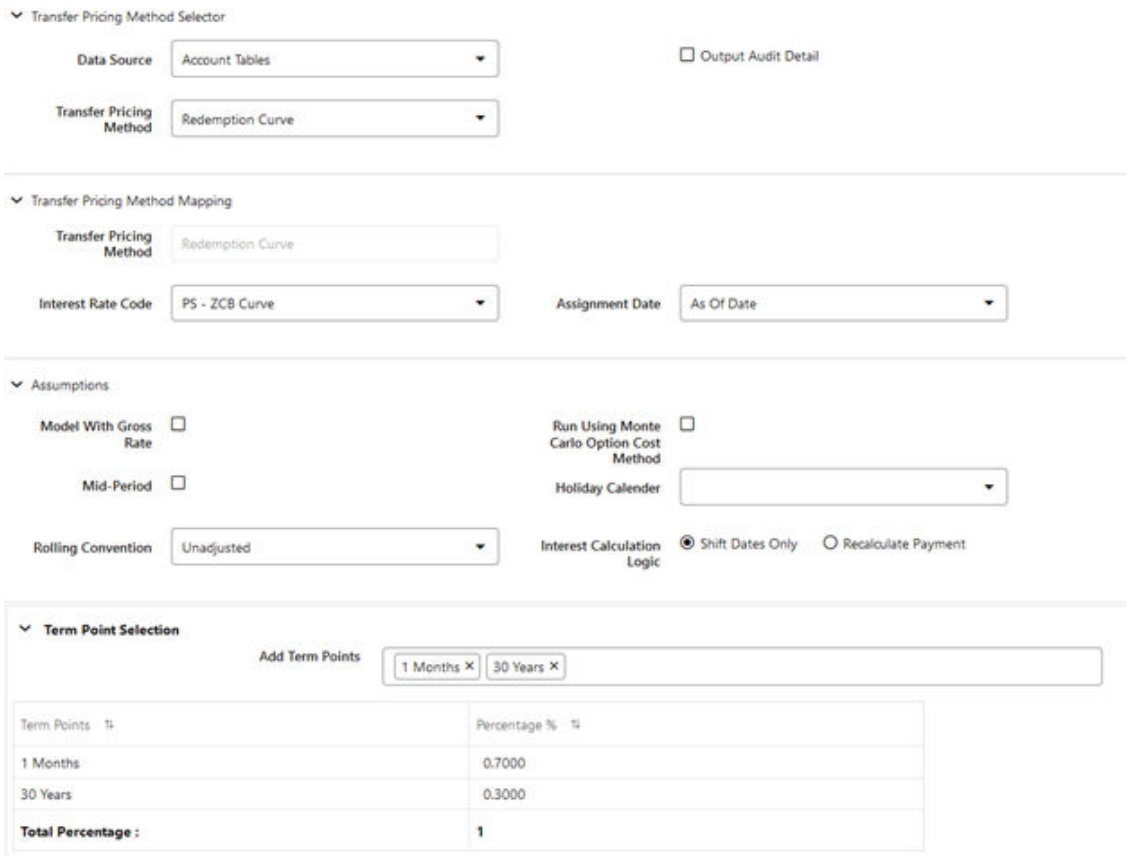
- **Mid-Period Repricing Option**: Select the check-box beside this option to invoke the Mid-Period Repricing option.

> **Note**
>
> The Spread From Note Rate Method applies only to accounts that use Account Tables as their data source.

6.3.4.1.9 Redemption Curve

This method allows you to select Multiple-Term Points from your Transfer Pricing Yield Curve and calculate an average transfer rate based on the weights you assign to each Term Point.

Figure 6-62 Redemption Curve



The following options become available in the application with this method:

- **Interest Rate Code**: Select the Interest Rate Code, which you want to use as the Transfer Pricing Yield Curve.
- **Assignment Date**: The Assignment Date allows you to choose the date for which the Yield Curve values will be picked up. Choices available are the As-of-Date, Last Repricing Date, Origination Date, Adjustment Effective Date, or TP Effective Date.
- **Percentages or Term Points**: See Redemption Curve.

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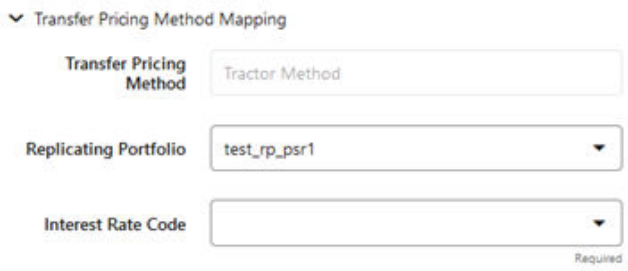
- **Mid-Period Repricing Option**: Select the check-box beside this option to invoke the Mid-Period Repricing option.

> **Note**
>
> The Redemption Curve method applies to either data source: Ledger Table or Account Tables.

6.3.4.1.10 Tractor Method

The Tractor Method extends the concept of Strip Funding to instruments that do not have contractual Cash Flows. These products are known as perpetual or non-maturity products and hence do not generate contractual Cash Flows. The process of determining transfer rates requires adopting the strip funding approach by splitting these products into Core and Volatile portions based on statistically established Behavioral Profiles. With this method, the volatile portion is considered to have an overnight maturity and the core portion is assigned a longer maturity (through Replicating Portfolio) which is comprised of a series of balance strips corresponding to the maximum tenor of the portfolio (on the origination of the portfolio, original strips will have shorter maturities). Each strip is assigned a transfer rate corresponding to its Origination Date and corresponding Term. The historical, active strips are retained for the portfolio and the Portfolio Transfer Rate is determined based on the Weighted Average Transfer Rate of the strips comprising the portfolio. The Weighted Average Rate from the strip portfolio is written back to all instrument records that are mapped to this portfolio through the Transfer Pricing Rule.

Figure 6-63 Tractor Method



The characteristics of the replicating portfolio used by the Tractor Method are defined through Replicating Portfolio Module. The following example illustrates the behavior of a small 3-day portfolio rolling across 4 days.

Table 5:

Table 6-21 Replicating Portfolio

31-Jan-11						
Strip	**Start**	**Maturity**	**Balance**	**TP Rate**	**Date Rolled**	**Comment**
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	
0B	31-Jan-11	2-Feb-11	100	5.10%	3-Feb-11	

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Table 6-21 (Cont.) Replicating Portfolio

31-Jan-11						
Strip	**Start**	**Maturity**	**Balance**	**TP Rate**	**Date Rolled**	**Comment**
0C	31-Jan-11	3-Feb-11	100	5.20%	3-Feb-11	Matures and rolls to 3A
1A	1-Feb-11	4-Feb-11	100	5.30%		
2A	2-Feb-11	7-Feb-11	100	5.40%		
3A	3-Feb-11	8-Feb-11	100	5.50%		Rollover strip, TP's by the engine
Day 1						
1-Feb-11	Daily Rollover					
Strip	Start	Maturity	Balance	Rate	Date Rolled	Comment
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	Matures and rolls to 1A
0B	31-Jan-11	2-Feb-11	100	5.10%		
0C	31-Jan-11	3-Feb-11	100	5.20%		
1A	1-Feb-11	4-Feb-11	100	5.30%		Rollover strip, TP's by the engine
	Day 1 Maturity Profile					
	Total	Day 1	Day 2	Day 3		
		2-Feb-11	3-Feb-11	4-Feb-11		Tractor TP Rate
	300	100	100	100		5.20%
Day 2						
2-Feb-11	Daily Rollover					
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	
0B	31-Jan-11	2-Feb-11	100	5.10%	2-Feb-11	Matures and rolls to 2A
0C	31-Jan-11	3-Feb-11	100	5.20%		
1A	1-Feb-11	4-Feb-11	100	5.30%		
2A	2-Feb-11	7-Feb-11	100	5.40%		Rollover strip, Transfer Priced by the engine
	Day 2 Maturity Profile					
	Total	Day 1	Day 2	Day 3		
		3-Feb-11	4-Feb-11	7-Feb-11		Tractor TP Rate
	300	100	100	100		5.30%
Day 3						

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Table 6-21 (Cont.) Replicating Portfolio

31-Jan-11						
Strip	**Start**	**Maturity**	**Balance**	**TP Rate**	**Date Rolled**	**Comment**
3-Feb-11	Daily rollover, and new business (reduction of 530)					
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	
0B	31-Jan-11	2-Feb-11	100	5.10%	3-Feb-11	
0C	31-Jan-11	3-Feb-11	100	5.20%	3-Feb-11	Matures and rolls to 3A
1A	1-Feb-11	4-Feb-11	100	5.30%		
2A	2-Feb-11	7-Feb-11	100	5.40%		
3A	3-Feb-11	8-Feb-11	100	5.50%		Rollover strip, Transfer Priced by the engine
3B	3-Feb-11	4-Feb-11	10	5.50%		New Business strip, Transfer Priced by the engine
3C	3-Feb-11	7-Feb-11	10	5.50%		New Business strip, Transfer Priced by the engine
3D	3-Feb-11	8-Feb-11	10	5.50%		New Business strip, Transfer Priced by the engine
	Day 3 Maturity Profile					
	Total	Day 1	Day 2	Day 3		
		4-Feb-11	7-Feb-11	8-Feb-11		Tractor TP Rate
	270	90	90	90		5.39%
Day 4						
4-Feb-11	Daily rollover					
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	
0B	31-Jan-11	2-Feb-11	100	5.10%	2-Feb-11	
0C	31-Jan-11	3-Feb-11	100	5.20%	3.-Feb-11	
1A	1-Feb-11	4-Feb-11	100	5.30%	4-Feb-11	Matures and rolls to 4A
2A	2-Feb-11	7-Feb-11	100	5.40%		
3A	3-Feb-11	8-Feb-11	100	5.50%		
3B	3-Feb-11	4-Feb-11	-10	5.50%	4-Feb-11	Matures and rolls to 4A

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Table 6-21 (Cont.) Replicating Portfolio

31-Jan-11						
Strip	**Start**	**Maturity**	**Balance**	**TP Rate**	**Date Rolled**	**Comment**
3C	3-Feb-11	7-Feb-11	-10	5.50%		
3D	3-Feb-11	8-Feb-11	-10	5.50%		
4A	4-Feb-11	9-Feb-11	90	5.60%		Rollover strip, Transfer Priced by the engine
	Day 4 Maturity Profile					
	Total	Day 1	Day 2	Day 3		
		7-Feb-11	8-Feb-11	9-Feb-11		Tractor TP Rate
	270	90	90	90		5.50%

This example assumes a business day calendar is enabled with the following business days defined:

- Business Day
- Calendar
- 31-Jan-11
- 1-Feb-11
- 2-Feb-11
- 3-Feb-11
- 4-Feb-11
- 7-Feb-11
- 8-Feb-11
- 9-Feb-11
- 10-Feb-11
- 11-Feb-11

6.3.4.1.11 Caterpillar

The Caterpillar Method extends the concept of Strip Funding to instruments that do not have contractual Cash Flows. These products are known as Perpetual or Non-Maturity Products and therefore do not generate contractual Cash Flows. The process of determining Transfer Rates requires adopting the 'Strip Funding Approach' by splitting these products into 'Core' and 'Volatile' portions based on statistically established Behavioral Profiles. With this approach, the volatile portion may be considered as an overnight funding strip and the core portion can be dealt with by an assumed maturity structure defined through a Behavior Pattern. For example, statistical analysis may imply that the Savings Account portfolio behaves 20% as volatile and 80% as the core of which the maturity is likely to be 3 months. Therefore, the Funding Strips that would get created are 20% 1 month, and 80% 3 months.

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Figure 6-64 Caterpiller

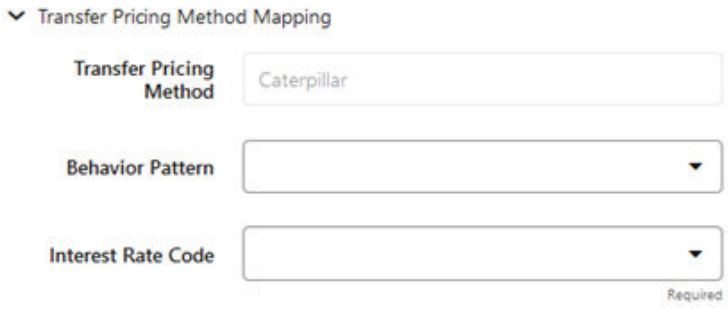

Table 6-22 BEHAVIORAL PATTERN: 20% 1 Month; 80% 3 Months

		Production			IRC			
Period	**EOP Balance**	**1M**	**2M**	**3M**	**1M**	**2M**	**3M**	**TP Rate**
Month 1	4000	800		3200	4.00%	4.25%	4.50%	4.40%
Month 2	7000	760	3200	3040	4.50%	4.75%	5.00%	4.72%
Month 3	8500	3652	3040	1808	5.00%	5.25%	5.50%	4.92%
Month 4	9000	3870	1808	3322	5.50%	5.75%	6.00%	5.52%
Month 5	8000	2382	3322	2296	6.00%	6.25%	6.50%	6.03%

In the example, we assume that once a funding strip is assigned a certain Transfer Rate based on its original term, the rate remains constant until the strip matures. Each strip is funded for the original term based on the yield curve in effect at the start of the strip. In month 4, when the balance is 9000, the strips still outstanding from earlier months are 3040 as a 3-month term strip, created in month 2 at 5% having a remaining term 1-month; (3870-3040) 1-month term strip created in month 4, 1808 3-month term strip created in month 3 with the 2-month remaining term, and 3322 3-month term strip created in month 4. The weighted average rate of these strips comes to 5.52% as the example shows.

In summary:

Month 4 Transfer Rate = (3040*5% + (3870-3040)*5.5% + 1808*5.5% + 3322*6%) / 9000 = 5.52%

> **Note**
>
> The Caterpillar Method must not be run more than once for a given date as this may corrupt the historical data. The strip data for this method is stored in the database in the CATERPILLAR_INTER_NEXTGEN table.

6.3.4.1.12 Weighted Average Perpetual

This method calculates the simple Weighted Average of the applicable balance based on maturity bands defined through a Behavior Pattern. In the following example, the end-of-period

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balance as of Jan 31 is split into Core and Volatile strips, and the relevant rates are applied to arrive at the Weighted Average Transfer Rate.

Figure 6-65 Weighted Average Perpetual

Table 7:

Table 6-23 BEHAVIORAL PATTERN: 20% 1 Month; 80% 3 Months

Run Date	EOP Balance	1M Strip	3M Strip	1M Rate	3M Rate	TP Rate
Jan 31	100000	20000	80000	3.10%	3.50%	3.42%
Feb 28	200000	40000	160000	3.25%	3.60%	3.53%
Mar 31	300000	60000	240000	3.20%	3.55%	3.48%

Transfer Rate = (20000*3.10% + 80000*3.50%) / 100000 = 3.42%

- **Behavior Pattern**: Select the Behavior Pattern that is associated with the Product/ Currency combination being defined.
- **Interest Rate Code**: Select the Interest Rate Code, which you want to use as the Transfer Pricing Yield Curve.

> **Note**
>
> The Weighted Average Perpetual method applies to both Instrument Balances and Ledger Balances.

6.3.4.1.13 Unpriced Account

Under the Unpriced Account Method, the transfer rate for the account is defined as the Weighted Average of the Product Dimension Members.

While using the unpriced account methodology, you can specify whether the Weighted Average of transfer rates has to be taken across all organizational units or for accounts only within that organizational unit.

The following options become available in the application with this method:

- **Add Dimension Values**: This allows you to select the Product dimension members whose weighted average transfer rate will be calculated based on other selected product dimension members.

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> **Note**
>
> You should not base calculations for a product dimension member which is subseuqntly using unpriced account on another product dimension member; else it will create a dead lock situation.

- **Across all Organization Units**: This allows you to specify whether the weighted average of transfer rates should be taken across all organizational units. If this option is not selected, the weighted average rate will be calculated individually within particular organization unit.

6.3.4.1.13.1 Transfer Pricing Unpriced Accounts

Accounts using the Unpriced Account method are a special case of direct transfer pricing in instrument tables based on already calculated transfer rate of other product dimension members. The Unpriced Account transfer pricing methodology uses the WATR from other accounts to derive a WATR for the Unpriced account. This is accomplished by averaging the WATR for the component accounts, weighted by their relative Balances.

If Unpriced method is being applied on Product 04 as WATR of Product 01, 02 and 03, then following calculations will takes place:

WATR for Product 04 = (LSBal01_x_TfrRate01 + LSBal02_x_TfrRate02 + LSBal03_x_TfrRate04)/(LSBal01 + LSBal02 + LSBal03)

Rate Weighting Balance: From a UI dropdown, user can select the balance on which Transfer rate weighting will be done, Possible Values are:

- Average Book Balance (Avg Book Bal)
- Ending Book Balance (Cur Book Bal)
- Activated Placeholder Balance Columns

6.3.4.1.13.2 Defining the Unpriced Account Methodology

When defining an Unpriced Account Methodology, you need to select the Product dimension members (products) whose weighted average transfer rate will be assigned to the product or currency combination being defined. The prerequisite for defining the Unpriced Account Methodology is performing basic steps for creating or upgrading a Transfer Pricing Rule.

To add the dimension values:

1. Click the **Dimensional Values** icon to display the Hierarchical Add Members page.
2. Search and select the required dimension members. Specify whether the weighted average of Transfer Rates has to be taken across all organizational units or for accounts only within that organizational unit.

> **Note**
>
> You must also select the Organization Unit dimension along with any other applicable dimensions under Migration Dimensions on the Migration tab of the TP Process when using this method.

3. Click **Apply**.
   The Transfer Pricing Assumption Browser page is displayed.

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6.3.4.1.14 Risk Free Reference Rates

Risk Free Reference rates (RFR) could be used for following two methodologies, based on what is selected in UI:

- Cumulative Compounded Rate
- Non-Cumulative Compounded Rate

Step 1: Unannualized/ Effective RFR:

$K_i = \frac{r_i \times n_i}{N}$

N = It will be as per accrual Basis on the record. E.g. if 1 - Then 360 days in an year. ri is the RFR rate for that day and ni - is number of days in interest period.

Step 2: Compounding Factor:

$L_i = \prod_{i=1}^{d_b}\left(1+\frac{r_i \times n_i}{N}\right)$

= (1+ K_i) * (L_i-1BD) - Daily Compounding Factor, if user is directly loading compounding factor, then Step 1 and 2 are skipped.

Step 3: Annualized Cumulative Compounded RFRi (ACRi):

$ACR_i = \left[\prod_{i=1}^{d_b}\left(1+\frac{r_i \times n_i}{N}\right)-1\right]\times\frac{N}{tn_i}$ = N is days in an Year on Accrual Basis CD. tn_i = Cumulative days till nth daily interest period. Here, system performs rounding, based on selected decimal Points in UI. In UI, decimal points are given in % format.

Step 4: Unannualized Cumulative Compounded RFRi:

$UCR_i = ACR_i \times \frac{tn_i}{N}$

Step 5: Non-Cumulative Compounded RFRi:

$(UCR_i - UCR_{i-1BD}) \times \frac{N}{n_i}$

n_i is the Number of days in each respective interest period.

N - Number of Days in a year as per the account's accrual Basis CD.

Lag/Lookback will be from - RATE_SET_LAG and RATE_SET_LAG_MULT.

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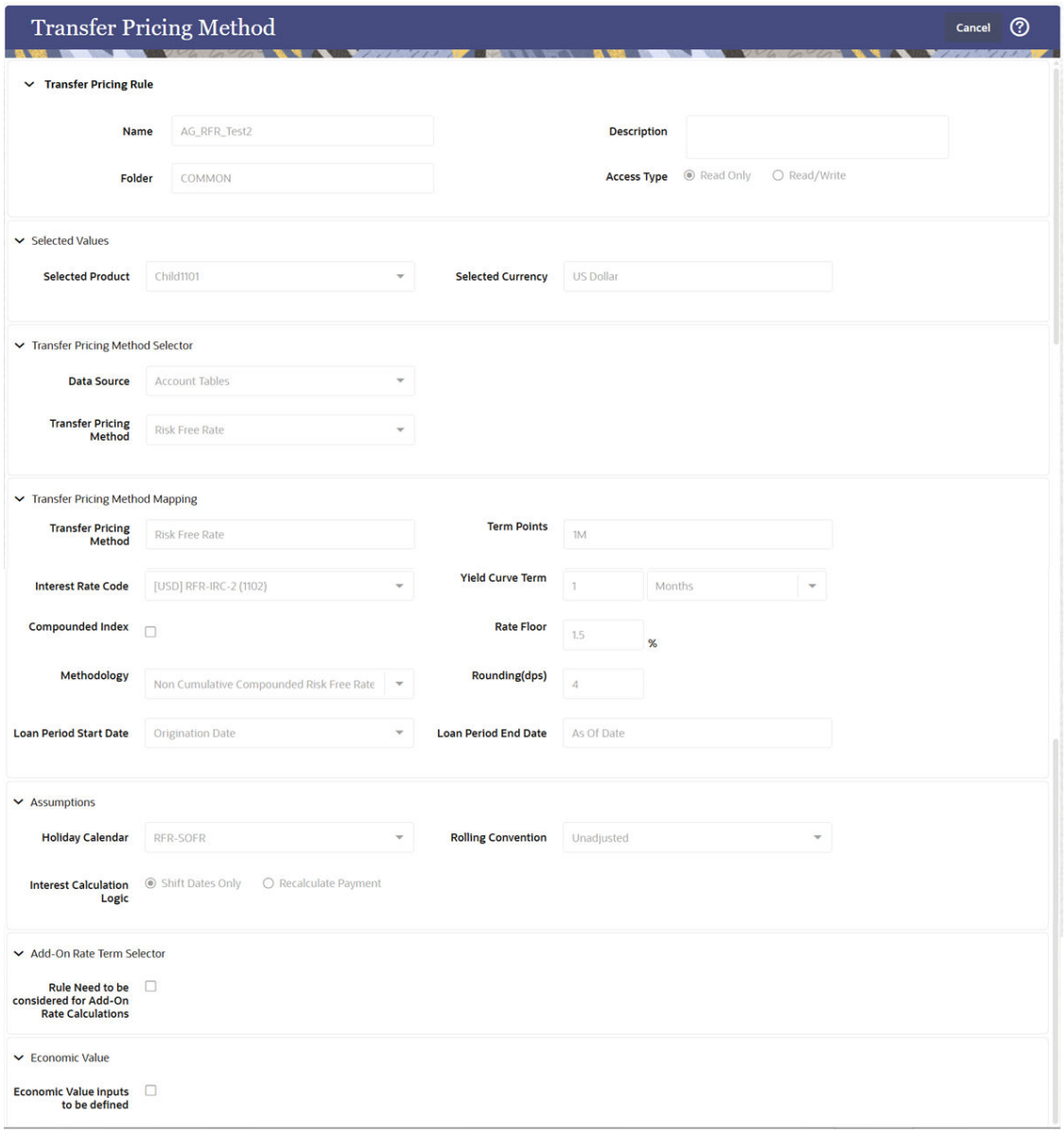
Figure 6-66 Transfer Pricing Method



Period Start Date: Any of following:

- Last Payment Date (Default)
- Origination Date
- Last Reprice Date
- TP Effective Date
- Add-On Effective Date

Period End Date: As of Date (Maturity Date if it is before As of Date)

If the user selects Cumulative Compounded RFR, then Step 3 will be the output in percentage format and stops.

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If the user selects Non-Cumulative Compounded RFR, Step 5 will be the output in percentage format.

Rate Floor (in Percentage): It accepts only integers, between -99.99% to + 99.99%. If RFR is below this rate for any day, the RFR will be used as floor for that date.

To form the Loan/Interest Period, select a holiday from a record. If the holiday is not mentioned in the record, then the system uses whichever day defined in the UI. If nothing is defined, the system considers each day as working day.

Interest Rate Code: A list of all the available IRC for selected CCY or for all CCY curves is displayed and all the yield curve term points for the selected curve are displayed in display only mode.

Yield Curve Term: Enter any integer and multiplier. If user selects term point that is not available on the curve, then system will do the regular interpolation/extrapolation.

If the system searches for particular effective date in IRC and does not find the same, it checks for most recent past available effective date for same curve. If a most recent past effective date for the curve is not found, then system uses the most recent future available effective date for same curve.

Rounding Dps: (Decimal Point for (Annualized Cumulative Compounded Rate) = Integer Inputs. Enter the value in percentage (%).

6.3.4.1.15 Reference Period Compound Rate

When you load the compounded rate index as per the selected period, the application picks compounded index for the reference period start date which is configured by the user. For example, last payment date, TP effective Date, and so on and As-of-Date as reference period end date to do the calculation.

In this method configuration, along with selection of IRC, a term point selection is also possible which will by default set at minimum available term point.

Reference Period Start Date: It could be any of the following dates:

- Last Payment Date (Default)
- Origination Date
- Last Reprice Date
- TP Effective Date
- Adjustment Effective Date

Reference Period End Date will always be As-of-Date.

In case rates are not available for either reference period start or end date, IRC fallback logic will be used. For example, if you are looking for 12-Dec-2020, and compounded index is not available for this, then the application picks the most recent available date and considers that 'Rate' for 12-Dec-2020.

To annualize the rate, number of days in an year is required, which will be as per account’s accrual type cd.

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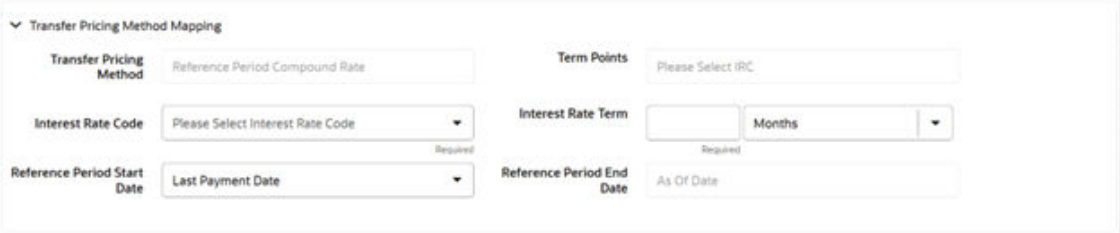
Figure 6-67 Transfer Price Method Mapping



6.3.4.1.16 Mid-Period Repricing Option

The Mid-Period Repricing option allows you to take into account the impact of high market rate volatility while generating transfer rates for your products. However, the Mid-Period Repricing option applies only to adjustable-rate instruments and is available only for the following non-Cash Flow Transfer Pricing Methods:

- Straight Term
- Spread from Interest Rate Code
- Spread from Note Rate
- Redemption Curve

The rationale behind Mid-Period Repricing is as follows. If you do not select the Mid-Period Repricing option, Oracle Funds Transfer Pricing Cloud Service computes the transfer rate for an adjustable-rate instrument based upon its last Repricing Date. The assumption behind this method of calculation is that the input transfer rate for a month should be the daily average transfer rate for that entire month. Consequently, all instruments repricing in that month derive their transfer rates from the same (average) Transfer Pricing Yield Curve. However, this approach misstates the transfer rate, in periods when the interest rate level has moved substantially since the last repricing.

Take the example of a one-year adjustable-rate loan, which reprices on the 15th of the month, and that transfer rates have moved up 200 basis points since the last reprice. In this case, the theoretically pure transfer rate for the first half of the month should be 200 basis points lower than the transfer rate for the second half of the month. To apply such theoretical accuracy to your transfer pricing results, you should select the Mid-Period Repricing option.

6.3.4.1.17 Transfer Pricing Methods and the Mid-Period Repricing Option

The mid-period repricing option allows you to take into account the impact of high market rate volatility while generating transfer rates for your products. However, the mid-period repricing option applies only to adjustable-rate instruments and is available only for the following non-cash flow transfer pricing methods:

- Straight Term
- Spread from Interest Rate Code
- Spread from Note Rate
- Redemption Curve

The rationale behind mid-period repricing is as follows. If you do not select the Mid-Period Repricing option, Oracle Funds Transfer Pricing computes the transfer rate for an adjustable-rate instrument based upon its last repricing date. The assumption behind this method of calculation is that the input transfer rate for a month should be the daily average transfer rate

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for that entire month. Consequently, all instruments repricing in that month derive their transfer rates from the same (average) transfer pricing yield curve. However, this approach misstates the transfer rate, in periods when the interest rate level has moved substantially since the last repricing.

Take the example of a one-year adjustable-rate loan, which reprices on the 15th of the month, and that transfer rates have moved up 200 basis points since the last reprice. In this case, the theoretically pure transfer rate for the first half of the month should be 200 basis points lower than the transfer rate for the second half of the month. To apply such theoretical accuracy to your transfer pricing results, you should select the Mid-Period Repricing option.

6.3.4.1.17.1 Mid-Period Repricing Computations

The Mid-Period Repricing option uses two columns in the Instrument Tables (Current- and Prior- Repricing Period Average Daily Balance: CUR_TP_PER_ADB, PRIOR_TP_PER_ADB) that are exclusively devoted to this option. These columns must be accurately populated for the Mid-Period Repricing results to be accurate.

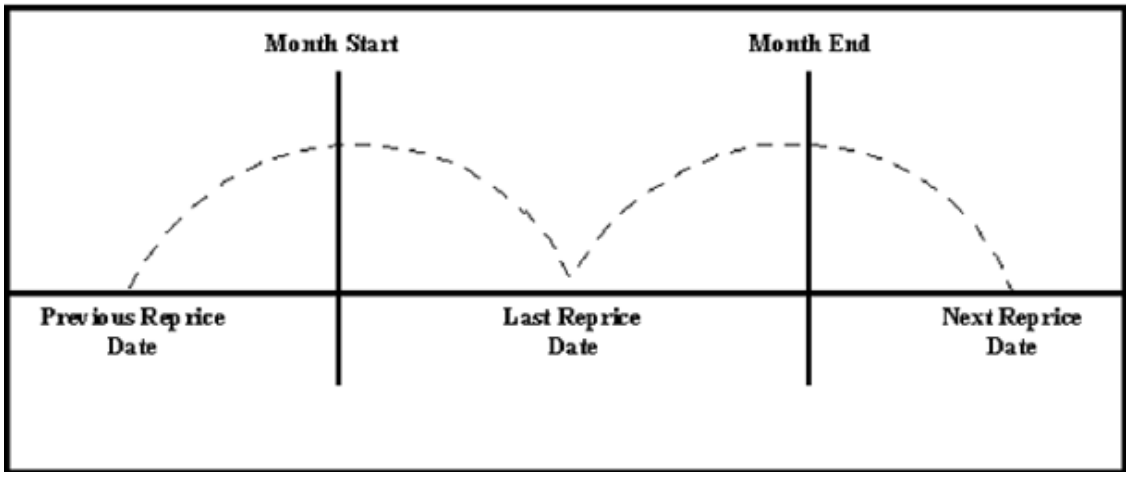
The Mid-Period Repricing Computation process comprises the following steps:

1. Computation of transfer rate for the current repricing period.
2. If the computed Last Repricing Date is less than (>) the beginning of the processing month, then roll back to the prior repricing date.
3. Computation of prior period transfer rate.
4. Repetition of steps 2 and 3 as necessary.
5. Computation of the final transfer rate by weighting the results (from current and previous repricing periods) by average balances and days.
6. Application of the final transfer rate to the instrument record.

6.3.4.1.17.2 Typical Calculations

The following diagram depicts a typical Mid-Period Repricing situation where the instrument reprices during the current processing month.

Figure 6-68 Mid-Period Repricing



If an instrument reprices during the current processing month, then there are multiple repricing periods spanning the current month. In this example, there are two repricing periods in the

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current processing month and the computed last repricing date > beginning of processing month. Consequently, the repricing dates need to be rolled back by the repricing frequency until the Prior Last Repricing Date (Prior LRD) <= Beginning of Month and the Mid-Period Repricing Computation process should be executed as follows:

- Computation of transfer rate for the current repricing period.
  - Transfer Pricing Term: Next Reprice Date - Last Reprice Date
  - Transfer Pricing Date: Last Reprice Date
  - Number of Days at that Rate: End of Month + 1- Last Reprice Date

If the Computed Next Reprice Date (the next repricing date for a given repricing period) is less than or equal to the End of Month, then the Number of Days calculation uses the Computed Next Reprice Date in place of End of Month. In other words, the Number of Days equals the Minimum (End of Month + 1, Computed Next Reprice Date) - Maximum (Beginning of Month, Computed Last Reprice Date). This example assumes the use of the Straight Term transfer pricing method. The following table describes the logic for the computation of the transfer rates for each method.

Table 6-24 Logic of Computation of the Transfer Rates for each method

Method	Date for Rate Lookup	Terms	Interest Rate Code	Spread
Straight Term	Beginning of Reprice Period	Transfer Pricing Term	Specified in Transfer Pricing rule	Not Applicable
Spread from Interest Rate Code	Beginning of Reprice Period (adjust by Lag Term in TP Rule)	Specified in Transfer Pricing rule	Specified in Transfer Pricing rule	Specified in Transfer Pricing rule
Spread from Note Rate	Beginning of Reprice Period	Transfer Pricing Term	Interest Rate Code from Record	Specified in Transfer Pricing rule
Redemption Curve	Beginning of Reprice Period	Specified in Transfer Pricing rule	Specified in Transfer Pricing rule	Not Applicable

- If the computed last repricing date > beginning of processing month, roll back to prior repricing date.

Since the Last Repricing Date is greater than the Beginning of the Processing month, the Roll Back is done as follows:

Computed Next Reprice Date is reset to Last Reprice Date

Computed Last Repricing Date is reset to Last Repricing Date - Reprice Frequency (Prior LRD)

- Computation of the prior period transfer rate.
  - Transfer Pricing Term: Last Reprice Date - Prior LRD
  - Transfer Pricing Date: Prior LRD
  - Number of Days at that Rate: Last Reprice Date - Beginning of Month If the Computed Last Reprice Date (the last repricing date for a given repricing period) is greater than the Beginning of Month, then the Number of Days calculation uses Computed Last Reprice Date in place of the Beginning of Month. In other words, the Number of Days equals Minimum (End of Month + 1, Computed Next Reprice Date) - Maximum (Beginning of Month, Computed Last Reprice Date).

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  - Repetition of steps 2 and 3 as necessary. In this example, only one iteration is needed because Prior LRD is less than the Beginning of the Month.
  - Computation of the final transfer rate by weighting the results (from current and previous repricing periods) by average balances and days.

The calculation makes the following assumptions:

- CUR_TP_PER_ADB is the balance applying since the Last Reprice Date.
- PRIOR_TP_PER_ADB is the balance applying to all prior repricing periods.
- Application of the final transfer rate to the instrument record.

6.3.4.1.17.3 Exceptions to Typical Calculations

There are two exceptions to typical mid-period repricing computations:

- Teased Loan Exception: When the TEASER_END_DATE is the first repricing date, it overrides all other values for LAST_REPRICE_DATE and NEXT_REPRICE_DATE. During the Teased Period, then, the Computed Last Repricing Date equals the Origination Date and the Computed Next Reprice Date equals the TEASER_END_DATE. Consequently:
  - If the TEASER_END_DATE is greater than the AS_OF_DATE, the Mid-Period Repricing does not apply. The logic to compute the Transfer rate is based upon the term equal to the TEASER_END_DATE - ORIGINATION_DATE, date equals the ORIGINATION_DATE.
  - When rolling backward by repricing frequency, if the TEASER_END_DATE is greater than the Computed Last Repricing Date, Transfer Pricing computes the transfer rates for that period based on the teased loan exception.
- Origination Date Exception: While performing mid-period repricing computations, Oracle Funds Transfer Pricing assumes that if the origination date occurs during the processing month, the calculation of the number of days (used for weighting) originates on the first day of the month. This is a safe assumption because the PRIOR_TP_PER_ADB value shows this instrument was not on the books for the entire month. This impact is measured because the PRIOR_TP_PER_ADB value is used in computing the weighted average transfer rate. If Oracle Funds Transfer Pricing were to shorten the number of days (as in the weighted average calculation), it would double-count the impact.

The following table displays a situation where the Origination Date occurs during the processing month:

Table 6-25 Origination Date Exception: An Example

Period 1	Period 2	Period 3
Nov 1 - Nov 10	Nov 11 - Nov 20	Nov 21 - Nov 30
	Loan is originated	Loan reprices
Loan Balance = 0	Loan Balance = 100	Loan Balance = 100
Transfer Rate = 0	Transfer Rate = 6%	Transfer Rate = 8%
Days = 10	Days = 10	Days = 10
Weighting Balance = 50 = PRIOR_TP_PER_ADB	Weighting Balance = 50 = PRIOR_TP_PER_ADB	Weighting Balance = 100 = CUR_TP_PER_ADB

> **Note**
>
> The cumulative average daily balance for period 1 plus period 2 is 50.

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Considering the origination date exception, the Mid-Period Repricing calculation is done as follows:

(6% * $50 * 20 days) + (8% * $100 * 10 days) / ($50 * 20 days + $100 * 10 days) = 7%

If period 1 was not taken into account, the result will be, (6% * $50 * 10 days) + (8% * $100 * 10 days) / ($50 * 10 days + $100 * 10 days) = 7.33%, which is incorrect.

6.3.4.1.18 Defining Transfer Pricing Methodologies Using Node Level Assumptions

In Oracle Funds Transfer Pricing Cloud Service, your product portfolio is represented using the Product Dimension specified in your FTP Application Preferences. Node Level Assumptions allow you to define Transfer Pricing, Prepayment, and Adjustment Assumptions at any level of the Product Dimension Hierarchy. The Product Dimension supports a Hierarchical Representation of your Chart Of Accounts, therefore, you can take advantage of the Parent-Child relationships defined for the various nodes of your Product Hierarchies while defining Transfer Pricing, Prepayment, and Adjustment Assumptions. Child nodes for which no assumptions are specified automatically inherit the methodology of their closest Parent node. Conversely, explicit definitions made at a Child level will take precedence over any higher-level Parent node assumption.

Node level Assumptions simplify the process of applying rules in the user interface and significantly reduce the effort required to maintain Business Rules over time as new products are added to the product mix. It is also not required for all rules to assign assumptions to the same nodes. Users may assign assumptions at different levels throughout the Hierarchy.

> **Note**
>
> While creating a new rule, if you perform any activities (such as Conditional Assumption Creation, Defining Products, Search, Copy Across, and so on) in the Assumption window and click the Cancel button, the Rule will be saved with basic Rule definition and displayed in Rule Summary Page.

The Behavior of Node Level Assumptions: The following graphic displays a Sample Product Hierarchy:

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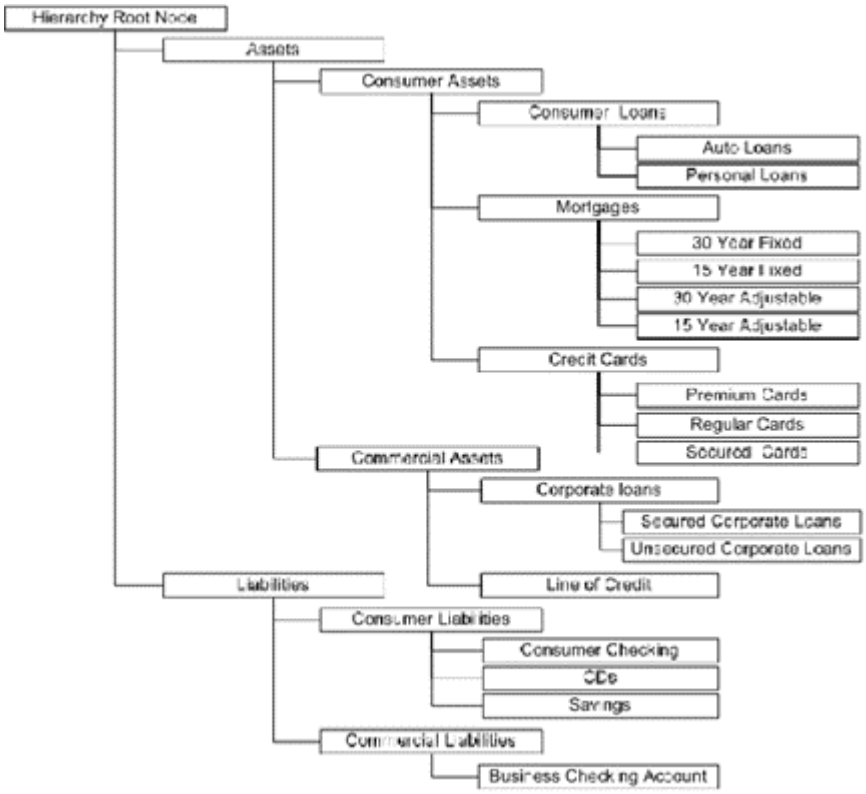
Figure 6-69 Sample Product Hierarchy



For example, if you want to transfer price this Product Hierarchy using the Spread from Interest Rate Code Transfer Pricing Method except for the following products:

- **Mortgages**: You want to transfer price these using the Zero Discount Factors Cash Flow based method.
- **Credit Cards**: You want to transfer price all but secured credit cards using the Spread from Note Rate Method.

To transfer price in this manner, you need to attach Transfer-Pricing Methods to the nodes of the Product Hierarchy as follows:

- **Hierarchy Root Node**: Spread from Interest Rate Code
- **Mortgages**: Zero Discount Factors Cash Flow
- **Credit Cards**: Spread from Note Rate
- **Secured Credit Cards**: Spread from Interest Rate Code

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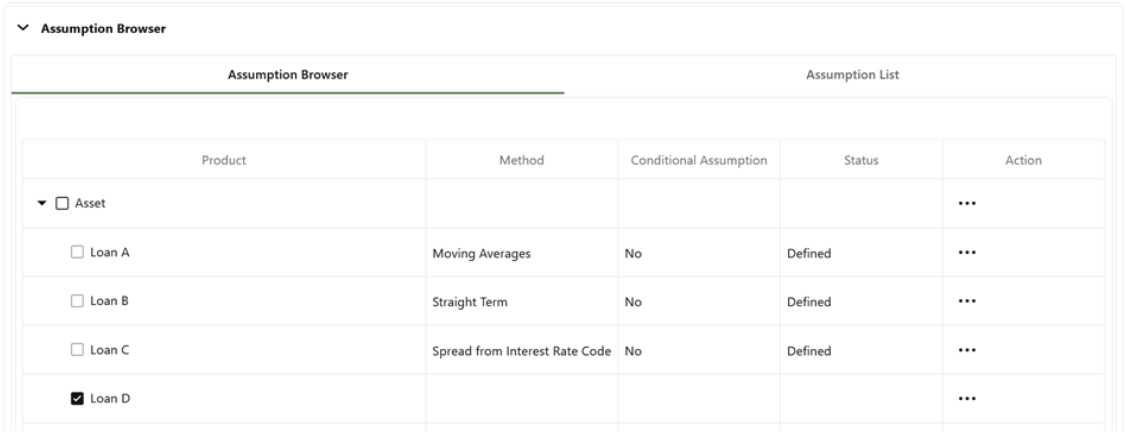
Figure 6-70 Assumption Browser



The Transfer Pricing Method for a particular product is determined by searching up the nodes in the hierarchy. Consider the Secured Credit Cards in the previous example. Since the Spread from IRC is specified at the leaf level, the system does not need to search any further to calculate the transfer rates for the Secured Credit Cards. However, for a Premium Credit Card, the system searches up the Hierarchical Nodes for the first node that specifies a method. The first node that specifies a method for the Premium Credit Card is the Credit Card node and it is associated with the Spread from Note Rate method.

> **Note**
>
> Not specifying assumptions for a node is not the same as selecting the "Do Not Calculate" method. Child nodes for which no assumptions are specified automatically inherit the methodology of their closest parent node. Therefore, if neither a child node nor its immediate parent has a method assigned, then the Oracle Funds Transfer Pricing Cloud Service searches up the nodes in the hierarchy until it finds a parent node with a method assigned, and uses that method for the child node. If there are no parent nodes with a method assigned then the application triggers a processing error stating that no assumptions are assigned for the particular product/currency combination. However, if the parent node has the "Do Not Calculate" method assigned to it then the child node inherits "Do Not Calculate", preventing the need for calculation and a processing error.

All parameters that are attached to a particular methodology (such as Interest Rate Code) are specified at the same level as the method. If multiple Interest Rate Codes are to be used, depending on the type of the product, the method would need to be specified at a lower level. For instance, if you want to use IRC 211178 for Consumer Products and IRC 3114 for Commercial Products, then the Transfer Pricing Methodologies for these two products need to be specified at the Commercial Products and Consumer Products nodes.

You need not specify Prepayment Assumptions at the same nodes as Transfer Pricing Methods. For example, each Mortgage category can have a different prepayment method while the entire Mortgage node uses the Zero Discount Factors Cash Flow Method for transfer pricing.

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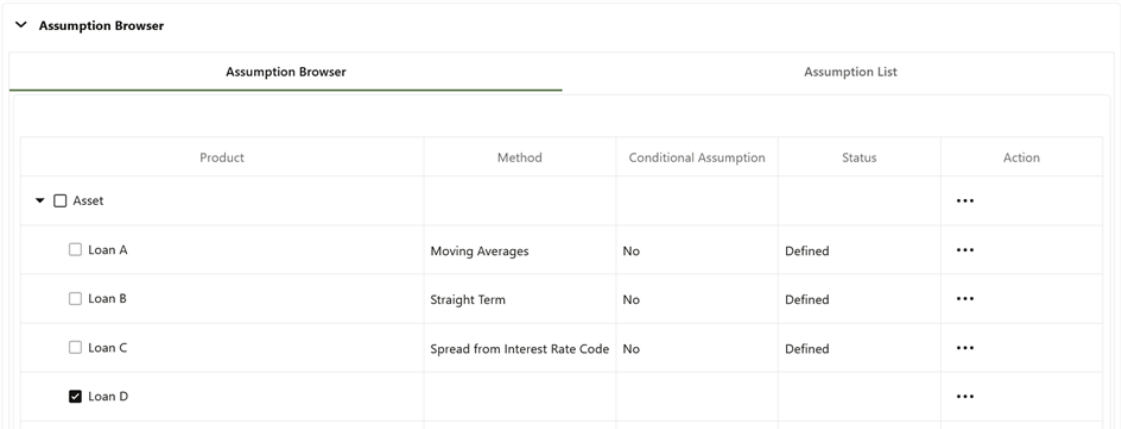
6.3.4.1.19 Defining Transfer Pricing Methodologies using Conditional Assumptions

Oracle Funds Transfer Pricing Cloud Service extends the setup and maintenance of assumptions by allowing users to integrate conditional logic (optional) into the setup of Transfer Pricing, Prepayment, and Transfer Pricing Adjustment methods. The Caterpillar Method under Transfer Pricing Rules will not be available for selection under Conditional Assumptions.

The Conditional Assumption UI is accessed from the Assumption Browser by selecting the Conditional Assumption icon.

Figure 6-71 Assumption Browser



The conditional logic is defined using Data Filters and/or Maps. These existing objects provide the building blocks for defining Conditional logic. For example, each Data Filter can provide the logic for a specific condition. In the following example, the Where clause is “Adjustable Type Code = 'Adjustable Rate'”. This type of Data Filter can be selected within the Conditional Assumption UI.

For more information on working with Filter, see the Filters document.

For example, you can use the Org Unit column to drive the assignment of Transfer Pricing Methods for all members of a particular Organization. You can create one Conditional Assumption to convey the entire Transfer Pricing Methodology logic and attach it to the top-level node of the Org Unit hierarchy. All nodes below the top-level node inherits the same Transfer Pricing assumption.

The logic included in a Conditional Assumption determines the specific Transfer Pricing method, Prepayment assumption, or Adjustment Rule that the system assigns to each instrument record at Run time.

The Conditional Assumption screen allows users to select explicit conditions (from Data Filters and/or Hierarchy Filters), apply methods, and rule selections to each condition directly. The Filter Conditions are processed by the engine in the order that they appear on the screen. After a condition is satisfied, the related assumption is applied. The following figure displays a representative Conditional Assumption using a Data Filter:

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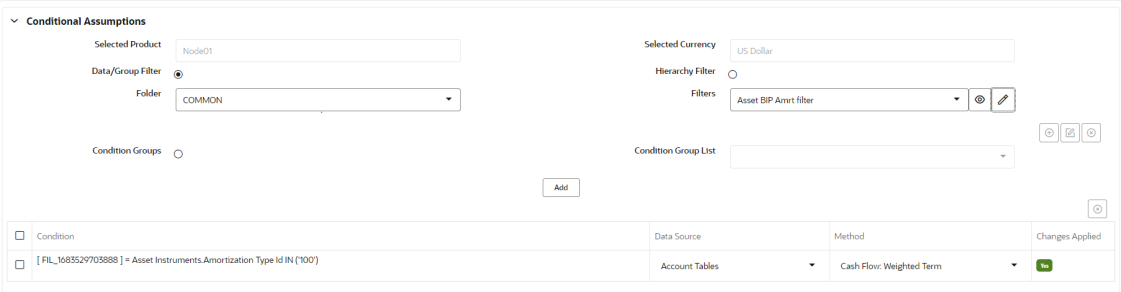
Figure 6-72 Conditional Assumptions



The Filters field displays the View and Edit buttons. You can verify the existing Filters by clicking the **View** button. Click the **Edit** button if you want to modify the Filter condition.

> **Note**
>
> If an instrument record does not meet any of the conditions, then the rule logic reverts to the standard assumption that is directly assigned to the Product / Currency combination.

Conditional Assumptions can be applied only to detailed account records (data stored in the Instrument Tables).

6.3.4.2 Working with Transfer Pricing Rules

The procedure for working with and managing the Transfer Pricing Rule is similar to that of other Oracle Funds Transfer Pricing Cloud Service assumption rules. It includes the following steps:

- Searching for Transfer Pricing Rules
- Creating Transfer Pricing Rules
- Viewing and Editing Transfer Pricing Rules
- Copying Transfer Pricing Rules
- Deleting Transfer Pricing Rules

As part of creating and editing Transfer Pricing Rules, you can also define Transfer Pricing Methodologies. See:

- Defining Transfer Pricing Methodologies
- Defining the Redemption Curve Methodology
- Defining the Unpriced Account Methodology

Oracle Funds Transfer Pricing Cloud Service provides you with the option to copy, in total or selectively, the product assumptions contained within the Transfer Pricing, Prepayment, and Adjustments Rules from one currency to another currency or a set of currencies.

6.3.4.3 Creating Transfer Pricing Rules

You create a Transfer Pricing Rule to map Transfer Pricing Methodologies for your products.

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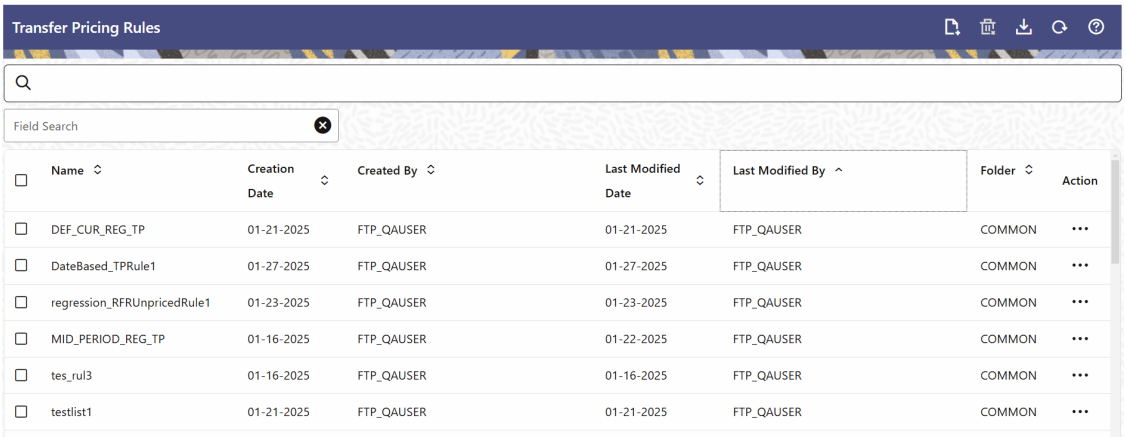
To create a Transfer Pricing Rule, from the LHS menu, select **Assumption Specification**, and then select **Transfer Pricing Rules**.

The Transfer pricing Rules summary screen is displayed showing a set of Transfer Pricing Rules. Using search criteria, you can control the set of rules that are displayed. When you Add, Edit, or View a rule, a detailed screen is displayed.

Figure 6-73 Transfer Pricing Rules summary

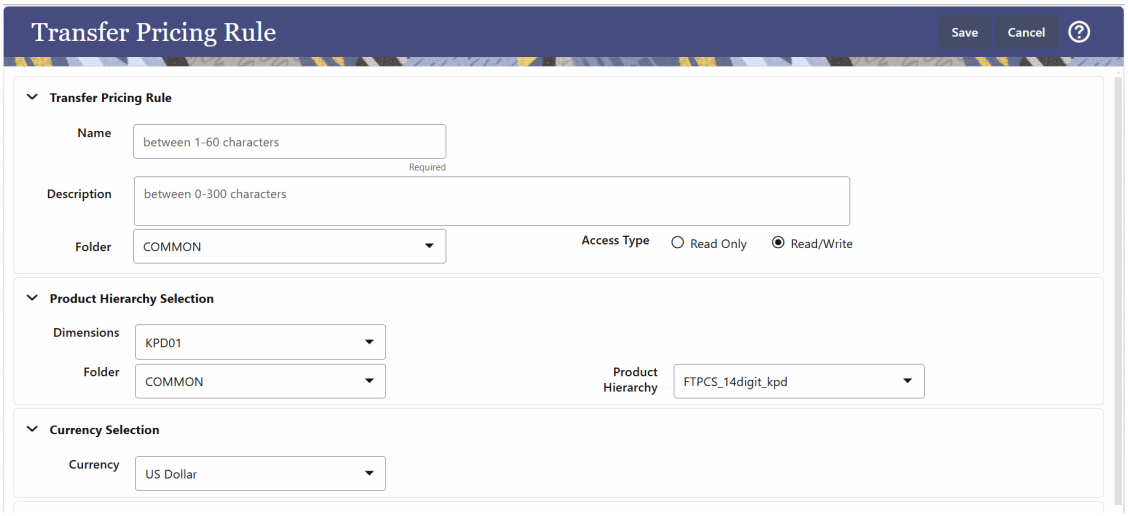


Adding a New Transfer Pricing Rule

To create a new rule, click the **Add** button.

The Transfer Pricing Rule definition screen is displayed.

Figure 6-74 Transfer Pricing Rule definition screen



You can search the rule on any of the product dimension, searched dimension will be auto-populated while defining the rule; if you like, you can change the default product dimension.

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6.3.4.4 Navigating in the Summary Screen

When you first navigate to the Transfer Pricing Rules summary screen, the rules stored within your current default Folder are presented in a summary table. The Transfer Pricing Rules summary screen has the following panes: Search and Transfer Pricing Rule.

The title bar of the summary page provides several actions for the user. They are:

- **Add**: Click Add icon to build a new Transfer Pricing Rule.
- **Multiple Delete**: Select one or more rules in the table and then click the (-) icon at the top right of the summary page to delete more than one rule at the same time.
- **Refresh**: Click Refresh to refresh the Summary Page.
- **Help**: Click the Help icon to view the Transfer Pricing Rule Help Page.
- **Download PDF**: Select one or more transfer pricing rules in the table and click **Download PDF** to download the transfer pricing rule definitions in a single PDF file or zip file format if multiple rule definitions are selected.

Search a Transfer Pricing Rule

On the Transfer Pricing Rules summary, enter your search criteria in the search box and click **Search**. The Transfer Pricing Rules meeting your search criteria are displayed. If you select **Dimension** filter and search for the rules, the search results will be displayed for the selected Dimension. When you try to create any rule, by default the selected Dimension will be displayed instead of the Dimension defined in the Preferences.

or

An alternative method to search a Transfer Pricing Rule is using the **Field Search** option. The Field Search is an inline wildcard search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary Table.

Transfer Pricing Rule Pane

The Transfer Pricing Rule Pane presents a table containing all Transfer Pricing Rule that meet your search criteria.

The Transfer Pricing Rule Summary page displays the following columns.

- **Download PDF**: Select multiple rules using the checkboxes and click **Download PDF** from the toolbar to download reports for all selected rules.
- **Name**: Displays the short name of the rule.
- **Creation Date**: Displays the date and time when user created the rule.
- **Created By**: Displays the Name of the user who created the rule.
- **Access Type**: Displays the access type of the rule - Read/Write or Read Only property of a Static Table Driver rule. Only the creator of a rule may change its Access Type.
- **Folder**: Displays the folder name where the rule is stored.
- **Action**: Displays the following actions that can be performed on the rule.
  - **View**: Click View in the Action column and select View to view the contents of a Transfer Pricing Rule in read/write format.
  - **Edit**: Click Edit in the Action column and select Edit to edit the contents of a Transfer Pricing Rule in read/write format.

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- **Delete**: Click Delete in the Action column and select Delete to delete an existing Transfer Pricing Rule.
- **Save As**: Creates a copy of the selected rule.
- **Check Dependency**: Displays dependent objects associated with the rule.
- **Download PDF**: Downloads the current transfer pricing rule definition in a PDF file.

You may select or deselect all the Transfer Pricing Rule rules in the summary table by clicking the check-box in the upper left-hand corner of the summary table directly to the left of the Name column header.

6.3.4.5 Defining Transfer Pricing Methodologies

The assignment of Transfer Pricing Methodologies is part of the Create or Edit Transfer Pricing Rules process where assumptions about Transfer Pricing Methodologies are made for product-currency combinations. When you click Save in the Create Transfer Pricing Rules Process, the rule is saved and the Transfer Pricing Rule Summary Page is displayed. However, the Transfer Pricing Methodology has not yet been defined for any of your products at this point. You start defining your methodologies for the product-currency combinations before clicking Save.

The Transfer Pricing Rule supports the definition of Assumptions for combinations of two dimensions: Product and Currency.

You can define Transfer Pricing Methodologies for your entire product portfolio one currency at a time. For example, your portfolio is comprised of products denominated in two currencies (US Dollar and Japanese Yen) and that you want to specify different Transfer Pricing Assumptions and/or different Transfer Pricing Yield Curves, for each product group. Using the Currency selection drop-down list, you can first define Assumptions for the products denominated in US Dollars and then proceed with defining Assumptions for the Yen-based products.

After you have created a Transfer Pricing Rule, you can assign Transfer Pricing Methodologies to product-currency combinations in either of the following two ways:

- By creating a conditional assumption using conditional logic. For more information, see Associating Conditional Assumptions with Assumption Rules.
- Directly on the Transfer Pricing Methodology Page, as described here.

6.3.4.5.1 Defining Assumptions with the Default Currency

For cases where you have the same assumption (Method and IRC) which is applicable to all currencies or multiple currencies, you can define rules for the combination of Product and Default Currency. To define assumptions for the Default Currency, select a Product from the Hierarchy and Default Currency from the currency list and proceed with the assumption definition. When processing data, the TP engine will first look for an assumption that exactly matches the product or currency of the instrument record. If not found, the engine will then look for the combination of the product and the Default Currency. This is a useful option to utilize during setup when the same product exists across multiple currencies and shares the same TP Assumption and Interest Rate Code.

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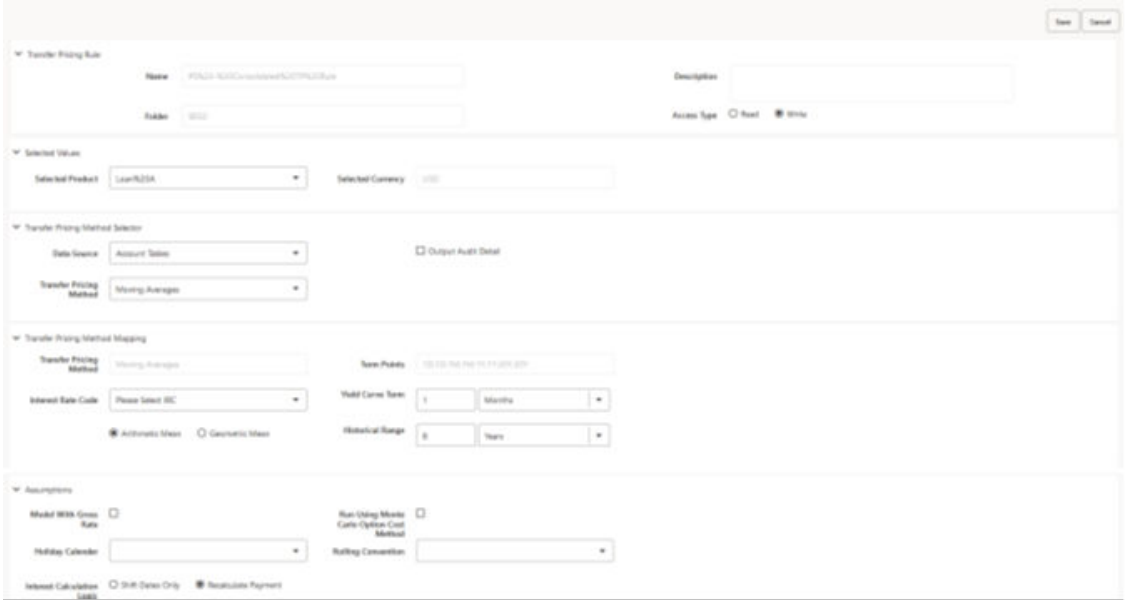
Figure 6-75 Transfer Pricing Rule Definition (Edit Mode)



Default Currency setup example: If you have two instrument records of the same product, each with a different currency, for example, 1 is 'USD' and the other is 'AUD', you have two configuration choices. You can either:

- Define the assumptions individually for each product-currency combination using direct input or copy across.
- You can create one assumption for the combination of Product and Default Currency. When you use Default Currency, the TP Engine will apply this assumption to ALL currencies (unless a direct assumption is available for the product + currency processed). In the case where users have many individual currencies that utilize the same TP Method and reference IRC rates, this is a useful option because you only have to define the assumption 1 time and it applies to many different Product + Currency combinations.

For defining assumptions with Default Currency, you must perform the basic steps for creating or updating Transfer Pricing Rules.

Procedure:

The following table describes the key terms used for this procedure.

Table 6-26 Fields in the Transfer Pricing Rule Definition Screen

Term	Description
Yield Curve Term	Defines the point on the yield curve that the system references to calculate Transfer Rates.
Historical Term	Specifies the period over which the average is to be taken for the Moving Averages Method.
Lag Term	Specifies a yield curve from a date earlier than the Assignment Date for the Spread from Interest Rate Code Method.

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Table 6-26 (Cont.) Fields in the Transfer Pricing Rule Definition Screen

Term	Description
Rate Spread	The fixed positive or negative spread from an Interest Rate Code or Note Rate is used to generate transfer rates in the Spread from Interest Rate and Spread from Note Rate Methods.
Model with Gross Rates	This option becomes available when you select Account tables as the data source and allows you to specify whether modeling should be done using the net or gross interest rate on the instrument. This option is only applicable when the Net Margin Code is also set to one, for example, Fixed. Gross rates are selected while modeling the effect of serviced portfolios where the underlying assets are sold but the organization continues to earn servicing revenue based on the original portfolio.
Mid Period	This option applies to Adjustable-Rate instruments only. It dictates whether the transfer rate is based on the Last Repricing Date, Current Repricing Period, Prior Repricing Date, or some combination thereof.
Audit Trail	Select to generate Audit Trail Output for specific product/ currency combination.
Assignment Date	This is the effective date of the yield curve.
Percentage/Term Points	The term points that the system uses to compute the Redemption Curve Method results. A percentage determines the weight assigned to each term point when generating results.
Add Dimension Values	Allows you to select the products that you want to use as source values when you transfer price using the Unpriced Account Method.
Across All Organization Units	When this option is enabled, the Transfer Price is calculated as a weighted average across all organization units for the matching product value and currency, and any optional migration dimensions selected in the Transfer Pricing Process Rule. Otherwise, the Transfer Price is calculated from accounts only within a particular Organizational Unit.
Holiday Calendar	Holiday Calendars are defined in the Holiday Calendars UI. In the Holiday Calendar, you can specify weekend days and Holiday Dates as applicable.
Rolling Convention	Rolling Conventions allow you to specify how dates falling on specified weekends or holidays should be handled.
Interest Calculation Logic	The Interest Calculation Logic Assumption allows you to specify whether to simply the date of the computed Cash Flow or to shift the date and recalculate the interest payment amount.

To define the assumptions with the default currency:

1. Navigate to the Assumption Browser page.

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2. Select a **Product Hierarchy**.
3. Select a **Currency**.
4. The list of currencies available for selection is managed with Currency module and reflects the list of Active currencies.
5. Expand the hierarchy and select one or more members (leaf values and/or node values) from the product hierarchy.
6. Click the **Add** icon to begin mapping Transfer Pricing Methods to the list of selected product dimension members. The system displays a list of all the products (for which you can define assumptions) or currencies (that are active in the system).
7. From the Transfer Pricing Method Selector Page, select the appropriate data source: **Account Tables** or **Ledger Table**.
8. Select the Transfer Pricing Method for the selected product member.

> **Tip**
>
> The Transfer Pricing Methodologies are available depend on the selected data source. See: Transfer Pricing Combinations.

Depending on the Transfer Pricing Method selected, certain required and optional parameter fields are displayed. You can update these fields as required. See Required Parameters for a Transfer Pricing Methodology. See also:

- Defining the Redemption Curve Methodology
- Defining the Unpriced Account Methodology

9. Select **Output Audit Trail** to output the audit data at the time of processing.
10. Select the Holiday Calendar. The screen displays the Holiday Calendar inputs only for Cash Flow TP Methods – Duration, Average Life, Weighted Term, and Zero Discount Factors. The default assumption is None, meaning the Holiday Calendar adjustments are turned off. If a Holiday Calendar is selected, Holiday Calendar adjustments will be enabled and the following two additional inputs will be required:
    - Rolling Convention
        - Following Business Day: The Payment Date is rolled to the next business day.
        - Modified following Business Day: The Payment Date is rolled to the next business day unless doing so would cause the payment to be in the next calendar month, in which case the payment date is rolled to the previous business day.
        - Previous Business Day: The Payment Date is rolled to the previous business day.
        - Modified previous Business Day: The Payment Date is rolled to the previous business day unless doing so would cause the payment to be in the previous calendar month, in which case the payment date is rolled to the next business day.
    - Interest Calculation Logic
        - Shift Dates Only: If a future Payment Date (as computed by the Cash Flow Engine (CFE)) falls on a designated holiday (including weekends), the CFE will shift the Payment Date from the holiday as per the rolling convention. No changes will be made to the payment amount or accrual amount; this is simply shifting the date on which the Cash Flow will post. The subsequent Payment Dates resume according to the original schedule.

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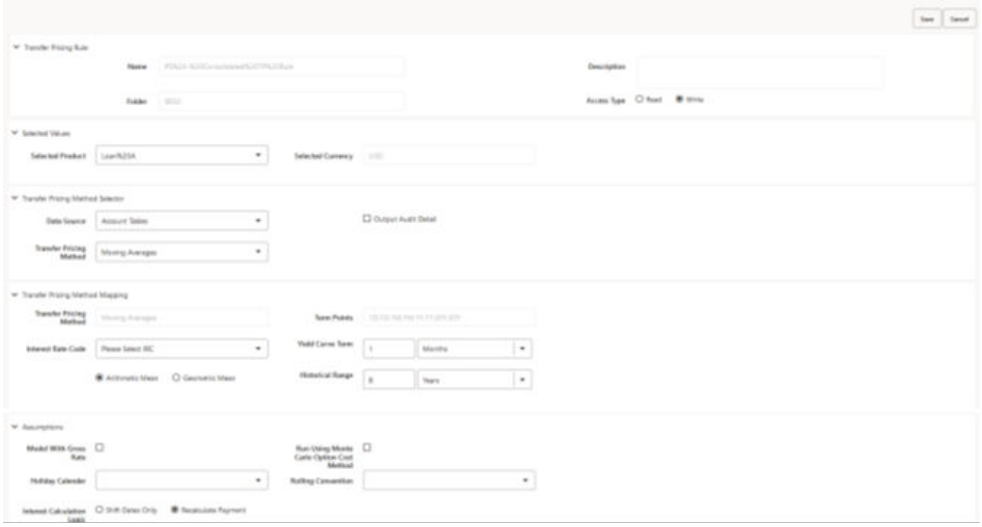
– Recalculate Payment: This option includes the same Holiday Calendar definition as in the Shift Dates Only option, but it also takes one additional step to recalculate the interest payment amount (and interest accruals) based on the actual number of days in the (adjusted) payment period. The instrument records use the payment frequency (term and multiplier) and the Re-Price frequency (term and multiplier) in association with the Next/Last Payment Date and Next/Last Re-Pricing Date to determine when the cash flow will post. The CFE logic is enhanced to acknowledge Holiday Dates and re-compute the payment/interest amount given the change in days. In addition, the engine gets back on the scheduled track of payment events after a holiday event occurs in one (or many sequential) events.

> **Note**
>
> Holiday Calendar adjustments can also be applied to the Tractor TP Method. For this method, the Holiday Calendar assumptions are defined within the Behavior Pattern > Replicating Portfolio UI.

Figure 6-76 Transfer Pricing Rule Definition (Edit Mode)



11. Click **Apply**.
    At this point, you can:
    - Continue defining additional methodologies for other product-currency combinations contained in your selection set, by repeating the above procedure.
    - Complete the process by clicking Cancel or by answering NO to the confirmation alert after applying the assumptions for each Product or Currency combination in your selected set.
12. From the Assumption Browser page, click **Save**.
    The new assumptions are saved and the Transfer Pricing Rule Selector page is displayed.

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> **Note**
>
> Oracle Funds Transfer Pricing Cloud Service provides you with the option to copy, in total or selectively, the product assumptions contained within the Transfer Pricing, Prepayment, and Adjustment Rules from one currency to another currency or a set of currencies. For more information, see Copying Assumptions across Currencies.

6.3.4.5.1.1 Availability of Transfer Pricing Methodologies

The availability of Transfer Pricing Methodologies depends on the data source that you select: Account Table or Ledger Table.

The following table describes the Transfer Pricing Methodologies available for each of these data sources and displays whether that methodology requires the selection of a Transfer Pricing Interest Rate Code.

> **Note**
>
> The Interest Rate Code LOV is filtered by the selected Currency.

Table 6-27 Transfer Pricing Combinations

Transfer Pricing Methodology	Data Source: Account Table	Interest Rate Code	Behavior Pattern	Holiday Calendar
Do Not Calculate	Yes			
Cash Flow: Average Life	Yes	Yes		Yes
Cash Flow: Duration	Yes	Yes		Yes
Cash Flow: Weighted Term	Yes	Yes		Yes
Cash Flow: Zero Discount Factors	Yes	Yes		Yes
Moving Averages	Yes	Yes		
Straight Term	Yes	Yes		
Spread from Interest Rate Code	Yes	Yes		
Spread from Note Rate	Yes			
Redemption Curve	Yes	Yes		
Tractor Method	Yes	Yes	Yes	Yes
Caterpillar	Yes	Yes	Yes	
Weighted Average Perpetual	Yes	Yes	Yes	
Unpriced Account				

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> **Note**
>
> Not specifying assumptions for a node is not the same as selecting the Do Not Calculate Methodology. Child nodes for which no assumptions are specified automatically inherit the methodology of their closest Parent node. Therefore, if neither a Child node nor its immediate Parent has a method assigned, the application searches up the nodes in the hierarchy until it finds a Parent node with a method assigned, and uses that method for the Child node. However, if no Parent node has a method assigned then the application triggers a processing error stating that no assumptions are assigned for the particular product/currency combination. However, if the Parent node has the method Do Not Calculate assigned to it then the Child node inherits Do Not Calculate, obviating the need for calculation and for a processing error.

6.3.4.5.1.2 Required Parameters

You cannot define a Transfer Pricing Methodology successfully unless you specify the required parameters. The following table displays the parameters associated with each Transfer Pricing Method and specifies whether they are required or optional. The optional parameter fields display default values. However, you may decide to change the values for the optional Parameters Methodologies, such as the Redemption Curve or the Unpriced Account Methods.

Table 6-28 Required Parameters for a Transfer Pricing Methodology

Transfer Price Method	Yield Curve Term	Historical Range	Lag Term	Rate Spread	Assignment Date	Mid Period	Term Points	Dimension Values
Cash Flow: Average Life								
Cash Flow: Weighted Term								
Cash Flow: Duration								
Cash Flow: Zero Discount Factors								
Moving Averages	Required	Required						
Straight Term						Optional		
Tractor Method								
Spread from IRC	Required		Required	Required	Required	Optional		
Spread from Note Rate				Required		Optional		

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Table 6-28 (Cont.) Required Parameters for a Transfer Pricing Methodology

Transfer Price Method	Yield Curve Term	Historical Range	Lag Term	Rate Spread	Assignment Date	Mid Period	Term Points	Dimension Values
Redemption Curve					Required	Optional	Required	
Caterpillar								
Do not Calculate								
Weighted Average Perpetual								
Unpriced Account								Required
Tractor Method								

6.3.4.5.2 Defining Terms for Add-On Rate Calculations

To define the terms for Add-On Rate calculations:

Add-On Rate Term Selector: Select the check-box against **Rule Need to be considered for Add-On Rate Calculations**. This selection enables to select Standard or Original terms for the Term to calculate the Add-On Rate Term.

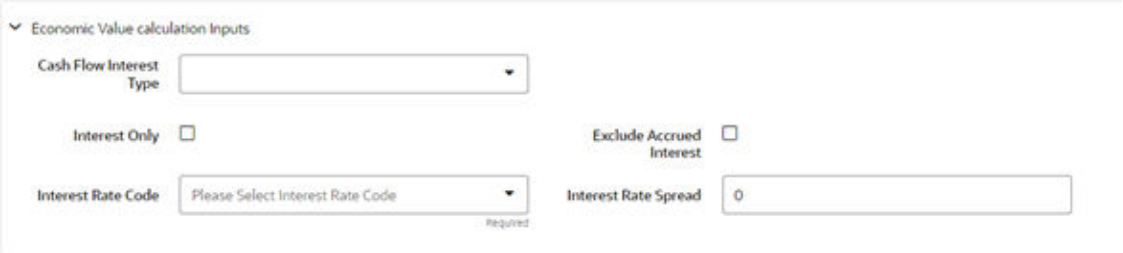
- **Standard Term**: The cash flows will be generated as the normal case. That is , original term for fixed rate records and from last re-price date to next re-price date for adjustable rate instruments.
- **Original Term**: All the cash flows generated to calculate TP rate will be from origination date to maturity date. That is treating all the instruments as fixed rate instruments.

6.3.4.5.3 Configuring Economic Value Calculations

To configure the Economic Value calculations:

Select the check-box againt **Economic Value inputs to be defined**. This section displays the inputs required for calculating Economic Value. These assumptions are optional and the section appears only when the “Economic Value inputs to be defined” check-box is selected.

Figure 6-77 Economic Value Calculation Inputs



The following inputs are required for calculating Economic Value:

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- **Cash Flow Interest Type**: Select the interest rate to use for calculating the Interest Cash Flow. This Interest Amount, together with the Principal Amount will be discounted and used to arrive at the Economic Value of the instrument Record.
- **Interest Only**: Select this option if you want to exclude the Principal Cash Flow from the Economic Value Calculation.
- **Exclude Accrued Interest**: Select this option if you want to exclude accrued interest, (interest computed from last payment date to As-of-Date) from the Economic Value Calculation. This will provide you with a clean price.
- **Interest Rate Code**: Select the Interest Rate Code to be used for discounting the Cash Flows.
- **Interest Rate Spread**: Input any applicable spread to be added on top of the IRC Rate.

6.3.4.6 Defining the Redemption Curve Methodology

As part of the process for defining the Redemption Curve Methodology, you must select as many Term Points from your selected Transfer Pricing Yield Curve as are needed and allocate the percentage weighting for each of those points. The prerequisite for defining the Redemption Curve Methodology is performing basic steps for creating or updating a Transfer Pricing Rule.

To add the term steps:

1. Click **Add New Term Points** to display the Add New Term Points page.
2. Select the **Transfer Pricing Yield Curve Points** as required.
   The Term Point Selection section is displayed.
3. Update the Percentage Value for each Term Point.

> **Note**
>
> The sum of all the percentages for all Term Points must add up to 100.

4. To remove a Yield Curve Point from the Percentages/Term Points table, select the term point(s) and click the **Delete** icon.

Defining Tractor Methodology

The prerequisites for defining a Tractor Methodology are:

- Creating a Replicating Portfolio.
- Generating (and maintaining) the Portfolio. Volatile and Core Instrument strips will be created in the FSI_M_REP_PORTFOLIO_STRIPS table.

To define and use a Tractor TP Method:

1. Define the Transfer Pricing Rule and select the Tractor Method from the list of available TP Methods for relevant Product Dimension Members.
2. Select the appropriate Replicating Portfolio.
3. Select the Transfer Pricing Interest Rate Code.
4. Define a Transfer Pricing Process and Run using the TP Rule.
   - TP Process Transfers Price the non-zero portfolio strips using a Straight Term Method.

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- TP Process computes a weighted average TP Rate for the portfolio and will update all instruments mapped through the TP Rule to this method.

Defining Unpriced Account Methodology

When defining an Unpriced Account Methodology, you need to select the Product Dimension Members (products) whose weighted average transfer rate will be assigned to the product or currency combination being defined. The prerequisite for defining the Unpriced Account Methodology is performing basic steps for creating or upgrading a Transfer Pricing Rule.

To add the Dimension Values:

1. Click the **Dimensional Values** icon to display the Hierarchical Add Members page.
2. Search and select the required Dimension Members. Specify whether the weighted average of Transfer Rates has to be taken across all Organizational Units or for accounts only within that Organizational Unit.

> **Note**
>
> You must also select the Organization Unit Dimension along with any other applicable dimensions under Migration Dimensions on the Migration tab of the TP Process when using this method.

3. Click **Apply**.
   The Transfer Pricing Assumption Browser page is displayed.

6.3.4.7 Copying Assumptions across Currencies

This functionality provides you with the option to copy, in total or selectively, the product assumptions contained within the Transfer Pricing, Prepayment, and Add-On Rate Rules from one currency to another currency or a set of currencies.

Copy of assumptions across currencies enhances the usability of Oracle Funds Transfer Pricing Cloud Service in a multi-currency environment. For example, if you have 10 currencies enabled in the application, you need to input only one set of assumptions and then copy those assumptions across all enabled currencies, instead of having to input 10 full sets, thereby saving a significant amount of input time.

This functionality also reduces the risk associated with data input errors, as you need to audit inputs for a single set of assumptions before executing the copy procedure. The copy across the currencies process requires users to select a replacement Transfer Pricing Yield Curve for each target currency. These currency-specific IRC's replace the IRC selection made for each product in the Source Currency Selection Set.

You must define Transfer Pricing, Prepayment, and (or) Add-On Rate Rules related to product assumptions.

To copy the assumptions across currencies:

1. Navigate to the appropriate (Transfer Pricing, Prepayment, Prepayment, or Add-On Rate Rule) Assumption Browser.
2. Select **Source currency**.
3. Select defined product assumptions individually using the check-boxes corresponding to each product (or Node on the hierarchy).
4. Click the **Copy Across** icon.

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5. On the Copy Across Currencies page, select the listed currencies either individually using the corresponding check boxes or in total using **Select All**.
6. Specify an Interest Rate Code for each selected currency. This is necessary because each Interest Rate Code is specific to a single currency. When copying product assumptions across currencies, you must define the interest rate code for each target currency to replace the interest rate code used for the source currency assumptions. For Transfer Pricing Rules that use the Redemption Curve Method, users should pay careful attention to the structure of the Interest Rate Codes selected for the Target Currencies to ensure they contain all of the Term Points used in the definition of the source assumptions. If the selected target Interest Rate Code structures are missing required Term Points, the UI displays a notification regarding the missing Term Points, and assumptions cannot be copied until the user takes corrective action.
7. Click **Apply** to initiate the copy process and to return to the Assumption Browser page.

> **Note**
>
> You can review the results of the copy process from the Assumption Browser by selecting a different currency and following the usual navigation to view or edit assumptions. The application displays new assumptions for each product that was included in the original source selection. The copy process replaces pre-existing assumptions for any product-currency combination that is included in the target selection.

8. Click **Save** on the Assumption Browser page to store the assumptions in the database.

6.3.4.8 Copying Assumptions across Products

This functionality provides you with the option to copy a single product assumptions, the product assumptions contained within the Transfer Pricing and Add-On Rate Rules from one product node or leaf to the selected leaf.

This functionality also reduces the risk associated with data input errors, as you need to audit inputs for a single set of assumptions before executing the copy procedure.

You must define Transfer Pricing and (or) Add-On Rate Rules related to product assumptions.

To copy the assumptions across product:

1. Navigate to the appropriate (Transfer Pricing or Add-On Rate Rule) Assumption Browser.
2. Select **Source Product** node.
3. Select defined product assumptions individually using the check-boxes corresponding to each product (or Node on the hierarchy).
4. Click the **Copy Across** icon.
5. On the Copy Across dialog, select the **Product** tab. Select the relevant leaf from the Hierarchy browser.

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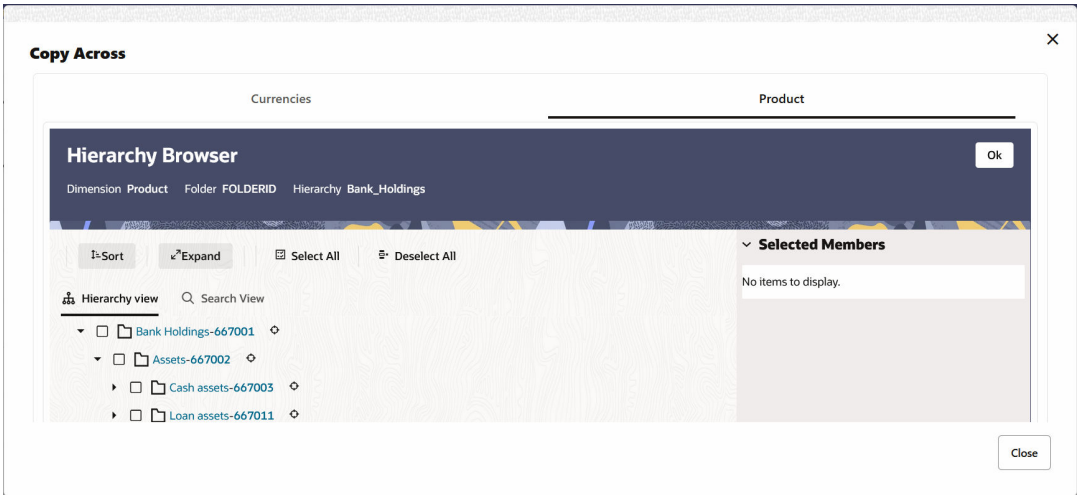
Figure 6-78 Product Hierarchy



6. Click **Ok** to initiate the copy process and to return to the Assumption Browser page.

> **Note**
>
> You can copy the product node or leaf to only the leaf.

7. Click **Save** on the Assumption Browser page to store the assumptions in the database.

6.3.5 Add-on Rate Rules

Add-on Rate Rules allow you to specify Methodologies to calculate Add-on Rates and Breakage Charges for the relevant products in your portfolio.

Add-on Rate Rules allow users to define Add-on Rates that are assigned incrementally on top of base Funds Transfer Pricing Rate to Account for a variety of miscellaneous risks such as Liquidity Risk or Basis Risk, or to supplement Strategic Decision-Making with Pricing Incentives, Breakage Charges, or other types of Add-On Rates.

Within the Standard Transfer Pricing Process, users can select an appropriate Add-on Rate Rule to calculate Add-on Rates or Breakage Charges.

Add-on Rates can be a Fixed Rate, a Fixed Amount, or a Formula Based Rate. Breakage Charges can be a Fixed Percentage, a Fixed Amount or can also be calculated on an Economic Loss Basis. The Add-On Rates are calculated and output separately from the base Funds Transfer Pricing Rate, so they can be easily identified and reported. Additionally, Add-on Rate Rules allow you to apply event-based logic with Conditional Assumptions that are applied or varied only if a specific condition is satisfied.

The Standard Transfer Pricing Process references the Methodologies contained in the Add-on Rate Rule.

Navigating the Summary Screen

When you first navigate to the Add-on Rate Rules summary, the rules stored within your current default folder are presented in a summary table. The Add-on Rate Rules summary displays the Search pane and Add-on Rate Rule summary table.

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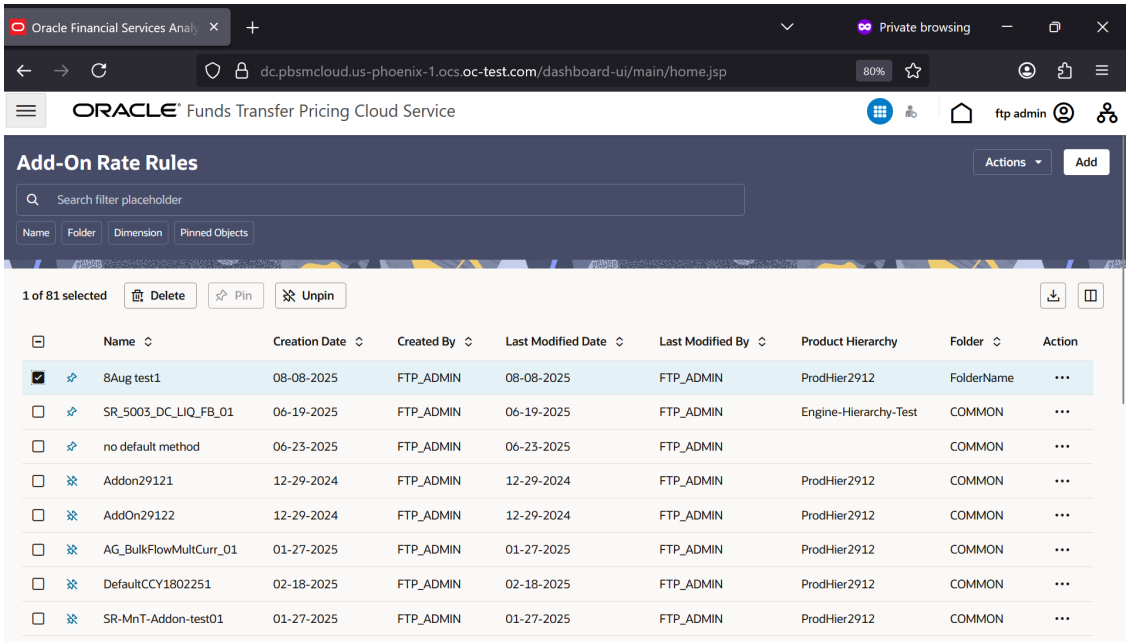
Figure 6-79 Add-On Rates summary page



The title bar of the summary page provides several actions for the user. They are:

- **Add**: Click **Add** icon to create a new Add-on Rate Rule.
- **Multiple Delete**: Enables you to select and delete one or multiple rules in the table simultaneously.
- **Refresh**: Click Refresh to reload the summary page.
- **Help**: Click the Help icon to view the Add-on Rate Rules help page.
- **Pin/Unpin**: Enables you to pin or unpin the selected rule.
- **Download PDF**: Select one or more add-on rate rules in the table and click Download PDF to download the add-on rate rule definitions in a single PDF file or ZIP file format if multiple rule definitions are selected.

Search Add-On Rate Rule

On the Add-On Rate Rule summary, enter your search criteria in the search box and click **Search**. The Add-On Rate Rules meeting your search criteria are displayed. If you select **Dimension** filter and search for the rules, the search results will be displayed for the selected Dimension. When you try to create any rule, by default the selected Dimension will be displayed instead of the Dimension defined in the Preferences.

or

An alternative method to search a Add-On Rate Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as name, code, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Add-On Rate Rules summary. You can enter the Code, Name, Creation Date, Created By, Modified Date, and Modified By of the Add-On Rate Rule, partially or fully, and click **Search**.

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Add-on Rate Rules Summary

The Add-on Rate Rules Pane presents a table containing all Add-on Rate Rules that meet your search criteria.

The Add-on Rate Rules Summary Page displays the following columns.

- **Name**: Displays name of the rule.
- **Creation Date**: Displays the date and time when user created the rule.
- **Created By**: Displays the Name of the user who created the rule.
- **Last Modification Date**: Displays the Date and Time at which an Add-on Rate Rule was last modified.
- **Last Modified By**: Displays the name of the user who last modified an Add-on Rate Rule.
- **Access Type**: Displays the access type of the rule - Read/Write or Read Only property of an Add-on Rate Rules. Only the creator of a Rule may change its Access Type.
- **Folder**: Displays the folder name where the Rule is stored.
- **Action**: Click this icon to view a list of actions that you can perform on the rule.
  - **View**: Click **View** in the Action column and select View to view the contents of an Add-on Rate Rules in Read/Write format.
  - **Edit**: Click **Edit** in the Action column to edit the contents of an Add-on Rate Rules.
  - **Delete**: Click **Delete** in the Action column to delete an existing Add-on Rate Rule.
  - **Save As**: Creates a copy of the selected rule.
  - **Check Dependency**: Displays dependent objects associated with the rule.
  - **Download PDF**: Downloads the current add-on rate rule definition in a PDF file.

  You may select or deselect all the Add-on Rate Rules in the summary table by clicking the check-box in the upper left-hand corner of the summary table directly to the left of the Name Column header.

6.3.5.1 Create Add-on Rate Rule

You create an Add-on Rate Rule to define Add-on Rate Methodologies for your products.

To create the Add-on Rate Rule:

1. From the LHS menu, select **Assumption Specification**, and then select **Add-on Rate Rule**.

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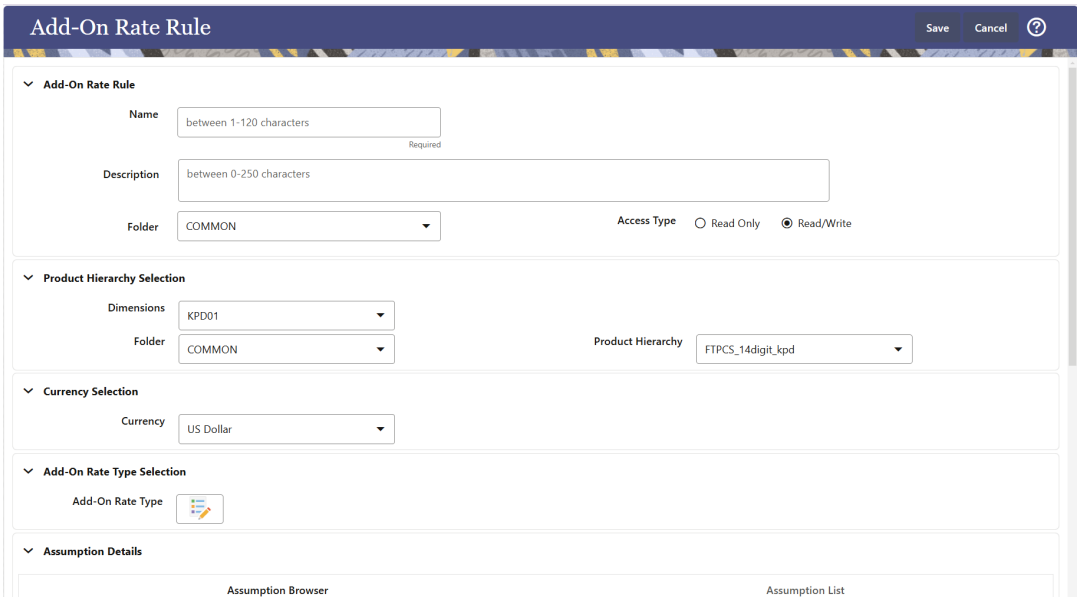
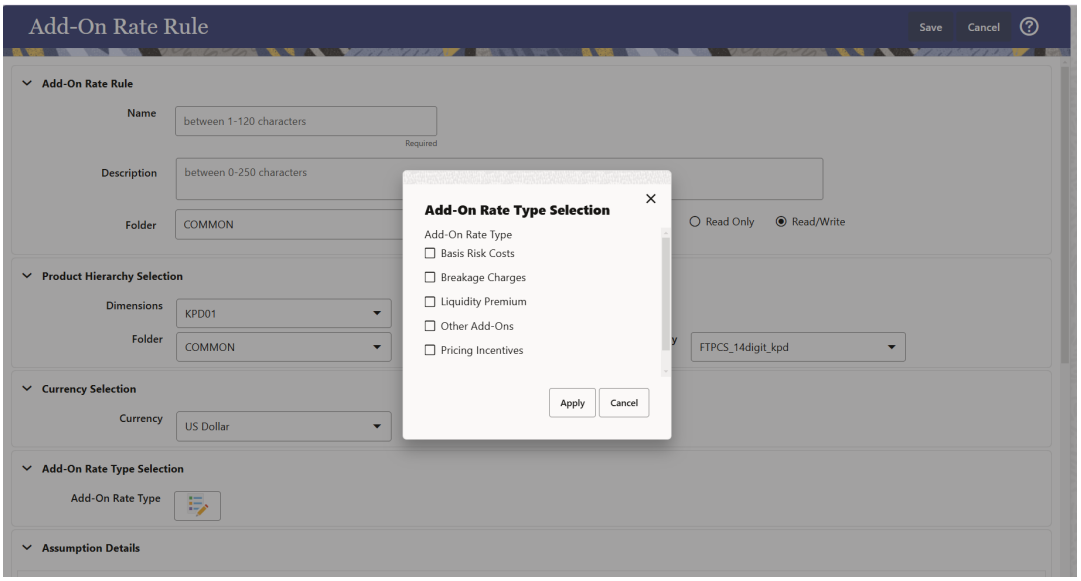
Figure 6-80 Add-On Rate Rule - Definition Mode



You can search the rule on any of the product dimension, searched dimension will be auto-populated while defining the rule; if you like, you can change the default product dimension.

2. Select the Add-on Rate Type from the Add-on Rate Type Selection section.

Figure 6-81 Add-On Rate Type Selection



3. Conditional Assumptions - The Conditional Assumption feature allows you to segregate your product portfolio based on common characteristics, such as Term to Maturity, Origination Date, and Repricing Frequency, and assign specific Add-on Rate Methodologies to each of the groupings.

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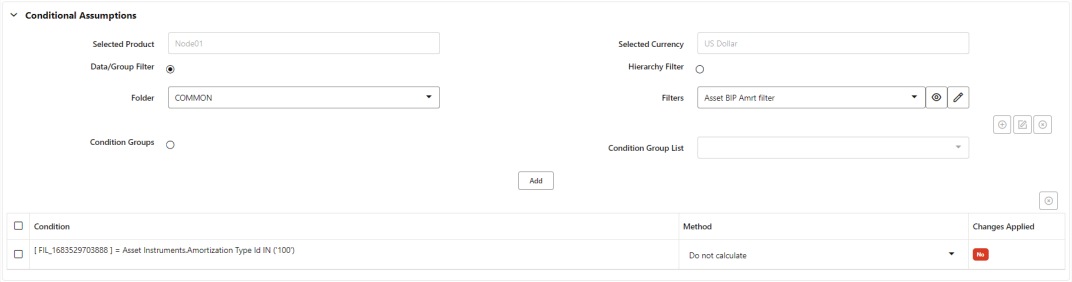
Figure 6-82 Conditional Assumption



The Filters field displays the View and Edit buttons. You can verify the existing Filters by clicking the **View** button. Click the **Edit** button if you want to modify the Filter condition.

> **Note**
>
> If an instrument record does not meet any of the conditions, then the rule logic reverts to the Standard Assumption that is directly assigned to the Product/ Currency combination.

6.3.5.2 Defining Add-on Rate Methods

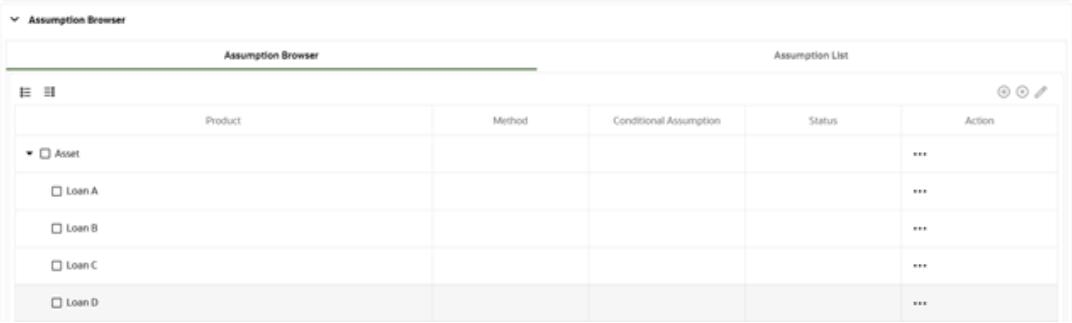
The definition of Add-on Rate Methods is part of the Create or Edit Add-on Rate Rule.

When you click **Save** in the Create Add-on Rule Process, the rule is saved, and the Add-on Rate Rule Summary page is displayed. However, Add-on Rate Assumptions have not yet been defined for any of your products at this point. You would start defining your Add-on Assumptions for Product-Currency combinations before clicking **Save**.

To define an Add-on Method:

1. Navigate to the Add-On rate Assumption Browser page.

Figure 6-83 Add-on Rate Rule Assumption Browser



2. Select an appropriate Add-On Rate Type: Liquidity Rate, Basis Risk Costs, Pricing Incentives, Other Add-On Rates, or Breakage Charge by opening the Add-On Rate Type Selector Window. You can enable one or more Add-on Rate Types within a single Add-on Rate Rule and apply more than one Add-on Rate to a single product.

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> **Note**
>
> The Product Hierarchy refreshes when you change your Add-on Rate Type selection, but note that all selections made within the Rule are saved. For example, when Liquidity Rate is selected, the Hierarchy displays the status of Liquidity Rate mappings within the Hierarchy. If you change your Add-on Rate Type selection to Basis Risk Cost, the Hierarchy will refresh and you will see the status of all Basis Risk Cost mappings, and so on.

3. Select a **Product Hierarchy**. Based on the selected Hierarchy, the application displays a list of all the products (for which you can define Assumptions).
4. Specify a **Currency** from list of active currencies.
5. Select the check-box for one or more products for which you want to define Add-on Rate Method details.
6. Select an Add-on Rate Method and enter the appropriate parameters.

> **Note**
>
> The Add-on Rate Methods available depends on the Selected Add-on Rate Type. Depending on the Add-on Rate Type and Add-on Rate Method combinations selected, certain required and optional parameter fields are displayed. You can update these fields as required.

7. Click **Apply**. If only one product was selected, the Assumption Browser Page is displayed. If more than one product was selected on the Assumption Browser Page, then each subsequent product in the select list will appear in the Selected Product drop-down list and each item should be defined appropriately. After completing the Assumption Details for each selected product, the Assumption Browser Page is displayed. At this point you can:
   a. Continue defining Assumptions for additional Product-Currency combinations for the selected Add-on Rate Type, by repeating the above procedure.
   b. Select a new Add-on Rate Type and continue defining Assumption Details for the required set of products.
   c. Complete the process by clicking Save. The new assumptions are saved, and the Add-on Rate Rule Summary page is displayed.

Oracle Funds Transfer Pricing Cloud Service provides you with the option to copy, in total or selectively, the Product Assumptions contained within the Add-on Rates Rule, Transfer Pricing, and Prepayment Rules from one currency to another currency or a set of currencies or from one product to another product or set of products.

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Table 6-29 Fields and Descriptions for Add-on Rate Method Specification Screen

Term	Definition
Reference Term	The associated term is used for the Add-on Rate assignment. You can select one of the following types of reference terms: • Original Term (the contractual term to the maturity of the account) • Repricing Frequency (the frequency at which the account reprices) • Remaining Term (the number of months until the account matures).
Interest Rate Code	Used for the Rate Lookup for the Formula Based Rate, and in the Breakage Charge - Economic Loss Method when discounting Cash Flows.
Assignment Date	Allows you to choose the date for which the Yield Curve values are to be sourced. Choices available are: • As-of-Date • Last Repricing Date • TP Effective Date • Origination Date • Commitment Start Date • Adjustment Effective Date
Lookup Method	The method used to derive an Add-on Rate for different reference Term Values. • Specify **Range** as the Lookup Method if you want the application to apply the rates defined in the Add-on Rate Rule to a range of Reference Term values, using the terms defined in the Rule to specify the lower end of the range. Note that for values less than the lowest term point, the application uses the value associated with the lowest point. • Specify **Interpolation** as the Lookup Method if you want the application to interpolate Add-on Rate Values for applicable Reference Terms falling between node points specified in the Add-on Rate Rule, using straight-line interpolation between the term points. Deals that are outside of range or ranges will not be populated with any values.
Term	In conjunction with the Multiplier, this field allows you to specify the value for the Reference Term for a given Lookup Tier.
Multiplier	The unit of time applied to the Term. The choices are: • Days • Months • Years
Rate	The Add-on Rate to be applied to instruments where the Reference Term is the product of the Term and Multiplier defined for the row. The rate should be in percentage form, for example, 1.25 percent should be input as 1.25.

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Table 6-29 (Cont.) Fields and Descriptions for Add-on Rate Method Specification Screen

Term	Definition
Amount	The Add-on Amount to be applied to instruments where Reference Term is the product of Term and Multiplier defined for the row.
Formula	The mathematical formula used in the Formula Based Rate Method to determine the Add-on Rate: (Term Point Rate * Coefficient) + Rate Spread.
Rate Floor and Rate Cap	The minimum and maximum rate. If the calculated value is less than the Floor or more than the Cap, then these rates will be applied. These boundaries are applicable only to Formula Based Method and Use the TP Method from TP Rule add-on rate Method types. These are optional inputs. Ensure that the Rate Floor value is always less than or equal to the Rate Cap Value.
Term Point	In conjunction with the Multiplier (Day, Month, or Year), it is used in the Formula Based Rate Method when looking up the rate for the designated Interest Rate Code.
Coefficient	Coefficient by which the Term Point Rate should be multiplied.
Rate Spread	The spread added to the Interest Rate read from the selected Interest Rate Code. Rate Spread is used in the Formula Based Rate and Breakage Charge - Economic Loss Add-on Rate Methods. For the Formula Based Rate Method, the spread is added to the result of the Term Point Rate * Coefficient. Enter the Rate Spread in percentage form, for example, 1.25 percent should be input as 1.25.
Minimum Charge	Used in the Fixed Percentage and Economic Loss Add-on Rate Methods for Breakage Charges. If the calculated Break Funding Amount is less than the Minimum Charge, then the Minimum Charge overrides the calculated amount and is written to the Break Funding Amount column.
Original Term	Select to apply Original Term to both Fixed and Adjustable Rate Instruments.
Standard Term	Standard Term is the traditional approach used in Funds Transfer Pricing, which is the Original Term for Fixed-Rate Instruments and Repricing Terms for Adjustable-Rate Instruments.
Repricing Frequency	Repricing Frequency is the frequency of rate change of a product.
Remaining Term	Remaining Term is the number of months remaining until the instrument matures.

6.3.5.2.1 Availability of Add-on Rate Methods

The list of Add-on Methods depends on the Add-on Rate type that you select: Add-on Rate Types are (Liquidity Add-on, Basis Risk Costs, Pricing Incentives, and Other Add-on), or Breakage Charges. The following table describes the Add-on Methods available for each of the Add-on Types.

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Add-on Method	Add-on Type: Add-On Rates (Liquidity Add-on, Basis Risk Costs, Pricing Incentives, and Other Add-on)	Add-on Type: Breakage Charges
Do Not Calculate	Yes	Yes
Fixed-Rate	Yes	
Fixed Amount	Yes	Yes
Formula Based Rate	Yes	
Use TP Method from Selected TP Rule	Yes	
Economic Loss		Yes
Fixed Percentage		Yes

> **Note**
>
> If you select **Do Not Calculate** as the calculation method, no Add-on Assumptions will be assigned to the particular Product-Currency combination. This is a particularly useful option when using Node-Level Assumptions because it allows you to exclude a particular Child from inheriting a Parent's assumption.

6.3.5.2.1.1 Add-on Rate Method Parameters

To define an Add-on Calculation Method, you must specify one or more parameters, depending on the method. The parameter fields may display a default value, which you can override.

The following tables describes the parameters associated with the Add-on Methods for different Add-on Types.

Table 6-30 Parameters Applicable to the Add-on Rate Methods for the Add-on Rate Types

Add-on Rate Method	Reference Term	Lookup Method	Term	Multiplier	Rate	Amount	Assignment Date	Interest Rate Code	Formula
Do Not Calculate									
Fixed-Rate	Yes	Yes	Yes	Yes	Yes				
Fixed Amount	Yes	Yes	Yes	Yes		Yes			
Formula Based Rate	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Use TP Method from Selected TP Rule			Yes						

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> **Note**
>
> The Add-on Rate Types include Liquidity rate, Basis Risk Costs, Pricing Incentives, Other Add-on rate and Breakage Charge.

Table 6-31 Parameters Applicable to the Add-on Rate Methods for the Breakage Charge Calculations

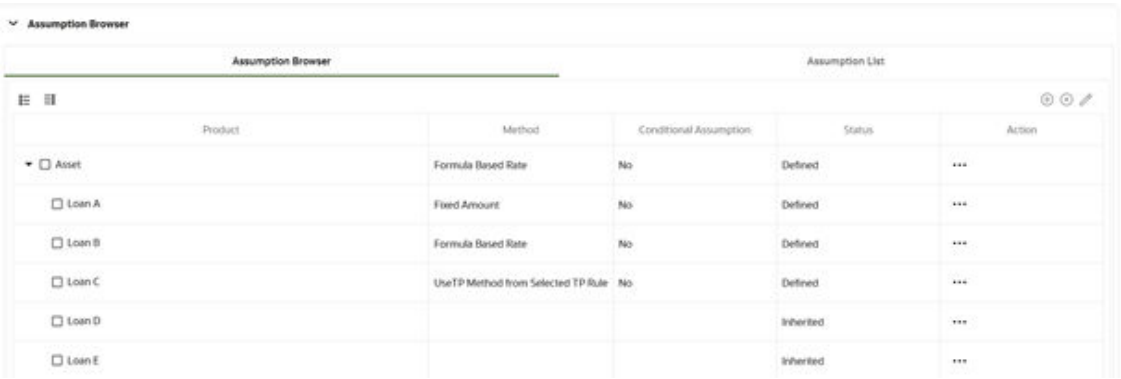
Add-on Rate Method	Break Funding Amount	Break Funding Rate	Interest Rate Code	Rate Spread	Minimum Charge
Do Not Calculate					
Fixed Amount	Yes				
Economic Loss			Yes	Yes	Yes
Fixed Percentage		Yes			Yes

6.3.5.3 Defining Assumptions with the Default Currency

For cases where you have the same Assumption (Method and IRC) which is applicable to all currencies or multiple currencies, you can define Rules for the combination of Product and "Default Currency".

To define Assumptions for the Default Currency, select a Product from the hierarchy and “Default Currency” from the Currency list and proceed with the Assumption Definition as described above. When processing data, the Transfer Pricing engine will first look for an Assumption that exactly matches the Product/Currency of the Instrument Record. If not found, the engine will then look for the combination of the Product and the Default Currency. This is a useful option to utilize during setup when the same product exists across multiple currencies and shares the same Add-on Rate Assumption and Interest Rate Code.

Figure 6-84 Add-on Rule Definition with Default Currency



Default Currency setup example: If you have two instrument records of the same Product, each with a different currency, for example, 1 is 'USD' and the other is 'AUD', you have two configuration choices. You can either:

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- Define the Assumptions individually for each Product-Currency combination using direct input or copy across.
- You can create one Assumption for the combination of Product and Default Currency. When you use “Default Currency”, the Transfer Pricing Engine applies this assumption to all currencies (unless a direct assumption is available for the product + currency being processed). In the case where users have many individual currencies that utilize the same Add-on Rate Method and reference IRC Rates, this is a useful option because you only have to define the Assumption each time and it applies to many different Product-Currency combinations.

6.3.5.3.1 Add-on Rate Calculation Methods

You can use any of the following methods in an Add-on Rule when the selected Add-on Rate Type is Liquidity Premium, Basis Risk Cost, Pricing Incentive, or Other Add-on Rate:

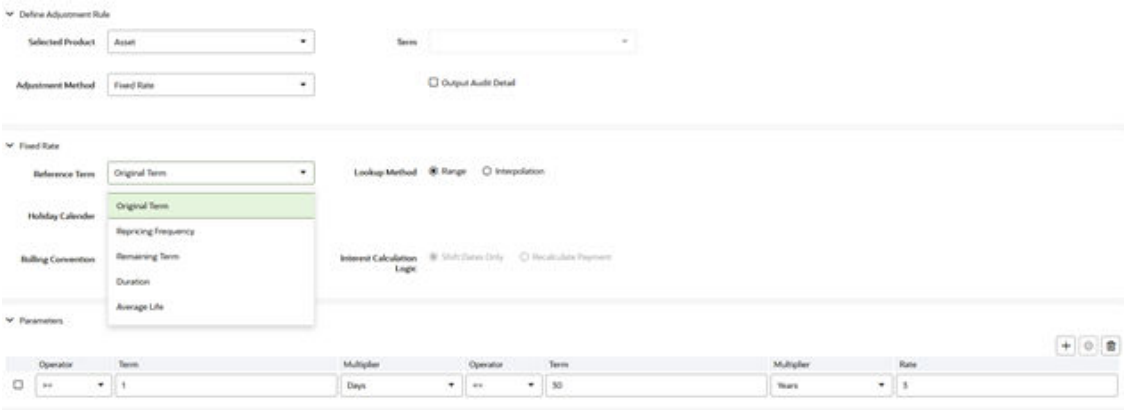
- Add-on Rate Rule - Fixed-Rate
- Add-on Rate Rule - Fixed Amount
- Add-on Rate Rule - Formula Based Rate
- Add-on Rate Rule - Use TP Method from selected TP Rule

Alternatively, you can use any of the following methods in an Add-on Rate Rule when the selected Add-on Rate Type is Breakage Charge:

- Economic Loss
- Fixed Amount
- Fixed Percentage

6.3.5.3.1.1 Add-on Rate Rule - Fixed Rate

Figure 6-85 Add-on Rate Rule Details



The Fixed Rate Method allows the user to associate a rate with specific terms or term ranges. Reference Term selections include the following:

- **Repricing Frequency**: The fixed rate is matched to the specified Reprice Frequency of the instrument. If the instrument is a Fixed Rate and, therefore, does not have a Reprice Frequency, the fixed rate lookup happens based on the Original Term of the instrument.
- **Original Term**: The calculation assigns the fixed rate based on the Original Term on the instrument.

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- **Remaining Term**: The calculation assigns the Fixed Rate based on the Remaining Term of the instrument.

The Remaining Term value represents the Remaining Term of the contract and is expressed in Days.

Remaining Term = Maturity Date – As-of-Date

- **Duration (read from the TP_DURATION column)**: The calculation assigns the Fixed Rate based on the Duration of the instrument, specified in the TP_DURATION column.
- **Average Life (read from the TP_AVERAGE_LIFE column)**: The calculation assigns the Fixed Rate based on the Average Life of the instrument, specified in the TP_AVG_LIFE column.

You can create your Reference Term ranges and assign a particular Add-on Rate to all instruments with a Reference Term falling within the specified range.

- **Holiday Calendar**: Select if a Holiday Calendar is applicable for calculating the charges/ credits.
- **Rolling Convention**: Select the appropriate Business Day Rolling Convention if a Holiday Calendar is selected.
- **Interest Calculation logic**: Select the appropriate option to indicate how the Interest Payment should be adjusted when a Holiday Date is encountered.

> **Note**
>
> All Add-on Rates should be input as Annual Rates.

6.3.5.3.1.2 Add-on Rate Rule - Fixed Amount

The Fixed Amount Add-on Rate Method allows the user to associate an amount with specific terms or term ranges. Reference term selections include the following:

- **Repricing Frequency**: The calculation retrieves the amount for the term point equaling the Reprice Frequency of the instrument. If the instrument is a Fixed Rate and, therefore, does not have a Reprice Frequency, the calculation retrieves the amount associated with the Term Point equaling the Original Term on the instrument.
- **Original Term**: The calculation retrieves the amount for the Term Point equaling the Original Term on the instrument.
- **Remaining Term**: The calculation retrieves the amount for the Term Point corresponding to the Remaining Term of the instrument. The Remaining Term value represents the Remaining Term of the contract and is expressed in days. Remaining Term = Maturity Date – As-of-Date.
- **Duration (read from the TP_DURATION column)**: The calculation retrieves the amount for the Term Point corresponding to the Duration of the instrument, specified in the TP_DURATION column.
- **Average Life (read from the TP_AVERAGE_LIFE column)**: The calculation retrieves the amount for the Term Point corresponding to the Average Life of the instrument, specified in the TP_AVG_LIFE column.

You can create your Reference Term ranges and assign a particular Add-on Amount to all instruments with a Reference Term falling within the specified range.

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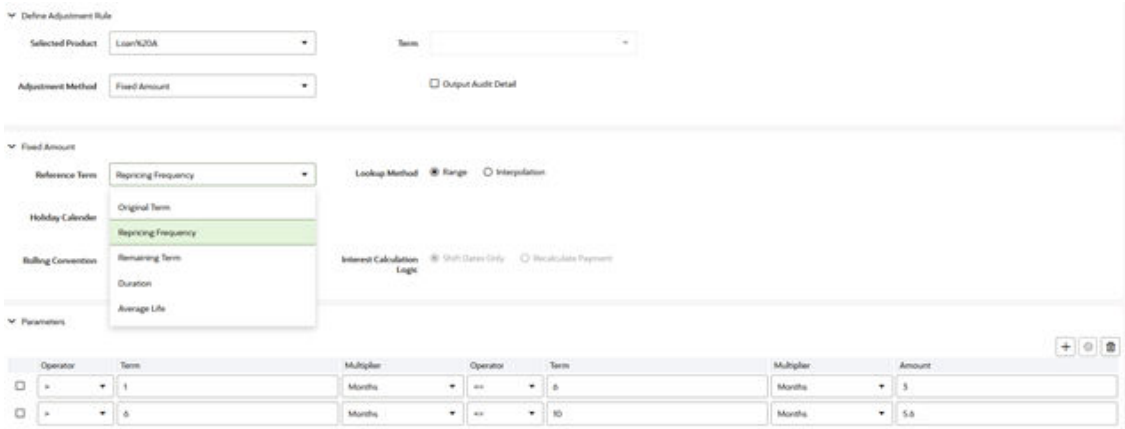
- Holiday Calendar: Select if a Holiday Calendar is applicable for calculating the charges/ credits.
- Rolling Convention: Select the appropriate Business Day Rolling Convention if a Holiday Calendar is selected.
- Interest Calculation logic: Select the appropriate option to indicate how the Interest Payment should be adjusted when a Holiday Date is encountered.

6.3.5.3.1.3 Add-on Rate Rule - Formula Based Rate

The Formula Based Rate Add-on Rate Method allows the user to determine the add-on rate based on a lookup from the selected Yield Curve, plus a spread amount, and then the resulting rate can be associated with specific Terms or Term Ranges. Reference term selections include:

- **Repricing Frequency**: The calculation retrieves the rate based on defined formula for the term point equaling the reprice frequency of the instrument. If the instrument is a fixed rate and, therefore, does not have a reprice frequency, the calculation retrieves the rate based on defined formula, associated with the term point equaling the original term on the instrument.
- **Original Term**: The calculation retrieves the rate based on defined formula for the term point equaling the original term on the instrument.

Figure 6-86 Add-on Rule Details - Formula Based Rate (Reference Term)



- **Remaining Term**: The calculation retrieves the rate based on defined formula for the term point corresponding to the remaining term of the instrument. The remaining term value represents the remaining term of the contract and is expressed in days.
  Remaining Term = Maturity Date – As-of-Date
- **Duration (read from the TP_DURATION column)**: The calculation retrieves the rate based on defined formula for the term point corresponding to the Duration of the instrument, specified in the TP_DURATION column.
- **Average Life (read from the TP_AVERAGE_LIFE column)**: The calculation retrieves the rate based on defined formula for the term point corresponding to the Average Life of the instrument, specified in the TP_AVG_LIFE column.

You can create your Reference Term ranges and assign a particular Formula Based Rate to all instruments with a Reference Term falling within the specified range.

With this method, you also specify the Interest Rate Code and define an Assignment Date for the Rate Lookup. The Interest Rate Code can be any IRC defined within Rate Management,

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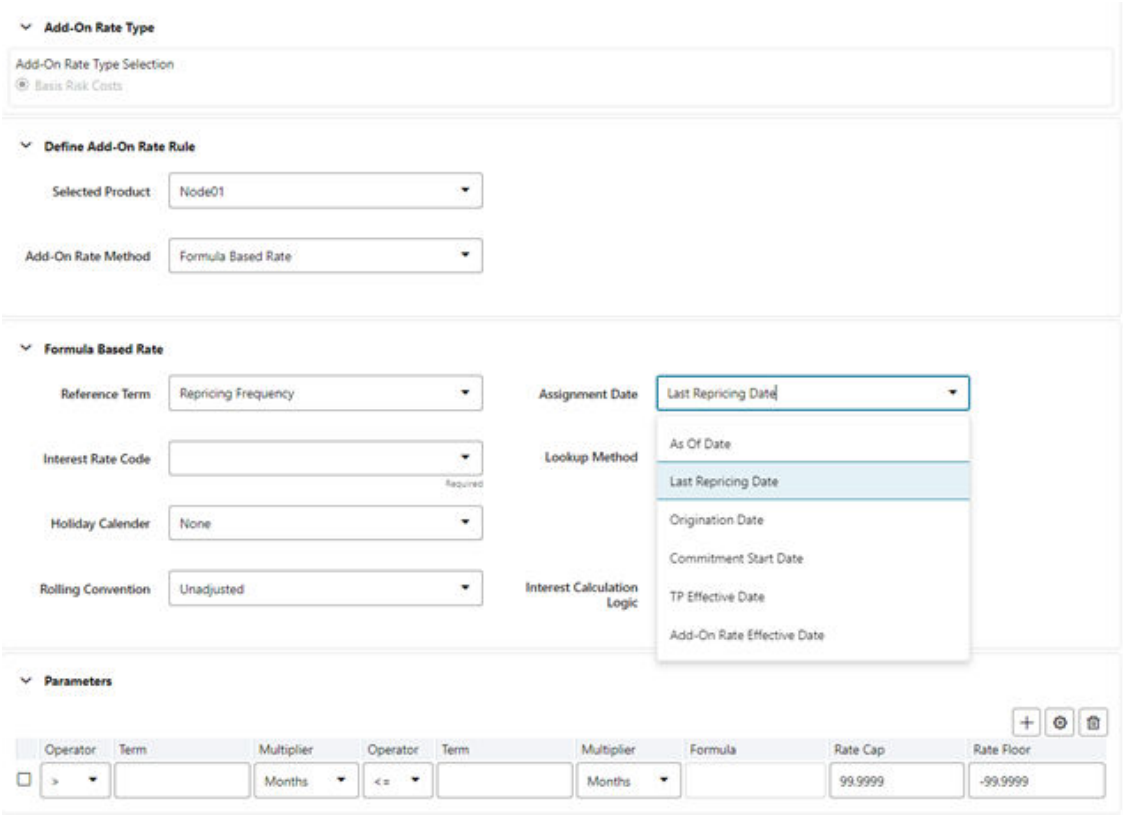
but will commonly be a Hybrid IRC defined as a Spread Curve (for example, Curve A – Curve B).

Figure 6-87 Add-on Rule Details - Formula Based Rate (Assignment Date)



Assignment Date selections include:

- As-of-Date
- Last Repricing Date
- Origination Date
- TP Effective Date
- Adjustment Effective Date
- Commitment Start Date

Each term range additionally allows users to input a Rate Cap and a Rate Floor. These boundaries will only apply to the 'Formula Based Method' and 'Use TP Method from TP Rule' based add-On Rates. These are optional inputs. This input limits the Max or Min rate regardless of the rate passed by the Formula/TP Rule. Sometimes, there may be major external events that cause a short-term spike in rates and certain accounts may be negatively impacted as a result. Applying a rate cap (or floor) allows business users to limit these spikes. Ensure that the rate floor value is always less than or equal to the rate cap value.

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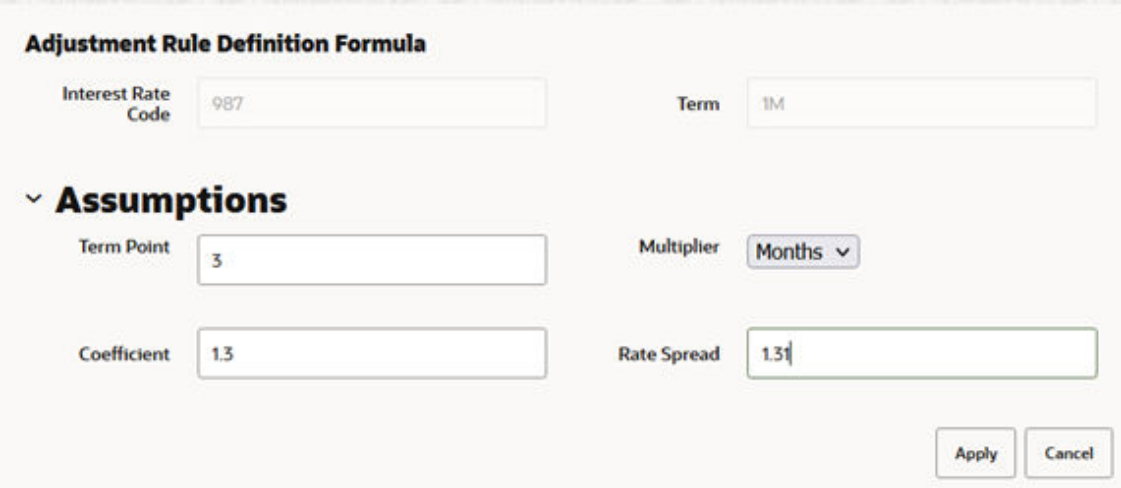
> **Note**
>
> Term range considers one month equal to 30.416667 days and 1 year = 365 days, therefore, 12 Months would marginally be more than one year by 0.000004 days.

The formula definition is comprised of the following components.

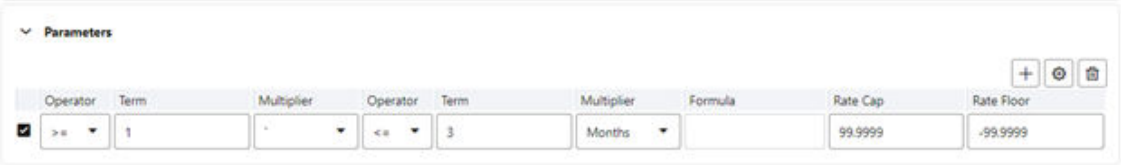
- **Term Point**: This allows you to associate a specific term point from the IRC to each Term Range.
- **Coefficient**: This allows you to define a multiplier that is applied to the selected rate.
- **Rate Spread**: This allows you to define an incremental rate spread to be included on top of the IRC Rate.

Figure 6-88 Add-On rate Rule Definition Formula



The resulting formula for add-on rate: (Term Point Rate * Coefficient) + Spread

Figure 6-89 Formula Rate Parameters



> **Note**
>
> For increased precision, you can reduce the Term Ranges to smaller term increments allowing you to associate specific IRC rate tenors with specific terms.

- **Holiday Calendar**: Select if a Holiday Calendar is applicable for calculating the charges/ credits.

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- **Rolling Convention**: Select the appropriate business day rolling convention if a Holiday Calendar is selected
- **Interest Calculation Logic**: Select the appropriate option to indicate how the interest payment should be adjusted when a Holiday Date is encountered.

6.3.5.3.1.4 Add-On Rate Rule - Use TP Method from Selected TP Rule

The Use TP Method from Selected TP Rule selection allows the user to calculate the Add-On Rate based on any TP Method available in the selected Transfer Pricing Rule.

Figure 6-90 Add-On Rate Rule – Use TP Method (Transfer Pricing Rule Selection)

Users can attach any Transfer Pricing Rule on the Add-On Rate Rule Summary Page separately for each type of Add-On Rate. The TP Methods mapped to product hierarchy members in the TP Rule will be read during the Add-On Rate calculation process and applied during the calculation of the Add-on Rate(s). Outputs will be written to the respective Add-on Rate column, for example, Basis Risk Cost Rate, Liquidity Premium Rate, Pricing Incentive Rate, or Other Add-on Rate.

- Term: The following Term Types are available:
  - **Standard Term**: Add-on rate would be calculated as per the repricing period for adjustable-rate instruments and use the original term (maturity date - origination date) for fixed-rate instruments.
  - **Original Term**: Add-on Rates would be calculated as per the original term like a fixed-rate instrument.

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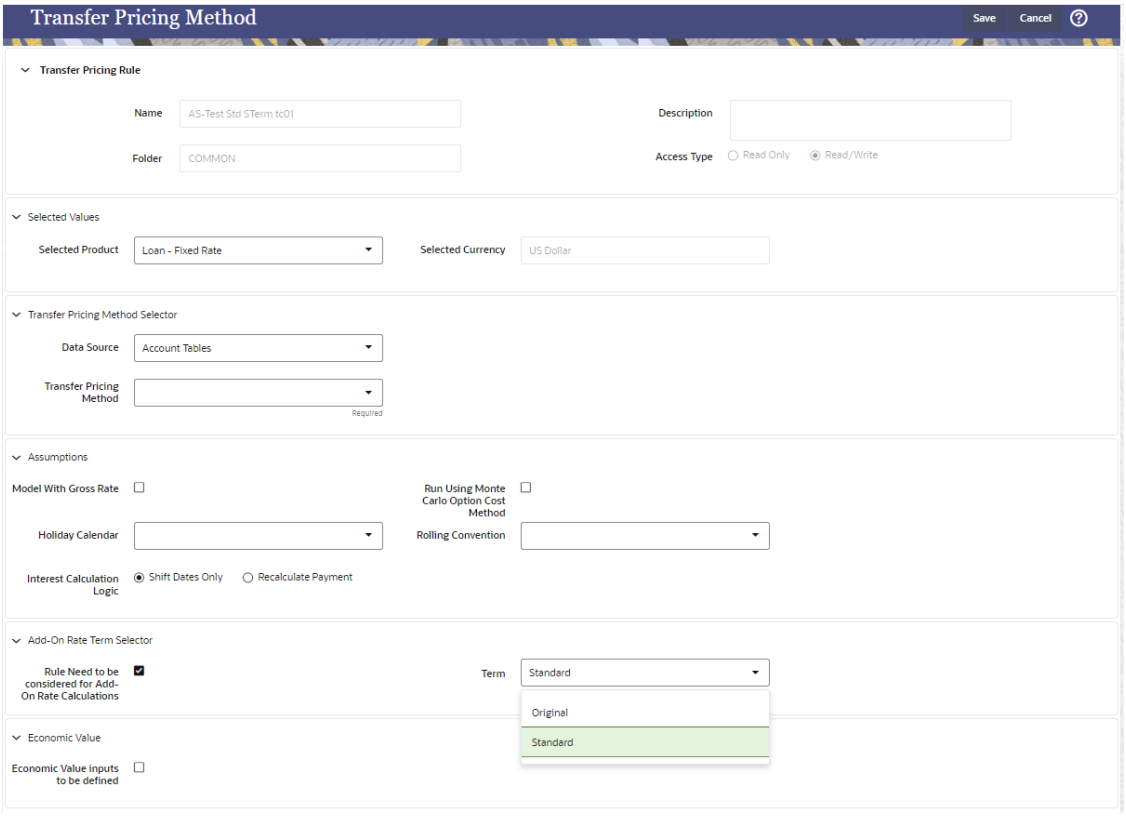
Figure 6-91 Add-On rate Method – Use TP Method (Term Selection)



6.3.5.4 Define the Breakage Charge Economic Loss Method

The Breakage Charge option has the following methods:

- **Do Not Calculate**: No Add-on Assumptions will be assigned to the particular product-currency combination.
- **Fixed Amount**: Allows users to directly input the amount of the breakage charge.
- **Economic Loss**: Used to compute the cost to the organization (economic loss) incurred after terminating the account (asset/funding liability).
- **Fixed Percentage**: Allows you to input a percentage that is multiplied by the Breakage Amount to determine the Breakage Charge.

Defining the Economic Loss Breakage Charge Assumption requires the following additional steps:

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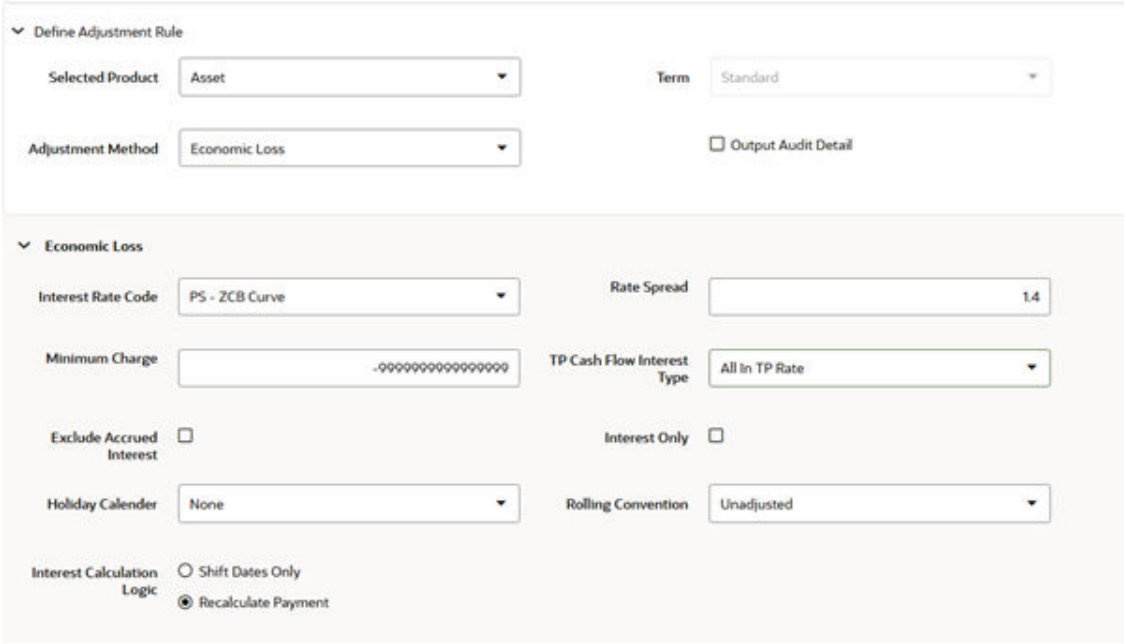
Figure 6-92 Add-on Rule Definition Mode – Breakage Charge (Economic Loss) Calculations



1. Select the **Interest Rate Code** and **Rate Spread** to use for discounting the remaining term Cash Flows.
2. Select the minimum charge amount. Default to -99999 if you want to calculate both gains and losses.
3. Select the **TP Cash Flow Interest Type**. This interest rate will be used to generate Interest Cash Flows.

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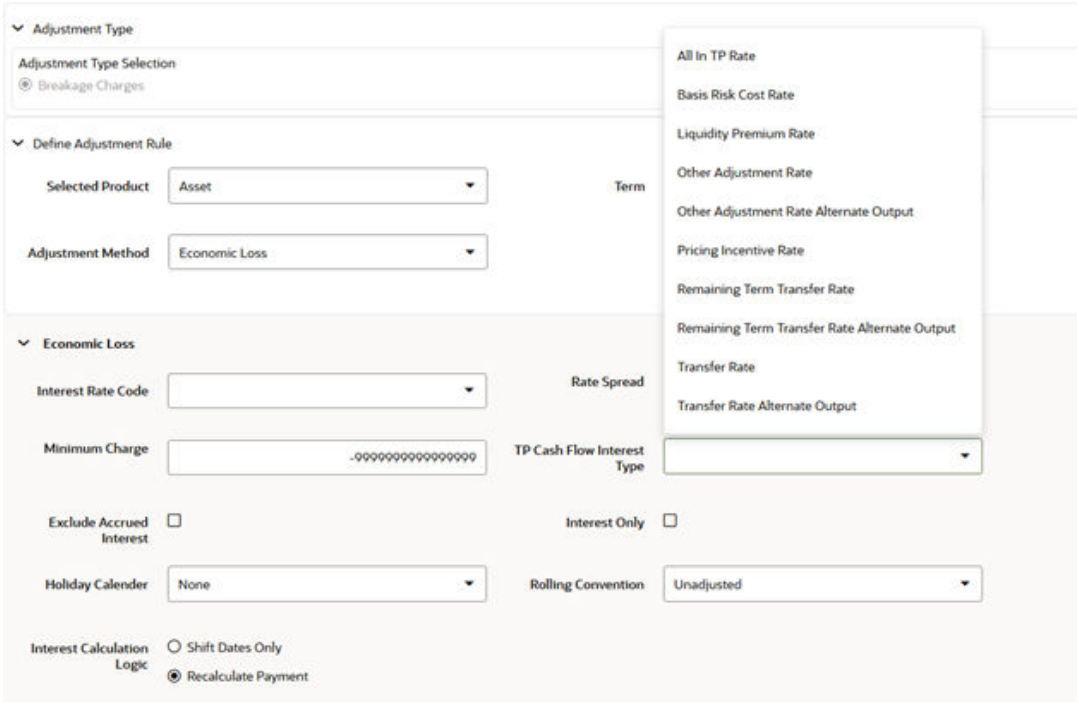
Figure 6-93 Add-on Rule Definition Mode – TP Cash Flow Interest Type



4. Select the option to **Exclude Accrued Interest** if applicable.
5. Select the **Interest Only** option to discount only the Interest Cash Flows.
6. Select a Holiday Calendar if you want to adjust Cash Flows for Holidays and Weekends. The default selection for Holiday Calendar is None. If this option is selected, then Holiday Calendar will not be applied to cash flow dates. If you wish to apply Holiday Calendar Add-on, then select the appropriate Calendar.
7. Select the appropriate Rolling Convention. When Holiday Calendar has been selected in the preceding field, this drop-down list becomes active and contains 4 values:
   - Following Business Day
   - Modified following Business Day
   - Previous Business Day
   - Modified previous Business Day
8. Select the appropriate Interest Calculation Logic from the following:
   - Shift Dates Only
   - Recalculate Payment
9. Select **Apply**.

6.3.5.4.1 Breakage Charges

A Breakage Charge represents the cost of breaking a contractual obligation. In Bank Finance this means the early prepayment of a loan by a customer or the early withdrawal of deposit funds by a customer. “Early” in this sense means before the contractual maturity date.

The gain or loss to the Bank from such early prepayments and withdrawals is the opportunity cost of not being able to replace the spread earned on the asset or deposit being lost. For example, the early withdrawal of funds from a 2-year Term Deposit exposes the bank to the

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risk of replacing that funding in a higher rate environment and thereby reducing the Net Interest Margin earned before the withdrawal. With Matched-Term Transfer Pricing, this risk is split between the Line Unit and Treasury. The Line Unit holds the risk of deteriorating credit spread, but Treasury holds the funding risk (the risk that the funding spread between the Bank's assets and liabilities will narrow).

The following Breakage Charge methods are available including:

- Economic Loss
- Fixed Amount
- Fixed Percentage

6.3.5.4.1.1 Prerequisites for calculating Breakage Charges

The following prerequisites to be met for calculating breakage charges:

1. Break Event Records should be populated in the FSI_D_BREAK_FUNDING_CHARGES table using an FTP Break Identification Process.
2. An Add-on rate Rule should be defined with Breakage Charge assumptions created for all the relevant Product / Currency combinations.
3. A Standard TP Process should be defined with the following: (see Standard Transfer Pricing Process Documentation).
    - The Break Funding Charges Table selected on the Product Selection Block.
    - Add-on rate calculations must be selected on the Calculation Elements Block.
    - An add-on rate Rule containing the required Breakage Charge Assumptions must be selected.

6.3.5.4.1.2 Breakage Charge – Economic Loss

The Economic Loss Breakage Charge Method sets out to compute the cost to the organization (economic loss) incurred for terminating the funding liability (also known as the shadow liability). The calculation assumes the funding liability has the exact attributes of the funded/ terminated instrument.

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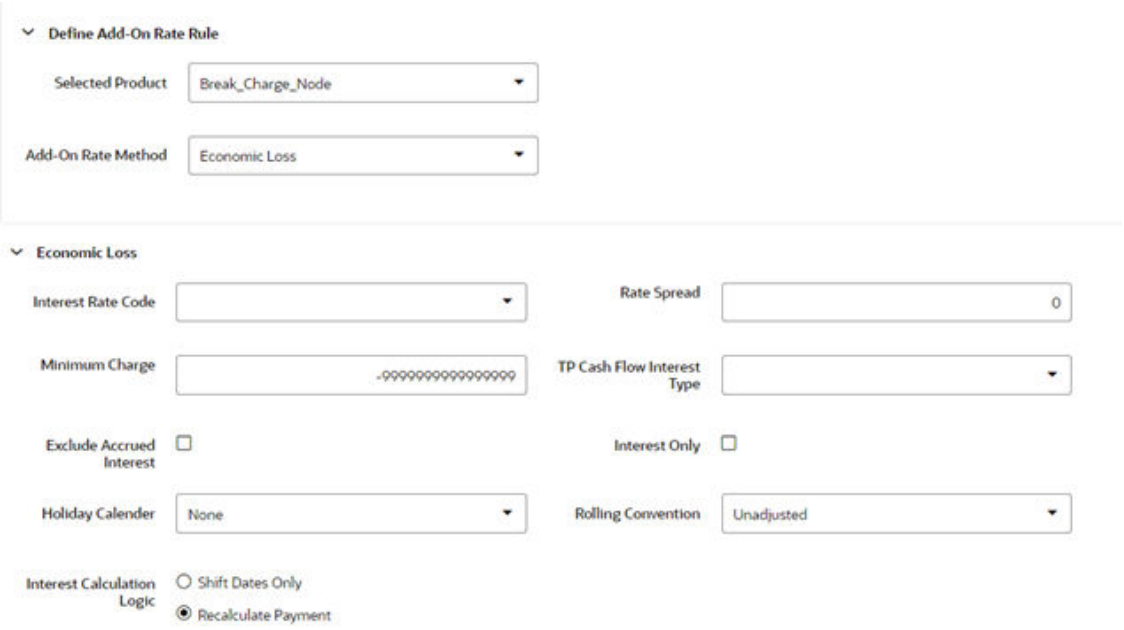
Figure 6-94 Breakage Charge - Economic Loss



The rate of the funding liability is equal to the Transfer Rate. Economic Loss is computed as follows:

For Assets:

Economic Loss =BV - MV

For Liabilities:

Economic Loss = MV– BV

Where:

MV: Market Value of the funding Liability

BV: Book Value of the broken instrument

The following is a simplified example of the Economic Loss calculation for a standard Term Deposit:

Book Value: $1,000.00

Original Term: 24 Months

Break after: 12 Months

Original TP Rate: 2.40% (based on straight term method)

Table 5: Reference Rates

Effective Date	1 M	12 M	24 M
At Origination	2.00	2.40	1.75
At Month 12	2.00	2.40	1.75

Table 6: Cash Flows of remaining Funding after Break Event

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Month	Principal	Original TP COF @ 2.40%	Total CF Orig TP
13		$ 2.00	$2.00
14		$2.00	$2.00
15		$2.00	$2.00
16		$2.00	$2.00
17		$2.00	$2.00
18		$2.00	$2.00
19		$2.00	$2.00
20		$2.00	$2.00
21		$2.00	$2.00
22		$2.00	$2.00
23		$2.00	$2.00
24	$1,000.00	$2.00	$1,002.00
Market Value at Month 12		1,003.957	
Book value		-1,000.00	
Breakage charge		3.957	

Note

If you are calculating Breakage Charges, using the Economic Loss method, you must select the "Remaining Term" option in your Transfer Pricing Process, to generate the correct Cash Flows for the funding liability.
Both Current and Prior Period Cash Flows will be logged which are used for Break Charge Calculations in FSI_O_CFE_OUTPUT_HIST table using the Record Sequence (n,n+1) for Prior/Current Period Record, respectively. Record sequence is concatenated with Account Number, so you can identify Cash Flows belonging to prior/current period record.

6.3.5.4.1.3 Breakage Charge – Fixed Amount

The Fixed Amount method allows users to directly input the amount of the Breakage Charge.

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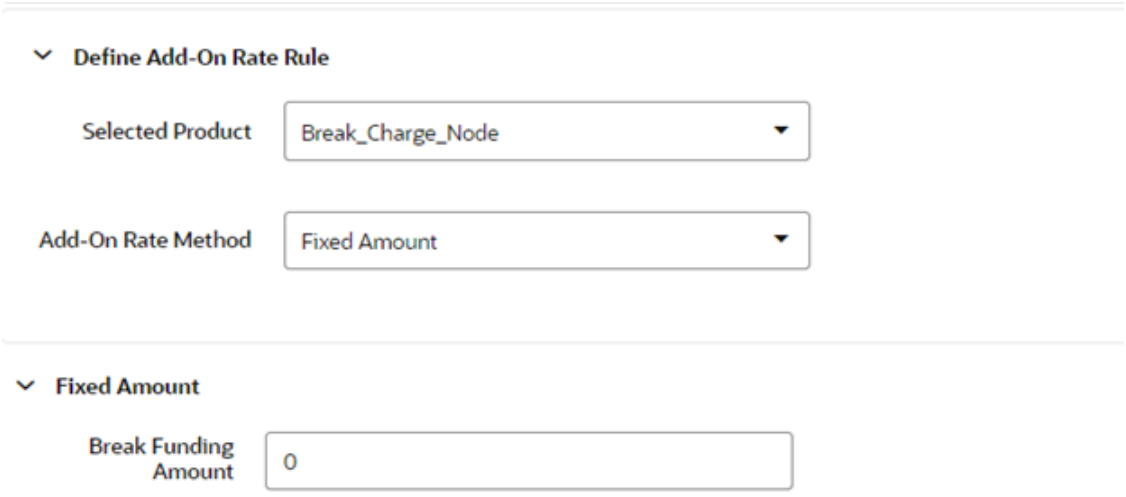
Figure 6-95 Add-On Rate Rule Details – Add-On Rate Method as Fixed Amount



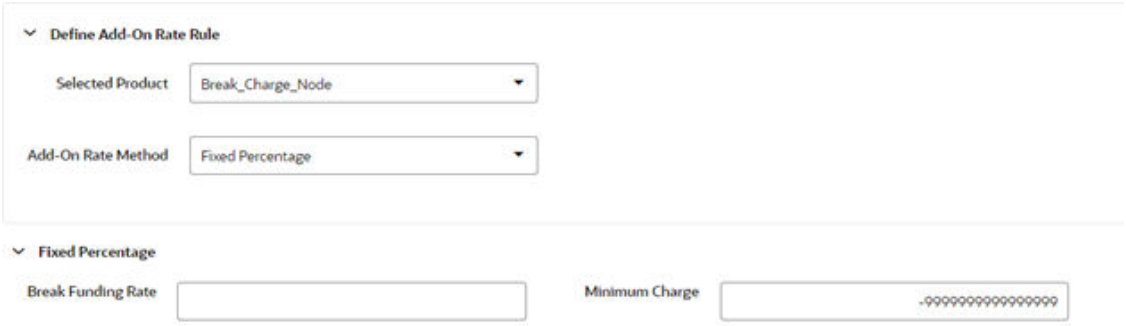
This method would be used in cases where the Cash Flows and the Economic Loss Method are not appropriate for determining the Breakage Cost.

The only input required for this method is the Breakage Charge Amount.

6.3.5.4.1.4 Breakage Charge - Fixed Percentage

An alternative to the Fixed Amount Method, the Fixed Percentage approach allows you to input a percentage that is multiplied by the breakage amount to determine the Breakage Charge.

Figure 6-96 Add-on rate Rule Details – Add-On Rate Method as Fixed Percentage



Calculation:

Breakage Charge = Break Amount x (Charge % / 100)

If the resulting amount is greater than the specified minimum charge, the calculated amount is output. Otherwise, the minimum charge will be output.

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6.3.5.5 Copying Assumptions across Currencies

This functionality provides you with the option to copy, in total or selectively, the product assumptions contained within the Transfer Pricing, Prepayment, and Add-On Rate Rules from one currency to another currency or a set of currencies.

Copy of assumptions across currencies enhances the usability of Oracle Funds Transfer Pricing Cloud Service in a multi-currency environment. For example, if you have 10 currencies enabled in the application, you need to input only one set of assumptions and then copy those assumptions across all enabled currencies, instead of having to input 10 full sets, thereby saving a significant amount of input time.

This functionality also reduces the risk associated with data input errors, as you need to audit inputs for a single set of assumptions before executing the copy procedure. The copy across the currencies process requires users to select a replacement Transfer Pricing Yield Curve for each target currency. These currency-specific IRC's replace the IRC selection made for each product in the Source Currency Selection Set.

You must define Transfer Pricing, Prepayment, and (or) Add-On Rate Rules related to product assumptions.

To copy the assumptions across currencies:

1. Navigate to the appropriate (Transfer Pricing, Prepayment, Prepayment, or Add-On Rate Rule) Assumption Browser.
2. Select **Source currency**.
3. Select defined product assumptions individually using the check-boxes corresponding to each product (or Node on the hierarchy).
4. Click the **Copy Across** icon.
5. On the Copy Across Currencies page, select the listed currencies either individually using the corresponding check boxes or in total using **Select All**.
6. Specify an Interest Rate Code for each selected currency. This is necessary because each Interest Rate Code is specific to a single currency. When copying product assumptions across currencies, you must define the interest rate code for each target currency to replace the interest rate code used for the source currency assumptions. For Transfer Pricing Rules that use the Redemption Curve Method, users should pay careful attention to the structure of the Interest Rate Codes selected for the Target Currencies to ensure they contain all of the Term Points used in the definition of the source assumptions. If the selected target Interest Rate Code structures are missing required Term Points, the UI displays a notification regarding the missing Term Points, and assumptions cannot be copied until the user takes corrective action.
7. Click **Apply** to initiate the copy process and to return to the Assumption Browser page.

> **Note**
>
> You can review the results of the copy process from the Assumption Browser by selecting a different currency and following the usual navigation to view or edit assumptions. The application displays new assumptions for each product that was included in the original source selection. The copy process replaces pre-existing assumptions for any product-currency combination that is included in the target selection.

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8. Click **Save** on the Assumption Browser page to store the assumptions in the database.

6.3.5.6 Copying Assumptions across Products

This functionality provides you with the option to copy a single product assumptions, the product assumptions contained within the Transfer Pricing and Add-On Rate Rules from one product node or leaf to the selected leaf.

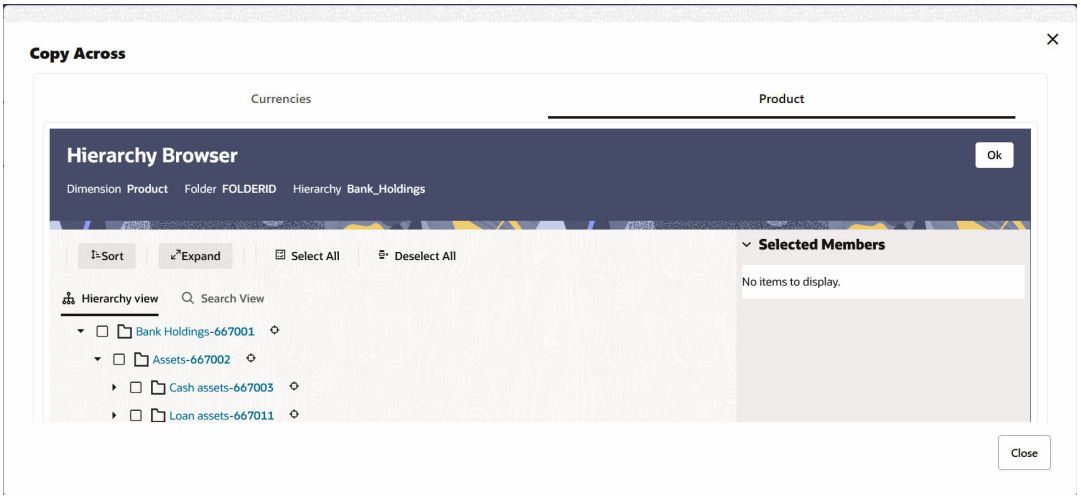
This functionality also reduces the risk associated with data input errors, as you need to audit inputs for a single set of assumptions before executing the copy procedure.

You must define Transfer Pricing and (or) Add-On Rate Rules related to product assumptions.

To copy the assumptions across product:

1. Navigate to the appropriate (Transfer Pricing or Add-On Rate Rule) Assumption Browser.
2. Select **Source Product** node.
3. Select defined product assumptions individually using the check-boxes corresponding to each product (or Node on the hierarchy).
4. Click the **Copy Across** icon.
5. On the Copy Across dialog, select the **Product** tab. Select the relevant leaf from the Hierarchy browser.

Figure 6-97 Product Hierarchy



6. Click **Ok** to initiate the copy process and to return to the Assumption Browser page.

> **Note**
>
> You can copy the product node or leaf to only the leaf.

7. Click **Save** on the Assumption Browser page to store the assumptions in the database.

6.3.6 Prepayment Rules

One of the major business risks faced by financial institutions engaged in the business of lending and borrowing is prepayment and early redemption risk. Prepayment risk is the

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possibility that borrowers might choose to repay part or all their loan obligations before the scheduled due dates. Prepayments can be made by either accelerating principal payments or refinancing. Prepayments cause the actual cash flows from a loan to a financial institution to be different from the cash flow schedule drawn at the time of loan origination. A prepayment rule contains methodologies to model the prepayment behavior of various amortizing instruments and quantifies the associated prepayment risk.

Search Prepayment Rule

Prerequisites: Predefined Prepayment Rule

To search for a Prepayment Rule:

On the Prepayment Summary, enter your search criteria in the search box and click **Search**. The Prepayment Rules meeting your search criteria are displayed. If you select **Dimension** filter and search for the rules, the search results will be displayed for the selected Dimension. When you try to create any rule, by default the selected Dimension will be displayed instead of the Dimension defined in the Preferences.

Or

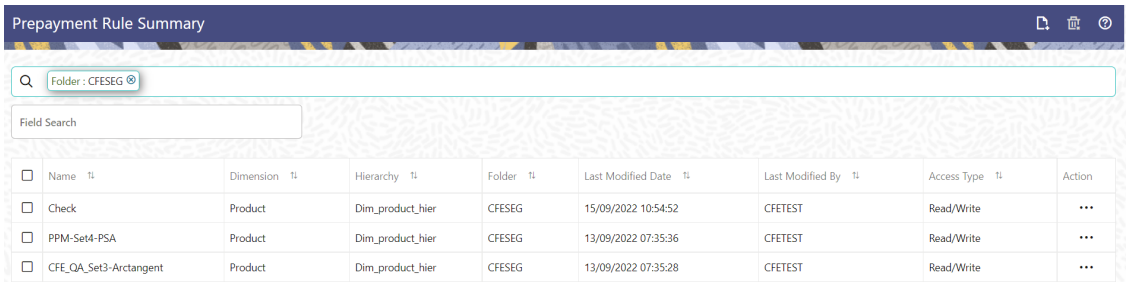
An alternative method to search a Prepayment Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Prepayment rule Summary. You can enter the **Code, Name, Description, Dimension, Hierarchy**, and **Folder** of the Prepayment Rule, partially or fully, and click **Search**.

Prepayment Rule Summary

Prepayment Rules allow you to specify methodologies to model the loan prepayment and deposit, early redemption behavior of products in your portfolio, and quantify the associated prepayment risk in monetary terms.

For more information, see Defining Prepayment Methodologies section.

Figure 6-98 Prepayment Rule Summary



The Prepayment Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new prepayment rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Name**: The Prepayment Rule's short name.
- **Dimension**: The Dimension to which the Prepayment Rule belongs.

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- **Hierarchy**: Name of the hierarchy that is used to define the prepayment rule.
- Folder: The folder where the prepayment rule is saved.
- **Last Modified By:** The user who last modified the prepayment rule.
- **Last Modified Date:** The Date and Time when the prepayment rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the prepayment rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing prepayment rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a prepayment rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete prepayment rules that you no longer require. Note that only prepayment rule owners and those with Read/Write privileges can delete prepayment rules. A Prepayment Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular prepayment rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting prepayment rules that have dependencies. A report of all rules that utilize the selected prepayment rule is generated.

You can totally or selectively copy product assumptions within a prepayment rule from one currency to another currency or a set of currencies, or from one product to another product or a set of products.

Also See:

- Create Prepayment Rules
- Defining Prepayment Methodologies
  - Defining the Constant Prepayment Method
  - Defining the Prepayment Model Method
  - Defining the PSA Prepayment Method
  - Defining the Arctangent Calculation Method

6.3.6.1 Create Prepayment Rules

You create a Prepayment Rule to define prepayment assumptions for new products.

To create a new Prepayment Rule, follow these steps:

- Click **Add** icon from the top of the **Prepayment Rule Summary** page.

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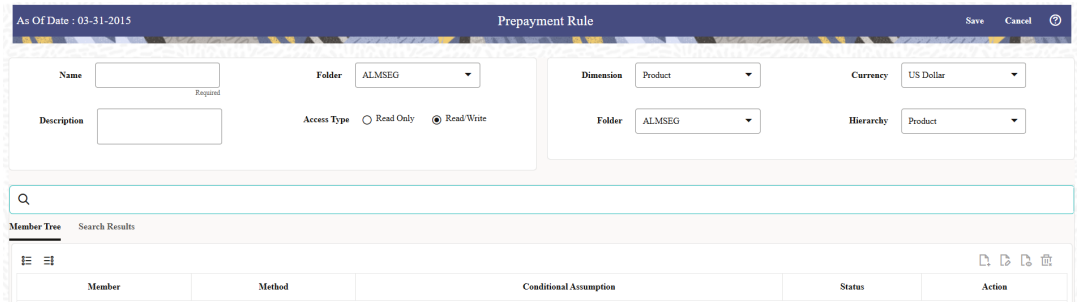
Figure 6-99 Prepayment Rule



- Enter the following Details.
  - **Name:** Enter the name of the Prepayment Rule.
  - **Description (optional):** Enter the description of the Prepayment Rule.
  - **Folder:** Select the Folder where the Prepayment Rule needs to be saved.
  - **Access Type:** Select the Access Type as Read-Only or Read/Write.
- Select the **Dimension** as Common Chart of Accounts, Product, General Ledger Account, or MDBSS.

> **Note**
>
> MDBSS is enabled only in ALM Cloud Service.
> If any member is a currency in the MDBSS hierarchy (for example, INR) and selected currency is different (for example USD), then the member and its children nodes cannot be defined.
>
> You can search the rule on any of the product dimension, searched dimension will be auto-populated while defining the rule; if you like, you can change the default product dimension.

- Select a **Currency**.
- Select **Folder** and **Hierarchy**.
- Select **Member Node(s**) from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results
  - **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.

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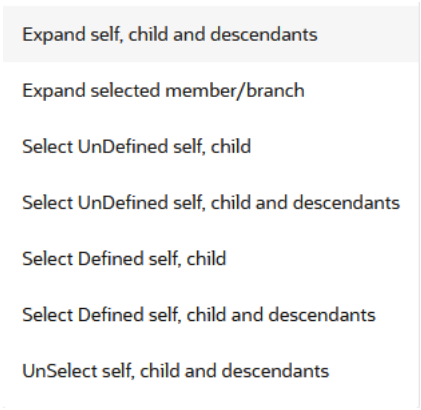
Figure 6-100 Member Tree



Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

* **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
* **Expand selected member/branch:** Allows to expand the selected node
* **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
* **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
* **Select Defined self, child:** Allows to select the selected node itself along with its child.
* **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
* **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

* Add
* Edit
* View
* Delete
* Copy

– **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

1. Navigate to **Assumption Browser** section of the Rule Definition page.

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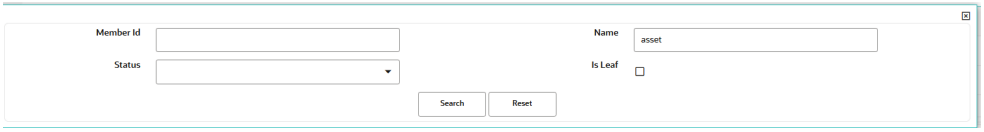
> **Note**
>
> Before using the Member Search in Assumption Browser, you must execute the batch **Member_Browser_Refresh**. For more information, see note in Create MDBSS section.

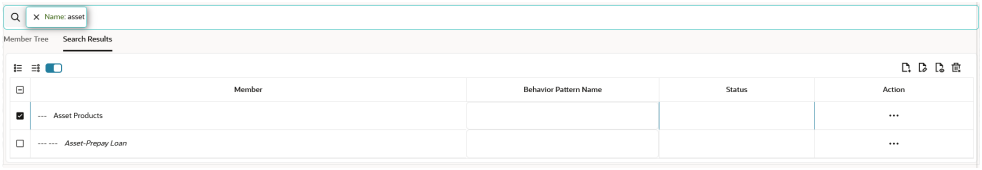
2. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

Figure 6-101 Search Criteria



3. Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser**

Figure 6-102 Searching Members



.
Here, you can perform the following tasks on the searched node(s):

* Add
* Edit
* View
* Delete
* Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

- Click **Add** from **Assumption Browser** Section. For more information, see the Defining Prepayment Methodologies.
- Click Save.

6.3.6.2 Defining Prepayment Methodologies

The assignment of prepayment assumptions is part of the Create or Edit Prepayment Rule Process where assumptions about loan prepayments or deposit early redemptions are made

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for product-currency combinations. When you click Save in the Create Prepayment Rules Process, the Rule is saved and the Prepayment Rule Summary Page is displayed. However, prepayment assumptions have not yet been defined for any of your products at this point. Typically, you would start defining your prepayment assumptions for product-currency combinations before clicking Save.

The Prepayment Rule supports the definition of prepayment assumptions for combinations of two dimensions: Product and Currency.

Once you have created a Prepayment Rule, you can assign prepayment methodologies to product-currency combinations using Node Level Assumption. For more information, see Defining Prepayments Using Node Level Assumptions section.

6.3.6.2.1 Defining Prepayments Using Node Level Assumptions

Node Level Assumptions allow you to define assumptions at any level of the Product Dimension Hierarchy. The Product Dimension supports a hierarchical representation of your chart of accounts, so you can take advantage of the parent-child relationships defined for the various nodes of your product hierarchies while defining Rules. Children of Parent nodes on a hierarchy automatically inherit the assumptions defined for the Parent nodes. However, assumptions directly defined for a Child take precedence over those at the Parent level.

Prerequisites

Performing basic steps for creating or editing a Prepayment Rule.

Procedure

This table describes key terms used for this procedure.

Table 6-32 Key Terms used for Prepayment Rules

Terms	Description
Calculation Method	The method used to model prepayment behavior of instruments. You can choose from four prepayment calculation methods: Constant, Prepayment Model, PSA, and Arctangent.
Cash Flow Treatment	Allows you to specify one of the following two ways in which prepayments are made. • **Refinance:** This is the most used option. Select refinance to keep payment amounts after prepayment consistent with a portfolio-based assumption. This reduces the scheduled payment amount on each loan and maintains the same maturity term. • **Curtailment:** Select curtailment to change the periodic payment amounts due. The prepayments are treated as accelerated payments, with a payoff earlier than the originally scheduled term.
Prepayment Date	You can select when to calculate prepayment, either on normal payment dates or user-defined tenor.
Payment Event Type	When prepayment is calculated on payment dates then this option allows you to specify type of event when prepayment occurs. By default, “Principal and Interest” is selected.

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Table 6-32 (Cont.) Key Terms used for Prepayment Rules

Terms	Description
Market Rate	The market rate is defined as the sum of the Index (the Yield Curve Rate as described by the Interest Rate Code) and the Spread (the difference between the customer rate and market rate).
Associated Term	Allows you to define the term for the point on the yield curve selected in the Market Rate Definition that will be used in obtaining the market rate. • **Remaining Term:** The number of months remaining until the instrument matures. • **Reprice Frequency:** The frequency with which the instrument reprices. This defaults to the original term for a fixed-rate instrument. • **Original Term:** The number of months that was the originally scheduled life of the instrument.
Prepayment Rate Definition	This table allows you to specify the constant annual prepayment rate, or the associated factors, that you want to apply to the instruments having origination dates in a particular date range.
Seasonality	This table allows you to specify seasonality adjustments. Seasonality refers to changes in prepayments that occur predictably at given times of the year. Seasonality adjustments are based on financial histories and experiences and should be modeled when you expect the amount of prepayments made for certain types of instruments to increase or decrease in certain months. The default value for seasonality factors is 1, which indicates that no seasonality adjustment is made for a month. Changing the seasonality factors is optional. You can change the seasonality factors for none, one, or multiple months. To make seasonality adjustments, you need to enter a value between 0.00 and 99.9999 for the seasonality factors associated with each month. Seasonality factors less than 1 mean that prepayments are decreased for a particular month. Seasonality factors greater than 1 indicate that prepayments are increased for a particular month.

1. Navigate to the Prepayment Assumption Details Page after selecting a Currency and one or more products from the hierarchy.
2. Select a **Cash Flow Treatment type**, **Refinance** or **Curtailment**.
3. Refinance is the most used method.
4. Select a **Calculation Method** as Constant, Prepayment Model, PSA, or Arctangent.

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> **Note**
>
> The default value for the Calculation Method drop-down list is Constant. If you select "Do not calculate" as the calculation method, no prepayment assumptions will be assigned to the particular product-currency combination. This is a particularly useful option when using node-level assumptions because it allows you to exclude a particular Child from inheriting a Parent assumption.

5. Define the parameters and annual prepayment rates for the selected Calculation Method as Constant, Prepayment Model, PSA or Arctangent.

> **Note**
>
> The parameters displayed on the Prepayment Methodology page vary depending on the Calculation Method (Constant, Prepayment Model, PSA, or Arctangent) that you have selected. For more information, see:
>
> - Defining the Constant Prepayment Method
> - Defining the Prepayment Model Method
> - Defining the PSA Prepayment Method
> - Defining the Arctangent Calculation Method

6. Click **Apply**.
   The **Assumption Browser Definition** Page is displayed.

   At this point you can:

   - Continue defining additional methodologies for other product-currency combinations by repeating the above procedure.
   - Complete the process by clicking **Save**.

   When you click Save, the prepayment assumptions are saved and the **Prepayment Rule Summary** Page is displayed.

6.3.6.2.1.1 Defining Assumptions with Default Currency

For cases where you have the same assumption (method and IRC) which is applicable to all currencies or multiple currencies, you can define rules for the combination of Product and Default Currency.

To define assumptions for the Default Currency, select a Product from the Hierarchy and Default Currency from the currency list and proceed with the assumption definition as described above. When processing data, the TP engine will first look for an assumption that exactly matches the product or currency of the instrument record. If not found, the engine will then look for the combination of the product and the Default Currency. This is a useful option to utilize during setup when the same product exists across multiple currencies and shares the same TP assumption and Interest Rate Code.

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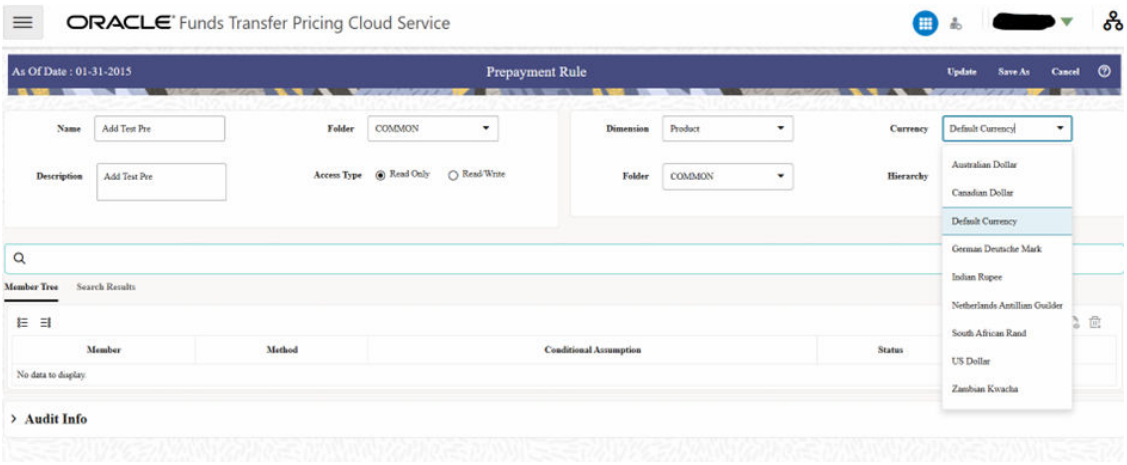
Figure 6-103 Prepayment Rule - Definition



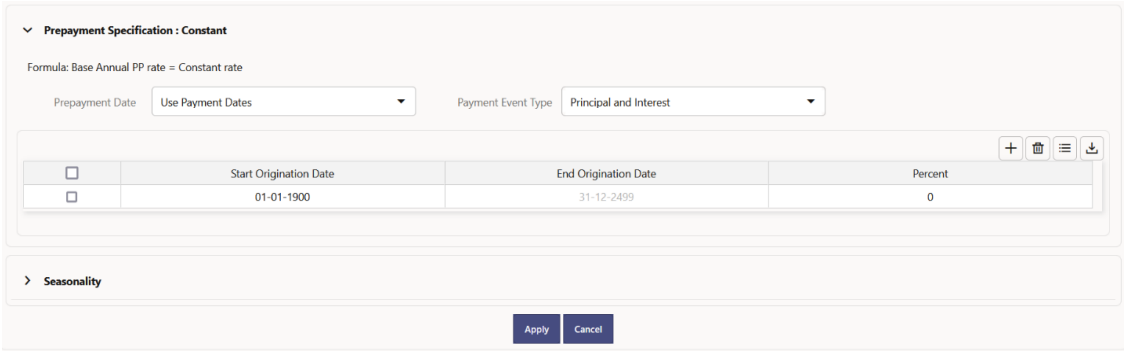
Default Currency setup example: If you have two Instrument Records of the same Product, each with a different currency, for example, 1 is 'USD' and the other is 'AUD', you have two configuration choices. You can either:

- Define the assumptions individually for each product-currency combination using direct input or copy across.
- You can create one assumption for the combination of Product and “Default Currency”. When you use “Default Currency”, the TP Engine will apply this assumption to ALL currencies (unless a direct assumption is available for the product + currency processed). In the case where users have many individual currencies that utilize the same TP Method and reference IRC rates, this is a useful option because you only have to define the assumption 1 time and it applies to many different Product + Currency combinations.

6.3.6.2.1.2 Defining Constant Prepayment Method

Use this procedure to define prepayment assumptions using the Constant Prepayment Method. The Constant Prepayment Method calculates the prepayment amount as a flat percentage of the current balance. You can create your own origination date ranges and assign a particular prepayment rate to all the instruments with origination dates within a particular Origination Date range.

Figure 6-104 Constant Prepayment Method



Prerequisites

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Performing basic steps for creating or updating a Prepayment Rule.

Procedure

Users also have two options for determining the timing of the Constant Prepayment assumption. The options include:

- **Use Payment Dates:** This is the default option. If this option is selected, then Constant Prepayment Runoff will occur on scheduled payment dates only.
- **User Defined Prepayment Tenors:** If this option is selected, users can specify any runoff timing. For example, users might choose to define the prepayment to the Runoff on the first day of the forecast.

The above options will be available only for Asset Instrument types.

To define constant prepayment within the Prepayment Rule, follow the steps given in below sections:

- Use Payment Dates
- User Defined Prepayment Tenors

Use Payment Dates

1. Select the **Use Payment Dates** Option.
2. Select the **Payment Event Type** Option.
3. Select the **Start Origination Date** using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
   The first cell in the Start Origination Date Column and all the cells in the End Origination Date Column are read-only. This ensures that all possible origination dates must support reference values when Prepayment assumption lookups occur.

   Each row in the End Origination Date Column is filled in by the system when you click **Add Row** or save the Rule.

   The first Start Origination Date (in row 1) has a default value of January 1, 1900. When you enter a Start Origination Date in the next row, the system inserts a date that is a day before the previous End Origination Date Field.
4. Enter the Annual Prepayment Rate Percent that you want to apply to the instruments having origination dates in a particular Start Origination-End Origination Date range.
5. The **Percent** column represents the actual annualized prepayment percentage that the system uses to generate the principal runoff during the Cash Flow calculations.
6. Click **Add Row** to add additional rows and click the corresponding **Delete** button to delete a row.
7. You can add as many rows as possible in this table using **Add Multiple Row** Option. However, you need to enter relevant parameters for each new row.
8. You can also use the **Download Excel** feature to export the Prepayment rate information that is displayed on screen, modify, and copy-paste it back in the grid.
9. Define Seasonality assumptions if required to model date-specific adjustments to the annual prepayment rate. Inputs act as a multiplier, For Example, an input of 2 will double the prepayment rate in the indicated month.

User Defined Prepayment Tenors

1. Select the **User Defined Prepayment Tenors** Option. This option allows you to specify the term and multiplier to the Prepayment Date for the row. The term is used to derive Prepayment Dates with reference to As of Date.

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2. You can calculate the prepayment rate based on Current/Reducing Balance and Annual/De-annual Prepayment Rate.
3. Select the **Balance Type** as **Current Balance** or **Reducing Balance**.
   - If the Balance Type is selected as Current Balance, then the prepayment amount will be calculated using Principal Balance on As of Date. That is, without reducing the balance by any payment/prepayment that may have occurred between as of the date and prepayment date.
   - If the Balance Type is selected as Reducing Balance, then the prepayment amount will be calculated using balance as on Prepayment Date. That is, after reducing the Principal Balance by any payment/prepayment that may have occurred between as of date and prepayment date.
4. Select the Prepayment Rate Type as Annual Prepayment Rate or De-annual Prepayment Rate.
   When the Annual Prepayment Rate is selected then the prepayment rate entered in the screen is directly used.

   In the other case, the rate entered in the screen is de-annualized before calculating the prepayment amount.
5. Enter the **Start Origination Date** and **End Origination Date** ranges, add additional ranges as required using the Add Row button.
6. Enter the term to Runoff Tenor and Multiplier for each of the date ranges.
7. Enter the **Annual Prepayment Rate Percent** for each of the date ranges.
8. Enter 'Repeat' if you want the same prepayment to occur multiple times. By default, it is set to 1.
9. Click **Add Row** to add additional runoff % rows and click the corresponding **Delete** button to delete a row.
   You can add as many rows as possible in this table using **Add Multiple Row** Option. However, you need to enter relevant parameters for each new row.
10. Define Seasonality assumptions as required to model date specific adjustments to the annual Prepayment Rate. Inputs act as a multiplier, for example, an input of 2 will double the Prepayment Rate in the indicated month.

6.3.6.2.1.3 Defining Prepayment Model Method

Use this procedure to define prepayment assumptions using the Prepayment Model Calculation method. The Prepayment Model Method allows you to define more complex prepayment assumptions compared to the other Prepayment Methods. Under this method, prepayment assumptions are assigned using a custom Prepayment Model. You can build a Prepayment model using a combination of up to three Prepayment Drivers and define Prepayment Rates for various values of these drivers. Each driver maps to an attribute of the underlying transaction (age/term or rate) so that the Cash Flow Engine can apply a different Prepayment Rate based on the specific characteristics of the record. Note: All Prepayment Rates should be input as annual rate.

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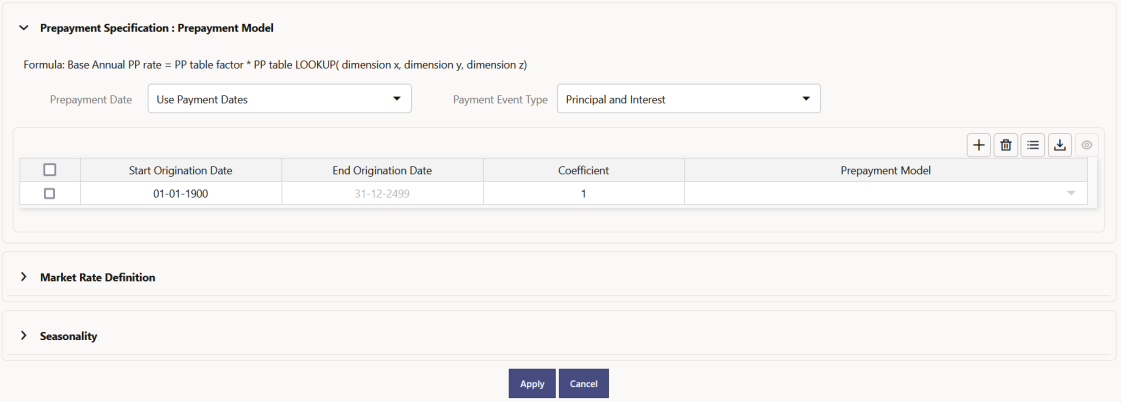
Figure 6-105 Prepayment Model Method



Prerequisites

- Prepayment Model must be created.
- Performing basic steps for creating or updating a Prepayment Rule.

Procedure

Users also have two options for determining the timing of the Prepayment Model assumption. The options include:

- **Use Payment Dates:** This is the default option. If this option is selected, then Prepayment Model Runoff will occur on scheduled payment dates only.
- **User Defined Prepayment Tenors:** If this option is selected, users can specify any runoff timing. For example, users might choose to define the Prepayment to the Runoff on the first day of the forecast.

The above options will be available only for Asset Instrument Types.

To define Prepayment Model within the Prepayment Rule, follow the steps given in below sections:

- Use Payment Dates
- User Defined Prepayment Tenors

Use Payment Dates

1. Select the **Use Payment Dates** Option.
2. Select the **Payment Event Type** Option.
3. Select the **Start Origination Date** using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
   The first cell in the Start Origination Date Column and all the cells in the End Origination Date Column are read-only. This ensures that all possible origination dates must support reference values when Prepayment assumption lookups occur.

   Each row in the End Origination Date Column is filled in by the system when you click Add Row or save the Rule.

   The first Start Origination Date (in row 1) has a default value of January 1, 1900. When you enter a Start Origination Date in the next row, the system inserts a date that is a day before the previous End Origination Date field.

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4. Enter the Coefficient (if needed) by which the Prepayment Rate should be multiplied and select a predefined prepayment model that you want to apply to the instruments having origination dates in a particular Start Origination-End Origination Date range
5. Click **Add Row** to add additional rows and click the corresponding **Delete** Button to delete a row.
6. You can add as many rows as possible in this table using **Add Multiple Row** Option. However, you need to enter relevant parameters for each new row.
7. You can also use the **Download Excel** feature to export the Prepayment rate information that is displayed on screen, modify, and copy-paste it back in the grid.
8. Define Market Rate Definition.
9. Define the source for the Market Rate by Selecting an Index (Interest Rate Code) from the list of values.
10. Enter the Spread. The spread is added to the rate from the underlying interest rate curve to determine the market rate.
11. Select an **Associated Term** as Remaining Term, Reprice Frequency, or Original Term.
12. Define Seasonality assumptions if required to model date-specific adjustments to the annual prepayment rate. Inputs act as a multiplier, For Example, an input of 2 will double the prepayment rate in the indicated month.

User Defined Prepayment Tenors

1. Select the **User Defined Prepayment Tenors** Option. This option allows you to specify the term and multiplier to the prepayment date for the row.
2. You can calculate the Prepayment Rate based on Current/Reducing Balance and Annual/De-annual Prepayment Rate.
3. Select the **Balance Type** as **Current Balance** or **Reducing Balance**.
   - If the Balance Type is selected as Current Balance, then the Prepayment Amount will be calculated using CUR_PAR_BAL on As of Date. That is, without reducing the balance by any payment/prepayment that may have occurred between as of the date and prepayment date.
   - If the Balance Type is selected as Reducing Balance, then the prepayment amount will be calculated using balance as on Prepayment Date. That is, after reducing the CUR_PAR_BAL by any payment/prepayment that may have occurred between As of Date and Prepayment Date.
4. Select the **Prepayment Rate Type** as **Annual Prepayment Rate** or **De-annual Prepayment Rate**.
   When the Annual Prepayment Rate is selected then the prepayment rate entered in the screen is directly used.

   In the other case, the rate entered in the screen is de-annualized before calculating the Prepayment Amount.
5. Specify the Prepayment Model Parameters.
6. Select the Start Origination Date using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
7. Enter the Coefficient (if needed) by which the Prepayment Rate should be multiplied. This multiple is applied to the instruments for which the Origination Date lies in the range defined in the Start Origination Date-End Origination Date fields.
8. Select a predefined prepayment model from the Prepayment model Rule list of values. Click the V**iew Prepayment Model** icon to preview the selected Prepayment Model.

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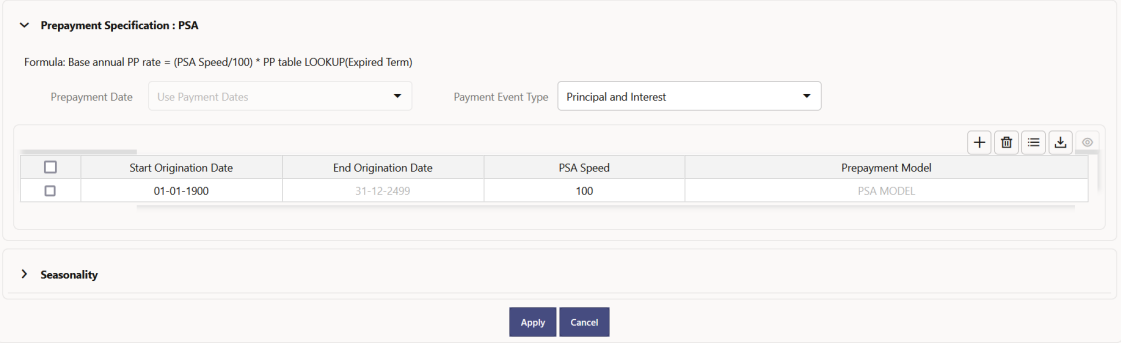
The system uses the Prepayment Model assumptions to calculate the Prepayment Amounts for each period. You need to associate a prepayment model for every Start Origination-End Origination Date range.

9. Click **Add Another Row** to add additional rows and click the corresponding **Delete** button to delete a row.
10. You can add as many rows in this table using **Add Multiple Row** Option. However, you need to enter relevant parameters for each new row.
11. You can also use the **Download Excel** feature to export the Prepayment Rate Information that is displayed on screen, modify, and copy-paste it back in the grid.
12. Enter the term to runoff tenor and multiplier for each of the date ranges.
13. Enter 'Repeat' if you want the same prepayment to occurs multiple times. By default, it is set to 1.
14. Define the source for the Market Rate by Selecting an Index (Interest Rate Code) from the list of values.
15. Enter the Spread. The spread is added to the rate from the underlying Interest Rate Curve to determine the Market Rate.
16. Select an **Associated Term** as Remaining Term, Reprice Frequency, or Original Term.
17. Define Seasonality assumptions as required to model date specific adjustments to the annual Prepayment Rate. Inputs act as a multiplier, for example, an input of 2 will double the Prepayment Rate in the indicated month.

6.3.6.2.1.4 Defining PSA Prepayment Method

Use this procedure to define Prepayment Assumptions using the PSA Prepayment Method. The PSA Prepayment method (Public Securities Association Standard Prepayment Model) is a Standardized Prepayment Model that is built on a single dimension, expired term. The PSA Curve is a schedule of prepayments which assumes that prepayments will occur at a rate of 0.2 percent CPR in the first month and will increase an additional 0.2 percent CPR each month until the 30th month and will prepay at a rate of 6 percent CPR thereafter ("100 percent PSA"). PSA Prepayment Speeds are expressed as a multiple of this base scenario. For example, 200 percent PSA assumes Annual Prepayment Rates will be twice as fast in each of these periods - 0.4 percent in the first month, 0.8 percent in the second month, reaching 12 percent in month 30 and remaining at 12 percent after that. A zero percent PSA assumes no prepayments. You can create your own Origination Date ranges and assign a particular PSA Speed to all the instruments with origination dates within a particular Origination Date range. PSA Speed inputs can be between 0 and 1667.

Figure 6-106 PSA Prepayment Method



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Prerequisites

Performing basic steps for creating or updating a Prepayment Rule.

Procedure

Prepayment under this method occurs on Payment Dates only.

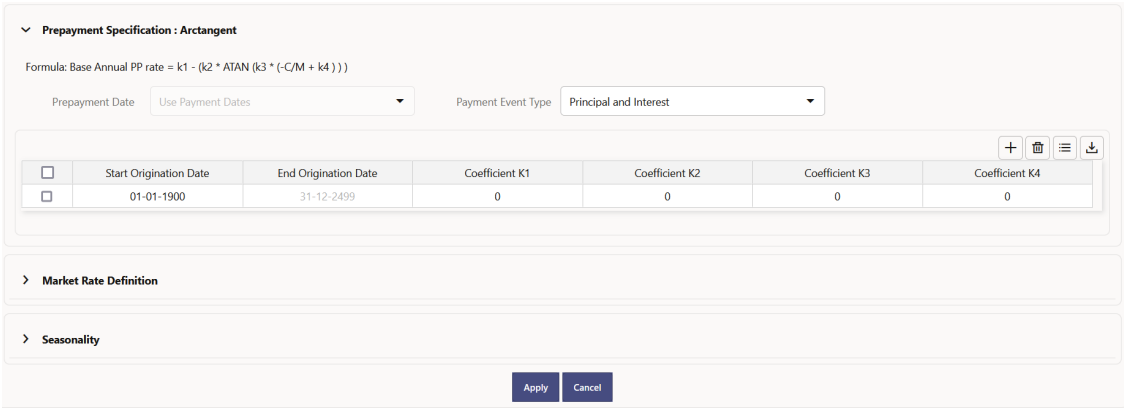
1. Select the **Payment Event Type** option.
2. Select the **Start Origination Date** using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
   The first cell in the **Start Origination Date** Column and all the cells in the **End Origination Date** Column are Read-Only. This ensures that all possible Origination Dates have supporting reference values when Prepayment Assumption Lookups occur. Each row in the End Origination Date Column is filled in by the system when you click Add Row or save the Rule.

   The first Start Origination Date (in row 1) has a default value of January 1, 1900. When you enter a Start Origination Date in the next row, the system inserts a date that is a day before the previous End Origination Date Field.
3. Enter the PSA Speed that you want to apply to the instruments having Origination Dates in a particular Start Origination-End Origination Date range. The PSA Method is based on a standard PSA curve. You can view the seeded model by selecting the View Prepayment Model icon.
   The default value is 100 PSA and inputs can range from 0 to 1667.
4. Click **Add Row** to add additional rows and click the corresponding **Delete** Option to delete a row.
   You can add as many rows as possible in this table using Add Multiple Row Option. However, you need to enter relevant parameters for each new row.
5. You can also use the **Download Excel** Feature to export the Prepayment Rate Information that is displayed on screen, modify, and copy-paste it back in the grid.
6. Define Seasonality Assumptions as required to Model Date specific adjustments to the Annual Prepayment Rate. Inputs act as a multiplier, For example, an input of 2 will double the Prepayment Rate in the indicated month.

6.3.6.2.1.5 Defining the Arctangent Calculation Method

The Arctangent Calculation Method uses the Arctangent Mathematical Function to describe the relationship between Prepayment Rates and spreads (coupon rate less Market Rate). Use this procedure to define Prepayment Assumptions using the Arctangent Calculation Method.

Figure 6-107 Arctangent Calculation Method



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Prerequisites

Performing basic steps for creating or updating a Prepayment Rule.

Procedure

Prepayment under this method occurs on Payment Dates only.

1. Select the **Payment Event Type** Option.
2. Select the Start Origination Date using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
3. Enter the values for the Arctangent Parameters (columns K1 through K4) for each Start Origination Date in the table. The valid range for each parameter is -99.9999 to 99.9999.
4. Click **Add Another Row**.
   You can add as many rows as possible in this table using **Add Multiple Row** Option. However, you need to enter relevant parameters for each new row.
5. You can also use the **Download Excel** Feature to export the Prepayment Rate Information that is displayed on screen, modify, and copy-paste it back in the grid.
6. Define the source for the Market Rate by Selecting an Index (Interest Rate Code) from the list of values.
7. Enter the Spread.
   The spread is added to the rate from the underlying Interest Rate Curve to determine the Market Rate.
8. Select an **Associated Term** as Original Term, Reprice Frequency, or Remaining Term.
9. Define the Seasonality Assumptions as required to model date specific adjustments to the Annual Prepayment Rate. Inputs act as a multiplier, For example, an input of 2 will double the prepayment rate in the indicated month.

6.3.6.3 Associating Conditional Assumptions with Prepayment Rules

The Prepayment Rule UI provides the setup and maintenance of assumptions by integrating the conditional logic (optional) into the setup of prepayment methods. You can define prepayment methodologies using IF-THEN-ELSE logic based on the underlying characteristics of your financial instruments, such as dates, rates, balances, and code values.

The conditional logic is defined through use of Data Filters. These existing objects provide the building blocks for defining Conditional logic. For example, each Data Filter can provide the logic for a specific condition. In the example below, the where clause is "Adjustable Type Code = 'Adjustable Rate'". This type of Data Filter can be selected within the Conditional Assumption section.

The logic included in a Conditional Assumption determines the specific Prepayment assumption or Adjustment Rule that the system will assign to each individual instrument record at run time.

The Conditional Assumption section allows users to select explicit conditions (from Data Filters) and apply methods and rule selections to each condition directly. The Filter Conditions are processed by the engine in the order that they appear on the section. As soon as a condition is satisfied, the related assumption is applied.

If an instrument record does not meet any of the conditions, then the rule logic reverts to the standard assumption that is directly assigned to the Product/Currency combination.

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> **Note**
>
> For Cash Flow Engine Cloud Service, this is applicable only for Product/Currency combination.

Conditional Assumptions can be applied only to detailed account records (data stored in the Instrument Tables).

To define conditional assumption, follow these steps:

1. Navigate to Conditional Assumptions section.

Figure 6-108 Conditional Assumption

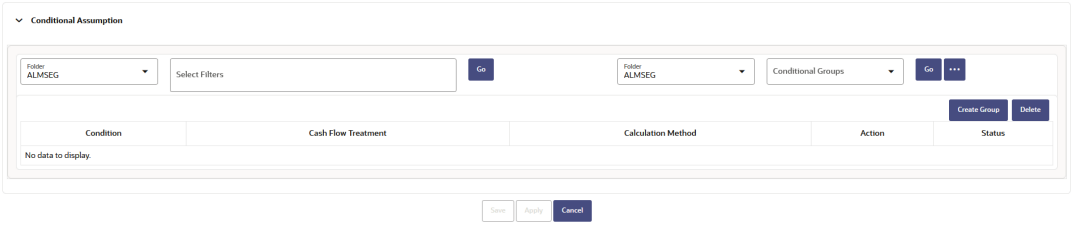
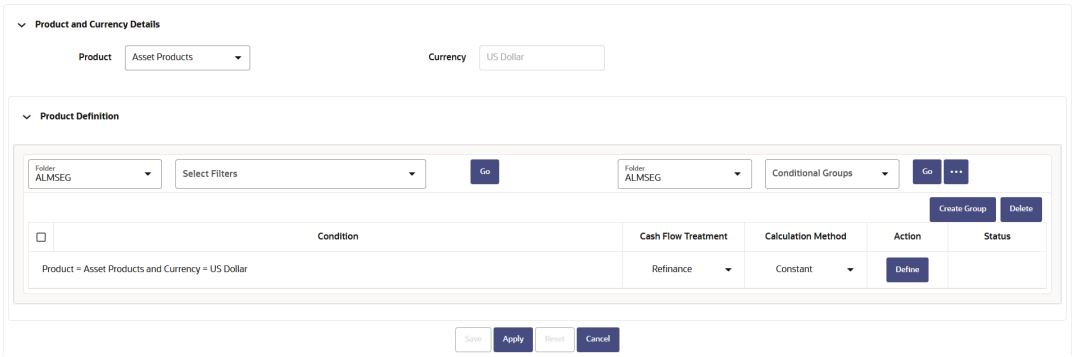


Figure 6-109 Conditional Assumption



2. Select the Filter Folder and Filter, then click **Go**. The condition is displayed based on selected filter.
3. Here, you can select either group of conditions using **Conditional Group** or Individual condition using the filter section.
   - You can select the conditional groups from the **Conditional Group** drop-down. You can create a new condition group using the **Create Group** button. To create a new condition group, follow these steps:
     a. Select filters using the **Filter** drop-down list.

     > **Note**
     >
     > You must select more than 2 filters to define a condition group.

     b. Select the conditions (filters) using the corresponding check-boxes.

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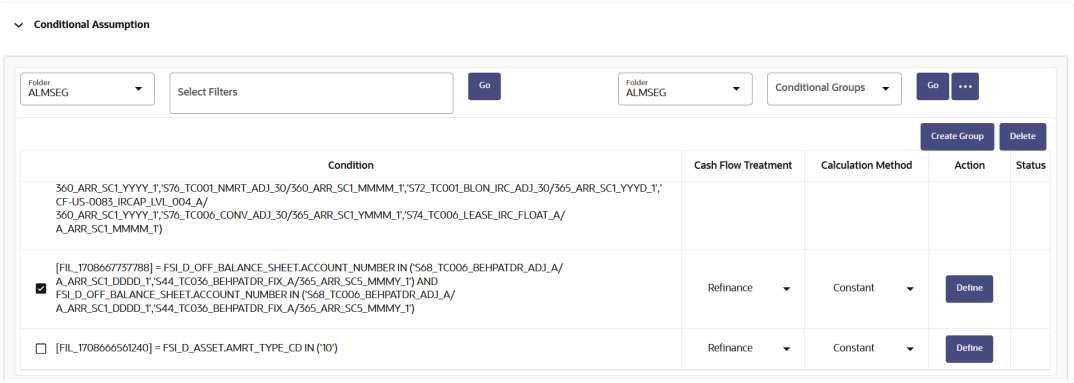
c. Click **Create Group** .

d. The **Save Condition Group** window is displayed. Provide the **Group Name** and select the **Folder** where you want to save the condition group. Click **Save** in **Save Condition Group** window. You can use this saved group from **Condition Group** down-down.

- Else, select Individual condition using the corresponding check-box.

4. Select **Cash Flow Treatment** as Curtailment or Refinance.
5. Select **Calculation Method** as Constant, Prepayment Model, PSA, or Arctangent..
6. Click **Define**.

Figure 6-110 Conditional Assumption



Use **Delete** button to delete the defined condition(s)

7. Define Prepayment rule and Seasonality, and then click **Apply**. The status of condition assumption is updated as **Defined**.

> **Note**
>
> You can edit the condition using **Edit**.

8. Click **Save**. The status of conditional assumption is also updated in Assumption Browser.

Figure 6-111 Status of Conditional Assumption

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6.3.7 Prepayment Models

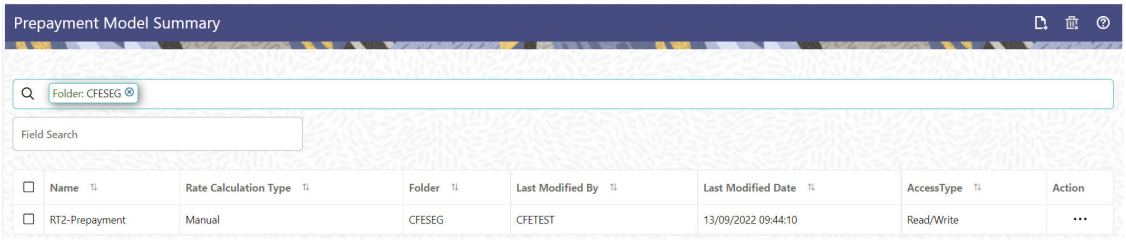
This module describes the procedure to build Prepayment Models. These Prepayment Models can be referenced by a Prepayment Model rule to Model Prepayment Behavior of instruments based on a range of instrument level attributes.

The Prepayment Model consists of the Prepayment Dimensions and the Bucket Values for these Dimensions. To define the Prepayment Model Structure, you can select a maximum of three prepayment dimensions. After the dimensions and the number of buckets (tiers) are defined, you need to assign values to the buckets.

Prepayment Model Rule Summary

This page is the gateway to all Prepayment Model Rules and related functionality. You can navigate to other pages relating to Prepayment Model Rules from this point.

Figure 6-112 Prepayment Model Summary



Search Prepayment Model Rule

Prerequisites: Predefined Prepayment Model Rule

To search for a Prepayment Model Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Prepayment Model Rules that meet the search criteria.

Or

An alternative method to search a Prepayment Model Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Prepayment Model rule Summary. Enter the **Code, Name, Description,** , and **currency** of the Prepayment Model Rule and click **Search**.

The Prepayment Model rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Prepayment Model rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Name:** The Prepayment Model Rule's short name.
- **Rate Calculation Type:** The Prepayment Model type, such as Manual .
- **Folder:** The Folder where the Prepayment Model Rule is saved.
- **Last Modified By:** The user who last modified the Prepayment Model rule.

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- **Last Modified Date:** The Date and Time when the Prepayment Model rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Prepayment Model rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Prepayment Model rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Prepayment Model rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Prepayment Model rules that you no longer require. Note that only Prepayment Model rule owners and those with Read/Write privileges can delete Prepayment Model rules. A Prepayment Model rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular Prepayment Model rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Prepayment Model rules that have dependencies. A report of all rules that utilize the selected Prepayment Model rule is generated.

Also See:

- Create Prepayment Models

6.3.7.1 Create Prepayment Models

Creating a Prepayment Model comprises the following sub procedures:

1. Creating Prepayment Models
2. Defining the structure of the Prepayment Model.
3. Assigning Node Values

You can create Prepayment Models with following Rate Calculation options:

- Creating Prepayment Model with Rate Calculation as Manual
- Creating Prepayment Model with Rate Calculation as External Model
- Creating Prepayment Model with Rate Calculation as Integrated Model

6.3.7.1.1 Creating Prepayment Model with Rate Calculation as Manual

To create a Prepayment Model Rule, follow these steps:

1. Navigate to the **Prepayment Model Summary** Page.
2. Click **Add**. The **Prepayment Model Details** Page is displayed.

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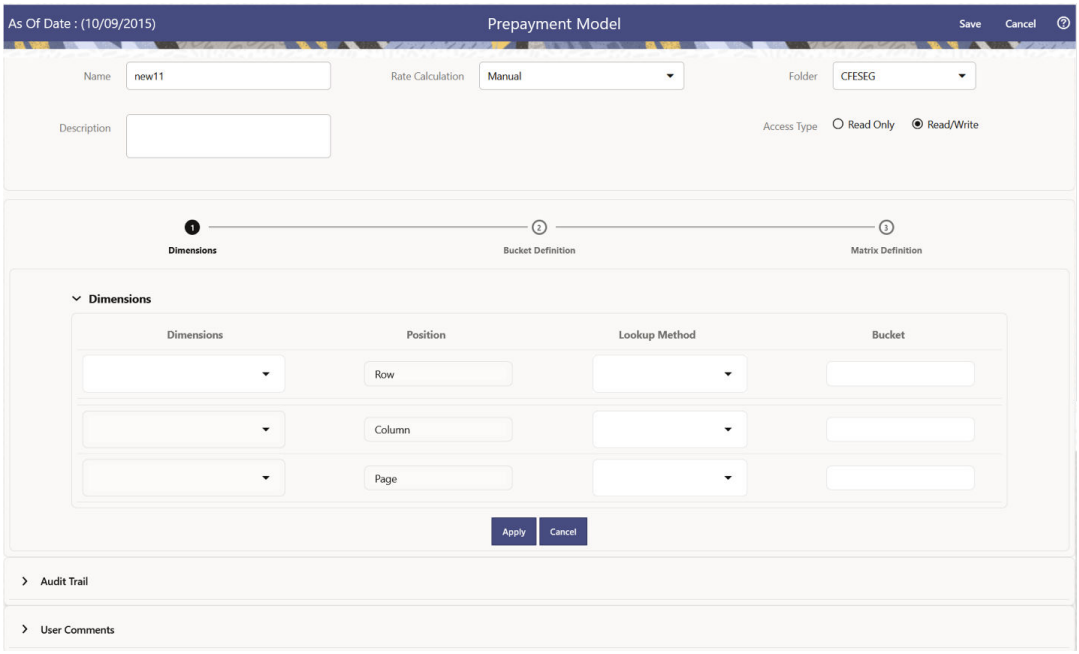
Figure 6-113 Prepayment Model



3. Enter the following details:
   - **Name:** Enter the name and a brief description for the Prepayment Model. The name you assign to the Prepayment Model must be unique. The name can hold a maximum of 30 characters.
   - **Rate Calculation:** Select the Prepayment Model Rate Calculation Method as Manual. Using Manual Method, you can select maximum of three Prepayment Dimension and assign prepayment rates manually to selected dimension.
   - **Folder:** Select the Folder
   - **Description:** Enter the description of Prepayment Model Rule.
   - Select **Access Type**.
4. Follow below steps:
   Defining the Structure of the Prepayment Model Using Dimensions section

   Modifying the Table Structure Using Bucket Definition section

   Prepayment Rates Using Matrix Definition

6.3.7.1.1.1 Defining the Structure of the Prepayment Model Using Dimensions section

This page consists of the Prepayment Dimensions and the Bucket Values for these Dimensions which you select on this page. To define the Prepayment Model Structure, you can select a maximum of three Prepayment Dimensions. After the dimensions and the number of buckets (tiers) are defined, you need to assign values to the buckets.

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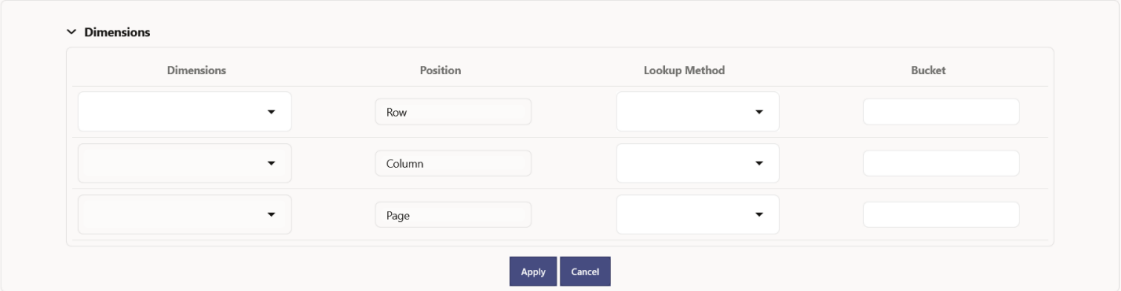
> **Note**
>
> You can use the analogy of a three-dimensional table to understand how to deal with the Prepayment Dimensions. The first dimension you select would resemble the row (X-axis).
>
> The second dimension would act as the column (Y-axis). The final third dimension will be the page (Z-axis).

Figure 6-114 Dimensions section



1. Enter the following details in Dimension section:
   - Dimensions: Select the Dimension, such as Repricing Term, Rate Ratio, and others. The Dimension Section Influences the Prepayment Behavior of an instrument. You can build a Prepayment Model using up to three Prepayment Dimensions. Each dimension maps to an attribute of the underlying transaction (For example, age/term or rate and so on) so the Cash Flow Engine can apply a different Prepayment Rate based on the specific characteristics of the instrument.
   - Position: Shows the position of dimension as Row, Column or Page.
   - Lookup Method: Select the Lookup Method for selected Dimension. It is used to calculate Prepayment Rates for the Prepayment Dimension Values that do not fall exactly on the defined Prepayment Dimension Nodes. Oracle Asset Liability Management offers the following Lookup Methods:
   - Interpolation: Under this method, the Prepayment Rates are determined by calculating an exact value on an axis. This method assumes that Prepayment Speeds change on a straight-line basis between the two nodes and calculates accordingly.
   - Range: Under this method, the prepayment rates are determined by calculating a range of values on an axis. This method assumes that the Prepayment Speed will remain the same for the entire range.
     The following example explains the differences between these two Lookup Methods. The following lists show the age and corresponding Prepayment Rates of instruments.

     Age

     12

     24

     36

     60

     Prepayment Rates

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5

10

15

20

Under the Interpolation method, the Prepayment Speeds increase gradually. In this example, the Interpolated Prepayment Rate of an instrument aged 30 months is 12.5%.

This is exactly halfway between the 10% and 15% rate. However, the Range Method, the Prepayment Speeds increase in steps. Using the Range method, the Prepayment Rate is 10%, as this rate percentage would apply to the range from 24 months to 35.9999 months.

- Bucket: Enter the number of Buckets for the Dimension. This number may vary from dimension to dimension. Exact points for each dimension where attribute information has been defined.

2. If required, repeat the previous three steps for up to two additional Dimensions.

> **Note**
>
> There are certain restrictions while defining Dimensions:
>
> - You must select the Dimension type for a row and define the values for that dimension.
> - You cannot define the second (row) dimension until you have defined the first (row) dimension. Similarly, the third dimension cannot be defined until you have defined the first two dimensions.
>
> The Define Dimensions Page is refreshed. You can now assign the Bucket Values for each dimension. At this point, you can also modify the structure of the table, if required.

6.3.7.1.1.2 Modifying the Table Structure Using Bucket Definition section

The Bucket Definition section is used to perform following tasks:

- To add more buckets to a particular Dimension, update the number of buckets for the Dimension and click **Apply**.
- To delete buckets from a particular Dimension, reduce the number of buckets to the desired value and click **Apply**.

To change the Lookup Method of a particular Dimension, select the required method from the corresponding list of methods from the Dimensions Tab.

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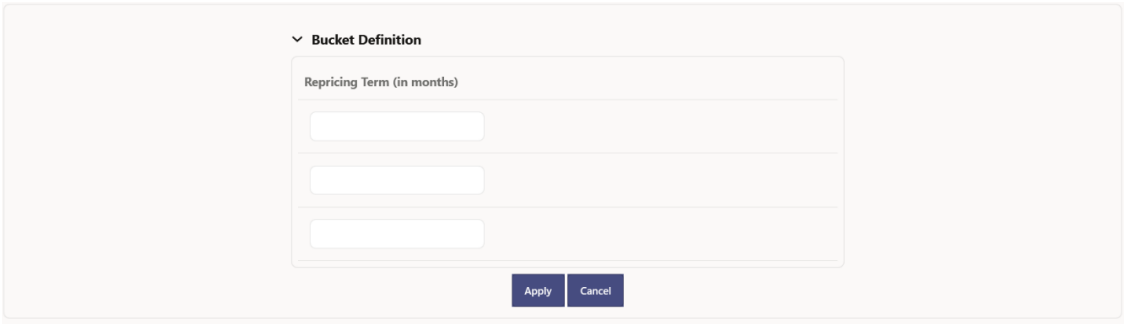
Figure 6-115 Bucket Definition Section



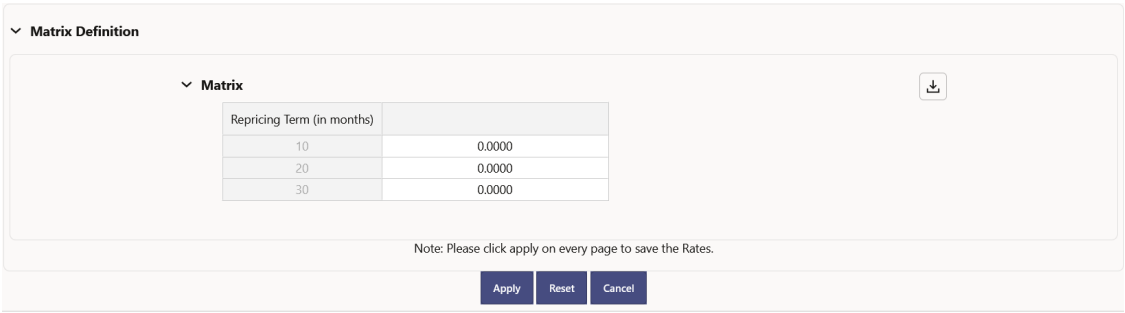
1. Assign values for each of the buckets.
2. Click **Apply**. The Prepayment Model, Prepayment Dimensions, and Buckets are saved.

6.3.7.1.1.3 Prepayment Rates Using Matrix Definition

1. Enter the Prepayment Rates in the Prepayment Model.

Bucket Values for the row and column dimensions are displayed as a table, while the bucket values for the page dimensions (if selected) are shown in the drop down list.

Figure 6-116 Matrix Definition Section



6.3.7.1.2 Creating Prepayment Model with Rate Calculation as External Model

To create a Prepayment Model Rule, follow these steps:

1. Navigate to the **Prepayment Model Summary** Page.
2. Click **Add**. The **Prepayment Model Details** Page is displayed.

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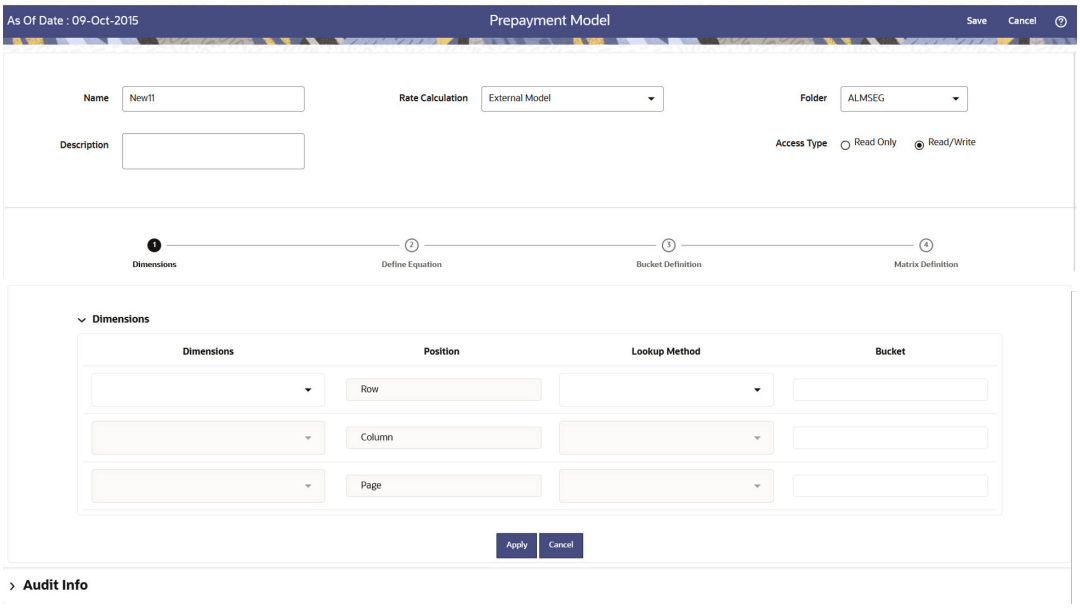
Figure 6-117 Prepayment Model



3. Enter the following details:
   - **Name:** Enter the name and a brief description for the Prepayment Model. The name you assign to the Prepayment Model must be unique. The name can hold a maximum of 30 characters.
   - **Rate Calculation:** Select the Prepayment Model Rate Calculation Method as External Model. When you select External Model, Define Equation button will get activated to use External Prepayment Model. This is useful, when you want to do Prepayment Modeling outside PBSM and use the model equation to calculate Prepayment Rates.
   - **Folder:** Select the Folder
   - **Description:** Enter the description of Prepayment Model Rule.
   - Select **Access Type**.
4. Follow below steps:
   Defining the Structure of the Prepayment Model Using Dimensions section

   Defining Equation using Define Equation section

   Modifying the Table Structure Using Bucket Definition section

   Prepayment Rates Using Matrix Definition

6.3.7.1.2.1 Defining the Structure of the Prepayment Model Using Dimensions section

This page consists of the Prepayment Dimensions and the Bucket Values for these Dimensions which you select on this page. To define the Prepayment Model Structure, you can select a maximum of three Prepayment Dimensions. After the dimensions and the number of buckets (tiers) are defined, you need to assign values to the buckets.

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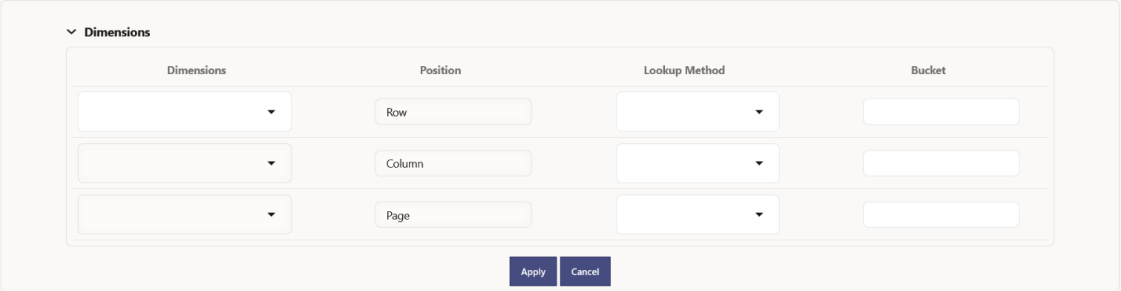
> **Note**
>
> You can use the analogy of a three-dimensional table to understand how to deal with the Prepayment Dimensions. The first dimension you select would resemble the row (X-axis).
>
> The second dimension would act as the column (Y-axis). The final third dimension will be the page (Z-axis).

Figure 6-118 Dimensions section



1. Enter the following details in Dimension section:
   - Dimensions: Select the Dimension, such as Repricing Term, Rate Ratio, and others. The Dimension Section Influences the Prepayment Behavior of an instrument. You can build a Prepayment Model using up to three Prepayment Dimensions. Each dimension maps to an attribute of the underlying transaction (For example, age/term or rate and so on) so the Cash Flow Engine can apply a different Prepayment Rate based on the specific characteristics of the instrument.
   - Position: Shows the position of dimension as Row, Column or Page.
   - Lookup Method: Select the Lookup Method for selected Dimension. It is used to calculate Prepayment Rates for the Prepayment Dimension Values that do not fall exactly on the defined Prepayment Dimension Nodes. Oracle Asset Liability Management offers the following Lookup Methods:
   - Interpolation: Under this method, the Prepayment Rates are determined by calculating an exact value on an axis. This method assumes that Prepayment Speeds change on a straight-line basis between the two nodes and calculates accordingly.
   - Range: Under this method, the prepayment rates are determined by calculating a range of values on an axis. This method assumes that the Prepayment Speed will remain the same for the entire range.
     The following example explains the differences between these two Lookup Methods. The following lists show the age and corresponding Prepayment Rates of instruments.

     Age

     12

     24

     36

     60

     Prepayment Rates

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5

10

15

20

Under the Interpolation method, the Prepayment Speeds increase gradually. In this example, the Interpolated Prepayment Rate of an instrument aged 30 months is 12.5%.

This is exactly halfway between the 10% and 15% rate. However, the Range Method, the Prepayment Speeds increase in steps. Using the Range method, the Prepayment Rate is 10%, as this rate percentage would apply to the range from 24 months to 35.9999 months.

- Bucket: Enter the number of Buckets for the Dimension. This number may vary from dimension to dimension. Exact points for each dimension where attribute information has been defined.

2. If required, repeat the previous three steps for up to two additional Dimensions.

> **Note**
>
> There are certain restrictions while defining Dimensions:
>
> - You must select the Dimension type for a row and define the values for that dimension.
> - You cannot define the second (row) dimension until you have defined the first (row) dimension. Similarly, the third dimension cannot be defined until you have defined the first two dimensions.
>
> The Define Dimensions Page is refreshed. You can now assign the Bucket Values for each dimension. At this point, you can also modify the structure of the table, if required.

6.3.7.1.2.2 Defining Equation using Define Equation section

> **Note**
>
> This section is not applicable to Manual Models. This section appears when you select External Model from Rate Calculation drop-down list.

Figure 6-119 Define Equation Section

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To define Equation, perform the following steps:

1. Click **Define Equation**. Enter following details:
   - **Operator:** Select operator as +, -, *, or /
   - **Coefficient:** Enter the value of Coefficient
   - **Dimension:** Select the Dimension
   - **Power:** Enter the power for selected Dimension.
     For Example:

     Equation becomes:

     2 + 1.5 * original Term ^ 2 + 3 * Rate Diff ^ 2

     > **Note**
     >
     > Before defining equation, you must select dimensions and accordingly dimensions drop-down will display values along with Intercept. For example, if you have already chosen Original term and Rate Difference as dimensions, then Dimension drop-down list would displays the following three values:
     >
     > – Intercept
     > – Original Term
     > – Rate Difference

     After defining all coefficients, Power, operators, click Equation to get the model equation.

     A confirmation message is displayed.
2. Click **Ok** to use the same for Prepayment Rate Calculations.
3. You can add new row for each term using **Add Row**. Multiple rows can be added using **Add Multiple Rows**.
4. Click **Apply**.

6.3.7.1.2.3 Modifying the Table Structure Using Bucket Definition section

The Bucket Definition section is used to perform following tasks:

- To add more buckets to a particular Dimension, update the number of buckets for the Dimension and click **Apply**.
- To delete buckets from a particular Dimension, reduce the number of buckets to the desired value and click **Apply**.

To change the Lookup Method of a particular Dimension, select the required method from the corresponding list of methods from the Dimensions Tab.

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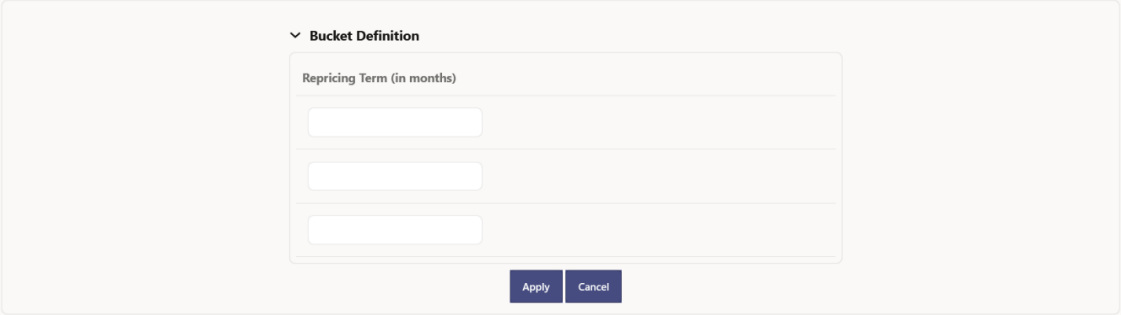
Figure 6-120 Bucket Definition Section



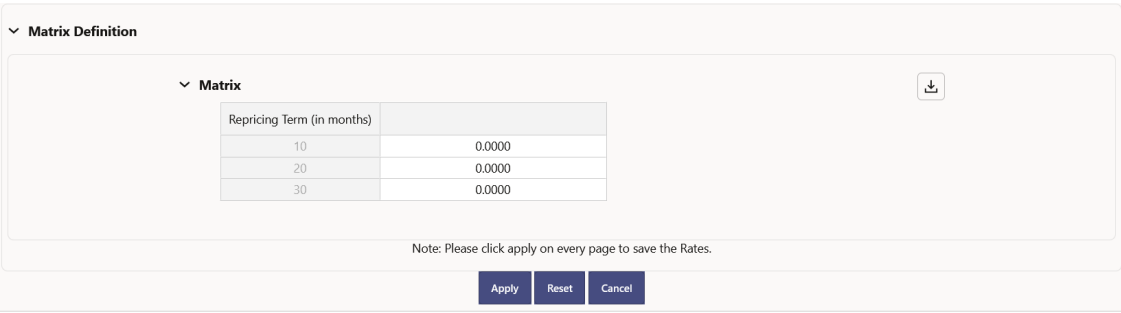
1. Assign values for each of the buckets.
2. Click **Apply**. The Prepayment Model, Prepayment Dimensions, and Buckets are saved.

6.3.7.1.2.4 Prepayment Rates Using Matrix Definition

1. Enter the Prepayment Rates in the Prepayment Model.

Bucket Values for the row and column dimensions are displayed as a table, while the bucket values for the page dimensions (if selected) are shown in the drop down list.

Figure 6-121 Matrix Definition Section



6.3.8 Alternate Rate Output Mapping Rules

In Oracle Funds Transfer Pricing, you either can output Transfer Pricing Results to the default columns of the application, or to the seeded alternate columns or placeholder alternate columns selected using the Alternate Rate Output Mapping Rule. The Standard Transfer Pricing Process references the Alternate Rate Output Mapping Rule to Output Transfer Rate and Add-On Rate Calculation Results for each Instrument Record.

The procedure for working with and managing the Alternate Rate Output Mapping Rule is similar to that of other Oracle Funds Transfer Pricing Business Rules. It includes the following steps:

- Searching for Alternate Rate Output Mapping Rules
- Creating Alternate Rate Output Mapping Rules
- Viewing and Editing Alternate Rate Output Mapping Rules

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- Copying Alternate Rate Output Mapping Rules
- Deleting Alternate Rate Output Mapping Rules
- Pinning and Unpinning Alternate Rate Output Mapping Rules

Before creating Alternate Rate Output Mapping rules, you will need to register any placeholder columns that you have added as Alternate Output columns for instrument tables. Note that a full set of alternate target columns is seeded with each instrument table, so it is not a requirement to create and register Placeholder Columns. You can either utilize the seeded alternate columns or create your own placeholder alternate columns.

This chapter describes the procedure to output Transfer Pricing results to the seeded or placeholder alternate columns instead of default columns of the application.

Alternate Rate Output Mapping rules allow you to map Transfer Pricing results to alternate or placeholder columns rather than to the standard output columns. Alternate Rate Output Mapping rules are optional components of a Transfer Pricing process. If these rules are excluded from a process, then results are written to the standard default columns on the instrument tables. If an Alternate Rate Mapping table is included then outputs will be written based on target columns specified by the user. This functionality allows users to calculate and output more than one Transfer Rate or TP Add-on Rate for each instrument record.

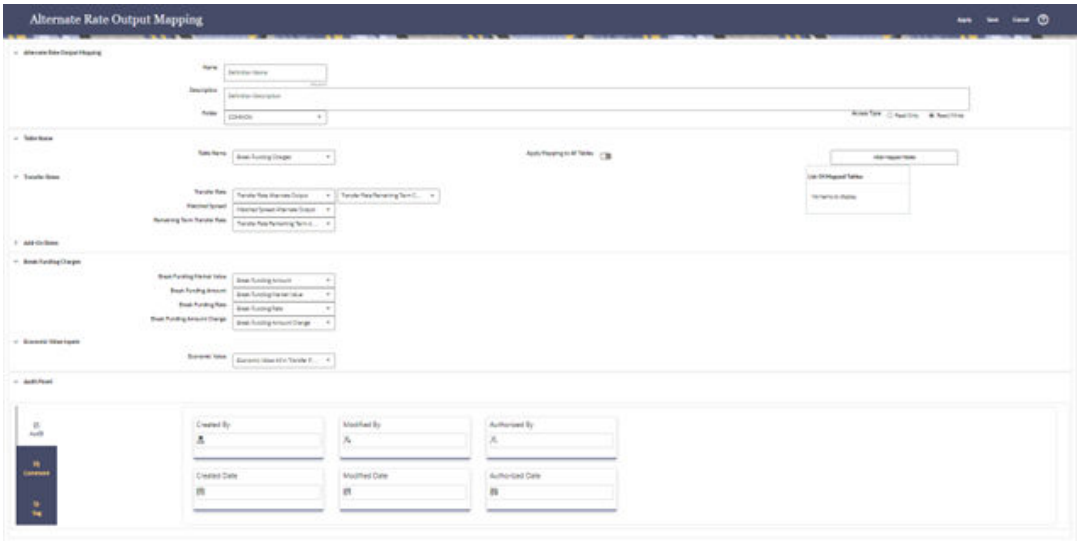
6.3.8.1 Create Alternate Rate Output Mapping Rules

In order to create the Alternate Rate Output Mapping Rules, the Output Columns for Account Tables must be registered.

You can create an Alternate Rate Output Mapping Rule to select the alternate columns to Output Transfer Rate and Add-On rate Calculation Results for each instrument record in an account table for a Transfer Pricing Process Run.

1. From the LHS menu, click **Assumption Specification**, and then select **Alternate Rate Output Mapping** to open the Alternate Rate Output Mapping summary page.

Figure 6-122 Alternate Rate Output Mapping Definition



2. Click the **Add** icon to open the Alternate Rate Output Mapping definition page.
3. Complete the standard steps for this procedure.

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6.3.8.1.1 Additional Steps to Create Alternate Rate Output Mapping Rule

In addition to the Standard Steps for creating rules, the procedure for creating Alternate Rate Output Mapping Rules involves the following extra steps:

1. Select the instrument table for which you want to output Transfer Pricing results into Alternate Columns.
2. (Optional) Select an Alternate Column Mapping for the following result types:\
   - **Transfer Rates**: Transfer Rate, Transfer Rate Charge Credit, Matched Spread, and Remaining Term Transfer Rate.
     When selecting an alternate Transfer Rate Column, you should also select an alternate Matched Spread Column.
   - **Add-On Rates**: Liquidity Premium Rate, Liquidity Premium Rate Charge Credit, Liquidity Premium Amount, Basis Risk Cost Rate, Basis Risk Cost Rate Charge Credit, Basis Risk Cost Amount, Pricing Incentive Rate, Pricing Incentive Rate Charge Credit, Pricing Incentive Amount, Other Add-On Rate, Other Add-On Rate Charge Credit, Other Add-On Amount. If you are using Alternate Rate Output, you should define Alternate Columns for all Transfer Rate and Add-On Rate Columns.
   - **Break Funding Charges**: If the source table is Break Funding Charges, then the following Alternate Output Columns can additionally be defined. Break Funding Market Value, Break Funding Amount, Break Funding Rate, and Break Funding Amount Change.
   - **Economic Value Outputs**: The Economic Value drop-down contains the following list of values with the corresponding linked columns: Economic Value All in Transfer Price Rate, Economic Value Basis Risk Cost Rate, Economic Value Liquidity Premium Rate, Economic Value Other Add-On Alternate Rate, Economic Value Other Add-On Rate, Economic Value Pricing Incentive Rate, and Economic Value Transfer Rate.
   - **(Optional) Deselect the Apply Mappings to All Tables option**: The default setting of the Apply Mappings to All Tables option is selected. This functionality lets you apply Alternate Column Mappings from the current page to all other Instrument Tables in which the selected Result Columns are available and replace any previous selections in the other instrument tables. If you deselect the Apply Mappings to All Tables option, the rule saves mappings to the Default Columns on any table for which you have not explicitly selected Alternate Output Columns.

6.3.8.2 Registering Alternate Output Columns for Account Tables

It is possible to add placeholder columns to your instrument tables and to designate certain columns as target columns for Alternate Rate Output. The following steps will allow you to register these columns for use within the application and will allow you to select the columns from within the Alternate Rate Output Mapping rule screen.

1. Using the available placeholder columns, enable the User – Defined Properties (UDPs) in the Data Model extension. For more information, see the Data Model Extension documentation.
2. For Alternate Rate Output Mapping, the following are the applicable UDP's:
   - Transfer Pricing Output (80)
   - Liquidity_rate_column (95)
   - Liquidity_amount_column (96)
   - Basis_rate_column (97)

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- Basis_amount_column (98)
- Pricing_rate_column (99)
- Pricing_amount_column (100)
- Other Adjustment Spread Output (82)
- Other Adjustment Amount Output (83)
- Economic Value Output (86)
- Break Funding Market Value (91)
- Break Funding Amount (90)
- Break Funding Rate (92)
- Break Funding Amount Charge (93)
- Transfer Pricing Charge Credit (101)
- Liquidity Premium Charge Credit (102)
- Basis Risk Charge Credit (103)
- Pricing Incentive Charge Credit (104)
- Other Adjustment Charge Credit (105)

> **Note**
>
> The above UDP's will correspond to the Alternate Rate Output column types noted above. You need to specify the value of the relevant property as YES (in CAPS) to enable display in the appropriate section of the Alternate Rate Output Mapping screen.

3. After the placeholder column is approved and UDP is assigned, the **Alternate Rate Output Mapping** screen displays the new columns.
4. Depending on the selected UDP's, the new column(s) appear in the appropriate drop list within the **Alternate Rate Output Mapping** Definition screen.
   Selecting Alternate Output Columns for each Transfer Pricing Column is a one-time setup process. However, the application lets you modify the Alternate Output Columns setup, if necessary.

6.3.9 Transfer Pricing Standard Processes

This chapter discusses the procedure for working with and managing Standard Transfer Pricing Processes. The Standard Process allows you to calculate Transfer Rates and Add-On Rates.

The Transfer Pricing Process allows you to perform the following tasks:

- Determine the data that you want to process in a particular run. (Product Selection).
- Submit to the Transfer Pricing Engine the Transfer Pricing, Prepayment and Add-On Rates Assumptions you want to process (Rule Selection).
- Specify to the Transfer Pricing Engine whether you want to generate Transfer Rates, Add-On Rates, Economic Value, or Rate Lock Option Costs (Calculation Selection).
- Specify to the Transfer Pricing Engine whether you want to calculate or propagate Transfer Pricing Results (Calculation Selection).

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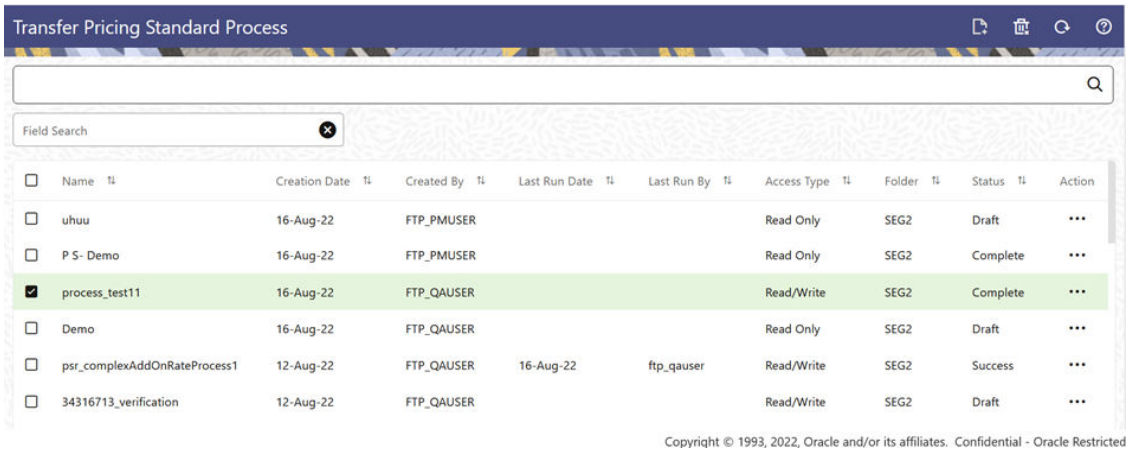
- Specify to the Transfer Pricing Engine the Alternate columns in which to output Transfer Rate, Rate Lock Option Cost, Economic Value, and Add-On Rate Calculation Results for each Instrument Record in an Account Table for a Transfer Pricing Process Run (Alternate Rate Output Selection).
- Calculate and migrate Charges and Credits for funds provided or used as well as Rate Lock Option Costs or Breakage Charges for a combination of Dimensions to the Management Ledger Table (Migration).
- Enable the output of detailed Cash Flows for Audit purposes (Audit Options).
- Formulate and execute the Transfer Pricing Request and generate Results (Transfer Pricing Process Summary Page).

The procedure for working with and managing the Transfer Pricing Process is similar to that of other Oracle Funds Transfer Pricing Business Rules. It includes the following steps:

- Searching for Transfer Pricing Processes.
- Creating Transfer Pricing Process Rules.

Transfer Pricing Standard Processes are executed from the Transfer Pricing Standard Process Summary Screen. To open the Transfer Pricing Standard Process summary screen, from the LHS Menu, select **Operations And Processes**, and then select **Standard Process**.

Figure 6-123 Transfer Pricing Standard Process Summary Page



6.3.9.1 Navigating in the Summary Screen

When you first navigate to the Transfer Pricing Standard Process summary screen, the screen presents Transfer Pricing Standard Process requests that are already created and stored in a summary table. The Transfer Pricing Standard Process summary screen displays a Search pane and a Transfer Pricing Standard Process summary pane.

The title bar of the summary page provides several actions for the user. They are:

- **Add**: Click Add to create a new Standard Process.
- **Multiple Delete**: Select one or more Standard Processes in the table and then click Delete at the top right of the summary page to delete one or more Standard Processes at the same time.

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- **Download PDF**: Select one or more Standard Processes definitions in the table and click Download PDF to download the standard process definitions in a single PDF file or zip file format if multiple process definitions are selected.
- **Refresh**: Click Refresh to refresh the summary page.
- **Help**: Click Help to view the Standard Process help page.

Search Transfer Pricing Rules

On the Transfer Pricing Rules summary, enter your search criteria in the search box and click **Search**. You can also narrow down your search criteria by selecting **Yes** or **No** for **Processes Posting to Ledger** option; this option will help user to find processes where 'Undo' operation can be performed. The Transfer Pricing Rules meeting your search criteria are displayed. Also, If you select **Product Dimension** filter and search for the rules, the search results will be displayed for the selected Product Dimension. When you try to create any rule, by default the selected Dimension will be displayed instead of the Dimension defined in the Preferences.

or

An alternative method to search a Transfer Pricing Rule is using **Field Search** option. This is an inline wild card UI search that allows you to enter a search value (such as name, creation date, etc.) partially or fully. Rows that match the entered string in any of its column is fetched in the summary table.

Transfer Pricing Standard Process Summary Page

The Standard Process summary page displays the following columns:

- **Name**: Displays name of the Standard Process.
- **Creation Date**: Displays the Date when user created the Standard Process.
- **Created By**: Displays the Name of the user who created the Standard Process.
- **Last Run Date**: Displays the Date at which a Standard Process was last run.
- **Last Run By**: Displays the Name of the user who last ran a Standard Process.
- **Access Type**: The type of access on the Standard Process.
- **Folder**: The folder in which the Standard Process is saved.
- **Status**: The status of the Standard Process as of now. The different status types are:
  - Draft
  - In Progress
  - Complete
  - Success
  - Failed
- **Action**: Displays the list of actions that can be performed on the Standard Process.
  - **View**: Click **View** in the Action column to view the content of a Standard Process.
  - **Edit**: Click **Edit** in the Action column to edit the content of a Standard Process.
  - **Run**: Click **Run** in the Action column to run the selected Standard Process for chosen As of Date and Legal Entity. Default execution parameters can be set using Application Preferences.
  - **Ledger Undo**: Select this option if you want to undo/Delete entries posted to management Ledger.

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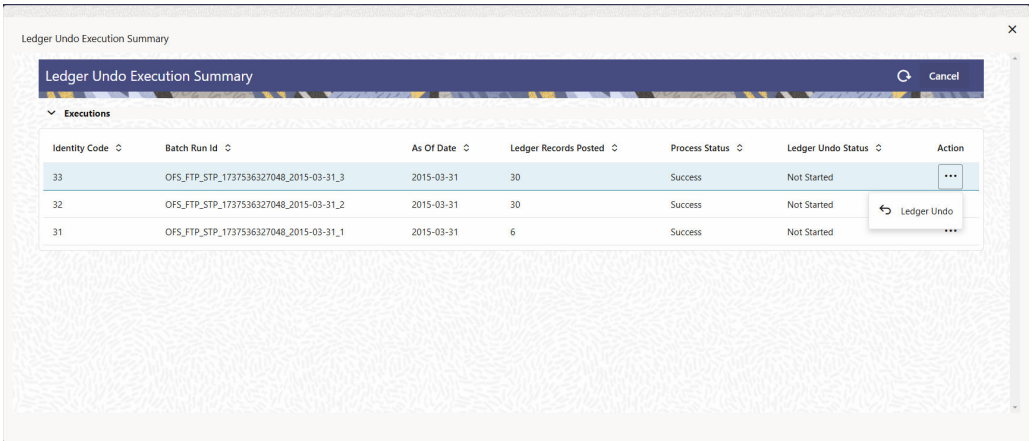
The Ledger Undo Execution Summary screen displays the Batch execution details, and number of Ledger Records posted. You can select **Ledger Undo** from **Action** icon against an execution record. Once done, it will remove all ledger entries corresponding to the selected run.

Figure 6-124 Ledger Undo Execution Summary



- **Delete**: Click **Delete** in the Action column to delete the selected Standard Process.
- **Save As**: Click **Save As** in the Action column to copy and save the selected Standard Process with a different name.
- **Execution Logs**: Click **Execution Logs** to get a summary of different runs and respective high-level Engine logs.
- **Check Dependency**: This action button is to check for any dependency of the selected object with other objects in the application. On click of this action, the Dependent Information window is displayed with the Object Name, Object Type, Object Subtype, and the Version of the dependent objects. The 'Higher Order Dependency' states if the selected object has an upstream objects dependency and is to be treated as the actual dependency of the selected object. While the 'Lower Order Dependency' displays the downstream objects dependency of the selected object. If an object has a Higher Order Dependency, then the object cannot be deleted without removing the dependency first.
- **Download PDF**: Downloads the current process definition in a PDF file.

You may select or deselect all the Standard Process in the summary table by clicking the check-box in the upper left-hand corner of the summary table.

6.3.9.2 Create a Transfer Pricing Standard Process

Create a Standard Transfer Pricing Process:

- To define and execute Transfer Pricing Processing requests.
- To calculate Transfer Rates, Add-on Rates, and related Charge/Credit Amounts.
- To propagate Transfer Rates or Add-On Rates for any applicable instrument table from a prior period.
- To migrate Rates, Charges or Credits, for funds provided or used, to the Management Ledger table.
- To Calculate the All-in Transfer Rate.

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- To Calculate Economic Value of the Portfolio.
- To calculate and/or migrate Rate Lock Option Costs.
- To calculate and/or migrate Breakage Charges.
- To select Alternate Columns to Output Transfer Rate or Add-On Rate Calculation Results for each record in an instrument table for a Transfer Pricing Process Run.
- To generate Audit Trail Output for Assumption Rule or for All Data; along with CF logging if selected.

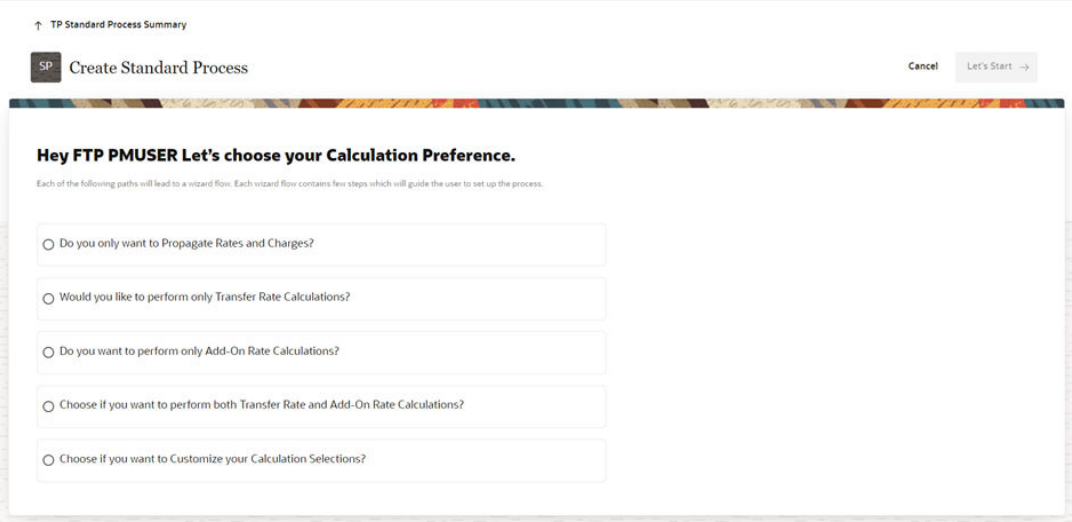
The prerequisites for defining and executing the Standard Transfer Pricing Processing requests are:

- Performing basic steps for creating or editing a Transfer Pricing Rule.
- Performing basic steps for creating or editing an Add-On Rate Rule.

To create and execute the Standard Transfer Pricing Process:

1. From the LHS menu, select **Operations And Processes**, and then select **Standard Process**.
2. Click **Add** to open the Create Standard Process screen.

Figure 6-125 FTP Processing – Create Standard Process screen 1



The Create Standard Process screen 1 allows you to pick the type of calculations that you want to perform. Based on selected calculations, only relevant options will be displayed and wizard flow will guide the you to complete the set up. The options available are:

- Only Rate Propagation
- Only Transfer Rate Calculations
- Only Add-On Rate Calculations
- Both Transfer and Add-On Rate Calculations
- Customized Calculations Selection (Present all possible calculations combinations)

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> **Note**
>
> Ensure that the following dimensions are same for both last prior period and currency period record along with the ID Number:
>
> - Common COA
> - Legal Entity
> - GL Account
> - Product Dimension
> - ISO Currency

6.3.9.3 Process Definition Screens

Based on the scenario you select, the further steps of creating the Transfer Pricing Standard Process vary.

The Standard Process creation process displays various steps in a progress train on the top of the screen based on your selections. The different screens that are displayed are as follows:

- Process Details
- Calculation Selection
- Product Selection
- Transfer Pricing Rule Selection
- Add-On Rate Rule Selection
- Alternate Rate Output Mapping
- Migration
- Audit Option
- Finalize Process

> **Note**
>
> At any point during the Standard Process definition, if you realize that enough calculations options are not available in selected flow, you can always switch to Custom Flow and customize the calculations as per the requirement.

6.3.9.3.1 Process Details

In the Process Details screen, you can define the Name, Folder, Description, and Access Type for the standard process.

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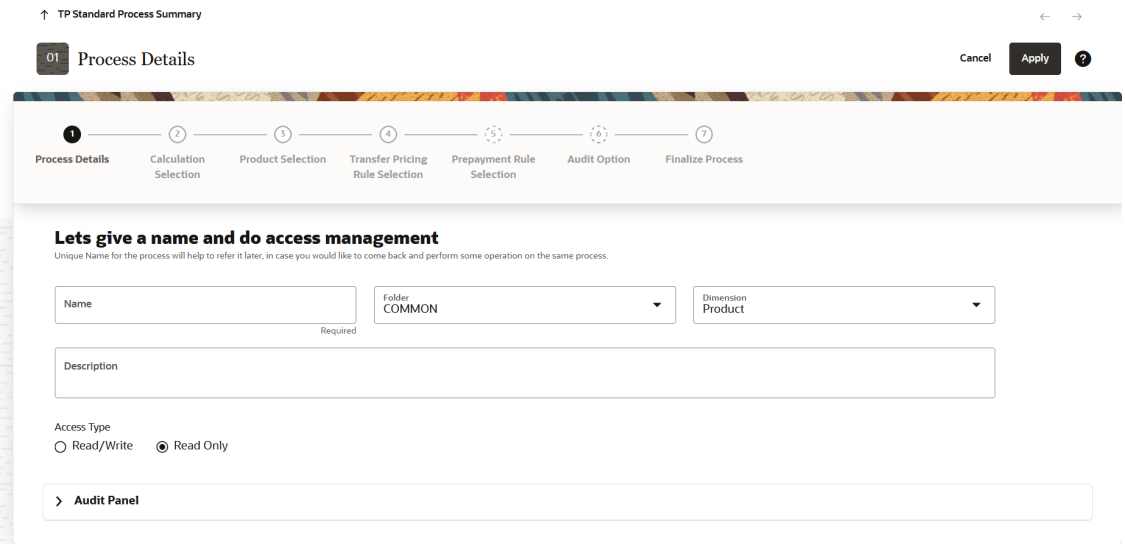
Figure 6-126 Process Details



1. Enter or select the following details:
   - **Name**: The name for the Standard Process.
   - **Folder**: The folder where you want to save the Standard Process.
   - **Description**: The short description for the Standard Process.
   - **Dimension**: When you select the dimension, only the respective rules belonging the selected dimensions will be available for selection.
   - **Access Type**: Read/Write or Read Only.
2. Click **Apply** to display the next screen.

6.3.9.3.2 Calculation Selection

The Calculation Selection screen displays various calculation options that you can select. Depending on the choices you make, the progress train on the screen include few optional steps like Audit, Migration, and Prepayment Rule selection. In the below sample screen, the options **Turn On Alternate Rate Output** and **Select the rates need to be migrated** are selected; accordingly progress train on the top, starts displaying the Alternate Rate Output Mapping and Migration options as well.

You can switch the UI to a Custom Calculation Selection at any time. Clicking **Switch to custom path** will help you if you realize given calculation options in selected scenario, does not have all the required calculation and you like to customize the selection. When you enable the custom flow, a confirmation message is displayed to confirm the re-routing to custom flow.

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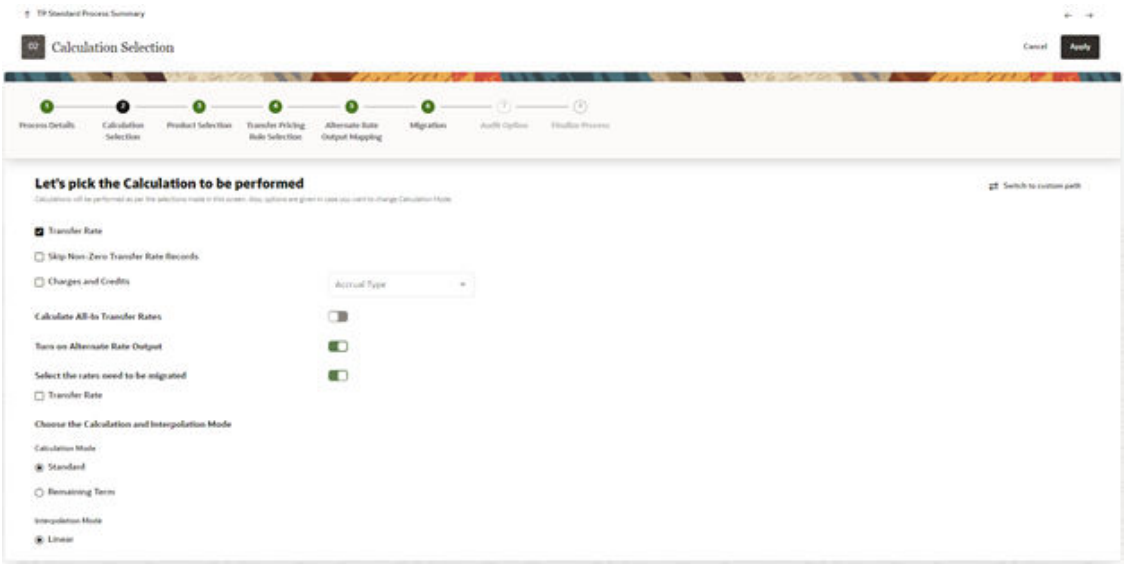
Figure 6-127 Calculation Selection



1. Select the following:
   - **Transfer Rate**: This is mandatory selection for the flow. System picks the transfer pricing method defined in TP rule and perform the TP rate calculations accordingly.
   - **Skip Non-Zero Transfer Rate Records**: Select this option if you have already populated Transfer Rates through a separate process. In addition, would like to skip the records where transfer rate is already populated.
   - **Charges and Credits**: Choose the Charge/Credit calculation, to calculate and output the Instrument level TP charges and credits. If you select the Instrument Charge/Credit option, you must also choose between Monthly and Daily charge/credit accrual. The default selection is Monthly. If Daily is selected, another check-box Charge/Credit Transfer Rate Accumulation is displayed. If you want to use the holiday calendar for charge credit calculation, you can define it within the TP rule for each available product/currency to determine the number of days to accrue.

     > **Note**
     >
     > When Charges and Credits are selected without performing corresponding rate calculation, charge/credit amounts are still calculated for all product-currency combinations available in the instrument data selected as standard process source. In cases, where accrual type is Business Days/252; Holiday Calendar logic is not enabled unless a corresponding rate calculation is enabled for that product-currency combination.

   - **Charge/Credit Transfer Rate Accumulation**: To support IBOR transition, you can use this Charge/Credit Transfer Rate Accumulation check-box for Daily Repriced Accounts based on RFR (Risk-Free Rates) Curves.This is available only for daily accrual; it will propagate yesterday's accumulated Charge Credit to today's run based on the Holiday Calendar defined in TP/Add-On rate rule if any. Today's Charge Credit will be added to yesterday's accumulated Charge Credit and populate the final value to today's accumulated Charge Credit.
     Charge Credit accumulation is available for all types of (TP, Add-On rate, and All_in_TP Rate).

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Users can define the Holiday Calendar in TP or the Add-On rate Rule for each Product/CCY combination. For conditional assumption, Holiday Calendar defined at Node Level will only be considered for accumulation; rather than the one provided at Conditional Assumption level.

- **Charge/Credit Balance**: This option is available when you select any calculation path other than **Do You Only Want to Propagate Rates?**. It specifies the balance basis used by the system to compute charge and credit transfer rate calculations.
  You can select one of the following balance types:
  - **Average Book Balance**: Uses the average balance for the defined accrual period as the basis for calculating charge and credit transfer rates.
  - **Custom Balance**: Uses a user-defined balance as the basis for charge and credit calculations. When this option is selected, the **Custom Charge/Credit Balance** field is enabled, allowing you to select the required credit balance from the drop-down list.
  - **Ending Book Balance**: Uses the ending balance for the accrual period to calculate charge and credit transfer rates.

  The selected balance type is applied consistently across the charge and credit transfer rate calculation process.

  > **Note**
  >
  > - When you do object migration from 25D and earlier versions to 26A and later versions, the Charge Credit balance selected under Preferences will be displayed in **Charge/Credit Balance** option under Calculation selection by default.
  >   The balance selection is automatically saved during object migration, and no manual save action is required on the **Calculation Selection** screen.
  > - When you upgrade the system from Release 25D to Release 26A, the **Charge/Credit Balance** option is picked from preferences with the following message:
  >   **Balance is being picked from user preference.**
  >
  >   If required, you can manually change the auto-selected value on the Calculation Selection screen. After modifying the selection, click Apply or Next to save the updated value.
  >
  >   If you retain the auto-selected value, no manual update is required.

- **Calculate All-In Transfer Rates**: Choose this option if you want the TP Process to calculate and post the All-in Transfer Rate for each Instrument Record. This option allows you to define the aggregation logic for combining any Add-on Rates on top of base Transfer Rate. In the product selection widget, when you select the **Search** icon, you can define for each product the Rates to include in the calculation and the related signage for each Rate.
  To define the All-in Transfer Rate, enable the **Calculate All-In Transfer Rates** toggle switch.

  Select the All-in Transfer Rate check-box and then click the **Settings** icon to display the All-In Transfer Rate Mapping Selector window. Select the Node under Assumption Browser and click the **Action** icon, and then click **Add**. The All-In Transfer Pricing Rate Mapping window is displayed.

  This window allows you to define different formula for different product and currency combinations.

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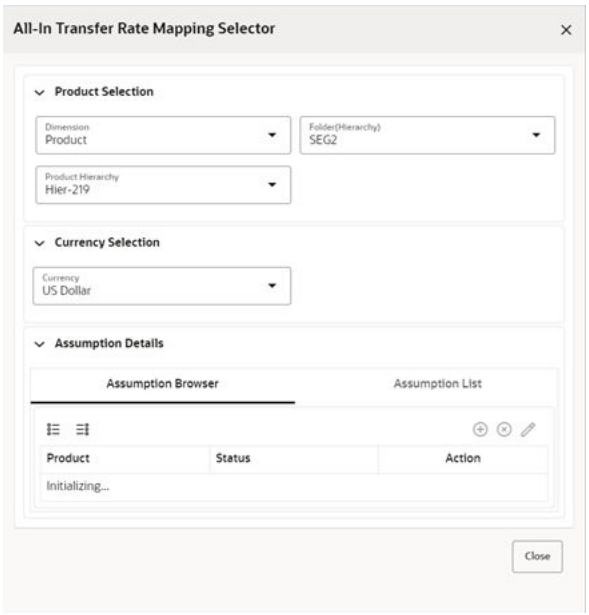
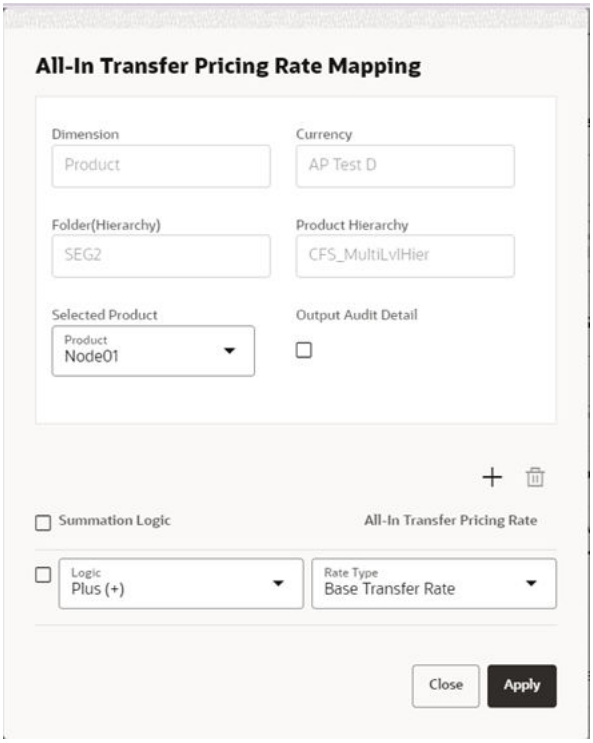
You can search the process on any of the product dimension, searched dimension will be auto-populated while defining the process or configuring the All-in-TP rate calculations; if you like, you can change the default product dimension.

Figure 6-128 All-In Transfer Rate Mapping Selector



Here, you can define, different all-in TP formula for different product, currency combinations.

Figure 6-129 All-In Transfer Rate Mapping



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Click the **+** button to add a Summation Logic. Select the relevant Logic and Add-On Rate Types and click **Apply**.

In the Transfer Rate Mapping Selector window, select a different currency and select the Node, and then click the Action icon to add another mapping. Repeat the above steps and create the calculation logic for the selected currency.

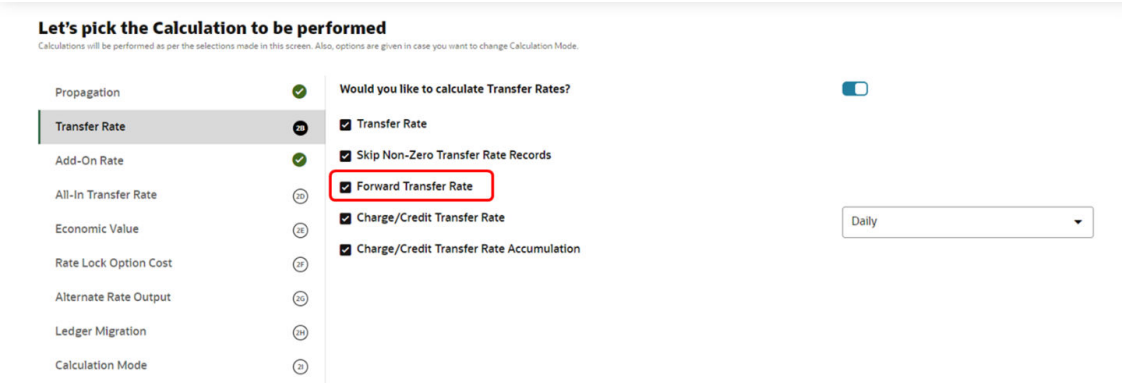
- **Turn On Alternate Rate Output**: This LOV allows you to select an Alternate Rate Output Rule that lets you select the Alternate Columns to output the Transfer Rate, and Add-On Rate Calculation Results for each Instrument Record in an Account Table for a Standard Transfer Pricing Process Run. This functionality allows you to output more than one Transfer Rate, or Add-On Rate Calculation Result for each record in the Instrument Table through multiple Transfer Pricing Process Runs.
- **Select the rates need to be migrated:** Choose Migration options (optional), if you want to include migration of your Transfer Pricing results to the Management Ledger table.
- **Calculation Mode**: The default selection is Standard that applies traditional transfer pricing logic within the process. This entails transfer pricing fixed rate instruments from the origination date (or TP Effective Date if provided) and transfer pricing adjustable rate instruments from the last repricing date. If remaining term is selected the effective date for transfer pricing all instruments will be the current “as of date”.
  - **Standard**: The Standard calculation mode allows you to calculate transfer/add-on rates for instrument records based on the Origination date or Last Repricing Date of the instruments.
  - **Remaining Term**: The Remaining Term calculation mode allows you to calculate transfer/Add-On rates for instrument records based on the remaining term of the instrument from the calendar period end date of the data, rather than the Origination Date or Last Repricing Date of the instruments.
- **Interpolation Mode**: A calculation selection parameter, the Interpolation Method allows users to decide between Linear, Cubic Spline, or Quartic Spline interpolation methods. This selection affects how the rate lookups happen for terms that fall between anchor points on your Interest Rate Curves.

2. Click **Apply** to save selected calculations and navigate next to the next screen.

Transfer Rate Calculations based on Forward Curve

After you enable the Transfer Rate for forward starting instruments like Loan Commitments, a Forward curve will be used for Transfer Rate calculations. To enable the feature, you can select Forward Transfer rate check-box.

Figure 6-130 Forward Transfer Rate



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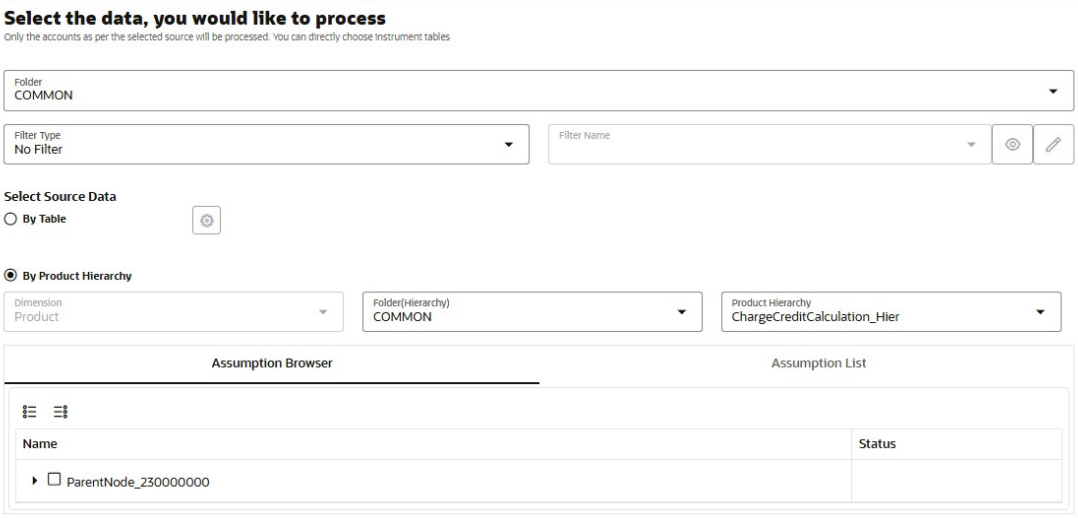
6.3.9.3.3 Product Selection

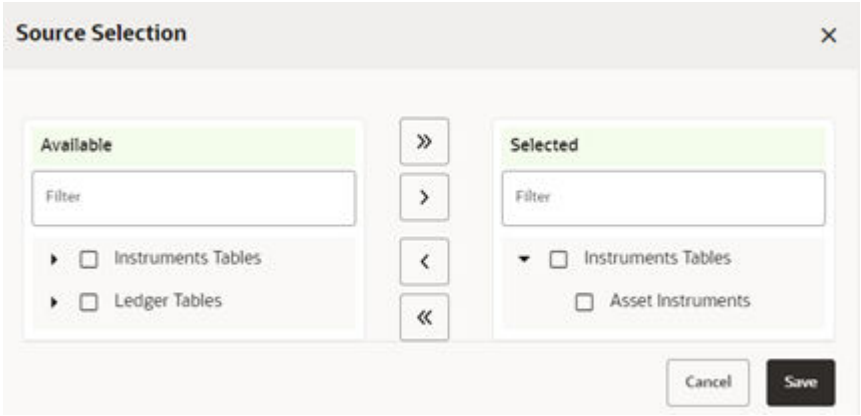
In the **Product Selection** screen, you define the Folder, Filter Type, and Filter Name for the standard process.

Figure 6-131 Product Selection screen



1. Select the **Folder**, **Filter Type**, and **Filter Name**.
   The Filters field displays the View and Edit buttons.
2. You can verify the existing Filters by clicking the **View** button. Click the **Edit** button if you want to modify the Filter condition.
3. Click **By Table** under **Select Data** and then click the **Settings** icon to display the Source table Selection window.

Figure 6-132 Source Selection Window



4. Click **By Product Hierarchy** under **Select Data**.
   The **Product Dimension** field is auto-selected based on the dimension on which standard process is being defined.

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5. In the **Folder** field, select the desired option in the drop-down list.
6. In the **Product Hierarchy** field, select the desired hierarchy from the drop-down list. The available hierarchies are determined by the selected folder.

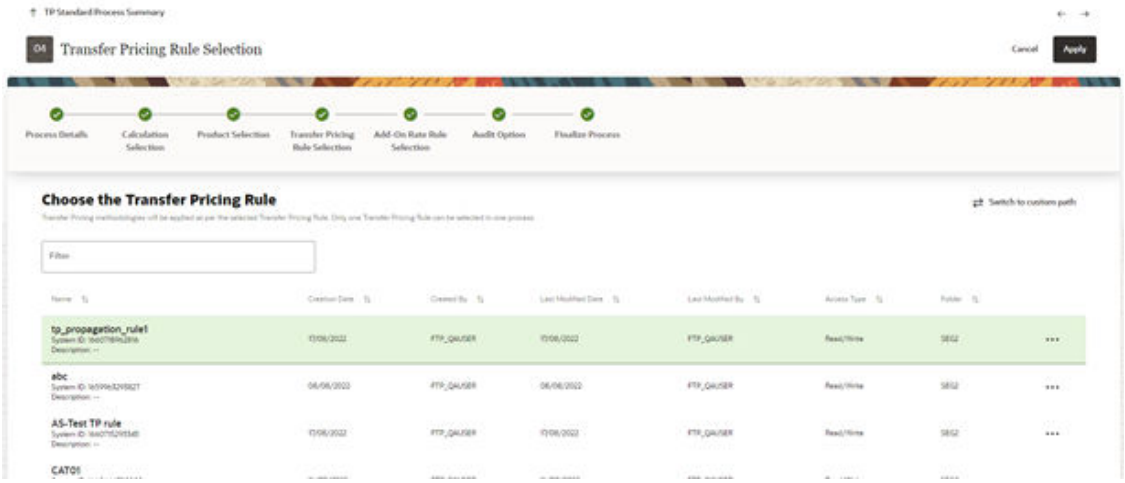
> **Note**
>
> Ledger migration is not supported when Source is set as Hierarchy.

7. Select the Source (Product) by expanding the Instrument Tables or Ledger Tables in the **Available** box and select the instrument table as source on which selected calculations need to be performed.
8. Move the selected source table using the Move buttons to the **Selected** box.
9. Click **Save** to come back to the Product Selection screen.
10. Click **Apply** to navigate next to the next screen.

6.3.9.3.4 Transfer Pricing Rule Selection

The Transfer Pricing Rule Selection screen displays the Transfer Pricing Rules that are available for selection. You can click the **Actions** icon to view or edit the selected Transfer Pricing Rule.

Figure 6-133 Transfer Pricing Rule Selection



1. Select the relevant Transfer Pricing Rule.
2. Click **Apply** to navigate next to the next screen.

6.3.9.3.5 Ledger Migration Process

This section discusses the process for generating charges or credits, for funds provided or used, and their migration to the Management Ledger table when using the Ledger Level-Charge or Credit migration option in the TP Process.

This section provides a detailed description of how the information required for generating these charges or credits originates through Transfer Rate, Adjustment Rate, and Option Cost

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Processing from the instrument tables and how the results are inserted into the Management Ledger table.

6.3.9.3.5.1 Overview of Ledger Migration Process

Ledger migration is the process of generating aggregated charges (expenses) and credits (revenues) for funds provided or used for a combination of dimensions and their migration to the Ledger table. The information necessary to generate these charges and credits (through Transfer Rates, Adjustments, and Option Cost Processing) originates from the instrument tables and results are inserted into the Ledger table (FSI_D_MANAGEMENT_LEDGER) You can select only one Ledger Table per FTP process. The engine will work only on one Ledger Table and never on multiple within any single FTP Process. Multiple Instrument tables are allowed as usual. Transfer pricing charge and credit information provides the basis for measuring net interest income contribution for a group of products, organizational units, or a combination of other dimensions, and is available for use in further calculations of profitability, risk forecasting, and planning.

Oracle Funds Transfer Pricing provides great flexibility in the ledger migration process and in the generation of corresponding charges, credits, and option costs. Users can specify ledger migration for a combination of an extended list of dimensions. This feature provides flexibility to users who are also using Oracle Profitability Management for profitability reporting across organizational, product, channel, geography, or other user-defined dimensions.

Additionally, Oracle Funds Transfer Pricing provides multi-currency support that allows you to generate charges or credits for funds based on entered and functional currency. You can choose to migrate the Transfer Rate, Adjustment Rates, or Option Costs by selecting the appropriate options on the Calculation Elements block of your Transfer Pricing Process rules. See: Transfer Pricing Process.

Financial Elements related to Ledger Migration: The following financial elements are used:

- 100 – Ending Book Balance (Input FE)
- 140 – Average Book Balance (Input FE)
- 169 - All in TP Rate
- 170 - Average Transfer Rate – Pertains to Standard Term
- 172 - Average Remaining Term Transfer Rate – Pertains to Remaining Term
- 174 - Average Liquidity Adjustment Rate
- 175 - Average Basis Risk Cost Rate
- 176 - Average Pricing Incentive Rate
- 177 - Average Other Adjustment Rate
- 414 - Liquidity Adjustment Charge/Credit
- 415 - Basis Risk Charge/Credit
- 416 - Pricing Incentive Charge/Credit
- 417 - Other Adjustment Charge/Credit
- 419 - Rate Lock Option Cost
- 421 - All in TP Charge Credit
- 450 - Transfer Rate Charge/Credit – Pertains to Standard Term
- 452 - Transfer Rate Charge/Credit Remaining Term – Pertains to Remaining Term
- 459 - Breakage Charge

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- 1414 - Accumulated Charge Credit Liquidity Premium Rate
- 1415 - Accumulated Charge Credit Basis Risk Cost Rate
- 1416 - Accumulated Charge Credit Pricing Incentive Rate
- 1417 - Accumulated Charge Credit Other Add-On Rate
- 1421 - Accumulated Charge Credit All In Tp
- 1450 - Accumulated Charge Credit Transfer Rate - Standard Term
- 1452 - Accumulated Charge Credit Transfer Rate - Remaining Term

> **Note**
>
> Input FE's can be Average Book Balance, Ending Book Balance or even Custom Balance FE's can be used if setup as new FE's and selected in Application Preferences.

6.3.9.3.5.2 Understand the Ledger Migration

To understand the process of creating Average Transfer Rate, Adjustment Rates, Option Cost, and Charge/Credit rows in the Management Ledger table (financial elements 170/172, 174-177, and 450, 414-417, 452, respectively), you need to make the following assumptions:

- All rows in the relevant Instrument tables have already been transfer-priced and/or assigned an option cost.
- All rows contain a valid rate in one or more of the following columns:
  - TRANSFER_RATE
  - TRAN_RATE_REM_TERM
  - LIQUIDITY_PREMIUM_RATE
  - BASIS_RISK_RATE
  - PRICING_INCENTIVE_RATE
  - OTHER_ADJUSTMENTS_RATE
  - ALL IN TP RATE
- Average Balance or Ending Balance (financial element 140/100) information has been loaded into the Management Ledger table with a dimensionality that matches the instrument table data being migrated.

This document describes the mechanics, which occur just after the Instrument tables transfer pricing or option cost calculations are completed successfully and just before Transfer Rate, Add-On Rate, or Option Cost (Rate Lock) Ledger migration starts. For example, the mechanics that occur just after Instrument tables are populated with valid Transfer Rates and just before the Weighted Average Transfer Rate (WATR) and the Charge/Credit rows in the Management Ledger table are updated.

The Ledger Migration of option costs works on the same lines as Transfer Rate and Add-On Rate migration. However, there are certain differences.

6.3.9.3.5.2.1 Transfer Rate and Add-On Rate Calculation

The Oracle Funds Transfer Pricing Engine calculates and writes Balance-Weighted Average Rates to the Management Ledger table, using Current Book Balance, Average Book Balance, or a User-Defined Balance from each instrument record to perform the weighting process.

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The financial elements that the engine uses to write the weighted rates to the Management Ledger are as follows:

- 169 - All in TP Rate
- 170 Average Transfer Rate
- 172 Average Rem Term Transfer Rate
- 174 Average Liquidity Add-On Rate
- 176 Average Pricing Incentive Rate
- 177 Average Other Add-On Rate
- 175 - Average Basis Risk Cost Rate

6.3.9.3.5.2.2 Charge/Credit Generation

In addition to the calculation of the Weighted Average Rate values at the combination of the Organizational Unit and the selected Product dimensions, charge/credit generation involves the following steps:

- Aggregation of the corresponding average or ending balance records from the Management Ledger table for each Org Unit/Product dimension combination.
- Multiplication of the average or ending balance from the Management Ledger by the weighted average rates.
- Application of an accrual factor to de-annualize the amount.

Oracle Funds Transfer Pricing then writes the result as dollar charges/credits to the Management Ledger table using the following financial elements:

- 414 Liquidity Add-On Charge/Credit
- 415 Basis Risk Charge/Credit
- 416 Pricing Incentive Charge/Credit
- 417 Other Add-On Charge/Credit
- 421 - All in TP Charge Credit
- 450 Transfer Rate Charge/Credit
- 452 Charge/Credit Remaining Term

> **Note**
>
> Instrument Charge/Credit (TP, Add-Ons and Option Cost)', when 'Calculation Mode' = 'Remaining Term' or 'Standard Term', the selected values for 'Accrual Type' (Daily or Monthly) has an impact on the calculation of the Accrual period for Charge/Credit calculation.

6.3.9.3.5.2.2.1 Charge/Credit Calculation Across Product-Currency Combinations

When Charges and Credits are selected in the Transfer Pricing Standard Process, the engine calculates charge and credit amounts for all product and currency combinations present in the base instrument data, irrespective of whether Transfer Rate, Add-On Rate, or All-In Transfer Rate calculations are selected.

Charge/Credit calculations are executed through a standalone Charge-Credit (Standalone CC) processing flow, independent of rate calculation execution.

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> **Note**
>
> Removal of Charge-Credit calculation logic from Bulk, Non-Bulk (Product-Currency-Service), and All-In-TP flows. As charge-credit accumulation depends on the charge-credit rate, the existing calculation logic remains unchanged in Release 26A and will be considered for removal in a future release.

6.3.9.3.5.2.2.2 Holiday Calendar Considerations

When the Holiday Calendar flag is enabled and Charge/Credit is selected along with rate calculations, the Holiday Calendar is applied only to those product-currency combinations for which rate calculations are enabled.

For product-currency combinations where Charge/Credit is selected without any rate calculation, the Holiday Calendar is not applied during charge/credit calculation.

The engine derives the Holiday Calendar from the default Transfer Pricing or Add-On Rate method defined for the product-currency combination. Holiday Calendars defined at the Conditional Assumption level are not considered for Charge/Credit calculations.

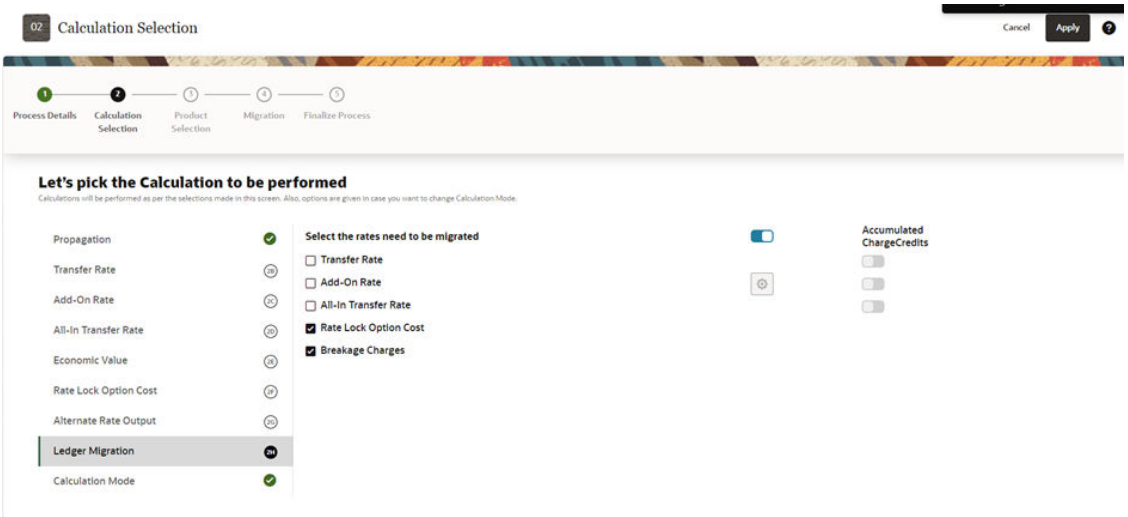
If different Holiday Calendars are defined across multiple currencies, the engine applies the respective Holiday Calendar corresponding to each currency during charge/credit calculation.

> **Note**
>
> Holiday Calendar Code usage when Do-Not-Calculate (DNC) is selected as the TP/AddOn method are not included in this release.

6.3.9.3.5.2.3 Rate Lock Option Cost and Breakage Charge Migration

Calculate and migrate the rate lock option costs or breakage charges for a combination of dimensions to the Management Ledger Table (Migration block).

Figure 6-134 Ledger Migration



Select the check-boxes corresponding to the if you want to include migration of your Breakage Charges, or Rate Lock Option Costs to the Management Ledger table.

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- 419 - Rate Lock Option Cost
- 459 - Breakage Charge

6.3.9.3.6 Direct Transfer Pricing of Ledger Balances

Oracle Funds Transfer Pricing allows users to calculate transfer rates for ledger average or ending balances that do not have corresponding Instrument table records using the following transfer pricing methodologies:

- Moving Averages
- Spread from Interest Rate Code
- Redemption Curve
- Caterpillar
- Weighted Average Perpetual
- Un-priced Account
- Tractor method

Direct Transfer Pricing of Ledger Balances will always have to be done on only one Ledger Table, be it Ledger Stat or Management Ledger, whichever is selected in the Process. Users will do direct transfer pricing for ledger balances that do not have corresponding Instrument table records. The migration is done for those ledger balances that have corresponding instrument table records.

Oracle Transfer Pricing also generates records in the Management Ledger table, which are posted to the organizational unit (Org Unit), designated as the Transfer Pricing Offset Unit (a special Treasury Unit). During this process, an offset charge or credit amount is calculated for each normal charge/credit posted at the intersection of the Organization Unit and Product dimensions in the processes outlined above.

The sum of the Org Unit charges and credits at the Product dimension member level is multiplied by -1 and posted to the offset Org Unit designated in the Offset Org attribute for the Org Unit dimension. After this processing is complete, the total entity level charges and credits net to zero.

> **Note**
>
> If no Offset Org Unit is specified, the offset amount will be posted to a default Org Unit (-99100). Users should be aware that the TP Migration process does not read the Offset Org ID attribute defined against any other dimension (Product, GL Account, and Common).

Financial Elements related to Direct Transfer Pricing of Ledger Balances:

- 100 – Ending Book Balance (Inputs to the calculations)
- 140 – Average Book Balance (Inputs to the calculations)
- 170 - Average Transfer Rate (Only one out of 170 and 172 will get generated at a time, depending on Standard or Remaining Term)
- 172 - Average Remaining Term Transfer Rate
- 450 - Transfer Rate Charge/Credit (Only one out of 450 and 452 will get generated at a time, depending on Standard or Remaining Term)

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- 452 - Charge/Credit Remaining Term

> **Note**
>
> Input FE's can be Average Book Balance, Ending Book Balance or even Custom Balance FE's can be used if setup as new FE's and selected in Application Preferences.

6.3.9.3.6.1 Management Ledger Table Editing Standards

You should be careful while editing the Management Ledger table directly. If you ever get unexpected results in the Management Ledger table after Ledger Migration, then review the data you have entered. WATR, WAAR's and Charge/Credit Rows.

The Weighted Average Transfer Rate (WATR), Weighted Average Add-On Rates (WAAR), and the resulting charge/credit for funds are represented in the Management Ledger table by financial elements listed above.

- **Financial Elements 170/172 (WATR)**: If you select the Remaining Term calculation mode while defining the Transfer Pricing Process, then the financial element generated is 172. Otherwise, it is 170. Only one 170/172 row should exist for a given combination of Organization Unit and Product dimensions.
- **Financial Elements 450/452 (Charges/Credits for Funds)**: If you select the Remaining Term calculation mode while defining the Transfer Pricing Process Rule, then the system generates financial element 452. If not, it would be Financial Element 450 for the Transfer Rate Charge/Credit amount. Only one financial element, 450 or 452, should exist for a given combination of Organization Unit and Product dimensions.
- **Adjustment Rate Financial Elements 174-177 / 414-417**: The Add-On Rate outputs are not impacted by the Standard Term / Remaining Term selection. The results will be the same in either case.

6.3.9.3.6.2 Ledger Migration and the Virtual Memory Table

To calculate transfer rates at the Product dimension member level in the Management Ledger table, all rows in the Instrument tables must be accumulated to arrive at the Weighted Average Transfer Rate (WATR) and Weighted Average Add-On Rates (WAAR) for each member. All data used in the ledger migration process passes through a table, called the Virtual Memory table (VMT), and built in the memory.

This table exists only during the ledger migration process and the information is never written to disk, and thus it cannot be examined for problem-solving purposes. Understanding the operation of the VMT, however, is crucial to understanding the Ledger Migration Process.

The VMT comprises the following three types of columns:

- Organization Unit and Product dimension columns, which uniquely identify each row.
- Balance and WATR/WAAR columns to hold data accumulated from the Instrument tables.
- Balance and WATR/WAAR columns to hold data accumulated from the Management Ledger table and Instrument table calculations.

6.3.9.3.6.3 Requirements for Successful Ledger Migration

Successful Ledger Migration of Transfer Pricing Results requires correct configuration of the following parameters:

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- Application Preferences
- Dimensions
- Entered and Local Currency
- Transfer Pricing Rule
- Add-On Rate Rule
- Product / Source Selection
- Migration and Product Dimension Set Up
- Offset Org Unit
- Transfer Pricing Process
- Calculation Mode
- Charge/Credit Accrual Factor

Together these parameters determine the way Transfer Rate, Add-On Rate, and Option Cost calculations are carried out for every instrument record.

6.3.9.3.6.3.1 Application Preferences

You must configure the following application preference parameters:

- **As-of-Date**: Must match the period for which you are trying to migrate Transfer Rates, Add-On Rates, and Option Costs.
- **Ledger Migration**: Rate Weighting Element - Select the instrument table balance to use for weighting the rates during the migration process. Choose from Average Book Balance, Ending Book Balance, or Custom Balance.
- **TP Charge/Credit Balance**: select the Balance to use for calculating the Charge / Credit Amount. When using the “Ledger” based migration option, choose from Ending Book Balance or Average Book Balance. For calculating instrument-level charge/credit amounts, you may also choose the Custom Balance option.

6.3.9.3.6.3.2 Dimensions

To be eligible for inclusion in the Ledger Migration Process, a dimension must exist and be actively populated with dimension values in both the Instrument tables and in the Management Ledger table.

The following list of dimensions available for inclusion in the Ledger Migration Process:

- Mandatory Dimensions:
  - PRODUCT (the required product dimension is based on your Application Preference selection)
- Other Available Dimensions:
  - ORGANIZATION UNIT
  - COMMON COA
  - GL ACCOUNT

6.3.9.3.6.3.3 Entered and Local Currency

Oracle Funds Transfer Pricing provides you with the option of performing Ledger Migration and writing charges and credits in the entered or local currency, designated in the ISO_CURRENCY_CD column, or in the functional currency.

6.3.9.3.6.3.4 Source of Currency and Exchange Rate Information

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Oracle Funds Transfer Pricing sources currency and exchange rate information from Rate Management > Currency and Currency Rates screens. Ledger migration should only be performed for currencies that are activated or enabled.

Calculation of Functional Currency Values:

To calculate and write charge/credit values expressed in functional currency to the Management Ledger table, a situation in multi-currency implementations, follow these steps:

1. Choose between entered or functional Ledger Migration while defining the Transfer Pricing Process.
2. Derive charge/credit amounts in the entered or local currency first, using Transfer Rate and balance information expressed in those currencies, and then convert the calculated charge/credit values for the “As-of-Date” to the functional currency.
3. Assume the last date associated with the “As-of-Date” as the basis for Ledger Migration, and use currency exchange rates corresponding to that date to perform conversions to functional currency for charges and credits written to the Management Ledger table.
4. Use the following algorithm for Exchange Rate Access:
    - If the exchange rate exists, use the rate for the last day of the period being processed.
    - If no exchange rate exists for the last day of the period being processed, use the latest exchange rate available in the rates table for the period being processed.
    - If no exchange rate exists for the period being processed, use an exchange rate value of 1.

6.3.9.3.6.3.5 Transfer Pricing Rule

The Transfer Pricing Rule is used to define the transfer pricing and option cost methodologies for each product dimension member. While defining transfer pricing methodologies, ensure that all required supporting data for the method exists. For example, if the selected method is spread from the Interest Rate Code, ensure that the corresponding yield curve has been properly defined and has been populated with rates.

6.3.9.3.6.3.6 Add-On Rate Rule

The Add-On Rate Rule is used to define logic for applying TP Rate Adjustments or Add-on Rates for each appropriate product dimension member.

6.3.9.3.6.3.7 Product/Source Selection

Calculating and migrating Transfer Rates and Add-On Rates for an entire product portfolio can be a time-consuming process. Source table selection or data selection through the Product Hierarchy option together with user data filters, allow you to reduce the ledger migration time as follows:

- **Data Filters**: Allow you to transfer price or migrate to a ledger a subset of your portfolio.
- **Source/Product Selection**: This feature gives you the option of selecting the Instrument tables or individual products for ledger migration during a particular Transfer Pricing Process Run.

6.3.9.3.6.3.8 Ledger Migration and Product Dimension Set Up

All Product dimensions (Product, Common COA, GL Account) contain an attribute, < accrual basis>, that is used to designate the accrual factor for a particular product used in calculating the charge or credit for funds. This attribute should be defined for all products when the user wishes to base charge and credit calculations on product-specific accrual factors rather than a single process-specific accrual factor defined at the Transfer Pricing Process Rule level.

6.3.9.3.6.3.9 Offset Org Unit

During Direct Transfer Pricing of Ledger Balances and Ledger Migration, FTP generates records in the Ledger table that are posted to the Organization Unit designated as the Transfer

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Pricing Offset Unit (as defined via attribute within each Org Unit dimension member). During this process, an offset charge or credit amount is calculated for each normal charge/credit posted at the intersection of the Organization Unit and Product (and any other dimensions selected for migration).

If no Offset Org Unit is specified through the attributes within each Org Unit Dimension member, the offset amount will be posted to a default Org Unit (-99100). The TP Migration process does not read the Offset Org ID attribute defined against any other dimension (Product, GL Account, and Common COA).

6.3.9.3.6.3.10 Transfer Pricing Process Rule

The Transfer Pricing Process acts as a container for all the Ledger Migration parameters and submits them to the Transfer Pricing Engine as a processing job. A Transfer Pricing Process rule contains the following Ledger Migration specifications:

The dimensions that you want to include in the Ledger Migration Process are as follows:

- The tables that are to undergo transfer pricing, adjustment rate, or option cost calculations.
- Filters (optional) that are to be applied to the rows in each table.
- Transfer pricing, Adjustment Rule or Prepayment Assumptions to be used.
- Ledger Migration Method (Ledger level or Instrument level)
- Charge/Credit accrual basis to be used.

6.3.9.3.6.3.11 Calculation Mode

The choice of calculation mode, on the Transfer Pricing Process – Calculation Selection block, not only affects the transfer rate and option cost calculation processes, but also the migration process. It determines the results that will be migrated to the Management Ledger table. If the calculation mode is set to Standard then the following results are used in migration:

- Transfer Rate
- Adjustment Rates

Consequently, the transfer pricing engine generates results for the following financial elements:

- 170 Average Transfer Rate
- 174 Average Liquidity Adjustment Rate
- 175 Average Basis Risk Cost Rate
- 176 Average Pricing Incentive Rate
- 177 Average Other Adjustment Rate
- 414 Liquidity Adjustment Charge/Credit
- 415 Basis Risk Charge/Credit
- 416 Pricing Incentive Charge/Credit
- 417 Other Adjustment Charge/Credit
- 450 Transfer Rate Charge/Credit

If the calculation mode is set to the Remaining Term, then the migration process uses the following result column:

- Tran_Rate_Rem_Term

Consequently, the transfer pricing engine generates results for the following financial elements:

- 172 Average Rem Term Transfer Rate

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- 452 Charge/Credit Rem Term

> **Note**
>
> Adjustment Rates are not affected by the calculation mode selection. Adjustment rates will be migrated as noted above under either Mode selection.

Charge/Credit Accrual Factor: Select the Charge/Credit Accrual Factor on the Transfer Pricing Process Migration block or, define the Accrual Factor as an attribute for each Product dimension member. In case no selection is made, an Accrual Factor of 30/360 is applied.

Example of Transfer Rate Ledger Migration: Ledger migration requires you to select, among others, the following options while creating and executing the Transfer Pricing Process:

- Select both the Instrument tables and the Management Ledger table as the SOURCE tables to be processed.
- Select the transfer rate calculation (optional if previously executed), adjustment rate calculation (optional if previously executed), and the ledger migration processing options. Selecting the transfer rate and/or adjustment rate calculation options leads to the generation of transfer rates or adjustment rates for all records in the Instrument tables and for those records in the Management Ledger table for which you have defined a transfer rate with a “Ledger” source type. Selecting the ledger migration processing option instructs the application to gather balances, transfer rate, and adjustment rate information, generate credits and charges for funds and output the results to the Management Ledger table.

Oracle Funds Transfer Pricing allows you to include multiple dimensions in the Ledger Migration process. However, to keep this description simple, the following example assumes that only two dimensions, the Organization Unit dimension, and the Product dimension, are selected to generate results. The following table displays the Instrument table data for this example.

Table 6-33 Instrument Tables (for example, FSI_D_MORTGAGES)

ORG_UNIT_ID	PRODUCT_ID	CUR_BOOK_BAL	TRANSFER_RATE
1	3	100	4.00
1	4	125	4.50
1	5	200	3.00
1	3	200	3.00

The following table displays the pre-migration data in the Management Ledger table used in the example.

Table 6-34 Management Ledger Table

ORG_UNIT_ID	PRODUCT_ID	FINANCIAL_ELEM_ID	MONTH_xx
1	3	140	250.00
1	4	140	200.00
1	5	140	100.00
1	10	140	200.00
1	100	140	990.00

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As you compare the Instrument tables and the Management Ledger table data, notice the following:

- Product IDs 3, 4, and 5 match in both tables. These Product IDs represent the simplest case of ledger migration.
- Product ID 10 does not exist in the Instrument tables. This example assumes that it is a ledger-only account that is transfer priced directly using an acceptable Management Ledger Table data source-only method (part of the assumption definition in the Transfer Pricing Rule).
- Product ID 100 does not exist in the Instrument tables. This example assumes that it is a ledger-only account that will be transfer priced using the Un-priced Account Methodology, based on Product IDs 4, 5, and 10. (This transfer pricing method is defined in the Transfer Pricing Rule.)

The ledger migration process comprises the following two broad phases:

- Instrument Tables Accumulation
- Management Ledger Table Processing

However, this example illustrates the operation of the Ledger Migration process in general and that of the virtual memory table (VMT) in particular demonstrates the following possible variations of the ledger migration process and special cases:

- Transfer Pricing Accounts with the Ledger-Only Data Source
- Transfer Pricing Un-priced Accounts
- Ledger Migration of Transfer Rates Under Remaining Term Calculation Mode

6.3.9.3.6.3.12 Instrument Tables Accumulation

The first operation in the ledger migration process is to accumulate all individual detail rows from the Instrument tables into a single row for each unique combination of Org Unit and Product dimensions in the Virtual Memory Table (VMT).

In this example, Bal_x_TfrRate for Product 3 is calculated as follows:

(100 * 4.00) + (200 * 3.00) = 1,000.00 = Bal_x_TfrRate

The following table represents the VMT after Account table accumulation has taken place.

Table 6-35 VMT Post Instrument Table Accumulation

ORG_UNIT_ID	PRODUCT_ID	Bal	Bal x TfrRate	LSBal x TfrRate
1	3	300.00	1000.00	
1	4	125.00	562.50	
1	5	200.00	600.00	

6.3.9.3.6.3.13 Management Ledger Table Processing

(Required) <Enter a short description here.>

The first step in the Ledger Migration Process with respect to the Management Ledger table is to clear all the information stored in the table with financial elements 170 and 450 (172 and 452 if remaining term pricing is being used) for the particular combination of dimensions being used in the process.

The next step is Management Ledger table accumulation: the Virtual Memory Table (VMT) is populated with the balance information stored in the Management Ledger Table. The following

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table represents the VMT after the Management Ledger Table accumulation has taken place. The updates are shown in bold.

Table 6-36 VMT Post Management Ledger Table Accumulation

ORG_UNIT_ID	PRODUCT_ID	Bal	Bal x TfrRate	LS Bal	LSBal x TfrRate
1	3	300.00	1000.00	250	
1	4	125.00	562.50	200	
1	5	200.00	600.00	100	

Management Ledger table processing involves the calculation of the Weighted Average Transfer Rate (WATR). The WATR is calculated by prorating the WATR by the ratio between the Account tables and the Management Ledger table balances as follows:

(Bal x TfrRate / Bal) * LSBal = LSBal x TfrRate

For example, the WATR for Line Item 3 is calculated as follows:

(1,000.00 / 300.00) * 250.00 = 833.33

The following table represents the VMT after the WATR calculation has taken place.

Table 6-37 VMT Post WATR Calculation

ORG_UNIT_ID	PRODUCT_ID	Bal	Bal x TfrRate	LS Bal	LSBal x TfrRate
1	3	300.00	1000.00	250.00	833.33
1	4	125.00	562.50	200.00	900.00
1	5	200.00	600.00	100.00	300.00

6.3.9.3.6.3.14 Transfer Pricing Accounts with Ledger-Only Data Source

At this stage, all rows in the Management Ledger table that relate (directly or indirectly) to rows in the Instrument tables are accumulated into the VMT. However, the accumulation process still needs to deal with account types that are transfer priced using Ledger as the data source (as specified in the Transfer Pricing Rule). In this example, Product 10 is a Direct Transfer Price product with a Management Ledger balance of 200.00.

The following table represents a VMT with a direct transfer price product.

Table 6-38 VMT with a Direct Transfer Price Product

ORG_UNIT_ID	PRODUCT_ID	Bal	Bal x TfrRate	LS Bal	LSBal x TfrRate
1	3	300.00	1000.00	250.00	833.33
1	4	125.00	562.50	200.00	900.00
1	5	200.00	600.00	100.00	300.00
1	10			200.00	1000.00

6.3.9.3.6.3.15 Transfer Pricing Un-priced Accounts

Accounts using the Un-priced Account method are a special case of direct transfer pricing in the Management Ledger table. The Un-priced Account transfer pricing methodology uses the WATR from other accounts to derive a WATR for the Unpriced account. This is accomplished by averaging the WATR for the component accounts, weighted by their relative LS Balances.

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In this example, Product 100 is an un-priced account that is transfer priced based on Products 4, 5, and 10. First, as shown in the following table, a new row is added to the VMT and populated with the balance stored in the Management Ledger table.

Table 6-39 VMT with a New Row Displaying Management Ledger Table Balance

ORG_UNIT_ID	PRODUCT_ID	Bal	Bal x TfrRate	LS Bal	LSBal x TfrRate
1	3	300.00	1000.00	250.00	833.33
1	4	125.00	562.00	200.00	900.00
1	5	200.00	600.00	100.00	300.00
1	10			200.00	1000.00
1	100			990.00	

Then, the WATR for Product 100 is calculated by computing the weighted average of the WATRs of Products 4, 5, and 10. The WATR for Product 100 is calculated as follows:

(900 + 300 + 1,000)/(200 + 100 + 200) = 4.4

The VMT is then updated with the standard form of WATR

(990.00 * 4.4) = 4,356.00 = LSBal_x_TfrRate

The following table represents the VMT after the un-priced account has been transfer priced.

Table 6-40 VMT displaying the WATR of Un-priced Account

ORG_UNIT_ID	PRODUCT_ID	Bal	Bal x TfrRate	LS Bal	LSBal x TfrRate
1	3	300	1000.00	250.00	833.33
1	4	125	562.50	200.00	900.00
1	5	200	600.00	100.00	300.00
1	10			200.00	1000.00
1	100			990.00	4356.00

Calculation of Overall WATR (Financial Element 170)

After all the Instrument tables and the Management Ledger table information has been accumulated in the VMT, the overall WATR can be calculated for each Org Unit/Product dimension combination and posted to the Management Ledger table. The WATR is simply the sum of all component WATRs (represented in the VMT as LSBal x TfrRate).

For example, WATR is calculated as follows:

833.33 + 900.00 + 300.00 + 1,000.00 + 4,356.00 = 7,089.33= WATR

Generation of Charge/Credit for Funds (Financial Element 450)

After the overall WATR is known, the charge/credit for funds in any period is given by the formula:

WATR * Balance * Accrual Factor = Charge/Credit for Funds

As Oracle Funds Transfer Pricing stores WATR as WATR * Balance, this reduces to:

WATR * Accrual Factor = Charge/Credit for Funds

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For example, Charge/Credit for Funds is calculated as follows:

7,089.33 * (30/360) = 590.77 = Charge/Credit for Funds

Ledger Migration of Transfer Rates Under Remaining Term Calculation Mode

The ledger migration process is identical under the Remaining Term calculation mode except that Financial Elements 452 and 172 are substituted for 450 and 170 respectively.

Note that under the Remaining Term calculation mode, the transfer rate source in the Instrument tables is Tran_Rate_Rem_Term.

6.3.9.3.6.3.16 Usage of Intermediate Tables in the Engine for Management Ledger

Ledger migration with Management Ledger tables uses intermediate tables. Intermediate tables can be Global Temporary tables or Normal tables. The creation of an intermediate table depends on the Application Preferences' Debug setting. If the Debug setting is - Do not output any message, then Global Temporary table is created. For any other debug setting, a normal table is created. Global Temporary table, which is created, gets dropped at the end of execution. Usage of a global temporary table will increase the performance of execution since data does not last after execution. Normal tables are not dropped at the end. To drop the tables, execute the purge script at regular intervals. All intermediate table names will start with zML_GTT_<process sys id>_<slno>. The naming convention is the same for both the global temporary table and the normal table. The <process sys id> is the process definition ID and <slno> is a number of the intermediate tables.

For migration of data from instrument table to ledger tables, three intermediate tables are used. For example:

- zML_GTT_<process sys id>_1
- zML_GTT_ <process sys id>_2
- zML_GTT_<process sys id>_3

6.3.9.3.6.3.17 Migration Options- Functional Currency and Entered and Functional Currency

FTP provides the option to the user to perform Ledger Migration in the Entered/Transaction currency (the one in the ISO_CURRENCY_CD column of the Instrument table – the currency in which the transaction takes place) or in the Functional currency. These are supported in the Management Ledger table. The selections for 'Functional Currency' and 'Entered and Functional Currency' are present in the Migration block of the Standard and Stochastic Processes. To provide control over how FTP multi-currency postings happen, you can select 'Functional' or 'Entered and Functional'.

- If you choose Functional, this would assume that all Entered Balances in ML = Functional Balances. All non-functional currency balances from instrument data would be converted to functional currency and the same amount would be posted to both the Entered Balance and Functional Balance columns. The currency conversion would be done based on the FSI_EXCHNG_RATE_DIRECT_ACCESS table.
- Similarly, if you choose Entered and Functional, then the assumption is that ML data contains detailed currency information and Entered Balance <> Functional Balance (except where entered and functional currency is the same). In this case, FTP would convert non-functional currency balances to functional currency for purposes of posting to the Functional Balance column, but would not convert the amount posted to the Entered Balance column and ISO_Currency_CD would equal the currency from the instrument data. This approach assumes that FE 100/140 data in ML is similarly loaded with a consistent approach. For example, if Functional and Entered is selected, the FE 100 or 140 data should also reflect multiple ISO_Currency_CD and Entered Bal <> Functional Bal

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> **Note**
>
> Input Ledger Balance will always be available in Functional currency. Entered Balance can be <> Functional Balance, but Functional Balance should always be available for the Input FE's 100, 140, and Custom Input Balance FE's if any.

6.3.9.3.6.3.18 Daily Charge/Credit - Migration

The Management Ledger supports daily charge credit postings. In Ledger Stat, each day of posting will be cumulative to the existing value, so over a month (MONTH_x columns) you will have 30 daily postings. Each day will be posted separately, so there will be full transparency around each posting that is made over a month. Three 'Accrual Type' drop-down lists in the Process screen are used specifically for each type of Charge/Credit.

Example:

FSI_D_MANAGEMENT_LEDGER

If a ledger process is Run on 1-Jan-2000, results are posted for that with As of Date as 1-Jan-2000.

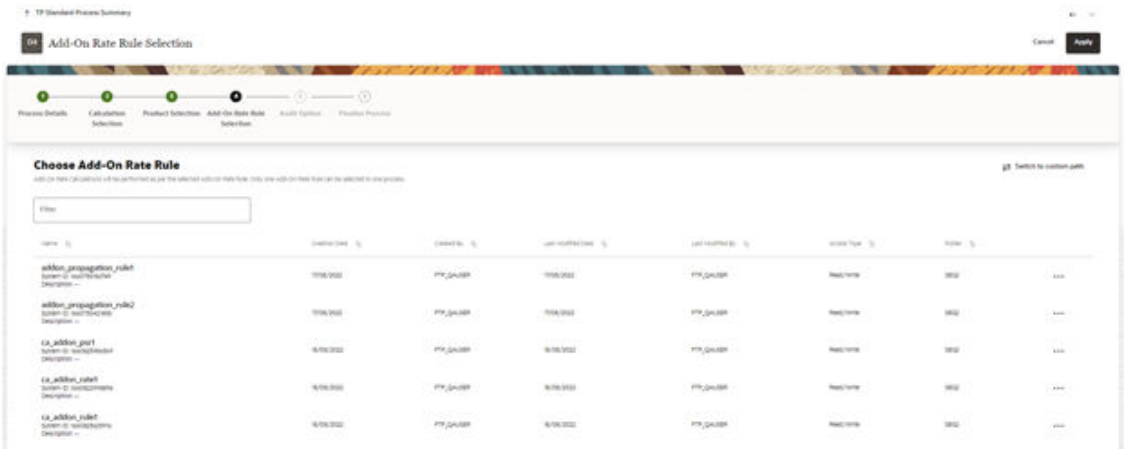
If a ledger process is Run on 2-Jan-2000, results are posted in another row with As of Date as 2-Jan-2000.

If a ledger process is Run on 15-Jan 2000, then results are posted in another row with As of Date as 15-Jan-2000.

6.3.9.3.7 Add-On Rate Rule Selection

This screen displays the Add-On Rate Rules that are available for selection.

Figure 6-135 Add-On Rate Rule Selection



1. Select a relevant Add-On Rate Rule for the Standard process. You can click the **Actions** icon to view or edit the selected Add-On Rate Rule.
2. Click **Apply** to navigate next to the next screen.

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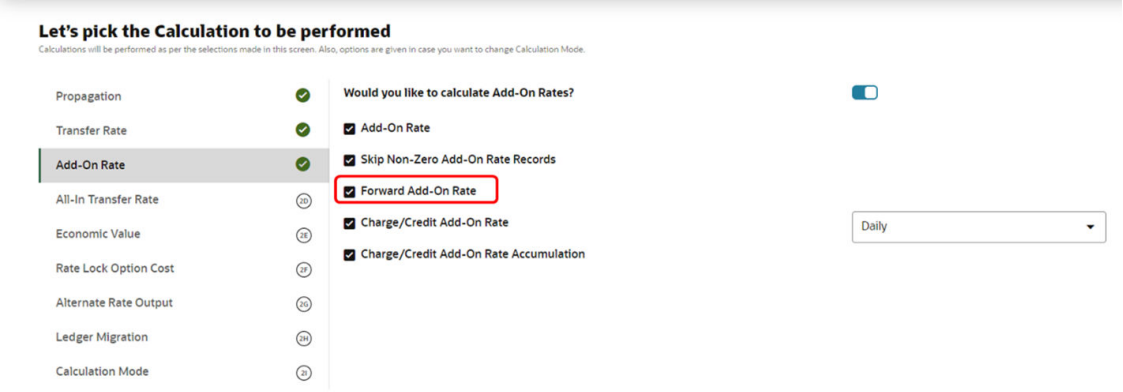
Add-On Rate calculations based on Forward Curve

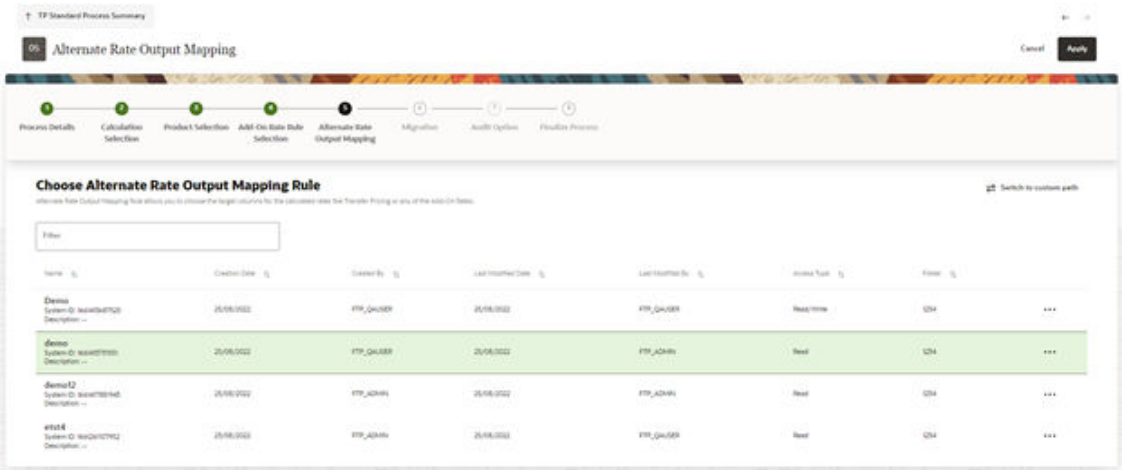
After you enable the Add-On Rate for forward starting instrumets like Loan Commitments, a Forward curve will be used for Add-On Rate calculations. To enable the feature, you can select Forward Add-On rate checkbox.

Figure 6-136 Forward Add-On Rate



6.3.9.3.8 Alternate Rate Output Mapping

Figure 6-137 Alternate Rate Output Mapping



1. Select an Alternate Rate Output Mapping Rule definition. Click the **Actions** icon to view or edit the selected Alternate Rate Output Mapping Rule.
2. Click **Apply** to navigate next to the next screen.

6.3.9.3.9 Migration

The Migration screen displays the Migration Details that you want to migrate.

The purpose of the Ledger Migration process is to generate Dollar Charges or Credits for funds provided or used for a combination of Dimensions. The information necessary to generate

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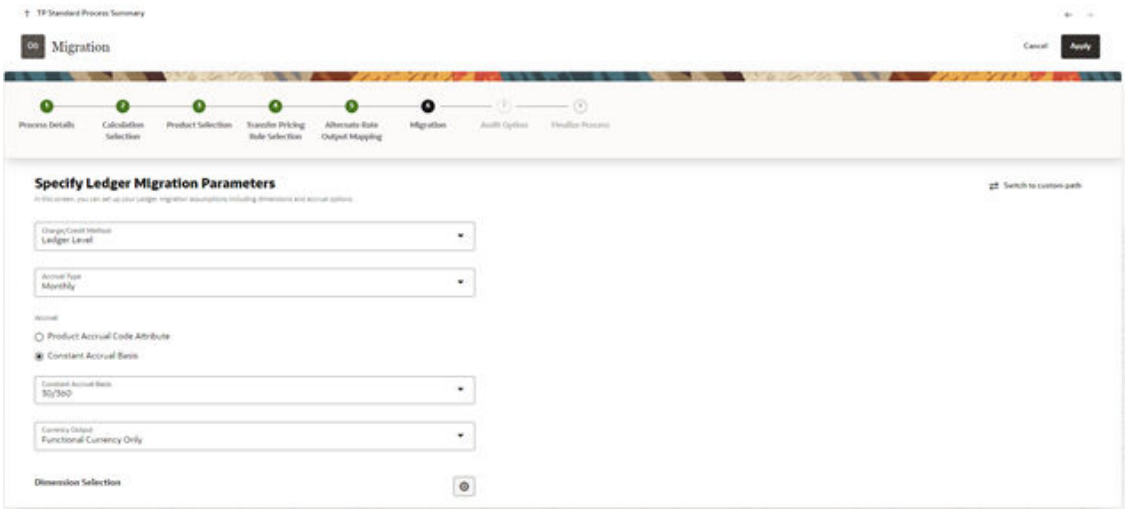
these Charges or Credits (through Transfer Rates, Add-On, and Rate Lock Option Cost processing) originates from the instrument tables and the results are inserted into the Management Ledger table, and are available for use in the calculation of Profitability and Risk Measures.

> **Note**
>
> The seeded Management Ledger table is FSI_D_MANAGEMENT_LEDGER, also placeholder Management Ledger can be enabled and used for Charge/Credit migration.

Figure 6-138 Migration



1. Within the Transfer Pricing Process definition screen, on the "Migration" block, you can select from the following options for the Charge/Credit Method:

   - Account Level
   - Ledger Level

   The Account Level method will sum the charge / credit amounts computed at the individual instrument level (based on the instrument's current or average book balances) and will group the results by the set of selected dimensions and migrate the amounts, together with the weighted average transfer rates to the Management Ledger table.

   The Ledger Level method will compute the weighted average transfer rates from the instrument data and will migrate these values to the Management Ledger table. The migration process will then multiply the weighted average transfer rates by the Ending or Average balances on the Management Ledger table to arrive at the TP charge or credit amounts.

   With both methods, the following rows are created for each product (and combination of selected dimensions). An offset entry to the funding center (offset org unit) is also created.

   When Transfer Rate is selected (based on Standard or Remaining Term option):

   - Financial Element 170, Average Transfer Rate
   - Financial Element 450, Charge/Credit

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- Financial Element 172, Average Remaining Term Transfer Rate
- Financial Element 452, Charge/Credit Remaining Term

When Adjustments are selected (based on population of noted adjustment type):

- Financial Element 174, Average Liquidity Rate
- Financial Element 414, Liquidity Charge/Credit
- Financial Element 175, Average Basis Risk Cost Rate
- Financial Element 415, Basis Risk Cost Charge/Credit
- Financial Element 176, Average Pricing Incentive Rate
- Financial Element 416, Pricing Incentive Charge/Credit
- Financial Element 177, Average Other Add-On Rate
- Financial Element 417, Other Add-On Charge/Credit

> **Note**
>
> For a given combination of Organizational Unit and Product dimensions (or any other combination of dimensions), only one row should exist for the associated rate (170, 172) and charge/credit amount (450, 452). An offset posting to the "Offset Org Unit" or Funding Center, is also made for each posting.

Oracle Funds Transfer Pricing Cloud Service provides great flexibility in the ledger migration process and the generation of corresponding Charges and Credits. Users can specify ledger migration for a combination of an extended List of Dimensions, including Common COA, Organizational Unit, Product, GL Account or any other Dimension that is part of the Key Dimension set.

> **Note**
>
> Only the Key Dimensions are available for inclusion during the migration process. This is because Oracle Funds Transfer Pricing displays only the Processing Key Dimensions in the UI.

You can choose to migrate the transfer rate, Add-On amounts or the Rate Lock option costs, within the respective Standard Transfer Pricing process.

2. TP Application Preferences. Choices include Average Balance, Ending Balance or Other Balance.
3. Oracle Funds Transfer Pricing Cloud Service offers the following accrual basis options:
   - **30/360**: This is the default Charge/Credit Accrual Basis option. It applies the accrual basis calculation of 30 days divided by 360 days.
   - **Actual/360**: Applies the accrual basis calculation of number of days in the month divided by 360 days.
   - **Actual/Actual**: Applies the accrual basis calculation of number of days in the month divided by number of days in the year.
   - **30/365**: Applies the accrual basis calculation of 30 days divided by the 365 days.

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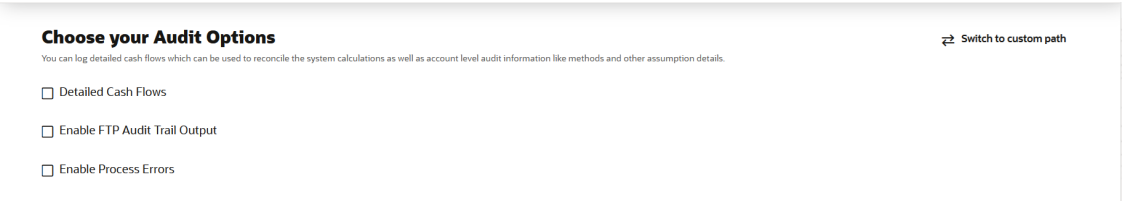
- **30/Actual**: Applies the accrual basis calculation of 30 days divided by the number of days in the year.
- **Actual/365**: Applies the accrual basis calculation of number of days in the month divided by 365 days.
- **Business/252**: Applies the accrual basis calculation of number of business days in the month divided by 252 days. A Holiday calendar selection is required if business/252 accrual basis is selected. If the holiday calendar is not selected, the engine considers Accrual type ACT/ACT as a default for calculation.

4. A migration block parameter, it allows you to select the output currency. Oracle Funds Transfer Pricing offers you the following currency output options:
   - Entered and Functional Currency
   - Functional Currency Only
     For example, a bank's loan may have Yen as entered currency. However, the bank might use US Dollar to display its consolidated annual results. In this case, US Dollar is the functional currency. In other words, the currency in which an organization keeps its books is its functional currency.
5. Click **Apply** to navigate to the next screen.

6.3.9.3.10 Audit Option

Figure 6-139 Audit Options



Within the Audit Options screen, you can choose to log the detailed Cash Flows. Later you can retrieve Cash Flows from the FTP_O_CASH_FLOW_OUTPUT_HIST table.

In addition, the **Enable FTP Audit Trail Output** option allows you to capture the audit details in FTP_O_ENGINE_AUDIT_TRAIL_AGGR table.

> **Note**
>
> In the Audit table, for ‘Use TP add-On rate’ method underlying transfer pricing method codes are logged along with respective Interest rate curves. It will help user to capture more detailed information. Users need to refer following tables to get this audit information:
>
> - FSI_FTP_TP_ADDON_METHOD_MLS table → Transfer Pricing Method (TP_METHD_CD), Add-On Rate Method (LIQ_ADD_ON_METHOD_CD,BASIS_ADD_ON_METHOD_CD,OTHER_ADD_ON_METHOD_CD,PRICING_ADD_ON_METHOD_CD)

FTPCS supports downloading the Engine Audit Data using the Data Management Interface (DMI) module for the following tables:

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- FTP_O_ENGINE_AUDIT_TRAIL_AGGR
- FTP_O_CASH_FLOW_OUTPUT_HIST
- FTP_PROCESS_ERRORS
- FTP_O_CASH_FLOW_MESSAGES_HIST (this is not enabled for DMI download.)

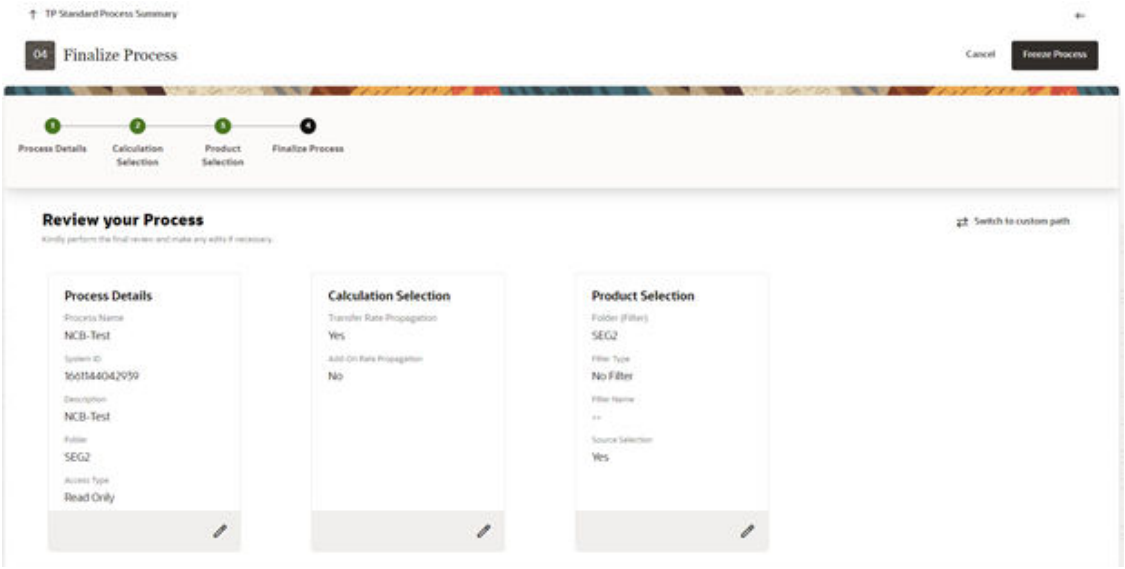
For more information on cleaning up the data in the above tables, refer to Data Housekeeping documentation.

Select **Enable Process Errors** if you want to log the process errors.

6.3.9.3.11 Finalize Process

The Finalize Process screen allows you to review and finalize the selections made in the Process Definition Flow or to edit the selections. You can click the Edit icon against any of the step tiles.

Figure 6-140 Finalize Process



After reviewing or editing the selected tile, click **Freeze Process** to finalize the selections made in the Process Definition Flow.

6.3.9.4 Standard Process with only Rate Propagation

This preference will help you with a guided path to propagate Prior Period Transfer/Add-On Rates to Current Period as per the defined Propagation Pattern.

If you have already loaded Rates for few of the Accounts, you also have an option to skip those Accounts and keep loaded Rates intact.

After you select Do you only want to Propagate Rates and Charges? and click **Let's Start**, a Guided process set up will get initiated and the Process Details screen is displayed.

1. Enter the relevant details. For more information, see the Process Details section.
2. Click **Apply** to display the Calculation Selection screen.

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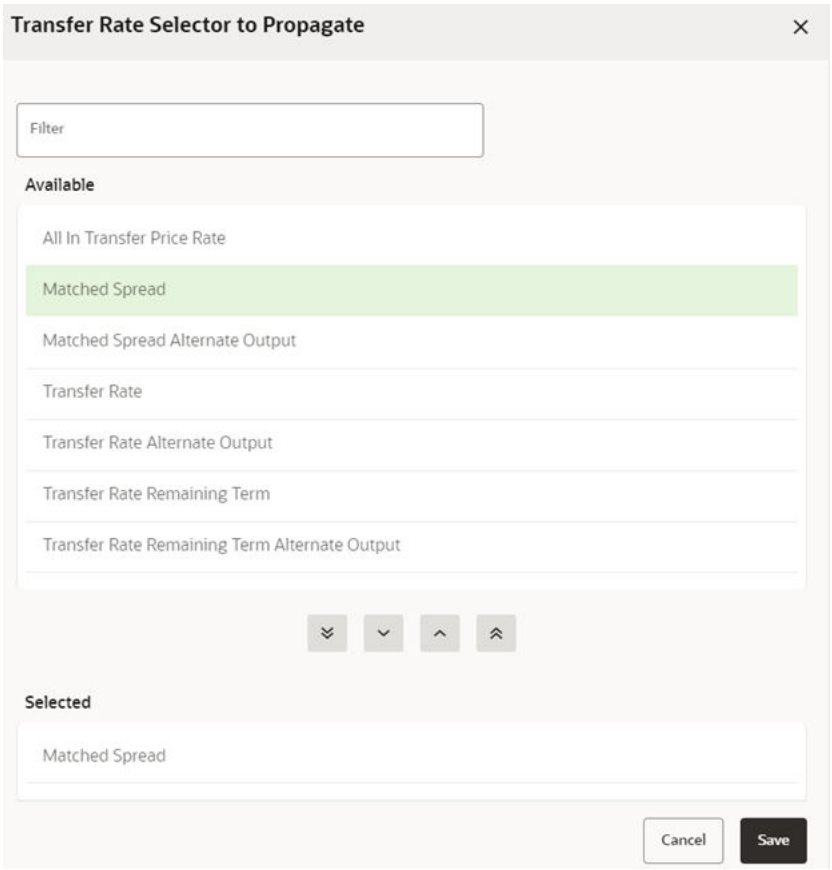
3. Select the relevant options out of following for Rate propagation from last period:

   a. Select **Loan Commitment Propagation** to propagate TP/Add-On Rate values from the Loan Commitment to Asset table.

> **Note**
>
> After selecting this option, users need to enable at least one of the TP/Add-On Rate propagation options.

   b. **Transfer Rate Propagation**: Select **Transfer Rate Propagation** and click the **Settings** icon to select the Rate need to be propagated.

Figure 6-141 Transfer Rate Selector to Propagate



> **Note**
>
> For Duration and Average Life Propagation, you can use the Task component "FTP Propagation.

   i. Select the relevant option for the Transfer Rates that you want to propagate from the **Available** block and use the **Move** buttons to move them to the **Selected** block.

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ii. Click **Save**.

c. **Skip Non-Zero Transfer Rate Records**: This field is enabled when you select Transfer Rate Propagation. Select this option (optional) if you have already populated Transfer Rates through a separate process and would like to keep the accounts with valid rate intact.

d. **Add-On Rate Propagation**: Select this option (optional) to pull the Add-On Rates from a prior period based on the Propagation Pattern definition. Alternatively, you can click the icon to select the Add-On Rate need to be propagated.

e. **Skip Non-Zero Add-On Rate Records**: This field is enabled when you select Add-On Rate Propagation. Select this option (optional) if you have already populated Add-On Rates through a separate process and would like to keep the accounts with valid rate intact.

f. **Rate Lock Option Cost Propagation**: Select this option to propagate the Option Cost and Option Cost percentage for Loan Commitment accounts.

g. **Skip Non-Zero Rate Lock Option Cost Records**: This field is enabled when you select Rate Lock Option Cost Propagation. Select this option (optional) if you have already populated Rate Lock Option Cost through a separate process and would like to skip the accounts with valid non-zero option cost value.

h. Click **Switch** to custom path will help you if you realize given calculation options in the selected scenario, does not have all the required calculation options and you would like to customize the selection.

i. When you enable the custom flow, a confirmation message is displayed to confirm the re-routing to custom flow. Click **Confirm**.

ii. Click **Apply** to display the Product Selection screen.

iii. Enter the relevant details. For more information, see the Product Selection section.

4. Click **Apply** to display the Finalize Process screen. For more information about Finalize Process screen, see the Finalize Process section.

5. After reviewing or editing the selected tile, click **Freeze Process** to finalize the selections made in the Process Definition Flow.

6.3.9.5 Standard Process with only Transfer Rate Calculations

This preference helps you with a guided path to perform the Transfer Rate, All-in-TP Rate and corresponding Charge Credit Calculations.

This preference also gives you an option to migrate transfer rates/charge credits to Management Ledger. If you have already loaded Rates for any of the Accounts, you have the option to skip those Accounts by selecting Skip Non-Zero option.

After you select **Would you like to perform only Transfer Rate Calculations?** and click **Let's Start**. A guided process set up will get initiated and the Process Details screen will be displayed.

1. Enter the relevant details. For more information, see the Process Details section.
2. Click **Apply** to display the Calculation Selection screen.
3. Select the relevant details for the Calculation. For more information, see the Calculation Selection section.
4. Click **Apply** to save selected calculations and navigate next to the following Product Selection screen.

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5. Enter the relevant details. For more information, see the Product Selection section.
6. Click **Save** to come back to the Product Selection screen.
7. Click **Apply** to display the Transfer Pricing Rule Selection screen.
8. Select the relevant **Transfer Pricing Rule**. For more information, see the Transfer Pricing Rule Selection section.
9. Click **Apply** to display the Alternate Rate Output Mapping if applicable. For more information, see the Alternate Rate Output Mapping section.
10. Select the relevant **Alternate Rate Output Mapping Rule**.
11. Click **Apply** to display the Migration screen. For more information, see the Migration section.
12. Click **Apply** to display the Audit Option screen. For more information, see the Audit Option Section.
13. Click **Apply** to display the Finalize Process screen. For more information, see the Finalize Process section.
14. After reviewing or editing the selected tile, click **Freeze Process** to finalize the selections made in the Process Definition Flow.

6.3.9.6 Standard Process with only Transfer Rate Calculations

This preference will help you with a guided path to perform both Transfer Rate as well as Add-On Rate, All-in-TP Rate and corresponding Charge Credit Calculations.

This preference helps you with a guided path to perform the Transfer Rate, All-in-TP Rate and corresponding Charge Credit Calculations.

This preference also gives you an option to migrate transfer rates/charge credits to Management Ledger. If you have already loaded Rates for any of the Accounts, you have the option to skip those Accounts by selecting Skip Non-Zero option.

After you select **Would you like to perform only Transfer Rate Calculations?** and click **Let's Start**, a Guided process set up will get initiated and the Process Details Screen will be displayed.

1. Enter the relevant details. For more information, see the Process Details section.
2. Click **Apply** to display the Calculation Selection screen.
3. Select the relevant details for the Calculation. For more information, see the Calculation Selection section.
4. Click **Apply** to save selected calculations and navigate next to the following Product Selection screen.
5. Enter the relevant details. For more information, see the Product Selection section.
6. Click **Save** to come back to the Product Selection screen.
7. Click **Apply** to display the Transfer Pricing Rule Selection screen.
8. Select the relevant Transfer Pricing Rule. For more information, see the Transfer Pricing Rule Selection section.
9. Click **Apply** to display the Alternate Rate Output Mapping if applicable. For more information, see the Alternate Rate Output Mapping section.
10. Select the relevant **Alternate Rate Output Mapping Rule**.

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11. Click **Apply** to display the Migration screen. For more information, see the Migration section.
12. Click **Apply** to display the Audit Option screen. For more information, see the Audit Option section.
13. Click **Apply** to display the Finalize Process Screen. For more information, see the Finalize Process section.
14. After reviewing or editing the selected tile, click **Freeze Process** to finalize the selections made in the Process Definition Flow.

6.3.9.7 Standard Process with Customized Calculations Selection

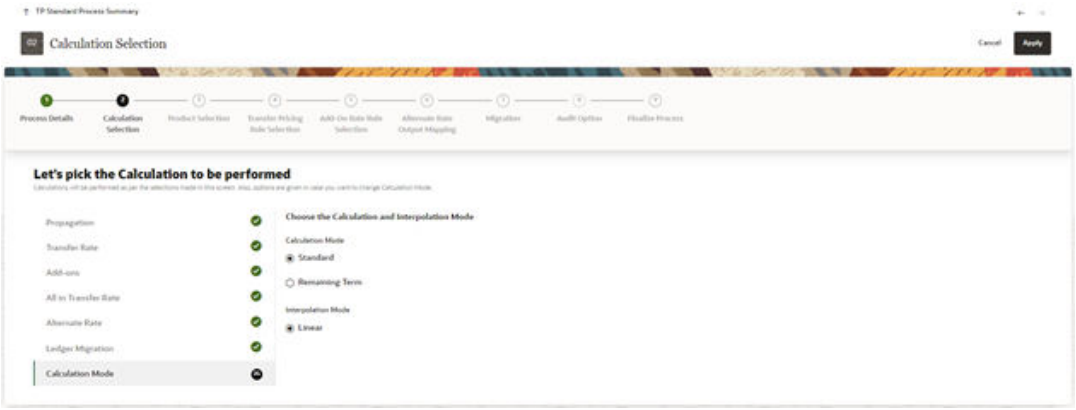
This preference allows all possible combinations of Transfer/Add-On Rates and Charge Credit Calculations including Transfer Rates, Add-On Rates, Charge Credits, Rate Lock Option Costs, Economic Values, and so on. An option is also given to migrate FTP Results to Management Ledger.

If you have already loaded Rates for any of the Accounts, you have the option to skip those Accounts by selecting Skip Non-Zero option.

After you select **Choose if you want to Customize your Calculation Selections?** and click **Let's Start**, a guided process set up will get initiated and Process Details screen is displayed.

1. Enter the relevant details. For more information, see the Process Details section.
2. Click **Apply** to display the Calculation Selection screen.
3. Select the relevant details for the Calculation. For more information, see the Calculation Selection section.

Figure 6-142 Sample Train that displays additional screens



4. Select the relevant options for Calculation from the available list. For more information, see the Calculation Selection section.
5. Enter the relevant details. For more information, see the Product Selection section.
6. Click **Save** to come back to the Product Selection screen.
7. Select the relevant **Transfer Pricing Rule**. For more information, see the Transfer Pricing Rule Selection section.
8. Click **Apply** to display the Add-On rate Rule Selection screen.
9. Select the relevant **Add-On Rate Rule**. For more information, see the Add-On Rate Rule Selection section.

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10. Click **Apply** to display the Alternate Rate Output Mapping screen. For more information, see the Alternate Rate Output Mapping section.
11. Select the relevant **Alternate Rate Output Mapping Rule**.
12. Click **Apply** to display the Migration screen. For more information, see the Migration section.
13. Click **Apply** to display the Audit Option screen. For more information, see the Audit Option section.
14. Click **Apply** to display the Finalize Process screen. For more information, see the Finalize Process section.
15. After reviewing or editing the selected tile, click **Freeze Process** to finalize the selections made in the Process Definition Flow.

6.3.9.7.1 Calculating Economic Value

You can choose to calculate Economic Value as part of a Standard Transfer Pricing Process by selecting the Economic Value calculation element. This calculation option refers to the Economic Value assumptions defined within the Transfer Pricing Rule and is also eligible for Alternate Rate Output mapping. Additionally, there are seeded output columns available corresponding to each of the seeded interest type elements.

All Transfer Rate types (Transfer Rate, Transfer Rate Alt, Remaining Term Transfer Rate, and Remaining Term Transfer Rate Alt) will be written to a single/shared column, Economic Value Transfer Rate (EV_TP_RATE). If it is necessary to store more than one of these EV outputs, Alternate Rate Output Mapping can be used. Each type of Adjustment Rate is mapped to its corresponding EV column. For example:

- Economic Value Liquidity Premium Rate - EV_LIQ_PREM_RATE
- Economic Value Basis Risk Rate - EV_BASIS_RISK_RATE
- Economic Value Pricing Incentive Rate - EV_PRIC_INC_RATE
- Economic Value Other Adjustment Rate - EV_OTH_ADD_ON_RATE
- Economic Value Other Adjustment Alternate Output - EV_OTH_ADD_ON_RATE_ALT

Also, the All-in TP Rate is mapped to a corresponding EV column.

Economic Value All in Transfer Rate - EV_ALLIN_TP_RATE

The output format for the Economic Value calculation (inputs defined through the Transfer Pricing rule) is as follows:

- For Assets: Economic Value = MV - BV
- For Liabilities: Economic Value = BV– MV

Where:

- BV = Book Value = CUR_BOOK_BAL
- MV = Market Value = Net Present Value of Principal and Interest Cash Flows

> **Note**
>
> For Adjustable Rate records, the calculation assumes maturity at the first reprice date. In this case, the Repricing Balance is additionally used to derive the final principal cash flow amount.

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In addition to the calculation logic, users can specify the following two parameters:

- **Interest Only**: If this option is selected, the Net Present Value calculation considers only the Interest Cash Flows. In this case, the output format is as follows:
  Economic Value = MV
- **Exclude Accrued Interest**: If this option is selected, the first interest cash flow will be computed from the As-of-Date to the Next Payment Date. The resulting market value will reflect the clean price.
  For forward starting instruments, which are instruments that are not yet on the balance sheet, that is, ORIGINATION_DATE > AS_OF_DATE, the logic for computing Economic Value is as follows:

  Economic Value =MV

> **Note**
>
> For forward starting instruments where ORIGINATION_DATE > AS_OF_DATE, the initial Principal Cash Flow (FE210) will be negative, representing the cash outflow. For such instruments, the ORG_BOOK_BAL and CUR_BOOK_BAL should be the same since the instrument is coming into existence in the future.

As shown in the TP Process, the Rate Lock Option Cost calculation requires two inputs both of which come from the Rate Management > Interest Rates page.

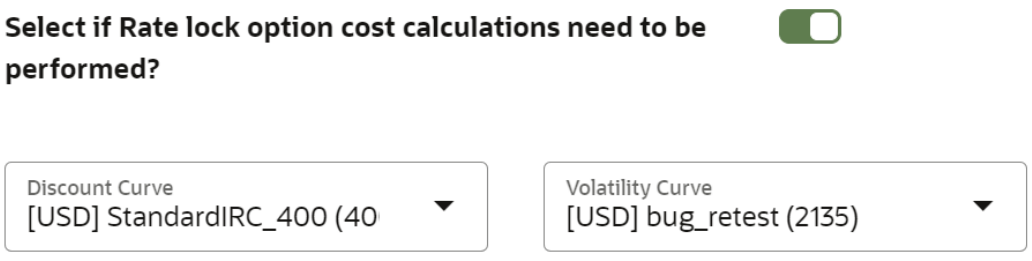
- **Discount Curve**: This can be a standard Interest Rate Curve.
- **Volatility Curve**: This is a special form of Interest Rate Curve, where the volatility curve option has been selected.

6.3.9.7.2 Calculating Rate Lock Option Cost

As shown in the TP Process, the Rate Lock Option Cost calculation requires two inputs both of which come from the Rate Management > Interest Rates page.

To calculate the Rate Lock Option Cost, select Rate Lock Option Cost from the LHS menu, and then select the **Select if Rate lock option cost calculations to be performed?** toogle switch.

Figure 6-143 Rate Lock Option Cost Calculation



Select the relevant options for the following:

- **Discount Curve**: This can be a standard Interest Rate Curve.
- **Volatility Curve**: This is a special form of Interest Rate Curve, where the volatility curve option has been selected.

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6.3.9.8 Execute a Transfer Pricing Process from Standard Process UI

You can execute a Transfer Pricing Process:

- To generate Transfer Rates, Add-on Rates, or corresponding charge/credit calculations.
- To propagate Transfer Pricing Results for any applicable Instrument Table from a Prior Period.
- To migrate Charges or Credits, for funds provided or used, to the Management Ledger Table.
- To output, in pre-selected Alternate Columns, Transfer Rate, and Add-On Calculation results for each Instrument Record in an Account Table for a Transfer Pricing Process Run.

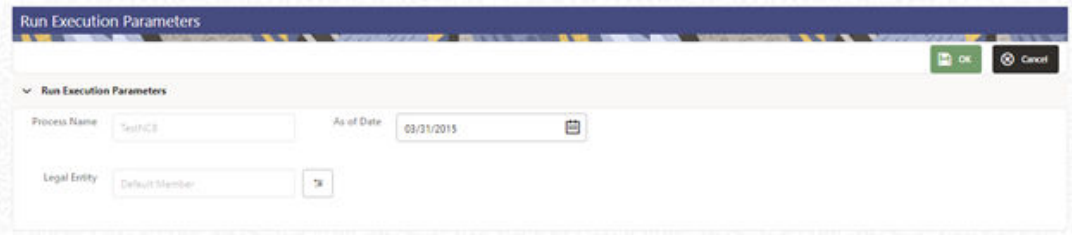
Executing a Transfer Pricing Process involves specifying the run-time parameters necessary for successfully running a completed standard transfer pricing process.

The prerequisites for executing a Transfer Pricing Process are performing basic steps for creating or editing a Standard Transfer Pricing Process.

To execute a Transfer Pricing Process:

1. From the LHS menu, select **Funds Transfer Pricing**, select **Operations and Processes**, and then select the relevant Standard Process.
   The Status Column on the Standard Process summary screen indicates whether a process can be run. The following are the possible status conditions:
   - **Draft**: Indicates the process is partially defined and cannot be run.
   - **Complete**: Indicates the process is fully defined and ready to run.
2. Click the **Actions** icon and select **Run**. A confirmation window opens with a message to confirm the execution.
3. Click **Yes**.

Figure 6-144 Run Execution Parameters



4. Select **As-of-Date** (to indicate the date on which you want to execute the Cash Flow Process) and **Legal Entity**. By default, these two parameters are picked from the Application Preferences. However, you can change them while submitting the process for execution.
5. Click **OK**.
   A confirmation window displays a message Process triggered with execution ID XXXXXXXX. This execution ID can be used to track the status of this process in the Batch Monitoring UI. For more details, see the Monitor Batch section.
6. Click **Ok**.
   The Transfer Pricing Standard Process screen displays the status of the Process that was run with the updated Status. The possible Status conditions are as follows:

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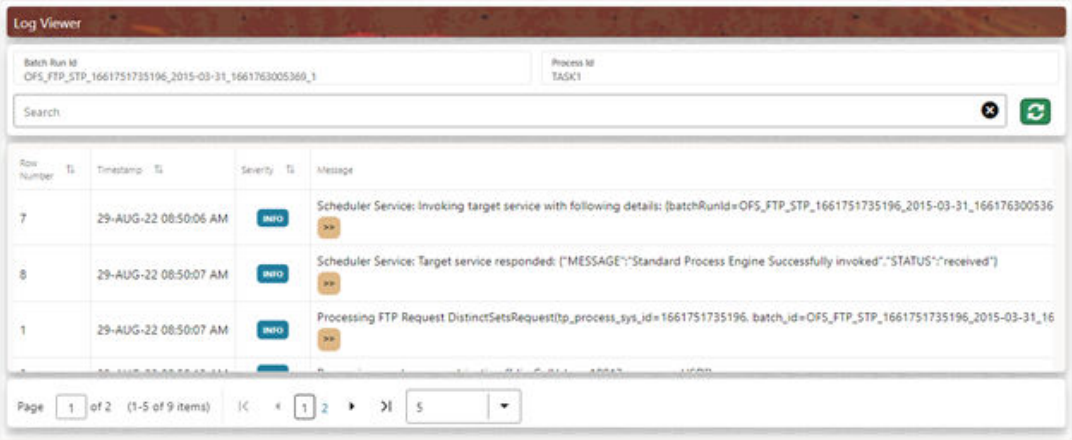
- **Success**: The Process has successfully completed and calculated the rates as per selected assumptions.
- **Failed**: The Process Definition is failed due to some issue e.g. data quality, connection issue, DB slowness etc. Exact cause of failure can be checked in engine logs available via **Batch Monitor** under **Scheduler**.

7. Click on the **Actions** Icon and select **Execution Logs**.
A **Log Viewer** window is displayed. You can review any processing errors or alerts related to this process.

Figure 6-145 Log Viewer



8. Select the Task ID (also known as the Unique System Identifier) to view a report for any processing errors.

> **Note**
>
> If significant processing errors exist, you should re-run your process.

The Transfer Pricing process is complete. You can access instrument-level and Management Ledger results through either Data visualization reports on **Processed data insights** or **SQL Query Browser** under **Analytics** tab.

6.3.9.9 Executing a Transfer Pricing Process from the Scheduler Service

After defining a Standard Process, you can execute the process using the Scheduler Services.

To execute a Standard Process using the Scheduler Service:

1. From the LHS menu, select **Operations and Processes**, select **Scheduler**, and then select **Define Batch**.
2. Click **Add** to create a new Batch.
3. Create a Batch and Save it. For more information, see the Define a Batch section.
4. From the LHS menu, select **Operations and Processes**, select **Scheduler**, and then select **Define Task**.
5. Select the created Batch and click **Add** to define the Task.
6. Enter the relevant details for **Task Code**, **Task Name**, and **Task Description**.

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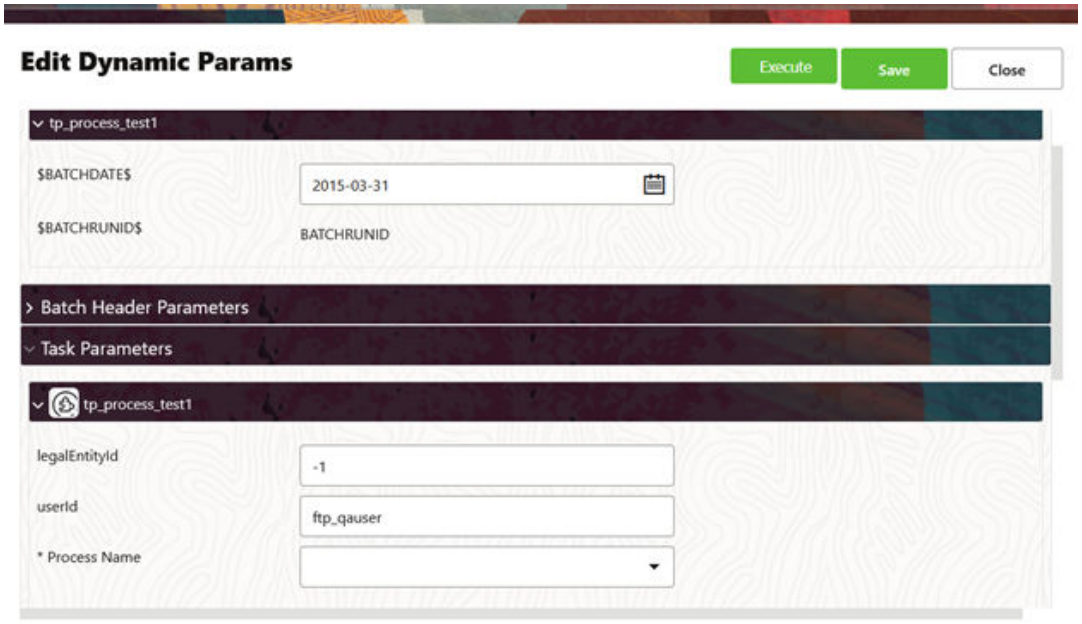
7. Select the Component as **Transfer Pricing Engine**.
8. Select the **Folder**, **Process Type** (FTP Standard Process), and **Process Name** and click **Save** to save the details. For more information, see the Define Tasks section.
9. From the LHS menu, select **Operations and Processes**, select **Scheduler**, and then select **Schedule Batch**; enter Batch Date and Legal Entity for which standard Process needs to be executed as follows:

Figure 6-146 Edit Dynamic Params



10. Follow the standard steps and schedule the Batch. For more information, see the Schedule Batch section.
11. From the LHS menu, select **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch** to view the status of executed Batch along with the tasks details. For more information, see the Monitor Batch section.

6.3.10 Parallel Processing Recommendations

FTPCS supports parallel processing with following recommendations:

- Any two standard processes with non-Cash Flow Transfer Pricing methods per instrument table can run in parallel.
  One of the non-cash flow method must be a bulk method.
- A total of four batches containing non-cash flow methods can run in parallel on two different instrument tables.
  As per above, any two of the batches must be bulk methods.
- Batches that include cash flow methods must run sequentially and not parallelly with other Funds Transfer Pricing batches (cash flow or non-cash flow).

6.3.11 Process Errors

This topic lists the possible errors that the transfer pricing process.

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The Funds Transfer Pricing Cloud Service engine logs the run-time execution errors in the FTP_PROCESS_ERRORS table. For error details, please refer to the following table.

Table 6-41 Process Errors

SEQ_NO	MESSAGE_ID/RULE_ID	MESSAGE_DESCRIPTOIN
1	CHECK_TP_RULE_ENABLED	Check if Transfer Pricing calculation is enabled
2	CHECK_ADDON_RULE_ENABLED	Check if AddOn Rate calculation is enabled
3	NO_TP_ADDON_RULE_DEFINED	Check the product-currency combination for which TP or AddOn rate rule is not defined
4	TP_RULE_EXISTS	Check if Transfer Pricing rule exists in nodemap table
5	ADDON_RATE_RULE_EXISTS	Check if AddOn Rate rule exists in nodemap table
6	CHECK_TP_METHOD_DEFINITION	Check for Transfer Pricing method definition for product-currency combination
7	CHECK_ADDON_RATE_METHOD_DEFINITION	Check for AddOn Rate method definition for product-currency combination
8	CHECK_TP_RULE_OUT_OF_SYNC	Check for TP Rule out of sync in IDT_ROLL_UP table
9	CHECK_ADDON_RULE_OUT_OF_SYNC	Check for AddOn Rate rule out of sync in idt_roll_up table
10	INVALID_ADDON_TYPE_CD	Invalid AddOn Rate type defined for product-currency combination
11	CHECK_ALL_IN_TP_METHOD_DEFINITION	Check for All In TP method definition for product-currency combination
12	CHECK_ALL_IN_TP_OUT_OF_SYNC	Check for All-In-TP Rule out of sync in IDT_ROLL_UP table
13	CHECK_TABLE_CLASSIFICATION_CD	Check Table being processed has required table classification code
14	CHECK_TP_CALC_IS_DNC	Check if Do Not Calculate is defined as Transfer Pricing rule
15	CHECK_ADDON_CALC_IS_DNC	Check if Do Not Calculate is defined as AddOn Rate rule
16	NO_IRC_DEFINED_IN_TP_RULE	No match for IRC in Transfer Pricing rule
17	NO_IRC_DEFINED_IN_ADDON_RULE	No match for IRC in AddOn Rate rule
18	NO_DATA_FOR_IRC_TP	No data for IRC: The IRC selected in the Transfer Pricing rule does not have any rates defined
19	NO_DATA_FOR_IRC_ADDON	No data for IRC: The IRC selected in the AddOn Rate rule does not have any rates defined
20	NO_DEFAULT_TP_METHOD	In case Conditional Assumptions are defined and there is no TP method as default at node

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Table 6-41 (Cont.) Process Errors

SEQ_NO	MESSAGE_ID/RULE_ID	MESSAGE_DESCRIPTOIN
21	NO_DEFAULT_ADDON_METHOD	In case Conditional Assumptions are defined and there is no AddOn Rate method as default at node
22	CHECK_TP_RULE_EXISTS_FOR_CHARGE_CREDIT_CALC	Check if Transfer Pricing rule is defined for Charge/Credit calculation
23	CHECK_ADDON_RULE_EXISTS_FOR_CHARGE_CREDIT_CALC	Check if AddOn Rate rule is defined for Charge/Credit calculation
24	CHECK_HOLIDAY_CAL_CD_TP	No holiday code found while calculating TP accrual factor, holiday code = 0
25	CHECK_HOLIDAY_CAL_CD_ADDON	No holiday code found while calculating AddOn accrual factor, holiday code = 0
26	CHECK_ALT_RATE_OP_MAP	No Alternate Rate Output Mapping rule defined for selected rule.
27	ALT_RATE_OP_MAP_FOR_SOURCE_TABLES	No Alternate Rate Output Mapping rule details found for the source tables
28	CHECK_MIGRATION_DIRECT_TP_ON_LEAF	No Direct TP method defined on leaf or No migration option for Table: FSI_D_MANAGEMENT_LEDGER to use
29	CHECK_LEDGER_TABLE_FOR_MIGRATION_DIRECT_TP	Ledger table is not chosen for Direct TP or Migration option selected on leaf node
30	CHECK_MIGRATION_DIRECT_TP_ON_COND_ASSUMP	Check if conditional assumption are defined for Direct TP or Migration rule
31	INVALID_TP_FOR_MANAGEMENT_LEDGER	Invalid Transfer Pricing method used for Management Ledger data
32	CHECK_CUR_BOOK_BAL_IN_REP_PORTFOLIO	Check for CUR_BOOK_BAL is zero on the source record which causes a negative value in FSI_M_TP_REPLICATING_PORTFOLIO.

Note

Additional messages for cash flow based TP methods are available in table FSI_O_CFE_MESSAGES_HIST.

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6.3.12 Break Identification

Breaks are associated with Assets and Liabilities that have fixed maturities and have experienced a full prepayment or pre-closure, partial prepayment, or restructuring. Any event that causes a change in scheduled contractual cash flows on a fixed maturity instrument results in a Break Funding Event and should be evaluated. Transactions that could cause a change in future cash flows would include full loan prepayments, partial loan prepayments, early withdrawal of term deposits, or a change in maturity tenor, payment amount, payment frequency, or other contractual terms.

6.3.12.1 Break Identification Configuration

The Break Identification Process Configuration is used to enable or disable the Break Detection columns to identify the change in attributes.

For Change in Attributes Break, the engine compares the current period records with the prior period records to determine if any changes are made to critical attributes (other than balances). If any of the critical attributes have changed then it qualifies as a break event.

The Break Identification Process uses Identity Code to determine which record is current and which is prior. It is assumed the Prior record Identity Code will be < Current Period.

The following key attributes are compared when analyzing data for Change in Attributes Break:

- ADJUSTABLE_TYPE_CD
- AMRT_TYPE_CD
- COMPOUND_BASIS_CD
- CUR_NET_RATE
- MATURITY_DATE
- NEG_AMRT_AMT
- NEG_AMRT_EQ_DATE
- NEG_AMRT_EQ_FREQ
- NEG_AMRT_EQ_MULT
- NEG_AMRT_LIMIT
- INT_PMT_FREQ
- INT_PMT_FREQ_MULT
- REPRICE_FREQ
- REPRICE_FREQ_MULT
- RESIDUAL_AMOUNT
- ACCRUAL_BASIS_CD
- PRIN_PMT_FREQ
- PRIN_PMT_FREQ_MULT

To configure the Break Identification Process:

1. From the LHS menu, select **Maintenance** and then select **Break Identification Configuration**.

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Figure 6-147 Break Identification Configuration

2. Select the relevant columns to identify the breaks for change in attributes.
3. Click **Save**.

> **Note**
>
> Active As-of-Date means the Application Preferences As-of-Date, which is also the current record's As-of-Date. The change applies only to the prior record. The current record will be corrected from the source system.
> If an account is repriced daily and Break Identification is done for one month period (difference in As-of-Dates), then though account's (prior period record) As-of-Date is updated to latest As-of-Date, but if the reprice dates are just rolled over by 1 Day as per reprice frequency, then the reprice dates go out of sync with As-of-Date. That is why for these accounts, the logic is updated as, if after rolling forward by one period, if the dates are not in sync with As-of-Dates, they will be rolled forward till As-of-Date, only for those adjustable accounts where reprice frequency or payment frequency is less than period over which break identification is performed. For longer reprice frequency accounts, there is no change in the logic.

6.3.12.2 Break Identification Processes

Breaks are associated with Assets and Liabilities that have fixed maturities and have experienced a full prepayment or pre-closure, partial prepayment, or restructuring. Any event that causes the bank to receive a change to scheduled contractual cash flows on a fixed maturity instrument results in a Break Funding Event and should be evaluated. Transactions that could cause a change in future cash flows would include full loan prepayments, partial loan prepayments, early withdrawal of term deposits, or a change in maturity tenor, payment amount, payment frequency, or other contractual terms.

The Break Identification Process allows you to perform the following tasks:

- Determine the data that you want to process (Product Selection block).
- Specify the parameters for the process. The parameters include break types like a full break, partial break, and change in attributes.
- Execute or Run the Break Identification Request and generate results (Break Identification Process Summary Page).

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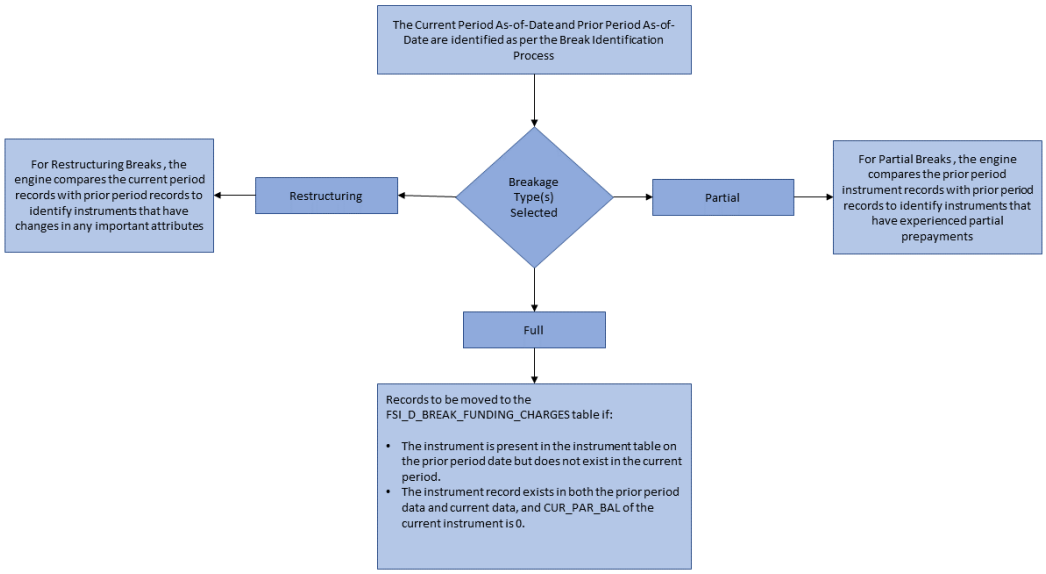
Break Identification processing should be run if automatic break detection is the preferred approach to populating the break events table (FSI_D_BREAK_FUNDING_CHARGES). The Break Funding Charges table is the source table for calculating breakage charges.

The following figure shows the overview of the Break Identification process:

Figure 6-148 Break Identification Process Flow



6.3.12.2.1 Full Breaks

The following accounts are considered as full breaks, fully repaid, or terminated:

- The Instrument is present in the instrument table on the prior period date but does not exist in the current period and the maturity date of the prior period record is greater than the current period as of the date.
- The Instrument record exists in both the prior period data and current data and the CUR_PAR_BAL of the current instrument is 0 and the account open flag is NO.

For the above scenarios, the Break Identification Process populates the source and Break Funding Charges instrument tables with the following:

- BREAKAGE_FLG = 2 (*Source record only) (External break will populate flag=1)
- BREAKAGE_TYPE_CD = 1
- BREAKAGE_AMOUNT = CUR_PAR_BAL (prior period)

Additionally, the FSI_D_BREAK_FUNDING_CHARGES table is populated as follows:

- • If Prior record NEXT_PRIN_PAYMENT_DATE > Current AS_OF_DATE then:
  - CUR_PAR_BAL = Prior Period CUR_PAR_BAL
  - CUR_BOOK_BAL = Prior Period CUR_BOOK_BAL
- If Prior record NEXT_PRIN_PAYMENT_DATE <= Current AS_OF_DATE then:
  - IF AFTER_PAYMENT_BALANCE is Not Null
    CUR_PAR_BAL = AFTER_PAYMENT_BALANCE

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CUR_BOOK_BAL = AFTER_PAYMENT_BALANCE

- IF AFTER_PAYMENT_BALANCE is Null
  CUR_PAR_BAL = Prior Period CUR_PAR_BAL

  CUR_BOOK_BAL = Prior Period CUR_BOOK_BAL

- AS_OF_DATE = AS_OF_DATE defined in Application Preferences
- BREAKAGE_AMOUNT = Prior Period CUR_PAR_BAL
- BREAKAGE_TYPE_CD = 1
- All additional fields are carried forward from the prior period record.

For Full Breaks, the Next Principle/Interest Payment Date gets rolled forward till the Maturity Date. Break record has AS_OF_DATE = NEXT_PRIN_PAYMENT_DATE.

If NEXT_PRIN_PAYMENT_DATE <= AS_OF_DATE, then Next Principle Payment Date = Next Principle Payment Date + Payment Frequency/Multiplier. This should not exceed the Maturity Date.

If NEXT_PRIN_PAYMENT_DATE <= AS_OF_DATE for the current period, then Break Amount = AFTER_PAYMENT_BAL from the prior record. This is used when you do not want to pay a break charge against the current period's scheduled principal payment.

6.3.12.2.2 Partial Breaks

For partial breaks, the engine compares the prior period-instrument records with current period records to identify instruments that have experienced a partial prepayment.

The Break Identification Process uses Identity Code to determine which record is current and which is prior. It is assumed the Prior record Identity Code will be < Current Period.

The following accounts are considered as partial breaks:

Case 1:

If the NEXT_PRIN_PAYMENT_DATE on the prior period record is less than or equal to the AS_OF_DATE of the current period record, then:

- To detect a partial break, compare the AFTER_PAYMENT_BALANCE of the prior period record with the CUR_PAR_BAL of the current period record. If the difference is more than the MINIMUM_BREAK_AMOUNT then the instrument is classified as a Partial Break. For this scenario, the Break Identification Process populates the source and Break Funding Charges instrument tables with the following:
  - BREAKAGE_FLG = 2 (*Source - Current record only) (External break will populate flag=1)
  - BREAKAGE_TYPE_CD = 2
  - BREAKAGE_AMOUNT = AFTER_PAYMENT_BALANCE of prior record – CUR_PAR_BAL of the current record Additionally, the FSI_D_BREAK_FUNDING_CHARGES table is populated as follows:
  - Both the prior period record and the current record are copied into the FSI_D_BREAK_FUNDING_CHARGES table. The as of date for the prior record is changed to the current as of date.
  - The BREAKAGE_AMOUNT of the prior record =0
  - The BREAKAGE_AMOUNT of the current record = AFTER_PAYMENT_BALANCE of prior record – CUR_PAR_BAL of the current record

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- BREAKAGE_TYPE_CD = 2
- Specific Fields updated on prior break funding record:
  - Next Interest Payment Date: If Next Interest Payment Date <= AS_OF_DATE then Next Interest Payment Date +Payment Frequency/Multiplier
  - Last Interest Payment Date: If Next Interest Payment Date <= AS_OF_DATE then Next Interest Payment Date
  - Next Principle Payment Date: If Next Principle Payment Date <= AS_OF_DATE then Next Principle Payment Date +Payment Frequency/Multiplier
  - Last Principle Payment Date: If Next Principle Payment Date <= AS_OF_DATE then Next Principle Payment Date
  - Next Reprice Date: If Next Reprice Date <= AS_OF_DATE then Next Reprice Date + Reprice Frequency/Multiplier
  - Last Reprice Date: If Next Reprice Date <= AS_OF_DATE then Next Reprice Date
  - Remaining Number of Payments: If Next Principle Payment Date <= AS_OF_DATE then Remaining Number of Payments -1
- All additional fields are carried forward from the prior period record.

Case 2:

If the NEXT_PRIN_PAYMENT_DATE on the prior period record is greater than the As-of-Date of the current period, then:

- To detect a partial break, compare the CUR_PAR_BAL of the prior period record with the CUR_PAR_BAL of the current record. If the difference is more than the Minimum Break Amount, then the instrument is classified as a partial break.
  For this scenario, the Break Identification Process populates the source and Break Funding Charges instrument tables with the following:
  - BREAKAGE_FLG = 2 (*Source - Current Record only)
  - BREAKAGE_TYPE_CD = 2
    - If both Partial and Change in Attributes are detected, then BREAKAGE_TYPE_CD = 5
  - BREAKAGE_AMOUNT = CUR_PAR_BAL of the prior period record – CUR_PAR_BAL of the current record

  Additionally, the FSI_D_BREAK_FUNDING_CHARGES table is populated as follows:
  - Both the prior period record and the current record are copied into the FSI_D_BREAK_FUNDING_CHARGES table. The as of date for the prior record is changed to the current As-of-Date.
  - The BREAKAGE_AMOUNT of the Prior Record =0
  - The BREAKAGE_AMOUNT of the Current Record = CUR_PAR_BAL of prior record – CUR_PAR_BAL of the Current Record
  - BREAKAGE_TYPE_CD = 2

> **Note**
>
> If it is NULL, 0, or 1, the breakage charge calculation will treat as a full break and will not correctly calculate BREAK_FUNDING_AMT_CHG.

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- RECORD_IND = -1 for Prior Record and 1 for Current Record.
- All additional fields are carried forward from the Prior Period Record.

> **Note**
>
> Partial Breaks are also detected when there is an increase in balance.

Example: Partial Break:

- Prior Record:
  - As-of-Date = 30-SEP-2012
  - Next_Reprice_Date = 01-OCT-2012
  - Last_Reprice_Date = 01-SEP-2012
  - REPRICE_FREQ = 1M
- Current Record:
  - As-of-Date = 01-OCT-2012
  - Next_Reprice_Date = 01-NOV-2012
  - Last_Reprice_Date = 01-OCT-2012
  - REPRICE_FREQ = 1M

The break occurs on 01-OCT-2012 and a break is detected on this date. This is also the Application Preferences As-of-Date given by the user.

Records moved to FSI_D_BREAK_FUNDING_CHARGES will be:

- Prior Record:
  - Since Next_Reprice_Date (1-Oct-2012) <= active As-of-Date (1-Oct-2012),
  - As_of_Date = 01-OCT-2012
  - Next_Reprice_Date = 01-NOV-2012
  - Last_Reprice_Date = 01-OCT-2012
- Current Record:
  - As_of_Date = 01-OCT-2012
  - Next_Reprice_Date = 01-NOV-2012
  - Last_Reprice_Date = 01-OCT-2012
  - The engine can only process the modified record in FSI_D_BREAK_FUNDING_CHARGES when Last_Reprice_Date <= As_of_Date < Next_Reprice_Date.

6.3.12.2.3 Change in Attributes Break

For Change in Attributes Break, the engine compares the current period records with the prior period records to determine if any changes are made to critical attributes (other than balances). If any of the critical attributes have changed then it qualifies as a break event.

The Break Identification Process uses Identity Code to determine which record is current and which is prior. It is assumed the Prior record Identity Code will be < Current Period.

The following key attributes are compared when analyzing data for Change in Attributes Break:

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- ADJUSTABLE_TYPE_CD
- AMRT_TYPE_CD
- COMPOUND_BASIS_CD
- CUR_NET_RATE
- MATURITY_DATE
- NEG_AMRT_AMT
- NEG_AMRT_EQ_DATE
- NEG_AMRT_EQ_FREQ
- NEG_AMRT_EQ_MULT
- NEG_AMRT_LIMIT
- INT_PMT_FREQ
- INT_PMT_FREQ_MULT
- REPRICE_FREQ
- REPRICE_FREQ_MULT
- RESIDUAL_AMOUNT
- ACCRUAL_BASIS_CD
- PRIN_PMT_FREQ
- PRIN_PMT_FREQ_MULT

Change in Payment Schedule Data

Break Identification Process identifies the change in payment schedule when amortization type is any of the following and there is a change in payment schedule data available in the table FSI_D_PAYMENT_SCHEDULE, with respect to prior As-of-Date and current As-of-Date:

- 800 Conventional Schedule
- 801 Level Principal Schedule
- 802 Non Amortizing Schedule

The list of seeded attributes can be viewed in the FSI_BRK_DETECTION_COLUMN_LIST table. Note that some attributes such as CUR_PAYMENT are not in the seeded list, but are referred to conditionally along with other columns.

If Prior Record Adjustable Type Cd = 0 and Current Record Adjustable Type Cd = 0 and Prior Cur Payment <> Current Cur Payment, then consider a break event.

If you want to consider any change in current payment as a break event, regardless of adjustable type code, then Cur Payment can be appended to the list of seeded values.

If any of these fields are identified as changed while comparing current and prior records, the records are flagged as a break.

For this scenario, the Break Identification Process populates the source and Break Funding Charges instrument tables with the following:

- BREAKAGE_FLG = 2 (Source – Current record only)
- BREAKAGE_TYPE_CD = 3
  - If both Partial and Change in Attributes are detected, then BREAKAGE_TYPE_CD = 5

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* BREAKAGE_AMOUNT = CUR_PAR_BAL

Additionally, the FSI_D_BREAK_FUNDING_CHARGES table is populated as follows:

- Both the prior period record and the current record are copied into the FSI_D_BREAK_FUNDING_CHARGES table. The As of Date for the prior record is changed to the current as of date.
- BREAKAGE_TYPE_CD = 3

> **Note**
>
> If it is NULL, 0, or 1, the breakage charge calculation will treat as a full break and will not correctly calculate BREAK_FUNDING_AMT_CHG.

- RECORD_IND = -1 for Prior Record and 1 for Current Record
- All additional fields are carried forward from the Prior Period Record If prior record's Next_Reprice_Date <= active As_of_Date,
- Next Interest Payment Date: If Next Interest Payment Date <= AS_OF_DATE then Next Interest Payment Date +Payment Frequency/Multiplier
- Last Interest Payment Date: If Next Interest Payment Date <= AS_OF_DATE then Next Interest Payment Date
- Next Principle Payment Date: If Next Principle Payment Date <= AS_OF_DATE then Next Principle Payment Date +Payment Frequency/Multiplier
- Last Principle Payment Date: If Next Principle Payment Date <= AS_OF_DATE then Next Principle Payment Date
- Next Reprice Date: If Next Reprice Date <= AS_OF_DATE then Next Reprice Date + Reprice Frequency/Multiplier
- Last Reprice Date: If Next Reprice Date <= AS_OF_DATE then Next Reprice Date
- Remaining Number of Payments: If Next Principle Payment Date <= AS_OF_DATE then Remaining Number of Payments -1

6.3.12.2.4 Summary and Detail Screens

To open the Break Identification Process summary page, select **Operations and Processes** and select **Break Identification Process**.

The Break Identification Process summary page is displayed showing a set of Break Identification Process definitions.

Using the search criteria, you can control set of definitions displayed. When you Add, Edit, or View a definition, the application displays a detailed screen.

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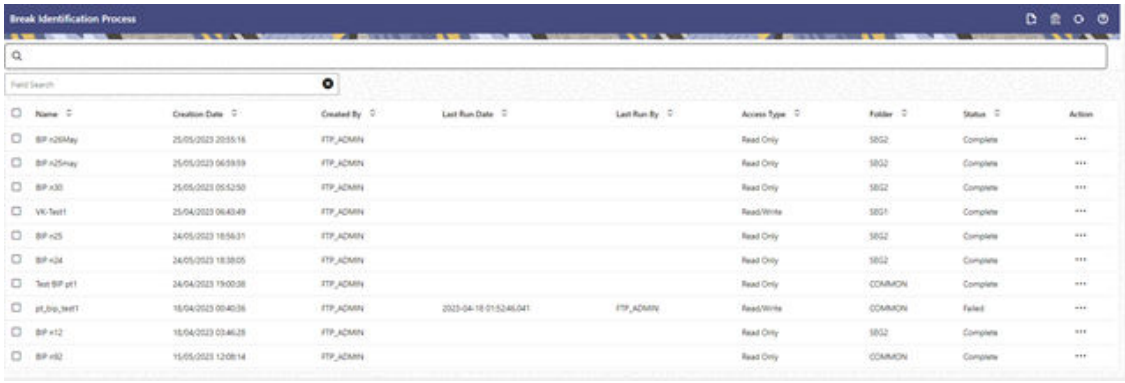
Figure 6-149 Break Identification Process Summary page



Navigation in Summary Screen

When you navigate to the Break Identification Process summary screen, the existing definitions are presented in a summary table. The Break Identification Process summary screen has two panes: Search and Break Identification Process summary table.

The title bar of the summary page provides several actions for the user. They are:

- **Add**: Click Add icon to build a new Break Identification Process definition. The Add icon is disabled if any rows in the table are selected.
- **Multiple Delete**: Select one or more drivers in the table and then click the (-) icon at the top right of the summary page to delete more than one rule at the same time.
- **Refresh**: Click Refresh to refresh the summary page.
- **Help**: Click Help icon to view the Break Identification Process help.

Search

There are two Search options provided to search the Break Identification Process definitions on the Summary Page.

To search the Break Identification Process definitions:

1. Click the **Search** icon on the Search pane to collapse (display) the Criteria window.
2. Enter the definition **Name** or **Description**.
3. Click **Cancel** to remove the filter criteria on the Search window and refresh the window.
4. Click **Search** after entering the search criteria.
   The search results are displayed in a table containing all the Break Idenftiication Process definitions that meet the search criteria.
5. The other method to search is using the **Field Search** option. The Field Search is an inline wildcard search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table.

Summary Table

This section of the Breal Identification Process summary screen presents a table containing all of the already created Break Identification Process definitions.

The Summary Table displays the following details:

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- **Name**: Displays the given name for the Break Identification Process definition.
- **Creation Date**: Displays the date and time at which a Break Identification Process definition was created.
- **Created By**: Displays the name of the user who created the Break Identification Process definition.
- **Last Run Date**: Displays the recent date on which the Break Identification Process definition was run.
- **Last Run By**: Displays the name of the user who ran the Break Identification Process definition.
- **Access Type**: Displays the “Read/Write” or “Read Only” property of a Break Identification Process definition. Only the creator of a rule may change its Access Type.
- **Folder**: Displays the folder in which the definition is created.
- **Status**: Before executing a Break Identification Process definition for the first time, the Status is blank. After executing a driver rule the appropriate status of the rule is displayed among In Progress, Complete, Success, or Failed.
- **Action**: Displays the following list of actions that can be performed on the rule.
  - **View**: Click the View icon to view the contents of a Break Identification Process definition on a read-only basis.
  - **Edit**: Click the Edit icon to modify a previously saved definition.
  - **Delete**: Click Delete to delete the Break Identification Process definition you have selected.
  - **Save As**: Click on this option to create a copy of an existing Break Identification Process definition. The Save As pop-up window allows you to enter the Name, Description, Folder, and Access Type for the copy definition.
  - **Run**: To submit the definition for processing.
  - **Execution Logs**: To see the execution log details of the selected definition.
  - **Check Dependency**: To check the dependency of the selected definition on other processes.

6.3.12.2.5 Create a Break Identification Process

To define and execute a Break Identification Process. The Break Identification Process will compare current period-instrument data with prior period-instrument data to identify break events. When breaks are detected, the related instrument records are copied into the FSI_D_BREAK_FUNDING_CHARGES table. This table then becomes the source table for further FTP Add-on Rate Rule > Breakage Charge calculations.

To create a Break Identification Process:

1. From the LHS menu, select **Operations and Processes** and select **Break Identification Process**.
   The Break Identification Process summary page is displayed.

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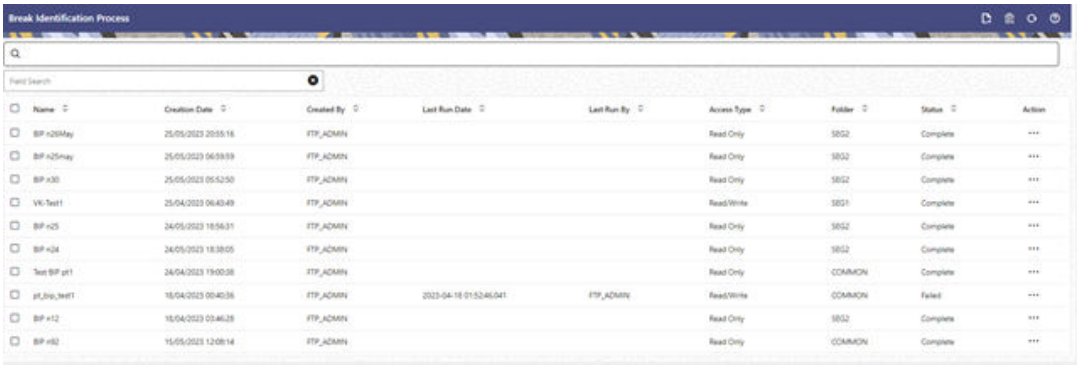
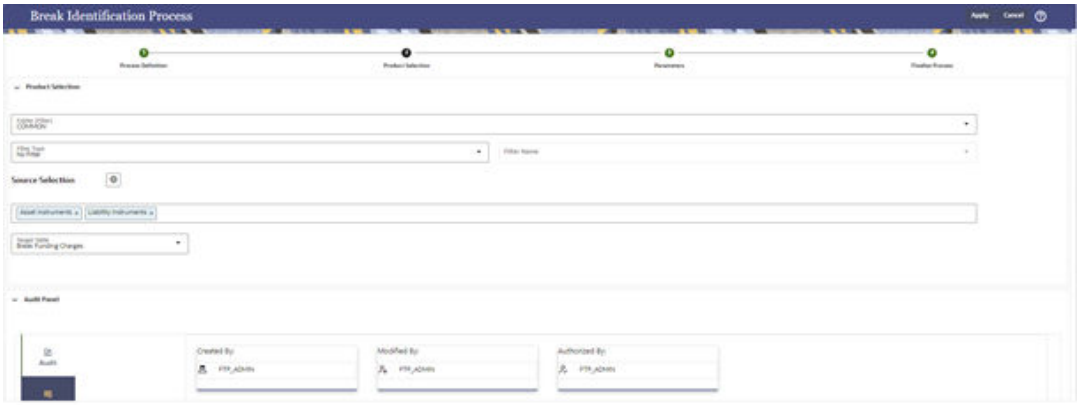
Figure 6-150 Break Identification Process Summary page



2. Select the **Product Selection** block.

Figure 6-151 Break Identification Process Details



3. Enter or select the following details:

Table 6-42 Fields and Descriptions from the Break Identification Process Details page

Term	Description
Folder	The folder where you can save the definition. You can give other users, read/write, or read-only privileges.

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Table 6-42 (Cont.) Fields and Descriptions from the Break Identification Process Details page

Term	Description
Filter	Filters allow you to restrict your data selection based on any attribute that exists within an instrument table. You define filters under Common Object Maintenance and reference your filter within the Product Selection block of your Process. The choice of the data filter would determine the instrument records that should be picked up from the As-of-Date and the prior period date for comparative analysis. The supported Filter Types are: • Attribute Filter • Data Filter • Hierarchy Filter • Group Filter **Note** Data Filters with Expressions are not supported for Break Identification.
Source	Allows you to select one or more source Instrument tables to include in your process. Based on the Instrument Table(s) selected, the instrument records on the As-of-Date and the prior period date are chosen for comparison.
Target Table	Indicates the destination table where break event records will be posted. The default (seeded) table is the FSI_D_BREAK_FUNDING_CHARGES table. Users can additionally register user-defined tables for posting Breakage Funding records if needed.
Parameters	There are three types of break parameters for the accounts: • **Full Break**: Fully repaid or terminated accounts are considered as a Full Break. • **Partial Break**: Partly repaid accounts are considered as Partial Break. • **Change in Attributes**: Here a restructure of the Instrument record happens due to a change in critical attributes or terms other than Balance. You can execute these breaks individually or together.
Minimum Break Amount	Minimum Break applies to both Positive and Negative breakage amounts. If the user enters the minimum break as 1000, it means that the minimum break amount ranges from -1000 to +1000. If the Breakage Amount that is calculated is less than or equal to the Minimum Break Amount, then it is not passed to the Break Funding Charges table.

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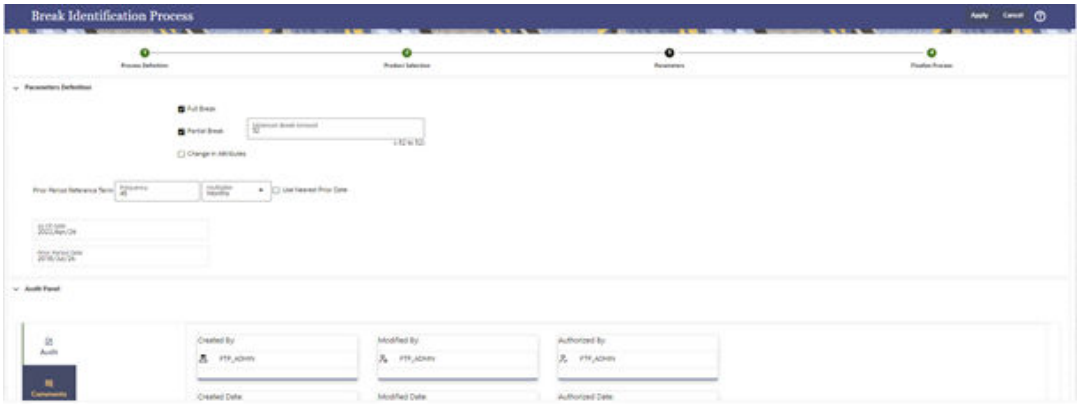
Table 6-42 (Cont.) Fields and Descriptions from the Break Identification Process Details page

Term	Description
Finalize Process	The finalize process screen you to review and finalize the selections made in the Process Definition Flow or to edit the selections.

- Select a Filter (optional) to constrain the data to be included in the process. The supported Filter Types are Attribute Filter, Data Filter, Hierarchy Filter, and Group Filter.
- Select the source table(s) that you want to include in the process.
- Select the target table, which is a Break Funding Instrument table.

4. Select the **Parameters** block.

Figure 6-152 Break Identification Process Parameters page



- Select the type of break that you would like to search for and fill in the related details. In the case of a Full Break, the filter will work only on the prior period-instrument record. In the case of a Partial Break or Change in Attributes, the filter will work on both the prior period and current period-instrument records.
- Input the **Minimum Break Amount** as a positive value. The engine will apply the absolute value of the amount of input ranging from - input amount to + input amount. For example, if the input is 100, then break amounts between -100 and +100 will be excluded. This input allows you to filter very small/insignificant break amounts, reducing the amount of data copied into the Break Funding Charges table.
  Note there are two approaches for determining the Prior Period Date. You can input the Prior Period Reference Term and based on the current As of Date, the Prior Period Date will be calculated, or you can select the “Use Nearest Prior Date” option, and the engine will then look back at the historical data (in the table FSI_PROCESS_RUN_HISTORY) to determine the nearest prior As of Date and will use this as Prior Period Date.

5. Select the **Finalize Process** in the screen.
   If you want to edit any of the prior steps, you can directly do it from this screen.

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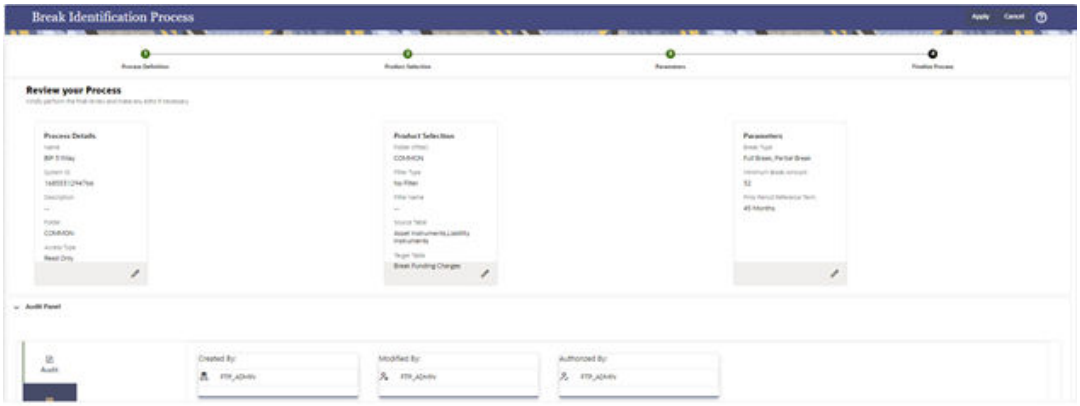
Figure 6-153 Finalize Process screen



6. Select **Apply** to complete the process.

6.3.12.2.6 Executing a Break Identification Process

You execute a Break Identification to compare the current period and prior period data to identify different break types.

To execute a Break Identification Process:

1. Perform the basic steps for Creating a Break Identification Process.
2. There are two approaches to execute the Break Identification Process:
   - Executing from the Summary UI
   - Executing using Batch Framework

Executing from the Summary UI

To execute the Break Identification Process from the Summary UI:

1. Navigate to the Break Identification Process summary Page.
2. Select a **Process** that you want to execute or Run.
   The status column indicates whether a process can be Run. There are three possible status conditions:
   - **Failed**: Indicates the process is failed.
   - **Complete**: Indicates the process is fully defined and ready to be Run.
   - **Incomplete**: Indicates the process is partially defined and cannot be Run.
3. After executing the preceding process, select the **View Log** hyperlink.

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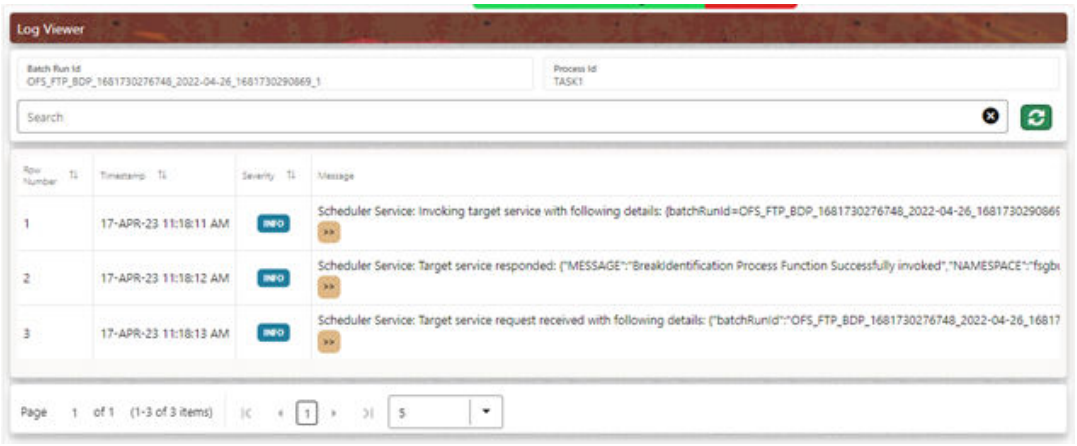
Figure 6-154 View Log



4. Select the **Task ID** (also known as the Unique System Identifier) to view a report for any processing errors.

> **Note**
>
> If significant processing errors exist, you must re-Run your process.

The Break Identification process is complete.

Executing using Batch Framework

To execute the Break Identification Process using Batch Framework:

1. Navigate to **Operations** and select **Batch Maintenance**.
2. Create a new batch.
3. Select the **Batch Name** to add the **Task**.
4. Click the **Add** button under the **Task Details** section.
5. Define the **Task ID** and **Description**.
6. Select Components as **Break Identification Process**.
7. Input the following required parameters:
   - Folder
   - Process Name
8. Save the Batch and execute.

6.3.13 Rate Lock Option Volatility Curve

A Rate Lock is a lender's promise to hold a certain interest rate for the borrower, usually for a specified period of time and fee, while the loan application is being processed. Rate locks are commonly granted to borrowers when they apply for a mortgage loan and carry a term of 30, 60, or 90 days.

In Oracle Funds Transfer Pricing Cloud Service, these loan commitments (which are not yet on the balance sheet) are stored in the FSI_D_LOAN_COMMITMENTS table, separate from loans that are already funded. These loan commitments can be Transfer Priced using implied

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forward rates, which correspond to the assumed loan start date (end of commitment period). This capability allows the treasury to “lock-in” a loan-funding rate at a point in time before the actual loan funding.

Rate Lock Options

Many times, lenders also offer a one-time option for borrowers to take a lower rate if market rates drop during the commitment period. If on the Settlement Date, the advertised rate for the chosen fixed-rate period falls below the 'Locked Rate', the borrower will benefit from the lower of the current advertised Fixed Rate and the 'Locked Rate'. The benefit granted to the user to receive the lower rate at the time of settlement can be thought of as an option, specifically, the bank sells the customer a European 'at the money spot' Interest Rate swap option. The cost of this option can be calculated and should be charged by the treasury back to the line of business as an internal cost. Oracle FTPCS provides the capability to calculate the 'rate lock' option cost. The general approach assumes that loan commitment information will be available in sufficient detail from the source systems to support cash flow transfer pricing using forward FTP curves and all required information describing the terms of the Rate Lock.

Calculate Rate Lock Option Costs and Percentage

The Standard FTP Process provides setup options that allow you to Transfer Price Data in the Loan Commitments table using Forward Rates and calculate the Related Rate Lock option costs. To do this, select the Loan Commitment table under Source Selection.

The following options are available on the Calculation Selection page.

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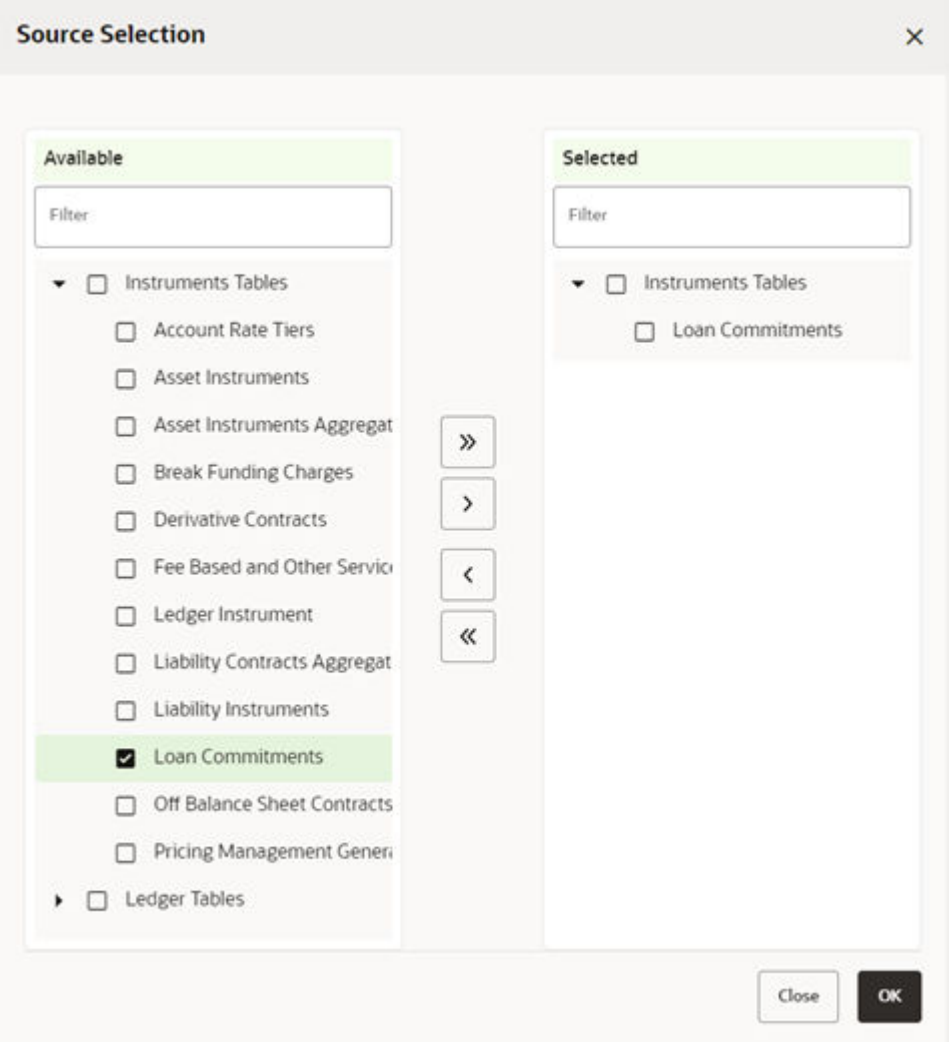
Figure 6-155 Source Selection



> **Note**
>
> These calculation options assume the user has also selected the Loan Commitments table on the Product Selection page under Source Selection.

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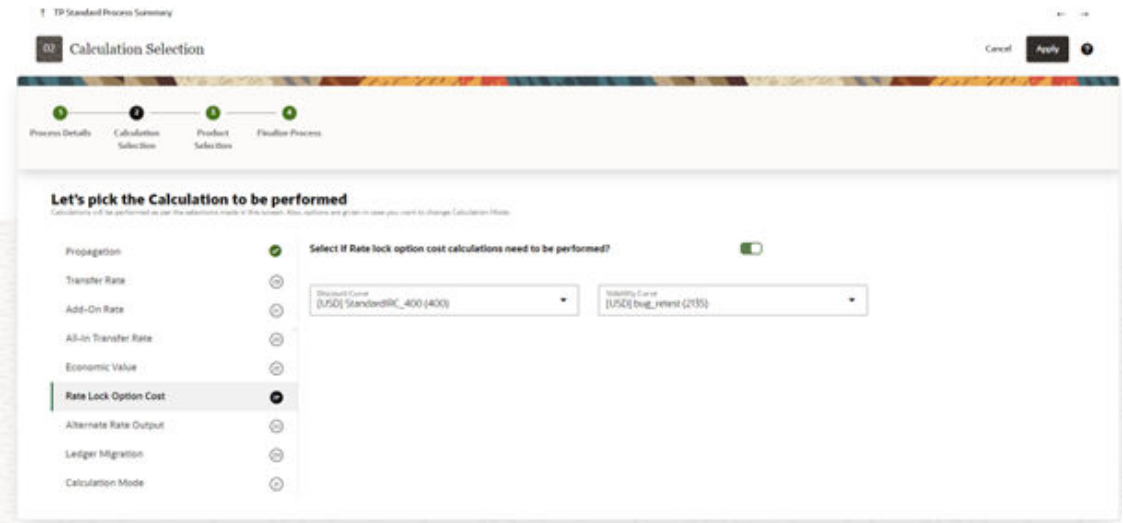
Figure 6-156 TP Standard Process Rule



Discount Curve: User can select any IRC as per the selected currency in user preferences, this curve will be used as risk free rate.

Volatility Curve: User needs to define volatility curve in Rate lock option volatility curve module, as per the selected currency in user preference, all the corresponding volatility curves will be listed for selection.

6.3.13.1 Volatility Rate Management

As shown in the Transfer Pricing Process, the Rate Lock Option Cost calculation requires following two inputs:

- **Discount Curve**: This can be a standard Interest Rate Curve.
- **Volatility Curve**: This is a special form of Interest Rate Curve defined under volatility curve module, where the volatility rates have been selected as per the contractual and commitment terms.

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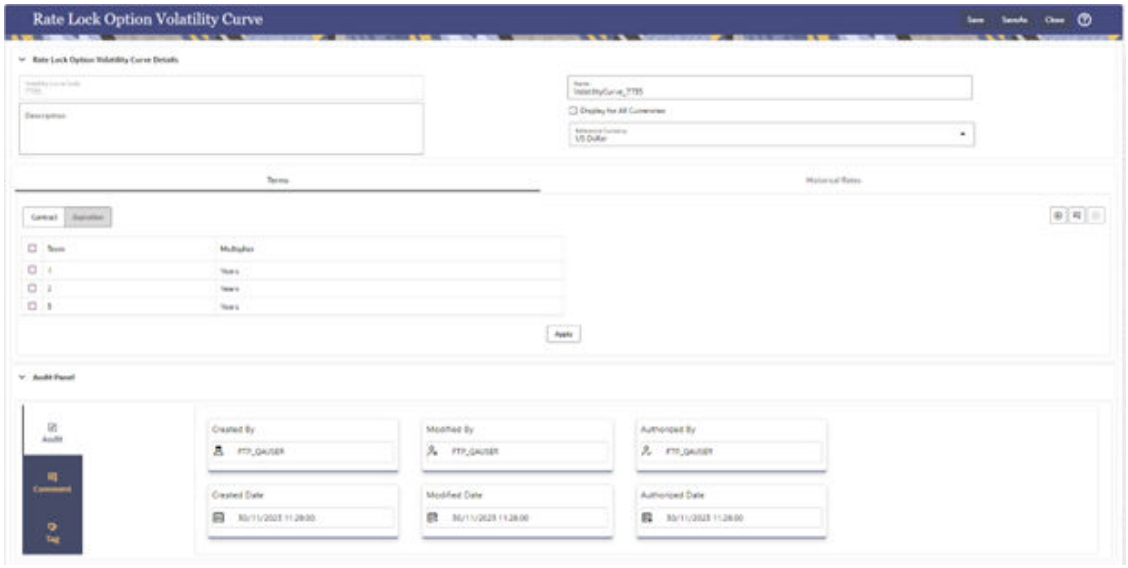
Figure 6-157 Interest Rate Curve



To set up a volatility curve, while defining a new Interest Rate Curve, select the check box – 'Volatility Curve'.

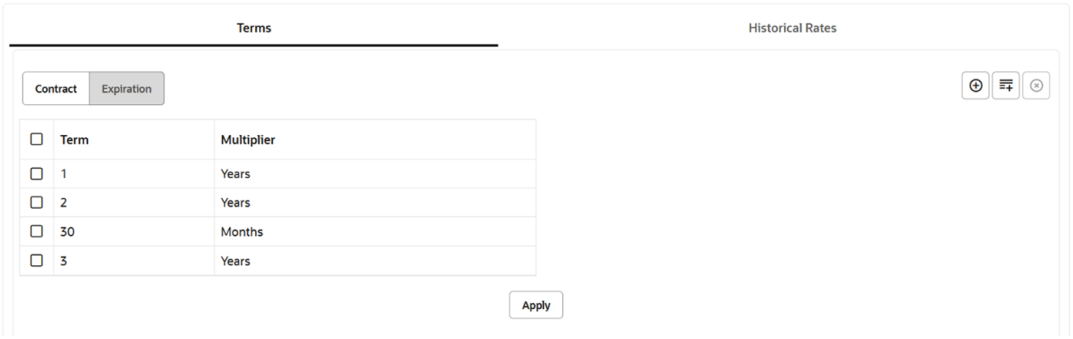
Terms tab: For a Volatility Curve, the Terms tab displays two types of terms – The Contract Term (Loan Term) and the Expiration Term (Rate Lock (option expiry) Term). Users must provide the volatility inputs for all combinations of *Contract Term* and *Expiration Term*.

> **Note**
>
> In the moneyness dimension, associated with option volatility is not required, because Rate Lock Options are assumed to be granted at the money.

The following steps are required to complete the setup of a volatility curve:

- **Terms tab - Contract Term**: Add rows and input terms for the number of required Loan Terms. These are the maturity term of the loan. Select **APPLY** to save the data.

Figure 6-158 Terms Tab – Contract Term



- **Terms Tab – Expiration Term**: Add rows and Input Terms for the number of required Expiration Terms. These correspond to the number of Rate Lock Terms offered. Select **APPLY** to save the data.

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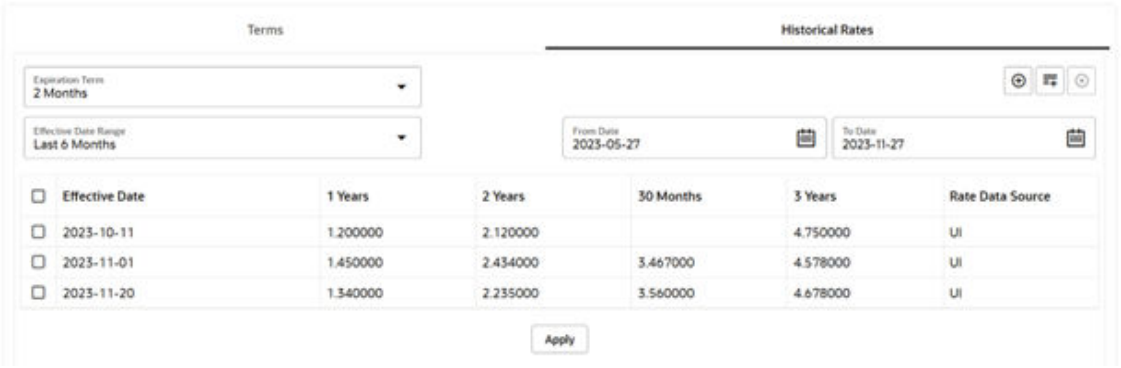
Figure 6-159 Terms Tab – Expiration Term

Historical Rates tab: After defining and applying the volatility curve dimensions, navigate to the Historical Rates tab and input the volatility rates for each combination of the loan term and rate lock term and for each effective date that you wish to store historical volatility data.

Figure 6-160 Historical Rates Tab



Select **Apply** to save the data.

6.3.13.2 Implied Forward Rate Calculation

An Implied Forward is that rate of interest that is predicted to be the spot rate in the future.

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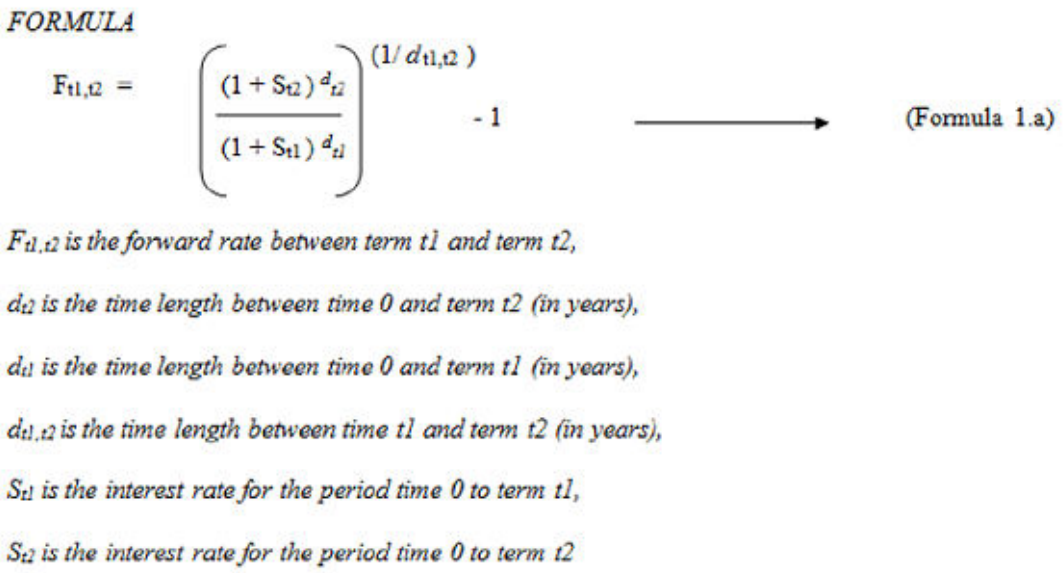
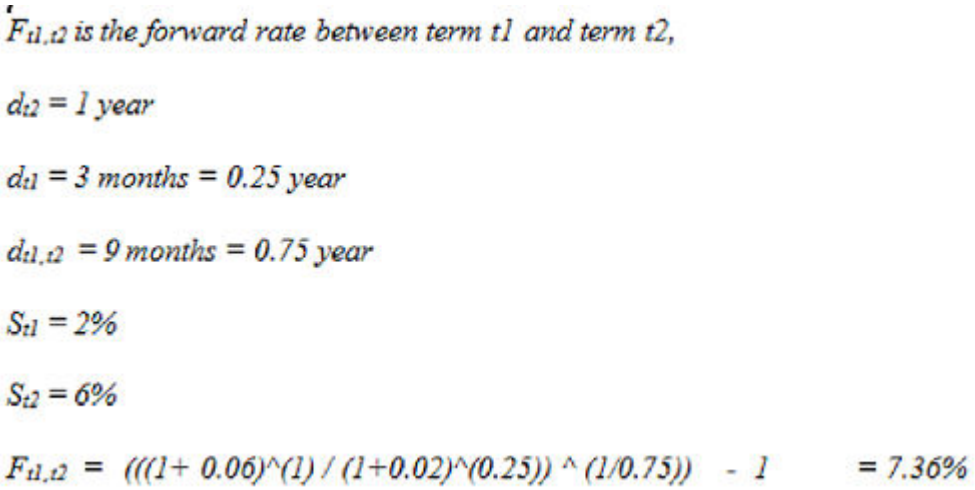
Figure 6-161 Implied Forward Rate Calculation Formula



If 1 year TP Rate is 6.00% and 3 month TP Rate is 2.00% we can calculate the 3 months forward implied 9-month rate as follows:

Figure 6-162 3-month Forward Implied 9-month Rate Calculation Formula



Therefore, the market is implying that in 3 months, 9 month TP Rate will be 7.36%.

Rate Lock Option Cost Calculation: The Rate Lock Option Cost calculation uses a standard Black European swap pricing formula. This calculation is triggered by a Standard FTP Process and can be performed for both fixed-rate and adjustable-rate instruments. The following conditions must hold true for instrument records in the FSI_D_LOAN_COMMITMENTS table:

- commit_start_date <= as_of_date
- origination_date > as_of_date

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Figure 6-163 Black Formula for calculating Rate Lock Option Cost

$$d1 = \frac{Log(F/X) + T*0.5v^2}{Sqr(T)*v}$$

$$d2 = \frac{Log(F/X) + T*0.5v^2}{Sqr(T)*v} - Sqr(T)*v = \frac{Log(F/X) - T*0.5v^2}{Sqr(T)*v}$$

$$OptionCost = \frac{1-(1+F/m)^{(-t1*m)}}{F} * Exp(-r*T)*[F*CND(d1) - X*CND(d2)]$$

where:

- *t1 is the term to maturity of the loan*
- *T is the term to expiry of the option*
- *F is the forward instrument rate – to be picked from the calculated Forward curve*
- *X is the strike rate (same as F – Forward Instrument rate)*
- *v is volatility*
- *r is the continuously compounded "risk free" rate to option expiry*
- *m is the payment frequency of the underlying swap.*

Table 6-43 Example: Option Cost Calculation

Loan Face value - ORG_BOOK_BAL	10,000,000	
Tenor of Loan - ORG_TERM & ORG_TERM_MULT	5	Years
Locked TP Rate - TRANSFER_RATE	8.20%	
Rate Lock Commitment period - COMMIT_TERM & COMMIT_TERM_MULT	90	days
Principal Payment frequency - PRIN_PMT_FREQ	6	Months
Volatility	20%	
Risk-free rate to Option Expiry	4%	

Table 6-44 Required Inputs

Term to maturity of the loan	t1	5	years
Term to the expiry of the rate lock option	T	0.2465753	years
Strike rate - Locked TP Rate (Forward TP Rate as on Loan Origination)	X	8.20%	
Volatility			

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Table 6-44 (Cont.) Required Inputs

Details for Volatility - From the historical volatility curve that is loaded in Rate Management by the user, pick Volatility% with			
EFFECTIVE DATE = COMMIT_START_DATE and LOOKUP TENOR = Tenor of the Loan. In Release 6.0, 2 Dimensional Volatility curve was introduced with Contract term and Expiry term as the 2 dimensions.	v	20%	
Payment frequency of the loan	m	6	months
Continuously Compounded TP rate to option expiry	r	4.08%	(See the calculation (1) below)
Implied Forward TP rate	F	8.20%	(See calculation (2) below)

Table 6-45 Intermediate Calculations

(1) Continuously Compounded TP rate to option expiry	r	4.08%
(2) Implied Forward TP rate		
(FDD v1.1 - Implied Forward Rate Calculation - Section 6.1.2.1)		
Inputs required - (Terminology for these inputs is according to Section 6.1.2.1)	F	
dt1 - Commitment term of Rate Lock	0.246575	years
dt1,t2 - Tenor of Instrument	5	years
dt2- Time length between Commitment Start Date and Loan maturity	5.246575	Years
St1- Spot Interest Rate as on COMMIT_START_DATE for Commitment Term of the Rate Lock (COMMIT_MAT_DATE – COMMIT_START_DATE)	4%	
St2- Spot Interest Rate as on COMMIT_START_DATE for Time length between Commitment Start Date and Loan maturity	8%	
Implied Forward Rate, F (Formula given above in explanation)	0.0820119	8.20%

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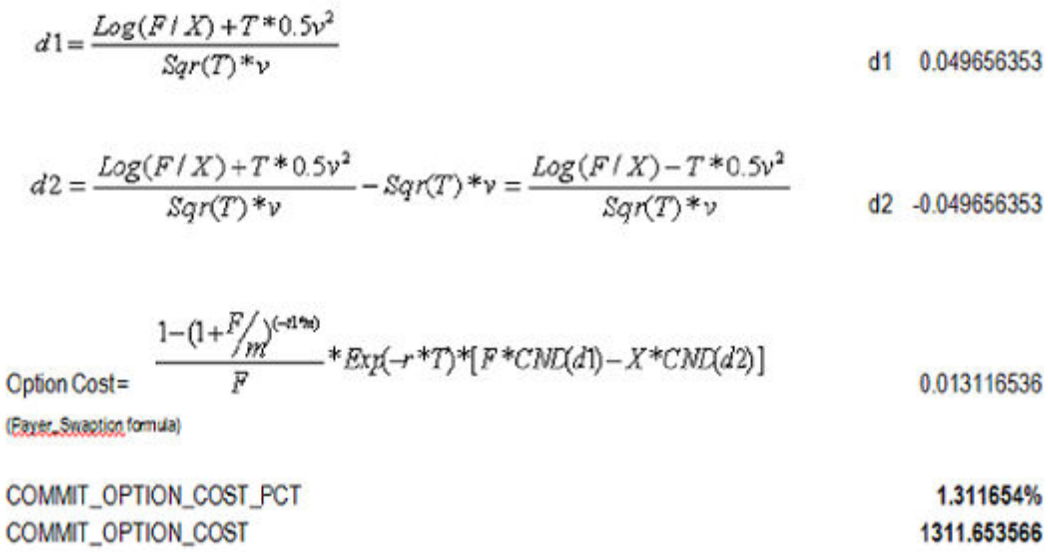
Option Cost Calculation

Figure 6-164 Option Cost Calculation Formula



6.3.13.3 Execution and Results

You can execute the TP Process to calculate Forward Rates and Rate Lock Option Costs by selecting the process in the Summary screen and then click Run from the Action menu.

The following are the relevant output columns related to this feature:

- COMMIT_OPTION_COST_PCT: Rate Lock Option Cost in Percent terms
- COMMIT_OPTION_COST: Rate Lock Option Cost in Amount terms
- TRANSFER_RATE: Transfer Rate

6.3.14 Rate Cards

Rate card functionality allows the user to select standard products for viewing in their daily FTP Rate report. Administrators schedule a daily FTP run for the selected set of standard products and end users can view daily rates for relevant standard products by defining their Daily rate card reports.

Rate cards are used only for informational purposes. They are used to give an idea of the prevailing transfer rates as per the current market scenario before actual transactions take place, unlike a Standard Transfer Pricing Process where a bank runs at the end of each month to generate Transfer Rates for each booked instrument record.

For example, think of a situation where a user (Bank Personnel, Account officer, so on) wants to refer to the current cost of funds rate before the transaction rate is quoted. Having access to this up-to-date information allows the banker to be pro-active with their pricing decisions having full knowledge of the cost of funds and prospective rate spread before quoting a rate to the customer.

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6.3.14.1 Products

Product setup allows Administrators to define the default Product Characteristics for standard products. The Administrator will define these assumptions for Products during the application setup through the provided user interface.

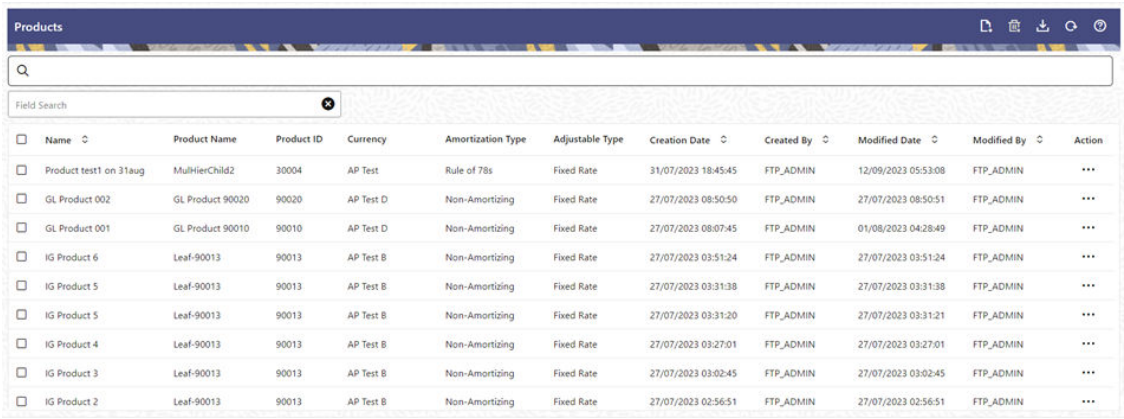
The Products window shows the list of all the defined Product Characteristics for standard products and you can define/edit the properties for these standard products.

The procedure for working with and managing Products is similar to that of other Oracle Funds Transfer Pricing business rules. It includes the following steps:

- Searching for Products
- Creating a Product Definition
- Viewing and Editing Product Definitions
- Copying Product Definitions
- Deleting Product Definitions

As part of creating and editing Product definitions, the user defines the properties for applicable products.

Figure 6-165 Products screen



Defining a Product

Prerequisite: Perform the basic steps of creating or editing a prodcut.

To define a product:

1. Navigate to **Rate Card**, and select **Products** to access the Products window.
2. Click the **Add** icon to create a new product definition.
   The definition of Product is a part of the Create or Edit Product Definition Page. When you click **Apply** or **Save** on the Create Product Definition page, the product definition is saved and the Product will be displayed on the Product summary page.

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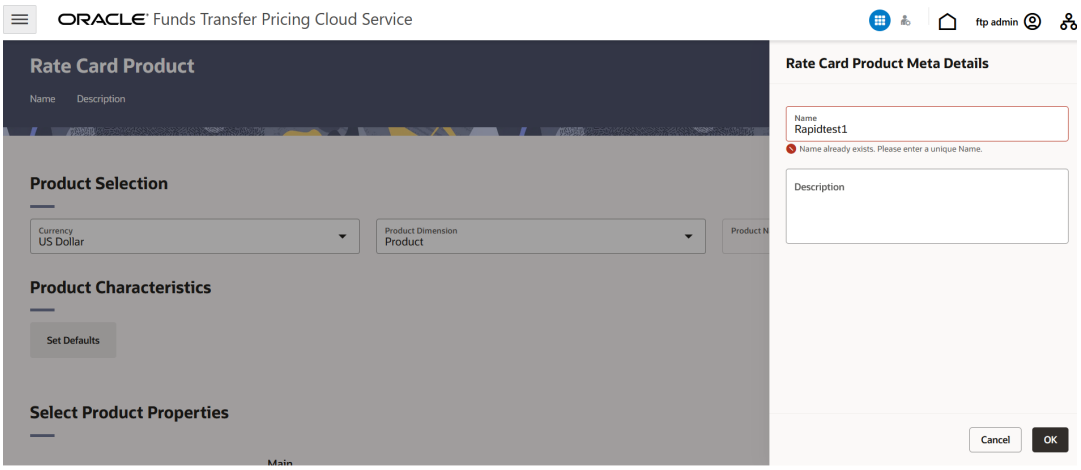
> **Note**
>
> Only those Products, which are defined by the Administrator, will be included in the daily Rate Card Process and similarly, only defined products will be available to end-users for Rate Card reporting.

Figure 6-166 Product Definition screen



This table describes the key terms used for this Procedure.

Term	Definition
Name	Provide a Name for your rate card product defunition to uniquely identify the rate card products
Description	Description helps to capture details of rate card product so in future it can be easily referenced
Product Name	Provides a list of the leaf dimension members for the Product dimension selected in Application Preferences.
Currency	The corresponding currency of the instrument to be priced.
Set Defaults	Select the Set Defaults option, to restore default Product Characteristics.
Main Tab	
Amortization Type	Select the Amortization Type. This defines the method by which an account's principal and interest will be Amortized. The Default Amortization Type is Non Amortizing.
Payment Patterns	Optionally, select the Payment Pattern. This list is defined through the Payment Pattern user interface.

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Term	Definition
Adjustment Type	Select the Adjustment Type. This selection indicates if the product is a fixed-rate or adjustable-rate. The Default Adjustment Type is Fixed Rate.
Accrual Basis	Select the Accrual Basis. The interest accrual is calculated on this basis. The default value is Actual/Actual.
Compounding Basis	Select the Compounding basis. This selection indicates the compounding frequency used to calculate the interest income. The compounding basis for the interest payments can be monthly, annually, simple, and so on. The default value is Simple.
Interest Payment Timing	Define the Interest Payment Timing. You can pay the interest in Advance, Arrears. The default value is Interest in Arrears.
Rate Rounding Type	Select the Rate Rounding Type to round off the Interest Rate. This selection indicates how the rate assigned to the product will be rounded. The default value is No Rounding.
Rate Rounding Factor	Enter the rate-rounding factor. If the Rate Rounding Type is Round Up, Round Down, or Round Nearest, then the rate-rounding factor determines the precision of the rounding. The possible range of values for this is 0.0000 – 9.9999. The default value is 0.0000. This option is not applicable if Rate Rounding Type is selected as No Rounding.
Term Tab	
Original Term	Enter the Original Term to define the contractual term from the origination date. Note that it is possible to define more than one term for the selected product/currency. If more than one term is defined, then multiple records are created for pricing, i.e. one corresponding to each Product/ Currency and Term.
Payment Frequency	Enter the payment frequency. This allows you to define the frequency of payment.
Repricing Frequency	Enter the Repricing Frequency to define the frequency of rate change of a product.
Amortization Term	Define the assumed term used for payment calculation purposes. This will be equal to the Original Term of the instrument. It should only be different in cases where the instrument does not fully Amortize over the life of the product. i.e. there is a lump sum payment due on the maturity date.
Interest Rate Code	Enter the Interest Rate Code to be used for finding the coupon rate on the product.
Margin	Enter the margin that is the contractual spread, which is added to the pricing index and results in the financial institution's retention (net) rate.

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Term	Definition
Tease Period	Define the Tease Date, that is when the Tease Rate (introductory rate) ends and the normal product rate begins. The default value is 0 Months. This entry is disabled, if the Adjustable Type (defined from Main Tab) is a Repricing pattern or fixed.
Tease Discount	Enter the Tease Discount. The default value for tease discount is 0.0000. This entry is disabled if the Adjustable Type is a repricing pattern or fixed rate or if the teasing period is zero.
Commitment Start Date	The commitment start date defaults to the system date.
Commitment Term	Enter the commitment period term in Days. Based on this input the commitment end date is calculated.
Commitment End Date	The commitment end date is calculated automatically based on the commitment start date and commitment term.
Negative Amortisation Amount	The total amount of principal added to outstanding principal, resulting from payments which were not large enough to cover interest due.
Maturity Amount	This optional column is used when AMRT_TYPE_CD = 850 (Annuity). Maturity Amount is an optional input, and represents the value (principal and accrued interest) of the record at the maturity date for annuities.
Residual Amount	Used for instruments with AMRT_TYPE_CD = 840 (Lease). This column represents the residual value of the lease at the maturity date.

3. Click **Apply**.

Defining a Product: An Example

To define a product:

1. Provide a unique name for your rate card product definition.
2. Enter few details as description for your rate card product definition.
3. Select a standard Product using the hierarchy Browser.

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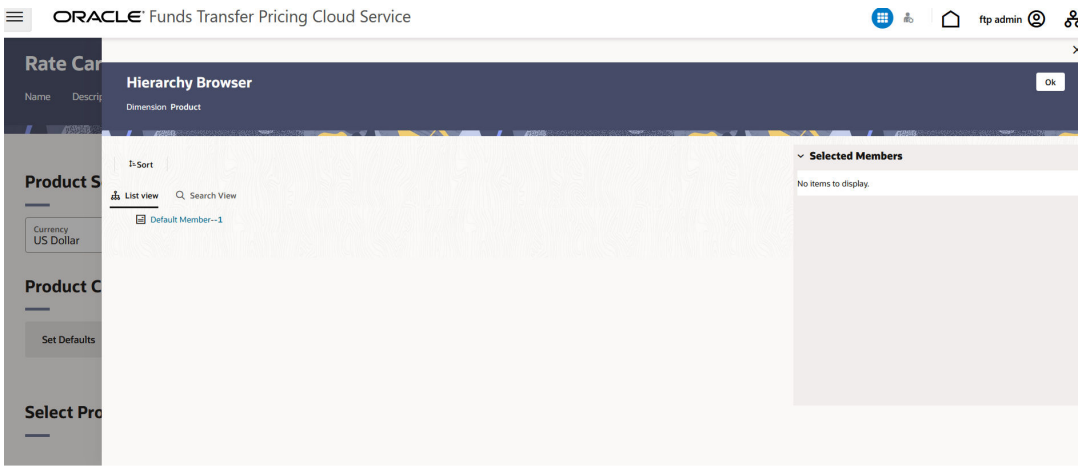
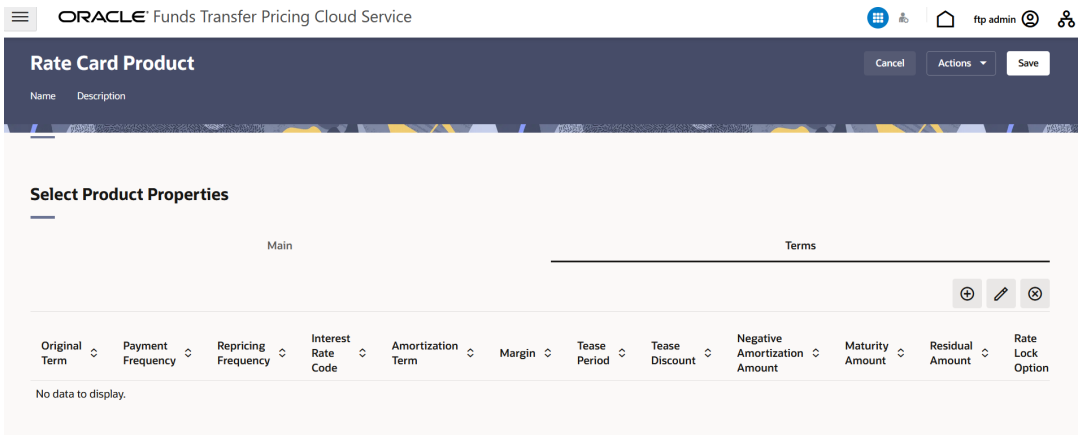
Figure 6-167 Hierarchy screen



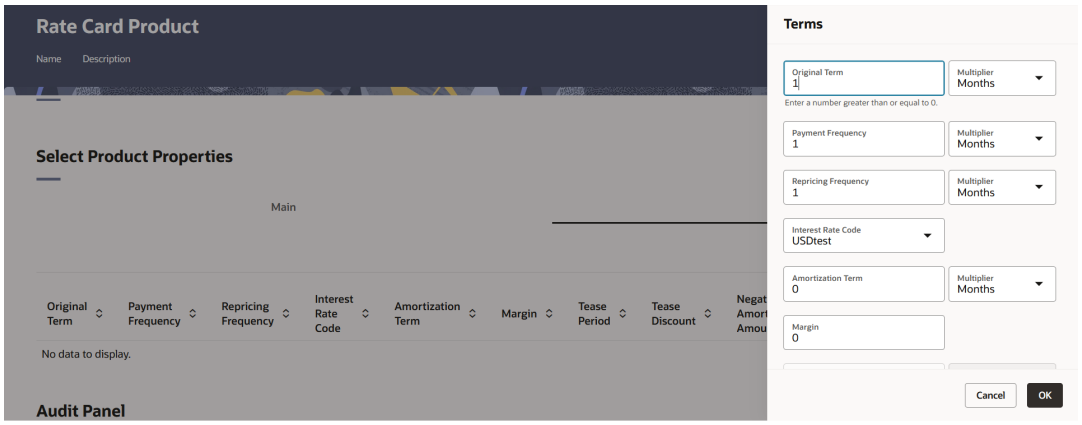
4. Select the corresponding currency.
5. Define the properties of the Product in the Main tab.

Figure 6-168 Product Definition Main tab



6. Define the properties of the Product in the Terms tab.

Figure 6-169 The Product Definition – Terms Tab



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> **Note**
>
> Under a single product/currency selection, users may define multiple combinations of Original Term, Payment Frequency, and Repricing Frequency. This is done by adding records using the "+" icon. Multiple records are useful when generating daily pricing sheets, where the standard product has multiple terms. For example, the product could be "Term Deposits", but users may want to view the daily FTP Rates for each available term, for example, 3 months, 6 months, 12 months, 18 months, and 60 months. This example is possible by adding and defining multiple records under a single product/currency selection. For more information on the meaning of each of these fields, see the OFS Cash Flow Engine Reference Guide.

7. Click **Apply**.

> **Note**
>
> On save of each Product (Main and Terms), one or more record(s) will be inserted in the fsi_m_prod_characteristics table. When Multiple terms are defined for each product, multiple entries will be inserted into the fsi_m_prod_characteristics table. After the completion of the first task tpol.sh run, fsi_pm_generated_instrmts table is populated.

Setting up Batch Execution of Rate Card

To set a batch execution for the Rate card:

1. From the LHS Menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**.
2. Create the batch as per the instructions in Define Batch.
3. Create the Task as per the instructions in Define Task.
   While creating the Task, select the Component as **Rate Card Report Generator** and select the relevant parameters for Dimension, Folder, and Process Name.
4. Execute the batch as per instructions in Execute Batch.

6.3.14.2 Rate Reports

The Rate Card Report window allows users to select the set of standard products.

The Rate Card Report contains a Rate Report definition page and a Report page. The Rate Report definition includes the name of the Rate report, and the set of standard products for which the user wants to fetch the rates.

Following set of columns are available in rate card report for the set of selected products:

- As of Date
- Product Name
- Currency
- Original Term
- Adjustable Type
- Amortization Type
- Transfer Rate

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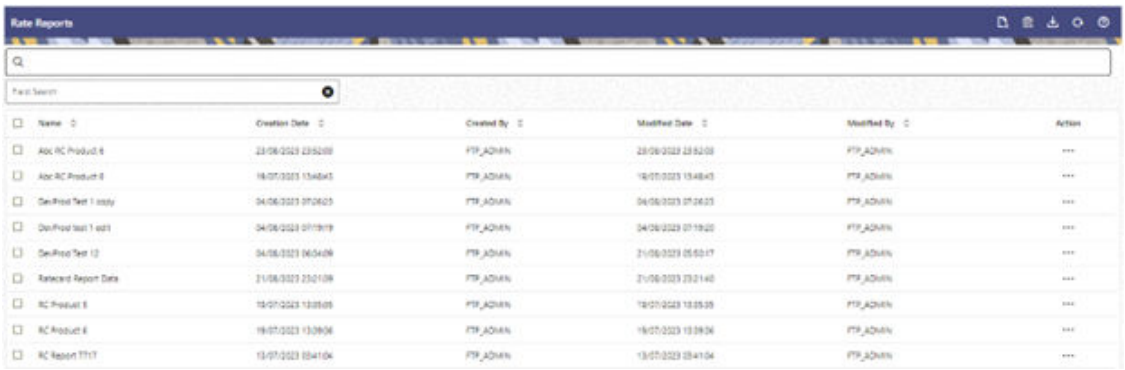
- All in Transfer Rate
- Basis Risk Cost Rate
- Liquidity Premium Rate
- Other Add-On Rate
- Pricing Incentive Rate
- Current Net Rate
- Current Par Balance
- Current Payment Amount

The procedure for working with and managing Rate Report is similar to that of other Oracle Funds Transfer Pricing Cloud Service business rules. It includes the following steps:

- Searching for Rate Reports
- Creating a Rate Report
- Viewing and Editing Rate Report
- Copying Rate Report
- Deleting Rate Report

As part of creating and editing a Daily Rate Report, the user defines the products under rate card report definition.

Figure 6-170 Rate Reports



Defining Rate Report

To create a new Rate Report:

1. Navigate to Rate Report.
2. Click the **Add** icon.

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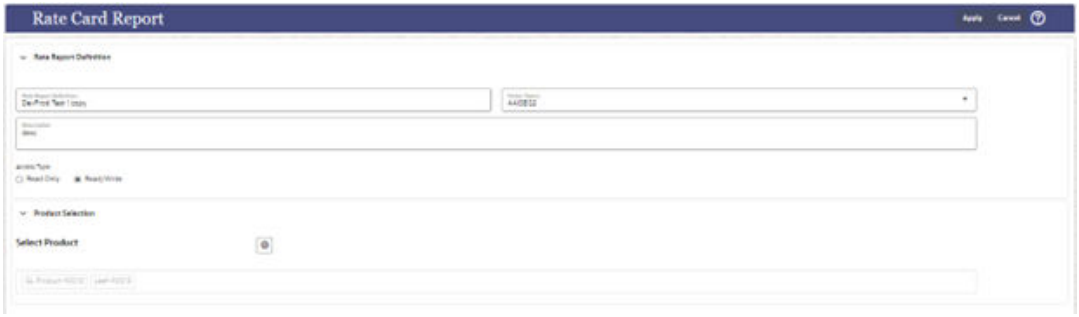
Figure 6-171 Rate Report – Definition Mode



This table describes the key terms used for this procedure.

Table 6-46 Fields and Descriptions from the Rate Report page

Term	Definition
Rate Report Definition	Enter the Rate Report name.
Description	Enter the description of the Rate Report.
Folder Name	Select the Folder name.
Access Type	Select the Access type of Rate Report as Read/ Write or Read Only.
Product Selection	Click the Product Mapping (Add) icon to select the relevant standard products to be included in your pricing report.

3. Click **Save** to save the Rate Report.

Definiting a Rate Report: An Example

The Rate Report window allows users to select the set of standard products to include in their report.

The Rate Report contains a Rate Report definition page and a Report page. The Rate report definition includes the name of the Rate Report, the set of standard products for which the user wants to fetch the rates.

The procedure for working with and managing Rate Report is similar to that of other Oracle Funds Transfer Pricing business rules. It includes the following steps:

- Searching for Rate Reports.
- Creating Rate Report
- Viewing and Editing Rate Report
- Copying Rate Report
- Deleting Rate Report

To define a Rate Report:

1. Enter the Rate Report **Name** and **Description**.
2. Select the **Folder Name** and **Access Type** details.

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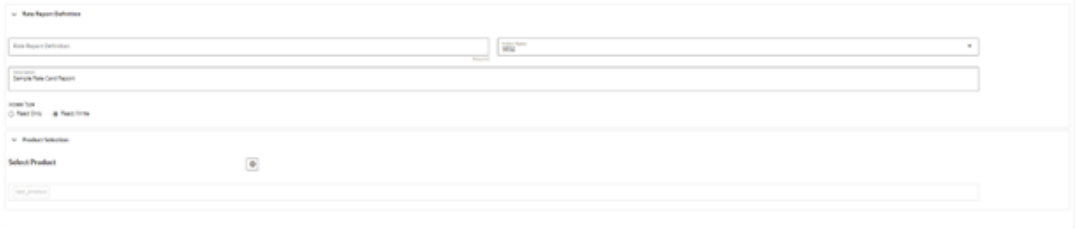
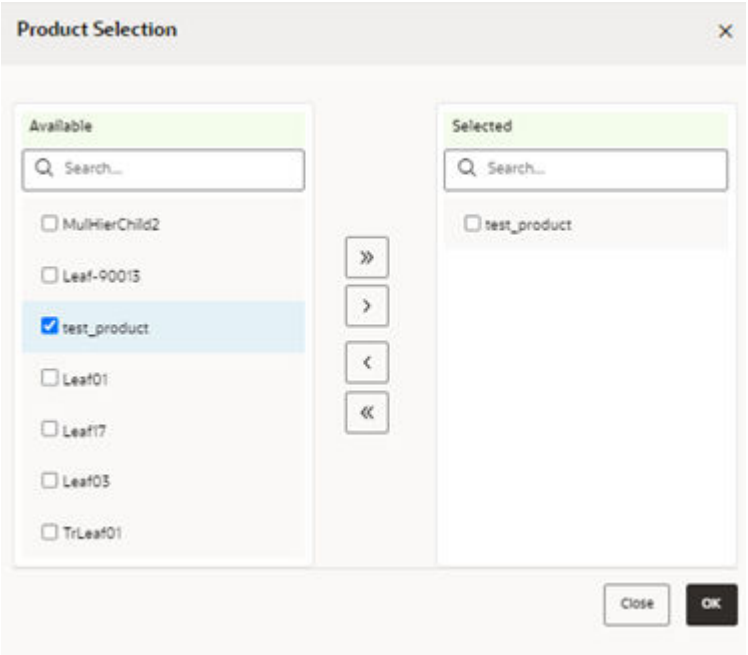
Figure 6-172 Rate Report – Definition Mode



3. Select the Product(s) from the hierarchy browser using the **Add** icon. This hierarchy browser will have the list of defined standard products (as set up by the Administrator).

Figure 6-173 Product Selection – Hierarchy Browser



4. Click **Save**.
   You will be directed back to the Rate Report summary page and the defined Rate Report will be displayed on the Rate Report summary page.

Viewing Rate Card Report

Rate Card report is available upon successful completion of the Pricing Run.

To access a Rate Card Report, select the Rate Report **Name** and click **Report** from the **Action** menu.

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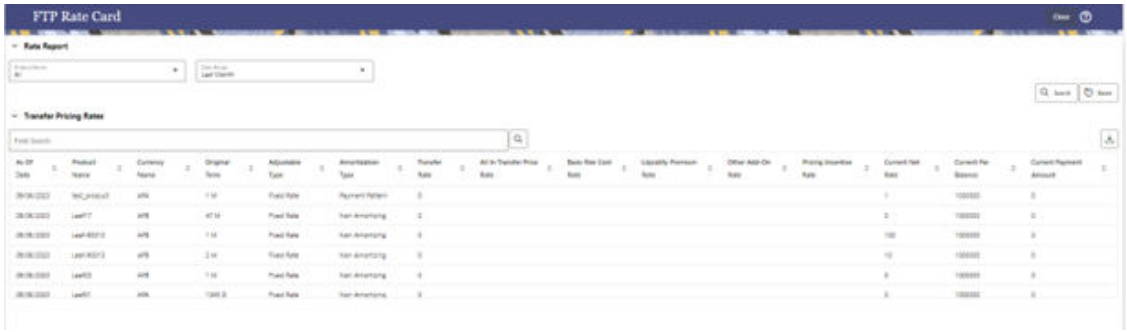
Figure 6-174 Rate Report

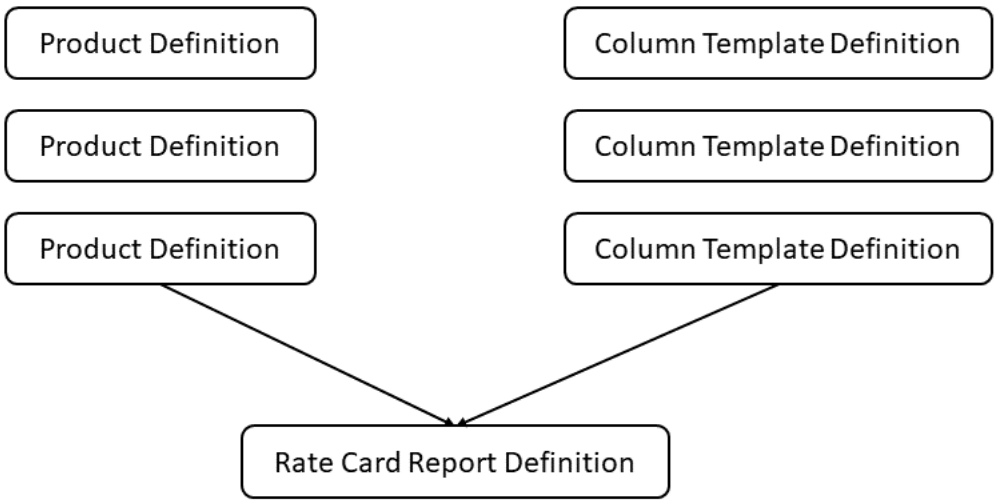


6.3.14.3 Rate Report Templates

Rate Card Report templates help you to create a customized Rate Card Report by choosing the columns you want to see in your report.

These columns can include/exclude standard out of the box columns as well as other columns that are properly registered. Following is the updated flow with an extra (new) step of defining column templates, while defining Rate Card Report:

Figure 6-175 Rate Card Report Flow



Each template contains a user specified set of product attributes selected from the master table (FSI_PM_GENERATED_INSTRMTS). Templates is an added functionality, which will allow you to change rate card reports on the Run. Each report can be defined with more than one template, which can change on the Run as per your requirement.

6.3.14.3.1 Search for Rate Report Templates

Search for a rate report template to perform any of the following tasks:

- Edit

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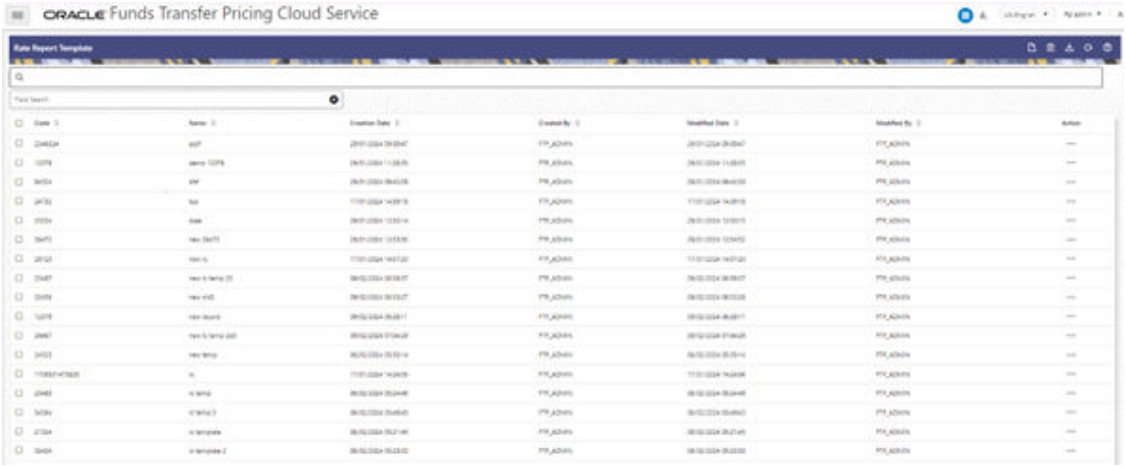
- View
- Delete
- Copy
- Check Dependencies

Defining a Rate Report Templates is a prerequisite to perform any operation on the Template, like search.

To define a Rate Report Template, From the LHS menu, select Funds Transfer Pricing, select Rate Card, and then Rate Report Template to display the Rate Report Template screen.

Figure 6-176 Rate Report Template screen



When you first navigate to the Rate Report Template, the Templates stored within your current default folder are presented in a summary table. The Rate Report Template summary screen displays a Search pane and a summary pane.

The title bar of the summary page provides several actions for the user. They are:

- **Add**: Click Add icon to build a new Replicating Portfolio.
- **Multiple Delete**: Enables you to select and delete one or multiple rules in the table simultaneously.
- **Download**: Click to download the displayed information in the summary table in .xls format.
- **Refresh**: Click the Refresh button to refresh the summary Page.
- **Help**: Click the Help icon to view the Rate Report Template help page.

On the summary page, enter your search criteria in the search box and click Search. The Rate Report Template definitions meeting your search criteria are displayed.

6.3.14.3.2 Rate Report Template Summary Table

This section displays a table containing all the Rate Report Template that are already created or those that meet your search criteria.

The Rate Report Template summary table displays the following details:

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- **Code**: A unique code.
- **Name**: Displays the Rate Report Template's short name. Hovering over an Rate Report Template Name displays the Allocation model's description.
- **Creation Date**: Displays the date and time at which an Rate Report Template was created.
- **Created By**: Displays the name of the user who created the Rate Report Template.
- **Modified Date**: Displays the date and time at which an Rate Report Template was modified.
- **Modified By**: Displays the name of the user who modifed the Rate Report Template.
- **Action**: Displays the list of following actions that can be performed on the selected Rate Report Template.
  - **View**: Click the View icon to view the contents of an Rate Report Template on a read-only basis as the user is launched into the Rate Report Template Detail screen in view mode.
  - **Edit**: Click the Edit icon to modify a previously saved Rate Report Template as the user is launched into the Rate Report Template Detail screen in edit mode.
  - **Delete**: Click Delete to delete the Rate Report Template you have selected.
  - **Save As**: Click on this option to create a copy of an existing Rate Report Template. The Save As pop-up window allows you to enter the Code, Name, Description, Folder, and Access Type Details for the copy template.

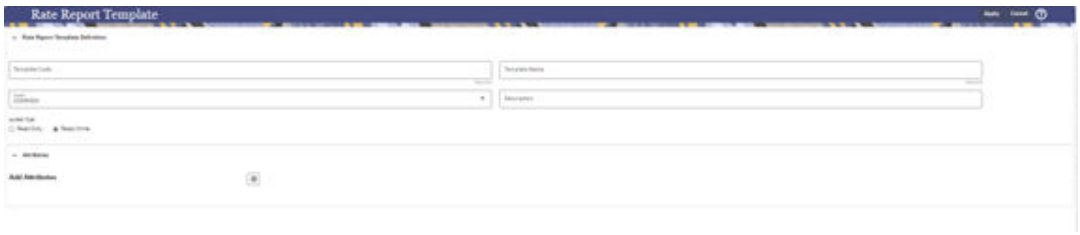
6.3.14.3.3 Creating a Rate Report Template

Template creation is a role specific activity, only the users with the creation rights can create a new template.

To create a Rate Report Template, follow these steps:

1. Navigate to Rate Report Templates screen.
2. Click the **Add** icon to add a new template.

Figure 6-177 Rate Report Template Definition



3. Enter the following details for the new report template:
   - **Code**: A unique numeric code within the range of 10000 to 99999.
   - **Name**: A name for the template within a range of 1 to 120 characters.
   - **Description**: A description for the template.
   - **Folder Name**: A folder where this template is saved.
   - **Access Type**: The access type that you want to give to this template for other users.
4. Click the **Add Attributes** icon to display the **Column Selection** window where you can select the attributes to the template.

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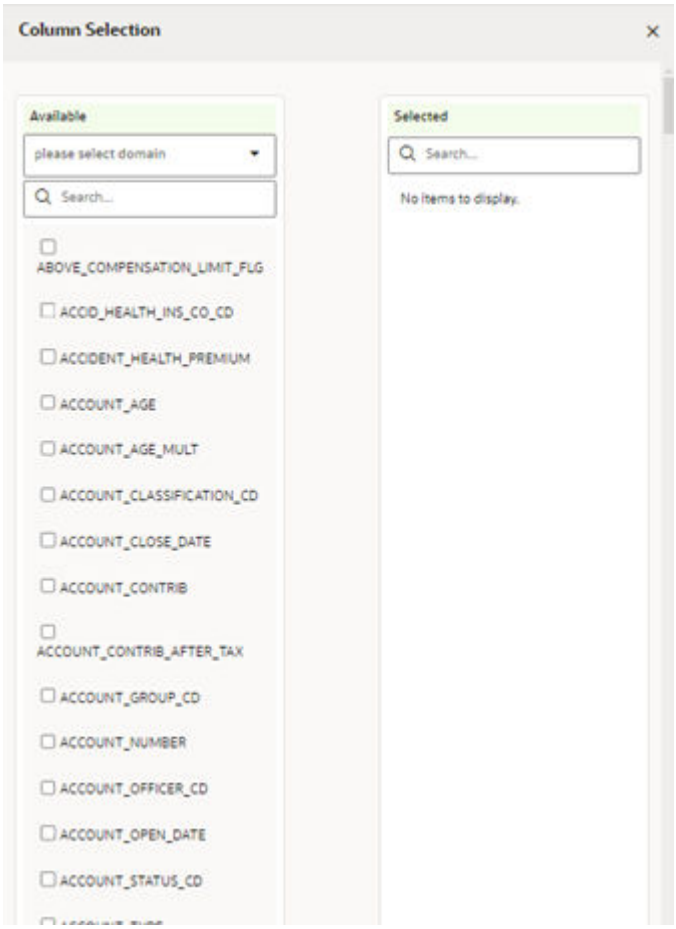
Figure 6-178 Column Selection window



5. Select the **Domain** from which you want to select the attributes. The attributes available for the selected Domain will be displayed in the **Available Attributes** column. If no Domain is selected, this screen displays the all the Available Attributes.
6. Select the Attributes from the **Available Attribute** column and click the **>** icon or **>>** buttons to move them to the **Selected Attribute** column. If you select any attributes by unintentionally, you can move them back to the Available Attribute column by clicking the **<** icon or **<|<** buttons.
7. Click **OK** to save the selected attributes to the report template.

6.3.15 Account Audit

The Account Audit UI provides a tool to validate account attributes along with calculated FTP results and the related cash flows. You can use Account Audit to access following account details.

- Transfer Rates, Add-On Rates, and Economic Cost results.
- Audit information like method used for transfer rate or Add-On rate calculations.
- Interest rate curves used for calculations.
- Cash flows generated for the account, which are helpful to verify the rate calculations.
- Error messages.

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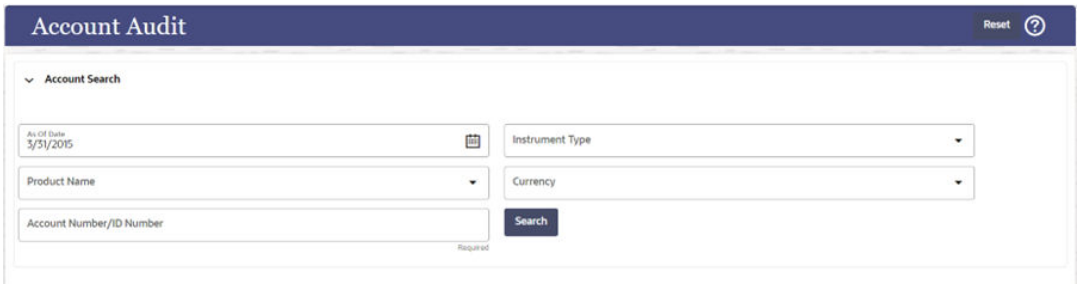
You can verify all these details in a single UI without taking any technical help to query multiple Database tables. To open the Account Audit, follow these steps:

1. From the LHS menu, click **Funds Transfer Pricing Cloud Service**, and then select **Account Audit**.

Figure 6-179 Account Audit page



2. Enter the following details:
   - **As Of Date**: By Default, this is the As Of Date set in the application preferences. However, select a different date using calendar if you want to pull records for another date, .
   - **Instrument Type**: By Default, this is blank. Select one value from available list of values like Loans, Deposits, etc.
     There are multiple instrument tables to retain instruments like Assets, Liabilities, Off Balance Sheet items, and so on with millions of records. To speed up the process, you should select an instrument name from drop-down list.
   - **Product Name and Currency**: Both are optional fields with a drop-down. You can select a value to narrow-down the search criteria and reduce the turnaround time.
   - **Account Number/ID Number** (mandatory): You can enter either the ID Number or the Account number.
3. After entering the relevant details, click **Search**.
   If there are no records for the search criteria entered, then FTP displays a message *No records found. Update the search criteria*.

   If the record is found, then the screen displays either the Account Number or ID Number based on your search criteria.
4. Select the **Account Number**.
5. Click **Apply**. The system displays the Account Attributes and Account details for the selected Account.

Account Attributes Tab

The account attributes tab displays account/deal attributes, so you can get an idea if the account is fixed or floating rate, rate of interest charged, original balance, remaining balance, account maturity etc., which would be required to verify the calculations in subsequent tabs.

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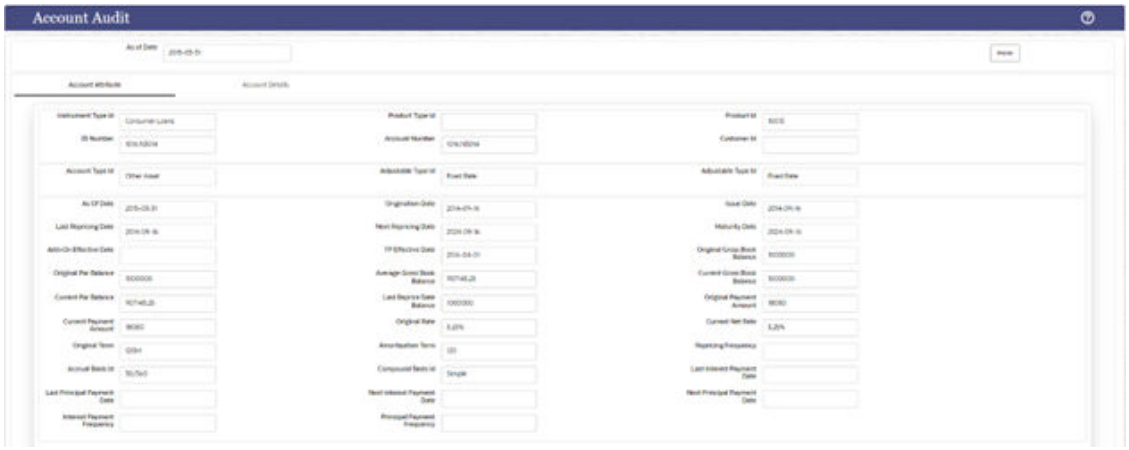
Figure 6-180 Account Attributes Tab



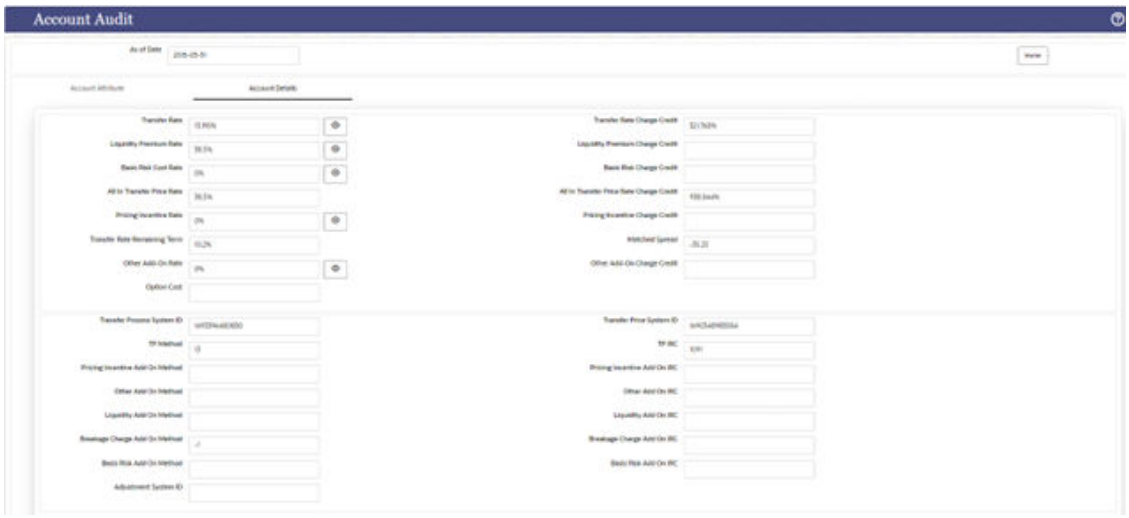
This tab contains following details:

- Instrument Type
- Product Details
- Customer Details (ID Number, Account Number, and Customer Number)
- Account Type, Adjustable Type, Amortization Type
- Dates (As of Date, Origination Date, Issue Date, Last Reporting Date.
- Balances, Payments, Terms, and Frequencies
- Customer Rate

Account Details Tab

The account details tab contains two sections. The first section displays all the calculated rates and the second section displays the TP Process details.

Figure 6-181 Account Details Tab



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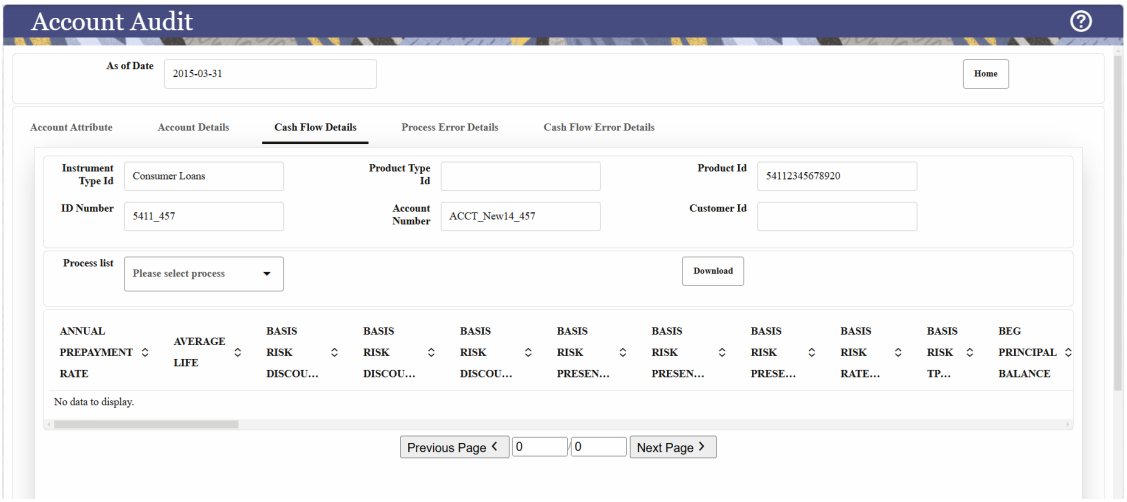
Cash Flow Details Tab

Figure 6-182 Cash Flow Details tab



The Cash Flow tab details all the Cash Flows for the searched account. Same account can have multiple processes one for transfer rate, a different process for add-on rate calculations, and so on, all processes which have generated Cash Flows for the record are listed here.

In this process if no filter is selected, then the whole Cash Flow details related to the selected account number will be downloaded when you click the **Download** button.

If any process filter is applied, then the specific Cash Flow details related to the particular process in the selected account number will be downloaded when you click the **Download** button.

Process Error Details

The Process Error Details tab lists all the errors logged for the concerned account (Transfer Rate, Adjustment Rate, and Economic Cost Calculations, and so on). You could have run the multiple processes for Transfer Rate or Add-On Rate Calculations for the same account and the Process errors tab will collate all the errors spread across various processes for a particular account and display on one screen.

Similar to the cash flow tab, process errors also come with process IDs' which can be selected to view errors corresponding to that particular process.

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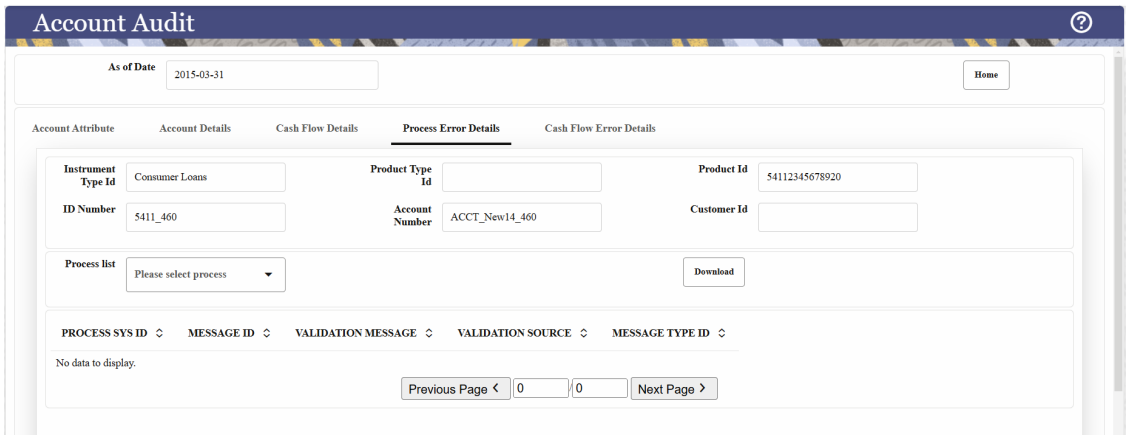
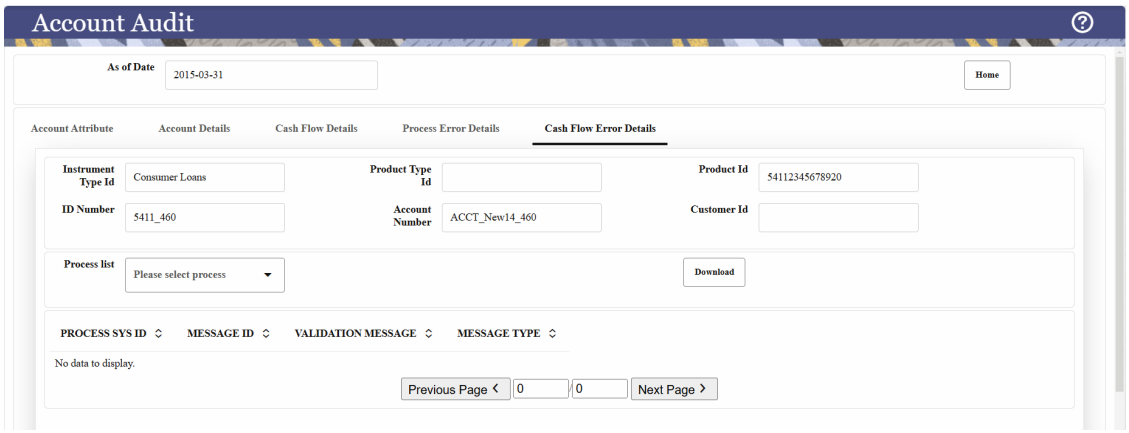
Figure 6-183 Process Errors Details tab



Cash Flow Error Details

The Cash Flow Errors Details tab lists all the Cash Flow generation errors logged for the concerned account.

Figure 6-184 Cash Flow Error Details tab



6.4 Modeling

This section explains about the Modeling specific modules. This section covers the following topics:

1. Non-Maturity Products Model Analysis: Non-Maturity Products Modeling helps you to understand the relation between market and bank rate, how much is core out of total available balance for the portfolio, and how long core will remain with the bank based on Decay Rate Profile.
2. Non-Maturity Products Data Creation Process: Non-Maturity Modeling is comprised of three types of models: Core/Volatile Balance segregation, Decay Rate and corresponding weighted rate average life calculation, and Beta Factor or Pass-through Rate Calculations.

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6.4.1 Prepayment

This section covers the following topics:

1. Prepayment Data Creation Process: This module discusses on defining the product for which prepayments behavior need to be learn.
2. Prepayment Model Analysis: This module allows you to develop a model for prepayment rate calculations as per the chosen risk factors.

6.4.1.1 Prepayment Data Creation Process

The Prepayment Rate Calculation Process helps you to create data for the subsequent step prepayment modelling by performing following tasks:

Define the product for which prepayments behavior need to be learnt (Product Selection block).

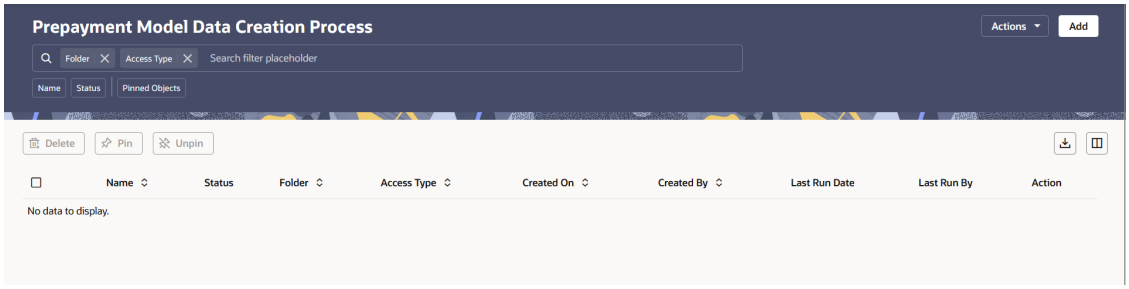
Specify the parameters to calculate various risk factors which can influence prepayments. E.g. as of dates reference term, threshold prepaid amount, Market rate calculation parameters.

Execute or run the Prepayment Rate Calculation process and generate results through Prepayment Rate Calculation Process Summary Page.

Prepayment Model Data Creation Process Summary

This page is the gateway to all Data Creation processes and related functionality. You can navigate to other pages relating to Data Creation processes from this point.

Figure 6-185 Prepayment Model Data Creation Process Summary



Search Data Creation Process

Prerequisites: Predefined Prepayment Model Data Creation Process

To search for a Prepayment Model Data Creation Process, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Prepayment Model Data Creation Processes that meet the search criteria.

Or

The other method to search a Prepayment Model Data Creation Process is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Name, Status, Folder,** or **Access Type** status of the Prepayment Model Data Creation Process and click **Search**.

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The Prepayment Model Data Creation Process summary page has following information:

Add: Click the **Add** icon on the page header to build a new Prepayment Model Data Creation process.

Actions: Enables you to perform following tasks.

- **Refresh:** Retains the selected filters and refreshes the summary page with latest status.
- **Reset:**Clears the selected filters and refreshes the summary page.
- **Help:**Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected rule.

Export: Enables you to download the summary page details in .CSV format.

Columns: Allows you to view the summary page data using a customized list of columns.

The Prepayment Model Data Creation Process summary table displays the following columns:

- **Prepayment Model Data Creation Process Name:** Name of the Prepayment Model Data Creation Process's short name.
- **Status:** Status of the Prepayment Model Data Creation Process.
- **Folder:** The folder where the Prepayment Model Data Creation process is saved.
- **Access Type:** The access type of the process. It can be Read-Only or Read/Write.
- **Created On:** The Date and Time when the Prepayment Model Data Creation process was created.
- **Created By:** The user who created the Prepayment Model Data Creation process.
- **Last Run By:** The user who last run the Prepayment Model Data Creation process.
- **Last Run Date:** The Date and Time when the Prepayment Model Data Creation process was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Prepayment Model Data Creation process.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Prepayment Model Data Creation processes. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Prepayment Model Data Creation process by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Prepayment Model Data Creation processes that you no longer require. Note that only Prepayment Model Data Creation process owners and those with Read/Write privileges can delete Data Creation processes. A Prepayment Model Data Creation process that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Execute:** Select Execute to execute an existing Prepayment Model Data Creation process. After clicking Execute, the **Execute window** is displayed. Select **As of Date (Execution Date)**, and then click **Submit**.
  - **View Execute Details:** Select Execute Details to view execution details of the Prepayment Model Data Creation process. Click **Execution ID** link to view detailed information of process execution.

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Also See:

- Creating Prepayment Model Data Creation process
- Executing Prepayment Model Data Creation process

6.4.1.1.1 Creating a Prepayment Data Creation Process

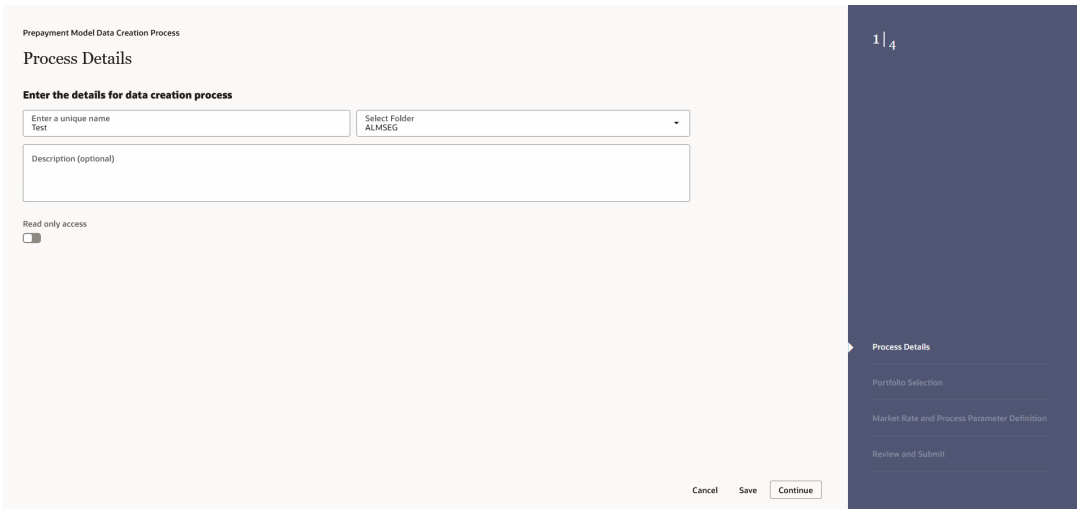
To create a new Prepayment Model Data Creation Process, perform the following steps:

1. Navigate to the Prepayment Model Data Creation Process Summary page.
2. Click **Add**. The **Create Data Creation Process** page is displayed.
3. Follow the steps mentioned in below sections:
   a. Process Details
   b. Portfolio Selection
   c. Market Rate and Process Parameter Definition
   d. Review and Submit
4. Click **Submit/Save** after entering all details in above sections.

Step 1: Process Details

1. From **Prepayment Model Data Creation Process** tab, click **Start**. The **Process Details** page is displayed.

Figure 6-186 Process Details



2. Enter the following details:
   - **Process Name:** Name of Process. The Data Creation Process Name should be unique. Any special characters are not applicable.
   - **Folder:** Folder Name where you want to save the process.
   - **Description:** Description of Process. The maximum limit of this field is 300 characters. You can enter special characters in this field.
   - **Read only Access:** Select this option, if you want to make the process Readonly.

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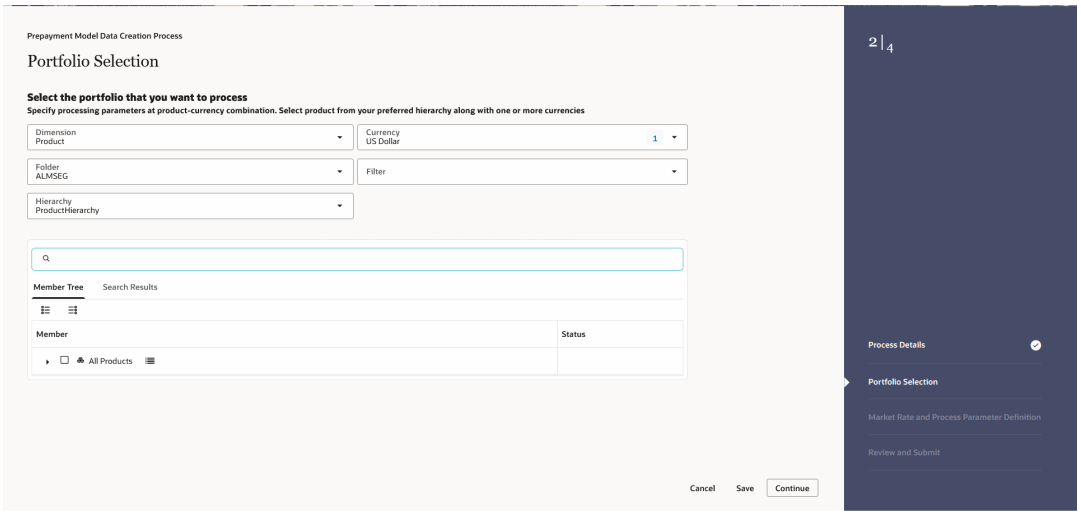
3. Click **Continue**.

Step 2: Portfolio Selection

1. Navigate to the **Portfolio Selection** section. The **Portfolio Selection** window is displayed to set Portfolio.

Figure 6-187 Portfolio Selection



2. Enter the following details:
   - **Dimension:**Select the Dimension.
   - **Currency:** Select the Currency. The Currency drop-down displays the list of active currencies.
   - **Folder:** Select the Folder from which you want to pick the Hierarchy.
   - **Filter:** Select the Filter.
   - **Hierarchy:** You can specify some processing parameters at product-currency combination. Hierarchies in selected Folder will be listed and you can select one from the available list of hierarchies.
   - Select **Product(s)** from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results
     - **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.
       Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:
       * **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
       * **Expand selected member/branch:** Allows to expand the selected node
       * **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
       * **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
       * **Select Defined self, child:** Allows to select the selected node itself along with its child.

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* **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
* **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

* Add
* Edit
* View
* Delete
* Copy

– **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

a. Navigate to **Assumption Browser** section of the Rule Definition page.

b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

c. Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser** .
Here, you can perform the following tasks on the searched node(s):

* Add
* Edit
* View
* Delete
* Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Step 3: Market Rate and Process Parameter Definition

1. Navigate to the **Market Rate and Process Parameter Definition** section. The **Market Rate and Process Parameter Definition** window is displayed to define Market Rates and Process Parameter.

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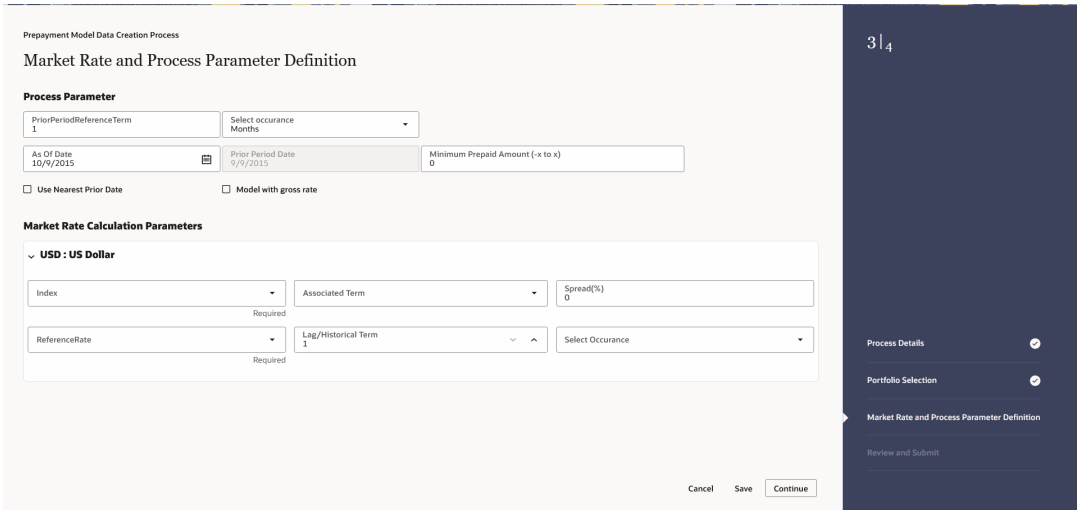
Figure 6-188 Market Rate and Process Parameter Definition



2. Enter the following details:

- **Prior Period Reference Term:**Enter Prior Period Reference Term and based on the current As-of-Date set in application preferences, the Prior Period Date will be calculated,
- **Select Occurrance:**Select the occurrence of Prior Period Reference Terms day, month, or year.
- **As of Date:** Enter the As of Date
- **Prior Period Date:** The value of this field is calculated based on Prior Period Reference Term and As of Date. This field is not editable.
- **Minimum Prepaid Amount (-x to x):**Enter the Minimum Prepaid Amount as a positive value. The engine applies the absolute value of the amount input ranging from - input amount to + input amount. For example, if the input is 100, then prepaid amounts between -100 and +100 is excluded. This input allows you to filter very small / insignificant prepaid amounts, reducing the amount of data copied into risk factor table for further modelling process.
- **Use Nearest Prior Date**: If you select the **Use Nearest Prior Date** option, then the engine looks back at the historical data to determine the nearest prior As-of-Date and uses this as Prior Period Date.
- **Model with gross rate:** If **Model with Gross Rate** check-box is selected, then CUR_GROSS_RATE is picked from the instrument record.
- **Index:**Select the per-defined IRC. The selected IRC (Index in Parameter screen) provides the base value for the market rate.
- **Associated Term:**Specify the associated term you want to use for IRCs that are yield curves.
  - **Original Term:** The calculation retrieves the interest rate from the term point equaling the original term on the instrument.
  - **Reprice Frequency:** The calculation retrieves the interest rate from the term point equaling the reprice frequency of the instrument. If the instrument is fixed rate and, therefore, does not have a reprice frequency, the calculation retrieves the interest rate associated with the term point equaling the original term on the instrument.

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  - **Remaining Term:** The calculation retrieves the interest rate from the term point equaling the remaining term of the instrument.

- **Spread%:** Spread can be positive as well as negative values and both are to be added to base market rate. Therefore, if the base market rate is 5 and spread given is 1.2, the final rate is be 5+(1.2) = 6.2. Similarly, if spread is -1.2, then final market rate is 5+(-1.2) = 3.8
- **Reference Rate:** Select the Reference Date. Following options are available:
  - **Rate on Prior As of Date:** Select the reference rate as per the given curve for prior As-of-Date
  - **Rate on Prior As of Date-Lag Term:** Select the market rate with some lag say 15 days, 30 days. Lag Term can be defined with a drop-down containing days, months and years.
  - **Rate on Prior As of Date-Historical Term:** The market rate can be defined as arithmetic average over historical range of 1 month, 6 months starting prior As-of-Date. Historical term is also given with a drop-down containing days, months and years.
- **Lag/Historical Term:**This option is available if the Reference Rate is selected as **Rate on Prior As of Date-Lag Term** or **Rate on Prior As of Date-Historical Term** .
- **Select Occurrence:** Select the occurrence of Lag or Historical Term.

Step 4: Review and Submit

1. Navigate to **Preview and Submit** section. Review the process details.
2. Click **Submit** to create the Data Creation process. The created process will be displayed on **Prepayment Model Data Creation Process Summary** page.

6.4.1.1.2 Executing Prepayment Data Creation Process

You can execute the Prepayment Data Creation Process using the following methods:

- Prepayment Data Creation Process UI
- Scheduler Service

6.4.1.1.2.1 Using Scheduler Service

To execute the Prepayment Data Creation Process, follow these steps:

1. Navigate to **Operations and Processes** menu, and select **Scheduler**.
2. To define a new batch, navigate to **Define Batch**.
3. Enter the Batch Name and Description, and then save the batch.
4. To add a task, navigate to **Define Task**.
5. Select the Batch from Batch drop-down list on **Define Task** window.
6. Click the **Add** button.
7. Define the task with below details:
   - **Task Code:** This can be same as the Process ID of Prepayment Data Creation Process or something else.
   - **Task Name:** This can be same as name of the Prepayment Data Creation Process or something else.

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- **Task Description:** This can be same a name of the Prepayment Data Creation Process or something else.
- **Task Type:** REST
- **Component:** Prepayment Data Creation Process
- **Process Name:** Select one value from the list.
- **Legal Entity Hierarchy:** Select one value from the list.
- **Legal Entity:** Select one value from the list.

8. Save and Execute the batch with Batch ID and MIS Date.

For more information, see the Scheduler Service.

6.4.1.1.2.2 Using Prepayment Data Creation Process UI

To execute the Prepayment Data Creation Process, follow these steps:

1. Navigate to the Prepayment Data Creation Process Summary page.
2. Search for a Prepayment Data Creation Process.
3. Click on the **Action** icon against the Process Name and select **Run** to execute an existing Prepayment Data Creation process. The **Run Parameter Execution** window is displayed.
4. Select the **As of Date** (Execution Date) and **Legal Entity**, and then click **Ok**.

> **Note**
>
> You can select multiple Legal Entities in list view of hierarchy browser at a time for execution. In hierarchy mode you can select one Legal Entity at leaf or parent level. When parent Legal Entity is selected then data of selected entity along with its child and descendants are processed.

5. The Prepayment Data Creation Run Confirmation page is displayed. The status of the process is displayed in the **Status** column. After completion of the process, you can navigate to the **Execution Details** page by selecting the **Execution Details** option under the **Action** column.

6.4.1.2 Prepayment Model Analysis

The Prepayment Model Analysis module allows you to develop a model for prepayment rate calculations as per the chosen risk factors. Model building could be a time consuming process given huge data sets and limited IT infrastructure.

User Roles and Privileges

Purpose	Role Code	Role Name	Function Code	Function Name
Prepayment Data Generation	RLPPMTADMIN	Prepayment Model Data Generation Admin Role	PPMTDATAADD	Add Prepayment Model Data Creation Process

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Purpose	Role Code	Role Name	Function Code	Function Name
			PPMTDATARUN	Run Prepayment Model Data Creation Process
			PPMTDATADEL	Delete Prepayment Model Data Creation Process
			PPMTDATAEDIT	Edit Prepayment Model Data Creation Process
			PPMTDATACOPY	Copy Prepayment Model Data Creation Process
			PPMTDATAVIEW	View Prepayment Model Data Creation Process
	RLPPMTANALYST	Prepayment Model Data Generation Analyst Role	PPMTDATAADD	Add Prepayment Model Data Creation Process
			PPMTDATARUN	Run Prepayment Model Data Creation Process
			PPMTDATADEL	Delete Prepayment Model Data Creation Process
			PPMTDATAEDIT	Edit Prepayment Model Data Creation Process
			PPMTDATACOPY	Copy Prepayment Model Data Creation Process
			PPMTDATAVIEW	View Prepayment Model Data Creation Process

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Purpose	Role Code	Role Name	Function Code	Function Name
	RLPPMTAUDIT	Prepayment Model Data Generation Auditor Role	PPMTDATAVIEW	View Prepayment Model Data Creation Process
Prepayment Model Analysis	RL_PPMT_ANALYSIS_ADMIN	Prepayment Model Analysis Admin Role	PPMT_ANALYSIS_ADD	Add Prepayment Model Analysis
			PPMT_ANALYSIS_DEL	Delete Prepayment Model Analysis
			PPMT_ANALYSIS_EDIT	Edit Prepayment Model Analysis
			PPMT_ANALYSIS_COPY	Copy Prepayment Model Analysis
			PPMT_ANALYSIS_VIEW	View Prepayment Model Analysis
	RL_PPMT_ANALYSIS_ANALYST	Prepayment Model Analysis Analyst Role	PPMT_ANALYSIS_ADD	Add Prepayment Model Analysis
			PPMT_ANALYSIS_DEL	Delete Prepayment Model Analysis
			PPMT_ANALYSIS_EDIT	Edit Prepayment Model Analysis
			PPMT_ANALYSIS_COPY	Copy Prepayment Model Analysis
			PPMT_ANALYSIS_VIEW	View Prepayment Model Analysis
	RL_PPMT_ANALYSIS_AUDIT	Prepayment Model Analysis Auditor Role	PPMT_ANALYSIS_VIEW	View Prepayment Model Analysis

Prepayment Model Analysis Rule Summary

This page is the gateway to all Prepayment Model Analysis Rules and related functionality. You can navigate to other pages relating to Prepayment Model Analysis Rules from this point.

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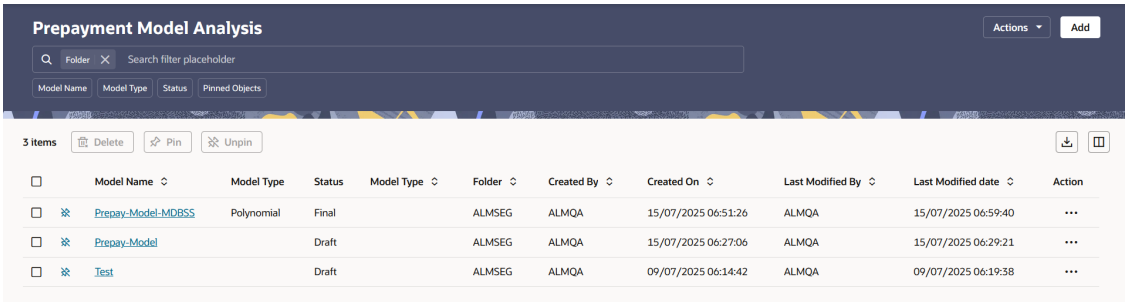
Figure 6-189 Prepayment Model Analysis Rule Summary



Search Prepayment Model Analysis Rule

Prerequisites: Predefined Prepayment Model Analysis Rule

To search for a Prepayment Model Analysis Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Prepayment Model Analysis Rules that meet the search criteria.

Or

An alternative method to search a Prepayment Model Analysis rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Prepayment Model Analysis Summary. You can enter the **Code, Name, Description, Dimension, Hierarchy**, and **Folder** of the Prepayment Model Analysis Rule and click **Search** .

The Prepayment Model Analysis rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Prepayment Model Analysis rule.

Actions: Enables you to perform following tasks.

- **Refresh:** Refreshes the summary page with latest model status.
- **Reset:**Clears all fields back to default.
- **Help:**Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected rule.

Export: Enables you to download the summary page details in .CSV format.

Columns: Allows you to view the summary page data using a customized list of columns.

The Prepayment Model Analysis summary table displays the following columns:

- **Model Name:** The Prepayment Model Analysis Rule's short name.
- **Model Type:** Shows the type of Prepayment Model Analysis rule as Linear or Polynomial
- **Status:** Displays the status as Draft or Completed.
- **Folder:** The Folder where the Prepayment Model Analysis Rule is saved.
- **Created By:** The user who created the Prepayment Model Analysis Rule.

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- **Created On:** The Date and Time when the Prepayment Model Analysis Rule was created first.
- **Last Modified By:** The user who last modified the Prepayment Model Analysis Rule.
- **Last Modified Date:** The Date and Time when the Prepayment Model Analysis Rule was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Prepayment Model Analysis rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Prepayment Model Analysis rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Prepayment Model Analysis rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Prepayment Model Analysis rules that you no longer require. Note that only Prepayment Model Analysis rule owners and those with Read/Write privileges can delete Prepayment Model Analysis rules. A Prepayment Model Analysis rule that has a dependency cannot be deleted.
  - Dependency Check: You can perform a dependency check to know where a particular Prepayment Model Analysis rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Prepayment Model Analysis rules that have dependencies. . A report of all rules that utilize the selected Prepayment Model Analysis rule is generated.

Also See:

- Creating a Model

6.4.1.2.1 Creating a Model

To create a model, follow these steps:

1. Navigate to the Prepayment Model Data Analysis Summary page.
2. Click **Add**. The **Create Prepayment Model Analysis** page is displayed.
3. Follow the steps mentioned in below sections:
   a. Model Details
   b. Portfolio Definition
   c. Exploratory Data Analysis
   d. Risk Factor Selection
   e. Model Evaluation
4. Click **Submit/Save** after entering all details in above sections.

Step 1: Model Details

1. From **Prepayment Model Analysis** tab, click **Start**. The **Model Details** page is displayed.

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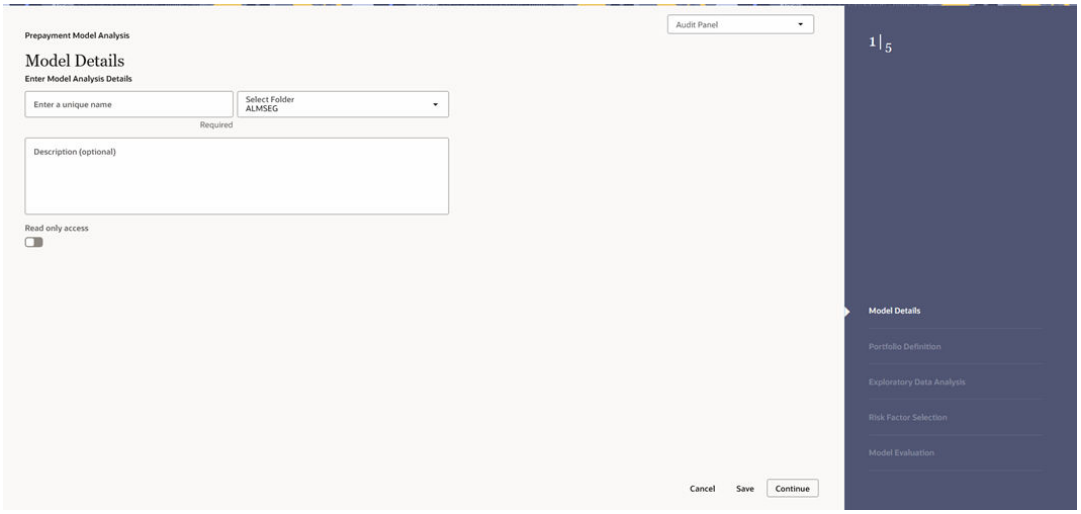
Figure 6-190 Model Details

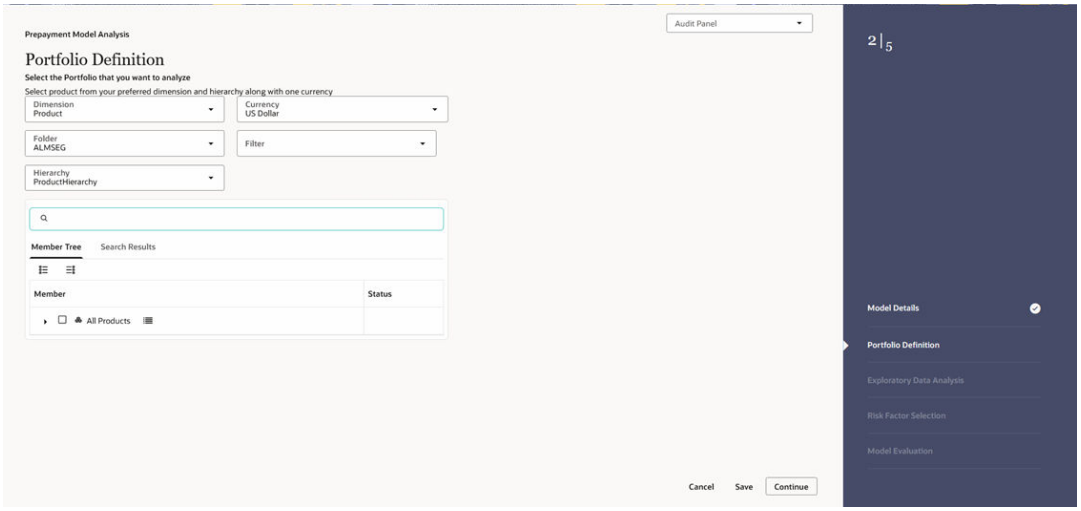


2. Enter the following details:
   - **Model Name:** Name of Process. The Data Creation Process Name should be unique. Any special characters are not applicable.
   - **Folder:** Folder Name where you want to save the process.
   - **Description:** Description of Process. The maximum limit of this field is 300 characters. You can enter special characters in this field.
   - **Read only Access:** Select this option, if you want to make the process Readonly.
3. Click **Continue**.

Step 2: Portfolio Definition

1. Navigate to the **Portfolio Definition** section. The **Portfolio Definition** window is displayed to set Portfolio.

Figure 6-191 Portfolio Definition



2. Enter the following details:

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- **Dimension:**Select the Dimension.
- **Currency:** Select the Currency. The Currency drop-down displays the list of active currencies.
- **Folder:** Select the Folder from which you want to pick the Hierarchy.
- **Filter:** Select the Filter.
- **Hierarchy:** You can specify some processing parameters at product-currency combination. Hierarchies in selected Folder will be listed and you can select one from the available list of hierarchies.
- Select **Product(s)** from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results
  - **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.
    Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:
    * **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
    * **Expand selected member/branch:** Allows to expand the selected node
    * **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
    * **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
    * **Select Defined self, child:** Allows to select the selected node itself along with its child.
    * **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
    * **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

    Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

    Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

    Here, you can perform the following tasks on the selected node(s):
    * Add
    * Edit
    * View
    * Delete
    * Copy
  - **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:
    a. Navigate to **Assumption Browser** section of the Rule Definition page.
    b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.
    c. Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser** .

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Here, you can perform the following tasks on the searched node(s):

* Add
* Edit
* View
* Delete
* Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

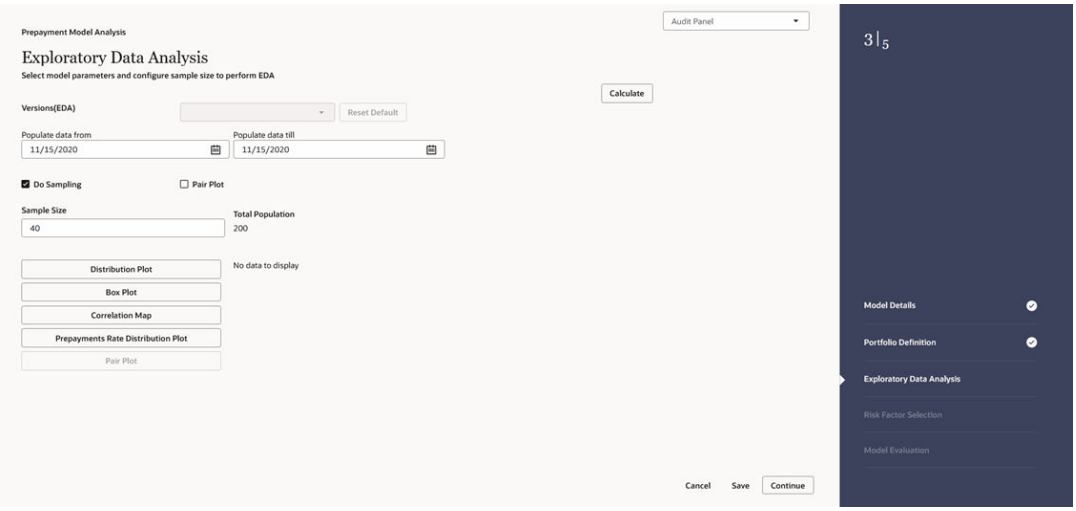
Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Step 3: Exploratory Data Analysis

1. Navigate to the **Exploratory Data Analysis** section. The **Exploratory Data Analysis** window is displayed to define Exploratory Data Analysis Parameter. This window is used to perform EDA calculations.

Figure 6-192 Exploratory Data Analysis



2. Enter the following details:

- **Sample Size Model Population (As of Date Range):**Sample size of dataset for EDA You can define a date range within which one wants to use data for model creation as model population. By Default, Date range would be populated as below: End Date: Max (As of Date) available in Model input Table Start Date: Max [min (As of Date), End Date – 10 Years]
- **Do Sampling Sample Size (Multiplier) :**Select this option to create model based on a data Sample rather than the whole population. By default, Do Sampling is enabled. This would enhance performance due to lesser number of records considered for modelling, without degrading model quality. After selecting sample size for EDA, you can select multiplier value. This indicates sample size required for model creation. For example, if 1000, records are selected as sample size for EDA, and multiplier is 6, then a minimum of 1000*6 = 6000 records would be required for model creation. Note: This checkbox is enabled only if Do Sampling checkbox is selected.

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This window gives complete information about all the risk factors along with prepayment rates. It helps you do decide what all factors could influence the customer's prepayment behavior and would be best for model building. You can hover over any graph and zoom in to enhance the visibility of the graph. OFS ALM User Guide | 345 Click Model Summary to navigate back to the Model Summary window after saving all inputs/EDA graphs defined/generated till this point. Click Re-Calculate if you want to change the sample size and redo the EDA again. change the sample size and click Re-Calculate. If you have performed EDA multiple times (for example, three versions V1, V2, V3.), then use Versions (EDA) to view them. For example, when you are on the EDA screen and performing the EDA 3rd time, but still want to go with the 2nd EDA version, then select that version and subsequent processing would be based on V2. If you have run the EDA only once, then this drop-down will not be available. When you hover over Sample size for EDA, it displays Default value (callout) as Default Value is 5000.

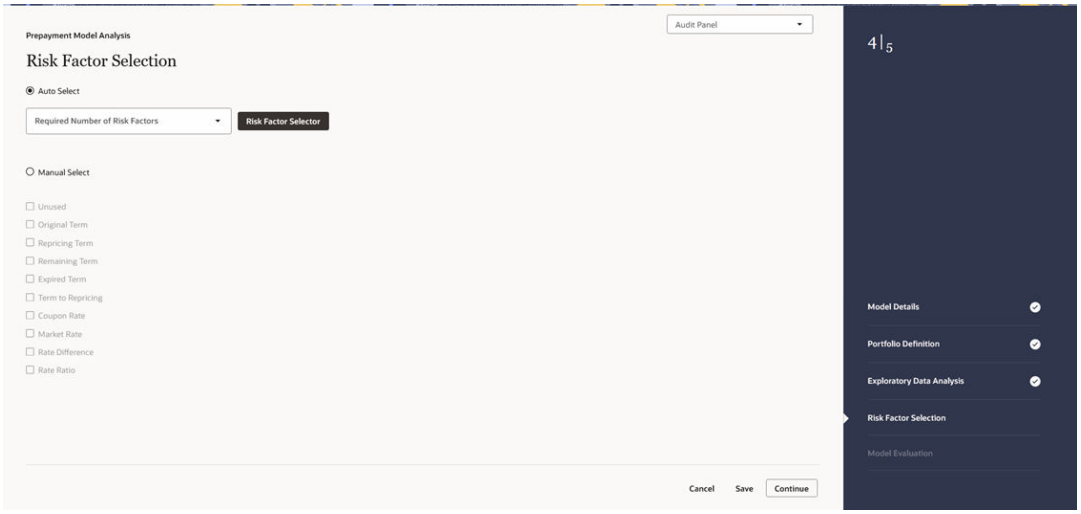
Click Pair Plot to generate Pair Plot/Grid along with other EDA graphs. Pair Plot/Grid is a detailed graph, that can further slow down the processing. So you can explicitly select the pair plot checkbox and click on calculate to perform the EDA.

3. Click **Continue**.

Step 4: Risk Factor Selection

1. Navigate to **Risk Factor Selection** section. By default, all the risk factors will be disabled.

Figure 6-193 Risk Factor Selection



2. Select the Risk Factor as **Manual** or **Auto**.
Manual Select: When you change the risk factor selection mode to 'Manual Select', then all the risk factors would be available for selection; maximum 3 factors can be selected after that all the risk factors would be disabled again.

Auto Select: When you are in 'Auto Select' mode, System would perform required calculations, corelation/collinearity analysis in the backend based on the required number of risk factors (Maximum 3), System would auto-select the best representative set of risk factors as per the input data.

Click **Risk Factor Selector** button.

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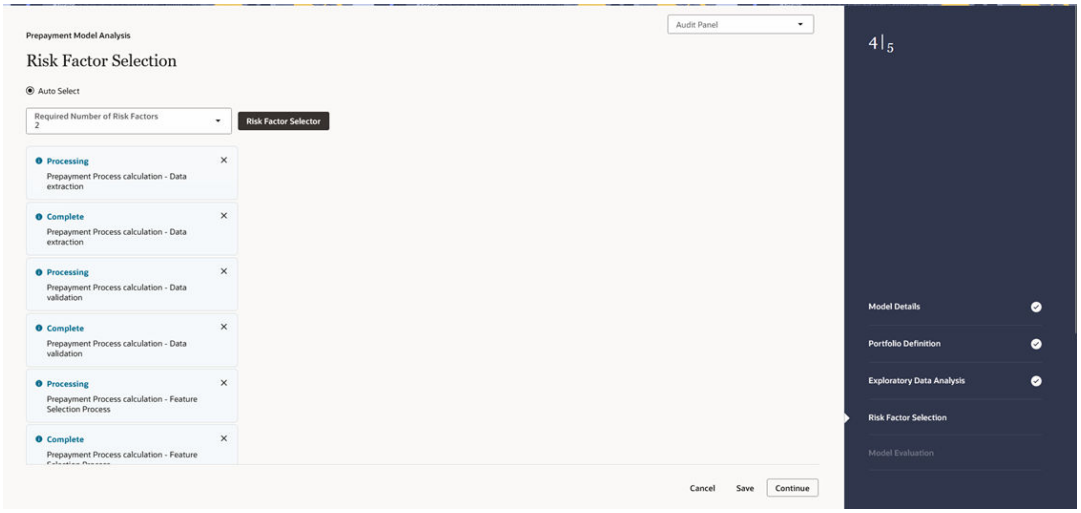
Figure 6-194 Risk Factor Selector



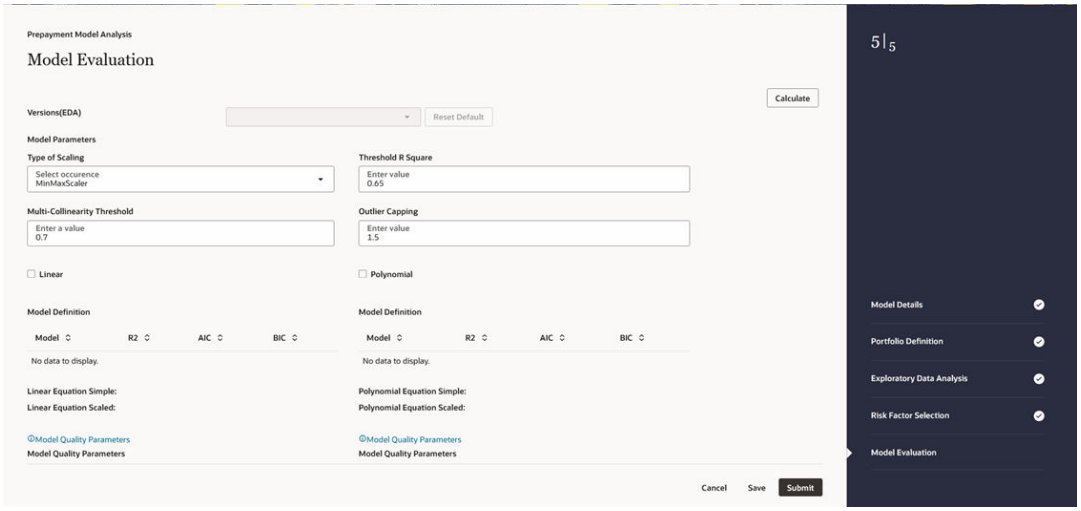
> **Note**
>
> If you want to change sample size and re-calculate EDA again, click **Exploratory Data Analysis** step and perform EDA with updated sample size. Again, the process starts from that step onwards, and updated EDA plots/graphs would be saved for the model.

3. Click **Continue**.

Step 5: Model Evaluation Section

1. Navigate to **Model Evaluation** section.

Figure 6-195 Model Evaluation Section



Click **Calculate** to view all the evaluation parameters and quality plots.

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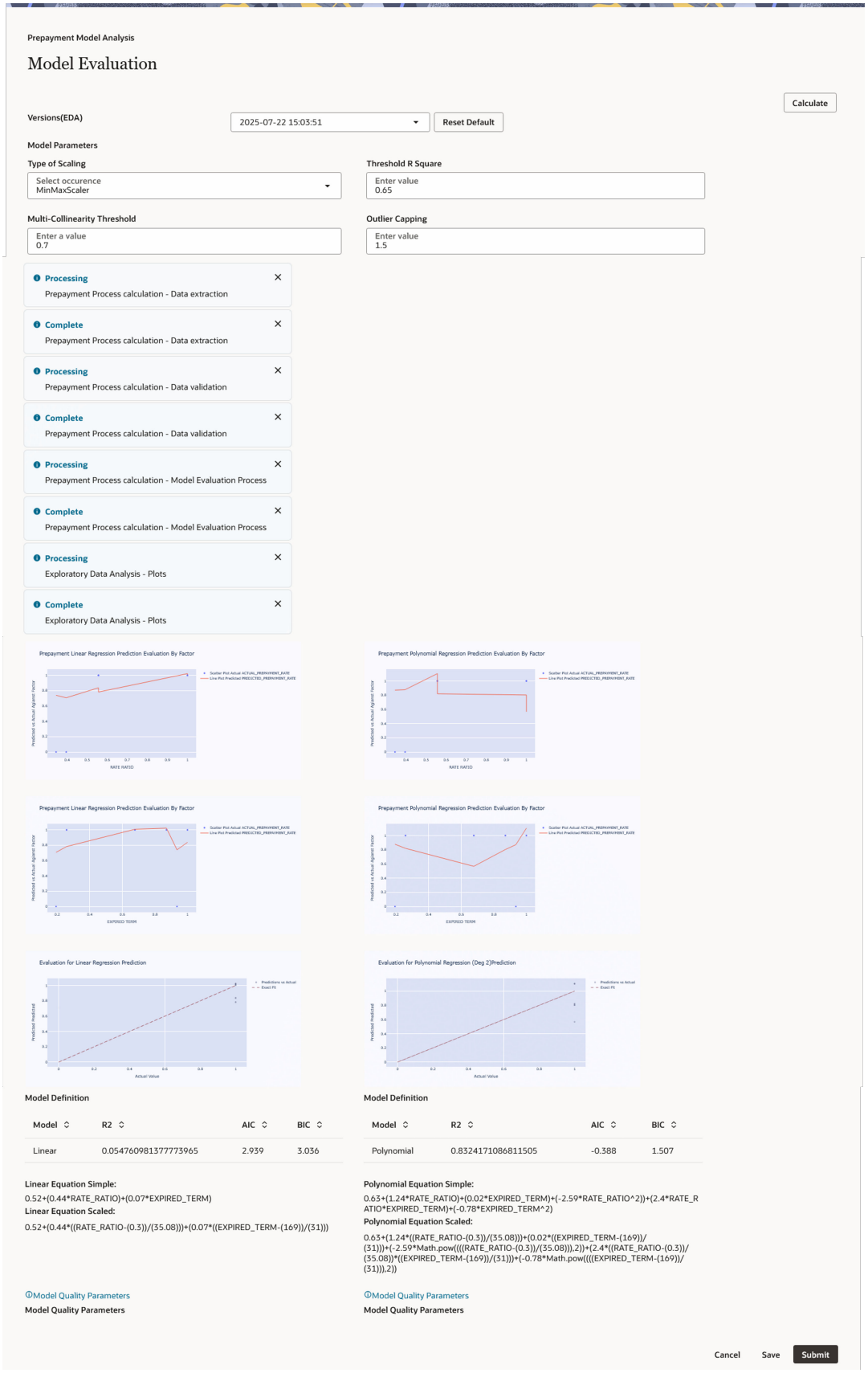
Figure 6-196 Calculating Model Evaluation



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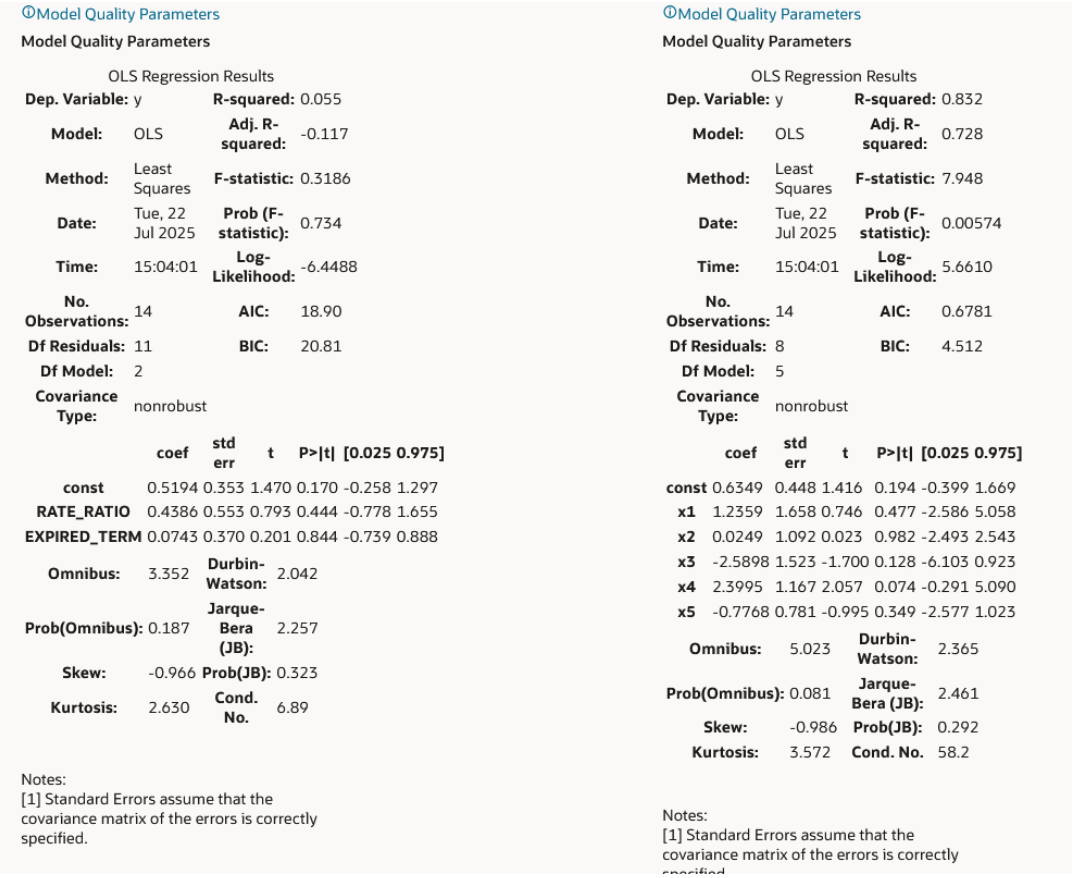
Click **Calculate** again if you are not satisfied with the model quality to change the model parameters and revise the model definition. You can zoom the graph to enhance visibility. If you are changing parameters and generating different versions of the model, then you can see all the versions, generated with different set of model parameters in the **Versions (EDA)** drop-down. If you have run “model evaluation’ only once, then this drop-down would not be available. As per the selected version, the model details window is also updated. The Model Details window helps you to evaluate the model fit. It has the following comparisons: Predicted Values Vs Risk Factor 1,2,3, as per the number of risk factors considered for model building. This will dynamically adjust as per the number of risk factors selected. Predicted Values Vs Test Sample. Sample prepayment matrix as per both the models (Linear and Polynomial).

Click **Model Quality Parameter** link to view Model Summary window, after saving all details. To verify the model quality, all the model statistics are given on a different screen, which would be available with **Model Quality Parameter** link like R2, F value, P – Value, and so on.

Figure 6-197 Model Quality Parameter



Model Quality Parameters

Model Quality Parameters

OLS Regression Results

Dep. Variable:	y	R-squared:	0.055
Model:	OLS	Adj. R-squared:	-0.117
Method:	Least Squares	F-statistic:	0.3186
Date:	Tue, 22 Jul 2025	Prob (F-statistic):	0.734
Time:	15:04:01	Log-Likelihood:	-6.4488
No. Observations:	14	AIC:	18.90
Df Residuals:	11	BIC:	20.81
Df Model:	2		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	0.5194	0.353	1.470	0.170	-0.258	1.297
RATE_RATIO	0.4386	0.553	0.793	0.444	-0.778	1.655
EXPIRED_TERM	0.0743	0.370	0.201	0.844	-0.739	0.888

Omnibus:	3.352	Durbin-Watson:	2.042
Prob(Omnibus):	0.187	Jarque-Bera (JB):	2.257
Skew:	-0.966	Prob(JB):	0.323
Kurtosis:	2.630	Cond. No.	6.89

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

Model Quality Parameters

Model Quality Parameters

OLS Regression Results

Dep. Variable:	y	R-squared:	0.832
Model:	OLS	Adj. R-squared:	0.728
Method:	Least Squares	F-statistic:	7.948
Date:	Tue, 22 Jul 2025	Prob (F-statistic):	0.00574
Time:	15:04:01	Log-Likelihood:	5.6610
No. Observations:	14	AIC:	0.6781
Df Residuals:	8	BIC:	4.512
Df Model:	5		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	0.6349	0.448	1.416	0.194	-0.399	1.669
x1	1.2359	1.658	0.746	0.477	-2.586	5.058
x2	0.0249	1.092	0.023	0.982	-2.493	2.543
x3	-2.5898	1.523	-1.700	0.128	-6.103	0.923
x4	2.3995	1.167	2.057	0.074	-0.291	5.090
x5	-0.7768	0.781	-0.995	0.349	-2.577	1.023

Omnibus:	5.023	Durbin-Watson:	2.365
Prob(Omnibus):	0.081	Jarque-Bera (JB):	2.461
Skew:	-0.986	Prob(JB):	0.292
Kurtosis:	3.572	Cond. No.	58.2

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly

Add row using Add +. You can add multiple rows or delete multiple rows using buttons in panel 1. Default sample matrix is10*10, but once you re-define sample, matrix can be truncated to any dimensions. The redefined matrix will be saved along with model. Model summary parameters like R2 , AIC and BIC. Both (Linear/Polynomial) models are produced when the system compares model generated R2 against the R2 threshold defined by the user. The final option is given to you to choose any one of these models. Based on infrastructure availability and model complexity, you can choose any one of linear/polynomial model.

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Click Save Model to save the model. Same model could be referred to populate prepayment rate matrix. Click **Calculate** again to re-evaluate model based on changed model parameters.

> **Note**
>
> If you want to change sample size and re-calculate EDA again, click **Exploratory Data Analysis** step and perform EDA with updated sample size. Again, process would start from that step onwards and updated EDA plots/graphs would be saved for the model. If you want to update selected risk factors, click **Risk Factor Selection** step and change risk factors. Again, process would start from that step onwards and updated risk factors would be saved for the model.

The **Reset Default** button on every step would help to delete all the calculations done in subsequent steps. That is, if you have done EDA and selected particular EDA version to do further calculations like 'Risk factor Selection' or 'Model Evaluation'. In case you are not satisfied with model, you can go back to EDA, click **Reset Default** to clear out the details/ calculations performed in subsequent stages and do recalculate with a different set of parameters. Following are the default values/usage of Parameters:

Table 6-47 Parameter Details

Parameter Details	Default Value
EDA Sample Size	This would allow you to define a sample size for exploratory data analysis. A bigger sample would increase CPU and memory usage, but it would better represent the model population. You have the option not to use sampling by setting Do_Sampling parameter to false. Procedure for the same is given in next section.
Type of scaling	Many a times, risk factors are not in consistent range, e.g. one of the risk factor's values could be in 1-500 range but another risk factor could be just in 2-3 range. So, risk factor 1 would influence the model more and you would get a biased model. So, to make all the risk factors consistent, scaling is used. There are two types of scaling: Min-Max Scaling = (X – min)/(max – min) Standard = (X – Mean)/Std. Deviations
Threshold R2	R-squared values range from 0 to 1 and are commonly stated as percentages from 0% to 100%. An Rsquared of 100% means that all movements of prepayment rate (dependent variable) are completely explained by movements in the chosen risk factors (independent variable(s).
Multi collinearity Threshold	For model creation if two risk factors/variables are highly correlated or correlation > 0.7, they would make model unstable. So based on this value, if variables are highly correlated or above defined threshold, one of them would be dropped while model creation.

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Table 6-47 (Cont.) Parameter Details

Parameter Details	Default Value
Outlier Capping	This would allow user to reject values beyond certain percentile. Sometimes, input data has few extreme values which could distort the model. So you could reject those values and get a stable model.

Exploratory Data Analysis:

Sample Size (EDA) - 5000

Model Population Range - It would be auto-populated based on the data in risk factor table. Maximum would be 10 years older from latest available date. In case you think, older data is not relevant, as of date range can be updated.

Model Evaluation:

Type of scaling – min Max Scaler Threshold R2 – 0.65 Outlier capping – 1.5 Percentile Multi-collinearity Threshold – 0.7

2. Click **Submit** to create the Data Creation process. The created process will be displayed on **Prepayment Model Data Creation Process Summary** page.

6.4.2 Non Maturity

This section covers the following topics:

1. Non Maturity Data Creation Process: Non-Maturity Modeling is comprised of three type of models.
2. Non Maturity Model Analysis: Non-Maturity Products Modeling helps you to understand the relation between market and bank rate, how much is core out of total available balance for the portfolio, and how long core will remain with the bank based on Decay Rate Profile.

6.4.2.1 Non-Maturity Products Data Creation Process

Non-Maturity Modeling is comprised of three type of models:

- Core/Volatile Balance segregation
- Decay Rate and corresponding weighted average life Calculation
- Beta Factor or Pass-through Rate Calculations

For these calculations, the following portfolio Level Attributes are required:

- Instruments in Scope are: CASA, Credit Cards, or any other product for which contractual Maturity is not defined.
- Account Origination Date (To Calculate Vintage/account age)
- Deposit Rate or Bank Rate – CUR_NET_RATE
- Underlying Index (Market Rate) or Reference Rate
- Number of Accounts per Origination Date Bucket
- Portfolio Balance snapped at regular intervals for a given historical period. (CUR_PAR_BAL from each account)

The Data Creation Process allows you to perform the following tasks:

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- Defining the portfolio and corresponding historical period over which data needs to be generated. Select any number of products from the selected hierarchy and one or multiple currencies to define a portfolio.
- Hierarchy can be defined on any of the product dimensions like Chart of Account, General Ledger accounts or Product IDs. System is built in such a way that it can display hierarchies based on selected product dimension in Application Preferences
- Process Train is given at each page, so you can keep track of how many stages are defined and how many are yet to be defined.
- Specify the Market Rate Definition and other Process Parameters Like yield curve term and interest rate curve effective date
- Review the entered details and all the process parameters.
- Execute the Data Creation process and generate results.
  - Data Generated by Batch UI using following tables:
    `FSI_AUDIT_NM_LOAD_BATCH`

    `FSI_O_HIST_NM_MODEL_DETAILS`

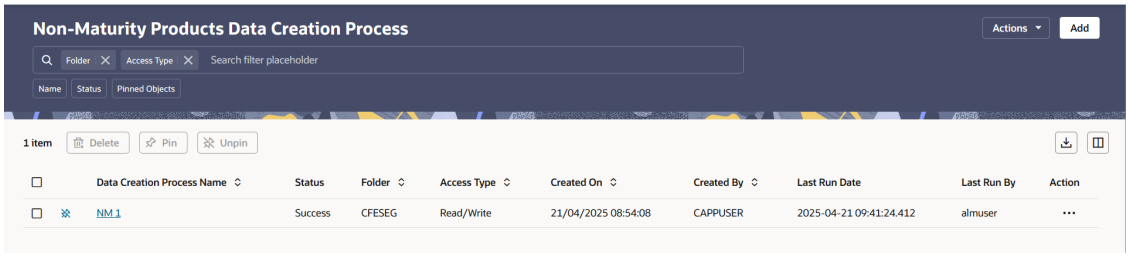
    `FSI_O_IRC_RATE_NM_MODEL`
  - Metadata tables used for NMD Model UI
    `FSI_M_NM_BATCH_LOAD_DEF`

    `FSI_M_NM_BATCH_PROCESS_PARAM`

Data Creation Process Summary

This page is the gateway to all Data Creation processes and related functionality. You can navigate to other pages relating to Data Creation processes from this point.

Figure 6-198 Data Creation Process Summary Page



Search Data Creation Process

Prerequisites: Predefined Data Creation Process

To search for a Data Creation Process, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Data Creation Processes that meet the search criteria.

Or

The other method to search a Data Creation Process is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Name, Status, Folder,** or **Access Type** status of the Data Creation Process and click **Search**.

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- **Add:** Click the Add on the page header to build a new Data Creation process.
- **Actions:** Click Actions to refresh page or see help.
- **Delete:** Enables you to select and delete one or multiple rules in the table simultaneously.
- **Pin/Unpin**: Enables you to pin or unpin the selected rule
- **Export**: Allows you to download the summary page details in .cs format.
- **Columns**: Enables you to customize the list of columns.

The Data Creation Process summary table displays the following columns:

- **Data Creation Process Name:** Name of the Data Creation Process's short name.
- **Status:** Status of the Data Creation Process.
- **Folder:** The folder where the Data Creation process is saved.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Created On:** The Date and Time when the Data Creation process was created.
- **Created By:** The user who created the Data Creation process.
- **Last Run By:** The user who last run the Data Creation process.
- **Last Run Date:** The Date and Time when the Data Creation process was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Data Creation process.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Data Creation processes. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Data Creation process by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Data Creation processes that you no longer require. Note that only Data Creation process owners and those with Read/Write privileges can delete Data Creation processes. A Data Creation process that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Execute:** Select Execute to execute an existing Data Creation process. After clicking Execute, the **Execute window** is displayed. Select **As of Date (Execution Date)**, and then click **Submit**.
  - **View Execute Details:** Select Execute Details to view execution details of the Data Creation process. Click **Execution ID** link to view detailed information of process execution.

Also See:

- Create Data Creation process
- Execute Data Creation process

6.4.2.1.1 Creating Data Creation Process

To create a new Data Creation process, perform the following steps:

1. Navigate to the Data Creation Process Summary page.
2. Click **Add**. The **Create Data Creation Process** page is displayed.

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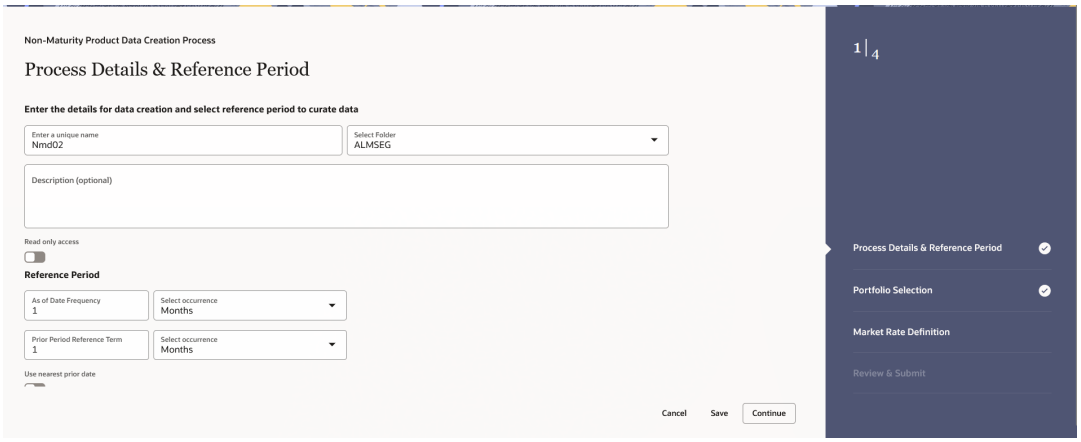
Figure 6-199 Create Data Creation Process

3. Follow the steps mentioned in below sections:
   a. Process Details and Reference Period
   b. Portfolio Selection
   c. Market Rate Definition
   d. Review and Submit
4. Click **Submit/Save** after entering all details in above sections.

Step 1: Process Details and Reference Period

1. From **Non Maturity Data Creation Process** tab, click **Start**. The **Process Details and Reference Period** page is displayed.

Figure 6-200 Process Details and Reference Period



2. Enter the following details:
   - **Name:** Name of Process. The Data Creation Process Name should be unique. Any special characters are not applicable.
   - **Folder:** Folder Name where you want to save the process.
   - **Description:** Description of Process. The maximum limit of this field is 300 characters. You can enter special characters in this field.

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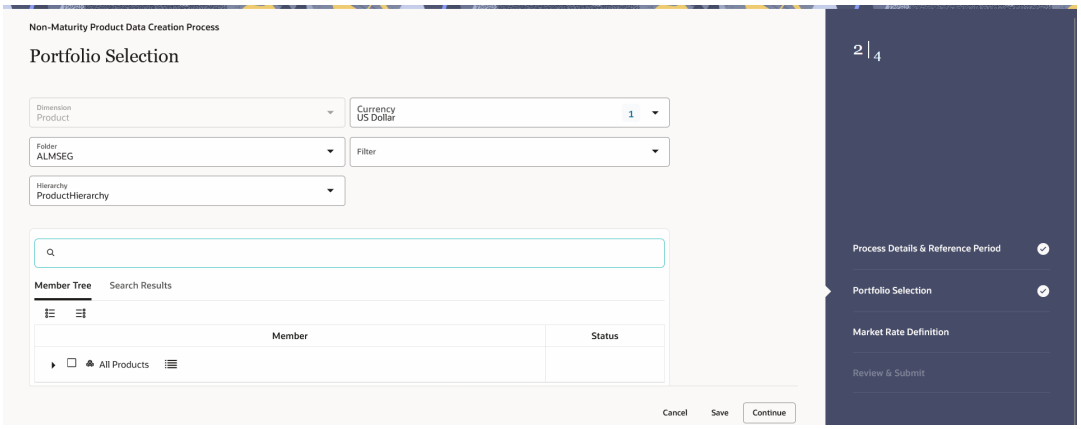
- **As of Date Frequency:** The Default value of this field is 1 month. **As of Date Frequency** is provided to select any value in days, months, or years. Starting from Prior Period date, the data snaps will be taken at defined snap frequency till As of Date. For each date, EOD balance (CUR_PAR_BAL) for the account on Data Snap Date, Account Origination Date (which will be required to calculate account age/ vintage at each Data Snap Date), and Deposit Rate (CUR_NET_RATE) will be captured, along with market rate as per the index selected.
- **Prior Period Reference Term:** The Default value of this field is 1 year. As per the prior period reference term, the prior period date is auto calculated.

3. Click **Continue**.

Step 2: Portfolio Selection

1. Navigate to the **Portfolio Selection** section. The **Portfolio Selection** window is displayed to set Portfolio.

Figure 6-201 Portfolio Selection



2. Enter the following details:
   - **Dimension:**Select the Dimension.
   - **Currency:** Select the Currency. The Currency drop-down displays the list of active currencies.
   - **Folder:** Select the Folder from which you want to pick the Hierarchy.
   - **Filter:** Select the Filter.
   - **Hierarchy:** You can specify some processing parameters at product-currency combination. Hierarchies in selected Folder will be listed and you can select one from the available list of hierarchies.
   - Select **Product(s)** from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results
     - **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.

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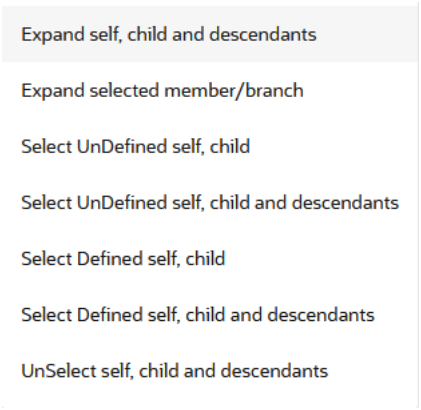
Figure 6-202 Member Tree



Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

* **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
* **Expand selected member/branch:** Allows to expand the selected node
* **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
* **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
* **Select Defined self, child:** Allows to select the selected node itself along with its child.
* **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
* **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

* Add
* Edit
* View
* Delete
* Copy

– **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

a. Navigate to **Assumption Browser** section of the Rule Definition page.

b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

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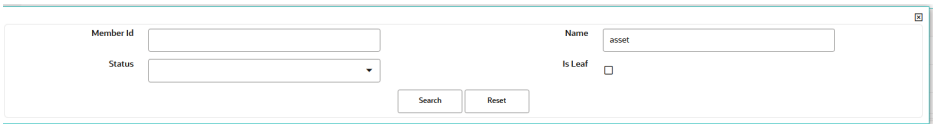
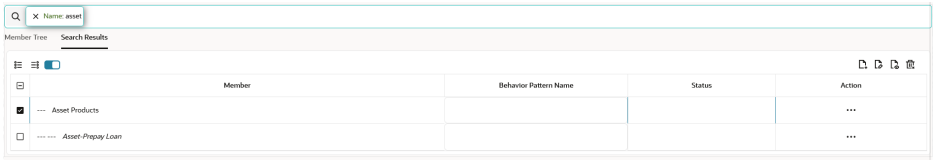
Figure 6-203 Search Criteria



c. Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser**

Figure 6-204 Searching Members



.

Here, you can perform the following tasks on the searched node(s):

* Add
* Edit
* View
* Delete
* Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Step 3: Market Rate Definition

1. Navigate to the **Market Rate Definition** section. The **Market Rate Definition** window is displayed to define Market Rates.

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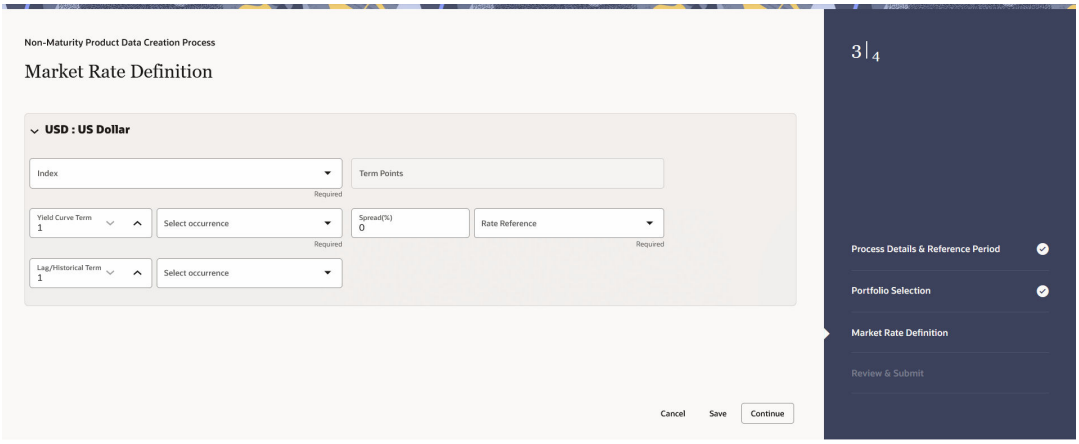
Figure 6-205 Market Rate Definition



2. Enter the following details:
   - **Index:** As per the selected currency from the drop-down, all the interest rate curves defined will be given for selection.
   - **Term Points:** Shows the term points.
   - **Yield Curve Term:** As per the selected interest rate curve, you can select one term point. Rate corresponding to the selected term point will be picked. For intermediate term points, interpolation is done.
   - **Spread:** Default value is 0. This field accepts all positive, negative integers/decimals (in the range of -100% to +100%). You can enter the spread in percentage format. Enter the spread in percentage on top of rate picked from selected IRC and term point.
   - **Rate Reference**: Rates will be picked based on the following options:
     - **As of Date:** Effective Date is same as As of Date
     - **As of Date with Lag:** Effective date is As of Date minus some lag. If you select Rate on (As of Date- Lag), then Lag Term field will be enabled to enter term and tenor.
     - **Average of Historical Term :** The effective date is not a single date but a period starting from the As of Date, during which an arithmetic average is calculated to smooth out any interest rate fluctuations. If you select **Average of Historical Term** (As of Date), the Historical Term field will be enabled for you to input the term and tenor.
   - **Lag/Historical Term:** Refers to the period used for calculating averages or trends in data.

Step 4: Review and Submit

1. Navigate to **Preview and Submit** section. Review the process details.
2. Click **Submit** to create the Data Creation process. The created process will be displayed on **Non Maturity Data Creation Process Summary** page.

6.4.2.1.2 Executing Data Creation Process

The **Execute** option allows you to run the Data Creation Request and create data as for the selected portfolio.

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Prerequisites

Predefined Data Creation Process

Procedure

Following two approaches are available to execute the process:

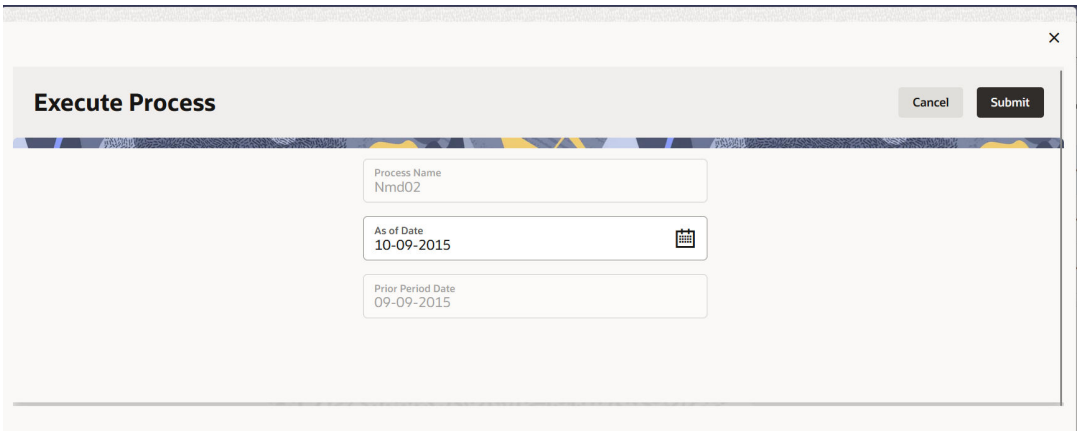
- UI Based Procedure
- Batch Based Procedure

6.4.2.1.2.1 UI Based Procedure

To execute the Data Creation Process, follow these steps:

1. Navigate to the **Data Creation Process** Summary Page.
2. Search for a Data Creation process Rule.
3. Click the **Action** column and select **Execute** to execute an existing Data Creation Process.

Figure 6-206 Execute Data Creation Process



4. Select **As of Date** and click **Submit**.
5. The Data Creation Process Run Confirmation Page is displayed. The status of the process is displayed in the Status column.
   After completion of the process, you can navigate to the **Execution Details** Page by selecting the view log option. From the Execution Details, you can access a report that provides details of any processing errors that were encountered while running the data creation process.

6.4.2.1.2.2 Batch Based Procedure

To execute the batch with Scheduler, follow these steps:

1. From the LHS menu, select **Operations and Processes**, select **Scheduler**, and then select **Define Batch**.
2. Define a new batch.
3. Enter the Batch Name and Description, and then save the batch.
4. To add a task, navigate to **Define Task**.

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5. Select the Batch from **Batch** drop-down list on **Define Task** window.
6. Click the **Add** button.
7. Define the task with below details:
   - **Components:** Non Maturity Model Data
   - **Process Name:** Select the Data Creation Process Name from drop-down.
8. Save the rule and **Execute**.

For more information, see the Scheduler Service.

6.4.2.2 Non Maturity Products Model Analysis

Non-Maturity Products Modeling helps you to understand the relation between market and bank rate, how much is core out of total available balance for the portfolio, and how long core will remain with the bank based on Decay Rate Profile.

Table 6-48 User Role and Privileges

Purpose	Role Code	Role Name	Function Code	Function Name
NMP Data Generation	RLNMDADMIN	Non Maturity Model Data Generation Admin Role	NMDATAADD	Add Non Maturity Model Data Creation Process
			NMDATARUN	Run Non Maturity Model Data Creation Process
			NMDATADEL	Delete Non Maturity Model Data Creation Process
			NMDATAEDIT	Edit Non Maturity Model Data Creation Process
			NMDATACOPY	Copy Non Maturity Model Data Creation Process
			NMDATAVIEW	View Non Maturity Model Data Creation Process
	RLNMDANALYST	Non Maturity Model Data Generation Analyst Role	NMDATAADD	Add Non Maturity Model Data Creation Process
			NMDATARUN	Run Non Maturity Model Data Creation Process
			NMDATADEL	Delete Non Maturity Model Data Creation Process
			NMDATAEDIT	Edit Non Maturity Model Data Creation Process
			NMDATACOPY	Copy Non Maturity Model Data Creation Process

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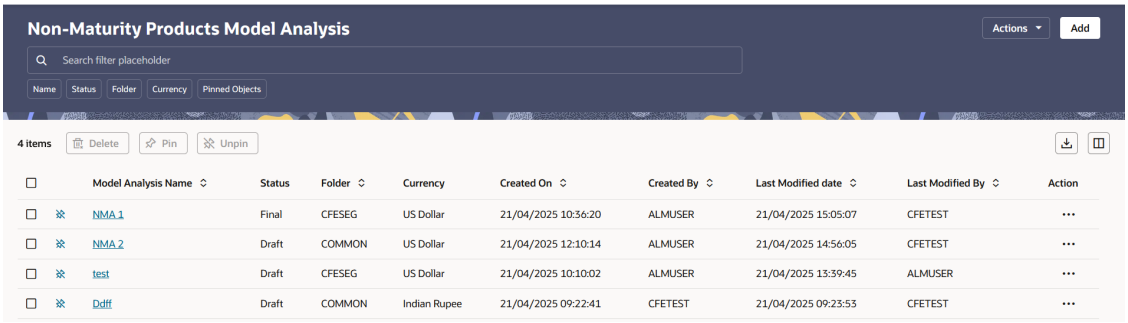
Table 6-48 (Cont.) User Role and Privileges

			NMDATAVIEW	View Non Maturity Model Data Creation Process
	RLNMDAUDIT	Non Maturity Model Data Generation Auditor Role	NMDATAVIEW	View Non Maturity Model Data Creation Process
NMP Model Analysis	RLNMDLADMIN	Non Maturity Model Analysis Admin Role	NMMODELADD	Add Non Maturity Model Analysis
			NMMODELDELETE	Delete Non Maturity Model Analysis
			NMMODELEDIT	Edit Non Maturity Model Analysis
			NMMODELCOPY	Copy Non Maturity Model Analysis
			NMMODELVIEW	View Non Maturity Model Analysis
	RLNMDLANALYST	Non Maturity Model Analysis Analyst Role	NMMODELADD	Add Non Maturity Model Analysis
			NMMODELDELETE	Delete Non Maturity Model Analysis
			NMMODELEDIT	Edit Non Maturity Model Analysis
			NMMODELCOPY	Copy Non Maturity Model Analysis
			NMMODELVIEW	View Non Maturity Model Analysis
	RLNMDLAUDIT	Non Maturity Model Analysis Auditor Role	NMMODELVIEW	View Non Maturity Model Analysis

Non-Maturity Products Model Analysis Summary

This page is the gateway to all Non-Maturity Products Model Analysis rules and related functionality. You can navigate to other pages relating to Non-Maturity Products Model Analysis rules from this point.

Figure 6-207 Non-Maturity Products Model Analysis Summary Page



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Search Non-Maturity Products Model Analysis Rule

Prerequisites: Predefined Non-Maturity Products Model Analysis rule

To search for a Non-Maturity Products Model Analysis rule, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Non-Maturity Products Model Analysis rules that meet the search criteria.

Or

The other method to search a Non-Maturity Products Model Analysis rule is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Name, Status, Folder,** or **Access Type** status of the Non-Maturity Products Model Analysis rule and click **Search**.

- **Add:** Click the **Add** icon on the page header to build a new Non-Maturity Products Model Analysis rule.
- **Actions:** Click **Actions** to refresh page or see help.
- **Delete:** Enables you to select and delete one or multiple rules in the table simultaneously.
- **Pin/Unpin**: Enables you to pin or unpin the selected rule
- **Export**: Allows you to download the summary page details in .cs format.
- **Columns**: Enables you to customize the list of columns.

The Non-Maturity Products Model Analysis summary table displays the following columns:

- **Model Analysis Name:** Name of the Non-Maturity Products Model Analysis rule's short name. Click **Model Analysis Name** link to view the details of Non-Maturity Products Model Analysis rule.
- **Status:** Status of the Non-Maturity Products Model Analysis rule.
- **Folder:** The folder where the Non-Maturity Products Model Analysis rule is saved.
- **Currency:** Displays the Currency for which Non-Maturity Products Model Analysis Rule is defined. One rule can be created only on one particular currency.
- **Created On:** The Date and Time when the Non-Maturity Products Model Analysis rule was created.
- **Created By:** The user who created the Non-Maturity Products Model Analysis rule.
- **Last Modified By:** The user who modified run the Non-Maturity Products Model Analysis rule.
- **Last Modified Date:** The Date and Time when the Non-Maturity Products Model Analysis rule was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Non-Maturity Products Model Analysis rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Non-Maturity Products Model Analysis rules. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Non-Maturity Products Model Analysis rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Non-Maturity Products Model Analysis rules that you no longer require. Note that only Non-Maturity Products Model Analysis rule owners and those

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with Read/Write privileges can delete Non-Maturity Products Model Analysis rules. A Non-Maturity Products Model Analysis rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.

Also See:

- Create Non-Maturity Products Model Analysis

6.4.2.2.1 Creating Non-Maturity Products Model

To create a new Non-Maturity Products Model Analysis Rule, perform the following steps:

1. Navigate to the Non-Maturity Products Model Analysis page.
2. Click **Add**. The **Create Non-Maturity Products Model Analysis** page is displayed.

Figure 6-208 Create Non-Maturity Products Model Analysis

3. Follow the steps mentioned in below sections:
   a. Model Details
   b. Portfolio Definition
   c. Exploratory Data Analysis
   d. Pass-Through Rate
   e. Stable Balance
   f. Decay Rate
   g. Review and Submit
4. Click **Submit/Save** after entering all details in above sections.

Step 1: Model Details

1. From **Non-Maturity Products Model Analysis** , click **Start**. The **Model Details** page is displayed.

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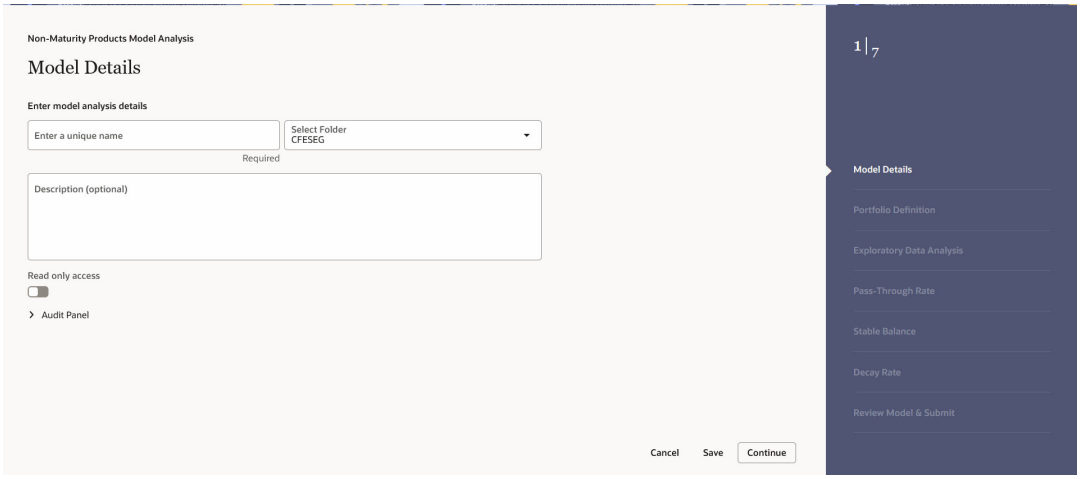
Figure 6-209 Model Details

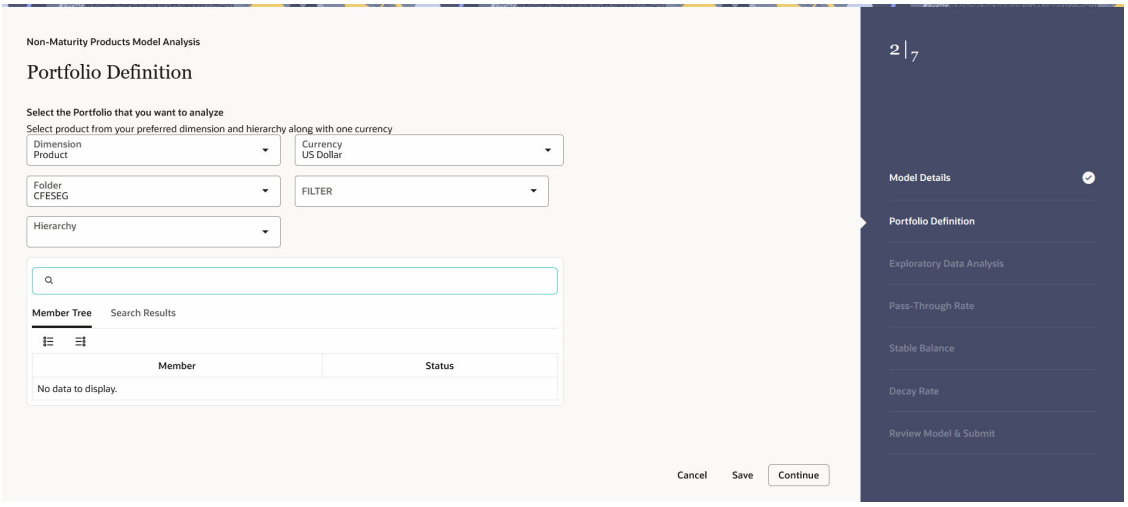


2. Enter the following details:
   - **Name:** Name of model. The Non-Maturity Products Model name should be unique. Any special characters (*, &, new line, and double quotes) are not allowed. You can enter maximum 120 characters.
   - **Folder:** Folder Name where you want to save the model.
   - **Description:** Description of model. The maximum limit of this field is 300 characters. Any special characters (*, &, new line, and double quotes) are not allowed. You can enter maximum 255 characters.
3. Click **Continue**.

Step 2: Portfolio Selection

The **Portfolio Selection** window is displayed to set Portfolio.

Figure 6-210 Portfolio Selection



1. Enter the following details in Portfolio Selection section:

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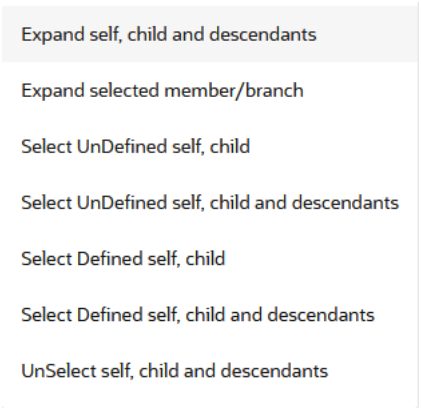
- **Dimension:** Select the dimension.
- **Currency:** Select the currency. The **Currency** drop-down displays the list of active currencies.
- **Folder:** Select the folder from which you want to pick the Hierarchy.
- **Hierarchy:** You can specify some parameters at product-currency combination. Hierarchies of selected folder will be listed and you can select one from the available list of hierarchies.
- **Filter:** Select the filter.
- Select **Product(s)** from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results
  - **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.

Figure 6-211 Member Tree



Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

* **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
* **Expand selected member/branch:** Allows to expand the selected node
* **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
* **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
* **Select Defined self, child:** Allows to select the selected node itself along with its child.
* **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
* **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

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Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

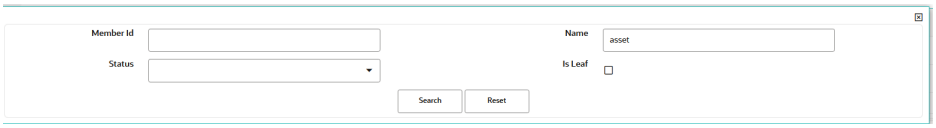
* Add
* Edit
* View
* Delete
* Copy

– **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

a. Navigate to **Assumption Browser** section of the Rule Definition page.

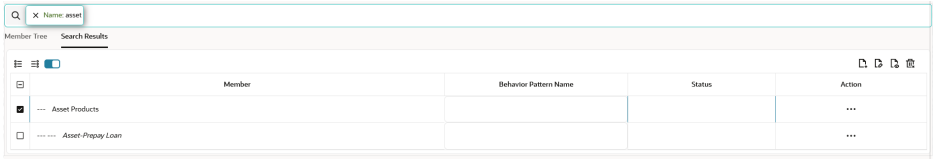
b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

Figure 6-212 Search Criteria



c. Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser**.

Figure 6-213 Searching Members



Here, you can perform the following tasks on the searched node(s):

* Add
* Edit
* View
* Delete
* Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

2. Click **Continue** to navigate to **Exploratory Data Analysis** section.

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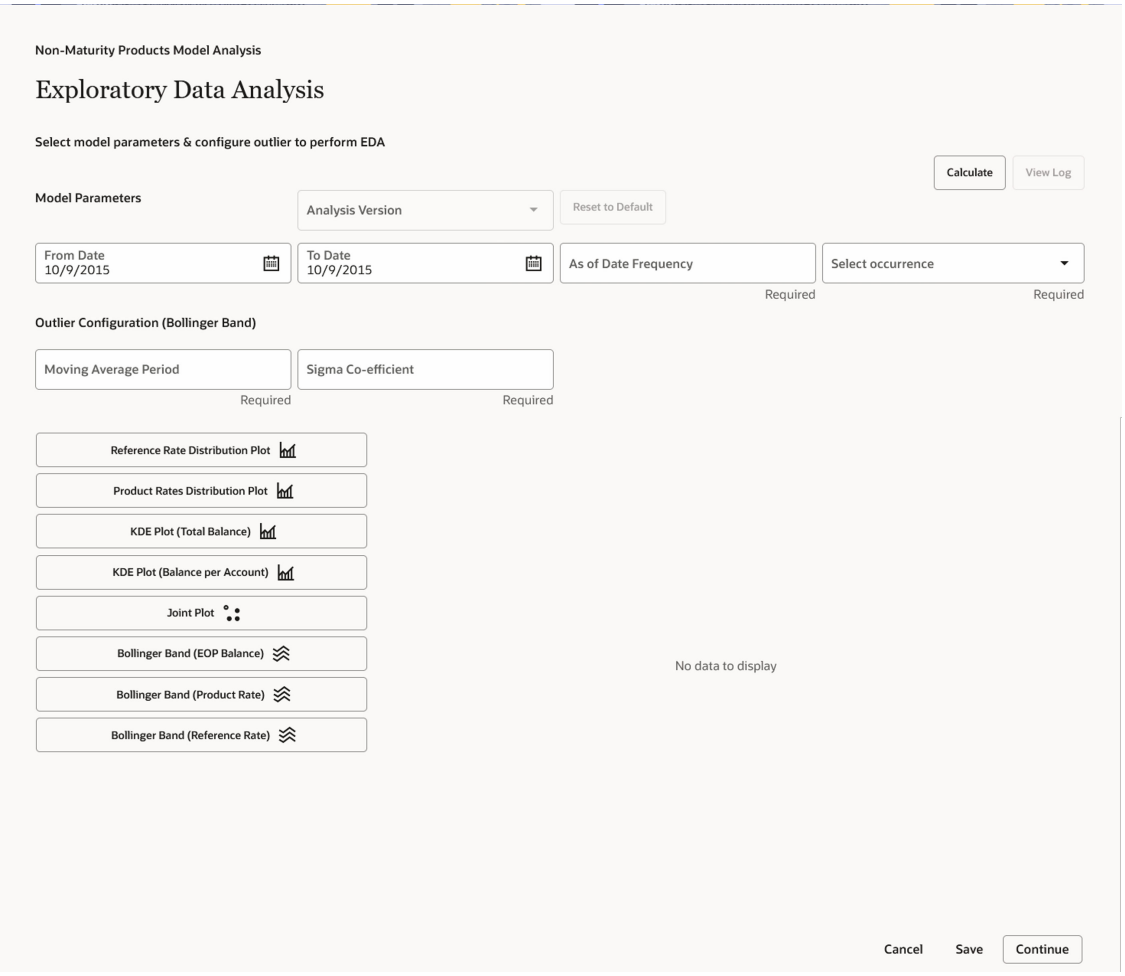
Step 3: Exploratory Data Analysis

The **Exploratory Data Analysis** window is displayed to define Market Rates. This window will help you to perform EDA calculations and get a glimpse of data being used for modelling.

Figure 6-214 Exploratory Data Analysis



1. Enter the following details in the Exploratory Data Analysis section:
   - **Model Parameters (As of Date Range):**
     - **Analysis Versions:** Shows the analysis version.
     - **Model Parameters (As of Date Range):** You can select a date range which will define the historical period within which data needs to be picked for Model creation. By default, the Date range is populated as below:
       * From Date: Max (As of Date) available in Model input Table.
       * To Date: Max [min (As of Date), From Date – 10 Years].

       Default values are populated from `FSI_AUDIT_NM_LOAD_BATCH` table.
     - **As of Date Frequency:** The default value of this field is one month. The **As of Date Frequency** defines on what regular intervals, data needs to be picked from the input table. For example, you can have historical period as last three years, in

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those three years at what regular interval data needs to be picked up from history table that would be defined by **As of Date Frequency**.

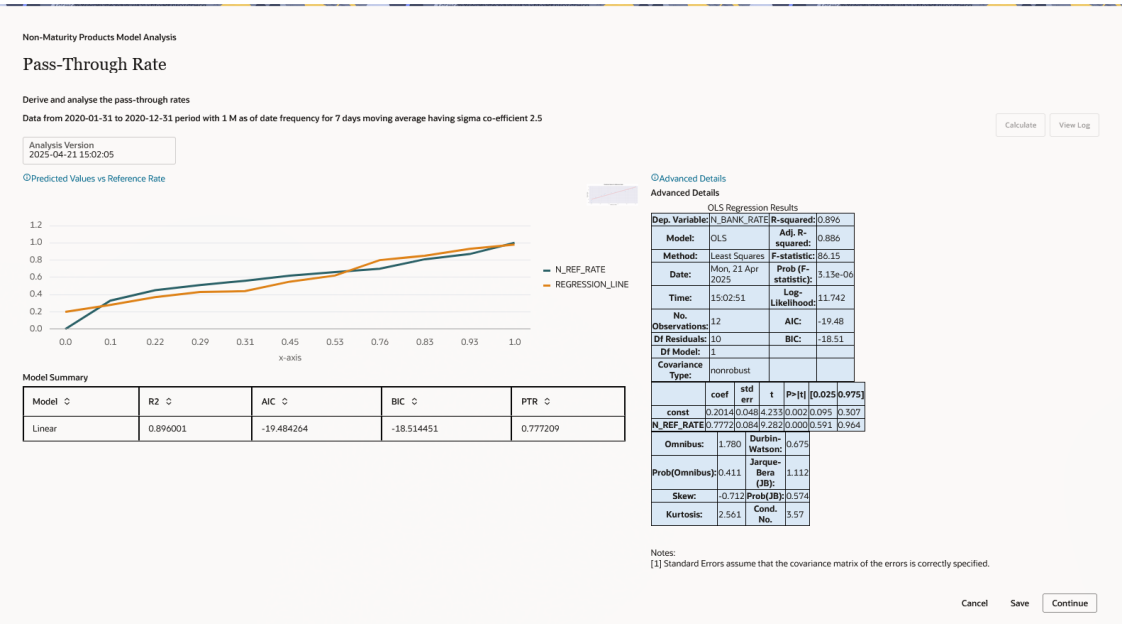
- **Outlier Configuration (Bollinger Band):**
  - **Moving average period:** The default value of this field is one month. The Moving Average period defines the historical term over which the moving average needs to be calculated for Bollinger band formation. This defines the period over which moving average gets calculated to create bollinger band.
  - **Sigma Co-efficient:** The default value of this field is 1. Sigma Co-efficient defines the outliers, any number which is (sigma coefficient * standard deviation) away from the mean, will not be considered for calculations. This field accepts Integer and Decimal values in the range 0 – 10. Sigma Co-efficients helps you to define the lower and upper bands for bollinger band graphs.

2. Click **Calculate** to perform Exploratory Data Analysis and get EDA plots. You can refresh the window using the **Reset to Default** button to check if the EDA is completed. When you open EDA window first time for a particular model, Version(EDA) field would not appear as there is no previous version to display. Subsequently, when first version is created and you go for second version, version (EDA) tab will start appearing with previous EDA versions. When EDA version is submitted, a message will appear with version number. A message is displayed in case last run version was failed. If run was successful and you again check this, the latest version would appear on the UI. The **Reset to Default** button resets the entered values to their default values.
3. Click **Continue** to navigate to **Pass-Through Rate** section.

Step 4: Pass-Through Rate

Pass Through Rate is based on linear regression between market and offered rate. For current accounts, the offered rate can be zero. In such cases, the pass-through rate will also be zero, as changes in the market rate do not affect the offered rate.

Figure 6-215 Pass-Through Rate



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1. Click **Calculate** to view all the evaluation parameters and quality plots. Pass Through Rate calculations are submitted, a message is displayed with version number. This window shows all the model quality parameters and graphs. At this stage, Pass through rate or beta between market rate and deposit rate is calculated. You can zoom the graph to enhance visibility.
   The **Advanced Details** section helps you to evaluate the model fit.

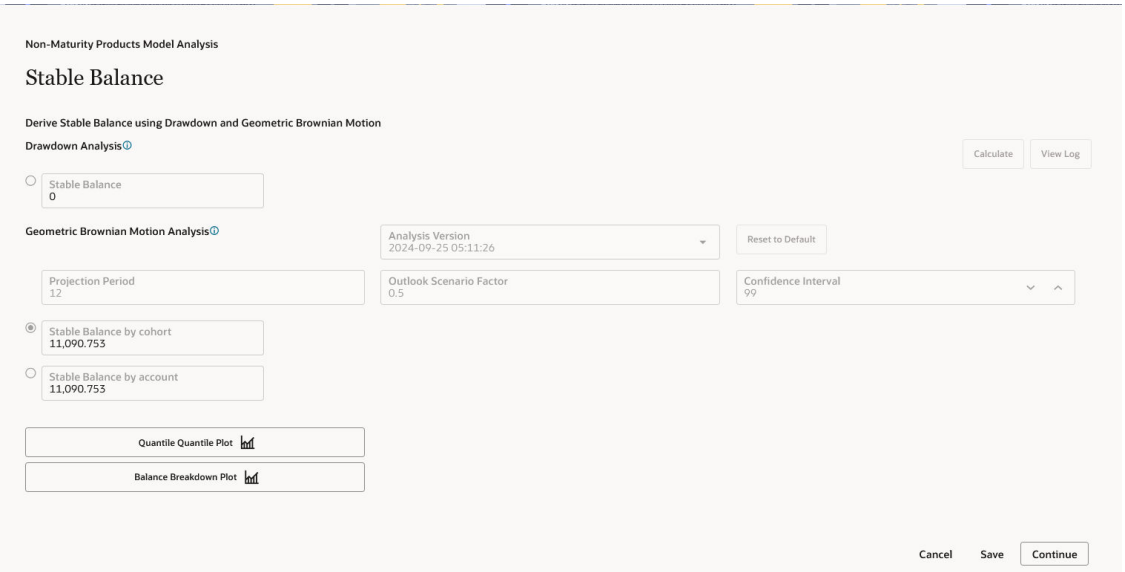
   The **Model Summary** section shows the details of Model parameters like R2, AIC, BIC and regression co-efficient. That is, how much change in market rate is passed on to the deposit rate.

   At any stage, if you want to come out of the model analysis module, click **Cancel** or **Save** button to go back to Non-Maturity products model summary screen.
2. Click **Continue** to navigate to **Stable Balance** section.

Step 5: Stable Balance

The Stable Balance section shows the Projection period.

Figure 6-216 Stable Balance



1. You can set the stable balance as required. Projection period can be only be positive integers which will act as multiplier to **As of Date Frequency**, for example, As of Date. To calculate Stable Balance, you can use following methods:
   - **DrawdownAnalysis:** TheDraw Down Analysis calculates each period's Run-offs in the historical period and subtracts the maximum Run-off from the most recent total balance to arrive at stable balance. This model performs calculations based on maximum Drawdown between two data points for given period.
     For example, analysis is done over past 5 years and monthly data points are given. If Balance is available for each data point, then system calculates balance reduction for each data point from previous data point. Finally, whatever will be the maximum balance reduction in two adjacent data points that is subtracted from point in time balance (Balance on latest As of Date) and remaining balance is the stable balance.
   - **Geometric Brownian Motion:** This approach will first calculate the past Run-offs volatility and assuming normal distribution of Run-offs, accept confidence interval as

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user input, projection period for time adjustment, and outlook scenario factor (volatility multiplier) as input from the user.
This model works based on historical volatility and confidence interval selected in the UI. It assumes that the underlying data follows a normal distribution, and based on the confidence interval, X% of the balance lies within the specified range. This allows the system to determine the stable balance.

95% Confidence Interval – (-1.96 to +1.96)

90% Confidence Interval – (-1.645 to +1.645)

80% Confidence Interval – (-1.282 to +1.282)

Here, you can select the outlook scenario factor, which will be multiplied with historical volatility and subsequently used for **Geometric Brownian Motion** based stable balance calculations.

Geometric Brownian Motion outcome is based on both portfolio level balance volatility and account level balance volatility. You can select any of the stable balances, which are more suitable as per the given context.

The confidence interval slider field has a range of 0 – 100% and by default value as 95% and Outlook scenario factor (Volatility Multiplier) is set at 1 (Default Value). The range of outlook scenario factor is 0.01 to 1.99.

You can change any of the inputs and generate multiple versions.

2. After clicking **Calculate**, the stable balance would be shown at cohort/account level using both cohort level and account level volatility and saved against version.
Stable balance can be calculated with multiple methods, so before proceeding to next step, you must select **Stable Balance by Cohot** or **Stable Balance by account** method to confirm one stable balance on which rest of the subsequent processing will take place.

   When this section is displayed first time, after clicking the **Calculate**, the stable balance is calculated for both methods, **Drawdown analysis** and **Geometric Brownian Motion**.

   In subsequent runs, if any of projection period, confidence interval or Scenario factor is changed, then new version will be generated only for **Geometric Brownian Motion**. When you click **Calculate** button, then a message is displayed: *GBM version xyz is submitted*. If version is failed, a message is displayed: *GBM version xx is failed* and UI will revert back to last successful version.

3. Click **Continue** to navigate to **Decay Rate** section.

Step 6: Decay Rate

For Decay rate calculations, you can select any one of following three approaches:

- Vintage Analysis
- SARIMAX
- Geometric Brownian Motion

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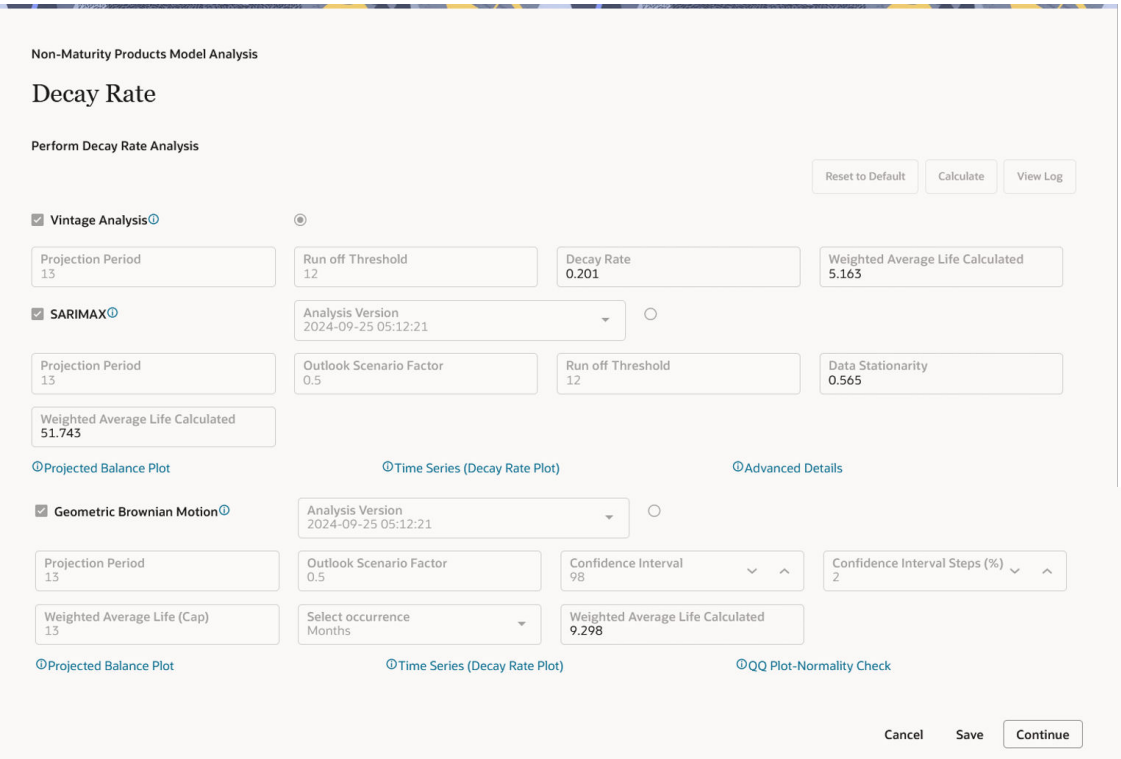
Figure 6-217 Decay Rate



1. Select the Decay Rate method:

   - **Vintage Analysis:** This method calculates one decay rate value as per the various vintages and regular intervals over which data is being picked for the defined portfolio. The same decay rate is applicable to the whole projection period.
     The vintage run-off model aims to categorize deposit balances based on historical tranches, referred to as vintages. A vintage comprises all individual accounts for a non-maturing deposit account type that were opened within a specific time bucket, such as a month or week. Behavioral characteristics are applied to each vintage by calculating the monthly decay within each vintage. Run-off calculations are performed across data points and account origination buckets, with the final decay rate being the average of both dimensions for the selected portfolio.

     Select the **Vintage Analysis** check-box if you want to include it in the calculation, or leave it unchecked to exclude it. Vintage analysis requires account-level data for the entire historical period, which may not be available initially, so you can opt to bypass this method. Other methods use portfolio or cohort-level data, which is generally easier to obtain. By default, the check-box is unchecked, indicating that this model is not part of the processing. You can set the projection period according to your needs.

   - **SARIMAX:** This method creates a future balance profile based on historical balances, along with Run-off volatility multiplied by the Outlook scenario factor (default 1). Based on balance Run-offs, a decay profile is created.
     Among the various approaches, the SARIMAX model (Seasonal Autoregressive Integrated Moving Average with exogenous variables) is a powerful tool for modeling and forecasting trends and seasonal variations in time series data. It also incorporates external variables to enhance prediction accuracy. This model is part of the ARIMA family and is built on three key components: autoregression (AR), moving average (MA), and integration (I).

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- **Autoregression (AR)** uses past values of the time series to predict the current value.
- **Moving average (MA)** accounts for past prediction errors, applying a linear regression on the last "q" error values to forecast the present.
- **Integration (I)** makes the data stationary by accounting for differences between consecutive observations.

For data with seasonal variations, the SARIMA model is used, adding the "Seasonal" component to ARIMA, which captures patterns that repeat at regular intervals. Based on the decay rate in each period, the weighted average life is calculated by multiplying the run-off matrix with the time series.

- **Geometric Brownian Motion:** Based on balance Run-off volatility and your inputs like confidence interval and outlook scenario factor, the Decay Rates are calculated for each subsequent period in projection period and decay profile is created. Based on the Decay Rate Profile, Run-offs would be calculated and finally, a balance profile will be created which will in turn help to calculate WAL.
  Based on the Decay Rates profile, the model will do Weighted Average Life (WAL) calculations. If the WAL exceeds the specified regulatory cap, you can set a confidence interval range and steps (defaulting to 5%) for adjusting the confidence interval in each calculation. For example, if the range is 80-95%, the system will generate a Decay Rate Profile at 80%, 85%, 90%, and 95% intervals. Through an iterative process, it will attempt to calculate a Decay Rate Profile that brings the WAL within the regulatory cap set by the user.

  If in a given confidence interval range, WAL is still more than regulatory WAL (Cap), a simple linear Decay Rate Profile is created.

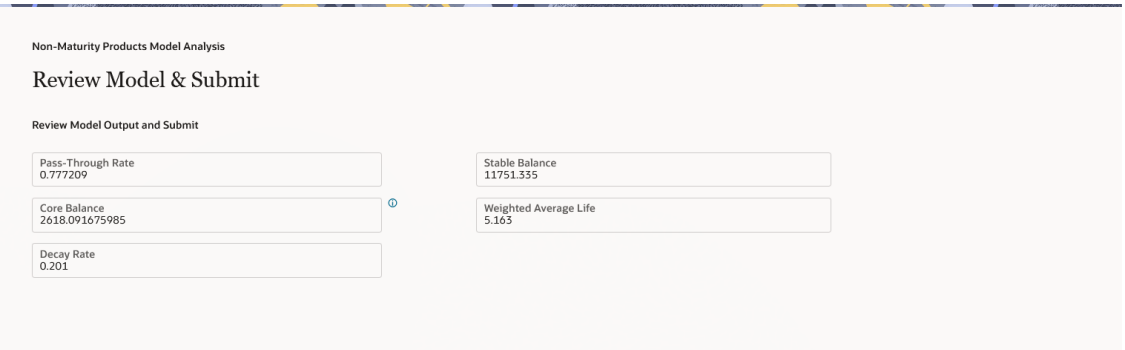
  The run-off threshold is a user-defined input that sets the minimum balance at which WAL calculations will stop, assuming the balance has reached zero at that point.

> **Note**
>
> When this section is launched first time and you click **Calculate**, Decay Rate is calculated for all three methods, Vintage Analysis, SARIMAX, and Geometric Brownian Motion.

2. Click **Continue** to navigate to **Review and Submit** section.

Step 7: Review and Submit

Figure 6-218 Review and Submit Model



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1. Navigate to **Preview and Submit** section. This section shows the Model details before confirming the model. Here, you cannot edit any details. If you want to update any details, click Model Summary to go back. When model is saved, it is always be in **Draft** status.
2. Click **Submit** to create the Non Maturity Products Model. The created process will be displayed on **Non Maturity Products Model Summary** page.

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7

Operations

This chapter covers the following topics:

1. Scheduler Services: The Scheduler Service is a service that automates behind-the-scenes work that is necessary to sustain various enterprise applications and functionalities. This automation helps the applications to control unattended background jobs program execution.
2. Object Migration: Object Migration is the process of defining, exporting and importing objects across environments (prod and non-prod)/instances. This feature also facilitates to migrate within the same setup or different setups.
3. Lookup Table: Lookup Table helps banks to skip any legacy or preferential accounts from FTP processing and directly apply pre-calculated rates on these based on lookup criteria.
4. Real Time Transfer Pricing: Real Time Transfer Pricing service allows users to transfer price any ad-hoc deal which can be keyed using the provided UI or an Excel upload feature along with any existing account.
5. Changing Object Ownership: This topic lists the instructions to request the change of object ownership.

7.1 Scheduler Services

Scheduler Services automates behind-the-scenes work that is necessary to sustain various enterprise applications and their operations. Using Scheduler Services, applications can control unattended background jobs program execution.

The Scheduler Services screen provides a one-click navigation for each of the operations, at the bottom of the screen, allowing you to move seamlessly between each operation.

Scheduler Services Operations

- **Define Batch** - A Batch contains a group of background tasks that are executed together, on a specific date and time during which the resources are available for batch processing.
- **Define Task** - A batch job is a piece of a program meant to meet specific and business-critical functions. The program is a REST API used in a batch.
- **Schedule Batch** - Schedule batch jobs, to automate tasks that are processed on a regular basis but do not need to occur during the day or require human intervention. Jobs that happen on a regular basis are incorporated into batch schedules. You can also edit pre-conditions for batch group execution and pause scheduled executions.
- **Monitor Batch** - Track and access the real-time feedback on the status of the current encoding job and lists the jobs pending in the batch. You can also **Cancel** or **Restart** the service when required.
- **Scheduler Service Dashboard** - The Scheduler Service Dashboard gives the complete status of the Executed Runs, Successful Runs, Failed Runs, Ongoing Runs, Interrupted Runs, and the Upcoming Runs.

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7.1.1 Accessing Scheduler Services

Using the Scheduler Services, you can create and execute batches and schedules to run various tasks and also monitor them.

To access Scheduler Services:

- Log in to the Service Console and from the left navigation pane in the Service console, click **Operations and Processes > Scheduler**.

7.1.2 User Roles and Functions

You require specific user roles and functions, to use Scheduler Services, and to create and manage batches and tasks.

Table 7-1 User Role Codes and Function Codes

Role Codes	Function Codes
BATCH_READ	BATCH_ADD
BATCH_WRITE	BATCH_DEL
BATCH_ADV	BATCH_MOD
BATCH_AUTH	BATCH_VIEW
BATCH_OPER	BATCH_SCH
BATCH_MAINT	BATCH_SUMM
	BATCH_AUTH
	BATCH_PURGE
	BATCH_MON
	BATCH_EXEC
	BATCH_COPY
	LOGVIEW

7.1.3 Scheduler Service Dashboard

View the task executions based on the execution status in the Scheduler Service Dashboard.

To access the **Scheduler Service Dashboard** page, from the left Navigation pane in the Service console, click **Operations and Processes** > **Scheduler** > **Dashboard**.

You can access the following details related to batch/batch group execution from the Dashboard:

- The batches/batch groups are categorized based on their execution status - **Executed Runs**, **Successful Runs**, **Failed Runs**, **Ongoing Runs**, **Interrupted Runs**, and **Upcoming Runs** tabs. Click the respective tab to view the details of the batches/batch groups based on their execution status. For example, click **Ongoing Runs** to view the details of the batches that are currently running.
- The run time, schedule name and the MISDATE associated with each batch/batch group.
- The batch execution summary for all the batches executed in the last 7, 30 and 120 days. The summary is displayed in the form of a color-coded bar graph with legend for the various execution statuses.

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- To view the list of all task executions associated with a specific batch/batch group, select the required execution status tab, select Batch/Batch Group and select the required batch/batch group.
- To view the task executions within a specific date range, select the required execution status tab, select Batch/Batch Group and select the required batch/batch group. Specify both the start and end dates.

Click the green navigation icon for a batch or batch group to open the Monitor screen and proceed as needed. The execution details are pre-populated for the selected batch/batch group execution.

7.1.4 Define Batch

You can use batch and batch groups to group a set of background tasks to be executed together.

A Batch contains a group of background tasks that are executed together, on a specific date and time during which the resources are available for batch processing.

Batch Groups consist of batches that need to be executed together. Batch groups help to process date and time-based background tasks based on a defined period when resources are available for batch processing.

To access the list of existing batches and batch groups click **Batch** or **Batch Group** tab respectively. You can also view following details related to each batch/batch group.

- **Batch ID** - The unique alphanumeric code assigned to a specific batch/batch group.
- **Name** - The unique batch/batch group name.
- **Description** - The brief description of the batch/batch group.
- **Last Modified** - The last modified By user, date and time details.

To search for a specific batch/batch group, enter the keywords in the **Search** field and click **Search**. You can search based on **Name**, **Code**, and **Description**. You can also sort the batch/batch group list based on **Code**, **Name**, **Created Date**, **Last Modified Date**, and **Pinned**.

On the **Define Batch**, click the green navigation icon next to the batch or batch group for which you want to create a task or schedule batch execution, then select the required option. The relevant UI appears pre-populated with batch or batch group details. Proceed as needed.

Perform one of the following operations, to manage batch/batch group, from the **Scheduler Service (Define Batch)** page.

- Create New Batch/Batch Group
- Edit a Batch/Batch Group
- Copy a Batch/Batch Group
- Delete a Batch/Batch Group
- Pin/Unpin a Batch/Batch Group

7.1.4.1 Creating a Batch/Batch Group

Create a batch/batch group, to execute a group of background tasks together, on a specific date and time, when the resources are available for batch processing.

To create a batch/batch group from the **Scheduler Service (Define Batch)**:

1.

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In the **Create Batch** page, enter the following **Batch Details**:

- **Code** - Enter a unique alphanumeric code for the new batch/batch group.
  The code must start with alphabets, should not contain any spaces, and must not exceed 60 characters. Special characters are not allowed except **underscore (_)**.
- **Name** - Enter a unique name for the new batch/batch group.
  The name should start with alphabets, should not contain any spaces, and must not exceed 60 characters. Special characters are not allowed except **underscore (_)**.
- **Description** - The description/details for the batch/batch group.
  The description should start with an alphabet and must not exceed 250 characters.
- Select **Batch** to create a new batch or **Batch Group** to create a new batch group.
- For new batch groups,select the **Batches** to be added to the batch group.
- Select the **Service URL name** from the drop-down list, if it is available.
  To add a new service URL, enter a name to identify the new Service URL Name and enter the proper Service URL. You can give partial URL here and the complete URL in the Task Service URL.
- Enter the complete **Cleanup URL** and enable the check box, to activate the cleanup URL, before you initiate a batch/batch group restart.
  The complete Cleanup URL : `http://fccm-utility-service:8080//fccm-utility-service/cleanupExecutionWatcher`
- **Pin Batch/Pin Batch Group**: Use this option to pin the batch or batch group to keep it at the top of the list for quick access.
  For information, see Pinning/Unpinning a Batch/Batch Group.
- Select one of the following options, to get an email notification, based on the selected batch execution status.
  Based on the selected option, an email is sent to the email ID of the logged in user, mentioned in the IAM console.
  - **Every Time** : An e-mail is triggered irrespective of the batch execution status.
  - **Never** : No e-mail will be triggered.
  - **On Error only** : (Default). An e-mail is triggered only when the batch execution has failed.
  - **On Interrupt only** : An e-mail is triggered if the batch execution is successfully interrupted.
  - The system automatically sends an email to all users assigned to the BATCH_NOTIFY_FUNT function and the BATCH_NOTIFY_ROLE role, except for users who have selected the "Never" notification option. If a batch is mapped to a user (and their email ID), the batch email notifications will be sent only to that configured batch user. If no batch user is configured, the system follows the default email notification process.

> **Note**
>
> You can perform the batch-to-user configuration on the Batch to User Configuration page.

2. For new batches, after entering the Batch Details, provide the following batch parameters.

   From the **Batch Parameters** pane, click **Add** to add a new batch parameter, in the following format.

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- **Parameter Name** - A valid parameter name for the new Batch parameter.
- **Parameter Value** - A valid parameter value required for Batch execution.

> **Note**
>
> Enclose the parameter Value for a Run time with $ symbol. For example, `$paramName$`.

By default, **$FICMISDATE$** and **$BATCHRUNID$** are added as batch Parameters.

By default, **$BATCHDATE$**, **$BATCHRUNID$** and **$RUNSKEY$** are added as batch Parameters.

> **Note**
>
> **$RUNSKEY$** parameter is added only if you are creating a new batch or copying from an existing batch. It is not supported for existing batches.

To delete a batch parameter, click **Delete** next to that parameter details.

3. Enter the following **Header Parameter** details:
   - **Parameter Name** - A valid parameter name for the new header parameter.
   - **Parameter Value** - A valid parameter value required for batch execution.
4. Click **Save**. The new batch/batch group is created and displayed in the **Scheduler Services (Define Batch)** page.

   To view the dependent tasks and their components, click the **Dependency Check** icon. Upon clicking this icon, the **Object Dependency** window appears and displays the following:
   - Higher Order Dependencies – Components/batch group that the selected batch depends on. Example: Batch in a batch group will have Batch group as the higher order dependency.
   - Lower Order Dependencies – Any task which is created under a batch and the dependency is established will be shown under this tab.

7.1.4.2 Editing a Batch/Batch Group

Edit the batch/batch group details such as **Description** and also add new **Batch Parameters** to a batch,along with adding new **batches** to the batch group.

Seeded batches cannot be edited.

To modify a batch/batch group:

1. In the **Scheduler Services (Define Batch)** page, click the three-dot menu corresponding to the batch/batch group you want to modify and select **Edit Batch/Edit Batch Group**.
2. Modify the required details, in the **Edit Batch** page.
3. Click **Save** to save the edited batch/batch group.

   The edited batch will be updated in the **Scheduler Services (Define Batch)** page.

You can pin a particular batch/batch group by selecting the **Pin** option from the three-dot menu of each batch/batch group. For information, see Pinning/Unpinning a Batch/Batch Group.

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To unpin a batch/batch group, click the three-dot menu corresponding to the pinned batch/batch group and select **Unpin Batch/Unpin Batch Group**.

7.1.4.3 Copying a Batch/Batch Group

Copy a batch/batch group that you want to clone to create a new batch/batch group.

To copy a batch/batch group:

1. In the **Scheduler Services (Define Batch)** page, click the three-dot menu corresponding to the batch/batch group that you want to copy and select **Copy Batch/Copy Batch Group** .
2. In the **Copy Batch** page, modify the required Batch details to create a new batch/batch group.
3. Click **Save** to add the copied batch to the **Scheduler Services (Define Batch)** page.

7.1.4.4 Deleting a Batch/Batch Group

Delete a batch/batch group that is no longer required in the system from the Define Batch page.

> **Note**
>
> You cannot delete seeded batches.

To delete a batch/batch group:

1. From the **Scheduler Services (Define Batch)** page, click the three-dot menu corresponding to the batch/batch group you want to delete and select **Delete Batch/Delete Batch Group** .
2. Click **OK** to confirm deletion.

> **Note**
>
> After confirmation, any active schedules associated with the batch will also be deleted.

7.1.4.5 Pinning/Unpinning a Batch/Batch Group

Use the pinning option to pin a batch/batch group to keep it at the top of the list for quick access, on the **Scheduler Services (Define Batch)** page.

By default, the Batch and Batch Group drop-down lists are sorted such that:

- Pinned objects specific to the logged-in user appear first. Objects pinned by the logged in user appear at the top.
- These are followed by non-pinned objects.
- Within each group (pinned and non-pinned), objects are sorted in ascending alphabetic order.

To pin a batch/batch group:

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1. To pin a record: In the **Scheduler Services (Define Batch)** page, click the three-dot menu corresponding to the batch/batch group you want to pin and select **Pin Batch/Pin Batch Group**.
2. To unpin a pinned record: In the **Scheduler Services (Define Batch)** page, click the three-dot menu corresponding to the batch/batch group you want to unpin and select **Unpin Batch/Unpin Batch Group**.

7.1.5 Define Tasks

The Define Tasks page lists tasks associated with a specific Batch Definition. You can create new tasks, and edit or delete existing tasks.

To access the **Define Task** page:

- Select Batch/Batch Group from the drop-down list and select the particular batch/batch group to access the list of tasks associated with it.

  You can view the following details related to each task:

  - **Task ID** - The unique identifier for the task.
  - **Name** - The name of the task..
  - **Parent Task** - The parent task associated with the task.
  - **Component** - The seeded/custom component associated with the task.
  - **Created Date** - The task creation date.
  - **Last Modified** - The last modification date.

  To search for a specific task, enter the keywords in the **Search** field and click **Search**. You can search based on the **Task Name**, **Code** and **Description**. You can also sort the Task list based on **Code**, **Name**, **Precedence**, **Component**, **Created Date**, and **Last Modified Date**.

Using the **Preview** option, you can view the complete task execution sequence for a specific batch/batch group.
On the **Define Task** page, select the required batch or batch group and proceed as needed. From the **Actions** menu, you can select **Schedule** to navigate to the **Schedule Batch** screen. The **Schedule Batch** screen appears with pre-populated data related to the selected batch/batch group.

Perform the following operations to manage a Task, from the **Scheduler Service (Define Task)** page.

- Add a task
- Modify a task
- Define a task precedence
- Delete a task

7.1.5.1 Adding a Task

Add new tasks to a selected Batch Definition.

To add new task:

1. In the **Scheduler Service (Define Task)**, select the Batch for which you want to add a new task from the drop-down list.

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2. Click **Actions** on the page and then click **Add** to access the **Add Task** page.
3. Enter the following details:
   - **Task Code** - Enter a unique alphanumeric code for the new task.
     The code must begin with letters, should not include spaces, and has a maximum limit of 60 characters. Special characters except **underscore (_)** are not allowed.
   - **Task Name** - Enter a unique name for the new task.
     The name should start with letters, not contain spaces, and have a maximum limit of 60 characters. Special characters except **underscore (_)** are not allowed.
   - **Task Description** - The description/details for the task.
     The description should begin with a letter and not exceed 250 characters. Avoid using phrases like "Select From" or "Delete From" in the description.
   - **Task Type** - Select the task type from the drop-down list.
   - **Component** - Select the custom or the seeded component associated with the task.
4. By default, all Batch Level Parameters are added and enabled as task parameters in the **Task Parameters** pane.

   > **Note**
   >
   > You can edit the parameters only for custom components.

   a. Enter the Parameter name in the **Param Name** field.
   b. Enter the Parameter value in the **Param Value** field.
   c. For FTP Propagation or Advanced FTP Propagation components, select the **Execution Mode** from the drop-down list:
      - **Single Query Approach**: Select this option to process small or medium-sized datasets (less than 500,000 records). This mode provides faster execution with minimal overhead and is suitable for manageable data volumes.
      - **Sliced Queries Approach**: Select this option for very large datasets (500,000 records or more) that might cause memory or performance issues if processed in a single query. This mode divides the dataset into smaller slices, improving query execution performance and reducing overall processing time.

   To delete a parameter, click on **Delete** next to the respective parameter.
5. Click **Save** to add the new task to task summary in the **Define Task** page.

   > **Note**
   >
   > Sync task will remain active if execution time is more than 15 minutes at target service and till acknowledge status is generated from target API after the execution.

7.1.5.2 Modifying a Task

Modify details such as Task Description and Task Type in existing tasks.

You can also add a new task parameter and enable or disable existing task parameters.

To modify a task:

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1. From the **Define Task** page, select the Batch to modify the task details from the drop-down list.
2. Click **Edit** corresponding to the Task you want to modify.
3. Modify the required Task Details, in the **Edit Task** page.
4. Click **Save** to update the changes.

   The modified task is added to the **Define Task** page.

7.1.5.3 Define Task Precedence

Task Precedence indicates the execution-flow of a batch. Task Precedence Value helps to determine the order in which the specific tasks of a batch are executed.

For example, consider a Batch consisting of four tasks. The first three tasks lack define precedence and hence will be executed simultaneously during batch execution. However, Task 4 has a precedence value as Task 1, indicating that Task 4 is executed only after the successful completion of Task 1.

You can set Task Precedence between Tasks or define to run a Task after a set of other tasks. While, multiple tasks can be executed simultaneously, cyclical execution is not permitted. Tasks without defined precedence execute immediately upon Batch Execution.

> **Note**
>
> The **Task Precedence** option is disabled if a batch has only one associated task.

To define task precedence:

1. Click **Add or Remove Precedence** corresponding to the task requiring precedence, to access the **Precedence Mapping** list.
   a. Select a batch to execute before the current task, from the **Available Tasks** pane and click **Move Selected**.

      To move all the batches, click **Move All**.

   b. To remove a batch from the task precedence sequence, select the task from the **Selected Tasks** pane and click **Remove**.

      To remove all the selected batches, click **Remove All**.
2. Click **Save** to update Task Precedence in the batches.
3. Click **Preview** to view the precedence information.

7.1.5.4 Deleting a Task

Remove any tasks that that are no longer required in the system, from a Batch Definition.

To delete a task:

1. From the **Define Task** page, select the Batch from the drop-down list.
2. Click **Delete** corresponding to the Task you want to delete.
3. Click **OK** in the confirmation dialog to confirm deletion.

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7.1.6 Schedule Batch

Schedule Batch enables users to manage batch/batch group executions.

All the batch/batch group schedules are listed. You can sort this list based on code, name, Pinned, Task Precedence, Components, and dates, to access a specific schedule.

On the **Schedule Batch** page, select the required batch or batch group and proceed as needed. When you execute/restart/rerun a batch/batch group, a dialog box appears providing you an option to navigate to the **Monitor Batch** screen.

From the **Schedule Batch** page, you can perform the following operations related to the execution and scheduling of batches/batch groups

- Execute batch/batch groups instantaneously
- Edit dynamic parameters
- Automate batch/batch group executions using the various scheduling options
- Re-run a batch/batch group execution
- Re-start a batch/batch group execution

7.1.6.1 Execute Batch/Batch Group

Use the Execute Batch to run a batch/batch group instantaneously.

To execute a Batch/Batch Group:

1. In the **Schedule Batch** page, select **Batch** or **Batch Group** to execute from the drop-down list.
2. Select the **Batch /Batch Group** for execution.
3. Click **Execute** to access the **Execution Schedule** page.
4. Click **Exclude Tasks** to add/remove tasks from the execution list.
5. Click **Hold Tasks** to pause/release tasks during execution.
6. Click **Edit Dynamic Parameters** to modify the dynamic parameters.
7. Click **Execute**.

   The Batch is executed, and the associated unique Run ID is displayed in the format `<BATCH_CODE>_<MIS_DATE>_<ITERATION-COUNT>`.
   You can always click preview to view the PMF process sequence used to execute the selected batch/batchgroup.

7.1.6.2 Adding Pre-Conditions For Batch Group Execution

Pre-conditions help to execute batches associated with a batch group, on specific days, based on the set frequency and selected days.

You can set pre-conditions for a batch group, to execute specific batches on selected days based on the set frequency interval. This enables to wisely use the available resources for execution.

To set pre-conditions for batch group execution:

1. Click **Schedule** from the Header panel.
2. In the **Schedule Batch** page, select **Batch Group** and the **Batch Group Name**.

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3. Click **Pre-Conditions** to set the pre-conditions for task execution.
4. Select the **Batch** to set the pre-condition.
5. Set the execution frequency to Weekly, Monthly, or specific interval and set one of the following conditions:
   - **Weekly** - Select the weekdays to execute the batch. You can select multiple days.
   - **Monthly** - Select the days of the month to execute the batch. You can select multiple days.
   - **Interval** - Select the recurrence frequency to execute the batch.
6. Click **Add** to add another pre-condition.
7. After adding all the required pre-conditions, Click **Save**.

   The pre-conditions are saved and the batch group will be executed based on the set pre-conditions.

> **Note**
>
> The batch group is always get executed based on the pre-condition and any schedule associated with the batch group will not be considered for processing.

7.1.6.3 Edit Dynamic Parameters

Modify the dynamic parameters set for a batch/batch group.

You can modify the batch parameters, batch header parameters, task parameters, and the task header parameters associated with a batch/batch group.

You can save your custom settings for future use by checking the "Remember my saved preference" option. When you execute a batch, your saved preferences will be used for that batch and its tasks. When you migrate a batch, your preferences will also be migrated. When you save your preferences:

- Copying a batch or task will also copy the preferences.
- Deleting a batch or task will also delete the preferences.

To edit the dynamic parameters from the **Schedule Batch** page:

1. Select **Batch/Batch group** and then select the specific batch/batch group.
2. Click **Edit Parameters** to access the **Edit Dynamic Params** page.

   You can also edit the dynamic parameters while configuring the scheduling options.
3. Click the batch/batch group name to access all the parameters.
4. Set the **$BatchDate$** to set the batch execution date: :
   - Set the batch date to SYSDATE (system date). The batch execution date is set to SYSDATE by default.
   - Toggle and select **MISDATE** to select a particular batch execution date.

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> **Note**
>
> All dates used in scheduling logic, including the MISDATE field, are consistently stored and processed in UTC (Coordinated Universal Time). This design ensures that scheduled batch executions and system date calculations remain standardized across all regions, eliminating discrepancies caused by local time zones. The MISDATE represents the scheduled date of a batch as stored in UTC. It does not adjust based on the user's local time zone. The SYSDATE function always reflects the current date and time in UTC when used for scheduling logic.
>
> **Example**: If a customer in Singapore (UTC+8) schedules a batch for March 16th at 02:00 AM local time, the system automatically converts and stores it as March 15th, 18:00 UTC. When any user views the MISDATE field for this batch, it will display 2024-03-15 (the UTC date stored).
>
> Similarly, the SYSDATE value is based on the current UTC date and time, ensuring all scheduling logic is aligned with the UTC standard. As a result, while the user schedules the batch for March 16th in their local time zone, the system consistently operates on the equivalent UTC date, maintaining uniformity across all locations.

5. Enter **$BATCHRUNID$** to set the batch run ID in the format: `<BATCH_CODE>_<MIS_DATE>_<ITERATION-COUNT>`.
6. Edit the batch header parameters and the task parameters.
7. Click **Save** to update the batch/batch group parameter values.
8. After updating the changes, execute the batch/batch group or configure the scheduling settings.

7.1.6.4 Scheduling and Automating Batch/Batch Group Execution

Automate batch/batch group execution.

Using the various scheduling options, you can automate batch/batch group execution to run based on the specified scheduling parameters.

To automate batch/batch execution:

1. Click **Schedule** from the Header panel.
2. In the **Schedule Batch** page, select from the following options:
   - **Once** - Run only once.
   - **Daily** - Run daily.
   - **Weekly** - Run weekly on selected days and time.
   - **Monthly** - Run monthly on selected days and time.
   - **Quarter** -Run every quarter on selected days and time.
   - **Cron Expression** - A Cron Expression is a string comprising of six or seven fields separated by white space. Fields can contain any of the allowed values, along with various combinations of the allowed special characters for that field.
     To execute a batch/batch group using a Cron expression, enter the Cron Expression for your schedule. For more information about the Cron Expression, click **Information** next to the Cron Expression field.
3. Enter the following generic information and the parameters:

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- **Batch/Batch Group** - Batch/batch group for execution.
- **Batch/Batch Group Name** - The specific batch/batch group to be executed.
- **Schedule Name** - The unique schedule name.

4. Provide the following scheduling parameters based on the selected schedule option.

   For Cron Expression based scheduling, enter the required Cron expression.

Table 7-2 Scheduling Options

Details	Once	Daily	Weekly	Monthly	Quarter
Start Date to begin execution.	Yes	Yes	Yes	Yes	Yes
End Date to stop the execution	No	Yes	Yes	Yes	Yes
Run Time to execute the batch/ batch group	Yes	Yes	Yes	Yes	Yes
Days of the week you want to execute the batch/batch group. You can select multiple days.			Yes	Yes	Yes
Months of the Year you want to execute the batch/batch group. You can select multiple months.				Yes	Yes
Day of the Month to execute batch/batch group				Yes	Yes
First Months of the Year to calculate the year beginning and each quarter beginning.					Yes
Select Quarters to execute batch/batch group You can select multiple quarters.					Yes
Days of Quarter - Select the days to execute the batch/batch group. You can select first day, mid day, last day, First N days, or last N days					Yes
No. of Days - If you select first N days or last N days, select the number of days to execute the batch/batch group at the beginning or end of the selected quarter					Yes

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> **Note**
>
> All dates used in scheduling logic, including the MISDATE field, are consistently stored and processed in UTC (Coordinated Universal Time). This design ensures that scheduled batch executions and system date calculations remain standardized across all regions, eliminating discrepancies caused by local time zones. The MISDATE represents the scheduled date of a batch as stored in UTC. It does not adjust based on the user's local time zone. The SYSDATE function always reflects the current date and time in UTC when used for scheduling logic.
>
> **Example**: If a customer in Singapore (UTC+8) schedules a batch for March 16th at 02:00 AM local time, the system automatically converts and stores it as March 15th, 18:00 UTC. When any user views the MISDATE field for this batch, it will display 2024-03-15 (the UTC date stored).
>
> Similarly, the SYSDATE value is based on the current UTC date and time, ensuring all scheduling logic is aligned with the UTC standard. As a result, while the user schedules the batch for March 16th in their local time zone, the system consistently operates on the equivalent UTC date, maintaining uniformity across all locations.

5. **Exclude Tasks** to add/remove tasks from the execution list.
6. **Hold Tasks** to pause/release tasks during execution.
7. Click **Edit Dynamic Parameters** to modify the dynamic parameters.
8. Click **Schedule** to add the new schedule for execution.

   You can set pre-conditions to process batch groups. When a batch group has an associated pre-condition, the execution schedule will not be considered for processing.
9. To manage schedules associated with a specific batch:
   a. In the **Select Batch** page, select **Batch** and select the **Batch Name** to view the associated schedules.
   b. Click **View Schedule** to access the list of all the schedules associated with the batch.

      You can perform the following tasks:

      - Click **Edit** to modify the schedule.
      - Click **Pause** and enter the **Start Date** and **End Date** to pause the schedule from execution. Click **Add** to apply the pause.
        To remove the pause, click **Delete** next to the specific pause.

7.1.6.5 Re-run Batch/Batch Group

Re-running a batch/batch group facilitates you to run the batch/batch group irrespective of the previous execution state.

When you re-run a batch/batch group that has been previously executed, a new Run ID is generated, and the batch/batch group is executed as if it were a new run.

To re-run a batch::

1. Click **Schedule Batch** from the Header panel.
2. In the **Schedule Batch** page, select the **Re-run** tab.
3. Select **Batch/Batch Group**.
4. Select the **Batch or Batch group Name** you want to re-run.

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5. Select the **Batch Run ID**.
6. Click **Re-run**.

7.1.6.6 Re-start Batch/Batch Group

Re-start a batch/batch group that has not executed successfully or has been explicitly interrupted, canceled, or put on hold during the execution process.

Restarting a batch/batch group enables you to continue execution directly from the point of interruption or failure, allowing you to complete executing the remaining tasks.

> **Note**
>
> Before restarting a batch/batch group, ensure to provide the complete cleanup URL and also to enable invoking the cleanup URL before restarting the execution.

To re-start a batch/batch group:

1. Click **Schedule Batch** from the Header panel.
2. From the **Schedule Batch** page, select the **Re-start** tab.
3. Select **Batch/Batch Group**.
4. Select the **Batch or Batch group** you want to schedule daily from the drop-down list.
5. Select the **Batch Run ID**.
6. Click **Re-start**.

7.1.7 Monitor Batch/Batch Group

Using Monitor Batch/Batch Group, you can view the status of executed batches/batch groups, along with the tasks details.

Monitoring enables users to track and identify issues at regular intervals, ensuring smoother batch execution. Both a visual representation and a tabular view of the status of each task in the batch are available.

On the **Monitor Batch** screen, select the required batch or batch group and proceed as needed. From the **Actions** menu, you can select **Restart/Rerun** to navigate to the **Schedule Batch** screen with pre-populated data related to the selected batch/batch group.

To monitor a batch/batch group:

1. Click **Monitor Batch** from the Header panel.
2. Select the **Batch/Batch Group** and the **Batch/Batch Group Name** to monitor the execution.
3. **Set Refresh Frequency Time Interval and duration** in seconds.

   By default, the refresh interval is set to **5 seconds** and duration is set to **5 minutes**. This indicates that the monitor progress will be refreshed every 5 seconds for the next 5 minutes.

   The refresh interval ranges between 5 to 60 seconds and the duration ranges between 5 to 180 seconds.
4. Select the **MISDATE** to view the list of Batch Run IDs executed on a specific date.

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5. Select the **Batch Run ID** you want to monitor.
6. Click **Start Monitor** to view the results in **Visualization** and **List View** tabs.

   The **Visualization** tab displays execution status graphically, while the **List View** tab provides the details in a tabular form, including:

   - **Status**: Task execution status - **Not-Started**, **On-going**, **Aborted**, **Successful**, **Failed**, **Interrupted**, **Excluded** and **Undefined**.

     > **Note**
     >
     > When the task execution status is **Aborted**, the batch execution will still be **On-going**. The task status will be set to **Ongoing**, when it is triggered again.

     To download the Orchestrator LogViewer PDF:

     a. Click **View Execution Logs**.
     b. In the page that opens, locate the log you want to download and click the **Log Viewer** icon under **Actions**.
     c. In the Log Viewer page, click the **Details** tab.
     d. Click the **Download** icon to download the Orchestrator LogViewer PDF.

   - **Start Time**: Task execution start time.
   - **End Time**: Task execution end time.

     > **Note**
     >
     > All timestamps displayed in the Log Viewer UI now reflect the timezone configured in the user preferences.

   - **Task Details**: Mouse-over the task to display its status and details.
7. At any point, select **Stop Monitor**, to stop monitoring.

   You can download the task execution summary in PDF or Excel, with or without the task logs, from the **Monitor Task** page.

   > **Note**
   >
   > You can download the task execution summary only if the **BATCH_OPER** role is mapped to the **LOGVIEW** function.

8. (Optional). To rerun, restart, or interrupt execution, click **Actions** and select the required option.

   You can also reset the search criteria using **Actions**.
9. (Optional). Click **View Execution Parameters** adjacent to a batch/batch group, to access the list of tasks and task parameters such as **Runskey ID**, **Misdate**, associated with that batch/batch group.

7.1.8 Scheduler Configuration

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Scheduler Configuration UI allows you to manage the scheduler service configuration parameters.It also allows you to map specific user to batch and batchgroups for email notifications.

To access the Scheduler Configuration UI in the Scheduler Service page, follow these steps:

1. Go to the Home page of the application.
2. Navigate to **Batch Administration** in the left Navigation pane.
3. Under **Batch Administration**, click on **Scheduler Configuration**.

> **Note**
>
> Ensure you have the BATCH_ADMIN function code to access the Scheduler Configuration page.

7.1.8.1 Batch to User Configuration

Batch to User Configuration menu allows you to map users to specific batch/batch group processes.This assignment ensures that emails are sent only to the specific users associated with each batch.

To access the Batch to User Configuration page, select **Batch to User Configuration** in the Scheduler Configuration UI.

> **Note**
>
> Click the **eye** icon on the **Batch to User Configuration** tile to view the page.

To search for a specific batch/batch group, enter the keywords in the Search field and click **Search**. You can search based on Batch Name, Batch Code, and Batch type.

> **Note**
>
> The system automatically sends an email to all users mapped to the BATCH_NOTIFY_FUNT function and BATCH_NOTIFY_ROLE role, except for users who have selected the "Never" notification option. If a batch/batch group is mapped to a user (and their email ID), the batch email notifications will be sent only to that configured batch user. If no batch-to-user configuration is provided or updated, email notifications will be sent to users with the above function and role.

Perform the following steps to add specific user(s) to the batch/batch group:

1. In Batch to User Configuration menu, click **Add** to add new batch/batch groups.
2. Select the batch type from the dropdown menu.
3. Select the required batch/batch group from the dropdown menu.
4. Select the required users from the dropdown menu.
5. Click **Create**, the *Batch User mapping is created successfully* message is displayed.

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Action menu

Batch to user mapping configuration page lists all the batch/batch groups which are mapped to specific user(s).

1. Select the desired batch/batch group from the Batch to user mapping configuration page. Click **Action Menu** to view, modify, or delete batch/batch groups.

   a. **View**
   Clicking **View** allows users to see detailed information on the batch/batch group user mapping.

   b. **Edit**
   Edit the batch/batch group to user mapping configuration.You can either update the user details or remove the user.

   c. **Delete**
   The **Delete** option allows you to remove the user to batch/batch group mapping from the system.

7.1.8.2 General Configuration

The **General Configuration menu** allows you to configure the parameters related to a scheduler service.

1. Under **Scheduler Configuration** menu, select **General Configuration**.

> **Note**
>
> Click the **eye** icon on the **General Configuration** tile to view the page.

2. In Scheduler Service General Configuration Screen, click **Edit** to modify the configuration settings.
3. Modify the required details, refer to the **General configuration parameters** table below.

Table 7-3 General configuration parameters

Parameter	Description	Default Value
Enable/disable general email notification	Enable/disable general email notifications to automatically alert users when a batch job is successful, failed, or is interrupted.	Enable
Enable/disable in-app notification	Enable/disable in-app notifications to alert users within the application when a batch job is successful, failed, or is interrupted.	Enable

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Table 7-3 (Cont.) General configuration parameters

Parameter	Description	Default Value
Enable/disable notification for threshold email	Enable/disable email notifications triggered when a batch execution exceeds its expected execution time threshold. For example, if a batch typically completes in 1 hour but now takes longer, an email is sent as its taking longer than expected time to complete.	Enable
Threshold email time notification percentage criteria	Defines the additional execution time (in percentage) allowed beyond the last successful batch completion time before sending a threshold notification email. For example: If a batch previously completed successfully in 1 hour and the threshold is set to 20%, a threshold notification will be triggered if the batch exceeds 1 hour and 12 minutes (i.e., 60 minutes + 20%). If multiple notifications are allowed (as per the Threshold email Notify Limit), the time for subsequent notifications will be calculated from the last notification time, adding the same threshold percentage again. For instance, the next notification would be triggered after 20% of 72 minutes (i.e., 86.4 minutes), and so on.	20
Threshold email Notify Limit	Defines the maximum number of email notifications that can be sent when a batch exceeds its execution time threshold during a single run. **Note** If general email notification is disabled and only if the threshold email notification is enabled, scheduler sends only the threshold email.	5
Batch to User mapping upper limit	Specifies the maximum number of users that can be mapped to a batch/batch group.	10

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4. Click **Save** to save the modified configurations.
   OR

   Click **Cancel** to discard the changes and revert to the previous settings.

7.1.9 Appendix A: Understanding Batch Job Scheduling and Daylight Saving Time (DST)

This documentation outlines how Daylight Saving Time (DST) may affect your scheduled batch jobs when using the Europe/London time zone.

Batch Job Scheduling Behavior

When you schedule a batch job in the application interface, you select a Run Time (example: 4:00 AM) in the Europe/London time zone.

- The batch scheduler internally converts this time to UTC behind the scenes at the time of schedule creation.
- Once this UTC time is set, it remains fixed in the schedule.

Observed Impact During DST Transitions

The Europe/London region transitions between standard time and Daylight Saving Time (clocks go forward in March and back in October). Because the job schedule uses a fixed UTC time, the expected local execution time will shift:

- **During standard time (non-DST)**: Your job runs at the expected local time (e.g., 4:00 AM local).
- **After DST ends (clocks go back one hour, usually in October)**: The same fixed UTC schedule will trigger one hour earlier in local time.

Examples:

Case 1: Batch scheduled in non-DST range

Table 7-4 Scheduling in non-DST range

Phase	Europe/ London Time Zone Status	User Expected Schedule Time	Stored UTC Time	Actual Trigger Time (Europe/ London)	Result
Non-DST	UTC+0	8:30 AM	8:30 AM	8:30 AM	Correct
DST starts	UTC+1	8:30 AM	8:30 AM	9:30 AM (8:30 AM UTC + 1 hr)	1 hour delay

Case 2: Batch scheduled in DST range

Table 7-5 Scheduling in DST range

Phase	Europe/ London Time Zone Status	User Expected Schedule Time	Stored UTC Time	Actual Trigger Time (Europe/ London)	Result
DST	UTC+1	8:30 AM	7:30 AM	8:30 AM	Correct
Non-DST starts	UTC+0	8:30 AM	7:30 AM	7:30 AM (7:30 AM UTC + 0 hr)	1 hour early

Customer Impact and Action Required

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This behavior may cause scheduled operations, reporting, or data integrations to run at unintended times, particularly for UK users.

The current system does not actively recompute and adjust the UTC time when DST changes. Review and adjust your scheduled jobs around DST changes to ensure they continue to run at your desired local time.

7.2 Object Migration

Object Migration is the process to define, export and import objects across environments (prod and non-prod)/instances. This feature also facilitates to migrate within the same setup or different setups.

Objects refer to the various metadata definitions defined for various domains. You may want to migrate objects for several reasons such as manage global deployments on multiple environments or to create multiple environments so that you can separate the development, testing, and production processes.

For example, you can use the object migration feature to define PMF process object such as balance computation on your testing environment. After successful testing, you can use this feature to export the object to production/non-production environment.

You can migrate the following object types:

- **Schedule** - Schedule provides the instruction to schedule the execution of defined processes. When a schedule is migrated, the associated batch is also migrated.
- **Batch** - Batch is a group of jobs. When a batch is migrated, the batch and the associated pipeline information are also migrated. Note that the dependent objects used in the batch are not exported. All the objects used in the batch must be present in the target environment before the batch definition is imported.
- **Batch_Group** - A set of individual batches are consolidated to form a single Batch_Group. When we migrate a Batch_Group all the batches, tasks and pipeline information associated with that Batch_Group are also migrated.
- **Pipeline** - A pipeline is an embedded data processing engine that runs inside the application to filter, transform, and migrate data on-the-fly. Pipelines are a set of data processing elements called widgets connected in series, where the output of one widget is the input to the next element.
- **Threshold** - The threshold limit associated with set variables values for scenarios in FCCM Cloud Service. These threshold values are set when scenarios are created or installed and can be changed, if required.
- **Job** - Jobs provide set of instructions to execute Workflow Pipelines, based on the set threshold values.
- **Roles** - Roles are used to map functions to a defined set of groups to ensure user access system security.
- **Groups** - Groups are used to map Roles. Specific User Groups can perform only set of functions associated with that group.
- **CM_ADMIN** - The CM_ADMIN object type refers to all the case management related admin screens. Under this object type, you can export case management related admin metadata and settings for Business Domain, Case Actions/Statuses, Case Priority, Case Rules, Case System Parameters, Case Types, Jurisdictions and Security Mapping.

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> **Note**
>
> System can successfully import any object if both Code/Name do not exist in the target. If either code or name of the object being migrated is already available in target, import will fail.
> Even if overwrite option is selected, object will only be overwritten in target if both object code/name matches in target environment.
>
> For example, if an interest rate curve is being migrated, and either code or name is already available in target environment, import will fail.

7.2.1 Migration Object Types

You can create Object Export and Import definitions for the following object types using Object Export/Import feature.

The Migration object types are categorized as follows:

Asset Liability Management

- Standardized_IRRBB_Shock
- Static_deterministic_process
- Time_bucket
- Dynamic_deterministic_process
- Forecast_balances
- Multi_dimensional_balance_sheet
- Pricing_margin
- Product_characteristics
- Behaviour_pattern_rule
- Discount_methods
- Forecast_rates
- Prepayment_model
- Prepayment_rules
- Transferring_Price_Rules

Cash Flow Edits

- Cash_flow_edits_rule
- Cash_flow_edits

Cash Flow Engine

- Cashflow_Process

Common Objects

- Batch

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> **Note**
>
> Ensure to have BATCH_SUMM, BATCH_VIEW and BATCH_ADD riles to view, export and import batches.

- Batch_group

> **Note**
>
> Ensure to have BATCH_SUMM, BATCH_VIEW and BATCH_ADD riles to view, export and import batches.

- Currency
- Datamodel_extension_dimension
- Data_file_specification
- Dimensions

> **Note**
>
> Dimension definitions should be migrated before migrating the dependent object definitions. The source and the target dimension of the dependent objects should be the same.

- Expressions
- Filters
- Custom Archives
- Folder
- Hierarchy

> **Note**
>
> Dimension definitions should be migrated before migrating the Hierarchy associated with it. The Dimension should be the same in both source and target environments.

- Holiday_calendar
- Job
- Pipeline
- Schedule

> **Note**
>
> Ensure to have BATCH_SUMM, BATCH_VIEW and BATCH_ADD riles to view, export and import batches.

- Slowly Changing Dimensions

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Data Maintenance Interface (DMI)

- Excel Upload
- Data Entry
- Data Exporter

> **Note**
>
> Ensure that the definitions are in **Approved** status before migrating.

Funds Transfer Pricing

- Add-on Rate Rule
- Alternate_Rate_Output_Mapping
- Replicating Portfolio
- Standard_Process

Identity Management

- **Groups** - For more information, refer to Groups Summary in Admin Console.
- **Roles** - For more information, refer to Roles Summary in Admin Console

Patterns

- Behaviour_pattern
- Payment_pattern
- Reprice_pattern

Profitability Management

- Allocation Model
- Lookup Table
- Allocation Specification
- Static_Table

Profitability Analytics

- Financial Element Mapping
- Segmentation Mapping
- Line Item Display Order
- Geography Mapping

Rate Management

- Interest Rates

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> **Note**
>
> While importing, the last executed date is set as Null to support the batch hybrid scheduler to execute the data afresh.

.

- Economic_indicator
- Volatility_surface

7.2.2 Accessing Object Export and Object Import Features

Using the Object Export and Import features, you can create Export and Import Object definitions.

Business Objects - To access Object Export and Import feature for Business Objects: From the left navigation pane in the PBSM applications console, click **Operations and Processes > Object Administration** and:

- To access Object Export feature, click **Export Object**.
- To access Object Import feature, click **Import Object**.

Identity Management Objects - To access Object Export and Import feature for Identity Management Objects: From the Admin Console, click **Identity Management** and

- To access Object Export feature, click **Object Migration (Export)** tile.
- To access Object Import feature, click **Object Migration (Import)** tile.

7.2.3 Export Object

Object Export Definition is a collection of objects that can be exported across environments.

You can view the list of object export definitions that are already created in the **Object Export Summary**. You can also view the following details about each object definition.

> **Note**
>
> The screen has been updated to the new Rapid user interface (UI), but you can switch back to the previous version (OJET) at any time by using the “Switch to Old UI” toggle. The OJET screen and the toggle to switch to it will be discontinued in an upcoming release.

- **Name** - The unique name assigned to the collection when the export definition was created.
- **Object Migration Status** - The export status of a specific object definition.
  - **Success** - Indicates that the export is completed successfully.
  - **Failed** - Indicates that the export was not successful. You can reintiate the migration of the specific object definition.
  - **Saved** - Indicates that the object definition is created successfully and is yet to be exported.

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  - **In Progress** -Indicates that the export is in progress. Once the export is complete, the status will change to Success/Failed.

- **Last Modified By** - The ID of the Last Modified by user who has modified the definition. On mouse over, the Last Modified Time and Date are displayed.

To filter the list and view specific Object Definition, use one of the following search options:

- To search for a specific Export Object Definition, type the first few letters of the export definition that you want to search in the Search Box and click **Search**. The search results display the names that consist of your search string in the list of available definitions.
- Enter the number of records to be viewed in a single page, in the **Records** box, at the bottom of the page. You can increase or decrease the number of entries that are displayed using the up and down arrows.
- You can navigate between pages in the **View** bar, use the navigation buttons present at the bottom of the page.

7.2.3.1 Creating Export Definitions

You can create export Meta data objects using the System Configuration tab in Admin Console.

For more information about the supported object types, refer to Migration Object Types. Refer to the following steps, to create a migration export object.

1. Click **Add** in the **Object Export Summary** Page to view the **Migration Definition** page.
2. Enter the following details, in the **Migration Definition** page.
   - **Migration Name**: Enter the code of the export of objects to be migrated definition. This is a unique identifier.
   - **File Name**: The system auto-creates the file name of the objects that can be used to export the definition in the following format:
     - **For Business Objects**: Migration Name_BO_Time Stamp_Tenant_Release Version (time stamp format: MMDDYYY HHMMSS)
       Example: EXP_DQRULE_BO_07312025_162240_zqvzly-prd_25_09_01.DMP
     - **For Identity Objects:** Migration Name_IDM_Time Stamp_Tenant_Release Version (time stamp format: MMDDYYY HHMMSS)
       Example: EXP_DQRULE_IDM_07312025_162240_zqvzly-prd_25_09_01.DMP
3. Click **Apply** to save the details and view the **Object Selection** Page.
4. Click **Add** to include Migration objects to the definition.
5. Select the required **Object Type** from the Object Types drop-down list.
6. Select the objects to be added to the Migrate Definition and click **Save**, to create a new migration object. To select all objects, click the check box adjacent to **Code**. The selected objects appear under **Selected Objects** on the right.

   A confirmation message is displayed, when the definition is saved successfully. The new migration definition is listed in the Object Export Summary Page and the status is set to **Saved**.

   You can also click **Export**, to export the object.

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7.2.3.2 Editing Export Object Definitions

You can edit the Export Object definitions that are not exported and their status is **Saved** or **Failed**.

If the definitions is already exported and the status is set to **Success**, you cannot edit that definition.

To edit an Export Object definition, follow these steps.

1. In the Object Export Summary page, highlight the definition and click **Menu**, and select **Edit**.

   The **Object Selection** page is displayed.
2. Modify the following details, if required, and click **Save** to changes.
   - Select the required **Object Type** from the Object Types drop-down list.
   - Select the objects to be added to/deleted from the definition.
3. After adding/deleting all the required objects, click **Save**.

   The Export definition is saved successfully and a confirmation message is displayed. The new definition is listed in the Object Export Summary page and the status is set to **Saved**.
4. If you want to Save and Export the Definition, click **Export**.

7.2.3.3 Exporting Object Definition

After creating the object definitions, you can export them for migrating between environments, using Object Migration (Export) feature.

You can export object definitions in **Saved** or **Failed** state from the object Summary page.Refer to the following steps, to export definitions.

1. In the Object Summary Page, highlight the migration definition and click **Menu**.
2. Select **Export** from the menu.

   After you export, the following Export status types are displayed:
   - **Success** - Indicates that the definition is exported successfully.
   - **Failed** - Indicates that the definition was not exported. Right-click and select **Export**, to reintiate the export process.
   - **In Progress** -Indicates that the export is in progress. Once the export is completed, the status will change to Success/Failed.

7.2.3.4 Viewing Export Object Details

Using the **View** option, you can view the list of objects and the dependancies added to an Object definition. You can also view the object details.

1. Highlight the Export definition and click **Menu**.
2. Select **View**. The object types, list of objects and the dependent objects added to the export definition are listed in the left pane.
3. Double-click an object to view the object attribute details.

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7.2.3.5 View Object Definition Export Log Details

View log facilitates you to view the export log information of the object definition with the migration status.

> **Note**
>
> The View Log page for an object definition with status **Saved** will be empty.

To view the log details of object with migration status **Success** or **Failed**, follow these steps.

1. In the Object Export Summary page, mouseover the object definition and click **Menu**.
2. Select **View Log** from the drop-down menu, to access the **View Log** page.

   The migration status of the objects with following details is displayed.

   - **Object Migration ID** - The migration ID associated with the definition.
   - **Object Type** - The object type of the definition.
   - **Object Code** - The object code associated with the definition.
   - **Creation Date** - The date of creation of the definition.
   - **Created By** - The User Id of the User who created the definition.
   - **Status** - The migration status of the definition.
     - **Success** - Indicates that the export migration was completed successfully.
     - **Failed** - Indicates that the export migration did not complete.
     - **Export Status Message** - The complete export status message.

     > **Note**
     >
     > Export status message currently not supported for GL reconcilation.

3. Click **OK** to close the page, after viewing the log details.

7.2.3.6 Downloading Dump File

You can download the export dump file for exported definitions to a local directory, using Download Dump file option.

The downloaded export dump file can be used to upload objects to a different environment.

> **Note**
>
> This option is enabled, only if the definition is exported successfully and the **Migration Status** is set to **Success**.

To download a export dump file, refer to the following procedure.

1. Mouseover a migrated object and select **Menu**.

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2. Select **Download Dump File** from the drop-down menu, to download the associated dump file and store it to the local directory.

7.2.3.7 Deleting Export Object Definition

You can delete only definitions that are set to **Saved** or **Failed** status.

To delete a export object definition, follow these steps.

1. In the Object Export Summary page, mouseover the definition to be deleted and click **Delete** .
2. Click **Yes** to confirm and proceed with the deletion.

7.2.4 Import Object

Object Import Definitions is a collection of objects that can be imported across environments.

You can view the list of Object Import Definitions that are already created in the **Object Import Summary**. You can also view the following details about each Object definition.

- **Name** - The unique name assigned to the collection when the Import definition was created.

  > **Note**
  >
  > Up to Release 26A, Object Migration performed duplicate object checks in the target environment by considering both the Code and Name of the object definition. From Release 26A onwards, the duplicate check is performed only based on the Code of the object definition. This enhancement is not applicable to duplicate name checks for IRC and IRC Loader objects.

- **Object Migration Status** - The import status of a specific Object definition.
  - **Success** - Indicates that the import is completed successfully.
  - **Failed** - Indicates that the import was not successful. You can reintiate the migration of the Specific Object Definition.
  - **Skipped:** - Indicates that during object migration, if the overwrite flag is set to **No** and the same code, name, or both already exist in the target environment. p

    > **Note**
    >
    > If the overwrite flag is set to **Yes**:
    >
    > And both the code and name match, the object is migrated. However, if either the code or name does not match, the system marks the object as **Skipped**.

  - **Saved** - Indicates that the Object Definition is created successfully and is yet to be imported.
  - **In Progress** -Indicates that the import is in progress. Once the import is complete, the status will change to Success/Failed.
- **Last Modified By** - The ID of the Last Modified by user who has modified the definition. On mouse over, the Last Modified Time and Date are displayed.

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To filter the list and view Specific Object Definition, use one of the following search options.

- To search for a Specific Import Object definition, type the first few letters of the Import definition that you want to search in the Search box and click **Search**. The search results display the names that consist of your search string in the list of available definitions.
- Enter the number of records to be viewed in a single page, in the **Records** box, at the bottom of the page. You can increase or decrease the number of entries that are displayed using the up and down arrows.
- You can navigate between pages in the **View** bar, use the navigation buttons present at the bottom of the page.

7.2.4.1 Creating Object Import Definitions

You can create Import definitions and add Import Objects using the Object Migration (Import) feature.

1. Click **Add** in the **Object Import Summary** page to view the **Migration Definition** page.
2. Enter the following details, in the **Migration Definition** page.
   - **Migration Name** - The Unique Name for the New Import Object definition.
     The migration name should not contain any space and exceed 30 characters. Underscore (_) and hyphen (-) are allowed.
   - **Dump File** -Select the .DMP file to be uploaded for creating the Import definition. You can select the dump file using one of the following options:
     - Select the option **Object Store**, to select the dump file (.DMP file) from the list of dump files available in the same environment.
     - Select the option **Local Machine** and click **Drag and Drop**, to add a .DMP file, from the local directory. You can only Add Dump file that are downloaded using Download Dump file option.

     > **Note**
     > - Uploading a dmp file either created or edited locally will generate an error.
     > - You can rename the .DMP file, if required. Ensure to follow the naming convention. For more information, refer toFile Naming Conventions for Migrate Objects.

   - **Import All** - Select an option to import the objects that are associated with the selected object type. You can edit this option if required, in the **Object Selection** page.
     - **Yes** - Imports all the objects that are included in the dump file.
     - **No** - Imports only those objects that you can select in the **Object Selection** page.
   - **Fail on Error** - Select an option to proceed with the definition creation in case of an error. You can edit this option if required, in the **Object Selection** page.
     - **Yes** - Stops the creation process, if error is generated.
     - **No** - Creates the import definition even when error is generated. The object with the error is not included in the object creation.
   - **Overwrite** - Select an option to overwrite the existing definition. You can edit this option if required, in the **Object Selection** page.

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- **Yes** - Replaces the existing Import definition.
- **No** - Creates a new Import definition.

3. Click **Save** to save the details.

   The Import definition is created and **Object Selection** page is displayed. You can add objects to this import definition.

4. Click **Add** to include objects to the definition.
5. Select the required **Object Type** from the Object Types drop-down list.

   Objects that are defined in the environment with respect to the selected object type are are listed. For example, if Schedule is selected as the Object Type, all the Objects defined with respect to Schedule, in the environment are only listed.

   You can also enter the first few letters of the object name in the Search Field, to narrow down the search.

6. Click the check box adjacent to each object, to include the objects associated with a specific object type, to the import definition. To select all objects, click the check box adjacent to **Code**. The selected objects appear under **Selected Objects** on the right.
7. Repeat steps 4, 5 and 6, to include objects associated with various object types.
8. After adding all the required objects, click **Save**.

   The Import definition is saved successfully and a confirmation message is displayed. The new definition is listed in the Object Import Summary page and the status is set to **Saved**.

9. If you want to Save and Export the Definition, click **Import**.

7.2.4.2 Editing Import Definitions

You can edit the Import definitions that are not imported and their status is **Saved** or **Failed**.

If the definitions is already imported and the status is set to **Success**, you cannot edit that definition.

To edit an Import definition, follow these steps.

1. In the Object Import Summary page, highlight the definition and click **Menu**, and select **Edit**.

   The **Object Selection** page is displayed.

2. Edit the following details, if required, and click **Save** to changes.
   - Select the required **Object Type** from the Object Types drop-down list.
   - Select the objects to be added to/deleted from the definition.
3. After adding/deleting all the required objects, click **Save**.

   The import definition is saved successfully and a confirmation message is displayed. The new definition is listed in the Object Import Summary page and the status is set to **Saved**.

4. Click **Save** to update the changes.
5. If you want to Save and import the Definition, click **Import**.

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7.2.4.3 Importing Object Definitions

After creating the object definitions, you can export them for migrating between environments, using Object Migration (Import) feature.

You can import object definitions in **Edited** state from the object Summary page. Refer to the following steps to import Object definitions.

> **Note**
>
> Comments and Documents attached to an Issue/Action will not be migrated.

1. In the Object Summary Page, mouse-over the definition and click **Menu**.
2. Select **Import** from the drop-down menu.

   After you import, the following Import status types are displayed:

   - **Success** - Indicates that the definition is imported successfully.
   - **Failed** - Indicates that the definition was not imported. Right-click and select **Import**, to restart the import process.

     > **Note**
     >
     > If the Process code is not unique and if the **Overwrite** flag is set as **No** while importing the object definition, the migration request fails and when you view the logs, the following error is displayed "**Process code is not unique, Migration Request Failed**"

   - **Skipped:** - Indicates that during object migration, if the overwrite flag is set to **No** and the same code, name, or both already exist in the target environment.

     > **Note**
     >
     > If the overwrite flag is set to **Yes**:
     >
     > And both the code and name match, the object is migrated. However, if either the code or name does not match, the system marks the object as **Skipped**.

   - **In Progress** -Indicates that the import is in progress. Once the import is completed, the status will change to Success/Failed.

7.2.4.4 Viewing Import Object Details

Using the **View** option, you can view the list of objects and the dependancies added to an Object definition. You can also view the object details.

1. Mouseover the migration definition and click **Menu**.
2. Select **View**. The object types, list of objects and the dependent objects added to the export definition are listed in the left pane.
3. Double-click an object to view the object attribute details.

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7.2.4.5 Viewing Object Import Log Details

View log facilitates you to view the log information of the object definition with the migration status.

> **Note**
>
> The View Log page for a definition with migration status **Saved** will be empty.

To view the log details of definition with migration status **Success**, **Failed**, or **Skipped**, follow these steps.

1. In the Object Import Summary window, mouseover the migration definition and click **Menu**.
2. Select **View Log** from the drop-down menu, to access the **View Log** page.

   The migration status with following details is displayed.

   - **Object Migration ID** - The migration ID associated with the import object.
   - **Object Type** - The object type of the import object.
   - **Object Code** - The object code associated with the import object.
   - **Creation Date** - The date of creation of the import object.
   - **Created By** - The User Id of the User who created the import object.
   - **Status** - The import status of the specific object.
     - **Success** - Indicates that the specific object was imported successfully.
     - **Failed** - Indicates that the specific object was not imported. For details, see the Import Status Message.
     - **Skipped** - Indicates that the specific object was not imported because it already exists in the target environment.
   - **Import Status Message** - The complete import status message.

     > **Note**
     >
     > Import status message currently not supported for GL reconcilation.

3. Click **OK** to close the page, after viewing the log details.

7.2.4.6 Deleting Import Definition

You can delete only definitions that are set to **Saved** or **Failed** status.

To delete an import definition, follow these steps.

1. In the Object Import Summary page, mouseover the definition to be deleted and click **Delete** .
2. Click **Yes** to confirm and proceed with the deletion.

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7.3 Lookup Table

Lookup Tables are user-defined database tables that are created to hold user data to match Instrument level measures or attributes and thereby deduce a return factor.

Note

- The Lookup Table is available under Analytics > SQL Query Browser UI also. You can search for the Table name using Physical Table Name.
- During Object Migration, when existing lookup tables with the same name and code are remigrated with the overwrite option set to **Yes**, the lookup tables in the target environment are dropped and recreated.
- The FTP Lookup Data Loader Component introduces a new configuration flag called **insertionMode**. This flag controls how data is inserted into the target Lookup Table during the data loading process.
  For tasks created before Release 24D, users must open the task in **EDIT** mode and resave it to activate the flag with the **Delete and Insert** option. To modify the insertion behavior, select **Append** from the drop-down list.
- While loading data into an FTP lookup table, the handling of *As-of Date* values depends on the **Use As-of Date** flag configuration, while setting up the lookup table.
  If the **Use As-of Date** flag is enabled, the data file must contain records for only one **As-of Date** for which batch is supposed to run (**MIS Date**). If multiple As-of Dates are provided, the system loads data only for the **MIS Date** for which batch has run and ignores records for other As-of Dates.

  If the **Use As-of Date** flag is not enabled, multiple As-of Dates can be loaded in a single file. However, when **Delete and Insert** is selected during execution, the lookup table is truncated before loading new data if as of date usage flag is not enabled while configuring the FTP lookup table. If Use As of date flag is configured, then data will be deleted only for one as of date, for which batch has run as MIS Date.

The user data is generally matched conditionally with the similar columns of a PBSMCS instrument table and a user specified value is returned that is stored under the return columns of the Lookup table. To open the Lookup Table summary screen, from the LHS menu, select **Funds Transfer Pricing Cloud Service**, select **Operations And Processes**, and then select **Lookup Table**.

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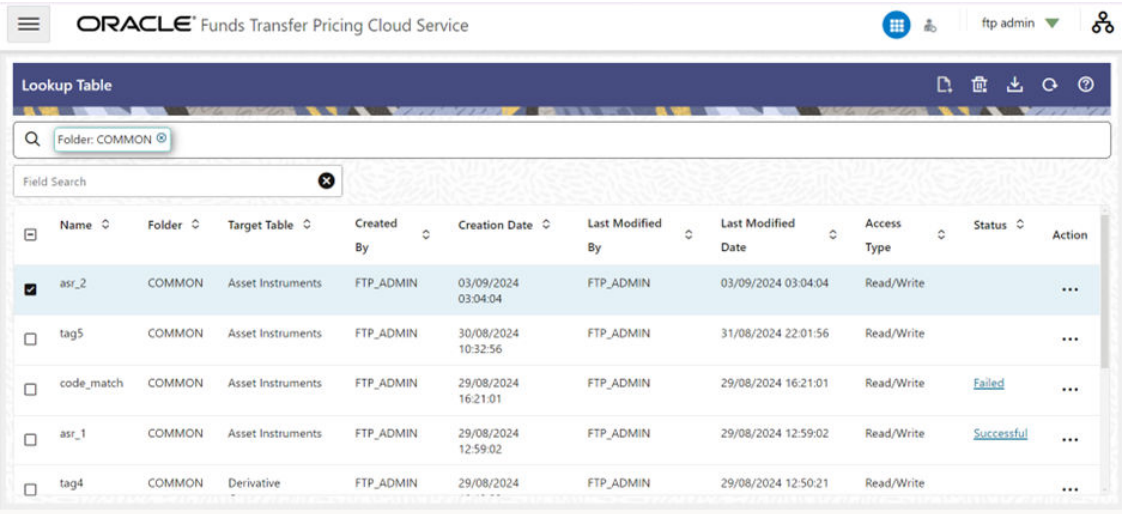
Figure 7-1 Lookup Table summary screen



Using search criteria, you can control the set of rules displayed. When you Add, Edit, or View a rule, it displays a detailed screen.

The Lookup Table summary screen has two panes: Search and Lookup Table summary table.

The title bar of the summary page provides the following actions for the user:

- **Add**: Click the Add icon to build a new Lookup Table. The Add icon is disabled if any rows in the table are selected.
- **Multiple Delete**: Select one or more drivers in the table and then click the Multiple Delete icon at the top right of the summary page to delete more than one rule at the same time.
- **Download**: Click Download to download the displayed information in the summary table in .xls format.
- **Refresh**: Click the Refresh icon to refresh the summary page.
- **Help**: Click the Help icon to view the Lookup Table help.

Searching for a Lookup Table Rule

To search the Lookup Tables:

1. Click the **Search** icon on the search pane to collapse (display) the criteria window.
2. Enter the **Lookup Table Name** or **Description** and click **Search** to display the Lookup Tables that match the criteria.
3. Click **Cancel** to remove the filter criteria on the search window and refresh the window.

Lookup Table summary table

This section presents a table containing all of the Lookup Tables that meet your search criteria. The table displays the details of the already created Lookup Tables.

The Lookup Table summary table displays the following details:

- **Name**: Displays the Lookup Table's short name. Hovering over an Lookup Table name displays the Lookup Table's object code and the object ID.
- **Folder**: Displays the folder in which the driver rule has been created.

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- **Target Table**: Displays the tags associated with the rule.
- **Created By**: Displays the name of the user who created the Lookup Table rule.
- **Creation Date**: Displays the date and time at which an Lookup Table rule was created.
- **Last Modified By**: Displays the name of the user who last modified the Lookup Table rule.
- **Last Modification Date**: Displays the date and time at which an Lookup Table rule was last modified.
- **Access Type**: Displays the “Read/Write” or “Read Only” property of an Lookup Table rule. Only the creator of a rule may change its Access Type.
- **Status**: Displays the status of the Lookup table. The values that are possible as status are – ‘Creation in Progress’, ‘Table Created’, ‘Failed’ and ‘Deletion in Progress’.
- **Action**: Displays the following list of actions that can be performed on the Lookup Table rule.
  The Action column in the Lookup Table Summary table offers the following actions based on the status of the lookup table:
  - **View**: Click the View icon to open the created table in view mode. View is enabled for table status in (Creation in Progress, Table Created, Deletion in Progress, Failed).
  - **Edit**: Click the Edit icon to open the created table in edit mode. Edit is enabled for table status in (Creation in Progress, Table Created, Deletion in Progress, Failed).
  - **Run**: Click the Run icon to execute the Lookup Table definition. After the process, the Lookup Table definition is marked as Successful or Failed. You can click the status and see the log files.
  - **Delete**: Click Delete to delete the Lookup Table rules you have selected.
    Delete is enabled for table status in (Table Created, Failed).

    For Failed state tables, Delete will delete the row from summary.

    Once Delete is clicked, the status of the table becomes 'Deletion in Progress' and once delete operation is successfully completed (meaning, the table is dropped successfully from the database), the corresponding lookup table row is deleted from the summary grid.

    If deletion operation fails due to any reason, the table appears in the Summary but now with status='Failed'.
  - **Save As**: Click on this option to create a copy of an existing Lookup Table rule. The Save As pop-up window allows you to enter the Name, Description, Folder, and Access Type details for the copy Lookup Table rule.
  - **Check Dependencies**: This action button is to check for any dependency of the selected object with other objects in the application. Check Dependencies is enabled for table status only in (Table Created).

7.3.1 Adding a Lookup Table

To add a Lookup Table:

1. Click **Add** on the title bar.

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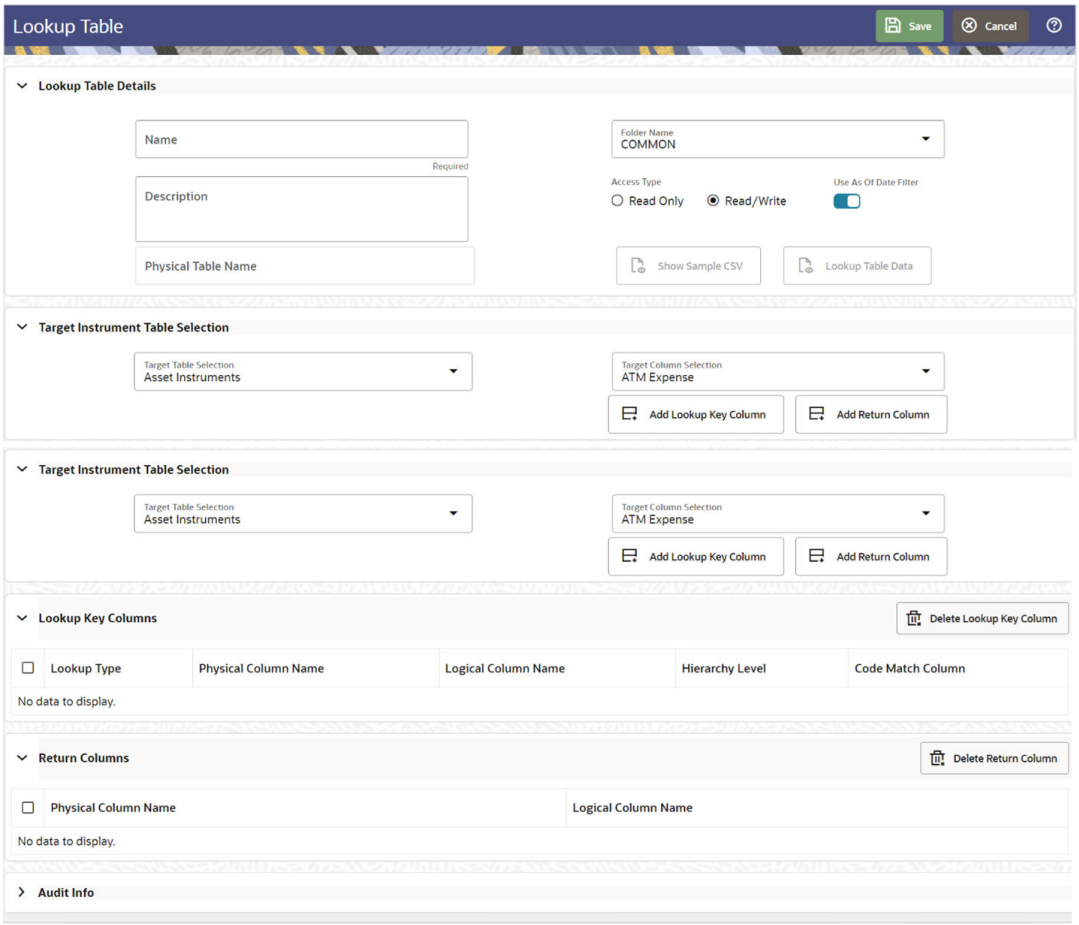
Figure 7-2 Adding a Lookup Table



2. Enter the following details under Lookup Table Details:
   - Name
   - Folder Name
   - Description
   - Access Type: Read Only or Read/Write
   - Use As Of Date Filter toggle switch: As applicable.
3. Enter the following details under Target Instrument Table Selection section:
   - Target Table Selection: Select the relevant table that you want to change/update the data.
   - Target Column Selection: Seelct the relevant column that you want to set the condition on the selected Target Table.
   - Add Lookup Key Column: Select the following options as applicable:
     - Exact Match
       - Range Lookup
     - Code Match
     - Code Pattern Match

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- Hierarchy – ID Match: In this case, you must select the Hierarchy of the selected Dimension. Staggered hierarchies with multi-level nodes are also supported. In lookup data, you can use nodes at multiple levels on the selected hierarchy, system is able to figure out leaf nodes on which lookup table need to be executed. Provide the hierarchy ID.
- Hierarchy – Code Match: In this case, you must select the hierarchy of the chosen dimension. Staggered hierarchies with multi-level nodes are also supported. In the lookup data, you can use nodes at multiple levels of the selected hierarchy, and the system is able to determine the leaf nodes on which the lookup table needs to be executed. Provide the hierarchy code.

- Add Return Column.

4. Enter the following details under Lookup Key Columns section:
   - Lookup Type:
     - Exact Match
     - Range Lookup

     The Audit Info part of the screen displays the following details:
     - Created By
     - Created Date
     - Modified By
     - Modified Date
     - Authorized By
     - Authorized Date
5. Click **Save**. The newly added Lookup Table definition is added to the summary screen and displayed.
   After the definition is saved, you can select the definition from the summary screen and clickView from Action menu.

   You can see the Show Sample CSV and Lookup Table Data buttons are enabled.

   When you click the Show Sample CSV button, the system downloads a CSV file. You can feed the details in this sheet.

   When you click the Lookup Table Data button, the system displays the Lookup Table Data in edit mode.

From this screen, you can manually Add or Delete a row, export or import a CSV file. Click Import, navigate to the location where you have your XLS file, select and import.

7.3.2 Exporting and Importing an Excel Sheet

While editing the Lookup Table definition, the process allows to export and import the Lookup Table data using excel sheets.

To export, click **Export**. This downloads an excel sheet with the lookup data. You can fill the data and then save the sheet. From the UI, you click **Import** and select the sheet from your local machine. This directly feeds the column details into the table and displays. While importing the data, you have an option to overwrite the existing data. If you select the checkbox and import, the system overwrites the existing data and writes the new data.

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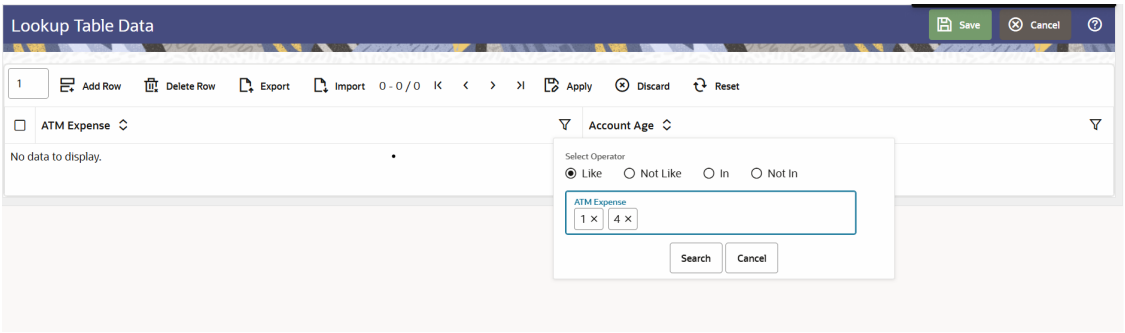
Searching the Column Values

To search the column value, click the funnel icon next to the column.

Figure 7-3 Lookup Table Data



Select any of the options from Like, Not Like, In, or Non In and enter the values in the text box below. This field accepts mutiple inputs. Click **Search** to fetch the details.

7.3.3 Importing Data using Scheduler Service

To import the Lookup Table Data using Scheduler Service:

1. Navigate to Scheduler Service, select **Define Batch**.
2. Click **Create** from Actions.
3. Create a batch and save it.
4. Navigate to Scheduler Service, select **Define Task**.
5. Create a Task.
6. Select the Component as **FTP Lookup Data Loader**.
7. Select the Insertion Mode from the options **Delete and Insert** or **Append**. For more details, see Define a Task.
8. Enter the remaining parameters and for Data File Name, create a data file (.CSV) with the file name INPUT_YYYYMMDD_FTP_LOOKUP_<DATA FILE NAME>.CSV. For example, INPUT_20150315_FTP_LOOKUP_Data1.CSV.
9. Execute the task. Select the **As of Date** as the date that is used in the CSV file name.
10. Monitor the task. For more details, see Monitor Batch.
11. Navigate to the Lookup Table summary screen and verify the imported Lookup Table definition.

7.3.4 Deleting Lookup Table Data using Scheduler Service

To import the Lookup Table Data using Scheduler Service:

1. Navigate to Scheduler Service, select **Define Batch**.
2. Click **Create** from Actions.

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3. Create a batch and save it.
4. Navigate to Scheduler Service, select **Define Task**.
5. Create a Task.
6. Select the Component as **Delete FTP Lookup Data**.
7. Select the definition.
8. Select the **Folder** and **Lookup Rule Name**.
9. Execute the task with the **As of Date**.
10. Monitor the task.
11. Navigate to the Lookup Table summary screen and verify the Lookup Table definition is deleted.

7.4 Real-Time Transfer Pricing

Real-Time Transfer Pricing provides the capability to transfer price an existing account picked from an instrument table or execute the Transfer Pricing calculations against as-hoc instruments entered via UI in near real-time. This service uses the same transfer pricing methodologies and calculation as a standard transfer pricing process. This is applicable to all the FTP calculation including Transfer Rates (all TP methods), TP Add-on Rates (all methods), and All-in TP Rates.

The FTP Real-time processing supports the following:

- Ability to enter an adhoc deal via UI or multiple deals via excel upload and perform transfer price calculations on that in real-time.
- Ability to execute an existing TP Process in real time on an existing account from selected instrument table, which can refer to any TP Rule, Prepayment Rule, Add-On Rate Rule.

A relationship manager may want to retrieve the FTP information for existing account records from the database. For example, a customer may have multiple accounts with the bank, one is a personal loan and another is term deposit. The relationship manager can calculate the transfer/Add-On rate for these existing accounts and use the actual margin information (positive or negative) as basis to offer rates for the new products. Providing this kind of information in real time allows the banker to make informed pricing decisions.

To access the Real-time processing, from the LHS menu, select **Funds Transfer Pricing Cloud Service** and then select **Real Time Transfer Pricing**.

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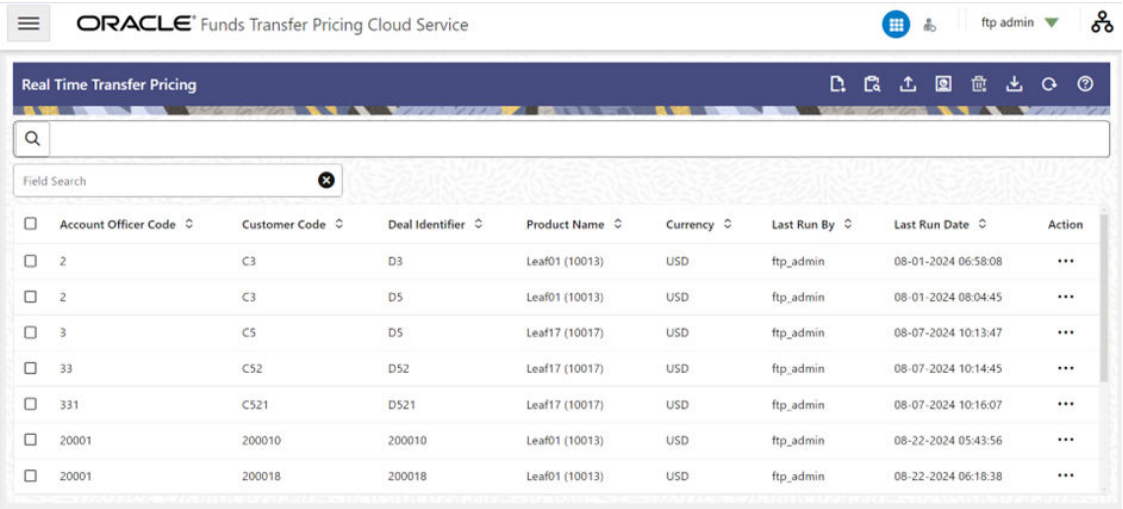
Figure 7-4 Real Time Transfer Pricing Summary



> **Note**
>
> A public API is exposed to access real time transfer pricing module from an external application. Every time, this API gets a request for adhoc pricing, a request ID is returned, which can be used to access transfer pricing results.

The Real Time Transfer Pricing Summary screen displays the following Product Definition details:

- Account Officer Code
- Customer Code
- Deal Identifier
- Product Name
- Currency
- Last Run By
- Last Run Date
- Action menu: The Action menu displays the following actions that can be performed on an already defined Product Definitions:
  - Edit: Opens the selected product definition screen in edit mode.
  - View: Opens the selected product definition screen in view only mode.
  - Delete: Displays a pop-up window to confirm the deletion of the selected Product Definition.

The top-right hand side bar displays the following options:

- Add: Allows you to a add a new Product Definition.
- Search: Enables you to search for a record definition by As of Date, Instrument Type, Product Name, Currency, and Account Number/ID Number.

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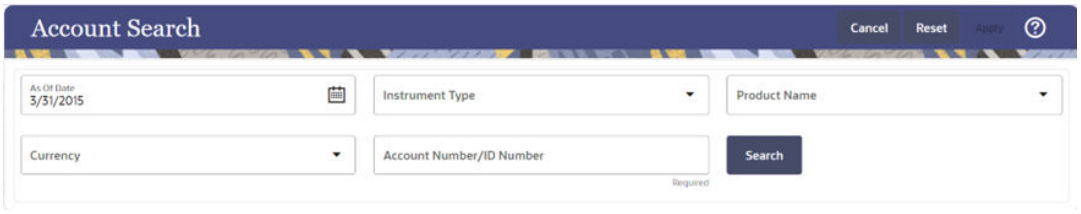
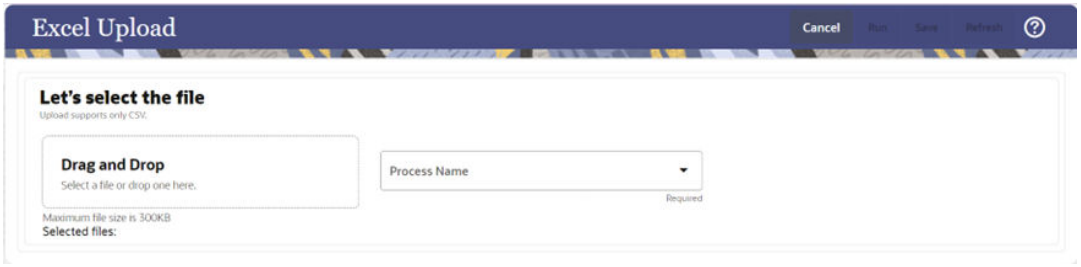
Figure 7-5 Account Search



- Excel Upload: Allows to upload the data using an excel sheet. You can drag and drop an excel sheet and then select the relevant Process Name. Then you can run the process.

Figure 7-6 Excel Upload



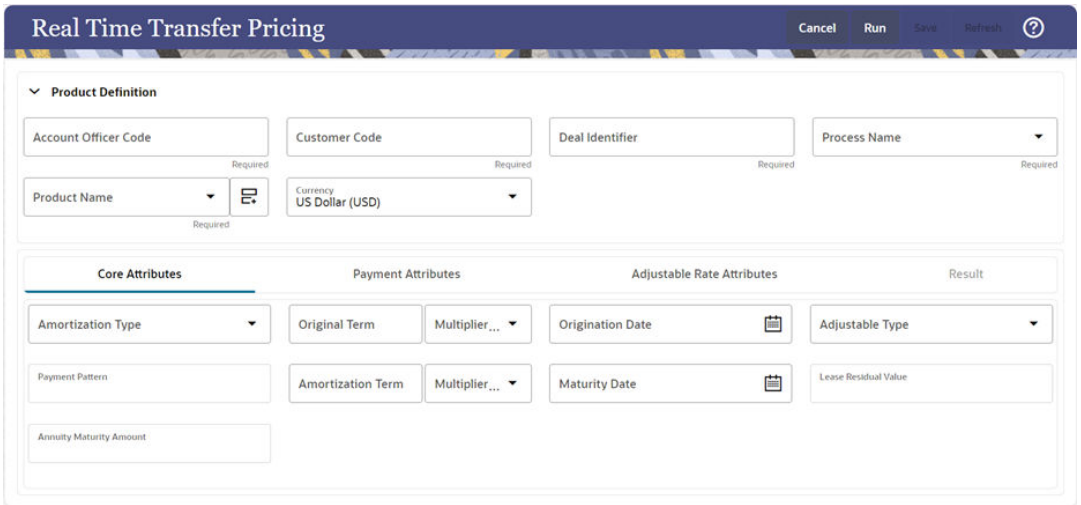
- Execution Summary: Provides the consolidated list of executed product definitions. See Executing a Product Definition.
- Delete: Allows you select one or more products definitions and delete.
- Download: Enables you to download the product definitions report in .csv format.
- Refresh: Reloads the summary screen.

7.4.1 Adding a new Product Definition

To add a new product definition:

1. Click the **Add** button on the Real Time Transfer Pricing summary screen.

Figure 7-7 Product Definition screen



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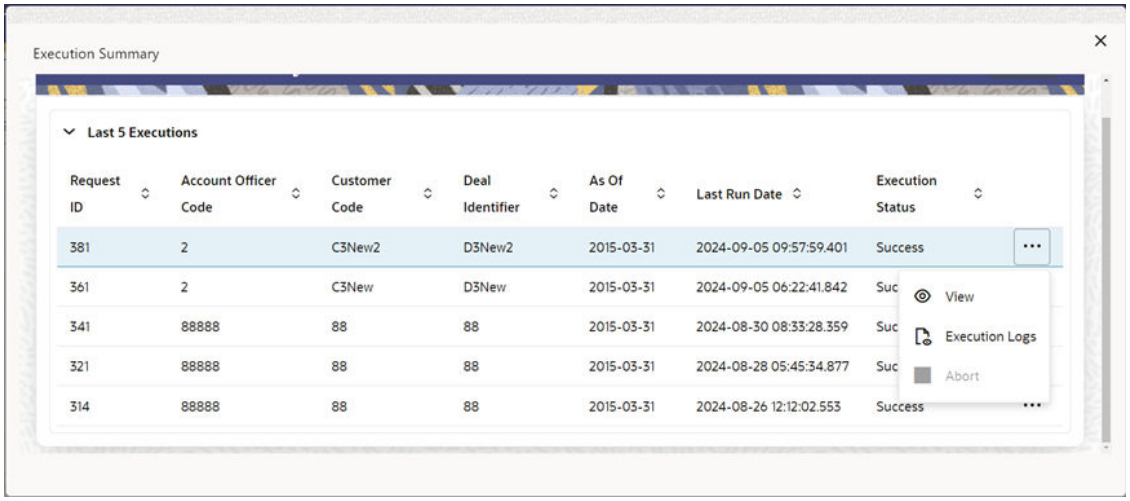
2. Enter or select the following details:
   - Account Officer Code
   - Customer Code
   - Deal Identifier
   - Process Name
   - Product Name
   - Currency
3. Under the **Core Attributes** tab, enter or select the relevant details.
4. Under the **Payment Attributes** tab, enter or select the relevant details.
5. Under the **Adjustable Rate Attributes** tab, enter or select the relevant details.
6. Click **Run**.
7. Select the **As of Date** and click **Confirm**.
   The process generates a Request ID for the product definition.
8. If you want to see the results, click **Refresh**.
   The process enables the Results tab and displays the pricing details.
9. If you want to save the details, then click **Save**.
   Alternatively, you can go back to Core Attributes tab and modify the values. After modifying, your can follow steps from 6 to 9 once again to see the updated inputs.

   And if all the relevant details are found, the FTP engine starts the transfer pricing process

7.4.2 Executing a Product Definition

After defining and running the Product Definition details, navigate to the summary screen and select the newly defined definition.

Figure 7-8 Execution Summary



This pop-up window displays the following details of last 5 executions:

- Request ID

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- Account Officer Code
- Customer Code
- Deal Identifier
- As Of Date
- Last Run Date
- Execution Status
- Actions menu: This menu displays the following actions on the selected execution:
  - View: To see the results in the summary page.
  - Execution Logs: This opens the Log Viewer window in which you can see the details of the product definition batch. See the Log Viewer section for more details.

7.5 Changing Object Ownership

Access Type for most objects can be defined as ‘Read Only’ and ‘Read/Write’. When it is defined as ‘Read Only’ the user who created owns it i.e., another user will be able to only view it. For any reason if the owner of object is not available then no one else will be able to modify it.

This functionality helps you to change the ownership of objects from one user to another user(s).

Changing the ownership of object is generally required when the users of the application move across different teams or leave the organization. In this case, the ownership of the objects created by a particular user remain on that user's name and they need to be transferred to different user to enable them to operate on them.

To change the ownership of objects, you must raise a Service Request with the Oracle Support Team with the following information. Oracle Support Team will coordinate with the Operations team to change the ownership.

- The existing username who created the object.
- The new username to which the ownership must be transferred.

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8

Reports & Analytics

Profitability and Balance Sheet Planning Cloud Service (PBSM) Analytics User Guide describes the features and functions of PBSM's Analytics is intended for the use of Administrators, Analysts, Reporting Analysts, and Administrators.

This chapter convers the following topics:

- Funds Transfer Pricing Cloud Service Reports & Analytics: Oracle Analytics is a scalable and secure Oracle Cloud Service that provides a full set of capabilities to explore and perform collaborative analytics for you, your workgroup, and your enterprise.
- Account Audit Report: The Account Audit report provides users a tool to validate the account attributes along with calculated FTP results like Transfer Rates, Adjustment Rates, and Economic Cost results.

8.1 Funds Transfer Pricing Cloud Service Reports & Analytics

This chapter covers the following topics:

- Access Business Intelligence (BI) Reports
- SQL Query Browser
- Raw Data Analysis
- Data Insights
- Processed Data Insights

8.1.1 Access Business Intelligence (BI) Reports

This section describes the steps to access the Business Intelligence (BI) Reports.

To access the Oracle Financial Services Profitability Management Cloud Service BI Reports, from the LHS Menu, select **Analytics**, and then select **Home Page**.

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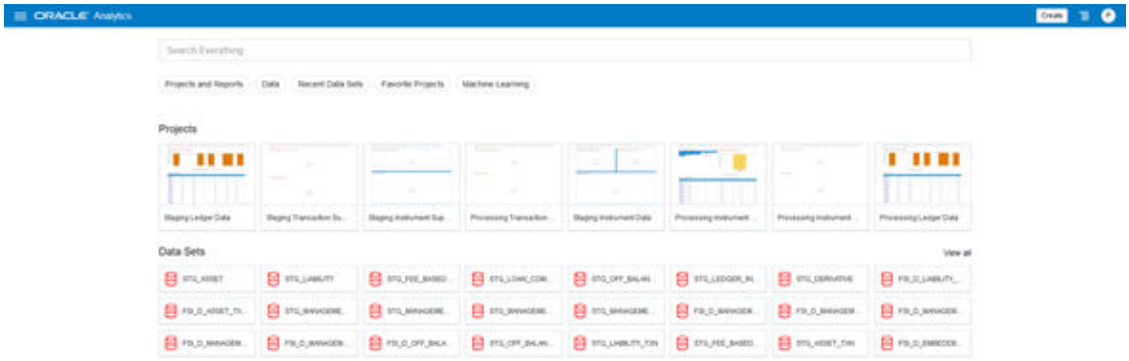
Figure 8-1 Analytics Home Page



8.1.2 SQL Query Browser

Data Sets are self-service Data Models that you build specifically for your Data Visualization and Analysis requirements.

A Data Set can be based on one Table, Spreadsheet, or a File. Alternatively, a Data Set can be a self-service Data Model that contains multiple Tables with relationships defined between the Tables.

A Data Set contains Data Source Connection Information, Tables, the Columns you specify, and the Data Enrichments, and Transformations that you apply.

For more information, see Visualizing Data and Building Reports in Oracle Analytics Cloud.

To access the SQL Query Browser and prepare Data, follow these steps:

1. From the LHS Menu, select Analytics, and then select SQL Query Browser.
   The SQL Query Browser allows you to use an existing Database Connector named OFSAA Analytics – Public to interact with the underlying available Database Structures.

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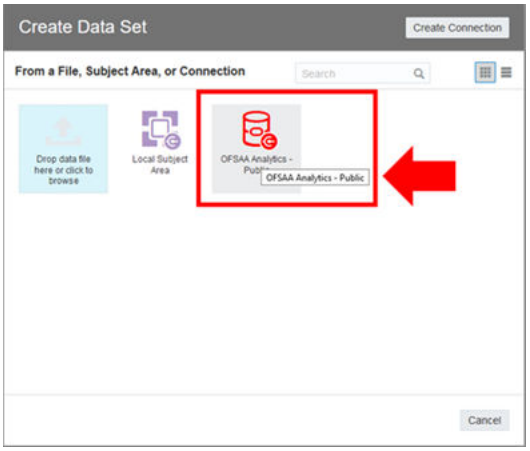
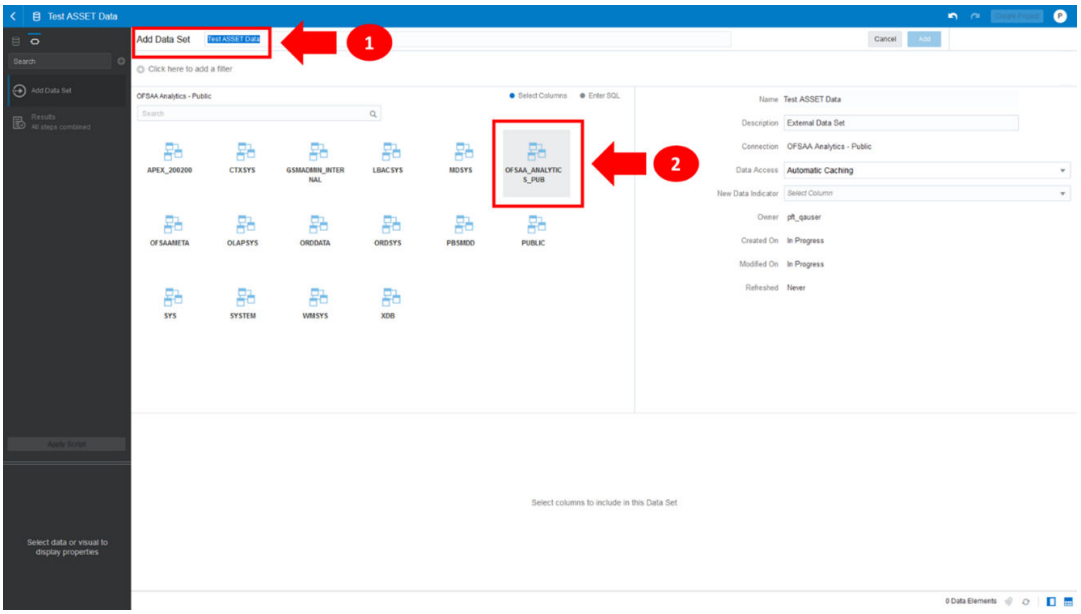
Figure 8-2 Create Data Set Screen



2. After selecting the Database Connector, you must select the Database Schema named OFSAA_ANALYTICS_PUB to proceed to the next step of Database Object Selection.

Figure 8-3 Add Data Set



3. Provide a meaningful name to the Data Set, which will be generated from this process and be used for the SQL Query Analysis.
4. You can search for a Database Object from the available options. You can either scroll down or search the Database Objects displayed in alphabetical order.

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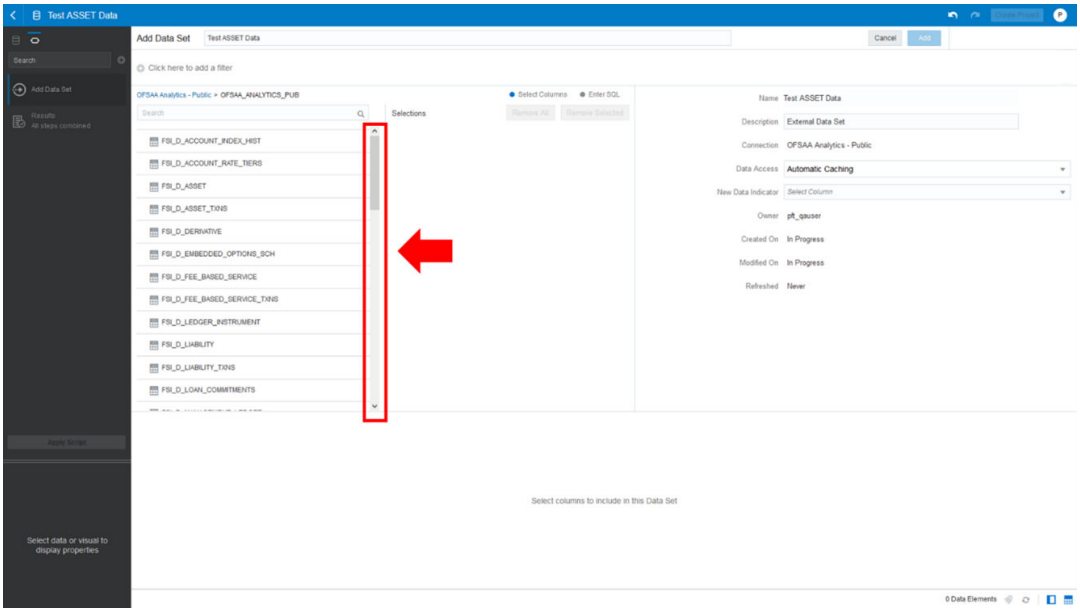
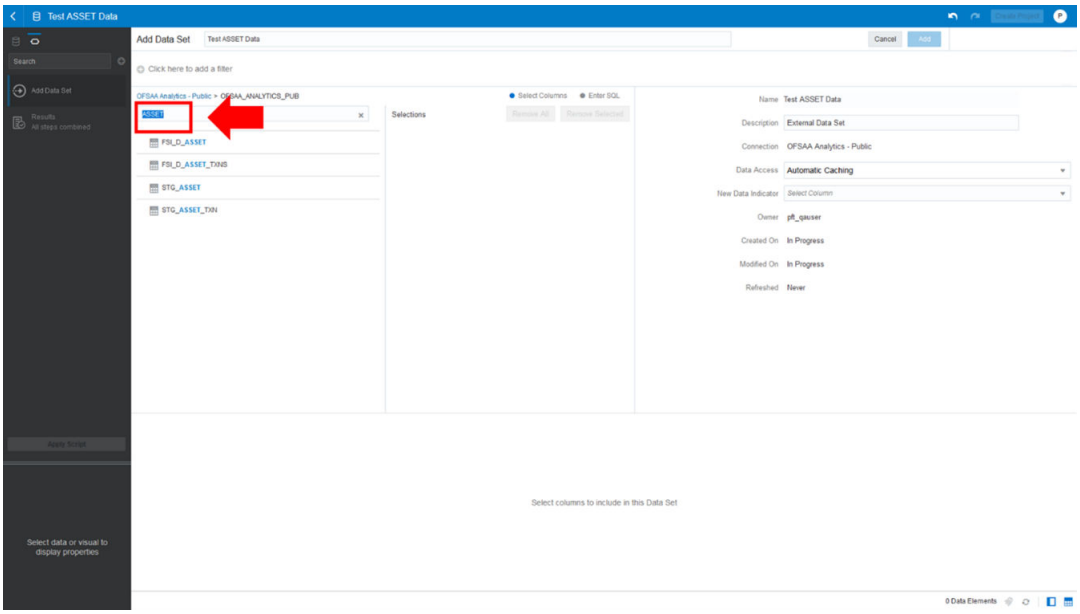
Figure 8-4 Add Data Set – Search from the List



Or

Type the Database Object Name to filter the list with Description.

Figure 8-5 Add Data Set – Search by Name



After you select the Object that want, you can proceed to the next step.

5. You search the Columns that are available for the selected Database Object by scrolling.

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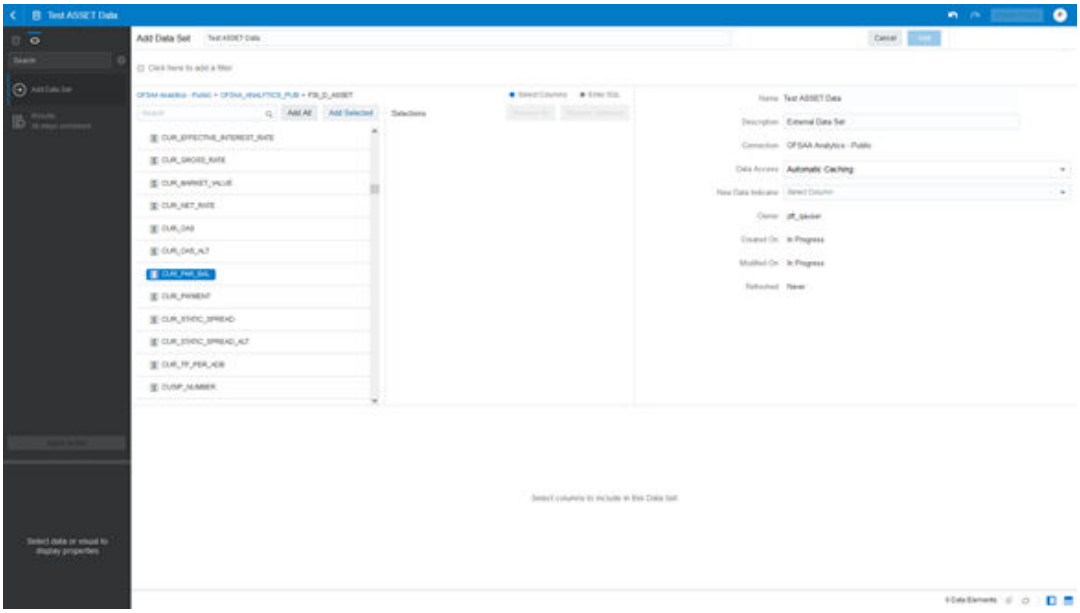
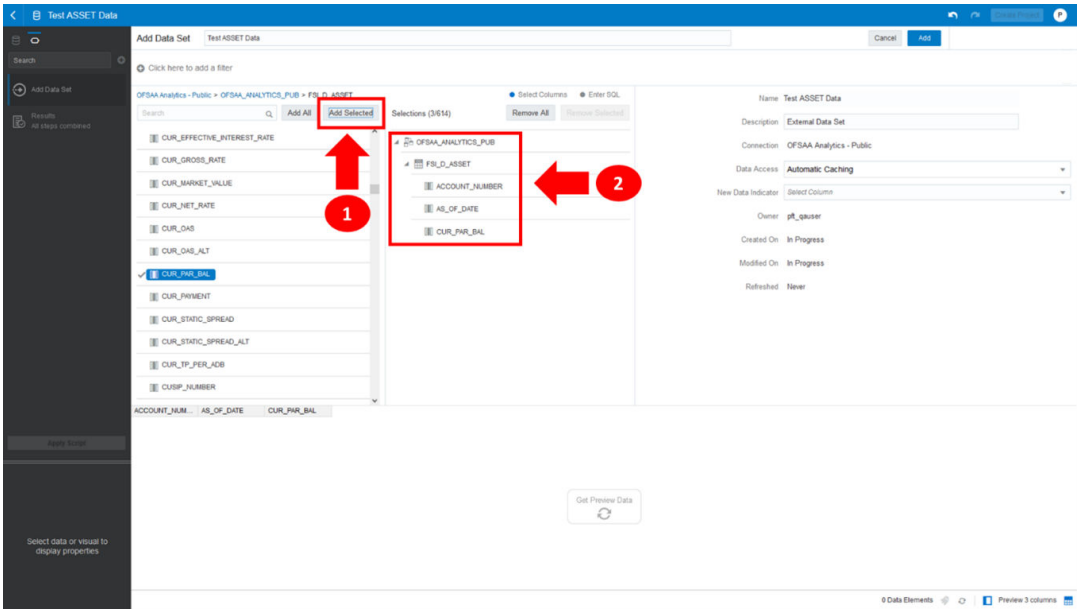
Figure 8-6 Add Data Set – Search Columns



6. Add the Database Object Column as required.

Figure 8-7 Add Data Set – Adding the Database Object Column



7. Click Get Preview Data to display the retrieved Data Results.

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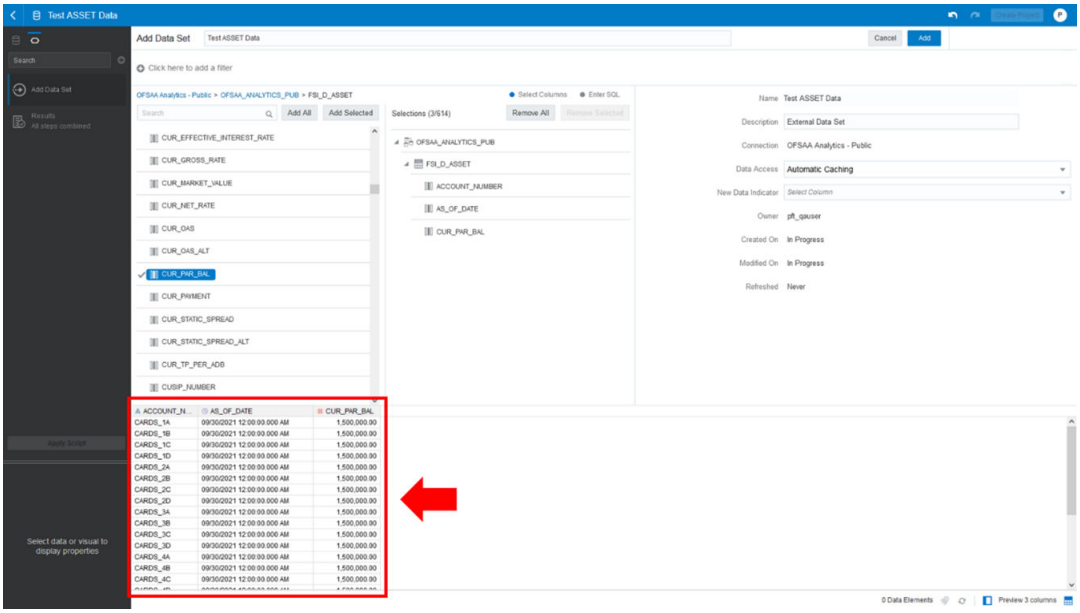
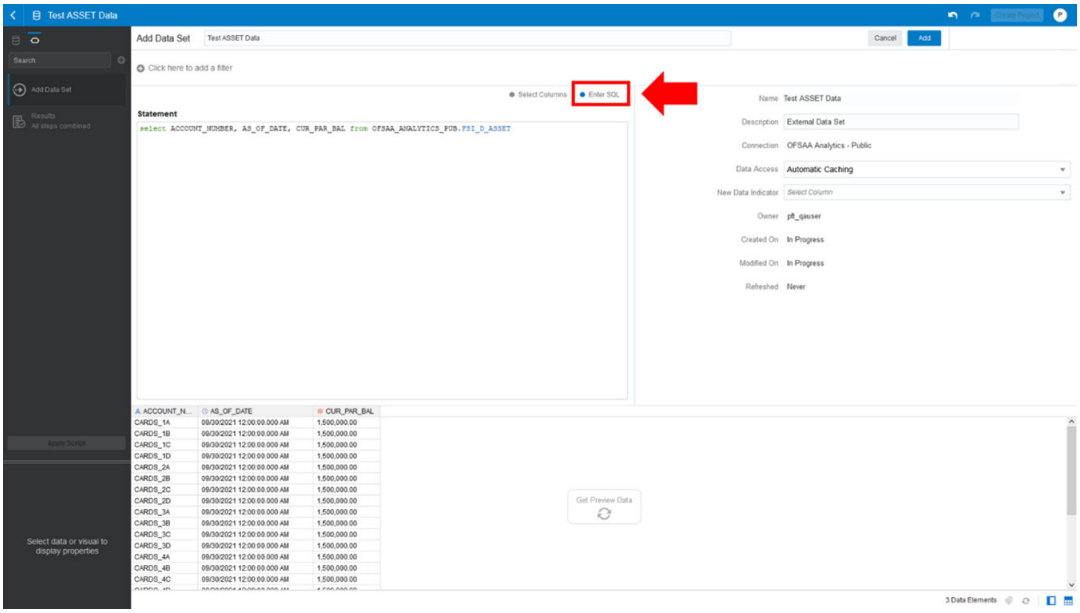
Figure 8-8 Data Results



8. In addition, you can switch to the Enter SQL Pane Editor. You can change the auto-generated SQL Query at any time and click Get Preview Data to retrieve the results based on the modified SQL Query.

Figure 8-9 Data Results based on modified SQL Query



9. Click **Add** to save the SQL Data.
10. Click **Data** on the LHS Menu and click **Data Sets** to display the available Data Sets for usage.
11. Right-click on the Data Set name to display the options as shown:

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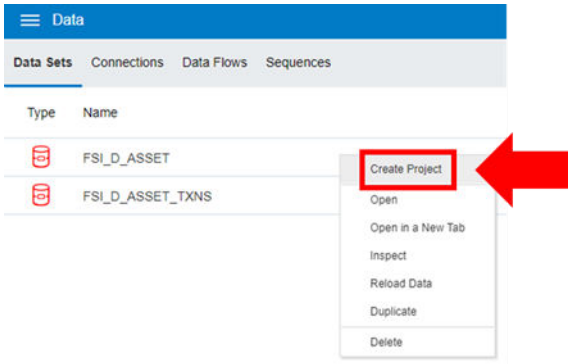
Figure 8-10 Data Set Options



12. In the menu that is displayed, click **Create Project**.

8.1.3 Creating Adhoc Reports and Analysis

The Profitability and Balance Sheet Management Ad-hoc Analysis is provided inside a Shared Folder. Users can use this folder for saving any ad-hoc reports which need to be shared across respective teams. When any patch is applied these reports will not be replaced or purged.

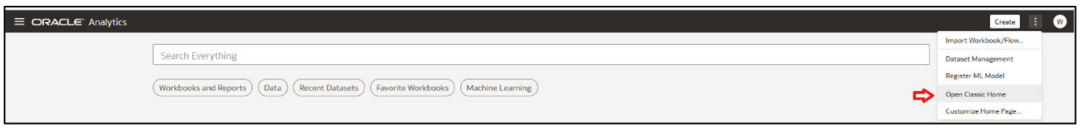
8.1.3.1 Amend Out-of-the-Box Reports

A user with DV Content Author privileges will have access to amend and save the out-of-the-box reports.

To amend and save the reports:

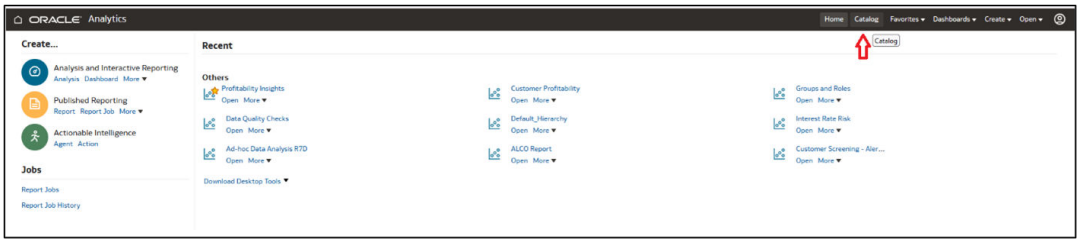
1. To open the ORACLE Analytics page, from the **Home Page**, select **Home Page**, and then from the **Page Menu** on the top-right corner, select **Open Classic Home**.
A new window will open with Classic Home.

Figure 8-11 Classic Home Page



2. Click **Catalog**.

Figure 8-12 Catalog



3. Navigate to **Shared Folders** and select the dashboard and subsequently the report from the available list that you want to edit and right click on your mouse. You will find the Copy option as indicated in the below illustration.

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Figure 8-13 Copy Option

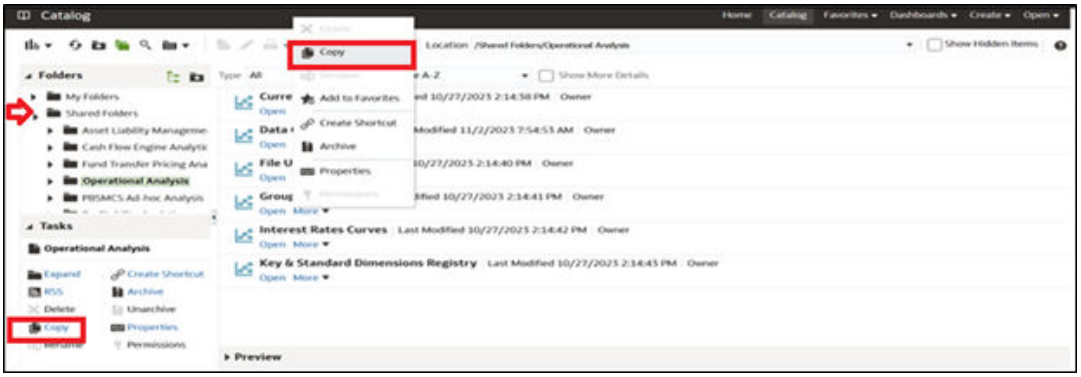
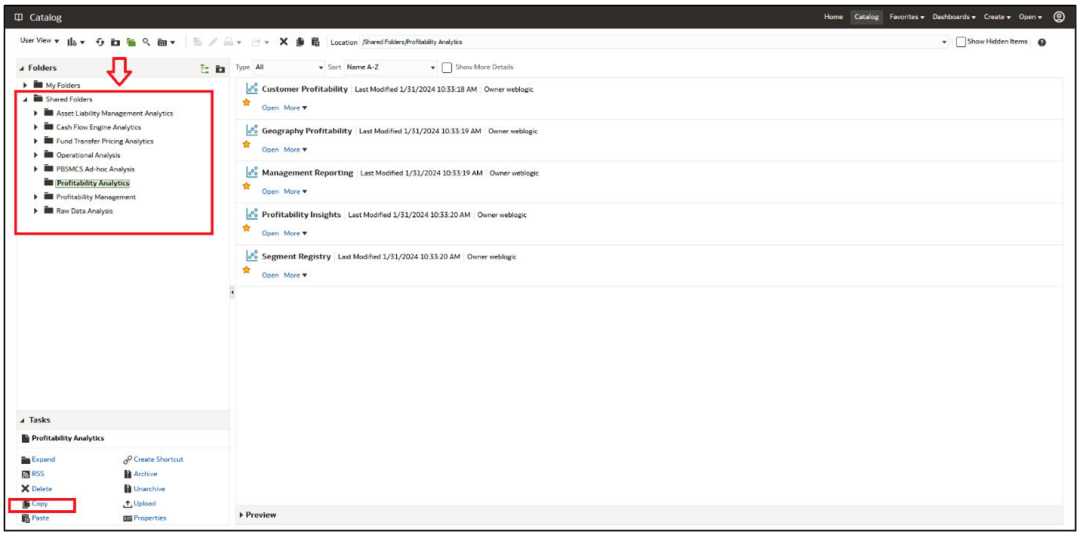


Figure 8-14 Folders



4. Navigate to **My Folders**.

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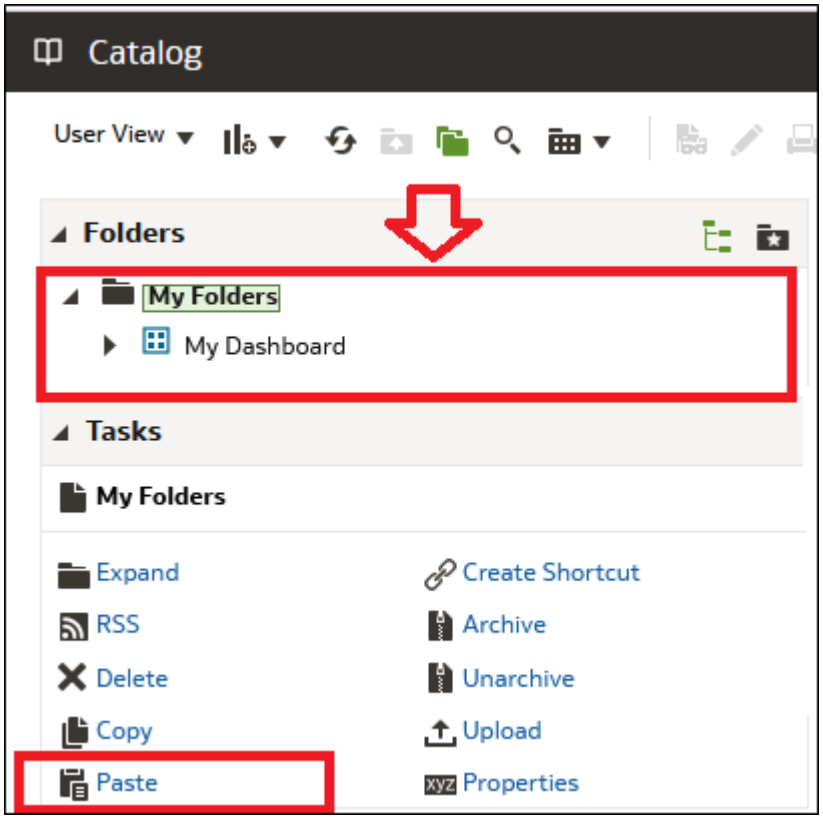
Figure 8-15 My Folders

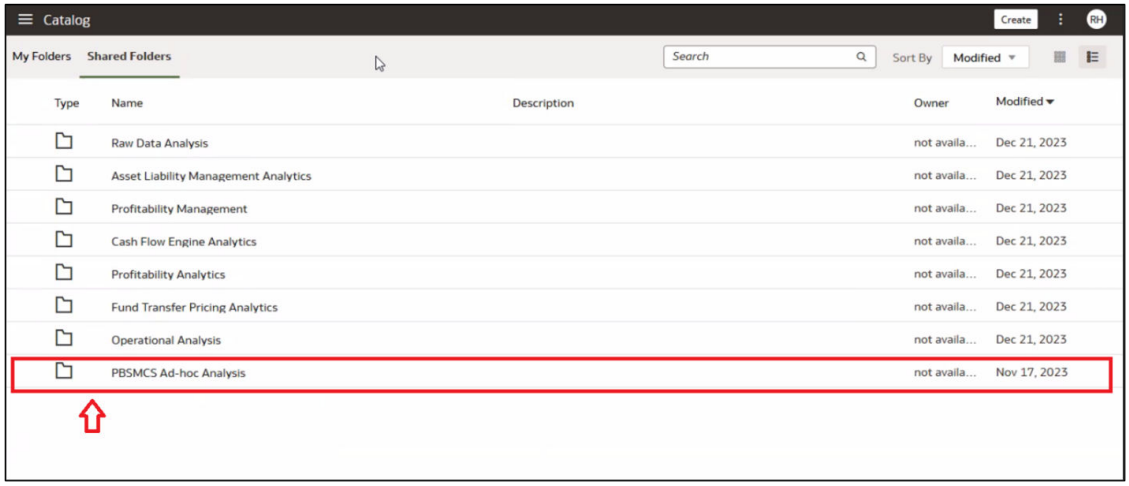


5. Paste the report.
You will be able to edit the Report which is saved inside My Folder.

8.1.3.2 Ad-hoc Analysis Folder

This Folder can be used by the customers to share the reports across the organization.

Figure 8-16 Ad-hoc Analysis folder



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The out-of-the-box reports can be edited and saved inside Adhoc analysis folder. The reports inside these folders will not be updated or refreshed when any provisioning happens.

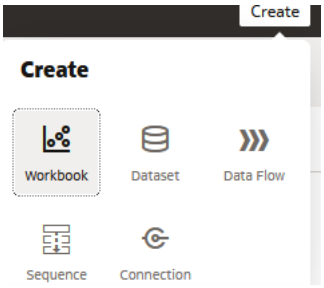
8.1.3.3 Working with Out-of-the-Box Subject Area

A user with DV Content Author credentials will have access to create new reports. The DV Consumer will have Read Only access.

To work with OOTB Subject Area:

1. To open the ORACLE Analytics page, from the **Home Page**, select **Home Page**.
2. Click the **Create** button and select **Workbook** as shown below.

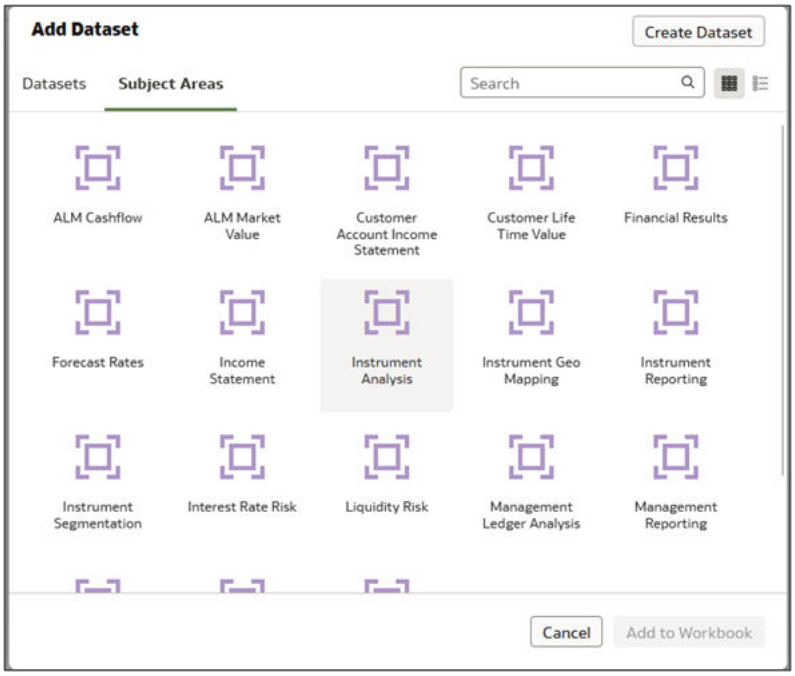
Figure 8-17 Create



This opens the Add Dataset window.

3. Select the **Subject Areas** tab. You will find all the relevant subject areas listed as follows.

Figure 8-18 Subject Areas



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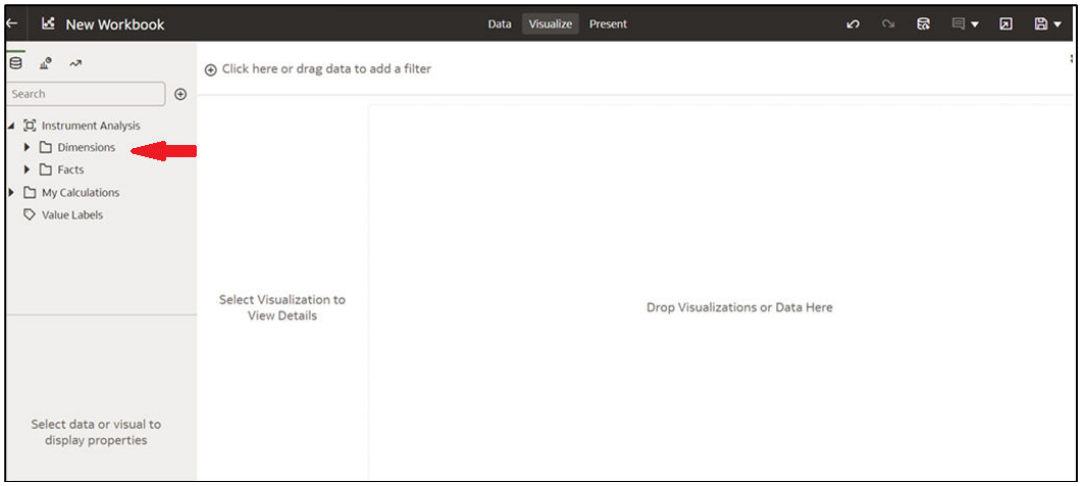
4. You can double click to select a particular Subject Areas and a new canvas will open up with the elements of the selected subject area.

Figure 8-19 New Workbook



5. Expand the **Dimensions** and **Facts** and drop the relevant items on to the canvas. By default the best visualization/ chart type for the given data is displayed.

8.1.4 Migrating Analytics Content between Tenants

Content migration is supported exclusively for custom analyses that are built based on Subject Areas.

For step-by-step guidance on exporting and importing content between Oracle Analytics instances, refer to the *Oracle Analytics documentation*.

8.1.5 Raw Data Analysis

To access the Raw Data Analysis Screen, from the LHS Menu, select Analytics, and then select Raw Data Analysis.

The following table lists the Raw Data Analysis Reports. You can select any report that you want.

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Table 8-1 Raw Data Analysis Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Instrument Data	Instrument	STG Staging	STG_ASSET STG_LIABILITY STG_DERIVATIVE STG_FEE_BASED_SERVICE STG_LOAN_COMMITMENTS STG_OFF_BALANCE_SHEET STG_LEDGER_INSTRUMENT	Stage Asset Instruments Stage Liability Instruments Stage Derivative Contracts Stage Fee Based and Other Services Stage Loan Commitments Stage Off Balance Sheet Contracts Stage Ledger Instrument	Assets Liabilities Derivative Contracts Fee Based Services Loan Commitments Off Balance Sheet Items Ledger - Instruments
Staging Instrument Supplementary Data	Instrument Supplementary	STG Staging	STG_ACCOUNT_INDEX_HIST STG_ACCOUNT_RATE_TIERS STG_EMBEDDED_OPTIONS_SCH STG_PAYMENT_SCHEDULE	Stage Account Index History Stage Account Rate Tiers Stage Embedded Options Schedule Stage Payment Schedule	Account Index History Account Rate Tiers Embedded Options Schedule Payment Schedule
Staging Ledger Data	Ledger	STG Staging	STG_MANAGEMENT_LEDGER STG_MANAGEMENT_LEDGER_01 STG_MANAGEMENT_LEDGER_02 STG_MANAGEMENT_LEDGER_03 STG_MANAGEMENT_LEDGER_04 STG_MANAGEMENT_LEDGER_05	Stage Management Ledger Stage Placeholder Management Ledger 01 Stage Placeholder Management Ledger 02 Stage Placeholder Management Ledger 03 Stage Placeholder Management Ledger 04 Stage Placeholder Management Ledger 05	Management Ledger Management Ledger 01 Management Ledger 02 Management Ledger 03 Management Ledger 04 Management Ledger 05

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Table 8-1 (Cont.) Raw Data Analysis Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Transaction Summary Data	Transaction Summary	STG Staging	STG_ASSET_TXN STG_LIABILITY_TXN STG_FEE_BASED_SERVICE_TXN STG_OFF_BALANCE_SHEET_TXN	Stage Asset Transaction Summary Stage Liability Transaction Summary Stage Fee Based and Other Services Transaction Summary Stage Off Balance Sheet Transaction Summary	Assets Transaction Summary Liabilities Transaction Summary Fee Based Services Transaction Summary Off Balance Sheet Transaction Summary
Processing Instrument Data	Instrument	FSI Processing	FSI_D_ASSET FSI_D_LIABILITY FSI_D_DERIVATIVE FSI_D_FEE_BASED_SERVICE FSI_D_LOAN_COMMITMENTS FSI_D_OFF_BALANCE_SHEET FSI_D_LEDGER_INSTRUMENT	Asset Instruments Liability Instruments Derivative Contracts Fee Based and Other Services Loan Commitments Off Balance Sheet Contracts Ledger Instrument	Assets Liabilities Derivative Contracts Fee Based Services Loan Commitments Off Balance Sheet Items Ledger Instruments
Processing Instrument Supplementary Data	Instrument Supplementary	FSI Processing	FSI_D_ACCOUNT_INDEX_HIST FSI_D_ACCOUNT_RATE_TIERS FSI_D_EMBEDDED_OPTIONS_SCH FSI_D_PAYMENT_SCHEDULE	Account Index History Account Rate Tiers Embedded Options Schedule Payment Schedule	Account Index History Account Rate Tiers Embedded Options Schedule Payment Schedule

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Table 8-1 (Cont.) Raw Data Analysis Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Processing Ledger Data	Ledger	FSI Processing	FSI_D_MANAGEMENT_LEDGER FSI_D_MANAGEMENT_LEDGER_01 FSI_D_MANAGEMENT_LEDGER_02 FSI_D_MANAGEMENT_LEDGER_03 FSI_D_MANAGEMENT_LEDGER_04 FSI_D_MANAGEMENT_LEDGER_05	Management Ledger Placeholder Management Ledger 01 Placeholder Management Ledger 02 Placeholder Management Ledger 03 Placeholder Management Ledger 04 Placeholder Management Ledger 05	Management Ledger Management Ledger 01 Management Ledger 02 Management Ledger 03 Management Ledger 04 Management Ledger 05
Processing Transaction Summary Data	Transaction Summary	FSI Processing	FSI_D_ASSET_TXNS FSI_D_LIABILITY_TXNS FSI_D_FEE_BASED_SERVICE_TXNS FSI_D_OFF_BALANCE_SHEET_TXNS	Asset Transaction Summary Liability Transaction Summary Fee Based and Other Services Transaction Summary Off Balance Sheet Transaction Summary	Assets Transaction Summary Liabilities Transaction Summary Fee Based Services Transaction Summary Off Balance Sheet Transaction Summary

8.1.5.1 Staging Instrument Data

You can use this report to perform the analysis on the Staging Area Tables related to Instrument Data. The report contains specifically the following Staging Database Objects:

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Table 8-2 Staging Instrument Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Instrument Data	Instrument	STG-Staging	STG_ASSET STG_LIABILITY STG_DERIVATIVE STG_FEE_BASED_SERVICE STG_LOAN_COMMITMENTS STG_OFF_BALANCE_SHEET STG_LEDGER_INSTRUMENT	Stage Asset Instruments Stage Liability Instruments Stage Derivative Contracts Stage Fee Based and Other Services Stage Loan Commitments Stage Off Balance Sheet Contracts Stage Ledger Instrument	Assets Liabilities Derivative Contracts Fee Based Services Loan Commitments Off Balance Sheet Items Ledger - Instruments

8.1.5.1.1 Assets

The Assets Report provides the Analysis Capability on the Stage Asset Instrument Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Asset Instruments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the Additional Balance Weighted Rate, WAVG_CUR_NET_RATE_ASSET, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Asset Instruments - Number of Records Trend
  Total Records Asset aggregated by AS_OF_DATE.
- Stage Asset Instruments
  Granular table records at ACCOUNT_NUMBER level.

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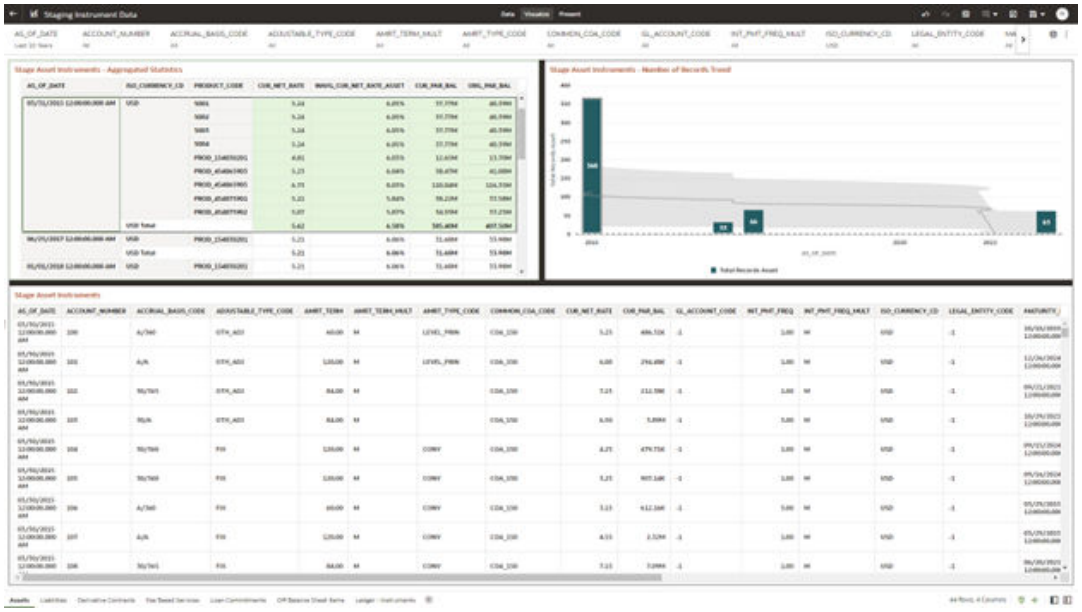
Figure 8-20 Staging Instrument Data - Assets



8.1.5.1.2 Liabilities

The Liabilities Report provides the Analysis Capability on the Stage Liability Instrument Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Liability Instruments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LIABILITY, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Liability Instruments - Number of Records Trend
  Total Records Liability aggregated by AS_OF_DATE.
- Stage Liability Instruments
  Granular table records at ACCOUNT_NUMBER level.

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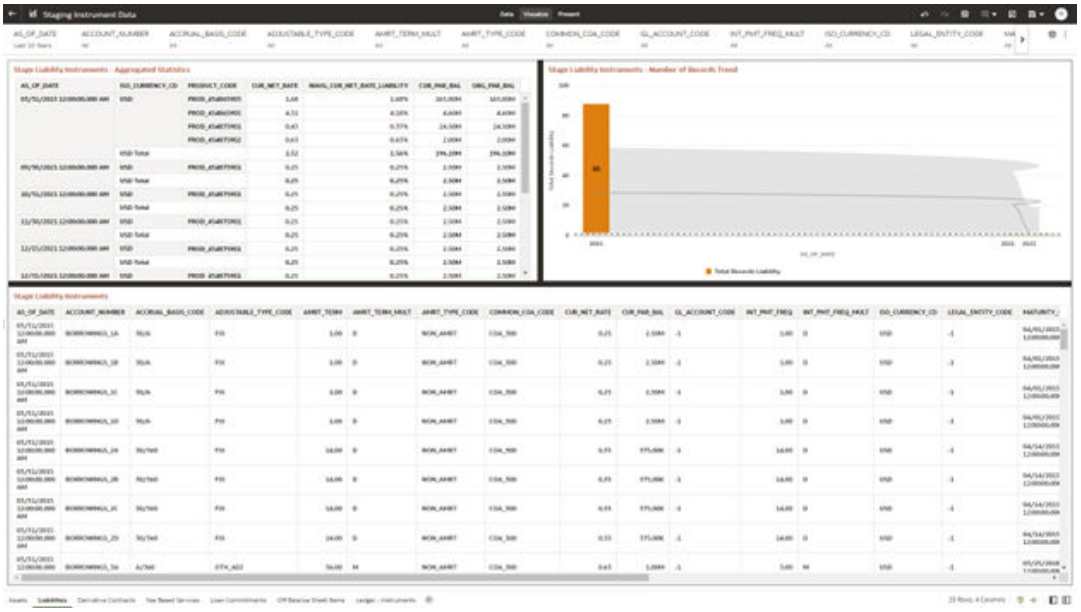
Figure 8-21 Staging Instrument Data - Liabilities



8.1.5.1.3 Derivative Contracts

The Derivative Contracts Report provides the Analysis Capability on the Stage Derivative Contracts Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Derivative Contracts (Payment) - Aggregated Statistics
  Aggregation for CUR_PAR_BAL_PAY (sum), ORG_PAR_BAL_PAY (sum) and CUR_NET_RATE_PAY (avg) by AS_OF_DATE, ISO_CURRENCY_CD_PAY and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_PAY_DERIVATIVE, is calculated as the Weighted AVG by CUR_PAR_BAL_PAY.
- Stage Derivative Contracts (Receive) - Aggregated Statistics
  Aggregation for CUR_PAR_BAL_RCV (sum), ORG_PAR_BAL_RCV (sum) and CUR_NET_RATE_RCV (avg) by AS_OF_DATE, ISO_CURRENCY_CD_RCV and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_RCV_DERIVATIVE, is calculated as the Weighted AVG by CUR_PAR_BAL_RCV.
- Stage Derivative Contracts - Number of Records Trend
  Total Records Derivative Contracts aggregated by AS_OF_DATE.
- Stage Derivative Contracts
  Granular table records at ACCOUNT_NUMBER level.

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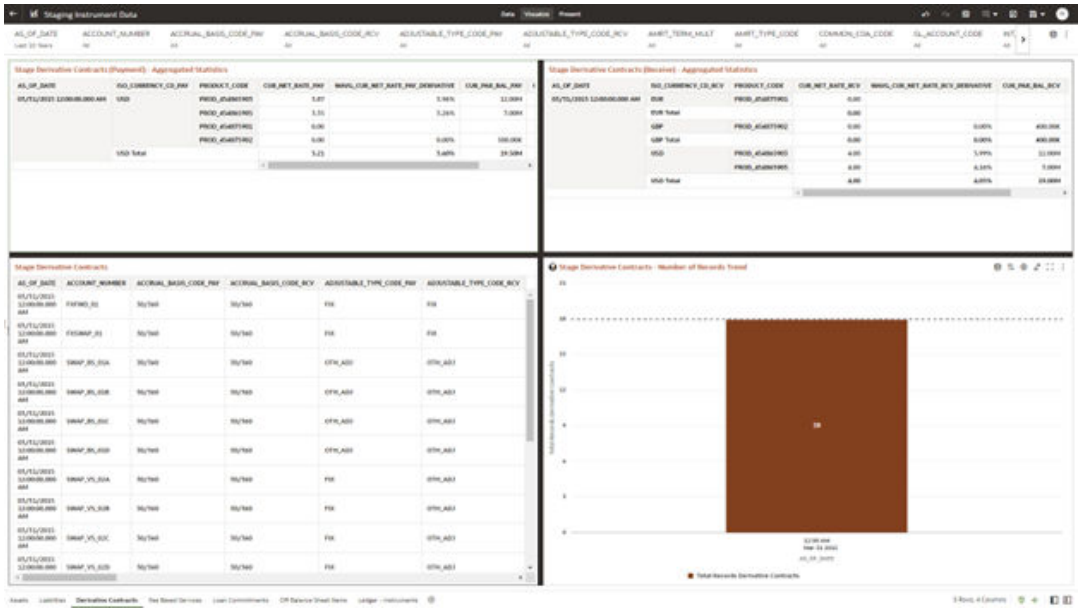
Figure 8-22 Staging Instrument Data – Derivative Contracts



8.1.5.1.4 Fee Based Services

The Fee Based Services Report provides the Analysis Capability on the Stage Fee Based and Other Services Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Fee Based Services - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_FEE_BASED, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Fee Based Services - Number of Records Trend
  Total Records Fee Based aggregated by AS_OF_DATE.
- Stage Fee Based Services
  Granular table records at ACCOUNT_NUMBER level.

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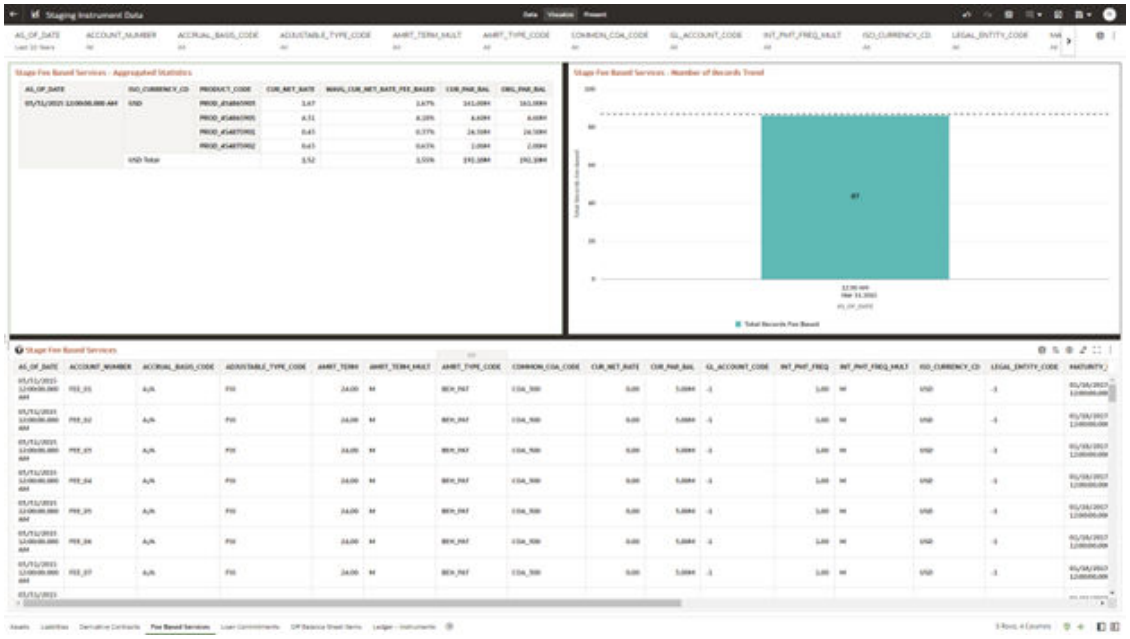
Figure 8-23 Staging Instrument Data – Fee Based Services



8.1.5.1.5 Loan Commitments

The Loan Commitments Report provides the Analysis Capability on the Stage Loan Commitments Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Loan Commitments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LOAN_COMMITMENTS, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Loan Commitments - Number of Records Trend
  Total Records Loan Commitments aggregated by AS_OF_DATE.
- Stage Loan Commitments
  Granular table records at ACCOUNT_NUMBER level.

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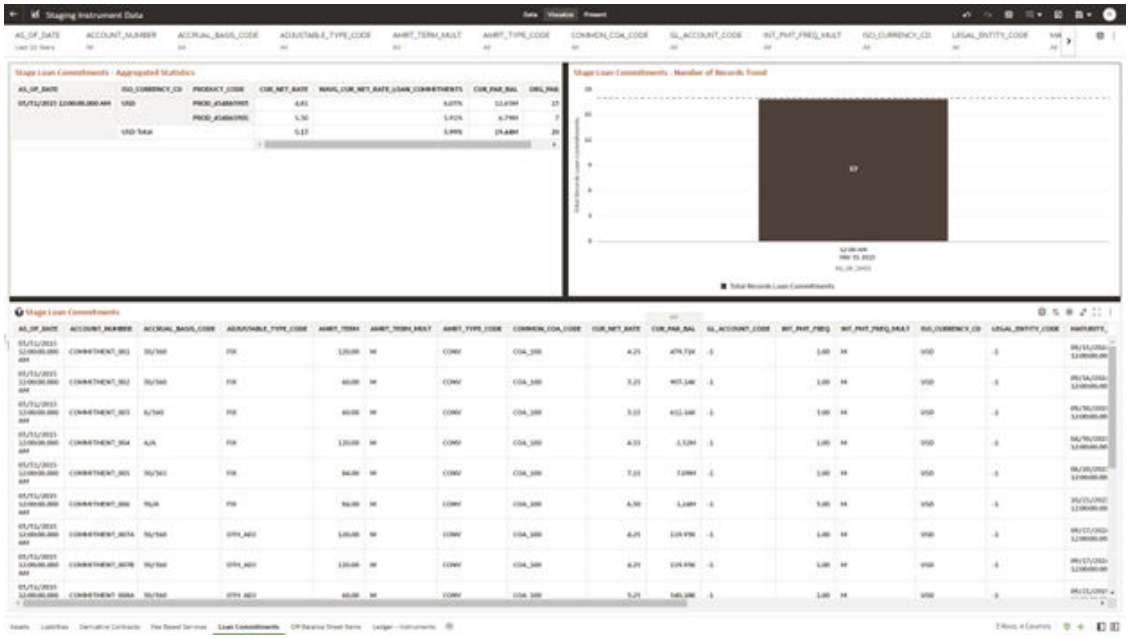
Figure 8-24 Staging Instrument Data – Loan Commitments



8.1.5.1.6 Off Balance Sheet Items

The Off Balance Sheet Items Report provides the analysis capability on the Stage off Balance Sheet Contracts Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Off Balance Sheet Contracts - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_OFF_BALANCE_SHEET, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Off Balance Sheet Contracts - Number of Records Trend
  Total Record off Balance Sheet aggregated by AS_OF_DATE.
- Stage Off Balance Sheet Contracts
  Granular table records at ACCOUNT_NUMBER level.

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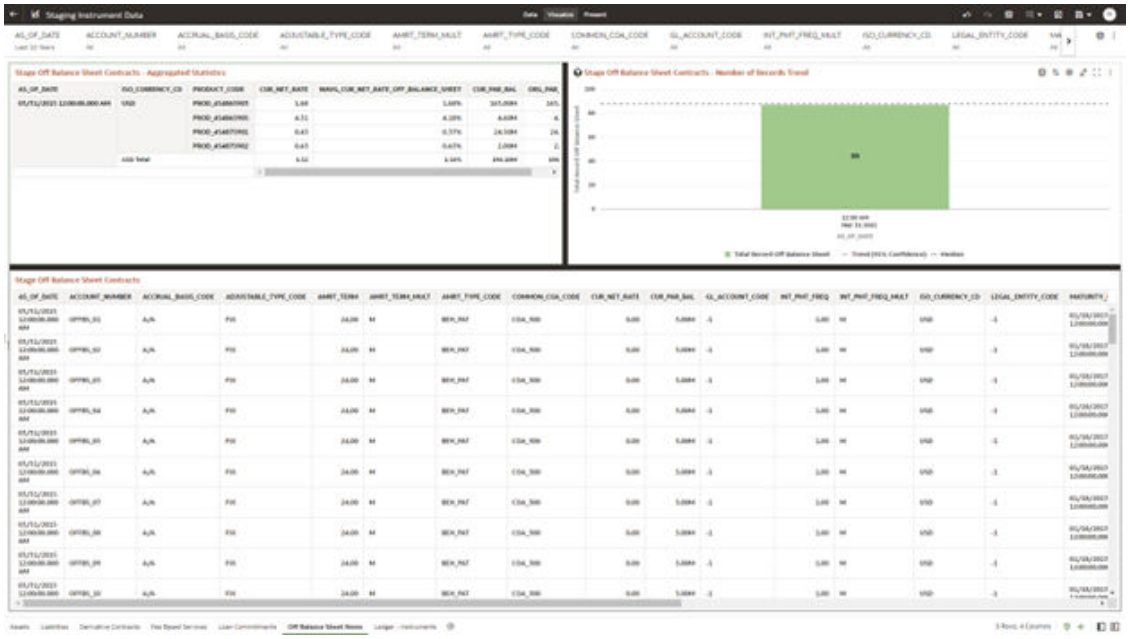
Figure 8-25 Staging Instrument Data – Off Balance Sheet Items



8.1.5.1.7 Ledger - Instruments

The Ledger – Instrument Report provides the analysis capability on the Stage Ledger Instrument Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Ledger Instrument - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LEDGER_INSTRUMENTS, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Ledger Instrument - Number of Records Trend
  Total Records Ledger Instruments aggregated by AS_OF_DATE.
- Stage Ledger Instrument
  Granular table records at ACCOUNT_NUMBER level.

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Figure 8-26 Staging Instrument Data – Ledger - Instruments

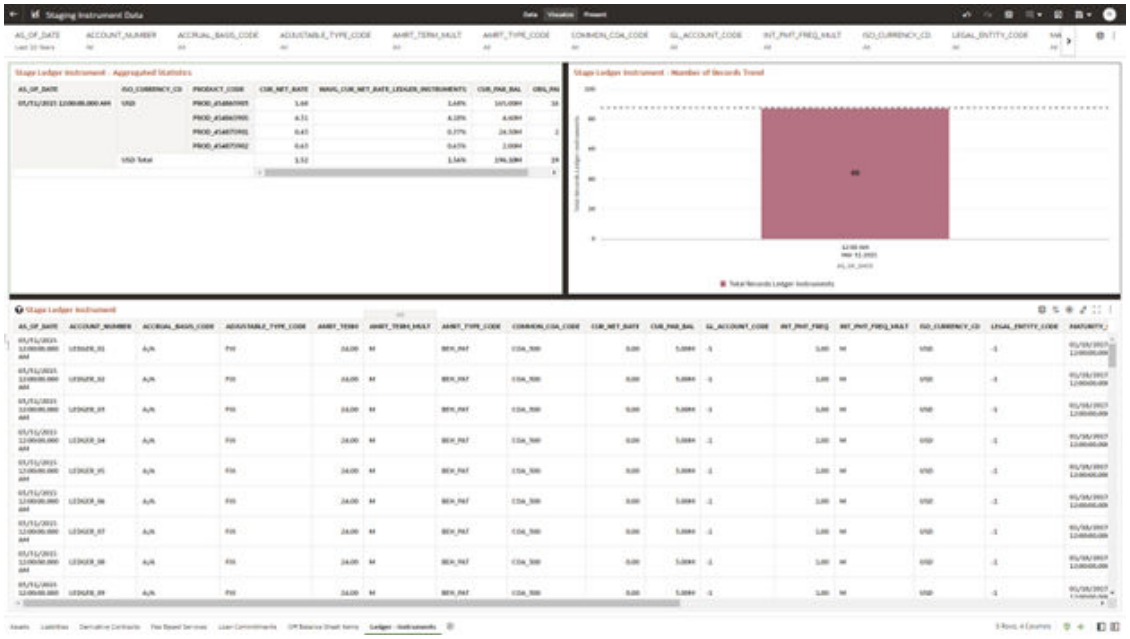
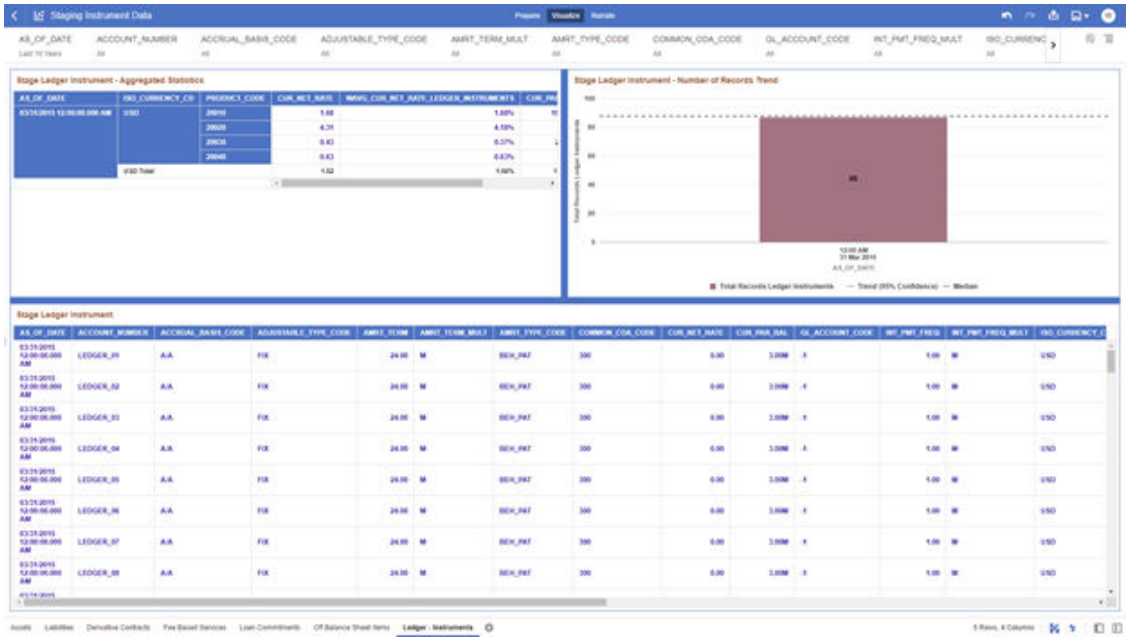


Figure 8-27 Staging Instrument Data – Ledger - Instruments



8.1.5.2 Staging Instrument Supplementary Data

You can use the Staging Instrument Supplementary Data Report to perform the analysis on the Staging Area Tables related to Instrument Supplementary Data. The report contains specifically the following Staging Database Objects:

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Table 8-3 Staging Instrument Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Instrument Supplementary Data	Instrument Supplementary	STG-Staging	STG_ACCOUNT_INDEX_HIST	Stage Account Index History	Account Index History
			STG_ACCOUNT_RATE_TIERS	Stage Account Rate Tiers	Account Rate Tiers
			STG_EMBEDDED_OPTIONS_SCH	Stage Embedded Options Schedule	Embedded Options Schedule
			STG_PAYMENT_SCHEDULE	Stage Payment Schedule	Payment Schedule

8.1.5.2.1 Account Index History

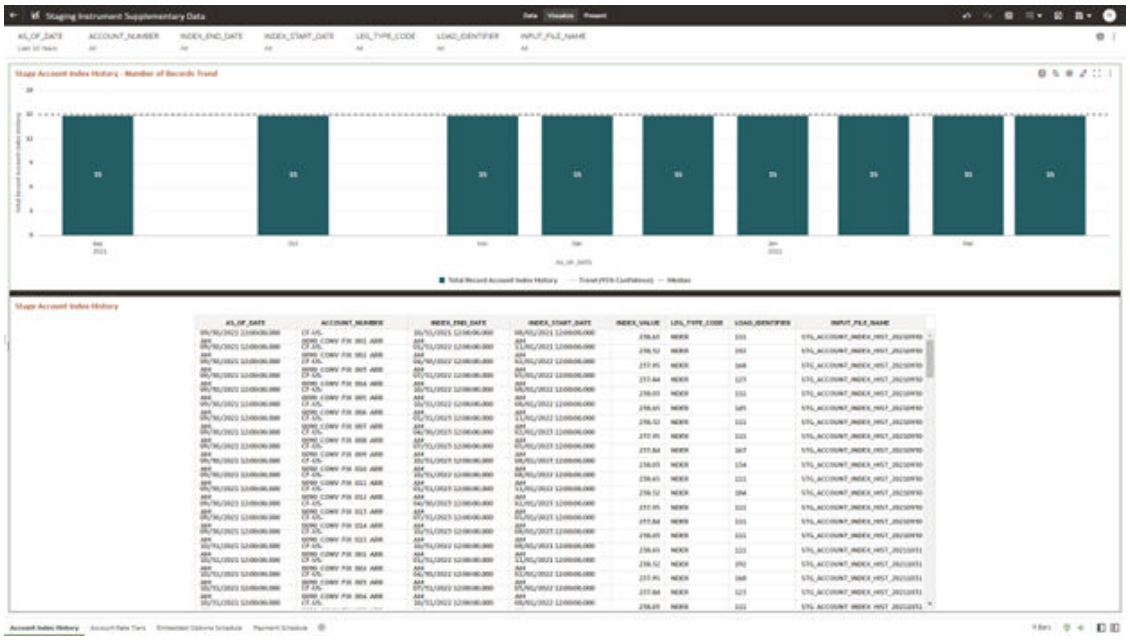
The Account Index History Report provides the analysis capability on the Stage Account Index History Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Account Index History - Number of Records Trend
  Total Records Account Index History aggregated by AS_OF_DATE.
- Stage Account Index History
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-28 Staging Instrument Supplementary Data – Account Index History



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8.1.5.2.2 Account Rate Tiers

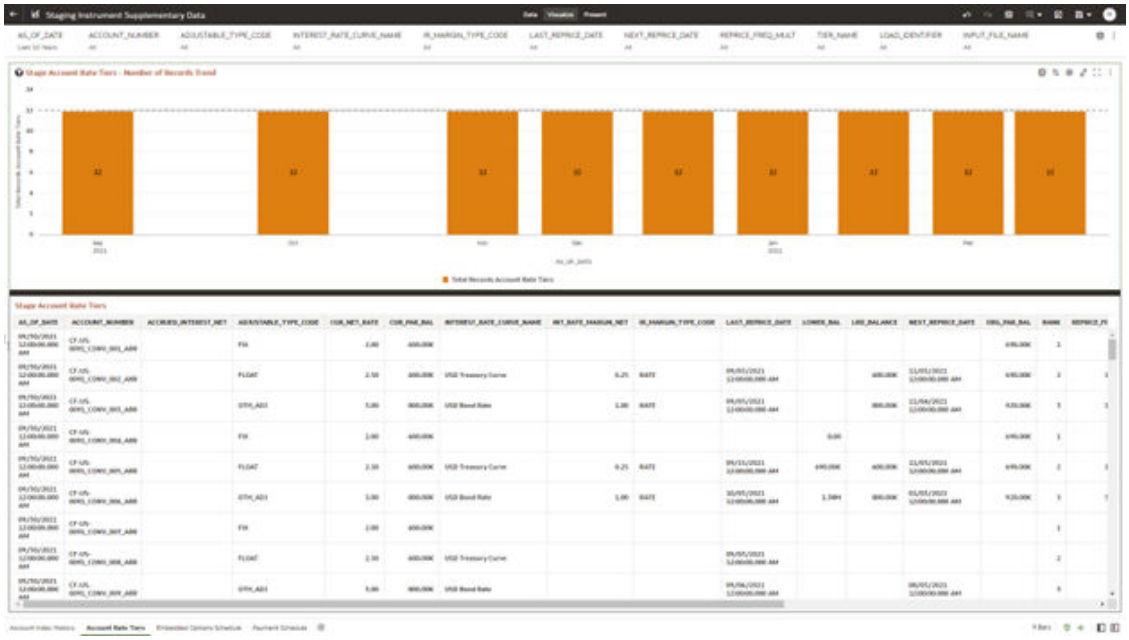
The Account Rate Tiers Report provides the analysis capability on the Stage Account Rate Tiers Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Account Rate Tiers - Number of Records Trend
  Total Records Account Rate Tiers aggregated by AS_OF_DATE.
- Stage Account Rate Tiers
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-29 Staging Instrument Supplementary Data – Account Rate Tiers



8.1.5.2.3 Embedded Options Schedule

The Embedded Options Schedule Report provides the analysis capability on the Stage Embedded Options Schedule Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Embedded Options Schedule - Number of Records Trend
  Total Records Embedded Options Schedule aggregated by AS_OF_DATE.
- Stage Embedded Options Schedule
  Granular table records at ACCOUNT_NUMBER level.

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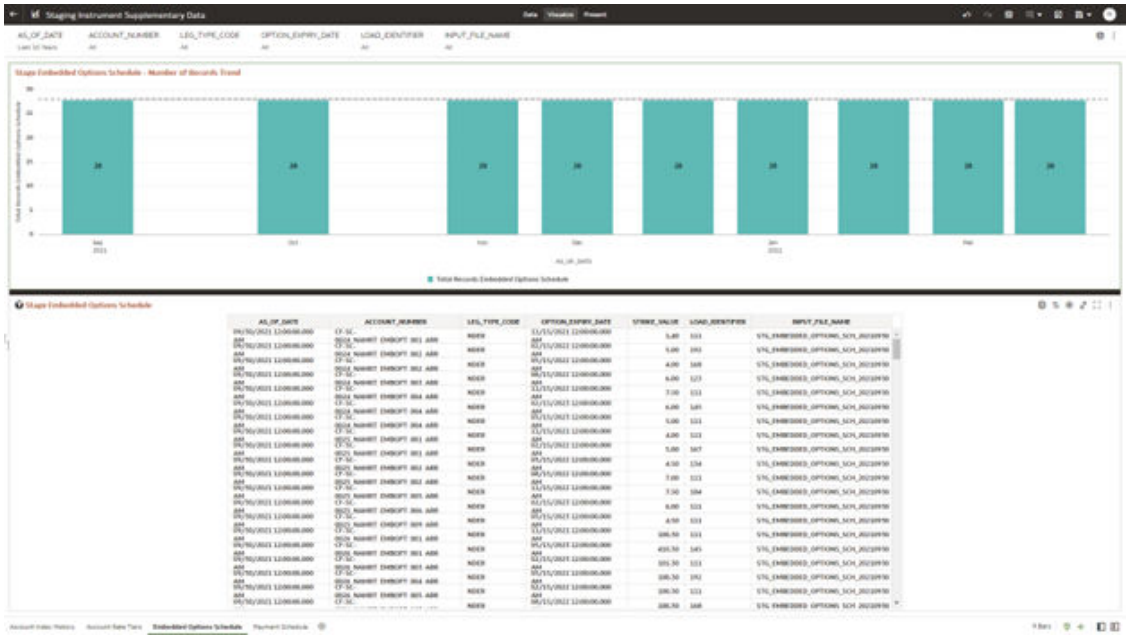
Figure 8-30 Staging Instrument Supplementary Data – Embedded Options Schedule



8.1.5.2.4 Payment Schedule

The Payment Schedule Report provides the analysis capability on the Stage Payment Schedule Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Payment Schedule - Number of Records Trend
  Total Records Payment Schedule aggregated by AS_OF_DATE.
- Stage Payment Schedule
  Granular table records at ACCOUNT_NUMBER level.

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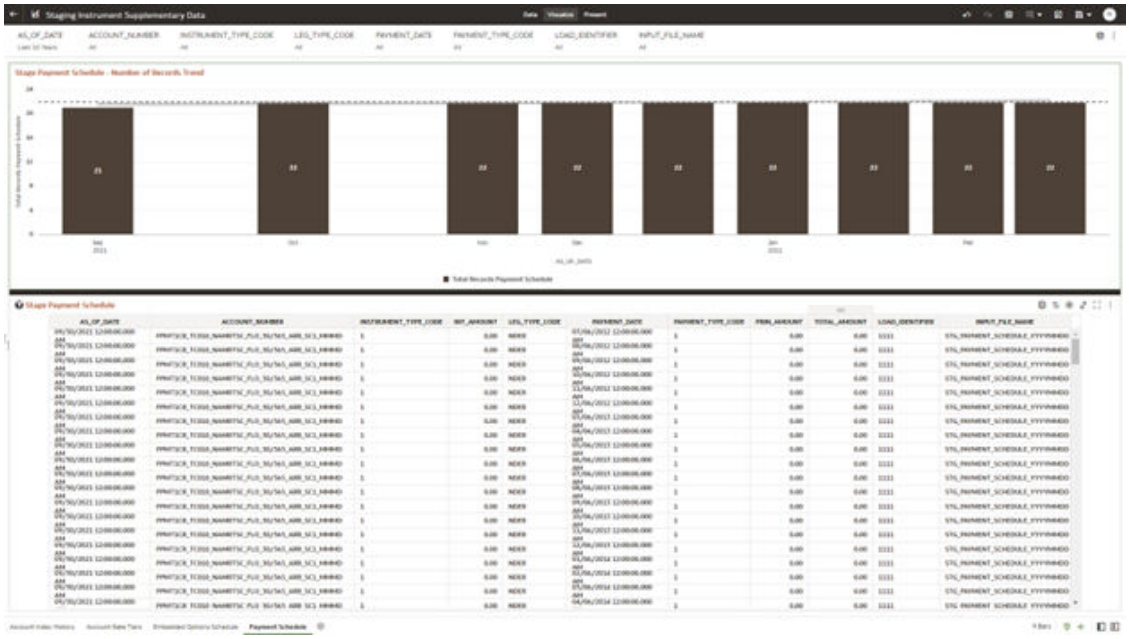
Figure 8-31 Staging Instrument Supplementary Data – Payment Schedule



8.1.5.3 Staging Ledger Data

You can use this report to perform the analysis on the Staging Area Tables related to Ledger Data. The report contains specifically the following Staging Database Objects:

Table 4:

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Table 8-4 Staging Ledger Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Ledger Data	Ledger	STG-Staging	STG_MANAGEMENT_LEDGER STG_MANAGEMENT_LEDGER_01 STG_MANAGEMENT_LEDGER_02 STG_MANAGEMENT_LEDGER_03 STG_MANAGEMENT_LEDGER_04 STG_MANAGEMENT_LEDGER_05	Stage Management Ledger Stage Placeholder Management Ledger 01 Stage Placeholder Management Ledger 02 Stage Placeholder Management Ledger 03 Stage Placeholder Management Ledger 04 Stage Placeholder Management Ledger 05	Management Ledger Management Ledger 01 Management Ledger 02 Management Ledger 03 Management Ledger 04 Management Ledger 05

8.1.5.3.1 Management Ledger

The Management Ledger Report provides the analysis capability on the Stage Management Ledger Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger - Number of Records Trend
  Total Records Management Ledger aggregated by AS_OF_DATE.
- Stage Management Ledger
  Granular table records at FINANCIAL_ELEM_CODE level.

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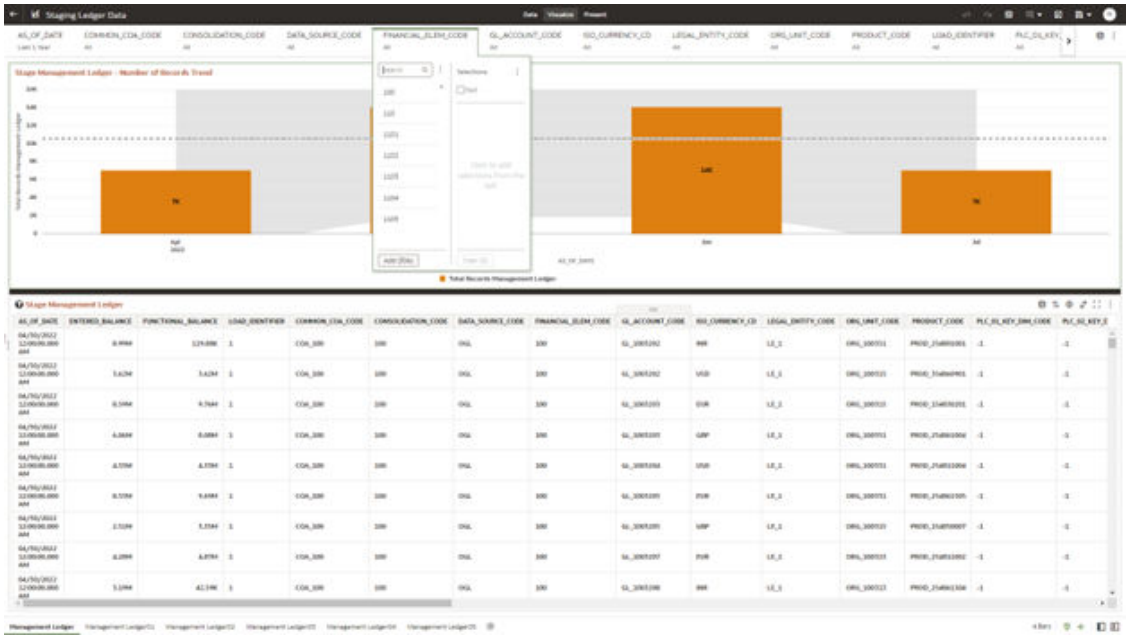
Figure 8-32 Staging Ledger Data – Management Ledger



8.1.5.3.2 Management Ledger01

The Management Ledger01 Report provides the analysis capability on the Stage Placeholder Management Ledger 01 table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger01 - Number of Records Trend
  Total Records Management Ledger01 aggregated by AS_OF_DATE.
- Stage Management Ledger01
  Granular table records at FINANCIAL_ELEM_CODE level.

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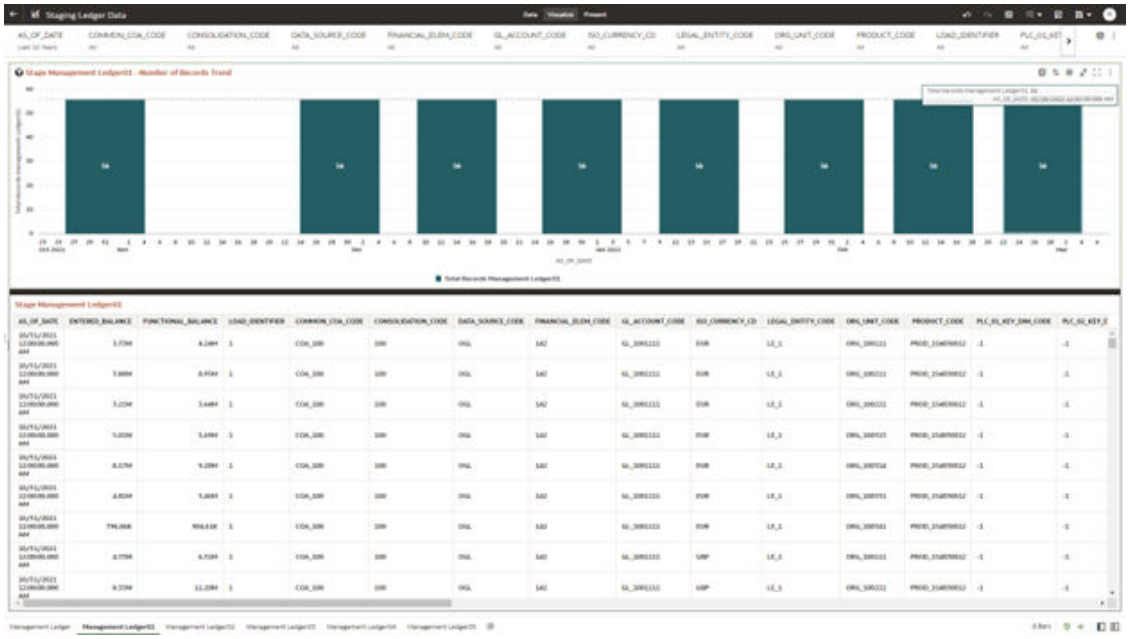
Figure 8-33 Staging Ledger Data – Management Ledger01



8.1.5.3.3 Management Ledger02

The Management Ledger02 Report provides the analysis capability on the Stage Placeholder Management Ledger 02 table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger02 - Number of Records Trend
  Total Records Management Ledger02 aggregated by AS_OF_DATE.
- Stage Management Ledger02
  Granular table records at FINANCIAL_ELEM_CODE level.

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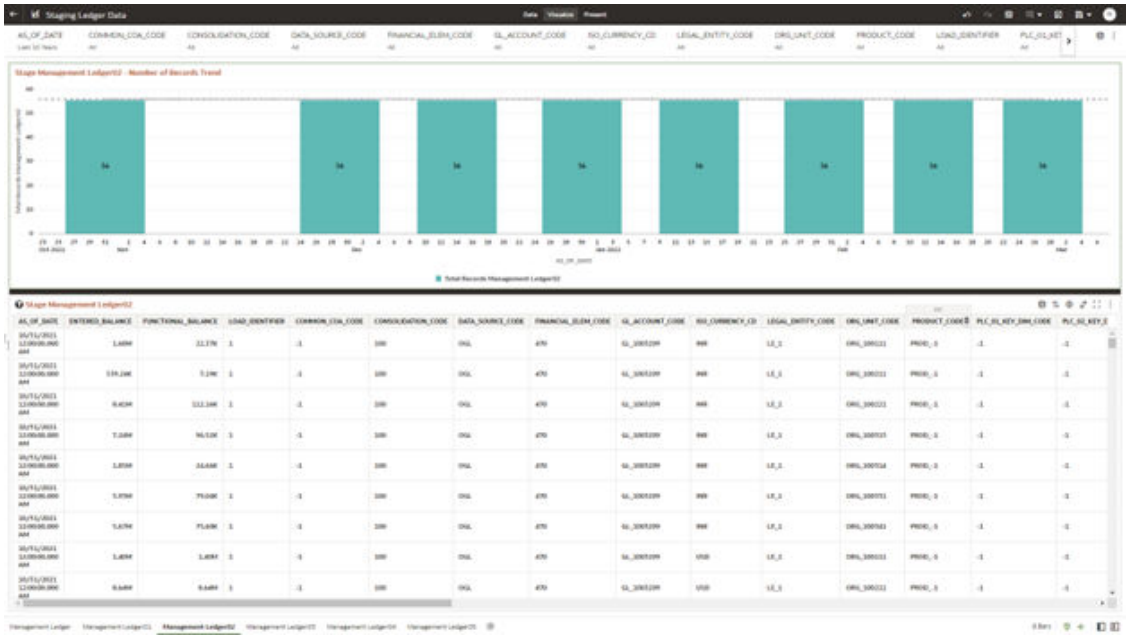
Figure 8-34 Staging Ledger Data – Management Ledger02



8.1.5.3.4 Management Ledger03

The Management Ledger03 Report provides the analysis capability on the Stage Placeholder Management Ledger 03 table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger03 - Number of Records Trend
  Total Records Management Ledger03 aggregated by AS_OF_DATE.
- Stage Management Ledger03
  Granular table records at FINANCIAL_ELEM_CODE level.

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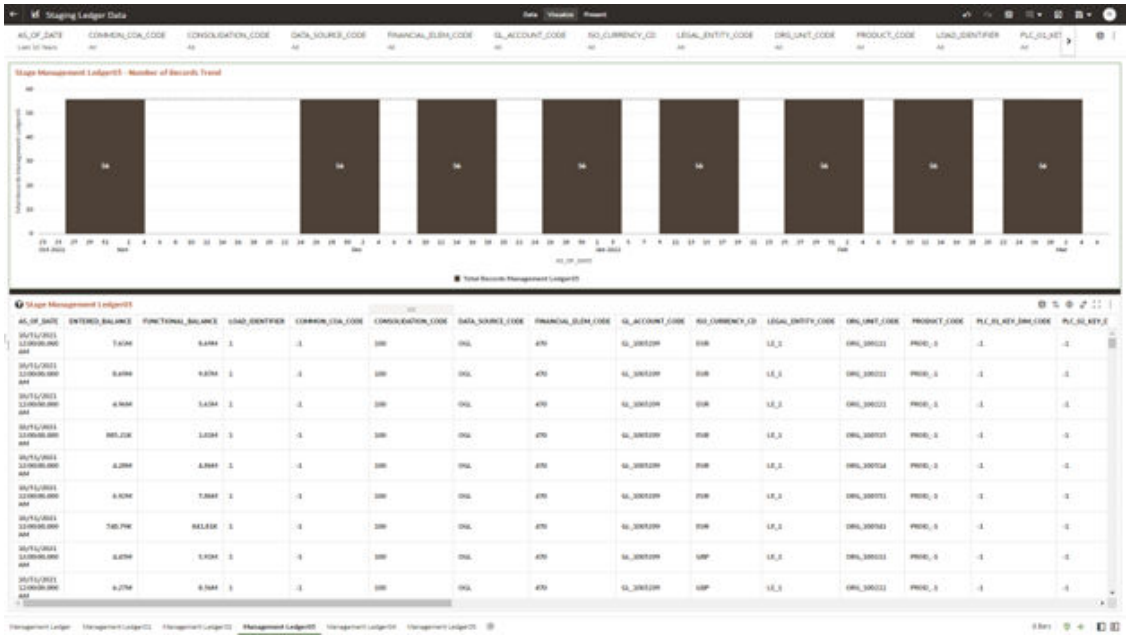
Figure 8-35 Staging Ledger Data – Management Ledger03



8.1.5.3.5 Management Ledger04

The Management Ledger04 Report provides the analysis capability on the Stage Placeholder Management Ledger 04 table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger04 - Number of Records Trend
  Total Records Management Ledger04 aggregated by AS_OF_DATE.
- Stage Management Ledger04
  Granular table records at FINANCIAL_ELEM_CODE level.

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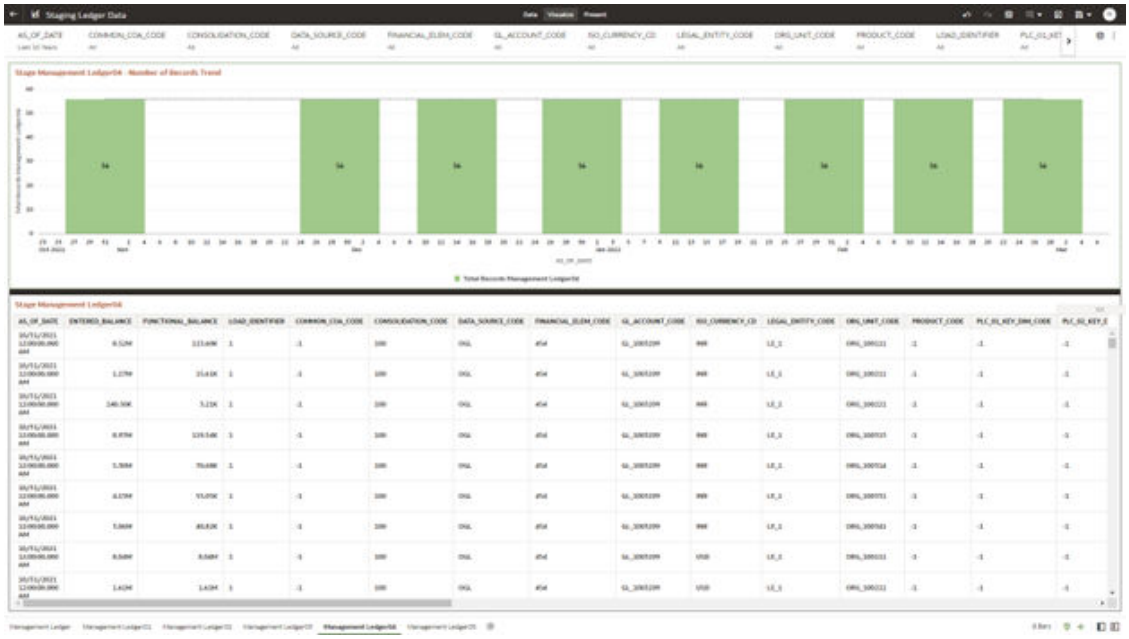
Figure 8-36 Staging Ledger Data – Management Ledger04



8.1.5.3.6 Management Ledger05

The Management Ledger05 Report provides the analysis capability on the Stage Placeholder Management Ledger 05 table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger05 - Number of Records Trend
  Total Records Management Ledger05 aggregated by AS_OF_DATE.
- Stage Management Ledger05
  Granular table records at FINANCIAL_ELEM_CODE level.

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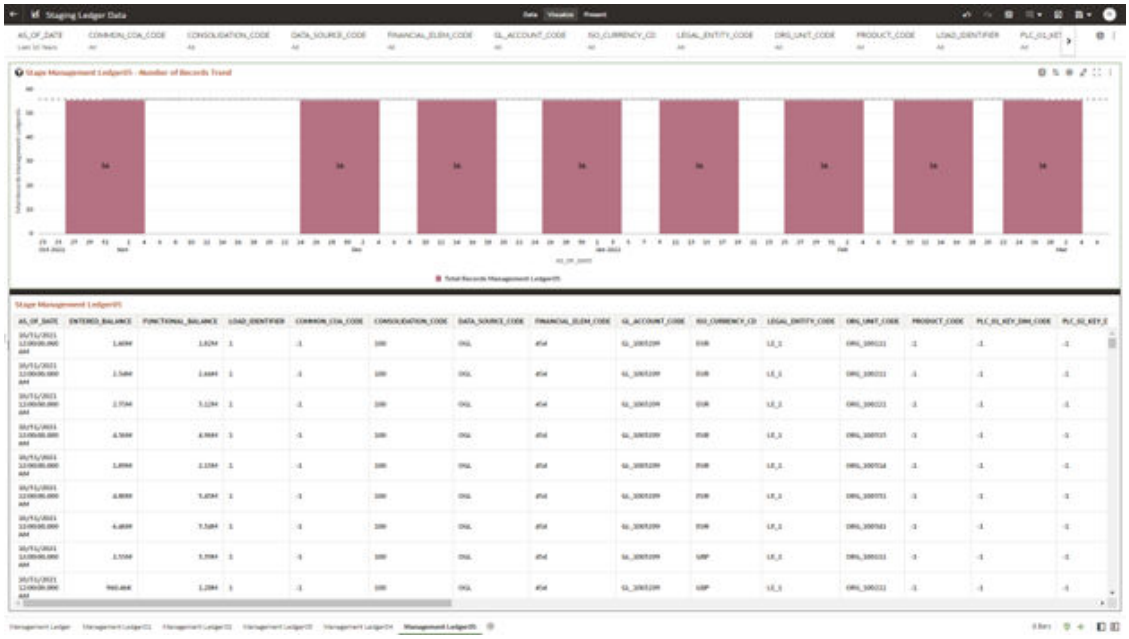
Figure 8-37 Staging Ledger Data – Management Ledger05



8.1.5.4 Staging Transaction Summary Data

You can use this report to perform the analysis on the Staging area tables related to Transaction Summary Data. The report contains specifically the following Staging Database Objects:

Table 8-5 Staging Ledger Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Transaction Summary Data	Transaction Summary	STG–Staging	STG_ASSET_TXN STG_LIABILITY_TXN STG_FEE_BASED_SERVICE_TXN STG_OFF_BALANCE_SHEET_TXN	Stage Asset Transaction Summary Stage Liability Transaction Summary Stage Fee Based and Other Services Transaction Summary Stage Off Balance Sheet Transaction Summary	Assets Transaction Summary Liabilities Transaction Summary Fee Based Services Transaction Summary Off Balance Sheet Transaction Summary

8.1.5.4.1 Asset Transaction Summary

This report provides the analysis capability on the Stage Assets Transaction Summary Table.

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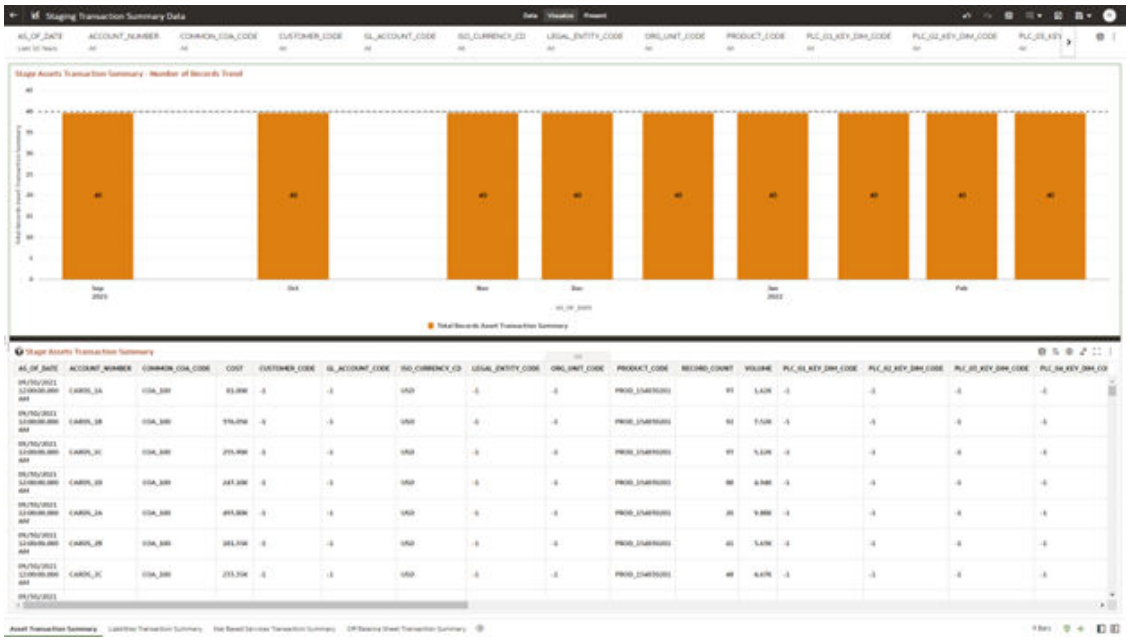
You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Assets Transaction Summary - Number of Records Trend
  Total Records Assets Transaction Summary aggregated by AS_OF_DATE.
- Stage Assets Transaction Summary
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-38 Staging Transaction Summary Data – Asset Transaction Summary



8.1.5.4.2 Liabilities Transaction Summary

The Liabilities Transaction Summary Report provides the analysis capability on the Stage Liability Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Liability Transaction Summary - Number of Records Trend
  Total Records Liability Transaction Summary aggregated by AS_OF_DATE.
- Stage Liability Transaction Summary
  Granular table records at ACCOUNT_NUMBER level.

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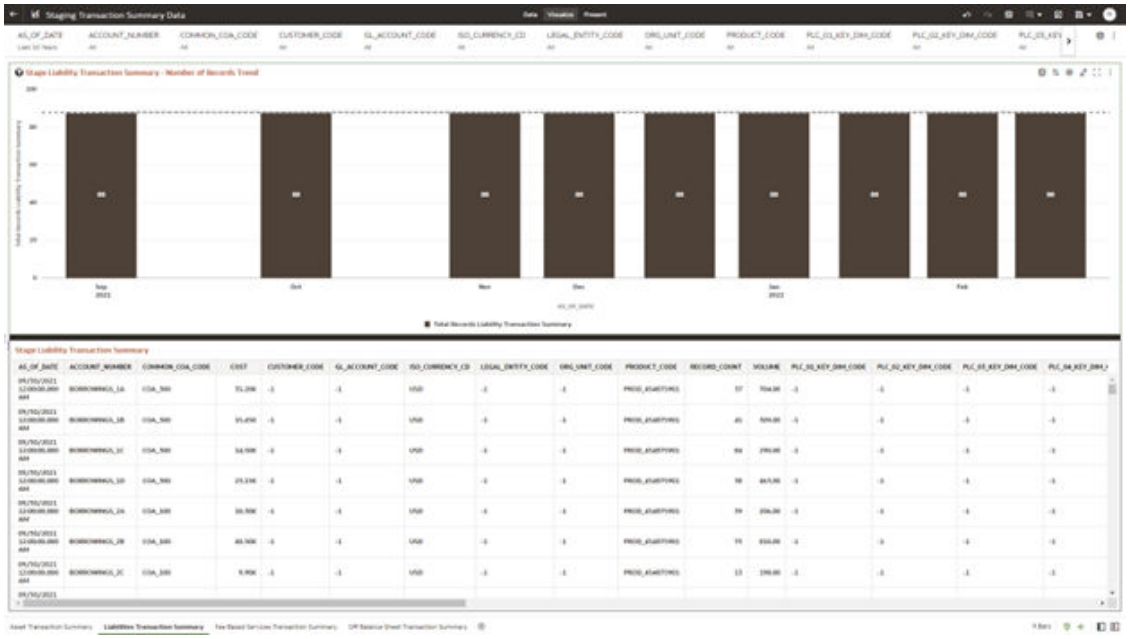
Figure 8-39 Staging Transaction Summary Data – Liabilities Transaction Summary



8.1.5.4.3 Fee Based Services Transaction Summary

The Fee Based Services Transaction Summary Report provides the analysis capability on the Stage Fee Based and Other Services Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Fee Based Services Transaction Summary - Number of Records Trend
  Total Records Fee Based Service Transaction aggregated by AS_OF_DATE.
- Stage Fee Based Services Transaction Summary
  Granular table records at ACCOUNT_NUMBER level.

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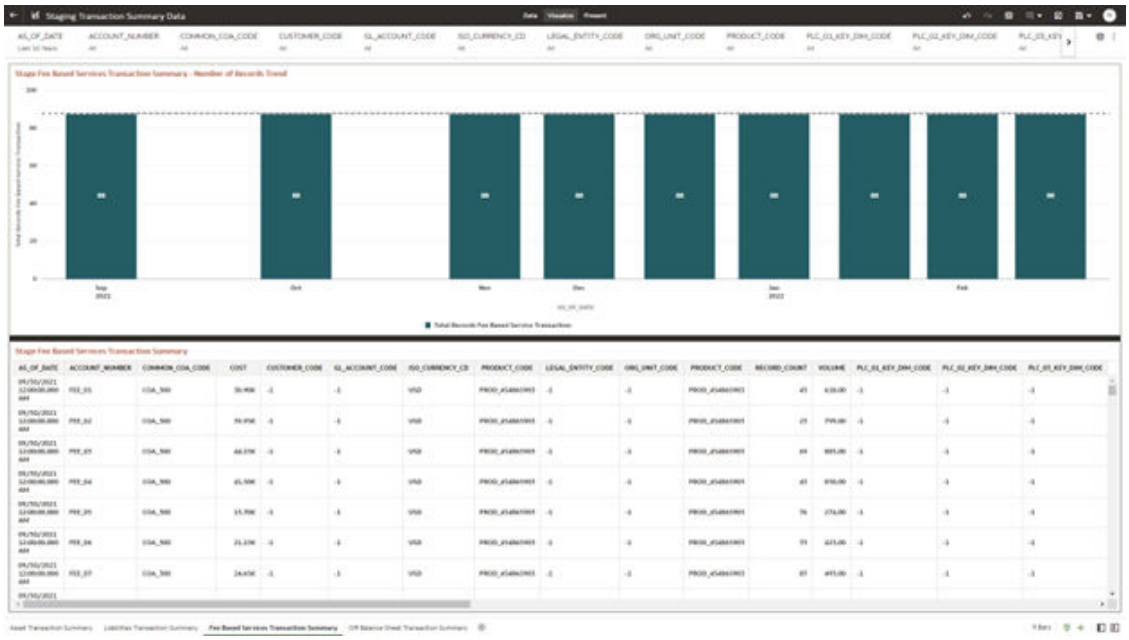
Figure 8-40 Staging Transaction Summary Data – Fee Based Services Transaction Summary



8.1.5.4.4 Off Balance Sheet Transaction Summary

The Off Balance Sheet Transaction Summary Report provides the analysis capability on the Stage Off Balance Sheet Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Off Balance Sheet Transaction Summary - Number of Records Trend
  Total Records Off Balance Sheet Transaction Summary aggregated by AS_OF_DATE.
- Stage Off Balance Sheet Transaction Summary
  Granular table records at ACCOUNT_NUMBER level.

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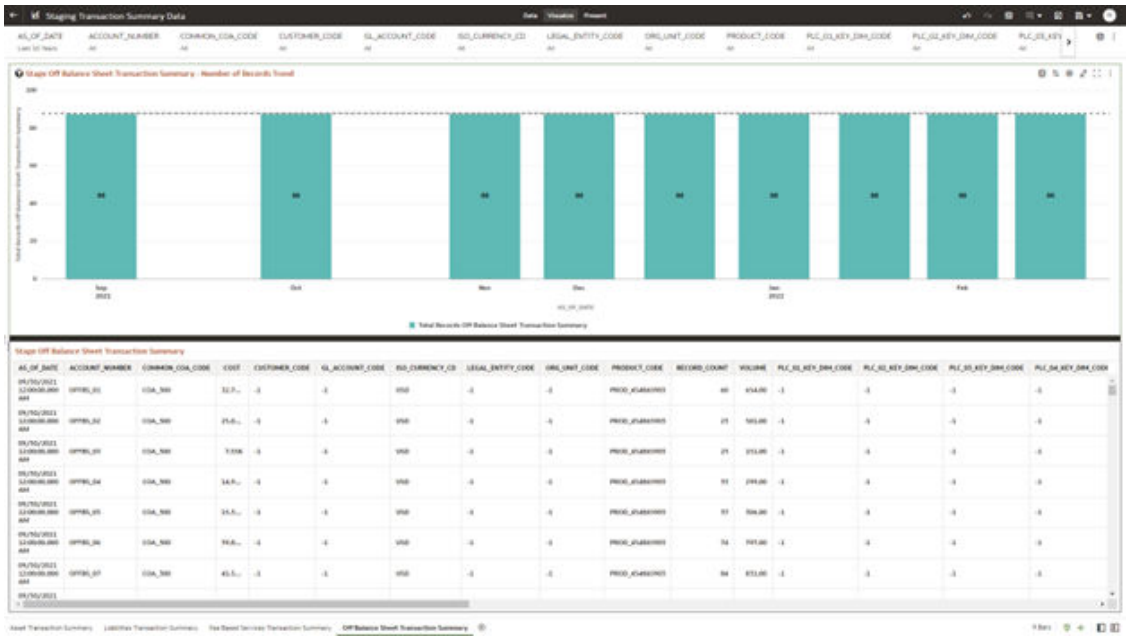
Figure 8-41 Staging Transaction Summary Data – Off Balance Sheet Transaction Summary



8.1.5.5 Processing Instrument Data

You can use this report to perform the analysis on the Processing Area Tables related to Instrument Data. The report contains specifically the following Processing Database Objects:

Table 5:

Table 8-6 Processing Instrument Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Processing Instrument Data	Instrument	FSI-Processing	FSI_D_ASSET FSI_D_LIABILITY FSI_D_DERIVATIVE FSI_D_FEE_BASED_SERVICE FSI_D_LOAN_COMMITMENTS FSI_D_OFF_BALANCE_SHEET FSI_D_LEDGER_INSTRUMENT	Asset Instruments Liability Instruments Derivative Contracts Fee Based and Other Services Loan Commitments Off Balance Sheet Contracts Ledger Instrument	Assets Liabilities Derivative Contracts Fee Based Services Loan Commitments Off Balance Sheet Items Ledger - Instruments

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8.1.5.5.1 Assets

The Assets Report provides the analysis capability on the Asset Instrument Table.

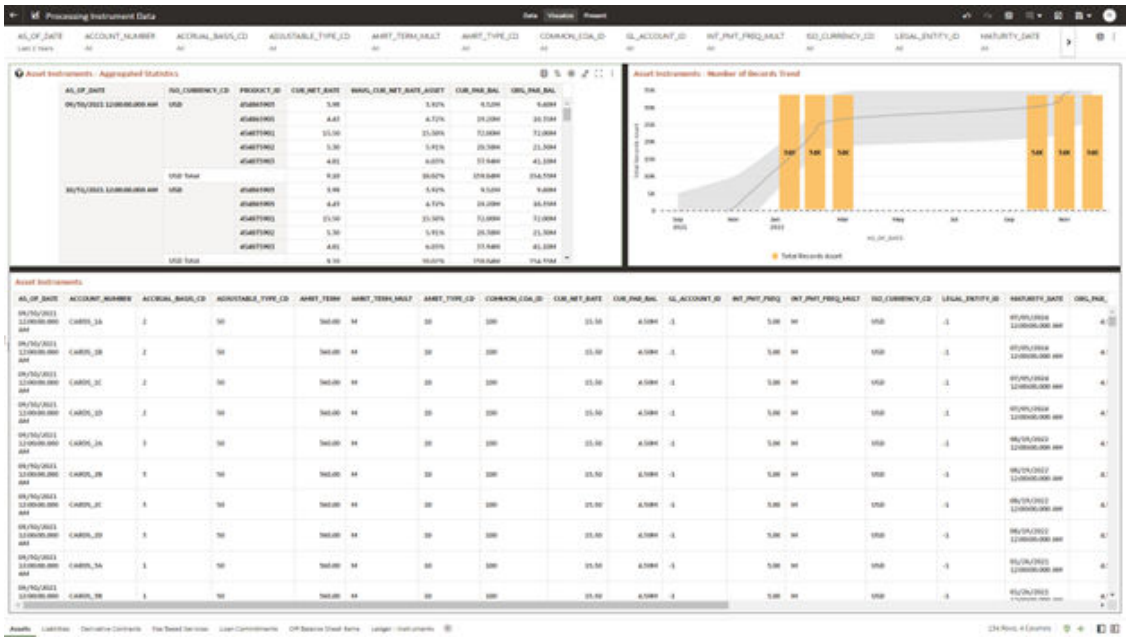
You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Asset Instruments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_ASSET, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Asset Instruments - Number of Records Trend
  Total Records Asset aggregated by AS_OF_DATE.
- Asset Instruments
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-42 Processing Instrument Data - Assets



8.1.5.5.2 Liabilities

The Liabilities Report provides the analysis capability on the Liability Instrument Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Liability Instruments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

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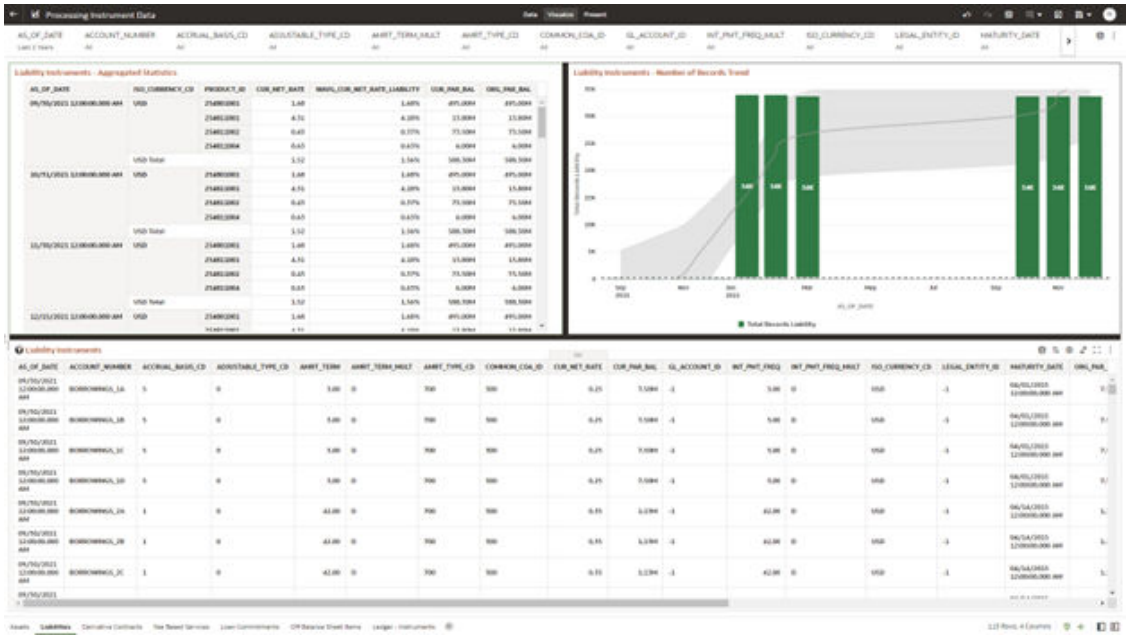
In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LIABILITY, is calculated as the Weighted AVG by CUR_PAR_BAL.

- Liability Instruments - Number of Records Trend
  Total Records Liability aggregated by AS_OF_DATE.
- Liability Instruments
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-43 Processing Instrument Data - Liabilities



8.1.5.5.3 Derivative Contracts

The Derivative Contracts Report provides the analysis capability on the Derivative Contracts Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Derivative Contracts - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LIABILITY, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Derivative Contracts - Number of Records Trend
  Total Records Derivative Contracts aggregated by AS_OF_DATE.
- Derivative Contracts
  Granular table records at ACCOUNT_NUMBER level.

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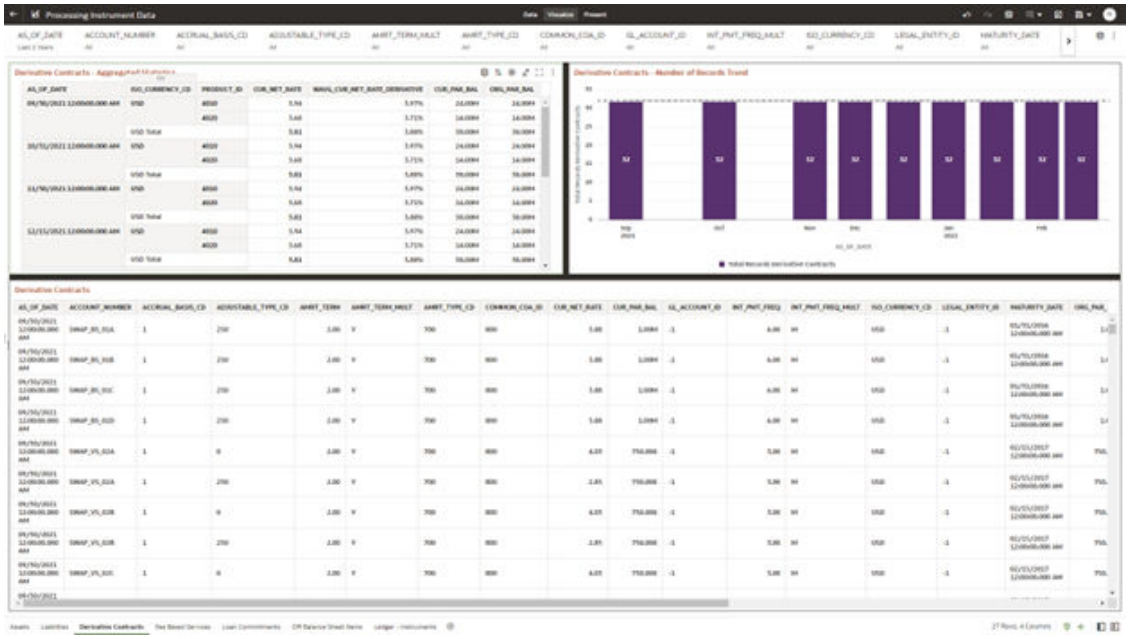
Figure 8-44 Processing Instrument Data – Derivative Contracts



8.1.5.5.4 Fee Based Services

The Fee Based Services Report provides the analysis capability on the Fee Based and Other Services Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Fee Based Services - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_FEE_BASED, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Fee Based Services - Number of Records Trend
  Total Records Fee Based aggregated by AS_OF_DATE.
- Fee Based Services
  Granular table records at ACCOUNT_NUMBER level.

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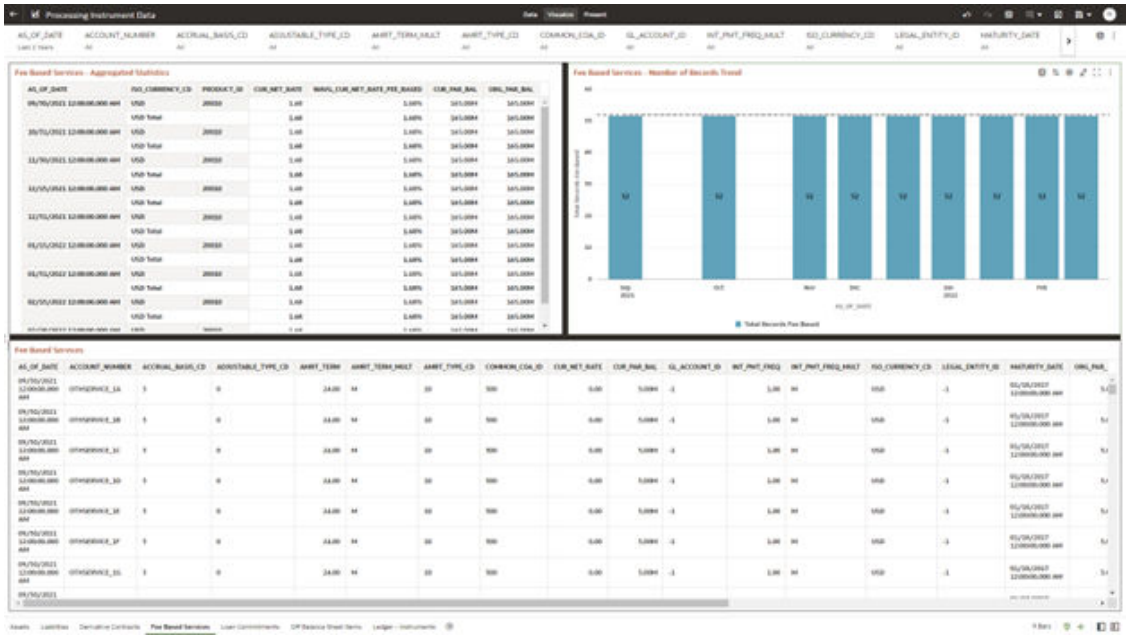
Figure 8-45 Processing Instrument Data – Fee Based Services



8.1.5.5.5 Loan Commitments

The Loan Commitments Report provides the analysis capability on the Loan Commitments Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Loan Commitments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LOAN_COMMITMENTS, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Loan Commitments - Number of Records Trend
  Total Records Loan Commitments aggregated by AS_OF_DATE.
- Loan Commitments
  Granular table records at ACCOUNT_NUMBER level.

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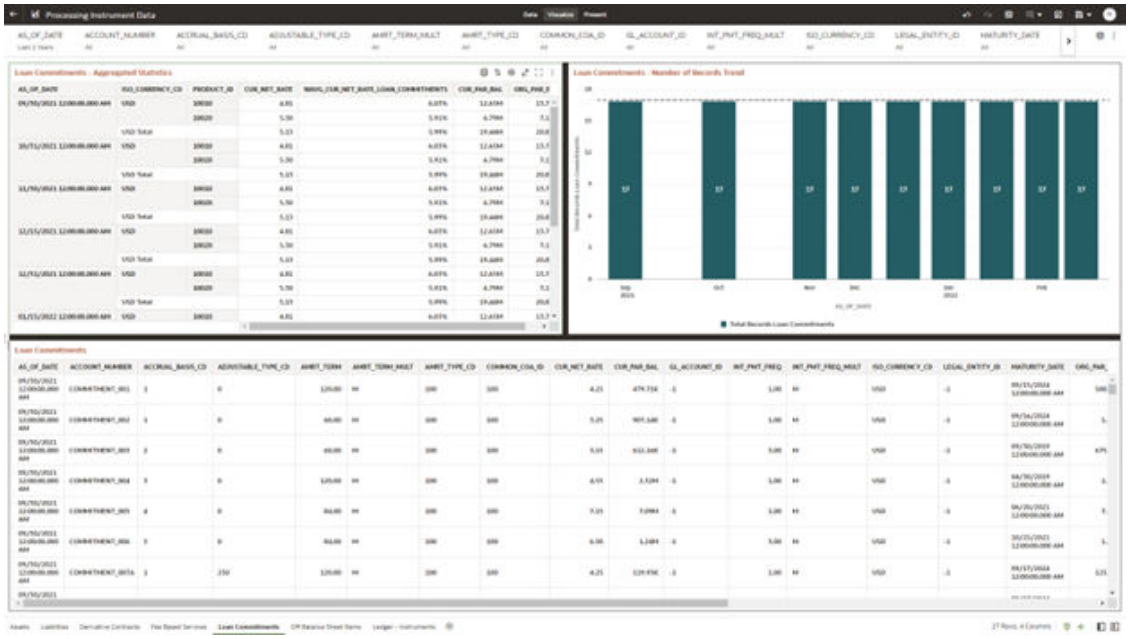
Figure 8-46 Processing Instrument Data – Loan Commitments



8.1.5.5.6 Off Balance Sheet Items

The Off Balance Sheet Items Report provides the analysis capability on the Off Balance Sheet Contracts Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Off Balance Sheet Contracts - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_OFF_BALANCE_SHEET, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Off Balance Sheet Contracts - Number of Records Trend
  Total Record Off Balance Sheet aggregated by AS_OF_DATE.
- Off Balance Sheet Contracts
  Granular table records at ACCOUNT_NUMBER level.

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Figure 8-47 Processing Instrument Data – Off Balance Sheet Items

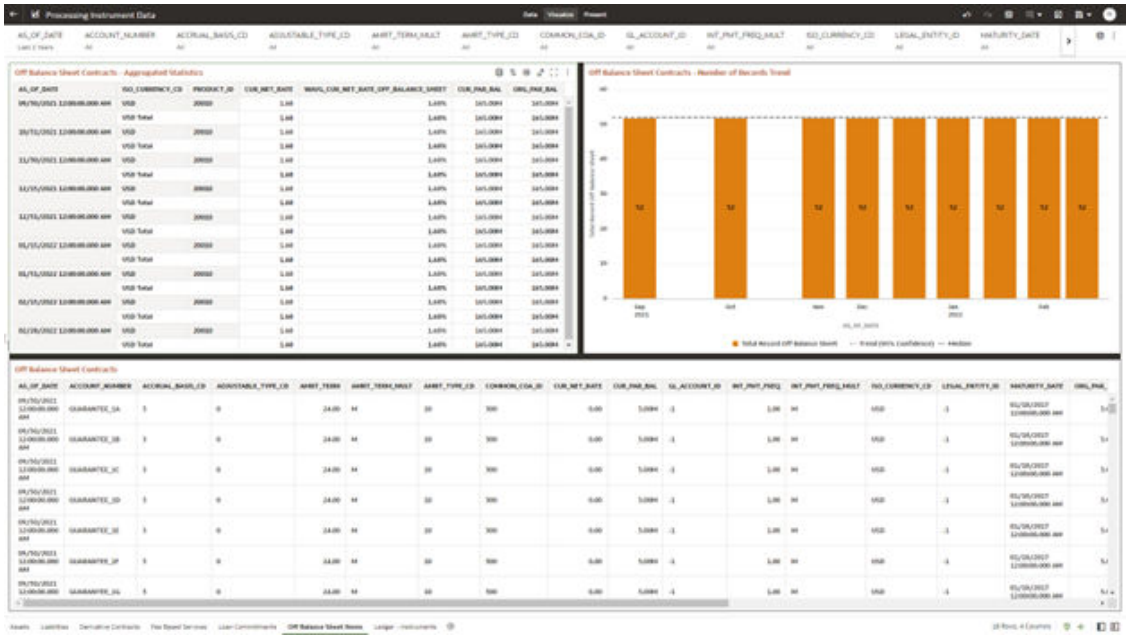
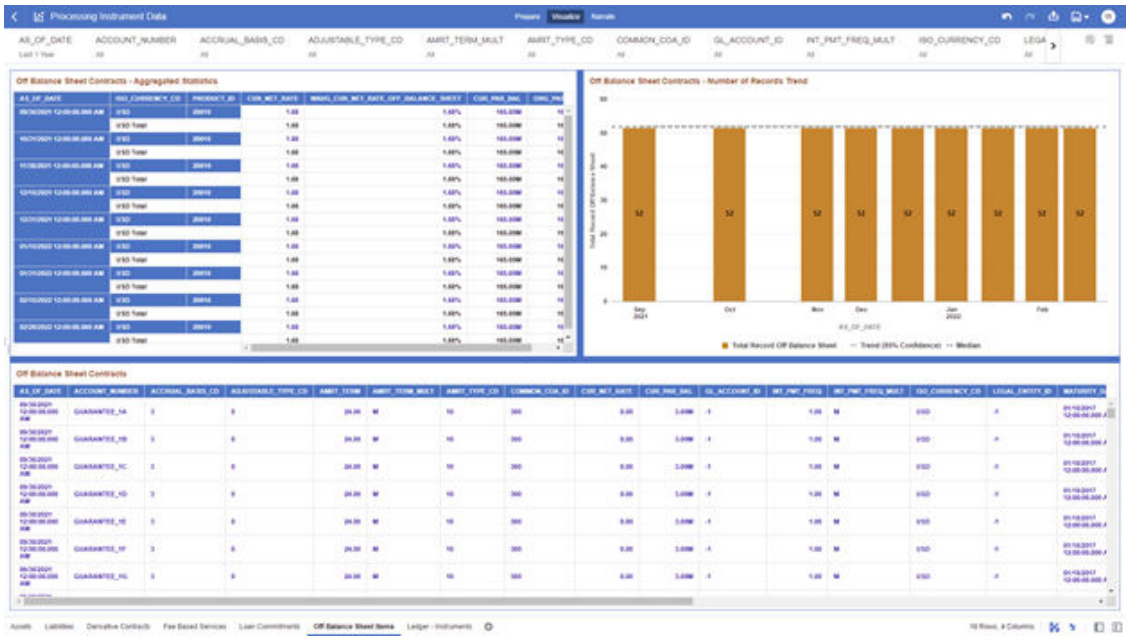


Figure 8-48 Processing Instrument Data – Off Balance Sheet Items



8.1.5.5.7 Ledger - Instruments

The Ledger – Instrument Report provides the analysis capability on the Ledger Instrument Table.

You can use a series of Report Prompts to filter the data according to functional key attributes pertaining to the table columns perimeter.

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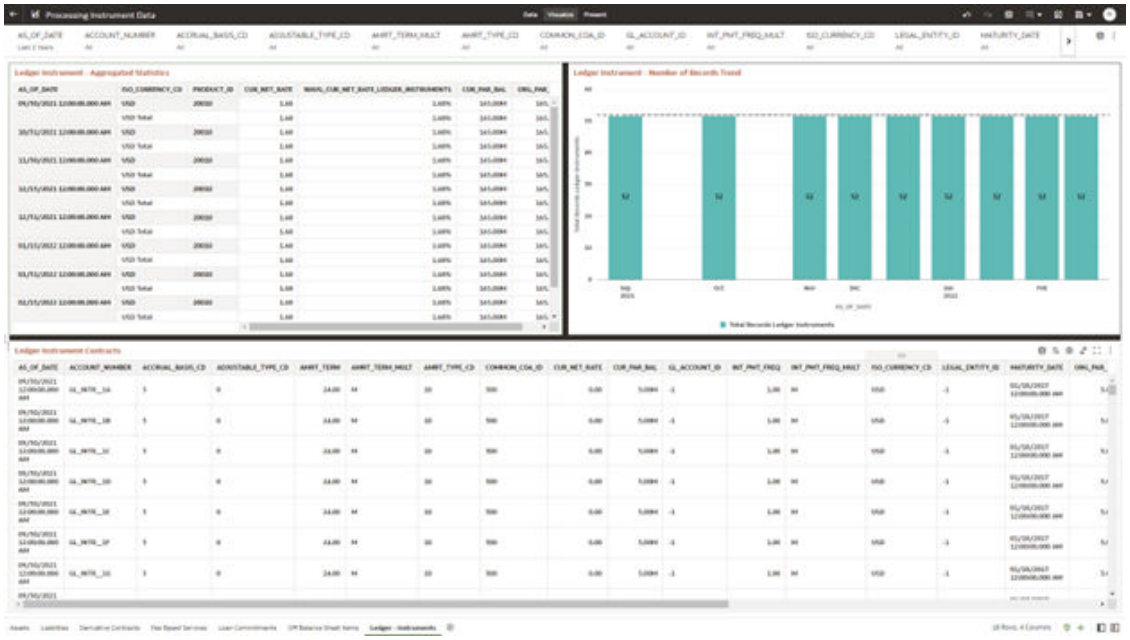
The report displays the underlying data according to the following Charts' logic:

- Ledger Instrument - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LEDGER_INSTRUMENTS, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Ledger Instrument - Number of Records Trend
  Total Records Ledger Instruments aggregated by AS_OF_DATE.
- Ledger Instrument
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-49 Processing Instrument Data – Ledger Instruments



8.1.5.6 Processing Instrument Supplementary Data

You can use this report to perform the analysis on the Processing Area Tables related to Instrument Data. The report contains specifically the below Processing Database Objects:

Table 6: Processing Instrument Supplementary Data

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Table 8-7 Processing Instrument Supplementary Data

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Processing Instrument Supplementary Data	Instrument Supplementary	FSI–Processing	FSI_D_ACCOUNT_INDEX_HIST FSI_D_ACCOUNT_RATE_TIERS FSI_D_EMBEDDED_OPTIONS_SCH FSI_D_PAYMENT_SCHEDULE	Account Index History Account Rate Tiers Embedded Options Schedule Payment Schedule	Account Index History Account Rate Tiers Embedded Options Schedule Payment Schedule

8.1.5.6.1 Account Index History

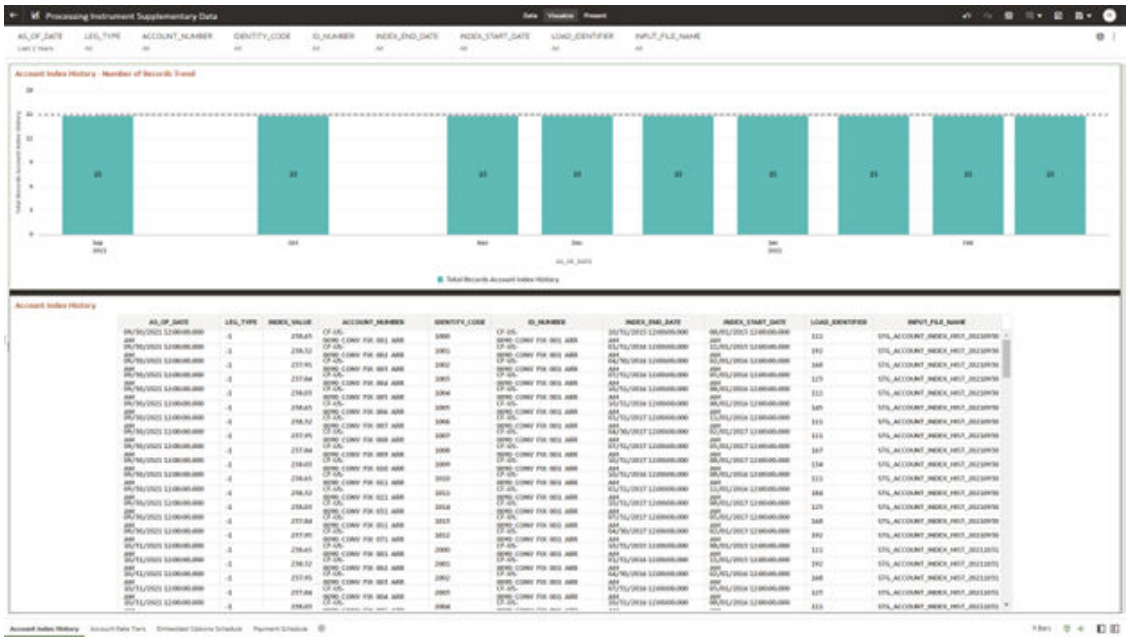
The Account Index History Report provides the analysis capability on the Account Index History Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Account Index History - Number of Records Trend
  Total Records Account Index History aggregated by AS_OF_DATE.
- Account Index History
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-50 Processing Instrument Supplementary Data – Account Index History



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8.1.5.6.2 Account Rate Tiers

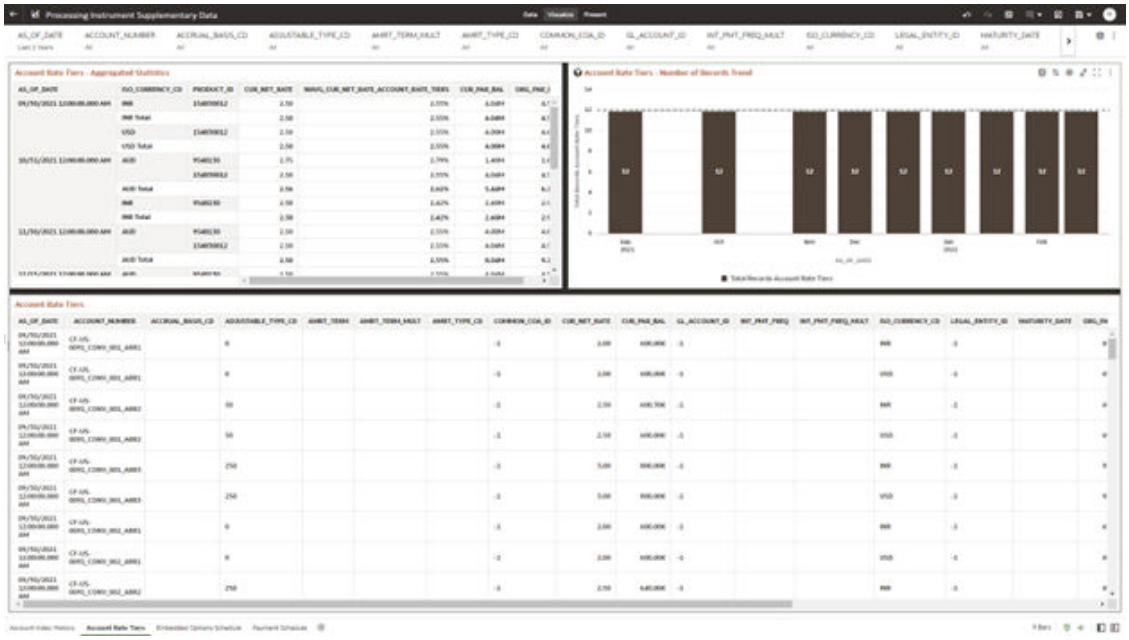
The Account Rate Tiers Report provides the analysis capability on the Account Rate Tiers Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Account Rate Tiers - Number of Records Trend
  Total Records Account Rate Tiers aggregated by AS_OF_DATE.
- Account Rate Tiers
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-51 Processing Instrument Supplementary Data – Account Rate Tiers



8.1.5.6.3 Embedded Options Schedule

The Embedded Options Schedule Report provides the analysis capability on the Embedded Options Schedule Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Embedded Options Schedule - Number of Records Trend
  Total Records Embedded Options Schedule aggregated by AS_OF_DATE.
- Embedded Options Schedule
  Granular table records at ACCOUNT_NUMBER level.

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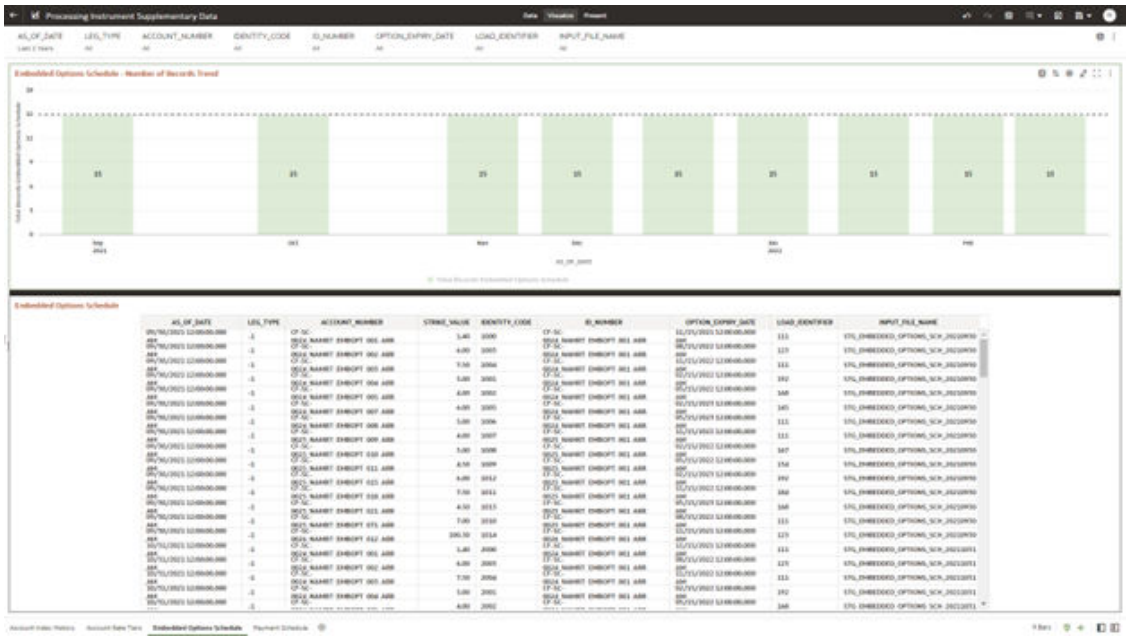
Figure 8-52 Processing Instrument Supplementary Data – Embedded Options Schedule



8.1.5.6.4 Payment Schedule

The Payment Schedule Report provides the analysis capability on the Payment Schedule Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Payment Schedule - Number of Records Trend
  Total Records Payment Schedule aggregated by AS_OF_DATE.
- Payment Schedule
  Granular table records at ACCOUNT_NUMBER level.

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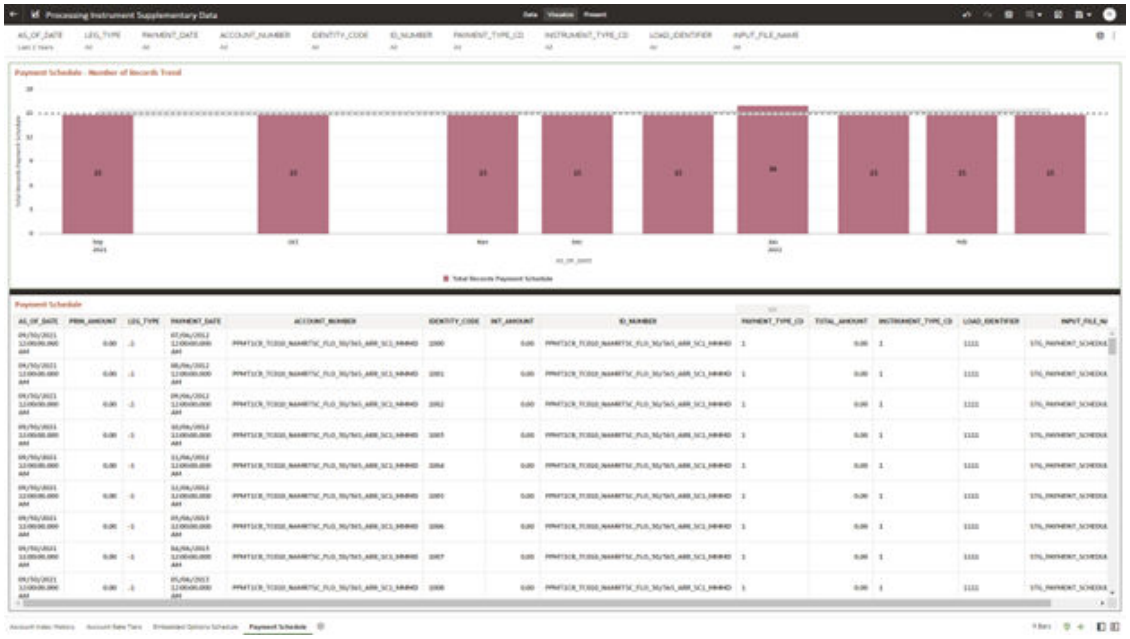
Figure 8-53 Processing Instrument Supplementary Data – Payment Schedule



8.1.5.7 Processing Ledger Data

You can use this report to perform analysis on the Processing Area Tables related to Ledger Data. The report contains specifically the following Staging Database Objects:

Table 7: Staging Ledger Data Reports

Table 8-8 Staging Ledger Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Processing Ledger Data	Ledger	FSI-Processing	FSI_D_MANAGEMENT_LEDGER FSI_D_MANAGEMENT_LEDGER_01 FSI_D_MANAGEMENT_LEDGER_02 FSI_D_MANAGEMENT_LEDGER_03 FSI_D_MANAGEMENT_LEDGER_04 FSI_D_MANAGEMENT_LEDGER_05	Management Ledger Placeholder Management Ledger 01 Placeholder Management Ledger 02 Placeholder Management Ledger 03 Placeholder Management Ledger 04 Placeholder Management Ledger 05	Management Ledger Management Ledger 01 Management Ledger 02 Management Ledger 03 Management Ledger 04 Management Ledger 05

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8.1.5.7.1 Management Ledger

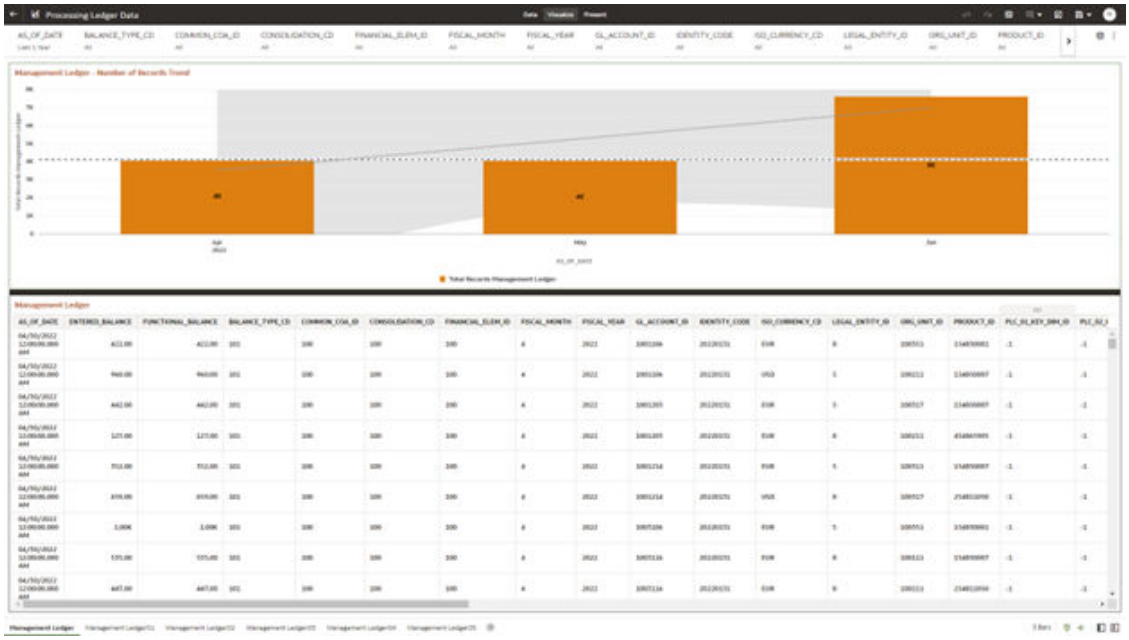
The Management Ledger Report provides the analysis capability on the Management Ledger Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger - Number of Records Trend
  Total Records Management Ledger aggregated by AS_OF_DATE.
- Management Ledger
  Granular table records at FINANCIAL_ELEM_ID level.

Figure 8-54 Processing Ledger Data – Management Ledger



8.1.5.7.2 Management Ledger01

The Management Ledger01 Report provides the analysis capability on the Placeholder Management Ledger 01 Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger01 - Number of Records Trend
  Total Records Management Ledger01 aggregated by AS_OF_DATE.
- Management Ledger01
  Granular table records at FINANCIAL_ELEM_ID level.

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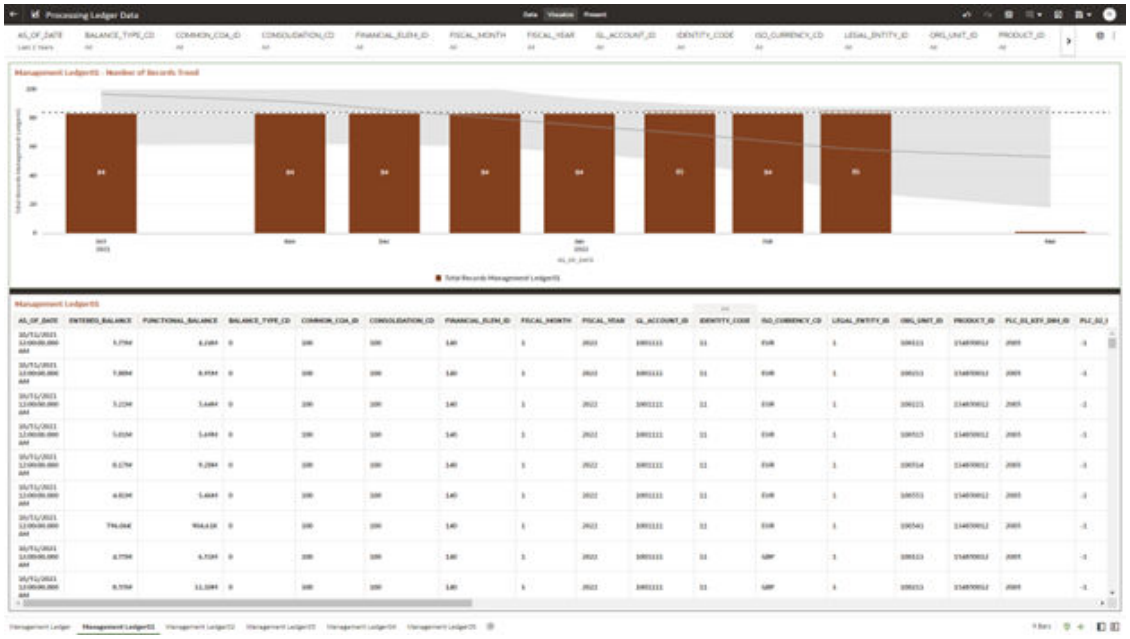
Figure 8-55 Processing Ledger Data – Management Ledger01



8.1.5.7.3 Management Ledger02

The Management Ledger02 Report provides the analysis capability on the Placeholder Management Ledger 02 Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger02 - Number of Records Trend
  Total Records Management Ledger02 aggregated by AS_OF_DATE.
- Management Ledger02
  Granular table records at FINANCIAL_ELEM_ID level.

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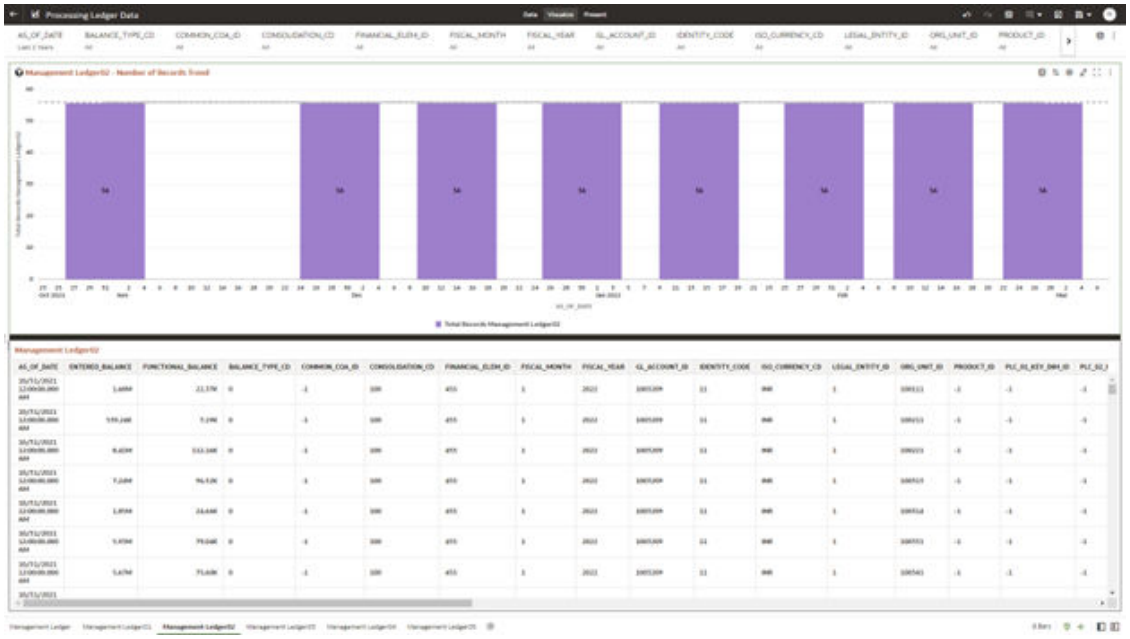
Figure 8-56 Processing Ledger Data – Management Ledger02



8.1.5.7.4 Management Ledger03

The Management Ledger03 Report provides the analysis capability on the Placeholder Management Ledger 03 Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger03 - Number of Records Trend
  Total Records Management Ledger03 aggregated by AS_OF_DATE.
- Management Ledger03
  Granular table records at FINANCIAL_ELEM_ID level.

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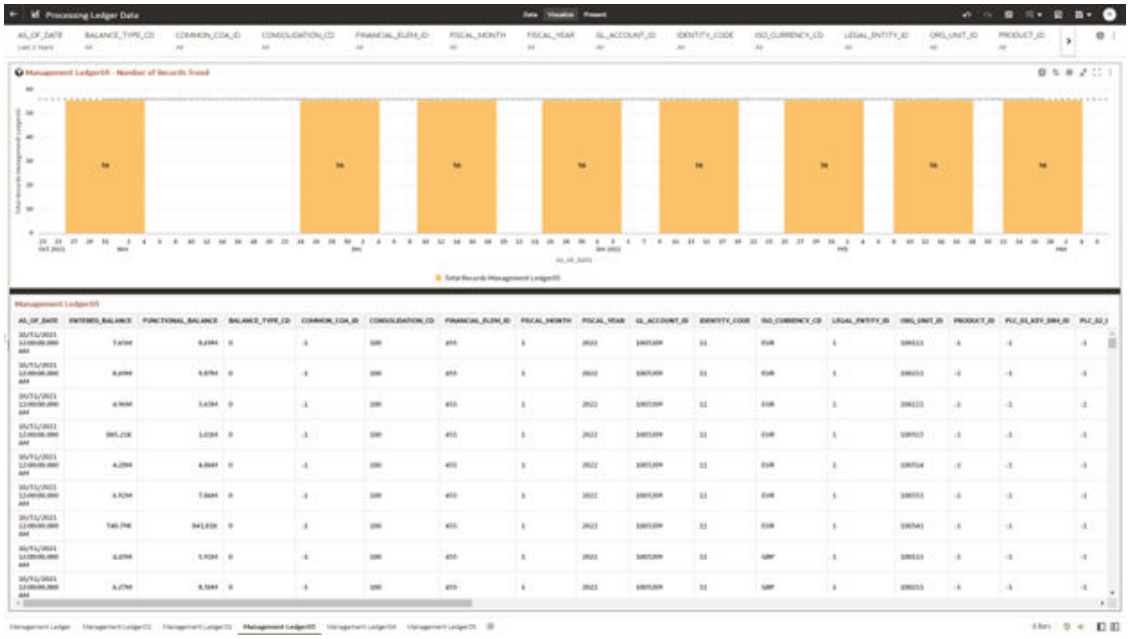
Figure 8-57 Processing Ledger Data – Management Ledger03



8.1.5.7.5 Management Ledger04

The Management Ledger04 Report provides the analysis capability on the Placeholder Management Ledger 04 Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger04 - Number of Records Trend
  Total Records Management Ledger04 aggregated by AS_OF_DATE.
- Management Ledger04
  Granular table records at FINANCIAL_ELEM_ID level.

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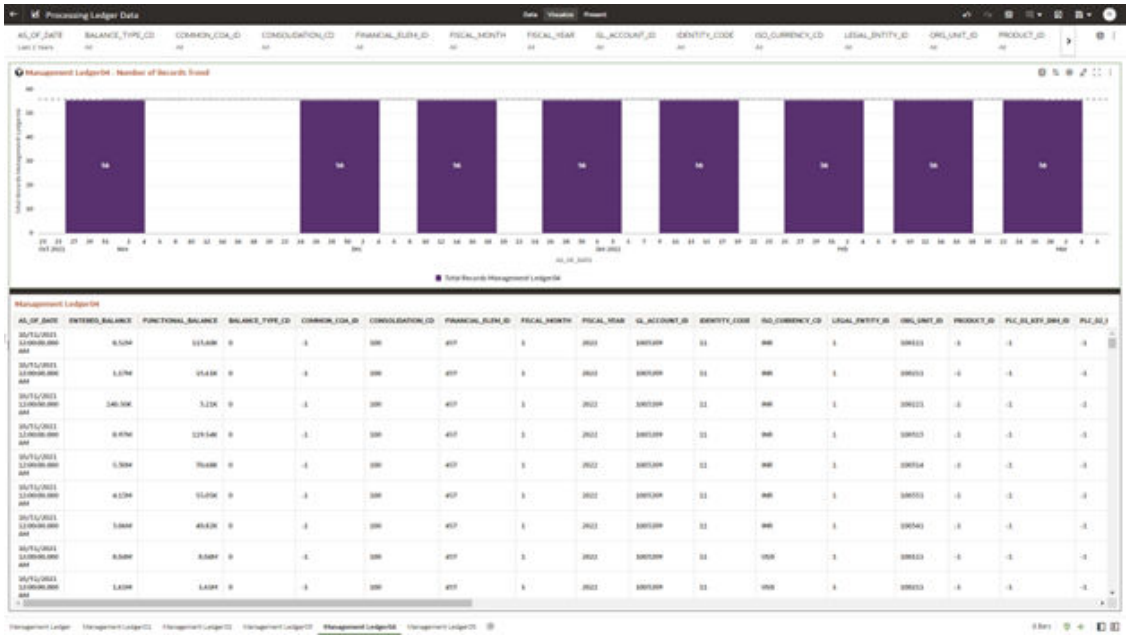
Figure 8-58 Processing Ledger Data – Management Ledger04



8.1.5.7.6 Management Ledger05

The Management Ledger05 Report provides the analysis capability on the Placeholder Management Ledger 05 Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger05 - Number of Records Trend
  Total Records Management Ledger05 aggregated by AS_OF_DATE.
- Management Ledger05
  Granular table records at FINANCIAL_ELEM_ID level.

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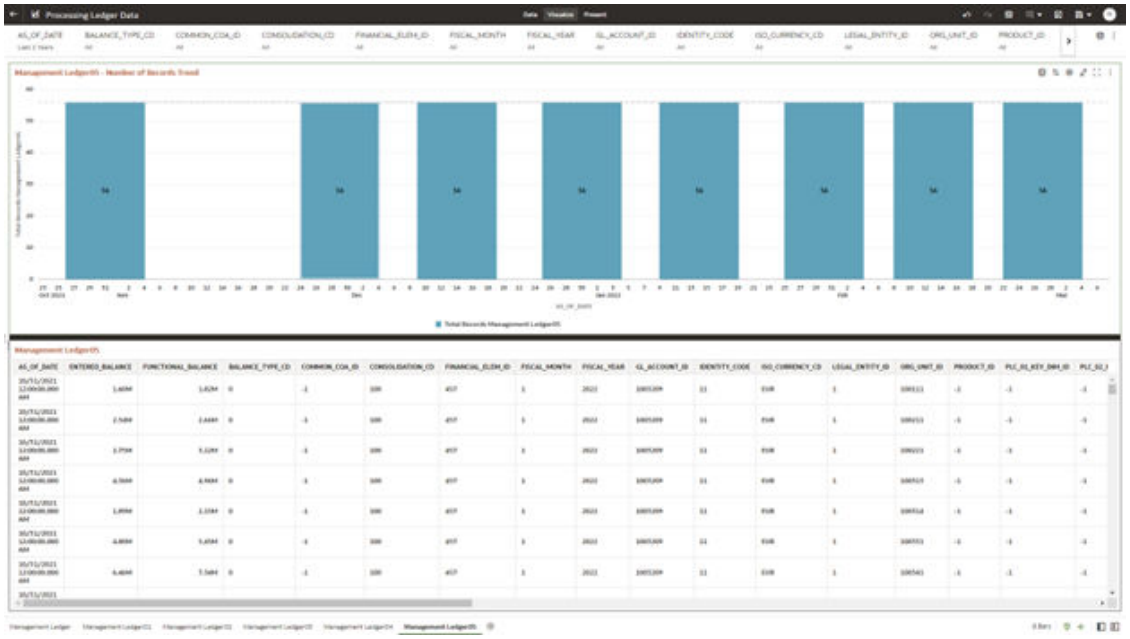
Figure 8-59 Processing Ledger Data – Management Ledger05



8.1.5.8 Processing Transaction Summary Data

You can use this report to perform the analysis on the Processing Area Tables related to Transaction Summary Data.

The report contains specifically the following Staging Database Objects:

Table 8-9 Staging Transaction Summary Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Processing Transaction Summary Data	Transaction Summary	FSI–Processing	FSI_D_ASSET_TXNS FSI_D_LIABILITY_TXNS FSI_D_FEE_BASED_SERVICE_TXNS FSI_D_OFF_BALANCE_SHEET_TXNS	Asset Transaction Summary Liability Transaction Summary Fee Based and Other Services Transaction Summary Off Balance Sheet Transaction Summary	Assets Transaction Summary Liabilities Transaction Summary Fee Based Services Transaction Summary Off Balance Sheet Transaction Summary

8.1.5.8.1 Asset Transaction Summary

The Asset Transaction Summary Report provides the analysis capability on the Assets Transaction Summary Table.

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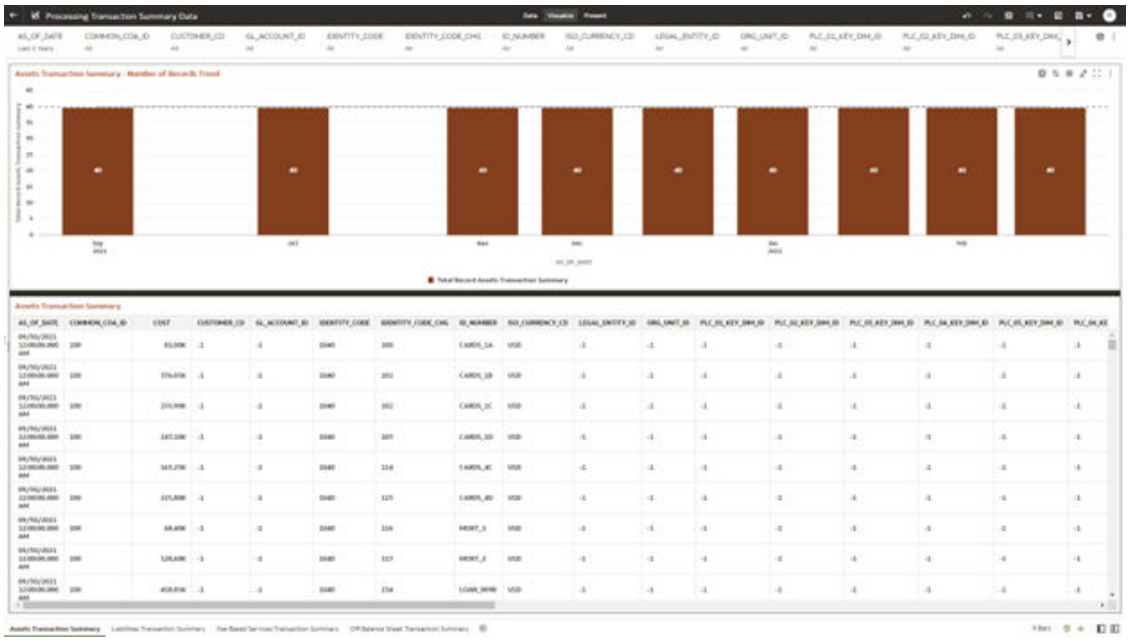
You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Assets Transaction Summary - Number of Records Trend
  Total Record Assets Transaction Summary aggregated by AS_OF_DATE.
- Assets Transaction Summary
  Granular table records at ID_NUMBER level.

Figure 8-60 Processing Transaction Summary Data - Asset Transaction Summary



8.1.5.8.2 Liabilities Transaction Summary

The Liabilities Transaction Summary Report provides the analysis capability on the Liability Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Liabilities Transaction Summary - Number of Records Trend
  Total Record Liability Transaction Summary aggregated by AS_OF_DATE.
- Liabilities Transaction Summary
  Granular table records at ID_NUMBER level.

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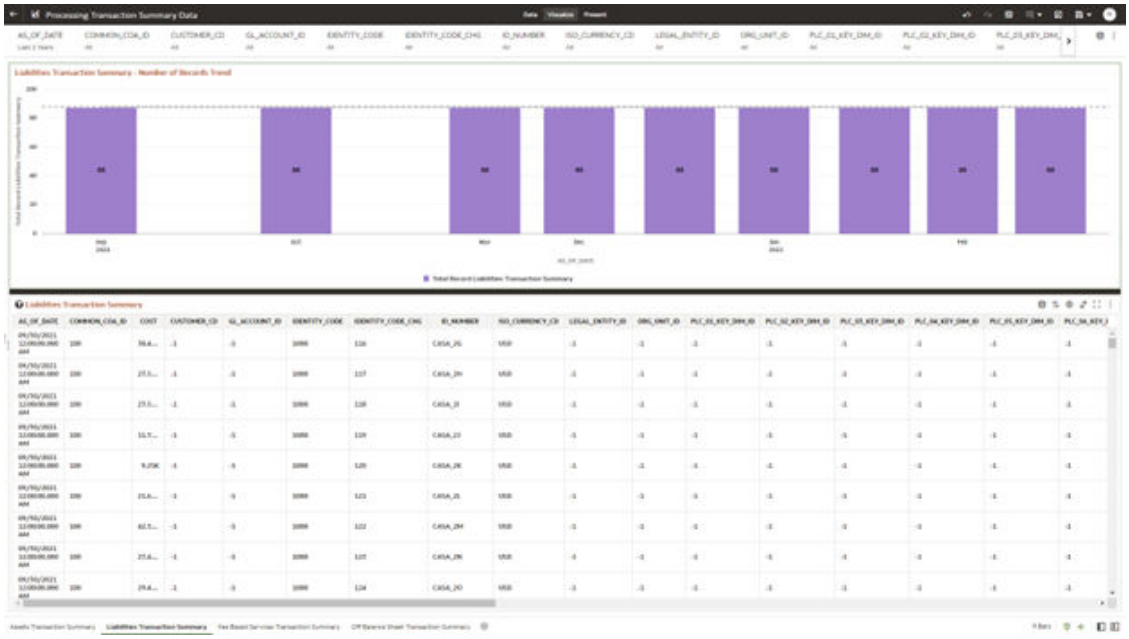
Figure 8-61 Processing Transaction Summary Data – Liabilities Transaction Summary



8.1.5.8.3 Fee Based Services Transaction Summary

The Fee Based Services Transaction Summary Report provides the analysis capability on the Fee Based and Other Services Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Fee Based Services Transaction Summary - Number of Records Trend
  Total Record Fee Based Services Transaction Summary aggregated by AS_OF_DATE.
- Fee Based Services Transaction Summary
  Granular table records at ID_NUMBER level.

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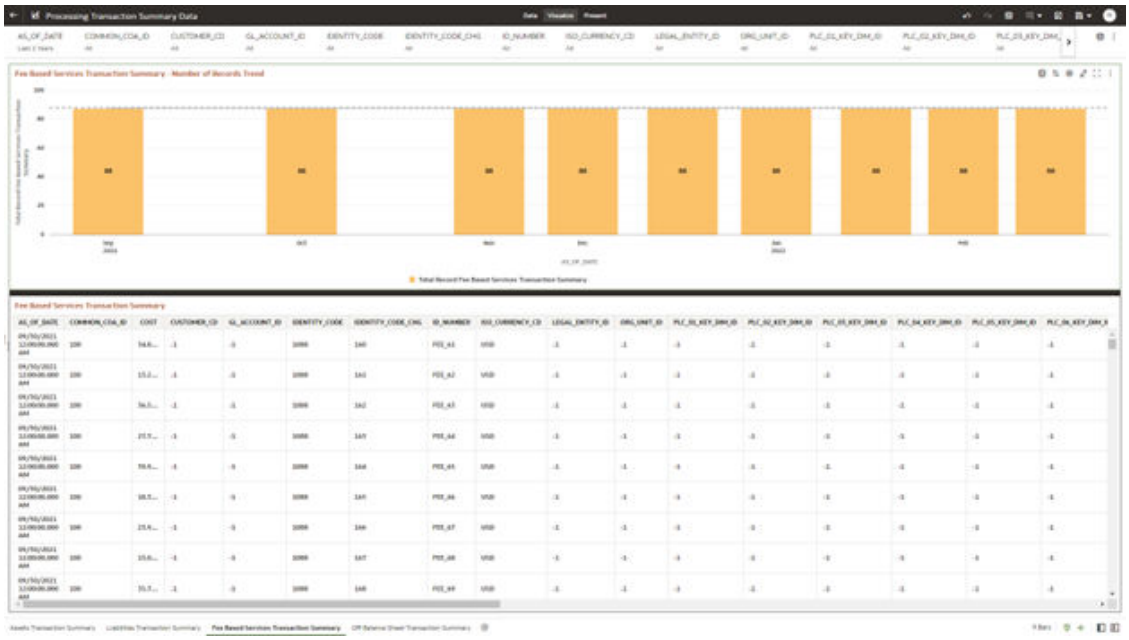
Figure 8-62 Processing Transaction Summary Data – Fee Based Services Transaction Summary



8.1.5.8.4 Off Balance Sheet Transaction Summary

The Off Balance Sheet Transaction Summary Report provides the analysis capability on the Off Balance Sheet Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Off Balance Sheet Transaction Summary - Number of Records Trend
  Total Record Off Balance Sheet Transaction Summary aggregated by AS_OF_DATE.
- Off Balance Sheet Transaction Summary
  Granular table records at ID_NUMBER level.

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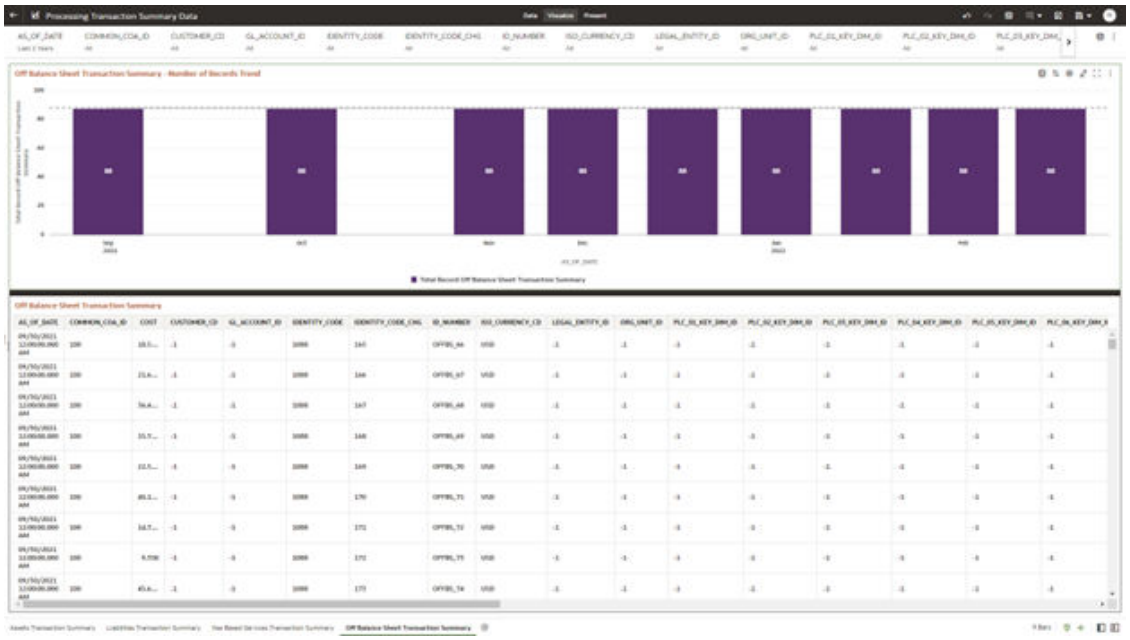
Figure 8-63 Processing Transaction Summary Data – Off Balance Sheet Transaction Summary



8.1.6 Operational Analysis

This topic covers the following reports:

- Dimensions Registry
- Currency Rates
- Interest Rate Curves
- Data Quality Checks
- File Uploads
- Groups and Roles

8.1.6.1 Dimensions Registry

To access the Dimensions Registry report, from the LHS menu, select **Operational Analysis**, and then select **Dimensions Registry**.

This is arranged as a set of reports catering to the analysis of the following categories:

- Financial Element
- Legal Entity
- Common COA
- GL Account
- Org Unit
- Product
- Industry

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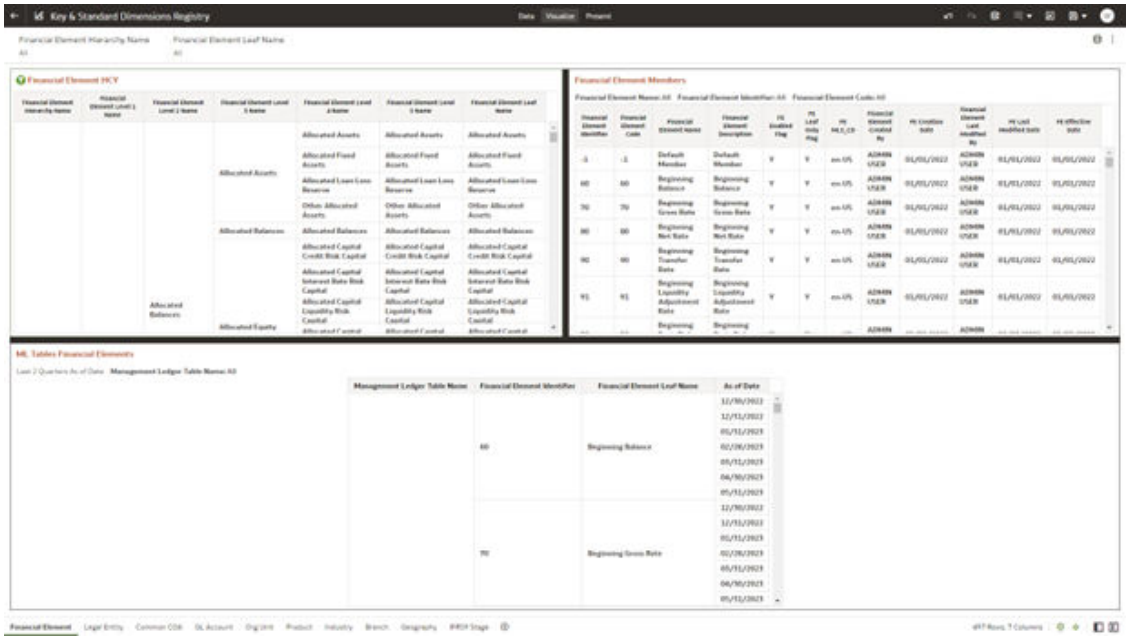
- Branch
- Geography
- IFRS9 Stage

8.1.6.1.1 Financial Element

Figure 8-64 Key & Standard Dimensions Registry



- **HCY Report**: Report displays the names of the hierarchy levels and dimensions from Level 1 to Level 5, as well as the names of the leaf nodes. More Levels can be added by the user as per user convenience.
- **Member Report**: Report displays the information regarding member names, Descriptions, and other member-related information. This Report will help the user in identifying the members of the dimension that are loaded in the application. Instrument Tables Report:- Report displays the Instrument table name and the corresponding Member ID and Member Name along with As of Date. Users can identify a particular dimension present in which instrument tables and the corresponding as-of-date.
- **Management Ledger Tables Report**: Report displays the ML table name and the corresponding Member ID and Member Name along with As of Date. Users can identify a particular dimension is present in which Management Ledger tables and the corresponding as-of-date.

Report Filters

The following Report Filters are available:

- **Financial Element Hierarchy Name**: Note that this is a mandatory filter for the group filtering on Financial Element Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Financial Element Hierarchy Name” must be selected with only a single value simultaneously.

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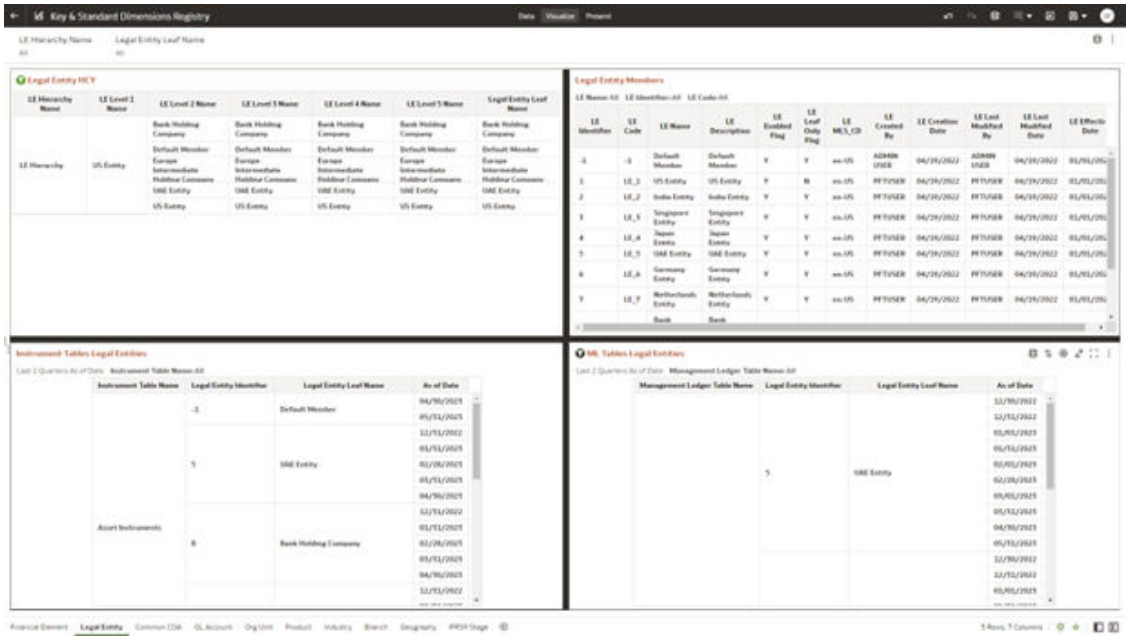
- **Financial Element Leaf Name**: You can use this filter to select the Financial Element Leaf Name that is related to the underlying Management Ledger data.

8.1.6.1.2 Legal Entity

The following Report Filters are available:

- **Legal Entity Hierarchy Name**: Note that this is a mandatory filter for the group filtering on Legal Entity Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “LE Hierarchy Name” must be selected with only a single value simultaneously.
- **Legal Entity Leaf Name**: You can use this filter to select the Legal Entity Leaf Name that is related to the underlying Management Ledger data.

Figure 8-65 Legal Entity-Key & Standard Dimensions Registry



8.1.6.1.3 Common COA

The following Report Filters are available:

- Common COA Hierarchy Name: N.B. This is a mandatory filter for the group filtering on Common COA Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Common COA Hierarchy Name” must be selected with only a single value simultaneously.
- Common COA Leaf Name: You can use this filter to select the Common COA Leaf Name that is related to the underlying management ledger data.

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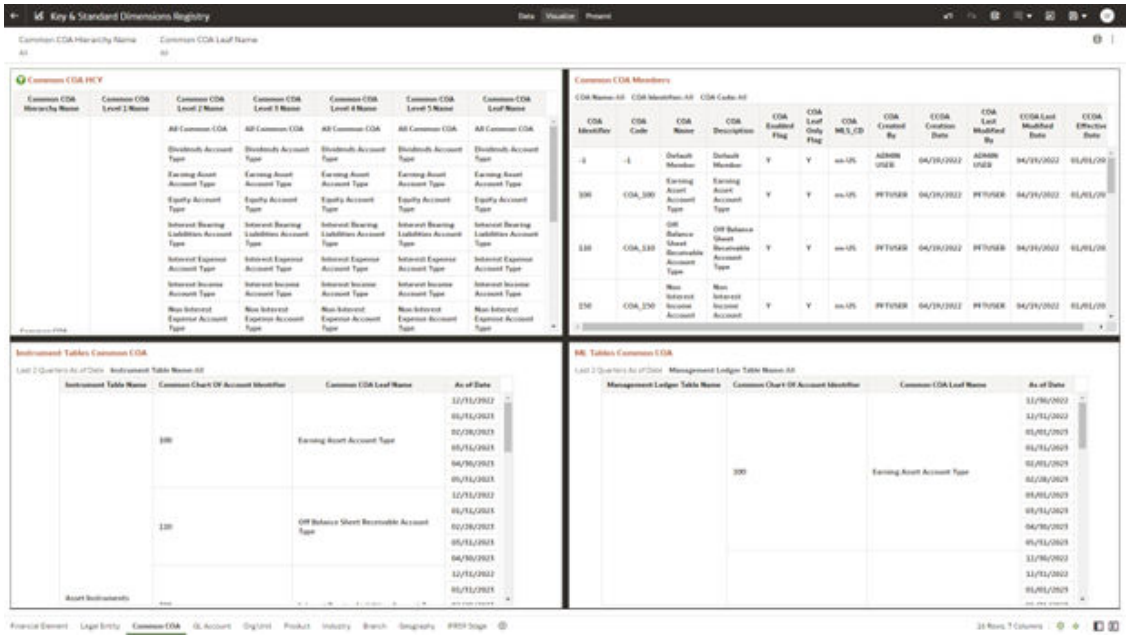
Figure 8-66 Common COA-Key and Standard Dimensions Registry



8.1.6.1.4 GL Account

The following Report Filters are available:

- **GL Account Hierarchy Name**: Note that this is a mandatory filter for the group filtering on GL Account Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “GL Account Hierarchy Name” must be selected with only a single value simultaneously.
- **GL Account Leaf Name**: You can use this filter to select the GL Account Leaf Name that is related to the underlying Management Ledger data.

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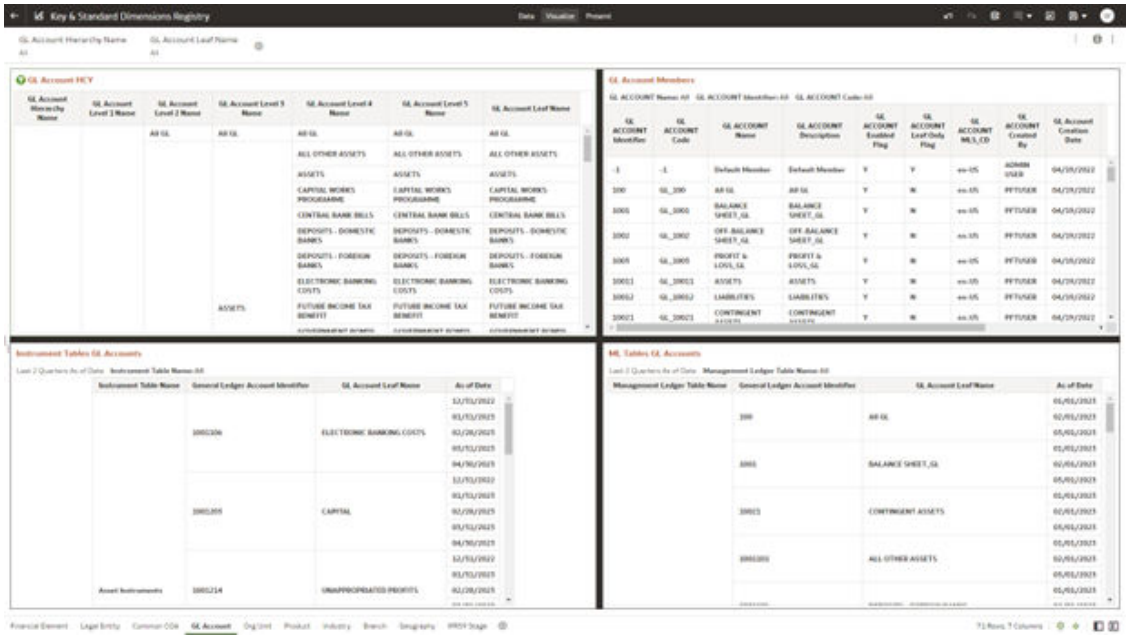
Figure 8-67 GL Account - Key and Standard Dimensions Registry



8.1.6.1.5 Org Unit

The following Report Filters are available:

- **Org Hierarchy Name**: Note that this is a mandatory filter for the group filtering on Org Unit Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Org Hierarchy Name” must be selected with only a single value simultaneously.
- **Org Unit Leaf Name**: You can use this filter to select the Org Unit Leaf Name that is related to the underlying Management Ledger data.

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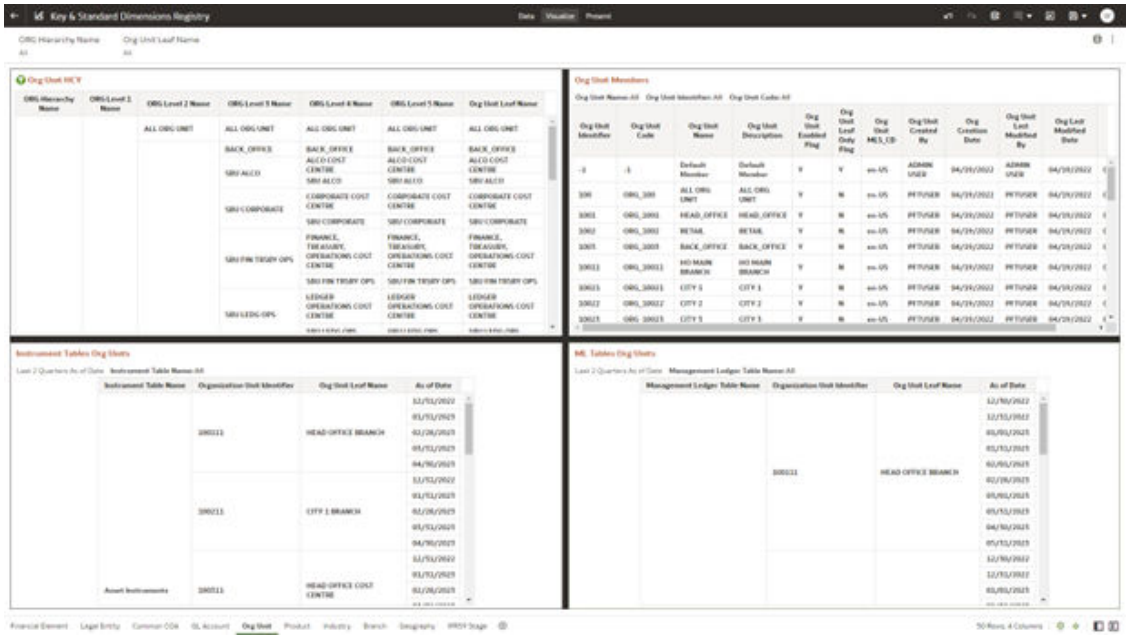
Figure 8-68 Org Unit - Key & Standard Dimensions Registry



8.1.6.1.6 Product

The following Report Filters are available:

- **Product Hierarchy Name**: Note that this is a mandatory filter for the group filtering on Product Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Prod Hierarchy Name” must be selected with only a single value simultaneously.
- **Product Leaf Name**: You can use this filter to select the Prod Leaf Name that is related to the underlying Management Ledger data.

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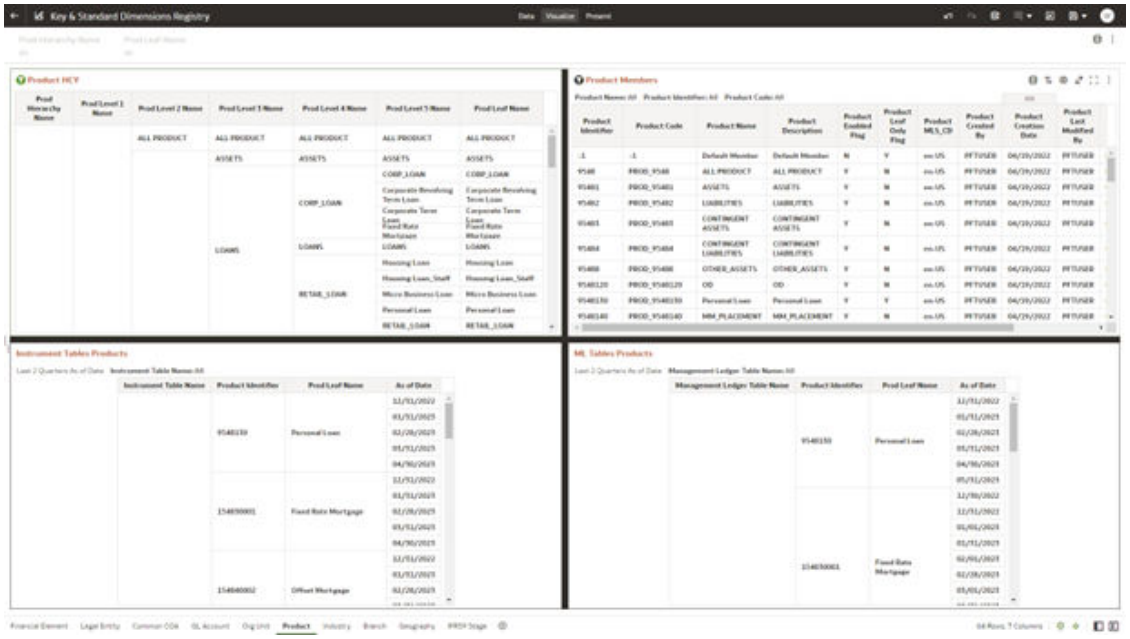
Figure 8-69 Product - Key & Standard Dimensions Registry



8.1.6.1.7 Industry

The following Report Filters are available:

- **Industry Hierarchy Name**: As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Industry Hierarchy Name” must be selected with only a single value simultaneously.
- **Industry Leaf Name**: You can use this filter to select the Industry Leaf Name that is related to the underlying Industry.

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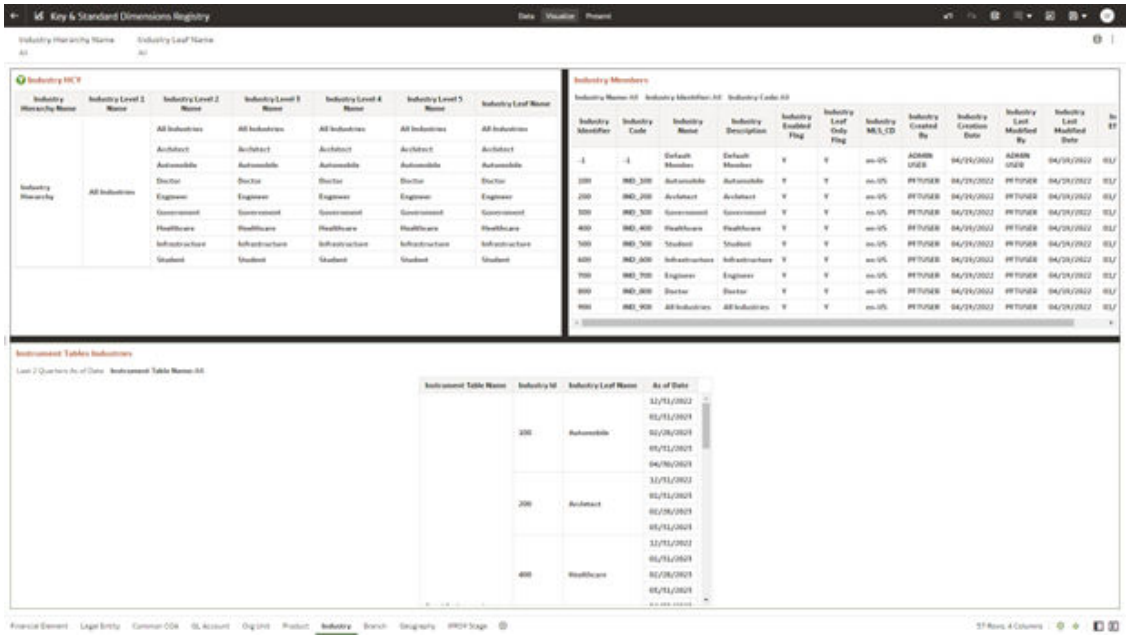
Figure 8-70 Industry - Key & Standard Dimensions Registry



8.1.6.1.8 Branch

The following Report Filters are available:

- **Branch Hierarchy Name**: As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Branch Hierarchy Name” must be selected with only a single value simultaneously.
- **Branch Leaf Name**: You can use this filter to select the Branch Leaf Name that is related to the underlying Branch.

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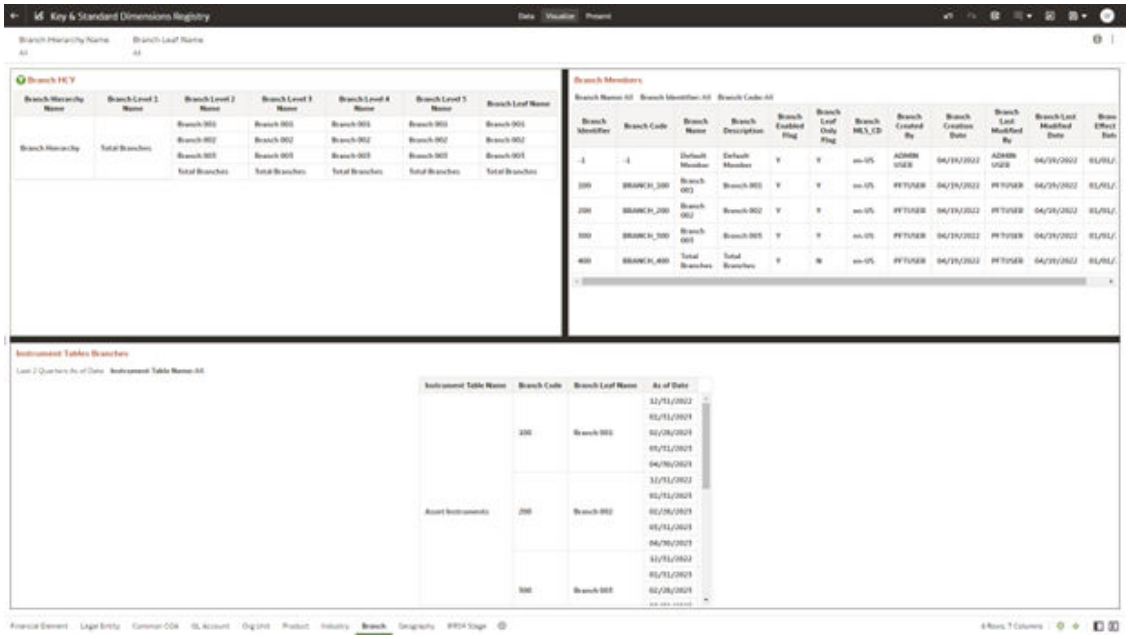
Figure 8-71 Branch - Key and Standard Dimensions Registry



8.1.6.1.9 Geography

The following Report Filters are available:

- **Geography Hierarchy Name**: This is a mandatory filter for the group filtering on the Geography Hierarchy.
  As the application supports the creation of multiple hierarchies for the same dimension of analysis, to avoid displaying results from multiple hierarchies at the same time, a mandatory driver to select "Geography Hierarchy Name" must be selected.
- **Geography Leaf Name**: You can use this filter to select the Geography Leaf Name that is related to the underlying Geography.

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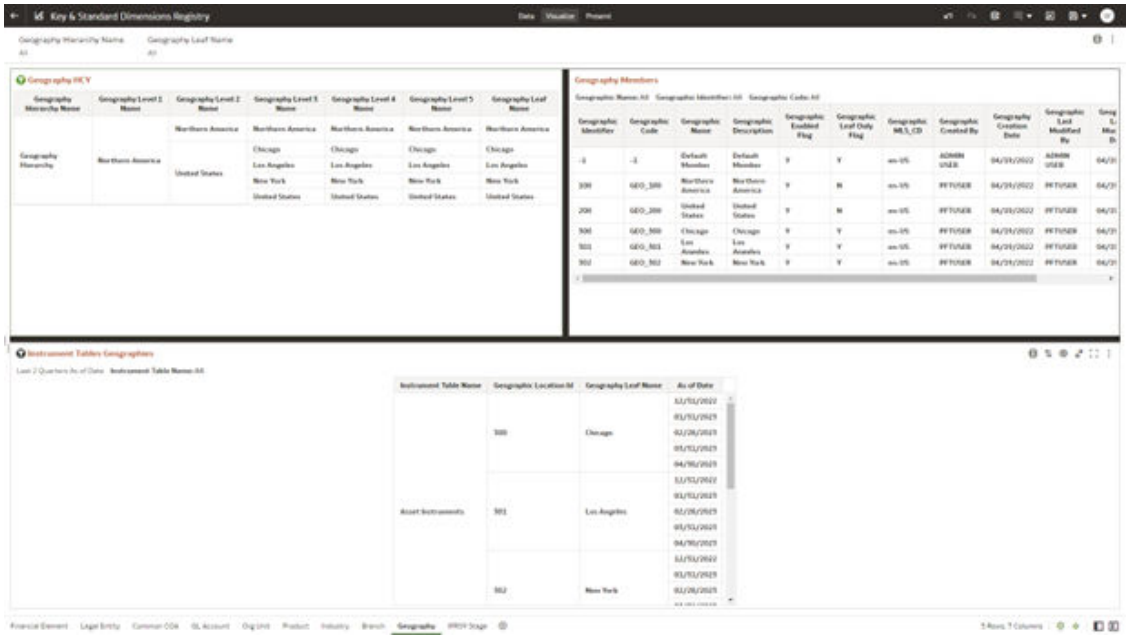
Figure 8-72 Geography - Key & Standard Dimensions Registry

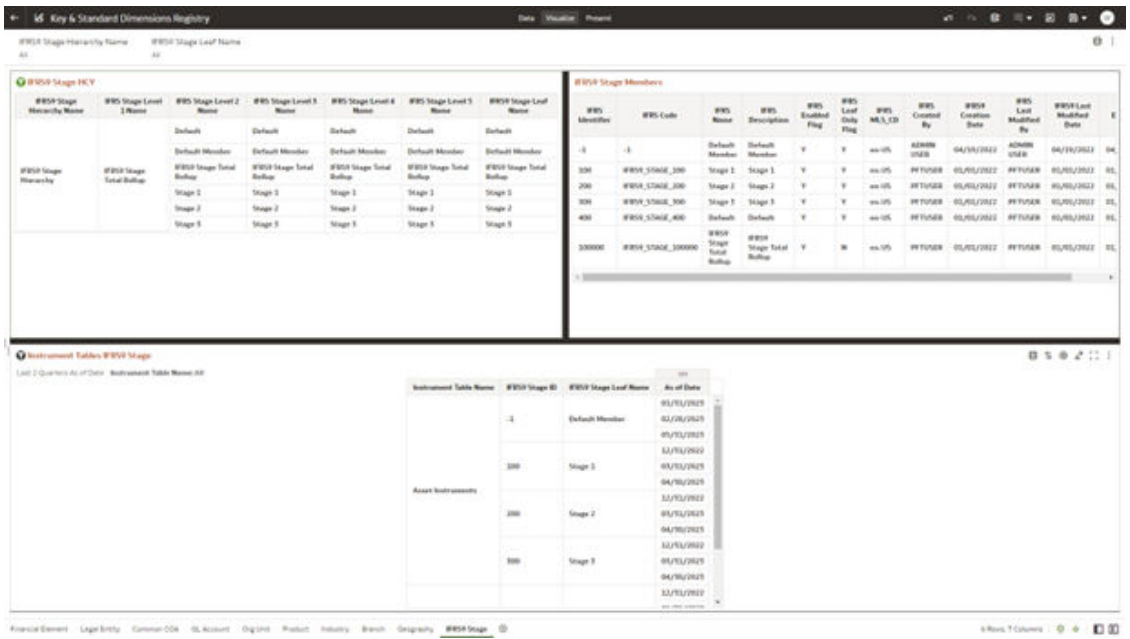


8.1.6.1.10 IFRS9 Stage

The following Report Filters are available:

- **IFRS9 Stage Hierarchy Name**: IFRS 9, financial assets are classified according to the business model for managing them and their characteristics. An individual or collective basis – in three stages under IFRS 9.
- **IFRS9 Stage Leaf Name**: You can use this filter to select the IFRS9 Stage Leaf Name that is related to the underlying IFRS9.

Figure 8-73 IFRS9 State - Key & Standard Dimensions Registry



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8.1.6.2 Currency Rates

To access the Currency Rates report, from the LHS menu, select **Operational Analysis**, and then select **Currency Rates**.

Reporting Currency Rates is the currency in which an entity's financial statements or other financial documents are reported. Choosing one currency for reporting makes it easier to understand the financial documents across the board.

This is arranged as a set of reports catering to the analysis of the following categories:

- Floating Segment Rate
- Fixed Exchange Rate
- Exchange Rate

8.1.6.2.1 Report Filters

The following Report Filters are available:

Figure 8-74 Report Filters

- **From Currency**: You can use this filter to select the Currency Code source corresponding to the hierarchy.
- **From Currency Name**: You can use this filter to select the Currency Name source corresponding to the hierarchy.
- **To Currency**: You can use this filter to select the Currency Code destination corresponding to the hierarchy.
- **To Currency Name**: You can use this filter to select the Currency Name destination corresponding to the hierarchy.
- **Effective Date**: You can use this filter to select a date is the specific date when an agreement outlined in the contract begins and end;
- **Rate Data Source Description**: You can use this filter to select the Rate Data Source Description could be Bloomberg, Calculation, etc
- **Rate Status Description**: You can use this filter to select Rate Data Source description could be valid, invalid, etc

8.1.6.2.2 Floating Segment Rate

In this canvas, the floating segment rate shows rises or falls with the rest of the market, along with a segment and conversion rate.

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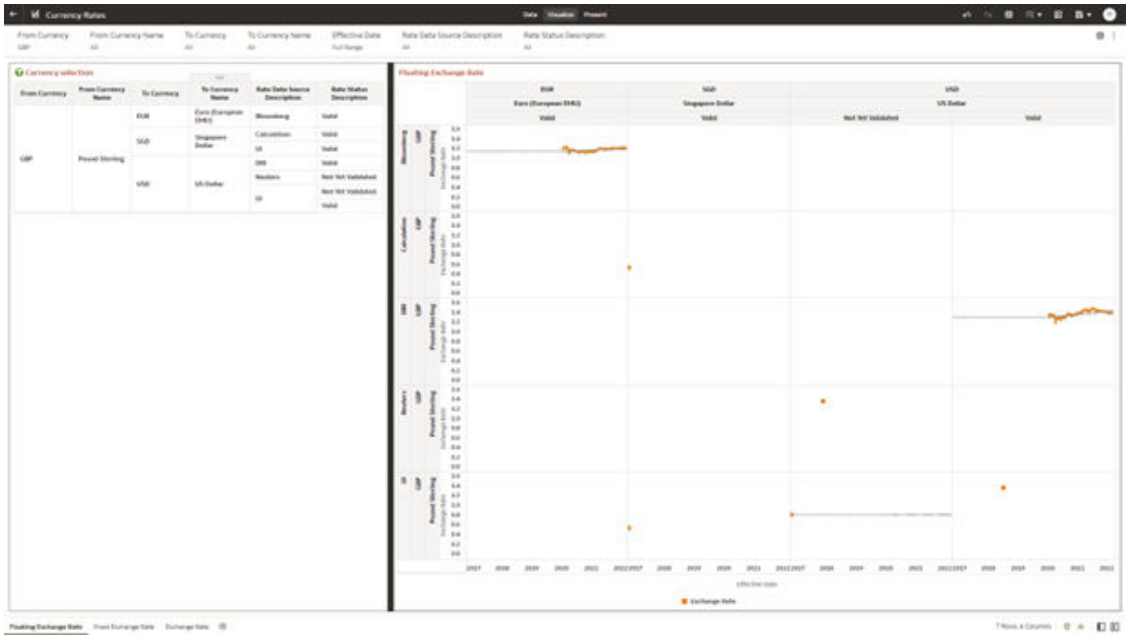
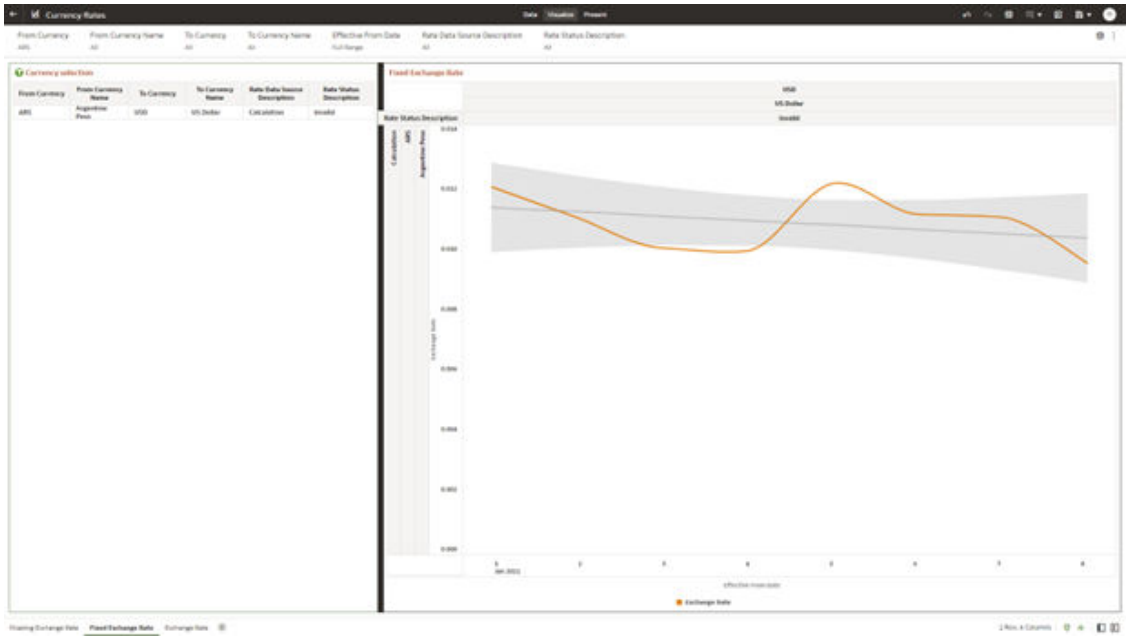
Figure 8-75 Floating Segment Rate



8.1.6.2.3 Fixed Exchange Rate

In this canvas, the fixed exchange rate shows rises or falls with the market.

Figure 8-76 Fixed Exchange Rate



8.1.6.2.4 Report Filters

The following Report Filters are available:

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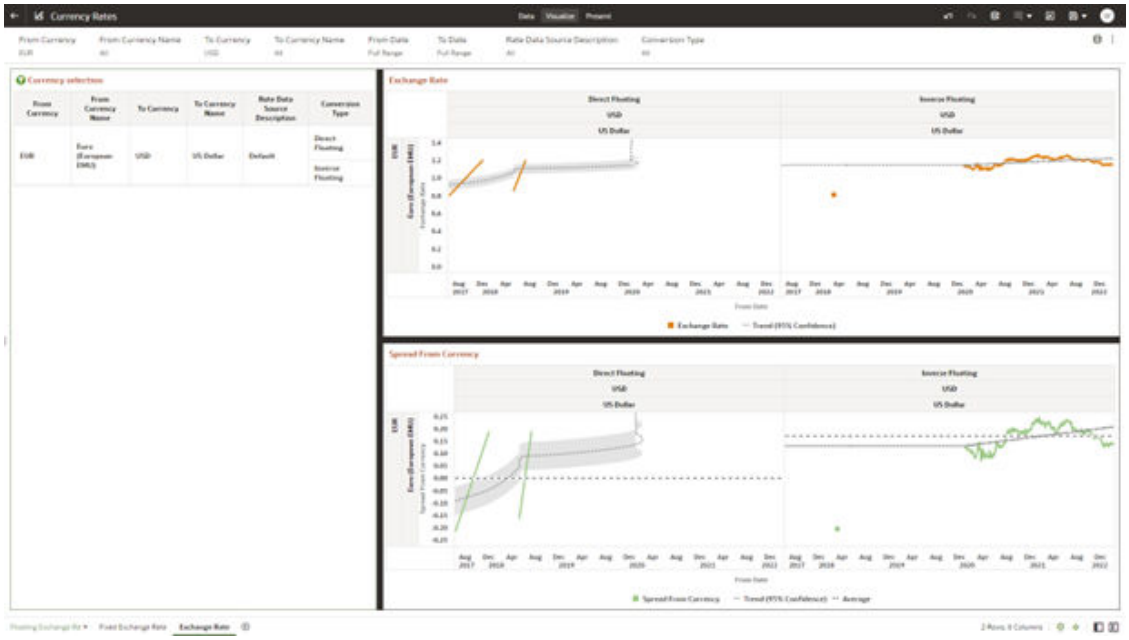
Figure 8-77 Exchange Rate Report Filters

- **From Currency**: You can use this filter to select the Currency Code source corresponding to the hierarchy.
- **From Currency Name**: You can use this filter to select the Currency Name source corresponding to the hierarchy.
- **To Currency**: You can use this filter to select the Currency Code destination corresponding to the hierarchy.
- **To Currency Name**: You can use this filter to select the Currency Name destination corresponding to the hierarchy.
- **From Date**: You can use this filter to select a date as the specific date source to begin.
- **To Date**: You can use this filter to select a date is the specific date destination to end.
- **Rate Data Source Description**: You can use this filter to select the Rate Data Source Description could be Bloomberg, Calculation, etc.
- **Conversion Type**: You can use this filter to select a Conversion Type as Direct Floating, Inverse Fixed, Inverse Floating, or Non-triangulated.

8.1.6.2.5 Exchange Rate

In this canvas, the Exchange rate shows Currency and spread of them.

Figure 8-78 Exchange Rate Canvas



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8.1.6.3 Interest Rate Curves

Interest rate curves are fundamental to Treasury applications. In the context of Funds Transfer Pricing, interest rate curves are referred by all calculations.

The summary screen for interest rate curves displays all the existing interest rate curves with additional details.

Figure 8-79 Interest Rate Curves Summary screen

Report Common Filters

You can use a series of Report Prompts to filter the Data according to Functional Key Attributes as follows:

- **Effective Date (Day)**: You can use this filter to select a specific Day for the underlying Time Dimension.
- **Tenor (Day)**: You can use this filter to select a Maturity Date for the underlying Time Dimension.
- **Currency**: You can use this filter to select a specific Currency to be applied to the underlying dataset.
- **IRC**: You can use the filter Interest Rates Curves to be applied to the underlying dataset.
- **IRC Structure Type**: You can use the filter Interest Rates Curves Structure Type to be applied to the underlying dataset.
- **IRC Format**: You can use the filter Interest Rates Curves Format to be applied to the underlying dataset.
- **Compound Basis**: Indicates the compounding frequency used to calculate interest income.
- **Accrual Basis**: The basis on which the interest accrual is calculated.

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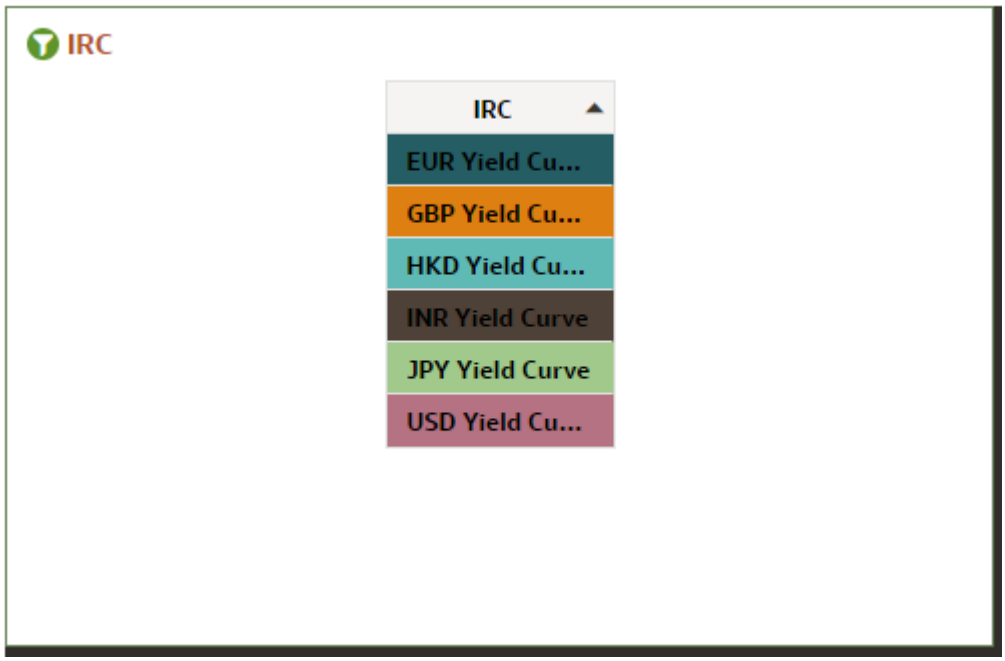
- **Interest Rate Term**: You can use the filter Interest Rates Curves Term to be applied on the dataset filter based on the number of days, months, and/or years.
- **Interest Rate Term Multiplier**: You can use the filter Interest Rates Curves Term Multiplier to be applied to as D (Day), M (Month) and Y (Year).

IRC

The initial report will present a comprehensive list of available IRCs (Individual Report Categories). Users can select one or more IRCs based on their specific reporting needs.

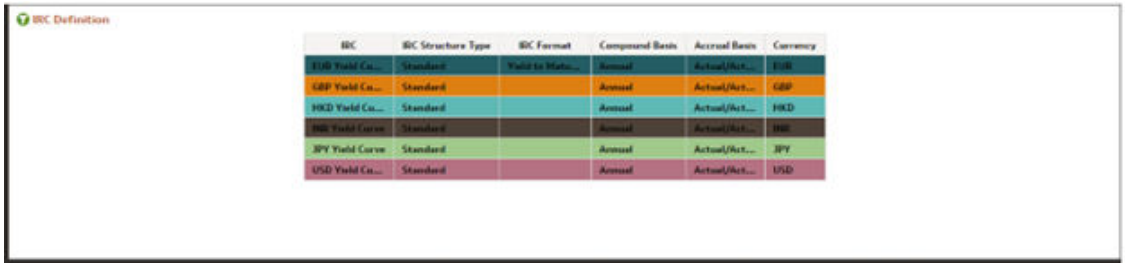
Figure 8-80 IRC Canvas



IRC Definition

The IRC Definition Report showcases essential information such as IRC, IRC structure type, format, compound basis, accrual basis, and currency. This report is also a versatile tool for data filtration to meet specific needs.

Figure 8-81 IRC Definition Canvas



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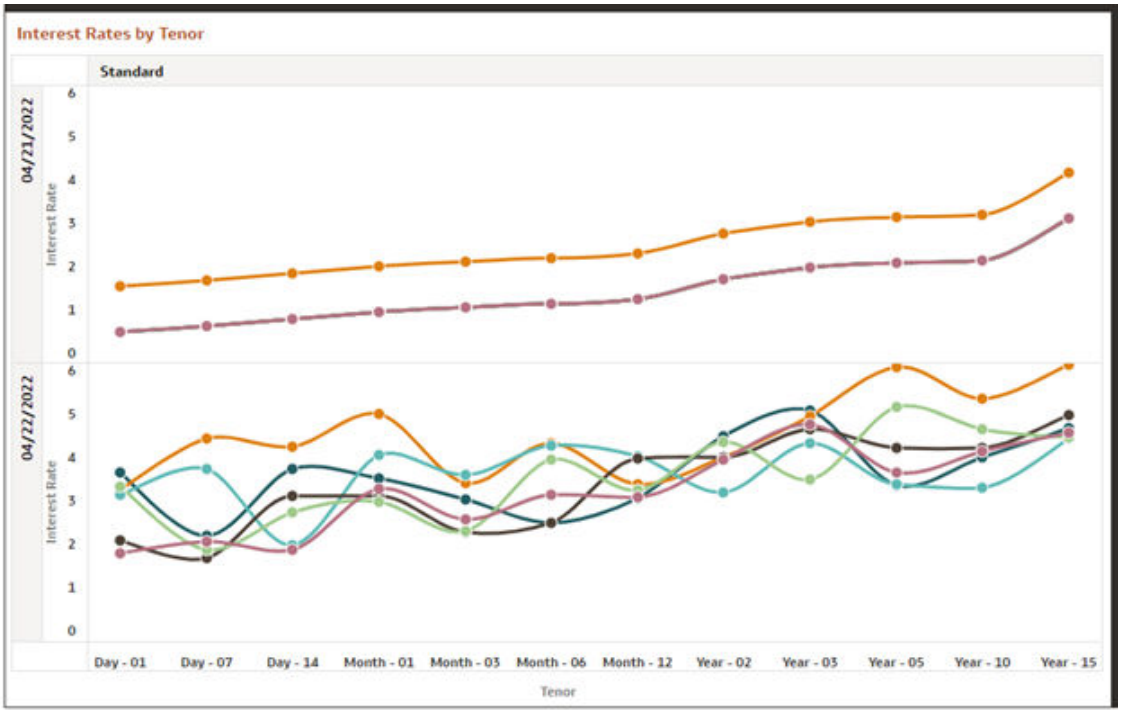
Interest Rates by Tenor

The "Interest Rates by Tenor Report" organizes interest rates based on their effective date and tenor.

Figure 8-82 Canvas IRC by Effective date



The "Interest Rates by Tenor Report" categorizes interest rates based on IRCs according to their respective tenors.

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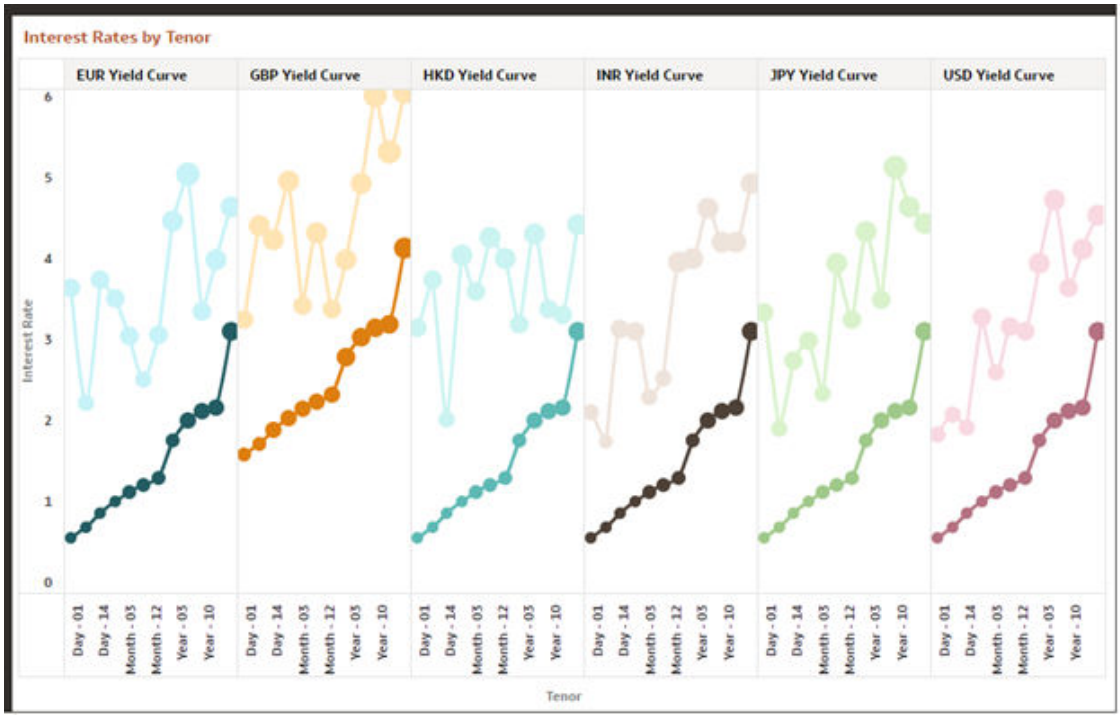
Figure 8-83 Canvas IRC by Period and Currency



8.1.6.4 Data Quality Checks

To access the Data Quality Checks report, from the LHS menu, select **Operational Analysis**, and then select **Data Quality Checks**.

Data Quality Check Reports are divided into four canvases.

- DQ Check Platform Availability
- DQ Batch Executions
- DQ Results
- DQ Detail Results

DQ Check Platform Availability

You can use the following filters:

- **DQ Rule Name**: Rules created in the Application
- **Base Table**: Base tables used in the rules
- **Severity Values**: Error, Warning, Info

Total Checks: Number of Checks created in the OFSAA Application.

Number of Total available checks for each Staging table: Gives the information regarding number of checks based on the various staging tables.

The following reports gives the information regarding the number of various checks created.

- **Range Checks**: Total number of Range checks defined in the system.
- **Data Length Checks**: Total number of Data Length checks defined in the system.

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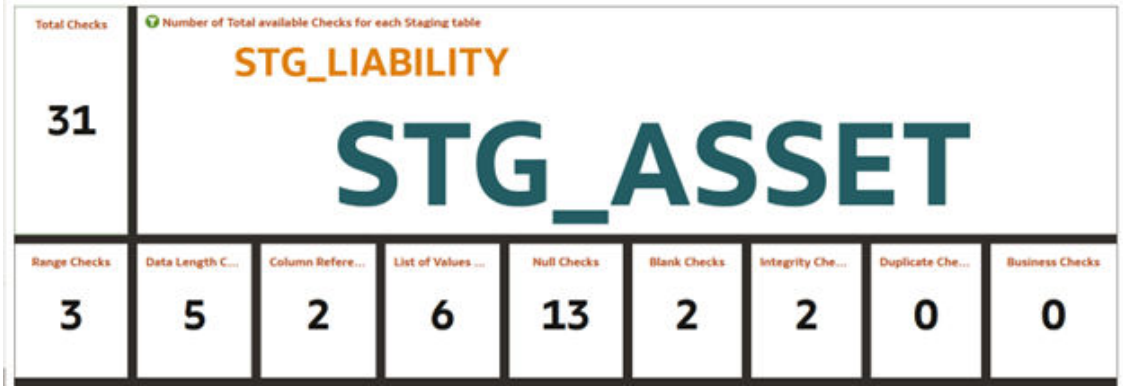
- **Column Reference Checks**: Total number of Column Reference checks defined in the system.
- **List of Values Checks**: Total number of List of values check defined in the system.
- **Null Checks**: Total number of Null checks defined in the system.
- **Blank Checks**: Total number of Blank checks defined in the system.
- **Integrity Checks**: Total number of Integrity checks defined in the system.
- **Duplicate Checks**: Total number of Duplicate checks defined in the system.
- **Business Checks**: Total number of Business checks defined in the system.

Figure 8-84 Number of Total available Checks for each Staging table



Data Quality Checks Distribution gives the distribution of checks based on the base tables.

Detail of Available quality checks in the platform gives the percentage distribution according to severity category defined on different Staging tables.

Figure 8-85 Detail Quality Checks Distribution and Detail of Available Quality Checks in the Platform

DQ Batch Executions Canvas

This canvas gives the information regarding the Batches executed on Data Quality Checks.

You can use the following filters:

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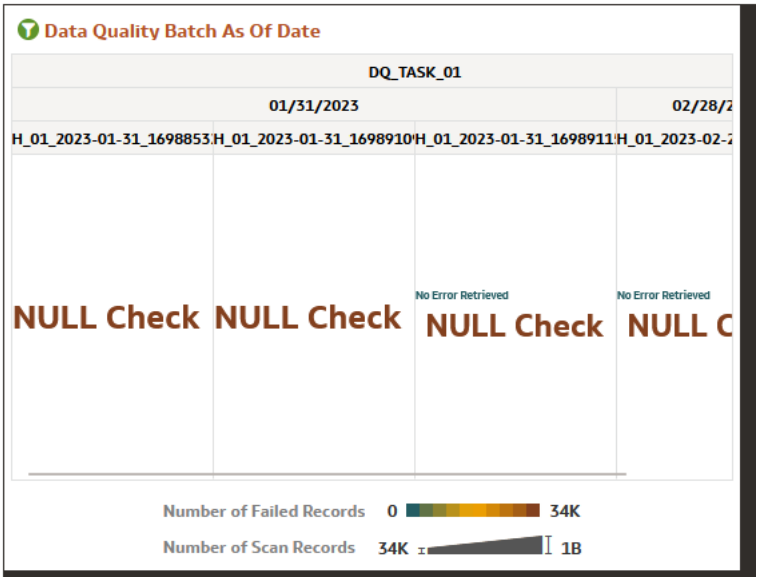
- **Batch Identifier**: Batches executed in the system.
- **Process Identifier**: Process Name for the executed batch in the system.
- **Fic Mis Date**: Batch execution date.
- **DQ Group Identifier**: Data Quality Groups created in the system.
- **DQ Group Description**: Description of Data Quality Groups.
- **DQ Check Identifier**: Data Quality checks created in the system.
- **DQ Check Description**: Description of Data Quality checks.
- **DQ Source Table**: Base table on which Data Quality check is created.
- **DQ Category Name**: Data Quality check category.

Data Quality Batch As Of Date: This report provides details on the executed checks, including the date of execution, Batch name, and the count of scanned records and failed records against each defined check and corresponding to Data Quality Category name.

Figure 8-86 Data Quality Batch As Of Date



Results of Data Quality Batches by Severity and Category: This report provides details on the quantity of failed records across various batches, including the execution date and batch name according to Data Quality Category Name.

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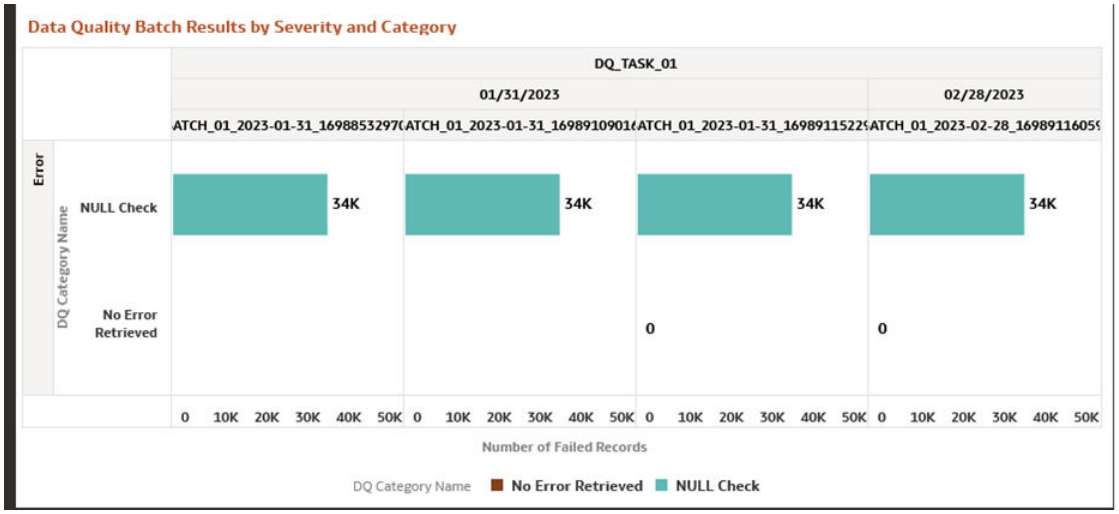
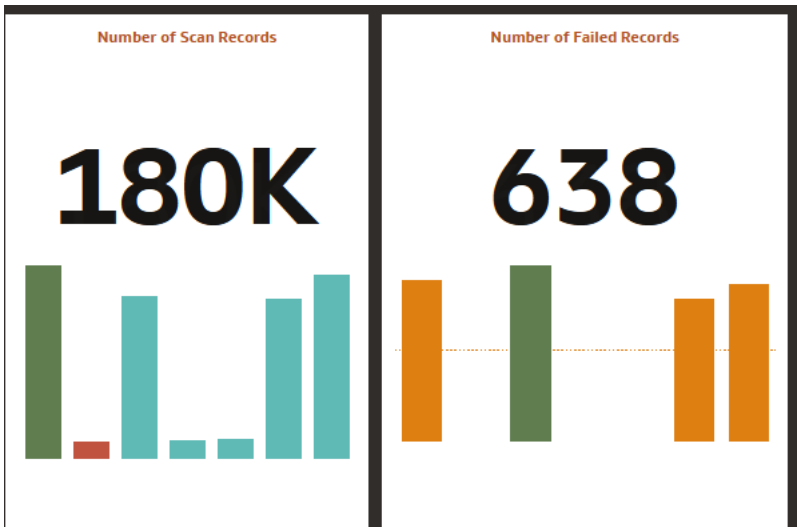
Figure 8-87 Data Quality Batch Results by Severity and Category



These tile reports display information about total number of scanned records and total number of failed records according to the last available Data Quality batch execution.

Figure 8-88 Number of Scan Records and Number of Failed Records



Results of Data Quality Batches for Scanned and Failed Records: This report presents a bar chart illustrating the total number of scanned records and total number of failed records, categorized by batch name and execution date.

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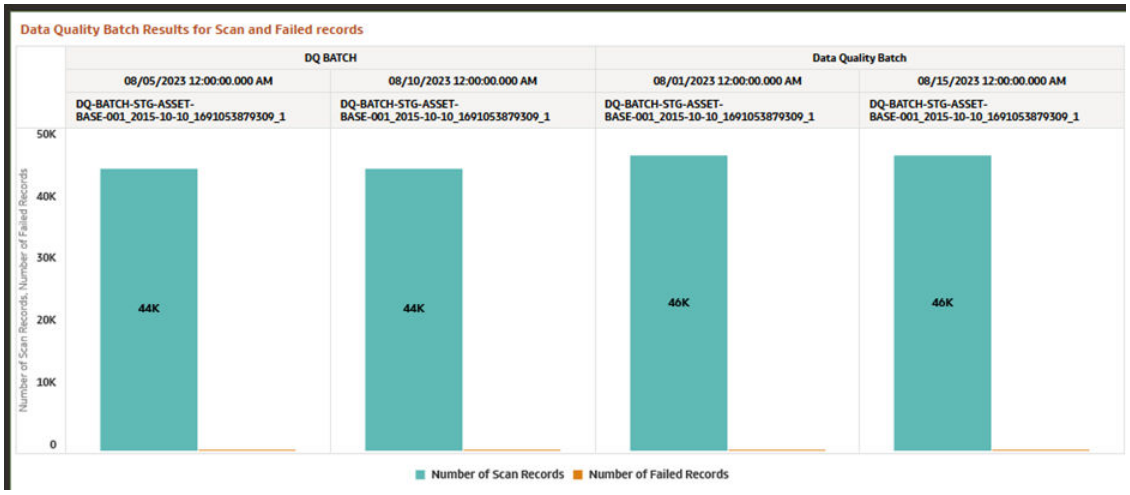
Figure 8-89 Data Quality Batch Results for Scan and Failed Records



DQ Results

You can use the following filters:

- **Batch Identifier**: Batches executed in the system.
- **Process Identifier**: Process Name for the executed batch in the system.
- **Fic Mis Date**: Batch execution date.
- **DQ Group Identifier**: Data Quality Groups created in the system.
- **DQ Group Description**: Description of Data Quality Groups.
- **DQ Check Identifier**: Data Quality checks created in the system.
- **DQ Check Description**: Description of Data Quality checks.
- **DQ Source Table**: Base table on which Data Quality check is created.
- **DQ Category Name**: Data Quality check category.

Number of Records Failed by Data Quality Category Check: This report showcases the number of failed records for each Data quality check by batch names and execution dates according to Data Quality Category Name.

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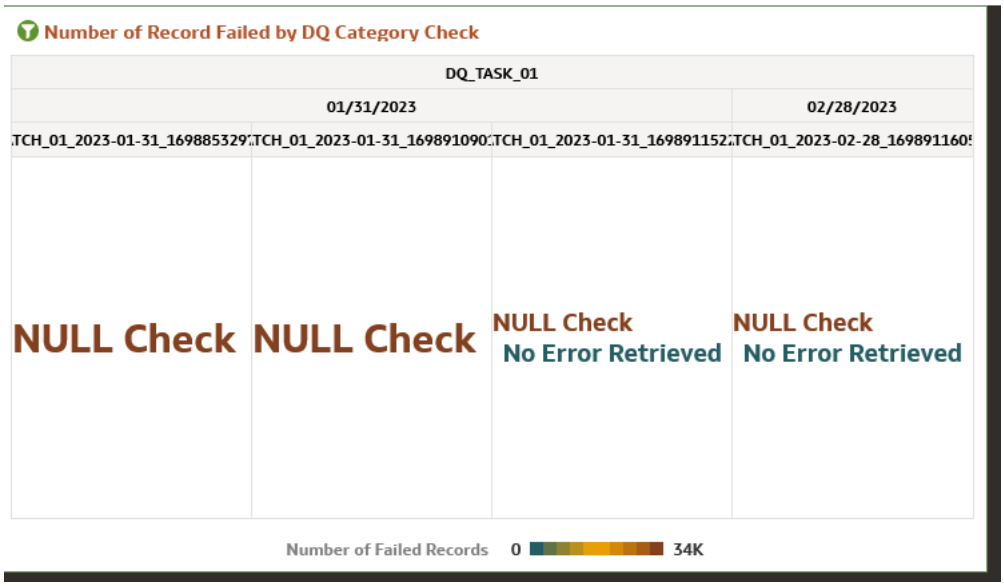
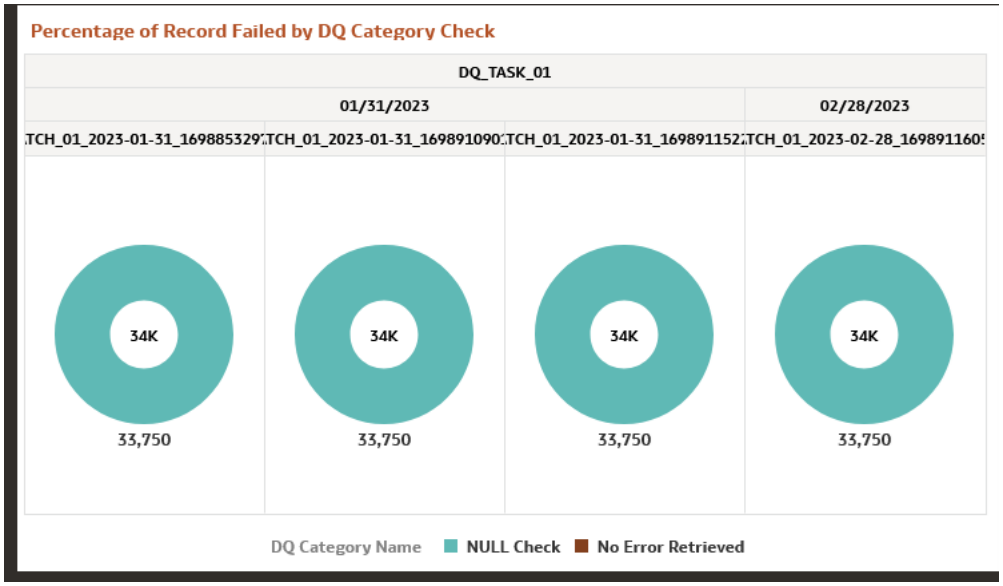
Figure 8-90 Number of Record Failed by DQ Category Check



Percentage of Record Failed by DQ Category Check: This report gives the information regarding Percentage distribution and total number of checks by batch names and execution dates displayed by Data Quality Category Name.

Figure 8-91 Percentage of Record Failed by DQ Category Check



Number of Records Failed by DQ Error Value: This report shows the information regarding number of errors along with the Data Quality Check Description separated by batch names and execution dates.

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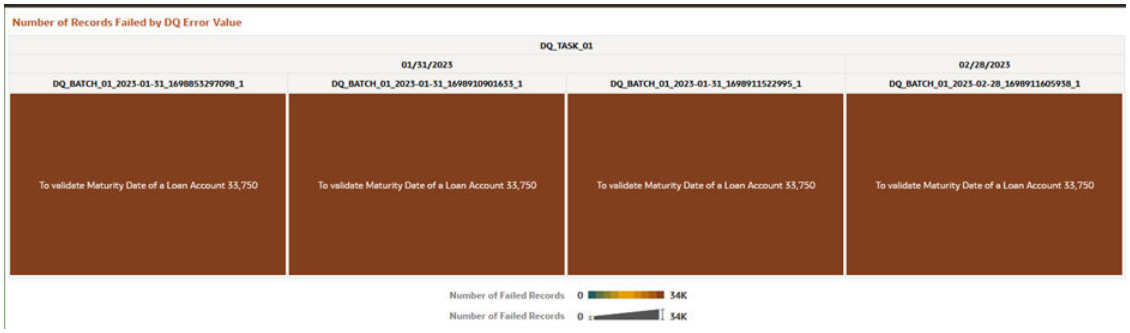
Figure 8-92 Number of Records Failed by DQ Error Value



DQ Detail Results

This canvas gives the detailed information regarding the Data Quality Batch information.

Figure 8-93 DQ Detail Results

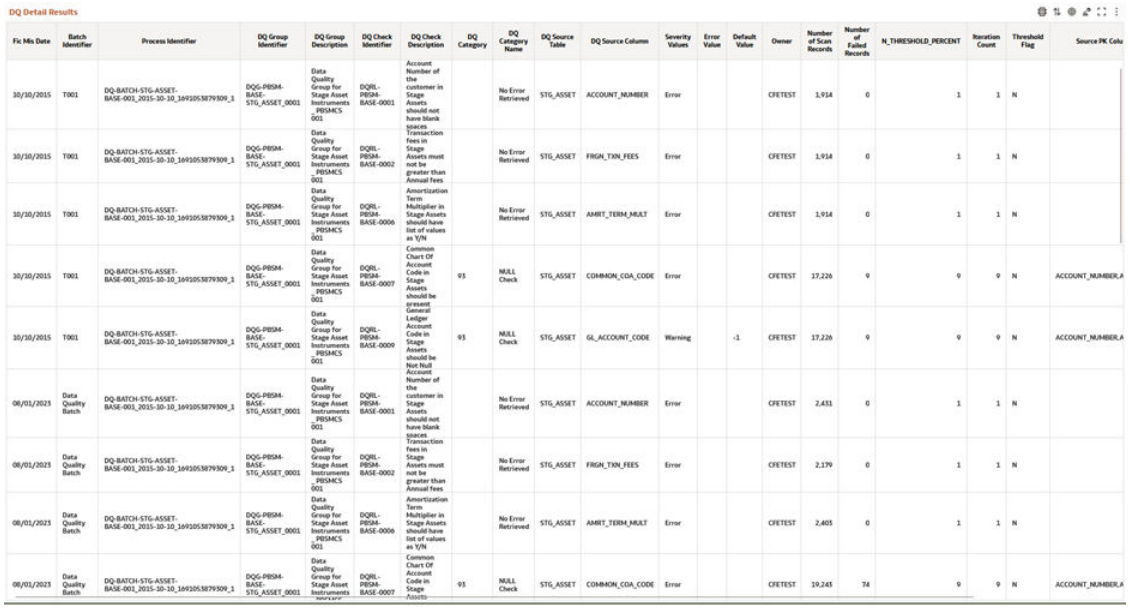
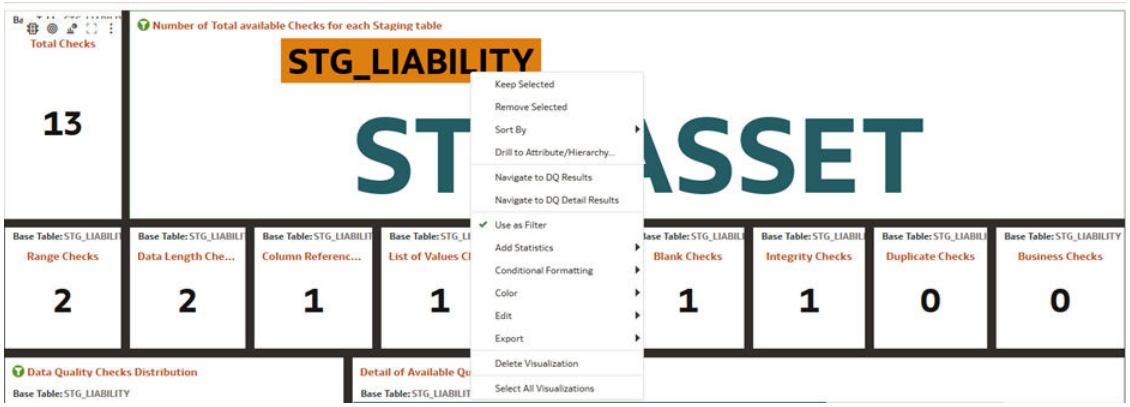


Figure 8-94 Data Action



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Data Action: A Data Action link can pass context values as parameters to other canvas. In Data Quality Reports we have two data actions namely DQ Results and DQ details results.

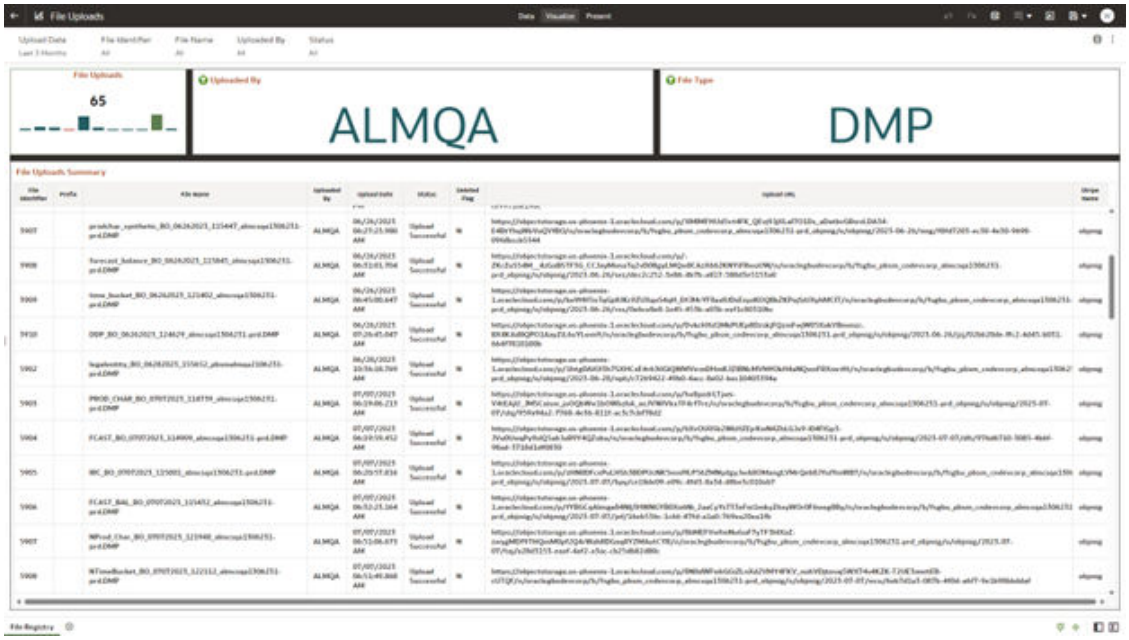
DQ Results: When user right clicks on any element and navigates to DQ Result, the selected object will get passed as a filter and pass this filter in DQ results Canvas.

DQ Result Details: When user right clicks on any element and navigates to DQ Result Details, the selected object will get passed as a filter and pass this filter in DQ Results Details Canvas.

8.1.6.5 File Uploads

To access the File Uploads report, from the LHS menu, select **Operational Analysis**, and then select **File Uploads**.

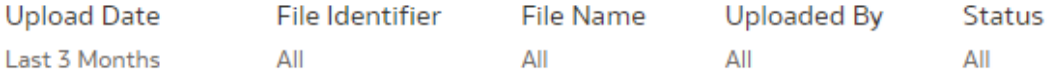
Figure 8-95 File Upload Report



Report Common Filters

You can use a series of canvas level pinned Prompts to filter the data according to Functional Key Attributes as follows:

Figure 8-96 Canvas Prompt Filters



The following filters are available:

- **Update Date**: Use this filter to select the Update Date. The selection default is Last 3 Months.

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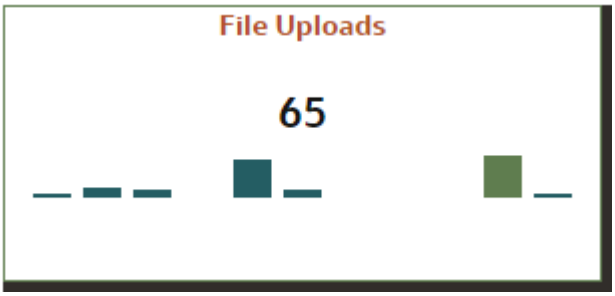
- **File Identifier**: Use this filter to select a specific File Identifier.
- **File Name**: Use this filter to select a specific File Name.
- **Upload By**: Use this filter to select Upload By.

Canvas File Uploads

This chart shows the total number of files uploaded based on a reporting period.

Figure 8-97 Canvas File Uploads



Canvas Uploads by

This filter enables you to view the details of the users who have uploaded the files via the UI or batch process.

Figure 8-98 Canvas Uploads by

Canvas File Type

This filter the data by the file type. In this case, it's DMP, but it can be CSV, TXT, or other formats supported by the UI.

Figure 8-99 Canvas File Type

Canvas Summary

This table gives a clear view of detailed file upload information, that is displayed based on the search filters. Here, you can see the file identifier, prefix, File Name, the user who uploaded the file, Upload Data, status, Deleted Flag – which identifies if the file has been deleted, and the Upload URL.

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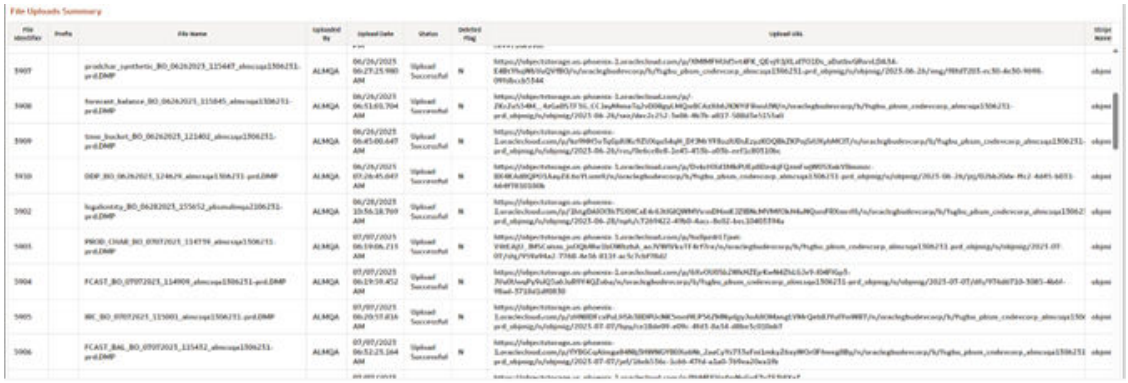
Figure 8-100 Canvas Summary



8.1.6.6 Groups and Roles

To open the Group and Users Report, from the LHS menu, select **Operational Analysis**, and then select **Groups and Roles**.

The Groups and Roles Report Reporting reports section is arranged as a set of canvases, classified into the following:

- Master Registry for Groups - Roles - Functions
- User to Groups Mapping
- Group to Roles Mapping
- Roles to Functions Mapping

Report Common Filters

You can use a series of canvas-level pinned Prompts to filter the data according to Functional Key Attributes as follows:

Figure 8-101 Canvas Prompt Filters for Users, Groups and Roles

The following filters are available:

- **User ID**: To select/search for a specific user ID.
- **Group Code**: To select/search for a specific group code.
- **Group Name**: To select/search for a specific group name.
- **Role Name**: To select/search for a specific role name.
- **Role Code**: To select/search for a specific role code.
- **Function Code**: To select/search for a specific function code.
- **Function Name**: To select/search for a specific function name.

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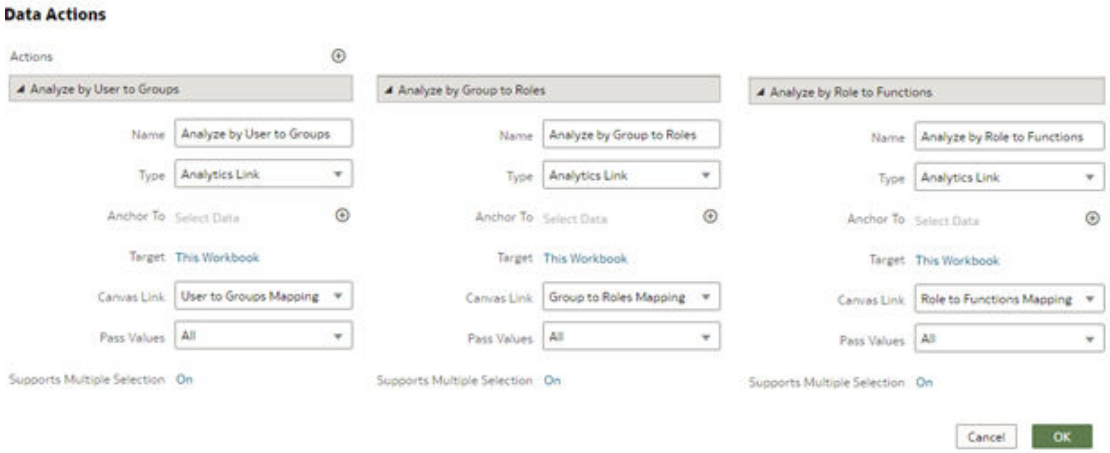
Report Data Action

The reports provide the capability to analyze data across canvases via a Data Action. The following are the Data Action Configuration details:

Figure 8-102 Data Action Configuration



You can analyze by User to Groups, Group to Roles, or Role to Functions.

Report Master Registry For Groups, Rules, Functions

The Master Registry for Groups-Roles-Functions, displays users mapped from the IAM into PBSMCS applications based on the user ID, user group, and related roles and functions, which are assigned to off the shelf groups.

Note that, IAM enables you to set up and manage users and groups, and assigns users to different user groups. You can also use the interactive charts available in the report to analyze the groups, roles, and functions for a given user.

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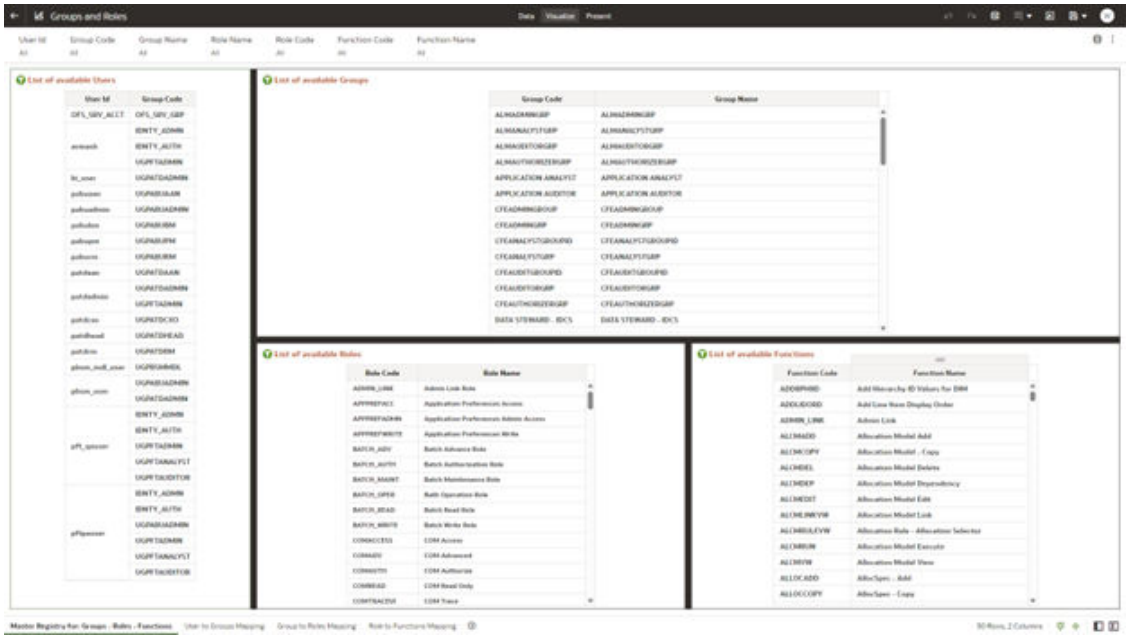
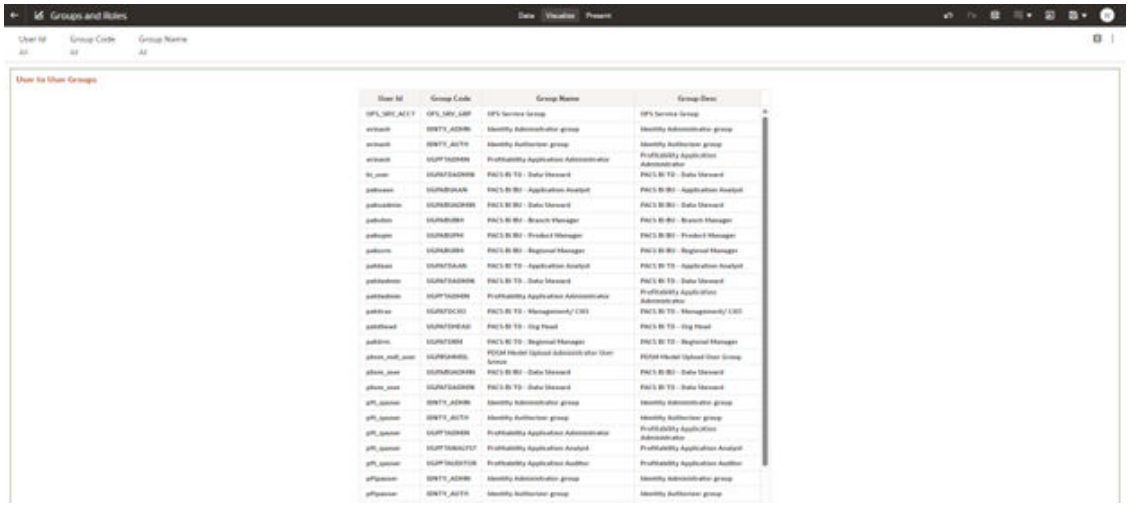
Figure 8-103 Groups and Roles



User Group Mapping

In this canvas, you can view the User ID, Group Code, Group Name, and the Group Description. By using the User ID filter at top to search for a particular user, you can see the corresponding group name and description for the selected user.

Figure 8-104 User Group Mapping



Group to Rules Mapping

In this canvas, you can filter using User ID, Group Code, Group Name, Role Code, and Role Name. For example, you can filter using a particular role name to view the groups assigned to that role.

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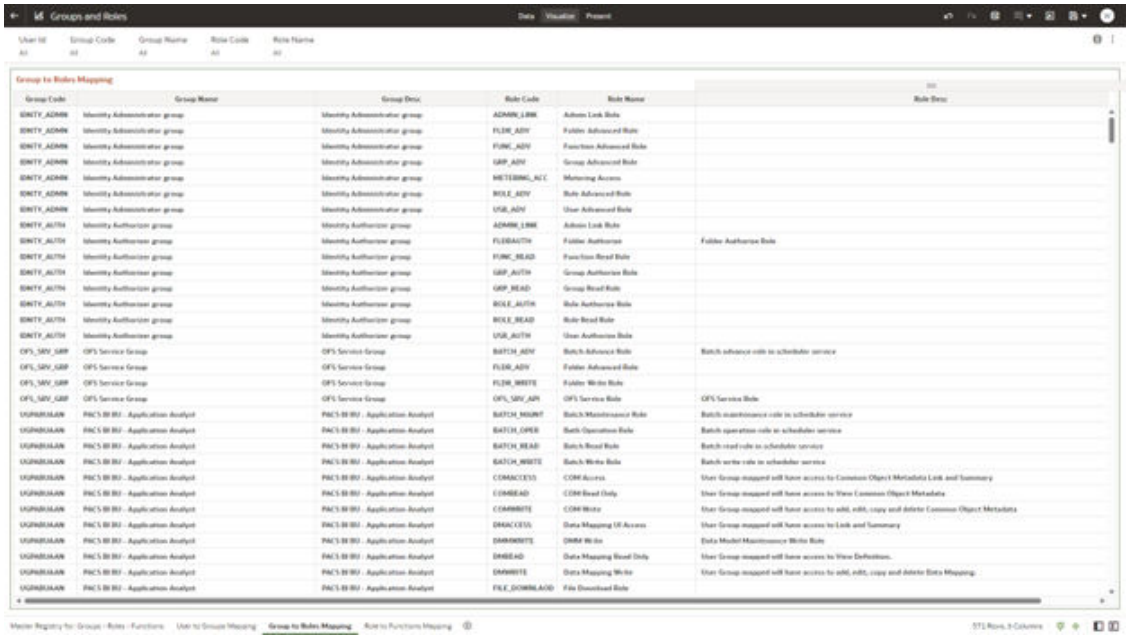
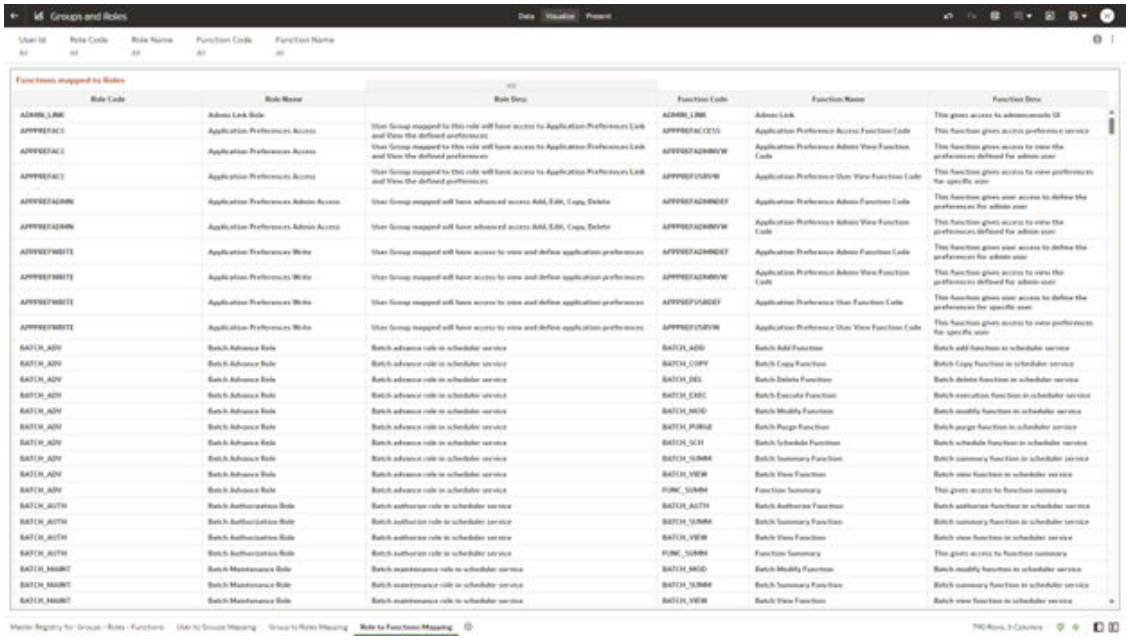
Figure 8-105 Groups to Role Mapping



Rule to Functions Mapping

This canvas displays all the functions mapped to the roles. You can filter based on User ID, Role Code, Role Name, Function Code and Function Name. For example, you can select a particular role, to view the role name, description, and the function assigned to that role.

Figure 8-106 Role to Functions Mapping



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8.1.7 Data Insights

To access the Data Insights Reports, select Analytics from the LHS Menu, and then select Data Insights.

The following Reports are available for the Data Insights section. You can select any report that you want.

- Pre-Process Data Analysis
- Cash Flow Edits

8.1.7.1 Pre-Process Data Analysis

You can use the Pre-Process Data Analysis Report to monitor the trends of your Instrument Table's Data and Account Attributes required to Transfer Price your Balance Sheet with Base Rate and multiple Add-On Rates.

The Pre-Process Data Analysis is arranged as a set of reports catering to analysis of the following categories:

- Number Accounts Outliers
- Cur Par Bar Outliers
- Trends
- Detailed Acct Level Info

8.1.7.1.1 Common Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as follows:

Figure 8-107 Canvas Prompt Filters for Time Dimension

- **As of Date**: The Execution Period for the Allocation Rules output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

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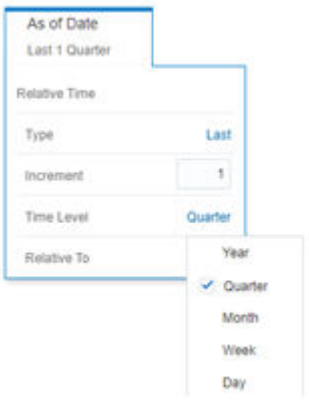
Figure 8-108 As-of-Date Selection



- Additional Filters for the Time Dimension are as follows:
- As of Date (Year)
- As of Date (Quarter)
- As of Date (Month)
- As of Date (Day)

Figure 8-109 Canvas Prompt Filters for Key Attributes

- **Currency Code**: You can use this filter to select a specific Currency Code for the underlying Instrument Tables Accounts.
- **Consolidation Code Name**: You can use this filter to select a specific Consolidation type as it identifies the values for Actual, Budget, Forecast, and Forecast Prior.
- **Instrument Table Name**: You can use this filter to select the source Instrument Table used by the Allocation process.
- **Input File Name**: You can use this filter to select the Input File Name that has sourced the data used by the Allocation process.
- **Branch Leaf Name**: You can use this filter to select a specific Branch value at leaf level related to the underlying Instrument Tables Accounts.
- **Geography Leaf Name**: You can use this filter to select a specific Geography value at leaf level related to the underlying Instrument Tables Accounts.
- **Industry Leaf Name**: You can use this filter to select a specific Industry value at leaf level related to the underlying Instrument Tables Accounts.
- **Customer Type Name**: You can use this filter to select the Customer Type for the underlying Instrument Tables Accounts.
- **Account Officer Name**: You can use this filter to select the Account Officer or Account Manager for the underlying Instrument Tables Accounts.

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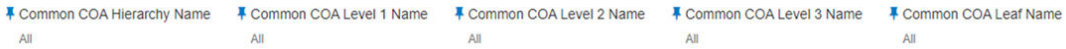
Figure 8-110 Canvas Prompt Filters for Legal Entity Key Processing Dimension

- **LE Hierarchy Name**: This is a mandatory filter for the group filtering on Legal Entity Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “LE Hierarchy Name” must be selected with only a single value simultaneously.
- **LE Level 1 Name**: You can use this filter to select the LE Level 1 Name pertaining to the LE Hierarchy level 1, for rolling up the results on the underlying Legal Entity Leaf Name that is related to the underlying Instrument Tables Accounts.
- **LE Level 2 Name**: You can use this filter to select the LE Level 2 Name pertaining to the LE Hierarchy level 2, for rolling up the results on the underlying Legal Entity Leaf Name that is related to the underlying Instrument Tables Accounts.
- **LE Level 3 Name**: You can use this filter to select the LE Level 3 Name pertaining to the LE Hierarchy level 3, for rolling up the results on the underlying Legal Entity Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Legal Entity Leaf Name**: You can use this filter to select the Legal Entity Leaf Name that is related to the underlying Instrument Tables Accounts.

Figure 8-111 Canvas Prompt Filters for Common COA Key Processing Dimension



- **Common COA Hierarchy Name**: This is a mandatory filter for the group filtering on Common COA Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Common COA Hierarchy Name” must be selected with only a single value simultaneously.
- **Common COA Level 1 Name**: You can use this filter to select the Common COA Level 1 Name pertaining to the Common COA Hierarchy level 1, for rolling up the results on the underlying Common COA Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Common COA Level 2 Name**: You can use this filter to select the Common COA Level 2 Name pertaining to the Common COA Hierarchy level 2, for rolling up the results on the underlying Common COA Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Common COA Level 3 Name**: You can use this filter to select the Common COA Level 3 Name pertaining to the Common COA Hierarchy level 3, for rolling up the results on the underlying Common COA Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Common COA Leaf Name**: You can use this filter to select the Common COA Leaf Name that is related to the underlying Instrument Tables Accounts.

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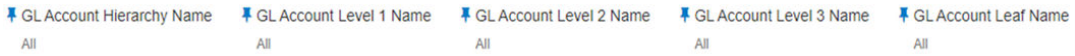
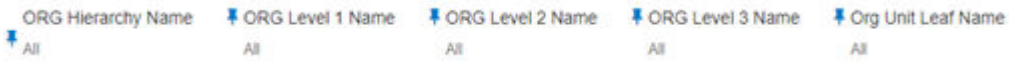
Figure 8-112 Canvas Prompt Filters for GL Account Key Processing Dimension



- **GL Account Hierarchy Name**: This is a mandatory filter for the group filtering on GL Account Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “GL Account Hierarchy Name” must be selected with only a single value simultaneously.
- **GL Account Level 1 Name**: You can use this filter to select the GL Account Level 1 Name pertaining to the GL Account Hierarchy level 1, for rolling up the results on the underlying GL Account Leaf Name that is related to the underlying Instrument Tables Accounts.
- **GL Account Level 2 Name**: You can use this filter to select the GL Account Level 2 Name pertaining to the GL Account Hierarchy level 2, for rolling up the results on the underlying GL Account Leaf Name that is related to the underlying Instrument Tables Accounts.
- **GL Account Level 3 Name**: You can use this filter to select the GL Account Level 3 Name pertaining to the GL Account Hierarchy level 3, for rolling up the results on the underlying GL Account Leaf Name that is related to the underlying Instrument Tables Accounts.
- **GL Account Leaf Name**: You can use this filter to select the GL Account Leaf Name that is related to the underlying Instrument Tables Accounts.

Figure 8-113 Canvas Prompt Filters for Org Unit Key Processing Dimension



- **Org Hierarchy Name**: This is a mandatory filter for the group filtering on Org Unit Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Org Hierarchy Name” must be selected with only a single value simultaneously.
- **Org Level 1 Name**: You can use this filter to select the Org Level 1 Name pertaining to the Org Unit Hierarchy level 1, for rolling up the results on the underlying Org Unit Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Org Level 2 Name**: You can use this filter to select the Org Level 2 Name pertaining to the Org Unit Hierarchy level 2, for rolling up the results on the underlying Org Unit Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Org Level 3 Name**: You can use this filter to select the Org Level 3 Name pertaining to the Org Unit Hierarchy level 3, for rolling up the results on the underlying Org Unit Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Org Unit Leaf Name**: You can use this filter to select the Org Unit Leaf Name that is related to the underlying Instrument Tables Accounts.

Figure 8-114 Canvas Prompt Filters for Product Key Processing Dimension

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- **Prod Hierarchy Name**: This is a mandatory filter for the group filtering on Product Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Prod Hierarchy Name” must be selected with only a single value simultaneously.
- **Prod Level 1 Name**: You can use this filter to select the Prod Level 1 Name pertaining to the Product Hierarchy level 1, for rolling up the results on the underlying Prod Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Prod Level 2 Name**: You can use this filter to select the Prod Level 2 Name pertaining to the Product Hierarchy level 2, for rolling up the results on the underlying Prod Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Prod Level 3 Name**: You can use this filter to select the Prod Level 3 Name pertaining to the Product Hierarchy level 3, for rolling up the results on the underlying Prod Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Prod Leaf Name**: You can use this filter to select the Prod Leaf Name that is related to the underlying Instrument Tables Accounts.

8.1.7.1.2 Report Data Action

The Data Actions provide the capability to perform both drill-down analysis across the downstream report canvases as well as drill-though navigation to the Process Results Data Analysis report. The drill-down and the drill-through are enabled using three Data Actions.

From every chart available in the report, you can select a combination of values, and then perform the navigation to the other Report canvases.

To do so, with a right-click on the chart selection, the Data Action options will appear for you to be able to navigate further as described in the following mapping:

- **Analyze Trends** – the Data Action will be drilling through the “Analyze Trends” canvas.
- **Analyze Account Details** – the Data Action will be drilling through the “Analyze Account Details” canvas.

From the “Detailed Acct Level Info” report canvas, you can select a combination of values in the available chart, and then perform the navigation to the Process Results Data Analysis report.

To do so, with a right-click on the chart selection, the Data Action options will appear for you to be able to navigate further as described in the following mapping:

- **Analyze FTP Process Results** – the Data Action will be drilling through the “Process Results Data Analysis” report.

The following screenshots show the Data Actions list as well as the navigation options that appears once you right-click on the desired selection (for both drill-down and drill-through Data Actions).

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Figure 8-115 Data Action Configuration

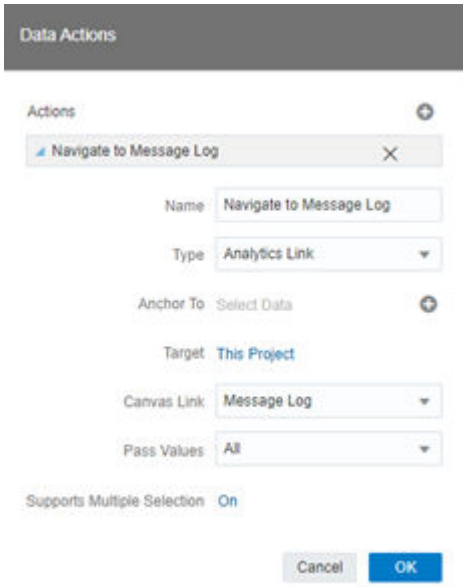

Figure 8-116 Data Action for Drill-down with Report Canvases

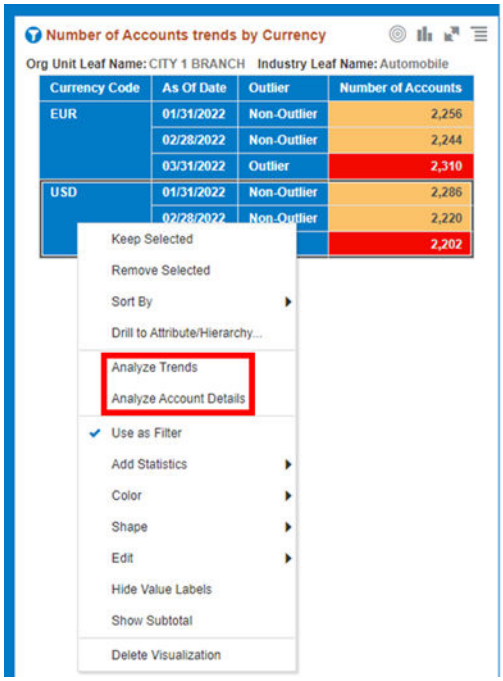

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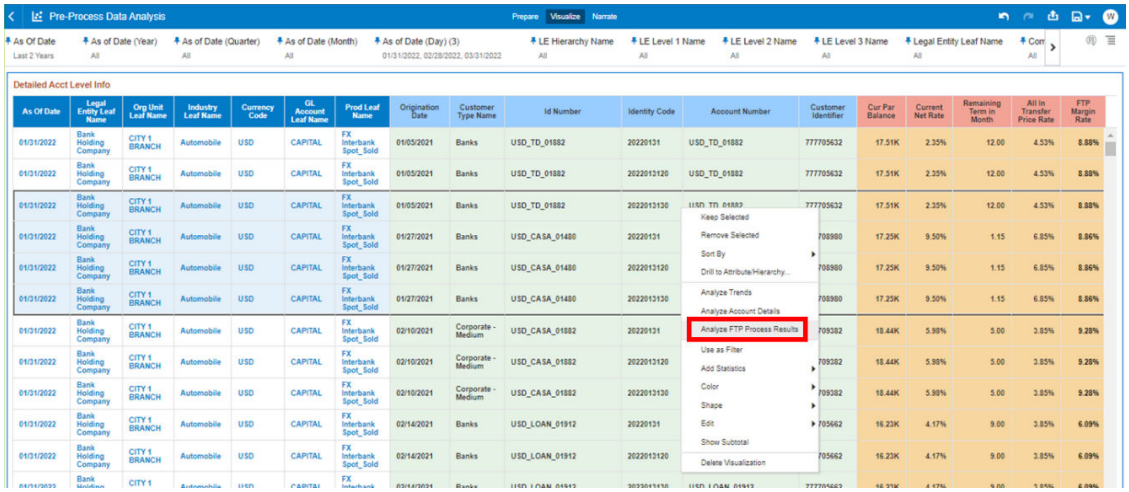
Figure 8-117 Data Action for Drill-through to another Report



8.1.7.1.3 Number Accounts Outliers

This canvas allows you to look at the Number of Accounts outliers that are calculated using the Standard Deviation capability available off the shelf with Oracle Analytics.

The Number of Accounts pertaining to the Instrument level data is segregated between “Outlier” and “Non-Outlier” in the report column “Outlier”.

“Outlier” in this case refers to the Number of Accounts, for a particular subset related to a combination of Dimensional Values that lie outside the confidence interval of the deviation that we are adopting in our technique.

“Non-Outlier” would refer to the Number of Accounts, for a particular subset related to a combination of Dimensional Values that lie inside the confidence interval of the deviation.

The Outliers are calculated on the Number of Accounts aggregated by the respective combination of Dimensional Values, such as Industry, Org Unit, Customer Segment, and Currency against the As-of-Date available.

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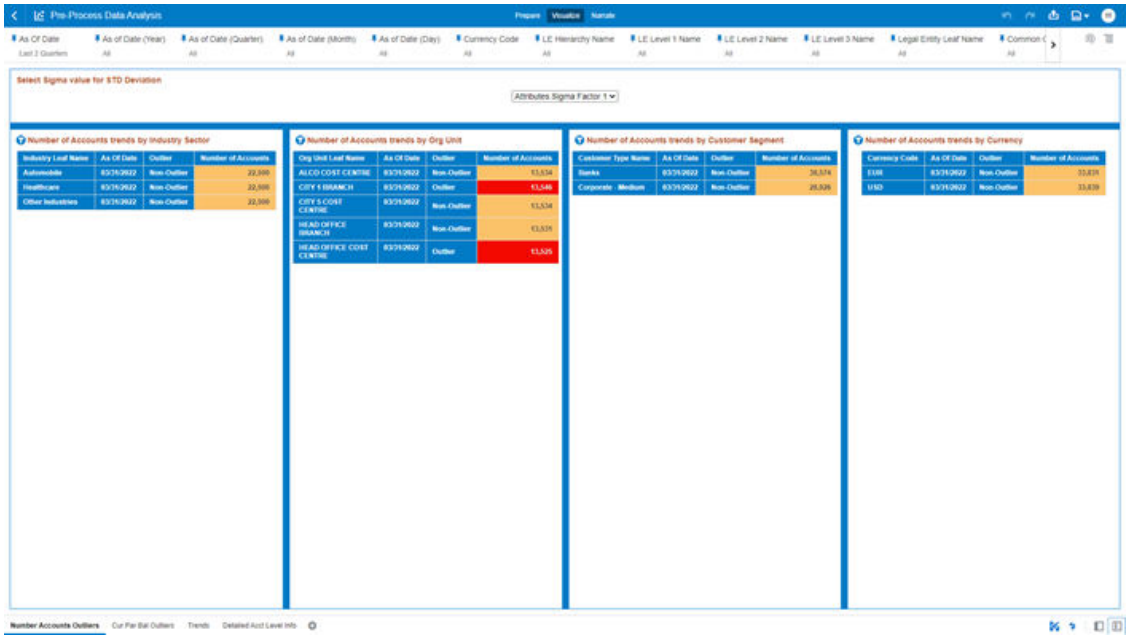
Figure 8-118 “Number Accounts Outliers” Report Canvas



The Number of Accounts can be identified as an Outlier or a Non-Outlier based on the standard deviation confidence interval that we adopt.

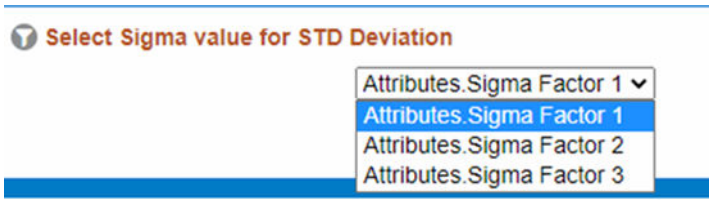
This confidence interval is parametrized with the list of the Sigma values available in the report that is “Attributes.Sigma Factor 1”, “Attributes.Sigma Factor 2” and “Attributes.Sigma Factor 3”.

The Sigma Factors are integer values that range from “Attributes.Sigma Factor 1” to “Attributes.Sigma Factor 3” in the increasing order of the conservativeness or the confidence interval of the Standard Deviation.

This means will have more Outliers when you perform analysis with “Attributes.Sigma Factor 1” than with the “Attributes.Sigma Factor 3”.

The following screenshot shows the selection for the Sigma Factor available in the report canvas.

Figure 8-119 Sigma Factor selection for STD Deviation



You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Instrument level data.

The report displays the underlying Instrument account data according to the following Charts’ logic:

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- **Select Sigma Value for STD Deviation**: The chart provides you with a selection capability for the desired Sigma value to be used by the STD Deviation, the possible selection values are “Attributes.Sigma Factor 1”, “Attributes.Sigma Factor 2”, and “Attributes.Sigma Factor 3”.
- **Number of Accounts trends by Industry Sector**: This chart deduces if the Number of Accounts related to the different Industry Sectors is an “Outlier” or “Non-Outlier” for a combination of As-of-Date and Industry Leaf Name.
  The columns displayed in the chart are as follows:
  - Industry Leaf Name
  - As Of Date
  - Outlier
  - Number of Accounts
- **Number of Accounts trends by Org Unit**: This chart deduces if the Number of Accounts related to the different Org Units is an “Outlier” or “Non-Outlier” for a combination of As-of-Date and Org Unit Leaf Name.
  The columns displayed in the chart are as follows:
  - Org unit Leaf Name
  - As Of Date
  - Outlier
  - Number of Accounts
- **Number of Accounts trends by Customer Segment**: This chart deduces if the Number of Accounts related to the different Customer Segments is an “Outlier” or “Non-Outlier” for a combination of As-of-Date and Customer Type Name.
  The columns displayed in the chart are as follows:
  - Customer Type Name
  - As Of Date
  - Outlier
  - Number of Accounts
- **Number of Accounts trends by Currency**: This chart deduces if the Number of Accounts related to the different Currencies is an “Outlier” or “Non-Outlier” for a combination of As-of-Date and Currency Code.
  The columns displayed in the chart are as follows:
  - Currency Code
  - As Of Date
  - Outlier
  - Number of Accounts

8.1.7.1.3.1 Use Case Flow for “Number Accounts Outliers” Analysis

You can refer this use case to best leverage the advanced analytics capabilities of the reports.

Starting from the canvas “Number Accounts Outliers” you can perform a series of actions as follows.

1. Select your desired Sigma value on which the Outlier analysis will be generated.

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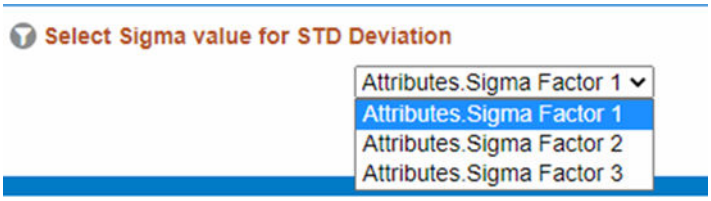
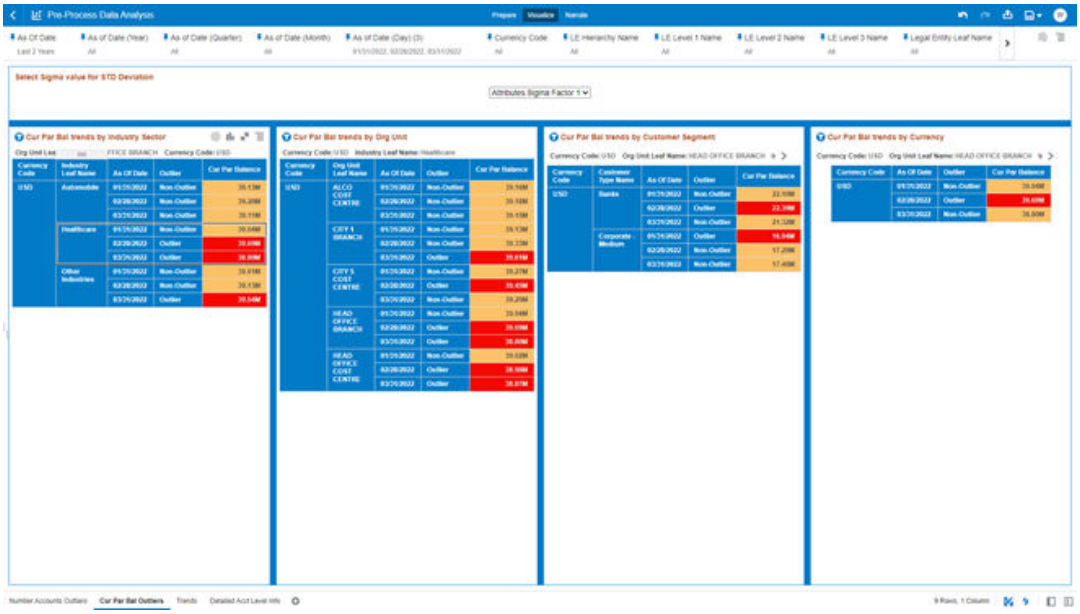
Figure 8-120 Sigma Factor Selection for STD Deviation



2. Select the Outliers for any of the available Dimensions.

Figure 8-121 Outliers Selection



3. Once you have selected a combination of Outliers and related Dimensions, you can use the Data Actions to navigate to the other Report canvases or to the Process Results Data Analysis report.

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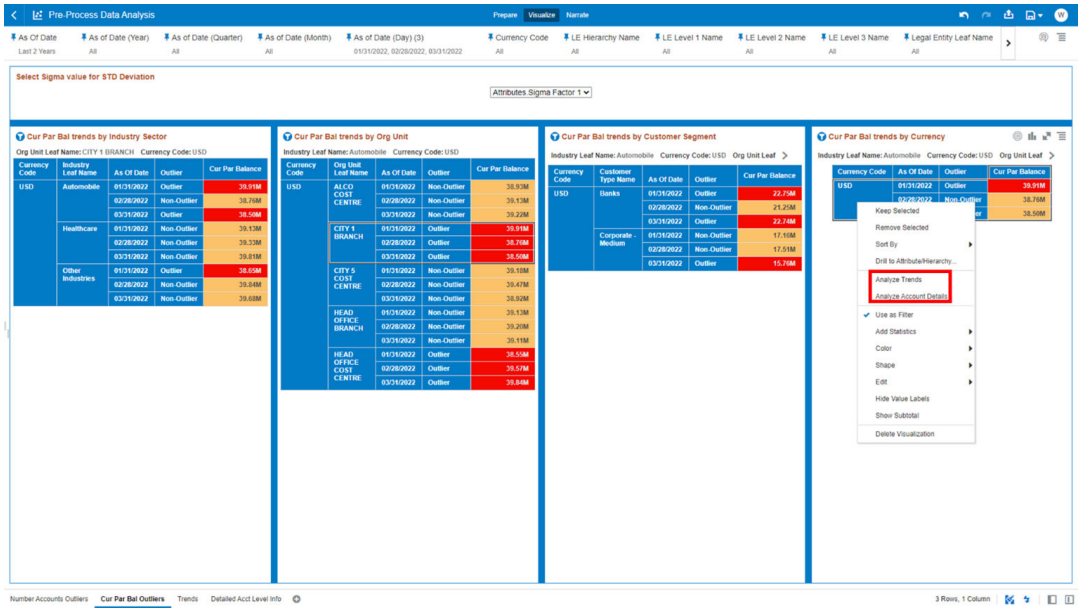
Figure 8-122 Data Actions Navigation



8.1.7.1.4 Cur Par Bal Outliers

This canvas allows you to look at the Current Par Balance Outliers that are calculated using the Standard Deviation capability available off the shelf with Oracle Analytics.

The Current Par Balance pertaining to the Instrument level data is segregated between “Outlier” and “Non-Outlier” in the report column “Outlier”.

“Outlier” in this case refers to the Current Par Balance, for a particular subset related to a combination of Dimensional Values that lie outside the confidence interval of the deviation that we are adopting in our technique.

“Non-Outlier” would refer to the Current Par Balance, for a particular subset related to a combination of Dimensional Values that lie inside the confidence interval of the deviation.

The Outliers are calculated on the Current Par Balance aggregated by the respective combination of Dimensional Values, such as Industry, Org Unit, Customer Segment, and Currency against the As-of-Date available.

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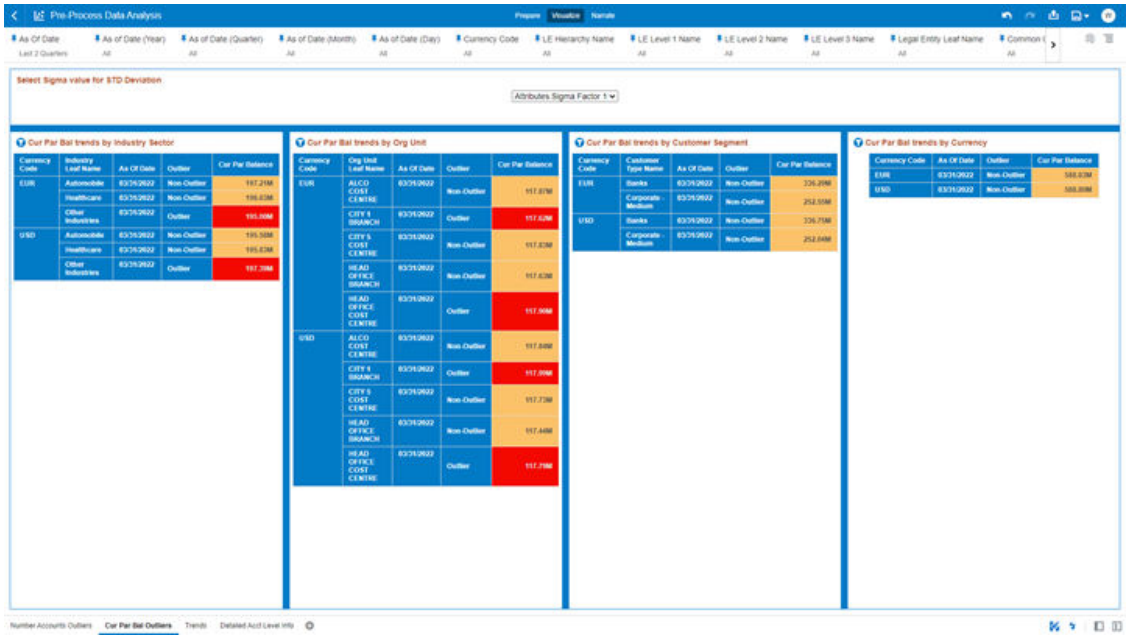
Figure 8-123 “Cur Par Bal Outliers” Report Canvas



The Current Par Balance can be identified as an Outlier or a Non-Outlier based on the standard deviation confidence interval that we adopt.

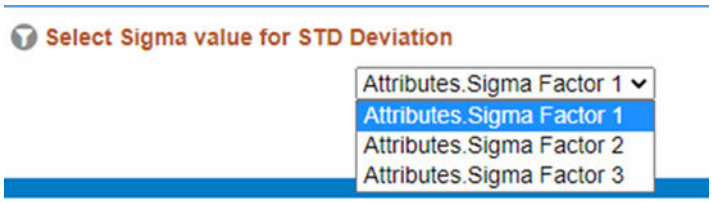
This confidence interval is parametrized with the list of the Sigma values available in the report that is “Attributes.Sigma Factor 1”, “Attributes.Sigma Factor 2”, and “Attributes.Sigma Factor 3”.

The Sigma Factors are integer values that range from “Attributes.Sigma Factor 1” to “Attributes.Sigma Factor 3” in the increasing order of the conservativeness or the confidence interval of the Standard Deviation.

This means will have more Outliers when you perform analysis with “Attributes.Sigma Factor 1” than with the “Attributes.Sigma Factor 3”.

The following screenshot shows the selection for the Sigma Factor available in the report canvas.

Figure 8-124 Sigma Factor Selection for STD Deviation



You can use a series of Report Prompts, as previously described, to filter the data according to Key Attributes pertaining to the underlying Instrument level data.

The report displays the underlying Instrument account data according to the following Charts’ logic:

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- **Select Sigma Value for STD Deviation**: The chart provides you with a selection capability for the desired Sigma value to be used by the STD Deviation, the possible selection values are “Attributes.Sigma Factor 1”, “Attributes.Sigma Factor 2”, and “Attributes.Sigma Factor 3”.
- **Cur Par Bal trends by Industry Sector**: This chart deduces if the Current Par Balance related to the different Industry Sectors is an “Outlier” or “Non-Outlier” for a combination of As-of-Date, Currency (transaction currency), and Industry Leaf Name.
  The columns displayed in the chart are as follows:
  - Currency Code
  - Industry Leaf Name
  - As Of Date
  - Outlier
  - Cur Par Balance
- **Number of Accounts trends by Org Unit**: This chart deduces if the Current Par Balance related to the different Org Units is an “Outlier” or “Non-Outlier” for a combination of As-of-Date, Currency (transaction currency), and Org Unit Leaf Name.
  The columns displayed in the chart are as follows:
  - Currency Code
  - Org unit Leaf Name
  - As Of Date
  - Outlier
  - Cur Par Balance
- **Number of Accounts trends by Customer Segment**: This chart deduces if the Current Par Balance related to the different Customer Segments is an “Outlier” or “Non-Outlier” for a combination of As-of-Date, Currency (transaction currency), and Customer Type Name.
  The columns displayed in the chart are as follows:
  - Currency Code
  - Customer Type Name
  - As Of Date
  - Outlier
  - Cur Par Balance
- **Number of Accounts trends by Currency**: This chart deduces if the Current Par Balance related to the different Currencies is an “Outlier” or “Non-Outlier” for a combination of As-of-Date and Currency Code.
  The columns displayed in the chart are as follows:
  - Currency Code
  - As Of Date
  - Outlier
  - Cur Par Balance

8.1.7.1.4.1 Use Case flow for “Cur Par Bal Outliers” Analysis

You can refer this use case to best leverage the advanced analytics capabilities of the reports.

Starting from the canvas “Cur Par Bal Outliers” you can perform a series of actions as follows:

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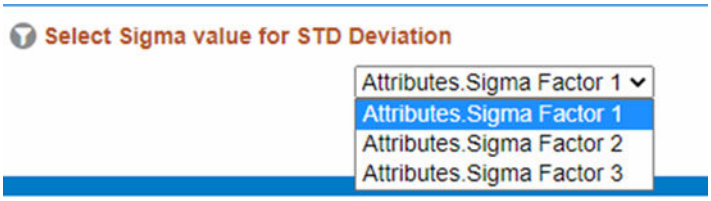
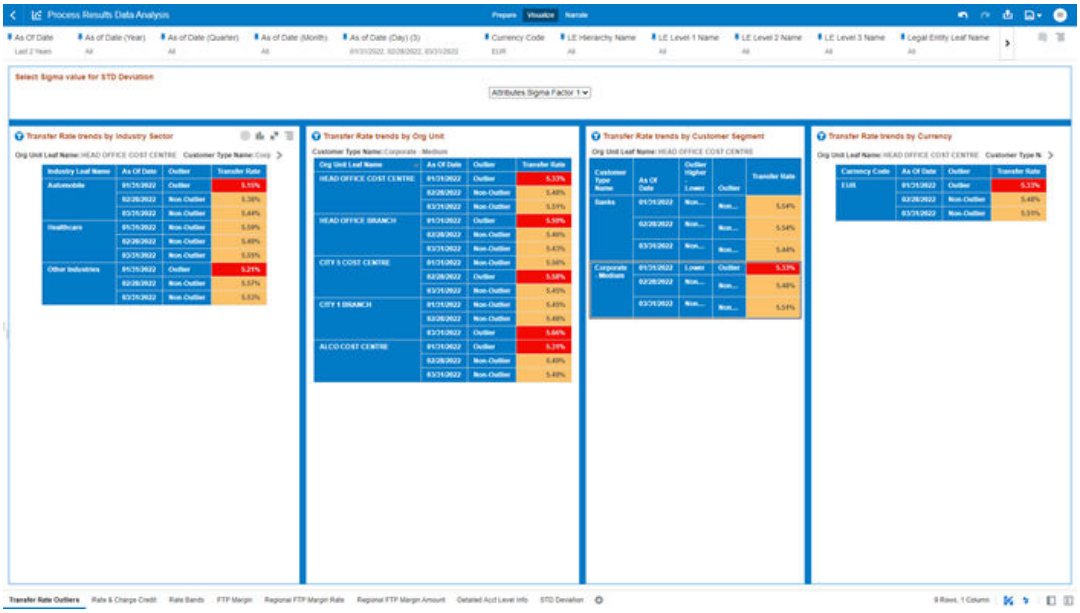
1. Select your desired Sigma value on which the outlier analysis will be generated.

Figure 8-125 Sigma Factor selection for STD Deviation



2. Select the Outliers for any of the available Dimensions.

Figure 8-126 Outliers Selection



3. Once you have selected a combination of Outliers and related dimensions, you can use the Data Actions to navigate to the other Report canvases or to the Process Results Data Analysis report.

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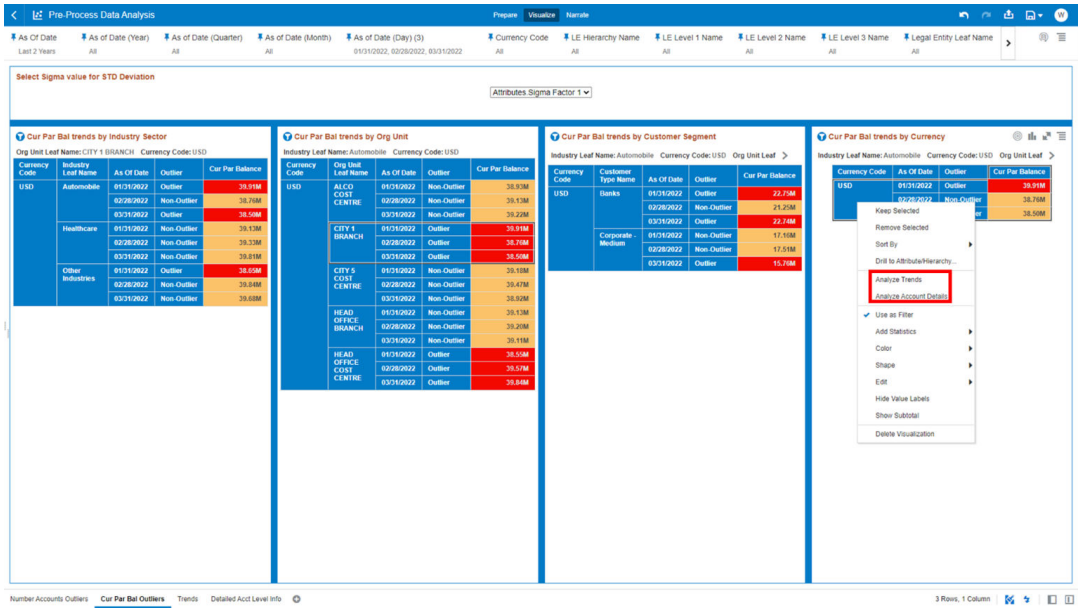
Figure 8-127 Data Actions Navigation



8.1.7.1.5 Trends

The “Trends” Report describes the trend of the following measurements, Number of Accounts, Cur Bar Balance, Current Net Rate, Remaining Term in Month, All in Transfer Price Rate, and FTP Margin Rate with respect to As-of-Date.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Instrument level data.

The report displays the underlying data according to the following Charts’ logic:

- **Dimension Selection**: The chart provides you with a selection capability of the desired dimension of analysis, as listed down below, with respect to As-of-Date and the above-mentioned measurements.
  The columns displayed in the chart are as follows:
  - Industry Leaf Name
  - Org Unit Leaf Name
  - Customer Type Name
  - Currency Code
  - As of Date
  - Number of Accounts
  - Cur Bar Balance
  - Current Net Rate
  - Remaining Term in Month
  - All in Transfer Price Rate
  - FTP Margin Rate
- **Number of Accounts Trend**: The chart reports the trend analysis of the Number of Accounts with respect to As-of-Date.

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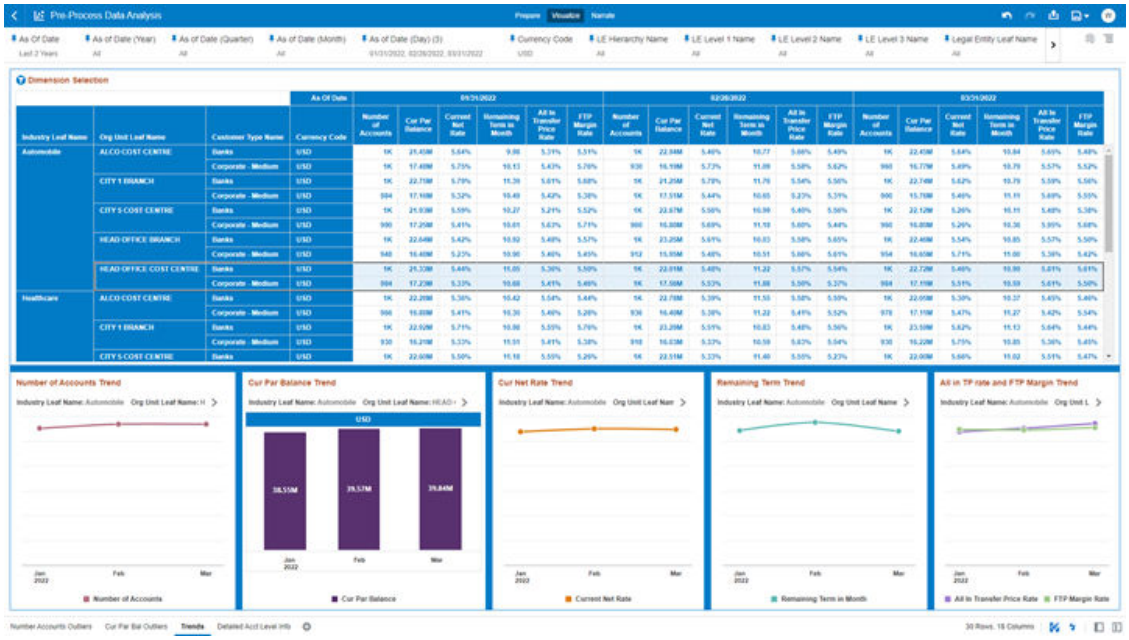
- **Cur Par Balance Trend**: The chart reports the trend analysis of the Current Par Balance with respect to As-of-Date.
- **Cur Net Rate Trend**: The chart reports the trend analysis of the Current Net Rate with respect to As-of-Date.
- **All in TP rate and FTP Margin Trend**: The chart reports the trend analysis of both the All in TP Rate and the FTP Margin with respect to As-of-Date.

Figure 8-128 “Trends” Report



8.1.7.1.6 Detail Acct Level Info

The “Detailed Acct Level Info” Report provides a view of the underlying Instrument Tables Customer Accounts details.

You can use a series of Report Prompts, as previously described, to filter the data according to Key Attributes pertaining to the underlying Instrument Tables Accounts.

The report displays the underlying data according to the following Chart’ logic:

- **Detailed Acct Level Info**: The tabular report displays all the Dimensions and the Measures, available at the Account level granularity, that have been displayed in all the other previously described report categories.
  Following the granular elements available for this table chart:
  - "As Of Date", "Legal Entity Leaf Name", "Org Unit Leaf Name", "Industry Leaf Name", "Currency Code", "GL Account Leaf Name", "Prod Leaf Name", "Origination Date", "Customer Type Name", "Id Number", "Identity Code", "Account Number", "Customer Identifier", "Cur Par Balance", "Current Net Rate", "Remaining Term in Month", "All In Transfer Price Rate" and "FTP Margin Rate".

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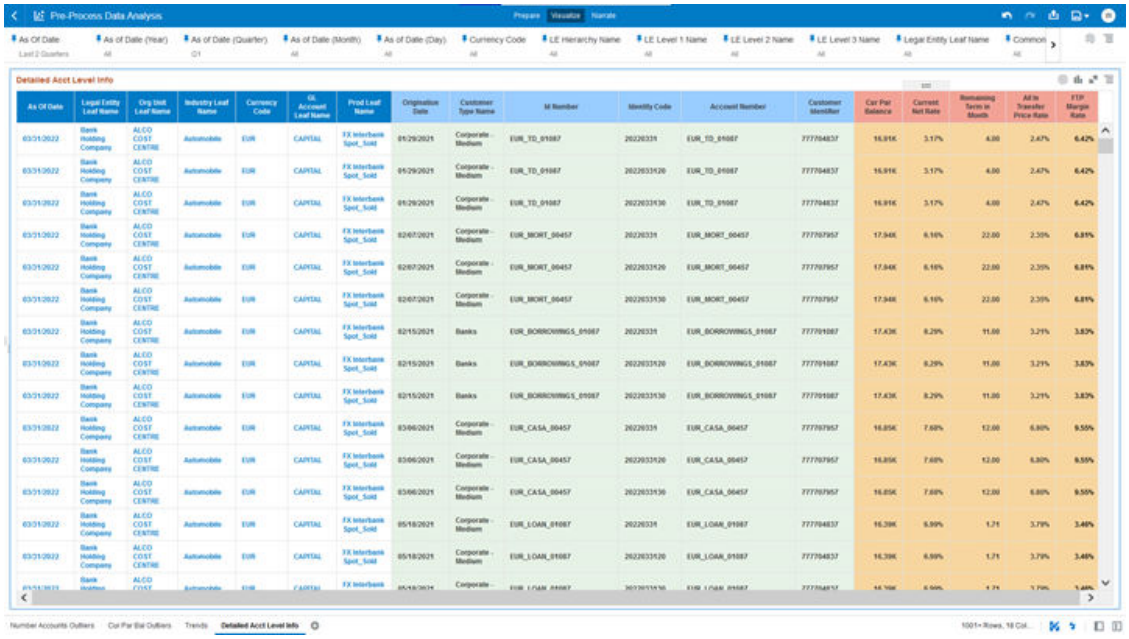
Figure 8-129 “Detailed Acct Level Info” Report



8.1.7.2 Cash Flow Edits

The Cash Flow Edits Process allows you to verify the accuracy and check the completeness of your Instrument Table Data.

The Cash Flow Edits is arranged as a set of reports catering to analysis of the following categories:

- Rules
- Process Stats
- Message Log

8.1.7.2.1 Common Filters

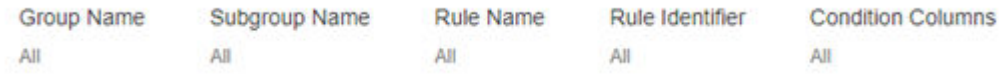
This section covers the following types of filters:

- "Rules" Canvas Prompt Filters
- "Process Stats" Canvas Prompt Filters
- "Message Log" Canvas Prompt Filters

8.1.7.2.1.1 “Rules” Canvas Prompt Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as follows:

Figure 8-130 Canvas Prompt Filters for Key Attributes



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- **Group Name**: You can use this filter to select a specific Group value related to the available granular rules.
- **Subgroup Name**: You can use this filter to select a specific Subgroup value related to the available granular rules.
- **Rule Name**: You can use this filter to select a specific Rule value.
- **Rule Identifier**: You can use this filter to select a specific Rule Identifier Value.
- **Rule Condition Columns**: You can use this filter to select a specific Condition Value related to the available granular rules.

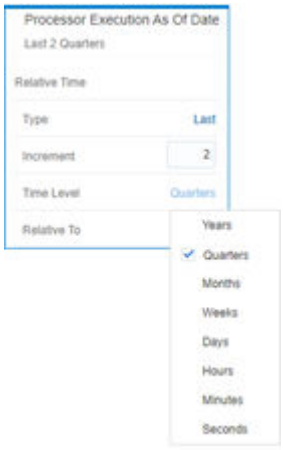
8.1.7.2.1.2 “Process Stats” Canvas Prompt Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as follows:

Figure 8-131 Canvas Prompt Filters for Time Dimension

- **Processor Execution As-of-Date**: The Execution Period of the Cash Flow Edit Process. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

Figure 8-132 As of Processor Execution Date Selection



- Additional Filters for the Time Dimension are as follows:
- Processor Execution As of Date (Year)
- Processor Execution As of Date (Quarter)
- Processor Execution As of Date (Month)
- Processor Execution As of Date (Day)

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Figure 8-133 Canvas Prompt Filters for Standard Dimension

- **Cashflow Edits Process Name**: You can use this filter to select a specific Cash Flow Edit Process Value.
- **Execution Run Identifier**: You can use this filter to select a specific Execution Run Identifier value at leaf related to the Cash Flow Edits Process.
- **Legal Entity Leaf Name**: You can use this filter to select the Legal Entity Leaf Name that is related to the Cash Flow Edit Process Execution.
- **Source Table Name**: You can use this filter to select a specific Source Table Value related to the Cash Flow Edit Process Execution.

8.1.7.2.1.3 “Message Log” Canvas Prompt Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as follows:

Figure 8-134 Canvas Prompt Filters for Standard Dimension

- **Processor Execution As of Date (Day)**: The Execution Period of the Cash Flow Edit process. You can use this filter to isolate a selected timeframe for the analysis.
- **Cashflow Edits Process Name**: You can use this filter to select a specific Cash Flow Edit Process Value.
- **Execution Run Identifier**: You can use this filter to select a specific Execution Run Identifier Value at leaf related to the Cash Flow Edits Process.
- **Account Number**: You can use this filter to select a specific Account Number Value related to the to the Cash Flow Edit Process execution.

8.1.7.2.2 Report Data Action

The Data Actions provide the capability to perform drill-down analysis across the downstream report canvases. The drill-down is enabled using a Data Action.

From “Rules” and “Process Stats” report canvases charts, you can select a combination of values, and then perform the navigation to the “message Log” report canvas.

To do so, with a right-click on the chart selection, the Data Action options will appear for you to be able to navigate further as described in the following mapping:

- **Navigate to Message Log** – the Data Action will be drilling through the “Message Log” canvas.

The following screenshots show the Data Action list as well as the navigation options that appears once you right-click on the desired selection.

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Figure 8-135 Data Action Configuration

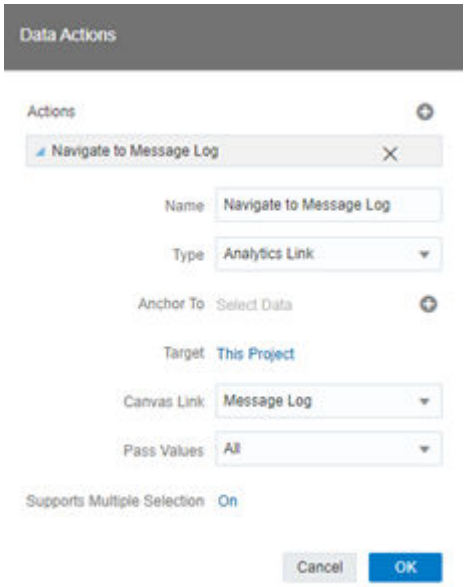
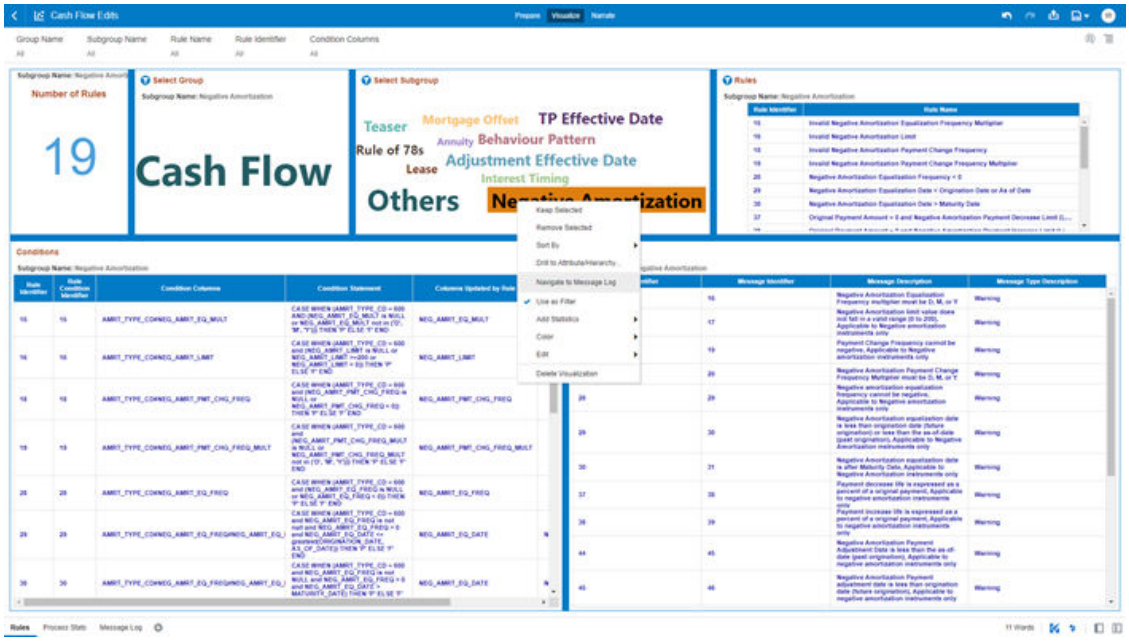


Figure 8-136 Data Action for Drill-down with report Canvases



8.1.7.2.3 Rules

The “Rules” Report provides a view of the available Rules to be leveraged by the Cash Flow Edits processes. You can use the report to identify the list of the available rules within the Application as well as to look at their grouping and subgrouping with the granular details for Conditions and Messages.

You can use a series of Report Prompts, as previously described, to filter the data according to Key Attributes pertaining to the underlying Cash Flow Edit messages.

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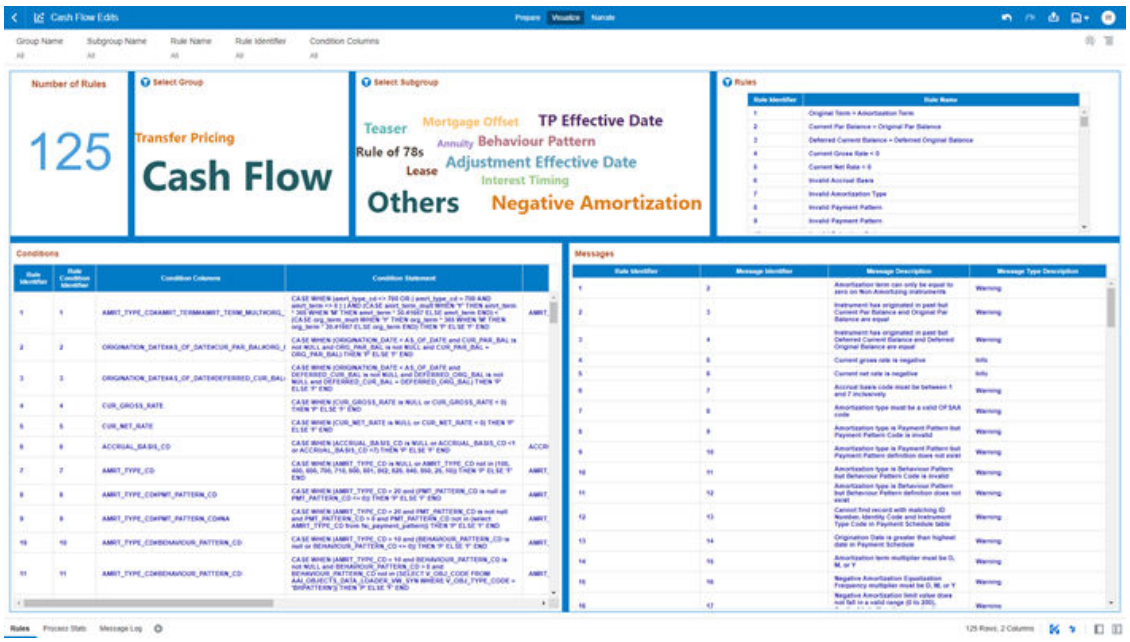
The report displays the underlying data according to the following Chart' logic:

- **Number of Rules**: The chart provides you with the total Number of Rules available within the Application.
- **Select Group**: The chart provides you with a selection capability for the desired Group of rules.
- **Select Subgroup**: The chart provides you with a selection capability for the desired Subgroup of rules.
- **Rules**: The chart reports the list of rules available within the Application.
  The columns displayed in the chart are as follows:
  - Rule Identifier
  - Rule Name
- **Conditions**: The chart reports the list of conditions defined for each of the rules available within the Application.
  The columns displayed in the chart are as follows:
  - Rule Identifier
  - Rule Condition Identifier
  - Condition Columns
  - Condition Statements
- **Messages**: The chart reports the list of log messages defined for each of the rules available within the Application.
  The columns displayed in the chart are as follows:
  - Rule Identifier
  - Message Identifier
  - Message Description
  - Message Type Description

Figure 8-137 "Rules" Report



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8.1.7.2.4 Process Stats

The “Process Stats” Report provides a view of the available statistics related to the execution of the Cash Flow Edits Processes. You can use the report to identify the number of errors and the aggregated details for the Cash Flow Edits executed out of the underlying Instrument table account data.

You can use a series of Report Prompts, as previously described, to filter the data according to Key Attributes pertaining to the underlying Cash Flow Edit messages.

The report displays the underlying data according to the following Chart’ logic:

- **Cashflow Edits found**: The chart reports the trend analysis of the Number of Errors for each Cash Flow Edit execution with respect to Processor Execution As-of-Date and the Message Type received during the executions.
  The columns displayed in the chart are as follows:
  - Processor Execution As of Date (Day)
  - Cashflow Edits Process Name
  - Execution Run Identifier
  - Message Type Description
  - Number of Errors
- **Processing Time (in Mins)**: The chart reports the trend analysis of the Processing Time for each Cash Flow Edit execution with respect to Processor Execution As-of-Date.
  The columns displayed in the chart are as follows:
  - Processor Execution As of Date (Day)
  - Cashflow Edits Process Name
  - Execution Run Identifier
  - Processor Execution Time In Minutes
- **Number of Errors**: The chart reports the trend analysis of the Number of Errors for each Cash Flow Edit execution with respect to Processor Execution As-of-Date.
  The columns displayed in the chart are as follows:
  - Processor Execution As of Date (Day)
  - Cashflow Edits Process Name
  - Execution Run Identifier
  - Number of Errors
- **Number of Errors by Source Table Name**: The chart reports the trend analysis of the Number of Errors for each Cash Flow Edit execution with respect to Processor Execution As-of-Date and the Source Table Name where the errors have been identified.
  The columns displayed in the chart are as follows:
  - Processor Execution As of Date (Day)
  - Cashflow Edits Process Name
  - Execution Run Identifier
  - Source Table Name
  - Message Type Description
  - Number of Errors

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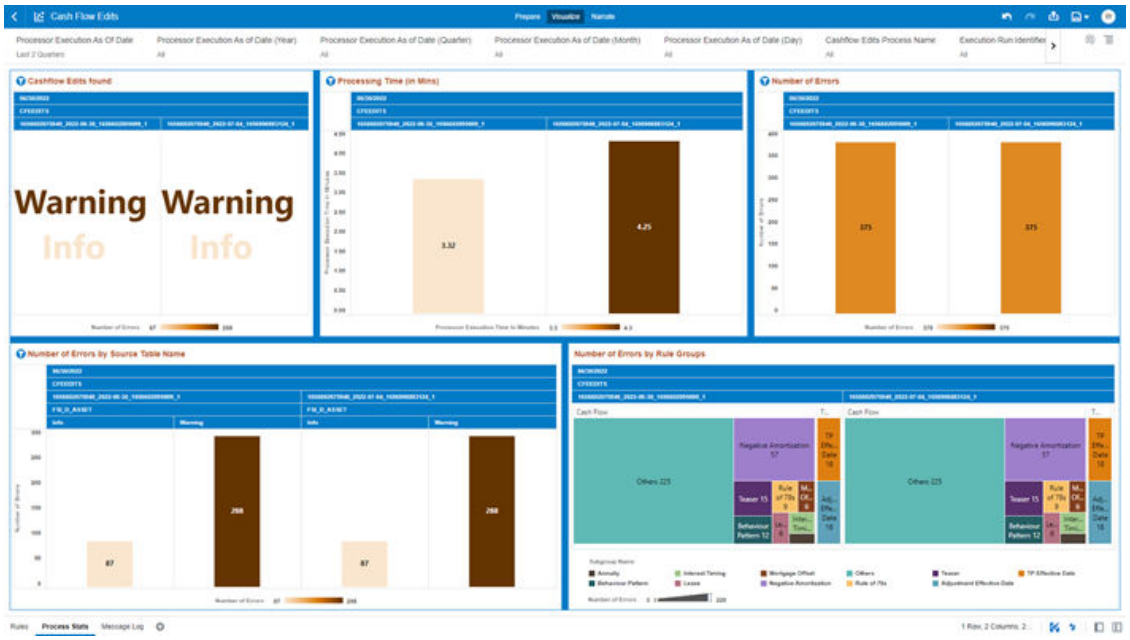
- **Number of Errors by Rule Groups**: The chart reports the trend analysis of the Number of Errors for each Cash Flow Edit execution with respect to Processor Execution As-of-Date and the Rule Group/Subgroup.
  The columns displayed in the chart are as follows:
  - Processor Execution As of Date (Day)
  - Cashflow Edits Process Name
  - Execution Run Identifier
  - Group Name
  - Subgroup Name
  - Number of Errors

Figure 8-138 “Process Stats” Report



8.1.7.2.5 Message Log

The “Message Log” Report provides a view of the underlying Cash Flow Edits messages retrieved during the Cash Flow Edit Process execution, and the available granularity is at Customer Accounts level.

You can use a series of Report Prompts, as previously described, to filter the data according to Key Attributes pertaining to the underlying Cash Flow Edit messages.

The report displays the underlying data according to the following Chart’ logic:

- **Message Log**: The Tabular Report displays all the message details related to the execution of the Cash Flow Edit process, including information related to the Customer Account details.
  Following granular elements are available for this table chart:
  - Cashflow Edits Process Name, Processor Execution As of Date (Day), Execution Run Identifier, Account Number, Source Table Name, Rule Name, and Message Description.

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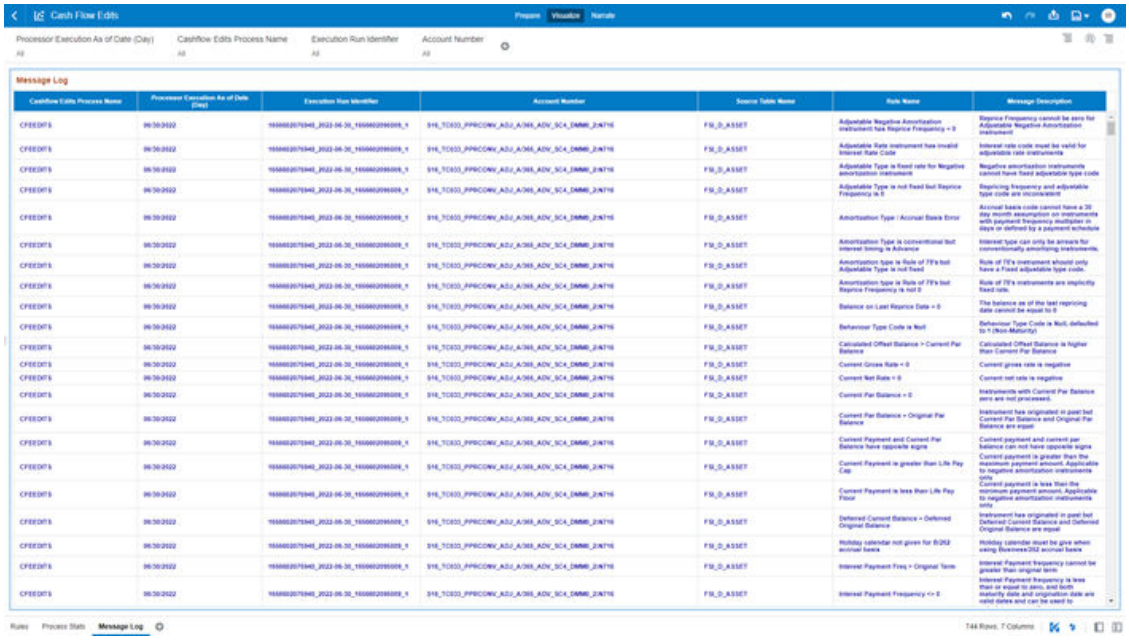
Figure 8-139 Message Log Report



8.1.8 Processed Data Insights

To access the Processed Data Insights Report, select **Analytics** from the LHS Menu, and then select **Processed Data Insights**.

8.1.8.1 Process Results Data Analysis

You can use the Process Results Data Analysis Report to monitor trend on your processed Instrument Table Data Dimensions and Metrics required for Transfer Price your Balance Sheet with Base Rate and multiple Add On Rates.

The Process Results Data Analysis is arranged as a set of reports catering to analysis of the following categories:

- Transfer Rate Outliers
- Rate & Charge Credit
- Rate Bands
- FTP Margin
- Regional FTP Margin Rate
- Regional FTP Margin Amount
- Detailed Acct Level Info
- STD Deviation

8.1.8.1.1 Common Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as follows:

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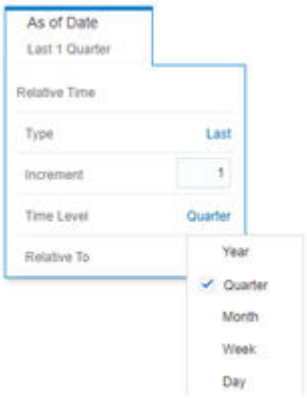
Figure 8-140 Canvas Prompt Filters for Time Dimension

- **As of Date**: The Execution Period for the Allocation Rules output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

Figure 8-141 As-of-Date Selection



- Additional Filters for the Time Dimension are as follows:
  - As of Date (Year)
  - As of Date (Quarter)
  - As of Date (Month)
  - As of Date (Day)

Figure 8-142 Canvas Prompt Filters for key Attributes

- **Currency Code**: You can use this filter to select a specific Currency Code for the underlying Instrument Tables Accounts.
- **Consolidation Code Name**: You can use this filter to select a specific Consolidation type as it identifies the values for Actual, Budget, Forecast, and Forecast Prior.
- **Instrument Table Name**: You can use this filter to select the source Instrument table used by the Allocation process.
- **Input File Name**: You can use this filter to select the Input File Name that has sourced the data used by the Allocation process.
- **Branch Leaf Name**: You can use this filter to select a specific Branch value at leaf level related to the underlying Instrument Tables Accounts.

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- **Geography Leaf Name**: You can use this filter to select a specific Geography value at leaf level related to the underlying Instrument Tables Accounts.
- **Industry Leaf Name**: You can use this filter to select a specific Industry value at leaf level related to the underlying Instrument Tables Accounts.
- **Customer Type Name**: You can use this filter to select the Customer Type for the underlying Instrument Tables Accounts.
- **Account Officer Name**: You can use this filter to select the Account Officer or Account Manager for the underlying Instrument Tables Accounts.

Figure 8-143 Canvas Prompt Filters for Legal Entity Key Processing Dimension

- **LE Hierarchy Name**: This is a mandatory filter for the group filtering on Legal Entity Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “LE Hierarchy Name” must be selected with only a single value simultaneously.
- **LE Level 1 Name**: You can use this filter to select the LE Level 1 Name pertaining to the LE Hierarchy level 1, for rolling up the results on the underlying Legal Entity Leaf Name that is related to the underlying Instrument Tables Accounts.
- **LE Level 2 Name**: You can use this filter to select the LE Level 2 Name pertaining to the LE Hierarchy level 2, for rolling up the results on the underlying Legal Entity Leaf Name that is related to the underlying Instrument Tables Accounts.
- **LE Level 3 Name**: You can use this filter to select the LE Level 3 Name pertaining to the LE Hierarchy level 3, for rolling up the results on the underlying Legal Entity Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Legal Entity Leaf Name**: You can use this filter to select the Legal Entity Leaf Name that is related to the underlying Instrument Tables Accounts.

Figure 8-144 Canvas Prompt Filters for Common COA Key Processing Dimension

- **Common COA Hierarchy Name**: This is a mandatory filter for the group filtering on Common COA Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Common COA Hierarchy Name” must be selected with only a single value simultaneously.
- **Common COA Level 1 Name**: You can use this filter to select the Common COA Level 1 Name pertaining to the Common COA Hierarchy level 1, for rolling up the results on the underlying Common COA Leaf Name that is related to the underlying Instrument Tables Accounts.

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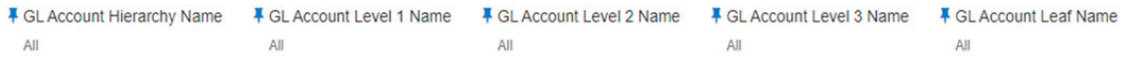
- **Common COA Level 2 Name**: You can use this filter to select the Common COA Level 2 Name pertaining to the Common COA Hierarchy level 2, for rolling up the results on the underlying Common COA Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Common COA Level 3 Name**: You can use this filter to select the Common COA Level 3 Name pertaining to the Common COA Hierarchy level 3, for rolling up the results on the underlying Common COA Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Common COA Leaf Name**: You can use this filter to select the Common COA Leaf Name that is related to the underlying Instrument Tables Accounts.

Figure 8-145 Canvas Prompt Filters for GL Account Key Processing Dimension



- GL Account Hierarchy Name: This is a mandatory filter for the group filtering on GL Account Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “GL Account Hierarchy Name” must be selected with only a single value simultaneously.
- **GL Account Level 1 Name**: You can use this filter to select the GL Account Level 1 Name pertaining to the GL Account Hierarchy level 1, for rolling up the results on the underlying GL Account Leaf Name that is related to the underlying Instrument Tables Accounts.
- **GL Account Level 2 Name**: You can use this filter to select the GL Account Level 2 Name pertaining to the GL Account Hierarchy level 2, for rolling up the results on the underlying GL Account Leaf Name that is related to the underlying Instrument Tables Accounts.
- **GL Account Level 3 Name**: You can use this filter to select the GL Account Level 3 Name pertaining to the GL Account Hierarchy level 3, for rolling up the results on the underlying GL Account Leaf Name that is related to the underlying Instrument Tables Accounts.
- **GL Account Leaf Name**: You can use this filter to select the GL Account Leaf Name that is related to the underlying Instrument Tables Accounts.

Figure 8-146 Canvas Prompt Filters for Org Unit Key Processing Dimension

- **Org Hierarchy Name**: This is a mandatory filter for the group filtering on Org Unit Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Org Hierarchy Name” must be selected with only a single value simultaneously.
- **Org Level 1 Name**: You can use this filter to select the Org Level 1 Name pertaining to the Org Unit Hierarchy level 1, for rolling up the results on the underlying Org Unit Leaf Name that is related to the underlying Instrument Tables Accounts.

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- **Org Level 2 Name**: You can use this filter to select the Org Level 2 Name pertaining to the Org Unit Hierarchy level 2, for rolling up the results on the underlying Org Unit Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Org Level 3 Name**: You can use this filter to select the Org Level 3 Name pertaining to the Org Unit Hierarchy level 3, for rolling up the results on the underlying Org Unit Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Org Unit Leaf Name**: You can use this filter to select the Org Unit Leaf Name that is related to the underlying Instrument Tables Accounts.

Figure 8-147 Canvas Prompt Filters for Product Key Processing Dimension

- **Prod Hierarchy Name**: This is a mandatory filter for the group filtering on Product Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Prod Hierarchy Name” must be selected with only a single value simultaneously.
- **Prod Level 1 Name**: You can use this filter to select the Prod Level 1 Name pertaining to the Product Hierarchy level 1, for rolling up the results on the underlying Prod Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Prod Level 2 Name**: You can use this filter to select the Prod Level 2 Name pertaining to the Product Hierarchy level 2, for rolling up the results on the underlying Prod Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Prod Level 3 Name**: You can use this filter to select the Prod Level 3 Name pertaining to the Product Hierarchy level 3, for rolling up the results on the underlying Prod Leaf Name that is related to the underlying Instrument Tables Accounts.
- **Prod Leaf Name**: You can use this filter to select the Prod Leaf Name that is related to the underlying Instrument Tables Accounts.

8.1.8.1.2 Report Hierarchies

The Report provides you with the roll-up and drill-down capability on the underlying Instrument account level data, leveraging the available levels for the two following Hierarchies:

- Product Hierarchy
- Region Hierarchy

Following screenshot displays the two available selections for the aforementioned hierarchies.

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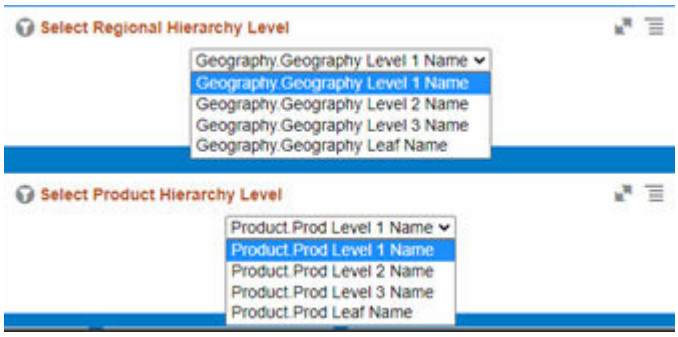
Figure 8-148 Variable Prompt for Instrument Tables Key Processing Dimension Hierarchies



8.1.8.1.3 Report Data Action

The Data Actions provide the capability to perform drill-down analysis across the downstream report canvases. The drill-downs are enabled using six Data Actions.

From every chart available in the report, you can select a combination of values, and then perform the navigation to the other Report canvases.

To do so, with a right-click on the chart selection, the Data Action options will appear for you to be able to navigate further as described in the following mapping:

- **Analyze Rate & Charge Credit** – the Data Action will be drilling through the “Analyze Rate & Charge Credit” canvas.
- **Analyze Rate Bands** – the Data Action will be drilling through the “Analyze Rate Bands” canvas.
- **Analyze FTP Margin** – the Data Action will be drilling through the “Analyze FTP Margin” canvas.
- **Analyze FTP Margin Rate by Region** – the Data Action will be drilling through the “Analyze FTP Margin Rate by Region” canvas.
- **Analyze FTP Margin Amount by Region** – the Data Action will be drilling through the “Analyze FTP Margin Amount by Region” canvas.
- **Analyze Account Details** – the Data Action will be drilling through the “Analyze Account Details” canvas.

The following screenshots show the Data Actions list as well as the navigation options that appears once you right-click on the desired selection.

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Figure 8-149 Data Action Configuration

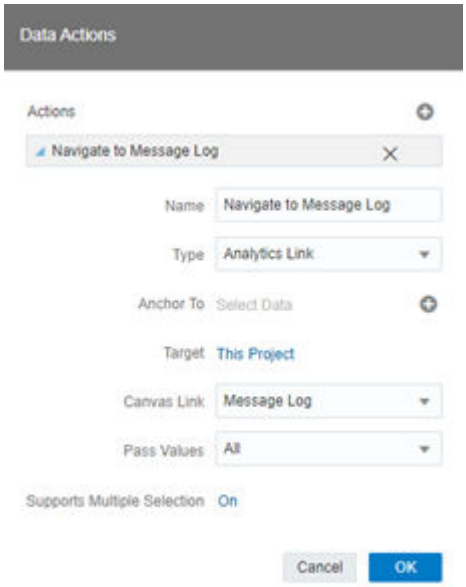
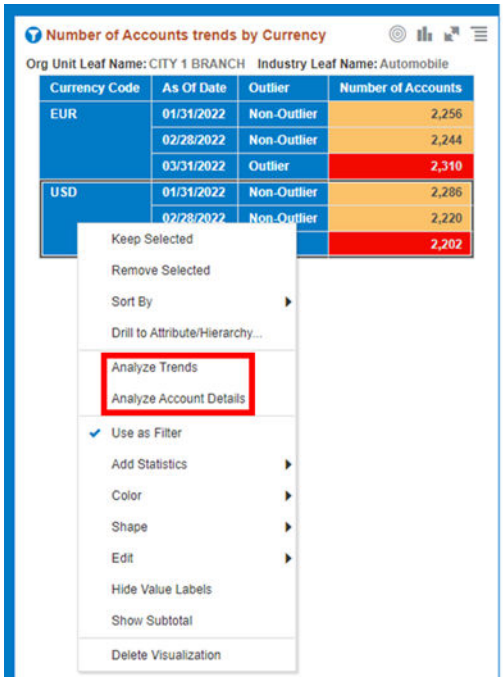


Figure 8-150 Data Action for Drill-down with Report Canvases



8.1.8.1.4 Transfer Rate Outliers

This canvas allows you to look at the Transfer Rate Outliers that are calculated using the Standard Deviation capability available off the shelf with Oracle Analytics.

The Transfer Rate pertaining to the Instrument level data is segregated between “Outlier” and “Non-Outlier” in the report column “Outlier”.

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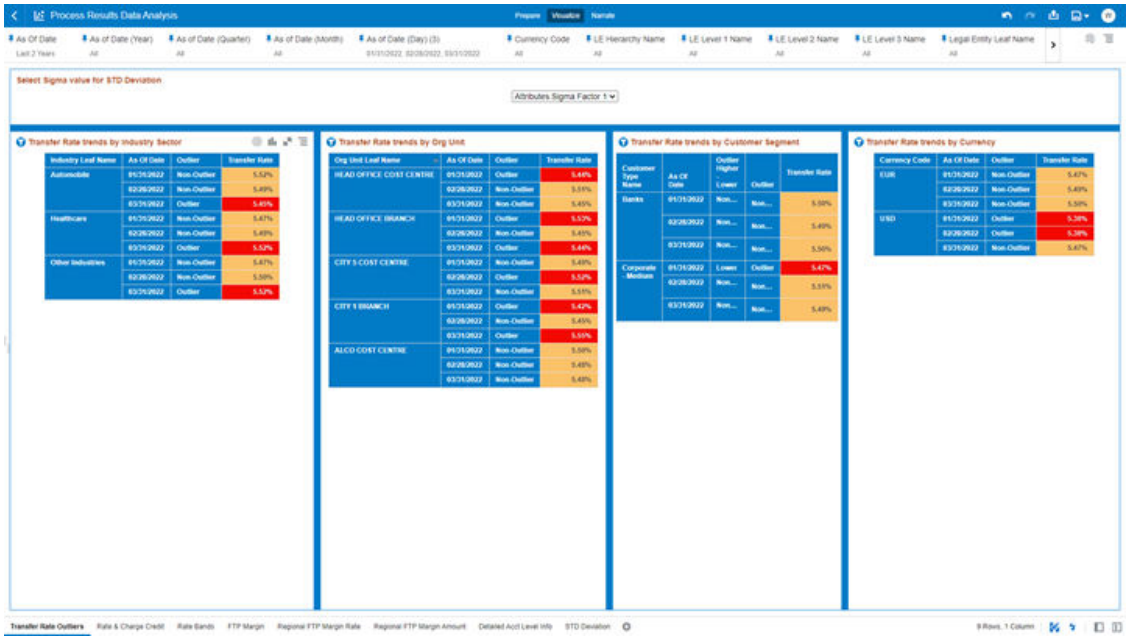
“Outlier” in this case refers to the Transfer Rate, for a particular subset related to a combination of Dimensional Values that lie outside the confidence interval of the deviation that we are adopting in our technique.

“Non-Outlier” would refer to the Transfer Rate, for a particular subset related to a combination of Dimensional Values that lie inside the confidence interval of the deviation.

The outliers are calculated on the Transfer Rate aggregated by the respective combination of Dimensional Values, such as Industry, Org Unit, Customer Segment, and Currency against the As-of-Date available.

Figure 8-151 “Transfer Rate Outliers” Report Canvas



The Transfer Rate can be identified as an Outlier or a Non-Outlier based on the standard deviation confidence interval that we adopt.

This confidence interval is parametrized with the list of the Sigma values available in the report that is “Attributes.Sigma Factor 1”, “Attributes.Sigma Factor 2”, and “Attributes.Sigma Factor 3”.

The Sigma Factors are integer values that range from “Attributes.Sigma Factor 1” to “Attributes.Sigma Factor 3” in the increasing order of the conservativeness or the confidence interval of the Standard Deviation.

This means will have more outliers when you perform analysis with “Attributes.Sigma Factor 1” than with the “Attributes.Sigma Factor 3”.

The following screenshot shows the selection for the Sigma Factor available in the report canvas.

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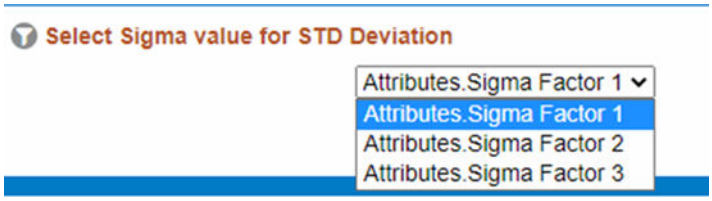
Figure 8-152 Sigma Factor selection for STD Deviation



You can use a series of Report Prompts, as previously described, to filter the data according to Key Attributes pertaining to the underlying Instrument level data.

The report displays the underlying Instrument account data according to the following Charts' logic:

- **Select Sigma Value for STD Deviation**: The chart provides you with a selection capability for the desired Sigma value to be used by the STD Deviation, the possible selection values are "Attributes.Sigma Factor 1", "Attributes.Sigma Factor 2", and "Attributes.Sigma Factor 3".
- **Transfer Rate trends by Industry Sector**: This chart deduces if the Transfer Rate related to the different Industry Sectors is an "Outlier" or "Non-Outlier" for a combination of As-of-Date and Industry Leaf Name.
  The columns displayed in the chart are as follows:
  - Industry Leaf Name
  - As Of Date
  - Outlier
  - Transfer Rate
- **Transfer Rate trends by Org Unit**: This chart deduces if the Transfer Rate related to the different Org Units is an "Outlier" or "Non-Outlier" for a combination of As-of-Date and Org Unit Leaf Name.
  The columns displayed in the chart are as follows:
  - Org unit Leaf Name
  - As Of Date
  - Outlier
  - Transfer Rate
- **Transfer Rate trends by Customer Segment**: This chart deduces if the Transfer Rate related to the different Customer Segments is an "Outlier" or "Non-Outlier" for a combination of As-of-Date and Customer Type Name.
  The columns displayed in the chart are as follows:
  - Customer Type Name
  - As Of Date
  - Outlier
  - Transfer Rate
- **Transfer Rate trends by Currency**: This chart deduces if the Transfer Rate related to the different Currencies is an "Outlier" or "Non-Outlier" for a combination of As-of-Date and Currency Code.
  The columns displayed in the chart are as follows:

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- Currency Code
- As Of Date
- Outlier
- Transfer Rate

8.1.8.1.5 Rate & Charge Credit

The “Rate & Charge Credit” Report provides the trend of the Transfer Price calculation metrics with respect to As-of-Date.

You can use a series of Report Prompts, as previously described, to filter the data according to key Attributes pertaining to the underlying Instrument level data.

The report displays the underlying data according to the following Charts’ logic:

- **Select Product Hierarchy Level**: The chart provides you with a selection capability for the desired Product Hierarchical level.
- **Select Product Hierarchy**: The chart provides you with three levels of the hierarchy – the selected level from the “Select Product Hierarchy level” as well as the Product Level 1 Name and Product leaf nodes (*Product Leaf Name*). You use this chart to further filter down the “Rate & Charge Credit” canvas charts.
- **Dimension Selection**: The chart provides you with selection capability on the available Dimension of Analysis – the available dimensions for selection are Industry Leaf Name, Org unit Leaf Name, Customer Type Name, and Currency Code. You use this chart to further filter down the “Rate & Charge Credit” canvas charts.
- **Rate Trends**: The chart reports the trend analysis of the Rates with respect to As-of-Date. The columns displayed in the chart are as follows:
  - As Of Date
  - Transfer Rate
  - Other Add On Rate
  - Pricing Incentive Rate
  - Basis Risk Cost Rate
  - Liquidity Premium Rate
  - All In Transfer Price Rate
- **Charge Credit Trends**: The chart reports the trend analysis of the Charge Credit with respect to As-of-Date.
  The columns displayed in the chart are as follows:
  - Currency Code
  - As Of Date
  - Charge Credit Trate
  - Charge Credit Basis Risk
  - Charge Credit All in TP Rate
  - Charge Credit Liq Premium
  - Charge Credit Pricing Incentive
  - Charge Credit Other Add-On Rate

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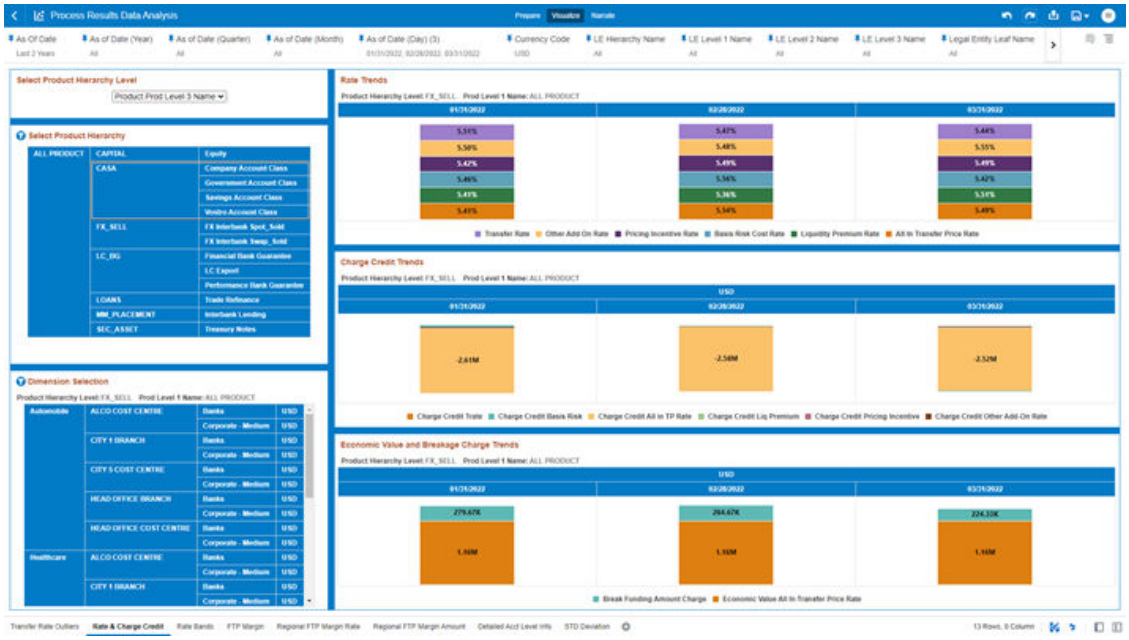
- **Economic Value and Breakage Charge Trends**: The chart reports the trend analysis of the Charge Credit with respect to As-of-Date.
  The columns displayed in the chart are as follows:
  - Currency Code
  - As Of Date
  - Break Funding Amount Charge
  - Economic Value All In Transfer Price Rate

Figure 8-153 “Rate & Charge Credit” Report canvas



8.1.8.1.6 Rate Bands

The “Rate Bands” Report provides the Number of Accounts by Rate Band for the Transfer Price calculation metrics with respect to As-of-Date.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Instrument level data.

The report displays the underlying data according to the following Charts’ logic:

- **Select Product Hierarchy Level**: The chart provides you with a selection capability for the desired Product Hierarchical level.
- **Select Product Hierarchy**: The chart provides you with three levels of the hierarchy – the selected level from the “Select Product Hierarchy level” as well as the Product Level 1 Name and Product leaf nodes (*Product Leaf Name*). You use this chart to further filter down the “Rate Bands” canvas charts.
- **Dimension Selection**: The chart provides you with selection capability on the available Dimension of Analysis – the available Dimensions for selection are Industry Leaf Name, Org unit Leaf Name, Customer Type Name, and Currency Code. You use this chart to further filter down the “Rate Bands” canvas charts.

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- **Number of Accounts by Transfer Rate Band**: The chart reports the trend analysis of the Number of Accounts by Transfer Rate Band with respect to As-of-Date.
  The columns displayed in the chart are as follows:
  - As Of Date
  - Number of Accounts
  - Transfer Rate Band
- **Number of Accounts by All in TP Rate Band**: The chart reports the trend analysis of the Number of Accounts by All in TP Rate Band with respect to As-of-Date.
  The columns displayed in the chart are as follows:
  - As Of Date
  - Number of Accounts
  - All in TP Rate Band
- **Number of Accounts by Other Add-On Rate Band**: The chart reports the trend analysis of the Number of Accounts by Other Add-On Rate Band with respect to As-of-Date.
  The columns displayed in the chart are as follows:
  - As Of Date
  - Number of Accounts
  - Other Add-On Rate Band
- **Number of Accounts by Pricing Incentive Rate Band**: The chart reports the trend analysis of the Number of Accounts by Pricing Incentive Rate Band with respect to As-of-Date.
  The columns displayed in the chart are as follows:
  - As Of Date
  - Number of Accounts
  - Pricing Incentive Rate Band
- **Number of Accounts by Liquidity Premium Rate Band**: The chart reports the trend analysis of the Number of Accounts by Liquidity Premium Rate Band with respect to As-of-Date.
  The columns displayed in the chart are as follows:
  - As Of Date
  - Number of Accounts
  - Liquidity Premium Rate Band
- **Number of Accounts by Basis Risk Rate Band**: The chart reports the trend analysis of the Number of Accounts by Basis Risk Rate Band with respect to As-of-Date.
  The columns displayed in the chart are as follows:
  - As Of Date
  - Number of Accounts
  - Basis Risk Rate Band

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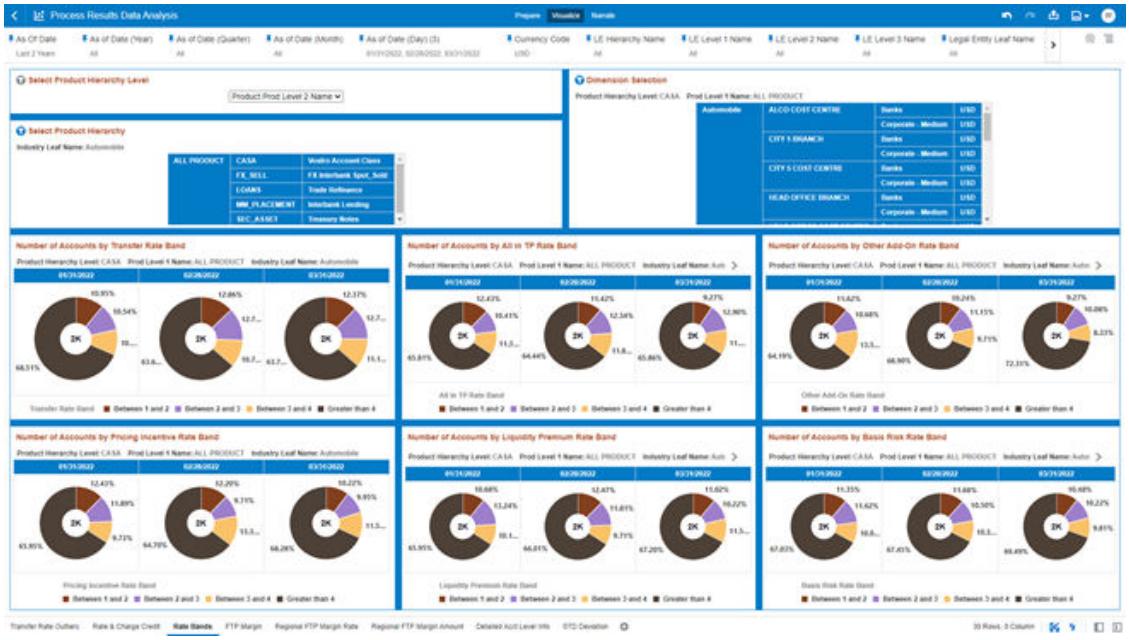
Figure 8-154 “Rate Bands” Report Canvas



8.1.8.1.7 FTP Margin

The “FTP Margin” Report provides the Transfer Price calculation metrics trends by Account Origination Date with respect to As-of-Date.

You can use a series of Report Prompts, as previously described, to filter the data according to Key Attributes pertaining to the underlying Instrument level data.

The report displays the underlying data according to the following Charts’ logic:

- **Select Product Hierarchy level**: The chart provides you with a selection capability for the desired Product Hierarchical level.
- **Select Product Hierarchy**: The chart provides you with three levels of the hierarchy – the selected level from the “Select Product Hierarchy level” as well as the Product Level 1 Name and Product leaf nodes (*Product Leaf Name*). You use this chart to further filter down the “FTP Margin” canvas charts.
- **Dimension Selection**: The chart provides you with selection capability on the available Dimension of Analysis – the available dimensions for selection are Industry Leaf Name, Org unit Leaf Name, Customer Type Name, and Currency Code. You use this chart to further filter down the “FTP Margin” canvas charts.
- **Number of Opened Account trends by Origination Date**: The chart reports the trend analysis of the Number of Opened Accounts by Account Origination Date with respect to As-of-Date.
  The columns displayed in the chart are as follows:
  - As Of Date
  - Number of Accounts
  - Account Origination Date (Month)

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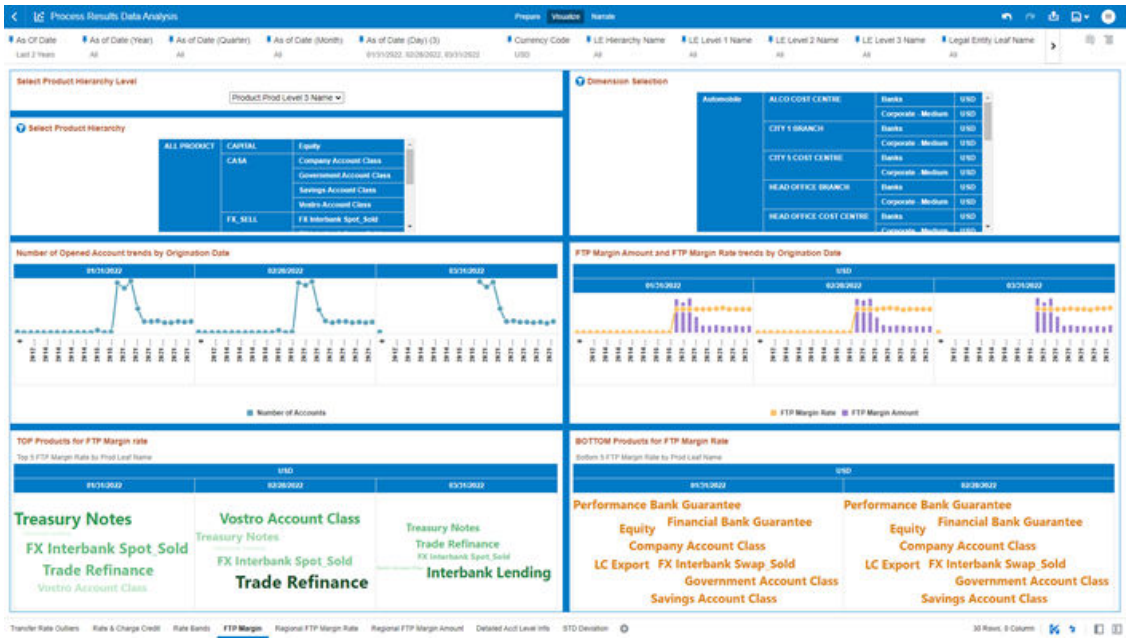
- **FTP Margin Amount and FTP Margin Rate trends by Origination Date**: The chart reports the trend analysis of the FTP Margin Amount and FTP Margin Rate by Account Origination Date with respect to Currency Code and As-of-Date.
  The columns displayed in the chart are as follows:
  - Currency Code
  - As Of Date
  - FTP Margin Rate
  - FTP Margin Amount
- **TOP Products for FTP Margin Rate**: The chart ranks the top Products based on the FTP Margin Rate with respect to As-of-Date and it is split by Currency. The top count has been defaulted to 5 and you can change the count value as required.
  The columns displayed in the chart are as follows:
  - Currency Code
  - As Of Date
  - Product Leaf Name
  - FTP Margin Rate
- **BOTTOM Products for FTP Margin Rate**: The chart ranks the bottom Products based on the FTP Margin Rate with respect to As-of-Date and it is split by Currency. The bottom count has been defaulted to 5 and you can change the count value as required.
  The columns displayed in the chart are as follows:
  - Currency Code
  - As Of Date
  - Product Leaf Name
  - FTP Margin Rate

Figure 8-155 “FTP Margin” Report Canvas



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8.1.8.1.8 Regional FTP Margin Rate

The “Regional FTP Margin Rate” Report provides the FTP Margin Rate trends by Product and Region with respect to As-of-Date.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Instrument level data.

The report displays the underlying data according to the following Charts’ logic:

- **Select Product Hierarchy level**: The chart provides you with a selection capability for the desired Product Hierarchical level.
- **Select Product Hierarchy**: The chart provides you with the product level selected from “*Select Product Hierarchy level*” variable prompt. You use this chart to further filter down the “Regional FTP Margin Rate” canvas chart.
- **Dimension Selection**: The chart provides you with selection capability on the available Dimension of Analysis – the available dimensions for selection are Industry Leaf Name, Org unit Leaf Name, Customer Type Name, and Currency Code. You use this chart to further filter down the “Regional FTP Margin Rate” canvas charts.
- **Select Regional Hierarchy Level**: The chart provides you with a selection capability for the desired Region Hierarchical level.
- **FTP Margin Rate**: The chart reports the trend analysis of the FTP Margin Rate with respect to As-of-Date.
  The columns displayed in the chart are as follows:
  - Product Hierarchy Level – the product level selected from “*Select Product Hierarchy level*” variable prompt.
  - Region hierarchy Level – the region level selected from “*Select Regional Hierarchy level*” variable prompt.
  - As Of Date
  - FTP Margin Rate

8.1.8.1.9 Regional FTP Margin Amount

The “Regional FTP Margin Amount” Report provides the FTP Margin Amount trends by Product and Region with respect to As-of-Date.

You can use a series of Report Prompts, as previously described, to filter the data according to Key Attributes pertaining to the underlying Instrument level data.

The report displays the underlying data according to the following Charts’ logic:

- **Select Product Hierarchy Level**: The chart provides you with a selection capability for the desired Product Hierarchical level.
- **Select Product Hierarchy**: The chart provides you with the product level selected from “*Select Product Hierarchy level*” variable prompt. You use this chart to further filter down the “Regional FTP Margin Amount” canvas chart.
- **Dimension Selection**: The chart provides you with selection capability on the available Dimension of Analysis – the available dimensions for selection are Industry Leaf Name, Org unit Leaf Name, Customer Type Name, and Currency Code. You use this chart to further filter down the “Regional FTP Margin Amount” canvas charts.

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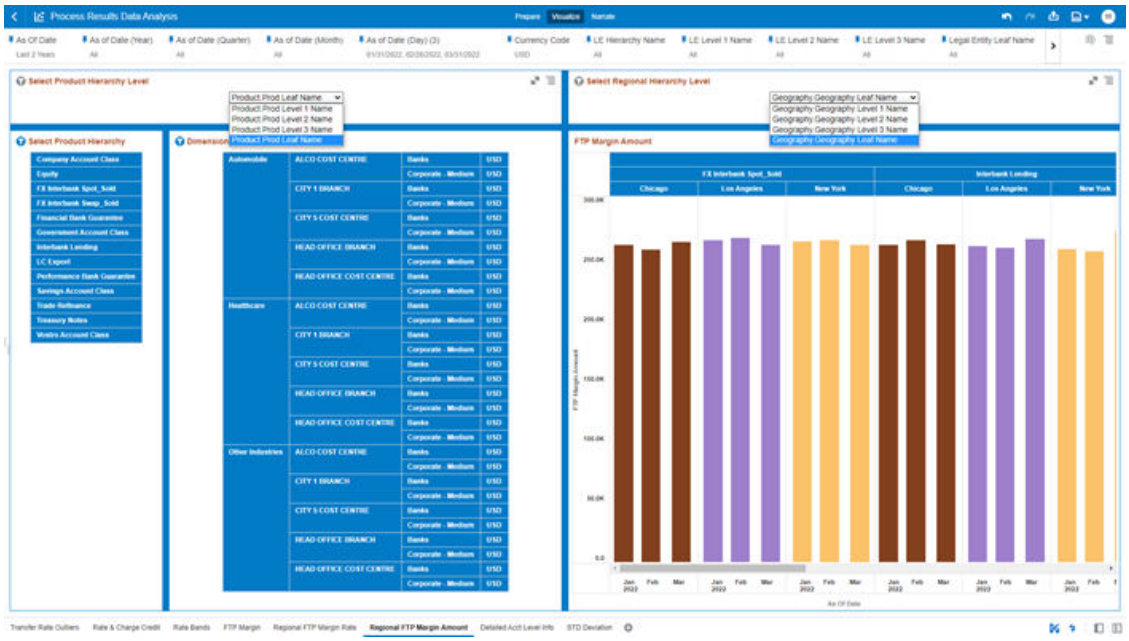
- **Select Regional Hierarchy Level**: The chart provides you with a selection capability for the desired Region Hierarchical level.
- **FTP Margin Amount**: The chart reports the trend analysis of the FTP Margin Amount with respect to As-of-Date.
  The columns displayed in the chart are as follows:
  - Product Hierarchy Level – the product level selected from "*Select Product Hierarchy level*" variable prompt.
  - Region hierarchy Level – the region level selected from "*Select Regional Hierarchy level*" variable prompt.
  - Currency Code
  - As Of Date
  - FTP Margin Amount

Figure 8-156 "Regional FTP Margin Amount" Report



8.1.8.1.10 Detailed Acct Level Info

The "Detailed Acct Level Info" Report provides a view of the underlying Instrument Tables Customer Accounts details.

You can use a series of Report Prompts, as previously described, to filter the data according to Key Attributes pertaining to the underlying Instrument Tables Accounts.

The report displays the underlying data according to the following Chart' logic:

- **Detailed Acct Level Info**: The tabular report displays all the Dimensions and the Measures, available at the Account level granularity, that have been displayed in all the other previously described report categories.
  Following the granular elements available for this table chart:
  - "As Of Date", "Legal Entity Leaf Name", "Org Unit Leaf Name", "Geography Leaf Name", "GL Account Leaf Name", "Prod Leaf Name", "Currency Code", "Remaining

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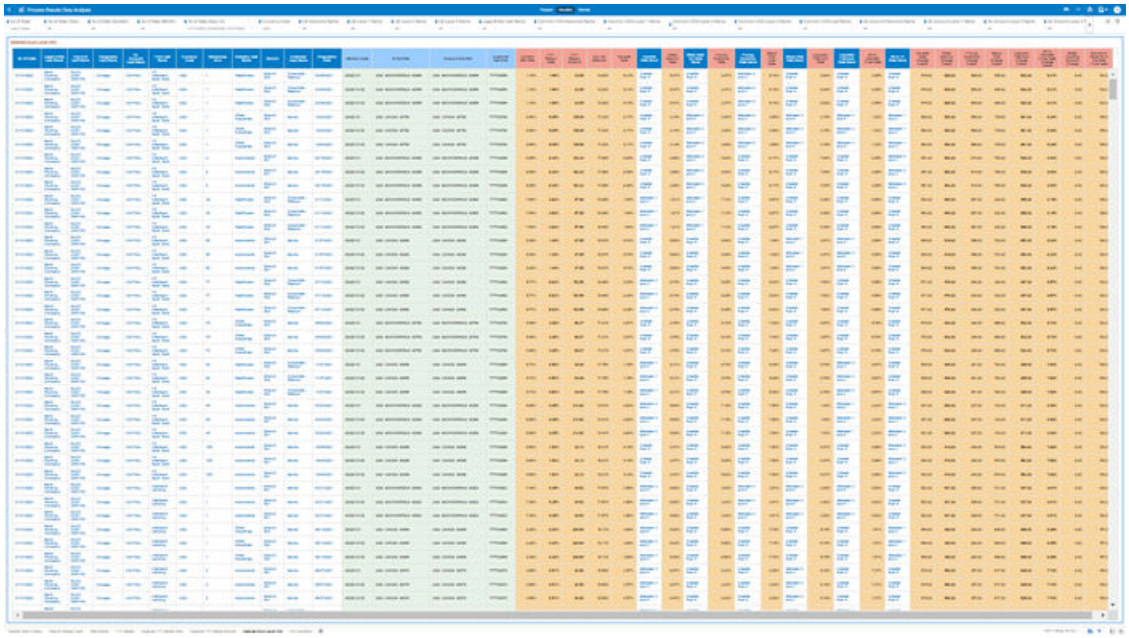
Term", "Industry Leaf Name", "Branch", "Customer Type Name", "Origination Date", "Identity Code", "Id Number", "Account Number", "Customer Identifier", "Current Net Rate", "FTP Margin Rate", "FTP Margin Amount", "Cur Par Balance", "Transfer Rate", "Transfer Rate Band", "Other Add On Rate", "Other Add-On Rate Band", "Pricing Incentive Rate", "Pricing Incentive Rate Band", "Basis Risk Cost Rate", "Basis Risk Rate Band", "Liquidity Premium Rate", "Liquidity Premium Rate Band", "All In Transfer Price Rate", "All in TP Rate Band", "Transfer Rate Charge Credit", "Other Add On Charge Credit", "Pricing Incentive Charge Credit", "Basis Risk Charge Credit", "Liquidity Premium Charge Credit", "All In Transfer Price Rate Charge Credit", "Break Funding Amount Charge" and "Economic Value All In Transfer Price Rate".

Figure 8-157 “Detailed Acct Level Info” Report



8.1.8.1.11 STD Deviation

The “STD Deviation” Report highlights the Transfer Rate Outliers that are calculated using the Standard Deviation capability available off the shelf with Oracle Analytics.

The Transfer Rate pertaining to the Instrument level data is segregated between “Non-Outlier”, “Higher”, and “Lower” in the report column “Outlier Higher – Lower”.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Instrument level data.

The report displays the underlying data according to the following Charts’ logic:

- **Transfer Rate trends by Customer Segment**: *(the chart is available in both bar and tabular formats)*: The chart reports the trend analysis of the Transfer Rate with respect to As-of-Date.
  The columns displayed in the bar chart are as follows:
  - Customer Type Name
  - As Of Date
  - Lower 2σ – the Transfer Rate STD Deviation value calculated for 2 sigma on the lower band

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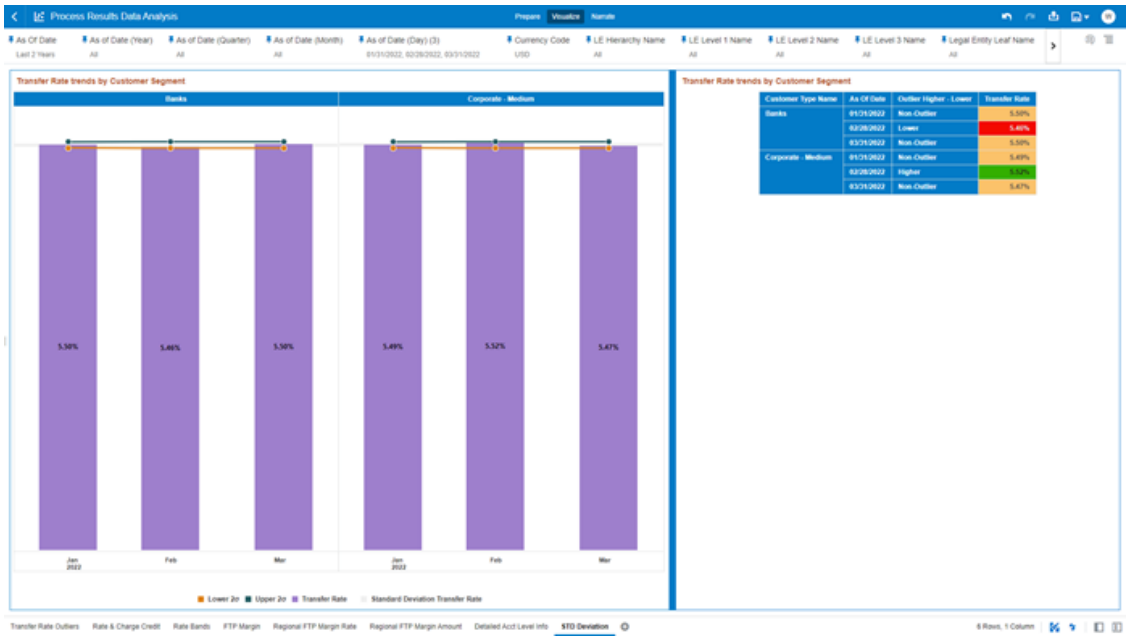
- Upper 2σ – the Transfer Rate STD Deviation value calculated for 2 sigma on the upper band
- Transfer Rate

The columns displayed in the tabular chart are as follows:

- Customer Type Name
- As Of Date
- “Outlier Higher – Lower” – defines if a Transfer Rate value, for each combination of Dimensional Values and As of Date, is Higher, Lower or Non-Outlier based on the STD Deviation calculation (labelled as “Higher” when the Transfer Rate is greater than the 2 sigma for the STD Deviation on the upper band, “Lower” when the Transfer Rate is lower than the 2 sigma for the STD Deviation on the lower band, and Non-Outlier when the Transfer Rate is within the range of the STD Deviation for“+2 sigma” and for “-2 sigma”)
- Transfer Rate

Figure 8-158 “STD Deviation” Report



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9

Technical Documents

This chapter covers the following topics:

1. Profitability and Balance Sheet Management Cloud Service Data Requirements: This document contains detail of account, ledger, reference, and market data needed to deliver business functionality. They are required at a pre-defined granularity / format and can come from your source systems and external data providers.

Table 9-1 STAGE and INSTRUMENT Tables

STAGE_TABLE_NAME	INSTRUMENT_TABLE_NAME	INSTRUMENT_TYPE_CODE	NAME
STG_ASSET	FSI_D_ASSET	COMMLOANS	Commercial Loans
		CONSLOANS	Consumer Loans
		MORTGAGES	Mortgages
		INVESTMENT	Investments
		ABS	Asset Backed Securities
		CCARDS	Credit Cards
		CREDITLINES	Credit Lines
		LEASES	Leases
		LOANCONTRACTS	Loan Contracts
STG_ASSET, STG_LIABILITY	FSI_D_ASSET,FSI_D_LIABILITY	MMCONTRACTS	Money Market Contracts
STG_LIABILITY	FSI_D_LIABILITY	ANNUITYCONTRACTS	Annuity Contracts
		BORROWINGS	Borrowings
		DEPOSITS	Deposits
		CASA	Checking and Savings
		WHOLESALEFUNDING	Wholesale Funding
		TD	Term Deposits
		RETIREMENTACCOUNTS	Retirement Accounts
STG_LEDGER_INSTRUMENT	FSI_D_LEDGER_INSTRUMENT	LEDGERINSTRUMENTS	Ledger Instruments
STG_FEE_BASED_SERVICE	FSI_D_FEE_BASED_SERVICE	MERCHANTCARDS	Merchant Cards
		MUTUALFUNDS	Mutual Funds
		OTHERSERVICES	Other Services
		TRUSTS	Trusts
STG_DERIVATIVE	FSI_D_DERIVATIVE	DERIVATIVES	Derivatives
		FRA	Forward Rate Agreements
		FUTURES	Futures
		FXCONTRACTS	Foreign Exchange Contracts
		OPTIONS	Caps, Floors, Collars

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Table 9-1 (Cont.) STAGE and INSTRUMENT Tables

		SWAPS	Interest Rate Swap
		FXSWAP	Foreign Exchange Swap
STG_OFF_BALANCE_SHEET	FSI_D_OFF_BALANCE_SHEET	GUARANTEES	Guarantees
STG_LOAN_COMMITMENTS	FSI_D_LOAN_COMMITMENTS	RATELOCK	Rate Lock Commitments

While loading data into Instrument tables, we need to remember:

a. If the user is providing a valid `Instrument_type_code` value in the loaded Instrument data file, the record gets loaded into Stage Instrument table, and also in the Processing Instrument table with the corresponding `Instrument_type_cd` value. The list of valid `Instrument_type_code` values. is specified in table 8-1.

b. If the user is providing an invalid `Instrument_type_code` value in the loaded Instrument data file, the record gets loaded into Stage Instrument table with the invalid `Instrument_type_code`, but the record gets rejected when the data loading happens from Stage table into Processing Instrument table. Thus, users need to take care that they use only valid values for `Instrument_type_code`, as specified in table 8-1. Note: Table 8-1 is a limited set and extension beyond this list is not allowed.

c. If column `Instrument_type_code` is included in Instrument data file but the user is not providing value for it, the concerned records will get rejected as it is a not null column. If column `Instrument_type_code` is not included in Instrument data file, the value of `Instrument_type_code` is defaulted as 'NA' in Stage table. When this record gets loaded into the Processing table, the value for `Instrument_type_cd` will be inserted as -1 (Default).

d. Refer to PBSM Data Requirements file to know mandatory and optional entity-attributes for your cloud service. When mandatory attributes like `ISO_CURRENCY_CD` are not given in input data file, the records will get rejected by the respective loader programs while moving from Stage to Processing tables. The records will normally not get rejected during data movement from File to Stage tables.

2. Reference Guide: The Reference Guide emphasizes business analysis and provides definitions, analytical concepts, processes, and calculations used in the Oracle Financial Services Funds Transfer Pricing (FTP). The information provided includes data requirements, payment and repricing event logic, calculation formulas, and various methodologies used to produce cash flows.

3. Data Dictionary Guide: The Data Dictionary Guide contains detailed information necessary for correct data population, including field definitions, and recommended default values.

4. Reporting Data Model: Please refer to the Doc ID: 2869409.1 to retrieve the Profitability and Balance Sheet Management Cloud Service Glossary of the Reporting Data Model (RPD Subject Areas).

5. FRC Analytics - Exporting Files from Oracle Analytics: This document helps you to use Oracle Analytics Server (OAS) to aggregate the data to required level and downloading it from Object Storage.

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