

# Oracle® Risk Manager

Reference Guide

Release 4.5

July 2000

Part No. A80989-01

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Oracle Risk Manager Reference Guide, Release 4.5

Part No. A80989-01

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# Send Us Your Comments

## Oracle Risk Manager Reference Guide, Release 4.5

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Oracle Corporation welcomes your comments and suggestions on the quality and usefulness of this publication. Your input is an important part of the information used for revision.

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# Preface

This reference guide describes the features of Oracle Risk Manager, an Oracle Financial Services (OFS) application that models the effects of interest rate risk. This preface describes the following information about the reference guide:

- [Intended Audience](#)
- [Organization](#)
- [Report-Related Changes](#)
- [Related Documents](#)
- [Conventions](#)
- [Customer Support Information](#)

## Intended Audience

Risk Manager users who perform interest rate risk analysis, cash flow forecasting, and market valuation will find this reference guide useful. It assumes the application has already been installed on your client/server system.

## Organization

Preliminary material appears in chapters 1–4. Read these chapters if you are new to Risk Manager or want to read about new features:

[Chapter 1, "Introduction,"](#) describes the OFS applications, setting user parameters, and menus and toolbars.

[Chapter 2, "Overview of the Process,"](#) describes the processes used in Risk Manager, with explanations of key concepts and modeling logic.

**Chapter 3, "Performance Data,"** describes processing performance factors, reading and processing instrument data, processing formula leaves, and writing processing errors.

**Chapter 4, "Overview of IDs,"** defines the ID concept, functions associated with IDs (such as importing and exporting), and tree-related IDs.

The following chapters describe the IDs used in Risk Manager. The chapters are organized alphabetically by ID name.

**Chapter 5, "Batch ID,"** describes how to use the Batch ID, and covers serial and parallel Batch ID processing.

**Chapter 6, "Configuration ID,"** explains modeling buckets, autobalancing, and dynamic buckets.

**Chapter 7, "Data Filter ID,"** describes how to create and use the Data Filter ID and explains Data Filter ID processing.

**Chapter 8, "Data Verification ID,"** describes how to create and use the Data Verification ID and explains Data Verification ID processing.

**Chapter 9, "Discount Rates ID,"** explains discount methods and cash flows.

**Chapter 10, "Forecast Balance ID,"** presents different approaches to forecasting balances and defines five forecast methods.

**Chapter 11, "Forecast Rates ID,"** describes how to create and use the Forecast Rates ID.

**Chapter 12, "Formula ID,"** describes how to use Formula IDs to specify report columns, calculate assignments in data correction, and create calculated conditions in data and relationship filters.

**Chapter 13, "Formula Leaves ID,"** defines the Formula Leaves ID, including fundamental concepts, functions, and examples.

**Chapter 14, "Group Filter ID,"** describes how to create and use the Group Filter ID.

**Chapter 15, "Leaf Characteristics ID,"** describes how to create and use the Leaf Characteristics ID.

**Chapter 16, "Maturity Strategy ID,"** describes how to create and use the Maturity Strategy ID.

**Chapter 17, "Prepayment ID,"** explains Prepayment IDs and calculation methods.

**Chapter 18, "Prepayment Table ID,"** explains prepayment table structures and dimensions.

[Chapter 19, "Pricing Margin ID,"](#) describes how to create and use the Pricing Margin ID.

[Chapter 20, "Process ID,"](#) describes how to create and use the Process ID.

[Chapter 21, "Rate Index ID,"](#) describes how to create and use the Rate Index ID for Monte Carlo processing.

[Chapter 22, "Transaction Strategy ID,"](#) describes how to create and use the Transaction Strategy ID.

[Chapter 23, "Transformation ID,"](#) explains how to create and use the Transformation ID for analysis and reporting.

[Chapter 24, "Tree Filter ID,"](#) describes how to create and use the Tree Filter ID. An example is provided.

[Chapter 25, "Tree Rollup ID,"](#) describes how to create and use the Tree Rollup ID. An example is provided.

The following chapters describe advanced features of Risk Manager.

[Chapter 26, "User-Defined Payment Pattern,"](#) explains how to customize amortization due to changes in payment frequency, seasonal payments, or variable payment amounts.

[Chapter 27, "User-Defined Repricing Pattern,"](#) explains how to use repricing patterns to describe interest rate adjustments over the life of a cash flow instrument.

[Chapter 28, "SQL Talk,"](#) explains how to open an SQL Talk dialog to connect to the database directly.

The appendixes provide additional information:

[Appendix A, "Risk Manager Error Messages"](#) lists Risk Manager error messages.

[Appendix B, "Transformation ID Error Messages"](#) lists Transformation ID error messages.

This guide also contains a glossary and an index.

## Report-Related Changes

Oracle Discoverer is the recommended reporting tool for OFSA Release 4.5. Discoverer is fully integrated with the following OFSA products:

- Oracle Financial Data Manager Balance & Control
- Oracle Performance Analyzer

- Oracle Risk Manager
- Oracle Transfer Pricing

This release supports both Oracle Discoverer and the reporting tool used in prior OFSA releases. You can find information about both reporting tools in the following documents:

Reporting Tool	Documentation
Oracle Discoverer	Oracle Discoverer User Guide Oracle Discoverer Administrator Guide
OFSA reporting tool	Oracle Portfolio Analyzer Reference Guide
Oracle Reports	Oracle Financial Data Manager Reporting Administration Guide

The following report-related chapters and appendixes have been removed from OFSA reference guides and moved to the *Oracle Portfolio Analyzer Reference Guide*:

- Report ID
- Report Macros
- Report Runner Dialog
- Report Stratification ID
- Standard Reports
- Subtotal ID

## Related Documents

For more information, see the following manuals:

- *Oracle Financial Data Manager Balance & Control Reference Guide*, PN A82947-01
- *Oracle Financial Data Manager Reporting Administration Guide*, PN A80993-01
- *Oracle Financial Services Installation and Configuration Guide*, PN A80992-01
- *Oracle Financial Services Technical Reference Manual*, PN A70144-01

# Conventions

This reference guide uses the following conventions:

Convention	Meaning
. . .	Vertical ellipsis points in an example mean that information not directly related to the example has been omitted.
...	Horizontal ellipsis points in statements or commands mean that parts of the statement or command not directly related to the example have been omitted.
<b>boldface text</b>	Boldface type in text indicates a term defined in the text, the glossary, or in both locations.
<b>bold monospace</b>	Bold monospace type in text indicates information that you type in.
<i>Italics</i>	Italics emphasize a word or phrase.
< >	Angle brackets enclose user-supplied names (for example, <Branch Name>).
[ ]	Brackets enclose function and terminal keys. In common syntax, brackets denote one or more optional items.
{ }	Braces are used to denote variables, and in command syntax, a choice within a mandatory item. Example of command syntax: <i>Warning: INIT file {filename} already exists.</i> Example of choices: {EXIT QUIT}
->	This arrow indicates a menu path.

## Symbols

- Bullets indicate a list of items or topics.
- 1. Numbered lists are used for sequential steps in completing a procedure.

## Orientation of Procedures

Procedures in OFSA reference guides are generally menu-driven rather than command- or icon-driven. Only occasionally is a reference to a toolbar or mouse action necessary because the action has no menu equivalent. If you prefer to use the toolbar icons, refer to Chapter 1, “Introduction.”

## Notes, Cautions, and Warnings

Certain information may be set off in boxes for purposes of emphasis:

- *Note* refers to important information
- *Caution* indicates the possibility of damage to a product, system, or data
- *Warning* refers to a situation that is potentially hazardous to people

## Customer Support Information

Product support is available through Oracle Support Services. Contact your project manager for information about using the support options offered in your geographic region. These options may include the following:

- MetaLink (which provides online access to information about Technical Libraries, Patches, TARs, and Bugs and is available at [metalink.oracle.com](http://metalink.oracle.com))
- Telephone support



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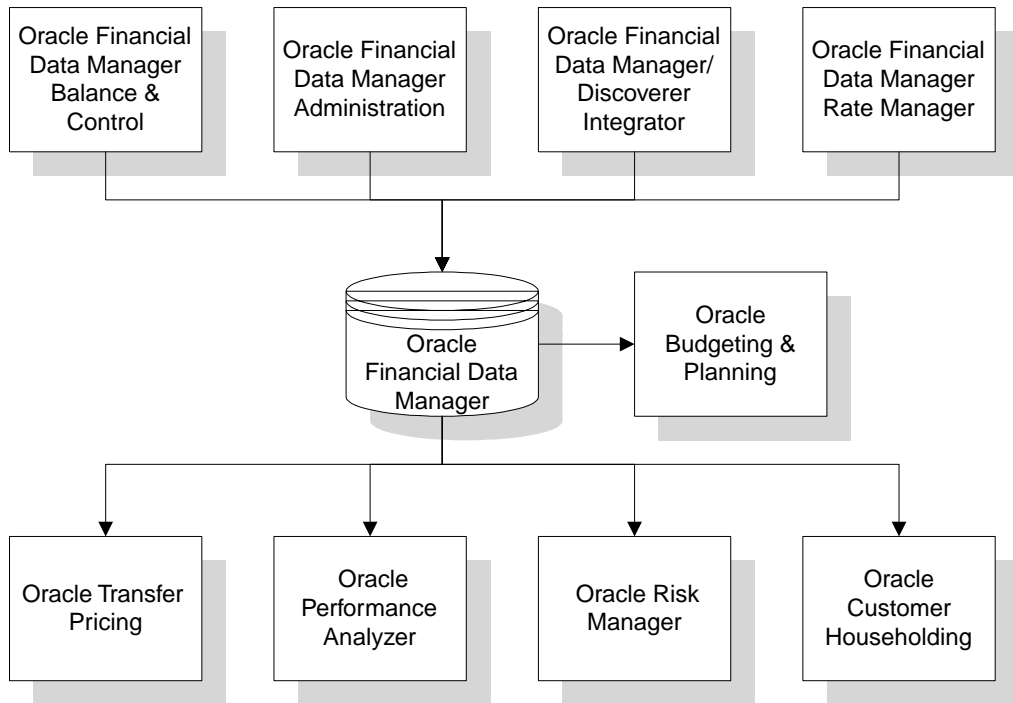
# Introduction

Oracle Risk Manager is a versatile forecasting tool, supporting asset/liability planning, budgeting, and treasury management. Powerful analytical functions can forecast every instrument, including derivatives and embedded options. Modeling at the account level of detail (loan-by-loan and deposit-by-deposit) provides highly accurate modeling results. Flexible assumption (IDs) and reporting structures support a wide range of analytical power.

Release 4.5 of Risk Manager includes multicurrency capabilities and improved data management and control for interest rates. You can analyze currency risk, manage multicurrency balance sheets, and incorporate exchange rate forecasting and processing. The redesigned interest rate algorithms for interest rate forecasts, valuation, and rate format conversion simplify data management and improve the overall accuracy of the model.

## Oracle Financial Services Overview

You can use Risk Manager as a standalone application or as part of the Oracle Financial Services (OFS) group of applications. As with all the other OFS applications, the Oracle Financial Data Manager provides the foundation for Risk Manager.



## OFS Applications

OFS applications form a comprehensive decision support solution that significantly enhances transfer pricing, budgeting and planning, risk management, and performance measurement functions across a financial institution.

### Oracle Financial Data Manager

Oracle Financial Data Manager (FDM) is a standalone data warehouse with pre-packaged data elements for the financial services industry. FDM is also the foundation for the OFS applications. It provides the database structures necessary to support the individual business applications.

FDM includes Oracle Financial Data Manager Balance & Control, Oracle Financial Data Manager Administration, Oracle Financial Data Manager/Discoverer Integrator, and Oracle Financial Data Manager Rate Manager.

**Oracle Financial Data Manager Balance & Control** Balance & Control validates, corrects, and aggregates data from the FDM.

**Oracle Financial Data Manager Administration** FDM Administration manages the FDM, providing security and maintenance capabilities.

**Oracle Financial Data Manager/Discoverer Integrator** Discoverer Integrator integrates the FDM database with Oracle Discoverer, which provides ad hoc reporting, analysis, and Web publishing capabilities.

**Oracle Financial Data Manager Rate Manager** FDM Rate Manager manages interest rate, exchange rate, and currency information for the FDM.

### **Oracle Budgeting & Planning**

Budgeting & Planning provides performance-based planning. It integrates cash flow balance sheet and net income forecasting capabilities with the scalability and customizable framework of Oracle Financial Analyzer, part of the Oracle Express group of data access and analysis tools.

### **Oracle Transfer Pricing**

Transfer Pricing calculates a transfer rate for each account and a charge or credit for funds for each asset or liability.

### **Oracle Performance Analyzer**

Performance Analyzer provides comprehensive and flexible cost and equity allocations. It measures product, business unit, and customer profitability.

### **Oracle Risk Manager**

Risk Manager forecasts cash flows, interest income, and market value to manage rate risk.

### **Oracle Customer Householding**

Customer Householding provides a fully scalable parallel-processing engine for customer data loading and cleansing, customer relationship linking, customerization, householding, and data aggregation within FDM.

## **Setting User Parameters**

Setup requirements include:

- OFSA system configuration
- Files required to run OFSA

- Logging in to OFSA

## OFSA System Configuration

Basic system configuration is defined using the Configuration ID

## Files Required to Run OFS Applications

To verify that all the necessary files for your installation of Risk Manager have been installed in the correct locations, consult the *Oracle Financial Services Installation and Configuration Guide*.

## Logging In to OFS

To log in to any OFS application, double-click the appropriate OFS icon from Windows. The OFS Login window appears.

In Windows NT or Windows 95, you can run multiple OFS applications, but you should run each application in its own memory space.

## Menus and Toolbars

You can use menus or the toolbar icons.

### Menus

A typical OFS menu bar consists of the following menu options:

- File
- Edit
- Process
- Setup
- Options
- Tools
- Window
- Help

## File Menu

The options of the File menu are used primarily for file management. This includes creating new files, opening existing files, saving, deleting, and renaming files. This menu also contains commands for printing IDs and windows, and for exiting the application.

**Save** Select Save to save IDs as you are creating or modifying them. You are prompted to confirm the save.

You should save your work every few minutes. From the File menu, you can select Save, or you can click on the Save icon (the floppy disk) on the toolbar.

**Delete** Select Delete to remove the open and active ID from the disk. You are prompted to confirm the deletion.

If you want to delete more than one open ID, make each ID active by clicking anywhere within the window and delete it.

**Delete Group** To delete a group of IDs, complete the following steps. Each ID does not need to be open and active for you to delete the entire group.

1. From the file menu, select Delete Group. The Delete Group window appears.
2. From the ID Type list, select the type of ID that you want to delete. All IDs of this type appear in the list below the ID Type list.
3. Select the IDs you want to delete, and select the Add button to list them in the ID Type/ID Name box.
4. Repeat steps 1 and 2 for as many ID types as required. You can select and delete multiple IDs of multiple types all at once. The following table describes other features of the Delete Group window.

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<b>Selection Buttons</b>	<ul style="list-style-type: none"><li>■ Four buttons control the movement of IDs between the ID list box and the Selected IDs box.</li><li>■ Select Add to add the ID to the Selected IDs box. Select Select All to select all the IDs of the chosen type.</li><li>■ Select Remove to remove an ID from the list you have made in the Selected IDs box.</li><li>■ Select Remove All to remove all of them from the Selected IDs list.</li></ul>
<b>Order Buttons</b>	<ul style="list-style-type: none"><li>■ To change the order of IDs in the Selected IDs box, select an ID and click the up or down Order arrows located below the list box.</li></ul>

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**ID Information**

- You can view various data about each ID before you delete it. Select any ID name in the ID list box, and click the right mouse button. An information box for that ID appears.
- 

5. When your list of IDs is complete, select Remove All.

**Import/Export Group** Refer to ["Importing and Exporting IDs"](#) in Chapter 4, ["Overview of IDs."](#)

**Dependencies** Refer to ["Dependent ID Import/Export"](#) in Chapter 4, ["Overview of IDs."](#)

**Print** Select Print to print the open and active ID or window.

**Print Group** To print a group of IDs, complete the following steps. It is not required that each ID in the group is open in order to print the entire group.

1. From the File menu, select Print Group.
2. Select the type of ID you want to print from the ID Type list. All IDs of this type appear in the list below the ID Type list.
3. Select the IDs that you want to print, and select the Add button to list them in the Selected IDs box.
4. Repeat steps 2 and 3 for as many ID types as required. You can select multiple IDs of multiple types.
5. To change the order of the listed IDs in the Selected IDs list box, select an ID and click the up or down Order arrows below the list.
6. When your list of IDs is complete, click OK to proceed with the group print.
7. Click Yes to proceed or No to cancel the print job.

**Edit Menu**

Use the Edit menu options to copy and move material from place to place, and to delete spreadsheet rows.

**Search** Use the Search option to locate a specific leaf value. There are three search options:

**Search Field** Specify Leaf Value or Description.

- Search String** Type in the Leaf Value or Description.
- Search Options** Select Case Sensitive if you want your search to match the string exactly as you entered it. Select Continue Searching... if your search begins part way down the tree (at the cursor location) but you also want to search above.
- Click OK to begin the search. When the search is complete and successful, the search window closes and the found leaf ID is highlighted. If the search string is not found, an error message appears.

### Process Menu

The Process menu contains the following options:

- Run
- Server Status
- SQL Talk

**Run** Select this option to begin any process.

**Server Status** Use this option to check the status of the processes running on the server.

**SQL Talk** Refer to [Chapter 28, "SQL Talk."](#)

### Setup Menu

The Setup menu contains one option: Leaves.

**Leaves** To access the Leaf Setup window, select Leaves from the Setup menu.

With Leaf Setup, you can view, edit, insert, renumber, or delete any Leaf Value from any Leaf Type in the database. For further information about the Leaf Setup window, refer to "[Leaf Setup](#)" in [Chapter 4, "Overview of IDs."](#)

### Options Menu

Use the Options menu to set up preferred screen displays, and to change users' passwords.

**Tool Bar** This is a toggle option; that is, it turns the display of the toolbar on and off. When the option is “on,” a check mark is displayed.

**Status Bar** This is a toggle option; that is, it turns the display of the status bar on and off. When the option is “on,” a check mark is displayed.

**Customize ID Toolbar** You can customize the vertical toolbar using this option. For more information, see the section "[Toolbars](#)" in this chapter.

**Change Password** Use this option to change the password for the Current User of this OFS application. When you select Change Password, the Change User Password window appears.

**Login name** The name of the current user appears here.

**Current password** Enter the current password for the current user. Asterisks appear as you type, for security reasons.

**New password** This box appears blank. Enter the new password for the current user. Asterisks appear as you type, for security reasons. Click OK to execute the change. Click Cancel to cancel the operation and close the window.

**Tree Bar** When you open a product-based or currency-based ID, the tree bar appears. Select a product or currency from the split window. If you worked with another product- or currency-based ID during the current work session, the selections default to the previous product or currency you selected. Otherwise, the selections default to No Product (0) and Default Currency (000). For all currency-based IDs except Forecast Balance ID and Transaction Strategy ID, select Default Currency (000) to set up assumptions for all the currencies you use. You can move, resize, or close the tree bar.

**Control Bar** For information about the Control Bar, refer to "[Spreadsheet Control Bar](#)" in [Chapter 4, "Overview of IDs."](#)

## Tools Menu

Use the Tools menu to start the Discoverer applications: Oracle Discoverer User Edition, Oracle Discoverer Administration Edition, and Discoverer Integrator. The Tools menu is always present. If an application is not installed, however, its name is grayed out and it is not available for use.



### Window and Help Menus

The Window menu options are for managing windows and icons, and for moving the cursor between windows.

The Help menu provides an online version of this reference guide.

### Status Bar

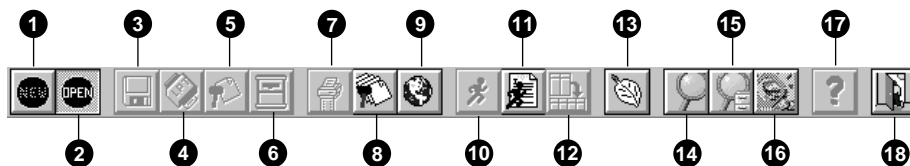
The Status Bar at the bottom of the screen displays information about current operations. Position the pointer on any Toolbar icon to display the name of the icon on the Status Bar.

## Toolbars

The horizontal and vertical toolbars are panels of icons that support shortcuts for menu commands and IDs.

### Horizontal Toolbar

The horizontal toolbar provides shortcuts to menu commands. You cannot customize this toolbar.



	Icon	Description
1	New	Create a new ID or pattern
2	Open	Open an existing ID or pattern
3	Save	Save an ID or pattern
4	Print	Print results
5	Delete	Delete an ID or pattern
6	Close	Close an ID or pattern
7	Print Group	Print a group of IDs
8	Delete Group	Delete multiple IDs

	<b>Icon</b>	<b>Description</b>
<b>9</b>	Group Import/Export	Import or export multiple IDs
<b>10</b>	Run	Run an ID
<b>11</b>	Report Runner	Run an active report
<b>12</b>	Transform Data	Run transformation on selected data
<b>13</b>	Set Up Leaves	Define user-defined and system leaves
<b>14</b>	Discoverer User Edition	Open the user edition of Discoverer
<b>15</b>	Discoverer Administration Edition	Open the administration edition of Discoverer
<b>16</b>	Discoverer Integrator	Open the OFS/Discoverer Integrator application
<b>17</b>	Leaf Tree Bar	Display the leaf tree bar
<b>18</b>	Spreadsheet Control Bar	Automate entry of data for spreadsheet-enabled IDs
<b>19</b>	Help	Access online help
<b>20</b>	Exit	Exit the OFS application

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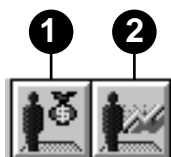
**Note:** The Discoverer icons (14, 15, and 16) are grayed out if the application is not installed.

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Two additional icons appear on the horizontal toolbar in Risk Manager and Transfer Pricing.



	<b>Icon</b>	<b>Description</b>
<b>1</b>	User-Defined Payment Pattern	Create or edit User-Defined Payment Patterns
<b>2</b>	User-Defined Repricing Pattern	Create or edit User-Defined Repricing Patterns

## Vertical Toolbar

The Vertical toolbar provides shortcuts to the IDs to which you have access in the application. Space limitations may restrict the icons that you see on the screen. However, you can customize the toolbar for your specific needs.

To customize the vertical toolbar, complete the following steps:

1. From the Options menu, select **Customize ID Toolbar**.

The **Customize ID Toolbar** window appears.

2. Locate the icon you want to add, delete, or move.

Use the scroll bar on the **Customize ID Toolbar** window to find the icon that you want to add to the vertical toolbar. Or, find the icon on the vertical toolbar you want to delete or move.

3. Add, delete, or move the icon.

To add an icon to the toolbar, select and then drag the icon from the **Customize ID Toolbar** window to the vertical toolbar.

To delete an icon, drag the icon from the toolbar to the **Customize ID Toolbar** window.

To change the order of the icons, drag them individually from one location on the toolbar to another.



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## Overview of the Process

Risk Manager is designed to model balance sheets under a variety of rate environments. Risk Manager functionality uses several key concepts and has evolved from the continual iterations of building simulated management processes. The basis of Risk Manager functionality includes:

- Modeling at the account-level of detail (loan-by-loan and deposit-by-deposit) is the only way to model accurately many of a financial institution's portfolios.
- A flexible time horizon and free-form timing bucket increments for reporting are critical to meeting the wide range of forecasting requirements of financial institutions.
- Unconstrained chart of accounts definition is a basic requirement of effective modeling.
- A structured process for defining and controlling assumptions is critical to any successful modeling process.
- Unconstrained batching of scenarios, with flexible assumptions sets, is required to achieve an effective and efficient analytical process.

### Key Operational Concepts

Risk Manager includes six key modeling attributes:

- Modeling Using Account-Level Data
- Separation of Data from Assumptions
- Separation of Assumptions Types
- Flexible Reporting Buckets
- A Structured Approach to Defining Rate Scenarios

- Flexible Chart of Accounts
- Powerful Assumption IDs

## Modeling Using Account-Level Data

Risk Manager models data at an account level (loan-by-loan and deposit-by-deposit). In this way cash flows are precisely modeled based on unique characteristics of each loan and deposit.

## Separation of Different Types of Assumptions

By separating data from modeling assumptions, you can modify assumptions and then run a reprocessing procedure without affecting data. In addition to the instrument data being separate from assumptions, each type of assumption is defined independently from other assumption types. Although they act dynamically during a processing run, assumptions about new business characteristics, new business volume, new business pricing, new business maturity mixes, prepayments and discounting methodology are defined independently. This facilitates the isolation of the impact of a change on one assumption. You simply modify the selected assumption, and reprocess in a separate processing run.

## Flexible Reporting Buckets

Because the assumptions are separate from the data, and because the model is operating on an account level of detail, you can specify assumptions and reporting time buckets in any increment desired. Since each transaction's cash flows are being solved independently, you can mix and match any combination of time buckets (up to 120). Changing the bucket structure will not impact the calculations. Thus you might model and report results on a daily and weekly basis for liquidity analysis, while employing a monthly five-year forecast for A/L Management. In either case, the results produced are consistent.

## Structured Approach to Defining Rate Scenarios

Structured testing of alternative rate environments is a key to a strong “what-if” analysis process. The model provides numerous utilities for defining and quality controlling rate scenarios. Because rate scenario modeling assumptions can be saved as patterns in Forecast Rates IDs, the typical burden of quality controlling rate scenarios is dramatically reduced. Once a pattern of rate shocks, spread changes or yield curve rotations (or combination of the above) is defined, it can be saved as a Forecast Rate ID to be used again and again. When data are updated in

the model, all you need to do is update the base position of key market rates. The change pattern in an ID can be applied and the forecast rate assumptions are automatically updated. It can also easily be cloned and modified to be saved as another Forecast Rate ID. This approach for defining rate scenarios is ideally suited for testing numerous rate environments in a controlled fashion.

## Flexible Chart of Accounts

You can define an unlimited chart of accounts (Leaf ID Values), incorporating all of the key elements which drive cash flow.

## The Power of Assumption IDs

You can mix and match any set of combinations of assumptions: forecast rates, forecast balances, pricing margins, maturity strategies, discount rates, prepayments, transaction strategies, formula leaves, and leaf characteristics. The separation of each element of the scenario assumptions means that you can incrementally modify one piece of the modeling equation and easily test its effect. By defining assumptions as IDs, unlimited batching of scenarios is possible.

## How the Model Works

While the specific operation of each section of the model is addressed separately in this guide, a general description of the modeling logic includes the following premises:

- The current position data defines the existing base of transactions
- New business volumes are generated by assumptions
- The maturity mix of new volumes is defined by assumptions
- Pricing of new volumes and repricing of existing volumes are defined by rate scenario assumptions and the contractual pricing characteristics of individual transactions
- Dynamic prepayment assumptions can be applied to any account
- Incremental transaction strategies can be used
- Cash flows are determined through the integration of data and assumptions
- Assumptions can be flexibly batched

## Current Position Data

Risk Manager forecasts on the basis of modeling the behavior of existing transactions, as well as those that originate in future periods. The complete cash flow characteristics of each existing transaction are defined in the data structure that is imported into the FDM database on a loan-by-loan and deposit-by-deposit basis. Accounts are also defined to simulate noninterest income and expense.

## New Business Volumes

New Add volumes in each period are defined on the basis of a forecast of new incremental volume for each account, or calculated on the basis of achieving a “target balance” in the account. The cash flow characteristics of newly originated volumes are determined by the Leaf Characteristics ID definitions. New volume assumptions apply to noninterest income and expense accounts as well.

## The Maturity Mix of New Volumes

The maturity mix of volumes originated for an account is determined by assumptions which are applied to each element of the account.

## Pricing of New Volumes and Repricing

Pricing of newly originated volumes, or repricing of adjustable and variable rate volumes, is determined by the integration of several factors. Each existing or newly originated transaction is linked to a *single rate* (a market rate) or a *yield curve*. The actual rate determined at origination or repricing takes into account the prevailing single rate or yield curve. The term of the transaction (if pricing is tied to a yield curve) is also taken into account, as well as other pricing characteristics (margin, life cap, period cap, etc.). Incremental pricing margins can be applied to new originations on a period-by-period basis for each account.

## Dynamic Prepayment Assumptions

You can apply dynamic prepayment assumptions to any account. Prepayments are applied on a loan-by-loan basis. Prepayment assumptions use individual instruments characteristics to drive prepayment behavior.

## Incremental Transaction Strategies

Incremental transaction strategies can be defined which create actual originations or sales of assets and liabilities, or off balance sheet transactions.



## Cash Flows

Cash flows for every instrument are calculated in every modeling period according to the contractual terms defined in the incoming data and/or leaf characteristics definitions, combined with interest rate scenario and prepayment assumptions. Principal and interest cash flows are recalculated as contractually defined.

## Batching Assumptions

Financial forecasts are built through the integration of current position data with each of the modeling scenario assumption elements:

- Current Position Data (account-level data)
- Forecast Rate Scenario Assumptions
- Forecast Balance Assumptions
- Maturity Strategies
- Pricing Margins Assumption
- Prepayment Assumption
- Transaction Strategies
- Discount Rate Assumptions (for market value calculation)
- Leaf (Account) Characteristics Assumptions
- Formula Leaf (Account) Assumptions

## Flow of the Modeling Process

The organization of the Risk Manager menu structure is better understood in the context of the general flow of the modeling process, as follows:

1. Set up system parameters, including:
  - Certain elements of the system configuration (as of date for data, modeling leaves, etc.)
  - Data path definitions (drive locations for key data sets)
  - Selected modeling parameters which are globally applied in developing modeling assumptions and reporting (assumption and reporting date buckets, etc.).
2. Load transaction-level data.

Load data into the system for modeling.

3. Perform cash flow events.

Each of the individual instrument records must be quality controlled. For each instrument record, the cash flow edits check all of the columns used in cash flow calculations for internal consistency. For example, the maturity date must be greater than the origination date, and the payment frequency must be greater than zero. This process must be performed in the balance and control process, and is a critical step in ensuring that Risk Manager processes properly. For more information, see the *Oracle Financial Data Manager Balance & Control Reference Guide*.

4. Define modeling assumptions.

Define assumption sets. These include any number of the assumptions described "[How the Model Works](#)" in this chapter.

5. Specify the model run.

Select a combination of assumption sets which will be applied to the data you wish to model. You may define a single processing run, or a batch of several runs, including multiple sets of assumptions. The run or batch is launched and results are produced to results tables.

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## Performance Data

Many factors impact the performance you can expect from a Risk Manager processing run. These factors fall into four general categories:

- Hardware, database, and network performance factors
- Database activity related to performance factors
- Software performance factors
- Multithreading configuration

The impact that hardware, database and network configurations as well as concurrent activity (i.e. the number of users and processes running against the database) play on the performance of any client/server application is a complex issue and beyond the scope of this guide. The intention of this section, however, is to provide a thorough understanding of the software-related performance factors in Risk Manager so that a user can judge the relative impact of various Risk Manager processing runs.

The configuration of the multithreading options applies only to processes that are run on the server. For more information, see the *Oracle Financial Services Installation and Configuration Guide*.

### Processing Steps

Risk Manager goes through a number of processing steps whenever a processing run is launched. Depending on the specifics of your institution, as well as the specific processing run, the amount of time to complete the process varies. The steps of a processing run are as follows:

## Reading in Assumptions

The first step in any Risk Manager processing run is to read in all assumption IDs into memory (i.e. Forecast Rates, Prepayments, Maturity Strategies, etc.). In this step, each ID is read into memory in its entirety. In other words, whether you are processing a single instrument record or 1/2 a million, with the same set of IDs, this step will take the same amount of time.

For all leaf-related IDs, the number of leaf values (or accounts) for which you made assumptions will directly impact how much data needs to be read into memory. For a given processing run, if you wish to minimize processing time, create leaf-related IDs in which your only assumptions are for the leaf values that you are processing. You must create these IDs from scratch - using Save As will bring over all data from a previous ID.

The two IDs that usually take the longest to read into memory are the Forecast Rate ID and the Leaf Characteristics ID. The Forecast Rate ID is not leaf related, and we do not recommend creating too many Leaf Characteristics IDs as this will be harder to quality control. The Forecast Balance ID and the Pricing Margin ID also can take some time, however. In this case, you may reduce the time it takes to read these into memory by only specifying assumptions for the leaves that are included in your processing run (an assumption of None counts as an assumption).

## Initialize Processing

The next step in a Risk Manager processing run is the initialization of the processing tables that will be updated throughout the process. During this stage (which is usually very quick) the following tables are created, updated, or cleared:

- **Risk Manager Detail Results Tables:** Risk Manager checks for the existence of the RES\_DTL\_<Sys\_ID\_Num> table. This will be updated with cash flow and gap results throughout the processing run. If this table does not exist, and the user has the security rights to create one, it will be created. If it exists, and the Selective Reprocessing option is not selected, all of the results will be cleared.
- **Result\_Bucket:** The Result\_Bucket table is updated with all of the date bucket header information (i.e. start and end dates for all date buckets). This table will be accessed in all date related reports.
- **Result\_Header:** The Result\_Header table is updated with the names of all Assumptions IDs that make up the processing run. The ID names can also be accessed when generating reports.

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## Reading Instrument Data

After the initialization step is complete, Risk Manager will begin the processing of cash flows by reading all instrument data specified in your Risk Manager processing ID. In this step, each instrument record is read once no matter how many rate scenarios are specified in your processing ID. If you are processing a subset of any instrument table the main factor impacting the performance of reading the data is whether your filter (or where clause) uses an index. For example, if you are filtering on your Risk Manager product leaf, this will result in optimal performance because all leaf columns are incorporated in the pre-defined indices for any instrument table. If you are filtering on all records with Current Rates > 6.00%, however, it is unlikely that you have created an index for this column and therefore the read time will be equivalent to reading the entire table. See your database administrator for more information.

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**Note:** The steps between reading and processing data are interactively repeated on small subsets of the data; not all data is read before processing begins. For performance considerations, however, these steps can be considered separate.

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## Processing Instrument Data

Once a record is read into memory, daily cash flows are generated for all scenarios, for the entire processing horizon. For all other instruments, processing is optimized for instruments whose cash flows are not rate-sensitive. These instruments are identified by not having a reprice even within the modeling horizon and not have rate-sensitive prepayments. These instruments are processed in one scenario only. Results for other scenarios are copied from the first scenario.

The number of interest rate scenarios has basically a linear impact on processing time. In other words the cash flow calculation time for four interest rate scenarios will take about four times as long as for a single interest rate scenario.

Instruments with deferred balances will process much slower than other instruments due to the calculations necessary to determine a constant yield. For more information on the deferred calculation, see the discussion of cash flow calculations in the *Oracle Financial Services Technical Reference Manual*.

Another factor which has a significant impact on the cash flow calculation time for an instrument record is the number of cash flow “events” that must be processed. Any time an instrument makes a payment, reprices or re-computes a payment, it impacts the processing time. The total number of events for a single instrument record for a single rate scenario is a function of the event frequencies (i.e. Payment

Frequency, Repricing Frequency, Payment Change Frequency and Neg-Am Equalization Frequency) and the length of the modeling horizon.

A one-day frequency will take about 30 times as long as a one-month frequency because it is processing 30 times as many events. For variable rate instruments, there is very little advantage to populating your instrument data with a repricing frequency of less than the frequency of the modeling buckets you intend to use. Remember that rate scenario assumptions are input for each modeling bucket. So, if an instrument reprices every day within a modeling bucket, it will be repricing from and to the same rate for all but the first day in the bucket. In fact, due to memory limitations, in any processing run, if a single instrument exceeds 16,000 events across all rate scenarios, this will generate a warning, and the results will not be stored. Depending on your hardware setup, you may run out of memory at a threshold of even less than 16,000 events.

The length of the modeling horizon for an instrument record depends on your processing options. If you are not processing Gap or Market Value results, and have no deferred balances associated with the instrument record, the modeling horizon for that instrument record will be the shorter of the maturity date or the end date of your last modeling bucket. If you are processing Gap results, or have a deferred balance associated with a particular record, cash flows will be generated until maturity. Finally, if you are processing market values (and do not have the 'Reprice as Cash Flow' option selected in your Discount Rates ID) cash flows will be generated out to maturity for each instrument record, regardless of the length of the modeling or Gap buckets. If you have selected the Reprice as Cash Flow option, the cash flows will be generated until the greater of the last modeling or gap bucket, or the next reprice date.

One last factor that adds to processing time is the number of financial elements that must be accumulated in memory. By selecting fewer output financial elements, you will increase overall performance. Fewer financial elements mean that less data will be accumulated during processing and less output will be written to the results tables.

## Writing Results

Risk Manager writes up to four types of results during a processing run. The total time it takes to write the results is a function of how many records must be inserted. The formulas to determine the number of results rows that will be inserted of each type are as follows:

### Cash Flow Results

Cash Flow results are stored in the Res\_Dtl\_<Sys\_ID\_Num> table. The number of records is determined by:

- Number of records = Number of Leaf Values (Chart of Account Line Items)
- Number of Rate Scenarios (1 - 9)
- Number of Non-Zero financial elements (depends on financial element set)

### Gap Results

Gap results are stored in the Res\_Dtl\_<Sys\_ID\_Num> table. The number of records is determined by:

Number of records = Number of Leaf Values (Chart of Account Line Items)

- Number of Rate Scenarios (1 - 9)
- Number of Gap start dates (1 - 5)
- Number of Non-Zero financial elements (depends on financial element set)

### Market Value Results

Market Value results are stored in the Result\_Master table. The number of records is determined by:

Number of records = Number of Leaf Values (Chart of Account Line Items)

- Number of Rate Scenarios (1 - 9)
- + Number of Gap start dates (1 - 5)

One record is written per leaf value per rate scenario for the current position information.

### Writing Cash Flow Results

Daily cash flows for up to 5 specific instrument records may be written out to the Process\_Cash\_Flows table. The number of records is determined by:

Number of records = Number of Records processed (if less than 5)

- Number of Rate Scenarios (1 - 9)
- Number of Cash Flow Events
- Number of Financial Elements (usually 10-20)

Writing specific cash flows is a Processing Option which may generate a lot of records, and therefore should only be used when needed.

## Processing Formula Leaves

After all cash flow results have been processed, the next step is to process Formula Leaves if you have selected the processing option. The processing of Formula Leaves can be broken down into the same three steps as processing instrument data—read, process, and write.

### Reading Formula Leaves Data

The total number of source results records accessed by each type of Formula Leaf equation (see Formula Leaves) is computed as follows:

Number of Financial Elements / Leaf Values Referenced in Formulas \* Number of Rate Scenarios

### Processing Formula Leaves

Once all required data has been read into memory, the processing time required for Formula Leaves is a function of the total number of formulas specified - e.g. number of Formula Financial Elements \* Number of Modeling Buckets for a given formula leaf. The complexity of the formulas do not play a major role in the performance of processing formula leaves (although it will impact the read time if you access many source leaves in your equation).

### Writing Formula Leaves Results

For information about the time required to update the results of formula leaves, see "[Writing Results](#)" in this chapter.

## Writing Processing Errors

When all processing is complete, Risk Manager will update the Process\_Errors table with all error messages generated during processing. You can limit the number of error messages generated in your Configuration ID. This is not a major component of processing time, however.

## Other Performance-Related Factors Matrix

Factor	Impact on Which Processing Step(s)
Number of Leaf Values (Chart of Account Line Items)	Reading Assumptions, Writing Results, Formula Leaves



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<b>Factor</b>	<b>Impact on Which Processing Step(s)</b>
Number of Rate Scenarios	Reading Assumptions, Processing Instrument Data, Writing Results, Formula Leaves
Number of Cash Flow Events per instrument Record	Processing Instrument Data
Length of Modeling Horizon	Processing Instrument Data
Number of Dynamic Gap Start Dates	Processing Instrument Data, Writing Results
Number of Dynamic Market Value Start Dates	Processing Instrument Data, Writing Results
Reprice as Cash Flow option in Discount Rates ID	Processing Instrument Data

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## Overview of IDs

An Oracle Financial Services Application identification (OFSA ID) is a type of dialog box that supports the set up of assumptions information, reporting specifications, or processing specifications. With OFSA IDs, you have the flexibility to define as many types of assumptions, report specifications, or processing specifications as needed.

You can use an ID immediately after creating it and then discard it without saving it. You can also save it and then modify and resave it under another name for use in other OFS applications.

This chapter presents the following topics:

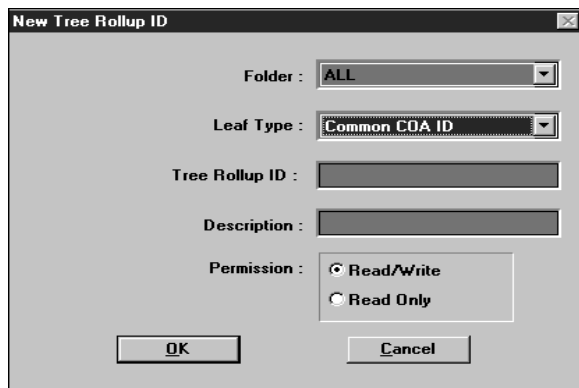
- [Creating an ID](#)
- [Opening an Existing ID](#)
- [Closing an ID](#)
- [Saving an ID](#)
- [Deleting an ID](#)
- [Leaf Setup](#)
- [Tree-Related IDs](#)
- [Importing and Exporting Data](#)
- [OFSA ID Dependencies](#)
- [Processing an ID](#)
- [Server Status](#)
- [Spreadsheet Control Bar](#)

## Creating an ID

To create an ID, perform the following steps:

1. From the File menu, select New.
2. From the list of IDs, select the ID you want to create.

The New ID dialog box appears.



3. Select or type in each field, as required, using the following descriptions as a reference:

Field Name	Field Description
Folder	<p>The folder default is set in Configuration ID. Until you set a new default in Configuration ID, the default option is &lt;INDIVIDUAL&gt;. This means that the user who logged on is the only user who can access this ID.</p> <p>You can make the ID available to a folder of users. If the user who logged on is a member of any folders, you can select the Folder options dialog box to view a list of those folders. Select a folder for this ID to make it available to all members of the folder. Select &lt;ALL&gt; to make it available to everyone.</p>
Name of ID	Type a name for the new ID. When naming IDs, use alphanumeric characters only. Use an underscore (_) rather than a space.
Description	<p>Type up to 60 characters describing the purpose of the ID. The description appears in the ID dialog box and is useful if others access the ID.</p> <p>This is an optional field.</p>
Permission	

Field Name	Field Description
Read/Write	Read/Write is the default. The individual ID creator always has Read/Write capability.
Read Only	Read Only becomes an available option only when a folder has been selected as the folder logon option.

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**Note:** Some IDs require additional information, such as leaf type or reporting currency.

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- Click OK to continue, or click Cancel at any time to cancel the operation and exit the dialog box.

## Opening an Existing ID

To open an existing ID, perform the following steps:

- From the File menu, select Open.
- From the list of IDs, select the type of ID you want to open.  
The Select ID dialog box appears.
- Select or type in each field, as required, using the following descriptions:

Field Name	Field Description
Folder	Click the arrow to view a list of folders. Select the name of the folder under which this predefined ID was created. The folder you select determines which ID choices are listed.
Additional criteria information	Before opening some types of IDs, you must provide additional information, such as a leaf type or a Tree Rollup ID. This data determines the list of previously defined IDs that appear for your selection.
Variable ID	Use the list to select the ID you want to open. (If you know the name of the ID, you can type the first letter of the ID to reach that portion of the alphabetized list, scroll down and select it.)

- Click OK to continue, or click Cancel at any time to cancel the operation and exit the dialog box.

## Closing an ID

From the File menu, select Close.

## Saving an ID

From the File menu, select Save.

## Save As

You can copy IDs by saving them under a new name. Perform the following steps to copy an ID:

1. Select the ID that you want to copy.
2. From the File menu, select Save As.  
The New ID dialog box appears.
3. Type a folder name and description for the ID and any other data required, and click OK.

The ID is copied and saved under the new name. The original ID remains unaltered.

## Rename

To rename an ID, perform the following steps:

1. Open the ID that you want to rename.
2. From the File menu, select Rename.  
The Rename ID dialog box appears.
3. Type a new name and description for the ID and any other data required, and click OK.

The ID is saved under the new name.

You can change the folder using this function, but only if the ID is actually renamed. This function does not perform a check for duplicate ID names in the folder.

You can also use Rename to change the Read/Write status for an ID.

## Deleting an ID

To delete an ID, perform the following steps:

1. Open the ID that you want to delete.
2. From the File menu, select Delete.  
A Delete Confirmation dialog box appears.
3. Click Yes to confirm your decision, or click No to cancel the operation.

## Deleting a Group of IDs

To delete a group of IDs, perform the following steps:

1. From the File menu, select Delete Group.  
The Delete Group dialog box appears.
2. From the ID Type list, select the Type of ID.  
All IDs of that type appear in the large dialog box below it.
3. Select the IDs that you want to delete, and select Add to display them in the selected IDs list.
  - a. To select multiple IDs of any type, hold down the Shift key while you click on them.
  - b. To select all IDs of a chosen type, click Select All.
  - c. To remove all IDs from the selected IDs list, click Remove All.
  - d. Use the arrow buttons to change the position of an ID in the selected IDs list.
  - e. Select the ID you want to move, and use the up or down arrow to move it up or down one position. IDs are deleted in the order that they appear in the list.
4. When you have selected all IDs for deletion, select Run from the Process menu.  
The Confirm Group Delete dialog box appears.
5. Click Yes to delete the IDs, or click No to cancel the operation.

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**Note:** You cannot import or export IDs while Group Delete is open.

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## Leaf Setup

With Leaf Setup you can view, edit, insert (or, in other words, create), renumber, or delete any leaf value from any leaf type in the database.

*Leaf type* and *leaf column* are synonymous. A leaf type is any column registered in the database as a leaf column. For example, GL Account ID, Org Unit ID, Common COA ID, and Financial Element ID are all leaf types.

Leaf values compose the next highest level of categorization above detail account level. This level is known as the leaf level and provides the foundation for the structure of a Tree Rollup ID.

Leaf capacity is 200,000 leaves. This increased capacity enables institutions to model increasingly complex profitability scenarios.

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**Note:** You can display as many as 16,000 leaves at a time.

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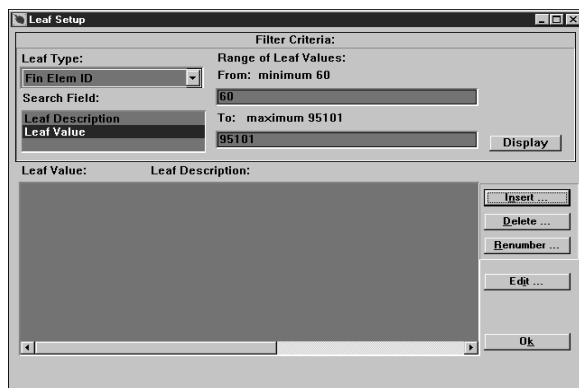
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### Creating a Leaf Setup Dialog Box

To create a Leaf Setup dialog box, perform the following steps:

1. From the Setup menu, select Leaves.

The Leaf Setup dialog box appears.



2. To view, edit, renumber, delete, or add any leaf value, select the leaf type that you want from the Leaf Type list.
3. Search for the leaf value that you want.



You can search for a leaf value either by using Leaf Value or Leaf Description. Leaf Value is the default. Because you can display a maximum of 16,000 leaves at a time, Leaf Value is recommended when you do not know the exact leaf value or description.

- a. If you select Leaf Value, type the From and To Leaf Values in the Range of Leaf Values and then select Display.

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**Note:** To search for an exact match, type the value in both the From and To fields.

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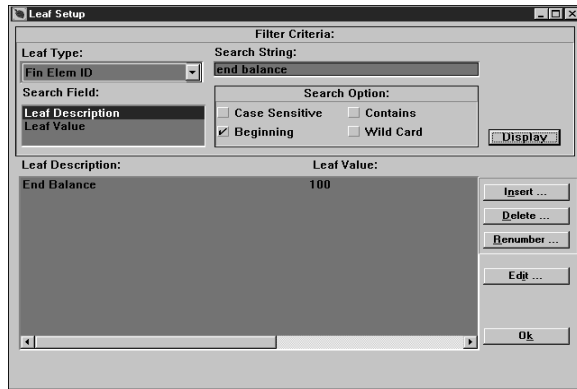
The Leaf Value and Leaf Description lists for the range that you specified appear.

The screenshot shows the 'Leaf Setup' dialog box. The 'Filter Criteria' section is active, with 'Leaf Type' set to 'Fin Elem ID'. The 'Range of Leaf Values' is defined with 'From: minimum 60' and 'To: maximum 95101'. The 'Search Field' is set to 'Leaf Value', and the 'Search String' is '60'. A 'Display' button is visible. Below the search criteria, a list of leaf values and descriptions is shown, with '60' selected in the 'Leaf Value' column. The list includes: Beginning Balance, Beginning Gross Rate, Beginning Net Rate, Beginning Transfer Rate, End Balance, Ending Gross Rate, Ending Net Rate, Ending Transfer Rate, Average Bal, Average Account Balance, Average Total Balance, and Average Percentage Active. On the right side of the list, there are buttons for 'Insert ...', 'Delete ...', 'Renumber ...', 'Edit ...', and 'Ok'.

Leaf Value:	Leaf Description:
60	Beginning Balance
70	Beginning Gross Rate
80	Beginning Net Rate
90	Beginning Transfer Rate
100	End Balance
110	Ending Gross Rate
120	Ending Net Rate
130	Ending Transfer Rate
140	Average Bal
141	Average Account Balance
142	Average Total Balance
143	Average Percentage Active

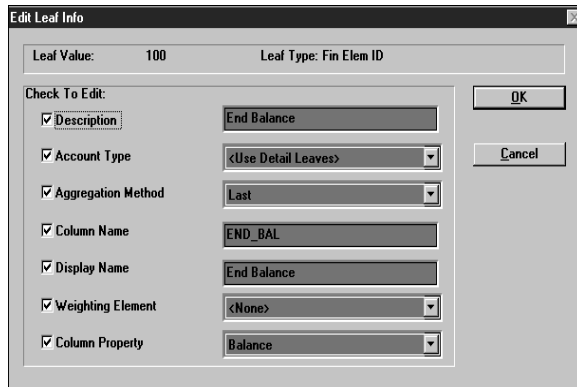
- b. If you select Leaf Description, type the description in the Search String field and select a Search Option, if appropriate.

The Leaf Value and Leaf Description lists for the description that you specified appear.



- To edit a Leaf Value or Leaf Description, select the Leaf Value that you want to edit and then click the Edit button.

The Edit Leaf Info dialog box appears.



Field Name	Field Description
Description	Leaf description, such as Average Net Rate
Account Type	Such as Dividends or Equity
Aggregation Method	Such as Average by Days Weighted or Beginning
Column Name	Physical column name, such as AVERAGE_NET_RATE
Display Name	Can be same or more detailed name as Description or Column name

Field Name	Field Description
Weighting Element	Balance used to weight the financial element. For example, Average Transfer Rate has a Weighting Element Average Balance.
Column Property	Values (Balance, Balance Weighted Object, Standard Rate, or Statistic) that determine whether the element requires currency conversion in processing or rate aggregation for reporting

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**Note:** All non-common Chart of Accounts (COA) leaves need to be tied to the detail leaf. The detail leaf determines the account type and accrual basis.

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5. To edit leaf information, select the appropriate Check to Edit options, make your changes, and click OK.
6. To renumber a leaf value, select the leaf value that you want to renumber and then click the Renumber button.  
The Renumber Leaf Value dialog box appears.
7. Type the new number in the New Leaf Value field and then click OK.
8. To delete a leaf value, select the leaf value that you want to delete and then click the Delete button.  
The Confirm Leaf Delete dialog box appears.
9. Click Yes to delete the leaf value, or click No to cancel the operation.
10. To add a new leaf value, select the leaf type to which you want to add and then click the Insert button.  
The Enter New Values dialog box appears.
11. Type in the Leaf Value and Description and, depending on the leaf type, any other information about the new leaf.
12. Click OK to add the leaf value, or click No to cancel the operation.

## Aggregation Methods for Financial Elements

Aggregation methods—Average, Accrual, Sum, First, and Last—are applied to the summary financial information calculated at each event in order to generate financial element data for each modeling period.

### Average Method

The average method calculates an average value (for example, Average Balance, Average Net Rate) over a modeling period. The calculation sums up the daily values and divides by the number of days in the modeling period.

**Daily Average Balance =  $\Sigma(\text{Daily Balance})/\text{days in modeling period}$**

All simulated events (originations, payments, prepayments, and repricing) are assumed to occur at the end of the event date. This implies that the balance and rate on the day of an event is counted as the value prior to any changes made by the event. Changes made influence the value of the next day.

### Accrual Method

The accrual method determines how much accrual has occurred over the modeling period. The accrual method is determined by the code value in the detail record. Interest-in-advance instruments calculate interest accruals from the current payment date to the next payment date. Interest-in-arrears instruments calculate interest accruals from the current payment date to the previous payment date.

The interest cash flow is divided by the number of days between these two dates to determine a daily accrual for each day within the modeling term. Daily interest accruals are summed by modeling period.

**Daily Interest Accrual = Interest Cash Flow / number of days in payment**

The example below demonstrates an interest accrual for an arrears record:

#### Example:

Payment Date	Interest Cash Flow	Days in Payment	Daily Accrual
January 15	950	31	30.64
February 15	900	31	29.03
March 15	850	28	30.36

#### Modeling Start Date = January 1

Modeling Period End Date	Accrual Calculation	Interest Accrual
January 31	15 days @ 30.64 + 16 days @ 29.03	924.08

Modeling Period End Date	Accrual Calculation	Interest Accrual
February 28	13 days @ 29.03 + 15 days @ 30.36	832.79

### Sum

The sum method adds together all financial element values associated with events occurring during the modeling period.

$$\text{Principal Runoff} = \sum(\text{Principal Runoff})$$

### First

The first aggregation method determines the value from the first event within a modeling period (for example, Beginning Balance).

### Last

The last aggregation method determines the value from the last event within a modeling period (for example, Ending Balance).

## Selecting an Aggregation Method

To select an Aggregation Method, perform the following steps:

1. From the Setup menu, select Leaves.  
The Leaf Setup dialog box appears.
2. From the Leaf Type list, select the leaf type you want.
3. Search for the leaf value that you want.

You can search for a leaf value either by using Leaf Value or Leaf Description.

- a. If you select Leaf Value, type the From and To Leaf Values in the Range of Leaf Values and then select Display.

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**Note:** To search for an exact match, type the value in both the From and To fields.

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The Leaf Value and Leaf Description lists for the range that you specified appear.

- b. If you select Leaf Description, type the description in the Search String field and select a Search Option, if appropriate.

The Leaf Value and Leaf Description lists for the description that you specified appear.

4. From the Leaf Value and Leaf Description lists, select a leaf value and then click the Edit button.

The Edit Leaf Info dialog box appears.

5. From the Check to Edit list, select Aggregation Method if it is not already selected.
6. Select an Aggregation Method and then click OK.

## Tree-Related IDs

Many OFSA IDs function in the context of leaf columns. An example is the definition of modeling assumptions (such as Transfer Pricing methods or prepayments) on the basis of a Product ID (or product segmentation.).

Examples of tree- or leaf-related IDs include the Tree Rollup ID, Tree Filter ID, Transfer Pricing ID, and Prepayment ID. Tree Rollup IDs, for example, enable the user to *drill-down* to an appropriate level before making an assumption. The user can drill-down to the level of detail needed for the particular purpose.

The OFS applications in which these and similar IDs function include Performance Analyzer, Risk Manager, Transfer Pricing, and Balance & Control.

## Hints on Editing Tree-Related IDs

When editing Tree Rollup ID and Tree Filter ID, you can use the Options and Tree menus to format the appearance of your ID. For example, you can change typeface or specify which branches are to be included in the rollup. You can use the Edit menu to search for a specific node within the tree structure. For more information about these menus, see [Chapter 25, "Tree Rollup ID"](#) and [Chapter 24, "Tree Filter ID"](#).

## Importing and Exporting Data

You can use IDs for importing and exporting data in Performance Analyzer:

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**Note:** You can load Ledger Stat records using the server side process only. For information about loading Ledger Stat records using the server side process, see the *Oracle Financial Services Installation and Configuration Guide*.

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**Note:** You must configure the ODBC drivers before you can import and export IDs. For information about configuring the ODBC drivers, see the *Oracle Financial Services Installation and Configuration Guide*.

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## Importing and Exporting IDs

You can use import/export functionality of OFSA to:

- Transport IDs from one FDM database to another
- Maintain external backup copies of key IDs
- Load data into FDM from an external database (.DBF) source

OFSA provides two methods of importing and exporting IDs:

- Individual ID import/export
- Dependent ID import/export

### Individual ID Import/Export

IDs that do not contain other embedded IDs, such as Leaf Characteristics ID and Transfer Pricing ID, are imported and exported using the Individual ID method. These IDs are exported into a dBase file with the .DBF extension and can be imported only from a dBase file with the .DBF extension.

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**Note:** Table ID and Allocations ID are an exception to this rule because they use Individual ID import/export. They may also contain other embedded IDs. Dependencies are not exported along with Table IDs or Allocations IDs. You must export all dependencies separately.

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Individual ID import/export is available for the following IDs:

- Table ID
- Allocation ID
- Leaf Characteristics ID
- Transfer Pricing ID
- Historical Rates ID
- Discount Rates ID
- Maturity Strategy ID
- Pricing Margin ID
- Forecast Rates ID
- Result Detail ID
- Transaction Strategy ID
- Forecast Balance ID
- Prepayment ID

The Individual ID method of import replaces an existing ID of that type in the import database. You cannot import an ID using the Individual ID method without replacing an existing ID.

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**Caution:** If you do not want to lose any existing IDs, create a new ID of the type being imported or use Save As from the File menu to create a copy of the existing ID before import.

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To import an ID, open the ID that you want to overwrite and select File -> Import.



## Dependent ID Import/Export

IDs that contain other embedded IDs, such as Correction Processing ID, are imported and exported using the Dependent ID method. This method ensures that any dependent IDs required for correct operation of the exported ID are included in the export process.

Dependent ID import/export is available for the following IDs:

- Data Filter ID
- Tree Rollup ID
- Tree Filter ID
- Formula ID
- Correction Rule ID
- Correction Processing ID
- Group Filter ID

Any ID that is exported using the Dependent ID method creates a dBase file with the .CAT extension and one or more dBase files with extensions listed in the table below. Although the extensions differ from the standard .DBF, these files all use the dBase format. Importing these IDs requires that all files created in the export process reside in the same directory. Dependent ID import/export uses the following file extensions:

ID or Data Type	File Extension
Catalog of IDs	.CAT
Filter ID	.FLT
Report Leaves	.LF
Level Description	.LEV
Node Description	.NOD
Report Columns	.RCL
Correction Rule ID	.COR
Error Assignments	.ASS
Correction Processing ID	.PRC
Tree Filter ID	.TFT
Tree Rollup ID	.ROL

ID or Data Type	File Extension
Formula ID	.FOR
Group Filter ID	.FGL

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**Note:** If a dependent ID import fails during processing, change the file name extension from .DBF to its original form and extension and reprocess.

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If a tree rollup ID that contains leaves not in leaf setup is imported, you receive a warning. If you elect to continue, the ID is imported but the leaves are not added to the leaf setup. You can use the Synchronize Instruments function to synchronize the Rollup ID with the leaf setup.

### Group Import/Export

Use the Group Import/Export dialog box to import or export multiple IDs of various types. To import or export a batch of IDs, perform the following steps:

1. From the File menu, select Group Import/Export.

The Group Import/Export dialog box appears. The Group Import/Export dialog box resembles a spreadsheet, where each row represents one import or export operation.

2. Click Insert Rows without highlighting any rows to add a row to the top of the spreadsheet.

If any rows are highlighted, selecting Insert Rows adds an equivalent number of rows immediately before the highlighted section.

3. Click Delete Rows to remove any highlighted rows from the spreadsheet.

If no rows are highlighted, selecting Delete Rows removes the first row from the spreadsheet.

You can use the Group Import/Export columns as follows:

Column Name	Column Description
Done	As IDs are imported or exported, a red check mark appears in the dialog box indicating that the job is complete.
Action	Click Import or Export for each ID on your list.

Column Name	Column Description
File Type	The only file type that you can select for Import or Export is dBase.
ID Type	Use the list to select ID types available for import or export.
ID Name	Use the list to view previously selected ID types. This field is active when exporting an ID or when importing an ID with the Individual ID method. When importing with the Dependent ID method, <not required> appears in the dialog box.
PC File Name	Double click in this field to open Select Import File if you are importing an ID or Select Export File if you are exporting an ID.

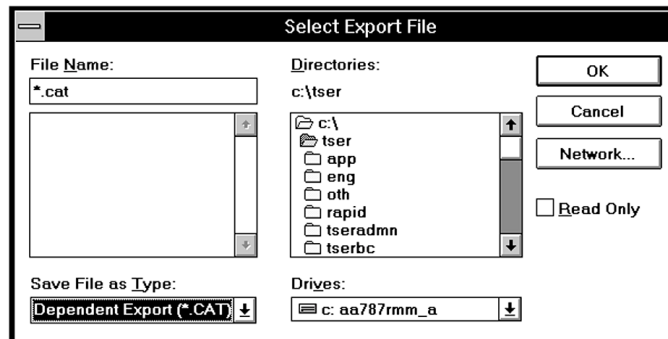
From the Process menu, select Run to run Group Import/Export.

OFSA processes the rows on your spreadsheet in sequential order, starting with the first row.

### Export an ID with Group Import/Export

To export an ID using the Group Import/Export dialog box, perform the following steps:

1. Select Export in the Action list.
2. Select the ID Type and ID Name you want to export.
3. Double-click in the PC File Name cell to display the Select Export File dialog box.



4. Type a valid file name for the export and click OK.

Individual ID exports must use .DBF as their file extension. Dependent ID exports must use .CAT as their file extension. If the file name that you have selected is not valid, you must select a new file name.

5. From the Process menu, select Run to run Group Import/Export.

OFSA processes the rows on your spreadsheet in sequential order, starting with the first row.

If the export file name that you have chosen already exists and the file is not read-only, you are asked if you want to overwrite the existing file.

6. Click Yes to replace the existing file with your export file.
7. Click No to cancel the export process and select a different name for your export file.

### **Export an ID from the File Menu**

To export an ID using the Export option in the File menu, perform the following steps:

1. Open the ID that you want to export.
2. From the File menu, select Export.  
The Export ID dialog box appears.
3. Click Browse to bring up the same Select Export File dialog box used for exporting with Group Import/Export.
4. Type a valid file name in the export data File Name dialog box.
5. Click OK to export your ID.

### **Import an ID with Group Import/Export**

To import an ID using the Group Import/Export dialog box, perform the following steps:

1. From the File menu, select Import/Export Group.  
The Group Import/Export dialog box appears.
2. Click Import in the Action dialog box.

3. Select the ID Type of the ID that you want to import.

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**Caution:** Individual ID import overwrites the ID listed in ID Name with the contents of the imported ID. As a result, you lose any information contained in the ID being overwritten. If you do not want to lose any existing IDs, create a new ID of the type being imported or use Save As from the File menu to create a copy of the existing ID before import.

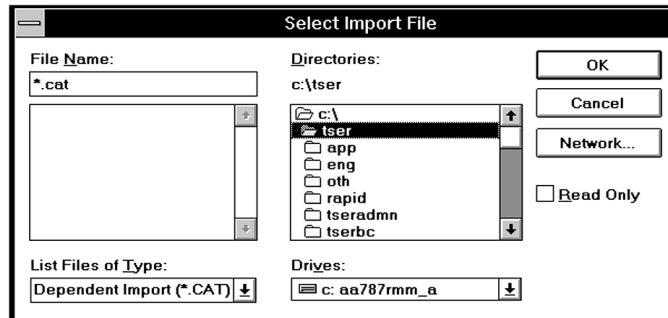
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4. If the ID Type that you select relies on the Individual ID import method, select an existing ID to overwrite in the ID Name dialog box.

If the ID Type you select relies on the Dependent ID import method, <not required> appears in the ID Name dialog box.

5. Double-click in the PC File Name dialog box.

The Select Import File dialog box appears.



The Select Import File dialog box looks and functions almost the same as the Select Export File dialog box. The primary difference is in the file name validity check that is performed before you are returned to the Group Import/Export dialog box. A file name is valid only if it has the necessary file extension, .DBF for Individual ID imports and .CAT for Dependent ID imports, and if it is found in the designated directory. If a file does not have the necessary file extension, or if it is not found, you must select a new file name.

If you import an ID that uses the Dependent ID method, you are importing the original ID along with any embedded IDs used in its functionality. You import these IDs with the same <Name>/<Group> combination that they had in the original database.

6. From the Process menu, select Run to process all the rows on your Group Import/Export spreadsheet.

If any of the <Name>/<Group> combinations for the IDs you are importing (or for any IDs embedded in your imported IDs) are already being used in your import database, the Import Warning dialog box appears. The Import Warning dialog box offers you three options of how to proceed when the ID you are importing or one of its dependent IDs already exists in your import database:

- **Rename**

To change the <Name>/<Group> combination of the ID that you are importing so it does not conflict with any IDs already present in the import database. After typing a new <Name>/<Group> combination for the ID that you are importing, click OK to continue with the import.

- **Use Existing**

To use the existing ID in the database with the same <Name>/<Group> combination as the ID that you are importing. You can use Use Existing when you need to import multiple IDs that share one dependency ID.

- **Cancel**

To cancel the import process. Selecting Cancel before all the rows in the Group Import/Export dialog box have been processed generates the Import Warning dialog box.

Click Yes to stop the Group Import/Export process. Click No to skip the current row on the Group Import/Export dialog box and continue processing the subsequent rows in sequential order.

In either case, all IDs imported prior to your clicking Cancel remain in the import database.

### **Import an ID from the File Menu**

To import an ID using the Import option in the File menu, perform the following steps:

1. Open the ID that you want to import.

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---

**Caution:** Individual ID import overwrites the ID listed in ID Name with the contents of the imported ID. As a result, you lose any information contained in the ID being overwritten. If you do not want to lose any existing IDs, create a new ID of the type being imported or use Save As from the File menu to create a copy of the existing ID before import.

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2. From the File menu, select Import.

The Import ID dialog box appears.

3. Click Browse to bring up the same Select Import File dialog box used for importing with Group Import/Export.
4. Type a valid file name in the import data File Name dialog box.
5. Click OK to import your ID.

If your import uses the Individual ID method, you overwrite the open ID with the contents of the ID you are importing. As a result, you lose any information contained in the ID being overwritten.

6. If you encounter the Import ID dialog box, refer to the end of the previous section, "[Export an ID with Group Import/Export](#)", for instructions on how to proceed.



### Rules, Limitations, and Hints

The Import/Export function is limited in scope. Keep in mind the following rules and limitations:

- If an ID is imported and the <Group> it was created in does not exist in the import database, the ID is placed in the default <Group> specified in the Configuration ID.

- Group Import/Export works only between databases that have identical structures. Different versions of the applications may use different database structures.
- Correction Processing IDs using the OFSA Cash Flow Edits cannot be imported.

When importing an ID of a given type, at least one ID of that type must already exist in the database or the import fails. No error message is displayed.

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**Note:** Some .DBF files may require structural changes to import correctly into your FDM database. Before importing a non-OFSA.DBF into a particular database, export a similar type of ID to .DBF from that database. In your external database application, compare its structure to the non-OFSA file you want to import. Correct any structural differences in the non-OFSA file, and try the import it. If you experience problems, contact Oracle Support Services.

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## OFSA ID Dependencies

OFSA IDs often depend on other IDs for some or all of their data or usefulness. For example, a Transformation ID may depend on a particular Filter ID to select and focus data in a meaningful way. The Filter ID may have been created especially for that transformation and named in the transformation set up dialog box when the Transformation ID was created. If that Filter ID is deleted, then the transformation becomes unusable.

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**Caution:** Consider OFSA ID Dependencies when you delete an ID. Deleting an ID may deprive a dependent ID of its meaning.

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OFSA provides a Dependencies option in the File menu that enables you to view the dependencies factors of any active ID. This option shows both primary and secondary dependencies. For example, a Data Filter ID dependency may include a Processing ID as a primary dependency and a Batch ID as secondary dependency (depending on the Processing ID).

Also, when you click Delete ID or Delete Group of IDs, OFSA automatically checks for any dependencies, and enables you to review them before the deletion takes



place. When you attempt to delete an ID, however, note that only primary dependencies are listed in the warning.

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**Note:** Click Dependencies from the File menu if you plan to delete unfamiliar IDs.

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## Processing an ID

To process an ID, select Run from the Process menu. In most cases, the process proceeds immediately, without further prompting from the system.

## Server Status

Most OFS applications can launch calculation-intensive software processes on a server. The server runs the process in the background, freeing the client PC to do other activities. Also, the server is often more powerful and can finish the process more quickly than the client PC.

When a server process is launched by an OFS application, the job request first is processed by RQ, the special OFS application that monitors OFSA server processing. RQ enters the job in a special table, and sends the job to the server. RQ then monitors the progress of the job on the server until it has completed, logging that information in its table.

When an OFS application launches a server job, the Server Status Update dialog box appears. Getting its data from RQ, the dialog box displays the progress of your server jobs or, optionally, displays all jobs on the server. Also, you can terminate any of your processes that are running on the server.

In System Administration, the capabilities of the Server Status Update dialog box have been expanded. The Server Status Update dialog box:

- Enables you to terminate *any* job running on the server, not just those jobs you have launched yourself
- Incorporates a test function to validate the ADMN - RQ - SERVER links
- Provides a *housekeeping* capability, enabling you to delete completed jobs from the RQ table

## Using the Server Status Update Dialog Box

To open the Server Status Update dialog box, select Server Status from the Process menu. The Server Status Update dialog box appears.

### View Your Jobs or All

- See your jobs  
Select this option to view the status of your own server jobs.
- See all jobs  
Select this option to view the status of *all* jobs running on the server.

### Stop Job

Select any of your own server jobs, and click this option to stop it. This function is not a Pause. Once stopped, the job cannot be continued. You must restart it from its source application. This option does not cancel jobs that have not begun execution.

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**Note:** In this OFS application, the Server Status Update dialog box enables you to stop your own server jobs only. In System Administration, the dialog box enables you to cancel of any job running on the server.

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### Insert Test Request

This option starts a simple job to *ping* the server, testing network connections and protocols. Click Stop Job to halt the test, and click Remove YOUR Finished Jobs to delete the job from the display. If the test fails, the Cannot Launch Request error message appears.

### Remove YOUR Finished Jobs

Select this option to delete all finished jobs from the display. The Request Clean Up verification box appears when the jobs have been removed. You click OK to close it.

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**Caution:** Selecting **Remove YOUR Finished Jobs** does not halt processing of a server job in progress. The job is deleted from the display (and from the RQ table) but continues to run to completion on the server.

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## Server Polling Indicator

At the left side of the dialog box is a blue wheel that moves up and down the dialog box. The wheel indicates that OFSA is polling the database.

## The Status Display

Through this interface you can monitor active server jobs.

Interface	Definition
Job Description	Name of the ID being processed
Table Name	Name of the table being processed against
Step/Page	Step or Page being processed
Host	Not currently implemented
Record	Number of records being processed
User	User's login name
Title	Description or status of the process
Status	Indicates whether or not the job has completed
Job Return Status	Indicates successful process or an error code. Possible return codes include: <ul style="list-style-type: none"> <li>■ Making request (Indicates that the client has made a request to the server, but it has not yet been acted upon)</li> <li>■ No INI found (Indicates that, on startup, the server process could not find the server ini file. This file should be located in the same directory as RQ (usually /bin/rq under the OFSA install directory). Either the file does not exist (being deleted or moved after RQ started) or it is not readable (someone changed the modes on the file))</li> <li>■ None: Running (Job is currently running)</li> <li>■ Failed on Fork (Normally indicates that RQ was unable to execute the requested application. This can occur if the path in the server ini file is incorrect (for example, the OFSA software suite is not installed normally or is moved after it is installed). This message could also indicate that the permissions on the executable are incorrect.)</li> <li>■ None: Canceled (Indicates the process has been canceled, either from the client or from the server, with signal 1, 2, or 15 (SIGHUP, SIGINTR, or SIGTERM, respectively).</li> </ul>

Interface	Definition
	<ul style="list-style-type: none"> <li>■ Job Return Number (Job returned an unrecognized status)</li> <li>■ Normal (Indicates the job terminated normally)</li> <li>■ Bad Usage (Indicates that the subprocess failed to start because the parameters were not passed correctly. With the current releases of OFSA, this should not happen.)</li> <li>■ Session Failure (Indicates that the application was not able to create a session. Check the server log file for additional information.)</li> <li>■ No memory (Indicates that the server application ran out of memory)</li> <li>■ Internal Error (Indicates that some error occurred within the server application. This is normally a database error. Check the server log file for additional information.)</li> <li>■ Internal Error (Indicates that some error occurred within the server application. This is normally a database error. Check the server log file for additional information.)</li> <li>■ Connect Failure (Indicates that the server process was unable to connect to the database. An incorrect user/password is probably the reason. Check the log file for more information. This can occur if the password is changed after starting up the application but before running a server process.)</li> <li>■ Rights Violation (Indicates that the specified user does not have the proper rights to run the program. This can occur if an administrator changes the rights for a user after the user started a client application but before the server application is launched.</li> <li>■ Signaled: &lt;number&gt; (Indicates that the process stopped running due to a signal. Check the log file for additional information. The number shown is the negative of the number that caused the process to halt. The most common number is -11.)</li> </ul>
Request Date	Date and time when request is inserted into OFSA Request Queue. The date and time are from the client PC.
Start Date	Date when OFSA Request Queue launches process
Start Time	Time when OFSA Request Queue launches process
End Date	Date and time when process completes

Interface	Definition
Priority	Processing priority in order of importance or urgency

## Changing a Password

To change your password, perform the following steps:

1. From the Options menu, select Change Password.  
The Change Password dialog box appears, with your login name (such as the name of the current System Administration user) at the top.
2. Type your current password.  
For security reasons, asterisks appear instead of the characters you type.
3. Type your new password, and then click OK.  
You are prompted to confirm the new password.
4. Retype the password exactly as you did the first time.
5. Click OK when you are done, or click Cancel at any time to close the Change Password dialog box and return to the main window.

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**Note:** OFSA passwords are case-sensitive. When you log on to the database via any OFS application, you must type your password exactly as you typed it here.

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## Spreadsheet Control Bar

The **Spreadsheet Control Bar**, available through the Stratification ID, automatically calculates and enters incremental ranges of data into your spreadsheets, such as for interest rates or amounts. The Spreadsheet Control Bar offers five incremental methods for automatically calculating ranges of data.

### Increment Methods

Following are descriptions of the five Increment Methods and their uses:

### Increment by Value

The increment is applied as a constant value amount (such as 1.00 or -1.50) that is cumulatively added to the value of the Start Value. Type an Increment Value and then click Run.

### Increment by Percent

The increment is calculated as a cumulative percentage increase over the Start Value (with 100 percent specified by the value 100). Type an Increment Value and then click Run.

### Add to by Value

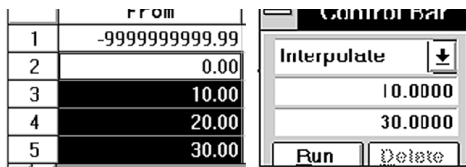
A constant amount is added to the current value of each of the values in the ID. (For example a value of 1.5 adds 1.500 percent to each value.) This increment does not accumulate. Type an Increment Value and then click Run.

### Add to by Percent

Each value is increased by a constant percentage over its current value (with a 100 percent increase specified by the value 100). This increment does not accumulate. Type an Increment Value and then click Run.

### Interpolate

Interpolate inserts into the **From/To** columns an evenly-divided series of values calculated between a Start and End value, leaving the selected first and last row values intact. Type a **Start Value** and an **End Value** and then click **Run**.



When the interpolation is Run, the results are as follows:

	From	To
1	-999999999.99	-0.01
2	0.00	16.66
3	16.67	23.32
4	23.33	29.99
5	30.00	999999999.99

The interpolated values from the 10-to-30 range are evenly distributed between the original values of 0 (selected row 2) and 30 (selected row 5). The To column values also have been correctly interpolated.

### Interpolation in Auto Increment

Interpolation enables you to create interpolated buckets based on a start- and end-value. This method does not update the end value specified in the Auto Increment dialog box, however. You must manually enter that value.

## Increment a Range of Values

To automatically increment a range of values, perform the following steps:

1. From the horizontal tool bar, click the Spreadsheet Control Bar icon to open the Control Bar.

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**Note:** You can move the dialog box to another, perhaps more convenient, location on your window. Place your mouse pointer in the Control Bar's title bar, and hold the left mouse button while you drag the dialog box to a new location.

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2. Select a range of values in the spreadsheet.

1	-999999999.99	99.99
2	100.00	199.99
3	200.00	299.99
4	300.00	399.99
5	400.00	499.99

In the Control Bar, the value from the first row in your selected column is transferred to the Control Bar's Start Value dialog box:



The Method list is at the top of the Control Bar. It displays Inc by Value when it becomes active. From the Method list, you can open a list of five increment Methods.

3. Select the increment method that you want to use and then click Run from the Process menu.

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**Note:** You can move the dialog box to another, perhaps more convenient, location on your window. Place your mouse pointer in the Control Bar's title bar, and hold the left mouse button while you drag the dialog box to a new location.

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## Using Spreadsheets

In addition to using the Control Bar to enter rates in a spreadsheet, you can also copy and paste to and from spreadsheets in other applications.



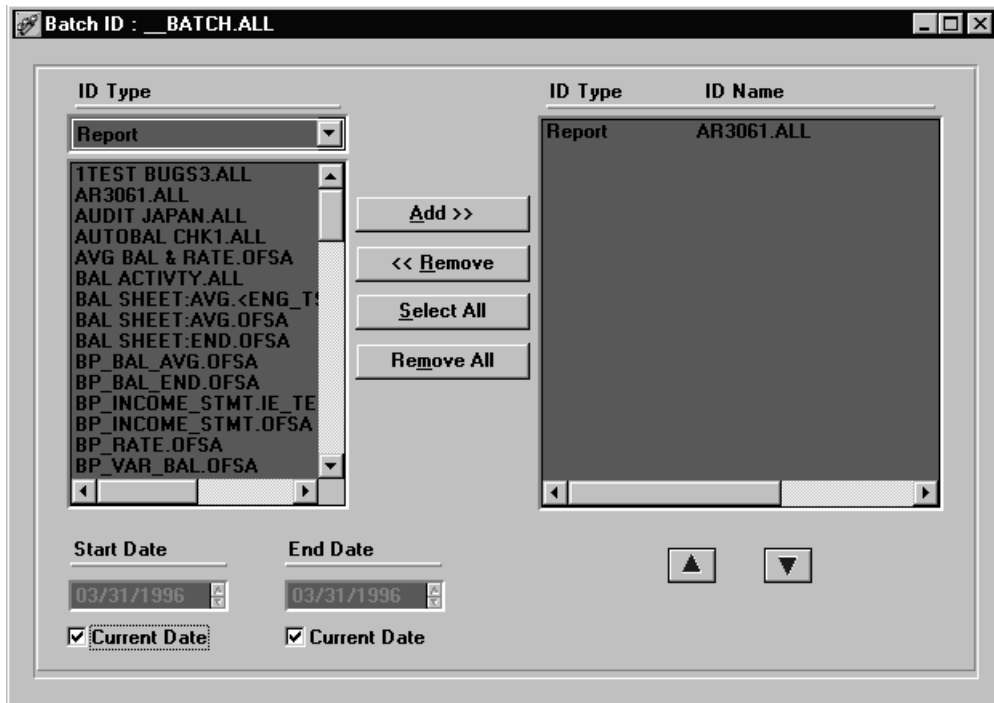
With a Batch ID, you can group time-consuming tasks for processing after hours or on weekends.

This chapter presents the following topics:

- [Defining a Batch ID](#)
- [Processing a Batch ID](#)
- [Editing a Batch ID](#)

## The Batch ID Window

In the Batch ID window, you select groups of IDs for batch processing.



## ID Type

When you select an ID type from the list, all the predefined IDs of that type are listed in the ID Type window.

## ID Information Dialog

To locate the ID or IDs that you want, view summary information by selecting an ID and clicking the right mouse button. The ID Information dialog box opens. When you have finished viewing the data, click OK.

## Selected IDs Window

Select the IDs you want to batch process and click Add. The ID names appear in the ID Name list. To select multiple IDs, hold the Shift key while selecting ID names. To add all of the IDs in your list, click Select All. When you have selected all the IDs you want to batch process, click Add. To remove an ID from the ID Names list, select the ID and click Remove. To remove all IDs from the ID Names list, click Remove All.

### Start Date and End Date

These settings select the period in which you want the allocations or IDs to process. If you select Current Date, the system adopts the default As of Date. Choosing specific Start and End dates overrides the default As of Date.

### Order of Process Arrows

The IDs are processed in the order in which they are listed in the Selected IDs window. To change the order, select an ID and use the up or down arrows to change its location in the list. When the order is correct, select Run from the Process menu.

## Creating a Batch ID

To create a Batch ID, do the following:

1. From the File menu, select New - > Batch ID.
2. Complete each field, as described in "[The Batch ID Window](#)" in this chapter.

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**Note:** For security reasons, Batch IDs are application-specific. You cannot use a Batch ID defined in one Oracle Financial Services (OFS) application in another OFS application. Accordingly, Batch IDs cannot have the same name, even though they appear in different OFS applications.

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3. Click OK.

## Processing a Batch ID

You can process Batch IDs in serial or parallel mode. In serial mode, each ID is processed one after another. Serial mode is the default setting. In parallel mode, all IDs in Batch ID are run concurrently. Parallel processing may lengthen your processing time.

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**Note:** If any IDs are dependent on other IDs, or if IDs access any of the same data, you cannot run parallel processing.

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To enable parallel processing, you must modify your OSF.ini file. The appropriate parameter value in the [PARALLEL\_BATCH\_SERVER\_PROCESSING] section of the .ini file must be changed to 1.

To process a Batch ID, do the following:

1. Select Run from the Process menu. A spreadsheet window shows the status of each of the IDs being run.

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**Note:** Processes that run on the server may show a complete status before they have actually completed. To check the status of processes running on the server, select Server Status from the Process menu.

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2. Select Save from the File menu.

## Editing a Batch ID

To edit a Batch ID, perform the following steps:

1. From the File menu, select Open - > Batch ID.
2. Select the ID you want to edit.
3. With the ID open, make your changes.
4. Select Save from the File menu.

You can use the Save As option in the File menu to save your edited ID under a new name.

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## Configuration ID

The Configuration ID sets basic default values for working in Risk Manager and other applications. You can create a number of Configuration IDs with different defaults, each for a different use. Configuration IDs created in either Risk Manager or Transfer Pricing are available in both applications. Other applications, such as Performance Analyzer, use the as-of date from the Configuration ID.

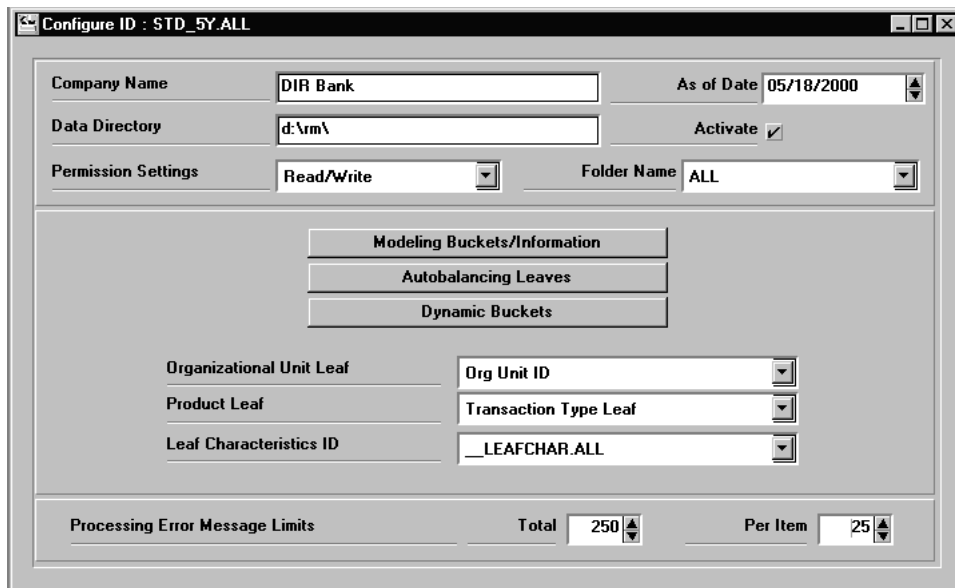
Changes made to a Configuration ID in one application affect other applications that use Configuration ID settings. Changes made by one user affect all other users, with the exception of the Activate and Folder Name settings (see "[Configure ID](#)" in this chapter.) Any user with rights to the folder in which the Configuration ID resides can modify the Configuration ID.

### Creating a Configuration ID

To create a new Configuration ID, do the following:

1. From the File menu, select New -> Configuration ID.
2. Select a folder.
3. Enter a descriptive name for the ID.
4. Enter a description for the ID. This is an optional field.
5. Click Read/Write.
6. Click OK.

The Configuration ID appears.



7. Type values and select options as described in ["The Configuration ID Windows"](#) in this chapter.
8. From the File menu, select Save.

## The Configuration ID Windows

You define Configuration ID values in the following windows: Configure ID, Modeling Buckets, Autobalancing Leaves, and Dynamic Buckets.

### Configure ID

The Configure ID window sets the following default values:

- |                |                                                                                                                                                                                                                      |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Company Name   | Appears as the heading on reports.                                                                                                                                                                                   |
| As-of Date     | Defines the beginning point for processing data. The as-of date should match the as-of date on the data you are processing. Only data corresponding with the as-of date in the active Configuration ID is processed. |
| Data Directory | Determines the default directory for exporting reports and IDs to disk.                                                                                                                                              |

Activate	Determines which Configuration ID is active. You can have only one active Configuration ID at a time. Clicking the Activate button makes the displayed Configuration ID the active ID for the current user. The same Configuration ID can be active in one application but not in another, or active for one user but not another. You can save a Configuration ID without making it the active ID. This default is saved with your user ID so that another user can specify a different active Configuration ID without affecting your ID.
Permission Settings	Determines the default permission setting for all subsequent IDs: <ul style="list-style-type: none"><li>■ Read/Write—other users can change or delete an ID</li><li>■ Read Only—other users can use but not change or delete an ID</li></ul>
Folder Name	Lists the folders you can access. Selecting a folder makes it the default location for subsequent IDs that you create, rename, or copy (Save As). This default is saved with your user ID so that another user can use the same Configuration ID with a different default folder without affecting your ID. See <a href="#">Chapter 4, "Overview of IDs"</a> for more information on folders.
Organizational Unit Leaf	Defines which leaf to use as the organizational unit if you selected either product/organizational unit or product/organizational unit/currency in the Process ID. If you specify an obsolete leaf type, the application will not run.
Product Leaf	Determines the leaf you use as your Chart of Accounts leaf. Many OFSA IDs are defined at the product leaf level.
Leaf Characteristics ID	Sets the default characteristics for each new transaction strategy. Each time you create a new transaction strategy in the Transaction Strategy ID, the default characteristics will be pulled from the Leaf Characteristics ID you specified in the active Configuration ID.

- Processing Errors**    **Total**—Specifies the maximum number of error messages you want written to the OFSA\_PROCESS\_ERRORS table.
- Per Item**—Specifies the maximum number of occurrences of each error type you want written to the OFSA\_PROCESS\_ERRORS table. For example, specifying 10 will write up to 10 occurrences of error code 105, 10 occurrences of error code 110, and so on. See [Appendix A, "Risk Manager Error Messages"](#) for a list of the error codes and messages generated during Risk Manager processing.

## Modeling Buckets

Modeling buckets specify the time periods used for storing and reporting results. The Configuration ID modeling buckets set the modeling horizon for date-related IDs. When you change the number or frequency of the modeling buckets, existing IDs are affected.

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**Note:** The IDs do not adjust dynamically if you change the modeling buckets in the Configuration ID.

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You can specify any combination of days, months, and years when setting up the buckets. Although all Risk Manager cash flows are generated on a daily basis, they are dropped or aggregated into defined modeling buckets when results are stored. Reports access information from the modeling buckets and let you aggregate buckets. For example, you can define monthly modeling buckets but generate a quarterly income statement. On the other hand, you cannot generate a weekly balance sheet if all modeling buckets are monthly.

If you want to use different configurations of modeling buckets, such as all monthly or all quarterly, you should create a separate Configuration ID for each and use a naming convention to identify the distinctions. All date-related assumption IDs should be defined and used in the context of a single set of modeling buckets or a single Configuration ID.

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**Note:** Before you click the Modeling Buckets/Information button, open the spreadsheet control bar to populate the modeling buckets quickly. See ["Spreadsheet Control Bar"](#) in [Chapter 4, "Overview of IDs."](#)

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## Autobalancing Leaves

Autobalancing is an option in the Risk Manager Process ID. To maintain a balanced balance sheet, autobalancing simulates the purchase or sale of overnight funds and funds for dividends and taxes, and generates retained earnings.

Select an autobalancing leaf type that corresponds to the appropriate account type:

<b>Autobalancing Leaf</b>	<b>Account Type</b>
Assets	Earning Assets
Liabilities Interest	Interest Bearing Liabilities
Retained Earnings	Equity
Dividends	Dividends
Federal Tax	Taxes
State Tax	Taxes
Accumulated Translation Balance	Equity

For currency-based processing (processing including currency as an output dimension), all autobalancing leaves must be defined for a process to run. For processes that do not include currency as an output dimension, the Accumulated Translation Balance account does not require setup.

Balance sheet standard reports for Risk Manager use account-type information to determine where the balance for a particular leaf falls on the balance sheet. If the account types are not consistent, your reports will have unbalanced balance sheets.

## Dynamic Buckets

In the Dynamic Buckets window, define the start dates for dynamic market valuations and the start dates and gap buckets for dynamic gap simulations. You must set up modeling buckets before dynamic buckets.

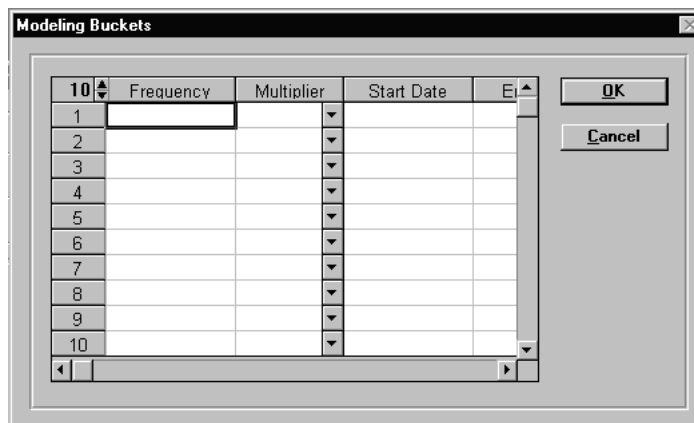
## Setting Configuration ID Defaults

The following procedures demonstrate some of the Configuration ID settings.

## Setting Up Modeling Buckets

In the Configure ID window, do the following:

1. Click the Modeling Buckets/Information button.
2. In the upper left corner, type 10 for the number of modeling buckets (maximum is 120).



3. Under Frequency, type 1.

The Frequency column displays the duration of the multiplier. The frequency in conjunction with the multiplier displays the duration of the modeling buckets. The frequency can be any number from 1 to 999.

4. Under Multiplier, select Monthly.

The Multiplier column lists daily, monthly, or yearly bucket choices.

5. Continue adding frequencies and multipliers as follows:

10	Frequency	Multiplier
1	1	Months
2	1	Months
3	1	Months
4	1	Months
5	1	Months
6	1	Months

10	Frequency	Multiplier
7	3	Months
8	3	Months

After you fill in the frequencies and multipliers, the start and end dates are calculated automatically from the as-of date.

6. Scroll right. Under Federal Tax Percentage and State Tax Percentage, type a value.

Tax percentages are used when processing with the autobalancing option. Type **35.00** for 35%. The tax rate entered is interpreted as the tax rate for that bucket regardless of the frequency of the bucket. That is, 35% entered for a monthly bucket is applied as a 35% monthly rate to the taxable income forecast for that month.

---

**Note:** The Total Tax amount is defined by Total Taxable Income x Tax Rate, where the Taxable Income is defined as SUM ((Income x (Percent Taxable, from the Leaf Characteristics ID)) - SUM ((Expense x (Percent Taxable, from the Leaf Characteristics ID))).

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7. Under Dividend Amount, type a value.

Dividend amounts are used during autobalancing calculations. The value you enter here will be paid out as dividends for all rate scenarios.

8. Under Dividend Percentage, type a value.

Dividend percentages are used during autobalancing calculations. The dividend percentage is defined as a percent of the net income after tax that will be paid out as dividends for the period.

Total Dividends = (Dividends Amount + (Dividends Percent x Net Income after Tax))

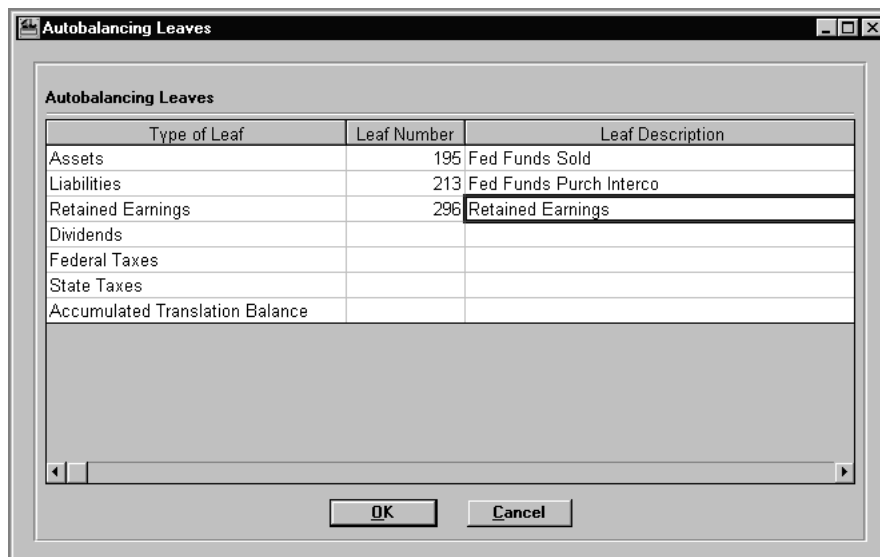
9. Click OK.
10. From the File menu, select Save.

## Setting Autobalancing Leaves

To identify the autobalancing accounts, do the following:

1. Click the Autobalancing Leaves button.

2. Under Type of Leaf, click Assets.
3. From the Tree Bar, double-click Fed Funds Sold.  
The Leaf Number and Leaf Description columns are populated.
4. Continue selecting autobalancing information and click OK.



## Dynamic Buckets

To set up three dynamic buckets, do the following:

1. Click the Dynamic Buckets button.

The first dynamic bucket column displays the as-of date specified in the Configuration ID.

2. Click Add two times.
3. Type terms and multipliers as follows:

In the first dynamic column, term is set to 0 days, which allows the start date to equal the as-of date. In the second dynamic column, the start date is 3 months from the as-of date. In the third dynamic column, the start date is 6 months from the as-of date. The start date is calculated automatically.

4. Check Calculate Market Value for all start dates.

You can calculate market value for any start date. gap, In this example, generate market value results will be generated for the as-of date, 3 months in the future, and 6 months in the future.

5. Check Calculate Gap for 3 months in the future.

	Add	Delete			
Term			0	3	6
Multiplier			Days	Months	Months
Start Date			01/31/2001	04/30/2001	07/31/2001
Calculate Market Value			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Calculate Gap			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Update Instrument data			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	Term	Multiplier	End Date	End Date	End Date

6. Define the gap buckets.

Type a number to create rows for specifying the gap buckets and specify the terms and multipliers. The end date for the first column equals the start date defined in the top portion of the Dynamic Buckets window, plus the term specified in the gap portion. Each additional end date equals the prior end date plus the term specified.

7. Check Update Instrument Data in the 6 months column.

The detailed results of the market valuation from 6 months in the future will be written to each instrument record. If you wish to update the detailed instrument records with the market value results, you can choose to do so for only one start date.

8. Click OK.
9. From the File menu, select Save.



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## Data Filter ID

A Data Filter ID enables you to narrow the focus of your data for processing. It specifically targets the data you want to include or exclude for processing by another ID.

This chapter discusses the following topics:

- [Creating and Defining a Data Filter ID](#)
- [Running a Data Filter ID](#)
- [Editing a Data Filter ID](#)
- [Using Data Filters on Multiple Tables](#)
- [Reviewing a Data Filter ID Example](#)

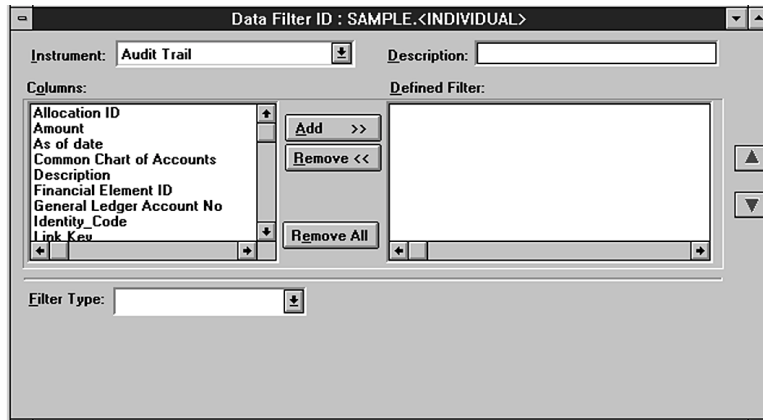
### Creating and Defining a Data Filter ID

Use the following instructions to create and define a Data Filter ID. See [Chapter 4, "Overview of IDs"](#) for further explanation about ID creation and maintenance.

To create a Data Filter ID, perform the following steps:

1. From the File menu, select New -> Data Filter ID to display the New Data Filter ID dialog box.
2. Type the name for the ID in the Data Filter ID field.
3. Type a description for the ID in the Description field.
4. Select the permissions for the ID.
5. Click OK to continue, or click Cancel to exit.

The Data Filter ID dialog box appears.



6. Select the instrument to include in your Data Filter ID from the list of instruments. The instrument types are specific to your particular database. The three types of instruments are:

**Portfolio**

The Portfolio instrument type enables you to create a cross-instrument data filter. Portfolio fields are common to all instruments. All other instrument selections automatically narrow your focus to just that instrument type. If the filter criteria are the same for all instrument tables (for example, As of Date or Branch Code), you can use Portfolio as the instrument.

If the filter criteria are different for all applicable instrument tables (such as Current Net Book Balance), define the filter criteria for the first instrument table, and then select the next instrument table from the instrument list and define its criteria, and so on.

**Multiple tables**

The Multiple Tables type instrument enables you to create a single data filter on multiple instrument tables. You must define the filter criteria for each instrument.

**Formula**

The Formula instrument type enables you to filter data against a selection derived from a predefined Formula ID.

7. Type or change the description of the purpose of the Data Filter ID.



8. Select one or more columns from the Columns box, and click Add to copy your selections to the Defined Filter box.

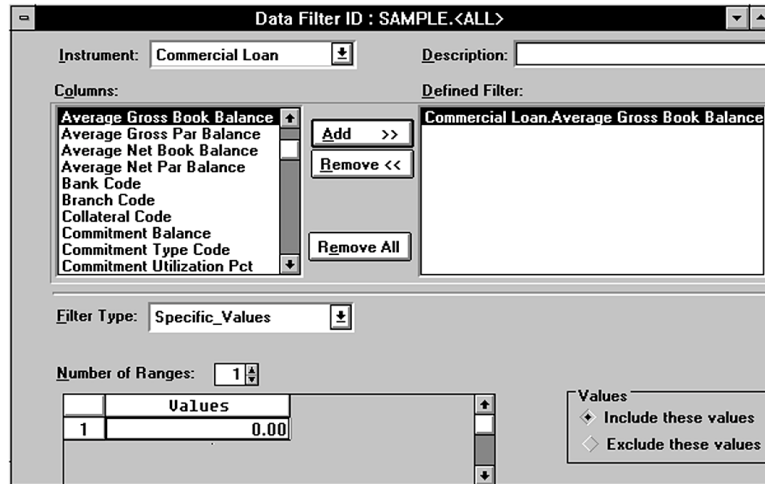
The Defined Filter box displays the columns that you use to define filter criteria. To remove a column from the Defined Filter box, select it and click Remove. To remove all the columns, click Remove All.

9. Click on the first column in the Defined Filters box and select the Filter Type appropriate for that column. Then, enter the criteria appropriate for that column in the lower part of the dialog box. Repeat this step for each column in the Defined Filter box. See ["Defining Filter Types and Criteria"](#) in this chapter for an explanation of the different types of filters and criteria that you can use with Data Filter IDs.

10. Save the ID.

## Defining Filter Types and Criteria

The filter criteria options appear on the lower half of the dialog box when you select a column in the Defined Filter box and select a Filter Type. The criteria options change depending on the column and the type of filter that you select.



### Filter Type

The five filter types differ based on the type of column you select. If the column represents a code, you can select a filter type of Code Values, Another Column, or

Formula ID. If the column represents a numeric field or date field (a non-code field), you can select a filter type of Ranges, Specific Values, Another Column, or Formula.

- Specific Values**                      This filter type presents the Values column. You can enter up to 60 specific values.
- Ranges**                                      This filter type offers From and To columns to enter ranges. You can enter the number of ranges that you want directly or use the spinner arrows to change the number of ranges dynamically. You can enter a maximum of 60 ranges.
- Another Column**                      This filter type compares the selected column to another column.
- Formula**                                      This filter type compares a column to a value derived from a Formula ID.
- Code Values**                              This filter type enables you to define specific code values for selection.

The filter type determines what criteria characteristics appear for the column that you select.

### Filter Criteria

Criteria options change depending on the Filter Type that you select. The data must meet the definitions that you define in the filter criteria for each selected column. Otherwise, the data cannot pass the filter. For example, you may have two columns defined as follows:

Column	Filter Criteria
Current Balance	> 100,000
Current Rate	> 8.00

These columns indicate that a record must have a Current Balance greater than 100,000 *and* a Current Rate greater than 8.00 in order to pass the filter.

**Include/Exclude** After defining the specific Ranges or Values, you must choose whether you want to include or exclude the data that meets the defined criteria.

**Operators** You use operators for the filter types Another Column and Formula. The choices are =, <>, <, >, >=.

After you have selected the operator, select the column or Formula ID as appropriate to complete the equation.

**Code Values** When you select Code Values as the filter type, the codes for the selected column appear in the Unselected Codes box. You can use the buttons to identify the codes you want to include or exclude in the filter.

Button	Description
Add	Moves the highlighted codes to the Selected Codes box
Remove	Moves the highlighted codes in the Selected Codes box to the Unselected Codes box
Select All	Moves all the codes to the Selected Codes box
Remove All	Moves all selected codes to the Unselected Codes box

### Filter Criteria Rules

In order to get the results you want, you must define complete information in the Data Filter IDs. Complete information requires the following:

- **Thorough Definitions**

You must thoroughly define the criteria for each column that you include in the data filter. All values, ranges, other column names, and formulas must be complete. If you specify that you want to filter on five specific values and then complete only the criteria for the first one, you can still save that Filter ID. However, an error message appears if you try to run an ID that uses the incomplete Filter ID.

- **Order of Processing**

You can control the order of the application of the filter criteria (such as the order of the Columns in the Defined Filter box) by using the directional arrow buttons to the right of the Defined Filter box.

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**Note:** The end result of the filter is not dependent on the order of the application of the filter criteria. Each row must pass all criteria.

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### Implied Filter Criteria

Besides the filter criteria that you have defined, the following filter criteria may be automatically included in a process that you generate:

- **As of Date**  
 Although the Oracle Financial Data Manager (FDM) database can contain data from an unlimited number of as-of-dates, most Oracle Financial Services (OFS) applications automatically filter only those rows from the as-of-date that you define in the active Configuration ID.
- **Row Level Security**  
 Your system administrator may limit the rows to which you have access.

## Null Values in the Database

A null value in a column in the database is a column that has no data. You should take all necessary steps to avoid having null columns in the database for the following reasons:

- Any null value accessed in a formula results in a null value. For example:

Column X	Column Y
150	null

If we define a formula as  $X + Y$ , the answer is  $150 + \text{null} = \text{null}$ . All operations (such as  $+$ ,  $-$ ,  $/$ ,  $*$ ,  $^$ ) are handled in this same manner.

- You cannot define a filter to recognize null values. The Data Filter ID assumes that the database does not have any null values. Consequently, you cannot define a Data Filter ID to isolate all rows with a null value in a given column.

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**Note:** Null  $\neq$  0, so filtering on 0 does not return rows with null values.

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You can identify null values by using an SQL statement to select all rows WHERE <Column> IS NULL.

## Running a Data Filter ID

Running the Data Filter ID generates an SQL statement but does not execute the statement. The application executes the SQL statement when you run an ID using the Data Filter ID.

To process a Data Filter ID, complete the following steps:

1. From the Process menu, select Run.  
The SQL statement that your Data Filter ID generates displays in a window.
2. Review the SQL statement to check the results of your Data Filter ID.
3. Click OK to close the SQL statement window.

## Editing a Data Filter ID

To edit a Data Filter ID, perform the following steps:

1. From the File menu, select Open -> Data Filter ID.  
The Select Filter ID dialog box appears.
2. Select the ID you want to edit.
3. Make your desired changes.
4. Save the ID.

## Using Data Filters on Multiple Tables

A Data Filter ID can contain criteria from different tables. Each line in the Defined Filter box is a part of the filter that can stand alone as its own filter. Also, each line or part of the defined filter can reference a different table.

A part of the filter can reference Portfolio as the table name. Portfolio is a proxy for whatever table the current ID is referencing. For example, if the ID using the Filter ID is a Data Correction ID, the application replaces Portfolio with the name of whatever table the Data Correction ID is correcting. The application may or may not apply each line of the filter to the data in a table.

The application applies the filter line if either of the following conditions is true:

- The table you name explicitly in the filter is the same as the table that the application is processing
- The table in the filter is Portfolio and the table the application is processing contains the referenced Portfolio field

The application does not apply the filter line if either of the following conditions is true:

- The table explicitly named in the filter is different from the table that the application is processing

- The table in the Data Filter ID is Portfolio and the table the application is processing does not contain the referenced Portfolio column

The examples in the following table demonstrate these rules. The Table and Column combination represents the filter. An **X** indicates that the application applies the filter to the table during processing.

Filter	Commercial Loans Table	Ledger Stat Table
<b>Table:</b> Commercial Loans <b>Column:</b> Current Gross Book Balance	X	
<b>Table:</b> Ledger Stat <b>Column:</b> Month 1		X
<b>Table:</b> Portfolio <b>Column:</b> Original Term to Maturity	X	
<b>Table:</b> Portfolio <b>Column:</b> Organizational Unit ID	X	X

## Reviewing a Data Filter ID Example

This example demonstrates how to create a data filter that includes only adjustable rate mortgages. You can create a Data Verification ID using the new Data Filter ID that verifies the margins on your adjustable rate mortgages. See [Chapter 8, "Data Verification ID"](#) for more information.

To create the data filter, perform the following steps:

1. From the File menu, select New -> Data Filter ID.  
The New Data Filter ID dialog box appears.
2. Type **MTG\_ARM** in the Data Filter ID field.
3. Type **Adjustable Rate Mortgages** in the Description field.
4. Click Read/Write as the permissions.
5. Click OK.  
The Data Filter ID dialog box appears.
6. Select Mortgages from the instrument list.
7. In the Columns box, select Interest Rate Code, and click Add.

The Interest Rate Code column appears in the Defined Filter box.

- 8.** Select Interest Rate Code in the Defined Filter box.

This activates the Filter Type options. Code Values appears as the first choice because you have selected a code-type column.

- 9.** Select No Index from the Unselected Codes box, and then click Add.

The selection appears in the Selected Codes box.

- 10.** Click Exclude These Codes in the Codes options box.

- 11.** Select Process -> Run to verify the SQL statement.

- 12.** Save and close the ID.

When you create the Data Verification ID and apply this Data Filter ID, it limits the view to adjustable rate mortgages only.





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## Data Verification ID

When you need to edit or verify the data in a database, you often need to view that data at the lowest level possible: the row and column level. The Data Verification ID enables you to define the specific table, columns, and rows you want to view.

The results of the Data Verification ID appear in the form of a virtual spreadsheet that displays a maximum of 32,000 records. Because databases may be much larger than this, you should use predefined Data Filter IDs to narrow your focus on the database. Refer to [Chapter 7, "Data Filter ID"](#) for instructions on how to create a Data Filter ID.

This chapter discusses the following topics:

- [Creating and Defining a Data Verification ID](#)
- [Running a Data Verification ID](#)
- [Editing a Data Verification ID](#)
- [Reviewing a Data Verification ID Example](#)

### Creating and Defining a Data Verification ID

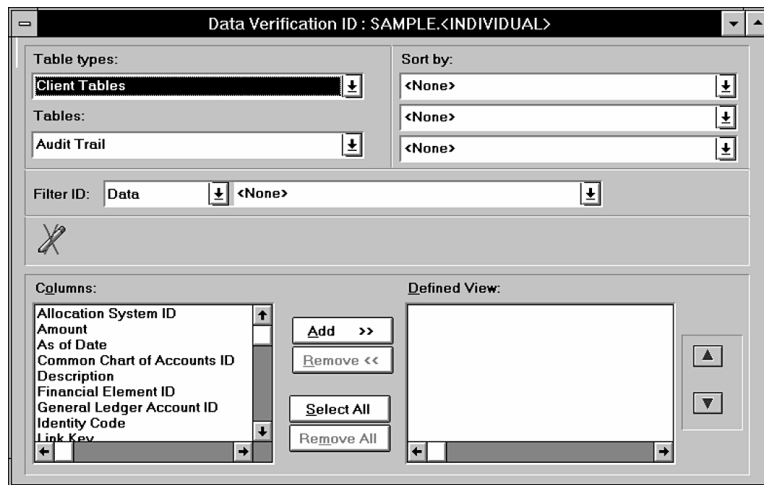
Use the following instructions to create and define a Data Filter ID. See [Chapter 4, "Overview of IDs"](#) for further explanation about ID creation and maintenance.

To create a Data Verification ID, perform the following steps:

1. From the File menu, select New -> Data Verification ID to display the New Data Verification ID dialog box.
2. Type name for the ID in the Data Verification ID field.
3. Type a description for the ID in the Description field.

4. Select the permissions for the ID.
5. Click OK to continue or Cancel to exit.

The Data Verification ID dialog box appears.



6. From the Table Types list, select the type of table with which you want to work. Your selection determines which tables are available in the Tables list.
7. From the Table list, select the table with which you want to work.

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**Note:** The Data Verification ID does not support Risk Manager result detail tables.

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8. From the Filter ID list, select the Data Filter ID or Group Filter ID for the subset of data you want to view.

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**Note:** The virtual spreadsheet displays up to 32,000 records. If the records you want to view are outside this range, you must refine your filter (Data Filter ID or Group Filter ID) to narrow the focus of your view.

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9. Select up to three columns in the Sort By box to define the sort order you want.

10. In the Columns box, select the columns you want to include in your view and click Add.

The columns move to the Defined View box.

- To add all the columns to the Defined View box, click Select All and then click Add.
- To delete a column from the Defined View, select the column and click Remove.
- To remove all the columns from the Defined View, click Remove All.

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**Note:** If a column name contains a substring that includes the name of another column (such as, Remaining Term and Remaining Term Multiplier), then you must add the column with the shorter name to the defined view first.

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11. Use the arrows next to the Defined View box to organize the columns in the order you want to see them.

Each click of an arrow moves the selected columns one position. Raising a column in the list moves it to the left in the spreadsheet.

12. Save the ID.

## Running a Data Verification ID

To view the results of your Data Verification ID definitions, complete the following steps:

1. Select the Run option from the Process menu.
2. Review the results.

	Char Key (required)	Description	Group Num (required)	Num Key (required)
27	1	Chart of Account	1	103
28	1	Data Reconciliation	1	104
29	1	Manual Entry	1	105
30	1	Last	125	115
31	1	Taxes	120	375
32	1	Average by Days Weighted	125	110
33	1	Configure	1	201
34	1	History Rates	1	202
35	1	Stratification	1	106
36	1	Relationship	1	107
37	1	Table	1	17
38	1	Report	210	7
39	1	TP Process	1	204

## Edit Spreadsheet On/Off

The Edit spreadsheet On/Off option is available only in Oracle Financial Data Manager Balance & Control. If this feature is on, you can edit the data at row level. The yellow pencil icon with the red X over it indicates that the OFS application does not allow editing.

## What the Results Show

In the View window, all values display as they are stored in the database. For example, the view displays code values numerically, not with the code value translation. This is essential for quality control of the data. If you have invalid codes, simply displaying an invalid code description is not sufficient. The actual code value is necessary for determining the source of the problem.

## Editing a Data Verification ID

To edit a Data Verification ID, perform the following steps:

1. From the File menu, select Open -> Data Verification ID.  
The Select Data Verification ID dialog box appears.
2. Select the Group and Data Verification ID you want to edit.
3. Make your desired changes.
4. Save the ID.

## Reviewing a Data Verification ID Example

This example creates a Data Verification ID to verify the margins on adjustable rate mortgages. To include only adjustable rate mortgages in the table view, you must first create a Data Filter ID (MTG\_ARM) that meets these characteristics. See ["Reviewing a Data Filter ID Example"](#) in [Chapter 7, "Data Filter ID"](#) for instructions on creating the Data Filter ID for this example.

To create the Data Verification ID, perform the following steps:

1. Select New -> Data Verification ID.
2. Select <ALL> for Group.
3. Type ADJ\_RT\_MTG\_MAR in the Data Verification ID field.
4. Type Verify Adj Rt Mtg Margins as the description.
5. Select Read/Write for Security.
6. Click OK.

The Data Verification ID dialog box appears.

7. Select Client Data Tables Table type.
8. Select the Mortgages table.
9. Select Interest Rate Code, Product Type Code, Margin, and Current Gross Rate from the Columns box.
10. Click Add to include these columns in the Defined View box.
11. In the Filter box, select MTG\_ARM.
12. Select Interest Rate Code from the first Sort By box to view the margins based on the interest rate code.
13. Run the Data Verification ID to view and verify the results.



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## Discount Rates ID

A Discount Rates ID defines the method for discounting projected cash flows for market value purposes. For each product and currency, you can choose one of the following discount methods:

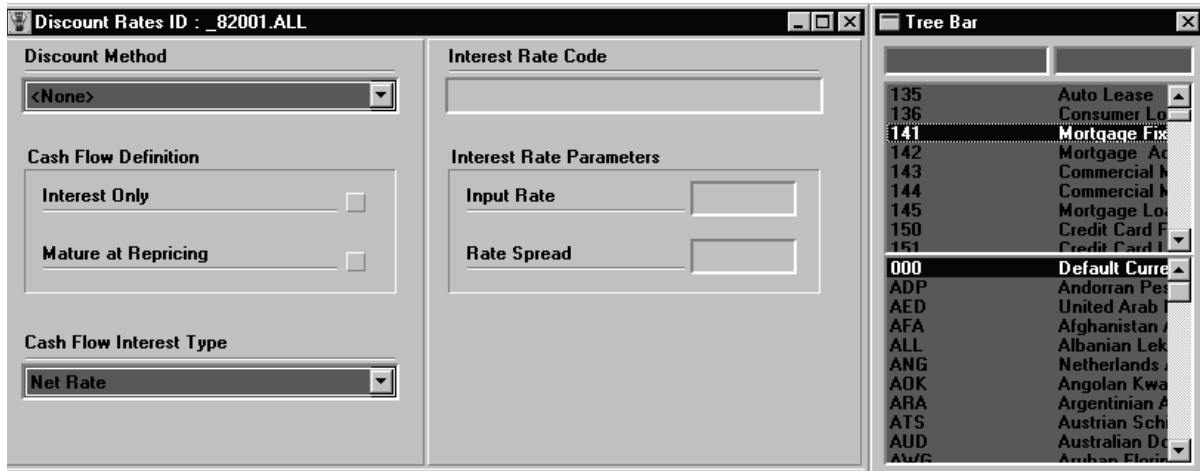
- Spot Input
- Spot Interest Rate Code
- Forecast (Original Term)
- Forecast (Remaining Term)

### Creating a Discount Rates ID

To create a new Discount Rates ID, complete the following steps:

1. From the File menu, select New -> Discount Rates ID.
2. Select a folder.
3. Type a descriptive name for the ID.
4. Type a description for the ID. This is an optional field.
5. Click Read/Write.
6. Click OK.

The Discount Rates ID window and tree bar appear.



## The Discount Rates ID Window and Tree Bar

In the tree bar, select the product and the currency for which you want to define a discount method.

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**Hint:** Using the default currency to set up assumptions can save data input time. At run time, the calculation engine uses assumptions explicitly defined for a product and currency combination. If assumptions are not defined for a currency, the engine uses the assumptions defined for the product and the default currency. If the assumptions are the same across some or all currencies for a specific product, you can input the assumptions for the default currency.

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## Discount Method

Select a method from the Discount Method list:

- Spot Input
- Spot Interest Rate Code
- Forecast (Original Term)
- Forecast (Remaining Term)



The following table describes the methods and rate choices:

<b>Method</b>	<b>Single Rate</b>	<b>Yield Curve</b>
Spot Input	Discounts all cash flows by the Input Rate.	Not applicable.
Spot Interest Rate Code	Discounts each cash flow period by the base value (the yield curve as of the start dates selected in your Configuration ID) of the Interest Rate Code chosen.	Discounts each cash flow period by the equivalent term rate on the base yield curve chosen (the yield curve as of the start dates selected in your Configuration ID). The term is defined by the remaining term of the cash flow.
Forecast (Original Term)	Discounts each cash flow period by the forecasted value of the single rate chosen.	Discounts each cash flow period by the forecasted value of the point on the yield curve corresponding to each transaction record's original term.
Forecast (Remaining Term)	Discounts each cash flow period by the forecasted value of the single rate chosen. Identical to Forecast (Original Term) method.	Discounts each cash flow period by the forecasted value of the point on the yield curve corresponding to the remaining term until each cash flow.

## Cash Flow Definition

The Cash Flow Definition box is used in unique instances to specify the portion of the cash flow that is used to calculate a market value. Select from the following:

- Interest Only—ignores all principal runoff for market value purposes. Use this option for off-balance sheet items where principal is equal to notional principal, and is therefore not a true cash flow.
- Mature at Repricing—calculates a market value for a given transaction up to the repricing date. For market value purposes only, the transaction is assumed to mature on the repricing date.

## Cash Flow Interest Type

The Cash Flow Interest Type determines which interest component is included in the cash flow definition. The Cash Flow Interest Type can be one of three values:

- Net Rate
- Gross Rate
- Transfer Rate

For typical processing, you will use the net rate for the interest component of the cash flow. Special processing objectives, such as valuation of the funding center, may require you to use the other cash flow interest types.

## Interest Rate Parameters

One of the following interest rate parameters is available depending on which discount method you select:

- **Input Rate**—available when you select Spot Input. Type the rate you want to use for market value calculations.
- **Rate Spread**—available when you select Spot Interest Rate Code, Forecast (Original Term) and Forecast (Remaining Term). Type the percentage difference (+ or -) between the selected rate index and the value you want to use for market value calculations.

## Defining a Discount Rates ID Using Spot Input: An Example

Define a Discount Rates ID for fixed mortgages using the spot input method and a spot rate of 9.5%.

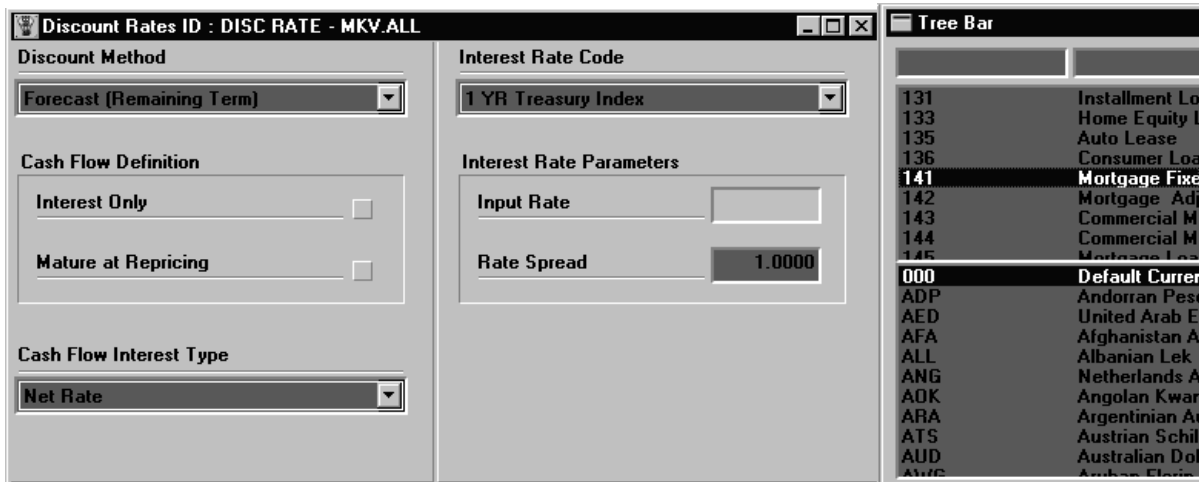
1. From the tree bar, select Mortgage Fixed and Default Currency (000).
1. From Discount Method, select Spot Interest Rate Code.
2. From Interest Rate Code, select Treasury Index.

The list of Interest Rate Codes depends on the selected currency from the tree bar. If the selected currency is the default currency, all Interest Rate Codes appear. For other currency selections, the list of interest rate codes includes only interest rate codes whose reference currency is the same as the selected currency.

3. In Rate Spread, type 1.0000.

A spread of 1% calculates a discount rate up to 1% above the selected interest rate. Type a negative number for a spread below the interest rate.

4. From Cash Flow Interest Type, select Net Rate.



- From the File menu, select Save.

## Discount Rate Examples

The following examples assume the interest rate has a format of zero coupon yield with annual compounding. The instrument used in each example is an annual-pay, 2-year instrument originated on the as-of date. See the *Oracle Financial Services Technical Reference Manual* for details on discount factor derivation in cash flow calculations.

### Spot Input

In the Spot Input method, the discount factor does not vary with interest rate scenarios. The discount factor calculations assume the input interest rate to reflect a format of zero coupon yield, annual compounding, and actual/actual accrual basis.

Spot Input Rate = 6.00%

The formula for the market value of the account, for any rate scenario, is:

$$\text{Market Value} = \text{Cash Flow}_1 / (1 + 0.06) + \text{Cash Flow}_2 / ((1 + 0.06)^2)$$

Cash Flow<sub>1</sub> is the cash flow at the end of year 1. Cash Flow<sub>2</sub> is the cash flow at the end of year 2.

## Spot Interest Rate Code with Yield Curve

In the Spot Interest Rate Code method, the discount factor depends on the time of the cash flow, but does not vary with interest rate scenario.

Interest Rate Code = Treasury Yield Curve

The formula for the market value of the account, for any rate scenario, is:

Market Value =  $\text{Cash Flow}_1 / (1 + 1 \text{ Year Treasury}) + \text{Cash Flow}_2 / ((1 + 2 \text{ Year Treasury})^2)$

Cash Flow<sub>1</sub> is the cash flow at the end of year 1. Cash Flow<sub>2</sub> is the cash flow at the end of year 2. The values for 1 Year Treasury and 2 Year Treasury reflect the values from the historical interest rate data, beginning with the as-of date.

## Forecast Remaining Term with Yield Curve

The Forecast Remaining Term method uses forecasted interest rate data to determine the discount factor.

Interest Rate Code = Treasury Yield Curve

The formula for the market value of this account is:

Market Value =  $\text{Cash Flow}_1 / (1 + 1 \text{ Year Treasury Rate at the 1 year point in the forecast}) + \text{Cash Flow}_2 / ((1 + 2 \text{ Year Treasury Rate at the 2 year point in the forecast})^2)$

## Forecast Original Term with Yield Curve

The Forecast Original Term method uses the forecasted interest rate data to determine the discount factor.

Interest Rate Code = Treasury Yield Curve

The formula for the market value of the account is:

Market Value =  $\text{Cash Flow}_1 / (1 + 2 \text{ Year Treasury Rate at the 1 year point in the forecast}) + \text{Cash Flow}_2 / ((1 + 2 \text{ Year Treasury Rate at the 2 year point in the forecast})^2)$

Cash Flow<sub>1</sub> is the cash flow at the end of year 1. Cash Flow<sub>2</sub> is the cash flow at the end of year 2. Note that Cash Flow<sub>1</sub> is discounted at the 2 year Treasury rate. The 2 Year rate is used with this method, because the Forecast Original Term method always uses the term equivalent to the original term of the instrument.

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## Forecast Balance ID

This chapter discusses modeling of new business activity through the Forecast Balance ID. Included are assumption setup and processing.

Within a Forecast Balance ID, you specify the amount of new activity generated per modeling bucket on each product within each active currency. To create a new business assumption, you select from seven available forecasting methods. You can further tailor the new business assumptions to meet your expectations of future originations, including the timing of new business and the effect of interest rates on new business amounts.

This chapter includes four sections:

- [Forecasting Methods](#)
- [Rate-Volume Modeling](#)
- [Creating a Forecast Balance ID](#)
- [Examples of Forecast Balance Assumptions](#)

### Forecasting Methods

The new business methods within the Forecast Balance ID determine how new business assumptions are applied per product leaf within each active currency. They consist of:

- No New Business
- Target End Balance
- Target Average Balance
- Target Growth Percent

- New Add Balance
- Rollover
- Rollover with New Add

For the Target Growth, Target End, and New Add methods, you select one of two timing options to indicate when new business for a new account should be originated. The two options are:

- **Distributed Option:** Risk Manager solves for the origination date of the new business account to reach an expected average balance, assuming even distribution of new business throughout the modeling bucket. For each modeling bucket, this calculation results in an average balance amount that is midway between the beginning balance and the ending balance.
- **Bucket End Method:** Risk Manager generates new originations at the end of the modeling bucket. Adding new business at the end of the modeling bucket is effective in terms of processing time, but may result in irregular average balances and interest accruals over the bucket.

For the Target Average method, the system automatically determines the timing of new originations to ensure that the user-input target is achieved. For Rollover business, the system assumes that the rollover occurs at the time of runoff of existing accounts.

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**Note:** For distributed originations of Target Growth and Target End balances, Transaction Strategies and future origination in the current position may impact the distributed originations calculation. Because the origination date on Transaction Strategy and current position accounts cannot be modified, the timing algorithm may not be able to find an origination date for the remaining new business which achieves the expected average balance.

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The application of each new business method, including how different timing options are applied, is described below:

## No New Business

No New Business (forecasting zero changes in balances) is the default method for the Forecast Balance ID. This method allows runoff without replacement of the paid-down balances.

## Target End Balance

Use the Target End Balance method to define the total expected balance by the end of each modeling bucket. The new origination amount and the timing of originations within each modeling bucket are determined during processing, as described below:

### New Origination Amount

The new origination amount per bucket is calculated as:

$$\text{Target Ending Balance} - \text{Beginning Balance} - \text{Total Runoff} + \text{Transaction Strategy Originations} + \text{Current Position Originations}$$

### New Business Timing

For the Target End method, you can choose either the At Bucket End timing option or the Distributed timing option.

**At Bucket End:** The new origination amount is added on the final date in the bucket. Interest starts accruing on the next day, the first date of the next bucket.

**Distributed:** The new origination amount is added on the calculated date(s) which allow the average balance to equal the beginning balance plus the ending balance divided by two, accounting for timing of runoff and other originations occurring during the modeling bucket.

## Target Average Balance

Use the Target Average Balance method to define the expected average balance per modeling bucket. The new origination amount and the timing of originations within each modeling bucket are determined during processing, as described below:

### New Origination Amount

The new origination amount per bucket is calculated as

$$2 * (\text{Target Average Balance} - \text{Bucket Beginning Balance}) + \text{Total Runoff} - \text{Transaction Strategies Originations} - \text{Current Position Originations}$$

### **New Business Timing**

The new origination amount is added on the calculated date(s) which allow the average balance to equal the user-input target average. This calculation accounts for timing of runoff and other originations occurring during the modeling bucket.

## **Target Growth Percent**

Use the Target Growth Percent method to define the expected percentage change in the balance over each modeling bucket, expressed as a percent of the bucket's initial balance. A target growth assumption of zero creates a flat balance sheet, only originating enough new business to offset runoff on existing accounts. The new origination amount and the timing of origination are determined during processing, as described below:

### **New Origination Amount**

The new origination amount per bucket is calculated as:

$$\text{(Beginning Balance * (1 + Target Growth Percent)) - Beginning Balance - Total Runoff + Transaction Strategy Originations + Current Position Originations}$$

### **New Business Timing**

For the Target Growth method, you can choose either the At Bucket End timing option or the Distributed Originations timing option.

**At Bucket End:** The new origination amount is added on the final date in the bucket. Interest starts accruing on the next day, the first date of the next bucket.

**Distributed:** The new origination amount is added on the calculated date(s) which allow the average balance to equal the beginning balance plus the ending balance divided by two. This calculation accounts for timing of runoff and other originations occurring during the modeling bucket.

## **New Add Balance**

The New Add Balance method defines the absolute amount of new business that is added within a bucket. The new origination amount and the timing of origination are determined during processing, as described below:

### **New Origination Amount**

The new origination amount is equal to the user-input new add balance.



### New Business Timing

For the New Add method, you can choose either the At Bucket End timing option or the Distributed Originations timing option.

**At Bucket End:** The new origination amount is added on the final date in the bucket. Interest starts accruing on the next day, the first date of the next bucket.

**Distributed:** The new origination amount is added at the mid-point of the modeling bucket. If the modeling bucket contains an uneven number of days, the origination will be apportioned evenly over the two days in the middle of the bucket.

## Rollover

Use the Rollover method to base the amount of new business on the rollover (reinvestment of principal on a given or like products) of existing business. You can roll any combination of prepayments, maturing balances, and principal runoff from a product into itself or into another product. For multiple currency processing, rollover processing occurs within each individual currency. Rollover cannot occur between two currencies. The new origination amount into a particular target leaf and the timing of that origination are described below.

### New Origination Amount

For a single target leaf within a single currency, the new origination amount depends on the rollover sources, which are product leaves of the same currency whose runoff drives the amount of new business generated into the target leaf. For each rollover source, you must also define the components of principal runoff you would like to roll over. Your choices are:

**Total:** Total runoff includes runoff from all three categories of run-off: scheduled principal payments, prepayments, and maturing balances.

**Prepay:** Prepay includes runoff from prepayments, early repayment of principal balances.

**Maturity:** Maturity incorporates payment of principal on the maturity date, above that incorporated in the scheduled principal payment. Balloon payments and final principal repayment of non-amortizing instruments are included in this category.

**Payment:** Payment runoff includes scheduled principal payment on an amortizing instrument.

For each combination of source leaf and runoff type, you can input a different rollover percent. The new origination amount within a modeling bucket equals the runoff amounts multiplied by the percentage rollover for all source leaves.

### Timing of Rollover

All runoff from sources is added as new business into the target leaf with the proper currency at the average time of runoff.

The average time of runoff is calculated by taking an average of the runoff date weighted by the amount of runoff for all instruments which make principal payments during the modeling bucket.

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**Note:** Rollover of runoff components, prepayment, payment, or maturity requires that those components exist in the output data set. In a scenario-based Process ID, you must select those financial elements from the optional Financial Element Details set. Otherwise, no new business is generated from those runoff components.

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### Rollover with New Add

Use the Rollover with New Add method to apply both rollover assumptions and new add assumptions to a single product within a single currency. It allows new business to be driven by reinvestment of existing accounts plus an expectation of new business amounts. The New Add method and the rollover method are applied independently, with the New Add applied first. See the details under Rollover and New Add, described previously, for a definition of how each method works.

### Account Types and New Business

The availability of a new business method depends on the account type of the product leaf. The account type of a product leaf comes from its associated Common COA ID. Setup requirements for each account types are described below:

- **Interest Bearing Accounts:** All forecasting methods are available. The following account types are classified as interest bearing:
  - Earning asset
  - Interest bearing liability
  - Off balance sheet receivable
  - Off balance sheet payable
- **Income Statement Accounts:** The only method available is New Add. For these accounts, input the desired income statement value for each bucket. The following account types are classified as income statement:

- Non-interest income
- Non-interest expense
- Interest income
- Interest expense
- **Balance Sheet Accounts:** The only method available is New Add. For balance sheet accounts, the input amount is interpreted as a balance. The following account types are classified as balance sheet:
  - Other asset
  - Other liability
  - Equity

## Rate-Volume Modeling

Customer demand for new products often depends on interest rates (either the absolute level of interest rates or the spread between two rate indices). You can model this behavior by selecting a rate-volume assumption. Once you have selected the rate-volume assumption, you must define additional parameters which control how interest rates affect new business levels.

## Rate-Volume Assumptions

There are three rate-volume options to choose from:

### No Relationship

If you want new business amounts to stay constant regardless to the interest rate environments, select this option.

### Rate-Level Dependent

The Rate-Level dependent relationship allows you to change new business behavior for different values of a single indicator interest rate. The indicator interest rate, referred to as the Base Interest Rate, is defined by an Interest Rate Code, a term selection, and a rate lag.

**Interest Rate Code:** The Interest Rate Code identifies the reference yield curve or rate index whose forecasted value determines the new business amount. You can select the Interest Rate Code from all available interest rate codes for the selected currency, as defined within FDM Rate Manager. The list of Interest Rate Codes

includes only codes with a reference currency equivalent to the currency selected in the Floating Tree Bar.

**Term Selection:** If the selected Interest Rate Code is a yield curve, you must also select a term. Your term choices depend on the definition of the Interest Rate Code within FDM Rate Manager. Note that the selection automatically defaults to the shortest available term.

**Rate Lag:** If you want the base interest rate calculation to perform a lookback function, you can input a rate lag. The new business assumption lookup uses the forecasted interest rates as of a date within the current modeling bucket less the rate lag.

If the timing of new business is End of Bucket, the lookup function uses the last day of the modeling bucket less the rate lag. For all other cases, the mid-point of the bucket less the rate lag is used.

### Rate-Spread Dependent

With the Rate-Spread dependent relationship, you can input new business assumptions for different spreads between two indicator interest rates. You define the first indicator interest rate, the Base Interest Rate, as described previously. The second indicator interest rate, the Alternate Interest Rate, also requires definition of an Interest Rate Code, a term selection, and a rate lag.

The rate spread equals the Alternate Interest Rate minus the Base Interest Rate.

## Rate Tiers

Once you have selected a rate-volume relationship and defined your base and alternate interest rates, you must define rate tiers. Rate tiers provide the lookup values for which different new business assumptions can be input. The rate tiers are displayed within the input tables as a dimension along the top of the table.

## Lookup Method

The lookup method determines which new business assumption is selected from the input values when the forecasted interest rate falls between two rate tiers.

There are two methods to choose from:

**Interpolate:** If you select Interpolate, the new business assumption is an interpolated value, using straight line interpolation, calculated from the assumptions associated with the two nearest interest rate tiers. The interpolation uses a simple straight line interpolation formula.

**Range:** If you select Range, Risk Manager selects the new business assumption as the closest assumption associated with the rate tier which is less than or equal to the forecasted interest rate.

## Creating a Forecast Balance ID

To create a new Forecast Balance ID, complete the following steps:

1. From the File menu, select New -> Forecast Balance ID.
2. Select a folder.
3. Type a descriptive name for the ID.
4. Type a description. This is an optional step.
5. Click OK.

The Forecast Balance ID dialog opens on the Method Page. Four additional pages can be accessed through the buttons across the top. The Floating Tree Bar also appears, with the top section displaying product leaves and the lower section displaying active currencies.

You must begin the assumption setup on the Method Tab and work your way through the remaining tabs, as needed. To input new assumptions for a particular product leaf and currency, follow the steps detailed under each Page heading, described next:

### Method Page

The Method Page is used to define the Forecast Balance method per product leaf and currency. On this page you define the New Business method, the timing option, and the type of rate-volume relationship. An example of the Method page appears below:

Follow the steps listed below to complete this information.

1. Select a product leaf in the top section of the Floating Tree Bar.
2. Select a currency in the lower section of the Floating Tree Bar. Only active currencies, as defined through FDM Rate Manager, are displayed in this list. For single currency installations, the currency selection will default to the single listed currency.
3. Select your preferred New Business Method. If you select Target End, Target Growth, or New Add, note that the Timing selection is enabled.
4. Select your preferred Timing option. (Target End, Target Growth, or New Add only)
5. Select the type of Rate-Volume Relationship you want to model. If the relationship is Rate Spread or Rate Level, the Rate Tiers page is enabled. In this case, see the following steps listed for Rate Tiers Page.

## Rate Tiers Page

On the Rate Tiers page you define the indicator interest rate(s), establish the rate tiers, and select a lookup method. If you have selected No Relationship on the Method Page, this page is not accessible. An example of the Rate Tiers page appears below:

Forecast Balance ID : 70023.ALL

Methods    Rate Tiers    New Volume Detail    Roll-over Setup    Roll-over Detail

**Base Rate**

Interest Rate Code  
 Treasury Index

Term                      Rate Lag  
 1                      Months                      0                      Months

**Alternate Rate**

Interest Rate Code  
 Zero Rate

Term                      Rate Lag  
 1                      Days                      0                      Months

Rate Spread = Alternate Rate - Base Rate

**Rate Tier**

0.0000
1.0000
2.0000

<< Add

>> Remove

**Lookup Method**

Interpolate                       Range

To complete the assumption setup for rate sensitive new business, complete the following steps:

1. Click on the Rate Tiers button located at the top of the Forecast Balance screen. The Rate Tiers Page appears.
2. Select an Interest Rate Code for the Base Interest Rate. The list of interest rate codes depends on the currency selected in the Floating Tree Bar. If the list appears incomplete or incorrect, check the definition of the reference currency for each Interest Rate Code in FDM Rate Manager.
3. Select a term for the Base Interest Rate from the list of available terms. The term list depends on the interest rate code selected in step 2.
4. Input the desired rate lag for the Base Interest Rate by inputting an integer and selecting a time unit in which the rate lag is denominated (Days, Months, or Years).
5. Define the Alternate Interest Rate (available for Rate Spread Relationship only) by selecting an interest rate code, selecting a term, and inputting a rate lag, as described for the base interest rate in steps 2 - 4.
6. Define your rate tiers. If you have chosen the Rate Level method, input values for the base interest rate. If you have chosen the Rate Spread relationship, input

spreads between the base interest rate and the alternate interest rate. Follow the steps defined below:

- a. Enter a rate tier into the first cell in the Rate Tiers listbox.
  - b. Choose Add to add another rate tier. An additional input cell appears.
  - c. Continue adding cells and inputting rate tiers until all desired rate tiers have been defined. For quick input of assumptions you can also use the spreadsheet control bar. See [Chapter 4, "Overview of IDs"](#) for more information.
  - d. To remove a rate tier, highlight the cell to be removed and select Remove. The currently selected rate tier disappears.
7. Select a Lookup Method.

## New Volume Detail Page

The New Volume Detail Page is used to input new volume assumptions for the methods:

- New Add
- Target End
- Target Average
- Target Growth
- New Add component of the Rollover with New Add method

On this page you select the range of modeling buckets and input balance or percentage assumptions for each modeling bucket within this bucket range. An example of the New Volume Detail page appears below:



#	Bucket	Start Date	End Date	0.0000%	1.0000%	2.0000%
	001	01/01/1996	12/31/1996	0.00	0.00	0.00
	002	01/01/1997	12/31/1997	0.00	0.00	0.00
	003	01/01/1998	12/31/1998	0.00	0.00	0.00
	004	01/01/1999	12/31/1999	0.00	0.00	0.00
	005	01/01/2000	12/31/2000	0.00	0.00	0.00
	006	01/01/2001	12/31/2001	0.00	0.00	0.00
	007	01/01/2002	12/31/2002	0.00	0.00	0.00
	008	01/01/2003	12/31/2003	0.00	0.00	0.00
	009	01/01/2004	12/31/2004	0.00	0.00	0.00
	010	01/01/2005	12/31/2005	0.00	0.00	0.00
	011	01/01/2006	12/31/2006	0.00	0.00	0.00
	012	01/01/2007	12/31/2007	0.00	0.00	0.00

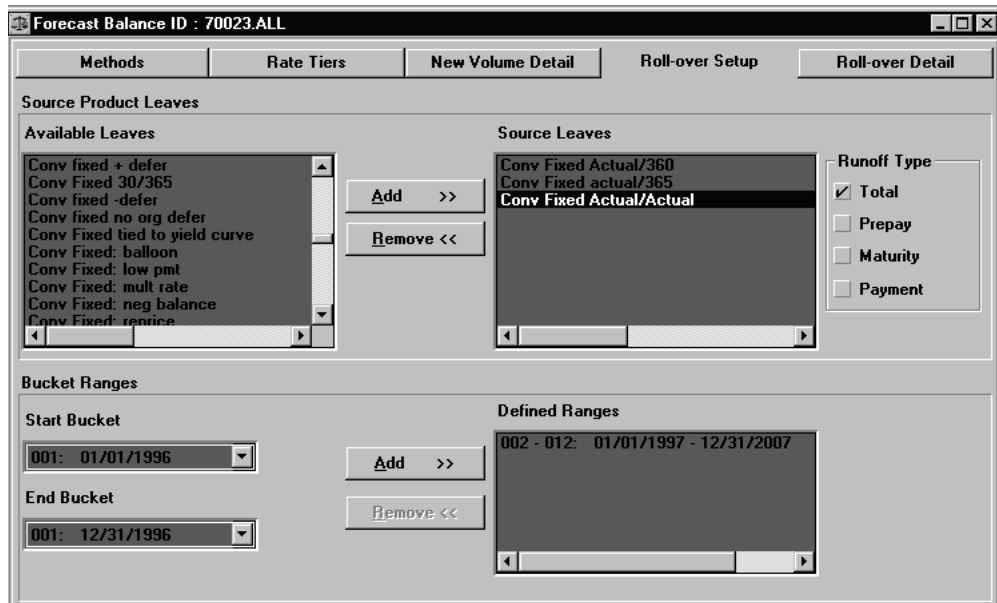
To complete your new volume assumptions, complete the following steps:

1. Move to the input spreadsheet by selecting the New Volume Detail button on the top of the Forecast Balance ID interface. The New Volume Detail input screen appears.
2. Select the modeling bucket start and end range. The default Bucket Range includes all modeling buckets. To forecast new business in a subset of the modeling horizon, reduce the bucket range by increasing the bucket start date or decreasing the bucket end date. As you change the bucket start and/or the bucket end, the spreadsheet adjusts accordingly to display only buckets within the selected range.
3. Go to the cell corresponding to the first modeling bucket. If rate-volume relationships are used, this cell also corresponds to the first rate tier. Input the targeted value. For New Add, Target End, and Target Average, input an amount. For Target Growth, input a percent. The percent should represent the percentage growth within the modeling bucket. It should not represent an annualized amount.
4. To maximize the input area, double click on the plus sign (+) located in the top-left corner of the input spreadsheet. The input area increases to cover the entire ID.

5. After maximizing the input area, return to the regular input screen by clicking on the minus sign (-) located in the top-left corner of the input spreadsheet. The ID returns to its regular size.
6. Use the spreadsheet control functionality to quickly update values within the input spreadsheet. For more information, see [Chapter 4, "Overview of IDs"](#).

## Rollover Setup Page

In the Rollover Setup Page, input the setup details necessary for definition of roll-over percentages. This page includes two required inputs: source product leaves and bucket ranges. An example of the Rollover Setup page appears below:



Follow the steps below to define source product leaves and bucket ranges. Remember that these values only apply to the selected currency.

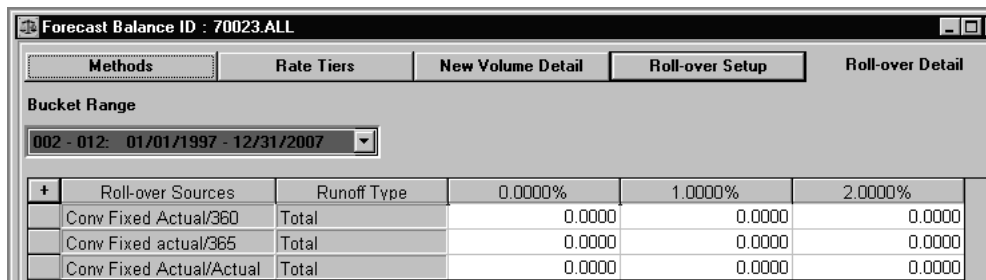
1. Display the Rollover Setup Page by selecting the Rollover Setup button located at the top of the Forecast Balance ID interface.
2. Select the source product leaves. The source leaf is defined by the combination of a product leaf and runoff types. Complete the following steps to define all source leaves:

- a. Select a product leaf from the list of Available Leaves and add it to the list of Source Leaves. By default, Total Runoff is selected as the Runoff Type for this leaf.
  - b. If Total Runoff is not the appropriate runoff type, change the runoff type to the proper values for the highlighted source product leaf.
  - c. Continue adding product leaves and defining runoff types until all source leaves have been defined.
3. Define the input bucket ranges. You only need to define multiple bucket ranges if you want to vary rollover assumptions by modeling buckets. The bucket ranges defined here only apply to rollover occurring from the source leaf to the target leaf. You must have at least one bucket range defined. Typically, you define a bucket range from the first modeling bucket to the last modeling bucket, covering the entire modeling horizon. To define a bucket range, complete the following steps:
  - a. Select a start bucket date for the first date range.
  - b. Select an end bucket date for the first date range.
  - c. Select Add to add a bucket range which begins on the first date of the start bucket and ends on the last date of the end bucket.
  - d. Select a new start date for the next date range. You can select from any buckets that are not encompassed by a defined bucket range. Modeling buckets which are a part of an existing bucket range do not appear in this list. Existing bucket ranges are indicated with a dotted line (<---->).
  - e. Select an end date for the next date range. You cannot create overlapping modeling buckets. To prevent this, the list of available bucket end dates only includes modeling buckets which follow consecutively from the selected start bucket.
  - f. Continue adding bucket ranges until all desired ranges have been defined.

## Rollover Detail Page

On the Rollover Detail Page you input rollover percentages. The rollover percentages represent the percent of the runoff amount from the source (leaf and runoff type for the selected currency) which generates new business into the target leaf for the selected currency.

An example of the Rollover Detail Page appears below:



1. Select the button Rollover Detail. The Rollover Detail Page appears.
2. Select a bucket range from the list of available Bucket Ranges at the top of the interface.
3. Go to the first cell on the input spreadsheet. Input the appropriate rollover percentage for this combination of bucket range, source (and rate tier).
4. For a larger input area, maximize the screen. Click the plus sign (+) located in the top left corner of the spreadsheet. The bucket range selection disappears.
5. To reduce the input area and return to the original interface, click the minus sign (-) located in the top left corner of the spreadsheet. This enables you to see the bucket range selection again.
6. Continue inputting rollover percents for each source, as displayed in the rows of the spreadsheet, and for each rate tier, as displayed in the columns of the spreadsheet.
7. For quick update of inputs, use the Spreadsheet Control Bar. For more information see [Chapter 4, "Overview of IDs"](#).
8. If you have defined more than one bucket range, select the next bucket range and enter the appropriate rollover percentages.
9. Continue inputting rollover percentages until all cells for all bucket ranges are defined.
10. To save the ID before moving to the next product leaf, select the Save icon on the horizontal toolbar, or choose File/Save from the menu bar.

## Editing the ID

You can modify or edit an existing ID by opening it, making the changes and then saving it as either a:

- Different ID with a new name, or
- The same ID name

To edit your ID, perform the following steps:

1. Choose File/Open/Forecast Balance ID. The Select Forecast Balance ID dialog appears.
2. Choose the ID for modification and make changes as outlined earlier in this chapter.
3. Choose Save or Save As, from the File menu, to save or create a new ID.

## Naming IDs

Generally, it is best to use an ID naming convention that creates different groups of IDs. This keeps track of which IDs were created, in the context of specific modeling buckets.

## The Active Configuration ID

Assumptions that you define when creating an ID are based on a specific modeling horizon, which is defined in the active Configuration ID.

### Example

- If you define an ID based on a Configuration ID with a monthly modeling horizon, your results are calculated in monthly time periods.
- If you redefine that same ID, using a different Configuration ID with a weekly modeling horizon, your results are calculated in weekly time periods.

If assumptions in your Forecast Balance ID are based on a modeling horizon that is different from the horizon defined in the active Configuration ID, inaccurate data will result. You should verify that date-sensitive IDs are consistent with the active Configuration ID.

## Examples of Forecast Balance Assumptions

Below are two examples describing how to input assumptions into the Forecast Balance ID for a product using the target growth method and a product using the roll-over capabilities.

## Target Growth Example

The following example describes how to model the effect of interest rate changes on growth in a consumer auto loans product. We will input values that cause the growth rate of consumer auto loans to decrease as interest rates increase.

1. Create a new Forecast Balance ID.
2. Select the product leaf Consumer Auto Loans from the product list within the Floating Tree Bar.
3. Select US Dollars in the currency selection of the Floating Tree Bar.
4. Select Target Growth as the New Business method.
5. Select Distributed as the Timing option.
6. Select Rate-level dependent as the Rate-Volume relationship. The completed Method information should appear as shown in the example below:

The screenshot shows a window titled "Forecast Balance ID : TARGET GROWTH.ALL". It has five tabs: "Methods", "Rate Tiers", "New Volume Detail", "Roll-over Setup", and "Roll-over Detail". The "Methods" tab is active. Below the tabs, there are three sections:

- New Business Method:** A dropdown menu showing "Target Growth".
- New Business Timing:** Two radio buttons: "At Bucket End" (unselected) and "Distributed" (selected).
- Rate-Volume Relationship:** Three radio buttons: "No Relationship" (unselected), "Rate-level dependent" (selected), and "Rate-spread dependent" (unselected).

7. Click on the Rate Tiers button.
8. Define the Base Interest Rate.
  - a. Select Treasury Curve as the Interest Rate Code.
  - b. Input 36 and select Months as the term.
  - c. Leave the Rate Lag as the default (0 Days).
9. Define the Rate Tiers.
  - a. Go to the first cell in the Rate Tiers list.
  - b. Leave the value at 0%.

- c. Select the Add button to add a new cell. Move the cursor to the new cell and input the value 4%.
10. Leave the lookup method at the default (Interpolate).
11. Click on the New Volume Detail button. Note that the Rate Tiers you have defined appear as columns across the top of the spreadsheet.
12. Click on the Spreadsheet Control Bar icon to open the spreadsheet control.
13. In the first cell, corresponding to the first modeling bucket and a rate level of 0%, input a target growth percent of 6.000%.
14. Use the Spreadsheet Control to input the rest of the values in this column.
  - a. Highlight the first cell and all other cells in the 0% rate column.
  - b. The Spreadsheet Control options become enabled. The 6.000% value displays in the initial value field, 0.000% displays in the increment field, and the method displays Increment by Value. Leave these values unchanged.
  - c. Select Run to update all values in the 0% rate tier column to equal 6.000%.
15. In the first row and the second column, corresponding to the first modeling bucket and a rate level of 4%, input a target growth percent of 2.500%.
16. Repeat the Spreadsheet Control procedure for copying this value to the rest of the column. The completed target growth percentages should appear as displayed below:

Methods		Rate Tiers		New Volume Detail		Roll-over Setup		Roll-over Detail	
Start Bucket:				001: 01/01/1996		End Bucket: 012: 12/31/2007			
#	Bucket	Start Date	End Date	0.0000%	4.0000%				
	001	01/01/1996	12/31/1996	6.00	2.50				
	002	01/01/1997	12/31/1997	6.00	2.50				
	003	01/01/1998	12/31/1998	0.00	2.50				
	004	01/01/1999	12/31/1999	6.00	2.50				
	005	01/01/2000	12/31/2000	6.00	2.50				
	006	01/01/2001	12/31/2001	6.00	2.50				
	007	01/01/2002	12/31/2002	6.00	2.50				
	008	01/01/2003	12/31/2003	6.00	2.50				
	009	01/01/2004	12/31/2004	6.00	2.50				
	010	01/01/2005	12/31/2005	6.00	2.50				
	011	01/01/2006	12/31/2006	6.00	2.50				
	012	01/01/2007	12/31/2007	6.00	2.50				

## Rate Sensitive Rollover Example

This example shows how to input rollover behavior for holders of CDs denominated in US Dollars. As the yield curve steepens, holders of shorter term CDs increasingly choose to roll their money into longer term CDs.

1. Create a new Forecast Balance ID.
2. Select the product leaf CDs 60 months from product selection within the Floating Tree Bar.
3. Select US Dollars from the currency selection within the Floating Tree Bar.
4. Select the New Business method Rollover.
5. Define the Rate-Volume relationship as Rate-Spread Dependent.
6. Go to the Rate Tiers page.
7. Define the Base Interest Rate.
  - a. Select Treasury Curve as the Base Interest Rate Code.
  - b. Select 6 months as the base term.
  - c. Leave the default rate lag at 0 months.
8. Define the Alternate Interest Rate.
  - a. Select Treasury Curve as the Alternate Interest Rate Code.
  - b. Select 60 months as the alternate term.
  - c. Leave the default rate lag at 0 months.
9. Input the following as rate tiers, -2.000%, 0.000%, and 2.000%, representing the spread between the 5 year Treasury bonds and 6 month Treasury bills. The rate tiers will indicate the following at process time
  - an inverted yield curve
  - a flat yield curve
  - an upward sloping yield curve.
10. Leave the Lookup Method as interpolate. The completed Rate Tier information should match the example provided below:



Forecast Balance ID : RATE-SENS ROVER.ALL

Methods    Rate Tiers    New Volume Detail    Roll-over Setup    Roll-over Detail

**Base Rate**

Interest Rate Code  
Treasury Index

Term    Rate Lag  
6 Months    0 Months

**Alternate Rate**

Interest Rate Code  
Treasury Yield Curve

Term    Rate Lag  
5 Years    0 Months

Rate Spread = Alternate Rate - Base Rate

**Rate Tier**

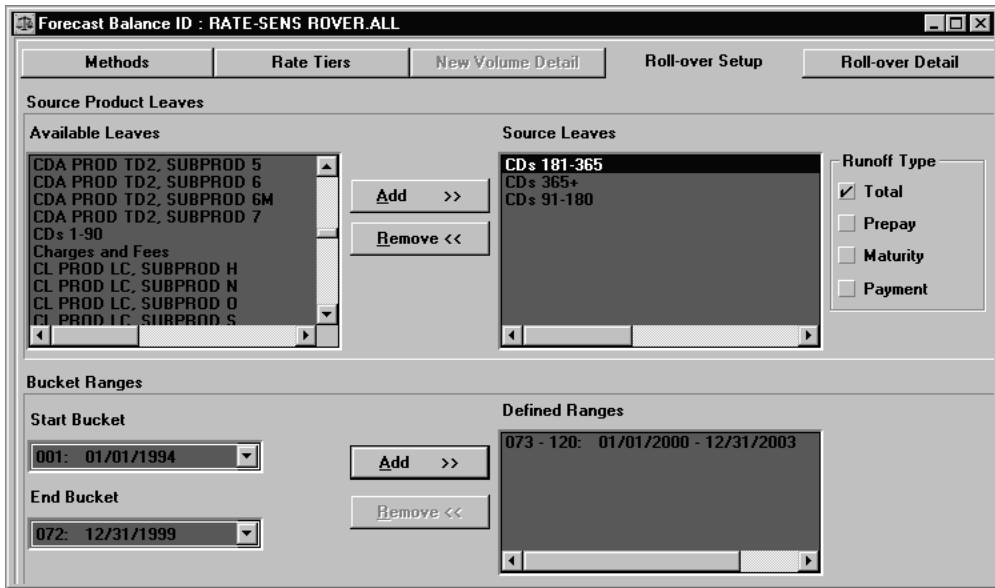
-2.0000
0.0000
2.0000

<< Add    >> Remove

**Lookup Method**

Interpolate     Range

11. Go to the Rollover Setup page.
12. Select the 6 month and 60 month CD product as your source product leaves.
  - a. Highlight the CD 60 months product in the Available Leaves list.
  - b. Select Add to move the product to the Source Leaves list.
  - c. Highlight the CD 6 month product in the Available Leaves list.
  - d. Select Add to move the product to the Source Leaves list.
  - e. Leave the Runoff Type for each of these leaves as the default (Total Runoff).
13. Define a single bucket range, encompassing the entire modeling horizon.
  - a. Verify that the selected start bucket is bucket 1. This should be the default option.
  - b. Verify that the selected end bucket is bucket 120. This should be the default option.
  - c. Select Add to create this bucket range The selected rollover sources and bucket information should appear as shown in the example:



14. Go to the Rollover Detail Page. On this page, the Rollover Sources are displayed as rows going down the table. The rate spreads are displayed as columns going across the top of the table. The single bucket range is displayed in the bucket range field.
15. Go to the first cell in the spreadsheet corresponding to CDs 6 month and a -2.00% spread. Input a rollover amount of 0.000% into this cell.
16. Go to the next cell corresponding to CDs 6 months and a 0% spread. Input 10% rollover into this cell.
17. Go to the final cell in this row, corresponding to CDs 6 months and a 2.000% spread. Input 30% rollover.
18. Go the next row corresponding to CDs 60 months.
19. Input the following values for the 60 months CD product: 10% rollover for a -2% spread, 20% rollover for a 0% spread, and 110% rollover for a 2% spread. The rollover information should match the example shown below:

Forecast Balance ID : RATE-SENS ROVER.ALL					
Methods	Rate Tiers	New Volume Detail	Roll-over Setup	Roll-over Detail	
<b>Bucket Range</b>					
073 - 120: 01/01/2000 - 12/31/2003					
#	Roll-over Sources	Runoff Type	-2.0000%	0.0000%	2.0000%
	CDs 181-365	Total	10.0000	10.0000	30.0000
	CDs 365+	Total	10.0000	20.0000	110.0000

## Processing New Business in an RM Process ID

To process the assumptions you have input, the Forecast Balance ID must be selected in a Risk Manager Process ID. The output process selections defined within the Process ID determine which forecast balance assumptions per currency are used. If processing output is product-only, forecast balance assumptions for the reporting currency are processed. New business assumptions for all other currencies are ignored. If the output is product and currency, forecast balance assumptions for each product and currency combination are processed.

See [Chapter 20, "Process ID"](#) for more information.



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## Forecast Rates ID

The Forecast Rates ID calculates future interest rates and future currency exchange rates. Use interest rate forecasts to project cash flows, including pricing new business, repricing existing business, calculating prepayments, and determining discount methods. Use currency exchange rate forecasts to account for the effects of currency fluctuations on income.

The Forecast Rates ID uses interest rate and currency codes stored in Rate Manager, including all the active and reporting currencies and the primary, or functional, currency at your institution. See the *Oracle Financial Data Manager Rate Manager Reference Guide* for how to define interest rates and currency exchange rates.

This chapter describes how to create a Forecast Rates ID to forecast cash flows and, if you work with multiple currencies, to model relationships between interest rates and exchange rates. Topics include:

- [Creating a Forecast Rates ID](#)
- [Currency Forecast Methods](#)
- [Interest Rate Forecast Methods](#)

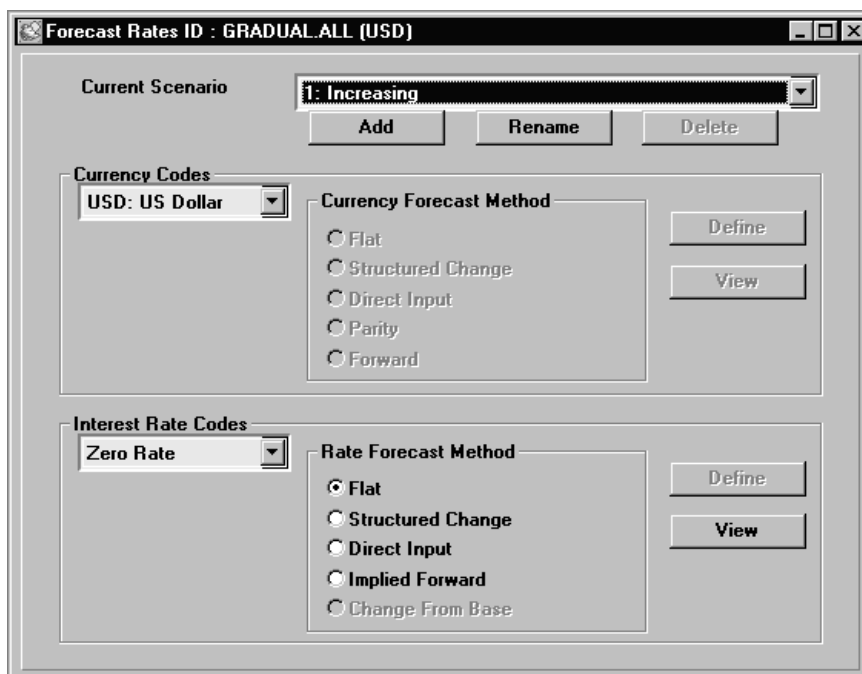
### Creating a Forecast Rates ID

1. From the File menu, select New -> Forecast Rates ID.
2. Select a folder.
3. Type a descriptive name for the ID.
4. Type a description for the ID. This is an optional field.
5. Click Read/Write.
6. Select a reporting currency.

7. Click OK.

## Features of the Forecast Rates ID

The reporting currency you selected when creating the Forecast Rates ID appears in the title bar. Each forecast scenario you create, up to nine, will appear under Current Scenarios. Forecast scenarios use the date buckets specified in the active Configuration ID.



The active currencies from Rate Manager are listed under Currency Codes. The selection under Currency Codes is the same as the reporting currency when you are not forecasting exchange rates. The list of IRCs under Interest Rate Codes is dependent on the selected currency. The IRCs, including a reference IRC for each currency, are loaded from Rate Manager. When you select a currency other than the reporting currency, the options under Currency Forecast Method provide several ways to model relationships between exchange rates and interest rates. See "[Currency Forecast Methods](#)" for more information.

The IRCs for all active currencies (and reporting currencies, a subset of the active currencies) are listed under Interest Rate Codes. The options under Rate Forecast Method provide several ways to model the effects on portfolio cash flows due to interest rate changes. See "[Interest Rate Forecast Methods](#)" for more information.

## Currency Forecast Methods

The following currency forecast methods are available when you select a currency (other than the reporting currency) from the Currency Codes list.

Select	To
Flat	Forecast no change in the exchange rate for all dates beginning with the as-of date.
Structured Change	Forecast exchange rates as an incremental change from the previous period.
Direct Input	Type exchange rates to use in forecasting.
The following methods are available when the selected currency has an associated reference IRC as defined in Rate Manager:	
Parity	Forecast the exchange rate between two currencies based on interest rate forecasts for the reference IRC associated with each of the currencies.
Forward	Forecast the exchange rate required to maintain a no arbitrage condition between two currencies.

### Examples of Currency Forecasting

The examples below use the following data to demonstrate currency forecast methods:

- Reporting currency = U. S. dollars (USD is shown in the title bar)
- Local currency = Australian dollars (converting from Australian dollars (AUD) to USD)
- Exchange rate loaded from Rate Manager = 1.7 AUD to 1 USD (rate in effect on the as-of date, 12/31/93)
- Modeling period = 01/01/1994 to 12/31/2003

As you follow the steps, substitute similar data at your site if this particular data is not available.

**To Begin** For all examples, begin by doing the following:

1. Create a new Forecast Rates ID with USD as the reporting currency. (See ["Creating a Forecast Rates ID"](#) in this chapter.)
2. In the Forecast Rates ID window, add (or rename) a scenario:
  - a. Click Add (or Rename).
  - b. Type a name for the scenario.
  - c. Click OK.

**Flat Method** Calculate the exchange rate of Australian dollars to \$1 U. S., modeling no change in the exchange rate during the modeling period.

In the Forecast Rates ID window, do the following:

1. From Currency Codes, select AUD: Australian Dollar.
2. From Currency Forecast Method, click Flat.
3. Click View.

Under Rate Value, you will see the exchange rate: \$1.7 AUDs equal \$1 USD. This rate is applied uniformly to all date buckets, based on the rate in effect at the as-of date in the active Configuration ID.



Exchange Rate View (AUD)			
	From Date	To Date	Rate Value
Base			1.700000000
1	01/01/1994	01/31/1994	1.700000000
2	02/01/1994	02/28/1994	1.700000000
3	03/01/1994	03/31/1994	1.700000000
4	04/01/1994	04/30/1994	1.700000000
5	05/01/1994	05/31/1994	1.700000000
6	06/01/1994	06/30/1994	1.700000000
7	07/01/1994	07/31/1994	1.700000000
8	08/01/1994	08/31/1994	1.700000000
9	09/01/1994	09/30/1994	1.700000000
10	10/01/1994	10/31/1994	1.700000000
11	11/01/1994	11/30/1994	1.700000000
12	12/01/1994	12/31/1994	1.700000000
13	01/01/1995	03/31/1995	1.700000000
14	04/01/1995	06/30/1995	1.700000000
15	07/01/1995	09/30/1995	1.700000000

4. Click Close.
5. From the File menu, select Save.

**Structured Change** Model a change in the exchange rate so that the rate increases by a total of 0.5% over five months, levels off for seven months, and then drops a total of 0.25% over nine months.

In the Forecast Rates ID window, do the following:

1. From Currency Codes, select AUD: Australian Dollar.
2. From Currency Forecast Method, select Structured Change.
3. Click Define.
4. Add rows and type bucket numbers and rate changes as follows:

Start Bucket	End Bucket	From Date	To Date	Total Rate Change
1	5	01/01/94	05/31/94	0.50

Start Bucket	End Bucket	From Date	To Date	Total Rate Change
6	12	06/01/94	12/31/94	0.00
13	15	01/01/95	09/30/95	-0.25

5. Click OK.
6. Click View.

The Rate Value column shows the forecasted exchange rates. Notice that the 0.5% total rate change over five 1-month buckets produces a 0.1% increase in each month until 05/31/1994, after which the rate remains constant until 12/31/1994. The 0.25% decrease from 01/01/95 to 09/30/95 is apportioned over the three buckets, producing a 0.0833 decrease for each 3-month bucket (each bucket is 1/3 of the total rate change period).

	From Date	To Date	Rate Value
Base			1.700000000
1	01/01/1994	01/31/1994	1.800000000
2	02/01/1994	02/28/1994	1.900000000
3	03/01/1994	03/31/1994	2.000000000
4	04/01/1994	04/30/1994	2.100000000
5	05/01/1994	05/31/1994	2.200000000
6	06/01/1994	06/30/1994	2.200000000
7	07/01/1994	07/31/1994	2.200000000
8	08/01/1994	08/31/1994	2.200000000
9	09/01/1994	09/30/1994	2.200000000
10	10/01/1994	10/31/1994	2.200000000
11	11/01/1994	11/30/1994	2.200000000
12	12/01/1994	12/31/1994	2.200000000
13	01/01/1995	03/31/1995	2.116666667
14	04/01/1995	06/30/1995	2.033333333
15	07/01/1995	09/30/1995	1.950000000

7. Click Close.
8. From the File menu, select Save.

**Direct Input** Model a change in the exchange rate so that rates reflect a stronger U. S. dollar during the spring of 2000.

In the Forecast Rates ID window, do the following:

1. From Currency Codes, select AUD: Australian Dollar.
1. From Currency Forecast Method, select Direct Input.
2. Click Define.
3. Type rate values for the following dates:

<b>From Date</b>	<b>To Date</b>	<b>Rate Value</b>
03/01/2000	03/31/2000	2.10
04/01/2000	04/30/2000	2.40
05/01/2000	05/31/2000	2.65

4. Click OK.
5. Click View.

The rate values you typed in step 3 are applied.

Exchange Rate View (AUD)			
	From Date	To Date	Rate Value
12	12/01/1994	12/31/1994	1.700000000
13	01/01/1995	03/31/1995	1.700000000
14	04/01/1995	06/30/1995	1.700000000
15	07/01/1995	09/30/1995	1.700000000
16	10/01/1995	12/31/1995	1.700000000
17	01/01/1996	12/31/1996	1.700000000
18	01/01/1997	12/31/1997	1.700000000
19	01/01/1998	12/31/1998	1.700000000
20	01/01/1999	12/31/1999	1.700000000
21	01/01/2000	01/31/2000	1.700000000
22	02/01/2000	02/29/2000	1.700000000
23	03/01/2000	03/31/2000	2.100000000
24	04/01/2000	04/30/2000	2.400000000
25	05/01/2000	05/31/2000	2.650000000
26	06/01/2000	06/30/2000	1.700000000
27	07/01/2000	12/31/2000	1.700000000

6. Click Close.
7. From the File menu, select Save.

**Parity Model** a period of rising interest rates for the U. S. and Australian dollars. Use the parity method to forecast the exchange rate of Australian dollars to \$1 U. S. Parity is calculated based on the forecast interest rates of the reference IRCs of the Australian dollar and the U. S. dollar.

In the Forecast Rates ID window, forecast changes in the U. S. dollar interest rate:

1. From Currency Codes, select USD: US Dollar.
2. From Interest Rate Codes, select Treasury Index.
3. From Rate Forecast Method, click Direct Input.
4. Click Define.

5. Type interest rate changes for 06/01/2000 through 12/31/2001 as follows:

	From Date	To Date	1 Month	3 Month	6 Month	12 Month
<b>Base</b>			5.0000	5.2000	5.4500	5.5500
<b>26</b>	06/01/2000	06/30/2000	6.0000	6.2000	6.4500	6.5500
<b>27</b>	07/01/2000	12/31/2000	7.0000	7.2000	7.4500	7.5500
<b>28</b>	01/01/2001	12/31/2001	8.0000	8.2000	8.4500	8.5500

6. Click OK.

In the Forecast Rates ID window, forecast changes in the Australian dollar reference interest rate:

1. From Currency Codes, select AUD: Australian Dollar.
2. From Interest Rate Codes, select IRC AUD1.
3. From Rate Forecast Method, click Direct Input.
4. Click Define.
5. Type interest rate changes for 06/01/2000 through 12/31/2001 as follows:

	From Date	To Date	1 Day	7 Day	30 Day	2 Month	1 Year
<b>Base</b>			4.1380	4.2375	4.5125	4.5689	5.1250
<b>26</b>	06/01/2000	06/30/2000	5.1380	5.2375	5.5125	5.5689	6.1250
<b>27</b>	07/01/2000	12/31/2000	6.1380	6.2375	6.5125	6.5689	7.1250
<b>28</b>	01/01/2001	12/31/2001	7.1380	7.2375	7.5125	7.5689	8.1250

6. Click OK.

In the Forecast Rates ID window, view the forecasted exchange rate:

1. From Currency Forecast Method, click Parity.
2. Click View.

The Rate Value column shows the forecasted exchange rate of Australian dollars to \$1 U. S.

Exchange Rate View (AUD)			
	From Date	To Date	Rate Value
15	07/01/1995	09/30/1995	1.641076371
16	10/01/1995	12/31/1995	1.638808836
17	01/01/1996	12/31/1996	1.636575147
18	01/01/1997	12/31/1997	1.629985432
19	01/01/1998	12/31/1998	1.623422250
20	01/01/1999	12/31/1999	1.616885496
21	01/01/2000	01/31/2000	1.610375061
22	02/01/2000	02/29/2000	1.609782302
23	03/01/2000	03/31/2000	1.609148903
24	04/01/2000	04/30/2000	1.608536174
25	05/01/2000	05/31/2000	1.607903266
26	06/01/2000	06/30/2000	1.607291012
27	07/01/2000	12/31/2000	1.607954992
28	01/01/2001	12/31/2001	1.618065339
29	01/01/2002	12/31/2002	1.657539695
30	01/01/2003	12/31/2003	1.650865566

- From the File menu, select Save.

**Forward** Forecast the exchange rates required to maintain equilibrium between the U. S. and Australian dollars. The forecast is based on the historical interest rates from the reference IRC of each currency. This example assumes that the following reference IRCs have been assigned in Rate Manager:

- U. S. dollar: Treasury Index
- Australian dollar: IRC AUD1

In the Forecast Rates ID window, do the following:

- From Currency Codes, select AUD: Australian Dollar.
- From Currency Forecast Method, click Forward.
- Click View.

The Rate Value column shows the forward exchange rate of Australian dollars to \$1 U. S.

Exchange Rate View (AUD)			
	From Date	To Date	Rate Value
15	07/01/1995	09/30/1995	1.684382978
16	10/01/1995	12/31/1995	1.678617932
17	01/01/1996	12/31/1996	1.672003175
18	01/01/1997	12/31/1997	1.653495726
19	01/01/1998	12/31/1998	1.632126495
20	01/01/1999	12/31/1999	1.608049515
21	01/01/2000	01/31/2000	1.590274744
22	02/01/2000	02/29/2000	1.588774189
23	03/01/2000	03/31/2000	1.587420065
24	04/01/2000	04/30/2000	1.585922204
25	05/01/2000	05/31/2000	1.584474006
26	06/01/2000	06/30/2000	1.582978924
27	07/01/2000	12/31/2000	1.581533414
28	01/01/2001	12/31/2001	1.572696448
29	01/01/2002	12/31/2002	1.555312457
30	01/01/2003	12/31/2003	1.538120621

- From the File menu, select Save.

## Interest Rate Forecast Methods

The following interest rate forecast methods are available.

Select	To
Flat	Forecast no change in the interest rate for all dates beginning with the as-of date.
Structured Change	Forecast rate changes, for any modeling period or interest rate term, such as: <ul style="list-style-type: none"> <li>▪ +100 basis points on Day 1</li> <li>▪ -200 basis points over the first 6 months</li> <li>▪ Yield curve rotation (short point decreasing, long point increasing)</li> </ul>

Direct Input	Type interest rates directly, for any modeling period or interest rate term.
Implied Forward	Forecast interest rates based on the yield-curve interest rates in effect at the as-of date and consistent with the modeling bucket definitions.
Change from Base	Make incremental changes to an existing forecast scenario.

### Examples of Interest Rate Forecasting

As you follow the steps in the examples, substitute similar data at your site if this particular data is not available. See ["To Begin"](#) in this chapter to set up the examples.

**Flat** View U. S. dollar interest rates forecasted for the Treasury Index.

1. From Currency Codes, select USD: US Dollar.
2. From Interest Rate Codes, select Treasury Index.
3. From Rate Forecast Method, click Flat.
4. Click View.

The Interest Rate View window displays the rates forecasted for the Treasury Index.

	From Date	To Date	1 Month	3 Month	6 Month	12 Month	24 Month	36 Mo
Base			5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
1	01/01/1994	01/31/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
2	02/01/1994	02/28/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
3	03/01/1994	03/31/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
4	04/01/1994	04/30/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
5	05/01/1994	05/31/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
6	06/01/1994	06/30/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
7	07/01/1994	07/31/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
8	08/01/1994	08/31/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
9	09/01/1994	09/30/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
10	10/01/1994	10/31/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
11	11/01/1994	11/30/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
12	12/01/1994	12/31/1994	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
13	01/01/1995	01/31/1995	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000
14	02/01/1995	02/28/1995	5.0000	5.2000	5.4500	5.5500	6.0000	6.0000



**Structured Change** Model a gradual increase for six months in U. S. dollar interest rates.

1. From Currency Codes, select USD: US Dollar.
2. From Interest Rate Codes, select Treasury Index.
3. From Rate Forecast Method, click Structured Change.
4. Click Define.
5. Type the following interest rate changes:

	<b>Start Bucket</b>	<b>End Bucket</b>	<b>From Date</b>	<b>To Date</b>	<b>1 Month</b>	<b>3 Month</b>	<b>6 Month</b>	<b>12 Month</b>
1	21	26	01/01/2000	06/30/2000	1.0000	1.250	1.500	1.750

6. Click OK.
7. Click View.
8. The rate increases you typed in step 5 are apportioned equally over six months. Therefore, in monthly buckets 21–26, you will expect to see the following increments added to the Treasury Index interest rates:

<b>1 Month</b>	<b>3 Month</b>	<b>6 Month</b>	<b>12 Month</b>
$1/6 \text{ of } 1.000 = 0.1667$	$1/6 \text{ of } 1.250 = 0.2083$	$1/6 \text{ of } 1.500 = 0.2500$	$1/6 \text{ of } 1.750 = 0.2917$

The interest rates in buckets 21–26 reflect the increases.

Interest Rate View (Treasury Index)						
	From Date	To Date	1 Month	3 Month	6 Month	12 Month
16	10/01/1995	12/31/1995	5.0000	5.2000	5.4500	5.5500
17	01/01/1996	12/31/1996	5.0000	5.2000	5.4500	5.5500
18	01/01/1997	12/31/1997	5.0000	5.2000	5.4500	5.5500
19	01/01/1998	12/31/1998	5.0000	5.2000	5.4500	5.5500
20	01/01/1999	12/31/1999	5.0000	5.2000	5.4500	5.5500
21	01/01/2000	01/31/2000	5.1667	5.4083	5.7000	5.8417
22	02/01/2000	02/29/2000	5.3333	5.6167	5.9500	6.1333
23	03/01/2000	03/31/2000	5.5000	5.8250	6.2000	6.4250
24	04/01/2000	04/30/2000	5.6667	6.0333	6.4500	6.7167
25	05/01/2000	05/31/2000	5.8333	6.2417	6.7000	7.0083
26	06/01/2000	06/30/2000	6.0000	6.4500	6.9500	7.3000
27	07/01/2000	12/31/2000	6.0000	6.4500	6.9500	7.3000
28	01/01/2001	12/31/2001	6.0000	6.4500	6.9500	7.3000
29	01/01/2002	12/31/2002	6.0000	6.4500	6.9500	7.3000
30	01/01/2003	12/31/2003	6.0000	6.4500	6.9500	7.3000

- From the File menu, select Save.

**Direct Input** To use the Direct Input method, see "[Structured Change](#)" with the following modifications:

- In step 3, click Direct Input
- In step 5, type interest rates (forecasted *rates* for each bucket rather than forecasted rate *changes* over a period of one or more buckets).

**Implied Forward View** U. S. dollar interest rates forecasted from the Treasury Index rates and terms in effect at the as-of date and consistent with the modeling buckets.

- From Currency Codes, select USD: US Dollar.
- From Interest Rate Codes, select Treasury Index.
- From Rate Forecast Method, click Implied Forward.
- Click View.

Interest Rate View (Treasury Index)							
	From Date	To Date	1 Month	3 Month	6 Month	12 Month	24 Month
Base			5.0000	5.2000	5.4500	5.5500	6.0000
1	01/01/1994	01/31/1994	5.0175	5.2041	5.4544	5.5515	6.0022
2	02/01/1994	02/28/1994	5.5315	5.3733	5.5837	5.6053	6.0693
3	03/01/1994	03/31/1994	5.0955	5.4087	5.6097	5.6715	6.1324
4	04/01/1994	04/30/1994	5.5134	5.7027	5.7233	5.7436	6.1876
5	05/01/1994	05/31/1994	5.6214	5.7875	5.7210	5.8079	6.2282
6	06/01/1994	06/30/1994	5.9764	5.8110	5.7254	5.8615	6.2533
7	07/01/1994	07/31/1994	5.7712	5.7436	5.6471	5.9123	6.2680
8	08/01/1994	08/31/1994	5.6910	5.6545	5.6266	5.9747	6.2805
9	09/01/1994	09/30/1994	5.7695	5.6389	5.7343	6.0531	6.2946
10	10/01/1994	10/31/1994	5.5069	5.5507	5.7642	6.1460	6.3117
11	11/01/1994	11/30/1994	5.6447	5.5986	5.8964	6.2495	6.3320
12	12/01/1994	12/31/1994	5.5035	5.8309	5.9985	6.3558	6.3544
13	01/01/1995	03/31/1995	5.6492	5.9828	6.1826	6.4549	6.3768
14	04/01/1995	06/30/1995	6.2966	6.3805	6.5271	6.6334	6.4245

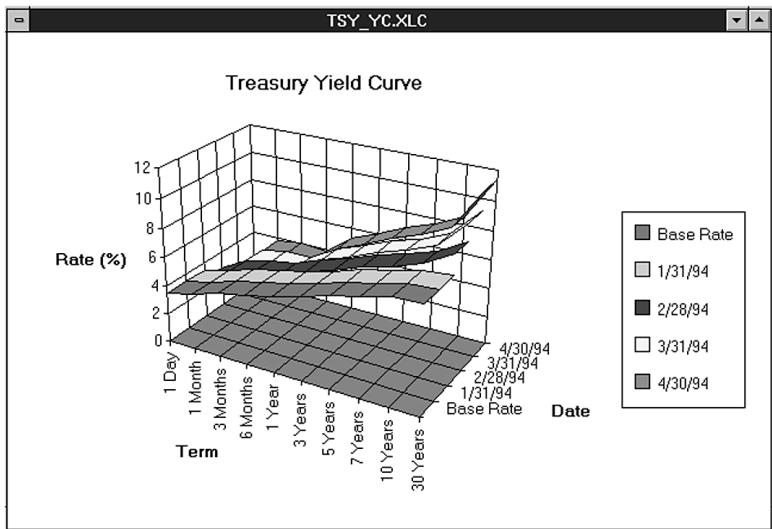
- Click Close.
- From the File menu, select Save.

**Change from Base** Select a forecast rates scenario that you have already defined and saved and change it by typing incremental changes to rates. For example, you might want to forecast scenario 7 based on incremental changes to the rates in scenario 5.

Interest Rate Change From Base (Treasury Index)							
Change From Base Scenario							5: IRC.di
1 Month	3 Month	6 Month	12 Month	24 Month	36 Month	48 Month	60 Month
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

## Generating Graphs of Rates

You can use Copy and Paste commands to copy data from a Forecast Rates ID view to a spreadsheet for graphical analyses. The following shows a graph of a yield curve rotation generated through any graphical package.



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## Formula ID

A Formula ID is a user-defined tool that supplements other IDs and enables you to further and more flexibly manipulate data. Formula IDs have three different uses:

- To specify a calculated column that the Oracle Financial Services (OFS) application derives from other columns in the database
- To calculate assignments in data correction
- To create calculated conditions in data and relationship filters.

For example, you want to calculate a weighted average rate that requires a calculation involving total net balance and the current rate on each individual account. You can use a Formula ID to define this calculation.

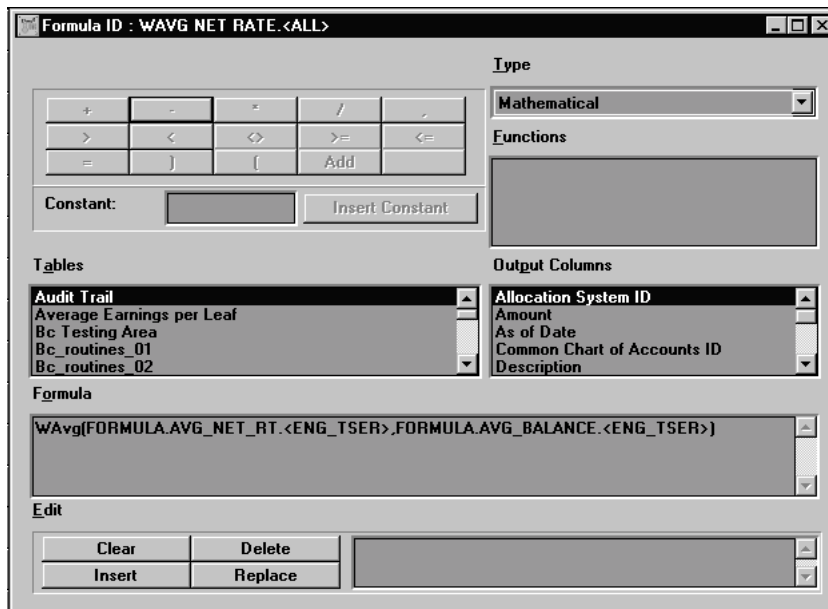
The OFS applications handle a Formula ID like any database column. The applications display all Formula IDs under the Formula selection in the instrument table lists, however.

This chapter discusses the following topics:

- [Using the Formula ID Window](#)
- [Creating a Formula ID](#)
- [Editing a Formula ID](#)
- [Reviewing Formula ID Examples](#)

### Using the Formula ID Window

The Formula ID window comprises elements that you use to build formulas.



The formula elements are:

- [Operators and Operands](#)
- [Function Types and Functions](#)
- [Constants](#)
- [Tables and Output Columns](#)

Only those formula elements that you can add logically at the next point of a formula are available for use. The OFS application disables or hides the formula elements that are not applicable.

You use the formula elements as you need them. For example, you may need a formula to calculate the weighted average of your commercial loans. You must first select Mathematical as the function type and WAvg as the function before you select the columns under the Commercial Loans table. However, you can build a formula that does not require a function. It may need only operators and operands.

The following sections describe the formula elements and provide basic information on how to use them.

## Operators and Operands

Operators and Operands are displayed as buttons across the top of the Formula ID window.

The operands available are left parenthesis, right parenthesis, and comma. Parentheses group segments of a formula to make logical sense. The comma separates statements of a function.

The mathematical operators available are:

- +
- -
- \*
- /
- =
- >
- <
- <>
- >=
- <=

You can use these operators to apply mathematical operators to the formula.

Add enables you to add the currently highlighted database column or operator to build the formula.

## Function Types and Functions

You select the type of function for your formula from the Type list. The choices are:

- [Mathematical Functions](#)
- [Date Functions](#)
- [String Functions](#)
- [Other Functions](#)

The type of function you select determines the choices available in the Function box. These unique functions of the Formula ID enable you to perform various opera-

tions on the data. The following tables list each available function. Detail on the operations of each function follows the table in which it appears.

## Mathematical Functions

When you select Mathematical as the function type, you can use the following 11 functions from the Functions box:

Function	Notation
Absolute Value	ABS()
Ceiling	CEILING()
Greatest	GREATEST(column or expression, column or expression)
Least	LEAST(column or expression, column or expression)
Maximum	MAX()
Minimum	MIN()
Natural Log	LN(number)
Power	POWER(coeffecient, exponent)
Round	ROUND (number, precision)
Sum	SUM()
Weighted Average	WAvg (column being averaged, weight column)

The following descriptions provide detailed information about the mathematical functions, including examples.

**Absolute Value:** Returns the positive value of the database column

Example:  $ABS(-3.5) = 3.5$ .

ABS function syntax:

{ABS( ) followed by {EXPR1 without any embedded or outermost left-right parentheses pair} followed by { } }

For example,  $ABS(F)$ ,  $ABS(F + C)$ ,  $ABS(F + C * R + F)$  are possible. However,  $ABS((F + C + R))$ ,  $ABS((F + (MAX * CEILING)))$  are not possible.

**Ceiling:** Rounds a value to the next highest integer

Example: 3.1 becomes 4.0, 3.0 stays the same

Syntax: Ceiling(column or expression)



**Greatest:** Returns the greater of 2 numbers, formulas, or columns

Syntax: Greatest(column or expression, column, or expression)

**Least:** Returns the lesser of 2 numbers, formulas, or columns

Syntax: Least(column or expression, column or expression)

**Maximum:** Returns the maximum value of a -database column

Syntax: Max(Column)

**Minimum:** Returns the minimum value of a -database column

Syntax: Min(Column)

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**Note :** You cannot use the Maximum and Minimum functions as calculated columns or in Data Correction Rules. The Maximum, Minimum, Sum, and Weighted Average functions are multi-row formulas. They use multiple rows in calculating the results.

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**Natural Log:** Returns the natural logarithm of a number

Natural logarithms are based on the constant e (2.71828182845904).

Syntax: LN(number) where *number* is the positive real number for which you want the natural logarithm

Examples:

LN(86) equals 4.454347

LN(2.7182818) equals 1

**Power:** Raises one value to the power of a second

Syntax: Power(x, y) returns x raised to the power of y

POWER function syntax:

{POWER} followed by {EXPR1 without any embedded or outermost left-right parentheses pair followed by {,} followed by {EXPR1 without any embedded or outermost left-right parentheses pair} followed by {)}

Valid examples:

POWER(F, R)

POWER(F + C \* R, F / R)

**Invalid examples:**

POWER((F/R), F + R)

POWER((F + C), (C \* R))

POWER(F + POWER, R)

POWER( MAX, C)

**Round:** Rounds a value to a number of decimal places

Syntax: Round(x, n) returns x rounded to n decimal places

**Sum:** Sums the total value of a database column. Sum is a multi-row function, in contrast to +, which adds 2 or more values in a given row (not column)

Syntax: Sum(Column).

**Weighted Average:** Takes a weighted average of one database column by a second column

Syntax: WAvg(Column A, Column B)

Example:

WAvg(DEPOSITS.CUR\_NET\_RATE,DEPOSITS.CUR\_BOOK\_BAL)

WAvg cannot appear in any expression.

If you have two formulas called F1 and F2, both of which are WAvg functions, then you can form a third formula F3 as F1 + F2. If F3 is chosen as a calculated column, then an error message appears and the SQL code is not generated for that column. This is similar for nested WAvg functions if F3 is WAvg and it has F1 or F2 or both as its parameters.

**Date Functions**

Four functions are available when you select Date as the function type:

Function	Notation
Build Date	BUILDDATE(CCYY,MM,DD)
Go Month	GOMONTH(date,number of months)
Month	MONTH(number)
Year	YEAR(date)

The following descriptions provide detailed information about the date functions, including examples.

**Build Date:** Requires three parameters, (CCYY,MM,DD) (century and year, month, day). It returns a valid data and enables you to build a date from components.

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**CAUTION:** If the parameters are entered incorrectly, the date is invalid.

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Example: BuildDate(95,11,30) is invalid (invalid century). BuildDate(1995,11,30) is valid.

**Go Month:** Advances a date by x number of months.

Syntax: GOMONTH(Date column, Number of months to advance)

Example:

GOMONTH(DEPOSITS.ORIGINATION\_DATE,DEPOSITS.ORG\_TERM)

Go Month does not know the calendar. For example, it cannot predict the last day of a month. Typical functionality is illustrated in the following table:

Date Column	# of Months	GOMONTH	Comment
1/31/94	1	2/28/94	Because 2/31/94 does not exist
1/15/94	2	3/15/94	Exactly 2 months:15th to 15th
2/28/94	3	5/28/94	Goes 28th to 28th: does not know that 31st is the end of May
6/30/94	-1	5/30/94	Goes back 30th to 30th: does not know that 31st is end of May

GOMONTH function syntax:

{GOMONTH( } followed by {F | C | R} followed by {,} followed by {EXPR1 without any embedded or outermost left-right parentheses pair} followed by {}}

Valid examples:

GOMONTH(F, F + R + C)

GOMONTH(F, R)

Invalid examples:

GOMONTH(F + (R + C), MAX)

GOMONTH((F \* C), F)

GOMONTH followed by {+ | -} followed by {F | C | R} is the only expression possible with GOMONTH.

**Month:** Month(x) returns the month in x, where x is a numbered month.

Month(*Column*) returns the month in the column, where the column is a date column.

Examples:

Month(9) returns September.

Month(Origination Date) returns the month of the origination date.

**Year:** Year(x) returns the data for year x.

Year(*Column*) returns the year in the column, where the column is a date column.

Example: Year(Origination Date) returns the year of the origination date.

## String Functions

Only one function is available when you select String as the function type:

Function	Notation	Description
Trim All	ALLTRIM()	Trims leading and following spaces, enabling the software to recognize numbers (entered in All Trim) as a numeric value, which can then be used in calculating

## Other Functions

Two functions are available when you select Other as the function type:

Function	Notation
If statement	IF(logical_test, value_if_true, value_if_false)
Lookup	LOOKUP(original table column,lookup table column, return column)

The following descriptions provide detailed information about the other functions, including examples.

**If:** Use *If, then* logic in a formula. The syntax for the If function is:

If(Condition, Value if True, Value if False).

Example:

If(LEDGER\_STAT.Financial= 110, LEDGER\_STAT.Month 1 Entry,0)

IF function syntax:

{IF(} followed by EXPR2 followed by {> | < | <> | = | >= | <=} followed by EXPR2 followed by {,} followed by EXPR followed by ),} followed by EXPR}n followed by {} where n = 1, 2, 3, .....

The IF function should always have odd number of parameters separated by commas. The first parameter is an expression followed by a relational operator, which is in turn followed by an expression.

For example, IF(((MAX + SUM) >= 30), F, POWER) is valid.

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**Note:** Avoid embedding multiple individual formulas in subsequent formulas. This can create an invalid formula.

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**Lookup:** Enables you to assign values equal to values in another table for data correction.

LOOKUP function syntax:

Lookup(O1,L1,O2,L2,...On,Ln,R) where

O=Column from Original table

L=Column from Lookup table

R=Column to be Returned

So the previous statement would read:

where O1=L1 and O2=L2... Returned value R

LOOKUP function should always have an odd number of parameters separated by commas and with a minimum of 3 parameters.

Valid examples:

LOOKUP(F, R, R)

LOOKUP(F, R, F, F, F)

Invalid examples:

LOOKUP(F)

LOOKUP(F, R)

LOOKUP(F + R, (F + R), MAX)

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**Note:** Lookup is used exclusively for data correction.

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## Constants

The Constant box enables you to apply a constant value to the formula. You type a value into the box and click Insert Constant to insert the value of a constant into the formula.

## Tables and Output Columns

The Tables box enables you to select the table that holds a specific database column you want to include in a formula. Once you select a table, the application displays the columns associated with that table in the Output Columns box.



You can use the Formula table to access any previously defined formulas.

### Output Columns (Data Elements)

To use a column (a data element) in the formula, select that column and then click Add in the Operand box, or double-click on the column name to add it to the formula.

## Formula Box

The Formula box displays the formula as you create it.



## Edit Options

The Edit box and option buttons provide full control of formula editing.

### Clear

The Clear option clears the entire formula box of all logic.

### Delete

The Delete option deletes the parts of the formula that you select. Select the formula element that you want to delete and click Delete.

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**Note:** You cannot delete any portion of a formula if the deletion results in leaving an invalid formula.

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### Insert

The Insert option inserts operators, operands, or constants into the formula at the cursor position. To insert an element, complete the following steps:

1. Place your cursor in the formula where you want to insert an element, and click Insert.
2. Select the item you want to insert. Double-click a column or function, or click the operator button and then click Add.

Your insertion element appears in the Edit box for verification.

3. Press Insert again.

A warning dialog appears.

4. Click Yes to insert, or click No to reselect your insertion element. You can click Cancel to cancel the operation.

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**Note:** You cannot insert expressions, operators, or constants that result in leaving an invalid formula.

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### Replace

The Replace option replaces a formula element that you select. To replace a formula element, complete the following steps:

1. Select the formula element that you want to replace, and click Replace.

2. Select the replacement item. Double-click a column or function, or click the operator button and then click Add.  
Your replacement element appears in the Edit box for verification.
3. Click Replace again.  
A warning dialog appears.
4. Click Yes to confirm the replacement, or click No, and reselect your replacement element.
5. Click Cancel to cancel the operation.

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**Note:** You cannot replace a selected element that results in leaving an invalid formula.

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## Null Values in the Database

A null value in a column in the database is a column that has no data. You should take all necessary steps to avoid having null columns in the database for the following reasons:

- Any null value accessed in a formula results in a null value. For example:

Column X	Column Y
150	null

If we define a formula as  $X + Y$ , the answer is  $150 + \text{null} = \text{null}$ . All operations (such as  $+$ ,  $-$ ,  $/$ ,  $*$ ,  $^$ ) are handled in this same manner.

- You cannot define a filter to recognize null values. The Data Filter ID assumes that the database does not have any null values. Consequently, you cannot define a Data Filter ID to isolate all rows with a null value in a given column.

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**Note:** Null  $\neq$  0, so filtering on 0 does not return rows with null values.

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You can identify null values by using an SQL statement to select all rows WHERE <Column> IS NULL.



## Formula ID Creation Hints

The Formula ID is a flexible method for creating formulas. Consequently, you have the potential to define a formula that does not make sense. Consider the following recommendations when creating a Formula ID:

- Do not use a column out of context. For example, do not use a character field in a numeric calculation.
- Each formula should contain only columns from the same database table (except for certain Ledger\_Stat table columns).
- An implied filter exists when creating a Formula ID with columns in the LEDGER\_STAT table. LEDGER\_STAT table formulas include if/else decode logic based on the Configuration ID as of date.

Example: If the formula is Month\_01 - 100, a filter includes Year\_S equal to the as of date/year. This formula works as follows:

Year\_S = 1994, then Month\_01 - 100, else 0.

## Creating a Formula ID

Use the following instructions to create and define a Formula ID. See [Chapter 4, "Overview of IDs"](#) for further explanation about ID creation and maintenance.

To create a Formula ID, perform the following steps:

1. From the File menu, click New.

A list of the IDs that are available for the product you are using appears.

2. Select the Formula ID.

The New Formula ID dialog box appears.

3. Type the name for the ID in the Formula ID field.

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**Note:** Formula ID Names cannot contain spaces or special characters, such as dash (-) or slash (/).

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4. Select Folder.
5. Type in the Formula ID and Description fields, as required.
6. Select the permission level of the ID, as required.

Read/Write is the default.

7. Click OK to continue.

The Formula ID window appears.

8. Build the formula using the formula elements.

See "[Using the Formula ID Window](#)" in this chapter for information on using the formula elements in the Formula ID window.

9. Save the ID.

## Editing a Formula ID

To edit a Formula ID, perform the following steps:

1. From the File menu, click Open.

A list of the IDs that are available for the product you are using appears.

2. Select the Formula ID.

The Select Formula ID dialog box appears.

3. Type the name of or select the ID and Formula ID that you want to edit.

4. Click OK to continue.

The Formula ID window appears.

5. Make the editorial changes.

6. When you finish the editing, save the ID.

## Reviewing Formula ID Examples

The following four examples demonstrate how you can use the Formula ID to achieve various results.

### **Example 1 Use *If, Then* Logic to Determine Average Daily Balance**

The following steps create a Formula ID that calculates the Average Daily Balance for January from the Ledger Stat table.

1. From the File menu, click New.

A list of the IDs that are available for the product you are using appears.

2. Select the Formula ID.

The New Formula ID dialog box appears.

3. Select All from the Folder.
4. Type **JAN\_ADB** in the Formula ID field.
5. Type **Avg Dly Bal-Jan** in the Description field.
6. Click Read/Write.
7. Click OK to continue.

The Formula ID window appears.

8. Select Ledger Stat from the Tables box.
9. Select Other from the Type box.
10. Double-click If from the Functions box.
11. Select Financial Element ID from the Output Columns box and click Add in the Operand box.
12. Click the = (equal operator) from the Operand box.
13. Type **140** in the Constant box, and then click Insert Constant.
14. Click the , (comma operand) from the Operand box.
15. Select Month\_01 from the Output Columns box and click Add in the Operand box.
16. Click the , (comma operand) from the Operand box.
17. Type **0** in the Constant box, and then click Insert Constant.
18. Click the ) (close parenthesis operand) from the Operand box.

### **Example 2 Current Net Book Balance**

The following steps create a Formula ID that calculates the current net book balance for Commercial Loans. This ID multiplies the current gross book balance by the percent owned (Gross Book Balance \* Percent Owned):

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**Note:** The Oracle Financial Data Manager (FDM) database carries the percent sold, so the percent owned must be calculated.

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1. From the File menu, click New.

A list of the IDs that are available for the product you are using appears.

2. Select the Formula ID.

The New Formula ID dialog box appears.

3. Select All from the Folder.
4. Type `CL_NETBKBAL` in the Formula ID field.
5. Type `CL Net Book Bal` in the Description field.
6. Click Read/Write.
7. Click OK to continue.

The Formula ID window appears.

8. Select Commercial Loan from the Tables box.
9. Select Current Gross Book Balance from the Output Columns box, and then click Add in the Operand box.
10. Click the \* (multiply operator) from the Operand box.
11. Click the ( (open parenthesis operand) from the Operand box.
12. Type 100 in the Constant box and then click Insert Constant.
13. Click the - (minus operator) from the Operand box.
14. Select Percent Sold from the Output Columns box, and then click Add in the Operand box.
15. Click the ) (close parenthesis operand) from the Operand box.
16. Click the / (divide operator) from the Operand box.
17. Type 100 in the Constant box, and then click Insert Constant.
18. Click the ) (close parenthesis operand) from the Operand box.

### **Example 3 Average Current Net Book Balance**

The following steps create a Formula ID that calculates the average current net book balance for each row in a Commercial Loan Stratification Report:

1. From the File menu, click New.

A list of the IDs that are available for the product you are using appears.

2. Select the Formula ID.

The New Formula ID dialog box appears.

3. Select All from the Folder.
4. Type **CL\_AVGNETBK** in the Formula ID field.
5. Type **CL Avg Net Bk Bal** in the Description field.
6. Click Read/Write.
7. Click OK to continue.  
The Formula ID window appears.
8. Select Commercial Loan from the Tables box.
9. Select Mathematical from the Type box.
10. Double-click WAvg in the Functions box.
11. Select Current Net Book Balance from the Output Columns box, and then click Add in the Operand box.
12. Click the , (comma operand) from the Operand box.
13. Select Record Count from the Output Columns box, and then click Add in the Operand box.
14. Click the ) (close parenthesis operand) from the Operand box.

#### **Example 4 Weighted Average Current Net Rate**

The following steps create a Formula ID that calculates the weighted average current net rate for each row in a Commercial Loan Stratification Report.

1. From the File menu, click New.  
A list of the IDs that are available for the product you are using appears.
2. Select the Formula ID.  
The New Formula ID dialog box appears.
3. Select All from the Folder.
4. Type **CL\_AVGNETRATE** in the Formula ID field.
5. Type **CL Avg Cur Net Rate** in the Description field.
6. Click Read/Write.
7. Click OK to continue.

The Formula ID window appears.

8. Select Commercial Loan from the Tables box.
9. Select Mathematical from the Type box.
10. Double-click WAvg in the Functions box.
11. Select Current Net Rate from the Output Columns box, and then click Add in the Operand box.
12. Click the , (comma operand) from the Operand box.
13. Select Current Net Book Balance from the Output Columns box, and then click Add in the Operand box.
14. Click the ) (close parenthesis operand) from the Operand box.
15. Save and close the ID.

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## Formula Leaves ID

With the Formula Leaves ID you can model a product leaf using the results of the cash flow, gap, and market value processes to recalculate and change system-generated data. You can also model a product leaf outside of the cash flow engine, using formulas to create financial element values. The Formula Leaves ID uses a spreadsheet to define all formulas.

For example, you may want to model the ending balance of a particular account as 110% of the ending balance of a second account. You can also vary the balance level of an account as interest rates change. These relationships are defined in a Formula Leaves ID.

There are three formula types:

- Cash flow
- Dynamic gap
- Market value

Rate financial element results are stored as a rate times balance amount, not a rate. The rate is also weighted as specified. For a list of financial elements, see the *Oracle Financial Services Technical Reference Manual*.

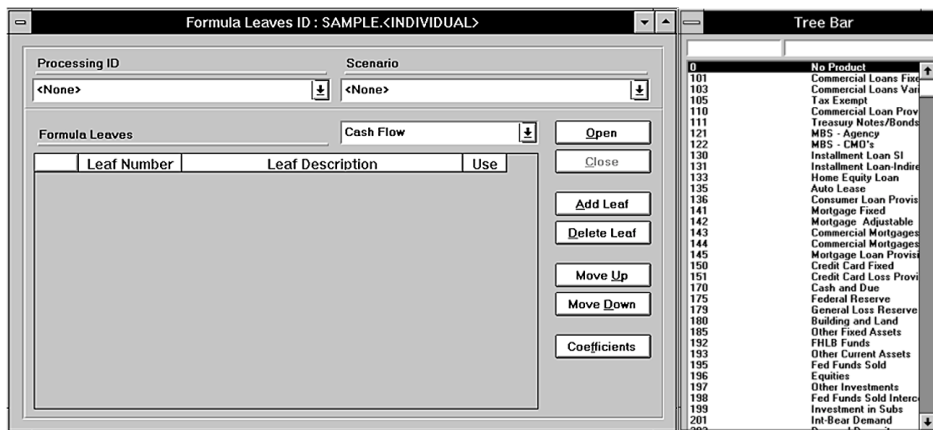
### Creating a Formula Leaves ID

To define a Formula Leaves ID, complete the following steps:

1. From the File menu, choose New/Formula Leaves ID.
2. Use the drop-down lists to choose the Group and Leaf Types.
3. Type a descriptive name for the ID.
4. Type a description for the ID. This is an optional field.

5. Click Read/Write.
6. Click OK.

The Formula Leaves ID screen appears with the name of the ID shown on the top of the screen and a floating Tree Bar next to it.



## Defining a Formula Leaves ID

You can define a formula for any leaf. If there is data that is processed for the leaf selected, your formula generates an additional row of data, identified as a result type of Formula. This row stores the incremental change to the existing data. For more information, see the section ["Process Flow"](#) in the chapter.

## Select a Leaf

On the Tree Bar, select the leaf for which you want to define a formula. You can define a formula for any leaf.

## Process ID

With the Formula Leaves ID, you can preview the results of any formula you are creating. This preview is based on the Process ID you select. The default Process ID is None. To process results through the Formula Leaves ID, select it in the Process ID.



## Scenario

In conjunction with the Process ID, select which respective rate scenario to view. If no rate scenario is chosen, you will not be able to preview results.

## Formula Leaves

There are three types of Risk Manager results: Cash Flow, Dynamic Gap and Market Value. Select the type by clicking on the dialog box that displays Cash Flow and highlight your selection from the menu.

Once you have selected the type of results you want to simulate, click the Add Leaf button to enter the Leaf ID number and Description of the product leaf you wish to create. You may enter the Leaf ID number directly or highlight the leaf in the Tree Bar and click twice. Additional leaves may be added by repeating the above process.

To open the formula section of the ID, click the Use button beside the leaf to be modeled and then click the Open button. An additional window will appear displaying a spreadsheet template. The name of the product leaf you have selected appears in the window title bar.

If you would like to define a standard formula account type, you can populate the set of financial elements you need by selecting a Financial Type. To do this, click on the Financial Type box. Select the type of formula you wish to create. This will automatically add rows in the spreadsheet for all relevant financial elements.

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**Note:** Selecting a Financial type will replace all rows defined in the spreadsheet.

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TMT:MTG 15y Fixed / Cash Flow			
Financial Type		Non-Mat. Acct (Net Rts)	Move Down Move Up
7	Financial Element	Bucket 1	Bucket 2
1	60 Beginning Balance		
2	80 Beginning Net Rate		
3	100 End Balance		
4	120 Ending Net Rate		
5	140 Average Bal		
6	160 Average Net Rate		
7	440 Interest Accrued		

The display of Financial Elements is a template. You can add, delete or replace elements. To move elements up or down within the spreadsheet, highlight the row number of the financial element and click the Move Down or Move Up button.

The Financial Type is a tool to help you enter a set of financial elements quickly. The selections are not saved as part of the ID. When you exit the ID, and re-enter later, None will be displayed.

## Adding a Financial Element

To add a financial element, complete the following steps:

1. To increase the number of rows in the spreadsheet, click the up spinner arrow.
2. Place the cursor on the row you wish the new element to be created.
3. Select the financial element from the drop down list. Highlight desired element, and click Add. The new element appears in the selected row.

When you select a rate or term related financial element, its associated balance is inserted automatically.

## Deleting a Financial Element

Consider reporting and autobalancing when deleting financial elements. For instance, defining a beginning balance and ending balance without an average balance will produce unusual autobalancing values, as all balances are used in the autobalancing process.

To delete a financial element, complete the following steps:

1. Highlight the row containing the financial element to be deleted.
2. Move the financial element to the bottom of the list of financial elements by clicking the Move Down button.
3. Delete the last row by clicking the down spinner arrow to reduce the number of rows in the spreadsheet by one.

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**Note:** When creating formulas on rate financial elements, you must retain the associated balance financial element. If the associated balance financial element is removed, the end result for these rate and term financial elements will be zero, because they will be weighted by a zero balance.

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## Process Flow

Before you begin entering formulas, it is important to understand how Formula Leaves IDs are processed in Risk Manager. Following are the rules regarding the flow of processing in Formula Leaves IDs:

- Risk Manager processes each leaf from the Formula Leaves ID from the top of the list down.

This is important for chaining the results of formula leaves. If you refer to a formula leaf listed above your formula leaf, you will be referencing the post-computed answer. If, however, you refer to a formula leaf listed below your formula leaf, you will be referencing the pre-computed answer (if any).

- Within each Formula Leaf, Risk Manager processes Market Value results, then Cash Flow, then Gap

This is important because Market Value (Static) results can be accessed within both Cash Flow and Gap formulas.

RM only computes the Market Value and Gap sections of the Formula Leaves ID if the appropriate Processing Options are selected in the RM Processing ID. There is one exception: The as-of-date bucket in the Market Value section (e.g. the current position amount) will always be processed when the Formula Leaves processing option is selected.

- Within a given Formula Leaf, The Formula Leaves ID process row by row vertically within the first bucket to the end and then it begins processing at the top of the next bucket.

7	Financial Element	Bucket 1	Bucket 2	Bucket 3
1	60 Beginning Balance			
2	80 Beginning Net Rate			
3	100 End Balance			
4	120 Ending Net Rate			
5	140 Average Bal			
6	160 Average Net Rate			
7	440 Interest Accrued			

This is very important to understand before you begin setting up your formulas. Because of the way Formula Leaves ID processes, you cannot use a result in your formula on row 1 that is computed on row 8. However, you may use a result from row 8 of the first bucket in a formula in row 1 of the second bucket.

- the Formula Leaf process adds an additional row for each formula. This row stores the change in value. It does not delete existing results. This enables For-

mula Leaf IDs to be processed multiple times without losing the initial data generated through standard processing.

## Defining Coefficients

Coefficients can be defined prior to opening a formula leaf, or while setting up a formula within the spreadsheet. You may define your entire formula leaf for a particular Chart of Account Leaf and then go back and set up your coefficients. You simply need to remember which user-defined code you used in your formula.

To define a coefficient, complete the following steps:

1. Click the Coefficients button, located on the initial Formula Leaves ID screen.

Note that the dialog's title bar displays the financial type. Coefficients are defined by result set type: Cash Flow, Gap or Market Value. You can use coefficients for any one of the formula leaves. However, you cannot use Cash Flow coefficients in Gap or Market Value formulas. You must define coefficients within their respective result set types.

Coefficients defined for Cash Flow formulas can vary by modeling date buckets, as defined in your Configuration ID. Coefficients defined for Gap formulas can vary by Gap date buckets, as defined in your Configuration ID. Coefficients defined for Market Value formulas are static; they do not vary by bucket.

Note also that you cannot input historical coefficients (prior to the as of date). If you need to access historical values, you either can key the lagged values directly into the formulas, or create a separate coefficient where the first bucket is actually the oldest historical lag that you wish to access, and modify the lag parameters in the formulas accordingly.

2. To add coefficients, increase the number of rows in the spreadsheet by clicking the up spinner arrow.
3. Assign the coefficient a number code. It can be any 3-digit code you like. Enter the code in the code column.
4. Enter a description of what the coefficient represents.
5. Enter your coefficients. Use the Tab key to move to the next cell, and add coefficients as desired.

## Deleting Coefficients

To delete a coefficient, use the down spinner to delete coefficient rows. Each time you reduce the number of rows by one, the last row is deleted.

## Entering Formulas

Now you are ready to enter formulas. Place the cursor in the row, click once and type the formula.

fe(17150,60,0)*.05			
3	Financial Element		
1	60 Beginning Balance	▼	fe(17150,60,0)*.05
2	70 Beginning Gross Rate	▼	
3	80 Beginning Net Rate	▼	

After you have completed entering a formula, press Enter. The formula will be displayed in the window above. You cannot edit in this window, but you can review your input and identify any errors.

If you make a syntax error, an error message appears to warn you.

To make a correction, or to edit a formula, double click in the formula row and edit the formula.

The dialog allows you to enter an invalid formula. It will warn you, but you are allowed to exit the spreadsheet without correcting the error. This creates an invalid result when processing. To avoid invalid results, correct the error when you are warned.

### Replicating Formulas in the Spreadsheet

To replicate formulas in the spreadsheet, use the standard Windows convention for Copy (Ctl-C), Cut (Ctl-X), and Paste (Ctl-V). Additionally, you can use the Spreadsheet Control Bar to copy the formula for one financial element (or row in the spreadsheet) at a time.

### Preview

The preview option allows you to review your formula results prior to executing the formula leaf in a Process ID. As mentioned above, the results that will be accessed in the Preview will be the results of the Process ID and rate scenario you selected in the Processing ID window on the initial Formula Leaves ID dialog.

After you have entered the formula, you can preview the result by clicking the Preview button. The formulas will be calculated and the results displayed in spreadsheet

The preview button becomes an edit key. To edit the formula, press the edit button.

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**Note:** When previewing a formula that accesses another formula leaf using the FE, GFE, or SFE functions, you will not get the same answer as when you process unless you have already processed that prior formula leaf. This is because it is looking for post-computed results. If you are simply previewing, there are no post-computed results for the prior leaf.

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## Save the ID

Save your ID by selecting the Save icon on the horizontal toolbar, or choose File/Save from the menu bar.

## Editing a Formula Leaves ID

To edit a Formula Leaves ID, from the File menu, choose Open, and select Formula Leaves ID. Alternatively, click the Open icon on the horizontal toolbar, and the Formula Leaves ID icon on the vertical toolbar. The Select Formula Leaves ID dialog appears. Select the ID you want to edit. With the ID open, make your changes following the principles described earlier in Define a Formula Leaves ID.

Save your ID after you make your edits. You can use the Save As... option in the File menu to save your edited ID under a new name.

## Formula Leaves Functions

Formula Leaves ID has its own unique functions which allows the user to access the various financial elements.

### Quick Reference

The following table can be used as a quick reference guide for the Formula Leaves functions. For more detail on each function, see "[Detailed Descriptions](#)" following the table.

Function (F.E.=Financial Element)	Formula	Use in Cash Flow	Use in Gap	Use in MV
Cash Flow F.E.	FE(Leaf, FE, Lag)	Yes	No	No

<b>Function (F.E.=Financial Element)</b>	<b>Formula</b>	<b>Use in Cash Flow</b>	<b>Use in Gap</b>	<b>Use in MV</b>
Cash Flow Current Leaf F.E.	CLFE (FE, Lag)	Yes	No	No
GAP F.E.	GFE(Leaf, FE, Lag)	No	Yes	No
Gap Current Leaf F.E.	GCLFE(Leaf, FE, Lag)	No	Yes	No
Static F.E.	SFE(Leaf,FE)	Yes	Yes	Yes
Static Current Leaf F.E.	SCLFE(FE)	No	No	Yes
Cash Flow Coefficient	K(Coeff, Lag)	Yes	No	No
GAP Coefficient	GK(Coeff, Lag)	No	Yes	No
Static Coefficient	SK(Coeff)	Yes	Yes	Yes
Rate	RT(IRC, Lag, Term, Mult)	Yes	No	No
Days in Bucket	DAYS(Bucket)	Yes	No	No
Month of the Bucket	MONTH()	Yes	No	No

## Detailed Descriptions

### FE (Leaf,FE,Lag)

#### Used in Cash Flow Formulas only

The FE function returns the value of the Financial Element for the Leaf specified as stored in the Cash Flow results table.

#### Syntax:

Where:	FE	Function Name
	LEAF	Product leaf number desired. If the leaf value is greater than nine digits, it must be input with a decimal point or the answer will return zero. (Example: Leaf value 123456789012345 returns a 0 value. Leaf 123456789012345.00 returns an accurately calculated value.)
	FE	Financial Element Code number (see table above)

Lag            Relative to Formula Leaves ID buckets. May be positive or negative.  
                  0 = Current bucket  
                  -1 = Previous bucket  
                  1 = Next bucket  
                  etc.

If the leaf value is the same as the formula leaf you are modeling, it will read what was in the Cash Flow results table before processing the formula leaf you are processing. To access the values as they change during the calculation, use CLFE.

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**Note:** To access the results from multiple leaves, you must add together multiple FE functions (e.g. FE(995,100,0) + FE(996,100,0) +...)

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### CLFE (FE,Lag)

#### Used in Cash Flow Formulas only

The CLFE Function returns the value of the financial element of the current leaf in memory. This function allows you to use the result of a prior calculation within the Formula Leaves ID which does not reside in the Cash Flow Results table. CLFE differs from FE (same leaf) because it accesses the computed value of the financial element, not what was in the results table when processing began.

#### Syntax:

Where: FE            Function Name

         Lag            Relative to Formula Leaves ID buckets. May be positive or negative.  
                  0 = Current bucket  
                  -1 = Previous bucket  
                  1 = Next bucket  
                  etc.



## GFE (Leaf,FE,Lag)

### Used in Gap Formulas Only

The GFE function returns the value of the financial element of the leaf specified as stored in the Gap results section of the Cash Flow table.

#### Syntax:

Where: GFE      Function Name

LEAF      Chart of Accounts Leaf number desired. If the leaf value is greater than nine digits, it must be input with a decimal point or the answer will return zero. (Example: Leaf value 123456789012345 returns a 0 value. Leaf 123456789012345.00 returns an accurately calculated value.)

If the leaf value is the same as the formula leaf you are modeling, it will read what was in the Cash Flow Results table before processing the formula leaf you are processing. To access the values as they change during the calculation, use GCLFE.

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**Note:** To access the results from multiple leaves, you may add together multiple GFE functions (E.g. GFE(995,660,0) + FE(996,660,0) +...)

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FE      Financial Element Code number (see Table Above)

Lag      Relative to Formula Leaves ID buckets. May be positive or negative

0 = Current bucket

-1 = Previous bucket

1 = Next bucket

etc.

## GCLFE (FE,Lag)

### Used in Gap Formulas Only

The GCLFE Function returns the value of the financial element of the current leaf in memory. This function allows you to use the result of a prior calculation within the

Formula Leaves ID which may not reside in the Gap results section of the Cash Flow table. It differs from GFE (same leaf) because it accesses the computed value of the financial element, not what was in the results table when processing began.

**Syntax:**

Where: FE            Function Name

          Lag            Relative to Formula Leaves ID buckets. May be positive or negative.

                          0 = Current bucket

                          -1 = Previous bucket

                          1 = Next bucket

                          etc.

**K (Coeff,Lag)**

**Used in Cash Flow Formulas only**

The K Function allows the use of a user defined coefficient to be used in the formulas. Coefficients may be defined for each individual modeling bucket. This feature provides for ease of use and flexibility in building of Formula Leaves ID formulas.

**Syntax:**

Where: K            Function Name

          Coeff            User defined Coefficient Code number

          Lag            Relative to Coefficient defined buckets

                          0 = Current bucket

                          -1 = Previous bucket

                          1 = Next bucket

                          etc.

## GK (Coeff,Lag)

### Used in Gap Formulas Only

The GK Function allows the use of a user defined coefficient to be used in the formulas. Coefficients may be defined for each individual gap bucket. This feature provides for ease of use and flexibility in building of Formula Leaves ID formulas.

#### Syntax:

Where: GK            Function Name

          Coeff        User defined Coefficient Code number

          Lag            Relative to Coefficient defined buckets

                          0 = Current bucket

                          -1 = Previous bucket

                          1 = Next bucket, etc.

Similar to the Cash Flow functions, the GAP functions allow you to access Market Value related results data. Market Value Results are sometimes referred to as Static results. The Market Value functions SFE and SK can be used in a Cash Flow formula to populate a cash flow financial element. For example, you can specify the current position information for a particular leaf and calculate a percentage growth over that position.

## SFE (Leaf,FE)

### Used in all Formula Types

The SFE function Returns the value of the Financial Element of the Leaf specified as stored in the Results\_Master table.

#### Syntax:

Where: SFE            Function Name

          LEAF         Chart of Account Leaf number desired. If the leaf value is greater than nine digits, it must be input with a decimal point or the answer will return zero. (Example: Leaf value 123456789012345 returns a 0 value. Leaf 123456789012345.00 returns an accurately calculated value.)

If the leaf value is the same as the formula leaf you are modeling, it will read what was in the Cash Flow Results table before processing the formula leaf you are processing. To access the values as they change during the calculation, use SCLFE.

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**Note:** To access the results from multiple leaves, you must add together multiple SFE functions  
(e.g.  $SFE(995,2001) + SFE(996,2001) + \dots$ )

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## SCLFE (FE)

### Used in Market Value Formulas Only

The SCLFE Function returns the value of the financial element of the current leaf in memory. This function allows you to use the results of a prior calculation within the Formula Leaves ID which may not reside in the results table. It differs from SFE (same leaf) because it accesses the computed value of the financial element, not what was in the results table when processing began.

#### Syntax:

Where: SCLFE    Function Name  
          FE        Financial Element Code number (see table above)

## SK (Coeff)

### Used in all Formula Types

The SK Function allows the use of a user defined coefficient to be used in the formulas. This features provides for ease of use and flexibility in building of Formula Leaves ID formulas.

#### Syntax:

Where: SK        Function Name  
          Coeff    User defined Coefficient Code number

## RT (IRC, Lag, Term, Mult)

### Used in Cash Flow Formulas only

The RT function returns the value of the Forecasted Interest Rate Code from the Forecast Rate ID utilized in the Processing ID.

### Syntax:

Where:	RT	Function Name
	IRC	Interest Rate Code used in Historical and Forecast Rate ID.
	Lag	Relative to Formula Leaves ID buckets. May be positive or negative. 0 = Current bucket -1 = Previous bucket 1 = Next bucket etc.
	Term	Point on the yield curve.
	Mult	Numeric code for multipliers 1 = Days 2 = Months 3 = Years

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The Term/Mult combination must be exact, even for interest rate codes with a single point. If the interest rate code has a 1 Y point, you cannot refer to it as the 12 M point. You must use 1 Y. Refer to the chapters Historical Rates ID or Forecast Rates ID elsewhere in this Guide for exact Term/Multiplier definition.

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### Example:

The 1 Year point on the Treasury Yield Curve (110) with no lags = RT(110,0,1,3)

## DAYS (Lag)

### Used in Cash Flow Formulas Only

The DAYS function returns the number of days in the current modeling bucket or a range of modeling buckets. For example, if you defined 60 monthly modeling buckets in the Config. ID. The DAYS function will return the number of days in its respective bucket, i.e. January; 31 days, February; 28 days. Conversely, if you had defined each modeling bucket to be a period of just 2 weeks, the DAYS function would return 14.

### Syntax:

Where: DAYS      Function Name  
         Lag        Relative to Formula Leaves ID buckets. May be positive or negative.

The Lag feature in the DAYS function works differently than the other functions. Where lag normally identifies from which bucket relative to the current bucket to extract data, in the DAYS function it works as a parameter for accumulation. For example, a lag of -1 will take the number of days in the previous bucket and add it to the number of days in the current bucket, i.e. Results: 59.

Bucket 1 - January	Bucket 2 - February	Bucket 3 - March
31 days	28 days	31 days
DAYS (0) Result: 31	DAYS(-1) Result: 59	DAYS(-2) Result: 90

## MONTH()

### Used in Cash Flow Formulas Only

The MONTH function returns the numeric value of the month of the 1st day of the current modeling bucket. Example: Current modeling bucket is January; MONTH() will return 1. If the modeling bucket is Jan-1 through Mar-31, MONTH() will also return 1.

### Syntax:

Where: MONTH    Function Name  
         ()        open/cls parentheses

## Additional Functions

As well as system defined Functions, the Formula Leaves ID also utilizes the standard mathematical, logical and relational operands and functions.

### Mathematical Functions

- Abs:** Returns the positive value of the expression.  
Example:  $\text{Abs}(-3.5) = 3.5$ .
- Max:** Allows you to return the maximum value of the expression.  
Syntax:  $\text{Max}(\text{Expr}, \text{Expr})$ .
- Min:** Allows you to return the minimum value of the expression.  
Syntax:  $\text{Min}(\text{Expr}, \text{Expr})$ .
- Power:** Allows you to raise one value to the power of a second.  
Syntax:  $\text{Pwr}(x, y)$  -- returns  $x$  raised to the power of  $y$ .
- Round:** Allows you to round a value to a number of decimal places.  
Syntax:  $\text{Round}(x, n)$  -- returns  $x$  rounded to  $n$  decimal places.
- Log:** Allows you calculate the log of the expression  
Syntax:  $\text{Log}(x, n)$  -- returns the  $n$  log of  $x$ .
- IF:** Allows you define if conditionals.  
Syntax:  $\text{If}(\text{Boolean Expr}, x, 0)$  -- returns  $x$  if true, 0 if false.

### Relational Operators

Operator	Description
=	Equal
>	Greater than
<	Less than
>=	Greater than Equal
<=	Less than Equal

## Numeric Operators

Operator	Description
+	Addition
-	Subtraction
*	Multiplication
/	Division

## Logical Operators

Operand	Description
AND	Both conditions must be true
OR	Either condition can be true

## Examples

### Cash Flow: Leaf B = 2 \* Leaf A

12	Financial Element	Bucket 1	Bucket 2	Bucket 3
1	60 Beginning Balance	2*fe(105,60,0)	2*fe(105,60,0)	2*fe(105,60,0)
2	70 Beginning Gross Rate	2*fe(105,70,0)	2*fe(105,70,0)	2*fe(105,70,0)
3	80 Beginning Net Rate	2*fe(105,80,0)	2*fe(105,80,0)	2*fe(105,80,0)
4	90 Beginning Transfer Rate	2*fe(105,90,0)	2*fe(105,90,0)	2*fe(105,90,0)
5	100 End Balance	2*fe(105,100,0)	2*fe(105,100,0)	2*fe(105,100,0)
6	110 Ending Gross Rate	2*fe(105,110,0)	2*fe(105,110,0)	2*fe(105,110,0)
7	120 Ending Net Rate	2*fe(105,120,0)	2*fe(105,120,0)	2*fe(105,120,0)
8	130 Ending Transfer Rate	2*fe(105,130,0)	2*fe(105,130,0)	2*fe(105,130,0)
9	140 Average Bal	2*fe(105,140,0)	2*fe(105,140,0)	2*fe(105,140,0)
10	150 Average Gross Rate	2*fe(105,150,0)	2*fe(105,150,0)	2*fe(105,150,0)
11	160 Average Net Rate	2*fe(105,160,0)	2*fe(105,160,0)	2*fe(105,160,0)

In this example, we are defining Cash Flow formula leaf with results that are twice the level of leaf value 105. We have inserted a row for every interest related cash flow financial element. Each of the formulas uses the FE() function to access the same financial element from leaf 105 with no lags.



## Cash Flow: Simple Account Type

11	Financial Element	Bucket 1	Bucket 2
1	60 Beginning Balance	sfe(103,2002)	CLFE(100,-1)
2	80 Beginning Net Rate	sfe(103,2005)	CLFE(120,-1)
3	210 Total Runoff	1000	1200
4	230 Total Runoff Net Rate	9.5	9.6
5	340 New Add Balance	1000	1200
6	360 New Add Net Rate	RT(500,0,1,2)	RT(500,0,1,2)
7	100 End Balance	CLFE(60,0)-CLFE(210,0)+CLFE(340,0)	CLFE(60,0)-CLFE(210,0)+CL
8	120 Ending Net Rate	(CLFE(60,0)*CLFE(80,0)-CLFE(210,0)*CLFE	(CLFE(60,0)*CLFE(80,0)-CLF
9	140 Average Bal	(CLFE(60,0)+CLFE(100,0))/2	(CLFE(60,0)+CLFE(100,0))/2
10	160 Average Net Rate	(CLFE(80,0)+CLFE(120,0))/2	(CLFE(80,0)+CLFE(120,0))/2
11	440 Interest Accrued	CLFE(140,0)*CLFE(160,0)*DAYS(0)/365	CLFE(140,0)*CLFE(160,0)*D

In the example above, we have defined an account type to be a simple account type with net rates only. The following table describes the formulas used for each financial element:

Financial Element	Bucket 1	Bucket 2...	Explanations
60 Beginning Balance	sfe(103,2002)	CLFE(100,-1)	Bucket 1: Using the SFE() formula, we can access the current position beginning balance (fe = 2002) from the same leaf value (in this example our formula leaf value = 103)
			Buckets 2 - on: Using the CLFE() formula we access the ending balance from the prior bucket.
80 Beginning Net Rate	sfe(103,2005)	CLFE(120,-1)	Bucket 1: Using the SFE() formula, we can access the current position beginning net rate (fe = 2005) from the same leaf value (in this example our formula leaf value = 103)
			Buckets 2 - on: Using the CLFE() formula we access the ending net rate from the prior bucket.
210 Total Runoff	1000	1200	In this example, total runoff is input by the user.
230 Total Runoff Net Rate	9.5	9.6	In this example, total runoff rate is input by the user.
340 New Add Balance	1000	1200	In this example, new add balances are input by the user.

Financial Element	Bucket 1	Bucket 2...	Explanations
360 New Add Net Rate	RT(500,0,1,2)	RT(500,0,1,2)	We are using the RT() function to access the value from the 1 M point on interest rate code = 500 from the current bucket (i.e. no lags)
100 End Balance	CLFE(60,0) - CLFE(210,0) + CLFE(340,0)	CLFE(60,0) - CLFE(210,0) + CLFE(340,0)	We use the CLFE() function to define the equation Ending Balance = Beginning Balance - Total Runoff + New Add Balances
120 Ending Net Rate	(CLFE(60,0) * CLFE(80,0) - CLFE(210,0) * CLFE(230,0) + CLFE(340,0) * CLFE(360,0)) / (CLFE(100,0))	(CLFE(60,0) * CLFE(80,0) - CLFE(210,0) * CLFE(230,0) + CLFE(340,0) * CLFE(360,0)) / (CLFE(100,0))	Similar to the ending balance, we use the CLFE() function to compute the associated ending rate.
140 Average Bal	(CLFE(60,0) + CLFE(100,0)) / 2	(CLFE(60,0) + CLFE(100,0)) / 2	We use the CLFE() function to compute the average balance as (Beginning Balance + Ending Balance) / 2
160 Average Net Rate	(CLFE(80,0) + CLFE(120,0)) / 2	(CLFE(80,0) + CLFE(120,0)) / 2	We use the CLFE() function to compute the average net rate as (Beginning Net Rate + Ending Net Rate) / 2
440 Interest Accrued	CLFE(140,0) * CLFE(160,0) * DAYS(0) / 365	CLFE(140,0) * CLFE(160,0) * DAYS(0) / 365	We use the CLFE() and DAYS() functions to compute the interest accrual as Average Balance * Average Rate * Number of Days in Bucket / 365

### Gap: Leaf B = 2 \* Leaf A

8	Financial Element	Bucket 1	Bucket 2	Bucket 3
1	660 Gap Runoff	2*gfe(105,660,0)	2*gfe(105,660,0)	2*gfe(105,660,0)
2	661 Gap Principal Runoff	2*gfe(105,661,0)	2*gfe(105,661,0)	2*gfe(105,661,0)
3	662 Gap Repricing Runoff	2*gfe(105,662,0)	2*gfe(105,662,0)	2*gfe(105,662,0)
4	663 Gap Interest Credited	2*gfe(105,663,0)	2*gfe(105,663,0)	2*gfe(105,663,0)
5	670 Gap Runoff Term	2*gfe(105,670,0)	2*gfe(105,670,0)	2*gfe(105,670,0)
6	680 Gap Runoff Gross Rate	2*gfe(105,680,0)	2*gfe(105,680,0)	2*gfe(105,680,0)
7	690 Gap Runoff Net Rate	2*gfe(105,690,0)	2*gfe(105,690,0)	2*gfe(105,690,0)

In this example, we are defining a Gap formula leaf whose results are twice the level of Leaf value 105. We have inserted a row for every gap financial element. Each formula uses the GFE() function to access the same financial element from leaf 105 with no lags.

## Gap: Gap Override

2	Financial Element	Bucket 1	Bucket 2
1	660 Gap Runoff	sfe(101,2002)*gk(1,0)	sfe(101,2002)*gk(1,0)
2	690 Gap Runoff Net Rate	sfe(101,2005)	sfe(101,2005)

In this example, we are computing (or overriding) the gap runoff and gap runoff rates by accessing the beginning balance (financial element = 2002) from each gap start date, and multiplying it by a gap coefficient (coefficient code value = 1). In this case, we must make sure that the sum of the coefficients for all gap buckets = 1. In other words, we are allocating 100% of the gap runoff across all gap buckets.

Gap override may be used for accounts whose gap runoff pattern may not be reflected accurately by generating cash flows, and for which you would like to input an assumed runoff pattern.

For example, you may have an administered rate portfolio that you model with a floating rate. The cash flow generated gap profile will have all runoff in the first bucket. Although the rate can change on any day, it does not in reality. Therefore, you may want to use Gap override to spread the runoff over a longer period.

## Market Value

9	Financial Element	As Of Date	Start Date
1	2001 Static Gross Par Balance	100000	200000
2	2002 Static Net Par Balance	100000	scife(2001)
3	2003 Static Deferred Balance	0	0
4	2004 Static Accrued Interest Balance	0	0
5	2005 Static Net Rate	8.00	9
6	2006 Static Transfer Rate	6.00	7
7	2007 Static Remaining Term	30	40
8	2008 Static Market Value	scife(2001)	scife(2001)
9	2009 Static Duration	40	50

In this example, we are using the Market Value formula leaf section to input current position information and start dates for the formula leaf. By using the SFE() formula in either the Gap or Cash Flow sections, we can access these current position values.

## Financial Types Matrix

For a list of financial elements, see the *Oracle Financial Services Technical Reference Manual*.



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## Group Filter ID

With the Group Filter ID, you group multiple data filters into a single ID. Using this ID, you can combine complex data groups in a single operation.

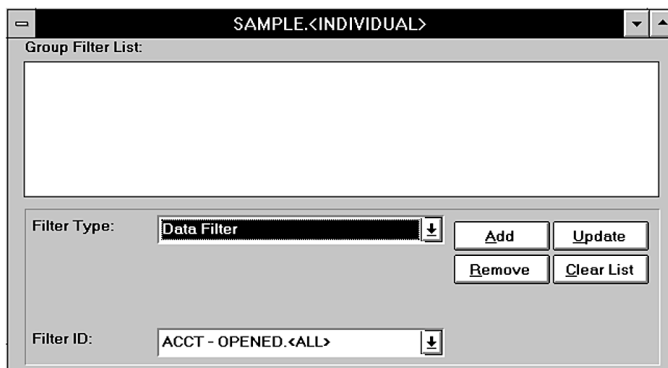
This chapter presents the following topics:

- [Creating and Defining a Group Filter ID](#)
- [Editing a Group Filter ID](#)

### Creating and Defining a Group Filter ID

To create a Group Filter ID, complete the following steps:

1. From the File menu, select New -> Group Filter ID.
2. Select a folder.
3. Type a descriptive name for the ID.
4. Type a description for the ID. This is an optional field.
5. Click Read/Write
6. Click OK.



7. From the Filter Type list, select Data Filter.
8. From the Filter ID list, select a predefined Filter ID and click Add. The selected Filter ID appears in the Group Filter List box.
9. Repeat step 8 until you have selected all the Filter IDs that this Group Filter ID requires.
10. From the File menu, select Save.

## Editing a Group Filter ID

To edit a Group Filter ID, complete the following steps:

1. From the File menu, select Open -> Group Filter ID.
2. From the Group Filter ID list, select the filter you want to edit and click OK.
3. Edit the Group Filter ID using the Add, Remove, Update, and Clear List buttons. (Update replaces a highlighted ID in the Group Filter List with the selected ID in the Filter ID list.)
4. From the File menu, select Save.

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## Leaf Characteristics ID

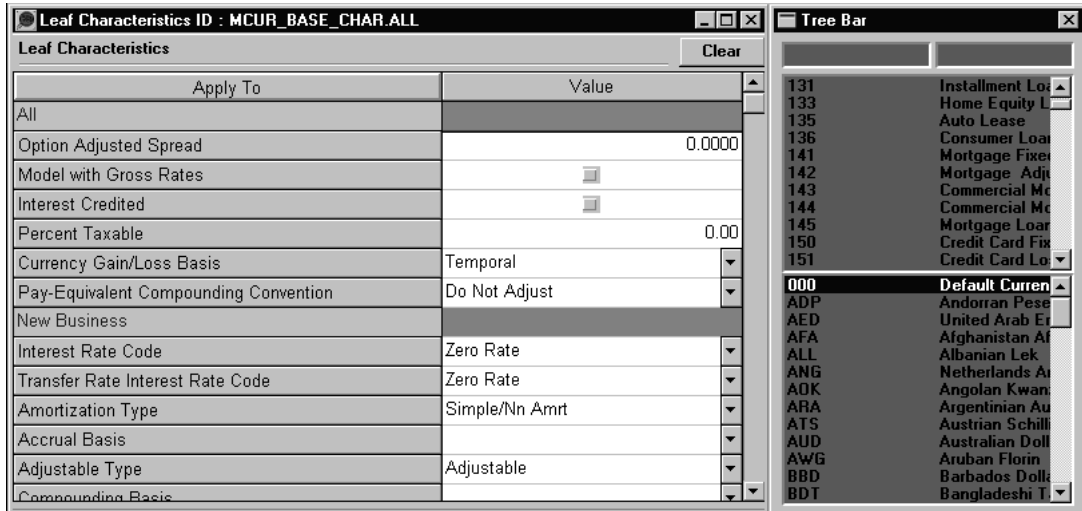
The Leaf Characteristics ID is used to define payment, pricing and repricing characteristics for new business. It is also used to specify general calculation attributes for both existing accounts and new business.

### Creating a New Leaf Characteristics ID

To create a new Leaf Characteristics ID, complete the following steps:

1. From the File menu, select New -> Leaf Characteristics ID
2. Select a folder.
3. Type a descriptive name for the ID.
4. Type a description for the ID. This is an optional field.
5. Click Read/Write.
6. Click OK.

The Leaf Characteristics ID screen appears:



The Clear button clears all input assumptions for the selected product and currency.

## Standard Leaf Characteristics Fields

The six standard leaf characteristics fields listed in the top section of the Apply To column are as follows:

- Option Adjusted Spread**    The option adjusted spread is used during stochastic processing only. It is an adjustment to the stochastic discount factor used in calculating market value and value at risk. Valid values for this spread are between -5.000% and 5.000%, but a value less than 2.00% is recommended for best results. For more information about the calculation of discount factors, see the *Oracle Financial Services Technical Reference Manual*.
- Model with Gross Rates**    This option is used for participated instruments which are not fully owned by the institution. For these instruments, both a net and a gross rate will be calculated within the cash flow engine and both gross and net rate financial elements will be output. The gross rate will be used for prepayment and amortization. The net rate will be used for income simulation and the calculation of retained earnings in the autobalancing process.
- Interest Credited**    This option allows interest payments to be capitalized as principal on simple/nonamortizing instruments.



Percent Taxable	Percent Taxable specifies the percent of income or expense that is subject to the tax rates defined in the Configuration ID. This is used with the Autobalancing option in the Process ID. Percent taxable should be set up for each product and reporting currency or product and default currency combination.
Currency Gain/Loss Basis	<p>Currency Gain/Loss Basis determines how exchange rate fluctuations are reflected in financial element results for this product and currency combination. The choices are:</p> <ul style="list-style-type: none"> <li>▪ Temporal</li> <li>▪ Historical Basis</li> <li>▪ Current Rate</li> </ul> <p>See the <i>Oracle Financial Services Technical Reference Manual</i> for more information on the cash flow calculations associated with currency gain/loss recognition techniques.</p>
Pay-Equivalent Compounding Convention	In most cases, interest rates are not adjusted for the differences in pay-basis between the quote basis of the pricing index and the payment frequency of the account to which the index is assigned. Some instruments, notably Canadian mortgages, follow a convention that the interest rates are adjusted. In this case, the Pay-Equivalent Compounding Convention should be set to Semi-Annual Quoting Convention. For other accounts, the Convention should be set to Do Not Adjust.

## Defining a Leaf Characteristics ID

To define a Leaf Characteristics ID, complete the following steps:

1. From the Tree Bar, choose the product leaf you want to define.
2. From the Tree bar, choose the currency code you want to define.

To define assumptions for all currencies with the selected product, choose the default currency (000).

3. Type a value for each mandatory field. See "[Relationship Triggers](#)" in this chapter for more information.

Mandatory input fields are displayed in white and the non-editable fields are gray. If necessary, use the scroll bar located at the far right of the Leaf Characteristics section to view all available fields.

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**Hint:** Using the default currency to set up assumptions can save data input time. At run time, the calculation engine first uses assumptions explicitly defined for the product and currency combination. If assumptions are not defined for that currency, the engine uses the assumptions defined for the product and the default currency. If the assumptions are the same across some or all currencies for a particular product, you can input these assumptions for the default currency.

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4. From the File menu, select Save.

## Relationship Triggers

In the Leaf Characteristics ID, some instrument characteristics are interrelated. When input of a particular characteristic is unnecessary as a result of characteristics in other fields, the unnecessary field is disabled. The following table describes the relationships.

Leaf Charac.	Trans. Strat.	Field	Value	Behavior
YES	YES	Amortization Type Code	Conv. Fixed, Conv. Adjust., Adjst/Ng Amrt	Always interest in arrears, therefore disables Interest Type.

<b>Leaf Charac.</b>	<b>Trans. Strat.</b>	<b>Field</b>	<b>Value</b>	<b>Behavior</b>
YES	YES	Amortization Type Code	Conv. Fixed, Rule-of-78's	No repricing occurs, therefore disables repricing characteristics, e.g., Adjustable Type Code Repricing Frequency and Multiplier Tease Period Freq. and Multiplier Tease Discount Rate Set Lag Freq. and Multiplier Minimum Rate Change Rate Cap Life Rate Floor Life Rate Increase Period and Life Rate Decrease Period and Life Rate Change Round Type & Percent Negative Amortization fields (only enabled for Adjst/Ng Amrt--see below)
YES	YES	Amortization Type Code	Adjst/Ng Amrt	Enables Negative Amortization fields: Payment Change Freq. & Multiplier Payment Increase Period & Life Payment Decrease Period & Life Neg. Am. Eq. Frq., Mult., & Limit
YES	YES	Amortization Type Code	Any User-Defined Payment Pattern	Payment Frequency is defined in Pattern, therefore disables Payment Frequency and Multiplier in this ID
YES	YES	Adjustable Type Code	Fixed, Floating, or any User-Defined Repricing Pattern	Repricing Frequency is not applicable, or it is defined elsewhere, therefore disables Repricing Frequency and Multiplier

<b>Leaf Charac.</b>	<b>Trans. Strat.</b>	<b>Field</b>	<b>Value</b>	<b>Behavior</b>
YES	YES	Adjustable Type Code	Any User-Defined Repricing Pattern	Several of the repricing characteristics are defined elsewhere, therefore they are disabled in this ID (e.g., Interest Rate Code, Transfer Rate Interest Rate Code, etc.). Only periodic increase and decrease, rate change minimum, and rounding are enabled
NO	YES	Adjustable Type Code	Any User-Defined Repricing Pattern	Disables Rate Pricing Option
YES	YES	Repricing Frequency	0	No repricing occurs, therefore disables repricing characteristics (listed above under "Amortization Type Code ... Conv. Fixed")
YES	NO	Model with Gross Rates	Off	Net Margin Flag options are only necessary when modeling with different gross and net rates, therefore disables Net Margin Flag
YES	YES	Rate Change Rounding Type	"No Rounding" or "Truncate"	Rounding does not apply, therefore disables Rate Change Rounding Percent
NO	YES	Rate Pricing Option (when active)	Assign during processing	Disables direct input Rate fields (net, gross, and transfer rate)
YES	YES	Currency		Allows display of Interest Rate Codes and Transfer Rate Interest Rate Codes for which the selected currency is the reference currency. In Leaf Characteristics, Default Currency ('000') allows all Interest Rate Codes, regardless of currency

## New Business Fields

Following is a listing of new business fields used in the Leaf Characteristics IDs.

New Business Fields	Description
<b>ACCRUAL BASIS</b>	<p>The basis on which the interest accrual on an account is calculated. The choices are as follows:</p> <ul style="list-style-type: none"> <li>▪ 30/360</li> <li>▪ Actual/360</li> <li>▪ Actual/Actual</li> <li>▪ 30/365</li> <li>▪ 30/Actual</li> <li>▪ Actual/365</li> </ul>
<b>ADJUSTABLE TYPE</b>	<p>Determines the repricing characteristics of the new business record. The choices consist of all standard OFSA codes and all additional user-defined reprice patterns created through the Reprice Pattern interface. The standard OFSA codes are as follows:</p> <ul style="list-style-type: none"> <li>▪ Fixed</li> <li>▪ Floating</li> <li>▪ Adjustable</li> </ul>
<b>AMORTIZATION TYPE</b>	<p>Method of amortizing principal and interest. The choices consist of all standard OFSA codes and all additional user-defined codes created through the Payment Pattern interface. The standard OFSA codes are the following:</p> <ul style="list-style-type: none"> <li>▪ Conventional Fixed</li> <li>▪ Conventional Adjustable</li> <li>▪ Adjustable Negative Amortization</li> <li>▪ Non-Amortizing</li> <li>▪ Rule of 78's</li> <li>▪ Level Principal</li> </ul>

New Business Fields	Description
<b>COMPOUNDING BASIS</b>	<p>Determines the number of compounding periods per payment period. The choices are the following:</p> <ul style="list-style-type: none"> <li>▪ Daily</li> <li>▪ Monthly</li> <li>▪ Quarterly</li> <li>▪ Semi-Annual</li> <li>▪ Yearly</li> <li>▪ Continuous</li> <li>▪ Simple</li> <li>▪ At Maturity</li> </ul>
<b>INTEREST TYPE</b>	<p>Determines whether interest is calculated in arrears or advance. There are two interest types:</p> <ul style="list-style-type: none"> <li>▪ Interest in Arrears</li> <li>▪ Interest in Advance</li> </ul> <p>For conventional amortization products, interest in arrears is the only valid choice.</p>
<b>INTEREST RATE CODE</b>	<p>Defines the pricing index to which interest rate is contractually tied. The interest rate codes that appear as a selection option depend on the choice of currency from the Tree Bar. The interest rate code list is restricted to codes which have the selected currency as the reference currency. If the default currency is chosen, all interest rate codes are available as a selection.</p>
<b>MINIMUM RATE CHANGE</b>	<p>The minimum required change in rate on a repricing date.</p>
<b>NEGATIVE AMORTIZATION EQUALIZATION FREQUENCY</b>	<p>Frequency at which current payment necessary to fully amortize the instrument is re-computed.</p>
<b>NEGATIVE AMORTIZATION EQUALIZATION MULTIPLIER</b>	<p>Units (days, months, or years) of negative amortization equalization multiplier.</p>
<b>NEGATIVE AMORTIZATION EQUALIZATION LIMIT</b>	<p>Maximum negative amortization allowed, as a percent of original balance. E.g., if principal balance should never exceed 125% of original balance, this column would equal 125.0.</p>

<b>New Business Fields</b>	<b>Description</b>
<b>NET MARGIN FLAG</b>	The setting of the net margin flag affects the calculation of net rate. The two settings are:  Floating Net Rate - the net rate reprices in conjunction with the gross rate, at a value net of fees.  Fixed Net Rate - the net rate equals a fixed fee equal to the net margin.
<b>ORIGINAL DEFERRED AMORTIZATION PERCENT</b>	The initial deferred balance expressed as a percent of original par balance.
<b>PAYMENT CHANGE FREQUENCY</b>	The frequency at which the payment amount is recalculated for adjustable negative amortization instruments.
<b>PAYMENT CHANGE MULTIPLIER</b>	Units (days, months or years) of payment change frequency.
<b>PAYMENT DECREASE - PERIOD</b>	Maximum payment decrease allowed during a payment change cycle of a negative amortization instrument.
<b>PAYMENT DECREASE - LIFE</b>	Maximum payment decrease allowed during life of an adjustable rate instrument.
<b>PAYMENT FREQUENCY</b>	Frequency of payment (P&I, Interest or Principal). For bullet instruments, use zero.
<b>PAYMENT MULTIPLIER</b>	Units (days, months or years) of payment frequency.
<b>PAYMENT INCREASE - PERIOD</b>	Maximum payment increase allowed during a payment change cycle on a negative amortization instrument.
<b>PAYMENT INCREASE - LIFE</b>	Maximum payment increase allowed during the life of a negative amortization instrument.
<b>RATE CAP LIFE</b>	Maximum rate allowed during life of the instrument.
<b>RATE CHANGE ROUNDING PERCENT</b>	Percent to which the rate change on an adjustable instrument is rounded.
<b>RATE CHANGE ROUNDING TYPE</b>	Method used for rounding of interest rate codes. The choices are as follows: no rounding, truncate, round up, round down, round nearest.
<b>RATE DECREASE PERIOD</b>	Maximum amount rate can decrease during the repricing period of an adjustable rate instrument.

<b>New Business Fields</b>	<b>Description</b>
<b>RATE DECREASE LIFE</b>	Maximum amount rate can decrease during the life of an adjustable rate instrument, used to calculate the rate floor based on the forecasted rate scenario. If both rate decrease life and rate floor are defined, the process uses the more restrictive rate.
<b>RATE FLOOR LIFE</b>	Minimum rate for life of the instrument.
<b>RATE INCREASE PERIOD</b>	Maximum interest rate increase allowed during the cycle on an adjustable rate instrument.
<b>RATE INCREASE LIFE</b>	Maximum interest rate increase allowed during the life of an adjustable rate instrument, used to calculate rate cap based on forecasted rates scenario. If both rate increase life and rate cap are defined, the process uses the more restrictive rate.
<b>RATE SET LAG FREQUENCY</b>	Period by which the payment recalculation lags the date of the interest rate used for calculation.
<b>RATE SET LAG MULTIPLIER</b>	Units (days, months, or years) of rate set lag frequency.
<b>REPRICING FREQUENCY</b>	Contractual frequency of rate adjustment.
<b>REPRICING MULTIPLIER</b>	Units (days, months, or years) of repricing frequency.
<b>TEASE DISCOUNT</b>	The tease discount is used in conjunction with the original rate to calculate the tease rate. The tease rate is the original rate less the tease discount.
<b>TEASE PERIOD FREQUENCY</b>	The tease period frequency is used to determine the length of tease period.
<b>TEASE PERIOD MULTIPLIER</b>	Units (days, months, or years) of tease period frequency.
<b>TRANSFER RATE INTEREST RATE CODE</b>	The interest rate code will be used to calculate the transfer rate for new business. The list of interest rate codes is restricted to interest rate codes with the reference currency equivalent to the currency selected from the Tree Bar. If the default currency is selected from the Tree Bar, interest rate codes for all active currencies are shown.

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## Maturity Strategy ID

A Maturity Strategy ID defines the term distribution of new business added during each forecast period. Maturity strategies are set at the product and currency levels.

For new volumes generated during the simulation, you will define the maturity and amortization terms applied to the balances originated in each period, as well as specify a maturity distribution for the volumes originated.

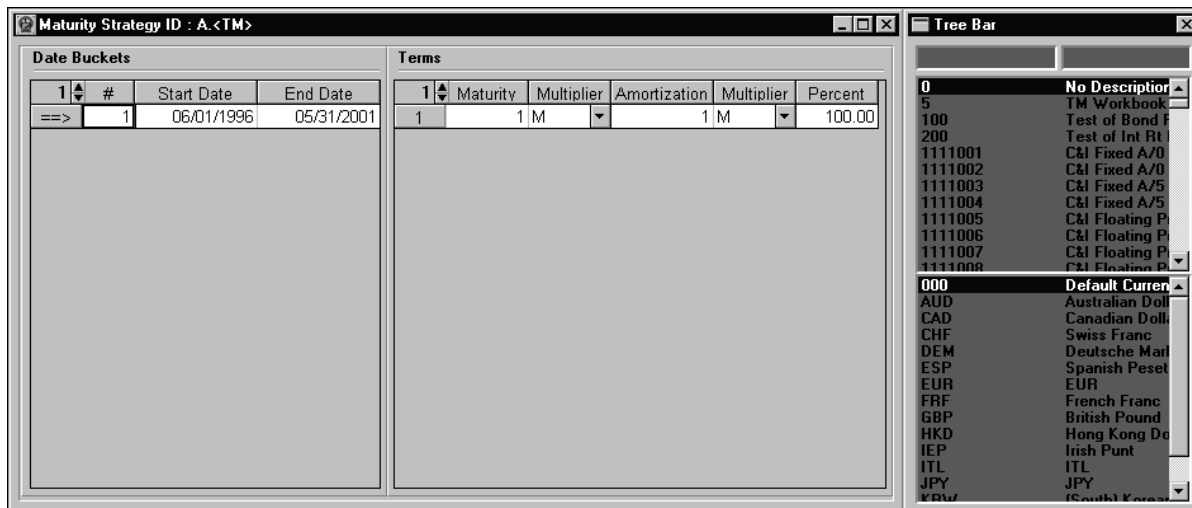
For example, mortgage originations may be divided into 25% 5 Year Term/30 Year Amortization, 25% 7 Year Term/30 Year Amortization, and 50% 30 Year Term/30 Year Amortization. You define the set of maturity assumptions to apply to all new accounts and select that Maturity Strategy ID when running a simulation.

### Creating a Maturity Strategy ID

To create a Maturity Strategy ID, complete the following steps:

1. From the File menu, select New -> Maturity Strategy ID.
2. Select a folder.
3. Type a descriptive name for the ID.
4. Type a description for the ID. This is an optional field.
5. Click Read/Write.
6. Click OK.

The Maturity Strategy ID window and tree bar appear.



## The Maturity Strategy ID Window and Tree Bar

The Maturity Strategy ID uses the modeling period defined in the active Configuration ID. You should verify that your modeling horizon and assumptions are consistent with the active Configuration ID.

From the product section of the tree bar, select the product for which you would like to define a Maturity Strategy ID. From the currency section, select a currency or use the default.

Each date range will have its own set of maturity strategies that you define in the Terms box.

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**Hint:** Using the default currency to set up assumptions can save data input time. At run time, the calculation engine first uses assumptions explicitly defined for the product and currency combination. If assumptions are not defined for that currency, the engine uses the assumptions defined for the product and the default currency. If the assumptions are the same across some or all currencies for a particular product, you can input these assumptions for the default currency.


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## Date Buckets

Click the Date Bucket number spinner to select the number of maturity strategy date ranges that are required during the forecast period.

The # column is used to calculate the starting and ending dates. The # column defines which modeling bucket is used to calculate these dates. The modeling buckets are defined in the Configuration ID.

In the following example, the "1" in the first row of the # column indicates that the first modeling bucket in the Configuration ID is used to calculate the Start Date. In the # column of the second row, "28" represents the twenty-eighth modeling bucket in the Configuration ID, from which the End Date in row 1 and the Start Date in row 2 are calculated.

2    #	Start Date	End Date
==> 1	01/01/1994	03/31/1996
2 28	04/01/1996	12/31/1998

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**Note:** The Start Date value in the first row is always set equal to the first modeling date, the as-of date plus 1 day, and the End Date value in the last row always equals the last day of the modeling horizon as defined in the Configuration ID.

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## Terms

The Terms columns are used as follows:

Maturity: Maturity (= term)

Multiplier: Maturity multiplier (= days, months, years)

Amortization: The amortization term will default to the maturity term. The amortization term should always be greater than or equal to the maturity term.

Multiplier: Amortization multiplier (= days, months, years)

Percent: The percentage of new business at the specified term and maturity for the associated date bucket.

For each Date Bucket defined, the maturity terms must be specified. For example, new business may be added in two terms: 5 year and 10 year maturities.

### Entering Terms: An Example

1. Click on the Date Buckets row to be defined.
2. Set the Terms number spinner box to 2.
3. Enter the maturity amounts of 60 and 120 and the associated multipliers of months in the Maturity and Multiplier columns. (5 Y and 10 Y can also be used).
4. Define the amortizations and their associated multipliers in the Amortization and Multiplier columns. (The amortization term and multiplier default to the same values as the maturity term and multiplier.)
5. In the Percent column, type the percent for each maturity. For example, 60 months may be 30% of new business, while 120 month maturities represent the remaining 70%. The allocation percents must total 100%.

2	Maturity	Multiplier	Amortization	Multiplier	Percent
1	60 M		60 M		30.00
2	120 M		120 M		70.00

6. From the File menu, select Save.

### Reviewing Maturity Strategies

To review maturity strategies, click on a date bucket to display the defined maturity strategies. The maturity strategy is displayed for one bucket at a time.

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## Prepayment ID

This chapter explains the function and use of Prepayment IDs within cash flow processing. The following topics are included:

- Prepayment ID assumptions
- Calculation methods
- Creating, defining, and editing a Prepayment ID

Prepayments are paid by either accelerating principal payments or refinancing. Using Prepayment IDs, you specify assumptions about prepayment rates for specific products. Once defined, the assumptions are stored at the individual product leaf level. Risk Manager uses the assumptions detailed in the ID to calculate cash flows.

### Prepayment ID Assumptions

When creating a Prepayment ID, you make assumptions about calculation methods, cash flow, market rates, terms, prepayment rates, and seasonality. The assumptions you enter depend on the calculation method you select—constant, prepayment table, or arctangent calculation. For example, when you select the constant calculation method, the market rate options are unavailable because a flat prepayment rate is used. With the prepayment table method, however, the market rate and spread are required because of market fluctuation dependencies.

The Prepayment ID window has six areas for entering assumptions.

- Calculation Method
- Cash Flow Treatment
- Market Rate Definition

- Associated Term
- Prepayment Rate Definition
- Seasonality

The screenshot shows a software window titled "Prepayment ID : DEV.<ALL>". It contains several sections for configuring assumptions:

- Calculation Method:** A dropdown menu set to "Constant".
- Cash Flow Treatment:** Radio buttons for "Refinance" (selected) and "Curtailment".
- Market Rate Definition:** A dropdown for "Index" set to "Zero Rate" and a text field for "Spread" set to "0.0000". Below this is the formula  $Yld = Index + Spread$ .
- Associated Term:** Radio buttons for "Remaining Term", "Reprice Frequency", and "Original Term".
- Arctangent Formula:** A text field containing the formula  $k1 - k2 * ATAN[ k3 * [ -Rt/Yld + k4 ] ]$ .
- Prepayment Rate Definition:** A table with columns: "1", "Start Origination Date", "End Origination Date", "Coefficient", and "Prepayment Table". The first row contains: "1", "01/01/1900", "12/31/2099", "1.0000", and "0805TEST.<ALL>".
- Seasonality:** A checkbox labeled "Seasonality" is unchecked. Below it is a list of months from January to December, each with a corresponding value of "1.0000" in a dark box.

## Calculation Method

There are three methods for calculating prepayments:

- Constant calculation
- Prepayment table calculation
- Arctangent calculation

One ID can contain more than one method of calculation for different products. A single product, however, is assigned using only one method within an ID; one leaf, one calculation method. Prepayment assumptions within an individual leaf can vary based on origination date ranges.

The default option None on the Calculation Method list is used to indicate that a product leaf is not affected by prepayment assumptions. None notifies the system to bypass prepayment processing for the individual leaf. The three methods for calculating prepayments are discussed in the following sections.

### Constant Calculation Method

The constant method calculates a flat percentage of the current balance. The percentage you enter applies to all instruments within the origination date range.

### Prepayment Table Calculation Method

With this method, you use a predefined Prepayment Table ID to model the impact of multiple characteristics on prepayment expectations. Prepayment tables can be based on age, term, or rate characteristics. You can assign a prepayment table to a number of different products to use in cash flow transfer pricing and cash flow forecasting. You can also assign a different prepayment table to each origination date range in the Prepayment ID. If you have not already created a Prepayment Table ID, see [Chapter 18, "Prepayment Table ID"](#) for instructions.

### Arctangent Calculation Method

The arctangent calculation method uses the arctangent function to describe the relationship between prepayment rates and spreads (the coupon rate less the market rate).

User-defined coefficients adjust this function to generate differently shaped curves. Specifically,

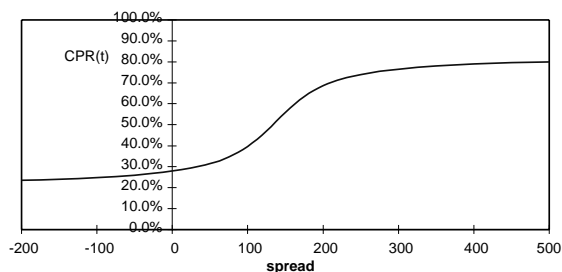
$$CPR_t = k_1 - (k_2 * ATAN(k_3 * (-C_t/M_t + k_4))), \text{ where } CPR_t = \text{annual prepayment rate in period } t$$

$C_t$  = coupon in period  $t$

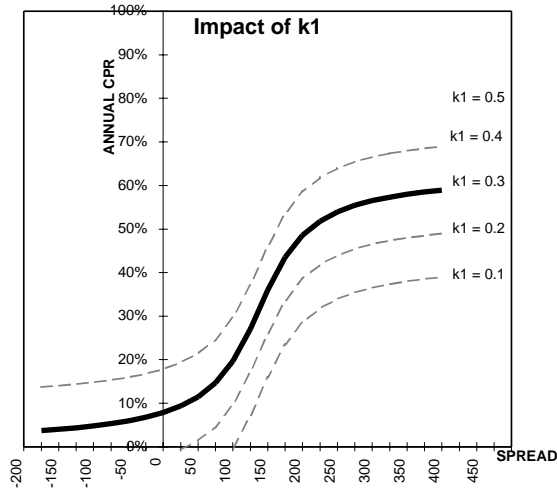
$M_t$  = market rate in period  $t$

$k_1, k_2, k_3, k_4$  = user-defined coefficients

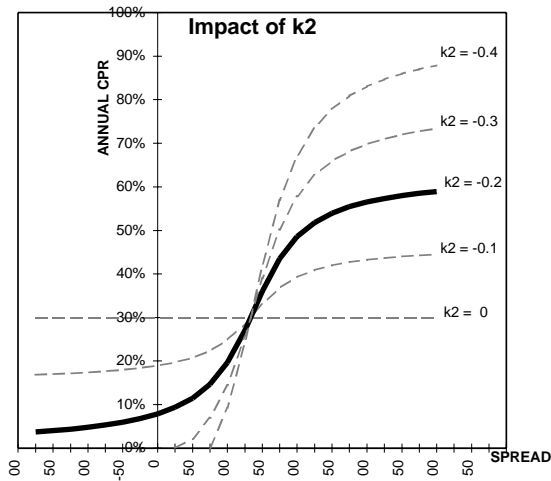
Using the coefficients  $k_1 = 0.3$ ,  $k_2 = 0.2$ ,  $k_3 = 10.0$ , and  $k_4 = 1.2$ , the skewness and steepness of the arctangent prepayment curve are defined.



Each coefficient affects the curve in a different manner.  $K_1$  defines the midpoint of the prepayment curve, affecting the absolute level of prepayments. Adjusting the value creates a parallel shift of the curve up or down.

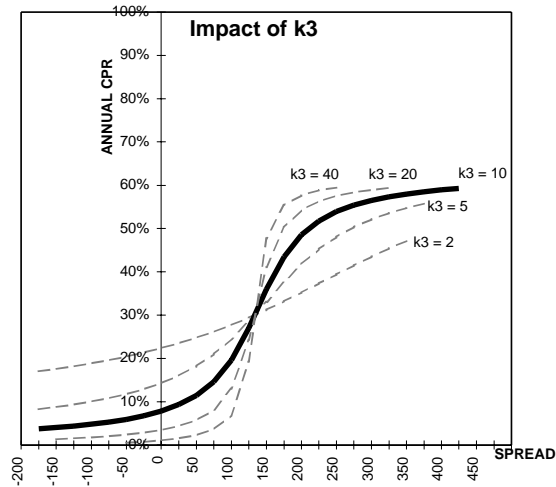


$K_2$  impacts the slope of the curve, defining the change in prepayments given a change in market rates. A larger value implies greater overall customer reaction to changes in market rates.

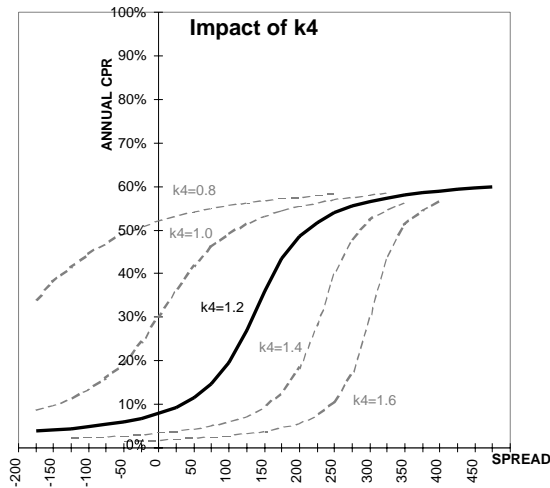




$K_3$  impacts the amount of torque in the prepayment curve. A larger  $K_3$  increases the acceleration, implying that customers react more sharply when spreads reach the hurdle rate.



$K_4$  defines the hurdle spread, the spread at which prepayments start to accelerate. When the spread ratio =  $k_4$ , prepayments =  $k_1$ .



## Cash Flow

The cash flow options are Refinance or Curtailment.

- **Refinance:** keeps 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:** changes the periodic payment amounts due. The prepayments are treated as accelerated payments, with a payoff earlier than the originally scheduled terms.

## Market Rate Definition

The market rate represents the forecasted interest rate. You will select an interest rate code from the Index list and type a spread, expressed as a percentage, in the Spread field. Spread is the difference between the customer rate and the market rate. The Market Rate Definition section is not available with the constant calculation method.

## Associated Term

The associated term determines which point on the yield curve will be used as the equivalent market rate. Choose one of the following:

- **Remaining Term:** the number of months until the instrument matures.
- **Reprice Frequency:** the frequency with which the instrument reprices. This will default to original term on a fixed-rate instrument.
- **Original Term:** the number of months originally scheduled for the life of the instrument.

The Associated Term section is active when you use either the prepayment table or arctangent calculation method.

## Prepayment Rate Definition

When you select the constant calculation method, the prepayment rate is defined as a constant annual rate and expressed as a percentage, by origination date. You will determine the prepayment percentage that you want applied to instruments in the origination date range.

Prepayment Rate Definition				
6	Start Origination Date	End Origination Date	Percent	
1	01/01/1900	01/31/1977	1.0000	
2	02/01/1977	02/28/1977	0.0000	
3	03/01/1977	03/31/1977	0.0000	
4	04/01/1977	04/30/1977	0.0000	
5	05/01/1977	05/31/1977	0.0000	
6	06/01/1977	12/31/2099	0.0000	

When you select the prepayment table calculation method, you will supply a coefficient and select one of the predefined prepayment tables. The coefficient is the number by which the prepayment rate (specified in the prepayment table) will be multiplied. The coefficient applies to all instruments within the specified origination date range.

Prepayment Rate Definition					
6	Start Origination Date	End Origination Date	Coefficient	Prepayment Table	
1	01/01/1900	12/31/1986	0.7500	AGE_40008.<ALL>	▼
2	01/01/1987	12/31/1990	0.8000	AGE_40008.<ALL>	▼
3	01/01/1991	12/31/1992	0.8500	AGE_40008.<ALL>	▼
4	01/01/1993	12/31/1994	0.9000	AGE_40008.<ALL>	▼
5	01/01/1995	12/31/1996	0.9500	AGE_40008.<ALL>	▼
6	01/01/1997	12/31/2099	1.0000	AGE_40008.<ALL>	▼

**Example:** Assume the following Prepayment Table ID.

Original Term	Prepayment Rate
12	5
24	10
36	15
60	20

For an instrument with a term of 36 months and a coefficient of 0.8500, the system calculates 85% of the original term prepayment rate of 15%. Thus the instrument is assigned a prepayment rate of 12.75%.

When you select the arctangent calculation method, you supply coefficients for the arctangent formula (see "[Arctangent Calculation Method](#)" in this chapter) to define the shape of your curve.

Prepayment Rate Definition						
6	Start Origination Date	End Origination Date	K1	K2	K3	K4
1	01/01/1900	01/31/1977	0.3000	0.2000	10.0000	1.2000
2	02/01/1977	02/28/1977	0.3300	0.2500	9.5000	1.4000
3	03/01/1977	03/31/1977	0.3200	0.2200	9.9000	1.3000
4	04/01/1977	04/30/1977	0.3300	0.2200	9.8000	1.3200
5	05/01/1977	05/31/1997	0.3400	0.2300	9.9000	1.3300
6	06/01/1997	12/31/2099	0.3500	0.2400	10.0000	1.3500

For all calculation methods, the first cell in the Start Origination Date column and all cells in the End Origination Date column are protected. This ensures that all the possible origination dates are included in cash flow calculations. Dates in the End Origination Date column are supplied by the system when you tab to or click an End Origination Date cell.

## Seasonality

Seasonality adjustments are made when, based on financial histories and experiences, you expect the amount of prepayments made on given instruments to increase in certain months and decrease in other months. Seasonality factors are multiplied by the annualized prepayment rate. A deannualized rate is calculated during processing.

For each month, the default seasonality factor is 1.0000. When the seasonality function is active, you can change any of the factors. When the function is disabled, the factors are grayed out and cannot be adjusted.

To enter seasonality factors, complete the following steps:

1. Check the Seasonality box.
2. For each month you want to change, delete the default factor and type the new factor. The number cannot exceed 99.9999.

---

**Note:** If you uncheck Seasonality after entering new factors, the new factors will be deleted.

---

## Creating a New Prepayment ID

To create a new Prepayment ID, complete the following steps:

1. From the File menu, select New -> Prepayment ID.
2. Select the Folder and Leaf Types from the lists.

3. Type a descriptive name for the ID.
4. Type a description for the ID. This is an optional field.
5. Click Read/Write.
6. Click OK.

All prepayment rates entered into a Prepayment ID are constant annualized rates. Prepayment rates are deannualized when applied to individual transactions during processing, with the exception of the 100% Rule. When you input a prepayment rate of 100%, prepayment in full is triggered.

## Defining a Prepayment ID

To define Prepayment ID assumptions, complete the following steps:

1. From the Tree Bar, select the product leaf you want to define prepayment assumptions on.
2. From the Calculation Method list, select Constant, Prepayment Table, or Arctangent. (See "[Calculation Method](#)" in this chapter.)
3. In the Cash Flow Treatment section, select Refinance or Curtailment. (See "[Cash Flow](#)" in this chapter.)
4. If the Market Rate Definition section is available, select values for Index and Spread. (See "[Market Rate Definition](#)" in this chapter.)
5. If the Associated Term section is available, select from Remaining Term, Reprice Frequency, or Original Term. (See "[Associated Term](#)" in this chapter.)
6. In the Prepayment Rate Definition section (see "[Prepayment Rate Definition](#)" in this chapter), do the following:
  - In the first cell (upper left corner), click the up/down arrows or type a number to specify how many prepayment rates you want to define.
  - Position the cursor in row 2 of the Start Origination Date column. Row 1 of the Start Origination Date column does not change.
  - Type the beginning date.
  - Click the End Origination Date column of the previous row to have the end date supplied for you. The system inserts a date one day before the Start Origination Date in the next row.

If you selected Constant from the Calculation Method list:

- In the Percent column, type the prepayment rate that you want applied to instruments in the origination date range.
- For each row, continue supplying start and end origination dates and prepayment rate percentages.

If you selected Prepayment Table from the Calculation Method list:

- In the Coefficient column, type the number by which the prepayment rate will be multiplied. The coefficient applies to all instruments within the specified origination date range.
- From the list in the Prepayment Table column, select a predefined prepayment table.
- For each row, continue supplying start and end origination dates and a coefficient, and select a prepayment table from the list.

If you selected Arctangent from the Calculation Method list:

- In the K1 through K4 columns, type the coefficients for the arctangent formula.
- For each row, continue supplying start and end origination dates and values for K1 through K4.

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**Note:** For any of the calculation methods, if you need to change an end date, click any cell in the End Origination Date column to refresh the dates.

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7. If the Seasonality section is available, change the factor for any month. (See "[Seasonality](#)" in this chapter.)
8. Save the Prepayment ID.

## Editing a Prepayment ID

To edit a Prepayment ID, complete the following steps:

1. From the File menu, select Open -> Prepayment ID.
2. Select the ID you want to edit and click OK.
3. With the ID open, make changes as previously described.
4. From the File menu, select Save As to rename the ID.

5. Type the new name in the Prepayment ID box and click OK.

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**Note:** Renaming the edited Prepayment ID will preserve the original Prepayment ID for you to use as a basis for other edited versions.

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## Prepayment Table ID

Prepayment Table IDs are useful for defining complex payment structures in a Prepayment ID. You can create prepayment tables based on term, age, or interest rate characteristics, and use the same prepayment table across multiple Prepayment IDs and products, eliminating redundant data entry.

### Prepayment Table Structure

You define prepayment tables by specifying:

- Dimension type: Uses instrument characteristics or interest rate measures that you specify to calculate prepayment runoff
- Lookup method: Determines how a prepayment rate is calculated
- Dimension values: Defines points at which prepayment rates are calculated

### Dimension Types

Dimensions define how term and repricing parameters and interest rates influence prepayment behavior. One table can contain up to three dimensions. Nine dimensions are available. The term and repricing dimensions are:

- Original term: The contractual term of the instrument
- Reprice frequency: The number of months between instrument repricing
- Remaining term: The number of months until the instrument matures
- Expired term (also known as age): The number of months since the instrument was originated
- Term to reprice: The number of months until the next repricing of the instrument

The interest rate dimensions are:

- Coupon rate: The current gross rate on the instrument
- Market rate: The forecasted rate representing alternate funding
- Rate difference: The spread between the current gross rate and the market rate
- Rate ratio: The ratio of the current gross rate to the market rate

## Lookup Methods

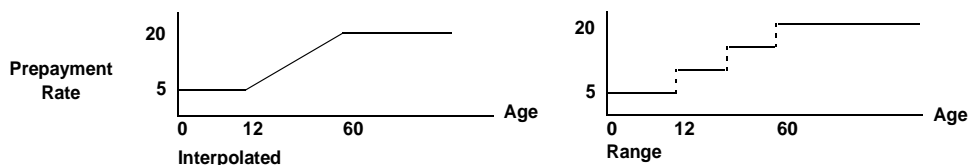
The lookup method determines how prepayment rates will be calculated. The lookup method options are:

- Interpolation: Calculates a value between two known prepayment rates in the table
- Range: Applies a prepayment rate for instruments in a range of ages

**Example:** The table shows that an instrument with an age of 30 months is halfway between 10% and 15%. Using interpolation, the calculated prepayment rate is 12.5%. Using the range method, the prepayment rate is 10%, the rate that applies to the range from 24 to 35.9999 months.

Age	Prepayment Rate
12	5
24	10
36	15
60	20

The graphs show the difference between interpolation and range lookup.



## Dimension Values

Dimension values define points at which you want to calculate prepayment rates. For example, for the original term, you may enter values of 12 months, 24 months, 36 months, and 48 months for a particular instrument or product.

## Defining the Prepayment Table

You will set up a Prepayment Table ID by first creating a new table, a shell that you will fill in. Next you will add dimensions—terms and rates—to define the table. Finally you will add prepayment rates to the table.

### Creating a New Prepayment Table ID

To create a new Prepayment Table ID, complete the following steps:

1. From the File menu, select New -> Prepayment Table ID.
2. Select a folder.
3. Type a descriptive name for the ID.
4. Type a description for the ID. This is an optional field.
5. Click Read/Write.
6. Click OK.

You are now ready to add dimensions to the Prepayment Table ID.

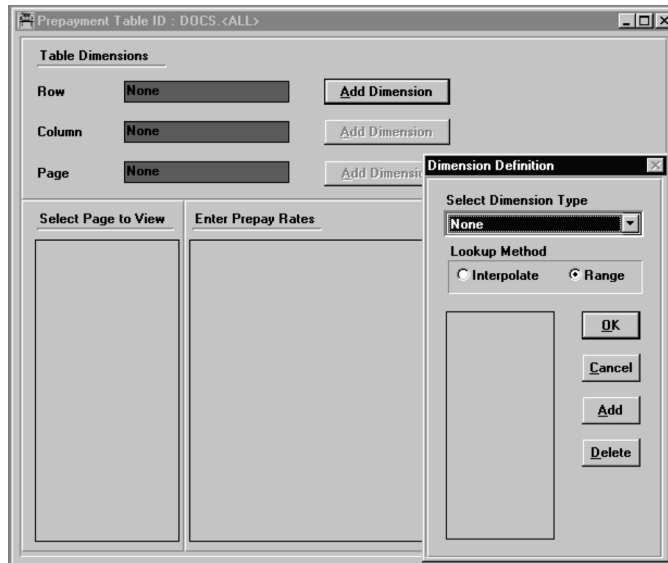
### Adding Dimensions to the Prepayment Table ID

With dimensions, you specify instrument and environment characteristics. You must add all dimensions before entering prepayment rates. Adding dimensions after entering prepayment rates will erase current prepayment rates.

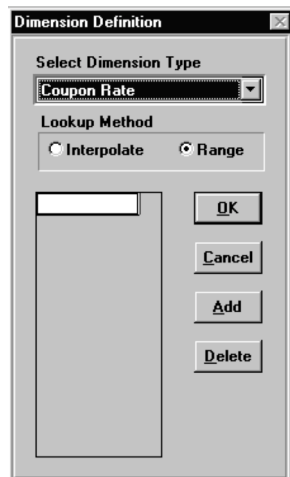
#### Adding the First Dimension

To add the first dimension, complete the following steps:

1. Click Add Dimension. The first dimension is defined as the row dimension.



2. In the Dimension Definition dialog box, select a Dimension Type from the list.
3. Click a Lookup Method.
4. Click the box across from the OK button and type a value for a term or rate, depending on whether you selected a term or a rate dimension.



5. Click Add to add another term or rate; then click the box and type the value. Continue adding values until the dimension structure is complete.
6. Click OK. The first dimension values appear as rows in the table.

Prepayment Table ID : DOCS.<ALL>

Table Dimensions

Row:

Column:

Page:

Select Page to View:

Enter Prepay Rates

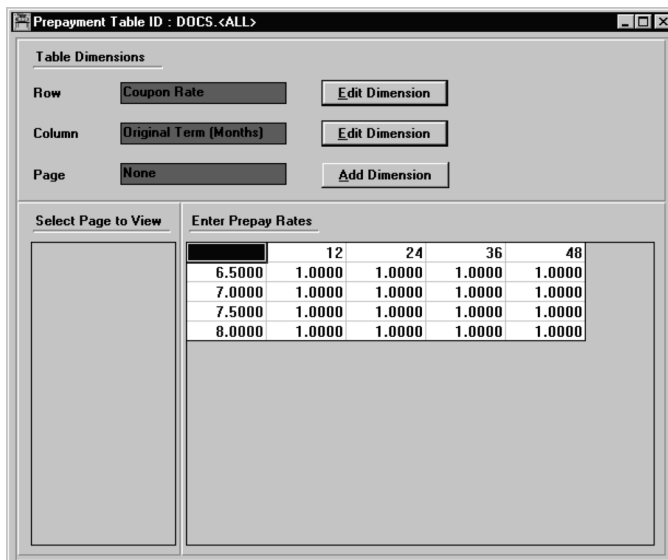
6.5000	1.0000
7.0000	1.0000
7.5000	1.0000
8.0000	1.0000

7. From the File menu, select Save.

### Adding the Second Dimension

To add an optional second dimension, complete the following steps:

1. Click Add Dimension across from Column. The second dimension is defined as the column dimension.
2. Click Yes to ignore the warning. It does not apply if you have not yet entered prepayment rates.
3. Repeat steps 2 through 7 from "[Adding the First Dimension](#)" in this chapter. The second dimension values appear as columns in the table.



### Adding the Third Dimension

To add an optional third dimension, complete the following steps:

1. Select Add Dimension across from Page.
2. Click Yes to ignore the warning. It does not apply if you have not yet entered prepayment rates.
3. Repeat steps 2 through 7 from ["Adding the First Dimension"](#) in this chapter. The third dimension values appear as individual pages.

**Table Dimensions**

Row:

Column:

Page:

Select Page to View

==>	-1.0000
2	-0.5000
3	0.5000
4	1.0000

Enter Prepay Rates

		12	24	36	48
6.5000	1.0000	1.0000	1.0000	1.0000	1.0000
7.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7.5000	1.0000	1.0000	1.0000	1.0000	1.0000
8.0000	1.0000	1.0000	1.0000	1.0000	1.0000

You are now ready to add prepayment rates to the table.

## Adding Prepayment Rates to the Table

To change the default prepayment rates of 1.0000, complete the following steps:

1. Click each prepayment rate you want to change and type the value.

You cannot change the dimension values (the first row and the first column) here. See ["Editing Dimensions"](#) in this chapter for more information.

2. From the File menu, select Save.

## Editing Dimensions

You can edit a dimension either before or after entering prepayment rates. The prepayment rates are not erased when you edit dimensions.

To edit a dimension type, lookup method, or dimension value, complete the following steps:

1. Click Edit Dimension for a Row, Column, or Page.
2. In the Dimension Definition dialog box, make the desired changes. (See ["Adding Dimensions to the Prepayment Table ID"](#) for more information.)

3. Click OK.
4. From the File menu, select Save.

## Deleting Dimension Values

You can delete dimension values at any time. Associated prepayment rates are also deleted.

To delete dimension values, complete the following steps:

1. Click Edit Dimension for a Row, Column, or Page.
2. In the Dimension Definition dialog box, click the cell to be deleted and click Delete.
3. Click OK.
4. From the File menu, select Save.

## Deleting Dimensions

You can delete an entire dimension by setting Dimension Type (in the Dimension Definition dialog box) to None. You must delete Page Dimension before Column Dimension, and Column Dimension before Row Dimension.



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## Pricing Margin ID

A Pricing Margin ID is a set of pricing margin assumptions for all products. Pricing margins are defined period by period for each product and, potentially, each currency. The pricing margin applies to newly originated volumes defined in the Forecast Balance ID.

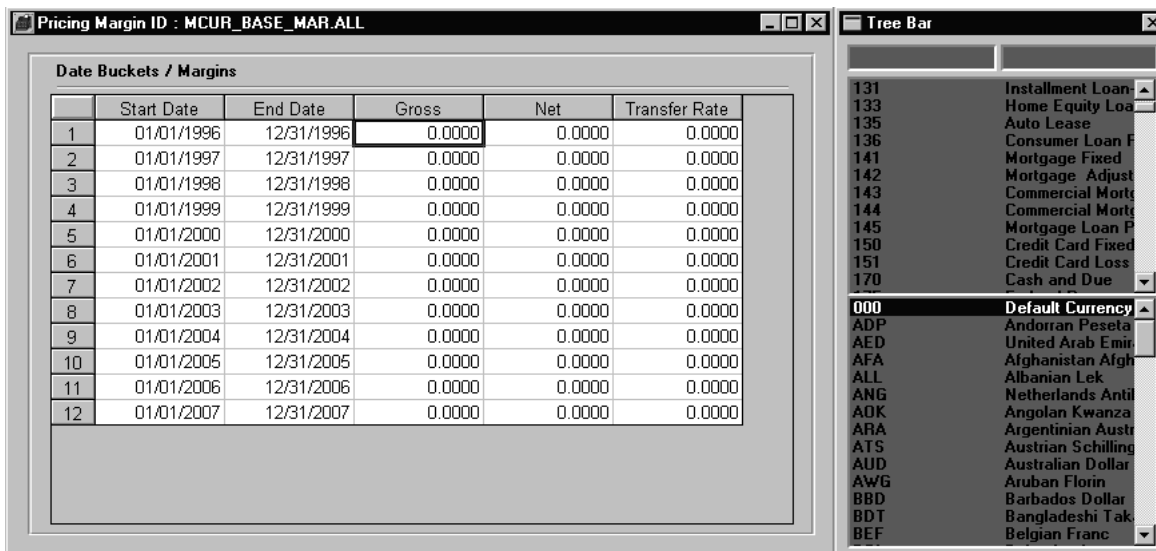
When you require more complex definitions of pricing margins to model an account, user-defined repricing patterns can be used. See [Chapter 27, "User-Defined Repricing Pattern"](#) for more information.

### Creating a Pricing Margin ID

To create a new Pricing Margin ID, complete the following steps:

1. From the File menu, select New -> Pricing Margin ID.
2. Select the folder.
3. Enter a descriptive name for the ID.
4. Enter a description for the ID. This is an optional field.
5. Click Read/Write.
6. Click OK.

The Pricing Margin ID and Tree Bar appear.



7. Type dates and values as described in "The Pricing Margin ID Window and Tree Bar" in this chapter.
8. From the File menu, select Save.

## The Pricing Margin ID Window and Tree Bar

In a modeling scenario, you may want to price new business for an account at a margin above or below a market interest rate code. For example, you can model a premium paid on CDs in relation to a market yield curve by adding a pricing margin to the interest rate code defined in the Leaf Characteristics ID. For example, if you want a rate that is 25 basis points above the market yield curve, you will type 0.25 as the pricing margin during the modeling period.

The Pricing Margin ID uses the modeling period defined in the active Configuration ID. You should verify that your modeling horizon and assumptions are consistent with the active Configuration ID.

From the product section of the tree bar, select the product for which you would like to define a Pricing Margin ID. From the currency section, select a currency or use the default.

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**Hint:** Using the default currency to set up assumptions can save data input time. At run time, the calculation engine first uses assumptions explicitly defined for the product and currency combination. If assumptions are not defined for that currency, the engine uses the assumptions defined for the product and the default currency. If the assumptions are the same across some or all currencies for a particular product, you can input these assumptions for the default currency.

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### **Start Date and End Date**

When the Pricing Margin ID opens, the Start Date and End Date columns are automatically populated. The date ranges represent the Modeling Date buckets as defined in the Configuration ID. See [Chapter 6, "Configuration ID"](#) for more information. Any new business originated within these dates is modeled using the margins defined in the Pricing Margin ID. New business added for each date bucket will have the same net, gross, and transfer margin for its life. The margins on a particular instrument will not change as the instrument ages.

### **Gross Margin**

The Gross Margin you define is added to the Interest Rate Code specified in the Leaf Characteristics ID to define the gross rate on new business.

### **Net Margin**

The Net Rate is affected by the setting Net Margin Flag in the Leaf Characteristics ID. If Net Margin Flag is set to Floating Net Rate, then Net Rate is equal to the Interest Rate Code plus the Net Margin specified here. If the Net Margin Flag is set to Fixed Net Rate, then Net Rate is equal to Net Margin.

### **Transfer Rate Margin**

If you are modeling with transfer rates, the margin specified will be added to the transfer rate interest rate code specified in the Leaf Characteristics ID to determine the transfer rate for new business. See ["Input Data for a Scenario-Based Process ID"](#) in [Chapter 20, "Process ID"](#) for more information.



When all of the assumptions for a forecast are defined, the Process ID performs calculation processes and generates a results set. A Process ID requires the input in four different pages, including:

- Calculation
- Input/Assumption
- Process Mode
- Audit

Defining options within each of these pages creates a unique Process ID for individual forecasting objectives.

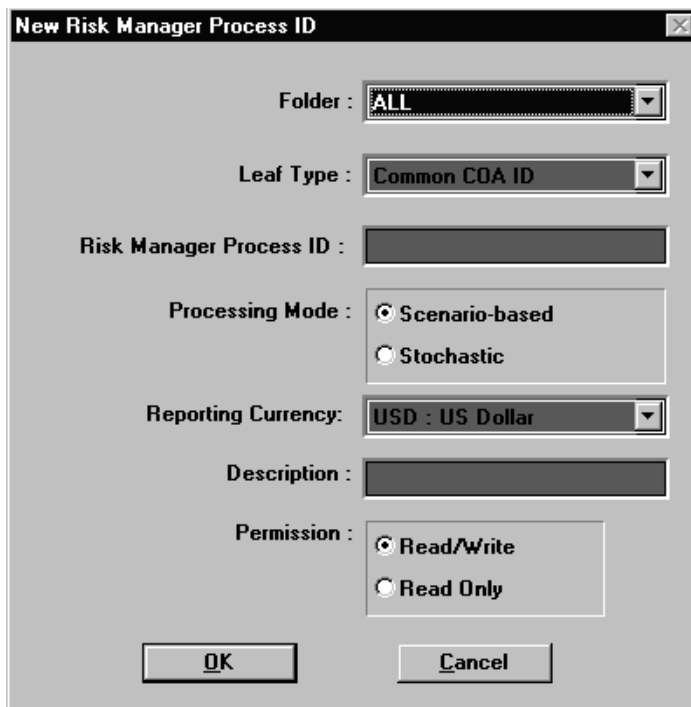
This chapter discusses the creation of a Process ID, the differences between Scenario-based and Stochastic Process ID types and the input required to set up such a Process ID. It is organized by:

- [Creating a Process ID](#)
- [Input Data for a Scenario-Based Process ID](#)
- [Input Data for a Stochastic Process ID](#)
- [Running a Process ID](#)
- For a server run of a Risk Manager Process, the Processing Status is displayed in the Server Status Update window. The status of the process inserts a row with the Process ID name in the Job Description column. A number of status is updated during and after the execution of the process. For more information see "Server Status" in Chapter 4, "Overview of IDs".

## Creating a Process ID

To define a Process ID, complete the following steps:

1. From the File menu, choose New/Process ID. The New Risk Manager Process ID screen appears.



The screenshot shows a dialog box titled "New Risk Manager Process ID". It contains the following fields and options:

- Folder :** A drop-down menu with "ALL" selected.
- Leaf Type :** A drop-down menu with "Common COA ID" selected.
- Risk Manager Process ID :** An empty text input field.
- Processing Mode :** Two radio button options: "Scenario-based" (selected) and "Stochastic".
- Reporting Currency:** A drop-down menu with "USD : US Dollar" selected.
- Description :** An empty text input field.
- Permission :** Two radio button options: "Read/Write" (selected) and "Read Only".

At the bottom of the dialog box are two buttons: "OK" and "Cancel".

2. Use the drop-down lists to choose Folder and Leaf Type. Pressing Tab moves the cursor from one field to the next.
3. Enter a descriptive name for the ID in the Risk Manager Process ID field.
4. Check the Processing Mode option. Check Scenario-based or Stochastic to set up a Scenario-based Process ID or Stochastic Process ID. The selection of Processing Mode drives the creation of the Process ID.
5. Select a reporting currency.
6. Enter a description for the ID. This is an optional field.
7. Check the Read/Write option.

The Process ID screen appears with the ID name, processing mode, and reporting currency displayed in the title bar.

The screenshot shows a window titled "Risk Manager Process ID : SCENARIOBASED.ALL (Scenario-based) (USD)". The window has four tabs: "Calculation", "Input/Assumptions", "Process Mode", and "Audit". The "Input/Assumptions" tab is selected. The "Calculation Elements" section contains three checkboxes: "Market Value" (checked), "Gap" (unchecked), and "Transfer Pricing" (unchecked). The "Discount Rates ID" dropdown menu is set to "82001.ALL". The "Interest Rate Assumption" section has a "Forecast Rates ID" dropdown menu set to "1200 BP SHOCK.ALL". The "Functional Dimensions" section has four radio buttons: "Product" (selected), "Product/Organizational Unit", "Product/Currency", and "Product/Organizational Unit/Currency".

## Input Data for a Scenario-Based Process ID

Scenario-based processing generates output based on a set of user-defined forecast rate scenarios.

### Calculation Page

Click the Calculation tab for options:

Calculation	Input/Assumptions	Process Mode	Audit
<b>Calculation Elements</b>			
<input checked="" type="checkbox"/> Market Value			
Discount Rates ID	82001.ALL		
<input type="checkbox"/> Gap			
<input type="checkbox"/> Transfer Pricing			
<b>Interest Rate Assumption</b>			
Forecast Rates ID	1200 BP SHOCK.ALL		
<b>Functional Dimensions</b>			
<input checked="" type="radio"/> Product			
<input type="radio"/> Product/Organizational Unit			
<input type="radio"/> Product/Currency			
<input type="radio"/> Product/Organizational Unit/Currency			

## Calculation Elements

Define specific financial calculations.

**Market Value** Market values can be calculated for the as-of-date and other dates in the future. These forward dates are defined in the Configuration ID, and are shared with gap calculation. For more information on setting up dynamic start dates, see Chapter 6, "Configuration ID".

You must define a Discount Rates ID prior to generating Market Value results.

**Discount Rates ID** This ID defines the method for discounting projected cash flows in Risk Manager in a scenario-based process. For each leaf value, you can choose one of four different methods. These methods include:

- Spot Input
- Spot Interest Rate Code
- Forecast (Original Term)



- Forecast (Remaining Term)

For more information on discount rates, see [Chapter 9, "Discount Rates ID"](#)

**Gap** Select Gap to generate static and dynamic gap results. To use this option, you must first define dynamic start dates in the Configuration ID.

Gap profiles contain bucket-based runoff and reprice information. The information represents current position for static gap. For dynamic gap, it represents the balance sheet as of the dynamic gap date. A special set of financial elements is produced for gap.

**Transfer Pricing** During processing, the model tracks transfer rates and transfer pricing charges/credits on individual transactions. This information is aggregated, per leaf, as financial elements and written to the results tables. Examples of transfer pricing financial elements include:

- Beginning transfer rate
- Ending transfer rate
- Average transfer rate
- Transfer pricing charge/credit

### **Interest Rate Assumption**

Defines the interest rate environments.

**Forecast Rates ID** Forecasting assumptions on how interest rates rise or fall, based on history and forecasting calculations. Only Forecast Rates IDs with the same reporting currency as the Process ID appear. See [Chapter 11, "Forecast Rates ID"](#) for more information.

### **Functional Dimensions**

Defines the stratification of the financial output results.

**Product** Outputs results for each product, denominated in the reporting currency.

**Product/Organizational Unit** Outputs results for each combination of product and organizational unit, denominated in the reporting currency.

**Product/Currency** Outputs results for each combination of product and currency.

**Product/Organizational Unit/Currency** Outputs results for each combination of product, organizational unit, and currency.

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**Note:** When you select the organizational unit as an output dimension, new business (from the Forecast Balance ID, Pricing Margin ID and Maturity Strategy ID) cannot be modeled.

**Also note** that when you select the currency as an output dimension, you can also check Consolidate to Reporting Currency on the Process page to output results consolidated to the reporting currency.

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## Input/Assumptions Page

Click the Input/Assumptions tab for options:

Calculation	Input/Assumptions	Process Mode	Audit
<b>Instrument Tables</b>		<b>Filter ID Type</b>	
<ul style="list-style-type: none"> <li>Commercial Loan</li> <li>Consumer Loan</li> <li>Credit Cards</li> <li>Deposits</li> <li>Investments</li> <li>Mortgage Back Securities</li> <li>Mortgage Test Table</li> </ul>		<input type="text" value="&lt;None&gt;"/>	
<b>Leaf Characteristics ID</b>		<input type="text" value="1001_LEAFS.ALL"/>	
<b>Prepayment ID</b>		<input type="text" value="&lt;None&gt;"/>	
<b>Transaction Strategy ID</b>		<input type="text" value="&lt;None&gt;"/>	
<b>New Volume Activity</b>			
<b>Forecast Balance ID</b>		<input type="text" value="&lt;None&gt;"/>	
<b>Pricing Margin ID</b>		<input type="text" value="&lt;None&gt;"/>	
<b>Maturity Strategy ID</b>		<input type="text" value="&lt;None&gt;"/>	
<input type="checkbox"/> <b>Autobalancing</b>			
<b>Formula Leaves ID</b>		<input type="text" value="&lt;None&gt;"/>	

## Instrument Tables

Tables used to store account level information in the OFSA database.

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**Note:** In order to perform cash flow calculations, you must select at least some account-level data through instrument tables, new volume activity, or the Transaction Strategy ID.

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## Filter ID Type

Defines the type of filters to select a subset of the account level information contained in the instrument tables. The three filter types supported are data, group and tree filters.

## Filter ID

This ID is used to narrow the focus of your portfolio for processing.

## Leaf Characteristics ID

An ID used to define cash flow characteristics for specific products.

For more information, see Chapter 16, "Leaf Characteristics ID".

## Prepayment ID

With this function you can specify assumptions about prepayment rates for specific products. When a prepayment ID is selected within a Process ID, prepayment calculations are triggered. See [Chapter 17, "Prepayment ID"](#) for more information.

## Transaction Strategy ID

With this ID you can:

- Model instrument data not captured through the standard extract process.
- Assess impact on potential deals through what-if analysis.
- Balance your balance sheet when slight discrepancies exist.
- Test the impact of various hedging strategies that are integrated with basic scenario modeling assumptions.
- Add specific instrument records to a processing run without changing the actual instrument data.

A Tree Filter ID may be applied to select a subset of the new business defined in the Transaction Strategy ID. For more information, see [Chapter 22, "Transaction Strategy ID"](#).

### **New Volume Activity**

Defines the timing, pricing margin and balances of new business added into your portfolio.

**Forecast Balance ID** With this ID you can specify the volume of new activity generated for specific products, currencies, and modeling buckets. If you select a Forecast Balance ID, the output dimensions available (on the Calculation tab) are Product and Product/Currency. A Tree Filter ID may be applied to select a subset of the new business defined in the Forecast Balance ID. See [Chapter 10, "Forecast Balance ID"](#) for more information.

**Pricing Margin ID** Use this ID to indicate the pricing margin being added to an interest rate code for new business, during each modeling bucket.

Since pricing margins are defined bucket by bucket for each product and currency, the margin defined in bucket two can be different than that applied in bucket one. A set of Pricing Margin Assumptions for all products is called a Pricing Margin ID. See [Chapter 19, "Pricing Margin ID"](#) for more information.

**Maturity Strategy ID** Use this ID to define the original and amortization terms of new business added during each modeling bucket. Maturity Strategies are set at the product and currency level. See [Chapter 16, "Maturity Strategy ID"](#) for more information.

### **Autobalancing**

Use autobalancing to maintain a balanced balance sheet, and generate retained earnings, dividends and taxes. Product leaves used during the autobalancing process must be defined within the Configuration ID, including:

- Assets
- Liabilities Interest
- Retained Earnings
- Dividends
- Federal Tax
- State Tax

- Accumulated Translation Balance

If you do not completely define the required autobalancing leaves in the Configuration ID, an error message is generated during processing. For more information, see "[Autobalancing Leaves](#)" in [Chapter 6, "Configuration ID"](#)

### Formula Leaves ID

Use a Formula Leaves ID to model cash flow, gap, and market value results on a product leaf. These results can be new or can override system generated data. If you select a Formula Leaves ID, the only output dimension available (on the Calculation tab) is Product. A Tree Filter ID may be applied to select a subset of the calculations defined in the Formula Leaves ID. See [Chapter 13, "Formula Leaves ID"](#) for more information.

## Process Mode Page

Click the Process Mode tab for options:

Calculation	Input/Assumptions	Process Mode	Audit
<b>Location</b>			
<input type="radio"/> Client		<input checked="" type="radio"/> Server	
<b>Data Component</b>			
<input checked="" type="radio"/> Entire Process		<input type="radio"/> Selectively Reprocess	
<b>Reprocessing Components</b>			
<input type="checkbox"/> Current Position Data			
<input type="checkbox"/> New Business/Transaction Strategies			
<input type="checkbox"/> Autobalancing Accounts			
<input type="checkbox"/> Formula Leaves			
<b>Tree Filter ID for Reprocessing</b>		<input type="text" value="&lt;None&gt;"/>	
<b>Optional Table Output</b>			
<input type="checkbox"/> Transform Result Table		<input type="checkbox"/> Consolidate to Reporting Currency	

## **Location**

Defines the location of processing.

**Client** Client is a stand-alone personal computer with a range of features, capable of full processing functionality.

**Server** Server is a time-sharing architecture where processing takes place in a mainframe-type environment. The server is either a mainframe, or personal computer. Because a server is generally a more powerful system, processing usually occurs faster when using this architecture.

## **Data Component**

Defines the result sets to be calculated.

**Entire Process** All current positions, new business, autobalancing and formula leaves results are calculated.

**Selective Reprocess** With selective reprocessing you can run a subset of the process to replace invalid products and to add new products. With Selective Reprocess, the Reprocessing Components are enabled to selected components for reprocessing. When the Process ID is executed, the data in the result tables are not immediately deleted. The data for the selected subset is replaced, but the rest of the results remain intact.

## **Reprocessing Components**

You can specify the components to be selectively reprocessed. You can reprocess both a subset of the product leaves and a component within the process components. When two Tree Filter IDs are defined, the process uses the intersection of the two sets of leaves.

A Tree Filter ID is used to define which products require reprocessing. Note that the Tree Filter defined in the Selectively Reprocess section is in addition to any filters attached to the process. The filter defined in the main screen establishes the main criteria for what is processed within a Process ID. The Tree Filter within the Selectively Reprocess section determines the subset of the standard process to be recalculated in reprocess mode.

The order of processing is as follows:

- Current Position
- New Business/Transaction Strategies

- Autobalancing
- Formula Leaves

You cannot change the functional dimension when you selectively reprocess (an error message will result).

**Current Position** To replace current position results, select this option. Use a selective reprocessing tree filter to replace/add-to a subset of the current result product leaves.

**New Business/Transaction Strategies** Selective reprocessing on new business affects results processed from Transaction Strategies and Forecast Balance IDs.

**Autobalancing Accounts** After selective reprocessing changes the result set, the balance sheet should be re-balanced. By selecting this option, former autobalancing results are deleted and new results are recalculated and added to the result set.

**Formula Leaves** By selectively reprocessing Formula Leaves, the former Formula Leaf results are deleted and new results are added in their place.

**Tree Filter ID for Reprocessing** This is used to define which products require reprocessing.

### **Optional Table Output**

Defines additional output table for reporting.

**Transform Result Table** Use this option to transform the data into Oracle Discoverer tables. This option is only available with server processing.

**Consolidate to Reporting Currency** Use this option to output results consolidated to the reporting currency. This option is available when you select the Product/Currency or Product/Organizational Unit/Currency output dimension on the Calculation tab.

## **Audit Page**

Click the Audit tab for options:

Calculation	Input/Assumptions	Process Mode	Audit
<b>Financial Element Details</b>			
<input checked="" type="checkbox"/> Repricing Balance and Rates			
<input checked="" type="checkbox"/> Runoff Components			
<input checked="" type="checkbox"/> Tease, Cap, Floor and NGAM Details			
<input type="checkbox"/> Prepayment Rates and Runoff			
<input checked="" type="checkbox"/> New Origination Balance and Rates			
<b>Cash Flows</b>			
<input type="checkbox"/> Detail Cash Flow			
<b>Rates</b>			
<input type="checkbox"/> Forecast Rates			

### Financial Element Details

Financial Element Output selections determine the set of financial elements that are written to the results detail tables. If no selections are made, only the base set of financial elements are written. The selection of financial element details have no impact on calculations. It simply defines the detail of output.

Refer to the *Oracle Financial Services Technical Reference Manual* for details on which financial elements belong in each set.

**Repricing Balance and Rates** Provides information about repricing activity.

**Runoff Components** Provides information about scheduled principal payments.

**Prepayment Rates and Runoff** Provides information about prepayment activity.



**New Origination Balance and Rates** Provides information about forecasted new originations.

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**Note:** If no Financial Element Details are selected, only the base set of financial elements will be written even when there are repricing and prepayment events or new volume activity.

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## Cash Flows

Defines the cash flow to be written for auditing purposes.

**Detail Cash Flow** Select Detail Cash Flow option to record the cashflows and repricing events occurring for the first five records processed. For each record, daily results are written to the PROCESS\_CASH\_FLOWS table. The data in this table uses the RESULT\_SYS\_ID, which identifies the Process ID used.

For more information on interpreting results, see the *Oracle Financial Services Technical Reference Manual*.

## Rates

**Forecast Rates** Select Forecast Rates to write forecast exchange and interest rates to the following tables: OFSA\_EXCHANGE\_RATES\_AUDIT and OFSA\_INTEREST\_RATES\_AUDIT. See the *Oracle Financial Services Technical Reference Manual* for information on the table structures.

## Define a Process ID Using Scenario-Based Processing

To define a Scenario-based Process ID, complete the following steps:

1. Select Calculation page.
2. Select desired calculation elements: Market Value and Discount Rates ID, Gap and Transfer Pricing.
3. Select a Forecast Rates ID from the drop-down list. Because this is a required field, the selection defaults to the first ID in the list.
4. Under Functional Dimensions, click Product.
5. Select Input/Assumptions page.
6. Highlight one or more Instrument Tables to select current account level information.

7. Choose a Filtering Type from the drop-down list. The default Filtering Type is <None>.
8. Choose a Filter ID if you are using any Filtering Type other than <None>.
9. Select a Leaf Characteristics ID from the drop-down list. Since it is a required selection, the selection defaults to the first ID on the list.
10. Select a Prepayment ID if desired.
11. Select a Transaction Strategy ID if desired.
12. Select a Forecast Balance ID if desired. Your selection will enable Pricing Margin ID and Maturity Strategy ID.
  - a. Select a Pricing Margin ID.
  - b. Select a Maturity Strategy ID.
13. Choose Autobalancing if desired.
14. Select a Formula Leaves ID if desired.
15. Select Process Mode page.
16. Choose either Client or Server in the Location section. The default location is Server.
17. Choose either Entire Process or Selectively Reprocess in the Data Component section. The default component is Entire Process.
  - a. Select Reprocessing Components if Selectively Reprocess is chosen.
  - b. Select Tree Filter ID for Reprocessing if desired.
18. Choose Transform Result Table if you want to output transformed table under server processing.
19. Select Audit page.
20. Select the Financial Element Details if desired. If none is chosen, only the basic set of financial elements will be written into the result detail table.
21. Choose Detail Cash Flow if desired.
22. From the File menu, select Save.

## Example of Creating a Scenario-Based Process ID

The following is an example on how to define a Scenario-based Process ID for Market Value and Transfer Pricing Calculations with new business and prepayment

assumptions. The calculations are set up to process on a subset of the data from Instrument Tables.

In the Process ID window, do the following:

1. Select the Calculation page.
2. Check the Market Value box. The Discount Rates ID will be enabled at this point. Select "TREASURY CURVE" Discount Rates ID from the drop-down list.
3. Check the Transfer Pricing box.
4. Select "UP 500 BASIS" Forecast Rates ID from the drop-down list.
5. Under Functional Dimensions, click Product.
6. Select the Input/Assumptions page.
7. Select "Mortgages" Instrument Table.
8. Select Filter ID Type, "Data Filter", from the drop-down list
9. Select Filter ID, "FIXED RATE MTG".
10. Select "BASE LINE" Leaf Characteristics ID.
11. Select "PSA" Prepayment ID.
12. Select "NEW MTG PROD" Forecast Balance ID from the drop-down list.
13. Select "BASIC MARGIN" Pricing Margin ID.
14. Select "LONG TERM MTG" Maturity Strategy ID.
15. Select the Process Mode page.
16. Select Client radio button. This performs calculations on your PC instead of the server. The default is server.
17. Select Entire Process radio button. This is the default when creating a new Process ID.
18. Select the Audit page.
19. Check the Prepayment Rates and Runoff box. This generates detail prepayment financial output.
20. Check the New Origination Balance and Rates box. This generates detail new volume activity financial output.
21. From the File menu, select Save.

## Input Data for a Stochastic Process ID

Stochastic Processing differs from Scenario-Based Processing in that it generates Earnings, Market Value and Value at Risk by Monte Carlo simulations. Rates scenarios are generated based on a Term Structure model, which describes how the interest rate curve changes over time. Before instrument records are processed, balance and payment fields are first translated to the reporting currency, and then reported in the reporting currency.

### Calculation Page

Click the Calculation tab for options:

Calculation	Input/Assumptions	Process Mode	Audit
<b>Calculation Elements</b>			
<input checked="" type="checkbox"/> Earnings at Risk			
<input type="checkbox"/> Market Value			
<input checked="" type="checkbox"/> Value at Risk		At Risk Period	2 Months
<b>Stochastic Processing Parameters</b>			
Valuation Curve		Treasury Yield Curve	
Term Structure Model		Extended Vasicek	
Smoothing Method		Cubic Spline of Yields	
Rate Index ID		RATEINDEX.ALL	
Number of Rate Paths		100	
<b>Random Number Generation Method</b>			
<input checked="" type="radio"/> Low Discrepancy Sequences		<input type="radio"/> Pseudo Random Sequences	

## Calculation Elements

Defines processing of a specific financial calculation.

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**Note:** To run Monte Carlo simulations, you must select at least one of the calculation elements: Earnings at Risk, Market Value or Value at Risk.

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**Earnings at Risk** Earnings at Risk uses the Monte Carlo rate generator to generate a series of rate paths which is applied to instrument records to produce earning forecasts. This option writes out two standard result sets: average leaf earnings and average total portfolio earnings. Average leaf earnings is written out to EAR\_LEAF\_AVG\_xxx whereas average total portfolio earnings is written out to EAR\_TOTAL\_AVG\_xxx with xxx denoting the system id number of the process.

**Market Value** Market Value is calculated per rate scenario for each Product Leaf. The result Market Value is the total Market Value over number of rate paths per Product Leaf. The results are stored in TM Stochastic Market Value.

**Value at Risk** Value at Risk measures the probability of changes in value of the current position data, occurring over specified time horizons, displayed in the interface as the At Risk period.

When the users selects the Value at Risk calculation option in a process ID and subsequently run that ID, the software will in addition to calculating the current market value, calculate the change in market value for each rate path and rank these changes in market value for each product leaf and for the entire balance sheet. These results are stored in two tables: TM Stochastic Value at Risk and TM Stochastic Total VAR.

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**Note:** When Value at Risk is selected, market value is also written to TM Stochastic Market Value table.

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**At Risk Period** The At-Risk period defines the time period over which changes in market value are calculated.

## Stochastic Processing Parameters

You define the term structure model used for rate path simulations.

**Valuation Curve** For the valuation curve, select the best proxy of the risk-free yield curve. The best candidate is a government bond curve since governments do not usually default on their debt. Only IRCs associated with the reporting currency of the Process ID will appear.

**Term Structure Model** A term structure model is used to describe how risk-free rates will evolve over time. Each term structure model forecasts either the real interest rate or the risk-neutral rate. Models that forecast risk-neutral rates are called no-arbitrage models. The following models are available:

- Merton—real interest rate model
- Ho and Lee—no arbitrage model
- Vasicek—real interest rate model
- Extended Vasicek— no arbitrage model

See the *Oracle Financial Services Technical Reference Manual* for more information on term structure models.

**Smoothing Method** Smoothing is the drawing of a smooth, continuous line through observable market data points. Because there are an infinite number of these lines passing through a given set of points, additional criteria must be added to the smoothing process to achieve the desired term structure. The following methods are available:

- Cubic Spline of Yields
- Linear Interpolation

A cubic spline is a series of third degree polynomials that have the form:

$$y = a + bx + cx^2 + dx^3$$

These polynomials are used to connect the dots formed by observable data. The polynomials are constrained so they fit together smoothly at each knot point (the observable data point.) This means that the slope and the rate of change in the slope with respect to time to maturity have to be equal for each polynomial at the knot point where they join. If this is not true, there is a kink in the yield curve and they are continuous but not differentiable.

Two more constraints make the cubic spline curve unique. The first restricts the zero-maturity yield to equal the 1-day interest rate. The second restricts the yield curve at the longest maturity to be either straight ( $y''=0$ ) or flat ( $y'=0$ ).

The cubic spline method also extrapolates the original yield curve outside its domain of definition. The resulting smoothed yield curve is constant and equal to the:

- First term yield for  $T \leq$  first term
- Last term yield for  $T \geq$  last term

Linear interpolation uses linear yield curve smoothing. Linear yield curves are continuous but not smooth; at each knot point there is a kink in the yield curve. You may not want to use a linear yield curve with a model that assumes the existence of a continuous forward rate curve, due to the nonlinear and discontinuous knot points of a linear yield curve.

**Rate Index ID** A Rate Index ID establishes a relationship between the risk-free rates and other interest rate indices. For more information, see [Chapter 21, "Rate Index ID"](#).

**Number of Rate Paths** The number of rate paths specifies the number of Monte Carlo simulations to execute. The valid range is from 1 to 2000. The default is 200.

### Random Number Generation Method

To run Monte Carlo simulations, you must specify the random number generator algorithm for the rate path generation.

**Low Discrepancy Sequences** Low-discrepancy sequences, also known as quasi-random sequences, are designed to prevent clustering of generated numbers; this results in achieving better accuracy than pseudo-random sequences when applied to numerical problems; integration in high dimensions, and so on.

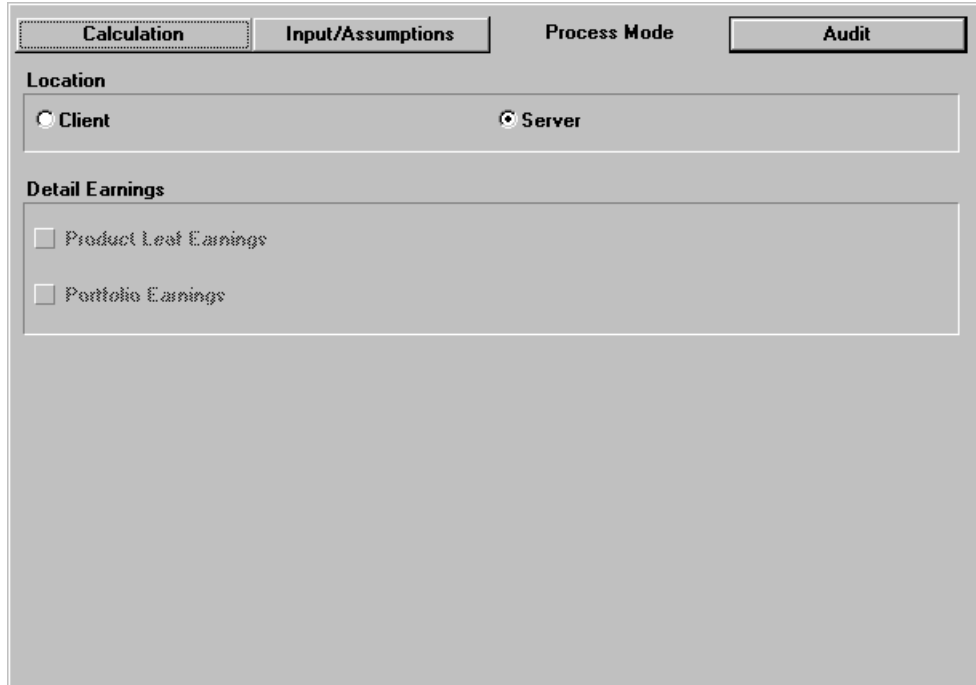
**Pseudo Random Sequences** Pseudo Random sequences are the traditional random numbers generated by most compilers. They are designed to do well on some statistical tests: low autocorrelation, high period before the sequence repeats itself.

## Input/Assumptions Page

The Input/Assumptions options for stochastic processing are the same as for scenario-based processing, with the following exception: Autobalancing is available in stochastic processing only when you select Earnings at Risk on the Calculation page. See ["Input/Assumptions Page"](#) under ["Input Data for a Scenario-Based Process ID"](#) in this chapter.

## Process Mode Page

Click the Process Mode tab for options:



The screenshot shows a web interface with four tabs: Calculation, Input/Assumptions, Process Mode, and Audit. The Process Mode tab is selected. Below the tabs, there are two sections. The first section, titled 'Location', contains two radio buttons: 'Client' and 'Server'. The 'Server' radio button is selected. The second section, titled 'Detail Earnings', contains two checkboxes: 'Product Leaf Earnings' and 'Portfolio Earnings'. Both checkboxes are unselected.

### Location

Defines the location of processing.

**Client** Client is a stand-alone personal computer with a range of features, capable of full processing functionality.

**Server** Server is a time-sharing architecture where processing takes place in a mainframe-type environment. The server is either a mainframe, or personal computer. Because a server is generally a more powerful system, processing usually occurs faster when using this architecture.

### Detail Earnings

Option to write detail earnings results for each rate path. This option is only available when Earnings at Risk is chosen in the Calculation page.



**Product Leaf Earnings** Output detail earning calculations for each rate path simulation per product. Results are written to EAR\_LEAF\_DTL\_XXX where XXX is the system id number of the process.

**Portfolio Earnings** Outputs detail earning calculations for each rate path simulation for the total portfolio. Results are written to EAR\_TOTAL\_DTL\_XXX where XXX is the system id number of the process.

## Audit Page

Click the Audit tab for options:

Calculation	Input/Assumptions	Process Mode	Audit
<b>Cash Flows</b>			
<input type="checkbox"/> Detail Cash Flow			
<b>Rates</b>			
<input type="checkbox"/> 1 Month Rates			

### Cash Flows

Defines the cash flow to be written for auditing purposes.

**Detail Cash Flow** Select Detail Cash Flow option to record the cashflows and repricing events occurring for the first five records processed. For each record, daily results are written to the PROCESS\_CASH\_FLOWS table. The data in this table uses

the `RESULT_SYS_ID`, which identifies the Process ID used. For more information on interpreting results, see the *Oracle Financial Services Technical Reference Manual*.

## Rates

Defines rates to be written during the Monte Carlo simulation for auditing purposes.

**1-Month Rates** Select this option to view the rate paths generated during the stochastic processing run. When selected, 360 monthly rates are output to the TM Stochastic Rates table, for each rate path.

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**Note:** This process can be extremely time consuming and database space intensive when processing large numbers of rate paths.

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## Define a Process ID Using Stochastic Processing

To define a Scenario-based Process ID, complete the following steps:

1. Select Calculation page.
2. Choose the Calculation Elements that need to be executed. The available choices are Earnings at Risk, Market Value and Value at Risk.
  - a. If Value at Risk is chosen, you must input at Risk Period. Input the At Risk Period by entering a period and use the drop-down list to select a period definition of either days, months, or years.
3. Select a Valuation Curve in the drop-down list. Because this is a required field, the selection defaults to the first Valuation Curve in the list.
4. Select a Term Structure ID in the drop-down list. Because this is a required field, the selection defaults to the first ID in the list.
5. Select a Rate Index ID in the drop-down list. Because this a required field, the selection defaults to the first ID in the list.
6. Enter a valid number in Number of Rate Paths by typing in a number or clicking the spinner. The valid range for Number of Rate Paths is 1 to 2000. The default is 200.
7. Choose a Random Number Generation Method. The default is Low Discrepancy Sequences.
8. Select the Input/Assumptions page.

9. Highlight one or more Instrument Tables to select current account-level information.
10. Choose a Filtering Type from the drop-down list. The default Filtering Type is <None>.
11. Choose a Filter ID if you are using any Filtering Type other than <None>.
12. Select a Leaf Characteristics ID from the drop-down list. Because it is a required selection, the selection defaults to the first ID on the list.
13. Select a Prepayment ID if desired.
14. Select a Transaction Strategy ID if desired.
15. Select a Forecast Balance ID if desired. Your selection will enable Pricing Margin ID and Maturity Strategy ID.
  - a. Select a Pricing Margin ID.
  - b. Select a Maturity Strategy ID.
16. Choose Autobalancing if desired.
17. Select Process Mode page.
18. Choose either Client or Server in the Processing Location section.
19. Choose Detail Earnings options if Earnings at Risk is selected in the Calculation page.
20. Select Audit page.
21. Select Detail Cash Flow if desired.
22. Select 1 Month Rates. Note that the processing of this option may be time consuming and database space intensive.
23. From the File menu, select Save.

## Example of Creating a Stochastic Process ID

The following exemplifies how to define a Stochastic Process ID for Earnings at Risk and Value at Risk Calculations with prepayment assumptions. The calculations are set up to process on a subset of the data from Instrument Tables.

After you create a Process ID with Stochastic Process Mode, do the following:

1. Select the Calculation page.
2. Check the Earnings at Risk box.

3. Check the Value at Risk box. The At Risk Period will be enabled at this point.
4. Input 2 months as the At Risk Period.
5. Select "Risk Free Curve" as the Valuation Curve from the drop-down list.
6. Select "EXT VASICEK" as Term Structure ID from the drop-down list.
7. Select "BASE RATE INDEX" Rate Index ID from the drop-down list.
8. Input 100 as the Number of Rate Paths.
9. Choose Low Discrepancy Sequences a Random Number Generation Method. Default is Low Discrepancy Sequences.
10. Select the Input/Assumptions page.
11. Select "Mortgages" Instrument Table.
12. Select Filter ID Type, "Data Filter", from the drop-down list
13. Select Filter ID, "ADJ RATE MTG".
14. Select "BASE LINE" Leaf Characteristics ID.
15. Select "PSA" Prepayment ID.
16. Select the Process Mode page.
17. Select Client. This will perform calculations on your PC instead of the server. Default is server.
18. Select Portfolio Earnings. This will output detail earnings for the total portfolio per rate path simulation.
19. Select Audit page.
20. Choose Detail Cash Flow. This will output detail cash flow for auditing purposes.
21. From the File menu, select Save.

## Running a Process ID

To run a Process ID, complete the following steps:

1. Choose Process/Run from the file menu.
2. Choose OK to continue or Cancel to exit the dialog without processing.

## The Processing Status Dialog

During a client run of a Risk Manager Process, the Processing Status dialog appears. This dialog resets the counter for each type of operation performed and tracks the progress of all the steps performed during a Risk Manager Process. The final screen displays the Total Processing Errors as well as the Total number of records processed.

For a server run of a Risk Manager Process, the Processing Status is displayed in the Server Status Update window. The status of the process inserts a row with the Process ID name in the Job Description column. A number of status is updated during and after the execution of the process. For more information see "[Server Status](#)" in [Chapter 4, "Overview of IDs"](#).



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## Rate Index ID

The purpose of the Rate Index ID is to establish a relationship between your risk-free interest rate codes (IRCs) and each of the other interest rate codes or indices. With this relationship established, you can forecast rates on any instrument tied to an IRC and as the risk-free rates change, the change in non risk-free interest rates will follow accordingly.

Examples of non risk-free interest rate codes are:

- Prime
- Libor
- Administered rates
- 11th District COFI

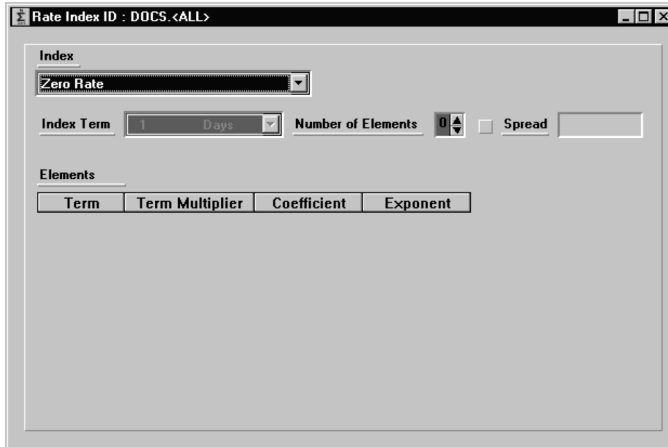
The Rate Index ID is used only in stochastic processing. See the *Oracle Financial Services Technical Reference Manual* for information on Monte Carlo calculations and risk-free rate calculations.

### Creating a Rate Index ID

To create a new Rate Index ID, complete the following steps:

1. From the File menu, select New -> Rate Index ID.
2. Select a folder.
3. Enter a descriptive name for the ID.
4. Enter a description for the ID. This is an optional field.
5. Click Read/Write.
6. Click OK.

The Rate Index ID screen appears with the name of the ID shown on the top of the screen.



## Defining a Rate Index ID

A formula must be defined for each index tied to an instrument. That formula takes the following form:

$$\text{Index Rate}_{\text{term } m} = K_1 \text{ Risk Free Rate}_1^{x1} + K_2 \text{ Risk Free Rate}_2^{x2} + \dots + K_8 \text{ Risk Free Rate}_8^{x8} + \text{Spread}$$

To create your formula, you can select up to eight terms (elements) from the Risk Free curve, each multiplied by a user-defined coefficient and raised to the power of a user-defined exponent. Additionally, you can add a constant spread to the formula. It is not necessary to define any assumptions for the risk free curve. Any definition for this curve is ignored and does not affect processing.

Each of the elements you define consist of:

- A coefficient - A multiplier to weight each term selection.
- An exponent - An exponent to allow for polynomial curve-fitting.
- A term selection - a selection of rates associated with a term from the risk-free curve.

These elements define different rate forecast generated for each instrument, with a given IRC.

To define a Rate Index ID, complete the following steps:



1. Select an interest rate code. If the IRC chosen has term options available, the Index Term field is activated. If there are no terms associated with the IRC, the field is static.
2. If applicable, select an Index Term.
3. If you want to add a spread to the results of the term elements:
  - a. Click the check mark in the box next to the word Spread.
  - b. Enter a spread for the element. A spread is a firm and constant percentage added to the variable rate produced on the Monte Carlo calculations.

You can apply one Spread percentage for each element.
4. Type the number of elements to apply to the IRC. As you increase the number of elements, the rows in the table appears as shown in the following example.

The screenshot shows a window titled "Rate Index ID : DOC.<ALL>". Inside, there is a section for "Index" with a dropdown menu set to "Treasury Index". Below this, there are fields for "Index Term" (set to "1 Months"), "Number of Elements" (set to "5"), and a "Spread" checkbox (checked) with a value of "0.0000".

Below the "Index" section is an "Elements" section containing a table with the following data:

Term	Term Multiplier	Coefficient	Exponent
1 Days	▼	0.0000	1
1 Days	▼	0.0000	1
1 Days	▼	0.0000	1
1 Days	▼	0.0000	1
1 Days	▼	0.0000	1

5. In the Elements table, type a Term for the first element.
6. Select a Term Multiplier. Term multipliers include days, months and years.
7. Type a coefficient.
8. Type an exponent.
9. Complete steps 5–8 for the remaining elements.
10. From the File menu, select Save.

## Example: A Defined IRC

The screenshot shows a software window titled "Prepayment Table ID : DOCS.<ALL>". It has a "Table Dimensions" section with three rows: "Row" set to "Coupon Rate", "Column" set to "Original Term (Months)", and "Page" set to "Rate Difference". Each row has an "Edit Dimension" button. Below this is a "Select Page to View" section with a list of pages (1, 2, 3, 4) and their corresponding values: -1.0000, -0.5000, 0.5000, and 1.0000. To the right is an "Enter Prepay Rates" section with a grid of values for terms 12, 24, 36, and 48 months across four rows. The first row is empty, and the subsequent three rows contain values: 6.5000, 7.0000, 7.5000, and 8.0000 for the first column, and 1.0000 for the other columns.

Select Page to View		Enter Prepay Rates				
Page	Value	12	24	36	48	
1	-1.0000					
2	-0.5000	6.5000	1.0000	1.0000	1.0000	1.0000
3	0.5000	7.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	7.5000	1.0000	1.0000	1.0000	1.0000
		8.0000	1.0000	1.0000	1.0000	1.0000

In this example, the IRC is defined as follows:

1. The IRC (Index) chosen is Prime Index.
2. Three Elements have been added to the current As-of-Date.
3. An additional Spread percentage of 2.5% is added to the derived rate.
4. The forecasted rate calculations are multiplied, respective of the three elements and displays as:
 
$$\text{Prime} = 0.25 * (1 \text{ month rate}) + .50 * (6 \text{ month rate}) + 0.25 * (12 \text{ month rate}) + 2.5\%.$$
5. From the File menu, select Save.

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## Transaction Strategy ID

With the Transaction Strategy ID you can test the impact of various hedging strategies that are integrated with basic scenario modeling assumptions. This supports you in testing alternative strategies and their incremental impact on results. The testing is facilitated by the separation of transaction strategies from basic scenario assumptions. You can also use this ID to add specific instrument records to a processing run without changing the actual instrument data.

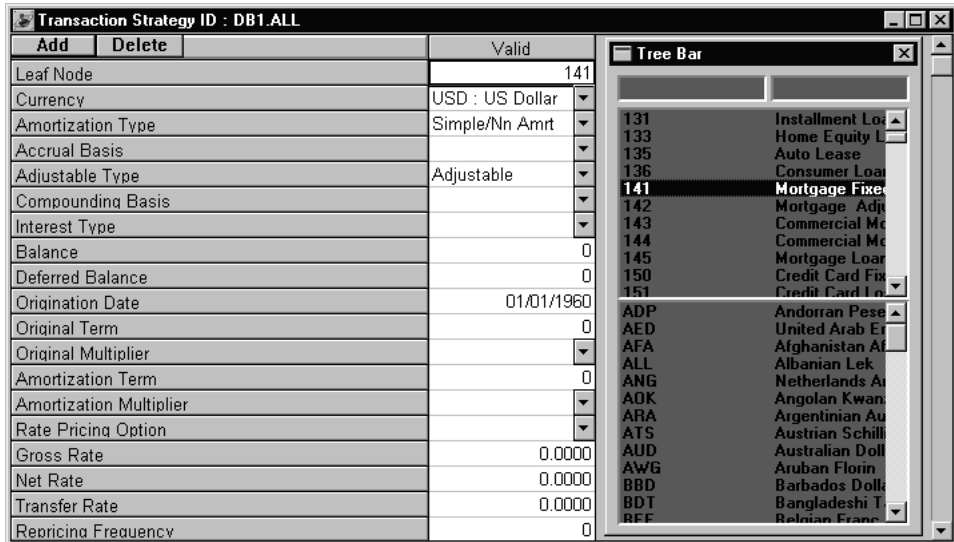
A transaction is either positive or negative and can be defined for any leaf value. A Transaction Strategy ID is made up of any number of individual transactions.

### Creating a Transaction Strategy ID

To create a new Transaction Strategy ID, complete the following steps:

1. From the File menu, select New -> Transaction Strategy ID.
2. Select a folder.
3. Type a descriptive name for the ID.
4. Type a description for the ID. This is an optional field.
5. Click Read/Write.
6. Click OK.

The Transaction Strategy ID and tree bar appear.



7. Type values and select options as described in "Setting up a Transaction Strategy" this chapter.
8. From the file menu, select Save.

## Setting up a Transaction Strategy

To add a new transaction or instrument record to the ID, click the Add button. A new column will appear in the Transaction Strategy ID. To delete a transaction or instrument record, click the top portion of the Transaction column you want to delete; then click the Delete button.

Once you add a new Transaction column by clicking the Add button, position the cursor in that column. Double-Click the specified product leaf value in the product section of the Tree Bar to add a transaction. The currency code defaults to the highlighted currency code from the currency section in the lower half of the Tree Bar. The product leaf value appears in the Leaf Node row in the new column. The currency code value appears in the Currency row in the new column.

As an alternative approach for product selection, type the code value of the product in the Leaf Node cell at the top of the newly added column. You can update the currency code as well, by highlighting the cell and selecting from one of the active currencies in the drop-down list.

All fields in the white boxes are mandatory fields and must be populated. The gray boxes cannot be edited.

The values are populated with the default settings from the corresponding leaf in the Leaf Characteristics ID defined in the active Configuration ID. You can then modify any of the settings.

You can add as many transactions for any leaf value as you wish.

## Relationship Triggers

When input of a particular characteristic is unnecessary as a result of characteristics in other fields, the unnecessary field is disabled. The following table describes those relationships.

Leaf Charac.	Trans. Strat.	Field	Value	Behavior
YES	YES	Amortization Type Code	Conv. Fixed, Conv. Adjust., Adjst/Ng Amrt	Always interest in arrears, therefore disables Interest Type.
YES	YES	Amortization Type Code	Conv. Fixed, Rule-of-78's	No repricing occurs, therefore disables repricing characteristics, e.g., Adjustable Type Code Repricing Frequency and Multiplier Tease Period Freq. and Multiplier Tease Discount Rate Set Lag Freq. and Multiplier Minimum Rate Change Rate Cap Life Rate Floor Life Rate Increase Period and Life Rate Decrease Period and Life Rate Change Round Type & Percent Negative Amortization fields (only enabled for Adjst/Ng Amrt--see below)

<b>Leaf Charac.</b>	<b>Trans. Strat.</b>	<b>Field</b>	<b>Value</b>	<b>Behavior</b>
YES	YES	Amortization Type Code	Adjst/Ng Amrt	Enables Negative Amortization fields: Payment Change Freq. & Multiplier Payment Increase Period & Life Payment Decrease Period & Life Neg. Am. Eq. Frq., Mult., & Limit
YES	YES	Amortization Type Code	Any User-Defined Payment Pattern	Payment Frequency is defined in Pattern, therefore disables Payment Frequency and Multiplier in this ID
YES	YES	Adjustable Type Code	Fixed, Floating, or any User-Defined Repricing Pattern	Repricing Frequency is not applicable, or it is defined elsewhere, therefore disables Repricing Frequency and Multiplier
YES	YES	Adjustable Type Code	Any User-Defined Repricing Pattern	Several of the repricing characteristics are defined elsewhere, therefore they are disabled in this ID (e.g., Interest Rate Code, Transfer Rate Interest Rate Code, etc.). Only periodic increase and decrease, rate change minimum, and rounding are enabled
NO	YES	Adjustable Type Code	Any User-Defined Repricing Pattern	Disables Rate Pricing Option
YES	YES	Repricing Frequency	0	No repricing occurs, therefore disables repricing characteristics (listed above under "Amortization Type Code ... Conv. Fixed")
YES	NO	Model with Gross Rates	Off	Net Margin Flag options are only necessary when modeling with different gross and net rates, therefore disables Net Margin Flag
YES	YES	Rate Change Rounding Type	"No Rounding" or "Truncate"	Rounding does not apply, therefore disables Rate Change Rounding Percent

Leaf Charac.	Trans. Strat.	Field	Value	Behavior
NO	YES	Rate Pricing Option (when active)	Assign during processing	Disables direct input Rate fields (net, gross, and transfer rate)
YES	YES	Currency		Allows display of Interest Rate Codes and Transfer Rate Interest Rate Codes for which the selected currency is the reference currency. In Leaf Characteristics, Default Currency ('000') allows all Interest Rate Codes, regardless of currency

For more details on using the cash flow columns, see "[Transaction Strategy Fields](#)" in this chapter.

## Transaction Strategy Fields

The following fields are used in the Transaction Strategy ID.

Field	Description
<b>ACCRUAL BASIS</b>	<p>The basis on which the interest accrual on an account is calculated. The choices are as follows:</p> <ul style="list-style-type: none"> <li>▪ 30/360</li> <li>▪ Actual/360</li> <li>▪ Actual/Actual</li> <li>▪ 30/365</li> <li>▪ 30/Actual</li> <li>▪ Actual/365</li> </ul>
<b>ADJUSTABLE TYPE</b>	<p>Determines the repricing characteristics of the new business record. The choices consist of all standard OFSA codes and all additional user-defined repricing patterns created through the Repricing Pattern interface. The standard OFSA codes are as follows:</p> <ul style="list-style-type: none"> <li>▪ Fixed</li> <li>▪ Floating</li> <li>▪ Adjustable</li> </ul>

<b>Field</b>	<b>Description</b>
<b>AMORTIZATION TERM</b>	Term upon which amortization is based. Units specified by amortization multiplier.
<b>AMORTIZATION MULTIPLIER</b>	Units (days, months, years) in which Amortization Term is specified.
<b>AMORTIZATION TYPE</b>	Method of amortizing principal and interest. The choices consist of all standard OFSA codes and all additional user-defined codes created through the Payment Pattern interface. The standard OFSA codes are the following: <ul style="list-style-type: none"> <li>▪ Conventional Fixed</li> <li>▪ Conventional Adjustable</li> <li>▪ Adjustable Negative Amortization</li> <li>▪ Non-Amortizing</li> <li>▪ Rule of 78's</li> <li>▪ Level Principal</li> </ul>
<b>BALANCE</b>	Represents either the originating balance for transaction strategy records originating in the future, or the current balance for transaction strategy records representing already originated accounts. If the origination date is in the past, the current balances are from the as-of date.
<b>COMPOUNDING BASIS</b>	Determines the number of compounding periods per payment period. The choices are the following: <ul style="list-style-type: none"> <li>▪ Daily</li> <li>▪ Monthly</li> <li>▪ Quarterly</li> <li>▪ Semi-Annual</li> <li>▪ Yearly</li> <li>▪ Continuous</li> <li>▪ Simple</li> <li>▪ At Maturity</li> </ul>
<b>CURRENCY</b>	Currency of the instrument.
<b>DEFERRED BALANCE</b>	Current Unamortized Deferred Balance associated with Instrument (i.e. Premium, Discount, Fees, etc.)
<b>GROSS MARGIN</b>	Contractual spread over interest rate code used in calculation of gross rate.



<b>Field</b>	<b>Description</b>
<b>GROSS RATE</b>	Gross rate on the instrument. (i.e. paid by the customer).
<b>NET RATE</b>	Nominal interest rate on instrument owed to, or paid by, the financial institution.
<b>TRANSFER RATE</b>	The associated transfer rate for the account.
<b>ORIGINAL TERM</b>	Contractual term at origination date.
<b>ORIGINAL MULTIPLIER</b>	Units (days, months, or years) of Original term.
<b>ORIGINATION DATE</b>	The date of the origination for the transaction account. This day may be in the future or the past.
<b>INTEREST TYPE</b>	<p>Determines whether interest is calculated in arrears or advance. There are two interest types:</p> <ul style="list-style-type: none"> <li>■ Interest in Arrears</li> <li>■ Interest in Advance</li> </ul> <p>For conventional amortization products, interest in arrears is the only valid choice.</p>
<b>INTEREST RATE CODE</b>	Defines the pricing index to which interest rate is contractually tied. The interest rate codes that appear as a selection option depend on the choice of currency. The interest rate code list is restricted to codes which have the selected currency as the reference currency.
<b>MINIMUM RATE CHANGE</b>	The minimum required change in rate on a repricing.
<b>NEGATIVE AMORTIZATION EQUALIZATION FREQUENCY</b>	Frequency at which current payment necessary to fully amortize the instrument is re-computed.
<b>NEGATIVE AMORTIZATION EQUALIZATION MULTIPLIER</b>	Units (days, months, or years) of negative amortization equalization multiplier.
<b>NEGATIVE AMORTIZATION EQUALIZATION LIMIT</b>	Maximum negative amortization allowed, as a percent of original balance. For example, if principal balance exceeds 125% of original balance, the column will equal 125.0.
<b>NET MARGIN</b>	The contractual margin over the interest rate code used in computing net rate. Gross margin minus any fees.

<b>Field</b>	<b>Description</b>
<b>NET MARGIN FLAG</b>	The setting of the net margin flag affects the calculation of net rate. The two settings are: <ul style="list-style-type: none"> <li>■ Floating Net Rate - the net rate reprices in conjunction with the gross rate, at a value net of fees.</li> <li>■ Fixed Net Rate - the net rate equals a fixed fee equal to the net margin.</li> </ul>
<b>PAYMENT CHANGE FREQUENCY</b>	The frequency at which the payment amount is recalculated for adjustable negative amortization instruments.
<b>PAYMENT CHANGE MULTIPLIER</b>	Units (days, months or years) of payment change frequency.
<b>PAYMENT DECREASE - PERIOD</b>	Maximum payment decrease allowed during a payment change cycle of a negative amortization instrument.
<b>PAYMENT DECREASE - LIFE</b>	Maximum payment decrease allowed during life of a negative amortization instrument.
<b>PAYMENT FREQUENCY</b>	Frequency of payment (P&I, Interest or Principal). For bullet instruments, use zero.
<b>PAYMENT MULTIPLIER</b>	Units (days, months or years) of payment frequency.
<b>PAYMENT INCREASE PERIOD</b>	Payment Increase Periods: Maximum payment increase allowed during a payment change cycle on a negative amortization instrument.
<b>PAYMENT INCREASE LIFE</b>	Maximum payment increase allowed during the life of a negative amortization instrument.
<b>RATE CAP LIFE</b>	Maximum rate allowed during life of the instrument.
<b>RATE CHANGE ROUNDING PERCENT</b>	Percent to which the rate change on an adjustable instrument is rounded.
<b>RATE CHANGE ROUNDING TYPE</b>	Method used for rounding of interest rate codes. The choices are as follows: no rounding, truncate, round up, round down, round nearest.
<b>RATE DECREASE PERIOD</b>	Maximum amount rate can decrease during the repricing period of an adjustable rate instrument.
<b>RATE DECREASE LIFE</b>	Maximum amount rate can decrease during the life of an adjustable rate instrument. Will be used to calculate the rate floor based on the forecasted rate scenario. If both rate decrease life and rate floor are defined, the process uses the more restrictive rate.

<b>Field</b>	<b>Description</b>
<b>RATE FLOOR LIFE</b>	Minimum rate for life of the instrument.
<b>RATE INCREASE PERIOD</b>	Maximum interest rate increase allowed during the cycle on an adjustable rate instrument.
<b>RATE INCREASE LIFE</b>	Maximum interest rate increase allowed during the life of an adjustable rate instrument. Will be used to calculate rate life based on forecasted rates scenario. If both rate increase life and rate cap are defined, the process uses the more restrictive rate.
<b>RATE PRICING OPTION</b>	<p>There are two Rate Pricing options: Direct Input and Assign During Processing.</p> <p><b>Direct Input</b></p> <ul style="list-style-type: none"> <li>The Direct Input option allows you to input rates for new business in the Transaction Strategy ID.</li> </ul> <p><b>Assign During Processing</b></p> <ul style="list-style-type: none"> <li>The Assign During Processing option uses the Origination Date and Interest Rate Code (IRC) specified in the Transaction Strategy and pulls the corresponding rate from the Forecast Rates ID; that is, it is priced dynamically during the simulation.</li> </ul>
<b>RATE SET LAG FREQUENCY</b>	Period by which the payment recalculation lags the date of the interest rate used for calculation.
<b>RATE SET LAG MULTIPLIER</b>	Units (days, months, or years) of rate set lag frequency.
<b>REPRICING FREQUENCY</b>	Contractual frequency of rate adjustment.
<b>REPRICING MULTIPLIER</b>	Units (days, months, or years) of repricing frequency.
<b>TEASE DISCOUNT</b>	The tease discount is used in conjunction with the original rate to calculate the tease rate.
<b>TEASE PERIOD FREQUENCY</b>	The tease period frequency is used to determine the length of tease period.
<b>TEASE PERIOD MULTIPLIER</b>	Units (days, months, or years) of tease period frequency.
<b>TRANSFER RATE INTEREST RATE CODE</b>	The interest rate code will be used to calculate the transfer rate for new business. The lists of interest rate codes is restricted to interest rate codes with the reference currency equivalent to the currency selected from the Tree Bar.

<b>Field</b>	<b>Description</b>
<b>TRANSFER RATE MARGIN</b>	The transfer rate margin is used in conjunction with the interest rate code to calculate a transfer rate for new business.

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## Transformation ID

Most tables in the Oracle Financial Data Manager (FDM) database are formatted for processing. Using your specifications, the Transformation ID restructures data from the processing tables and creates new tables for reporting and analysis. This new set of tables is called the Oracle Financial Data Manager Reporting Data Mart.

The Reporting Data Mart is a collection of tables within a database, optimized for use with reporting and analysis tools. It is created in the same database warehouse where the FDM processing data is stored. You can use the Reporting Data Mart with any reporting tool, without having to further manipulate your data. You can create, open, and edit the Transformation ID in any of the Oracle Financial Services (OFS) applications that use the Tree Rollup ID, including:

- Balance and Control
- Risk Manager
- Performance Analyzer

This chapter discusses the following topics:

- [The Transformation Process](#)
- [Creating a Transformation ID](#)
- [Defining a Transformation ID](#)

### The Transformation Process

As the transformation process extracts data from the processing tables and restructures it into the Reporting Data Mart, the Transformation ID maintains the integrity of the data. In addition, the Transformation ID stores other transformation specifications, such as:

- Which transformations are performed
- What tables are designated for transformation
- What parameters or special processing options to apply

## Pivoting

The Transformation ID uses two methods of pivoting to transform data:

- Financial Element
- Time Bucket

### Financial Element Pivot

For processing, financial elements are stored in the FDM database in separate rows. The Financial Element Pivot extracts the financial elements from the FDM database and pivots them into columns. Each financial element in the original table receives its own column in the reporting and analysis table.

### Time Bucket Pivot

A column exists for each time period in the FDM database. Reporting and analysis tools require that time periods exist as rows. The Time Bucket Pivot extracts the time periods from the FDM database and pivots them into rows.

The following tables require both the Financial Element and Time Bucket Pivots:

- Risk Manager Result Detail table (RES\_DTL\_XXX)
- Ledger Stat table (LEDGER\_STAT)

## Non-Pivot Transformations

Some Non-Pivot transformations perform filtering functions. Others run additional transformations on selected data. The Non-Pivot Transformations are:

- Dimension Filtering
- Data Filtering
- Rates

## Dimension Filtering

With Dimension Filtering, you can select dimensions to exclude. Only Leaf Type Columns are valid dimensions for exclusion. When dimensions are excluded, the Transformation ID:

1. Creates the output table without the columns for the selected dimensions, and
2. Performs a sum aggregation of the data based on the remaining leaf columns

## Data Filtering

With Data Filtering, you can specify the use of a filter on the input table. A filter limits the amounts of data for processing. If a filter is specified in the financial element column, then the output table is created with only those financial elements specified in the filter.

## Rates

There are two types of rates used during processing:

- **Weighted Rates**

Rates weighted with their associated balances are stored in the following tables:

- Ledger Stat
- Risk Manager Result

The transformation process leaves these rates weighted.

- **Non-Weighted Rates**

Real rates (non-weighted) cannot be aggregated unless they are weighted against a balance. These weighted rates are then saved to the output table.

Occasionally, non-weighted rate data is saved in the LEDGER\_STAT table. This rate data is primarily used with allocations. Reports are not generally created from these financial rate elements. The rate data is invalid for transformations that aggregate results from these financial elements. You should filter these financial elements using a data filter prior to running the Transformation ID.

## Tree Rollup

The transformation for rollups is different than for other tables. Before the transformation rollup, data is stored in different tables. One rollup is combined and stored in the output table. Each transformation creates a separate table in which only one rollup is placed. This output table is also referred to as a Hierarchy Table.

## Metadata and System Information Table

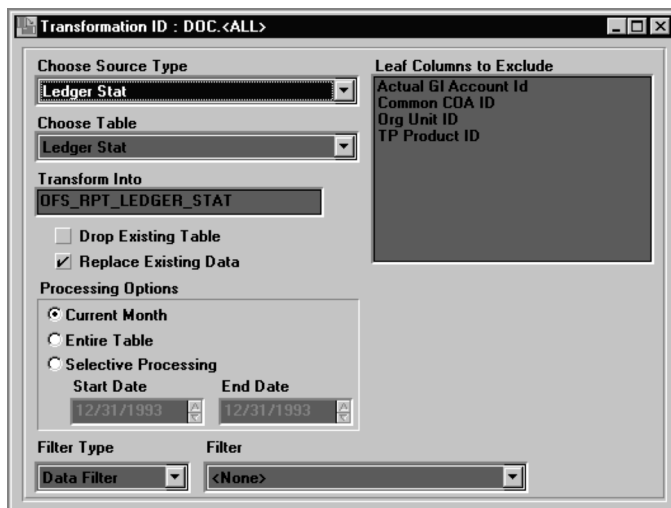
For each new table and column created during the transformation process, the Transformation ID inserts the appropriate rows into the FDM metadata tables to identify the new output table. The FDM metadata tables contain information for defining and tracking tables, columns, and other objects.

## Creating a Transformation ID

To create a new Transformation ID, complete the following steps:

1. Choose File -> New -> Transformation ID.  
The New Transformation ID dialog box appears.
2. Choose a folder.
3. Press the Tab key to move to the next field.
4. Enter a descriptive name in the Transformation ID field.
5. Enter a description for your ID in the Description field. This is an optional step.
6. Check the Read/Write option.
7. Choose OK.

The Transformation ID dialog box appears with the name of the ID displayed at the top.





## Defining a Transformation ID

The sources from which to process the Transformation ID are:

- Ledger Stat
- Risk Manager Result Detail
- Tree Rollup

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**Note:** The selection of tables available under Choose Source Types depends on which OFS products are installed.

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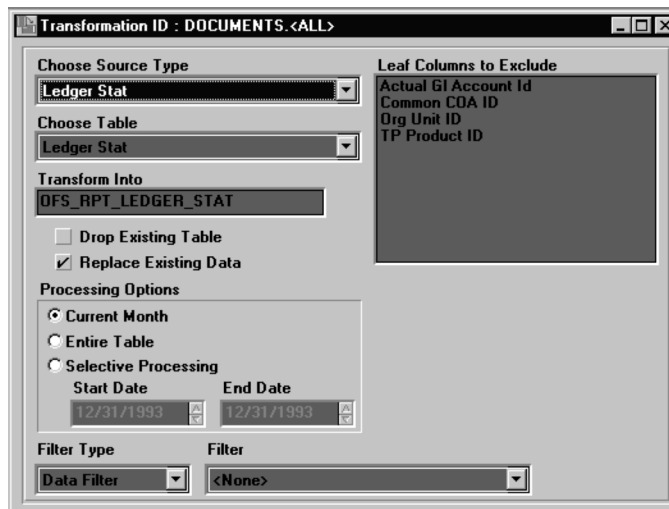
---

## Defining a Ledger Stat Transformation

The Ledger Stat Table stores General Ledger and statistical information.

To define a Transformation ID for a Ledger Stat table, complete the following steps:

1. Select Ledger Stat from the Choose Source Type list. Ledger Stat appears in the Choose Table field and the Ledger Stat dialog appears.




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**Note:** The Ledger Stat Table appears as the default setting.

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2. Modify the name of the output table in the Transform Into field to fit your requirements. This is an optional step.

You cannot use the following characters in the Transform Into field:

- , (comma)
- % (percent sign)
- " (quotes)
- . (period)

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**Note:** The maximum amount of characters you can enter in the Transform Into field is 26.

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The Transformation ID automatically calculates the storage parameters for the output table. These parameters can also be set manually by your database administrator. For more information on output tables, refer to the Transformation Output Table Creation section in the *Oracle Financial Services Installation and Configuration Guide*.

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**Note:** By default, only the primary key index is created when the output table is generated. For instructions on how to automatically create additional indexes on output tables, refer to the Transformation section in the *Oracle Financial Services Installation and Configuration Guide*.

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3. Check the The Drop Existing Table option to overwrite the existing output table.

The following tables explain processing variables, and the results of using them with the Drop Existing Table option:

IF	THEN
the Drop Existing Table Option is <b>checked</b> ,	any table with the same name that appears in the Transform Into field is dropped.

IF	AND	THEN
the Drop Existing Table option is <b>not checked</b> , and a valid table name appears in the Transform Into field,	either the Current Month or the Selective Processing option is <b>checked</b> ,	newly processed data is added into the existing Transform Into table.

IF	AND	THEN
the Drop Existing option is <b>not checked</b> ,	the Entire Table option is <b>checked</b> , and a table exists with the name specified in the Transform Into field,	the Transformation ID stops all processing.

4. Check the Replace Existing Data option to overwrite any previously created data. The following tables explain several processing variables and the results of using them with the Drop Existing Table option:

IF	THEN
the Entire Table Processing Option is checked,	the Replace Existing Data option is not available.

IF	AND	THEN
the Replace Existing Data option is <b>checked</b> ,	new data is being added to an existing table,	any previous data that has identical dates as the new data is replaced.
the Replace Existing Data option is <b>not checked</b> ,	new data is being added to an existing table, and any previous data has identical dates as the new data being added,	the Transformation ID stops all processing.

5. Select one of the following Processing Options:

- **Current Month**

This option processes the data for the Current Month. The As of Date in the Active Configuration ID specifies the Current Month.

- **Entire Table**

This option processes all records within the Ledger Stat Table.

- **Selective Reprocessing**

You can specify a range of dates for processing with this option.

6. Choose a Filtering Type from the list if you want to include a filter.

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**Note:** Filtering narrows the focus of processing to include specific assumptions you define. Three filters used by the Ledger Stat Table include: Data, Folder, and Tree. A list of previously created filter IDs is associated with each filter type.

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7. Choose an ID from the Filter list if you want to include a Filter ID.
8. Select the columns you want to exclude from processing in the Leaf Columns to Exclude field. All leaf columns within the Ledger Stat Table appear in the Leaf Columns to Exclude field. After you choose which columns to exclude, at least one column remains and cannot be selected.

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**Note:** Your filter cannot include any columns that are selected to be excluded during this step.

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The following table explains several processing variables that disable the Leaf Columns to Exclude field:

WHEN	IF	AND	THEN
the Transform Into Table already exists, and	the Drop Existing Table option is <b>not checked</b> ,	the Current Month or the Selective Processing option is selected,	the Leaf Columns to Exclude field cannot be changed.

## Risk Manager Result Detail Table

The Risk Manager Result Detail Table stores processing results from the Oracle Risk Manager product. To define a Risk Manager Result Detail Table, complete the following steps:

1. Select Risk Manager Result Detail from the Choose Source Type list. The Risk Manager Result Detail dialog appears.

2. Select a folder.
3. Select a leaf type from the Leaf Type list.
4. Select a Process ID from the list.
5. Modify the name of the output table in the Transform Into field to fit your requirements.

Depending on the type of information in the Result\_Detail Table, the output tables are appended with either of the following characters:

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_C	This table contains only the cash flow information (XXX_C).
_G	This table contains only the GAP information (XXX_G).
SC	This table contains only the aggregate cash flow information (XXXSC).
SG	This table contains only the aggregate GAP information (XXXSG).

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**Note:** If your results are both Cash Flow and GAP, then output tables are created as appropriate with the extensions of \_C and \_G. For aggregated results, output tables with the extensions SC and SG are created.

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6. Check the The Drop Existing Table option to overwrite the existing output table. The following table explains a processing variable and the result of using it with the Drop Existing Table option:

IF	THEN
the Drop Existing Table Option is <b>checked</b> ,	any table with the same name that appears in the Transform Into field is dropped.

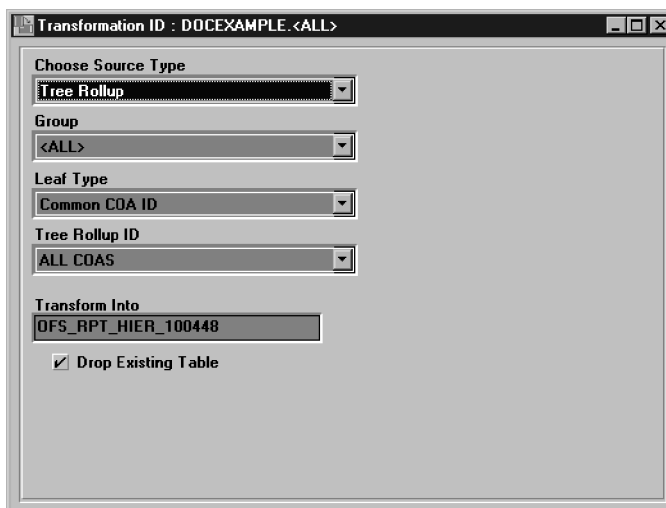
7. Select the names that appear in the Columns to Exclude field to exclude during processing. This field shows only valid leaf columns from the Result Detail Table. After you choose which columns to exclude, at least one column remains and cannot be selected.

## Tree Rollup Table

The Transformation ID extracts data for one rollup and places the data into a customized table specific to that rollup.

To define a Tree Rollup Table, complete the following steps:

1. Select Tree Rollup from the Choose Source Type list. The Tree Rollup dialog appears.



2. Select a folder.

3. Select a leaf type from the Leaf Type list.
4. Select a Tree Rollup ID from the Tree Rollup ID list.
5. Modify the name of the output table in the Transform Into field to fit your requirements.
6. Check the The Drop Existing Table option to overwrite the existing output table. The following table explains a processing variable and the result of using it with the Drop Existing Table option:

IF	THEN
the Drop Existing Table Option is <b>checked</b> ,	any table with the same name that appears in the Transform Into field is dropped.





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## Tree Filter ID

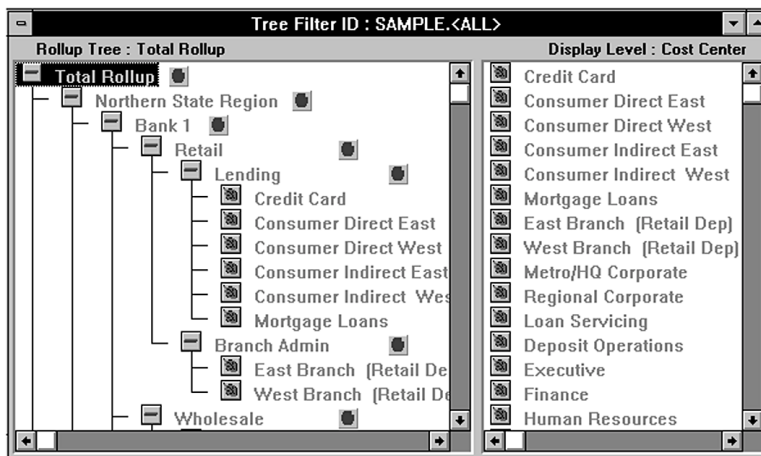
A Tree Filter ID narrows the focus of your tree hierarchy for reporting and processing. For example, you can use a Tree Filter ID if you want to report on only the accounts that roll up to the Commercial Loans portion of a product tree. A Tree Filter ID must have a predefined Tree Rollup ID as part of its definition.

### Creating a Tree Filter ID

To create a new Tree Filter ID, complete the following steps:

1. From the File menu, select New -> Tree Filter ID.
2. Select a folder.
3. Select a leaf type.
4. Select a Tree Rollup ID.
5. Type a descriptive name for the ID.
6. Type a description for the ID. This is an optional field.
7. Click Read/Write.
8. Click OK.

The Tree Filter ID window appears:



## The Tree Filter ID Window

When defining the Tree Filter ID, you use the Rollup Tree and Display Level panes.

### Rollup Tree Pane

The Rollup Tree pane shows the hierarchical tree structure at any desired level of detail. The Rollup Tree allows you to view the structure of the tree at any level of the hierarchy.

#### Branch Expansion Indicator

Each node is represented by a description and an Indicator which symbolizes if a branch can be expanded or not. The Branch Expansion Indicator is a '+' if the branch can be expanded further to reveal nodes at the next lower level. The '-' indicates that the branch has already been expanded and all nodes at the next lower level are displayed. A blank indicates that there are no nodes attached at the next lower level.

#### Node Inclusion Indicator

When viewed in the Tree Filter ID, each node of the Rollup Tree is accompanied by a Node Inclusion Indicator which identifies whether any part of the branch below the node is included in the Tree Filter. If there are nodes at lower levels which are included in the filter, the Node Inclusion Indicator is green. If there are no nodes at lower levels of the branch which are included in the Tree Filter, it is red.

## Current Level Name

The name of the level currently selected in the Rollup Tree appears in the top left corner of the screen and changes as various levels are selected.

## Display Level Pane

The Display Level pane on the right allows you to see all the nodes attached to the selected node in the Rollup Tree at a specific level below the selected node. To specify the level of the hierarchy which you want to display you must select Tree from the menu bar.

## Tree menu

In order to change how the structure of a tree is viewed and to specify which branches are to be included in the filter, select Tree from the menu bar:

Expand One Level	+
Expand Branch	*
Expand All	Ctrl+*
Collapse Branch	-
Focus on Branch	Ctrl+F
Undo Focus	Ctrl+U
Set Display Level...	▶
Set Tree Level...	▶
Include Branch in Filter	Ctrl+D
Exclude Branch from Filter	Ctrl+E
Toggle In/Out of Filter	Ctrl+T

## Expand One Level

Expand One Level displays the branch of nodes attached one level below the selected node. You can also expand a branch by one level by selecting a node in the Rollup Tree and typing '+', or by double clicking the Branch Expansion Indicator when the indicator displays a '+'.

## Expand Branch

Expand Branch displays all levels of nodes attached under the node selected in the Rollup Tree. You can also expand a branch to show all lower levels of attached nodes by selecting a node in the Rollup Tree and typing '\*'. This option is only available when the Branch Expansion Indicator displays a '+'.

### **Expand All**

Expand All displays every level of the Rollup Tree above and below the selected node. You can also display the whole Rollup Tree by typing Ctrl+\*. This option is only available when the Branch Expansion Indicator displays a '+'.

### **Collapse Branch**

Collapse Branch hides all levels of nodes attached under the selected node from the Rollup Tree display. You can also collapse a branch by one level by selecting a node in the Rollup Tree and typing '-', or by double clicking the Branch Expansion Indicator when the indicator displays a '+'.

### **Focus on Branch**

Focus on Branch changes the Rollup Tree display from the whole tree to only the tree structure below the selected node. You can also focus on a branch by typing Ctrl+F.

### **Undo Focus**

Undo Focus turns off the branch focus. Use this to expand your focus from an individual branch to the total Rollup Tree. You can also return to the total tree display by typing Ctrl+U.

### **Set Display Level**

Set Display Level allows you to change the level that is displayed in the Display Level pane. To change the Display Level, from the pop-up menu select the level you want to display.

### **Set Tree Level**

Set Tree Level allows you to change the rollup level shown in the Rollup Tree pane. To change the Tree Level, select the level you wish to be displayed from the pop-up menu.

### **Include Branch in Filter**

Include Branch in Filter allows you to select an entire branch for inclusion in the Tree Filter ID. To include an entire branch of a Rollup in the Tree Filter, select the node at the top of the desired branch, then select Include Branch in Filter from the Tree pull-down menu, or type Ctrl+D.

If a node is included in the Tree Filter, then the Node Description is displayed in bold print, otherwise it is displayed in gray print.

### **Exclude Branch from Filter**

Exclude Branch from Filter allows you to select an entire branch to be excluded from the Tree Filter ID if it has already been selected. To exclude an entire branch of a Rollup in the Tree Filter, select the node at the top of the desired branch, then select Exclude Branch from Filter from the Tree pull-down menu, or type Ctrl+E.

### **Toggle In/Out of Filter**

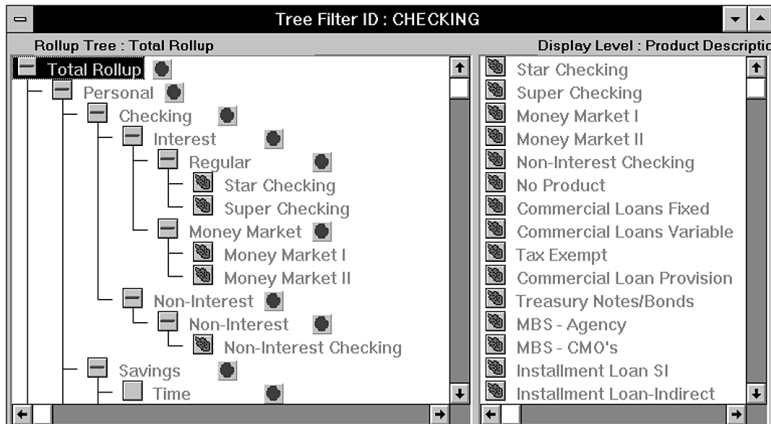
Toggle In/Out of Filter allows you to select or deselect a single node from an entire branch with out changing the selection status of any other nodes in the branch. To include an individual node in a branch that is excluded, or to exclude an individual node in a branch that is included, select the node to be toggled, then select Toggle In/Out of Filter from the Tree pull-down menu, or type Ctrl+T.

## **Tree Filter ID Example**

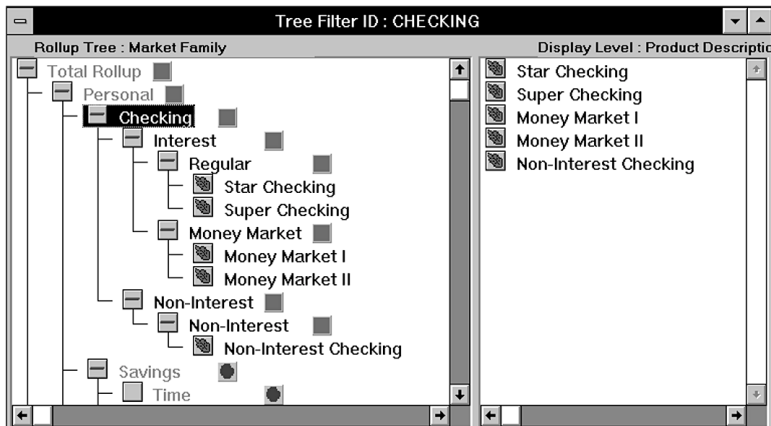
In this example, create a Tree Filter ID named Checking, which checks profitability analysis. The example uses the Rollup Tree ID named Product that was created in the chapter Tree Rollup ID.

1. From the File menu, select New -> Tree Filter ID.
2. Select All for the folder, so everyone in the group can access it.
3. Select Common COA ID for Leaf Type. This is the same ID that was used in the Tree Rollup ID example.
4. Select Product for Tree Rollup ID.
5. Type **Checking** in the Tree Filter ID name box.
6. Type **This filter is for checking profitability analysis** in the Description box.
7. Click Read/Write.
8. Click OK.

The Tree Filter ID window appears:



- Highlight Checking at Level 2, and select Include Branch in Filter from the Tree menu. The Nodes Inclusion Indicators turn green for all the Level 2 Checking branches.



- From the File menu, select Save.

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## Tree Rollup ID

Tree Rollup IDs define a hierarchical structure of detailed data in the Oracle Financial Data Manager (FDM) database. For example, you can build a model of the various levels into which products roll up and use cost centers as the base level of the institution. You use a Tree Rollup ID to define these hierarchical structures.

With a Tree Rollup ID, you can define multiple organizational, product, account, and other hierarchies by using leaves as the lowest level of detail in the hierarchical structure. Each row in the FDM database contains a leaf value for each dimension of profitability. These leaves serve as the lowest level in constructing Tree Rollup IDs.

For more information about Tree Rollup IDs and IDs in general, see [Chapter 4, "Overview of IDs"](#).

This chapter presents the following topics:

- [Creating a New Tree Rollup ID](#)
- [Using the Tree Rollup ID Window](#)
- [Editing a Tree Rollup ID](#)
- [Example: Building a Product Tree](#)

### Creating a New Tree Rollup ID

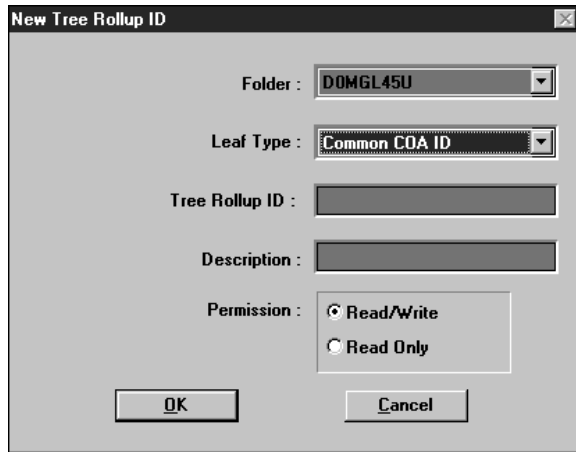
To create a Tree Rollup ID, perform the following steps:

1. From the File menu, click New.

A list of the IDs that are available for the product you are using appears.

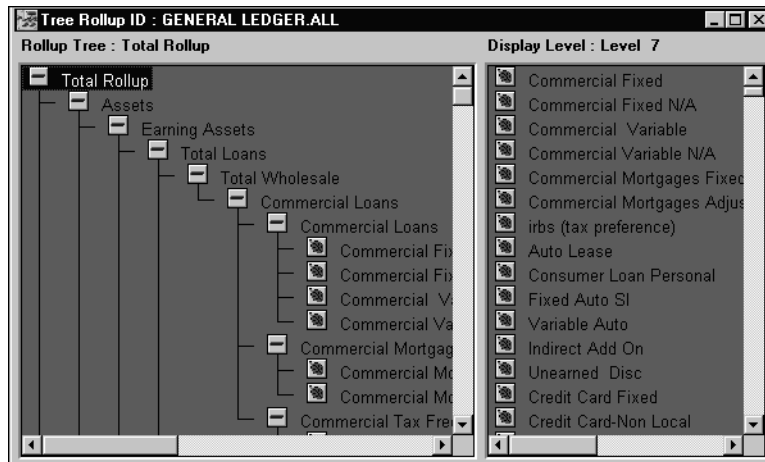
2. Select the Tree Rollup ID.

The New Tree Rollup ID dialog box appears.



3. Select Folder and Leaf Type.
4. Type in the Tree Rollup ID and Description fields, as required.
5. Select the permission level of the ID, as required.  
Read/Write is the default.
6. Click OK to continue.

The Tree Rollup ID window appears.





## Using the Tree Rollup ID Window

The Tree Rollup ID window comprises the Rollup Tree and Display Level panes. It also provides access to the Edit, Options, and Tree menus.

### Rollup Tree Pane

The Rollup Tree pane enables you to see and manipulate the tree structure at any level of the hierarchy.

#### Branch Expansion Indicators

Each node is represented by a description and an Indicator that indicates whether or not a branch can be expanded. The Expansion Indicator is a + (plus sign) if the branch can be expanded to display nodes at the next lower level, a - (minus sign) if the branch has already been expanded and all lower nodes are displayed, and blank if no lower nodes are attached.

#### Current Level Name

The name of the level currently selected in the Rollup Tree pane appears after *Rollup Tree* in the menu bar. The level name changes as different levels are selected.

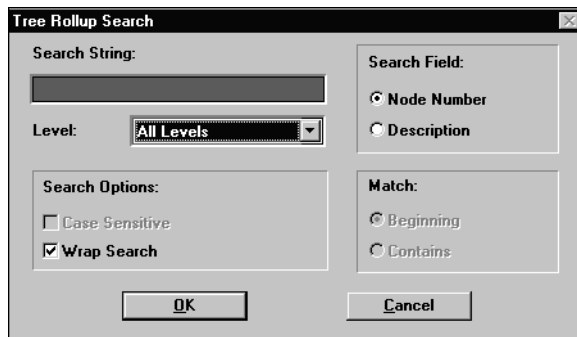
### Display Level Pane

The Display Level pane enables you to see all the nodes attached to the selected node in the Rollup Tree at a specific level below the selected node. To set the level of the hierarchy that you want to display, select the Tree menu -> Set Display Level.

### Edit Menu

#### Search

If you want to locate a specific node within a Tree structure, you can use the Search option in the Edit menu. The Tree Rollup Search dialog box appears:



Field Name	Field Description
Search Field	Select the Node Number or Description for which you are searching.
Search String	Type the Node Number or Description.
Level	Select the Level of the node in the Tree. If you do not know the level, leave the default entry of All Levels.
Search Options	
<ul style="list-style-type: none"> <li>■ Case Sensitive</li> </ul>	Provides exact string matches when searching on descriptions only
<ul style="list-style-type: none"> <li>■ Wrap Search</li> </ul>	Performs the search of both node numbers and descriptions starting from the current cursor location on the Tree structure and continuing at the top of the Tree structure
Match	
<ul style="list-style-type: none"> <li>■ Beginning</li> </ul>	Searches node numbers or descriptions beginning with the string entered in the Search String field
<ul style="list-style-type: none"> <li>■ Contains</li> </ul>	Searches node numbers or descriptions containing the string entered in the Search String field

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**Note:** Trees can show as many as 16,000 leaves and nodes at a time.

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Search fails if the value you want is not within the 16,000 leaves range. The following message appears: “The tree is too large to show entirely. Collapse branches or use Search and Focus to view more.” See the Tree Menu for more information about Collapse Branch.

### **Search Again**

The Search Again option is available in the Edit menu and enables you to continue your search using the same criteria that you defined in Search.

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**Note:** Search and Focus and Search and Focus Again are specifically for use on trees having more than 16,000 leaves.

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### **Search and Focus**

The Search and Focus option is available in the Edit menu. It uses the same dialog box as the Search option and takes you to the value itself.

### **Search and Focus Again**

Like the Search and Focus option, the Search and Focus Again option is available in the Edit menu. It uses the same dialog box as the Search option and takes you to the value itself.

Search and Focus Again shows only the node or leaf for which you are searching. It does not show context or hierarchy. It is the only option that you can use with a large tree, that is, one containing more than 16,000 leaves.

## **Options Menu**

You can use the Options menu to format the appearance of your Tree Rollup ID. The Options menu provides the following functions:

- Select Font
- Show Node Numbers on Left
- Show Node Numbers on Right

## Select Font

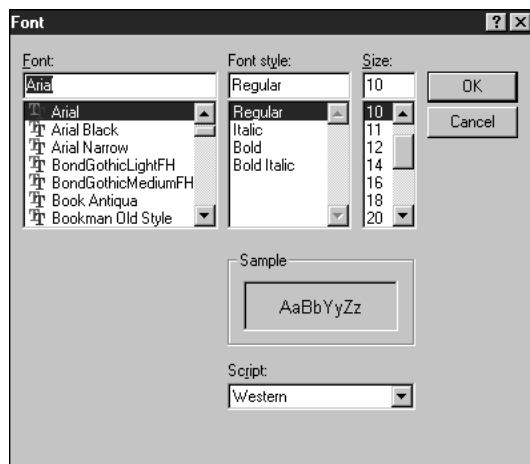
You can change the typeface in which your tree is displayed on your window. To try a new font:

1. Click Set Font.

The default font is Font: System, Font Style: Bold, Size: 10. Each font is previewed in the Sample window at the bottom of the dialog box.

2. Select an appropriate Font, Font Style, Size, and Script, and then click OK.

You select a smaller font to view more information within one window or a larger font to display less information per window but to view it more clearly.



## Show Node Numbers on Left

You can select Show Node Numbers on Left if you are familiar with your Node Numbers and want to view them. This option displays the Node Numbers before the Node Descriptions.

This option is a toggle. To turn off the Node Numbers, select the option again.

## Show Node Numbers on Right

You can select Show Node Numbers on Right if you are familiar with your Node Numbers and want to view them. This option displays the Node Numbers after the Node Descriptions.

This option is a toggle. To turn off the Node Numbers, select the option again.

## Tree Menu

To change how the structure of a tree is viewed and to specify which branches are to be included in the rollup, you select Tree from the menu bar.

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**Note:** Focus on Branch, Undo Focus, and Focus to Top are specifically for use on trees having more than 16,000 leaves.

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### Expand One Level

Expand One Level displays the branch and nodes attached one level below the selected node. You can also expand a branch by one level by selecting a node in the Tree Rollup and typing + (plus sign) or by double clicking the Branch Expansion Indicator when the indicator displays a + (plus sign).

### Expand Branch

Expand Branch displays all levels of nodes attached under the node selected in the Tree Rollup. You can also expand a branch to show all lower levels of attached nodes by selecting a node in the Tree Rollup and typing Shift + \* (plus sign and asterisk). This option is available only when the Branch Expansion Indicator displays a + (plus sign).

### Expand All

Expand All displays every level of the entire Tree Rollup above and below the selected node. This option is available only when the Branch Expansion Indicator displays a + (plus sign).

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**Note:** Expand All expands only the first 16,000 leaves and nodes. A Rollup ID can display a maximum of 16,000 leaves and nodes at a time.

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### Collapse Branch

Collapse Branch hides all levels of nodes attached under the selected node from the Rollup Tree pane. You can also collapse a branch by one level by selecting a node in the Rollup Tree pane and typing - (minus sign), or by double clicking the Branch Expansion Indicator when the indicator displays a - (minus sign).

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**Note:** Focus on Branch, Undo Focus, and Focus to Top are specifically for use on trees having more than 16,000 leaves.

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### Focus on Branch

Focus on Branch changes the Rollup Tree pane from displaying the whole tree to displaying only the tree structure below the selected node.

### Undo Focus

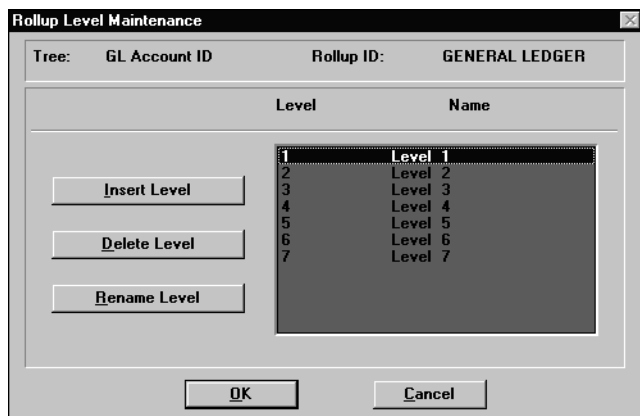
Undo Focus turns off the focus on a branch. This enables you to display all branches of the total Tree Rollup when you no longer want to focus on an individual branch.

### Focus to Top

Focus to Top returns you directly to the top of the Rollup Tree pane. You do not need to return level by level.

### Levels Maintenance

Levels Maintenance enables you to manipulate the level structure of a tree. Using this option, you can add, subtract, and rename levels of the Tree Rollup. Selecting this option opens the Rollup Level Maintenance dialog box.



- **Insert Level** enables you to insert a level into the hierarchy. To insert a new level, select the level in the Level Description box above which you want to add a level, and click Insert Level.

Enter the name of the new level in the New Level Name box, and click OK. For more information, refer to the *Oracle Financial Services Installation and Configuration Guide*.

- **Delete Level** enables you to remove a level from the hierarchy. To remove a level, select the level you want to remove in the Level Description box and click Delete Level. You are prompted to confirm your decision to delete the level.
- **Rename Level** enables you to rename an already existing level. To rename a level, select the level you want to rename in the Level Description box and click Rename Level.

Enter the new name in the New Level Name box, and click OK.

When you have finished with Levels Maintenance, click OK to return to the main ID window. Click Cancel at any time to exit without changes.

### **Set Display Level**

Set Display Level enables you to change the level displayed in the Display Level pane. Click this option to open the display level dialog box.

To change the Display Level, from the menu, select the level you want displayed.

### **Set Tree Level**

Set Tree Level enables you to change the level that is displayed in the Rollup Tree pane. Click this option to open the display level dialog box.

### **Insert Node**

Insert Node enables you to add an additional node to the Tree Rollup. To insert a node, select a node in the Tree Rollup under which you want to add a node, and click Insert Node. You can place new nodes anywhere in the Rollup Tree except below the leaf level or orphan node.

The Insert Node dialog box appears:

- **Parent Level** is the level of the parent node under which the new node is being added.
- **Parent Name** is the name of the parent node under which the new node is being added.
- **New Node Level** is the level at which the new node is being added.
- **New Node Name** enables you to enter the name of the new node.

If you leave the New Node Name field blank, the new node appears in the Tree Rollup display, without a descriptive tag.

- **New Node ID** enables you to define the ID number that will be associated with the new node. This field does not require input because a unique default ID number is supplied by the system. If you decide to enter an ID number for the new node manually, however, this number must be unique.

Click OK when you have finished. Click Cancel at any time to exit without saving changes.

### **Rename Node**

Rename Node enables you to rename or renumber an existing node. Select the desired node from the Tree Rollup, and select this option. The Rename/ReNUMBER dialog box opens.

- **Name**  
Enter the new name in the Name box.
- **Number**  
Enter the new number in the Number box.

Click OK when you have finished. Click Cancel at any time to exit without changes.

### **Delete**

Delete enables you to delete a node from the Tree Rollup. To delete a node, select the node you want to delete from the Tree Rollup and click Delete. The selected node and all nodes below it are deleted. The Leaves that are attached below the deleted node become orphan leaves in the orphan branch of the tree.

### **Copy**

Copy enables you to copy an orphan leaf or group of orphan leaves from the orphan branch into another node in the Tree Rollup. To copy a single orphan leaf from the orphan branch, select the orphan leaf in the Tree Rollup or set the Display Level to Orphan Leaves and select the desired Orphan Leaf. Next, click Copy. Now select the node to which the orphan leaf is to be copied in the Tree Rollup, and use Paste to attach the leaf to the new node.

To copy several orphan nodes at one time to a single node in the Tree Rollup, hold the Shift key while selecting successive nodes. Then use Copy and Paste to attach the block of nodes at the new location.



**Cut**

Cut enables you to cut a leaf, a group of leaves, or a branch from the Tree Rollup.

To cut a portion of a Tree Rollup, select the leaf or node from the Tree Rollup, or set the Display Level. Next, click Cut. To reattach the cut portion of the tree to a different part of the tree, select the node to which the portion is to be copied in the Tree Rollup, and click Paste to attach it to the new node.

To cut several orphan nodes at one time, hold the Shift key while selecting successive nodes. Then click Cut if you want to reattach the nodes at a new location. Click Delete to cut the block of nodes permanently.

If a node that has leaves attached at a lower level is cut, or if leaves from the Tree Rollup are cut, the leaves are automatically placed at the end of the orphan leaves. If the leaves are reattached, or the node to which the leaves were attached are moved to a different part of the tree, the leaves that were placed at the end of the orphan branch are automatically moved.

**Paste**

Paste enables you to attach cut or copied orphan leaves nodes, and branches to new nodes in the Tree Rollup. After you Cut or Copy, select the node to which you want to attach the data, and click Paste.

You can only perform a Paste after a Cut or Copy action has been performed. Paste can only be performed on the leaves or nodes copied or cut in the immediately previous cut or copy. If cuts are performed without a paste the node information from the first cut is lost and the leaves are placed at the end of the orphan leaves.

You can perform a Paste only after a Cut or Copy has been performed. Paste can be performed only on the leaves or nodes copied or cut in the immediately previous cut or copy. If you cut without a paste, the node information from the first cut is lost and the leaves are placed at the end of the orphan leaves.

**Node Up**

Node Up enables you to move a node up the list of nodes if more than one node is attached to a parent node. In order move a node above another node in the Tree Rollup window, select the node to move and click Node Up.

**Node Down**

Node Down enables you to move a node down the list of nodes if more than one node is attached to a parent node. In order move a node below another node in the Tree Rollup window, select the node to move and click Node Down.

## Transform Rollup

Transform Rollup transforms the current Tree Rollup ID into a hierarchy table within the Oracle Financial Data Manager Reporting Data Mart. The new hierarchy table has the same name as the Tree Rollup ID. This table makes information available to the Reporting Data Mart user and for reporting purposes through Oracle Discoverer and other reporting tools. For more information, refer to [Chapter 23, "Transformation ID"](#).

## Save the ID

Save the ID by clicking the Save icon on the horizontal toolbar, or choose Save from the File menu.

## Editing a Tree Rollup ID

To open an existing Tree Rollup ID, perform the following steps:

1. From the File menu, click Open.

A list of the IDs that are available for the product you are using appears.

2. Select Tree Rollup ID.

The Select Tree Rollup ID dialog box appears.

3. Select Folder, Leaf Type, and Tree Rollup ID, as required.

4. Click OK.

The Tree Rollup ID window appears.

5. Click in the pane that you want to search, either Rollup Tree or Display Level.

If you select the Rollup Tree pane, you see the leaves in the context of the tree. If you select the Display Level pane, you see only the leaves.

6. From the Edit menu, click Search to search for the Tree Rollup ID you want to edit.

The Tree Rollup Search dialog box appears.

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**Note:** Trees can show as many as 16,000 leaves and nodes at a time.

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7. Select either Node Number or Description in Search Field.

8. Type the Search String, such as *Corporate*.
9. Select Level, Search Options, and Match, as appropriate.
10. Click OK.

The Tree Rollup ID appears if your search is within 16,000 leaves. Search fails if the value you want is not within the 16,000 leaves range. The following message appears: “The tree is too large to show entirely. Collapse branches or use Search and Focus to view more.”

11. Click on the Tree Rollup ID.
12. With the Tree Rollup ID selected, copy or paste it as appropriate.  
For example, you want to cut one leaf, *Regional Corporate*, from *Wholesale* and move it to *Branch Administration*.
13. When your cutting or pasting is complete, select *File -> Save* to save your Tree Rollup ID, or select *File -> Save As* to save your edited Tree Rollup ID under a new name.

## Example: Building a Product Tree

In this example, you use the Tree Rollup ID to build a product tree with five hierarchy levels. The tree structure is as follows:

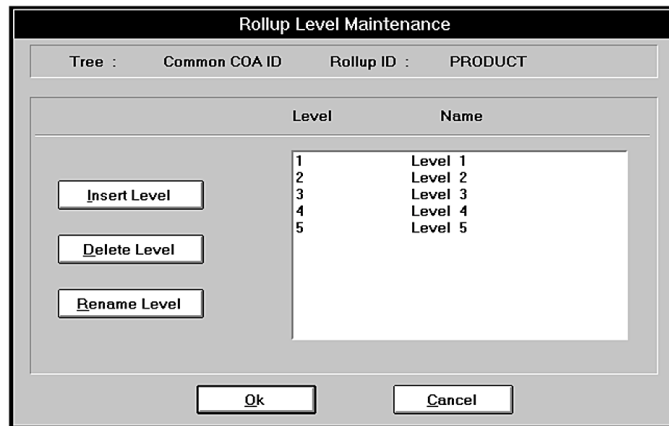
Levels	Product Categories
LEVEL I	
Business Type	Personal
LEVEL II	
Market Family	Checking, Savings, Retirement
LEVEL III	
Market Type	Interest, Non-Int., Liquid, Time, IRAs
LEVEL IV	
Market Product	Regular, Money Market
LEVEL V	
Product Description	Money Mkt I, Money Mkt II

You must set the levels of the tree before you can build it.

## Set the Levels of a Tree

To set the levels of a tree, perform the following steps:

1. Click **New** on the horizontal toolbar.  
A list of the IDs that are available for the product you are using appears.
2. Select the **Tree Rollup ID**.  
The **New Tree Rollup ID** dialog box appears.
3. Select **All for Folder**.  
Now everyone in the folder has access.
4. Select **Common COA ID for Leaf Type**.  
This is the **Leaf Type** that contains the information for products.
5. Type `PRODUCT` as the **Tree Rollup ID name**.
6. In **Description**, type `This Product Tree is for Deposits Only`.
7. Select **Read/Write for Security**.
8. Click **OK**.  
The **Tree Rollup ID** window appears.
9. Select **Levels Maintenance** from the **Tree** menu.  
The **Levels Maintenance** dialog box appears: The default names are the level numbers.



10. Set the tree levels to define the structure of the tree.
11. To change the numbers to names, select each level, click Rename Level, and type the new name.  
The default number of levels for a new tree is set at five. You can add or subtract levels by clicking the Insert Level or Delete Level buttons. For this example, the number of levels is left at five. The maximum number of levels available is 15.
12. When you have finished naming the levels, click OK.
13. After setting the levels, build the tree.

## Build a Tree

To build a tree, perform the following steps:

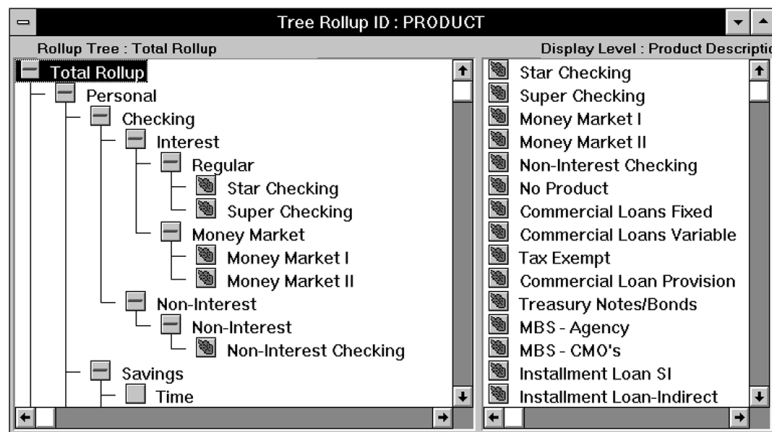
1. Highlight the parent branch into which you are going to insert the new branch.
2. Insert a new branch.  
You insert the first level of the sample, Business Type, by highlighting Total Rollup.
3. Click Insert Level (or select Insert Node from Tree menu).  
The Insert Node dialog box appears.
4. In the New Node Name box, type the description for this example, Personal, and click OK.

5. Repeat procedures 1 and 2 to insert all Level Two, Three, and Four branches.
6. The lowest level, Level Five, is the leaf level.

For new trees, Leaves are under the Orphan branch.

7. Attach the leaves to each branch by one of two methods:
  - Use Copy and Paste from the Tree menu to copy the leaf from the Orphan branch to the target branch.
  - Use the mouse to drag the selected leaf from the Orphan branch and drop it on the appropriate branch.

After the leaves are attached, the Tree Rollup ID window appears.



8. Save the new Tree Rollup ID.
9. Click the Exit icon at on the horizontal toolbar to exit the new ID.

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## User-Defined Payment Pattern

The User-Defined Payment Pattern provides a method to customize amortization of specific products and instruments. In a payment pattern, you can assign a unique amortization code to a set of payment phases, which may include some of the following customized features:

- Changes in payment frequency
- Seasonal payment dates
- Non-standard or variable payment amounts

You use a payment pattern by entering it as the amortization type code for the instrument.

This chapter provides information and instruction on:

- [Payment Pattern Structure](#)
- [Defining a Payment Pattern](#)
- [Editing a Payment Pattern](#)
- [Deleting a Payment Pattern](#)

See the *Oracle Financial Services Technical Reference Manual* for information on how a payment pattern is applied during a cash flow process.

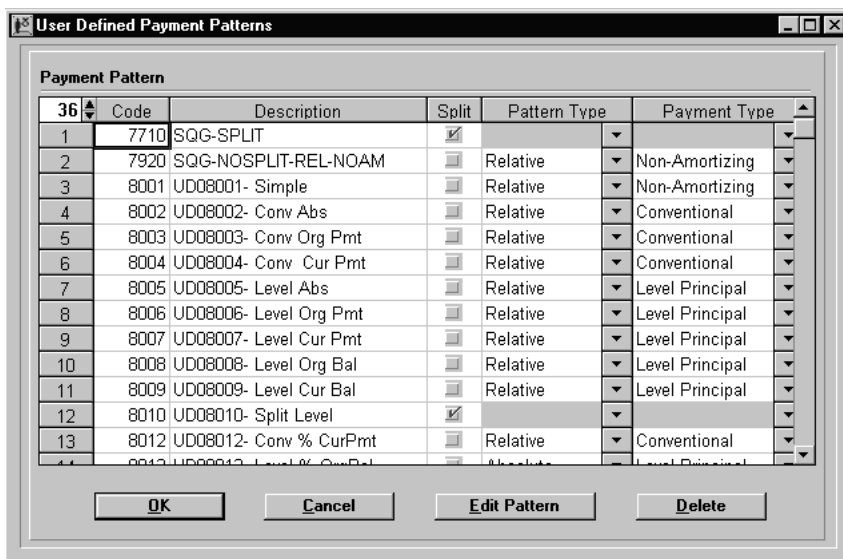
### Payment Pattern Structure

You define a payment pattern with a payment term of either absolute or relative. The payment term determines whether the phases of the pattern focus on calendar dates or time periods. Absolute patterns are sets of payment characteristics scheduled on specific calendar dates. Relative patterns are sets of payment characteristics scheduled for certain periods of time.

You can define a payment pattern with both absolute and relative payment terms. This type of pattern is called a **Split Pattern**, which is discussed separately in a following section because of its unique applications.

The user interface for payment patterns is in the form of grids. Each grid has a set of columns that you use to define payment patterns and their phases. These columns represent the payment characteristics of the payment pattern. The payment characteristics of the phases vary depending upon what payment type and term that you select for the payment pattern.

You define all payment patterns in the payment pattern grid, and then you define the phases of the pattern in another grid.



The columns on the payment pattern grid are as follows:

Columns	Description
Code	The code is a numeric internal identifier for the payment pattern, also known as an amortization code. Valid codes are 1000 through 29999.



Columns	Description
<b>Description</b>	<p>The description helps identify the payment pattern. This description appears in the Data Filter ID, Leaf Characteristics ID and Transaction Strategies ID, under the choices for amortization type codes. Additionally, the description is used when reporting on the amortization type code column from the instrument tables.</p> <p><b>Note:</b> Keep the description for payment patterns concise. The Data Filter ID can only display the first 15 characters of the description.</p>
<b>Split</b>	<p>When checked, this option designates the pattern code as a split pattern. For information on how to define a split pattern, see "<a href="#">Splitting a Payment Pattern</a>".</p> <p>The pattern attributes listed in the next two columns, Payment Term and Payment Type, are grayed out if this option is checked. The pattern attributes for these codes are defined for each timeline individually, rather than for a pattern as a whole.</p>
<b>Pattern Type</b>	<p>The pattern type determines what payment characteristics are available when defining the payment phases, such as month and day or frequency and value.</p>
<b>Payment Type</b>	<p>The payment type determines the available characteristics for defining the payment amount. You must assign a payment type for each pattern. The payment types are:</p> <ul style="list-style-type: none"> <li>■ Conventional</li> <li>■ Level Principal</li> <li>■ Non-Amortizing</li> </ul>

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**Note:** The payment pattern interface is for a single user. You cannot open the interface when another user has access.

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## Payment Phases

You must define one or more payment phases to complete a payment pattern. A payment phase is a set of payment characteristics that defines the timeline of the payment phase.

Though the characteristics change based on whether you are defining an absolute or relative pattern, two characteristics appear for both patterns: [Payment Method](#) and [Value](#).

## Payment Method

The payment methods determine the behavior of the value (or payment amount) of the payment phase. Six methods are available:

**% of Original Balance** This method calculates the payment as the original balance multiplied by the input percent. This method is useful for apportioning the starting balance on a level principal instrument over several payments. This method is available only for payment patterns that you define with a payment type of Level Principal.

**% of Current Balance** This method calculates the payment as the current balance prior to payment multiplied by the input percent. This method is available only for payment patterns that you define with a payment type of Level Principal.

**% of Original Payment** This method calculates the payment as the original payment column from the detail instrument data multiplied by the input percent. For new business, it uses the original payment amount calculated at the origination of the instrument.

**Note:** Do not use the % of Original Payment method for an instrument that initially pays interest only for new business. In this case, the original payment amount is zero, and all payments described as a % of the Original Payment would therefore also be zero.

**% of Current Payment** This method calculates the payment as the previous payment multiplied by the input percent. This payment is calculated on the payment date, according to the characteristics of the instrument at the time of the payment, including the current rate, current balance, and current payment frequency. The input percent is applied to the calculated payment amount.

**Absolute Payment**

This is an input payment amount. This amount represents both principal and interest for a conventional payment type. For a payment type of level principal, it represents principal only. For both types of patterns, you enter absolute value payment amounts as gross of participations.

**Note:** Do not use this method for new business. If you assign a pattern that includes absolute value to new business, processing ignores the pattern.

**Interest Only**

This is an input payment amount. Processing calculates an interest-only payment as balance times rate times accrual factor.

**Value**

The value reflects the percentage or payment amount based on the method chosen for the payment phase. Value is not available for phases using the payment method Interest Only.

Payment amounts for conventional pattern phases must reflect both principal and interest payments. Payment amounts for level principal pattern phases reflect only the principal portion of the payment. For level principal pattern phases, the total cash flow on a payment date is the principal amount stored as the payment plus the calculated interest.

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**Note:** The Payment Method and Value columns are not available for patterns defined with a Non-Amortizing payment type. The application assumes all payments are interest only for this type of pattern.

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**Absolute Patterns**

You can use absolute payment patterns for instruments that are on a seasonal schedule, such as agricultural or construction loans that require special payment handling based on months or seasons.

12	Month	Day	Payment Method	Value
1	Jan	1	Interest Only	
2	Feb	1	Interest Only	
3	Mar	1	Interest Only	
4	Apr	1	% of Original Payment	80.00
5	May	1	% of Original Payment	80.00
6	Jun	1	% of Original Payment	100.00
7	Jul	1	% of Original Payment	100.00
8	Aug	1	% of Original Payment	100.00
9	Sep	1	% of Original Payment	100.00
10	Oct	1	% of Original Payment	80.00
11	Nov	1	% of Original Payment	80.00

For example, you may have a loan that follows a seasonal pattern. To match the slow season of the customer, payments for the months of January, February, and March are interest-only payments. As revenues for the customer increase, the payment amount also increases. Therefore, the payments for April and May are 80 percent of the original payment, and the payments for June through September are 100 percent of the original payment. The payment decreases as the production season slows. The payment for October decreases to 80 percent of the original payment, and the payments for November and December decrease again to 50 percent of the original payment.

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**Note:** You can define only up to a full year of payments. The application automatically orders the payments by date and schedules the payments in a single-year rotation.

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In addition to Payment Method and Value, two payment characteristics of absolute patterns are available:

Column	Description
Month	The month of the payment phase
Day	The day of the month the payment is due

## Relative Patterns

You can create relative payment patterns for instruments that have irregular scheduled payments.

	Frequency	Multiplier	Repeat	Payment Method	Value
1	1 Months	▼	12	Interest Only	
2	1 Months	▼	35	% of Current Payment	50.00
3	1 Months	▼	1	% of Original Balance	100.00

For example, you may have a step loan for a term of four years. The payment for the first 12 months is interest only. The following 35 payments are 50 percent of the currently scheduled payment, and the last payment is a balloon payment for the balance of the loan.

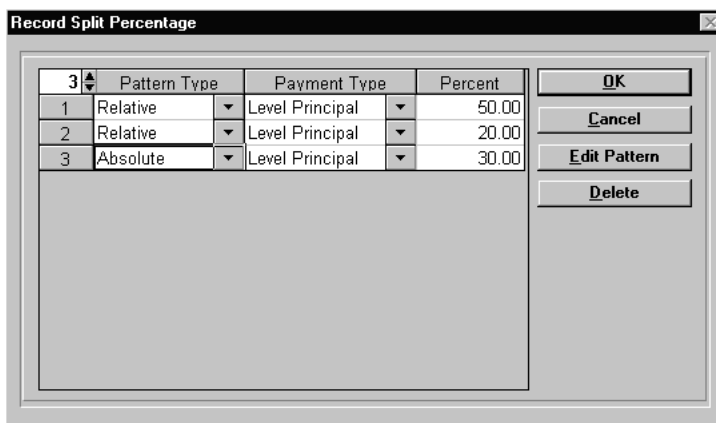
In addition to Payment Method and Value, three payment characteristics for relative patterns are available:

Column	Description
<b>Frequency</b>	The frequency of the payment
<b>Multiplier</b>	The time frame in which the payment phase repeats itself: <ul style="list-style-type: none"> <li>■ Days</li> <li>■ Months</li> <li>■ Years</li> </ul>
<b>Repeat</b>	The number of times the payment phase repeats itself

## Split Pattern

A split pattern contains multiple sets of payment phases under a single amortization code. You use a split pattern for financial instruments that make principal payments along two concurrent amortization schedules. Each separate amortization schedule is a timeline to which you assign a percentage of the balance.

You create a payment phase (or timeline) for each separate amortization schedule and assign a percentage of the whole balance. For example, you can use a split pattern to model customer behavior for payment of credit card balances.



The columns for the payment pattern grid are as follows:

Column Heading	Description
<b>Pattern Type</b>	The payment term determines what payment characteristics are available for determining future payment dates. The payment terms are Absolute or Relative.
<b>Payment Type</b>	The payment type determines the available characteristics for defining the payment amount. Each pattern must have a payment type. The payment types are: <ul style="list-style-type: none"> <li>■ Conventional</li> <li>■ Level Principal</li> <li>■ Non-Amortizing</li> </ul>
<b>Percent</b>	The percent value represents the percentage weight of the timeline within the payment pattern

## Defining a Payment Pattern

To define a payment pattern, complete the following steps:

1. Select Setup -> User-Defined Payment Pattern.
2. Click the up-arrow spinner once to add a new row.

If this is the first payment pattern, the new row appears beginning with 1. Otherwise, the new row appears at the bottom of the existing list with the next available number.

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**CAUTION:** When editing the interface to add new pattern codes, avoid typing numbers into the box next to the arrows. For example, if you type 25 to increase the number of patterns from 24 to 25, you lose many of your patterns. As you initially type the 2, the application deletes patterns 3 to 24. When you type the 5, the application adds rows 3 to 25 back in as blank rows.

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3. Type a code and description for the new payment pattern.

It must be in the range of 1000 to 29999. If you enter a code outside of this range, the cell containing the code turns blank and a message displays in the status bar:

Code value must be greater than 999 and less than 30000

You cannot enter duplicate codes. If you attempt to enter a duplicate code, the cell containing the code clears and a message appears in the status bar:

Duplicated code value

4. Check Split if you are defining a split payment pattern.

If you check the Split box, the application disables the Payment Term and Payment Type columns.

5. Select the appropriate Payment Term.

If you select Relative, define the payments with a numeric term, a multiplier, and the number of payments at this frequency. If you select Absolute, assign a specific month and day for each payment.

You must assign a payment term to each pattern. If you change a pattern from Absolute to Relative, or from Relative to Absolute, the application deletes the phases of the pattern.

6. Select the appropriate Payment Type.
7. Define the payment phases for the payment pattern.

You can follow the instructions in "[Defining Payment Phases for an Absolute Payment Pattern](#)" or "[Defining Payment Phases for a Relative Payment Pattern](#)" to complete the payment phase grid for the appropriate payment pattern.

8. Click OK to accept the payment pattern and exit, or click Cancel to exit without saving.

## Defining Payment Phases for an Absolute Payment Pattern

To create payment phases for an absolute payment pattern, complete the following steps:

1. Click on the line number to select the entire payment pattern.

An arrow appears next to the selected payment pattern.

2. Click Edit Pattern.

The grid for entering the payment phases appears.

3. Click the up arrow spinner to add the required number of rows.

You can define payments for only a single year for absolute payment patterns. If the term of the instrument is longer than one year, the pattern repeats itself in a yearly rotation until the maturity date.

4. Select the month for each payment phase.
5. Type the day for each payment phase.
6. Select the appropriate payment method for each payment phase.
7. Type the payment amount or percentage amount as appropriate for the selected payment method.
8. Click OK when you finish entering all payment phases, or click Cancel to exit without saving.

When you complete the payment pattern, the application sorts the payment dates in calendar order. Re-ordering the rows in the grid has no effect on processing because of this sorting arrangement.

When a detail instrument using a relative payment pattern is processed for as-of-date cash flow processing, the next payment date is internally calculated to determine which payment phase should be used. The calculated next payment date is used only for this purpose. The next payment date stored in the instrument table is the date used for any other processing.



## Defining Payment Phases for a Relative Payment Pattern

To create payment phases for a relative payment pattern, complete the following steps:

1. Click on the line number to select the entire payment pattern.  
An arrow appears next to the selected payment pattern.
2. Click Edit Pattern.  
The grid for entering the payment phases appears.
3. Click the up arrow spinner to add the required number of rows.  
Each row represents a payment phase.
4. Type the frequency for each payment phase.
5. Select the multiplier for each payment phase.
6. Type the number of payments at this frequency in the Repeat column for each payment phase.
7. Select the payment method for each payment phase.
8. Type the payment amount or percentage amount as appropriate for the selected payment method.
9. Click OK when you finish entering all payment phases, or click Cancel to exit without saving.

Unlike absolute payment patterns, relative patterns can represent multiple payments within a single row of the interface.

The pattern repeats its rotation if the life of the instrument is longer than the defined payment phases of the pattern. This rotation occurs until the maturity date of the instrument. For example, you create a payment pattern 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 pattern wraps around and the payment pattern schedules the fifth year for monthly payments.

To avoid this rotation, you can set the repeater of the last defined payment phase to 999. This repeater instructs the instrument that uses the payment pattern to repeat the last payment phase until the maturity date of the instrument.

## Splitting a Payment Pattern

To split a payment pattern, complete the following steps:

1. Check the Split box for the payment pattern.
2. Click on the line number to select the entire payment pattern.

An arrow appears next to the selected payment pattern.

3. Click Edit Pattern.

The Record Split Percent dialog box appears.

4. Click the up arrow spinner to add the required number of rows.

Each row represents an individual payment pattern for the split pattern.

5. Select the desired Payment Term for each phase.
6. Select the desired Payment Type for each phase.
7. Type the percent apportioned to each phase.

As new business or detail records are processed, the initial balance must be allocated across the various timelines. To ensure that the sum of all balance allocations equals 100 percent, the last timeline defaults to the remaining percentage balance.

8. Define the payment phases for each payment pattern.

You can follow the instructions provided in ["Defining Payment Phases for an Absolute Payment Pattern"](#) or ["Defining Payment Phases for a Relative Payment Pattern"](#) as appropriate.

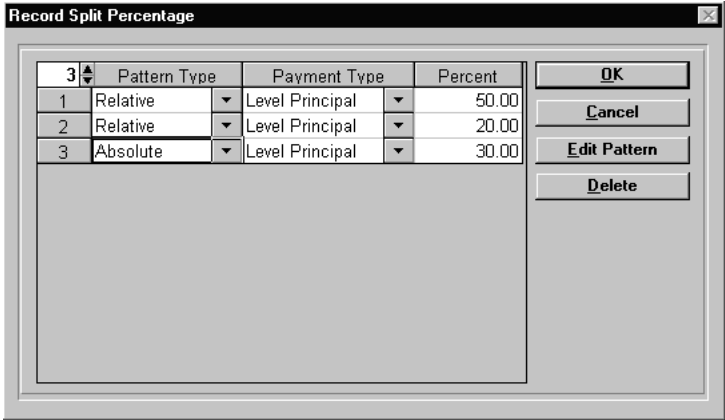
9. Click OK when you finish entering all payment phases, or click Cancel to exit without saving.

### Split Pattern Example

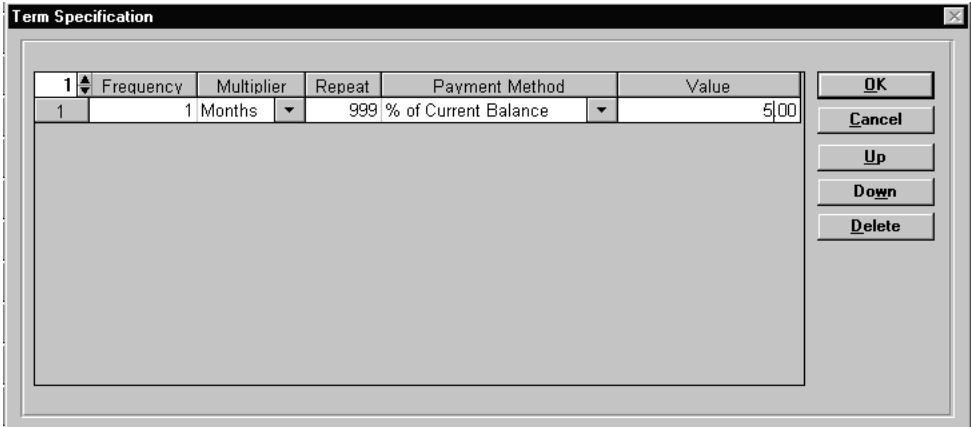
The following model of customer behavior for payment of credit card balances assumes three determined behaviors:

- Customers who pay the minimum payment every month (5 percent in this example)
- Customers who pay the entire balance every month
- Customers who pay the minimum payment every month and pay the entire balance once a year

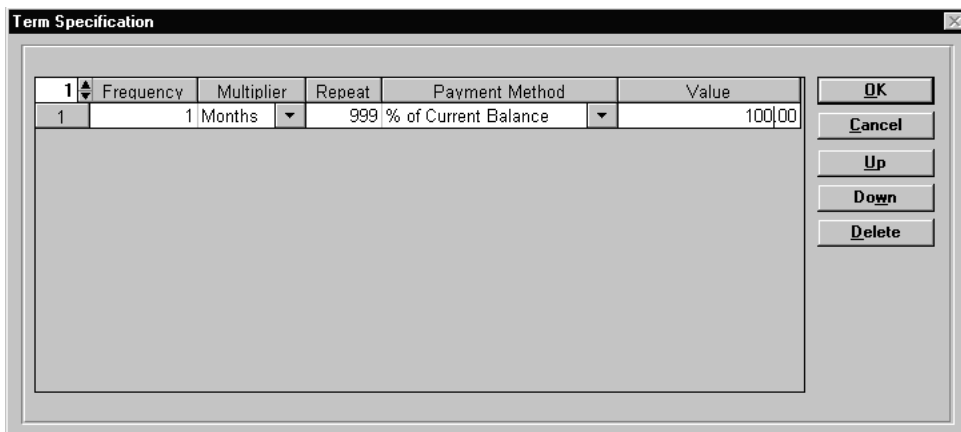
This example represents these customers in the order mentioned. Approximately 50 percent of the credit card customers belong to the first group, 20 percent belong to the second, and 30 percent belong to the third.



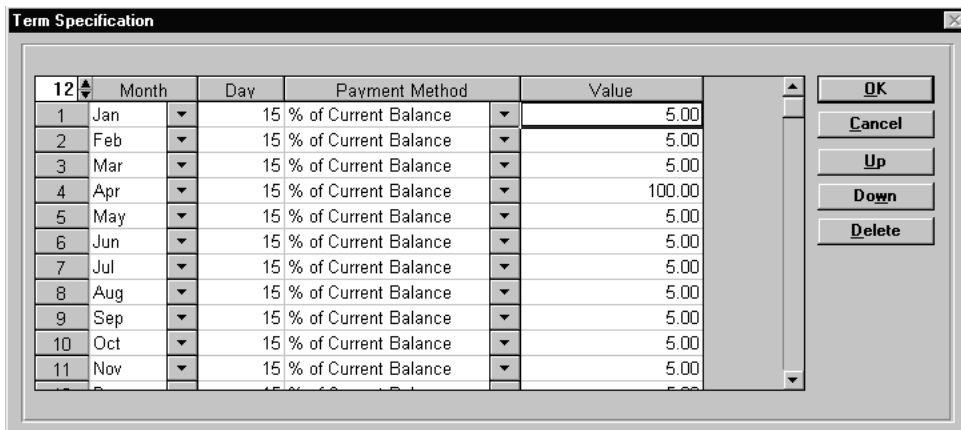
The first payment pattern in this split is a relative payment pattern with only one payment phase. The payment phase schedules a payment of 5 percent of the balance on a monthly basis.



The second payment pattern is also relative and has only one payment phase. This payment phase schedules a payment of 100 percent of the balance on a monthly basis.



The third payment pattern is an absolute payment pattern with each month scheduled for payments of 5 percent, except for April. This payment phase schedules April for 100 percent payment of the balance.



You can enter the payment pattern code as the amortization code in the Leaf Characteristics ID to assign this split pattern to credit card portfolios.

## Editing a Payment Pattern

You can change anything you want on a payment pattern. However, you should proceed with caution if you have assigned this pattern to any instruments. Some

modifications trigger warnings. For example, the following message appears if you change the code of the payment pattern:

This Payment Pattern Code may be referred to elsewhere (instrument data, Leaf Characteristics or Transaction Strategies IDs.) You should update all uses of the code or define another pattern for old code. Change code and save all changes to pattern?

To edit a payment pattern, complete the following steps:

1. Select Setup -> User-Defined Payment Pattern.
2. Click on the line number to select the entire payment pattern.  
An arrow appears next the selected payment pattern.
3. Make desired changes.
4. Click OK to save the changes, or click Cancel to exit without saving.

## Deleting a Payment Pattern

To delete a payment pattern, complete the following steps:

1. Select Setup -> User-Defined Payment Pattern.
2. Click on the line number to select the entire payment pattern.  
An arrow appears next the selected payment pattern.
3. Click Delete.  
The following message appears:  
"Delete selected pattern definition data?"
4. Click Yes if you want to proceed with the deletion, or click No to exit without deleting.



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## User-Defined Repricing Pattern

The User-Defined Repricing Pattern provides a mechanism to control the repricing structure of instruments whose rates change according to complex schedules. The User-Defined Repricing feature enables you to define multiple changes to various financial elements including:

- Rates
- Margins
- Frequency

This chapter provides information and instruction on:

- [Repricing Pattern Structure](#)
- [Creating and Defining a Repricing Pattern](#)
- [Editing a Repricing Pattern](#)
- [Deleting a Repricing Pattern](#)

See the *Oracle Financial Services Technical Reference Manual* for information on how a repricing pattern is applied during cash flow calculations.

### Repricing Pattern Structure

A repricing pattern has two parts:

- [Repricing Pattern Definition](#)
- [Repricing Event Definition](#)

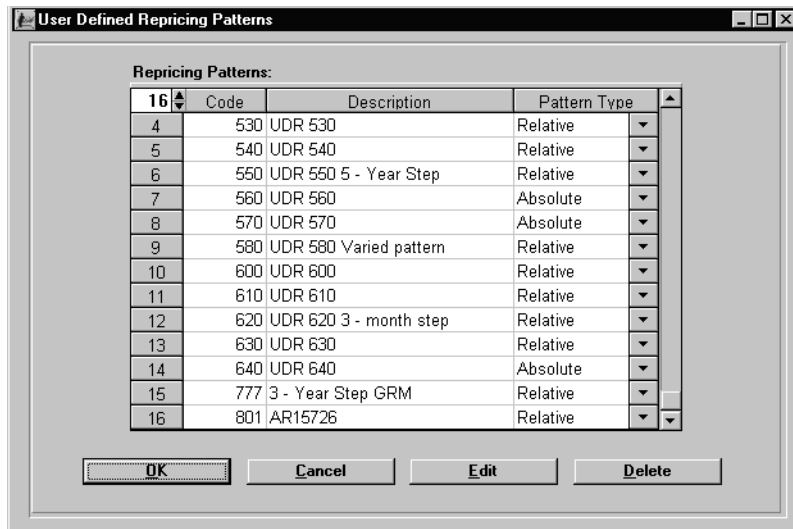
For every repricing pattern you create, you must define at least one repricing event. The following sections describe each part.

## Repricing Pattern Definition

The repricing pattern enables you to define a series of repricing events that describe interest rate adjustment characteristics over the life of a cash flow instrument. You can assign one repricing pattern to many cash flow instruments.

The two types of repricing patterns you can define are: absolute and relative. An absolute pattern is a collection of repricing events that occur on specific dates. A relative pattern is a series of repricing events defined for periods of time.

The user interface of the repricing pattern is in the form of a grid with three columns.



The columns of the repricing pattern grid are:

Column	Description
<b>Code</b>	The user-defined numeric code for the repricing pattern with valid codes from 500 to 998
<b>Description</b>	The description of the repricing pattern, which can be up to 80 characters in length
<b>Pattern Type</b>	Absolute or Relative



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**Note:** The repricing pattern interface is for a single user. You cannot open the interface when another user has access.

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## Repricing Event Definition

The events of a repricing pattern define all the changes to the interest rates of the instrument during its life. Every pattern begins with an origination event. The first event describes the characteristics that are set at origination. The second event describes the change in the repricing characteristics after the initial period is over. A third event describes the next change in the repricing characteristics, and so on.

### Repricing Event User Interface

The columns on the repricing event grid change based on the pattern type. You list each event on the Repricing Events grid. Then, you enter the detail for each event in a separate dialog box (see "[Event Detail](#)" for more information). You can define up to 999 events per pattern.

**Absolute Pattern** You use an absolute repricing pattern for instruments that are date dependent. Each specific date represents a separate event.

Repricing Events: Absolute: UDR 640

Repricing Events:

	Month	Day
7	Initial	
1	Initial	
2	Feb	28
3	Mar	31
4	Apr	30
5	Jul	31
6	Oct	31
7	Dec	31

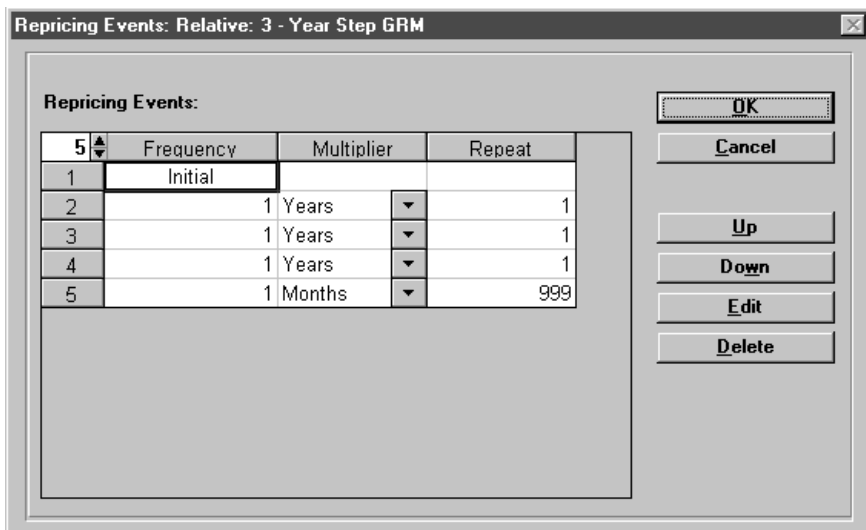
Buttons: OK, Cancel, Up, Down, Edit, Delete

You can have up to one year of defined events that repeat for the life of the instrument. For example, you may have a pattern that experiences rate changes at

the end of every quarter. In this case, you set up events for March 31, June 30, September 30, and December 31. However, you cannot define another event for March 31. If you attempt to add another event for a date already defined, the following message appears:

Duplicate dates not allowed.

**Relative Pattern** You use a relative repricing pattern for instruments when you want the repricing to be determined by elapsed time since origination. Each defined timeline represents a separate event.



The repricing events dialog box has a grid with three columns:

Column	Description
<b>Frequency</b>	The frequency represents how often you want the repricing to occur
<b>Multiplier</b>	The unit of time applied to the frequency: <ul style="list-style-type: none"> <li>■ Days</li> <li>■ Months</li> <li>■ Years</li> </ul>
<b>Repeat</b>	The number of times you want the repricing event to repeat

For example, you can define an event with a frequency of 1, a month multiplier, and a repeat value of 3. This translates into an event that reprices every month for a duration of 3 months.

You may have a graduated rate mortgage that requires three rate changes over the life of the instrument. In this case, you must create three events following the initial event. If you wish the instrument to retain the behavior of the last defined event, set the repeater to 999. This prevents *wrapping*, or the repetition of all the defined events until the life of the instrument runs out.

### Event Detail

You define each event with a repricing type of flat rate or indexed rate. A flat rate is a specific user-defined value, and an indexed rate is a series of adjustable values. These rate types determine what characteristics appear. When you check a characteristic, the application enables the appropriate fields for data entry.

**Flat Rate** You can set the rate of the instrument for flat rate events to a specific value, such as 6%.

Repricing Event Detail: 3 - Year Step GRM: 1 Year

Repricing Type

Flat Rate

Indexed Rate

OK

Cancel

Item/Field	Value	Multiplier
<input checked="" type="checkbox"/> Net Rate	7.5000	
<input checked="" type="checkbox"/> Gross Rate	7.0000	
<input checked="" type="checkbox"/> Transfer Rate	4.0000	
IRC		▼
Transfer Rate IRC		▼
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

When you select Flat Rate, the available detail characteristics are as follows:

Characteristic	Description
<b>Net Rate</b>	The new net rate value to assign
<b>Gross Rate</b>	The new gross rate value to assign
<b>Transfer Rate</b>	The new transfer rate to assign

Flat Rate always overrides the caps and floors defined in the instrument record or for new business. You must define caps and floors for new business (forecast balance and transaction strategy) in the Leaf Characteristics ID. See [Chapter 15, "Leaf Characteristics ID"](#) in the *Oracle Risk Manager Reference Guide* for more information.

**Indexed Rate** You can set the rate of the instrument of indexed rate events to an adjustable value, defined as the index rate plus a margin.

Repricing Event Detail: 3 - Year Step GRM: 1 Year

Repricing Type

Flat Rate  
 Indexed Rate

OK Cancel

Item/Field	Value	Multiplier
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
IRC	1 YR Treasury Index	▼
Transfer Rate IRC	1 YR Treasury Index	▼
<input checked="" type="checkbox"/> Net Margin	2.0000	
<input checked="" type="checkbox"/> Gross Margin	2.5000	
<input checked="" type="checkbox"/> Transfer Margin	-1.0000	
<input checked="" type="checkbox"/> Rate Cap Life	12.0000	
<input checked="" type="checkbox"/> Rate Floor Life	3.0000	
<input checked="" type="checkbox"/> Rate Set Lag	45 Days	▼
<input type="checkbox"/> Yield Curve Term		▼

When you select Indexed Rate, the available detail characteristics are as follows:

Characteristic	Description
<b>IRC</b>	The Interest Rate Code is the reference interest rate you want to use as the index rate to set Gross Rate and Net Rate. The application pulls the list of the interest rate codes from the current Historical Rates database.
<b>Transfer Rate IRC</b>	Application uses the input value to determine transfer rates
<b>Net Margin</b>	Application adds input value to index rate to get Net Rate
<b>Gross Margin</b>	Application adds input value to index rate to get Gross Rate
<b>Transfer Margin</b>	Application adds input value to index rate to get Transfer Rate
<b>Rate Cap Life</b>	Maximum for Gross Rate set by this event
<b>Rate Floor Life</b>	Minimum for Gross Rate set by this event
<b>Rate Set Lag</b>	Period by which the date of the interest rate used for calculation precedes the event date
<b>Yield Curve Term</b>	The Yield Curve Term is the term the application uses in interest rate code lookups. If you leave this field blank, it defaults to the term until the next repricing.

## Creating and Defining a Repricing Pattern

To create a repricing pattern, complete the following steps:

1. Select Setup -> User-Defined Repricing Pattern.
2. Type a code number, or advance the spinner to the next available number for the pattern.  
Valid codes are between 500 and 998. A new line appears at the bottom of the grid.
3. Type in the description of the pattern (such as, 3-Year Step GRM.)
4. Select the type of pattern (Absolute or Relative.)
5. Click once on the line number to select the entire pattern.
6. Click Edit.  
The repricing events grid appears.
7. Advance the spinner to the number of events you are defining for this pattern.

8. Complete the columns on the grid as appropriate for each event.

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**Note:** The grid columns differ for absolute patterns versus relative patterns. For further explanation, see "[Repricing Event User Interface](#)".

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9. Define the details of each event.
  - a. Click once on the line number of the event to select the entire event.
  - b. Click Edit.

The dialog box for defining the event details appears.

- c. Select the repricing type (Flat Rate or Indexed Rate) for the event.
  - d. Check the applicable items for the event and type the associated values.
  - e. Click OK.

Repeat steps a through e for every event of the pattern.

10. Click OK on the Repricing Events grid to accept all the events for the pattern.

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**CAUTION:** When editing the interface to add new pattern codes, avoid typing numbers into the spinner. For example, if you try to type in 25 to increase the number of patterns from 24 to 25, you risk losing many of your patterns. As you initially delete the 4, the interface displays a warning message asking you to confirm that you wish to delete rows 3 - 24. If you click Yes, all these patterns are removed.

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## Editing a Repricing Pattern

You can change anything you want on a repricing pattern. However, you should proceed with caution if this pattern has been used by instruments. Some modifications trigger warnings. For example, the following message appears if you change the code of the repricing pattern:

This Repricing Pattern Code may be referred to elsewhere (instrument data, Leaf Characteristics or Transaction Strategies IDs.) You should update all uses of the code or define another pattern for the old code. Change code?

To edit a repricing pattern, complete the following steps:

1. Select Setup -> User-Defined Repricing Pattern.
2. Click on the line number to select the entire repricing pattern.  
An arrow appears next the selected repricing pattern.
3. Make desired changes.
4. Click OK to save the changes, or click Cancel to exit without saving.

## Deleting a Repricing Pattern

To delete a repricing pattern, complete the following steps:

1. Select Setup -> User-Defined Repricing Pattern.
2. Click on the line number to select the entire repricing pattern.  
An arrow appears next the selected repricing pattern.
3. Click Delete.  
The following message appears:  
"Delete selected pattern definition data?"
4. Click Yes if you want to proceed with the deletion, or click No to exit without deleting.





SQL Talk enables end users to view and write to the Oracle Financial Data Manager (FDM) database using Structured Query Language (SQL) statements and procedures.

This chapter presents the following topics:

- [SQL Talk Privileges](#)
- [Using SQL Talk](#)
- [Limitations to the Spreadsheet Display and Processing Time](#)

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**Caution:** SQL Talk provides an easy-to-use SQL input dialog. If you are not an expert in SQL or not familiar with your database structure it is important to remember the following:

- SQL Talk is a direct link to the database and writes changes without prior confirmation. Misuse can severely damage your database.
  - SQL statements and procedures must be compatible with the FDM database.
- 
- 

## SQL Talk Privileges

The database privileges assigned to a user also govern SQL Talk privileges, with the additional restriction that, by default, all users are restricted to select-only statements. The database owner must make changes in security levels to give a user the ability to write back to the database. See the *Oracle Financial Data Manager Administration Guide* for more information.

## Using SQL Talk

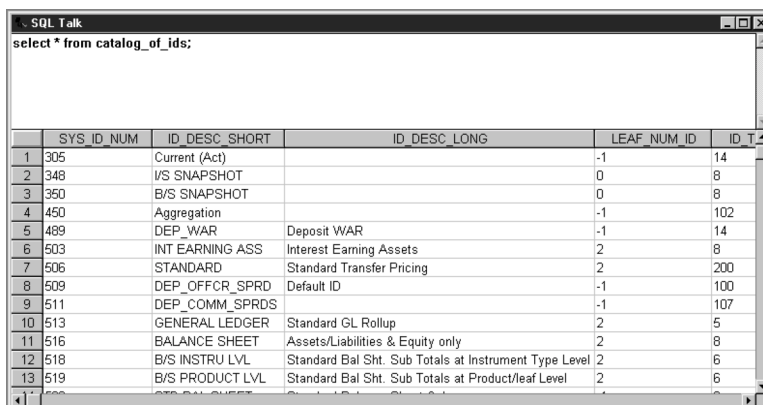
To open the SQL Talk window, complete the following steps:

1. From the menu bar, select Process -> SQL Talk to display the SQL Talk window.
2. Type your SQL script in the top pane of the window, ending your statement with the standard SQL semi-colon.
3. Press Ctrl-Enter to run the SQL script.

During processing a “Fetching...” dialog appears.

If you want to interrupt the process click Cancel. The lower pane of the window displays data up to the point of interruption.

The completed process returns data in spreadsheet format to the bottom pane of the SQL Talk window.



The screenshot shows a window titled "SQL Talk" with a text area containing the query `select * from catalog_of_ids;`. Below the text area is a spreadsheet-style table with the following data:

	SYS_ID_NUM	ID_DESC_SHORT	ID_DESC_LONG	LEAF_NUM_ID	ID_T
1	305	Current (Act)		-1	14
2	348	I/S SNAPSHOT		0	8
3	350	B/S SNAPSHOT		0	8
4	450	Aggregation		-1	102
5	489	DEP_WAR	Deposit WAR	-1	14
6	503	INT EARNING ASS	Interest Earning Assets	2	8
7	506	STANDARD	Standard Transfer Pricing	2	200
8	509	DEP_OFFCR_SPRD	Default ID	-1	100
9	511	DEP_COMM_SPRDS		-1	107
10	513	GENERAL LEDGER	Standard GL Rollup	2	5
11	516	BALANCE SHEET	Assets/Liabilities & Equity only	2	8
12	518	B/S INSTRU LVL	Standard Bal Sht. Sub Totals at Instrument Type Level	2	6
13	519	B/S PRODUCT LVL	Standard Bal Sht. Sub Totals at Product/leaf Level	2	6

4. Close SQL Talk.

## Using Multiple SQL Talk Sessions Simultaneously

You can have more than one SQL Talk open at a time; however, too many open SQL Talk dialogs can overtax system resources, resulting in a General Protection Fault error. The point at which an individual system fails depends on the client configuration, system environment, and resources required to process the SQL statements.

## Creating Stored Procedures

To create stored procedures for processing against your database, use the SQL ID in Balance and Control. Refer to the SQL ID chapter in *Oracle Financial Data Manager-Balance and Control Reference Guide* for information on using this ID.

## Limitations to the Spreadsheet Display and Processing Time

The following limitations apply to SQL Talk.

### Maximum Number of Rows and Columns Displayed

These limitations apply to the spreadsheet display.

#### Maximum Number of Rows

The maximum number of rows that you can select through SQL Talk is 16,000. If you issue a select statement that reaches or exceeds this number the following error message appears: "Only 16,000 rows can be displayed...aborting." Only the first 16,000 rows of your select statement appear in the spreadsheet display.

#### Maximum Number of Columns

SQL Talk displays a maximum of 252 columns. If you issue a select statement that returns more than that number of columns, only the first 252 columns appear.

## Optimizing Processing Time

Since the query you process against the database is stored in RAM, the speed at which rows are returned depends on the number of columns you select. The greater the number of columns, the longer it takes to return data. Therefore, make sure you select only the columns you want to see.



## Risk Manager Error Messages

Error Message	Error Condition	Error Code	Effect of Error on Processing
<b>&lt;Assumption Id type&gt; in Risk Manager Process ID &lt;Assumption ID name&gt; not found in database</b>	Assumption ID cannot be found in the database.	105	If ID is critical for processing, processing is stopped
<b>No Match for IRC</b>	Interest Rate Code cannot be found in the active Historical Rates database.	110	When the instrument reprices, it will receive a zero rate.
<b>No Data for IRC</b>	Interest Rate Code exists in the active Historical Rates database, but there are no corresponding rate values.	115	When the instrument reprices, it will receive a zero rate.
<b>Leaf Types mismatch: COL vs. Config ID for leaf: &lt;leaf number&gt;</b>	Definition for leaf chosen as product leaf in the Config ID has changed or no longer exists in the database. Also can relate to Organizational Unit leaf if two-leaf output processing is defined.	120	Processing is stopped.
<b>No of Buckets mismatch Cnfg ID in &lt;Assumption ID&gt;</b>	Assumption ID was created when the active Config ID held more/less buckets than it has currently; therefore, the Assumption ID contains more/less bucket information than necessary.	325	If Assumption ID holds more buckets than currently exist, only the buckets within the current modeling term will be used. If Assumption ID holds less buckets than currently exist, the assumption for the last bucket will be carried forward for the remainder of the modeling term.
<b>Inconsist. Run: MV and Discrt should be defined together</b>	Market value switch and Discount Rates Assumption Id are not consistent; only one has been defined.	330	Processing is stopped.
<b>Inconsist. Run: MtrtStr FcstBal PrMrgn must be def together</b>	New business assumption Ids (Pricing Margin, Maturity Strategy, Forecast Balance) are incomplete, some but not all have been defined.	330	Processing is stopped.

<b>Error Message</b>	<b>Error Condition</b>	<b>Error Code</b>	<b>Effect of Error on Processing</b>
<b>Inconsist. Run: Missing stochastic process assump.</b>	Missing stochastic process assumptions.	330	Processing is stopped.
<b>Inconsist. Run: Rate Index ID is not defined</b>	The Rate Index ID is not defined in the Process ID.	330	Processing is stopped.
<b>Inconsist. Run: Term Structure ID is not defined</b>	The Term Structure ID is not defined in the Process ID.	330	Processing is stopped.
<b>Inconsist. Run: For BP, Modeling Start Date must be 1st of month</b>	For BP, Modeling Start Date must be 1st of month, for example: March 1, 1998.	330	Processing is stopped.
<b>Inconsist. Run: No Options Selected for Sel. Reproc.</b>	No Options Selected for Selective Reprocessing in the Process ID.	330	Processing is stopped.
<b>Inconsist. Run: No Instrument Tables selected</b>	There are no Instrument Tables selected in the Process ID.	330	Processing is stopped.
<b>Inconsist. Run: BP run should have 60 buckets</b>	A budgeting process should have 60 modeling buckets.	330	Processing is stopped.
<b>Inconsist. Run: Inconsistent Sel. Reproc. buckets</b>	Number of modeling buckets in results is not consistent with the number of modeling buckets in the active Configuration ID during a selective reprocessing run.	330	Processing is stopped.
<b>Inconsist. Run: Duplicate AutoBal leaves</b>	Duplicate AutoBalance leaves defined in the configuration ID.	330	Processing is stopped.
<b>Inconsist. Run: Not all autoBal leaves defined</b>	Not all Auto-Balancing leaves are defined.	330	Processing is stopped.
<b>Inconsist. Run: BP buckets should be monthly</b>	Modeling buckets should be monthly for a Budgeting process.	330	Processing is stopped.
<b>Can't hit target for Leaf:&lt;leaf number&gt; bucket: &lt;bucket number&gt;</b>	It is impossible to calculate a new add balance that will satisfy the conditions required for new business balances.	335	No new business will be added for this bucket.
<b>No Leaf Char. for leaf: &lt;leaf number&gt;</b>	Payment and repricing data have not been set up for in the current Leaf Characteristics ID for leaf being processed.	340	Default characteristics will be used: amortization type = 700 payment frequency = original term percent taxable = 100% accrual basis = 30/360 repricing frequency = 0
<b>Invalid record: Invalid Amortization Code leaf: &lt;leaf number&gt;</b>	Amortization code is not equal to 100, 200, 400, 500, 600, 700, 710, 820, 830	345	Risk Manager will assume an amortization code of 700
<b>Invalid record: Maturity Date in the past leaf: &lt;leaf number&gt;</b>	Maturity Date is less than the as of date	345	Record is not processed.

<b>Error Message</b>	<b>Error Condition</b>	<b>Error Code</b>	<b>Effect of Error on Processing</b>
<b>Invalid record: Remaining number of payments &lt;= 0 leaf: &lt;leaf number&gt;</b>	Remaining number of payments is less than or equal to zero.	345	Record is not processed.
<b>Invalid record: Pmt Freq = 0 leaf: &lt;leaf number&gt;</b>	Payment frequency is equal to zero on an amortizing instrument.	345	Record is not processed.
<b>Invalid record: AmrtTerm &lt; OrgTerm on amortizing instrument leaf: &lt;leaf number&gt;</b>	Amortization term is less than original term for amortizing instrument.	345	Re-amortization of payment will be affected.
<b>Invalid record: Next payment date in the past leaf: &lt;leaf number&gt;</b>	Next payment date is less than the as of date.	345	If next payment date is much less than the as of date, it may cause the system to run out of memory
<b>Invalid record: Invalid net margin code leaf: &lt;leaf number&gt;</b>	Net margin code <> 0 or 1	345	Risk Manager will default the net margin code to 0: Floating Net Rate
<b>Invalid record: Current payment = 0 on amortizing instrument leaf: &lt;leaf number&gt;</b>	Current payment equal to zero and amortization code is other than simple/non amortizing	345	For amortization codes of 100,500, and 600, interest will be capitalized as principal. For amortization code of 820, no principal payments will be made.
<b>Invalid record: Valid rate cap &lt; current rate leaf: &lt;leaf number&gt;</b>	Rate Cap is not equal to zero and it is less than the current rate	345	Rate cap will be imposed on first repricing date.
<b>Invalid record: Valid rate floor &gt; current rate leaf: &lt;leaf number&gt;</b>	Rate Floor is not equal to zero and it is greater than the current rate	345	Rate floor will be imposed on first repricing date.
<b>Invalid record: Next repricing date in the past on repricing instrument leaf: &lt;leaf number&gt;</b>	Repricing frequency is not equal to zero and next repricing date is less than the as of date	345	If the next repricing date is very far in the past it may cause the system to run out of memory.
<b>Invalid record: Invalid int rate code on repr instr leaf: &lt;leaf number&gt;</b>	Reprice frequency is greater than zero and Interest rate code is not found in the active Historical Rates database	345	Instrument will not reprice.
<b>Invalid record: Original term = 0 leaf: &lt;leaf number&gt;</b>	Original term is equal to zero.	345	This will produce erratic results if instrument is Rule of 78's; amortization term is also zero; or payment frequency is also zero on a non-amortizing instrument.
<b>Invalid record: Current net rate &lt;= 0 on amortizing instrument leaf: &lt;leaf number&gt;</b>	Amortization code is 100, 500, 600, 820 and current net rate <= 0.	345	Negative income will be generated for positive balances.

<b>Error Message</b>	<b>Error Condition</b>	<b>Error Code</b>	<b>Effect of Error on Processing</b>
<b>Invalid record: Inconsistency of reprice freq and amortization. leaf: &lt;leaf number&gt;</b>	Amortization code is 500 or 600 and reprice frequency is zero or amortization code is 100 and reprice frequency is non-zero.	345	Reprice frequency will overwrite characteristics defined by amortization type code.
<b>Invalid record: No of Events&gt;16000</b>	Number of events is greater than 16,000.	345	
<b>Invalid record: OrgTerm and PmtFreq = 0</b>	Both original term and payment frequency are equal to zero.	345	Record is ignored.
<b>Invalid record: Invalid Account Type</b>	Invalid Account Type	345	Logs an error, continues execution.
<b>Invalid record: Deferred calculations do not converge</b>	Deferred calculations do not converge.	345	Logs an error and recognizes all deferred income at maturity.
<b>Buckets No Mismatch</b>	Assumption ID was created when the active Config ID held more/less buckets than it has currently; therefore, the Assumption ID contains more/less bucket information than necessary.	350	If Assumption ID holds more buckets than currently exist, only the buckets within the current modeling term will be used. If Assumption ID holds less buckets than currently exist, the assumption for the last bucket will be carried forward for the remainder of the modeling term.
<b>No Target for Roll/Auto leaf: &lt;leaf number&gt; bucket: &lt;bucket number&gt;</b>	Forecast Balance methods of Target Average or Target End cannot be used for a Leaf value used as a roll-into leaf or as an autobalancing leaf.	360	Targeting methods cannot be used for leaves specified as roll-into or autobalancing. The targeted balances will be ignored.
<b>Res_det: Security violation</b>	Current user does not have rights to create a Risk Manager results table.	365	Processing is stopped.
<b>Res_det: Truncate fail</b>	Results table for current processing ID could not be cleared of old data.	365	Processing is stopped.
<b>Res_det: Creation fail</b>	Results table for new processing ID could not be created.	365	Processing is stopped.
<b>Res_det the structure of the result_detail table was invalid for selective reprocessing</b>	The structure of the current Result Detail table does not match the IDT Result Detail Template Table.	365	Processing is stopped.
<b>Account Type not defined for leaf (leaf number)</b>	In Leaf Set-Up, an account type has not been specified for the current leaf.	370	Account type will default to Earning Assets.
<b>No. of scen in results &gt; expected leaf: &lt;leaf number&gt;</b>	Number of scenarios in results set is greater than number of scenarios expected from querying current Forecast Rates ID while processing Autobalancing.	380	Autobalancing will only be processed for the scenarios included in the current Forecast Rates ID.
<b>Invalid interest type - defaulted to interest in arrears</b>	Interest type code is not equal to 0 or 1.	385	Instrument is defaulted to "interest in arrears."



<b>Error Message</b>	<b>Error Condition</b>	<b>Error Code</b>	<b>Effect of Error on Processing</b>
<b>Invalid Pmt pattern: pmt pattern code. &lt;Payment Pattern Code&gt;for new business - abs val</b>	Payment Pattern assigned to new business has a constant payment amount.	390	Error is logged
<b>No Amrt Type in Leaf char for leaf: &lt;leaf number&gt;</b>	No amortization type code has been assigned in Leaf Characteristics for current leaf.	395	An error message is logged and instrument is defaulted to simple interest.
<b>No Amrt Type in Trans. Str. for leaf: &lt;leaf number&gt;</b>	No amortization type code has been assigned in Transaction Strategy for current leaf.	396	An error message is logged and instrument is defaulted to simple interest.
<b>Formula Leaves Error: Mismatch in buckets number</b>	The number of modeling buckets in result set does not match the number of modeling buckets defined in Formula Leaves ID.	397	Error is logged.
<b>Negative FullIndexGrs Rate for leaf: &lt;leaf number&gt;</b>	A negative fully indexed gross rate was calculated on a repricing event.	505	The negative rate will be assigned to the instrument.
<b>Negative FullIndexNet Rate for leaf: &lt;leaf number&gt;</b>	A negative fully indexed net rate was calculated on a repricing event.	505	The negative rate will be assigned to the instrument.
<b>Negative CurGrsRate Rate for leaf: &lt;leaf number&gt;</b>	A negative current gross rate was calculated on a repricing event.	505	The negative rate will be assigned to the instrument.
<b>Negative CurNetRate Rate for leaf: &lt;leaf number&gt;</b>	A negative current net rate was calculated on a repricing event.		The negative rate will be assigned to the instrument.
<b>Negative CurTrRate Rate for leaf: &lt;leaf number&gt;</b>	A negative current transfer rate was calculated on a repricing event.		The negative rate will be assigned to the instrument.
<b>Spread rate not found in Pricing Spread ID</b>	There is no pricing spread defined for the current leaf.	515	Zero will be defaulted as the pricing spread.
<b>Rate Not Found</b>	Forecasted rates do not exist for interest rate code on current instrument.	520	When the instrument reprices, it will receive a zero rate.
<b>1st point used</b>	Reprice date occurs before forecasting period; forecasted rates do not exist.	525	This may occur if the data holds a reprice date which is less than the as-of-date. Instrument will reprice to the rate as of the as-of-date.
<b>Last point used.</b>	Reprice date occurs beyond forecasting period; forecasted rates do not exist.	530	This may occur when calculating market values beyond the modeling term or calculating the last reprice/payment event for accruals in the last bucket. Instrument will reprice to the rate as of the last forecasted date.
<b>Code found only</b>	Interest rate code exists in Forecast Rates ID, but no rates have been forecast.	535	When the instrument reprices, it will receive a zero rate.

<b>Error Message</b>	<b>Error Condition</b>	<b>Error Code</b>	<b>Effect of Error on Processing</b>
<b>Prepayment tier not selected, zero prepayment rate used.</b>	Market Rate and Quote Basis have been defined in the Prepayment ID, but no tiers or prepayment percents have been created.	540	No prepayments will occur on this leaf.
<b>Last payment date is before origination date.</b>	The last payment date from instrument record is prior to the origination date on the instrument record.	545	Logs error and continues. For Transaction Strategy, last reprice date is set to origination date.
<b>No reprice frequency for adjustable record.</b>	Instrument is coded as adjustable, but the reprice frequency is equal to zero.	550	Instrument will be treated as fixed rate.
<b>No schedule found for record.</b>	No match can be found in the payment schedule table for the current record.	555	Logs error and defaults to simple interest record if payment frequency does not = 0. Otherwise discounts records.
<b>Pattern data can not be found for AMRT_TYPE:&lt;payment pattern code&gt;</b>	No payment pattern information has been defined for the documented amortization type code.	560	Log error and default to simple interest.
<b>No pattern information found for record.</b>	Documented amortization type code exists in database, but no supporting details are available.	565	Currently is used to notify users about invalid adjustment type code. Record defaults to fixed.
<b>Maturity date from record does not match schedule data.</b>	The maturity date on instrument record does not exist in the payment schedule table for the current record.	570	Logs error. Uses maturity date for schedule.
<b>Conv amrt with interest in advance, defaulted to arrears.</b>	Conventionally amortizing instrument is classified as interest in advance. This combination is not supported.	575	The instrument will be defaulted to interest in arrears.
<b>Invalid Amrt. Type detected. Defaulted to Simple Int.</b>	An unknown amortization type code was used.	585	Instrument will be defaulted to simple interest.
<b>No Repricing Pattern found for record.</b>	An unknown Adjustable Type Code was used.	600	Instrument will be defaulted to Other Adjustable.

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## Transformation ID Error Messages

To determine why a Process ID has failed, consult the Process\_Errors table. Transformation ID error information is obtained once you have identified the Process\_Sys\_ID number. To determine the Process\_Sys\_ID number, complete the following steps:

1. Select the Transformation ID icon. The Select Transformation ID dialog appears.
2. From the Transformation ID drop-down menu, select the Transformation ID you are working on. **Do not select OK.**
3. Right mouse click inside the Select Transformation ID dialog. The Transformation ID Information dialog appears. Make a note of the Sys\_id\_num (for example, 105877).
4. Select the SQL icon and execute the following SQL statement:

```
Select * From OFSA_Process_Errors
Where Process_Sys_ID = xxxxxx;
```

Press Ctrl+Enter to execute the statement and then look at the results. Each error row includes an error number, as well as other context information that can help you diagnose your process error. See the remainder of this appendix for further error code descriptions.

Error Code	Error Message	Error Condition	Effect on Processing
20702	Error: Failed to properly receive params.	The parameters passed to the engine are invalid. This is either an internal error or bad command-line usage.	Processing stops.
20704	Process ID or Configuration ID failed to convert ID where <xxxx>, <yyyy>.	Process ID or Configure ID is not recognized by OFSA (xxxx = Process ID System ID number, and yyyy = Configuration ID System number).	Processing stops.

Error Code	Error Message	Error Condition	Effect on Processing
20712	Critical Memory Allocation Failure.	Internal Application Logic Error.	Processing stops.
20713	Unable to Process.	The transformation engine was unable to perform the requested processing due to an error that is either listed in the Process Errors table or is unknown.	This message appears anytime processing stops for any error, known or unknown.
20714	LoadStart Failed During Read.	Internal Application Logic Error. OR Database Access Layer failure.	Processing stops.
20715	IoBase: Memory Allocation Failure.	Internal Application Logic Error.	Processing stops.
20716	IoMulti: Memory Allocation Failure.	Internal Application Logic Error.	Processing stops.
20717	Bad key allocation.	Internal Application Logic Error.	Processing stops.
20725	LedgerTransform: Fatal Error During Parse: Prepare	Internal logic error.	Processing stops.
20726	LedgerTransform: Fatal Error During Parse: Pivot	Internal logic error.	Processing stops.
20727	LedgerTransform: Fatal Error During Parse: Time	Internal logic error.	Processing stops.
20728	LedgerTransform: Input date is not valid.	The Transformation ID has Ledger Stat as the source type, Processing Option is Selective and either Start date or End date < 01 JAN,1950. OR The Transformation ID has Ledger Stat as the source type, Processing Options is Selective and the Start Date is greater than the End Date. OR The Transformation ID has Ledger Stat as the source type, the Processing Options is Current Month and the activated Configuration ID has an As Of Date < 01 JAN,1950.	Processing stops.
20730	LedgerTransform: Fatal Error During Parse: Output	Internal logic error.	Processing stops.

Error Code	Error Message	Error Condition	Effect on Processing
20731	LedgerTransform: Fatal Error During Parse: Bind Output table	Internal logic error.	Processing stops.
20732	LedgerTransform: Fatal Error During Parse: Writer Prepare	Internal logic error.	Processing stops.
20734	LedgerTransform: Fatal Error. FE Not in DETAIL_ELEM.	Transformation ID has Ledger Stat as the source type and the pivoted group has at least one Financial Element ID that is not being defined in the DETAIL_ELEM table.	Processing stops.
20735	LedgerTransform: Fatal Error. FE No column name defined in DETAIL_ELEM.	The Transformation ID has Ledger Stat as the source type, and at least one Financial Element ID that is defined in DETAIL_ELEM table does not have a corresponding COLUMN_NAME defined.	Processing stops.
20736	LedgerTransform: Error- All dimensions are filtered out.	Transformation ID has Ledger Stat as the source type and all the Dimensions are being filtered out.	Processing stops.
20737	Transformation ID does not exist in table.	A bad Sys_ID_Num is assigned to the Transformation ID.	Processing stops.
20738	Configuration ID does not exist in table.	Bad Sys_ID_Num is assigned to the Configuration ID.	Processing stops.
20739	Processing ID is bad.	There is an error in the format of the Processing ID.	Processing stops.
20741	Transformation ID: Unsupported source table type.	Transformation ID has an Undefined SOURCE_TBL_TYPE_CD saved in IDT_TRANSFORM table.	Processing stops.
20742	Ledger Transform Error: Transformation would cause table overwrite.	Transformation ID has Ledger Stat as the source type, Processing Options is Entire Table, Drop Existing Table is unchecked, and the Transform Into table had already existed in the database.	Processing stops.
20743	Filter is filtering out a financial element that already exists in the table.	The Transformation ID has Ledger Stat as the source type, and the Data Filter has filtered out at least one of its Financial_elem_ID which already exists in the Transform Into table.	Processing stops.

Error Code	Error Message	Error Condition	Effect on Processing
20746	A column for financial element is being added to the table where historic data is plugged with a zero, which causes inconsistent data.	A Ledger Stat Transformation ID is adding data to an existing output table. The added data causes a column to be added to the output table for a new financial element.  However, the values for the new financial element column for records that already exist in the output table are plugged with a zero. This is in error since valid values for this financial element for the existing records exist in the input table.	Processing stops.
20755	Fatal Error occurred loading Transformation ID.	Internal logic error.	Processing stops.
20756	Fatal Error occurred loading dimension filter.	Failure in Database Layer.	Processing stops.
20757	Ledger Transform: No Records returned.	Either there are no records in the LEDGER_STAT table, or the filter being used excludes all records.	No records are processed.
20764	RollupTransform: Transformation would cause table overwrite.	The Transformation ID has Tree Rollup as the source type, the Drop Existing Table Flag is unchecked and the Transform Into table already exists in the database.	Processing stops.
20765	RollupTransform: Rollup Sys_ID not found in Level_Desc table.	For the Tree Rollup ID being transformed, no records exist in the Level_Description table.	Processing stops.
20766	RollupTransform: Too many levels found in Level_Desc table.	The value in the LEVEL_NUM COLUMN in the Level Description table exceeds the Maximum number of levels, which is 15.	Processing stops.
20767	RollupTransform: Rollup Sys_ID not found in Catalog of IDs table.	The Tree Rollup ID (SYS_ID_NUM) cannot be found in the CATALOG_OF_IDS table.	Processing stops.
20768	RollupTransform: Leaf not found in Catalog of Leaves table.	The Leaf Type for the Tree Rollup being transformed does not exist in the Catalog_of_Leaves table.	Processing stops.
20769	RMTransform: Source table does not exist.	The Transformation ID has Risk Manager Result Detail as the source type and the table for the Process_ID does not exist in the database.	Processing stops.
20770	RMTransform: Error-Unable to drop existing table(s).	Missing Privileges: The DBA should run Grants in the OFSA System Administration.	Processing stops.

Error Code	Error Message	Error Condition	Effect on Processing
20771	RMTransform: Error: No data was found to transform.	The Transformation ID has Risk Manager Result Detail as the source type, the source table exists in the database but no data was found in the source table.	No records are processed.
20772	RMTransform: Error: No information on product or organization leaf was found.	The Transformation ID has Risk Manager Result Detail as the source type and either Product Leaf or Organization Unit ID in the source table is not defined in The CATALOG_OF_LEAVES table.	Processing stops.
20773	RMTransform: Error- All dimensions are filtered out.	The Transformation ID has Risk Manager Result Detail as the source type and all the Dimensions are being filtered out.	Processing stops.
20774	RMTransform: Inapplicable dimensions found in dimension filter.	The Transformation ID has Risk Manager Result Detail as the source type and the Dimension Filter excludes the Leaf type which is neither the Product Leaf nor the Organization Leaf Type that is being used by the input table.	Processing stops.
20775	RMTransform: Error- Required bucket information not found in RESULT_BUCKET table.	Transformation ID has Risk Manager Result Detail as the source type and at least one Scenario_Num in the source table cannot be found in the RESULT_BUCKET table.	Processing stops.
20776	RMTransform: RESULT_BUCKET has more start date indexes than result table.	The RESULT_BUCKET table expects more scenarios than are contained in the result detail table. Data may be missing from the result detail table.	Note: This is only a warning message.
20777	RMTransform: Error: FE in source table is not in DETAIL_ELEM.	The Transformation ID has Risk Manager Result as the source type, and has at least one Financial Element ID not defined in the DETAIL_ELEM table.	Processing stops.
20778	RMTransform: Error: Prepare Writer failed.	Internal logic error.	Processing stops.
20780	LedgerTransform: Transformation data inconsistent with existing table.	Pivoting Data causes the existing Transform Into table data to become inconsistent.	Processing stops.
20782	Transform: Duplicate Column Name found in DETAIL_ELEM.	Pivoted Data has at least two Financial Elem IDs having the same COLUMN_NAME defined in the DETAIL_ELEM table.	Processing stops.

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<b>Error Code</b>	<b>Error Message</b>	<b>Error Condition</b>	<b>Effect on Processing</b>
20783	LedgerTransform: Dimension filter contains a column which is used in Data Filter.	A leaf column is being excluded that is being used by the data filter.	Processing stops.
20784	RMTransform: Error-Unable to create output table.	The Transformation ID was unable to create the Transform Into table or Index.	Processing stops.
20789	Transform: Failed to drop table.	Missing database privilege.	Processing stops.
20790	Transform: Failed to create rollup table.	Run Grants in OFSA System Administration, or see your DBA.	Processing stops.
20791	Transform: Failed to create table.	Run Grants in OFSA System Administration, or see your DBA.	Processing stops.
20792	Transform: Failed to append columns to table.	Run Grants in OFSA System Administration, or see your DBA.	Processing stops.
20793	Transform: Failed to reserve table.	Run Grants in OFSA System Administration, or see your DBA.  OR Transform Into table has already been reserved by other User.	Processing stops.

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# Glossary

## **Aggregation**

To send (write) the results from a Stratification Report to a table in the database.

## **As of Date**

Date at which the data is current.

## **Asset/Liability Management Committee**

The Asset/Liability Management Committee (or ALCO) is an organization within a financial institution whose charter is to manage interest rate risk.

## **At-Risk Period**

The time horizon for Value-at-Risk, such as the difference between the time in the future when we evaluate portfolio loss and the As of Date.

## **Base Rates**

Section in Oracle Risk Manager that stores the interest rates associated with the data As-of-Date.

## **Basis Points**

1/100th of a percent (abbreviated as “bps”)

## **Breakage Charges**

A charge assigned to an account whose actual cash flows vary significantly from the expected cash flows at the time of funding.

## **Cash Flow Table**

An instrument table that contains all of the OFSA cash flow columns.

**Cash Flow Column**

Column in an instrument table used by the OFSA cash flow engine to perform cash flow analysis on a record.

**Configuration ID**

ID in OFS Applications that stores system default information customized for the user and/or the institution.

**CPR**

Constant Prepayment Rate (CPR) is a measure of an annualized prepayment rate.

**Credit Risk**

The risk that a loan holder will be unable to repay any portion of the loan.

**Current Rate Risk Profit**

Component of funding center rate risk results attributed to current mismatches of assets and liabilities.

**Data Correction Processing ID**

Components of funding Center rate risk results attributed to current mismatches of assets and liabilities. It allows row level editing of all data in the OFSA database.

**DDA**

Demand Deposit Account. An example of a DDA is a checking account.

**De-annualize**

To compute the monthly equivalent rate of an annual rate

**Duration**

Duration is the rate of market value change with respect to discount rate changes. It is a measure of market value sensitivity: the lower the value, the less sensitive the market value to changes in interest rates.

**Embedded Rate Risk Profit**

Portion of funding center rate risk result attributed to prior rate bets.

**Floating Tree Bar**

Window that allows you to choose the appropriate branch or leaf in the currently active Tree ID.

**Funding Center**

Area in a financial institution that receives the transfer pricing charge and credit for funds.

**General Ledger**

The main data source that defines an institution's financial reality. The General Ledger reflects all accounting entries.

**Grid**

A logical grouping of cells often surrounded by scroll bars.

**Historical Rates Table**

OFSA Repository for all historical actual interest rates.

**Instrument**

Type of financial security. See *Instrument Table*.

**Instrument Table**

A type of table contained in the OFSA database used to store account level information.

**Instrument Records**

Rows in the OFSA database that carry transaction account level information (Example: deposit account by deposit account)

**Interest Rate Code**

User defined code to reference a yield curve or single rate index for historical analysis, transfer pricing, and interest rate forecasting purposes.

**Last Repricing Date**

Date the rate last changed for an adjustable rate instrument and the origination date for a fixed rate instrument.

**Leaf Fields**

OFSA database fields used to define hierarchical segmentations of data (Trees). They also draw a relationship between the instrument data and the General Ledger data in Ledger/Stat.

**Leaf ID**

A column in the OFSA database that allows the creation of hierarchical trees for use in reporting and assumptions. Leaf ID Columns also define the relationship between the instrument data and the ledger data.

**Leaf Values**

Specific numeric values that make up the Leaf Fields.

**Ledger/Stat**

Table in OFSA database that stores all General Ledger as well as statistical information for current and historical periods.

**Liquidity Premiums**

A charge levied on a long-term instrument to compensate for illiquidity of the funds.

**Log in**

To access the programs and database of any OFS application by providing a valid user name and password.

**Long Run Rate**

One of the user-input parameters of the Vasicek (discrete-time) term structure model; represents the equilibrium value of the one-month annually compounded rate.

**Market Price of Risk**

In financial economics theory the market price of risk is a measure of intertemporal risk-aversion of the aggregate investor; for example, a high market price of risk during some future period means that investors will be more risk-averse, and that rates for that term should be higher to compensate for this risk; in practical terms, the market price of risk is the "plug" that makes the risk-neutral rates price risk-free bonds correctly.

**Market Value**

In Monte Carlo, average of the (scenario specific) present values.

**Matched Rate Transfer Pricing**

Method of Transfer Pricing where all accounts have transfer rates that reflect their specific maturity and repricing characteristics.

**Matched Spread**

The interest profit margin for any account, measured as the Note Rate minus the Transfer Rate for asset accounts and the Transfer Rate minus the Note Rate for Liability and Equity accounts.

**Monthly Rate**

Yield on a loan contracted at the beginning of a month for a period of one month assuming a continuous compounding basis; the monthly rate is a function of time and scenario; the Rate Generator also computes rates for a different term than a month.

**Next Repricing Term**

Repricing frequency for an adjustable rate instrument and the original term to maturity for a fixed rate instrument

**Oracle Balance and Control**

Balance and Control validates all data used in the OFSA database.

**Oracle Budgeting and Planning**

Budgeting and Planning performs distributed budgeting of all balance sheet and income statement accounts.

**Oracle Performance Analyzer**

Performance Analyzer analyzes multiple levels of profitability. (Example: organizational and product profitability)

**Oracle Portfolio Analyzer**

Portfolio Analyzer allows flexible reporting and filtering of data.

**Oracle Risk Manager**

Risk Manager is an Asset/Liability model that generates daily cash flows for each individual transaction record.

**Oracle System Administration**

Oracle System Administration is a set of powerful administrative tools that provide management of the OFSA Relational Database and access to the database by OFS application users.

**Oracle Transfer Pricing**

Transfer Pricing performs Matched Rate Transfer Pricing for an entire balance sheet.

**Operating Cost**

Non-interest related cost of running a business.

**Option Costs**

Costs assigned to measure the value of any customer option on an instrument. (Example: prepayments on mortgage loans)

**Portfolio Fields**

Fields in the OFSA database that are common to multiple instrument tables. The OFSA Administrator determines the portfolio fields.

**Prepayment**

A reduction in the principal balance of a transaction record prior to the contracted schedule date.

**Present Value**

In Monte Carlo, sum of cash flows paid by a security along a particular rate scenario, discounted by the stochastic discount factor.

**Processing Filter ID**

Filter ID used to define which data should go into a processing run.

**PSA**

A prepayment specification method established by the Public Securities Association, which relates the CPR to the age of that instrument.

**Reconciliation**

The process of comparing information from one data source to another

**Record**

Usually a single account or transaction, or aggregation of accounts, stored in the database (also called a row).

**Remote User**

A user not connected to the client server environment. A remote user needs to transmit information to the budget administrator via computer files.

**Report ID**

OFSA ID that allows the creation of a report by allowing the definition of the report rows and columns, and the data that goes into the report (Filter ID).

**Reporting Currency**

An active currency to which balances in other currencies are consolidated, often used for reporting.

**Single Rate**

An interest rate code with only one point defined. (Examples: prime rate and 11th District Cost of Funds Index)

**Speed of Mean Reversion**

One of the user-input parameters of the Vasicek and Extended Vasicek (discrete-time) term structure models; represents the long-run drift factor.

**Spreadsheet Control Bar**

A pop-up dialogue that facilitates the definition of a series of input values (dates or numbers) by allowing several methods for defining structured patterns in the data.

**SQL**

Structured Query Language. The standard method of accessing the OFSA database.

**Stochastic Discount Factor**

Present value (along a rate scenario) of one dollar received at some future time; it is a function of future time, OAS, and scenario

**Stratification ID**

A type of Row ID that allows the specification of multiple stratification reports; reports that segment data by groupings of one or many database columns.

**Stratification Report**

A report that segments results into groupings of one or many database columns.

**Subtotal ID**

ID that specifies the nodes in a Tree ID, with summarized results in a reporting process.

**Transfer Pricing**

A method for valuing all sources and uses of funds for a balance sheet.

**Transfer Pricing ID**

A OFSA ID used to specify the method for transfer pricing all balance sheet accounts.

**Transfer Pricing Table**

An instrument table that contains all of the columns required to run transfer pricing.

**Tree ID**

Hierarchical structure for Leaf Fields in OFS applications (Examples: organizational and product type)

**UPR**

Unscheduled Principal Runoff (UPR) is a source of runoff in Oracle Risk Manager cash flow calculations that allows another source of unscheduled runoff in addition to prepayments. UPR is not applicable for Oracle Transfer Pricing.

**Volatility**

One of the user-input term parameters of all (discrete-time) term structure models; represents a standard deviation of the one-month annually compounded rate.

**Yield Curve**

Curve of annually compounded zero-coupon bond yield, as recorded in the Historical Rates ID.



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