

# Oracle Financial Services

## Prepayment Rules



Release 24B  
G10862-01  
June 2024



Oracle Financial Services Prepayment Rules, Release 24B

G10862-01

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# 1

## Get Help

### Topics:

- [Get Help in the Applications](#)
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- [Join Our Community](#)
- [Share Your Feedback](#)
- [Before You Begin](#)

### 1.1 Get Help in the Applications

Use Help icons to access help in the application.

Note that not all pages have Help icons. You can also access the [Oracle Help Center](#) to find guides and videos.

#### Additional Resources

- Community: Use [Oracle Cloud Customer Connect](#) to get information from experts at Oracle, the Partner Community, and other users.
- Training: Take courses on Oracle Cloud from [Oracle University](#).

### 1.2 Learn About Accessibility

For information about Oracle's commitment to accessibility, visit the [Oracle Accessibility Program](#). Videos included in this guide are provided as a media alternative for text-based topics also available in this guide.

### 1.3 Get Support

You can get support at [My Oracle Support](#).

For accessible support, visit Oracle Accessibility Learning and Support.

### 1.4 Get Training

Increase your knowledge of Oracle Cloud by taking courses at [Oracle University](#).

## 1.5 Join Our Community

Use [Cloud Customer Connect](#) to get information from industry experts at Oracle and in the Partner Community. You can join forums to connect with other customers, post questions, and watch events.

## 1.6 Share Your Feedback

We welcome your feedback about Oracle Applications User Assistance. If you need clarification, find an error, or just want to tell us what you found helpful, we did like to hear from you.

You can email your feedback to [My Oracle Support](#).

Thanks for helping us improve our User Assistance!

## 1.7 Before You Begin

Refer to following Documents:

- [See What's New](#)

# 2

## 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 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.

Or

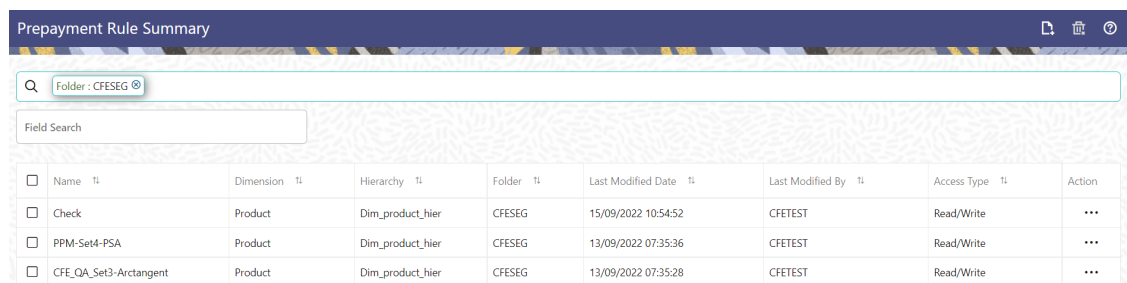
An alternative method to search a Prepayment Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Prepayment 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 2-1 Prepayment Rule Summary**



The screenshot shows the 'Prepayment Rule Summary' interface. At the top, there is a search bar with the text 'Folder : CFSEEG'. Below it is a 'Field Search' input field. The main content is a table with the following data:

<input type="checkbox"/>	Name	Dimension	Hierarchy	Folder	Last Modified Date	Last Modified By	Access Type	Action
<input type="checkbox"/>	Check	Product	Dim_product_hier	CFSEEG	15/09/2022 10:54:52	CFETEST	Read/Write	...
<input type="checkbox"/>	PPM-Set4-PSA	Product	Dim_product_hier	CFSEEG	13/09/2022 07:35:36	CFETEST	Read/Write	...
<input type="checkbox"/>	CFE_QA_Set3-Arctangent	Product	Dim_product_hier	CFSEEG	13/09/2022 07:35:28	CFETEST	Read/Write	...

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.
- **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](#)

## 2.1 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.
- Enter the following Details.

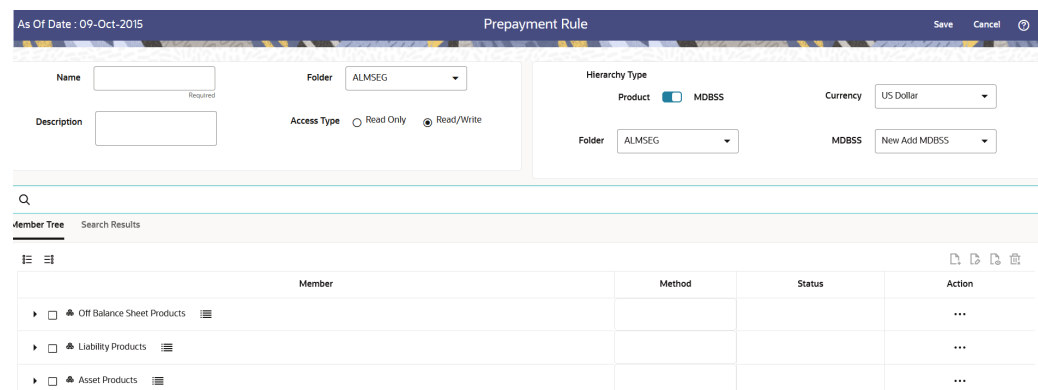
- Name: Enter the name of the Prepayment Rule.
- Description (optional): Enter the description of the Prepayment Rule.
- Folder: Select the Folder where the Prepayment Rule needs to be saved.
- Access Type: Select the Access Type as Read-Only or Read/Write.
- Select the Hierarchy Type as **Product** 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.

- If you select Hierarchy Type as MDBSS, then following options are available:

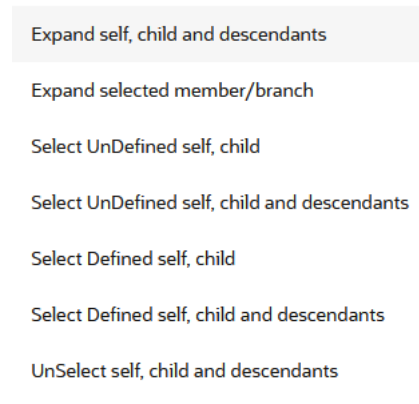
**Figure 2-2 Hierarchy Type as MDBSS**



The screenshot shows the 'Prepayment Rule' configuration window. At the top, it displays 'As Of Date : 09-Oct-2015' and 'Prepayment Rule' with 'Save' and 'Cancel' buttons. The form includes fields for 'Name' (with a 'Required' label), 'Description', 'Folder' (set to 'ALMSEG'), 'Access Type' (radio buttons for 'Read Only' and 'Read/Write'), 'Hierarchy Type' (radio buttons for 'Product' and 'MDBSS'), 'Currency' (set to 'US Dollar'), and another 'Folder' (set to 'ALMSEG'). Below these is a 'MDBSS' dropdown menu set to 'New Add MDBSS'. A search bar is present above a 'Member Tree' section. The 'Member Tree' section has a search bar and a table with columns: Member, Method, Status, and Action. The table lists three categories: 'Off Balance Sheet Products', 'Liability Products', and 'Asset Products', each with a tree icon and an action menu icon.

1. Select a **Currency**.
2. Select a **MDBSS Folder** and **MDBSS**.
3. Select **MDBSS 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.



**Figure 2-3 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.

**Figure 2-4 Search Criteria**

- c. Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser**

**Figure 2-5 Searching Members**

Member	Behavior Pattern Name	Status	Action
Asset Products			...
Asset Phipay Loan			...

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.

- If you select Hierarchy Type as Product, then following options are available:

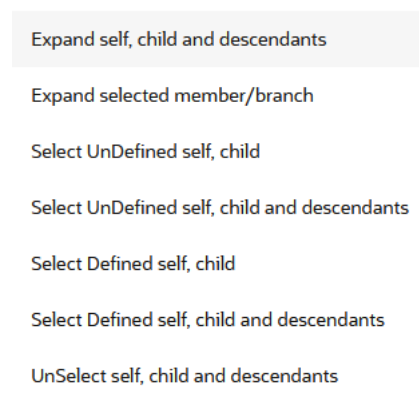
**Figure 2-6 Hierarchy Type as Product**

Member	Method	Status	Action
All Products			...

1. Select a **Currency**.

2. Select a **Product Folder** and **Product Hierarchy**.
3. Select **Product** 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 2-7 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.

**Figure 2-8 Search Criteria**

- c. Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser**

**Figure 2-9 Searching Members**

Member	Behavior Pattern Name	Status	Action
Asset Products			...
Asset Prepay Loan			...

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**.

## 2.2 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

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.

## 2.2.1 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 2-1 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. <ul style="list-style-type: none"> <li>• <b>Refinance:</b> 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.</li> <li>• <b>Curtailment:</b> 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.</li> </ul>
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.

**Table 2-1 (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	<p>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.</p> <ul style="list-style-type: none"> <li>• <b>Remaining Term:</b> The number of months remaining until the instrument matures.</li> <li>• <b>Reprice Frequency:</b> The frequency with which the instrument reprices. This defaults to the original term for a fixed-rate instrument.</li> <li>• <b>Original Term:</b> The number of months that was the originally scheduled life of the instrument.</li> </ul>
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	<p>This table allows you to specify seasonality adjustments. Seasonality refers to changes in prepayments that occur predictably at given times of the year.</p> <p>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.</p> <p>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.</p> <p>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.</p>

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 **Curtailement**.
3. Refinance is the most used method.
4. Select a **Calculation Method** as Constant, Prepayment Model, PSA, or Arctangent.

 **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.

### 2.2.1.1 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 2-10 Constant Prepayment Method**

Prepayment Specification : Constant

Formula: Base Annual PP rate = Constant rate

Prepayment Date: Use Payment Dates | Payment Event Type: Principal and Interest

	Start Origination Date	End Origination Date	Percent
<input type="checkbox"/>	01-01-1900	31-12-2499	0

Seasonality

Apply Cancel

### Prerequisites

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.
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.

## 2.2.1.2 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.

**Figure 2-11 Prepayment Model Method**

▼ Prepayment Specification : Prepayment Model

Formula: Base Annual PP rate = PP table factor \* PP table LOOKUP( dimension x, dimension y, dimension z)

Prepayment Date Use Payment Dates Payment Event Type Principal and Interest

<input type="checkbox"/>	Start Origination Date	End Origination Date	Coefficient	Prepayment Model
<input type="checkbox"/>	01-01-1900	31-12-2499	1	

> Market Rate Definition

> Seasonality

Apply Cancel

### 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.
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 **View Prepayment Model** icon to preview the selected Prepayment Model. 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.

### 2.2.1.3 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 2-12 PSA Prepayment Method**

Prepayment Specification : PSA

Formula: Base annual PP rate = (PSA Speed/100) \* PP table LOOKUP(Expired Term)

Prepayment Date: Use Payment Dates      Payment Event Type: Principal and Interest

	Start Origination Date	End Origination Date	PSA Speed	Prepayment Model
<input type="checkbox"/>	01-01-1900	31-12-2499	100	PSA MODEL

Seasonality

Apply      Cancel

### 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.

## 2.2.1.4 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 2-13 Arctangent Calculation Method**

Prepayment Specification : Arctangent

Formula: Base Annual PP rate =  $k1 - (k2 * ATAN (k3 * (-C/M + k4)))$

Prepayment Date: Use Payment Dates | Payment Event Type: Principal and Interest

<input type="checkbox"/>	Start Origination Date	End Origination Date	Coefficient K1	Coefficient K2	Coefficient K3	Coefficient K4
<input type="checkbox"/>	01-01-1900	31-12-2499	0	0	0	0

Market Rate Definition

Seasonality

Apply Cancel

### 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.

## 2.3 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.

 **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 2-14 Conditional Assumption**

The screenshot shows the 'Conditional Assumption' section of a software interface. At the top, there are dropdown menus for 'Folder' (set to 'ALMSEG') and 'Conditional Groups', along with 'Go' and '...' buttons. Below this is a 'Select Filters' input field and another 'Go' button. A table with the following columns is visible: Condition, Cash Flow Treatment, Calculation Method, Action, and Status. The table is currently empty, displaying 'No data to display'. At the bottom right of the table area are 'Create Group' and 'Delete' buttons. At the very bottom of the interface are 'Save', 'Apply', and 'Cancel' buttons.

**Figure 2-15 Conditional Assumption**

The screenshot shows the 'Conditional Assumption' section of a software interface, specifically the 'Product and Currency Details' and 'Product Definition' sections. Under 'Product and Currency Details', 'Product' is set to 'Asset Products' and 'Currency' is set to 'US Dollar'. Under 'Product Definition', there are dropdown menus for 'Folder' (set to 'ALMSEG') and 'Conditional Groups', along with 'Go' and '...' buttons. Below this is a 'Select Filters' input field and another 'Go' button. A table with the following columns is visible: Condition, Cash Flow Treatment, Calculation Method, Action, and Status. A single row is present with the condition 'Product = Asset Products and Currency = US Dollar', 'Refinance' for Cash Flow Treatment, 'Constant' for Calculation Method, and a 'Define' button in the Action column. At the bottom right of the table area are 'Create Group' and 'Delete' buttons. At the very bottom of the interface are 'Save', 'Apply', 'Reset', and 'Cancel' buttons.

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.
4. Select **Cash Flow Treatment** as Curtailment or Refinance.
5. Select **Calculation Method** as Constant, Prepayment Model, PSA, or Arctangent..
6. Click **Define**.

 **Note:**  
 You must select more than 2 filters to define a condition group.

**Figure 2-16 Conditional Assumption**


Conditional Assumption

Folder: ALMSEG | Select Filters | Go | Folder: ALMSEG | Conditional Groups | Go | ...

Condition	Cash Flow Treatment	Calculation Method	Action	Status
[FIL_T708647737788] = FSI_D_OFF_BALANCE_SHEET.ACCOUNT_NUMBER IN ('S68_TC006_BEHPATDR_ADJ_A/A_ARR_SCL_DDDD_T,S44_TC036_BEHPATDR_FIX_A/365_ARR_SCS_MMMY_T) AND FSI_D_OFF_BALANCE_SHEET.ACCOUNT_NUMBER IN ('S68_TC006_BEHPATDR_ADJ_A/A_ARR_SCL_DDDD_T,S44_TC036_BEHPATDR_FIX_A/365_ARR_SCS_MMMY_T)	Refinance	Constant	Define	
[FIL_T708666561240] = FSI_D_ASSET.AMRT_TYPE_CD IN ('10')	Refinance	Constant	Define	

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 2-17 Status of Conditional Assumption**

Member	Method	Conditional Assumption	Status	Action
▼ All Products				...
▶ Asset Products		Yes	Defined	...
▶ Liability Products				...
▶ Off Balance Sheet Products				...
▶ Other Residual Products				...