Oracle Financial Services Funds Transfer Pricing User Guide

Release 8
Part Number E55515-01

ORACLE
FINANCIAL SERVICES

Copyright © 2015, 2016, Oracle and/or its affiliates. All rights reserved.

Primary Author: Arpana Danayak

Other Author: Christopher Spofford, Brad Bruckschen

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisi tion Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate failsafe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Preface 1

CHAPTER 1 ***Introduction to Oracle Funds Transfer Pricing*** 5

Overview of Oracle Financial Services Funds Transfer Pricing 5
Oracle Funds Transfer Pricing and Other Oracle Financial Services Applications 6
Oracle Funds Transfer Pricing Integrations 7

CHAPTER 2 ***Overview of OFSAA Infrastructure*** 11

OFSAA Infrastructure 11
Overview of Dimensionality in OFSAA 12
Referential Integrity 12
Dimension Attributes 13
Hierarchies 13
Rollup Members for Dimensions Supporting Hierarchies 14
Dimension Types 14
Key Processing Dimensions 14
Seeded Key Processing Dimensions 14
User Defined Key Processing Dimensions 15
Standard Dimensions 15
Simple Dimensions 15
Overview of Attributes 17
Overview of OFSAA Rules 17
OFSAA Filters 18
OFSAA Expressions 19
Folders 19
Access Type 20
Global Preferences 20
System Configuration 20

CHAPTER 3 ***OFSAA Administrative Reporting*** 23

Introduction 23
Access Permissions 25
Data Quality 25
Data Quality Dashboard 26
Object Registration 33
Security 33
Adhoc Reporting – Special Instructions 40

CHAPTER 4 ***OFSAA Data Entry Forms and Queries*** 43

Introduction to Data Entry Forms and Queries 43
Acronyms 43
Designing Data Entry Forms 44
Creating a New Form 45

The Grid Layout 46
The Single Record Layout 47
The Edit/View Layout 48
The Multi Column Layout 48
The Wrapping Row Layout 49
The Tree View Layout 50
Joining Tables 53
For Grid, Single Record, Edit/View, Wrapping Row, Multicolumn and Tree View Layouts 54
For Grid, Single Record, Edit/View, Wrapping Row & Multicolumn Layouts 56
Applying Rules 57
Committing the Batch 59
Defining the Form Filter 59
Data Versioning 60
Specifying Message Details 61
Altering an Existing Form 71
Copying an Existing Form 76
Deleting a Form 77
Assigning Rights to a Form 77
Message Type Maintenance 80
Entering Data 83
Viewing Form Details 83
Single Record layout 84
Grid Layout 85
Multi Column Layout 86
Wrapping Row Layout 87
Editing a Form 88
Roll Back 88
Adding Rows to a Form 89
Deleting a Record in a Form 89
Authorizing Data 89
Re-authorizing Records 91

CHAPTER 5 ***OFSAA Attributes*** 93

Overview 93
Summary & Detail Screens 93
Navigation within the Summary Screen 94
Dimension Container 94
Search Container 94
Dimension Attributes Container 94
Dimension Attributes Summary Grid 96
Navigation within the Detail Screen 97
Attribute Functionality 97
Dimension Container 97
Attribute Details Container 97
Attribute Properties Container 98

CHAPTER 6 ***OFSAA Dimension Members*** 101

Overview 101
Summary & Detail Screens 101
Navigation within the Summary Screen 102
Dimension Container 102
Search Container 102
Dimension Members Container 103
Dimension Members Summary Grid 103
Navigation within the Detail Screen 104
Dimension Member Functionality 105
Dimension Container 105
Dimension Member Details Container 105
Dimension Member Attributes Container 107

CHAPTER 7 ***OFSAA Hierarchies*** 109

Overview of OFSAA Hierarchies 109
Summary & Detail Screens 109
Navigation within the Summary Screen 110
Dimension Container 110
Search Container 111
Hierarchies Container 111
Hierarchies Summary Grid 112
Navigation within the Detail Screen 113
Hierarchy Functionality 113
Dimension Container 114
Hierarchy Properties Container 114
Hierarchy Display Grid 116
Controlling the Hierarchy Display 117
Adding Hierarchies 118
Editing Hierarchies 120

CHAPTER 8 ***OFSAA Filters*** 135

Overview of OFSAA Filters 135
Summary & Detail Screens 135
Navigation within the Summary Screen 135
Navigation within the Detail Screen 137
Data Element Filters 139
Hierarchy Filters 146
Group Filters 148
Define Attribute Filter 149

CHAPTER 9 ***OFSAA Expressions*** 151

Expressions 151
Summary & Detail Screens 151
Navigation within the Summary Screen 152
Expressions Container 152

Expressions Summary Grid 153
Navigation within the Detail Screen 154
Entity Type & Entity Name 156
Functions and Operators Sub-Containers 158

CHAPTER 10 **OFSAA Rate Management** 1

Overview 1
Interest Rates Summary Screen 2
Interest Rates Detail Screen 5
Currency 26
Currency Rates 29
Currency Exchange Rate Validation 33
Currency Rate Validation – Overview 33
Exchange Rate Validation – Feature Description 34
Currency Rate Validation – Procedure 34
Validating Exchange Rate Relationships 34
Economic Indicators Summary Screen 40
Economic Indicators Detail Screen 43

CHAPTER 11 **Simplified Batches** 47

Overview of Simplified Batches 47
Summary and Detail Screens 49
Navigation within the Summary Screen 49
Navigation within the Detail Screen 52
Task Selection 55
Running a Simplified batch 59
Viewing the Task Logs 61
Additional Batch Options 62

CHAPTER 12 **Holiday Calendar** 63

Overview of Holiday Calendars 63
Searching for a Holiday Calendar 63
Creating a Holiday Calendar 64
Executing Holiday Calendar 66
Holiday Exceptions 66
Excel Import/ Export 67

CHAPTER 13 **The Oracle Funds Transfer Pricing Process** 69

Overview of the Oracle Funds Transfer Pricing Process 69
Defining Transfer Pricing Rules 71
Transfer Pricing Methodologies and Rules 71
Cash Flow : Average Life 73
Cash Flow: Duration 74

Cash Flow: Weighted Term ... 75
Cash Flow: Zero Discount Factors ... 76
Moving Averages ... 78
Straight Term ... 79
Spread from Interest Rate Code ... 80
Spread from Note Rate ... 81
Redemption Curve ... 81
Tractor Method ... 82
Caterpillar ... 86
Weighted Average Perpetual ... 87
Unpriced Account ... 87
Transfer Pricing Methods and the Mid-Period Repricing Option ... 88
Defining Transfer Pricing Methodologies Using Node Level Assumptions ... 92
Associating Conditional Assumptions with Assumption Rules ... 93
Defining Prepayment Rules ... 97
Prepayment Methodologies and Rules ... 97
Associating Node Level and Conditional Assumptions with Prepayment Rules ... 105
Defining Adjustment Rules ... 106
Adjustment Methods and Rules ... 106
Adjustment - Fixed Rate ... 107
Adjustment - Fixed Amount ... 108
Adjustment - Formula Based Rate ... 109
Breakage Charges ... 110
Associating Node Level and Conditional Assumptions with Adjustment Rules ... 114
Defining Alternate Rate Output Mapping Rules ... 114
Defining and Executing a Transfer Pricing Process ... 114
Transfer Pricing Process and the Propagation Pattern ... 117
Transfer Pricing Process and Audit Options ... 118
Transfer Pricing Process Rule and Calculation Modes ... 120
Transfer Pricing Process and Migration Options ... 121
Transfer Pricing Process and Calculating Economic Value ... 122
Stochastic Transfer Pricing Process and Option Cost Parameters ... 123
Stochastic Transfer Pricing Process and Stochastic Rate Indexing Rules ... 124
Defining and Executing a Break Identification Process ... 124
Assumptions ... 125
Full Breaks ... 127
Partial Breaks ... 128
Change in Attributes Break ... 130
The Ledger Migration Process ... 131
Overview of the Ledger Migration Process ... 132
Understanding Ledger Migration ... 133
Requirements for Successful Ledger Migration ... 136
Example of Transfer Rate Ledger Migration ... 140
Ledger Migration of Option Costs ... 145
Usage of Intermediate Tables in the Engine for Management Ledger ... 145
Migration Options- 'Functional Currency' and 'Entered & Functional Currency' ... 146
FSI_DB_INFO DEPENDENCY for Multi Currency ... 146
Daily Charge/Credit - Migration ... 146
Defining Behavior Patterns ... 147
Behavior Pattern Structure ... 147
Payment Events ... 148

Defining Payment Patterns 149
Payment Pattern Structure 149
Payment Events 150
Absolute Payment Patterns 151
Relative Payment Patterns 151
Split Payment Patterns 152
Defining Repricing Patterns 152
User Defined Repricing Pattern 153
User Defined Repricing Event 153
Absolute Repricing Pattern 154
Relative Repricing Pattern 155
Pricing with Balance Tiers 155
Performing Cash Flow Edits 156
Creating Interest Rate Codes 156
Interest Rate Codes and Rate Lookups 157
Accessing Transfer Pricing Detail Cash Flow Results for Audit Purposes 158
Accessing Transfer Pricing Interest Rate Audit Results 158
Analyzing Results 158
Reviewing Processing Errors 159
Reprocessing Erroneous Accounts 160
Reconciling the Data 160

CHAPTER 14 ***Transfer Pricing Concept*** 161
Overview of Transfer Pricing 161
Traditional Approaches to Transfer Pricing 162
A New Approach to Transfer Pricing 163
How Matched Rate Transfer Pricing Works 164
Evaluating Interest Rate Risk 165

CHAPTER 15 ***Common Rule Management Tasks*** 167
Overview of Common Rule Management Tasks 167
The Rule Summary Page 167
Searching for Rules 168
Creating Rules 169
Viewing and Editing Rules 169
Copying Rules 169
Deleting Rules 170
Dependency Checking 170

CHAPTER 16 ***Application Preferences*** 173
Overview of FTP Application Preferences 173
Updating FTP Application Preferences 173

CHAPTER 17 ***Cash Flow Edits*** 179

Overview of Cash Flow Edit Processes....179
Creating Cash Flow Edit Processes....180
Executing Cash Flow Edit Processes....181

CHAPTER 18 ***User Defined Behavior Patterns*** 183

Overview of User Defined Behavior Patterns....183
Searching for Behavior Patterns....183
Creating Behavior Patterns....185
Defining Non Maturity Behavior Patterns (for non-Tractor TP Method use)...186
Defining Non Maturity Behavior Patterns (for Tractor TP Method use)....187
Export/Import Replicating Portfolio Data in Excel....190
Scheduling Replicating Portfolio Actions.... 192
Defining Non Performing Behavior Patterns....195
Defining Devolvement and Recovery Behavior Patterns....196

CHAPTER 19 ***User Defined Payment Patterns***.... 199

Overview of User Defined Payment Patterns....199
Searching for Payment Patterns....199
Creating Payment Patterns....200
Defining Absolute Payment Patterns.... 201
Defining Relative Payment Patterns.... 203
Defining Split Payment Patterns.... 205

CHAPTER 20 ***User Defined Repricing Patterns*** 207

Overview of Repricing Patterns....207
Searching for Repricing Patterns....207
Creating Repricing Patterns....208
Defining Absolute Repricing Patterns.... 209
Defining Relative Repricing Patterns....211

CHAPTER 21 ***Transfer Pricing Rules***.... 215

Overview of Transfer Pricing Rules....215
Creating Transfer Pricing Rules....216
Defining Transfer Pricing Methodologies....216
Defining the Redemption Curve Methodology....225
Defining Tractor Methodology.... 226
Defining the Unpriced Account Methodology.... 227
Copying Assumptions Across Currencies....227

CHAPTER 22 ***Prepayment Rules***.... 229

Overview of Prepayment Rules....229
Creating Prepayment Rules....230

Defining Prepayment Methodologies....230
Defining the Constant Prepayment Method.... 234
Defining the Prepayment Model Method.... 234
Defining the PSA Prepayment Method.... 235
Defining the Arctangent Calculation Method.... 236
Defining Early Redemption Assumptions.... 237

CHAPTER 23 ***Prepayment Models***.... 241

Overview of Prepayment Models....241
Creating Prepayment Models....241
Editing Prepayment Models....245
Editing Prepayment Rates in a Prepayment Model.... 245
Prepayment Rate Data Loader....246

CHAPTER 24 ***Adjustment Rules***.... 247

Overview of Adjustment Rules....247
Creating Adjustment Rules....247
Defining Adjustment Methods....248

CHAPTER 25 ***Stochastic Rate Indexing Rules***.... 259

Overview of Stochastic Rate Indexing Rules....259
Defining Stochastic Rate Indexes....259

CHAPTER 26 ***Alternate Rate Output Mapping Rules***.... 265

Overview of Alternate Rate Output Mapping Rules....265
Creating Alternate Rate Output Mapping Rules....266
Registering Alternate Output Columns for Account Tables....267

CHAPTER 27 ***Transfer Pricing Process*** 269

Overview of Transfer Pricing Processes....269
Creating a Standard Transfer Pricing Process....271
Creating a Stochastic Transfer Pricing Process....283
Executing a Transfer Pricing Process....293

CHAPTER 28 ***Break Identification Process*** 297

Overview of Break Identification Process....297
Creating a Break Identification Process....297
Executing a Break Identification Process....300
Performance Tuning Break Identification Processes....303

CHAPTER 29 ***Rate Locks and the Loan Commitment Pipeline*** 305

Rate Locks on Loan Commitments 305
Rate Lock Options 305
How to Transfer Price using Forward Rates and Calculate Rate Lock Option Costs305
Rate Management 307
Implied Forward Rates Output 309
Transfer Pricing Future Dated Instruments (Loan Commitments)....310
Execution and Results 314

CHAPTER 30 ***FTP Rate Card*** 317

Overview of Rate Card 317
Setting up a Product 317
Setting up Batch Execution of Rate Card 322
Defining a Rate Report 328
Viewing Rate Card Report 331

CHAPTER 31 ***Viewing FTP Objects in Metadata Browser*** 333

Metadata Browser (Object and Application View) 333
Viewing ALM Objects in Metadata Browser 334

CHAPTER 32 ***Multi Language Support*** 339

Overview 339

CHAPTER 33 ***Standard Navigation Paths*** 343

Standard Navigation Paths 343

CHAPTER 34 ***Transfer Pricing Error Messages*** 345

Transfer Pricing Error Messages 345

CHAPTER 35 ***Process Tuning*** 351

Multiprocessing Model 351
Multiprocessing Options 353
Specifying Multiprocessing Parameters 358
Tuning Multiprocessing 366
LEDGER_STAT Updating 368

CHAPTER 36 ***External Break Process Flow*** 369

Breaks Event Data Loaded from External Source Systems 369

CHAPTER 37 ***FTP Web Services*** 371

Overview of FTP Web Services 371

Description of FTP Web Services 372
Debugging 389

CHAPTER 38 ***Glossary*** 391

Preface

Intended Audience

Welcome to Release 8 of the *Oracle Financial Services Funds Transfer Pricing User Guide.*

The Oracle Financial Services Cash Flow Engine Reference Guide provides useful guidance and assistance to:

- Technical end users
- Functional end users
- Data Administrators
- Consultants
- Systems Analysts
- System Administrators
- Other MIS professionals

See Related Information Sources for more Oracle Applications product information.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/us/corporate/accessibility/index.html

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Structure

1 Introduction to Oracle Funds Transfer Pricing

This chapter provides an introduction to Oracle Funds Transfer Pricing and discusses its place in the Oracle Financial Services Analytical (OFSAA) group of applications.

2 Overview of OFSAA Infrastructure

3 OFSAA Administrative Reporting

4 OFSAA Data Entry Forms and Queries

5 OFSAA Attributes

6 OFSAA Dimension Members

7 OFSAA Hierarchies

8 OFSAA Filters

9 OFSAA Expressions

10 OFSAA Rate Management

11 Simplified Batches

12 Holiday Calendar

This chapter discusses the procedure for creating a Holiday Calendar and generating a list of weekend and holiday dates. Individual applications may consume the holiday calendar events in different ways, so please refer to application specific user guides and/or the Cash Flow Engine Reference Guide for more details.

13 The Oracle Funds Transfer Pricing Process

This chapter describes the steps that you need to follow to transfer price your balance sheet using Oracle Funds Transfer Pricing.

14 Transfer Pricing Concept

This chapter describes the transfer pricing concept and the traditional and matched rate approaches to funds transfer pricing. A description of how matched rate transfer pricing overcomes the shortcomings of the traditional approaches is also provided. The chapter ends with a description of the role of matched rate transfer pricing in the evaluation of interest rate risk.

15 Common Rule Management Tasks

This module focuses on the rule management tasks that are common across all rules in this application.

16 Application Preferences

This chapter discusses the Procedure for defining and maintaining your FTP Application Preference settings.

17 Cash Flow Edits

This chapter discusses the procedure for validating and cleansing your Instrument table data before you process it to generate cash flow based results.

18 User Defined Behavior Patterns

This chapter describes the procedure for defining principal flows through Behavior Patterns, for instruments that do not have contractual amortization schedules.

19 User Defined Payment Patterns

This chapter describes the procedure for capturing instrument payment patterns that are too complex to be accommodated in the standard fields of Instrument tables.

20 User Defined Repricing Patterns

This chapter discusses the procedure for working with and managing user defined repricing patterns.

21 Transfer Pricing Rules

This chapter describes the procedure for working with and managing Transfer Pricing rules.

22 Prepayment Rules

This chapter describes the procedure for working with and managing Prepayment rules.

23 Prepayment Models

This chapter describes the procedure to build prepayment models using Prepayment Model Rules.

24 Adjustment Rules

This chapter describes the procedure for working with and managing Adjustment rules.

25 Stochastic Rate Indexing Rules

This chapter describes the steps you need to take to work with and manage Stochastic Rate Indexing Rules.

26 Alternate Rate Output Mapping Rules

This chapter describes the procedure to output transfer pricing results to the seeded or user-defined alternate columns instead of default columns of the application.

Alternate Rate Output Mapping Rules allow you to map transfer pricing results to alternate or user defined columns rather than to the standard output columns. Alternate Rate Output Mapping rules are optional components of a Transfer Pricing process. If these rules are excluded from a process, then results are written to the standard default columns on the instrument tables. If an alternate rate mapping table is included then outputs will be written based on target columns specified by the user. This functionality allows users to calculate and output more than one transfer rate, option cost or TP add-on rate for each instrument record.

27 Propagation Pattern

This chapter describes the procedure for defining the propagation pattern.

28 Transfer Pricing Process

This chapter discusses the procedure for working with and managing Transfer Pricing Processes. Transfer Pricing Processes are split into two types:

Standard: Allows you to calculate Transfer Rates and Adjustments

Stochastic: Allows you to calculate Option Costs

29 Break Identification Process

Breaks are associated with Assets and Liabilities that have fixed maturities and have experienced a full prepayment or pre-closure, partial prepayment, or restructuring. Any event that causes the bank to receive a change to scheduled contractual cash flows on a fixed maturity instrument results in a break funding event and should be evaluated. Transactions that could cause a change in future cash flows would include full loan prepayments, partial loan prepayments, early withdrawal of a term deposits, or a change in maturity tenor, payment amount, payment frequency or other contractual terms.

30 Rate Locks and the Loan Commitment Pipeline

31 FTP Rate Card

32 Viewing FTP Objects in Metadata Browser

A Multi Language Support

B Multi Ledger

C Standard Navigation Paths

This appendix gives you information to navigate through the pages referred to in this guide.

D Transfer Pricing Error Messages

E Process Tuning

This module provides information on configuring the Oracle Financial Services Analytical Application (OFSAA) server-centric software for multiprocessing through the Process Tuning UI.

Caution: The Process Tuning UI is available for definition ONLY for a User who has a role mapping that of 'Administrator' or 'Auditor'. The 'Auditor' role mapped user has 'READ-ONLY' access to Process Tuning UI.

F External Break Process Flow

G FTP Web Services

Related Information Sources

Related Documents

For more information about using Oracle Financial Services Analytical Applications (OFSAA), see the following related documents:

- Oracle Financial Services Analytical Applications Data Model Utilities User Guide.
- Oracle Financial Services Analytical Applications Data Model Data Dictionary.
- Oracle Financial Services Asset Liability Management (OFSALM) User Guide.
- Oracle Financial Services Cash Flow Engine Reference Guide.

CHAPTER 1 Introduction to Oracle Funds Transfer Pricing

This chapter provides an introduction to Oracle Funds Transfer Pricing and discusses its place in the Oracle Financial Services Analytical (OFSAA) group of applications.

This chapter covers the following topics:

- Overview of Oracle Financial Services Funds Transfer Pricing
- Oracle Funds Transfer Pricing and Other Oracle Financial Services Applications
- Oracle Funds Transfer Pricing Integrations

Overview of Oracle Financial Services Funds Transfer Pricing

Oracle Funds Transfer Pricing (FTP) is the industry-standard software application for implementing a matched rate transfer pricing system. Recognizing the value of matched rate transfer pricing, financial institutions are increasingly incorporating it into their performance measurement systems.

Matched rate transfer pricing overcomes the shortcomings of traditional transfer pricing approaches, such as unprofitable growth, repricing risk, and rate risk trap, by using multiple transfer rates instead of the single rate that traditional approaches advocate. Under the multiple rate approach, assets and liabilities are given transfer rates that reflect their specific maturity and repricing characteristics.

Oracle Funds Transfer Pricing calculates transfer rates at the lowest possible level of detail in your institution's balance sheet, the instrument record level. You can generate accurate charges and credits for all sources and uses of funds for your institution and measure net interest margin contribution at the instrument record level.

Oracle Funds Transfer Pricing Key Benefits

To ensure accurate results, Oracle Funds Transfer Pricing combines advanced methodologies with a flexible and easy-to-interpret reporting approach. Oracle Funds Transfer Pricing allows you to:

- Determine the account level spread earned on assets and liabilities, and the spread earned or lost as a result of interest rate risk exposure.
- Apply multiple TP add-on rate assignments to incrementally price for liquidity risk or basis risk or incorporate pricing incentives.
- Quantify and manage the implicit rate bet that results from your balance sheet management practices.
- Hold business units accountable for what they can control: pricing and profitability.
- Use account-level match funded spreads to produce account, customer, product, and business unit performance measures.

Related Topics

- Oracle Funds Transfer Pricing and Other Oracle Financial Services Applications
- Oracle Funds Transfer Pricing Integrations

Oracle Funds Transfer Pricing and Other Oracle Financial Services Applications

Oracle Financial Services Funds Transfer Pricing (FTP) operates on top of a common infrastructure, Oracle Financial Services Analytical Applications Infrastructure (OFSAAI). OFSAA applications form a comprehensive decision support solution that significantly enhances enterprise risk and performance management functions across a financial institution.

Oracle Financial Services Enterprise Performance Management

More than ever, financial institutions, their regulators as well as their shareholders are focused on the need to measure and meet risk-adjusted performance objectives, price products to reflect their true risk, and better understand how their institution is impacted by threats to liquidity, capital adequacy, and exposure to market rate volatility.

OFSAA Data Model

OFSAA Data Model (OFSAADM) is shipped with optimized data structures and prepackaged data elements developed specifically for the financial services industry. OFSAADM is the foundation for the OFS applications. It provides the database structures necessary to support the individual business applications.

OFSAA Infrastructure

OFSAA Infrastructure is the foundation for OFSAA. It provides support for User Administration, Metadata Management, a Processing Framework, a Forms Framework and additional capabilities necessary to support the individual business applications.

OFSAA Funds Transfer Pricing

Oracle Financial Services Funds Transfer Pricing is the industry's first and leading matched maturity funds transfer pricing application, enabling financial institutions to determine the spread earned on assets, from funding sources, and the spread earned as a result of interest rate exposure for each and every customer relationship. This enables accurate assessment of profitability along product, channel, and business lines, as well as the centralization of interest rate risk so it can be effectively managed. Oracle Financial Services Funds Transfer Pricing is fully integrated with Oracle's Financial Services Analytical Applications and shares a common customer account level data model.

The transfer pricing process isolates the four major sources of a bank's margin:

- The spread earned on assets
- The spread earned on liabilities
- The spread earned or lost as a result of interest rate exposure
- The spread earned or lost as a result of embedded options such as prepayments

Measuring and managing interest margin offers tremendous profit opportunities. By separating the components of net interest income, Oracle Funds Transfer Pricing isolates rate risk into your funding center where it can be centrally managed. In turn, business units are held accountable for what they can control: pricing and profitability. Armed with this highly accurate information, companies make solid, supportable decisions that lead to increased success in the marketplace.

OFSAA Profitability Management

Oracle Financial Services Profitability Management enables financial services institutions to calculate profitability by products, channels, segments, and even individual customers. These profitability calculations are adjusted for risk,

and they drive Risk-Adjusted Performance Management (RAPM), an imperative for financial services institutions operating in this rapidly evolving and complex industry.

Isolating and analyzing business unit profitability is only the first step in building effective profitability management. To hold operational managers truly accountable for profitability, senior management must give them the power to identify the products that are profitable in each market segment, for each customer.

Together with OFSAA Transfer Pricing, OFSAA Profitability Management is the tool that delivers this power. Profitability Management links general ledger, account-level, and statistical data together to produce detailed financial statements for individual business units, products, and customers. Combining powerful modeling and disciplined accounting, OFSAA Profitability Management delivers complete, accurate, and inclusive profiles of profitability.

OFSAA Asset/Liability Management

Volatile market conditions and increasing regulatory pressures are placing greater demands on the risk management function. These stresses are driving financial institutions to review their current risk modeling and measurement capabilities. Yet, these circumstances also provide institutions with the opportunity to update technology solutions to systems fully integrated across the risk and performance spectrum. Departmental, one-off solutions are no longer viable alternatives in an environment where all systems need to work together.

Oracle Financial Services Asset Liability Management (ALM) helps financial services institutions measure and manage interest rate risk and liquidity risk, perform balance sheet valuations, and forecast both net interest income and net income. The Oracle Financial Services ALM solution measures and models every loan, deposit, investment, and off-balance sheet instrument individually, using both deterministic and stochastic methods. This helps institutions gain a better understanding of the risks they have assumed and their sensitivity to changes in economic conditions.

OFSAA Balance Sheet Planning

Oracle Financial Services Balance Sheet Planning is designed to help financial services institutions budget for a full balance sheet and the associated profit and loss statement.

Banks have a number of very unique needs when looking ahead. They must be sensitive to economic conditions, and create plans that not only forecast future performance, but also the forward risks they are assuming. Most importantly, they require tools that accurately forecast net interest margin. By accurately modeling the detailed and complex events on a bank's balance sheet, for both the current book of business and forecasted new volumes, Oracle Financial Services Balance Sheet Planning enables the delivery of accurate margin forecast and comprehensive, meaningful budgets.

OFSAA Business Intelligence Applications

OFSAA Business Intelligence (BI) Applications are complete, prebuilt BI solutions that deliver intuitive, role-based intelligence for everyone in an organization—from front line employees to senior management—that enable better decisions, actions, and business processes.

Related Topics

- Overview of Oracle Financial Services Funds Transfer Pricing
- Oracle Funds Transfer Pricing Integrations

Oracle Funds Transfer Pricing Integrations

Oracle Funds Transfer Pricing integrates with the following modules:

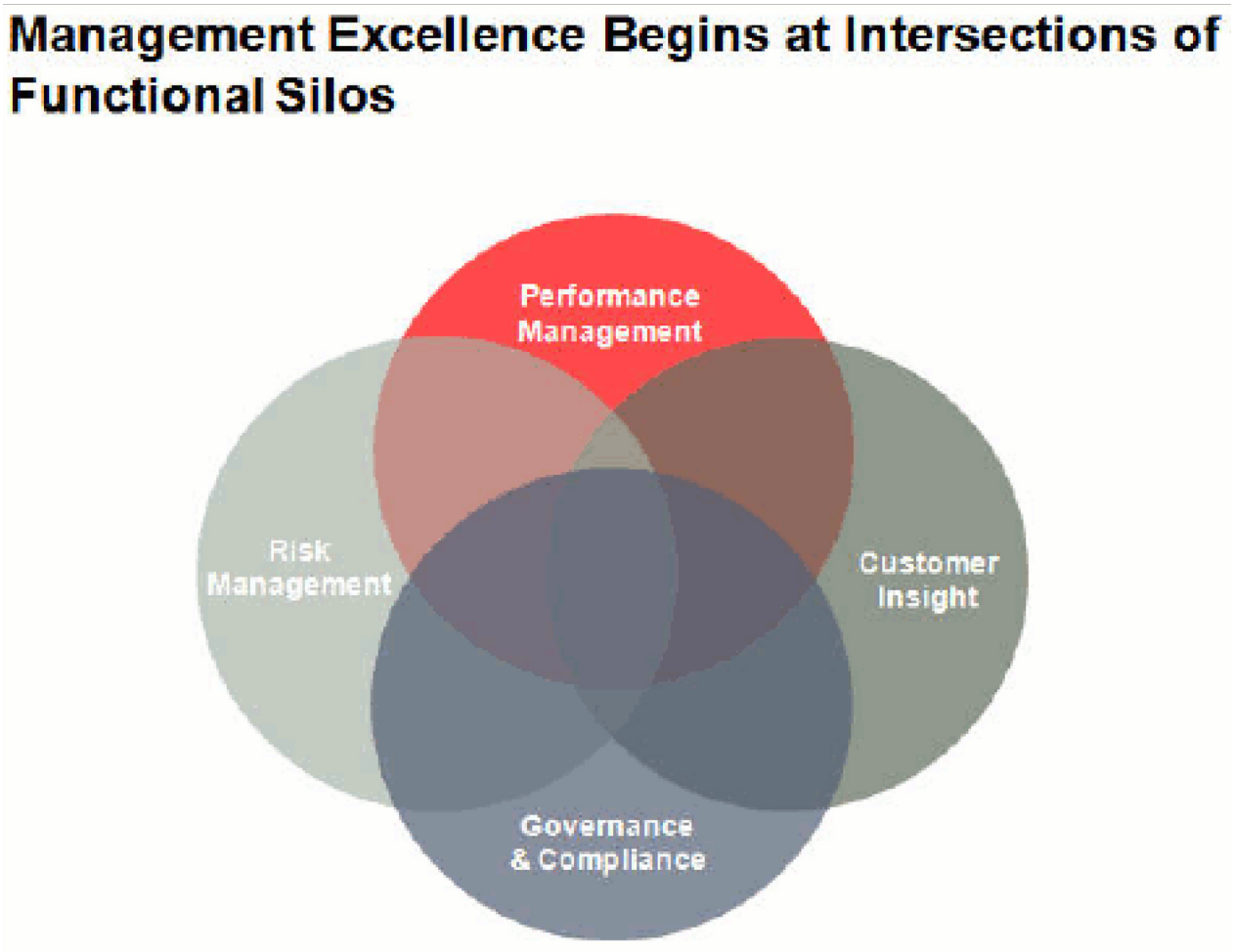
- Oracle Financial Services Profitability Management
- Oracle Financial Services Balance Sheet Planning
- Oracle Financial Services Asset | Liability Management

A transfer-priced balance sheet is merely the beginning. You can combine Oracle Funds Transfer Pricing results with non interest income and expense information populated at the account level with Oracle Financial Services Profitability Management to measure total profitability based on a user-definable combination of dimensions. You can generate FTP and full risk based pricing information in real time with Oracle Financial Services Pricing Management. You can also integrate FTP results into Oracle Financial Services Balance Sheet Planning or Oracle Financial Services Asset | Liability Management to project transfer pricing results into your forecasting and planning processes.

Oracle Financial Services Analytical Overview

For over 20 years, Oracle has set the standard for analytical applications in financial services. With our applications financial services organizations can achieve management excellence with a lower total cost of ownership, due to our integrated architecture, combining performance and risk applications into a single, seamlessly integrated framework.

In today's turbulent markets, financial institutions require a better understanding of the relationship between risk and return, while strengthening competitive advantage and enhancing long-term customer value. Oracle Financial Services Analytical Applications enable financial institutions to measure profitability and meet risk adjusted performance objectives, cultivate a risk management culture through transparency, lower the costs of compliance and regulation, and improve insight into customer behavior.



Related Topics

- Overview of Oracle Financial Services Funds Transfer Pricing
- Oracle Funds Transfer Pricing and Other Oracle Financial Services Applications

CHAPTER 2 Overview of OFSAA Infrastructure

OFSAA Infrastructure

OFSAA Infrastructure includes facilities for creating and maintaining

- Dimensional reference data
- Interest rate & currency exchange rate data
- Process tuning data

OFSAA Infrastructure also includes functionality for building and maintaining rules that may be used by any Oracle Financial Services Analytical Application. These common rule objects include:

- Expressions
- Hierarchies
- Filters

The following chapters document how to navigate the OFSAA user interface to create and maintain dimensional reference data, interest rate & currency exchange rate data, and process tuning data; and to create and maintain OFSAA Infrastructure rules: Expressions, Hierarchies, and Filters.

Chapter	Subject
Chapter 4	OFSAA Data Entry Forms and Queries
Chapter 5	OFSAA Attributes
Chapter 6	OFSAA Dimension Members
Chapter 7	OFSAA Hierarchies
Chapter 8	OFSAA Filters
Chapter 9	OFSAA Expressions
Chapter 10	OFSAA Rate Management
Appendix E	Process Tuning

The remainder of this chapter documents:

- Overview of Dimensionality in OFSAA
- Overview of OFSAA Rules
  - Hierarchies
  - Filters

- Expressions

Overview of Dimensionality in OFSAA

Dimensions are used to stratify your business data for processing or reporting purposes. For example, at a minimum General Ledger systems are typically stratified by a General Ledger dimension, an organization or cost center dimension, and a time dimension. Customer account level data will normally have these same dimensions but are often additionally segmented by dimensions such as Product or Customer. You may wish to construct models using a specialized product dimension or other customized dimensions such as geography, cost pool, transaction, activity or channel.

Dimensions are comprised of lists of members. For example, the Organizational Unit dimension might be comprised of Branch #1, Branch #2, Branch #3, etc. Some dimensions may contain tens or even hundreds of thousands of members (e.g., a large organizational or customer dimension) while others may contain as few as two members (e.g., a simple product-type dimension with values of Fixed and Variable).

The member values or "Chart of Accounts" for each dimension may be maintained either internally within the OFSAA Infrastructure or externally.

Internally

OFSAA Infrastructure includes functionality for Adding, Viewing, Editing, or Deleting dimension member values. Which of these functions you can access depends on your logon privilege and on the dimension with which you wish to work. For details, on the creation and maintenance of Dimension Members, see Chapter 6: OFSAA Dimension Members.

Externally

You may choose to source and maintain some Charts of Accounts from external systems such as your General Ledger, a Data Warehouse, or from some other external master data management system. See *Oracle Financial Services Analytical Applications Data Model Utilities User Guide*for details on loading dimensional data from external systems.

Combination

You may also choose to maintain some Chart of Account values from an external source while maintaining other Chart of Account values internally.

Referential Integrity

You may have dimension member values defined in your Chart of Accounts that do not exist in your business data, particularly if the dimension member values are used as attribute values (see discussion of attributes below). But you would never want to have an occurrence of a dimension member value in your business data that did not exist in the dimension's Chart of Accounts. When you load business data into OFSAA, you need assurance that there are no dimension member values present in the business data that are not defined in your Chart of Accounts. For details on ensuring referential integrity between your business data and your Chart of Accounts data, see Installation and Configuration Guide.

Dimension Attributes

Some OFSAA dimensions support attributes. Dimension attribute values are used to qualify dimension members. For example, a cost center, say Branch #1, might have a Headcount attribute with a value of 32 and a Volume attribute with a value of High. A product dimension member, say 30-year fixed rate jumbo LIBOR mortgage, might have a Rate attribute with a value of LIBOR, a Size attribute with a value of Jumbo, and a Loan Type attribute of Fixed. A General Ledger account, say Benefit Expense, might have an Account Type attribute with a value of Non-Interest Expense.

Like dimensions, attributes are used to stratify your business data for processing or reporting purposes. Some dimension attributes are seeded within the OFSAA data model and are used extensively in processing. You may define as many user-defined attributes as you need.

OFSAA Infrastructure includes functionality for Adding, Viewing, Editing, or Deleting dimension attributes. Which of these functions you can access depends on your logon privilege and on the dimension with which you wish to work. For details on the creation and maintenance of dimension attributes, see Chapter 5: OFSAA Dimension Attributes.

Once an attribute has been defined for a dimension, attribute values may be assigned to individual dimension member values. These attribute values may be open-ended (dates, numbers, or strings) or may be restricted to a defined set of members (see further discussion below; also see Chapter 5: OFSAA Dimension Attributes).

Hierarchies

Some OFSAA dimensions support hierarchies. Hierarchies may be used to provide sophisticated stratification for either processing or reporting purposes. For example, an organizational hierarchy might start with a Division level containing Western Region, Eastern Region, and Southern Region; the next level down within the hierarchy might be state or county. A product hierarchy might begin with branches for Asset vs. Liability vs. Service products; under the Asset branch, you might define additional branches for Mortgage Lending, Commercial Lending, Consumer Lending, etc. Hierarchies are used extensively in OFSAA models to assign methods to products and to support allocation methodologies.

Like dimension members, dimension hierarchies may be maintained either internally within the OFSAA Infrastructure or externally.

At least one leaf level dimension member is required for hierarchies used in allocations.

Internally

OFSAA Infrastructure includes functionality for Adding, Viewing, Editing, or Deleting hierarchies. Which of these functions you can access depends on your logon privilege and on the hierarchy with which you wish to work. For details, on the creation and maintenance of hierarchies, see Chapter 7: OFSAA Hierarchies.

Externally

You may choose to source and maintain some or all of your hierarchies from external systems such as your General Ledger, a Data Warehouse, or from some other external master data management system, such as Oracle Data Relationship Management (DRM). See *Oracle Financial Services Analytical Applications Data Model Utilities User Guide* for details on loading hierarchy data from external systems.

Combination

You may also choose to maintain some hierarchies from an external source while maintaining other hierarchies internally.

Rollup Members for Dimensions Supporting Hierarchies

For dimensions that support hierarchies, every dimension member value has the property of being either a "leaf" value (child-only or last descendent child value) or a "rollup node" value. For example, if Branch #1, Branch #2, and Branch #3 all belonged to the West rollup point of an organizational hierarchy, then West would also be a dimension member value of the Organizational Unit dimension. Your business data is typically expressed at the "leaf" level.

At least one leaf level dimension member is required for hierarchies used in allocations.

Dimension Types

OFSAA supports three fundamentally different kinds of dimensions

- Key Processing Dimensions
- Standard Dimensions
- Simple Dimensions

Key Processing Dimensions

- Are accessible as modeling dimensions for all of the OFSAA analytical engines
- Are expressed as columns in nearly all of your business fact tables
- Support both attributes and hierarchies

Metadata for Key Processing Dimensions is stored in four tables:

- A base table (e.g., DIM_PRODUCTS_B)
- A translation table (e.g., DIM_PRODUCTS_TL)
- An attribute table (e.g., DIM_PRODUCTS_ATTR)
- A hierarchy table (e.g., DIM_PRODUCTS_HIER)

Base tables store basic information about each dimension member and translation tables store names and descriptions for each dimension member in multiple languages (see *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide* for details on multi-language support). Attribute tables store one or many attribute values for each dimension member. Hierarchy tables store one or more hierarchies for each dimension (you may define as many hierarchies as you wish for any dimension that supports hierarchies).

Seeded Key Processing Dimensions

OFSAA is seeded with 5 Key Processing dimensions:

- Financial Element

- Organizational Unit
- General Ledger Account
- Common Chart of Accounts
- Product

Among the 5 seeded Key Processing dimensions, only the Financial Element dimension is pre-populated with a Chart of Accounts, but it is only populated in the range between 0 and 10,000 (For more details on the seeded Chart of Accounts for the Financial Element dimension see *Oracle Financial Services Profitability Management (OFSPM) User Guide*). This is a reserved range in which you may not add new members, or edit or delete existing members. You may add user-defined Financial Elements anywhere outside the reserved range.

User Defined Key Processing Dimensions

See *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide* for details on adding your own user-defined Key Processing dimensions.

Standard Dimensions

Standard dimensions may support attributes and/or hierarchies depending on how they are configured, but are not used as processing dimensions within any of the analytical application engines.

Like Key Processing Dimensions, metadata for Standard Dimensions is stored in a base table and in a translation table. A Standard Dimension may or may not have an attribute table or a hierarchy table depending on how it is configured. Within the OFSAA modules, Standard dimensions that are defined as having a hierarchy table will support hierarchies and Standard dimensions that are defined as having an attribute table will support attributes. See the *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide* and *Oracle Financial Services Analytical Applications Data Model Data Dictionary* for additional information.

Seeded Standard Dimensions

OFSAA is seeded with 2 Standard Dimensions

- Country
- Customer

Both dimensions support attributes and hierarchies. Default member values are provided for the Country dimension, but no values are provided for the Customer dimension.

User Defined Standard Dimensions

See the *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide* for details on adding user-defined Standard dimensions.

Simple Dimensions

Sometimes referred to as Code dimensions, Simple dimensions are "lists of values" that support neither attributes nor hierarchies. Their 3 key uses are:

- Reserved for use within the analytical application engines

- Stratifying your data for process or report filtering purposes
- Serving as "lists of values" when used as attributes

The OFSAA Data Model comes with more than 150 seeded Simple dimensions. Many of these seeded Simple dimensions are also seeded with dimension members. Unlike Key Processing dimensions and Standard dimensions, Simple dimensions are stored in two tables:

- A code table (e.g., AMRT_TYPE_CD)
- An Multi-Language Support or MLS table (e.g., AMRT_TYPE_MLS)

Again, see *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide* for details on multi-language support.

Reserved Simple Dimensions

Accrual Basis Code is an example of a seeded Simple dimension that is used extensively by the application modules. It is seeded with a small list of values (such as 30/360, Actual/360, Actual/Actual, etc.) and its value set may not be modified.

Amortization Type Code is another example of a reserved Simple Dimension. Amortization Type Code is populated with reserved values that the Cash Flow engine interprets, and its value set may not be modified. Many other Simple Dimensions are reserved and may not be modified.

Simple Dimensions Used for Processing or Reporting Purposes

This kind of Simple Dimension cannot be used directly by the application engines, but they are accessible to OFSAA Filter rules (for more information on Filter rules, see Chapter 8: OFSAA Filters).

Credit Rating is an example of a seeded Simple Dimension that may be used for processing or reporting purposes. You may, for example, wish to allocate risk equity to individual instruments as a function of Credit Rating. The seeded values for Credit Rating are Moody's credit ratings, but you are free to completely redefine the membership of this dimension. Geographic Location is another example. Geographic Location is pre-populated with US States and Canadian provinces, but you are free to completely redefine the list of geographic locations.

Simple Dimensions Used as Attribute Domains

Both seeded and user-defined attributes often utilize a Simple Dimension to provide a list of values. For example, you might create an Adjustable Type attribute on your Product dimension and you might want this attribute to be limited to the values of Fixed, Variable, or Administered. In this case, you might first build a Simple Dimension called Type whose dimension members were limited to three values: Fixed, Variable, or Administered. Next you could assign the Type dimension to be the domain of your new Adjustable Type attribute.

See *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide* and *Oracle Financial Services Analytical Applications Data Model Data Dictionary* for additional information on which Simple Dimensions you may extend or modify and on how to add your own Simple Dimensions to the data model.

Overview of Attributes

OFSAA Infrastructure includes functionality for Adding, Viewing, Editing, or Deleting dimension attributes. Which of these functions you can access depends on your logon privilege and on the dimension with which you wish to work. For details, on the creation and maintenance of Dimension Attributes, see Chapter 5: OFSAA Attributes.

Attributes

The seeded OFSAA Key Processing Dimensions have a number of seeded or seeded & required attributes. For example, the Common Chart of Accounts dimension includes an Account Type attribute and an Accrual Basis attribute; the Financial Element dimension includes an Aggregation Method attribute. Some of these attributes have important implications in processing within OFSAA.

You may add Attributes to any Key Processing Dimension or to any Standard Dimension that supports Attributes (see sections above describing Key Processing Dimensions and Standard Dimensions).

One of the important properties of an Attribute is its Data Type. OFSAA Infrastructure supports Dimension Attribute Data Types of:

- Date, String, or Number
- Dimension

Unbounded & Bounded Attribute Data Types

Dimension attribute data types may be either bounded or unbounded. The Date, String, and Number type are unbounded, i.e., there is no predetermined set of attribute values. A Date attribute value may be any valid date, a String attribute value may be any string up to 30 characters in length, and a Number attribute value may be any number. Examples of these kinds of attribute data types might include:

- Cost Center Open Date (a Date attribute on the Organizational Unit dimension)
- Product Memo (a String attribute on the Product dimension)
- Cost Center Headcount (a Number attribute on the Organizational Unit dimension)

Unlike attributes having the Date, String, or Number data type, attributes whose data type is Dimension have defined sets of values. For example, the Product dimension has a seeded attribute called Accrual Basis the data type of which is Dimension. The Accrual Basis dimension is seeded with 8 values. Accrual Basis is a restricted dimension (you may View Accrual Basis dimension members but you may delete them or add new accrual bases), but whenever you assign an Accrual Basis attribute value to one of your Product dimension member values, you must select from the list of 8 available Accrual Bases.

Overview of OFSAA Rules

OFS Analytical Application models are constructed using combinations of OFSAA rules. For example:

- An Allocation rule might utilize a Hierarchy Filter rule, an Expression rule, and a Static Table Driver rule
- A Transfer Pricing rule might utilize a Hierarchy rule, a Data Element Filter rule, and a Prepayment rule
- A Data Element Filter rule might utilize an Expression rule

- A Group Filter rule always incorporates one or more underlying Data Element Filter rules
- A Hierarchy Filter rules always utilize an underlying Hierarchy rule

The advantage of constructing models from discrete rule components is that individual rules may be re-used dozens or even hundreds of times. For example, if you wish to build a large series of allocation rules which operate on non-interest expense data in the Western region, you may build filters for (1) non-interest expense and (2) the Western region and then utilize these filters in every allocation rule. As another example, if you wanted to assign the same transfer pricing method and assumptions to all mortgage products, you could build a Hierarchy on the product dimension containing a Mortgage Products rollup point and assign your method and assumptions at the rollup level. You could subsequently utilize the same Hierarchy rule for allocation processing or reporting purposes.

Many rule types are specific to individual analytical applications (e.g., Transfer Pricing rules, Asset/Liability Management rules, Allocation rules, etc.) while OFSAA Infrastructure rules are shared across all OFS applications. Rule types that are shared across all applications include:

- Hierarchies
- Hierarchy Filters
- Data Element Filters
- Group Filters
- Expressions

Dimensions, dimension members, attributes, and currency exchange rates are also shared across all applications.

Dependencies

OFSAA rules often depend on other rules for some or all of their data or usefulness. For example, an Allocation rule may depend on a Data Element Filter rule to select and focus data in a meaningful way. If that Data Element Filter is deleted, then the Allocation rule becomes unusable. OFSAA applications track such dependencies and ensure that users may not delete rules that are consumed by other rules. Additionally, rule summary screens that present lists of rules that you have defined, offer functionality for you to generate reports on rule interdependency.

OFSAA Filters

OFSAA Infrastructure supports three kinds of filtering:

- Data Element Filters
- Group Filters
- Hierarchy Filters

Data Element Filters

Data Element Filters are used to select and focus data. For example, you may transfer price some financial instruments at their source and may therefore wish to ensure that you do not overwrite the transfer rates for any instruments that already have a non-zero transfer rate. In such a case, you could construct a Data Element Filter to isolate only those instruments having a non-zero transfer rate. As another example, you may wish to allocate a charge to demand deposit accounts having small balances. In this case, you could construct a Data Element Filter to focus on just those instrument records having balances less than your chosen threshold.

Group Filters

Group Filters are used to join together one or more Data Element Filters. For example, if you built one Data Element Filter that focused on balances less than 10,000 and a second Data Element Filter that focused on accounts whose origination date was prior to 2009, a Group Filter built on the two Data Element Filters would focus on accounts with balances less than 10,000 AND whose origination dates were prior to 2009.

Hierarchy Filters

Hierarchy Filters allow you to focus on data that rolls up to one or more points within a chosen hierarchy. You may also focus on "leaf" level data or a combination of "leaf" level and rollup levels. For example, if your organization had a Western, Northern, Southern, and Eastern division, you could construct a Hierarchy Filter that focused on data belonging to branch 1, 2, or 7 within the Eastern division plus any data belonging to the Northern division.

OFSAA Expressions

Expressions represent formulas for combining data from your data model (e.g., Column A divided by Column B times Column C). The results of Expressions may be invoked within a number of OFSAA rule types (e.g., Data Element Filters, Allocation rules, etc). For details on building and maintaining Expressions, see Chapter 9: Expressions.

Folders

One of the fundamental properties of any OFSAA rule is the Folder in which it is stored. Your System Administrator will configure your user ID to have access to one or more folders in which you can store your rules. Your access rights will likely be similar to co-workers who have a similar business role. For details on security management and defining Segment Maintenance in OFSAA, see *Oracle Financial Services Analytical Applications Infrastructure User Guide.*

Storing rules in folders gives you the means to segregate your rules for functional or security considerations. For example, you may wish to:

Set up folders to store Transfer Pricing rules that are separate from folders you have built for Profitability Management rules and that are also separate from folders you have built for Asset/Liability Management rules

Establish some folders for rules you are in the process of developing and testing and other folders for fully tested, production ready rules

Segregate some rules that are fundamental to the definition of other rules (e.g., some Data Element Filters may be used in dozens or hundreds of other rules) in order to ensure that access to those fundamental rules is highly controlled

Segregate your hierarchies, which are also frequently fundamental to OFSAA models, into a restricted-access folder

Visibility of Rules

Every navigation path to view a rule in OFSAA begins with a Summary screen. Within the Summary screen for each rule type, a user may browse through all of the rules that are stored within Folders to which the user has access. From each Summary screen, users may be granted the ability to Add, Edit, View, or Delete rules.

When building rules in an OFS Analytical Application, you frequently call upon other OFSAA rules (e.g., a Data Element Filter nested within an Allocation rule or a Hierarchy utilized within a Transfer Pricing rule). When nesting

a child rule within a parent rule you must specify the child rule by its Name and Folder (where both Name and Folder are presented in drop-down list boxes). In this context, the Folder drop-down list box for every user will include every Folder in the Information Domain regardless of his Folder access rights. This means that a user may invoke a child rule from any Folder even if he cannot access that child rule directly through its Summary screen.

Additionally, whenever a user nests a parent rule within a child rule, the OFSAA user interface provides the user the ability to view a read-only version of the underlying child rule.

Access Type

Another fundamental property of every OFSAA rule is its Access Type.

Access Type may be set to either Read/Write or Read Only. Only the "creator" or "owner" of a rule may modify the rule if it is set to Read Only. The user ID under which a rule is initially built is the owner of a rule. You may modify a rule that you do not own provided that:

- The rule has been stored with the Read/Write access type
- You have been granted Edit privilege for the rule's type
- You have been granted access to the Folder in which the rule is stored

Again, for details on security management in OFSAA, see *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide*.

Global Preferences

Clicking Global Preferences invokes the Global Preferences screen. Global Preferences items are used to configure your user interface. Here, you set your default application language and date format, and your desired Pagination Records. Pagination Records determine how many rows will be displayed on summary screens. If you select Pagination Records to be 25 records, then any screen displaying results in a tabular format will display a maximum of 25 records. To see the next set of 25 records, you would use the Next VCR button

Functional Currency and Signage are installation-time parameters that may not be reset in Global Preferences.

Functional Currency is defined as "the currency of the primary economic environment in which an entity conducts its business". For details on signage, refer *Appendix Debit and Credit Conventions*.

Normally, you will set preferences for yourself, but if you are logged in as an Administrator, you may set Global Preferences for All Users. When setting preferences for All Users, you may restrict the ability of non-Administrators to change a Global Preference item by deselecting the "Is Editable" checkbox. If a preference item is defined as "not editable", a user who is not an Administrator will inherit the value of the preference item that his Administrator has set for him and he will not have the ability to change it for himself.

System Configuration

Application

Starting 8.0 release, once an application pack is installed, you can use only the Production or Sandbox information domain, created during the installation process. Though there is an option to create a new Information Domain, there is no menu to work with the frameworks on this new information domain. This new information domain then created acts only as a Sandbox Infodom. The Create New Application feature allows you (System Administrator) to create a new Application other than the standard OFSAA Applications and associate the standard/default platform framework menu with it, thereby enabling the new application for usage. The standard platform framework menu is seeded and rendered.

For more information, refer to *System Configuration* section in OFSAAI User Guide.

CHAPTER 3 OFSAA Administrative Reporting

Introduction

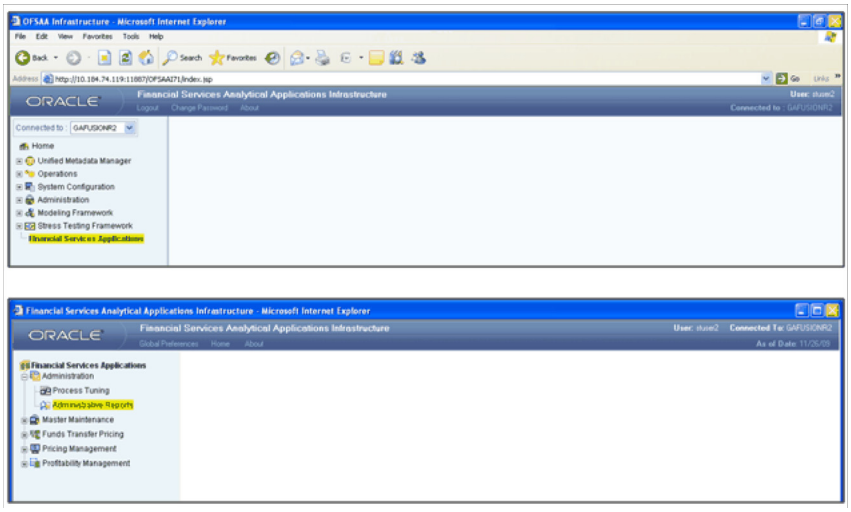
Administrative Reports provide reporting functionality for the Administrators of Oracle Financial Services Analytical Applications (OFSAA) to monitor, analyze, and correct data.

The System Administrator or users with Administrative privileges can view the Administrative Reports.

Logging in to the Administrative Reports

Procedure

1. Click, Financial Services Applications >Administration >Administrative Reports. Refer to the following screenshots.



2. The Administrative Reports - Admin Home section is displayed.

Interactive Dashboards in Administrative Reports

In the Administrative Reports window, there are four dashboard links:

- Admin Home
- Data Quality
- Object Registration

- Security

Admin Home

The Admin Home section is displayed by default when you login. If you are in any other section, click the Admin Home link in the top of the Administrative Reports header, to go to the Admin Home section. Admin Home displays the summary of reports from the other three links.

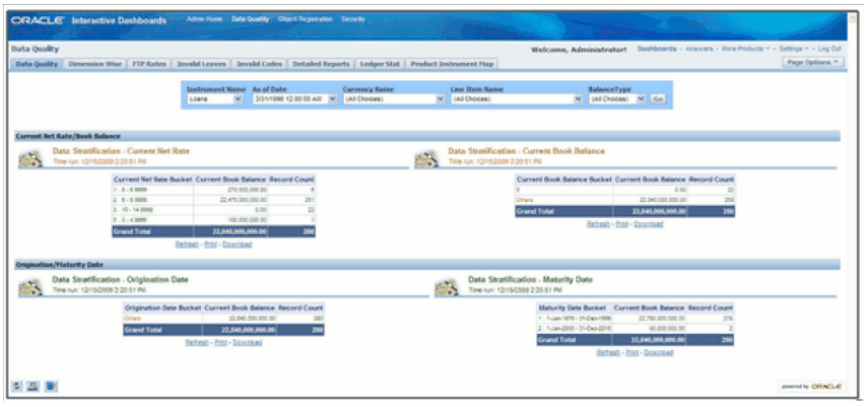
Access Permissions

Following are the steps to access permissions to include Defi Forms for the Admin BI Buckets entries.

1. Login to the Oracle Financial Services Analytical Applications Infrastructure
2. Go to Common Object Maintenance > Data Entry Forms and Queries > Forms Designer
3. Click the Assign Rights Radio button
4. Select Admin BI in the Available Applications drop-down list box
5. Select the 4 UI forms (one at a time) in the Available Forms drop-down list (For example, Bucket definition of Book Balance)
6. Click Next
7. Select the users from the Available User List
8. Select the relevant check boxes from View, Add, Edit, Delete, and All above.
9. Click Save Access Rights. You will get the message that user is mapped successfully.
10. Click Back to Forms Designer.
11. Repeat the steps 4 to 11 for other 3 forms (Bucket Definition Maturity Date, Bucket Definition net Rate, Bucket Definition Origination Date)

Data Quality

To go to the Data Quality reports, click Data Quality link at the top of the Administrative Reports. The following window is displayed.



The Data Quality reports help you to validate the quality of the underlying fact data. By going through the reports, you can identify data discrepancies, missing data, incorrect data, and so on and then undertake the necessary steps to rectify any issues. These data reports can be customized to fit your needs by defining suitable bucket range values as described above.

The four data buckets available are:

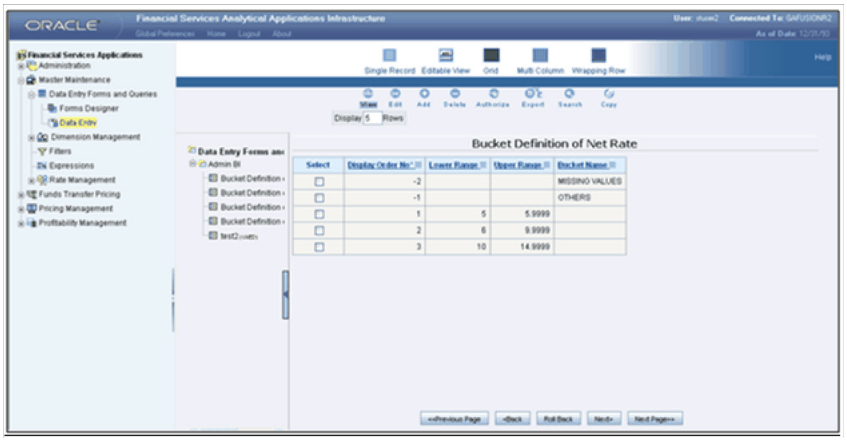
- Book Balance Bucket Definition
- Maturity Date Bucket Definition
- Net Rate Bucket Definition
- Origination Date Bucket Definition

These values can be defined in the following section:

Common Object Maintenance > Data Entry Forms and Queries > Data Entry.

Refer the following screenshot.

- The seeded values are Display Order No => -1 and - 2. You should not delete or edit these seeded values.
- Make sure there is no row with 'Display order No.' column with value 0 (zero). In case of AIX environment, display order No. might be generated with '0' (zero value). Delete this row using 'Delete option'.



Data Quality Dashboard

Data Quality Dashboard page contains eight tabs.

Data Quality Tab

This section contains a prompt to filter the data based on the value selected from the drop-down list box.

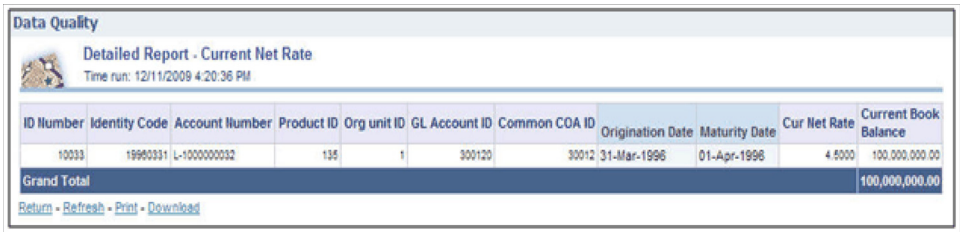
You can select a value from the drop-down list. Based on the selected values, the data is filtered.

There are four reports in this window.

1. Data Stratification - Current Net Rate

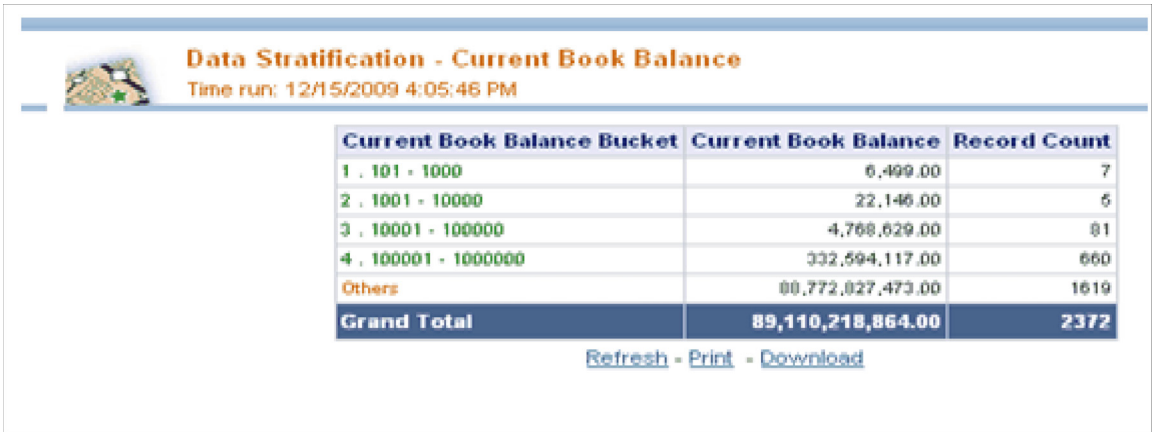
   The current net rate details for each bucket range value of the Instruments are displayed here.

To view a detailed report, click the bucket range for which you need the detailed report. The detailed report for the selected bucket range is displayed.

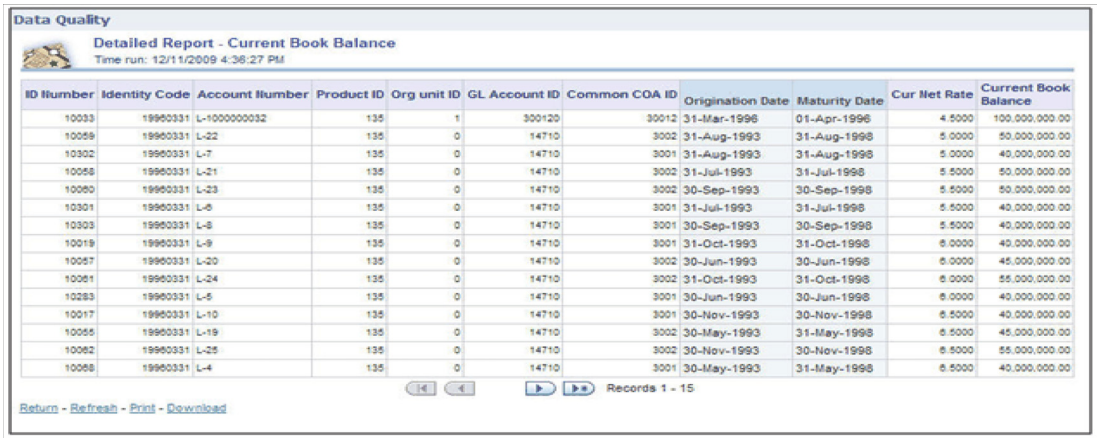


2. Data Stratification - Current Book Balance

   The current book balance details for each bucket range value for the Instruments are displayed here.



To view a detailed report, click the bucket range for which you need the detailed report. The detailed report for the selected bucket range is displayed.


Data Quality

Detailed Report - Current Book Balance

Time run: 12/11/2009 4:36:27 PM

ID Number	Identity Code	Account Number	Product ID	Org unit ID	GL Account ID	Common COA ID	Origination Date	Maturity Date	Cur Net Rate	Current Book Balance
10033	19960331	L-1000000032	135	1	300120	30012	31-Mar-1996	01-Apr-1996	4.5000	100,000,000.00
10059	19960331	L-22	135	0	14710	3002	31-Aug-1993	31-Aug-1998	5.0000	50,000,000.00
10302	19960331	L-7	135	0	14710	3001	31-Aug-1993	31-Aug-1998	5.0000	40,000,000.00
10058	19960331	L-21	135	0	14710	3002	31-Jul-1993	31-Jul-1998	5.5000	50,000,000.00
10060	19960331	L-23	135	0	14710	3002	30-Sep-1993	30-Sep-1998	5.5000	50,000,000.00
10301	19960331	L-6	135	0	14710	3001	31-Jul-1993	31-Jul-1998	5.5000	40,000,000.00
10303	19960331	L-8	135	0	14710	3001	30-Sep-1993	30-Sep-1998	5.5000	40,000,000.00
10019	19960331	L-9	135	0	14710	3001	31-Oct-1993	31-Oct-1998	6.0000	40,000,000.00
10057	19960331	L-20	135	0	14710	3002	30-Jun-1993	30-Jun-1998	6.0000	45,000,000.00
10061	19960331	L-24	135	0	14710	3002	31-Oct-1993	31-Oct-1998	6.0000	55,000,000.00
10283	19960331	L-5	135	0	14710	3001	30-Jun-1993	30-Jun-1998	6.0000	40,000,000.00
10017	19960331	L-10	135	0	14710	3001	30-Nov-1993	30-Nov-1998	6.5000	40,000,000.00
10055	19960331	L-19	135	0	14710	3002	30-May-1993	31-May-1998	6.5000	45,000,000.00
10062	19960331	L-25	135	0	14710	3002	30-Nov-1993	30-Nov-1998	6.5000	55,000,000.00
10068	19960331	L-4	135	0	14710	3001	30-May-1993	31-May-1998	6.5000	40,000,000.00

Records 1 - 15

Return - Refresh - Print - Download

3. Data Stratification - Origination Date

   The origination date details for each bucket range value for the Instruments are displayed here.

Origination/Maturity Date

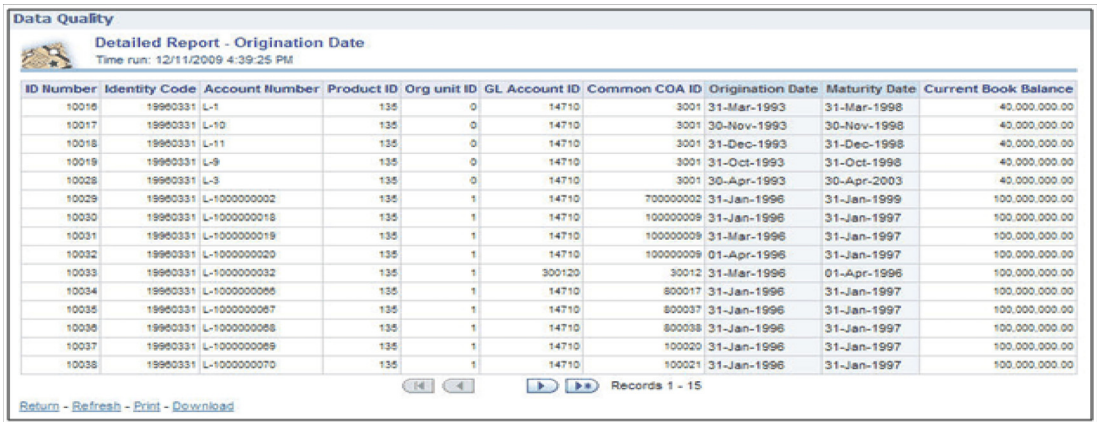
Data Stratification - Origination Date

Time run: 12/11/2009 4:16:03 PM

Origination Date Bucket	Current Book Balance	Record Count
Others	22,840,000,000.00	280
Grand Total	22,840,000,000.00	280

Refresh - Print - Download

To view a detailed report, click the bucket range for which you need the detailed report. The detailed report for the selected bucket range is displayed.


Data Quality

Detailed Report - Origination Date

Time run: 12/11/2009 4:39:25 PM

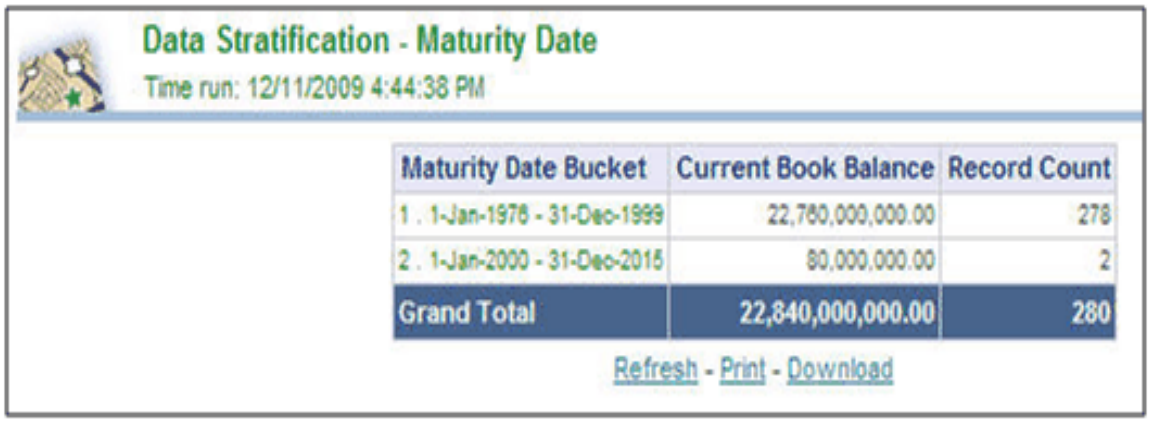
ID Number	Identity Code	Account Number	Product ID	Org unit ID	GL Account ID	Common COA ID	Origination Date	Maturity Date	Current Book Balance
10016	19960331	L-1	135	0	14710	3001	31-Mar-1993	31-Mar-1998	40,000,000.00
10017	19960331	L-10	135	0	14710	3001	30-Nov-1993	30-Nov-1998	40,000,000.00
10018	19960331	L-11	135	0	14710	3001	31-Dec-1993	31-Dec-1998	40,000,000.00
10019	19960331	L-9	135	0	14710	3001	31-Oct-1993	31-Oct-1998	40,000,000.00
10028	19960331	L-3	135	0	14710	3001	30-Apr-1993	30-Apr-2003	40,000,000.00
10029	19960331	L-1000000002	135	1	14710	700000002	31-Jan-1996	31-Jan-1999	100,000,000.00
10030	19960331	L-1000000018	135	1	14710	100000009	31-Jan-1996	31-Jan-1997	100,000,000.00
10031	19960331	L-1000000019	135	1	14710	100000009	31-Mar-1996	31-Jan-1997	100,000,000.00
10032	19960331	L-1000000020	135	1	14710	100000009	01-Apr-1996	31-Jan-1997	100,000,000.00
10033	19960331	L-1000000032	135	1	300120	30012	31-Mar-1996	01-Apr-1996	100,000,000.00
10034	19960331	L-1000000065	135	1	14710	800017	31-Jan-1996	31-Jan-1997	100,000,000.00
10035	19960331	L-1000000067	135	1	14710	800037	31-Jan-1996	31-Jan-1997	100,000,000.00
10036	19960331	L-1000000068	135	1	14710	800038	31-Jan-1996	31-Jan-1997	100,000,000.00
10037	19960331	L-1000000069	135	1	14710	100020	31-Jan-1996	31-Jan-1997	100,000,000.00
10038	19960331	L-1000000070	135	1	14710	100021	31-Jan-1996	31-Jan-1997	100,000,000.00

Records 1 - 15

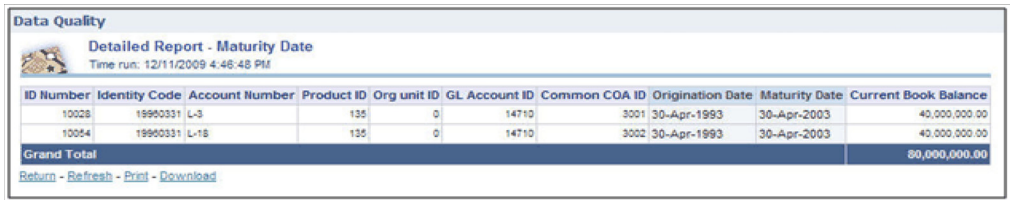
Return - Refresh - Print - Download

4. Data Stratification - Maturity Date

   The Maturity Date details for each bucket range value for the Instruments are displayed here.



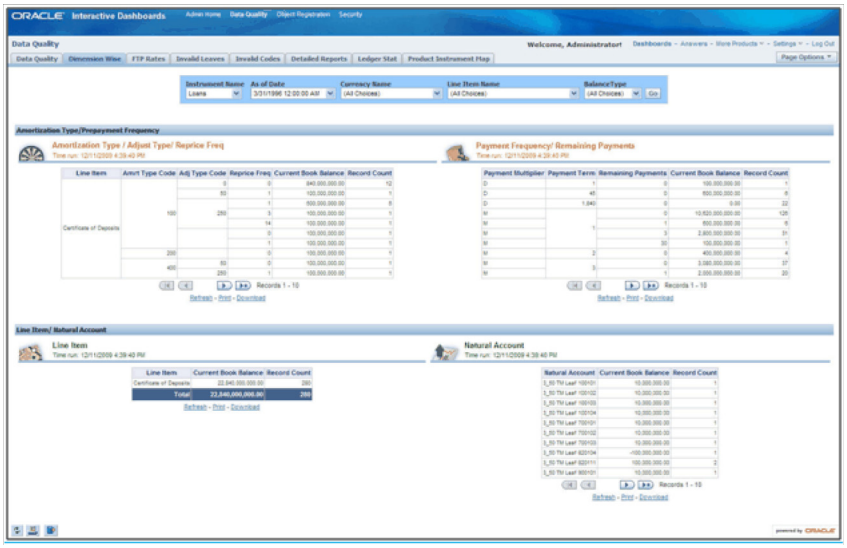
   To view a detailed report, click the bucket range for which you need the detailed report. The detailed report for the selected bucket range is displayed.



Dimension Wise

You can select the values to filter the data by selecting the values from the top drop-down list. The following four reports are displayed here:

- Amortization Type / Adjust Type/ Reprice Freq
- Payment Frequency/ Remaining Payments
- Product
- General Ledger Account



FTP Rates

You can filter the data by selecting the values from the drop-down list. The Transfer Pricing Stratification Reports show a summary of the FTP results for all instrument tables.

FTP Rate Detail

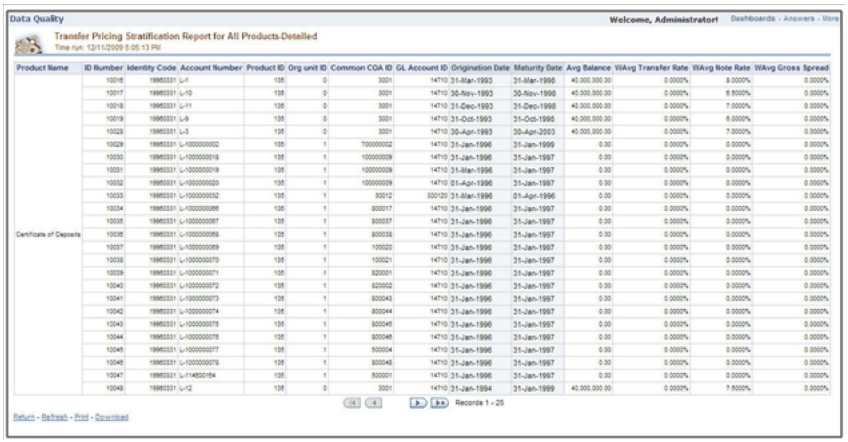
Transfer Pricing Stratification Report for All Products

Time run: 12/11/2009 4:15:47 PM

Product Name	Record Count	Avg Balance	WAvg Transfer Rate	WAvg Note Rate	WAvg Gross Spread
Certificate of Deposits	280	1,200,000,000.00	0.0000%	6.9000%	0.0000%

Refresh - Print - Download

You can click the product name to go to the account level - detail report as shown in the following screenshot.



Invalid Leaves

Contains reports for invalid leaves based on the list of Dimension Members compared with the Instrument data. You can filter the data selecting the drop-down list provided at the top. The following four reports are displayed here:

- Invalid Products
- Invalid Org Unit
- Invalid Common COA
- Invalid GL Account

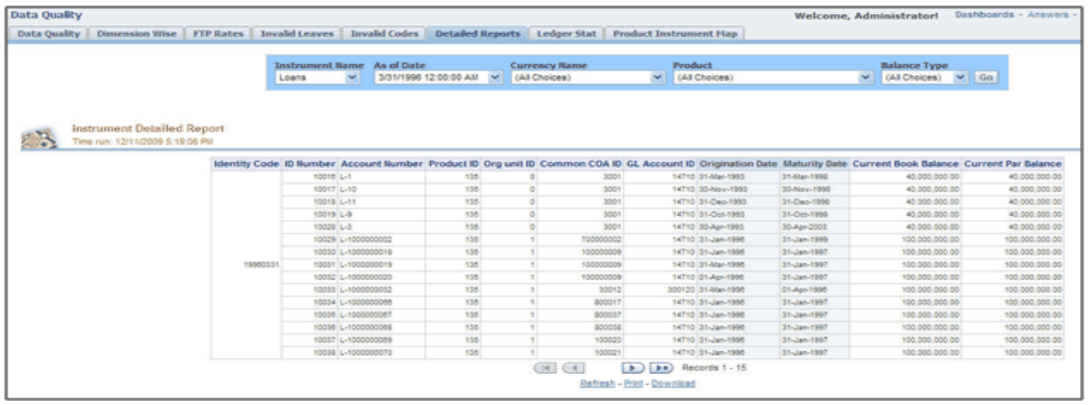
Invalid Codes

Contains the reports for invalid Codes based on the dimensions compared with Instruments.You can filter the data selecting the drop-down list provided at the top.The following seven reports are displayed here:

- Accrual Basis Code
- Amortization Code
- Adjustable Type Code
- Compound Basis Code
- Behaviour Type Code
- Behaviour Sub Type Code
- Net Margin Code

Detailed Reports

Contains the detailed report for a particular Instrument based on the selection in the drop-down.



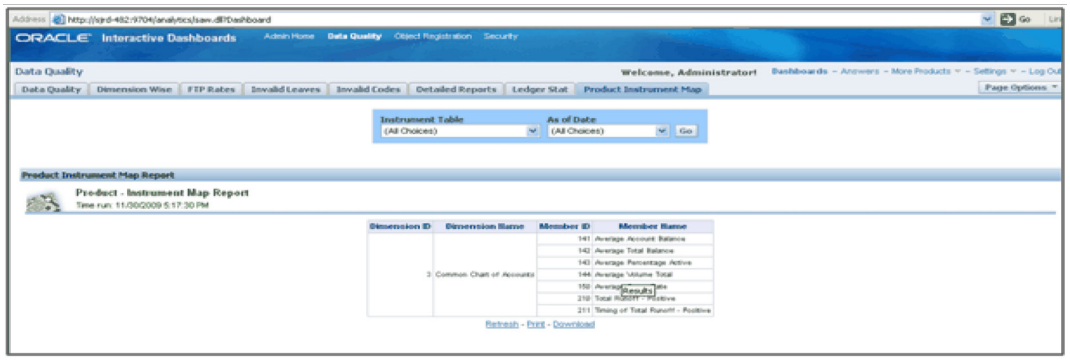
Ledger Stat

Contains the reports for missing dimension members compared with Ledger Stat data values. You can filter the data by selecting from the drop-down list provided at the top. The following five reports are displayed here:

- Missing Products
- Missing Org Units
- Missing Common COA
- Missing GL Account
- Missing Financial Elements

Product Instrument Map

Contains the Product Instrument Map report. You can filter the data based the drop-down selection. The Product Instrument Map data is used within both ALM and FTP Process rules. These processes allow users to select data to be included in the process based on a Product Hierarchy. The engines need to reference this data to determine which instrument tables to include in the process.

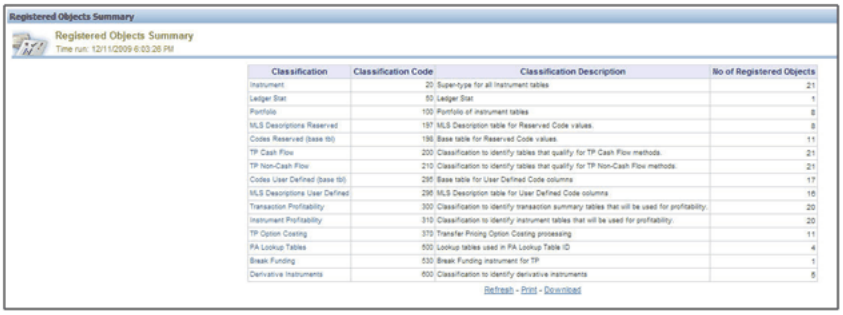


Object Registration

To go to the Object Registration reports, click Object Registration at the top of the Administrative Reports page. The details of the registered objects are present in the reports. You can obtain the data type of each object from this report. There are two tabs in this section.

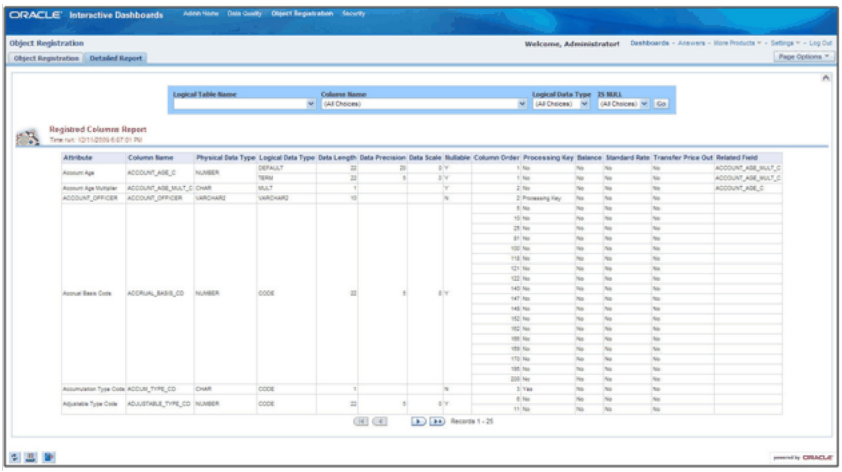
1. Object Registration Tab

   The details of the classification and number of registered objects are obtained here.



2. Detailed Report

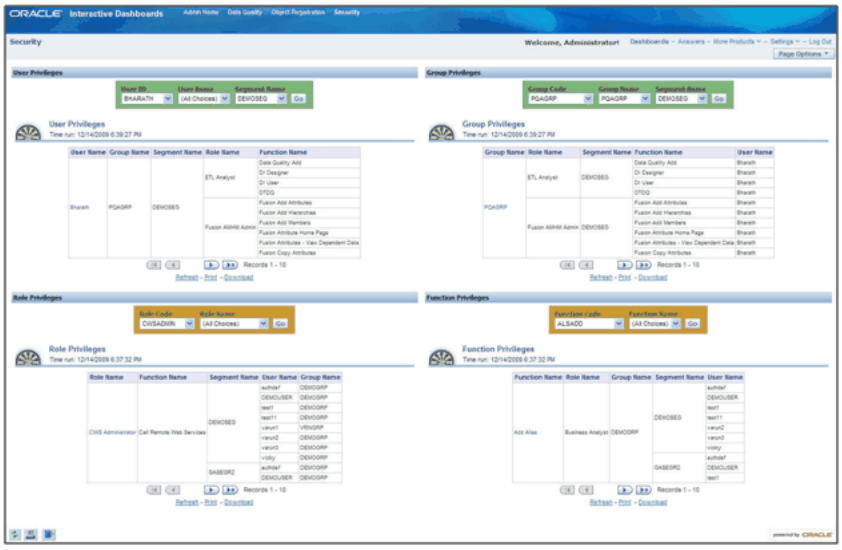
   You can click any classification to navigate to the detailed registered objects report.



Lookup tables are used within OFSAA Profitability Management application. Lookup tables have to be created and registered within OFSAAI, in order to display them in Lookup Table Driver definition of OFSAA Profitability Management application. For more information on Lookup Table creation, see *Oracle Financial Services Analytical Applications Data Model Utilities User Guide.*

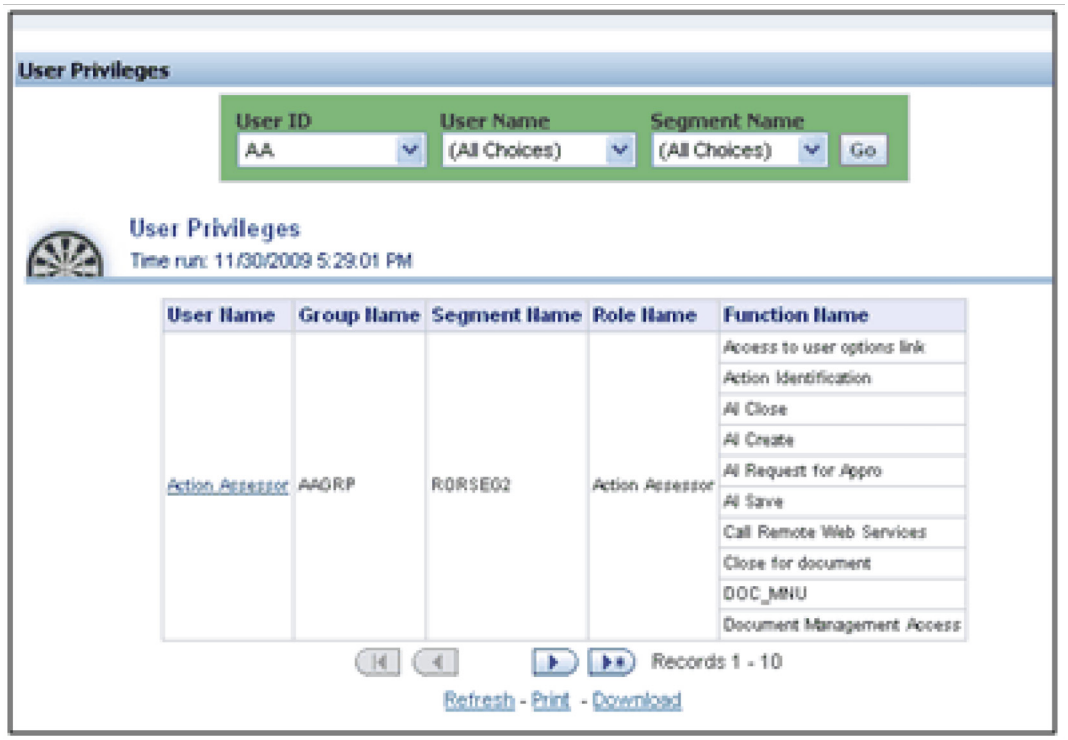
Security

The details about user privileges, group privileges, functions, and so on for the viewing of the objects are provided here.

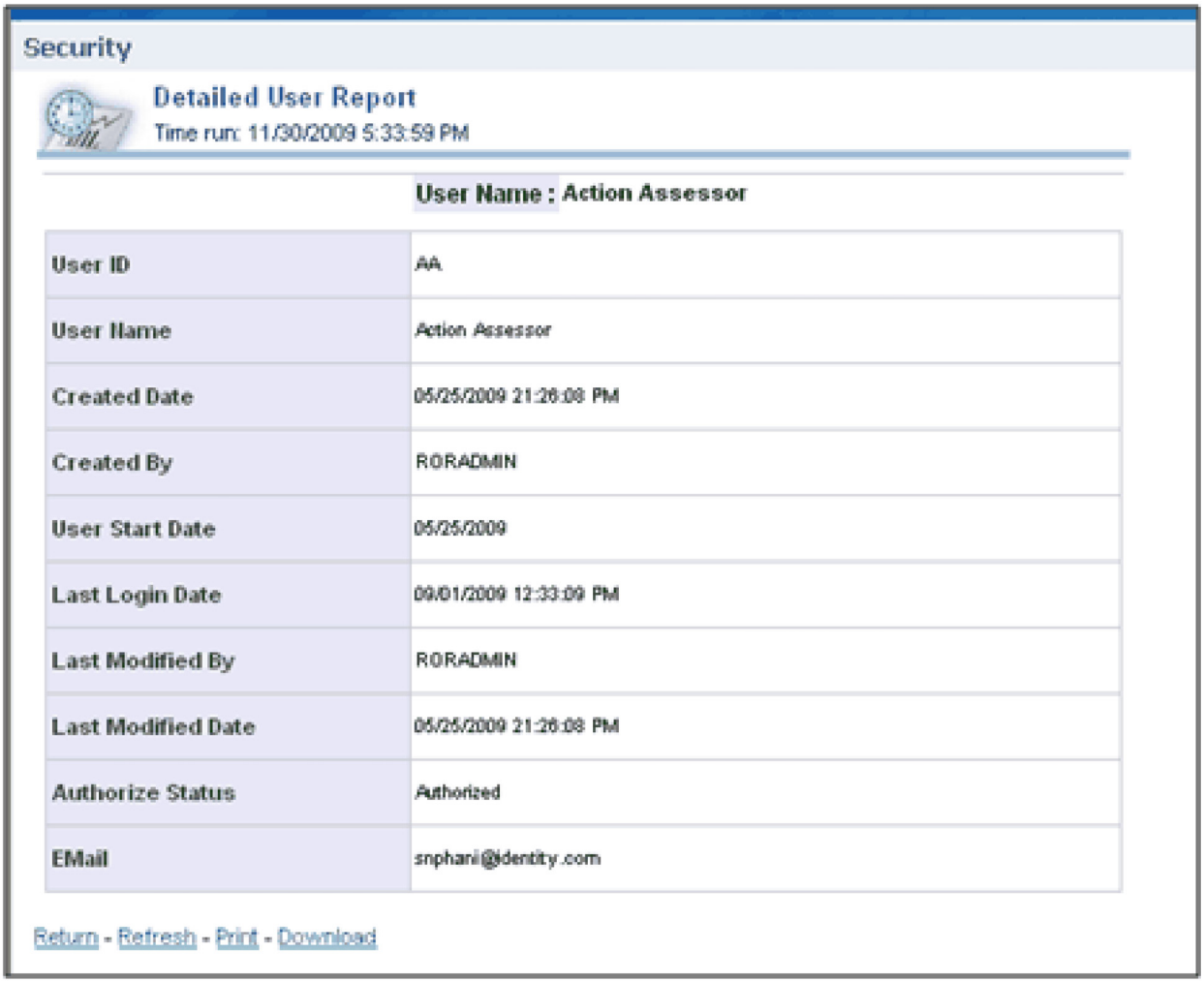


User Privileges

The details of a user and various associated privileges can be viewed in this report.



You can click the user name to obtain the detailed user report.


Security

Detailed User Report

Time run: 11/30/2009 5:33:59 PM

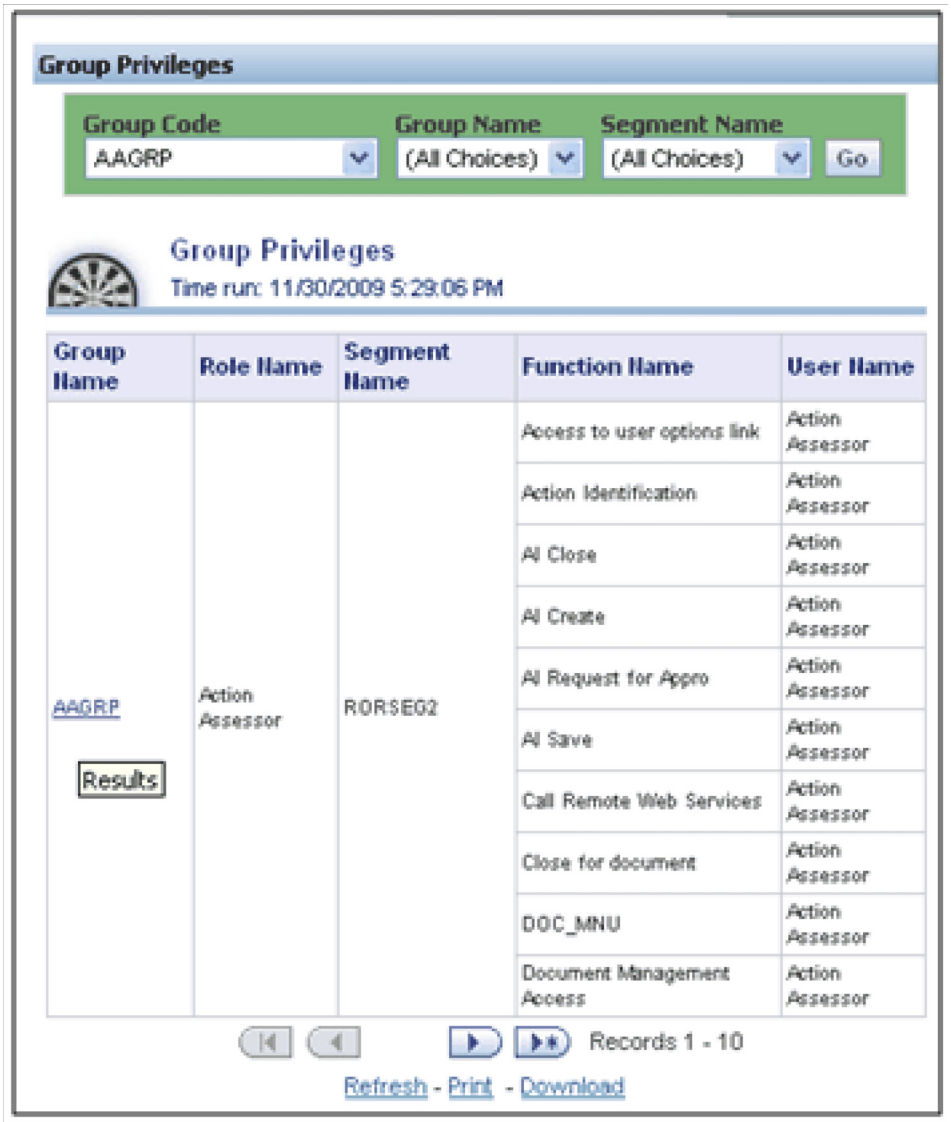
User Name : Action Assessor

User ID	AA
User Name	Action Assessor
Created Date	05/25/2009 21:26:08 PM
Created By	RORADMIN
User Start Date	05/25/2009
Last Login Date	09/01/2009 12:33:09 PM
Last Modified By	RORADMIN
Last Modified Date	05/25/2009 21:26:08 PM
Authorize Status	Authorized
EMail	snphani@identity.com

Return - Refresh - Print - Download

Group Privileges

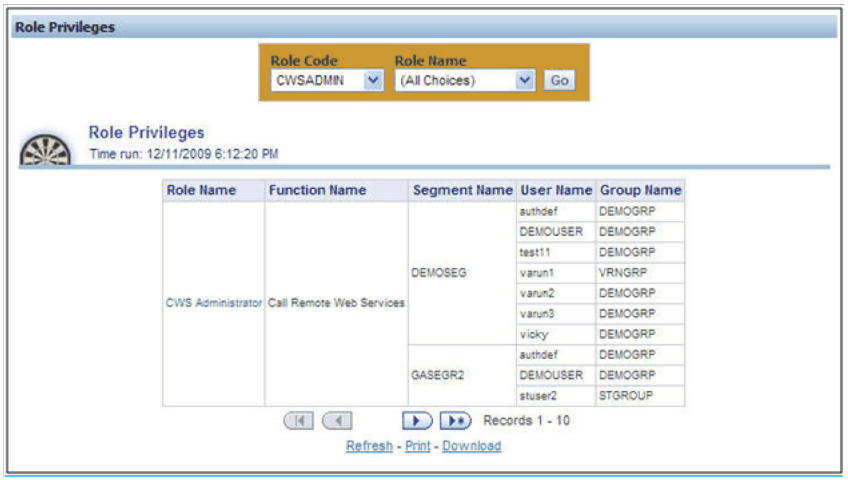
The details of a user group and various associated privileges can be viewed in this report.



You can click the group name to get the detailed group report.

Role Privileges

The details related to role privileges can be viewed in this report.



You can click the role name to get the detailed role report.

Security

Detailed - Role

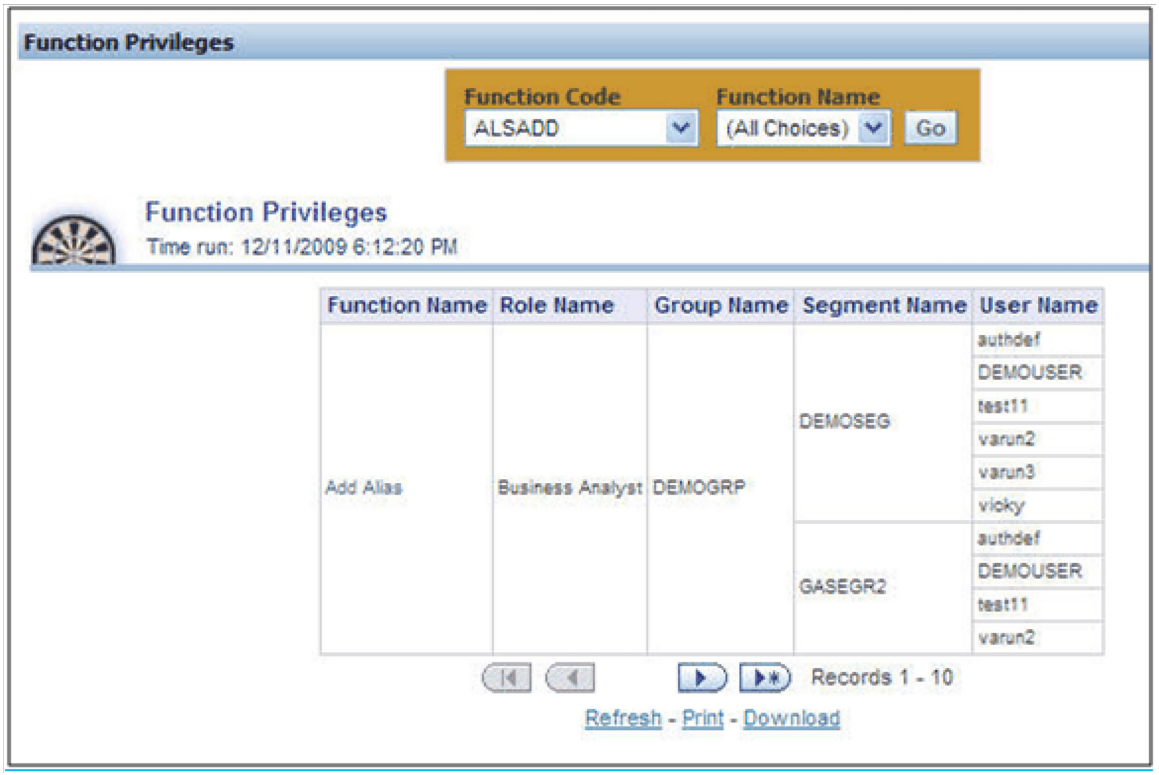
Time run: 12/11/2009 6:27:09 PM

Role Code	CWSADMIN
Role Name	CWS Administrator
Role Desc	CWS Administrator Role
Role Type	SYSADMIN
Created Date	10/10/1956 00:00:00
Last Modified Date	10/10/1956 00:00:00
Created By	SYSADMIN
Last Modified By	SYSADMIN

Return - Refresh - Print - Download

Function Privileges

The details related to function privileges can be viewed in this report.



You can click the function name to get the detailed function report.

Security

Detailed - Function

Time run: 12/11/2009 6:32:37 PM

Function Name : Add Alias

Function Code	ALSADD
Function Name	Add Alias
Function Description	The user mapped to this function can add Alias
Function Type	SYS
Created Date	10/10/1956 00:00:00
Created By	SYSADMN
Last Modified Date	10/10/1956 00:00:00
Last Modified By	SYSADMN

Return - Refresh - Print - Download

Adhoc Reporting – Special Instructions

The following instructions need to be followed whenever you want to carry out the Adhoc Reporting or Adhoc Querying using the OBI Answers tool or any other querying or reporting tools.

In the OBI Answers tool, when you click the Answers link, you will find single subject area, Fusion. Here you can select the tables (folders) and columns related to the Object Registration, Data Quality and Security dashboards. These tables (folders) and columns can also be used for Adhoc Reporting or Adhoc Querying.

Since these tables belong to different functional areas, namely Object Registration, Data Quality and Security, relationships or table joins across functional areas are not supported for Adhoc Reporting. Therefore, during Adhoc Report or request creation you have to make sure that tables and columns selected are within the functional groups mentioned in the following section to get correct results.

Data Quality

You can use following folders (tables) and columns for Adhoc Querying on Data Quality related objects.

- Dim Stratification
- Dim Leaves
- Dim Invalid Codes
- Dim Ledger Stat
- Dim Product
- Dim Org Unit
- Dim Currency
- Dim General Ledger
- Dim Common COA
- Fact Stratification
- Fact Leaves
- Fact Invalid Codes

Object Registration

You can use following folder for Adhoc Querying on Object Registration related queries.

- Dim Classification

Security

You can use following folder for Adhoc Querying on Security related queries.

- Dim Security

CHAPTER 4 OFSAA Data Entry Forms and Queries

Introduction to Data Entry Forms and Queries

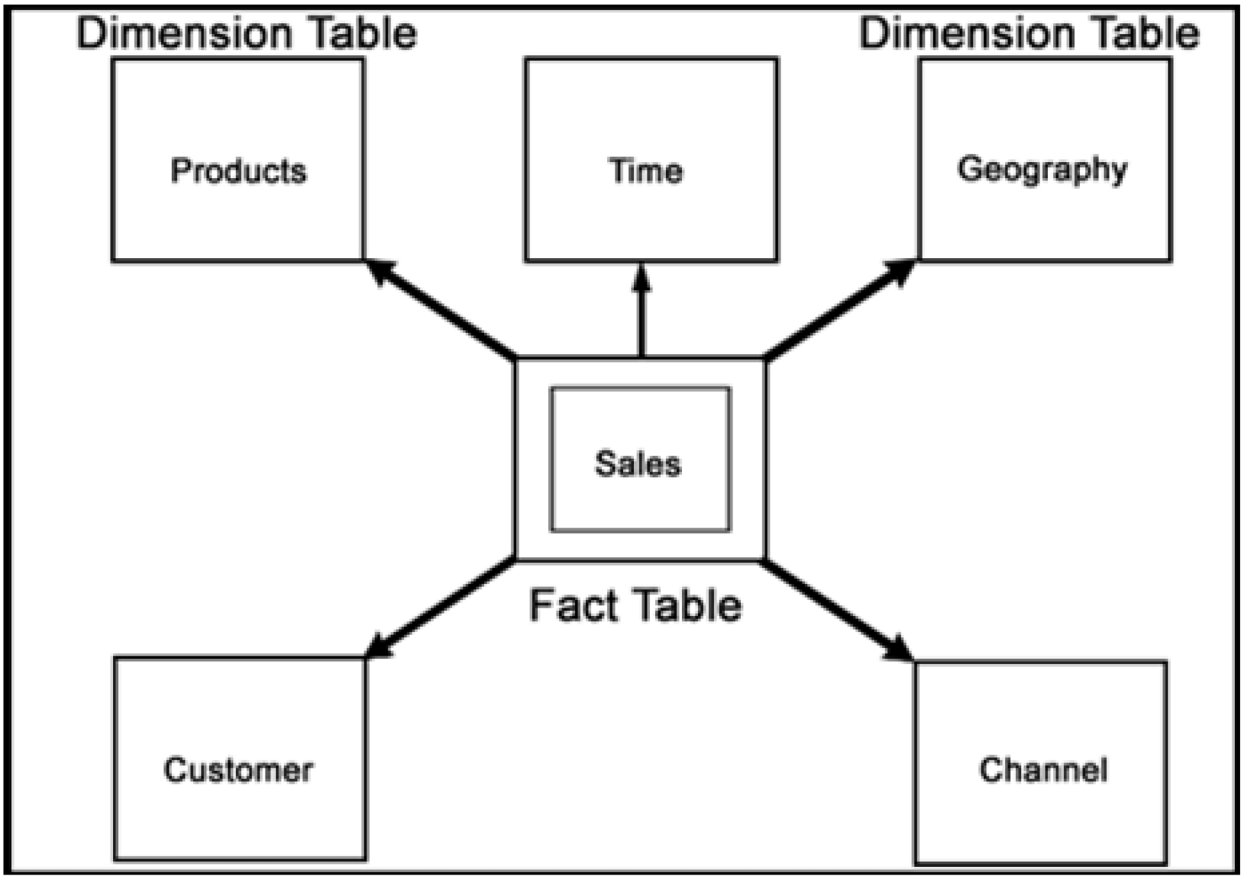
Data Entry Forms and Queries functionality is provided to allow you to create user-friendly Data Entry Screens with a choice of layouts, which aids easy data view and data manipulation. You can select tables based on which you can create forms that can be used in any Application.

Acronyms

Defi Data Entry Forms and Queries.

Data Model A logical map that represents the inherent properties of the data independent of software, hardware or machine performance considerations. The model shows data elements grouped into records, as well as the association around those records.

Star Schemas It is the simplest of data warehouse schemas. This schema resembles a star diagram. While the center contains one or more fact tables the points (rays) contain the dimension tables



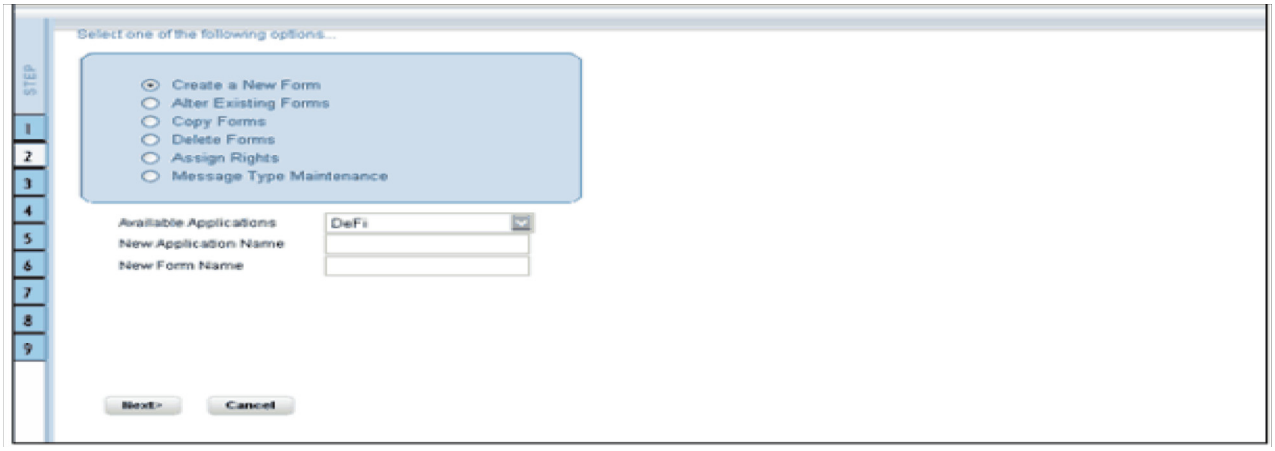
In a star schema, only one join is needed to establish the relationship between the fact table and any one of the dimension tables which optimizes queries as all the information about each level is stored in a row.

Designing Data Entry Forms

The Data Entry Forms and Queries menu has three options, namely, Form designer, Data Entry and Excel Upload options.

To Design forms, click **Form Designer** to open the **Forms Designer Wizard** . In this screen, you can create, alter, copy or delete forms. **Create a new Form** is the default option that is chosen when you open the wizard. The various steps involved in the creation of the form are displayed in the left pane of the screen. You can also assign User Rights to already defined Forms.

The first screen of the Forms Designer wizard is displayed as Step 2, Step 1 being the login screen.



Creating a New Form

To design a new form you will have to first choose the Create a New Form option. On entering the screen this option will be selected by default.

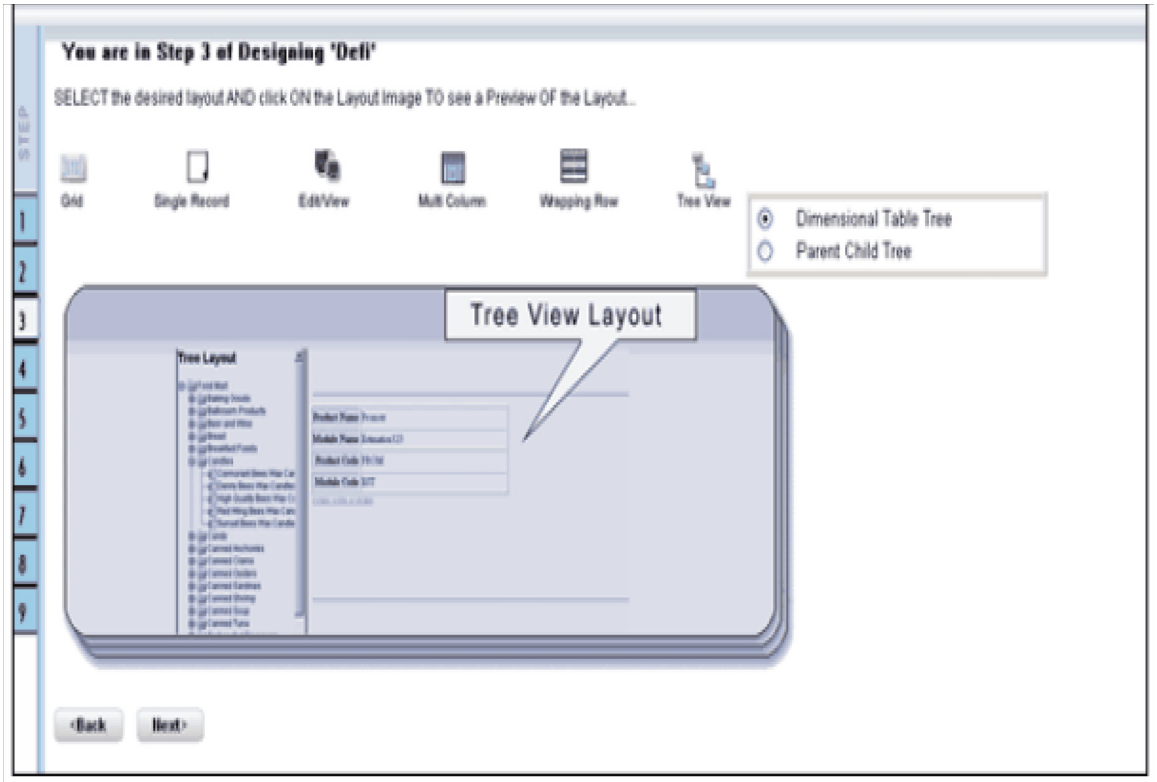
An Application refers to a group with a list of forms within it. The Available application field will contain the new application by default.

To create a new form, select New Application from the Available Applications drop-down list, click the field provided for New Application Name and enter an application name.

Enter a form name in the **New Form Name** field.

Note: To modify an existing form, select Alter Existing Forms option. Make your modifications and move to step 3.

Click **Next** to go to step 3. Click **Cancel** to reset the fields.



The Layout screen displays a range of pre-defined layouts for your form. The various layouts available are Grid, Single Record, Edit/View, Multi Column, Wrapping Row and Tree View.

To view the display of a layout, click any of the icons on the top of the screen. Click Back to go to the previous screen. Click Next to go to step 4. Click Cancel to refresh the choice of the selected layout.

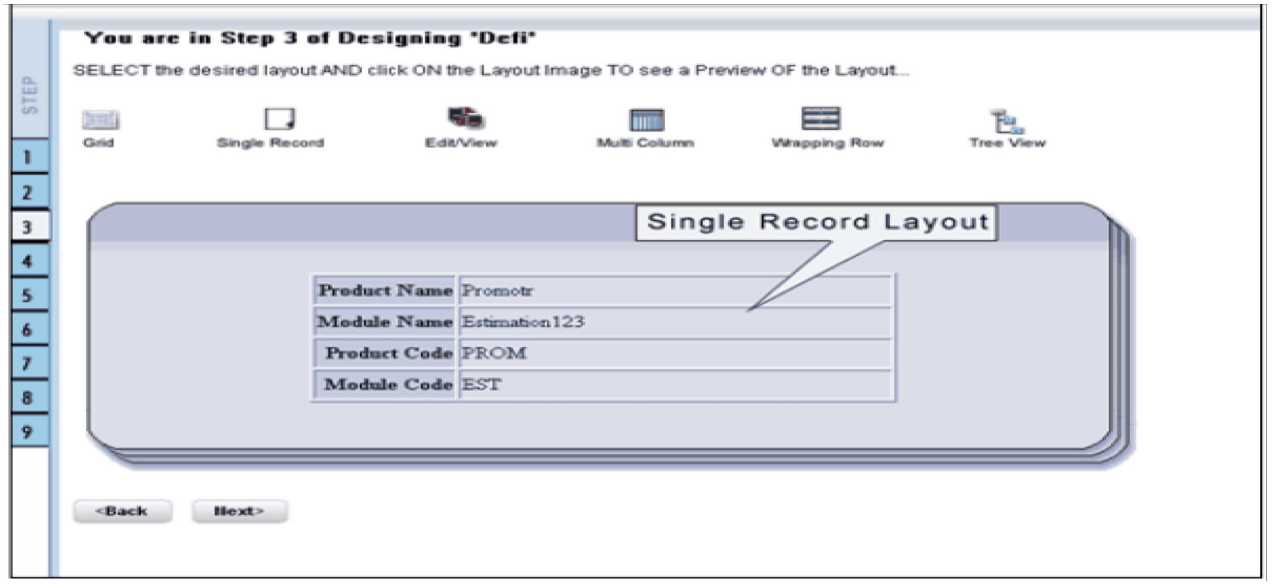
The Grid Layout

The Grid Layout is the default layout that is displayed. It will display the records in the form of a table/grid with multiple rows of data.

This layout can be used when you wish to view multiple records from a table at a time.

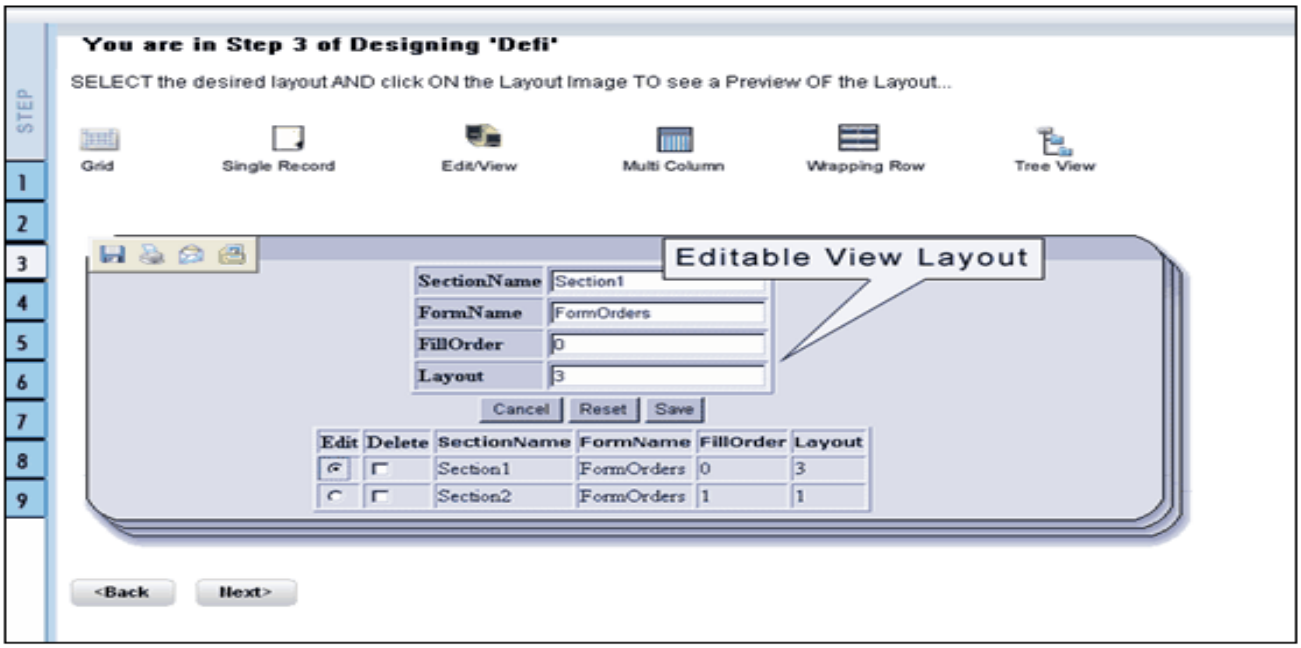
The Single Record Layout

The Single Record Layout displays a single record at a time.



The Edit/View Layout

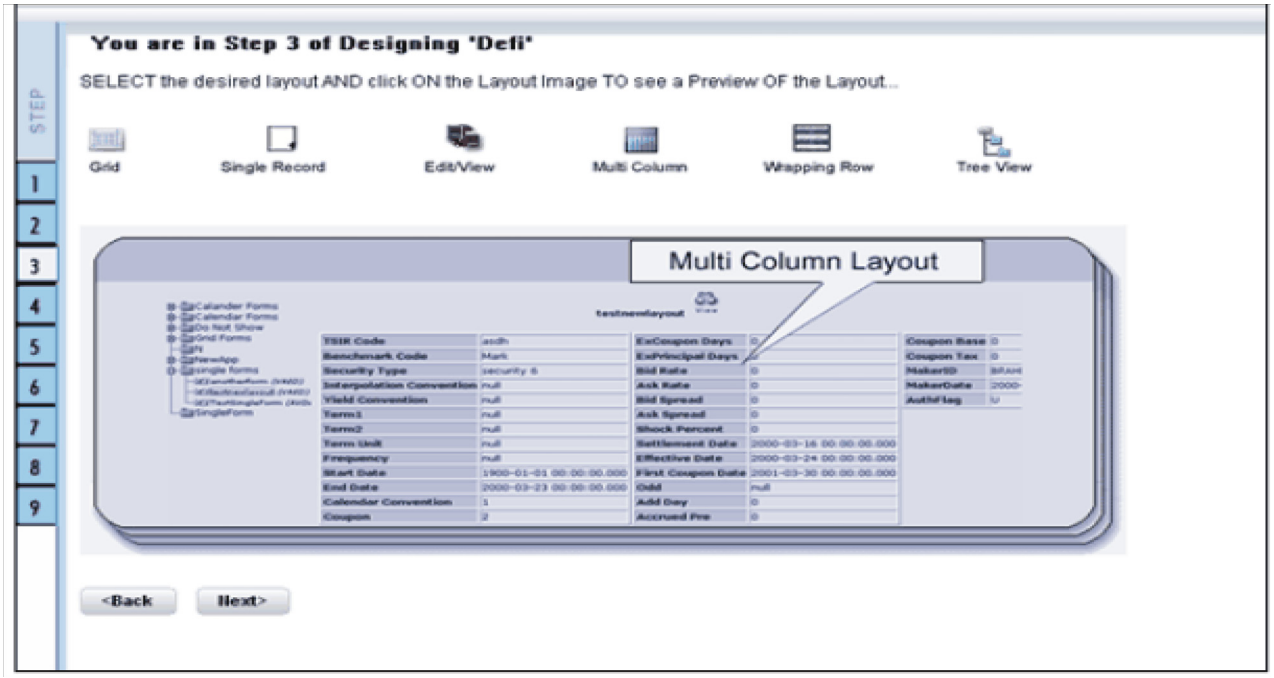
The Edit/View Layout is a combination of the single record and grid layout.



If you choose a record in the grid, that particular record will be displayed in the form, in a single record format, which is editable. By default the first record will be displayed in the editable grid.

The Multi Column Layout

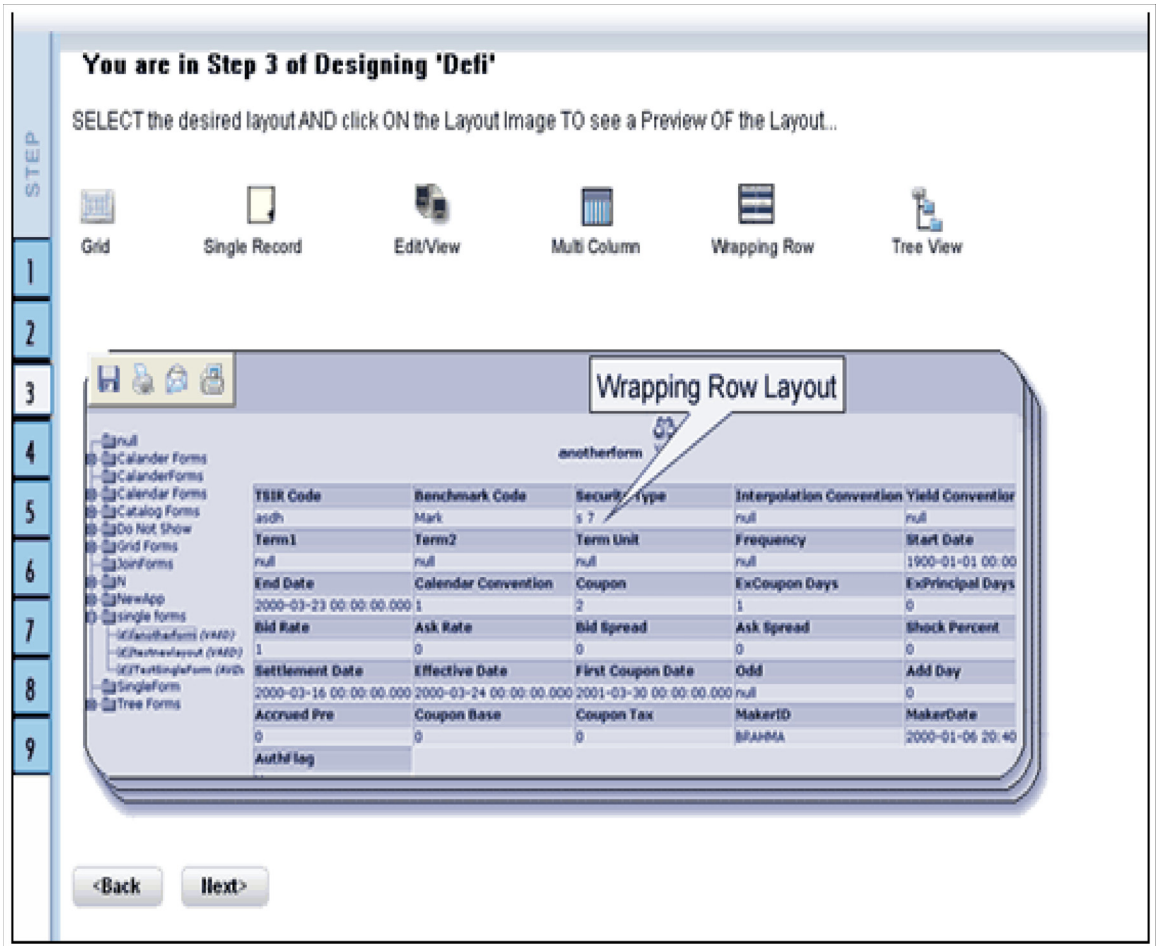
The Multi Column Layout displays a single record with its column in a grid format.



You can view a multi column layout form without having to scroll or with minimum scrolling to view all the columns.

The Wrapping Row Layout

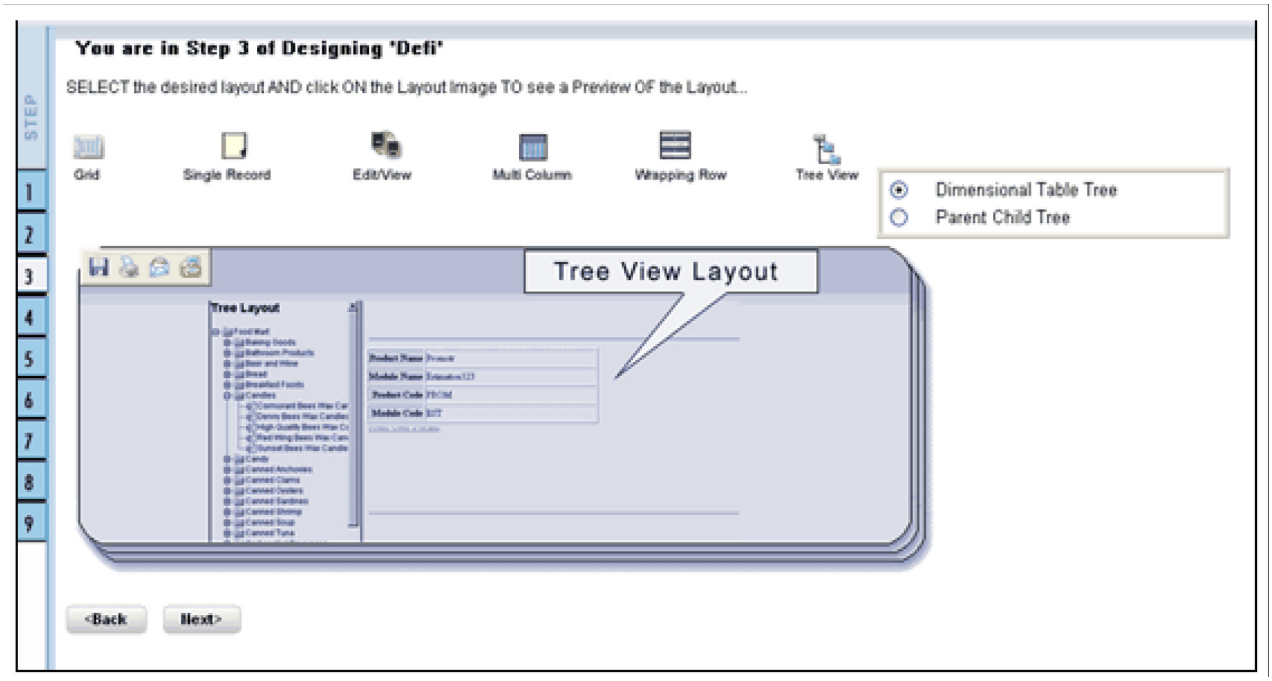
The Wrapping Row displays rows of a single record in a wrapped manner in a grid format.



You can view a wrapping row layout form easily without having to scroll horizontally to view all the data.

The Tree View Layout

The Tree view layout represents the dimensional table. It presents the entire dimension tree with selected dimension details.

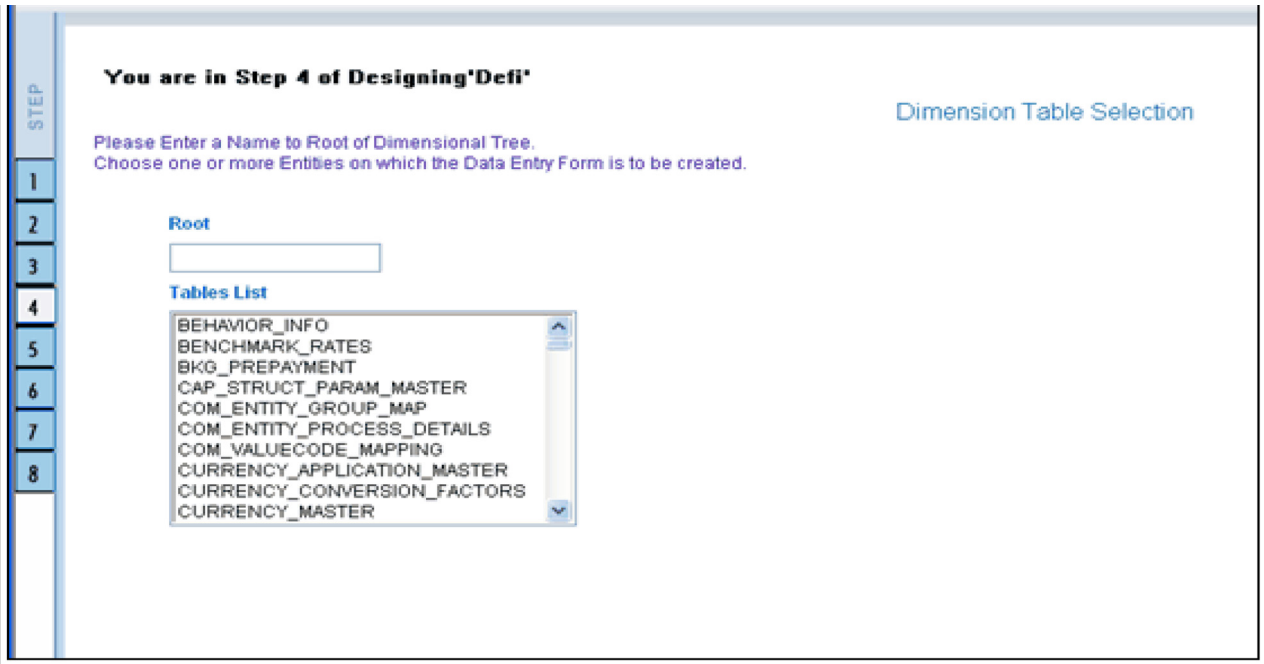


Click Back to go to the previous screen. Click Next to go to step 4. Click Cancel to reset the selected layout option.

For Grid, Single Record, Edit/View, Wrapping Row, Multicolumn and Tree View Layouts

The table screen displays the Tables List box with available tables. You can choose more than one table by pressing the CTRL key for nonadjacent selection or the SHIFT key for multiple adjacent selections.

However, it is necessary that the tables that you select have same data type for the two mapped fields.



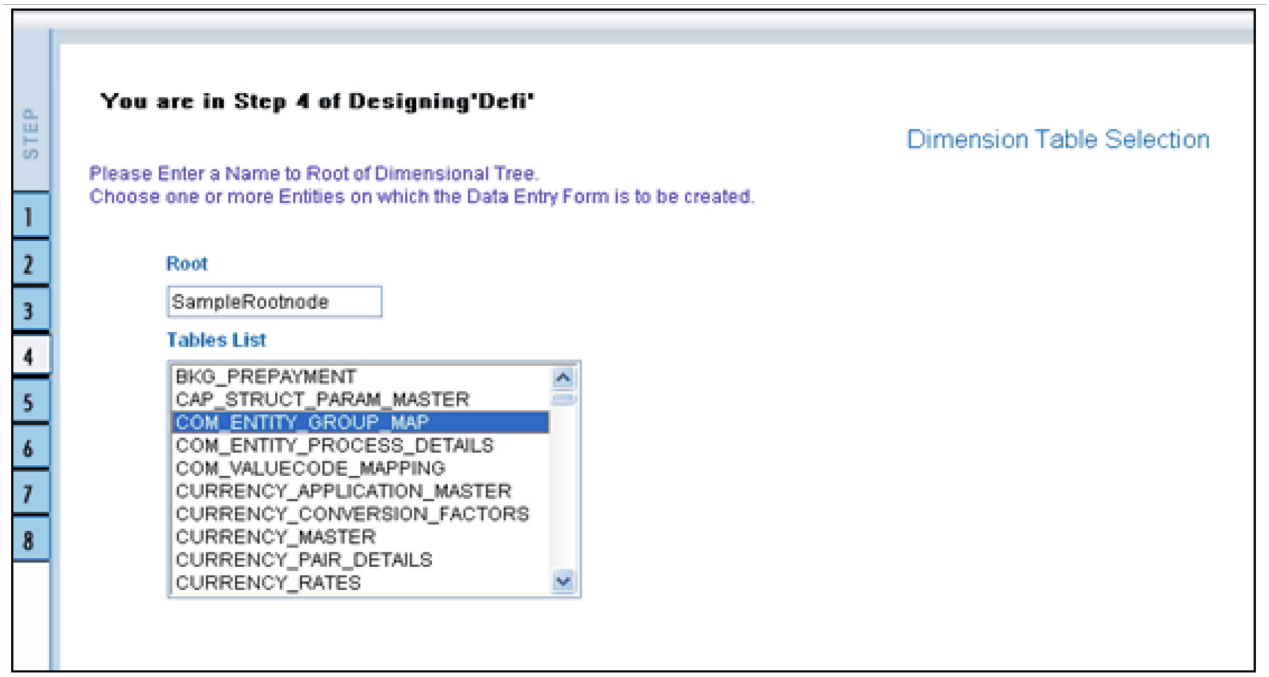
DIM_ACTION_GROUP

DIM_ACTION_PRIORITY

DIM_ACTION_TYPE

Click **Back** to go to the previous screen. Click Next to go to step 5. Click Cancel to refresh the table list.

If you have selected **Tree View layout** in the previous screen, the Table list screen will be as shown .



Enter a root node name in the Root text box.

Sample Rootnode

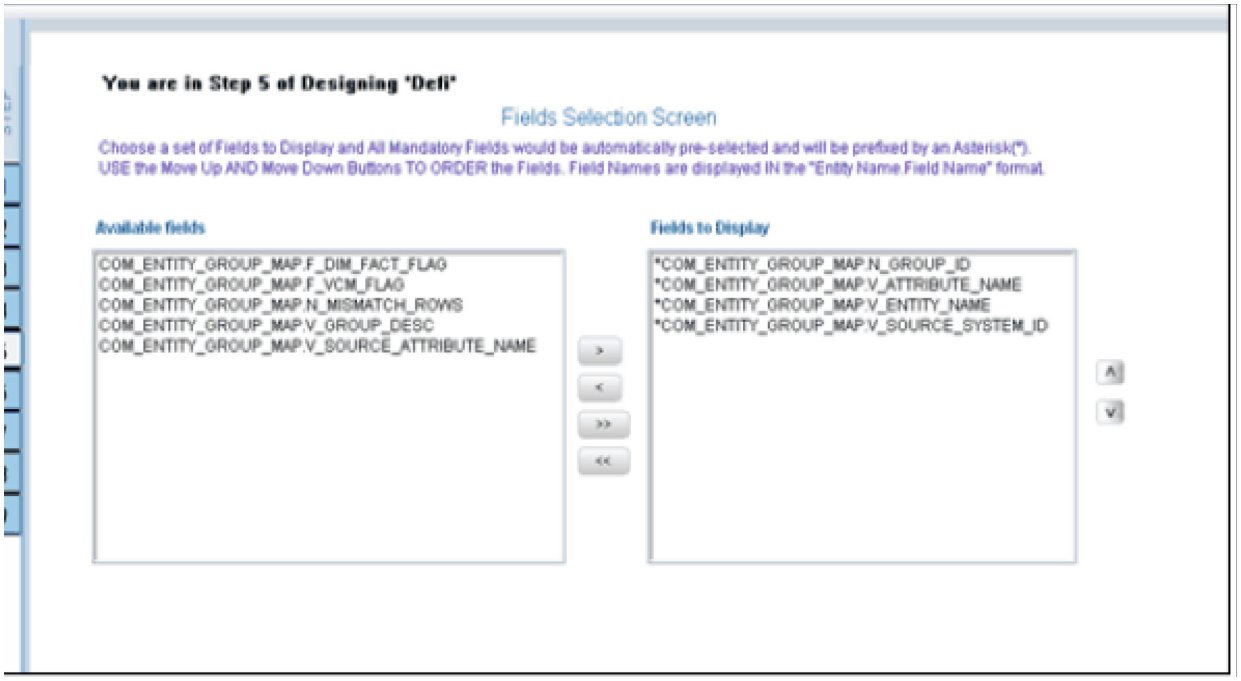
Choose a table that you want to be included in the form.

DIM_ACTION_GROUP

Click Back to go to the previous screen. Click Next to go to the join tables screen.

Joining Tables

In the join table screen, you can select the fields to be joined.



Choose a table name that you wish to add or edit.

DIM_PRODUCTS

Select the field of the chosen table that you want to add from the Available Fields list box and choose the field that you want to join it with of the latter table. The chosen fields will be displayed in the Join Condition pane.

DIM_PRODUCTS.V_D_PRODUCT LEVEL_1_CODE=DIM_PRODUCTS.V_D_PRODUCT_LEVEL _2_DESC

Click **Clear** to clear the join condition.

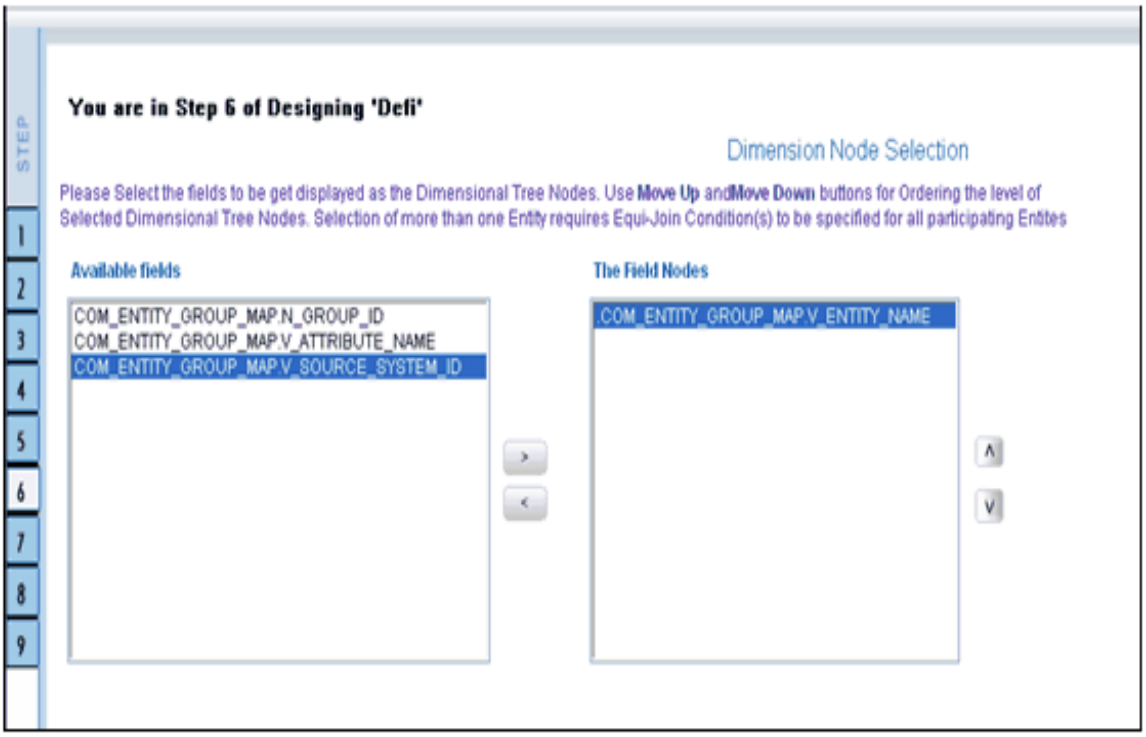
Click **Back** to go to the previous screen. Click **Next**, to join the fields and go to step 5.

Click **Cancel** to refresh the table list.

For Grid, Single Record, Edit/View, Wrapping Row, Multicolumn and Tree View Layouts.

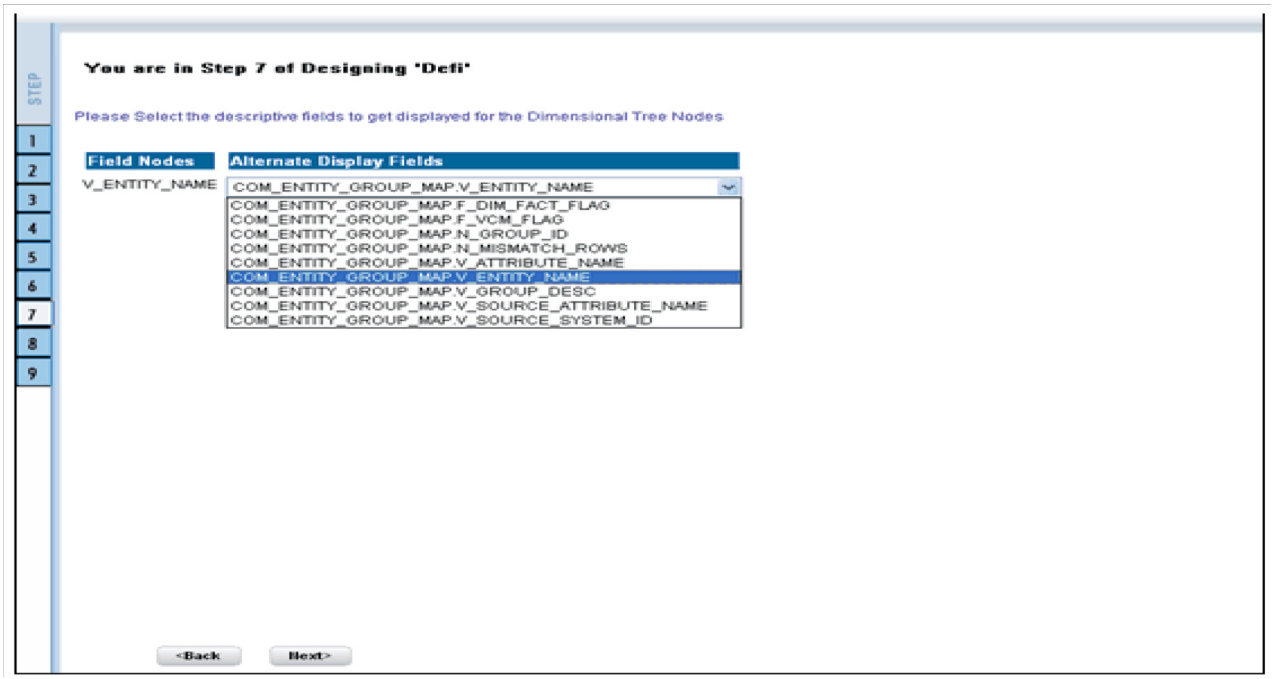
The Fields screen displays the Available Fields pane and Fields for sorting pane. The mandatory fields are highlighted with the '*' symbol and are automatically displayed in the Selected Fields pane as pre-selected for you and are shown in the Chosen Fields Pane. These mandatory fields are fields (primary key fields and not null fields) that require data to be entered by the user while performing Data Entry on the underlying table.

If you want the fields to be sorted based on the Branch Code, select the field CUSTOMER V_CUST_BRANCH_CODE.



Select the fields from the Available Fields pane that you want to be included in the form and click **(>)** to move to the Fields to Display pane. To remove a field(s) from the Fields to Display pane to the Available Fields pane, click **(<)** . To move all the fields to the Fields to Display pane from the Available Fields pane, click **(>>)** . To move all the non mandatory fields to the Available Fields pane, click **(<<)** .

To arrange the fields that are displayed in the Fields to Display pane, click up arrow symbol to move a field up and down arrow symbol to move down. This order determines how the Fields are displayed in the Data Entry Form. This order can be different from the order in which the fields are in the underlying table.



Select the fields from the Available Fields pane that you want to be included in the form and click **(>)** to move to Step 8. To remove a field(s) from the Choose Fields pane to the Available Fields pane, click **(<)** . To move all the fields to the Choose Fields pane from the Available Fields pane, click **(>>)** . To move all the non mandatory fields to the Available Fields pane, click **(<<)** .

To arrange the fields that are displayed in the Choose Fields pane, click up arrow symbol to move a field up and down arrow symbol to move down. This order determines how the Fields are displayed in the Data Entry Form. This order can be different from the order in which the fields are in the underlying table.

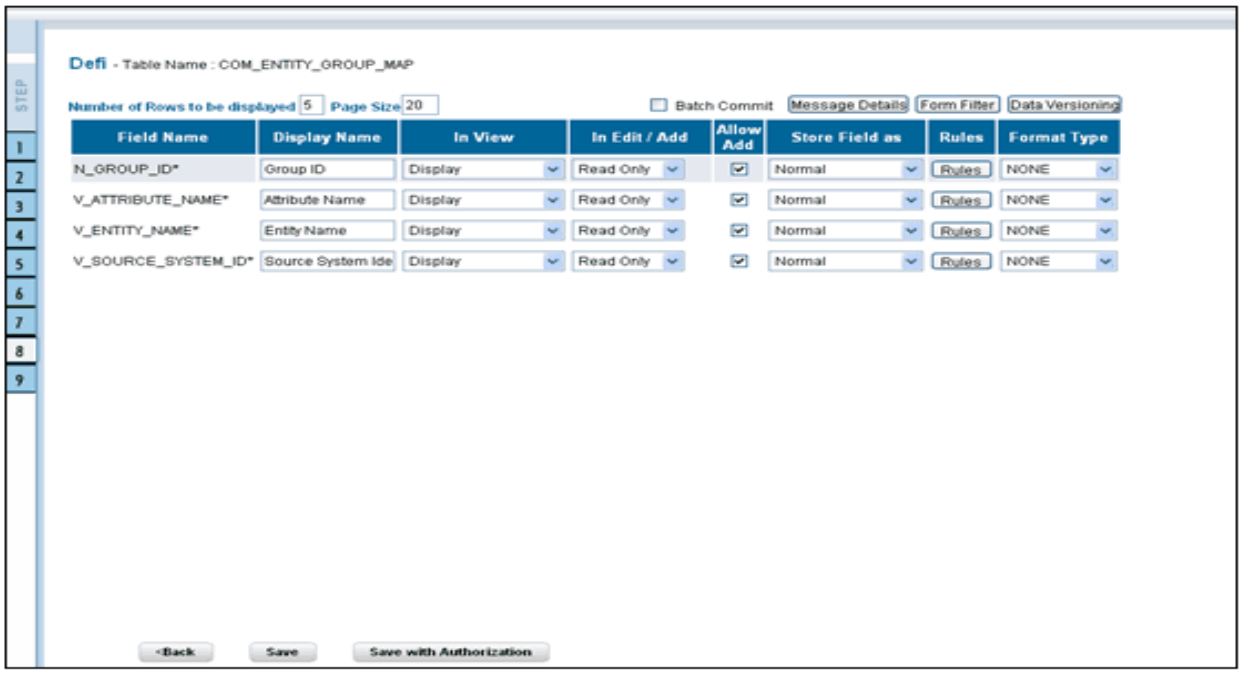
The selected fields will be sorted in ascending order by default. To set the order of the fields in the descending order, check the check-box provided for **Sort By Descending.**

Note: The fields displayed in the Sort Fields screen are the list of fields chosen from the Fields Selection screen.

Click **Back** to go to the previous screen. Click **Next** to go one step further.

For Grid, Single Record, Edit/View, Wrapping Row & Multicolumn Layouts

The index screen displays the form with Field Name, Display Name, In View, In Edit/Add, Allow Add, Store Field as and Rules detail columns. You can specify the details for each of the field names.



You can change the display name of the field name by entering a name in the Display Name field.

User Expiry Date

You can choose a field to be displayed by selecting the In View option as Display or Do not Display. If the field you choose is a foreign key field or if more than one table is selected, the In View displays Same Field, Alternate Display Field and Do not Display options.

You can specify the edit options for a user by specifying the edit parameters. Click the In **Edit/Add** field to open the drop-down list box. Select the edit parameter that you want to apply to a field. For normal fields you can choose the edit parameters like Text Field, Text Area, Select List, Protected Field, Read Only and Do Not Show. If it is a foreign key field the In Edit/Add parameters displayed will be Read Only, Select List and Do Not Show. For primary key fields the In Edit/Add parameter displayed will be Read Only and Do Not Show. In case of calendar fields, the In Edit/Add parameters displayed are Calendar and Do Not Show.

To give the user permission to add a new record, select the Allow Add option against the field name. If form is saved with add option as true for some fields and false for some fields then it will give an alert saying "Choose Allow Add for the mandatory fields."

To specify the field storage format, click the **Store Field as** field to open the drop-down list. You can choose the store format as Normal, Sequence Generator, Maker Date, Checker Date, Created Date, Modified Date Auth Flag, Maker id, Maker Date, Checker id, Checker Date, Checker Remarks and Maker Remarks.

You can also apply rules to a field. Click Rules to open the screen.

Applying Rules

You can apply rules only if the In Edit/Add fields are Text Field, Text Area or Protected Field. The rule option is essential for data validation

To specify rules for Text Field, Text Area and Protected Field, click the **Rule** option to open the Specifying Rules and Expressions for Data Validations window.

If a field has a character data type, you can specify here the rule for the field to be displayed without spaces, only characters or alphanumeric. If a field has a numeric data type, you can check the check-box provided for Numeric Only. You can choose whether/not you require Negative values to be displayed by checking/un-checking the field provided for Non Negative, not null will be displayed for the non primary key and/or nullable fields.

Specify the maximum width of the field in the Maximum Width box. You can set the column alignment by selecting the appropriate alignment from the Alignment drop-down list. On specifying the options, click Ok to save.

Click **clear** to Clear the information entered in the screen. Click **Close** to close the screen.

Click **Back** to go to the previous screen. Click **Save** to save the field details setting.

- Only forms with primary key tables can have the authorization option while saving.
- By default, the alignment for character and date data type is taken as Left. And for numbers it is displayed as Right. But the alignment can be changed to Right, Left or Center.

You can specify the edit options for a user by specifying the edit parameters. The In Edit option varies for different fields based on whether the field is foreign, primary or calendar fields.

Click the **In Edit/Add** field to open the drop-down list box. You can choose the edit parameters like Text Field, Text Area, Select List, Read Only, Do Not Show and Expression Generator. Select the edit parameter that you want to apply to a field.

When you select the Select List option in the In Edit/Add column, a pop-up window is displayed.

Note: The Select List option will not be displayed for foreign key fields.

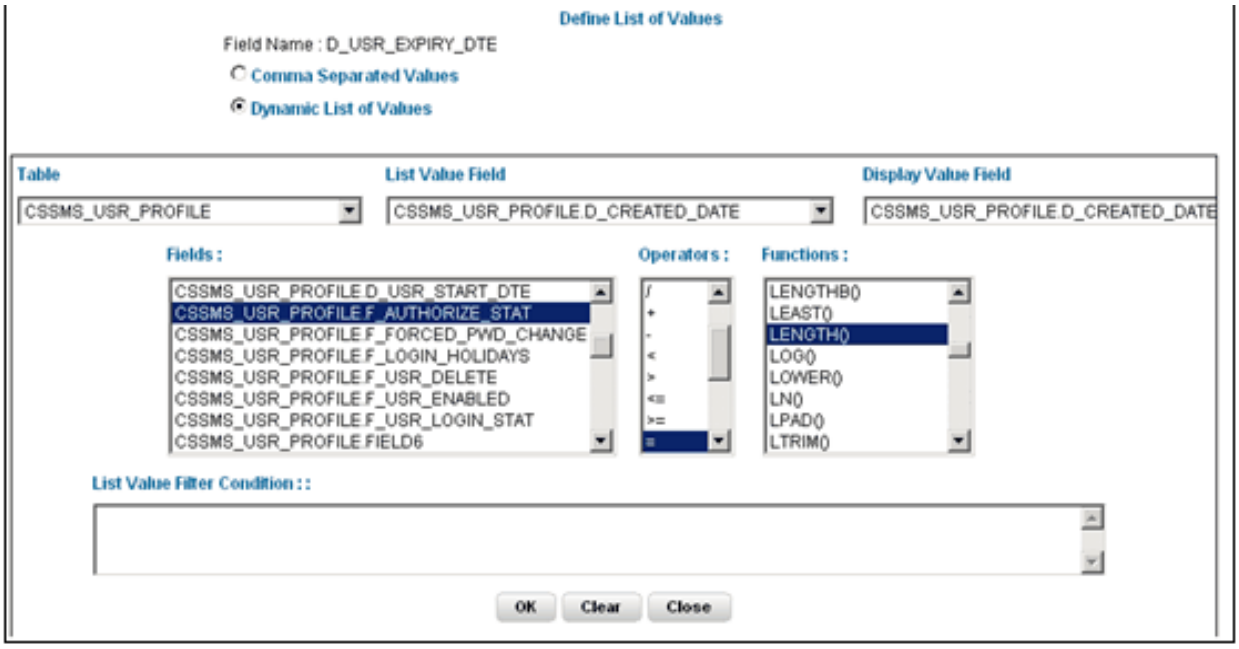
Enter the list of values to be displayed, in the List of Values field. You may choose the field to be Comma Separated Values or Dynamic list of values options.

Comma Separated Values can have only the user specified values while creating a form.

Dynamic Field accepts the fieldname from a table, which it stores in the database, which is used during Data Entry. Specify **Alternate Display Values** in the appropriate field.

Click **OK** to save the specified list of values. Click **Cancel** to clear the List of Values field. Click **Close** to close the pop-up window.

If you select Dynamic List of Values, you will be able to select the table values and then define a filter condition for the selected values, as shown in the following screen-shot.



To give the user permission to add to the field, select the Allow Add option against the field name. The Allow Add option is mandatory for primary key and not null fields.

To specify the field storage format, click the Store Field as field to open the drop-down list box. You can choose the store format as Normal, Sequence Generator, maker ID, Checker ID, Maker Date, Checker Date, Created Date, Modified Date, Maker Remarks, Checker Remarks and AuthFlag.

Click Back to go to the previous screen. Click Save to save the field details setting.

To save the form containing primary key tables, click **Save with Authorization.**

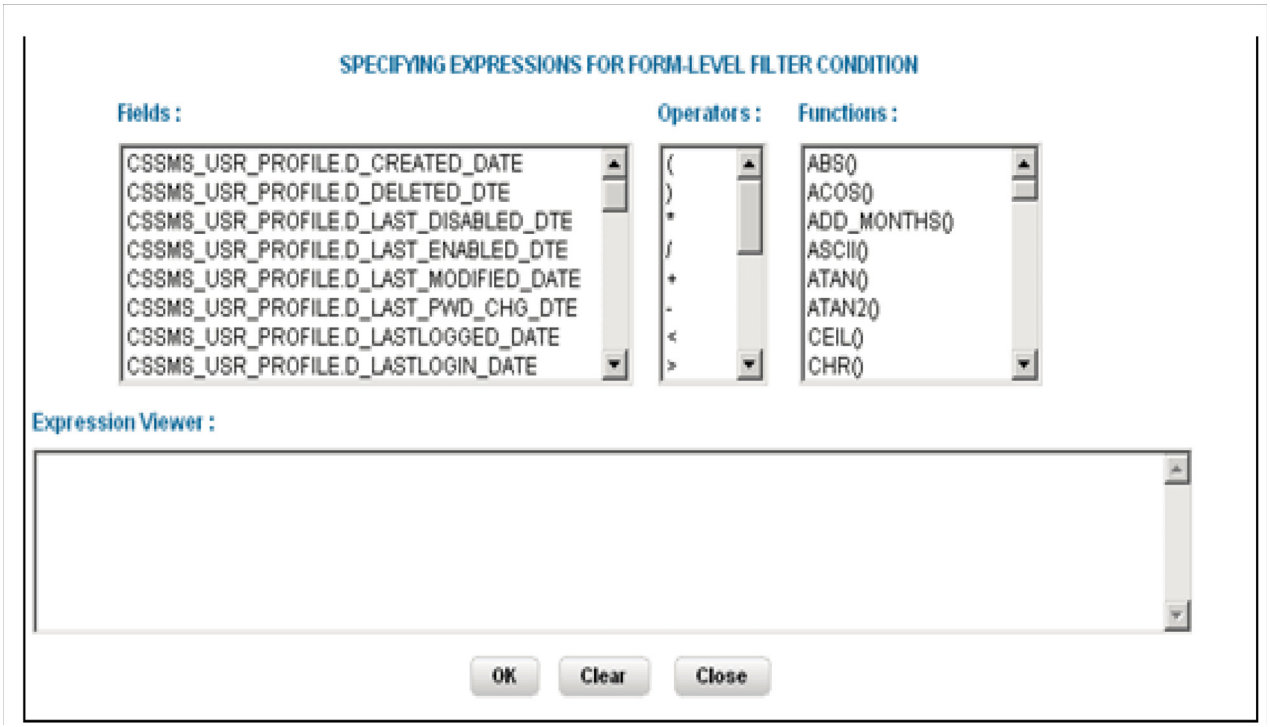
- Only forms with primary key tables can have the authorization option while saving.
- If the user want the value to be displayed with the thousands separator, such a numeric field should be defined under the Display Value Field.

Committing the Batch

Selecting the check-box provided for Batch Commit virtually groups/baskets the entire set of table forms. With this grouping, the system ensures that if a particular form in the table fails to be executed, the entire set of forms will be returned. Hence, all activities for the selected table is carried out in batches.

Defining the Form Filter

With the Form Filter screen you can specify expressions for the form filter condition.



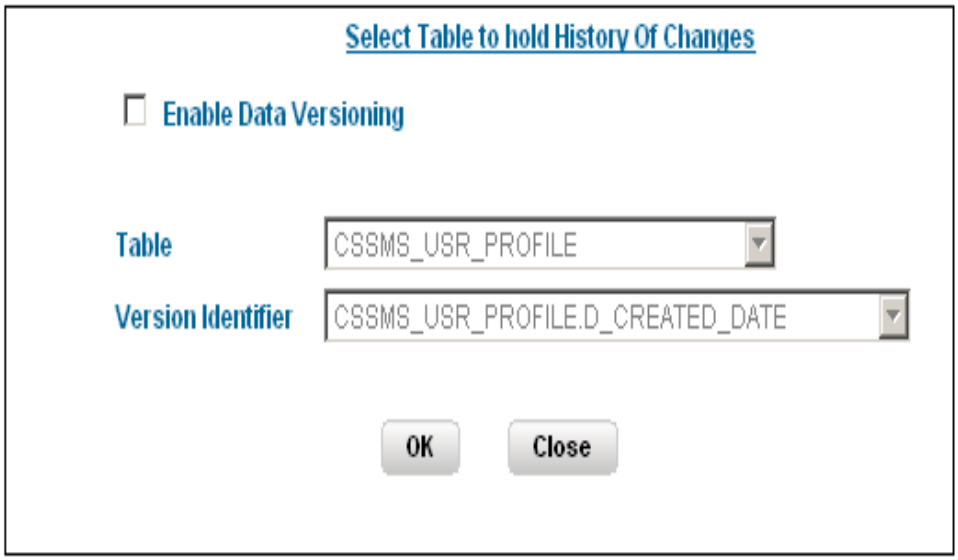
Click to select the **Field**, the **Operator** and the **Function** from the appropriate panes.

The expression you define will be displayed in the Expression Viewer pane.

Click OK to save the expression. Click Clear to refresh the screen. Click Close to close the screen without saving.

Data Versioning

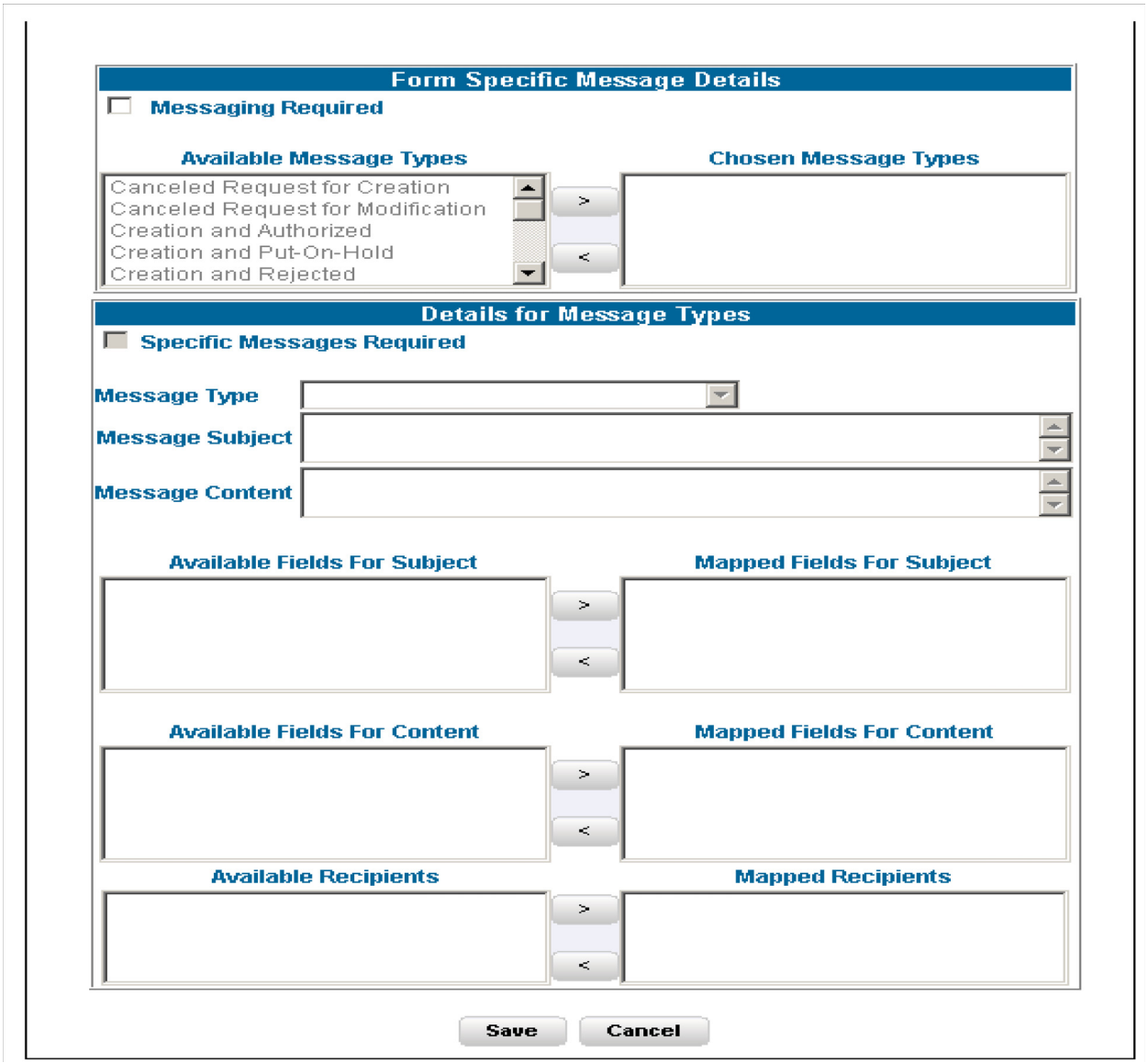
Using this screen you can perform data versioning on an authorized form. The table version is tracked based on the date of modification. Check the check-box provided for Enable Data Versioning to ensure that the version is tracked.



If you select this option, the modifications made to the particular form are displayed as per date versioning.

Specifying Message Details

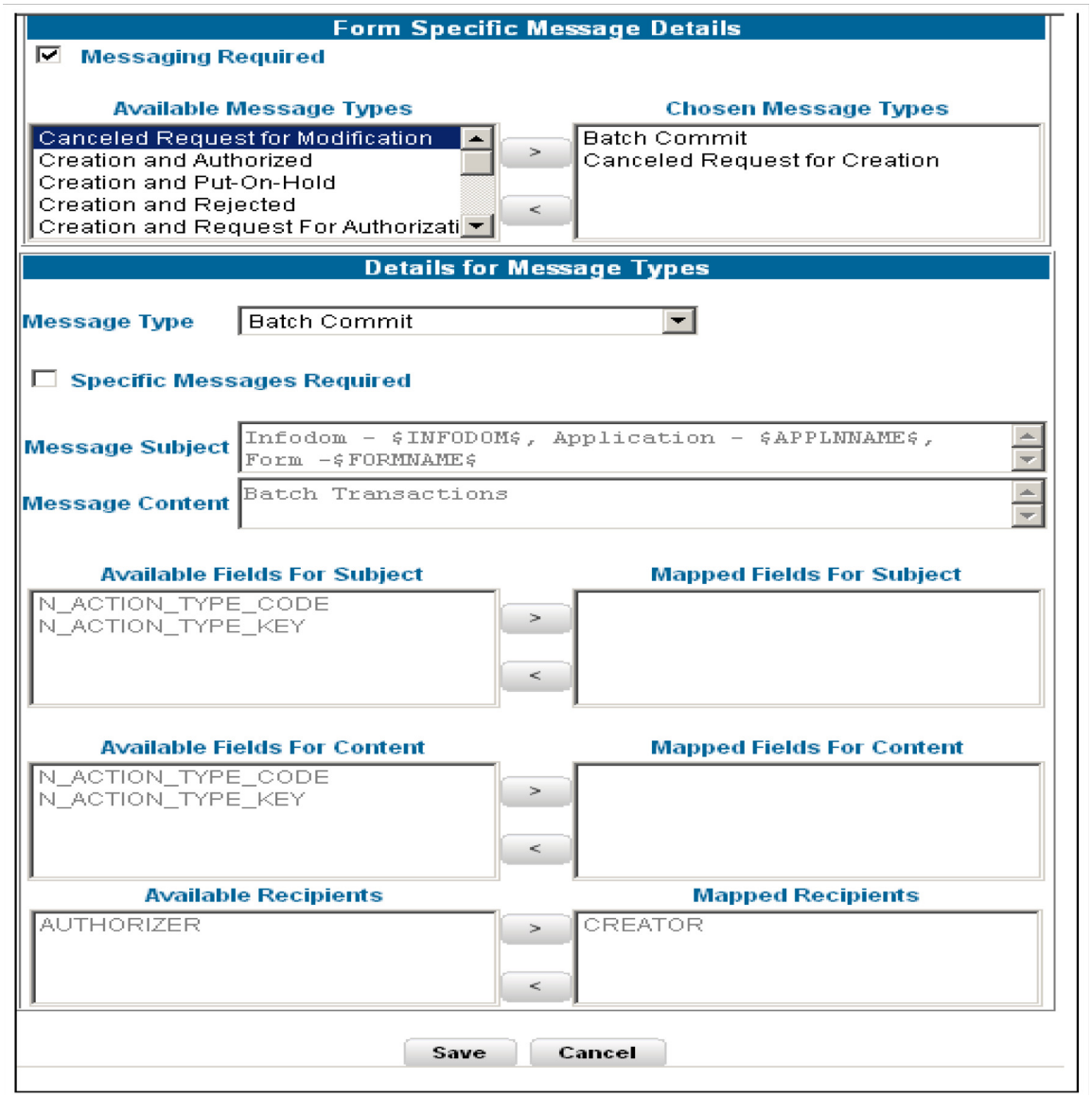
With the messaging screen, you can specify an alert message that can be sent either to the Creator of the form or to an Authorizer. Click the Message Details tab in the index screen. The Message Details screen will be populated on your screen.


Form Specific Message Details
Messaging Required
Available Message Types
Chosen Message Types
Canceled Request for Creation
Canceled Request for Modification
Creation and Authorized
Creation and Put-On-Hold
Creation and Rejected
>
<
Details for Message Types
Specific Messages Required
Message Type
Message Subject
Message Content
Available Fields For Subject
Mapped Fields For Subject
Available Fields For Content
Mapped Fields For Content
Available Recipients
Mapped Recipients
Save
Cancel

To activate the Messenger feature, you need to check the check-box provided for Messaging Required.

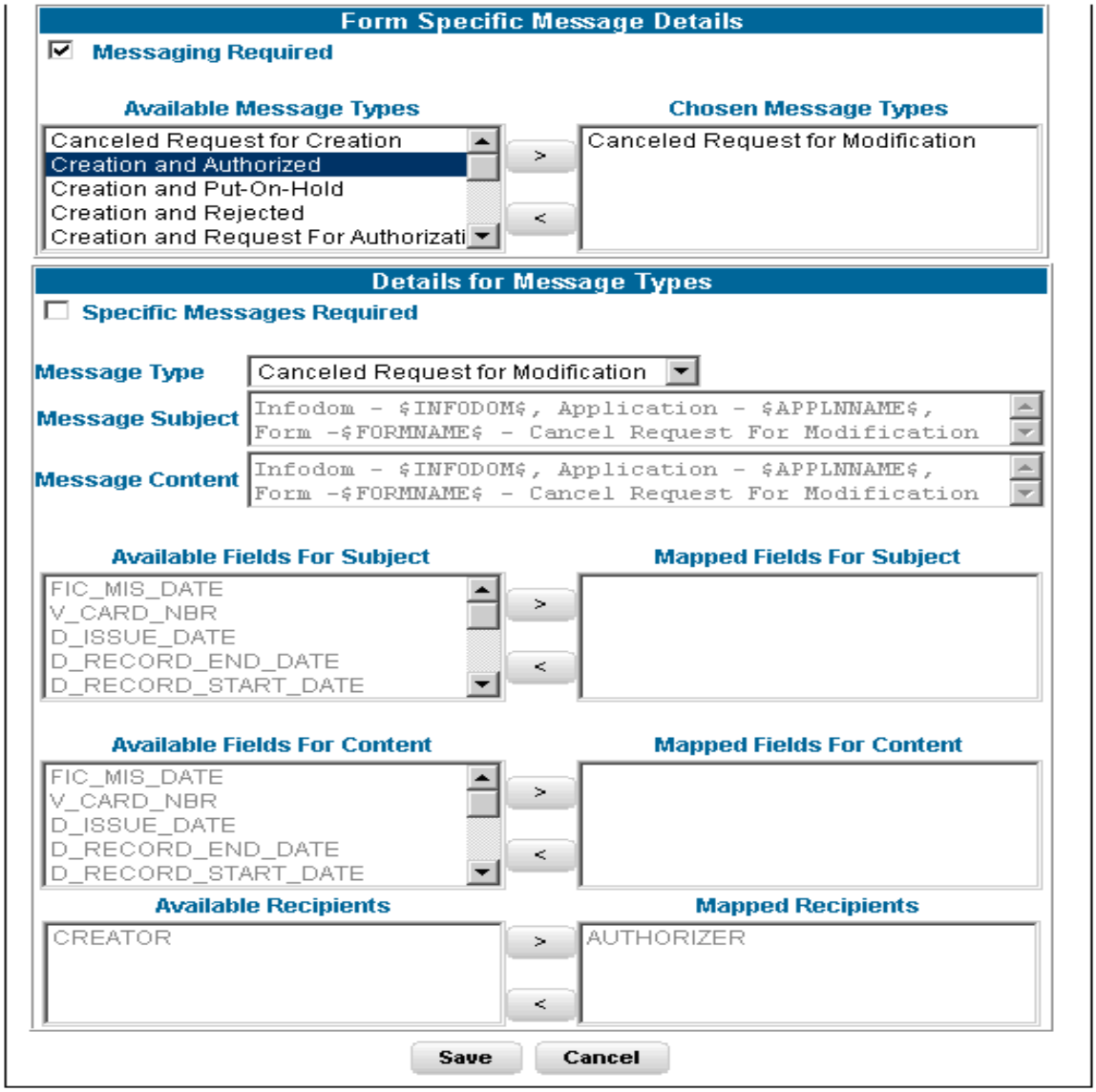
If you do not require this option, leave the Messaging required check box unchecked. Mails will be sent appropriately, only one mail will be sent for the entire batch.

The Message types, Recipients, Subject and Content fields are comes from the metadata.


Form Specific Message Details
Messaging Required
Available Message Types
Canceled Request for Modification
Creation and Authorized
Creation and Put-On-Hold
Creation and Rejected
Creation and Request For Authorizati
Chosen Message Types
Batch Commit
Canceled Request for Creation
Details for Message Types
Message Type
Batch Commit
Specific Messages Required
Message Subject
Infodom - $INFODOM$, Application - $APPLNNAME$, Form -$FORMNAME$
Message Content
Batch Transactions
Available Fields For Subject
N_ACTION_TYPE_CODE
N_ACTION_TYPE_KEY
Mapped Fields For Subject
Available Fields For Content
N_ACTION_TYPE_CODE
N_ACTION_TYPE_KEY
Mapped Fields For Content
Available Recipients
AUTHORIZER
Mapped Recipients
CREATOR
Save
Cancel

Select the Message Type from the Available list and click (>) to move the message type to the Chosen Message Types pane.

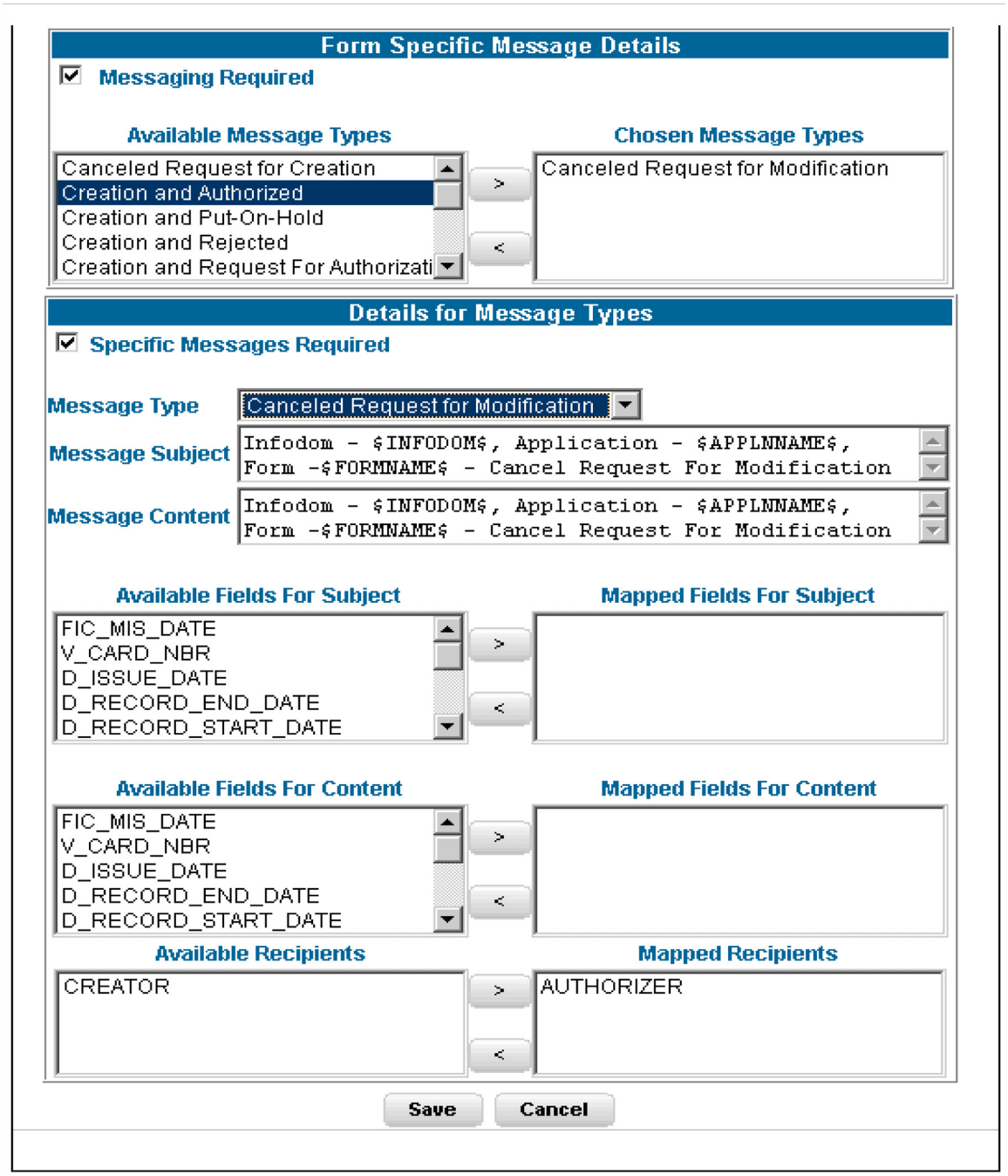
Canceled Request for Modification


Form Specific Message Details
Messaging Required
Available Message Types
Canceled Request for Creation
Creation and Authorized
Creation and Put-On-Hold
Creation and Rejected
Creation and Request For Authorizati
Chosen Message Types
Canceled Request for Modification
Details for Message Types
Specific Messages Required
Message Type
Canceled Request for Modification
Message Subject
Infodom - $INFODOM$, Application - $APPLNNAME$, Form -$FORMNAME$ - Cancel Request For Modification
Message Content
Infodom - $INFODOM$, Application - $APPLNNAME$, Form -$FORMNAME$ - Cancel Request For Modification
Available Fields For Subject
FIC_MIS_DATE
V_CARD_NBR
D_ISSUE_DATE
D_RECORD_END_DATE
D_RECORD_START_DATE
Mapped Fields For Subject
Available Fields For Content
FIC_MIS_DATE
V_CARD_NBR
D_ISSUE_DATE
D_RECORD_END_DATE
D_RECORD_START_DATE
Mapped Fields For Content
Available Recipients
CREATOR
Mapped Recipients
AUTHORIZER
Save
Cancel

Select the check-box provided for Specific Messages Required to add a Specific Message.

Select the Message Type from the drop-down list box of the Message Type field. Message line appears automatically based on the selection of the event type.

Canceled Request for Modification


Form Specific Message Details
Messaging Required
Available Message Types
Chosen Message Types
Canceled Request for Creation
Creation and Authorized
Creation and Put-On-Hold
Creation and Rejected
Creation and Request For Authorizati
>
<
Canceled Request for Modification
Details for Message Types
Specific Messages Required
Message Type
Canceled Request for Modification
Message Subject
Infodom - $INFODOM$, Application - $APPLNNAME$,
Form -$FORMNAME$ - Cancel Request For Modification
Message Content
Infodom - $INFODOM$, Application - $APPLNNAME$,
Form -$FORMNAME$ - Cancel Request For Modification
Available Fields For Subject
Mapped Fields For Subject
FIC_MIS_DATE
V_CARD_NBR
D_ISSUE_DATE
D_RECORD_END_DATE
D_RECORD_START_DATE
Available Fields For Content
Mapped Fields For Content
FIC_MIS_DATE
V_CARD_NBR
D_ISSUE_DATE
D_RECORD_END_DATE
D_RECORD_START_DATE
Available Recipients
Mapped Recipients
CREATOR
AUTHORIZER
Save
Cancel

Subject line will appear automatically based on the selection of the event type.

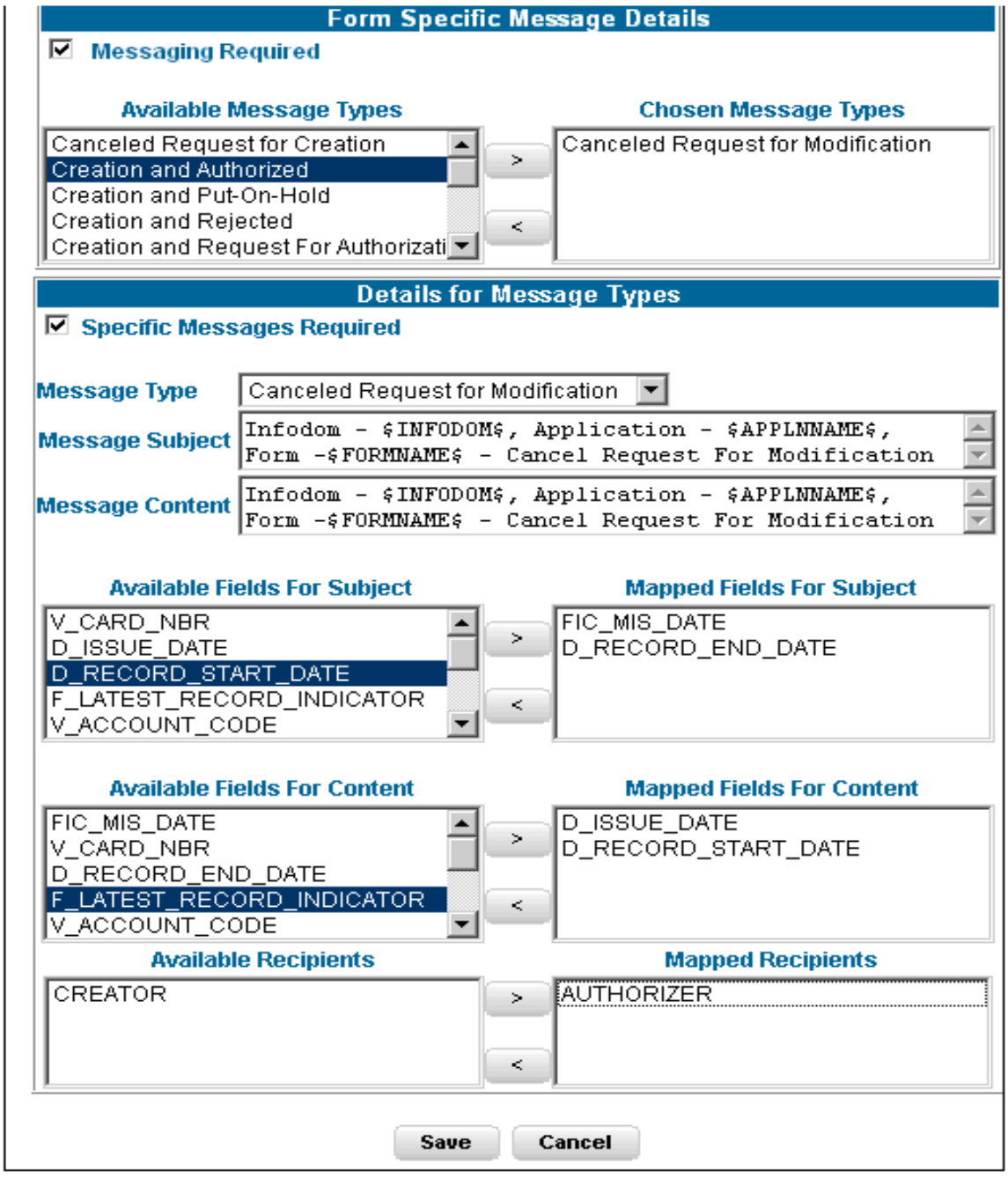
Infodom - $INFODOM$, Application - $APPLNNAME$, Form - $FORMNAME$ - Cancel Request for Modification

Message content will appear automatically based on the selection of the event type.

Infodom - $INFODOM$, Application - $APPLNNAME$, Form - $FORMNAME$ - Cancel Request for Modification

Double-click the Recipient name in the Available Recipients pane. The selected recipient/s are displayed in the Mapped Recipients pane.

Authorizer


Form Specific Message Details
Messaging Required
Available Message Types
Canceled Request for Creation
Creation and Authorized
Creation and Put-On-Hold
Creation and Rejected
Creation and Request For Authorizati
>
<
Chosen Message Types
Canceled Request for Modification
Details for Message Types
Specific Messages Required
Message Type
Canceled Request for Modification
Message Subject
Infodom - $INFODOM$, Application - $APPLNNAME$,
Form -$FORMNAME$ - Cancel Request For Modification
Message Content
Infodom - $INFODOM$, Application - $APPLNNAME$,
Form -$FORMNAME$ - Cancel Request For Modification
Available Fields For Subject
V_CARD_NBR
D_ISSUE_DATE
D_RECORD_START_DATE
F_LATEST_RECORD_INDICATOR
V_ACCOUNT_CODE
Mapped Fields For Subject
FIC_MIS_DATE
D_RECORD_END_DATE
Available Fields For Content
FIC_MIS_DATE
V_CARD_NBR
D_RECORD_END_DATE
F_LATEST_RECORD_INDICATOR
V_ACCOUNT_CODE
Mapped Fields For Content
D_ISSUE_DATE
D_RECORD_START_DATE
Available Recipients
CREATOR
Mapped Recipients
AUTHORIZER
Save
Cancel

- If you select Authorizer, the message will be sent to all the selected authorizer's for authorization.
- You need to click the Save with Authorization tab in the Index screen so that the messages are functional. When you Save with Authorization, the next screen to be populated is the Authorization screen, where you can assign rights.

Similarly, select the Field/s for Subject and Fields for Content. . Available fields for the subject and content can be selected by the user.

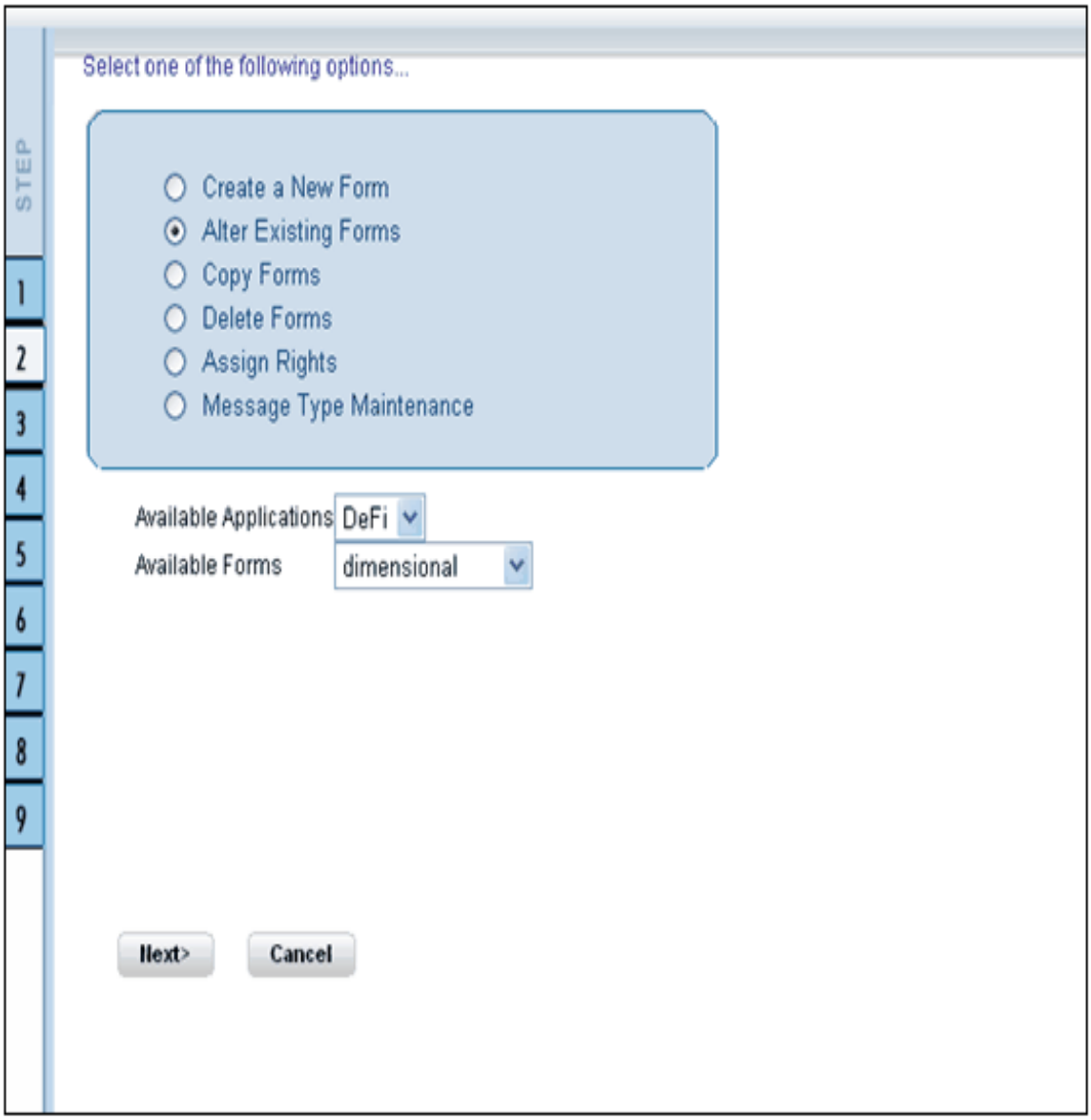
Click Save to save the changes. Clicking Cancel pop's-up a message requesting you to confirm the cancellation without saving. Click Ok in the Pop-up.

Click Save with Authorization in the Index screen to save the changes with authorization. Clicking Save opens up the Assigning Rights screen.

Altering an Existing Form

To alter an existing form, select Alter Existing Forms option. Click the Application name field to open the drop-down list box. Select the name of the application whose form you wish to alter. On choosing the application name, the forms belonging to the selected application will be displayed in the Form Name field. Click the Form Name field to open the drop-down list box and select the form that you want to alter.

Alter forms apply only to fields and not to tables.



Click Next to go to step 3. Click Cancel to discard the form selection that you have made.

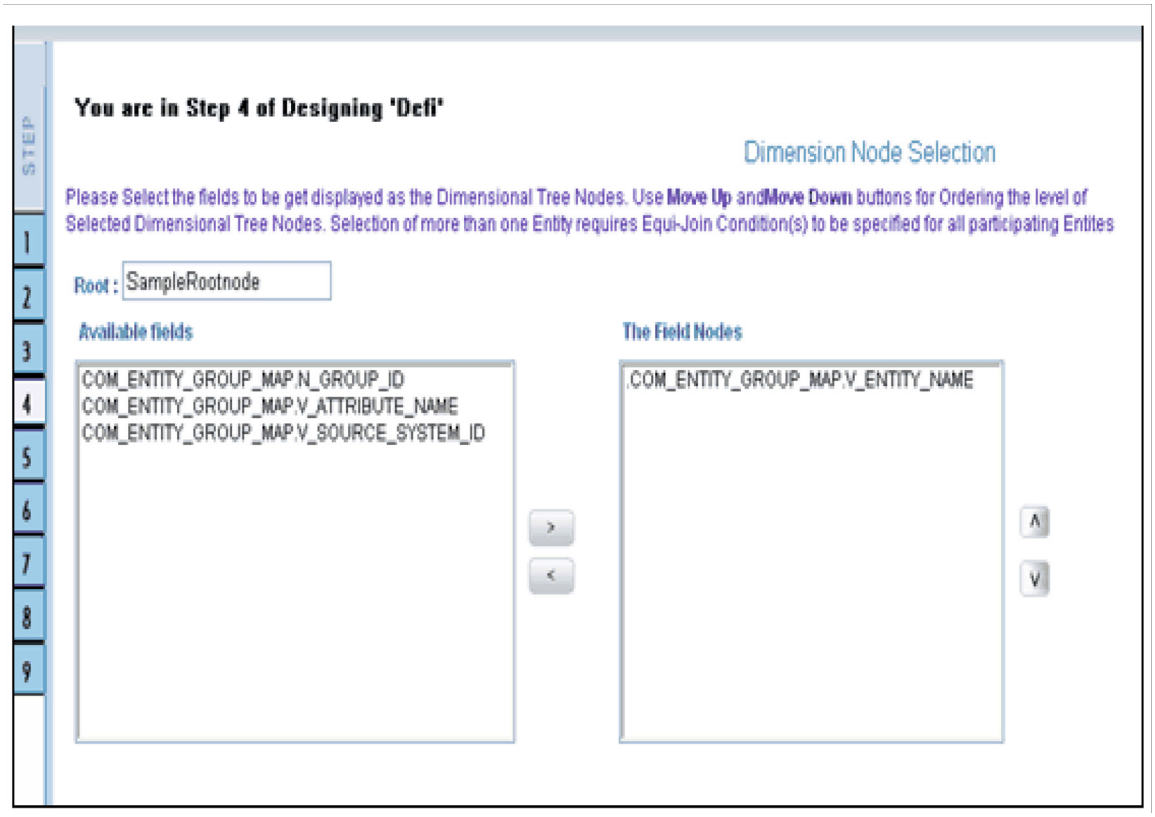
Note: The forms that are displayed in the Form name list box are dependent on the DSN (Data Source Name) that you have specified.

The alter fields screen displays the list of fields of the selected form in the Chosen Fields pane. In this screen the fields, which are selected while creating the form are displayed in the Chosen Fields list and the fields that are not selected but available are shown under the Available Fields list.

Select the fields from the Available Fields pane, which you want to alter and click **(>)** to move to the Chosen Fields pane. To remove a field/s from the Chosen Fields pane to the Available Fields pane, click **(<)** . To move all the fields to the Chosen Fields pane from the Available Fields pane, click **(>>)** . To remove all the fields to the Available Fields pane, click**(<<)** .

To arrange the fields that are displayed in the Choose Fields pane, click up arrow symbol to move a field up and down arrow symbol to move down. This order determines how the Fields are displayed in the Data Entry Form. This order can be different from the order in which the fields are in the underlying table.

Click **Back** to go to the previous screen. Click **Next** to go further. The alter sort fields screen displays the sort fields to be altered in the Chosen Fields pane with which you want to sort the table.

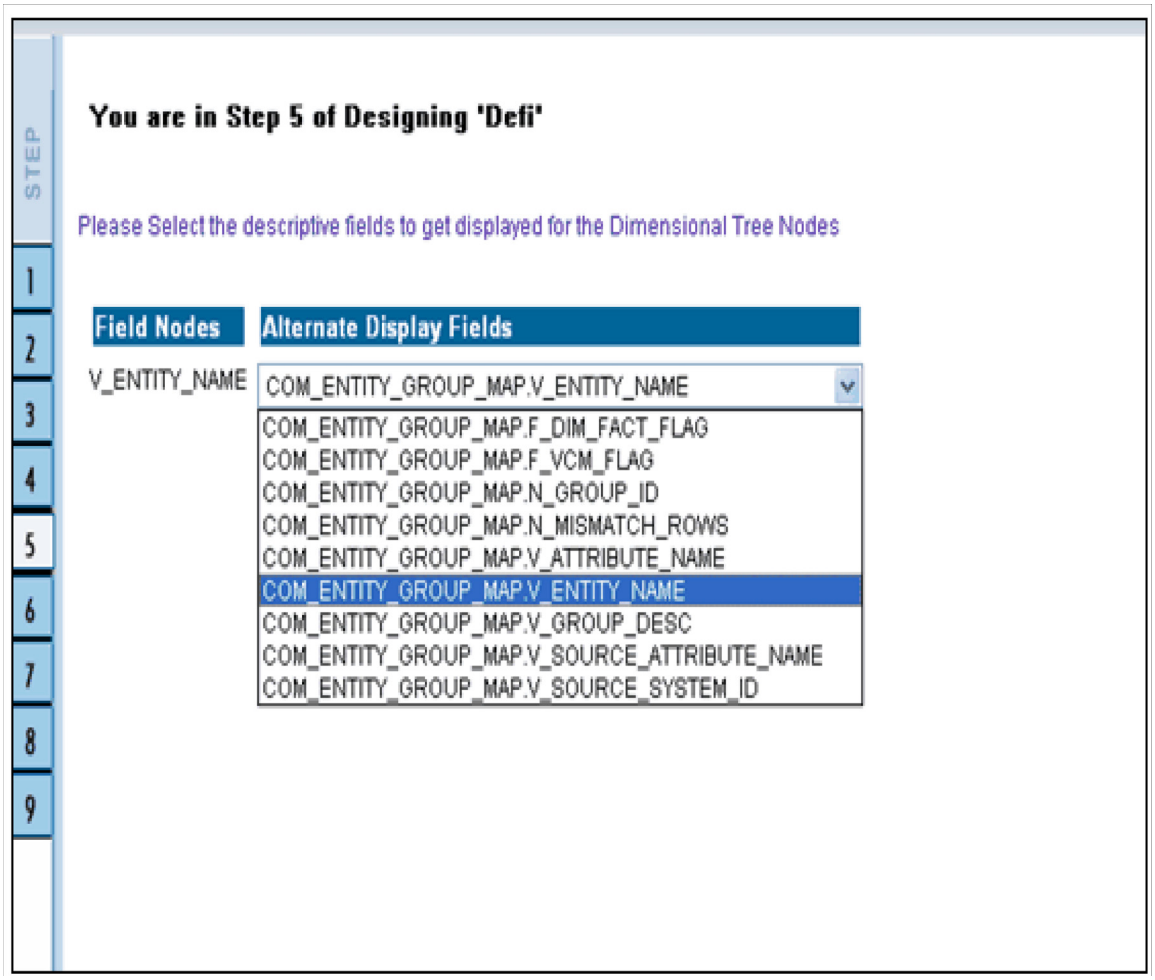


Select the fields from the Available Fields pane, which you want to alter and click **(>)** to move to the Chosen Fields pane. To remove a field/s from the Chosen Fields pane to the Available Fields pane, click **(<)** . To move all the fields to the Chosen Fields pane from the Available Fields pane, click **(>>)** . To remove all the fields to the Available Fields pane, click **(<<)** .

Note: The user can change the root node name specified while designing the form.

Click Back to go to the previous screen. Click Next to go to next step.

The form screen displays the forms to be altered containing Field Name, Display Name, In View, In Edit/Add, Allow Add, Store Field as and Rules detail columns contain the data which are already selected while creating the form. You can alter the details for each of the field names.



You can change the display name of the field name by entering a name in the Display Name field.

You can choose a field to be displayed by selecting the In View option as Display or Do not Display.

You can specify the edit options for a user by specifying the edit parameters. Click the **In Edit/Add** field to open the drop-down list box. You can choose the edit parameters like Text Field, Text Area, Select List, Protected Field, Read Only, Do Not Show, Check Box and URL. Select the edit parameter that you want to apply to a field.

Note: The AlternateDisplayField is displayed only if the selected table contains a foreign key or if the joined tables are selected.

To give the user permission to add to the field, select the Allow Add option against the field name.

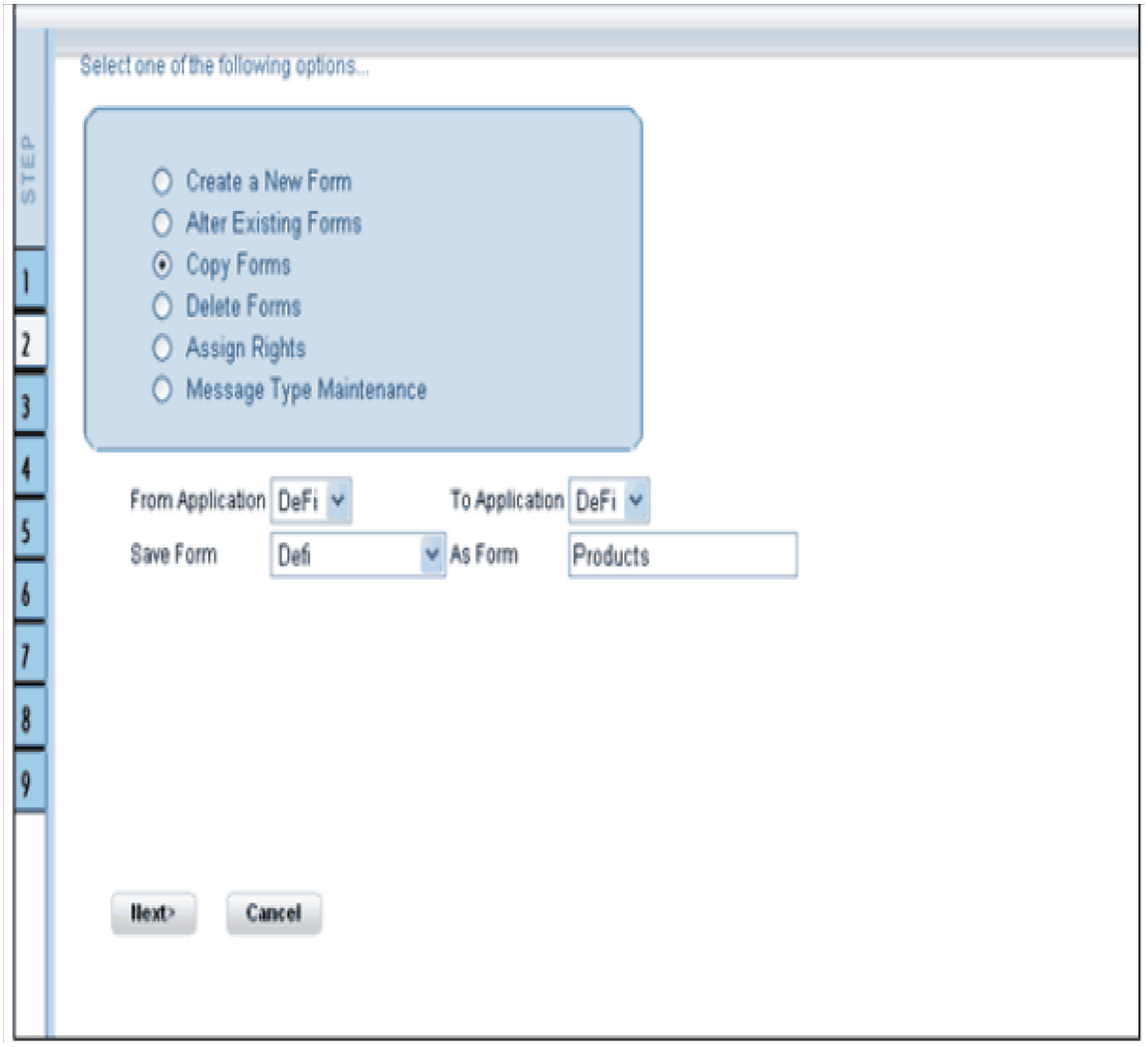
To specify the field storage format click the Store Field as field to open the drop-down list box. You can choose the store format as Normal, Encrypted, Auto Generated or Formula.

You can also apply rules to a field. Click Rules to open the screen.

Click Back to go to the previous screen. Click Save to save the field detail settings

Copying an Existing Form

To copy an existing form, select Copy from Existing Forms option.



Select the application from which you want to copy a form. Click the Application name field to open the drop-down list box. Select the name of the application. On choosing the application name, the forms belonging to the selected application will be displayed in the Form Name field. Click the Form Name field to open the drop-down list box and select the form that you want to copy.

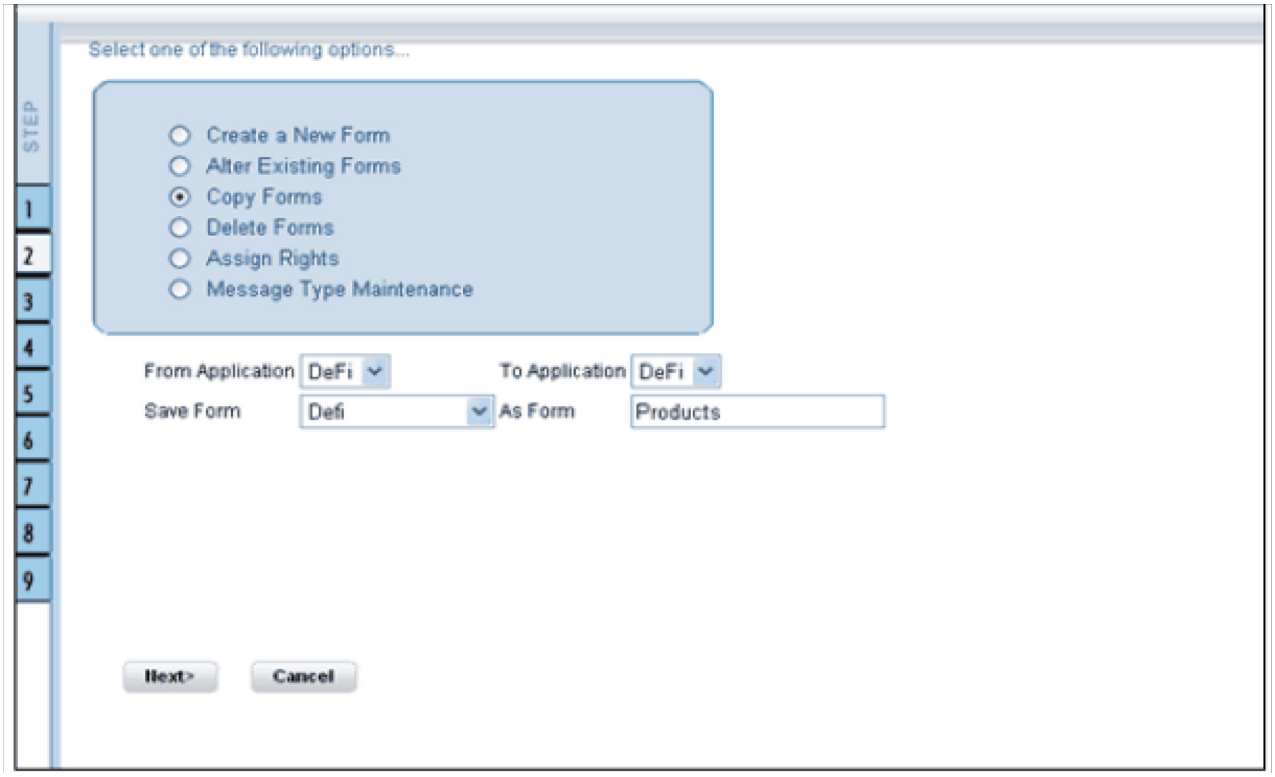
Select the application to which you wish to copy the new form. Click the Application name field to open the drop-down list box and select the application. Enter the name of the new form you are creating in the Save Form as field. This option allows creation of variants for a given form where you might want to change some user rights or some display options and other subtle variations on the form for a given layout and the underlying table.

Click Next to save the details of the newly created form. Click Cancel to discard the form selection that you have made and clear the name entered in the Save Form As field.

Deleting a Form

To delete an existing form, select **Delete Forms** option.

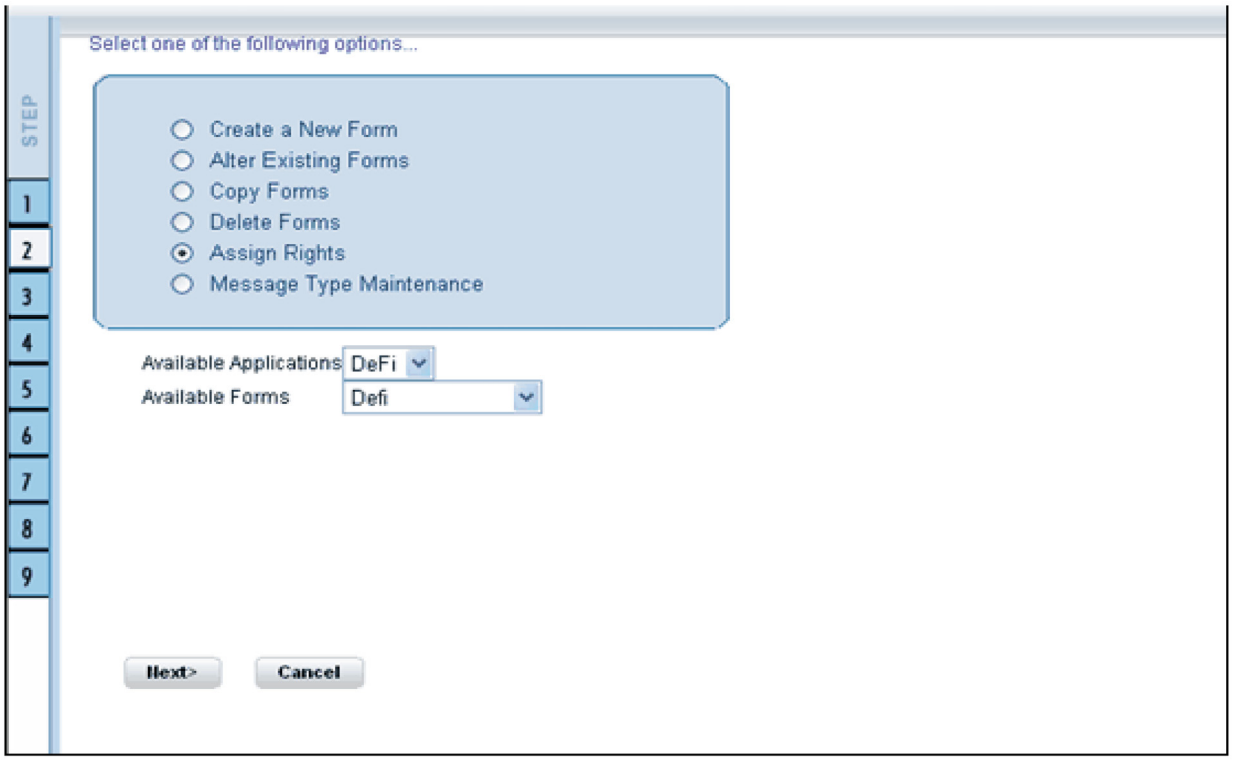
Select the application from which you want to delete a form. Click the Application name field to open the drop-down list box and select the name of the application. On choosing the application name, the forms belonging to the selected application will be displayed in the Form Name field. Click the Form Name field to open the drop-down list box and select the form that you want to delete.



Click **Next** to delete the form. A confirmation message is displayed which reads Do you want to delete the form Loss? Click Ok to confirm deletion. Click **Cancel** to cancel the delete request.

Assigning Rights to a Form

To assign rights to a form, select Assign Rights option.



Click the Application name field to open the drop-down list box. Select the application from which you wish to choose the form to which you want to assign rights. The chosen application will be displayed in the Application Name field. Click the Form Name field to open the drop-down list box. Select the form you want to assign rights to.

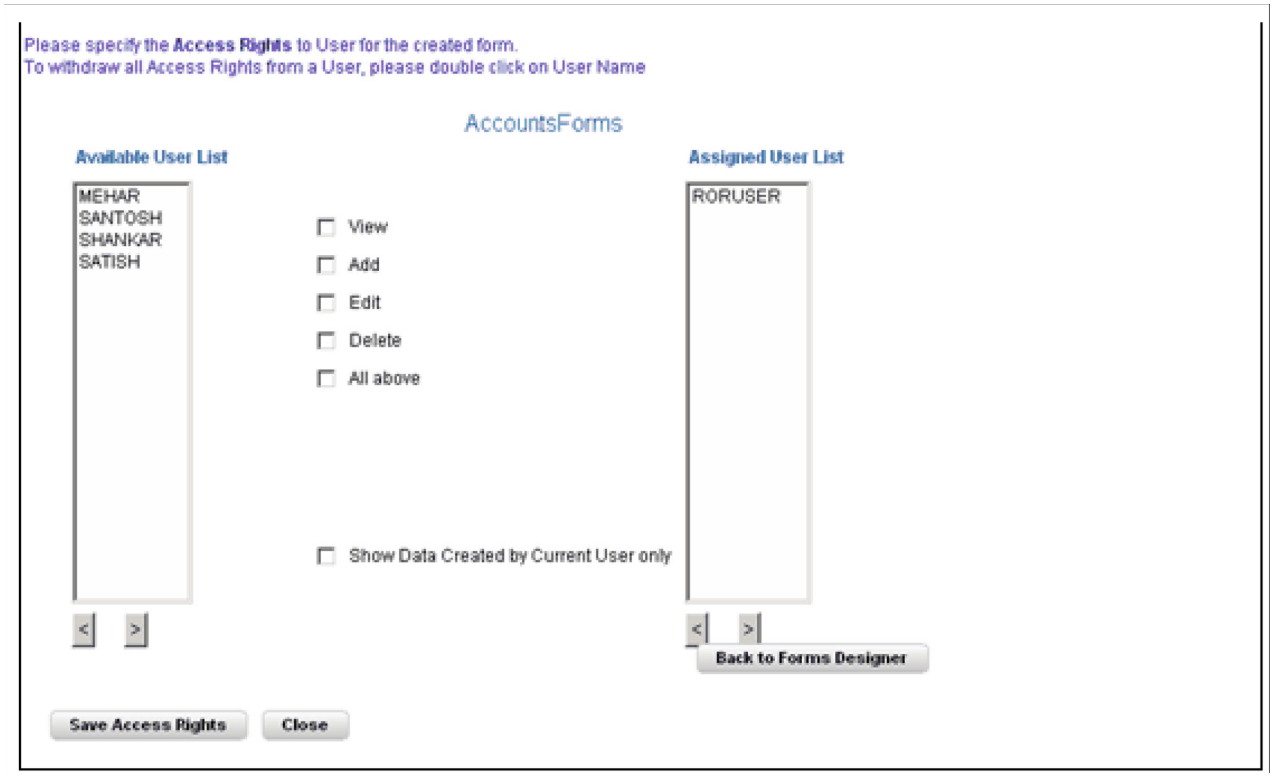
Application name: ST

Form name: TreeForm

Click Next to go to step 3 or Click Cancel to discard the form selection that you have made.

The user list screen displays the list of available and assigned users. Click the < or > buttons to navigate through the list of users in case the number of users are more than what could be accommodated in one page.

Select the user to whom you want assign the rights to from the Available User List pane and select the rights you want to assign to the user. You can assign View, Add, Edit, Delete or All above options. The user name will move to the Assigned User List once it is saved.



The Authorize and Auto-Authorize options are applicable for all the forms that have been saved with the Authorize option.

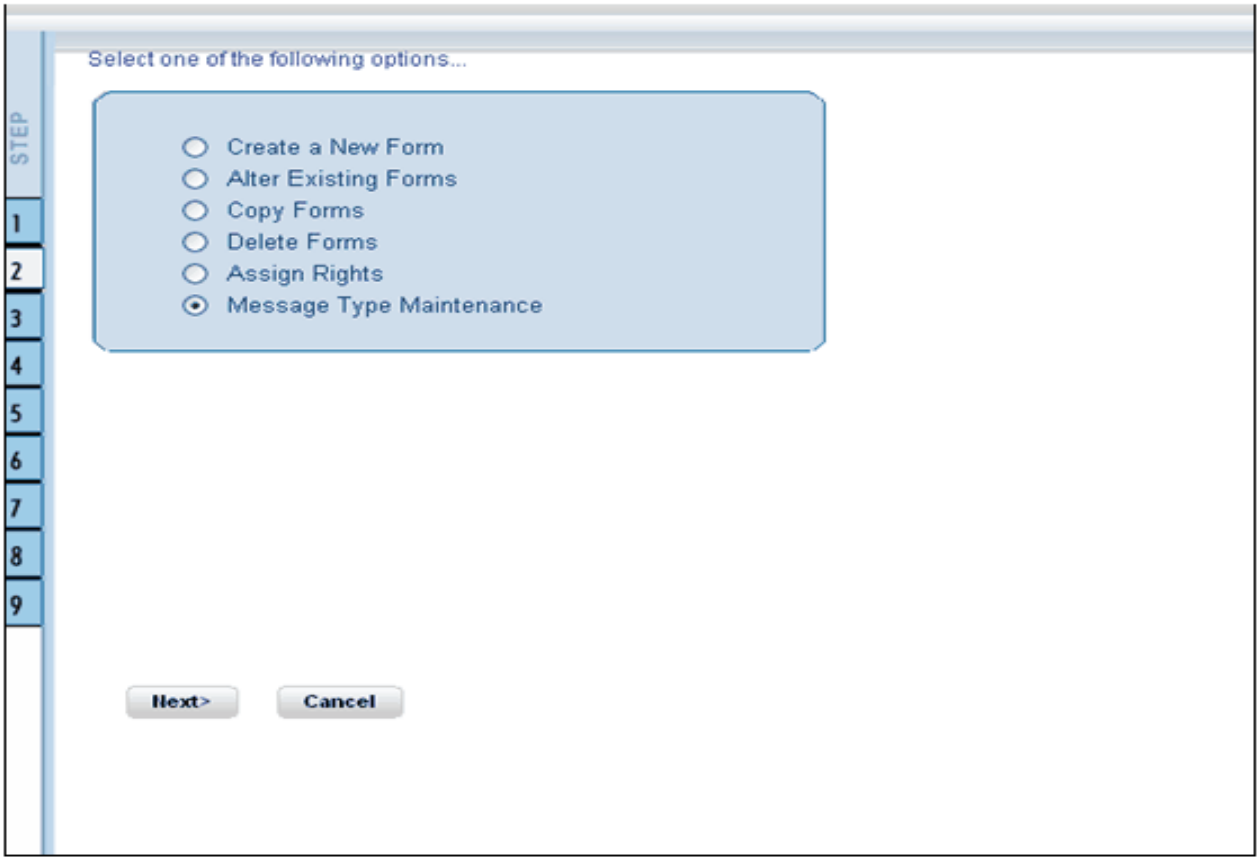
Click Save Access Rights to save the rights you have defined for the selected Users. Click Close to close the Assign Rights screen.

To go back to the forms designer, click the Back to Forms Designer button. When you have finished assigning users, click Finish to return to the splash screen.

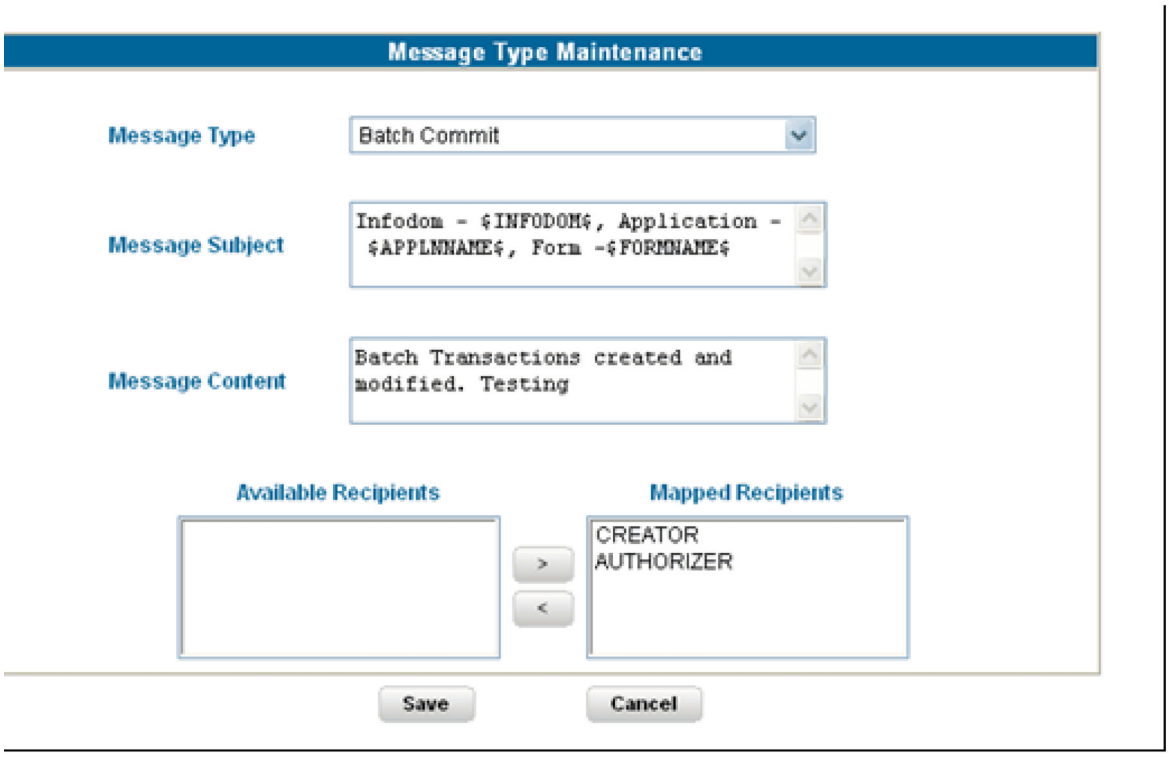
To open help for the Forms Designer screen click Help. To return to the DI splash screen, click Home.

Message Type Maintenance

For the maintenance of the Message Types, select the Message Type Maintenance option in the first screen of the Forms Designer Wizard.



Click Next to continue. The Message Type Maintenance screen is displayed.



Select the message category from the Message Type drop-down list. The message types are the same as those available in the Message Details screen as explained earlier.

Canceled Request for Creation

The Message Subject field displays the subject line that will be displayed for the particular Message Type selected. You can make the required modifications in this field.

Infodom - $INFODOM$, Application - $APPLNNAME$, Form -$FORMNAME$ - Cancel Request For Creation

The Message Content field displays the content of the message for the particular Message Type selected. You can make the required modifications in this field.

Infodom - $INFODOM$, Application - $APPLNNAME$, Form -$FORMNAME$ - Cancel Request For Creation

Double-click the Recipient name in the Available Recipients pane. The selected recipient/s moves to the Mapped Recipients pane.

Authorizer

Note: If you select Authorizer, the message will be sent to all the selected authorizers for authorization.

Click Save to save the changes. On clicking Cancel, a message requesting you to confirm the cancellation without saving is displayed. Click OK to discard the changes.

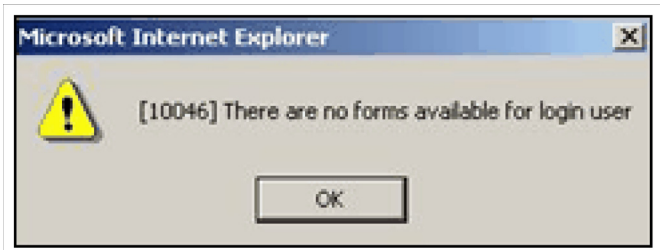
Entering Data

Click Data Entry to open the screen. In this screen you can view, edit, add, delete or authorize data. You can view, edit, add, delete or authorize based on the rights that are assigned to you during form creation.

You can query the record to get specific data using search option. You are also provided with the option to export the result set.

Note: To open multiple Data Entry windows, specify the URL of the Data Entry window as the value in the URL box in the Design Oracle Menu screen. It enables the user to perform the search operation in more than one screen.

For more details on designing the Oracle Menu section, see *Oracle Financial Services Analytical Applications Infrastructure User Guide.*



If the logged-in-user is not mapped with the forms and applications it will display an alert saying "There are no forms available for the login user".

The Forms frame displays the list of existing forms. The forms that are displayed are dependent on the rights assigned to user.

Note: The roll back option can be used only for authorized record to undo the modifications made to it.

Viewing Form Details

Forms are displayed in View format by default. The forms are displayed based on the application names in the left pane. Based on the rights that are assigned to the user, he can access View, Edit, Add, Delete options. Click a form to view the details. The form details will be displayed in the layout that it was defined.

Application Name: CAT Test

Form Name: Auth

In case of grid layout, the number of rows displayed is based on the number of rows that you specify in the Display ---Rows field.

Display 5 Rows

To view all the records in the table click Next to go to the next set of records. To return to the previous set of records, click Back.

It is recommended that you assign an easily viewable number of rows to be displayed. The user can view records as a Single Record, Editable View, Grid layouts, multi column or wrapped rows layout.

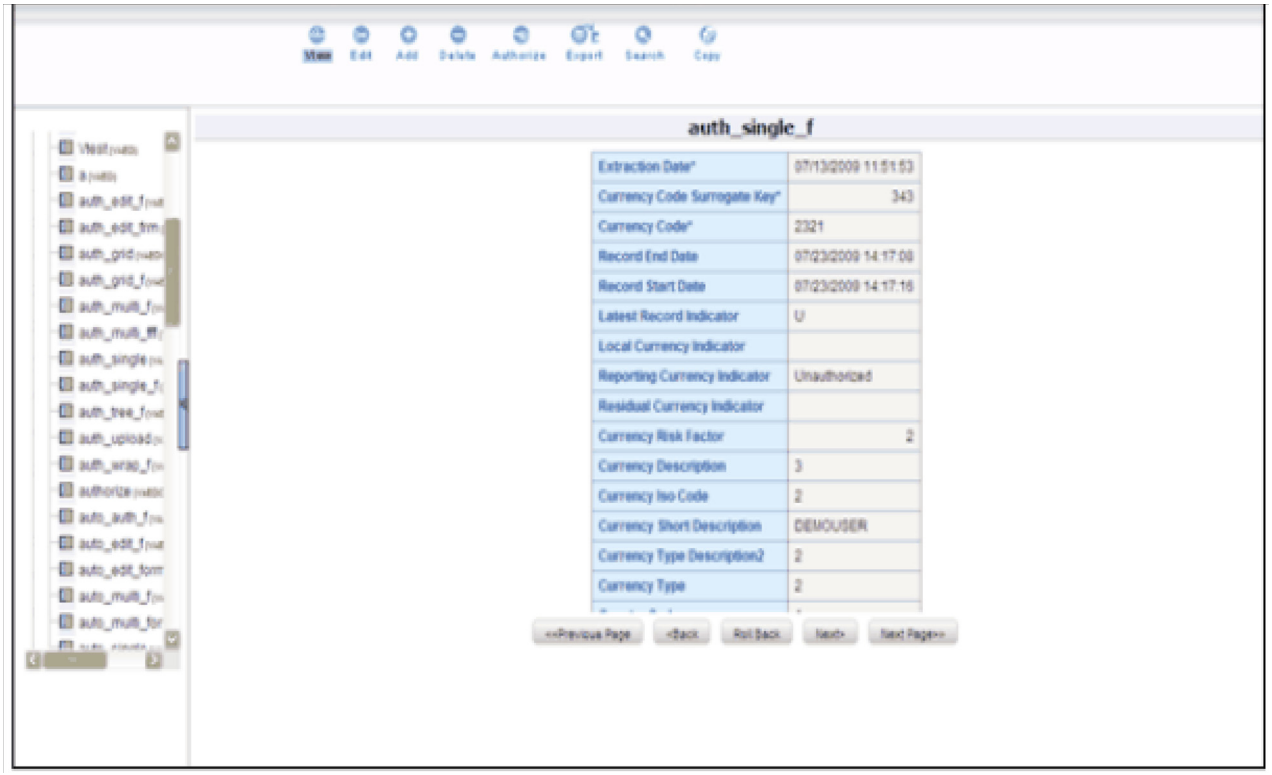
Note: The roll back option can be used only for authorized record to undo the modifications made to it.

Single Record layout

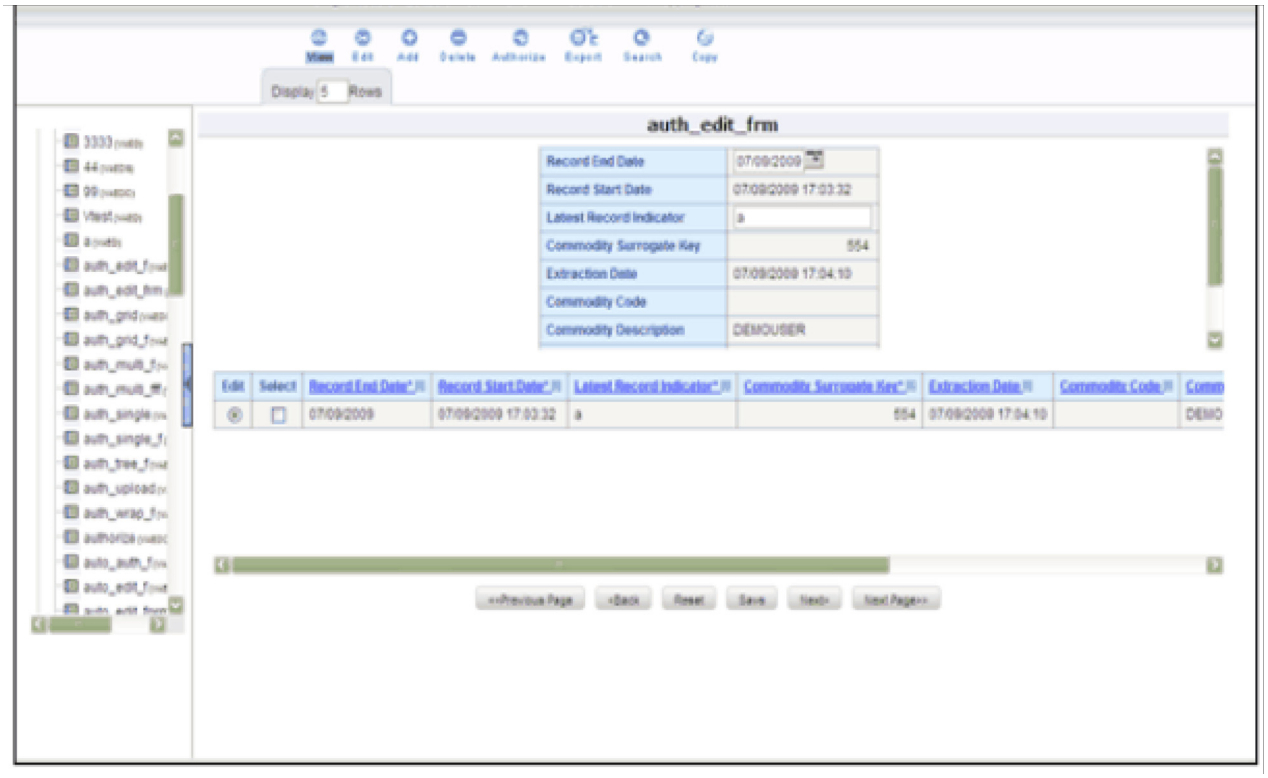
To view a single record at a time, click Single Record.

To view all the records in the table click Next to go to the next record. To return to the previous record, click Back.

Note: The roll back option can be used only for authorized record to undo the modifications made to it.



To view a record in the editable view, click Editable View. In the editable view you can view and edit records, which can be selected from the grid of records.



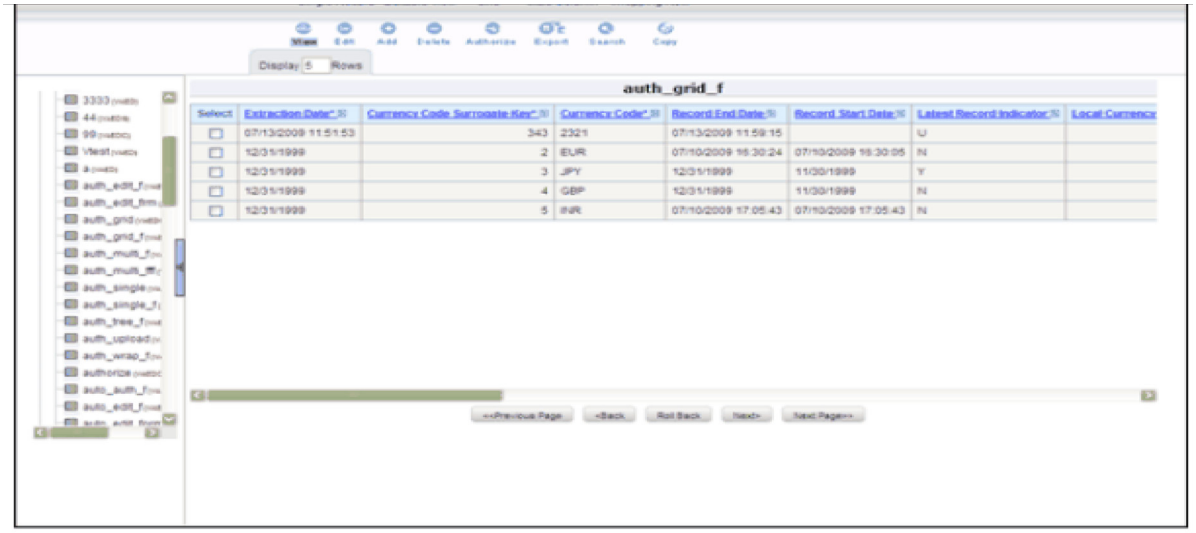
The editable view format displays a single record in the top frame, which can be edited. The grid layout is displayed in the frame below. To edit a record, select the Edit option against the record in the grid layout. The selected record will be displayed as a single record with editable fields. The main advantage is you can easily compare the changes you have made in the data with the data shown in grid format

The number of records to be displayed in the form can be specified in the Display Rows text box.

To save the changes that you have made to the field/s, click Save. Click Reset to return the record settings to its original field settings.

Grid Layout

To view a record in a grid layout, click Grid. This is the default layout that is displayed while viewing a form.



To sort a record based on a field, click the column title hyperlink.

Click FIC_MIS_DATE column title hyperlink to sort fields alphabetically based on the MIS Date.

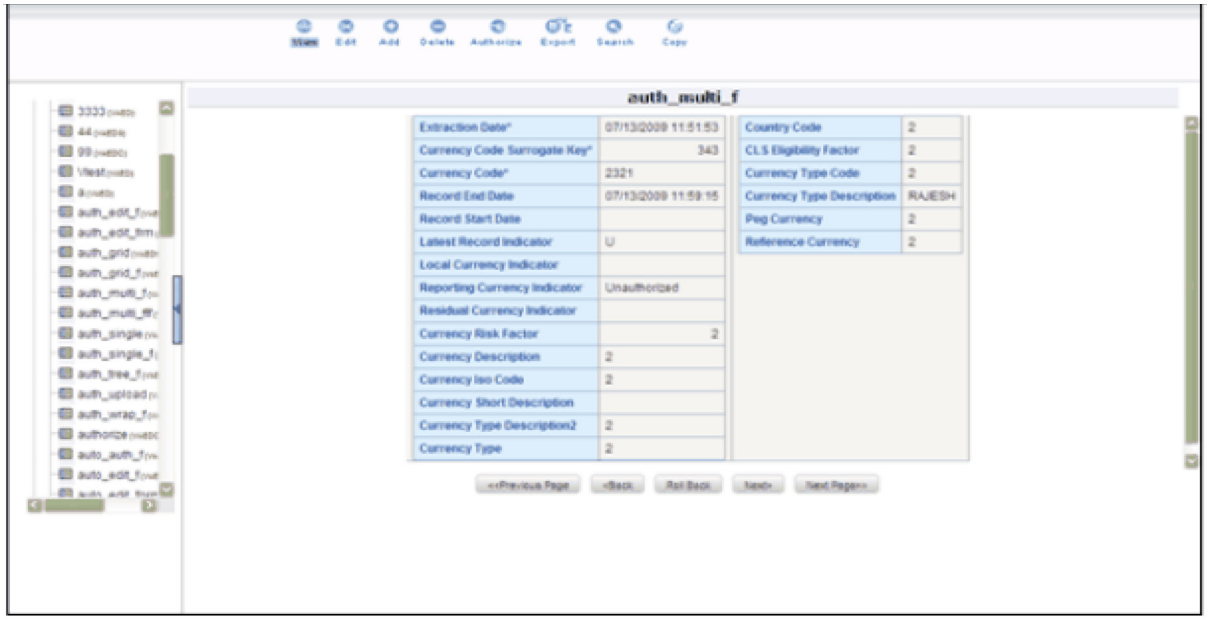
The number of records to be displayed in the form can be specified in the Display Rows text box.

To view all the records in the table click Next. To return to the previous set of records, click Back.

Note: The roll back option can be used only for authorized record to undo the modifications made to it.

Multi Column Layout

To view all the columns of a selected record, click Multi Column. This layout enables you to view a record without having to scroll or with minimum scrolling to view all the columns.

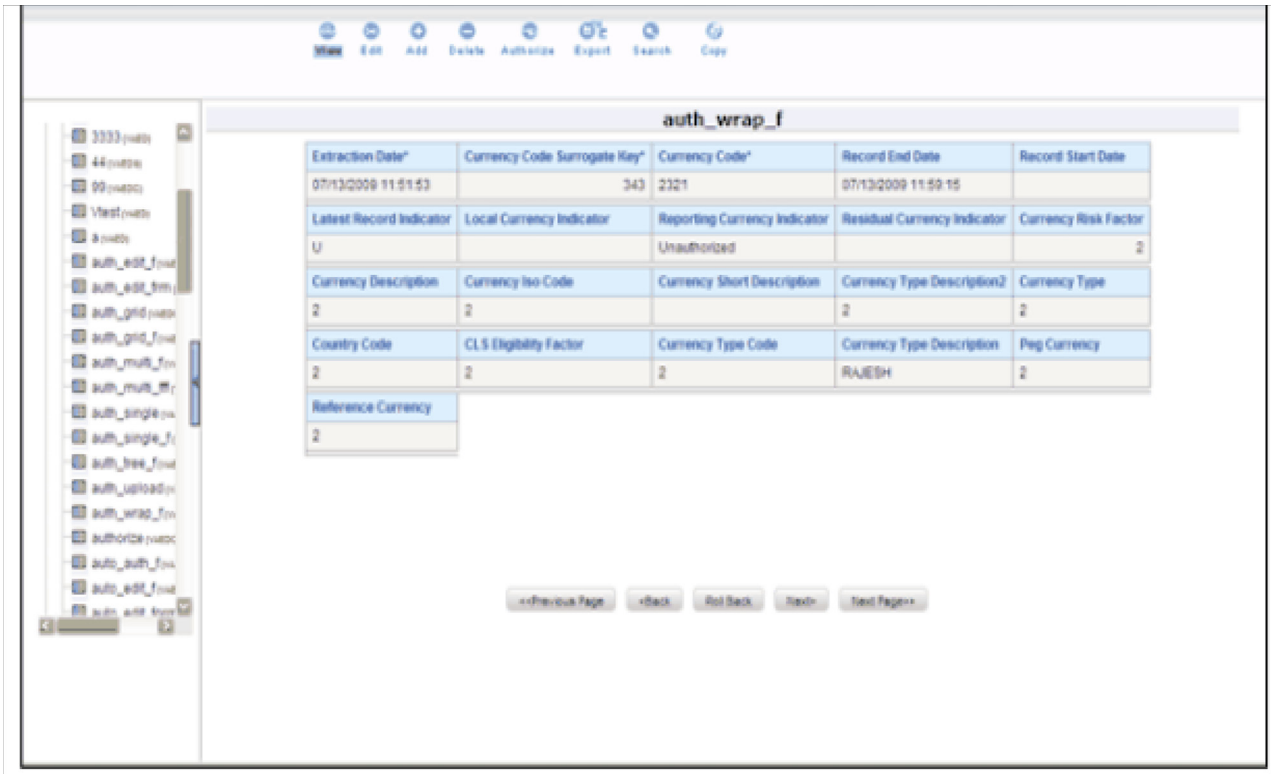


To view all the records in the table, click Next. To return to the previous record, click Back.

Note: The roll back option can be used only for authorized record to undo the modifications made to it.

Wrapping Row Layout

To view all the rows of a selected record, click Wrapping Row. This layout enables you to view a wrapping row easily without having to scroll horizontally to view all the data.



To view all the records in the table click Next to go to the next record. To return to the previous record, click Back.

Note: The roll back option can be used only for authorized record to undo the modifications made to it.

Editing a Form

To edit a form, check the select option in the Select column and click **(edit)** button**.** The form fields are displayed with editable fields, which you can modify if required.

To save the changes that you have made to the field/s, click Save. Click Reset to return the record/table settings to its original field settings.

The records also can be edited in the layouts mentioned earlier (in View mode). All the fields will be displayed in the editable grid, but the primary key fields cannot be edited so will be displayed in un-editable format.

Click Next to edit the next set of records. To return to the previous records, click Back.

Roll Back

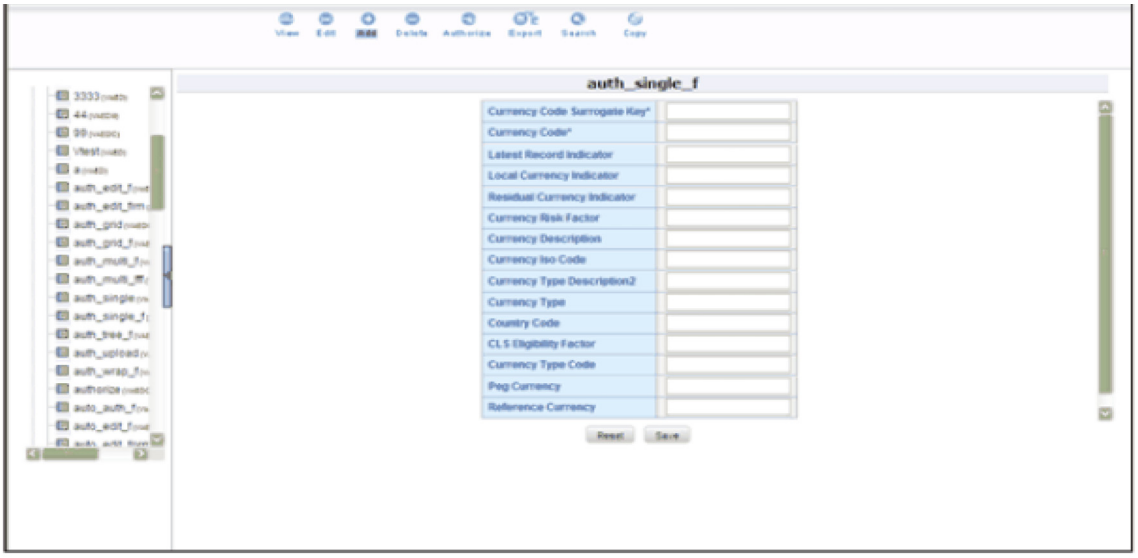
The Roll Back option can be used only for authorized records. After the records are edited and saved, the roll back operation can be performed in view mode by selecting the particular record to undo the modifications made to it.

Once the record is edited using Edit option, its modified flag is set and the record with its modified flag set alone can be rolled back.

If the record is not an authorized record it will display a alert saying roll back functionality is available only for records which has its authorization flag set to "Modified".

Adding Rows to a Form

To add data to the selected table in a form, specify the number of rows to be added in Rows field in the options frame and click **(add)** button.



Enter data in these new fields and save them by clicking Save. Click Reset to return the table settings to its original field settings.

Note: If the user want to see the display with the thousands separator for any numeric columns, the input should be given in the same manner.

Deleting a Record in a Form

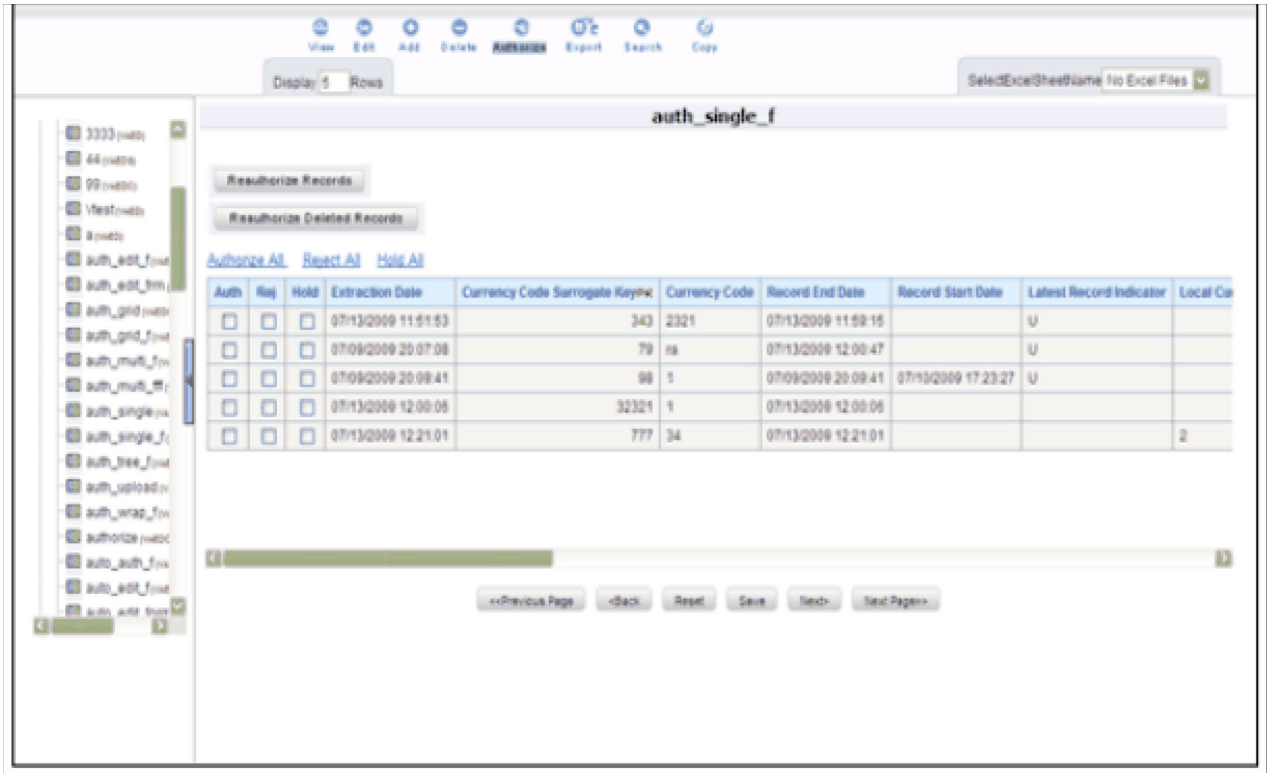
To delete a record, check the select option in the Select column against the record you wish to delete and click delete.

A warning message will be displayed prompting you to confirm deletion. Click Ok to delete the record or Cancel to discard deletion.

Authorizing Data

The Data Entry module allows you to authorize data entered during form creation provided the table contains a primary key field.

To authorize data, select the form and click Authorize. The records that are required to be authorized will be displayed with Auth, Rej, au_fname, au_idPK (Primary Key identifier), au_lname, AuthFlag (representing the status of the record), contract, MakerDate, MakerID and phone details. If there are no records to authorize, the screen will display the message No records to be authorized.



Note: The primary key fields in the record are displayed in red as PK.

You can authorize only those records that are created by another user if you have authorization rights. If you do have authorization rights, the record created by another user, the AuthFlag will display U, which suggests that it is an unauthorized record requiring authorization.

If the record is already authorized, the AuthFlag will display A. If any record is rejected, if the form is authorized, then the AuthFlag will be displayed as R. If the Authorized user put the records on Hold, then the AuthFlag will be displayed as UH. After Authorizing, the Auth Flag will be set to A.

Any changes (modification / deletion) made to the records after authorization will be marked for authorization and can only be authorized by the users who have the privilege.The new records created before authorization can be edited or deleted by any user who has the privilege to do the same.

To authorize a record, select the Auth option against the record you wish to authorize and click Save. To reject/delete a record, select the check box in the Reject column against the record and click Save. A warning message is displayed. The records selected for deletion will be deleted from the table. Proceed? Click OK to confirm deletion or click Cancel to delete the request.

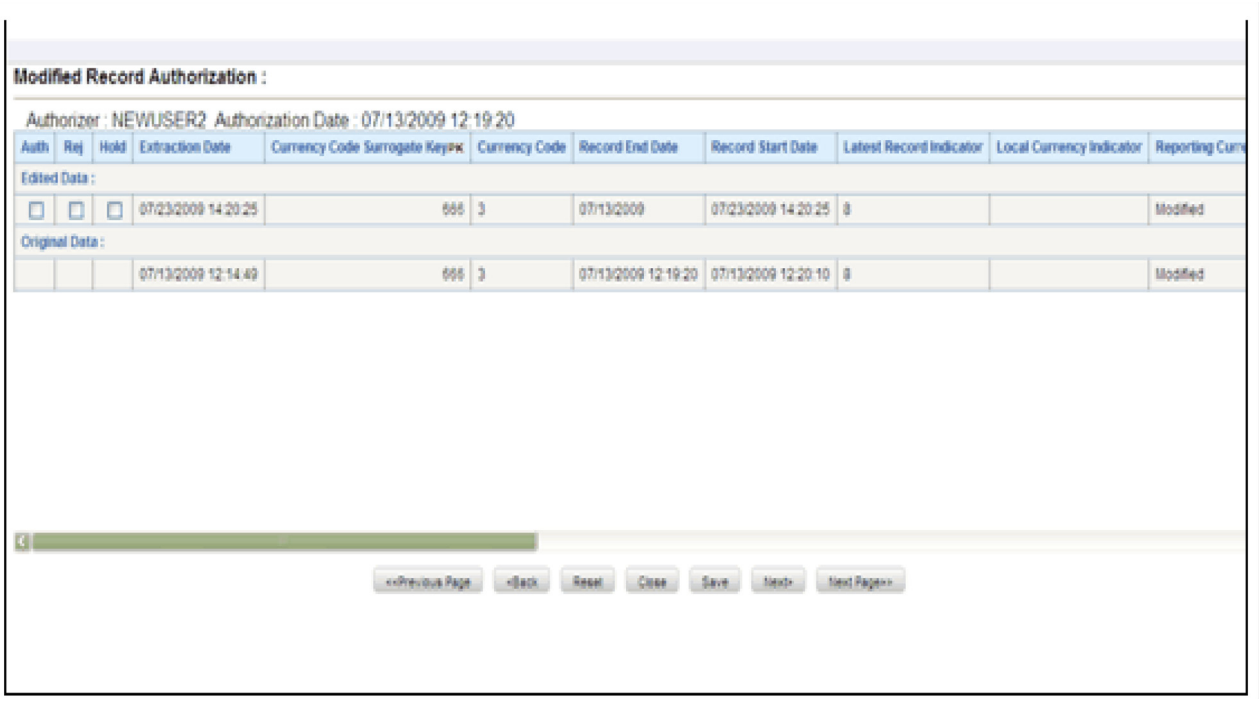
Note: You can authorize forms only if the authorize rights have been assigned to you.

To authorize the next set of records, click Next. To authorize all the records in the form, select the Authorize all option and click Save.

To reject all records, select the Reject all and click Save. If the authorizer is not sure whether to authorize the records the Hold all option can be used, which can be authorized or rejected at the later point.

Re-authorizing Records

The Records to be reauthorized link will be displayed only if some other user has modified the authorized records. An authorized record that has been modified will display the AuthFlag M, which suggests that the record have been modified. To reauthorize modified records, click the Records to be re-authorized link to open a new screen.



The record that needs re-authorization is displayed with new details. The original authorized record is also displayed. To re-authorize/reject/put-on-Hold the records select the Auth, Rej or On-Hold option against it and click Save.

Click Next to authorize the next set of records,. To close the screen, click Close. Reset Button will reset the check-boxes to null.

A mail will be sent to the creator that records are authorized/rejected/put-on-hold.

CHAPTER 5 OFSAA Attributes

Overview

Attributes refers to the distinguished properties or qualifiers that describes a dimension member. Attributes may or may not exist for a simple dimension. Attributes section is available within the Dimension Management section of Financial Services Applications module.

You (Business Analysts) need to have ETL Analyst function role mapped to access Attributes.

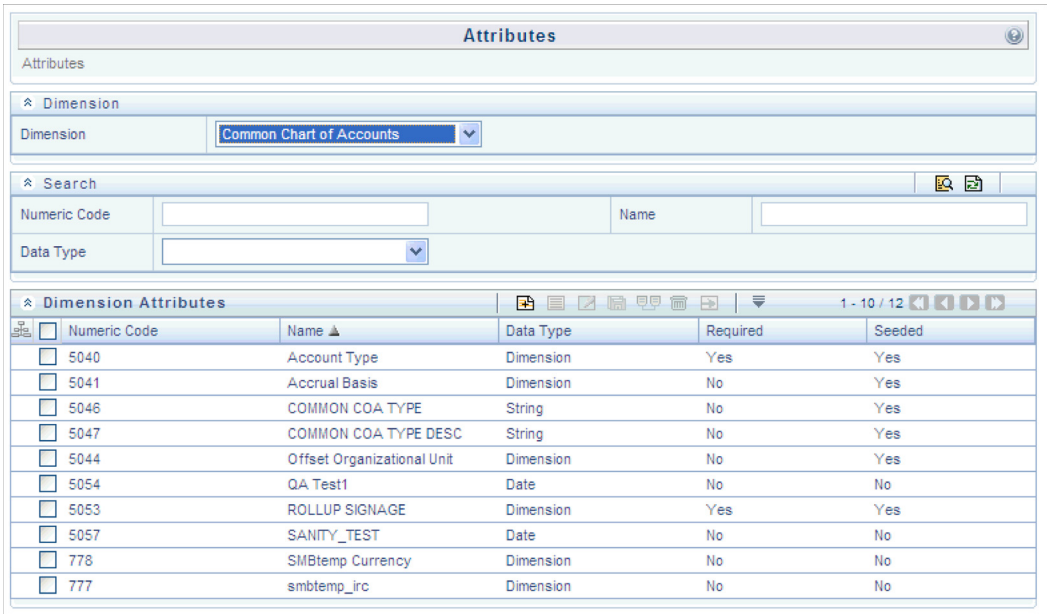
This chapter describes the creation and maintenance of OFSAA Attributes. Specifically, this chapter will cover:

- Attribute Summary & Detail Screens
- Navigation within the Attribute Summary Screen
- Navigation within the Attribute Detail Screen

See *OFSAA Infrastructure,* on page 11 for details on how Attributes are used in OFS Analytical Applications. See *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide* for details on bulk loading dimension attributes

Summary & Detail Screens

Upon initially navigating to Common Object Maintenance > Dimension Management > Attributes, a summary screen is displayed showing all of the defined Attributes for one dimension (your first dimension alphabetically that supports attributes). By selecting a dimension and by using search criteria, you can control the set of Attributes that are displayed. When you Add, Edit, Copy, or View an Attribute, a detail screen is displayed.



Navigation within the Summary Screen

When you first navigate to the Attributes summary screen, the Attributes associated with your first dimension are presented in a summary grid. The Attributes summary screen has three containers:

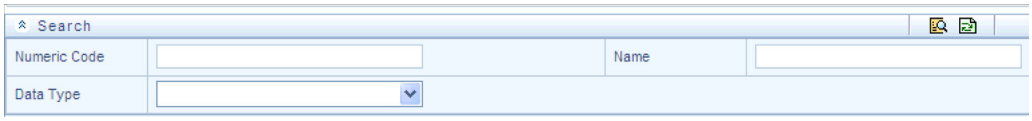
- Dimension
- Search
- Dimension Attributes

Dimension Container

Attributes are properties of dimensions. To add or maintain an attribute, you must first select the dimension to which an attribute belongs. The Dimension drop-down list in the Dimension container displays all of your Key Processing dimensions (both seeded and user-defined) and any Standard Dimensions that are configured to support attributes.

Search Container

Among other properties, each attribute possesses a Code value, a Name, and a Data Type. You may search on any of these properties in the Search container.



Search Control

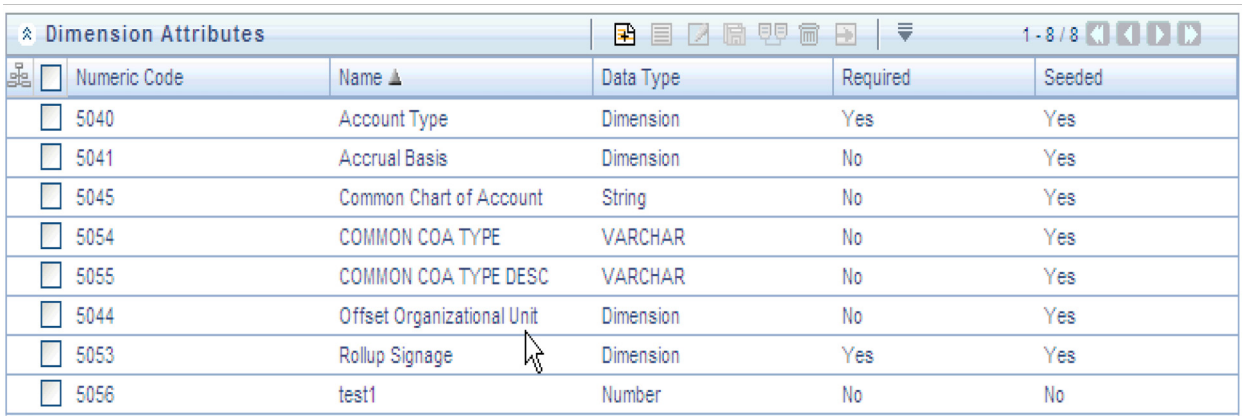
Enter your desired search criteria and click the Search control.

Reset Control

Clicking the Reset control clears any search criteria you may be using and refreshes the screen.

Dimension Attributes Container

The Dimension Attributes container presents a grid containing all of the Attributes that meet your search criteria. The Dimension Attributes summary grid offers several controls that allow you to perform different functions when an Attribute is selected.



Dimension Attributes 1 - 8 / 8

Numeric Code	Name	Data Type	Required	Seeded
5040	Account Type	Dimension	Yes	Yes
5041	Accrual Basis	Dimension	No	Yes
5045	Common Chart of Account	String	No	Yes
5054	COMMON COA TYPE	VARCHAR	No	Yes
5055	COMMON COA TYPE DESC	VARCHAR	No	Yes
5044	Offset Organizational Unit	Dimension	No	Yes
5053	Rollup Signage	Dimension	Yes	Yes
5056	test1	Number	No	No

To select an Attribute, click a check box in the first column of the grid. More than one Attribute can be selected at a time but this will cause some of the controls to become disabled. Clicking a check box a second time de-selects an Attribute.

You may select or deselect all of the Attributes in the summary grid by clicking the check box in the upper left hand corner of the summary grid directly to the left of the Code column header.

Add

Clicking the Add control begins the process of building a new Attribute. The Add control is disabled if any rows in the grid have been selected.

View

Selecting a single row out of the grid enables the View control. Clicking the View control allows you to view the detailed definition of an Attribute on a read-only basis. The View control is only enabled when a single Attribute has been selected.

Edit

Selecting a single row out of the grid enables the Edit control. Clicking the Edit control allows you to modify an existing Attribute. The Edit control is only enabled when a single Attribute has been selected.

Copy

Selecting a single row out of the grid enables the Copy control. Clicking the Copy control allows you to create a copy of an existing Attribute. The Copy control is only enabled when a single Attribute has been selected.

Check Dependencies

Select an attribute and then click the Check Dependencies control to generate a report on all dimension members that utilize your selected attribute. For example, if you have created an attribute named Color and have assigned values of Red, White, and Blue to dimension members #1, #2, and #3, Checking Dependencies for the Color attribute will result in a report indicating that dimension members #1, #2, and #3 utilize the Color attribute.

The Check Dependencies control is only enabled when a single attribute has been selected.

Delete

Selecting one or more rows out of the grid enables the Delete control. Clicking the Delete control deletes the Attribute(s) you have selected. OFSAAI will not allow you to delete Attributes which have any dependencies (see Check Dependencies above).

Dimension Attributes Summary Grid

The following columns categorize each Attribute in the summary grid:

- Numeric Code
- Name
- Data Type
- Required
- Seeded

Numeric Code

Displays the Attribute's Code value. You can also manually enter the code in the Numeric Code field.

Name

Enter the Attribute's short name.

Note: The characters &' ” are restricted in the name field.

Description

Enter the description.

Note: The characters ~&+' "@ are restricted in the description field.

Data Type

Select the Data Type as DATE, DIMENSION, NUMBER, or STRING from the drop-down list.

If NUMBER is selected as the Data Type: The Scale field is enabled with “0” as default value. Enter a Scale value >= 0. If it is left as 0, values for this attribute will be limited to Integers. If you wish to enable decimal entries for this attribute, the maximum Scale value must be > 0 and <= the scale defined for NUMBER_ASSIGN_VALUE in the dimension's underlying attribute table. Please refer to the *Data Model Utilities Guide* for further details on the attribute table.

Required

Select Yes or No. If this is set to No, an attribute value is optional for the associated dimension members.

Note: This field is disabled in Add and Edit modes if any members already exist for the Dimension upon which this attribute is defined.

Default Value

If Required Attribute is set to Yes, a Default Value must be entered, otherwise it is optional.

If **DIMENSION** is selected as the Data Type:

- Select the required Dimension from the drop-down list in the Dimension field.
- Select the Default Value from the drop-down list of members mapped to the selected Dimension.

If the required Member is not listed in the drop-down then select **--More—**and the Member Search window is displayed. For more information refer search.

If **NUMBER** is selected as the Data Type:

- Enter a numeric value in the Default Value field, and it must be consistent with the Scale you have defined.

If **DATE** is selected as the Data Type:

- Click Calendar button to select a valid date as the Default Value from the calendar.

If **STRING** is selected as the Data Type:

- Enter alphanumeric value in the Default Value field.
- The Maximum characters allowed in Default value field for String Data Type is 1000.

Navigation within the Detail Screen

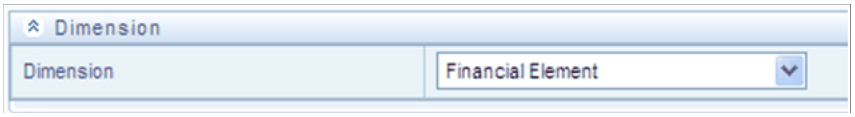
When you Add, Edit, Copy, or View an Attribute, the Attributes Detail screen is displayed.

Attribute Functionality

See Overview of OFSAA Infrastructure for details on how Attributes are used in OFS Analytical Applications.

Dimension Container

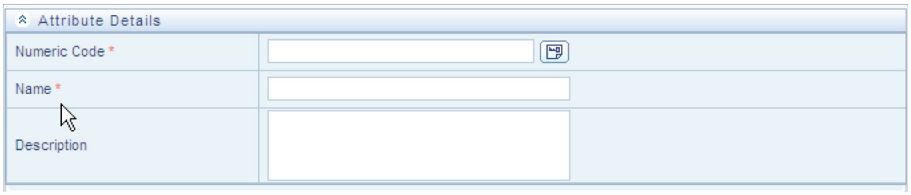
Displays the name of the dimension to which an Attribute belongs. When Editing or Copying an existing Attribute, this is a read-only value. When Adding a new Attribute, you must select the dimension to which you want your new attribute to be assigned.



Attribute Details Container

Numeric Code

When Adding a new Attribute, you must select a Code value to which you want your new attribute to be assigned. Code values for each attribute belonging to a dimension must be unique, but you are otherwise free to pick any numeric value you wish. You may also click the Generate Code shortcut key to automatically generate a new Code value.



You must supply a Code value before you can save a new Attribute definition and you may not change a Code value once an Attribute definition has been saved.

Note: When Editing an existing Attribute, Code is a read-only value; and when Copying an existing Attribute, you must supply a new Code value

Name

Used to name or re-name your Attribute. You must supply a Name (or a new name if you wish to re-name your Attribute) before you can save an Attribute definition.

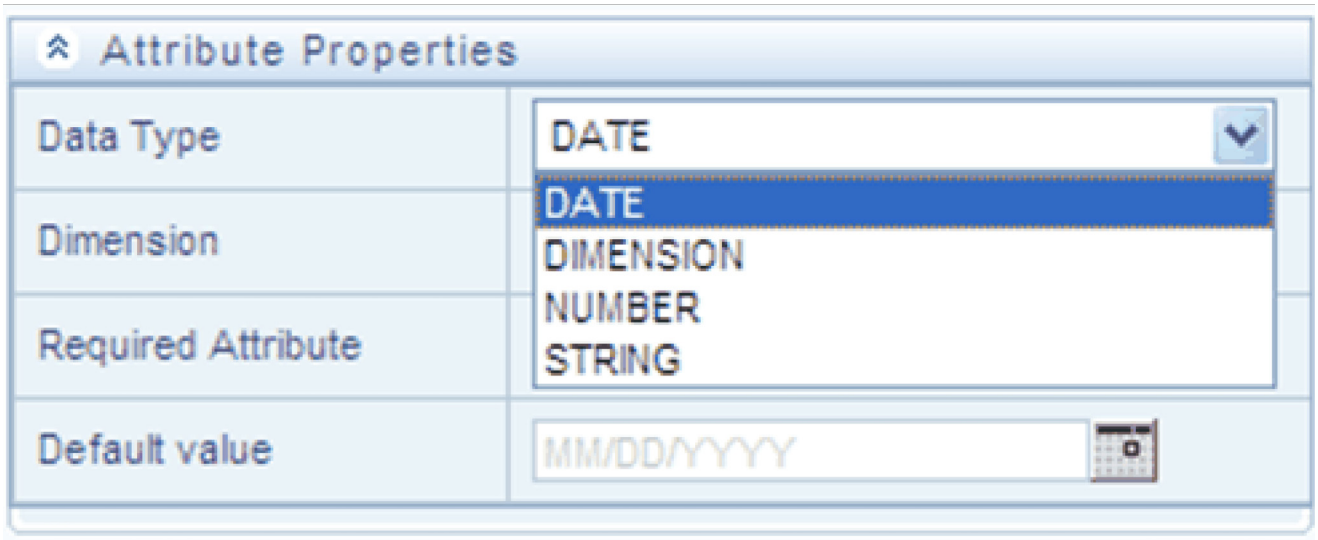
Description

Used to store a longer description of your Attribute.

Attribute Properties Container

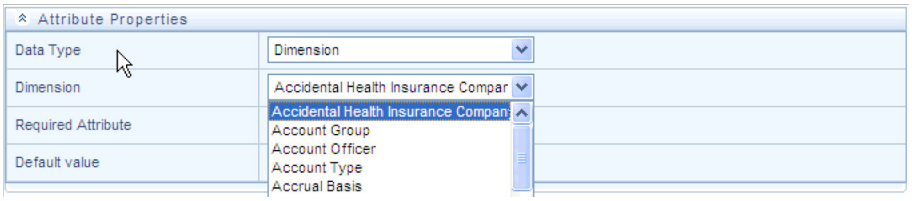
Data Type

Select a Data Type for your Attribute. For Attributes that have already been saved, you may not modify Data Type.If you have selected the Date, Number, or String Data Type, the Dimension drop-down list is disabled.



- If **DATE** is selected as the Data Type:
  Click on followiing button to select a valid date as the Default Value from the calendar.

- If **DIMENSION** is selected as the Data Type:
  - If you have selected the Dimension Data Type, the Dimension drop-down list is enabled. Select the required Dimension from the drop-down list in the Dimension field.



  - Select the Default Value from the drop-down list of members mapped to the selected Dimension. If the required Member is not listed in the drop-down list then select --More—and the Member Search screen is displayed.

For more information refer search.

- If **NUMBER** is selected as the Data Type:
  The Scale field is enabled with "0" as default value.

  Enter the scale value between 0 and 5.

  The Scale can be edited to a value between 0 and 5 thereby making it a decimal. Scale value less than scale defined is permitted. Scale value greater than scale value is automatically trimmed.

  Key in valid numeric in the Default value filed on which the Attribute is to be defined.

- If **STRING** is selected as the Data Type:
  Enter alphanumeric value as the Default Value in the Default value field.

Required Attribute

Various OFSAA engines utilize attributes within their processing. For example, both OFSAA Transfer Pricing and OFSAA Profitability Management utilize the Account Type attribute in order to understand whether a balance is a debit balance or a credit balance, on balance sheet or off balance sheet.

You may not create user-defined Required attributes.

Default Value

Use to set a default value for your attribute. When you create a new dimension member, each attribute that has a Default Value is set to its default value for your convenience.

CHAPTER 6 OFSAA Dimension Members

Overview

Members refers to the individual items that constitutes a dimension when data is categorized into a single object.

For example, Product, Organization, Time, and so on. Members is available within Dimension Management section of the Infrastructure system.

You (Business Analysts) need to have ETL Analyst function role mapped to access Members.

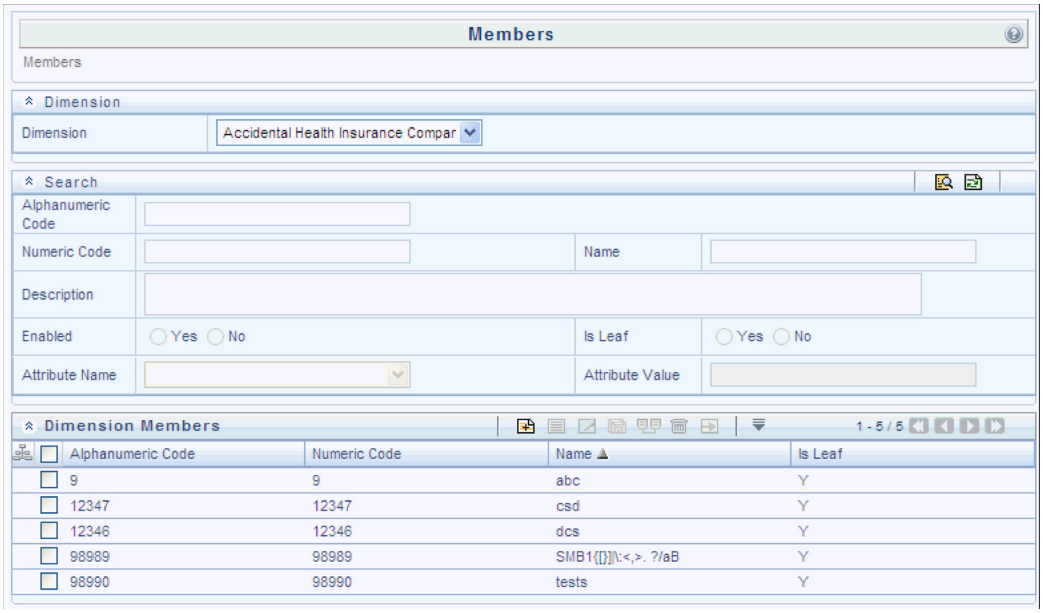
This chapter describes the creation and maintenance of OFSAA Hierarchies. Specifically, this chapter will cover:

- Member Summary & Detail Screens
- Navigation within the Member Summary Screen
- Navigation within the Member Detail Screen

See Overview of OFSAA Infrastructure, page 2-1 for details on how Members are used in OFS Analytical Applications. See the *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide f*or details on bulk loading members.

Summary & Detail Screens

Upon initially navigating to Common Object Maintenance > Dimension Management > Members, a summary screen is displayed showing all of the defined Dimension Members for one dimension (your first dimension alphabetically). By selecting a dimension and by using search criteria, you can control the set of Dimension Members that are displayed. When you Add, Edit, Copy, or View a Dimension Member, a detail screen is displayed.



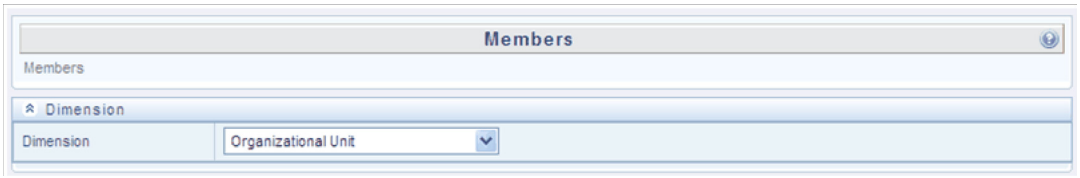
Navigation within the Summary Screen

When you first navigate to the Dimension Members summary screen, the Dimension Members associated with your first dimension are presented in a summary grid. The Dimension Members summary screen has three containers:

- Dimension
- Search
- Dimension Members

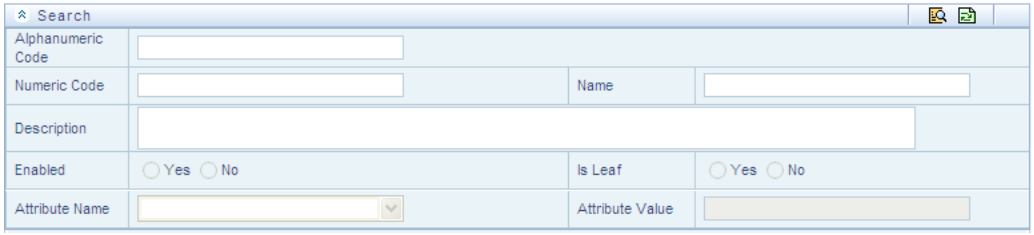
Dimension Container

To add or maintain a Dimension Member, you must first select the dimension to which a Dimension Member belongs. The Dimension drop-down list box in the Dimension container displays all of your dimensions that are configured to be viewable (not every dimension is viewable through the application user interface; for details on which dimensions are viewable, see the *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide.*.



Search Container

Each Dimension Member possesses a Code value, a Name, and a Description. Dimension Members also have the properties of being enabled or disabled and of being a leaf member (last-descendent-child value) or a rollup member (representing a rollup point in a hierarchy). Finally, each Dimension Member value is assigned an attribute value for each its attributes. You may search on any of these properties in the Search container.



Search Control

Enter your desired search criteria and click the Search control.

Reset Control

Clicking the Reset control clears any search criteria you may be using and refreshes the screen.

Dimension Members Container

Dimensions are comprised of finite lists of Dimension Members. The Dimension Members container presents a grid containing all of the Dimension Members that meet your search criteria. The Dimension Members summary grid offers several controls that allow you to perform different functions when a Dimension Member is selected.

To select a Dimension Member, click a check box in the first column of the grid. More than one Dimension Member can be selected at a time but this will cause some of the controls to become disabled. Clicking a check box a second time deselects a Dimension Member.

You may select or deselect all of the Dimension Members in the summary grid by clicking on the check box in the upper left hand corner of the summary grid directly to the left of the Code column header.

Add

Clicking the Add control begins the process of building a new Dimension Member. The Add control is disabled if any rows in the grid have been selected.

View

Selecting a single row out of the grid enables the View control. Clicking the View control allows you to view the detailed definition of a Dimension Member on a read-only basis. The View control is only enabled when a single Dimension Member has been selected.

Edit

Selecting a single row out of the grid enables the Edit control. Clicking the Edit control allows you to modify an existing Dimension Member. The Edit control is only enabled when a single Dimension Member has been selected.

Copy

Selecting a single row out of the grid enables the Copy control. Clicking on the Copy control allows you to create a copy of an existing Dimension Member. The Copy control is only enabled when a single Dimension Member has been selected.

Check Dependencies

To generate a report on the hierarchies that utilize a selected Dimension Member, select a single Dimension Member and click the Check Dependencies control. The Check Dependencies control is only enabled when a single Dimension Member has been selected.

Delete

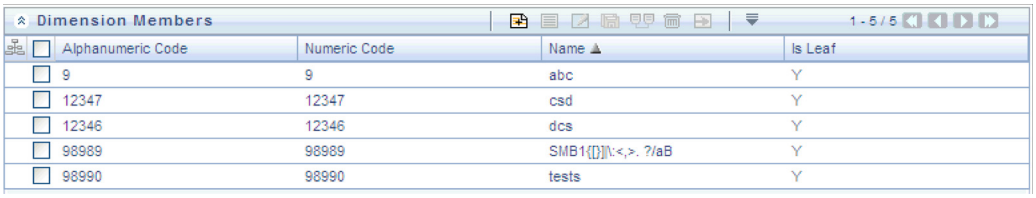
Selecting one or more rows out of the grid enables the Delete control. Clicking the Delete control deletes the Dimension Member(s) you have selected.

Note: OFSAA Infrastructure will not allow you to delete any Dimension Member that is utilized within a hierarchy (see Check Dependencies above).

Dimension Members Summary Grid

The following columns categorize each Dimension Member in the summary grid:

- Alphanumeric Code
- Numeric Code
- Name
- Is Leaf



Alphanumeric Code

Displays the Dimension Member's code value.

Numeric Code

Displays the Dimension Member's numeric code value.

Name

Displays the Dimension Member's short name. Performing a "mouse-over" on a Dimension Member Name displays the Dimension Member's description.

Is Leaf

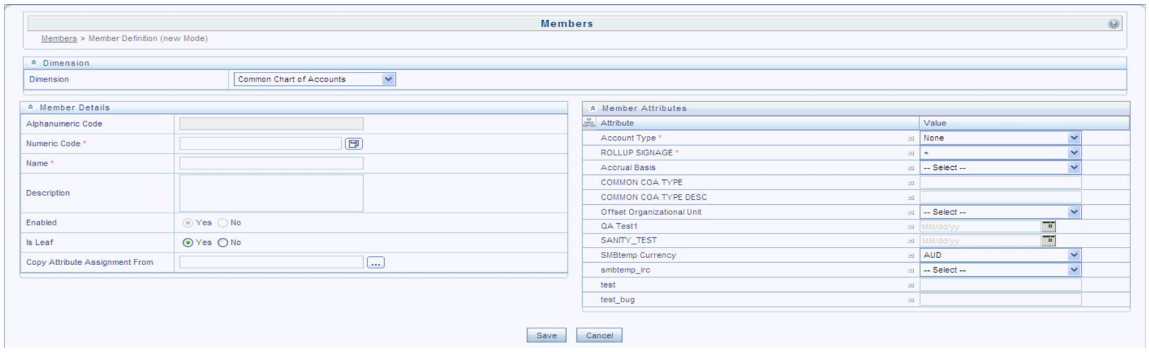
Displays the Dimension Member's "Is Leaf?" property. Members may be declared to be either "leaf members" or "rollup members". When building a hierarchy in OFSAAI, "leaf members" are those dimension members that have no descendent dimension members. In building a dimension member set, you must have at least some rollup members (Is Leaf = No) before you can construct a multilevel hierarchy.

Your business data is normally expressed at the leaf level. An individual mortgage instrument record, for example, would belong to a (leaf level) cost center for a (leaf level) principal balance General Ledger Account and would carry a (leaf level) designation of Product.

At least one leaf level dimension member is required for hierarchies used in allocations.

Navigation within the Detail Screen

When you Add, Edit, Copy, or View a Dimension Member, the Dimension Members Detail screen is displayed.

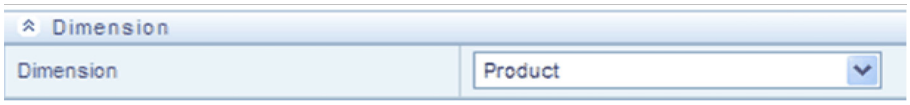


Dimension Member Functionality

See Overview of OFSAA Infrastructure for details on how Dimension Members are used in OFS Analytical Applications.

Dimension Container

Displays the name of the dimension to which a Dimension Member belongs. When Editing or Copying an existing Dimension Member, this is a read-only value. When Adding a new Dimension Member, you must select the dimension to which you want your new Dimension Member to be assigned.



Dimension Member Details Container

Alphanumeric Code

The **Alphanumeric Code** field is editable only if the selected Dimension accepts Alphanumeric Code. For example, **Billing Method** Dimension. Else, the field is Read Only and the value is fetched from the **Numeric Code** field entered. Enter the required Alphanumeric Code. Ensure that the code has a maximum of 14 characters and there are no special characters like & ' ~ " @ + included.

Numeric Code

Enter the Numeric Code by doing any of the following:

- To auto-generate a Numeric Code, click the following button.

A system generated code is displayed.

- Manually enter the required code which is auto validated for uniqueness. A maximum of 14 numeric characters can be specified

Note: If the selected Dimension accepts only Numeric Code, then the specified Numeric Code is auto populated to the **Alphanumeric Code** field also.

Name

Enter the **Name** of the Member.

Note: The characters &' " are restricted

Description

Enter the required Description for the Member.

Note: The characters ~&+' "@ are restricted.

Enabled

This field is set to **Yes** by default and is editable only in **Edit** screen.

Note: You can change the option to No only when the particular member is not used in any hierarchy. The disabled members will not be displayed in Hierarchy rules, or UIs which are based on Hierarchies, such as Hierarchy Filters and hierarchical assumption browsers used in applications.

Is Leaf

This field is set to **Yes** by default.

If Yes, the particular member can be used as a leaf node in any hierarchy and child cannot be added to this node.

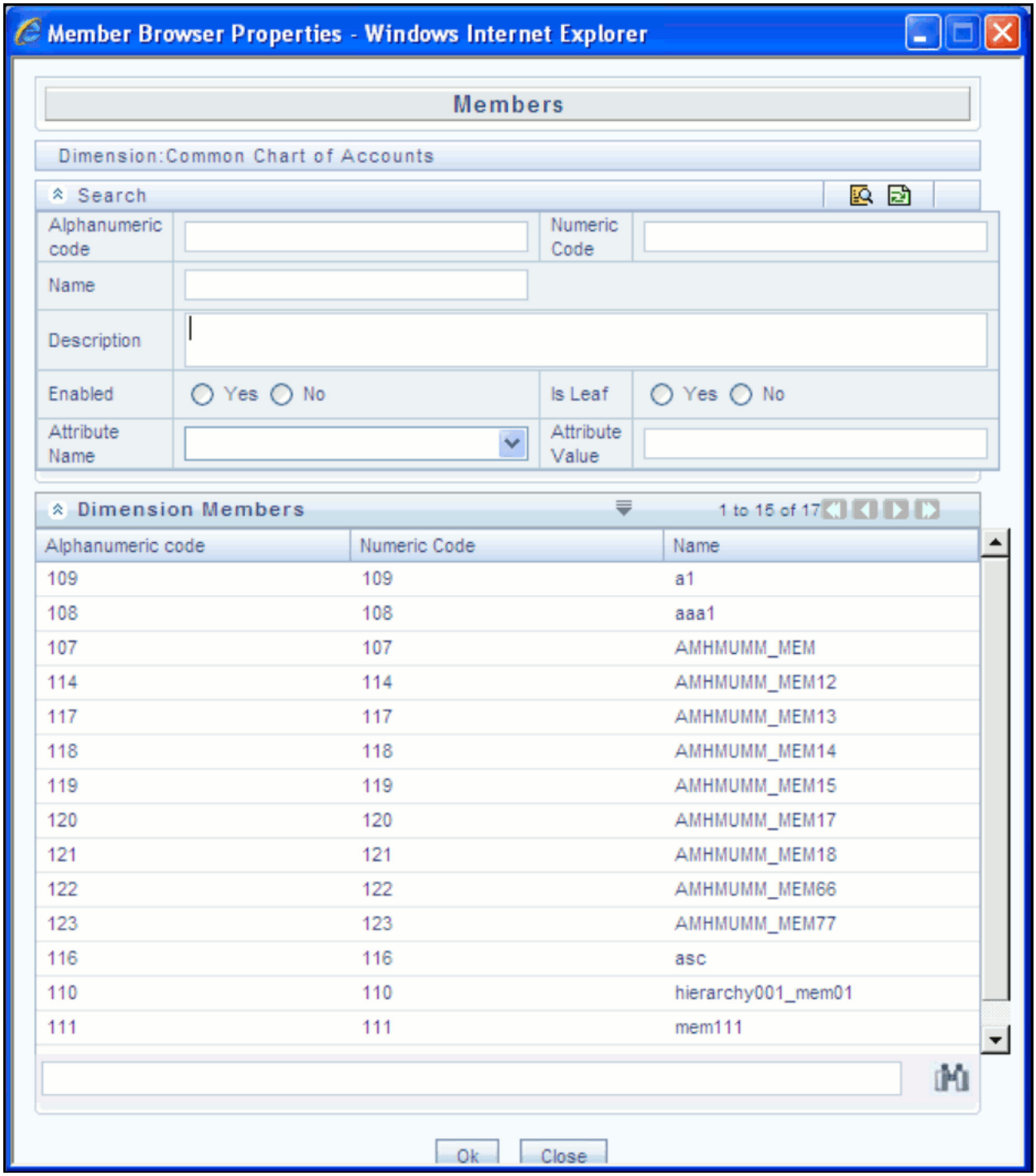
If No, the node becomes a non leaf and can have child nodes.

Note: A member created as Non Leaf having child nodes to it in any hierarchy cannot be made Leaf.

Copy Attribute Assignment From

Note: If the Dimension is selected as "Common Chart of Accounts", then **Copy Attribute Assignment From** option is enabled.

Instead of manually completing all the attribute value assignments for a new Dimension Member, you may copy attribute assignments from a pre-existing Dimension Member. To do so, click the ellipses adjacent to **Copy Attribute Assignment From** field to open the Member Browser window. You may select a member directly or you may search for the member whose attributes you wish to copy. Once you have selected a member and clicked OK, the attribute values of the member you selected are copied into the definition of your new Dimension Member.



Dimension Member Attributes Container

If you have not copied attribute values from a pre-existing dimension member using the Copy Attribute Assignment From feature described above, assign them in the Member Attributes container.

- Dimension Member Attributes have defined data types including String, Number, Date, and Dimension. If an attribute is a Date data type, use the calendar control to select a date. If an attribute is a Number or String data type, enter your free-form value directly. If an attribute is a Dimension data type, select your value from the drop-down list.
- Attributes marked with an asterisk indicate required attributes.

Default Values

If a Member Attribute is defined as having a default value, the default value will be displayed when you create a new Dimension Member.

CHAPTER 7 OFSAA Hierarchies

Overview of OFSAA Hierarchies

Hierarchies refers to dimension members that are arranged in levels, with each level representing the aggregated total of the data from the level below. One dimension type can have multiple hierarchies associated with it. Hierarchies is available within the Dimension Management section of Infrastructure system. You (Business Analysts) need to have ETL Analyst function role mapped to access Hierarchies.

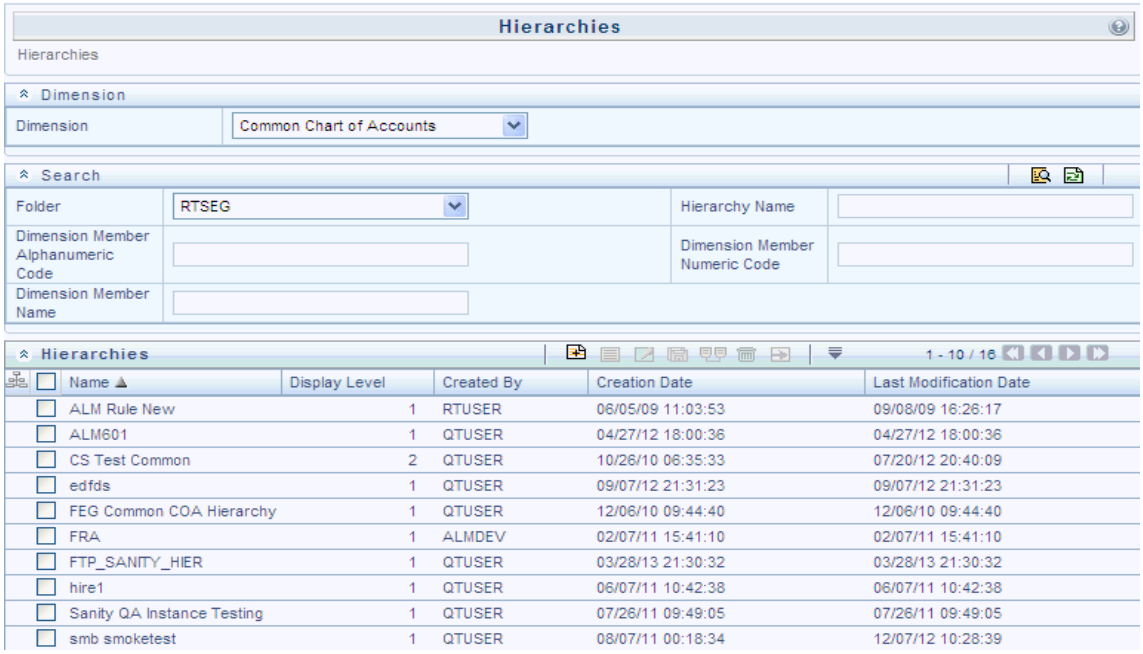
This chapter describes the creation and maintenance of OFSAA Hierarchies. Specifically, this chapter will cover:

- Hierarchy Summary & Detail Screens
- Navigation within the Hierarchy Summary Screen
- Navigation within the Hierarchy Detail Screen

See the *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide* for details on bulk loading hierarchies.

Summary & Detail Screens

Upon initially navigating to Common Object Maintenance > Dimension Management > Hierarchies, a summary screen is displayed showing all of the defined Hierarchies for one dimension (your first dimension alphabetically that supports hierarchies). By selecting a dimension and by using search criteria, you can control the set of Hierarchies that are displayed. When you Add, Edit, Copy, or View a Hierarchy, a detail screen is displayed.



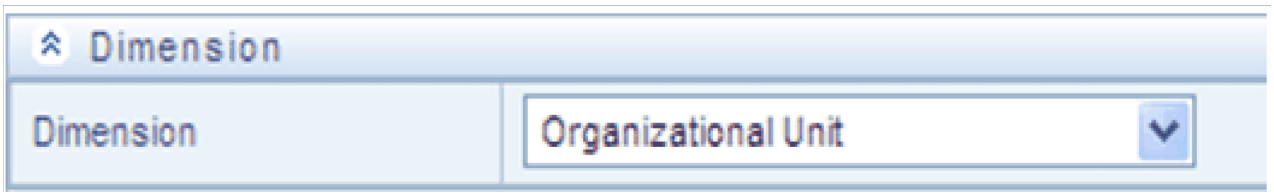
Navigation within the Summary Screen

When you first navigate to the Hierarchies summary screen, the Hierarchies that are stored within your current default folder and that are associated with your first dimension are presented in a summary grid. The Hierarchies Summary screen has three containers:

- Dimension
- Search
- Hierarchies

Dimension Container

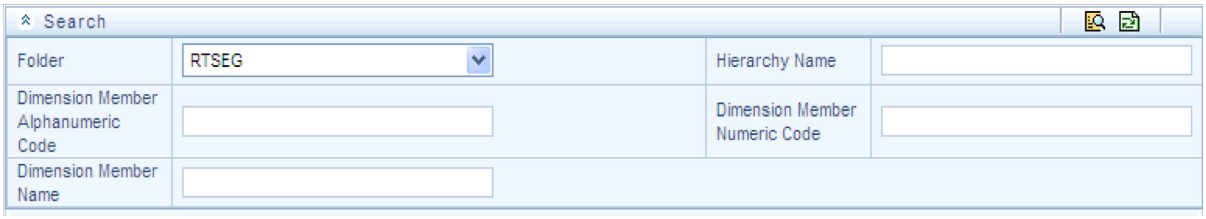
Select the Dimension of the hierarchies you wish to View. When you change your dimension selection in the summary screen, the screen refreshes and displays the Hierarchies that are stored within your current default folder.



Note: The dimensions drop-down list will only display dimensions that are configured to support hierarchies.

Search Container

Your default Folder functions as a search constraint. The value of your default Folder is set in Application Preferences. You may select a different Folder or you may remove the Folder constraint entirely by selecting the "blank" Folder, i.e., no Folder. You may also search by Hierarchy Name, Dimension Member Code, and/or Dimension Member Name.



Search Control

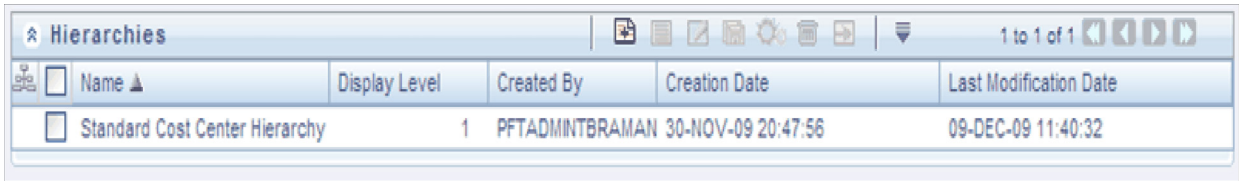
Searches for Hierarchy Name, Dimension Member Code, and Dimension Member Name are wildcard searches, i.e., searching for Hierarchy Names like "standard" will find any hierarchies that include "standard" within their names. When searching by Dimension Member Code or by Dimension Member Name, the application will find any or all hierarchies that utilize that dimension member but only if the member is not found in the hierarchy's "orphan" branch (see discussion of Orphan branches below). Enter your desired search criteria and click on the Search control.

Reset Control

Clicking on the Reset control clears any search criteria you may be using, resets Folder to your default Folder, and refreshes the screen.

Hierarchies Container

The Hierarchies container presents a grid containing all of the Hierarchies that meet your search criteria. The Hierarchies summary grid offers several controls that allow you to perform different functions when a Hierarchy is selected.



To select a Hierarchy, click on a check box in the first column of the grid. More than one Hierarchy can be selected at a time but this will cause some of the controls to become disabled. Clicking on a check box a second time deselects a Hierarchy.

You may select or deselect all of the Hierarchies in the summary grid by clicking on the check box in the upper left hand corner of the summary grid directly to the left of the Name column header.

Add

Clicking on the Add control begins the process of building a new Hierarchy. The Add control is disabled if any rows in the grid have been selected.

View

Selecting a single row out of the grid enables the View control. Clicking on the View control allows you to view the detailed definition of a Hierarchy on a read-only basis. The View control is only enabled when a single Hierarchy has been selected.

Edit

Selecting a single row out of the grid enables the Edit control. Clicking on the Edit control allows you to modify an existing Hierarchy. The Edit control is only enabled when a single Hierarchy has been selected.

Copy

Selecting a single row out of the grid enables the Copy control. Clicking on the Copy control allows you to create a copy of an existing Hierarchy. The Copy control is only enabled when a single Hierarchy has been selected.

Check Dependencies

To generate a report on the OFSAA rules that utilize a selected Hierarchy, select a single Hierarchy and click on the Check Dependencies control. The Check Dependencies control is only enabled when a single Hierarchy has been selected.

Delete

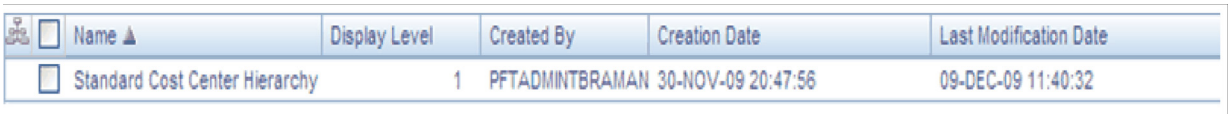
Selecting one or more rows out of the grid enables the Delete control. Clicking on the Delete control deletes the Hierarchy or Hierarchies you have selected.

Note: OFSAA Infrastructure will not allow you to delete any Hierarchy that is utilized by another OFSAA rule (e.g., a Transfer Pricing Processing rule, an Allocation rule, etc). See Check Dependencies above.

Hierarchies Summary Grid

The following columns categorize each Dimension Member in the summary grid:

- Name
- Display Level
- Created By
- Creation Date
- Last Modification Date



Name ▲	Display Level	Created By	Creation Date	Last Modification Date
Standard Cost Center Hierarchy	1	PFTADMINTBRAMAN	30-NOV-09 20:47:56	09-DEC-09 11:40:32

Name

Displays the Hierarchy's Name. Performing a “mouse-over” on a Hierarchy's Name displays the Hierarchy's Description.

Display Level

Display Level is the default level at which a hierarchy is displayed by the application when you open it.

Created By

Created By displays the name of the user who created a Hierarchy. If a Hierarchy is saved as Read Only, only the user who created the rule, i.e., the owner, may modify the rule.

Creation Date

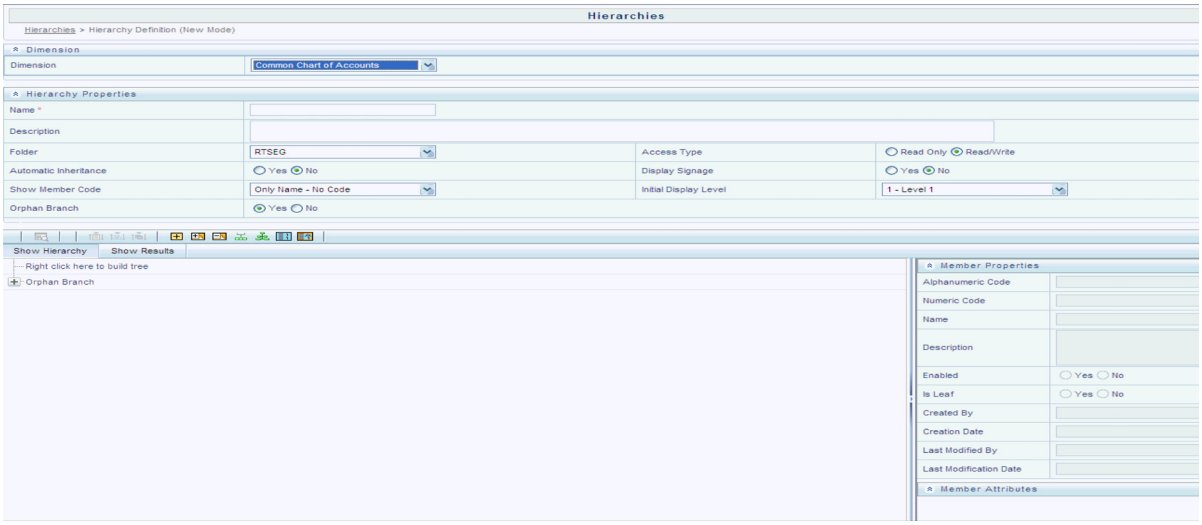
Displays the date and time at which a Hierarchy was created.

Last Modification Date

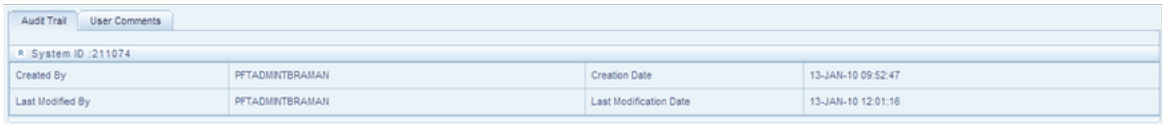
Displays the date and time at which a Hierarchy was last modified.

Navigation within the Detail Screen

When you Add, Edit, Copy, or View a Hierarchy, the Hierarchies Detail screen is displayed.



The Audit Trail container is a standard footer container for every OFSAA rule type. It displays Created By, Creation Date, Last Modified By, and Modification Date on the Audit Trail tab. The User Comments tab may be used to add comments to any rule, subject to a maximum of 4000 characters.

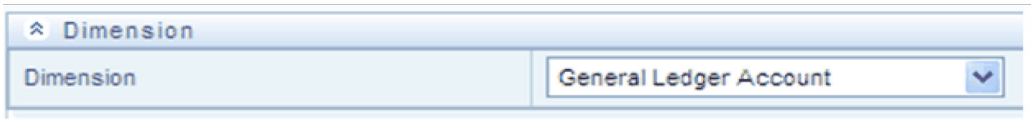


Hierarchy Functionality

See Overview of OFSAA Infrastructure for details on how Hierarchies are used in OFS Analytical Applications.

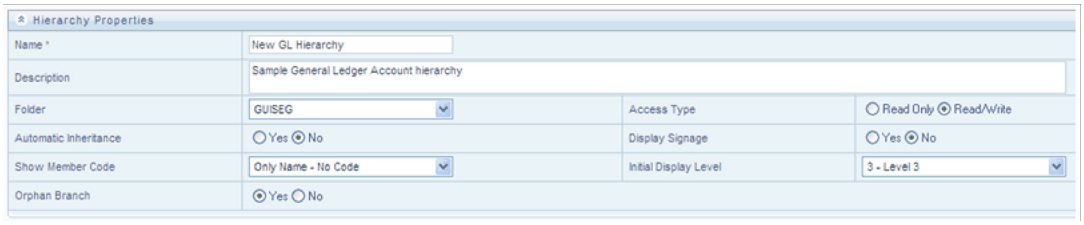
Dimension Container

For a new Hierarchy, select the dimension upon which you want to build a hierarchy. For an existing Hierarchy, you may not change the dimension.



Hierarchy Properties Container

Specify a Hierarchy Name and Description, select a Folder in which the Hierarchy is to be stored, and specify whether you want the Hierarchy to be "Read/Write" or "Read Only" (Access Type). Naming your Hierarchy is required before it can be saved. Default values for Folder and Access Type are stored in Application Preferences. The Hierarchy Properties container also stores values for Automatic Inheritance, Display Signage, Show Member Code, Initial Display Level, and Orphan Branch.



Name and Description

Displays the hierarchy's name and description. Name is a required property; you cannot save a hierarchy until you supply a name.

Folder

Select the folder in which you want the hierarchy to be stored.

Automatic Inheritance

- Click Yes to inherit the hierarchy properties of the parent to the child.
- Click No to define a new hierarchy.

Show Member Code

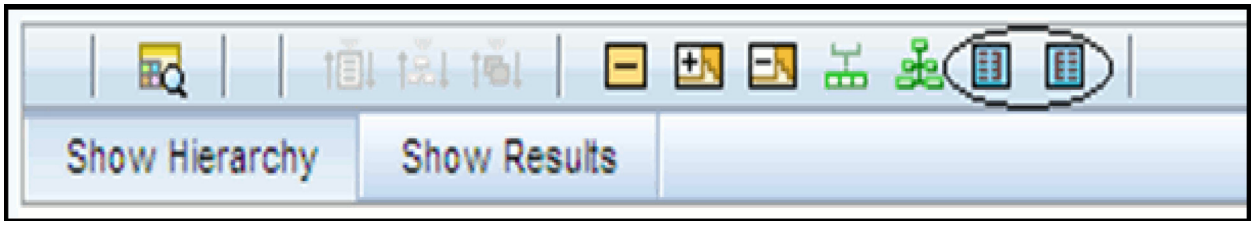
"Show Member Code" governs the default display behavior of a hierarchy. This code may be set to one of three different values:

- **Alphanumeric Code to Left of Name:** Displays Alphanumeric Code on the Left side of Member name.
- **Alphanumeric Code to Right of Name:** Displays Alphanumeric Code on the Right side of Member name..
- **Only Name:** No Code: Displays only the Member Name.
- **Numeric Code to Left of Name:** Displays the Numeric Code on the Left side of Member name.
- **Numeric Code to Right of Name:** Displays the Numeric Code on the Right side of Member name.

While viewing or editing a hierarchy, you may override whatever default behavior has been set by clicking on the "Show Code Values (Right)"

or on the "Show Code Values (Left)"

controls that are located on the title bar of the hierarchy display grid.



Orphan Branch

When you initially enter the Hierarchies Detail screen in Add mode (i.e., for a brand new hierarchy), Orphan Branch is set to Yes. When set to Yes, unassigned leaf members and node members are displayed within a special "Orphan" branch. This can be convenient because the user interface includes functionality that allows you to "cut and paste" members of the orphan branch into desired locations within your hierarchy. The Orphan Branch can also be convenient when you are maintaining an existing hierarchy because when it contains members, it provides a visual cue that dimension members have been defined that have yet to be assigned locations within a hierarchy. You may suppress the display of the Orphan Branch by setting Orphan Branch to No.

Access Type

You may set Access Type to Read-Only or Read/Write. When set to Read-Only, only the owner – the creator of a rule is its owner – may modify or delete the hierarchy.

Display Signage

Display signage is not used within any of the OFSAA engines, but is used within the Oracle Financial Services Profitability Analytics OBI application. Its purpose is to inform reporting applications on how to subtotal information on financial reports, most typically for income statement reporting. The default value for all new dimension members is "+".

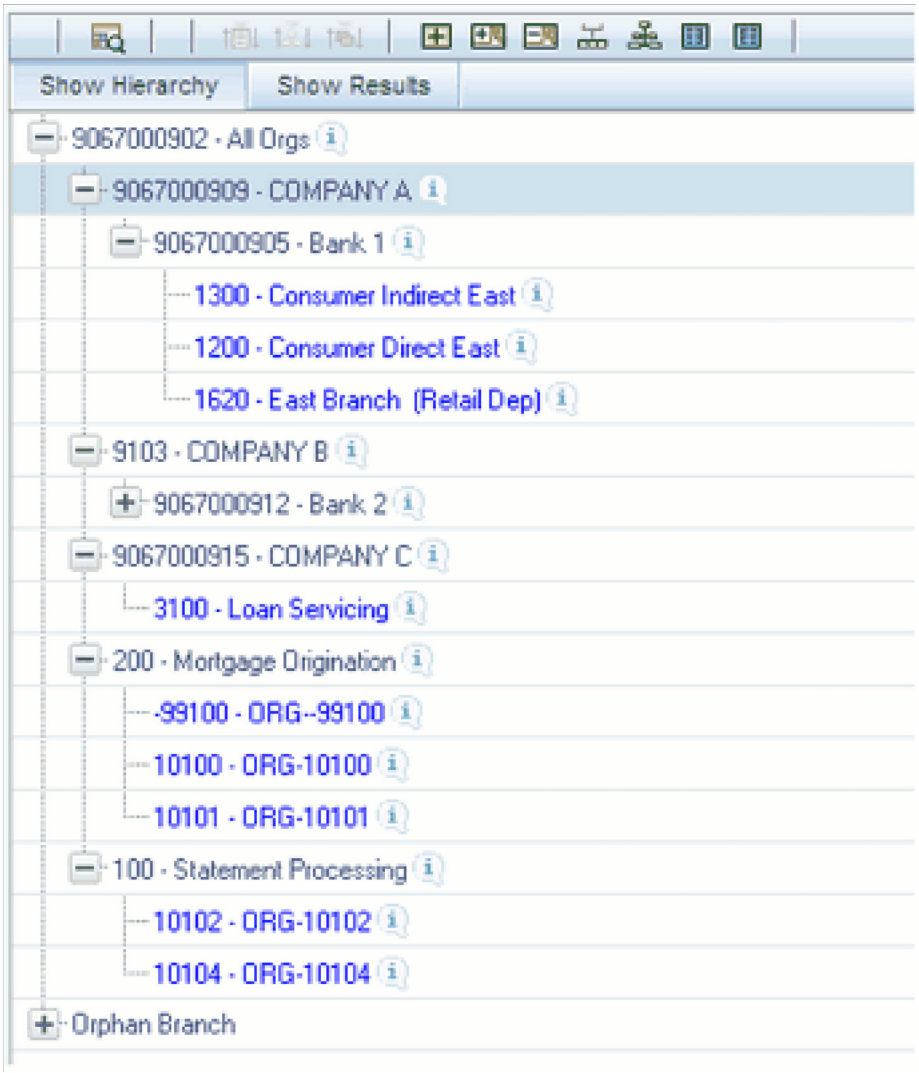
Initial Display Level

This setting controls the level at which a hierarchy is displayed when you initially enter the Hierarchies Detail screen. This setting is particularly useful when you are working with a hierarchy that has many levels. In a deep, many-leveled hierarchy, only one or two high level rollup points would be displayed if the hierarchy were displayed in its entirety.

Hierarchy Display Grid

The main body of the Hierarchies Detail screen displays a visual representation of your hierarchy. When building a hierarchy within a given dimension, you have access to every dimension member defined for that dimension. For dimensions that support hierarchies, every dimension member has the property of either being a "leaf" member or a "rollup node" member. You construct your hierarchy by attaching leaf members to rollup node members and by attaching rollup node members to other rollup node members depending on how "deep" or multi-leveled you want your hierarchy to be.

Hierarchies may be either "balanced" or "unbalanced". In a balanced hierarchy, all leaf members reside at the same "level" or depth. The following example shows an unbalanced hierarchy in which you see leaf members (shown in blue) three levels beneath to "root" or top of the hierarchy within the Bank 1 branch, but in which you also see leaf members two levels beneath the root level in the Company C, Mortgage Origination, and Statement Processing branches.



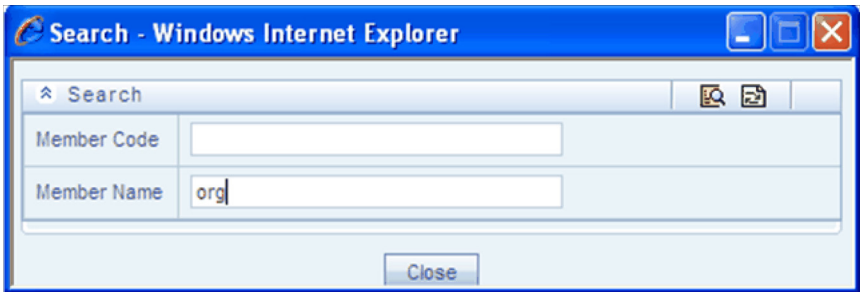
Generally, there is no limit to the number of levels of depth you may build into a hierarchy for Standard Dimensions that support hierarchies. For Key Processing Dimensions, which always support hierarchies, you may construct hierarchies with up to 14 levels of depth. For details on depth limitations and configuring maximum depth levels for hierarchies, see *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide*.

Controlling the Hierarchy Display

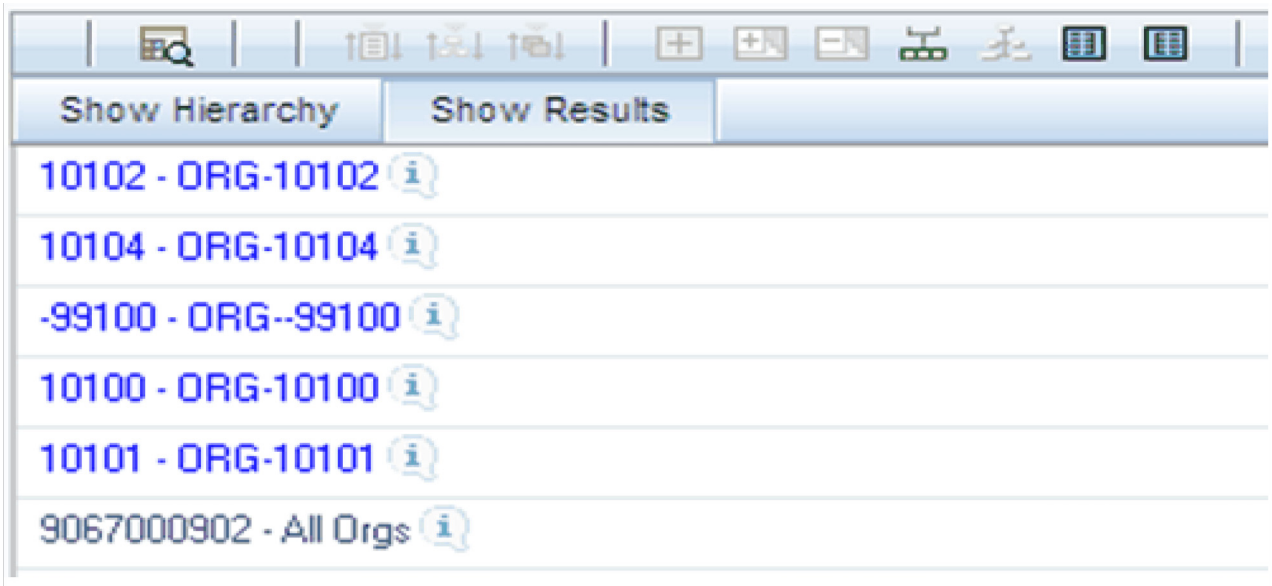
There are a number of controls on the title bar of the hierarchy that allow you to modify how the hierarchy is displayed.

Search

Clicking on the Search control invokes a pop-up dialog in which you can perform wildcard searches for dimension members by Member Code or by Member Name.



When you click on the Search button within the pop-up dialog, the dialog closes, your search is executed, and results are returned within the Hierarchy Display Grid under the heading of Show Results.



When viewing search results under the Show Results heading, you may locate a dimension member within the hierarchy by selecting it and clicking on the Focus control. After selecting a dimension member and clicking on

Focus, the application responds by focusing on your selected member under the Show Hierarchy heading (that is, under the normal hierarchy display).

This method of searching for dimension members will only find assigned members, that is, members that are not found in the Orphans Branch.

Expand All / Collapse All

When you initially enter the Hierarchies Detail screen, clicking on this control expands every branch of your hierarchy to display its entire depth. Click on this control a second time to shrink the hierarchy display down to (1) the root node of the hierarchy plus (2) the "Orphans" branch.

- The Orphan branch is only displayed when a hierarchy's Orphan Branch property is set to Yes.
- For very large hierarchies, the Expand All / Collapse All control is disabled. You may define what constitutes a very large hierarchy. For more information, see *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide*.

Expand Branch

When you click on a node member and then click on Expand Branch, your selected rollup node is expanded to its maximum depth.

Collapse Branch

Select a dimension member and then click on the Collapse Branch control to shrink the display of any members beneath the dimension member you have chosen.

Focus and Unfocus

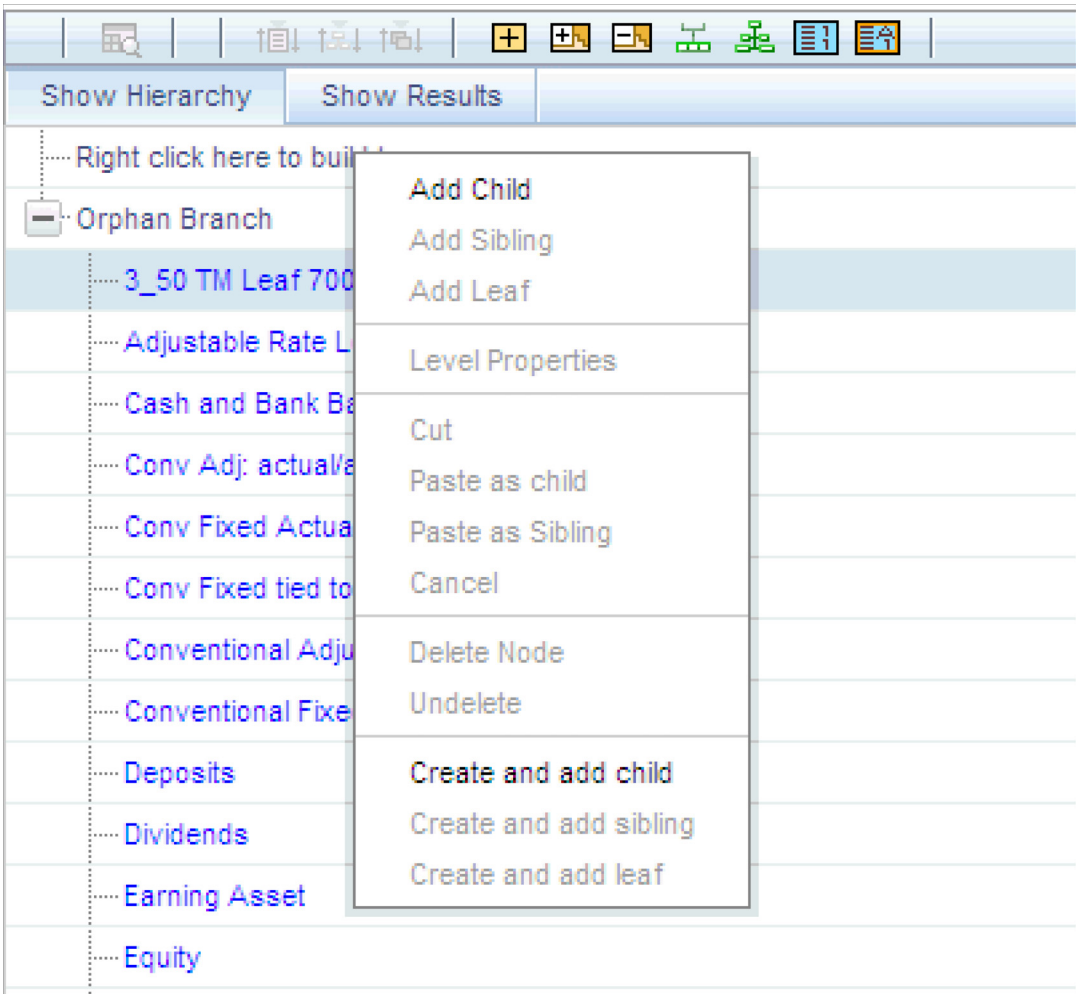
When you click on a node member and then click on the Focus control, only your selected node and its descendents are displayed. Clicking on Unfocus removes the focus that you established using the Focus control described above.

Show Code Values (Left) and (Right)

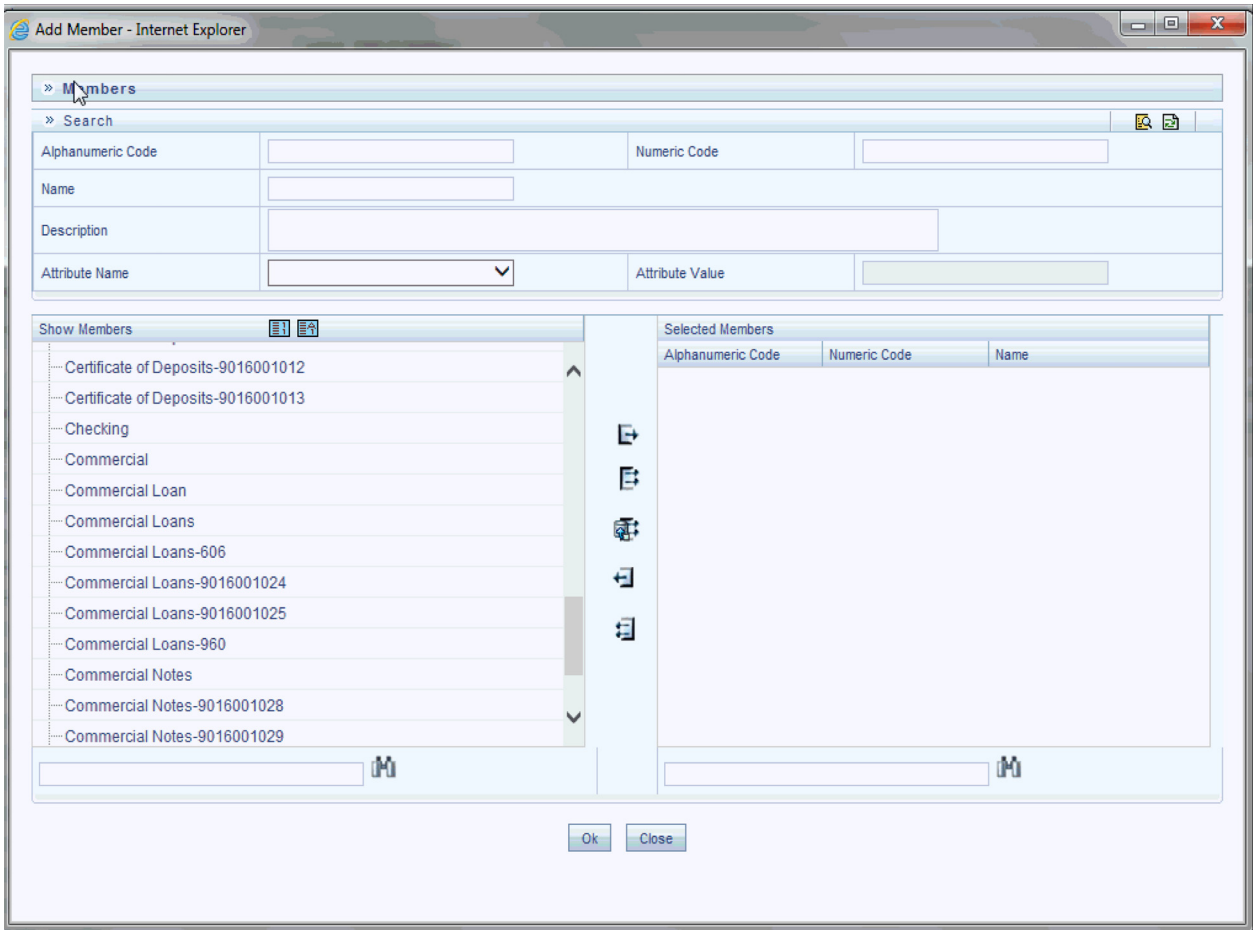
Click on Show Code Values (Left) to show code values to the left of each dimension member name. Click on Show Code Values (Right) to show code values to the right of each dimension member name. The default behavior for your hierarchy is controlled by the "Show Member Code" property discussed above.

Adding Hierarchies

When creating a new hierarchy, you must initially provide a name and, optionally, a description. You must also select the Folder in which you want the hierarchy to be stored, the hierarchy's Read Only vs. Read/Write (Access Type) property and the other Hierarchy Properties described above. Select **Read-Only** option to give other users access to only view the hierarchy definition. Select **Read/Write** option to give all users the access to view, modify (including Access Type) and delete the hierarchy definition. Default values for Folder and Access Type are stored in Application Preferences.



To begin the process of building a new hierarchy, right mouse click at the top of the hierarchy (see example above) to invoke a pop-up dialog in which you may select dimension members. Every hierarchy must begin with a top level rollup node. Since you cannot have a leaf member as a top level rollup node, your only choice at this point is Add Child. Clicking on Add Child invokes pop-up dialog in which you may select a rollup node.



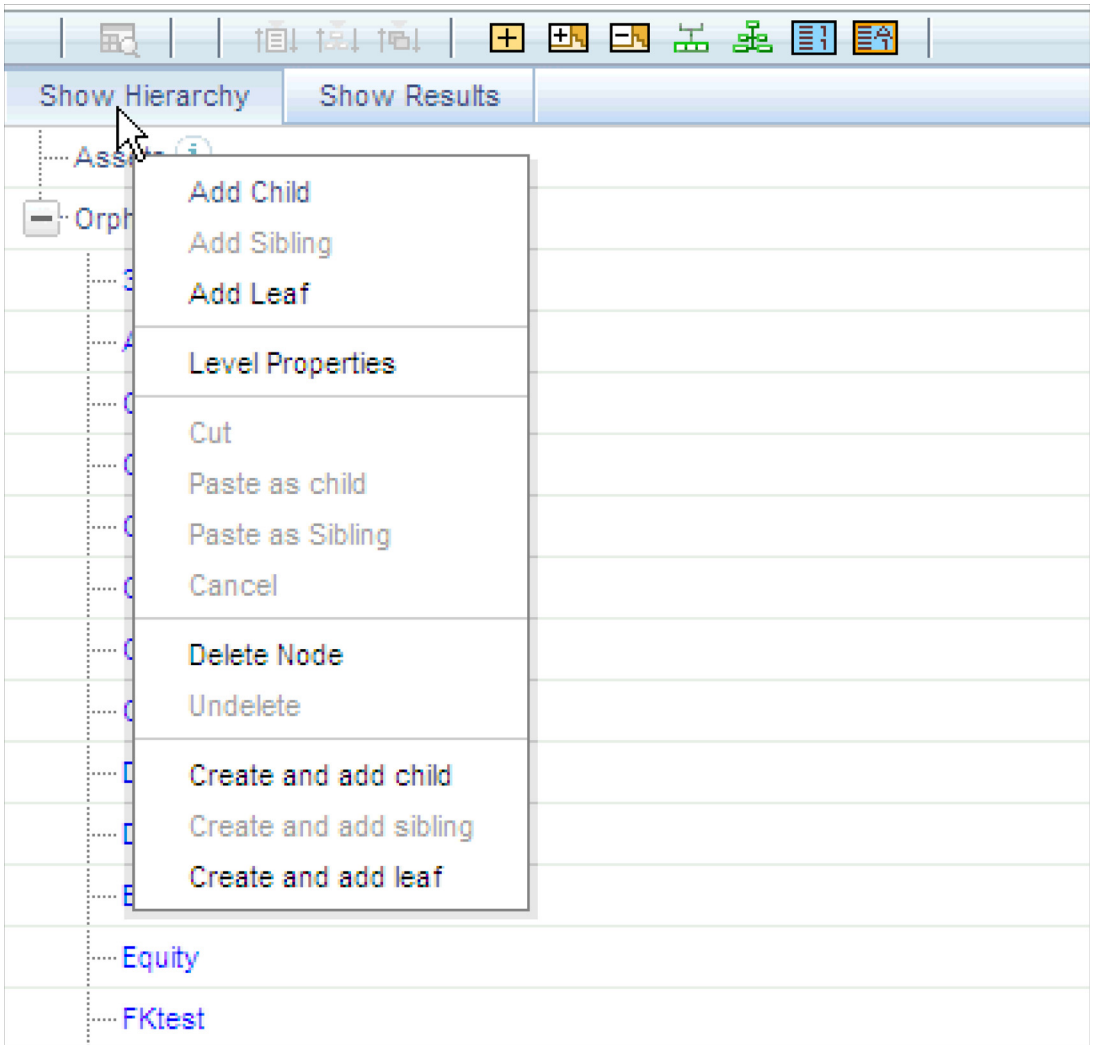
Within the Add Member pop-up dialog, use the shuttle box controls to select the member from the left hand side that you want to serve as the root member for your hierarchy. Note that in this context, the Show Members column only lists rollup members (i.e., a leaf member may not serve as the root of a hierarchy). When you click OK, the Add Member dialog closes and the original hierarchy display is modified to show your selected root member.

At this point, the process of adding additional dimension members (leaves and rollup nodes) is the same for existing hierarchies as it is for new hierarchies.

Editing Hierarchies

Inserting New Members into a Rollup Node

Select a rollup node member and then right mouse click. This action will display a number of choices including Add Child, Add Sibling, and Add leaf. The following example continues from the above description of creating a new organizational unit hierarchy.



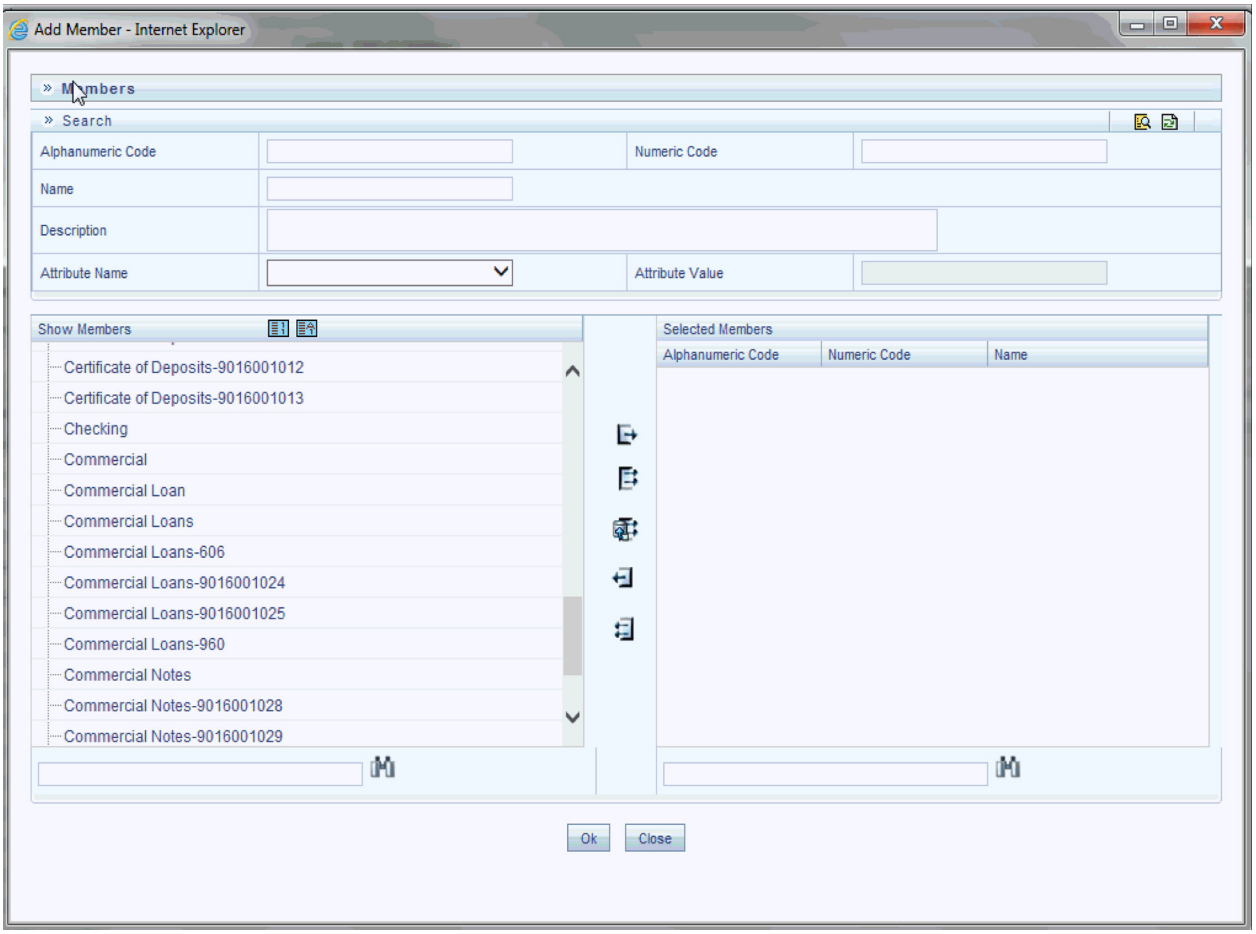
In this current example, we have selected a rollup node member which serves as the root member of the hierarchy. Because OFSAA Infrastructure does not support hierarchies with multiple "tops", you may not add a sibling member (i.e., a member to be stored at the root level of the hierarchy) so the Add Sibling option is disabled.

Whenever you select the "Add Child" or "Add Sibling" or "Add Leaf" option, the Add Member dialog is displayed.

Add Child

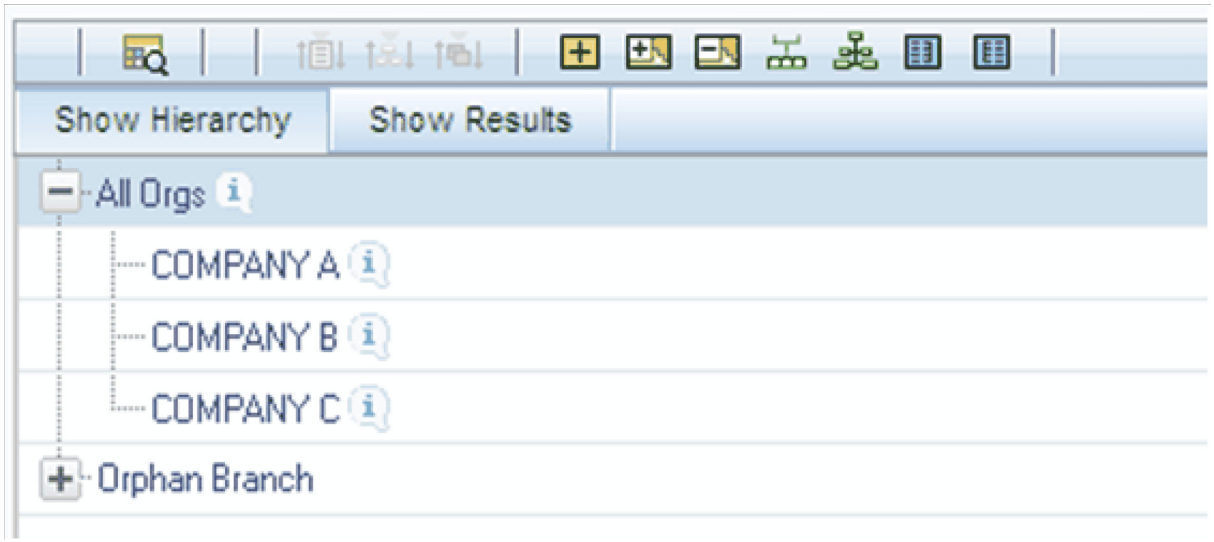
For the "Add Child" option, the Add Member dialog presents all dimension members that have not already been assigned elsewhere (i.e., all members that are not found in the orphan branch). The value or values you select will be placed in the hierarchy one level beneath the node you originally selected.

In the following example, Company A, Company B, and Company C have been selected to act as the children of the All Orgs root node.



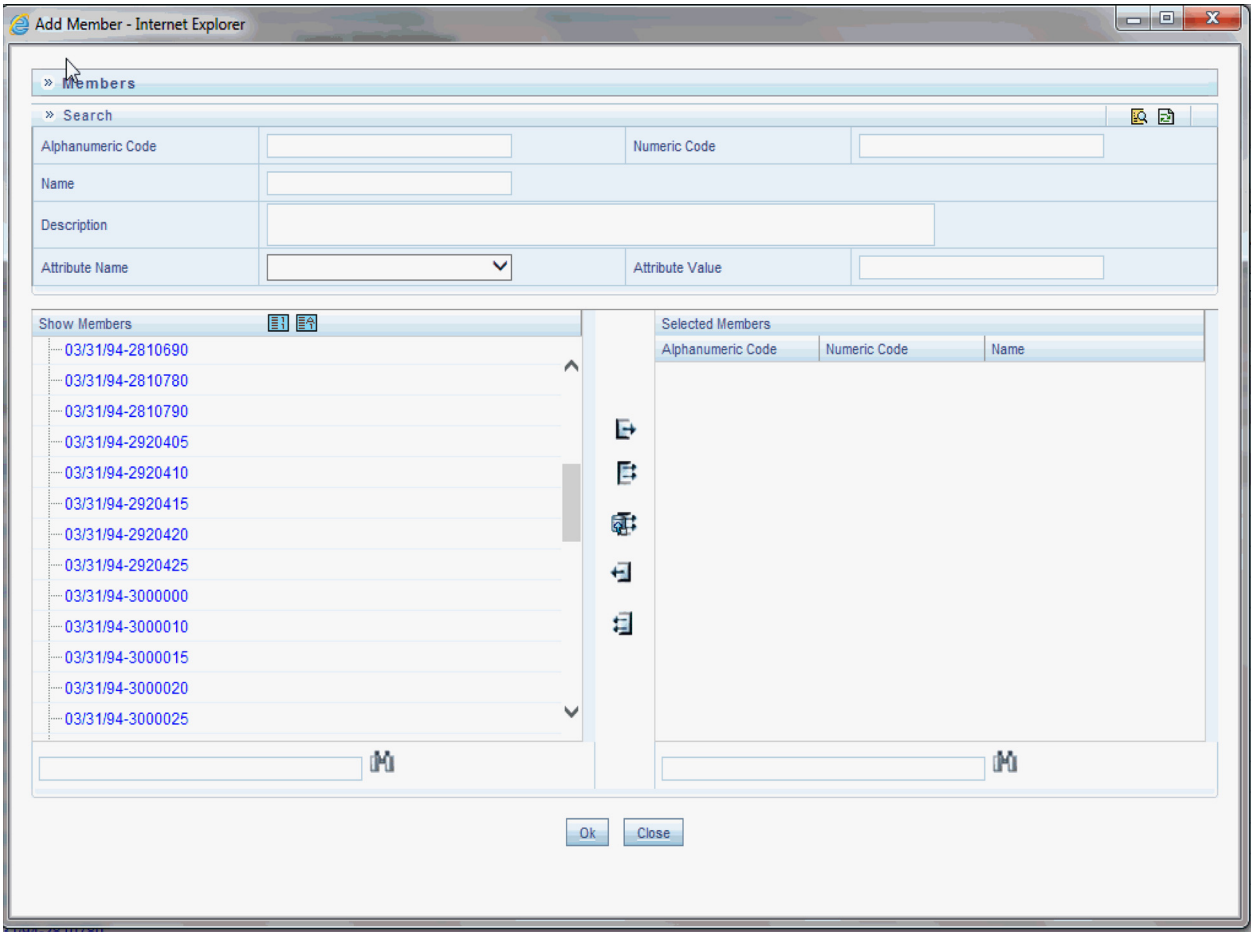
Select the required Member and click **Select** button. The Member is displayed in the Selected Members panel. Click **Select All** button to select all Members which are shown in the Show Members pane. Click **Select All From Server** button to select all nodes/ members in the server. You can click **Deselect** button to deselect a Member or click **Deselect All** button to deselect all the Members. You can click **Search** button to search for the required member using Alphanumeric code, Numeric Code, Name, Description, Attribute Name, or Attribute Value.

When you click OK on the Add Member dialog, the dialog box closes and the underlying the Hierarchy Display is updated to reflect your choices.

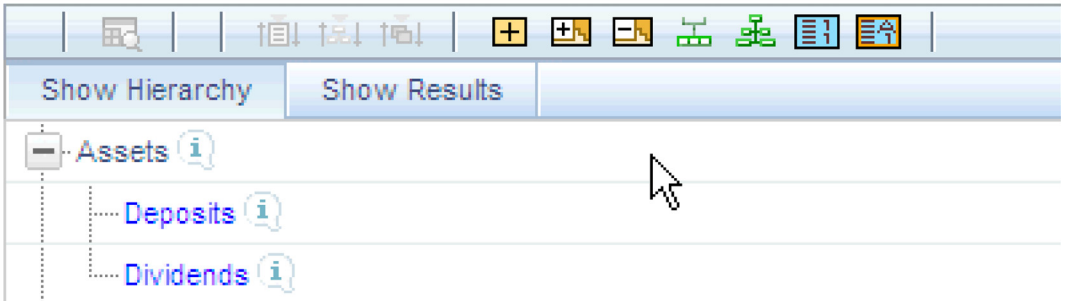


Add Sibling

For the "Add Sibling" option, the Add Member dialog presents all dimension members that have not already been assigned elsewhere (i.e., all members that are not found in the orphan branch). The value or values you select will be placed in the hierarchy at the same level as the node you originally selected. In the following example, "Corporate – Parent" has been selected to be a sibling to Company C, i.e., to be inserted at the same level within the hierarchy as Company C.

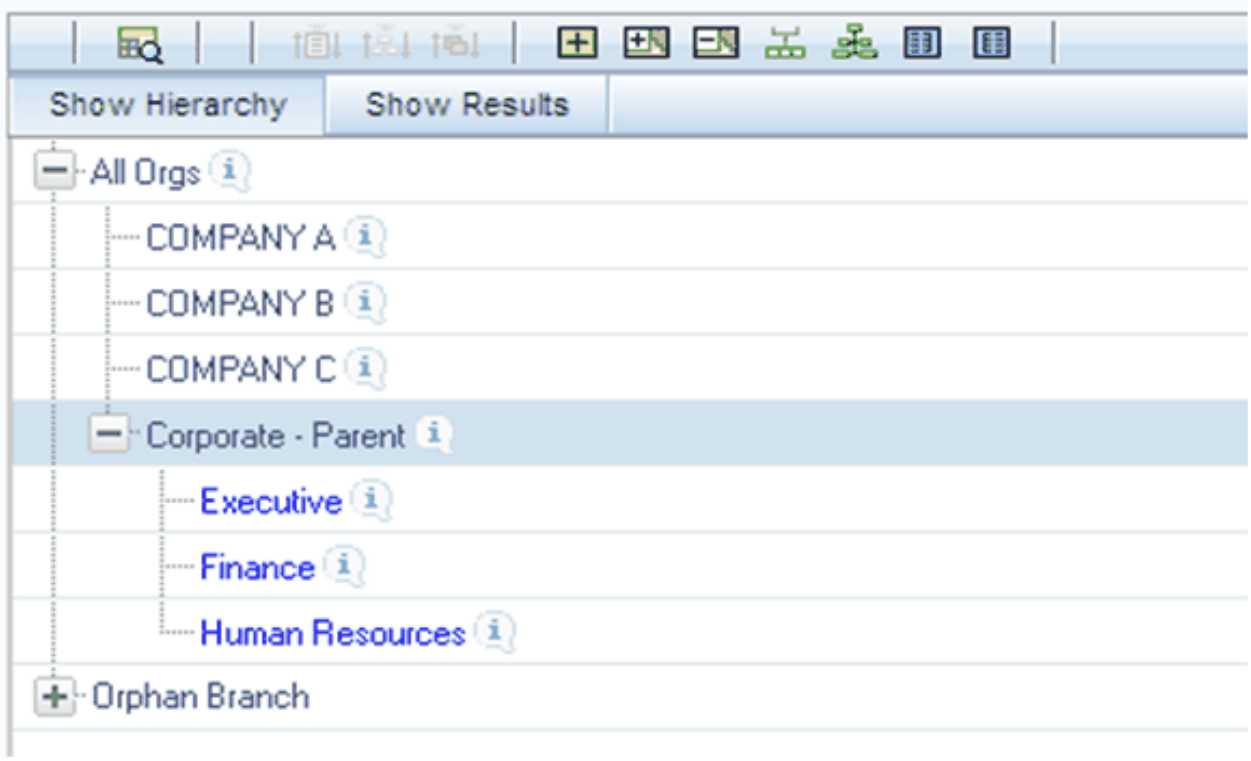


Select the required Member and click **Select** button. The Member is displayed in the Selected Members panel. You can click **Select All** button to select all Members which are shown in the Show Members pane. Click **Select All From Server** button to select all nodes/ members in the server. You can click **Deselect** button to deselect a Member or click **Deselect All** button to deselect all the Members. You can also Click **Search** button to search for the required member.

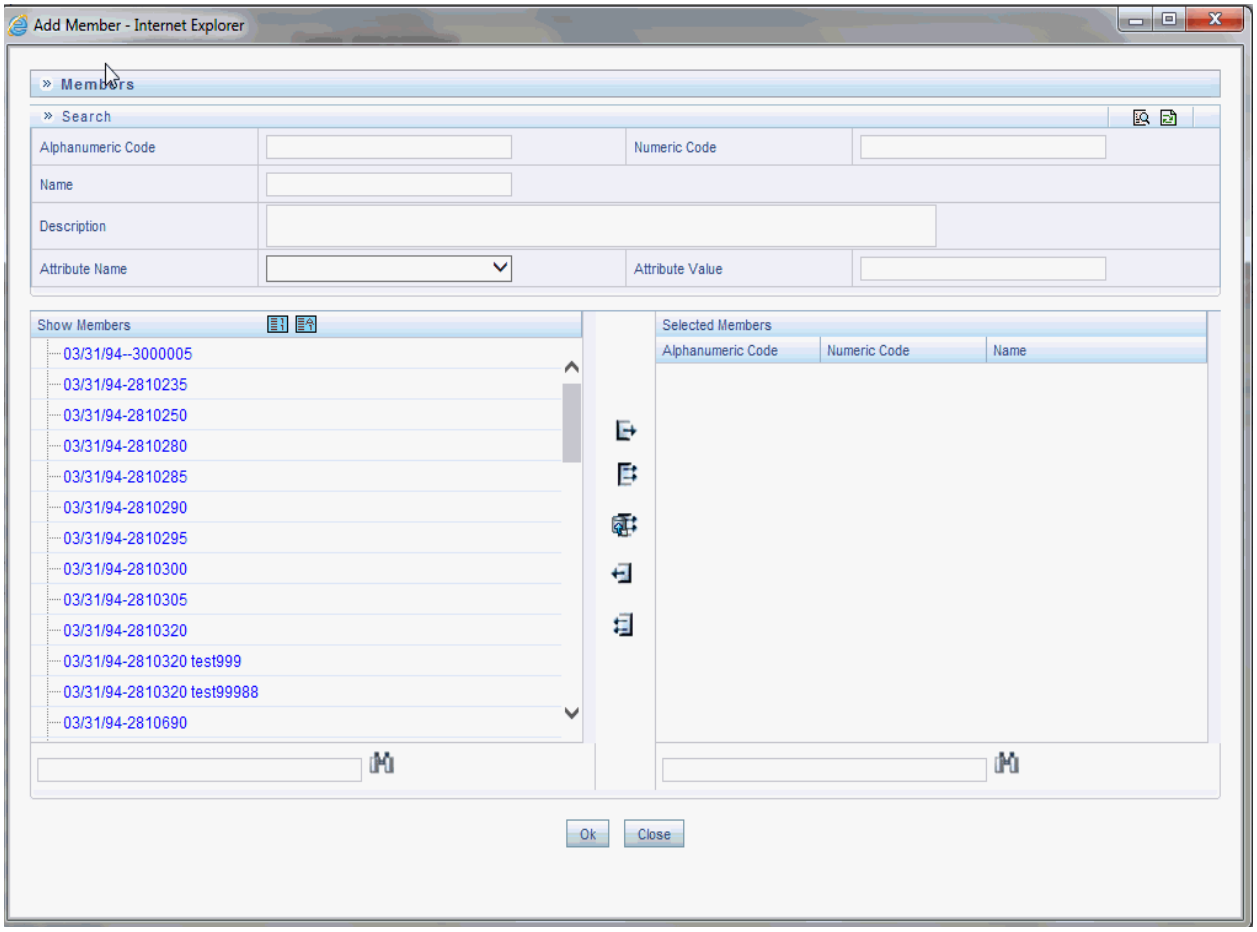


Add Leaf

For the "Add Leaf" option, the Add Member dialog presents all leaf members that have not already been assigned elsewhere. The leaf value or values you select will be placed in the hierarchy one level beneath the node you originally selected.



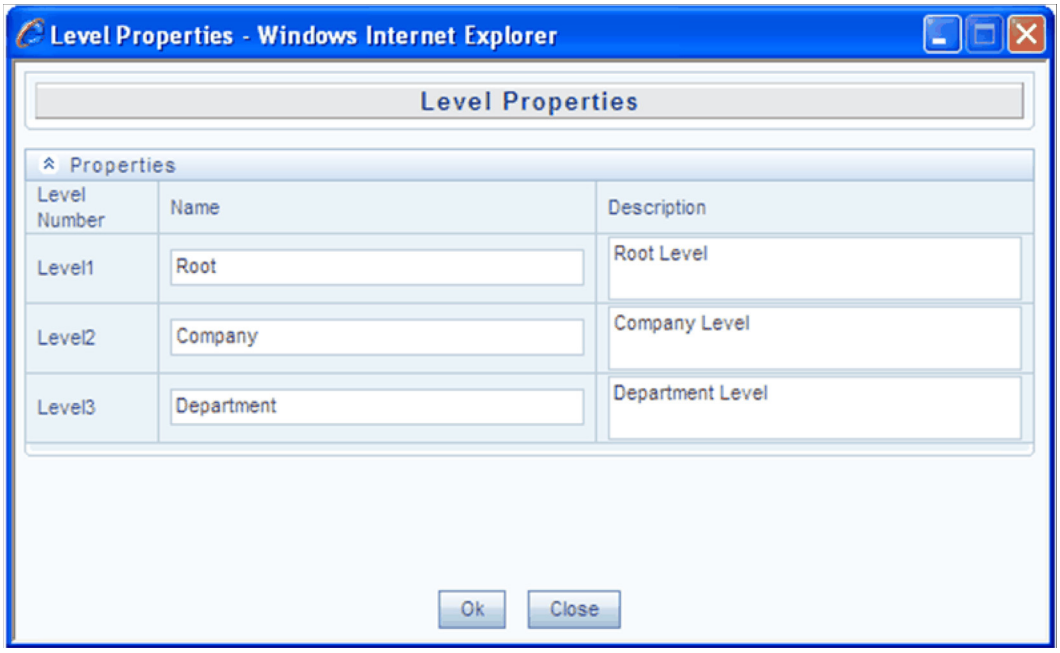
In the example above, Executive, Finance, and Human Resources have been selected to be children of the Corporate – Parent rollup node.



Select the required Member and click **Select** button. The Member is displayed in the Selected Members panel. You can click **Select All** button to select all Members which are shown in the Show Members pane. Click **Select All From Server** button to select all nodes/ members in the server. You can click **Deselect** button to deselect a Member or click **Deselect All** button to deselect all the Members. You can also Click **Search** button to search for the required member.

Level Properties

Selecting the Level Properties option invokes the Level Properties dialog. Within this dialog, you may provide names and descriptions for each of the levels within your hierarchy.



The Level Properties dialog will display as many levels as you have currently built out. In the above example, names and descriptions are being added at a time when only 3 levels have been built within the underlying hierarchy. If a fourth level is built into the hierarchy, you could return to Level Properties to add a name and description to level 4.

Assigning names or descriptions to levels is completely optional. Within the Hierarchy Properties Container, the drop-down list for "Initial Display Level" will reflect your level name choices. Your choices may also be utilized within downstream reporting applications, but level names and descriptions are otherwise not utilized within OFSAA.

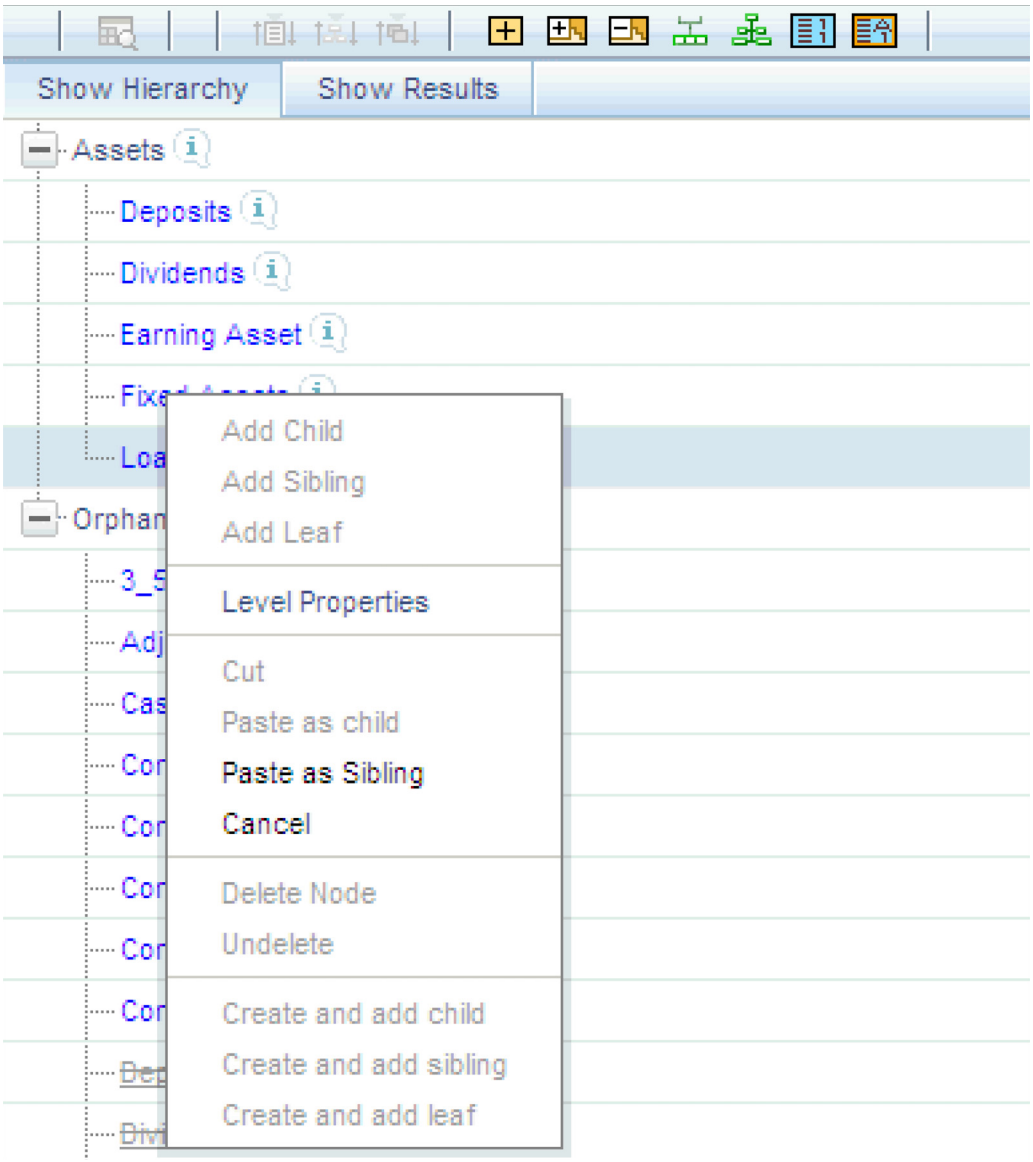
Cut

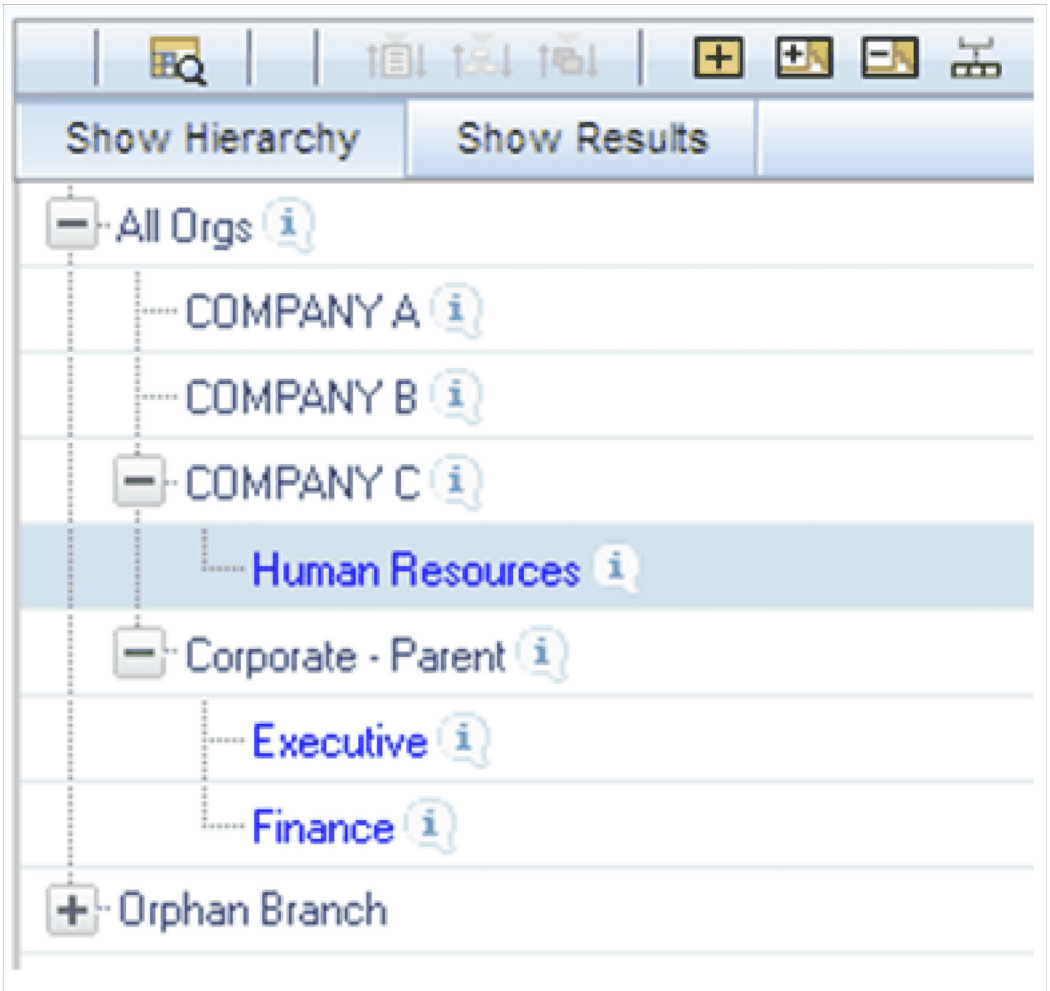
If you wish to move a dimension member, click on a leaf member or a rollup member and select Cut. You may wish to move a dimension member because it is in the wrong location within the hierarchy. You may also wish to Cut a dimension member from the Orphan Branch in order to subsequently paste it within the body of your hierarchy. Any Cut operation must be followed by a Paste as Child, Paste as Sibling, or Cancel operation. Until you have executed a Cut operation, Paste as Child, Paste as Sibling, and Cancel are disabled; conversely, once you have executed a Cut operation, Paste as Child, Paste as Sibling, and Cancel are enabled.

Paste as Child or Paste as Sibling

After performing a Cut operation, you may perform a Paste as Child or Paste as Sibling operation. If you have Cut a dimension member and then subsequently selected leaf member, the Paste as Child option is disabled, i.e., no dimension member may be a child of a leaf member. Leaf members, by definition, can have no children. Since OFSAA supports unbalanced hierarchies, any dimension member, regardless of whether it is a leaf member or a rollup member, may be pasted as a sibling to any other dimension member.

In the following example, Human Resources has been Cut from the "Corporate – Parent" rollup node so that it may be pasted as a child into Company C.



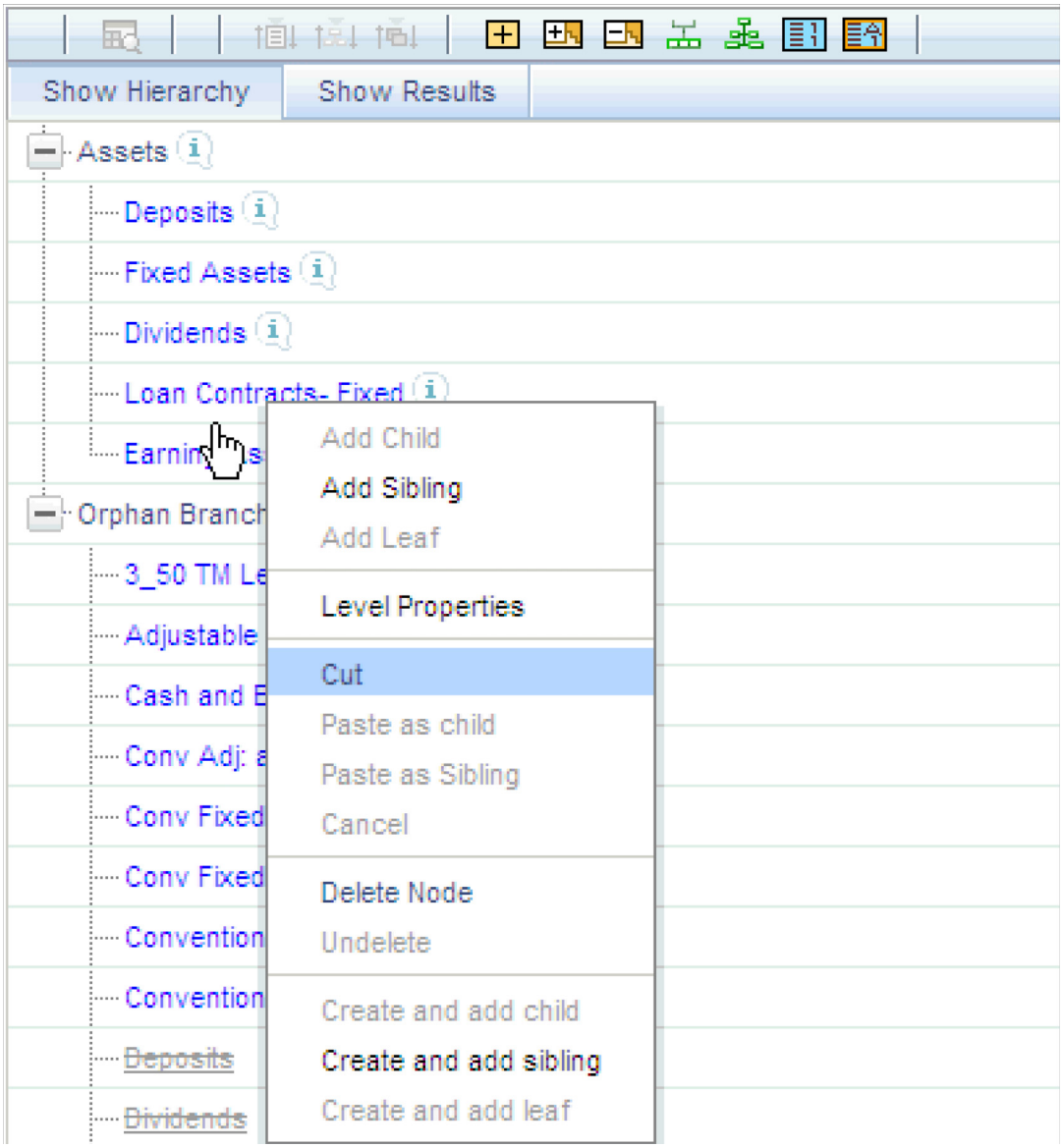


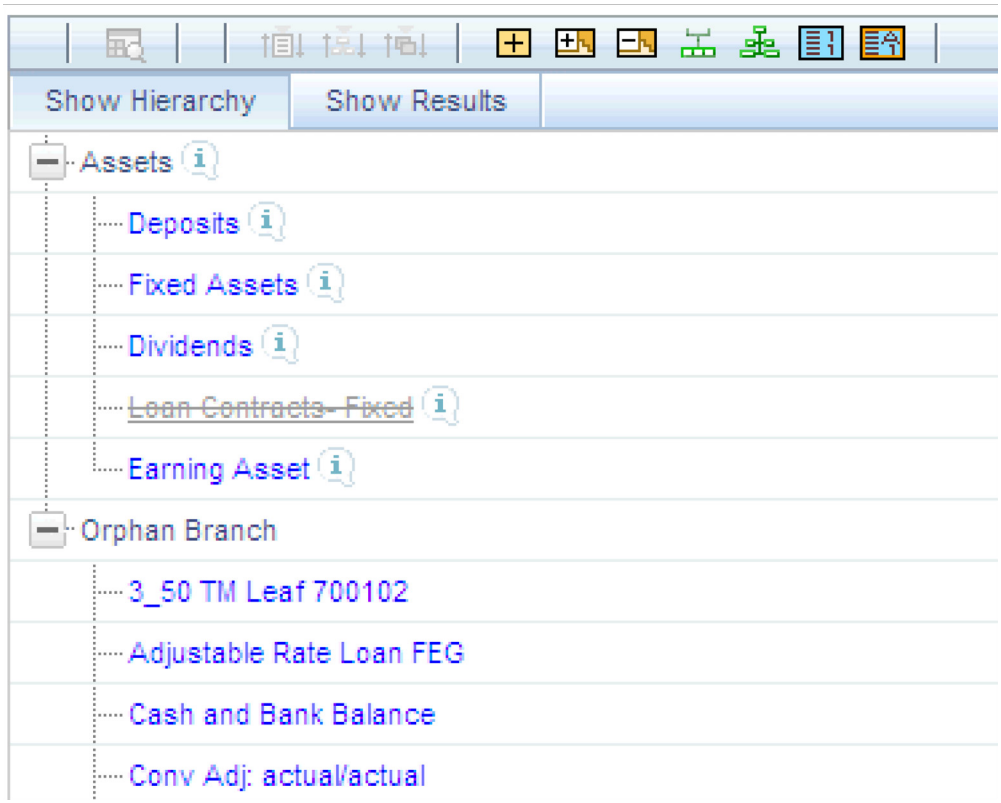
Cancel

The Cancel option is only enabled after you have executed a Cut operation. Once you have Cut a dimension member, you may not perform any other operation except for Paste as Child, Paste as Sibling, or Cancel (you may, however, still invoke Level Properties; see discussion above on Level Properties). Utilizing the Cancel option allows you to select and subsequently Cut another dimension member (i.e., after you have performed a Cancel operation, Paste as Child, Paste as Sibling, and Cancel are disabled).

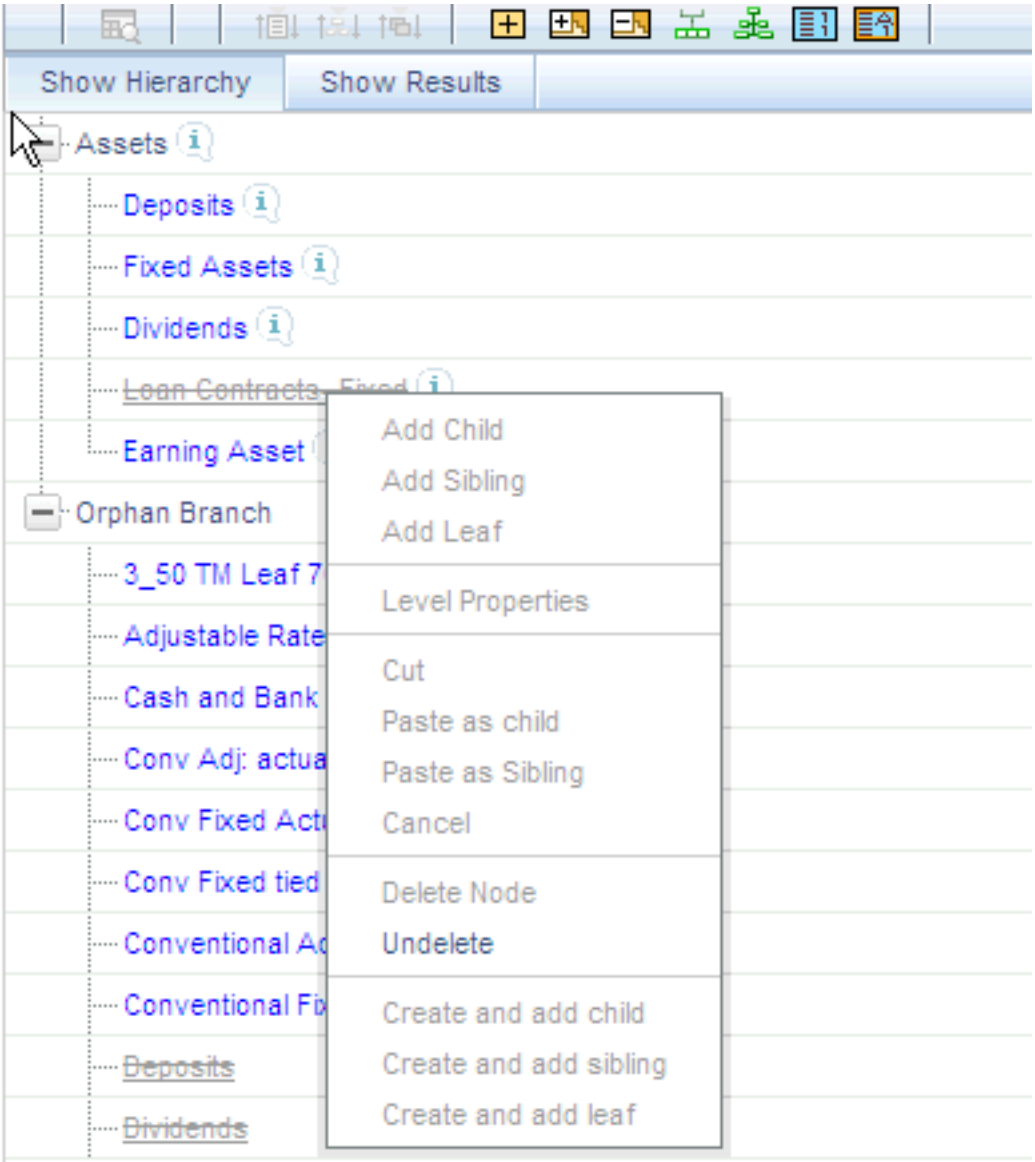
Delete Node & UnDelete

To move a dimension member back into the Orphans Branch, click on a member and then select the Delete option. Once you have performed a Delete operation, the member selected for deletion appears with a strikethrough font. The following example shows the deletion of the Human Resources dimension member.


Show Hierarchy
Show Results
Assets
Deposits
Fixed Assets
Dividends
Loan Contracts- Fixed
Orphan Branch
Add Child
Add Sibling
Add Leaf
Level Properties
Cut
Paste as child
Paste as Sibling
Cancel
Delete Node
Undelete
Create and add child
Create and add sibling
Create and add leaf

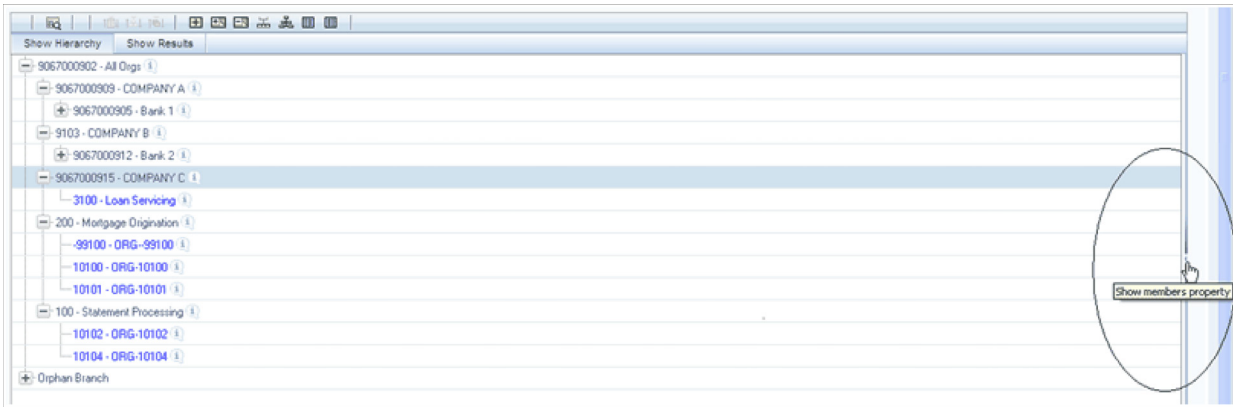


Note that after having deleted the Human Resources member, it may be "restored" to its original condition by executing an UnDelete operation.

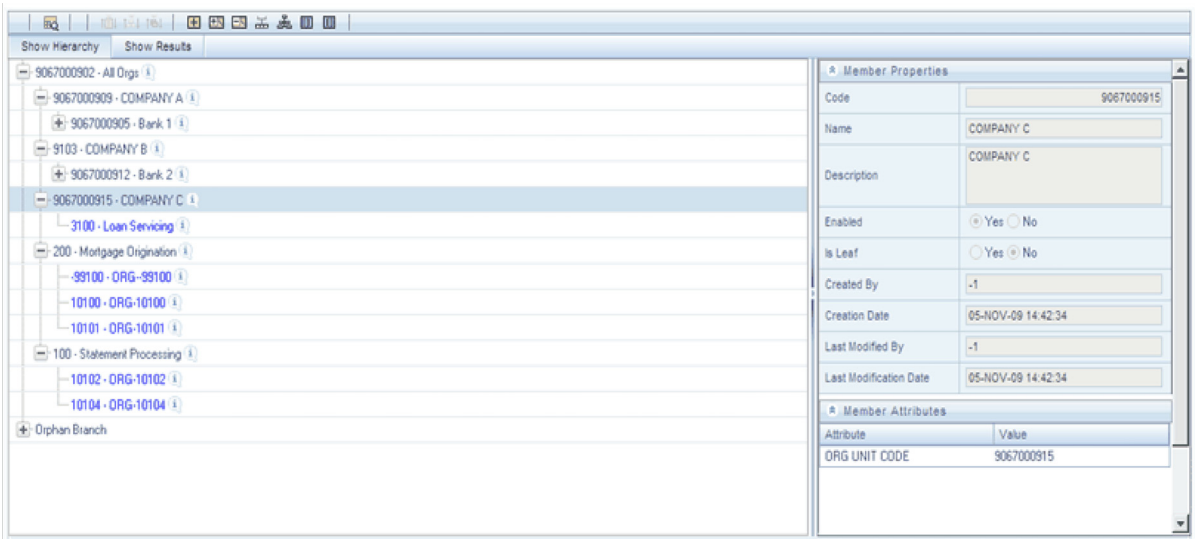


Member Properties Display

Click on the separator bar at the extreme right hand side of the Hierarchy Display Grid to invoke the Member Property display.



The Member Property display shows all of the properties of the currently selected dimension member (the member selected within the hierarchy). While the Member Property display is open, you may use your Up arrow, Down arrow, Left arrow, or Right arrow keys to move from dimension member to dimension member.



CHAPTER 8 OFSAA Filters

Overview of OFSAA Filters

Filters in the Infrastructure system facilitates you to filter metadata using the defined expressions. Filters is a licensed module and is accessible to the users who are mapped with the SYSFILTERS role in the Oracle Financial Services Analytical Application Infrastructure system.

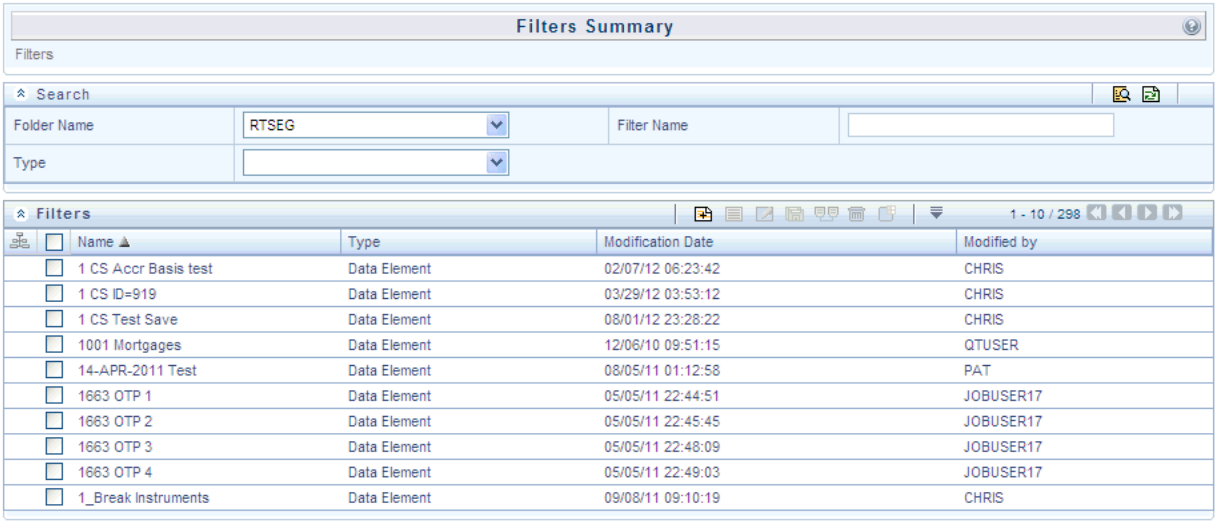
This chapter describes the creation and maintenance of OFSAA Filters. Specifically, this chapter will cover:

- Filters Summary & Detail Screens
- Navigation within the Filters Summary Screen
- Navigation within the Filters Detail Screen

See Chapter 2: Overview of OFSAA Infrastructure for details on how Filters are used in OFS Analytical Applications.

Summary & Detail Screens

Upon initially navigating to Common Object Maintenance > Filters, a summary screen is displayed showing a set of Filters. Using search criteria, you can control the set of Filter rules that are displayed. When you Add, Edit, or View a rule, a detail screen is displayed.



Navigation within the Summary Screen

When you first navigate to the Filters summary screen, the filters stored within your current default Folder are presented in a summary grid. The Filters summary screen has two containers: Search and Filters.

Search Container

Your default Folder functions as a search constraint. The value of your default Folder is set in Application Preferences. You may select a different Folder or you may remove the Folder constraint entirely by selecting the "blank" Folder, i.e., no Folder. You may also search by Filter Name or by Filter Type. Filter Types, shown in a drop-down list, include:

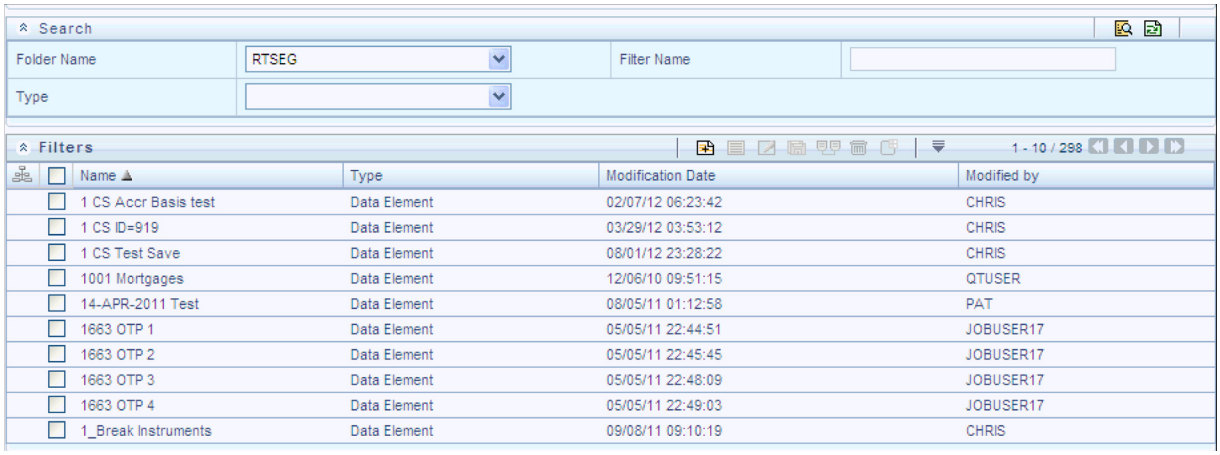
- Data Element Filter
- Hierarchy Filter
- Group Filter
- Attribute Filter

Search Control

Enter your desired search criteria and click on the Search control.

Reset Control

Restores the default Folder, removes any Filter Name or Filter Type constraint you may have specified, and refreshes the screen.



Filters Container

The Filter container presents a grid containing all of the Filter rules that meet your search criteria. The Filter summary grid offers several controls that allow you to perform different functions when a Filter rule is selected.

To select a Filter rule, click on a check box in the first column of the grid. More than one Filter can be selected at a time but this will cause some of the controls to become disabled. Clicking on a checkbox a second time de-selects the Filter.

You may select or deselect all of the Filters in the summary grid by clicking on the check box in the upper left hand corner of the summary grid directly to the left of the Name column header.

Add

Clicking on the Add control begins the process of building a new Filter. The Add control is disabled if any rows in the grid have been selected.

View

Selecting a single row out of the grid enables the View control. Clicking on the View control allows you to view the contents of a Filter on a read-only basis. The View control is only enabled when a single Filter has been selected.

Edit

Selecting a single row out of the grid enables the Edit control. Clicking on the Edit control allows you to modify a previously saved Filter. The Edit control is only enabled when a single Filter has been selected.

Copy

Selecting a single row out of the grid enables the Copy control. Clicking on the Copy control allows you to create a copy of an existing Filter. The Copy control is only enabled when a single Filter has been selected.

Check Dependencies

To generate a report on the OFSAA rules that utilize a selected Filter, select a single Filter and click on the Check Dependencies control. The Check Dependencies control is only enabled when a single Filter has been selected.

Delete

Selecting one or more rows out of the grid enables the Delete control. Clicking on the Delete control deletes the Filter(s) you have selected. OFSAAI will not allow you to delete Filters which have any dependencies (see Check Dependencies above).

Filters Summary Grid

The following columns categorize each Filter in the summary grid:

Name

Type

Modification Date

Modified By

Name

Displays the Filter's short name. Performing a “mouse-over” on a Filter Name displays the Filter's description.

Type

Displays the Filter's type: Data Element, Hierarchy, Group, or Attribute.

Modification Date

Displays the date and time at which a Filter was last modified.

Modified By

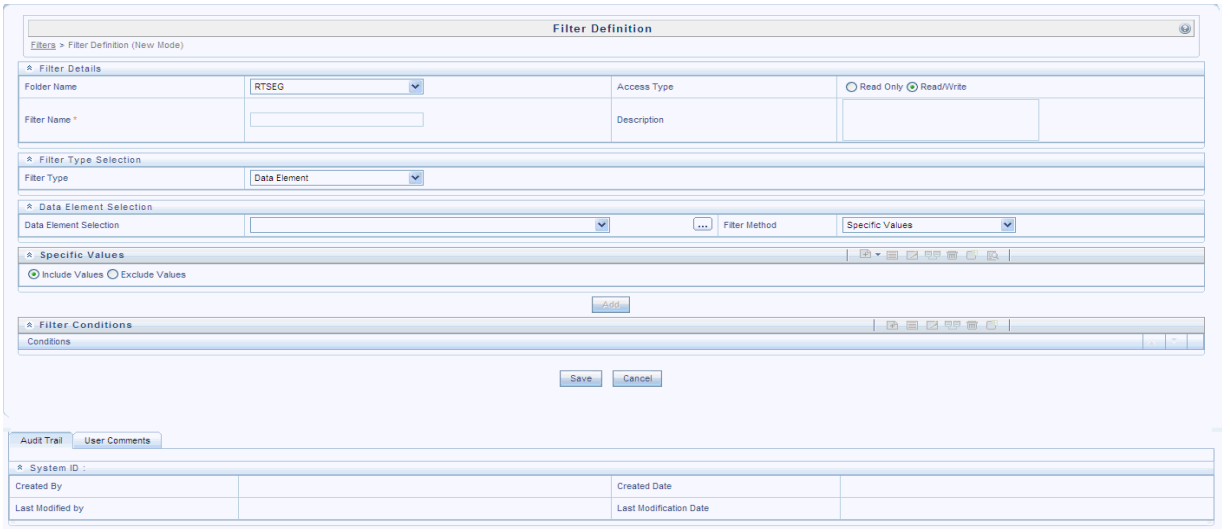
Displays the name of the user who last modified a Filter.

Navigation within the Detail Screen

When you Add, Edit, Copy, or View a Filter, the Filter Detail Screen is displayed.

In addition to Name, Description, Folder, and Access Type, the definition of a new Filter begins with declaring a “Filter Type”. Supported Filter Types include Data Element, Hierarchy, Group and Attribute.

The Audit Trail container is a standard footer container for every OFSAA rule type. It displays Created By, Creation Date, Last Modified By, and Modification Date on the Audit Trail tab. The User Comments tab may be used to add comments to any rule, subject to a maximum of 4000 characters.



Note: See Overview of OFSAA Infrastructure chapter for details on how Filters are used in OFS Analytical Applications.

Folder Name

Select the Folder Name where the Filter is to be stored from the drop-down list. For more information, refer to OFSAAI User Guide.

Access Type

Select the Access Type as Read Only or Read/Write.

- Read-Only: Select this option to give other users the access to only view the filter definition.
- Note: A user with Phantom and Write role can modify or delete the filter even though the access type is selected as Read-only.
- Read/Write: Select this option to give all users the access to view, modify (including Access Type) and delete the filter definition.

Filter Name

Enter the filter name in the Filter Name field.

Note: The characters &' ” are restricted.

Description

Enter the description of the filter in the Description field.

Note: The characters ~&+' " @ are restricted.

Filter Type Selection Container

Select a filter type from the Filter Type drop-down list.

Data Element

Data Element Filter is a stored rule that expresses a set of constraints. Only columns that match the data type of your Data Element selection are offered in the Data Element drop down list box. For example:

Balances between 10,000 and 20,000 Accounts opened in the current month Loans with amortization terms greater than 20 years

Data Element Filters can access most instrument columns and most columns in the Management Ledger. Data Element Filters are used within other OFSAA rule types (For example, Allocation rules, Transfer Pricing rules, Asset | Liability Management rules, and so on).

Hierarchy

Hierarchy Filter allows you to utilize rollup nodes within a Hierarchy to help you exclude (filter out) or include data within an OFSAA rule.

For example, You might want to process data for a specific set of divisions or lines of business where you have a Hierarchy rule that expresses those divisions or lines of business as rollup nodes. A Hierarchy Filter could be constructed to "enable" the Commercial and Retail lines of business while NOT enabling the Wealth Management line of business. Each of these lines of business might include a handful or even thousands of cost centers. When incorporated into an OFSAA processing rule, this Hierarchy Filter would include every cost center in the Commercial and Retail lines of business.

Group Filters

Group Filters may be used to combine multiple Data Element Filters with a logical “AND”.

For example, if Data Element Filter #1 filtered on mortgage balances greater than 100,000 and Data Element Filter #2 filtered on current mortgage interest rates greater than 6%, you could construct a Group Filter to utilize both Data Filters. In this case, the resulting Group Filter would constrain your data selection to mortgage balances greater than 100,000 AND current mortgage interest.

Attribute Filters

Attribute Filters are created using defined Attributes. Attribute filters facilitates you to filter on one or more Dimension Type Attributes. For each attribute, you can select one or more values.

Consider a filter that selects all records where the dimension Common Chart of Account member represents an attribute value Expense account, i.e., the attribute "Account Type" = Expense.

Now, using Attribute Filters, you can specify complex criteria as given below:

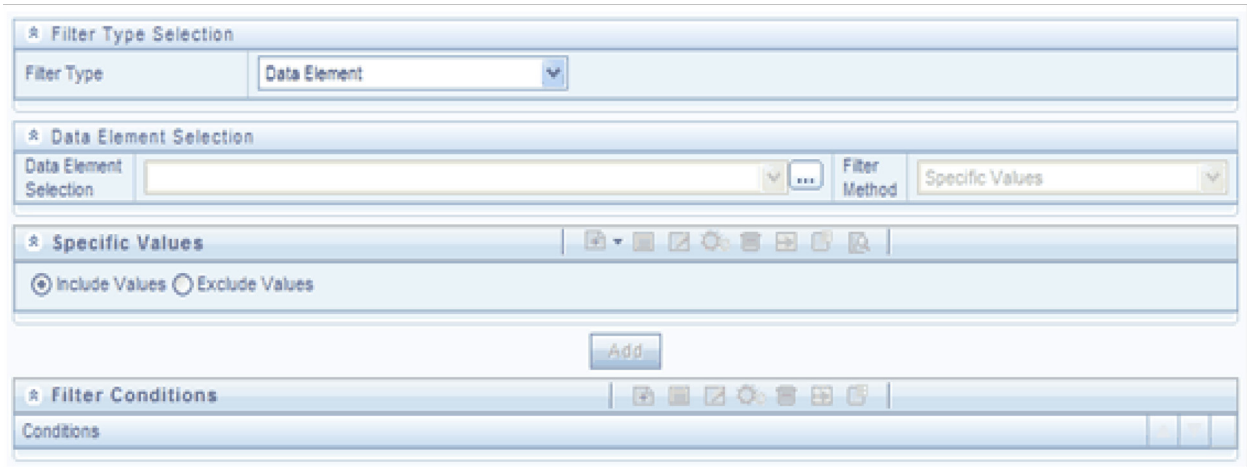
Common Chart of Accounts where the Account Type attribute is Earning Assets or Interest-bearing Liabilities, and the Accrual Basis attribute is Actual/Actual Also, You could further refine the filter by adding another condition for: Organizational Unit where the Offset Org ID is a specific Org member

The Filter then saves these criteria rather than the member codes which meet the criteria at the time the Filter is saved. During execution, the engine dynamically selects all records from your processing table (for example, Mortgages, Ledger, and so on), which meet the specified member attribute criteria.

Data Element Filters

Data Element Selection Container

In this container, specify the columns that you want to include in your Data Filter and, for each column you choose, a Filter Method.

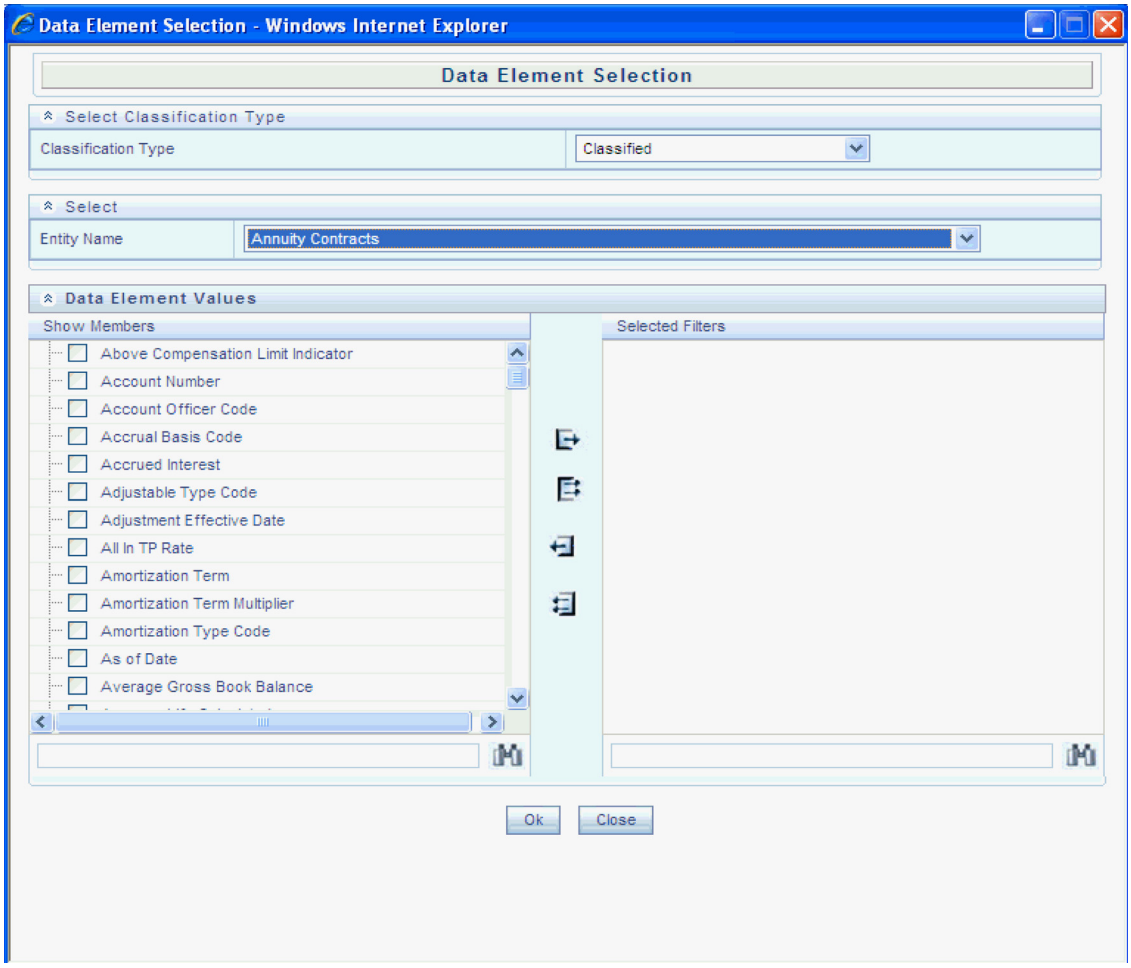


Data Element Selection

To select the columns you want to include in your Data Filter, click on the ellipses to invoke a Data Element Selection pop up window.

3. In the Data Element Selection section, click the below button.

The **Data Element Selection** screen is opened.



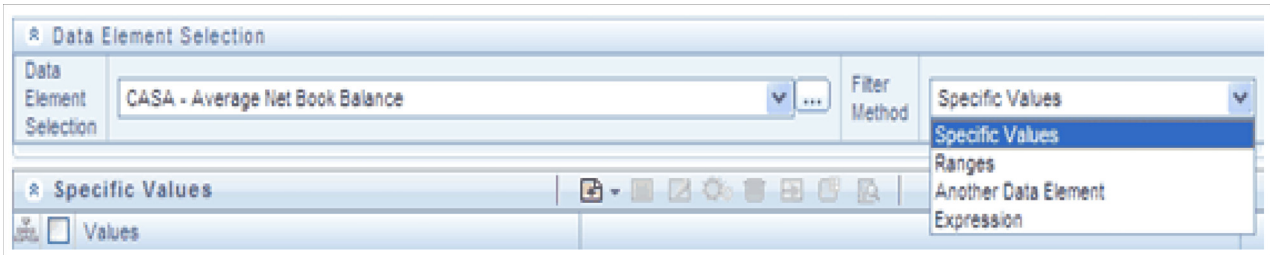
- Select any of the following Filter Classification Type from the drop-down list:
  - **Classified -** This is the default selection and displays all the classified EPM specific entities. If you are an EPM user, you need to select this option while defining Data Element Filter to list all the related entities.
  - **Unclassified -** This option displays all the non-classified i.e. non EPM specific entities. If you are a non EPM user, you need to select this option while defining Data Element Filter to list all the related entities.
  - **All -** This option will select all the tables available in the selected Information Domain irrespective of whether an entity has its table is classified or not.
- In the **Entity Name** drop-down list, select a database table. The associated members are displayed in the **Show Members** section.
- Select the required member and click **Select**. The member is listed in the **Selected Members** panel. Click **Select All** to move all Members. You can click **Deselect** to deselect a Member or click **Deselect All** to deselect all Members.
- Click **OK**. The Data Element is selected. The selected Data Elements are displayed in the Data Element Selection field.

4. Select the **Filter Method** from the drop-down list.
   - Click **Add** to list the completed filter conditions in the Filter Conditions grid.
   - Click **Update** after modifying a filter condition to update in the Filter Conditions grid.
   - Click the below buttons to move a selected Filter Condition up or down.
   -
   - Click **Delete** button to delete selected individual Filter Conditions records.
5. Click **Add/Update** in the **Filter Definition** screen if you are creating a new or updating an existing Filter definition.

Filter Method

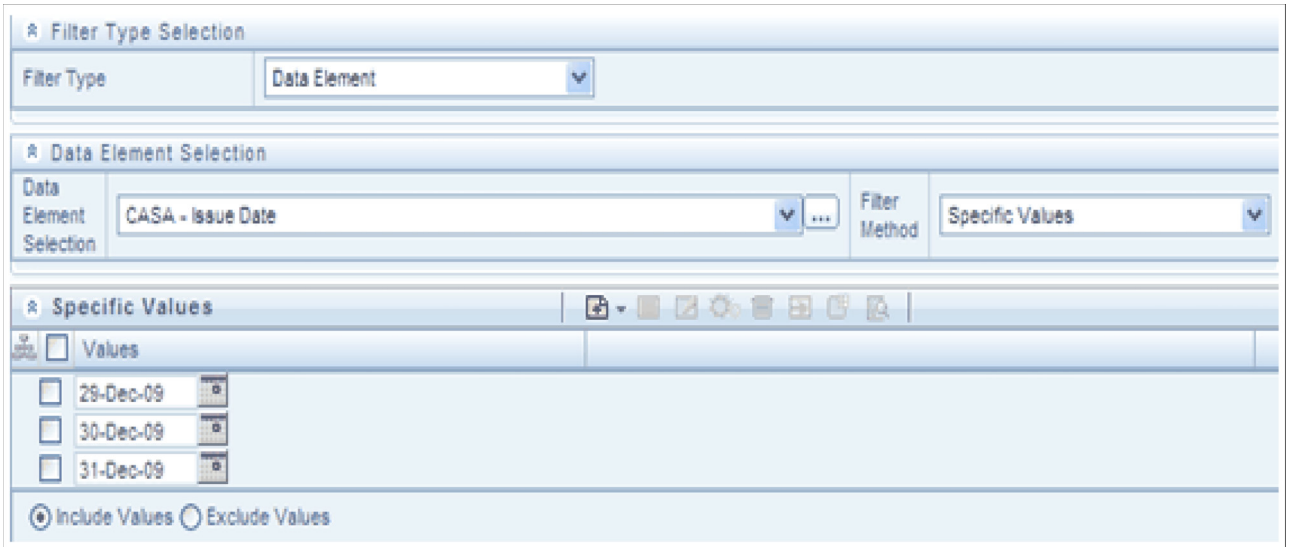
For each column you wish to include in your Data Filter definition, you must specify a Filter Method:

- Specific Values
- Ranges
- Another Data Element
- Expression



Specific Values

Specific Values are used to match a selected database column to a specific value or values that you provide.



You may add additional values by clicking on the Add control, and you may reduce the number of Specific Values by clicking on the check box to the left of a value and then clicking on the Delete control.

- When comparing Specific Values for a character type column, you must provide Specific Values that are character strings.
- When comparing Specific Values for a date type column, you must provide Specific Values that are dates (the application displays a Calendar control).
- When comparing Specific Values for a numeric column, you must provide Specific Values that are numbers.

Note: You may either include or exclude Specific Values.

Ranges

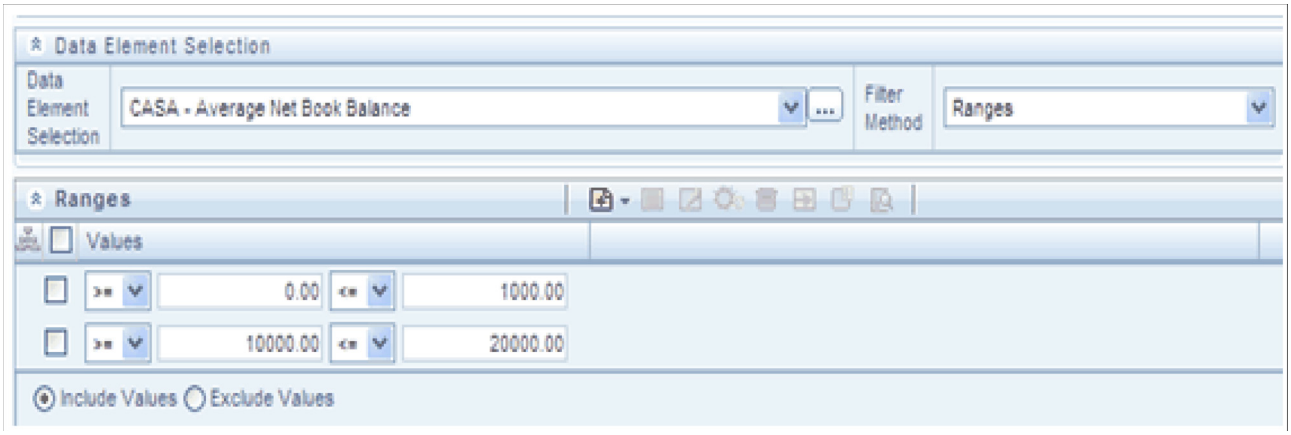
Ranges are used to match a selected database column to a range of values or to ranges of values that you provide. You may either include or exclude Range values. Range Type is available for OFSA Datatype Term, Frequency, Leaf, Code, and Identity and Column Datatype Date, Numeric and Varchar.

You may add additional values by clicking on the Add control, and you may reduce the number of Ranges by clicking on the check box to the left of a value and then clicking on the Delete control.

- If the Column Datatype is VARCHAR, provide Specific Values (alphanumeric) that are character strings.
- If the Column Datatype is DATE, provide Specific Values that are dates (the application displays a Calendar control).
- If the Column Datatype is Numeric, provide Specific Values that are numbers.
- If OFSA Datatype is LEAF, provide either numeric values or click Search button to select the numeric member ids. ♣
- If OFSA Datatype is CODE, provide either numeric values or click Search button to select the numeric member ids.
- If OFSA Datatype is IDENTITY, provide specific numeric values. However, no validation is done during save to validate the input value for a valid identity code.

Select Include Values or Exclude Values to include or exclude the selected values

- You may use any of the following operators when choosing the Another Data Element Filter Method : = , <> (meaning " not equal to ") , < , > , <= , or >=
- You may either include or exclude Range values.



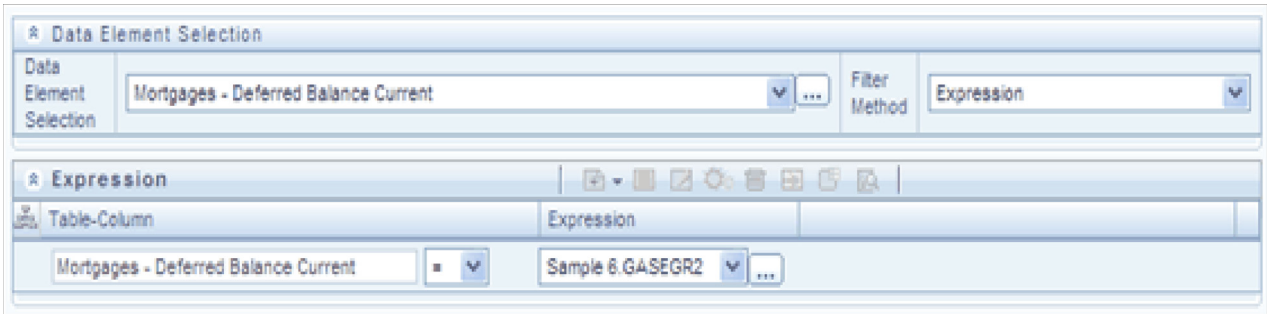
Another Data Element

Another Data Element is used to match a selected database column to another database column. When constructing an Another Data Element Filter Method, you may only compare a column to other columns that you have already selected (the Data Element drop down list box will only contain columns that you have already selected).

Note: You may use any of the following operators when choosing the Another Data Element Filter Method: =, <> (meaning "not equal to"), <, >, <=, or >=

Expression

Expression is used to match a selected database column to the results of an OFSAA Expression rule (see Chapter 9: OFSAA Expressions).



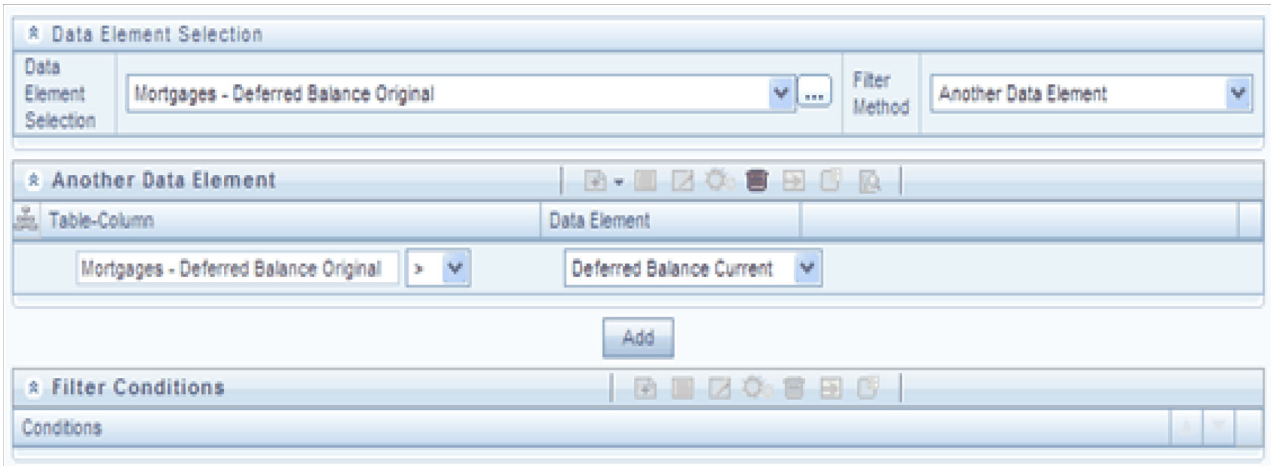
Note: You may use any of the following operators when choosing the Expression Filter Method: =, <> (meaning "not equal to"), <, >, <=, or >=

Building Filter Conditions

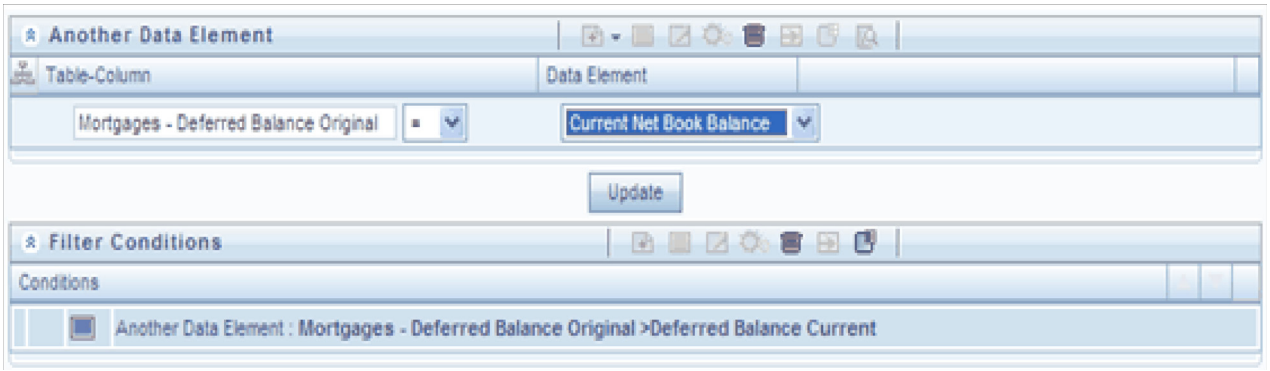
Each time you complete a Filter Method specification, you must Add it to the Filter Conditions container. The reason you must do so is because you may compare the same columns multiple times. For example, you may

compare Deferred Current Balances to a Specific Value and to Another Data Element and to a Range of Data Elements and to an Expression all in the same Data Element Filter rule.

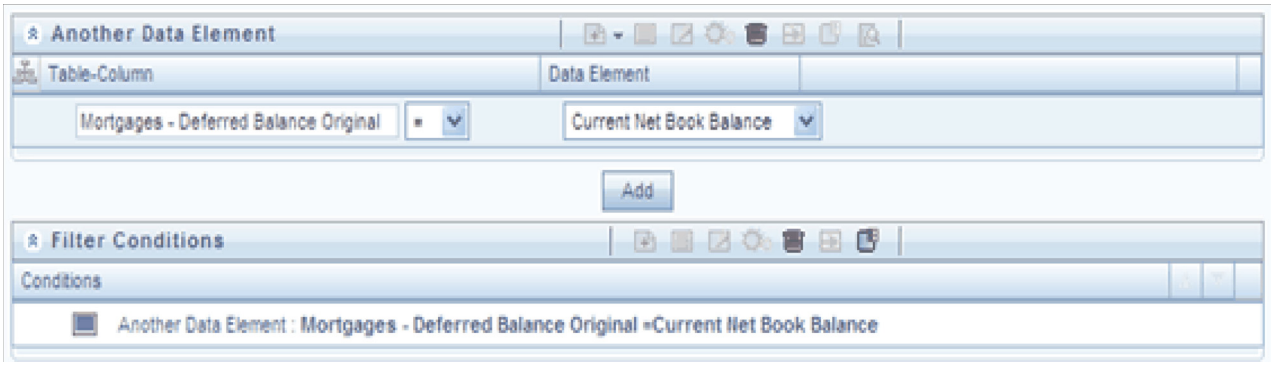
Filter Conditions Container



Once you have created one or more Filter Condition records, you may click on a record in the Filter Conditions container in order to select it. Once you have selected a Filter Conditions record, you may modify your original definition of that Filter Condition and then Update it.



After you click on Update, your Filter Condition is updated.



Delete

You may delete individual Filter Conditions records by clicking on the Delete control .

View SQL

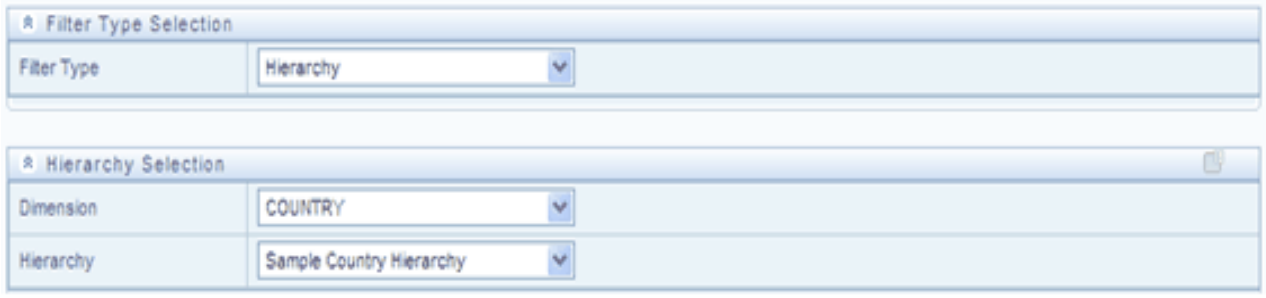
Click on the View the SQL control to generate a window displaying the SQL equivalent of your Data Element Filter. You may generally copy and paste this SQL into queries that you write. View SQL, however, will not accurately reflect Expression Filter Methods.

Hierarchy Filters

Hierarchy Selection Container

When you have selected the Filter Type as Hierarchy, define the Filter conditions by doing the following in the Hierarchy Selection section:

1. Select the required **Dimension** from the drop-down list.

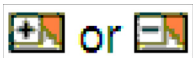


2. Select the associated **Hierarchy** from the drop-down list. You can select **More** to search for a specific Hierarchy in the *Hierarchy more* dialog.
3. Select any combination of rollup points and leaf (last descendent child) values.
4. In the New – Filter Details screen, you can:

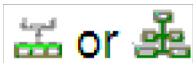
- Click the below button to search for a hierarchy member using Dimension Member Alphanumeric Code, Dimension Member Code, Dimension Member Name, or Attribute and by keying in Matching Values in the Search dialog.

- Click the below buttons to expand or collapse the members under a node.

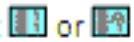
- Click the below buttons to expand a branch or collapse a branch



- Click the below buttons to focus or unfocus a selected node except the root node.

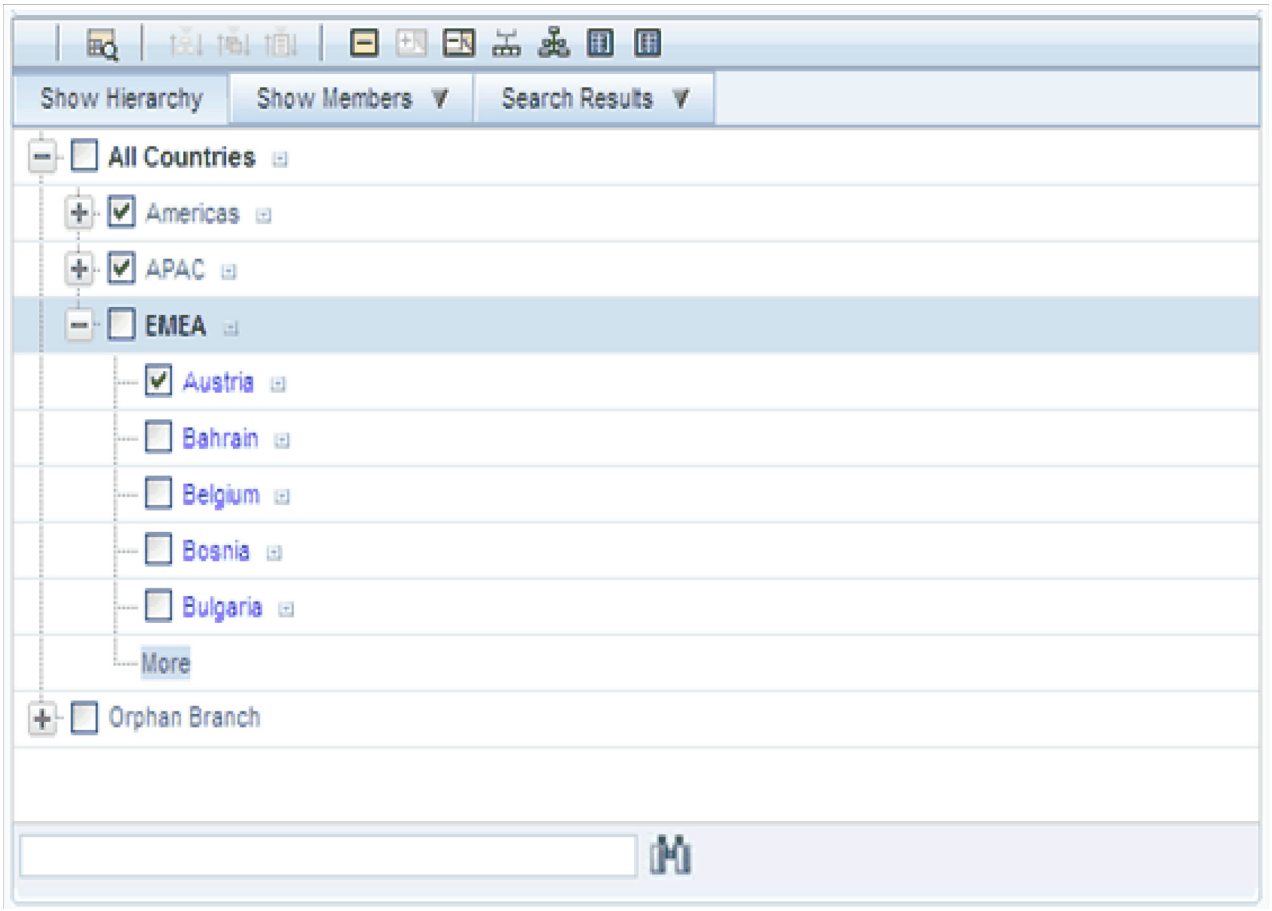


- Click the below buttons to toggle the display of Numeric Code or Alphanumeric code at left of the nodes, right of the nodes or to hide.



- You can also click the below button to find a member present in the nodes list using key words. For large tree (nodes>5000), this search will not return any value if the tree is not expanded.

5. Click **Save** to save the Filter definition.
6. Once you have selected a dimension and a hierarchy in the Hierarchy Selection container, a representation of the hierarchy you selected is displayed.
7. Select any combination of rollup points and leaf (last descendent child) values. In the example above, the Americas and APAC rollup points have been selected; and the leaf value for Austria has been selected. This Hierarchy Filter includes any country that rolls up to either the Americas or to APAC; it also includes Austria. This Hierarchy Filter excludes all countries that roll up to EMEA except for Austria.



View SQL

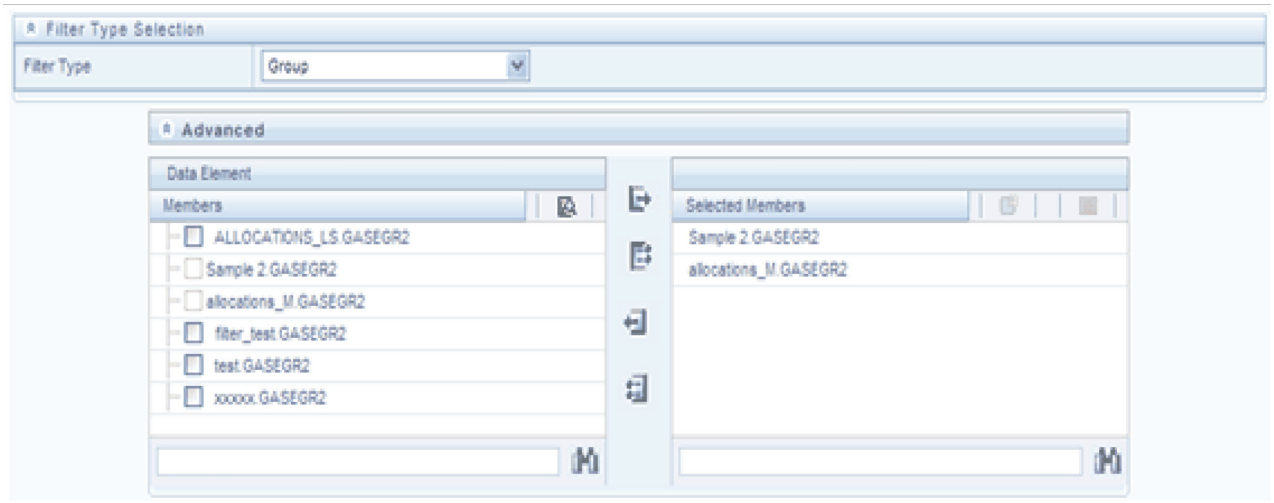
Once you have selected one or more leaves and/or rollup nodes, click on the View the SQL control to generate a window that displays the SQL equivalent of your Hierarchy Filter.

Group Filters

Advanced Container

When you have selected the Filter Type as Group, define the Filter conditions by doing the following in the **Data Element Filters** grid:

1. Select the check boxes adjacent to the required member names in the **Available Filters** section and click **Select**. The selected member is displayed in the **Selected Member** section. Click **Select All** to select all the Members. You can also click **Deselect** to deselect a Member or click **Deselect All** to deselect all the Members. You can also click **Search** button to search for a member in the *Data Element Filter Search* dialog using **Folder Name** and **Filter Name**.



2. Click **Save** to validate the entries and save the filter details.

Define Attribute Filter

When you have selected the Filter Type as Attribute, define the Filter conditions by doing the following in the Attribute Selection section:

1. Select the required **Dimension** from the drop down list.
2. Select the associated **Attribute** from the drop down list. The list consists of only Dimension Type attributes for selection.
3. Click Attribute Values button in the Attribute Values grid.
4. The Attribute Values window is displayed. In the Attribute Values window, the Dimension field under Dimension grid is auto populated with the Dimension name with which the selected Attribute is defined and is non-editable. In the Search grid you can search for Attribute Values depending on Alphanumeric Code, Numeric Code, or Name.
5. Select the checkbox(s) adjacent to the Alphanumeric Codes of the required Attribute Values in the Attribute Values grid and click OK. The Attribute Values grid displays the selected attribute values. Select Attribute Value(s) in the Attribute Values grid and click **Delete** button to delete it. You can use the Attribute Values present in the Attribute Values grid to generate conditions.
6. Click **Add** button in the Attribute Values grid. The Filter Conditions grid is populated with the filter condition using all the Attribute values.

Note: You cannot define two conditions using the same attributes. Because conditions are joined with a logical 'AND' and this will make the query invalid.

7. In the Filter Conditions grid, you can select a condition to view the Attribute Values used to generate it and can update the condition. You can also click **View SQL** button to view the SQL statement in View SQL window. Click **Expand** button to view a long filter condition in View Condition dialog
8. Click **Save**. The Attribute Filter definition is saved.

CHAPTER 9 OFSAA Expressions

Expressions

An Expression is a user-defined tool that supplements other IDs and enables to manipulate data flexibly. Expression has three different uses:

- To specify a calculated column that the Oracle Financial Services Analytical Application derivatives from other columns in the database.
- To calculate assignments in data correction.
- To create calculated conditions in data and relationship filters.

Calculations like average daily balances, current net book balance, average current net book balance, and weighted average current net rate can be created through Expressions.

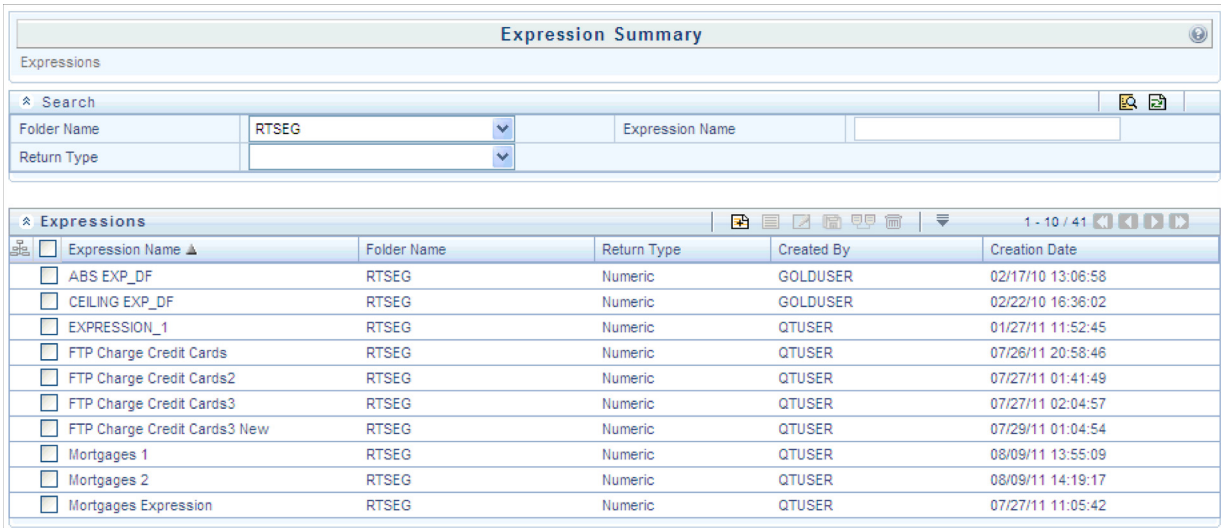
This chapter describes the creation and maintenance of OFSAA Expressions. Specifically, this chapter will cover:

- Expressions Summary & Detail Screens
- Navigation within the Expressions Summary Screen
- Navigation within the Expressions Detail Screen

See Chapter 2: Overview of OFSAA Infrastructure for details on how Expressions are used in OFS Analytical Applications.

Summary & Detail Screens

Upon initially navigating to Common Object Maintenance > Expressions, a summary screen is displayed showing a set of Expressions. Using search criteria, you can control the set of Expression rules that are displayed. When you Add, Edit, or View a rule, a detail screen is displayed.



Navigation within the Summary Screen

When you first navigate to the Expressions summary screen, the expressions stored within your current default Folder are presented in a summary grid. The Expressions summary screen has two containers: Search and Expressions.

Search Container

Your default Folder functions as a search constraint. The value of your default Folder is set in Application Preferences. You may select a different Folder or you may remove the Folder constraint entirely by selecting the "blank" Folder, i.e., no Folder. You may also search by Expression Name or by Return Type. Return Types, shown in a drop-down list, include:

- Date
- String
- Numeric

Search Control

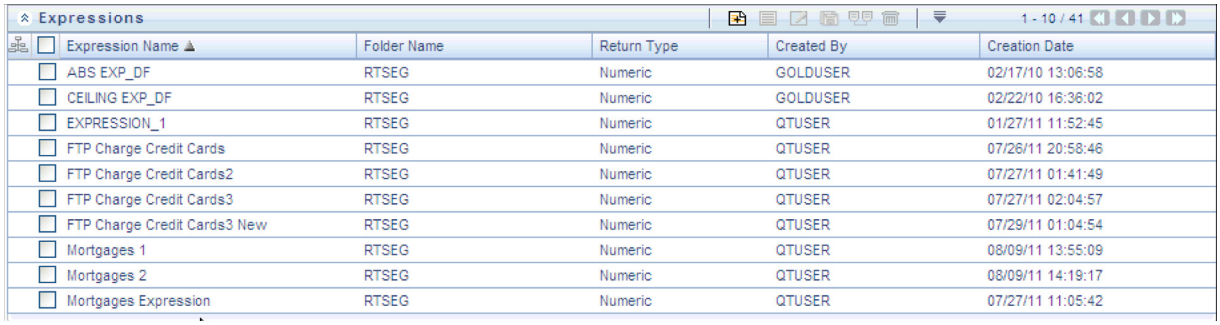
Enter your desired search criteria and click on the Search control.

Reset Control

Restores the default Folder, removes any Expression Name or by Return Type constraint you may have specified, and refreshes the screen.

Expressions Container

The Expressions container presents a grid containing all of the Expression rules that meet your search criteria. The Expressions summary grid offers several controls that allow you to perform different functions when an Expression rule is selected.



Expression Name	Folder Name	Return Type	Created By	Creation Date
ABS EXP_DF	RTSEG	Numeric	GOLDUSER	02/17/10 13:06:58
CEILING EXP_DF	RTSEG	Numeric	GOLDUSER	02/22/10 16:36:02
EXPRESSION_1	RTSEG	Numeric	QTUSER	01/27/11 11:52:45
FTP Charge Credit Cards	RTSEG	Numeric	QTUSER	07/26/11 20:58:46
FTP Charge Credit Cards2	RTSEG	Numeric	QTUSER	07/27/11 01:41:49
FTP Charge Credit Cards3	RTSEG	Numeric	QTUSER	07/27/11 02:04:57
FTP Charge Credit Cards3 New	RTSEG	Numeric	QTUSER	07/29/11 01:04:54
Mortgages 1	RTSEG	Numeric	QTUSER	08/09/11 13:55:09
Mortgages 2	RTSEG	Numeric	QTUSER	08/09/11 14:19:17
Mortgages Expression	RTSEG	Numeric	QTUSER	07/27/11 11:05:42

To select an Expression, click on a check box in the first column of the grid. More than one Expression can be selected at a time but this will cause some of the controls to become disabled. Clicking on a checkbox a second time de-selects the Expression.

You may select or deselect all of the Expressions in the summary grid by clicking on the check box in the upper left hand corner of the summary grid directly to the left of the Expression Name column header.

Add

Clicking on the Add control begins the process of building a new Expression. The Add control is disabled if any rows in the grid have been selected.

View

Selecting a single row out of the grid enables the View control. Clicking on the View control allows you to view the contents of an Expression on a read-only basis. The View control is only enabled when a single Expression has been selected.

Edit

Selecting a single row out of the grid enables the Edit control. Clicking on the Edit control allows you to modify a previously saved Expression. The Edit control is only enabled when a single Expression has been selected.

Copy

Selecting a single row out of the grid enables the Copy control. Clicking on the Copy control allows you to create a copy of an existing Expression. The Copy control is only enabled when a single Expression has been selected.

Delete

Selecting one or more rows out of the grid enables the Delete control. Clicking on the Delete control deletes the Expression(s) you have selected. OFSAAI will not allow you to delete Expressions which are utilized within other OFSAA rules, e.g., within a Data Element Filter, an Allocation rule, etc.

Expressions Summary Grid

The following columns categorize each Expression in the summary grid:

- Expression Name
- Folder Name
- Return Type
- Created By
- Creation Date

Expression Name

Displays the Expression's short name. Performing a "mouse-over" on an Expression Name displays the Expression's description.

Folder Name

Displays the name of the Folder in which a rule is stored.

Return Type

Expression rules operate like SQL function calls in the sense that they return a single data value. Return Type indicates the type of data that is returned by an Express rule: String, Date, or Numeric. See additional discussion below under Expression Functionality.

Created By

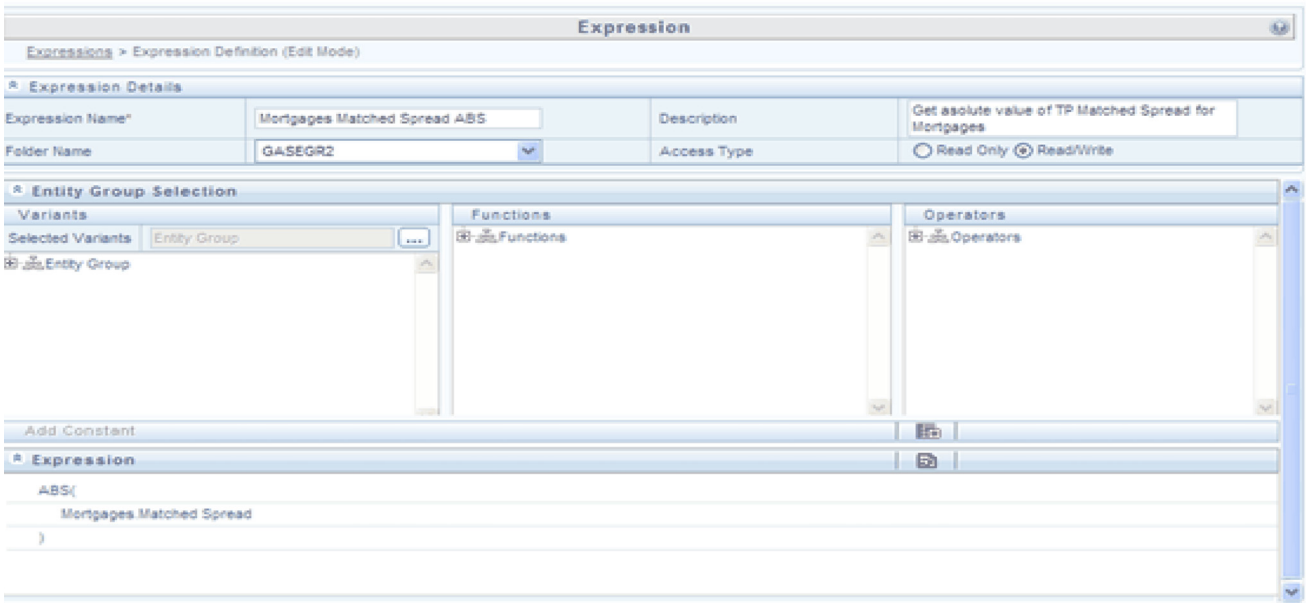
Created By displays the name of the user who created the Expression rule. If an Expression is saved as Read Only, only the user who created the rule, i.e., the owner, may modify the rule.

Creation Date

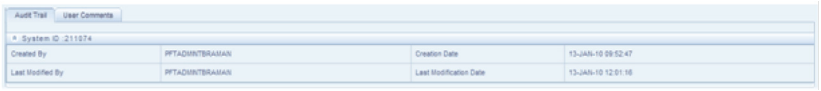
Displays date and time at which the rule was initially created.

Navigation within the Detail Screen

When you Add, Edit, Copy, or View an Expression, the Expressions Detail Screen is displayed.



The Audit Trail container is a standard footer container for every OFSAA rule type. It displays Created By, Creation Date, Last Modified By, and Modification Date on the Audit Trail tab. The User Comments tab may be used to add comments to any rule, subject to a maximum of 4000 characters.



Expression Functionality

OFSAA Expressions operate similarly to SQL function calls in that they apply a formula to one or more database columns in order to return a single value. For example, you might apply a YEAR formula to a date column to yield a numeric return value of a year. For a single instrument row in your data having an origination date of 01/01/2010, this Expression would return the number 2010. As another example, you might construct an Expression that evaluates a balance times a rate times an accrual basis factor to return a current month revenue or expense number.

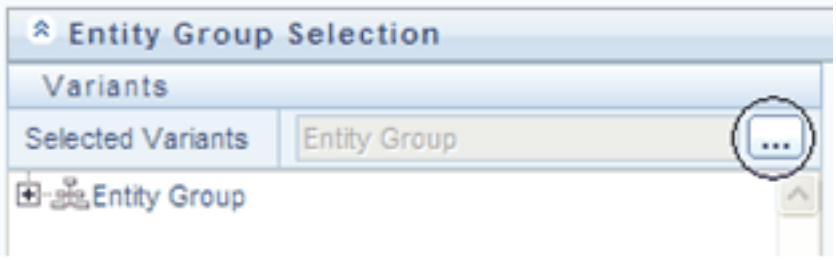
Expression Details Container

As with any OFSAA rule type, you must supply a Name, Folder, and Access Type; you may optionally supply a Description.

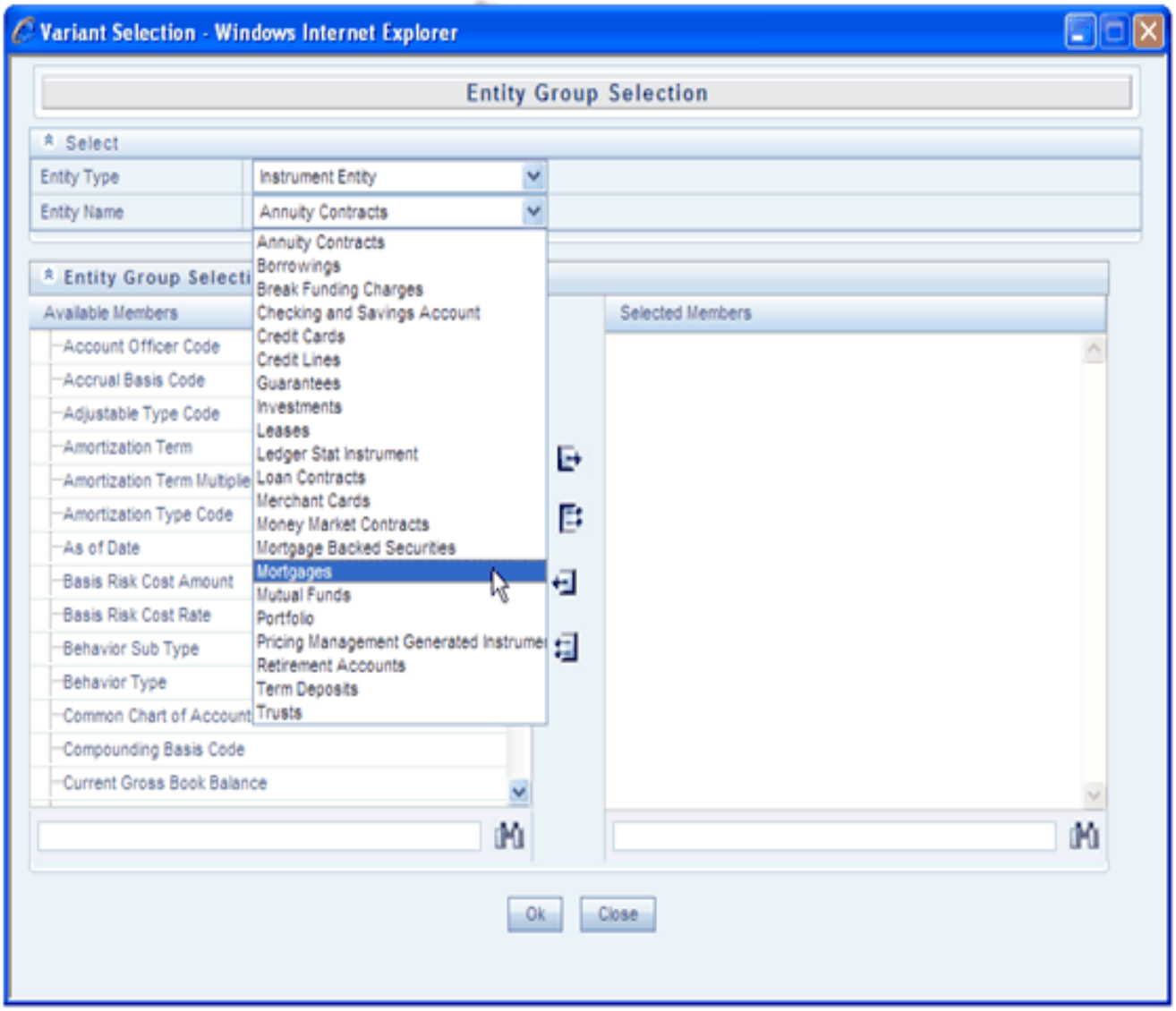
Entity Group Selection Container

Variants Sub-Container

To begin the process of creating a new Expression rule, you must specify the tables and columns (or even other expressions) that you want to use in the definition of your new Expression. Click on the ellipses (…) to the right of "Selected Variants" in the Variants sub-container of the Entity Group Selection container.



Clicking on the Selected Variants ellipses invokes an Entity Group Selection pop-up dialog. Here you may select an Entity Type and an Entity Name.



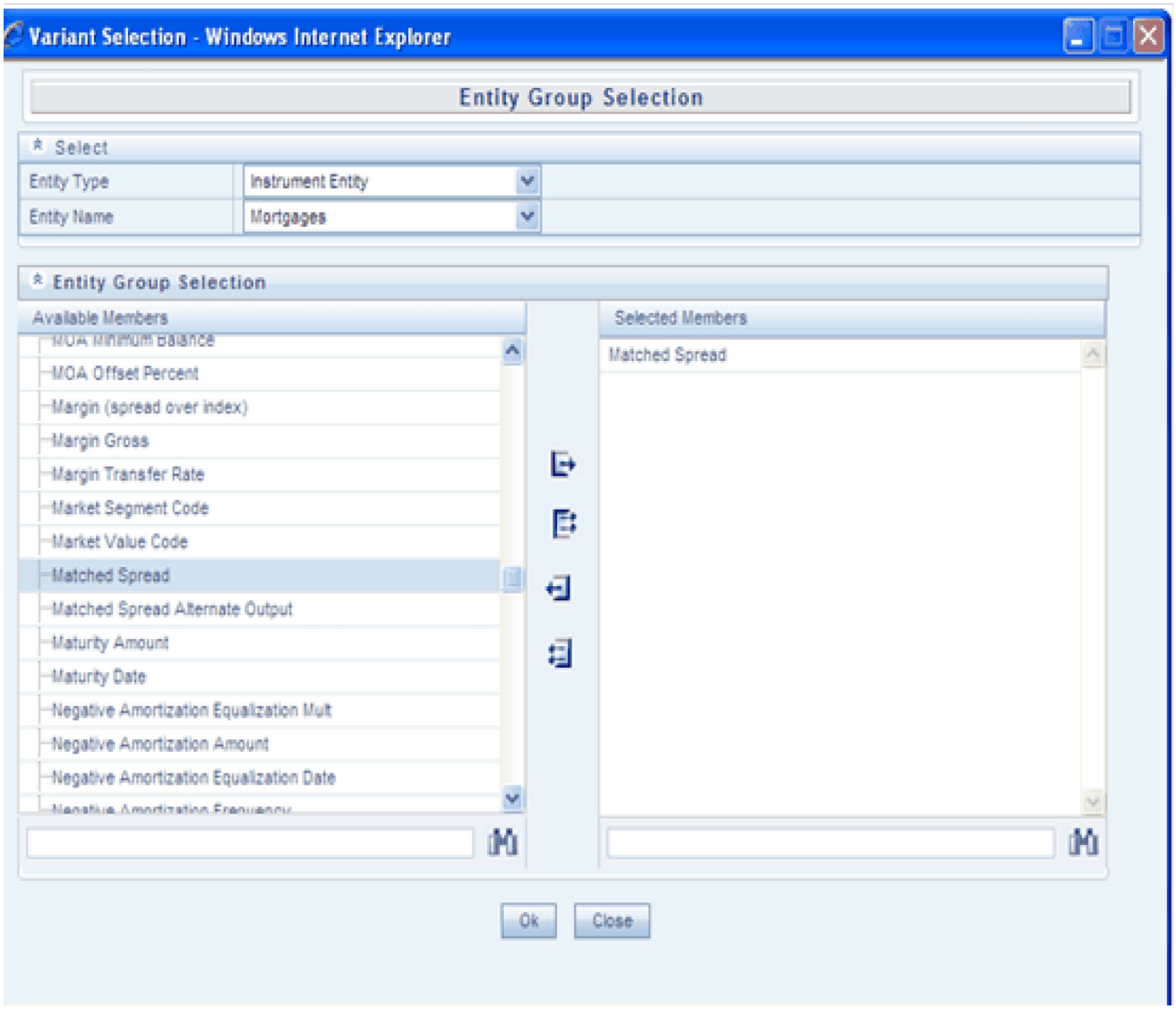
Entity Type & Entity Name

Entity Types include Instrument Entity, Non- Instrument Entity, and Expression.

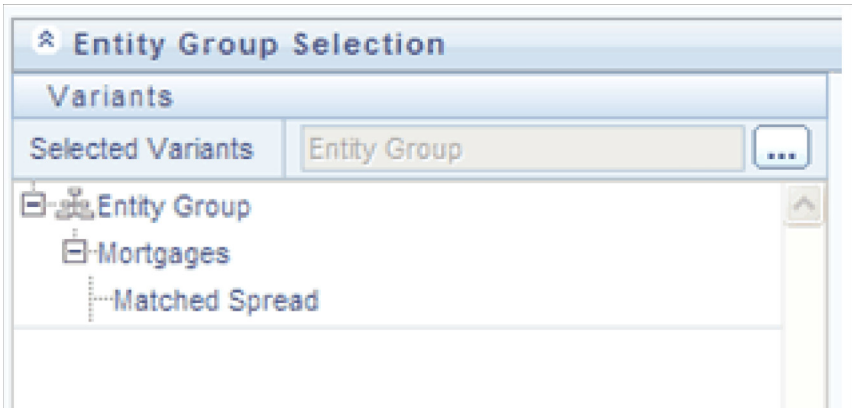
Instrument Entity Type

When you select the Instrument Entity type (the most commonly chosen type), the Entity Name drop-down list is populated with all registered Instrument and Transaction Summary type tables; the management ledger table (Ledger/Stat) is also available.

Select a table from the Entity Name drop-down list and then use the shuttle box controls (> , >> , < , <<) to select the column name or names you want to use within your Expression rule.



When you click OK, the Variant Selection dialog closes and Variants sub-container of the underlying Expression rule is updated. Click on the "+" control to expand the Entity Group hierarchy in order to see the tables and columns you have selected (see example below).



Non-Instrument Entity Type

Selecting the Non-Instrument Entity Type also populates the Entity Name drop-down list with Instrument and Transaction Summary type tables, but it additionally populates the Entity Name drop-down list with a number of metadata tables (tables that store non-business data).

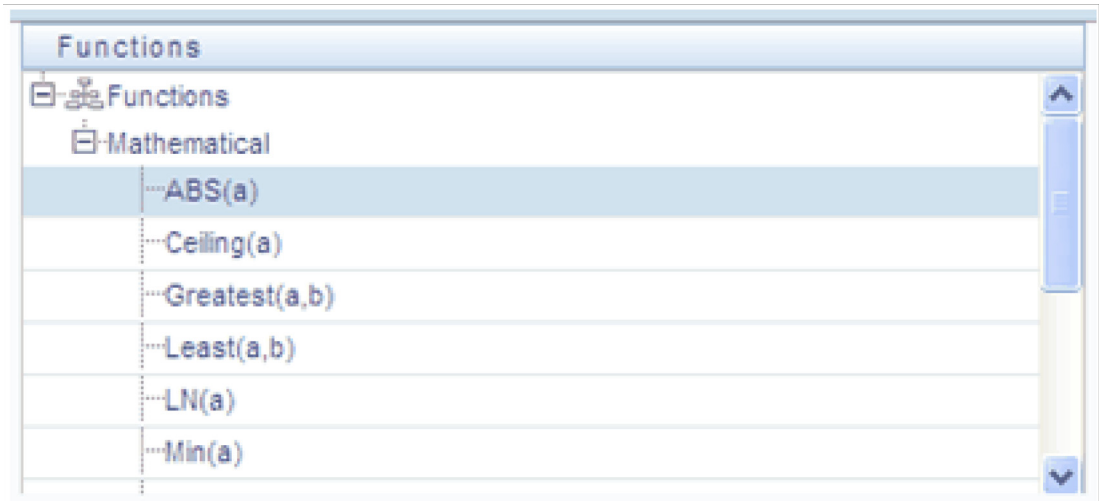
Expression Entity Type

Selecting the Expression Entity Type populates the Entity Name drop-down list with all of the currently defined Expression rules. The steps required to select an Expression rule are identical to those described above for selecting tables and columns.

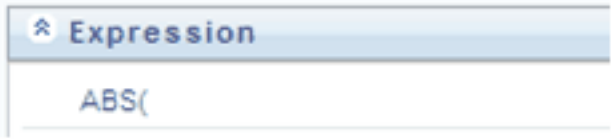
Functions and Operators Sub-Containers

Once you have specified the tables and columns and/or Expressions that you want to utilize within your new Expression rule, you work with Functions and Operators to construct your desired formula.

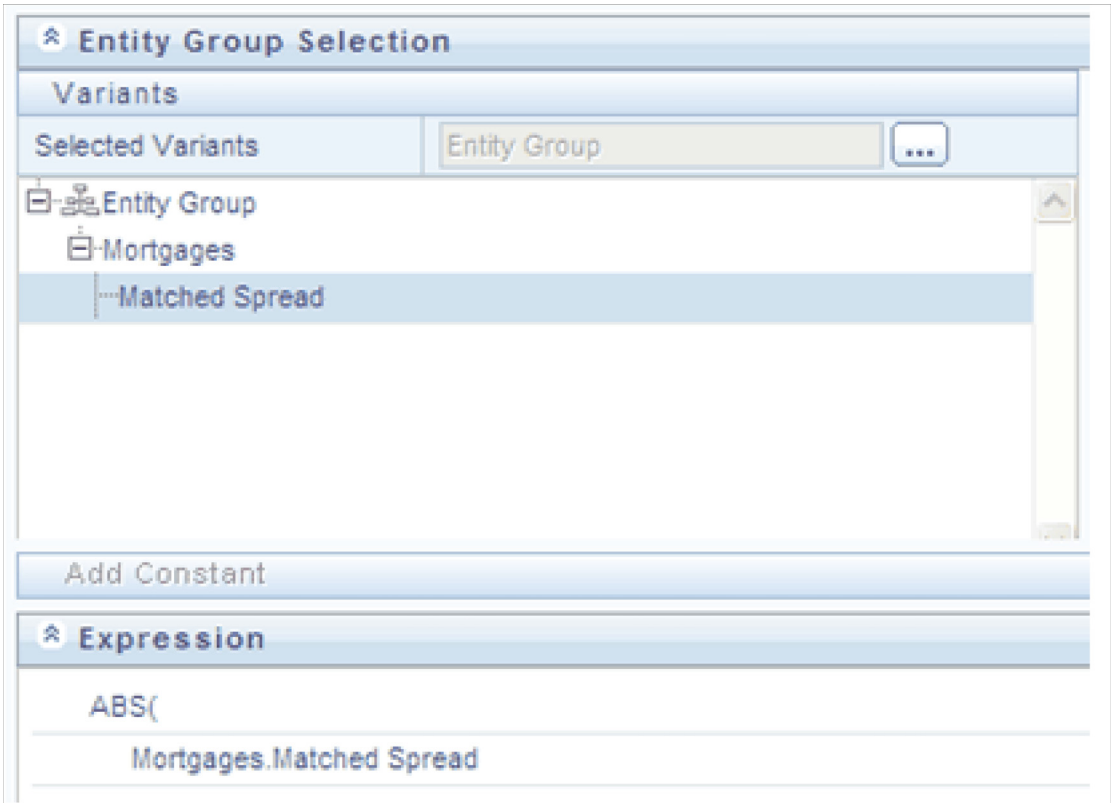
Double click on Variants (tables and columns and/or Expressions), Functions, and Operators to add them into the Expressions container.



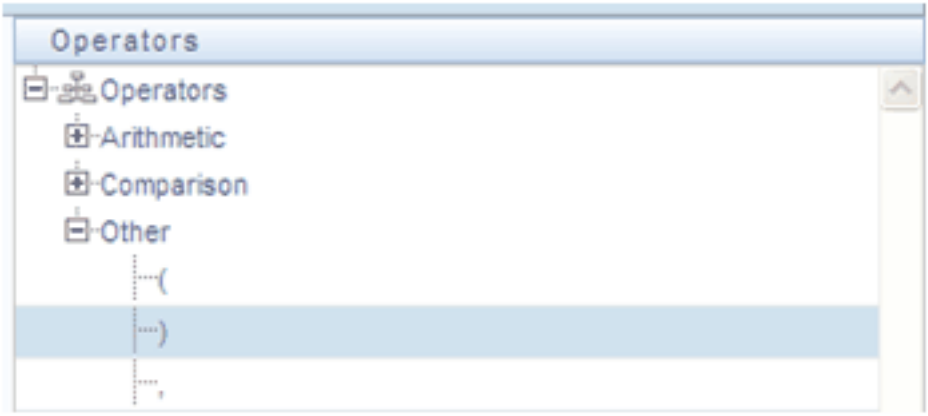
For example, to construct an Expression that returns the absolute value of the Matched Spread column from the Mortgages table, begin by double clicking on the absolute value operator (ABS) in order to add it into the Expression container.



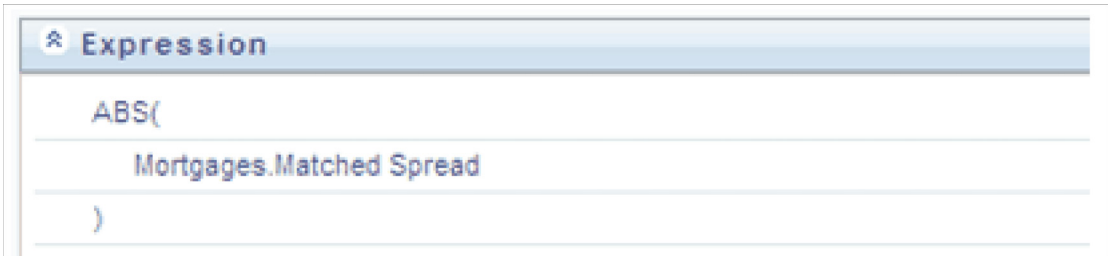
Next, double click on the Matched Spread column from the Mortgages table in order to add the column to the Expression container.



Finally, double click on the Right Parenthesis operator in order to close the expression.



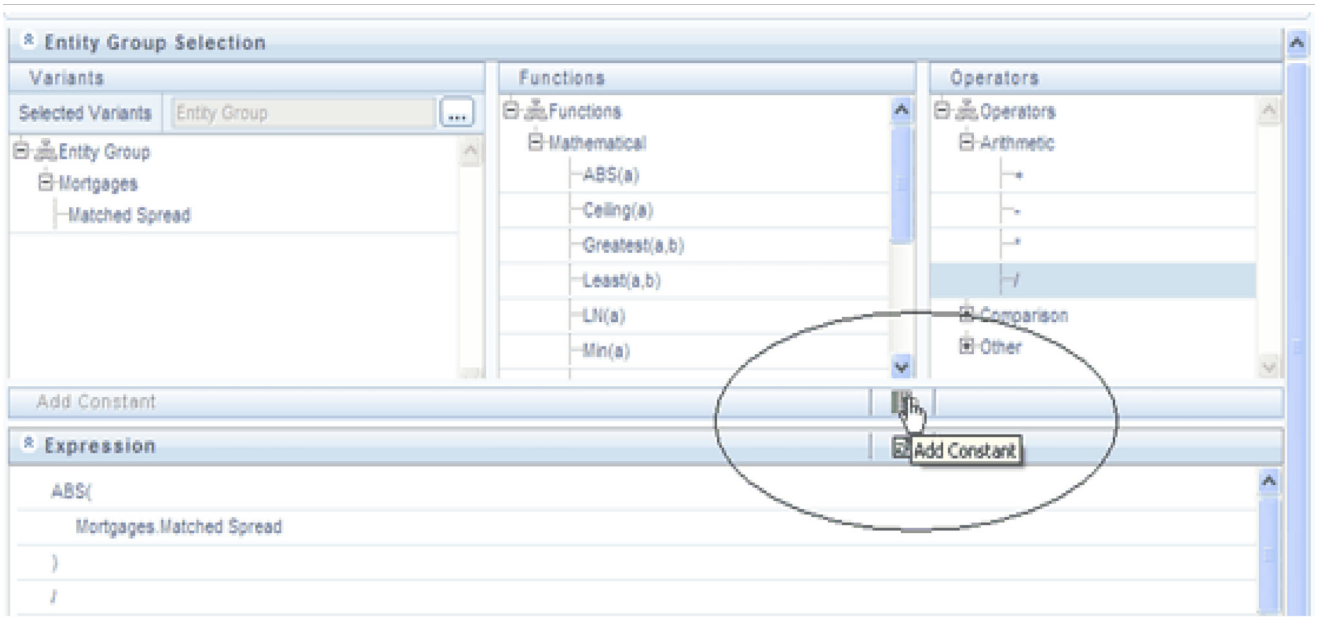
Again, the result of your double clicking operation is to update the formula within the Expression container.



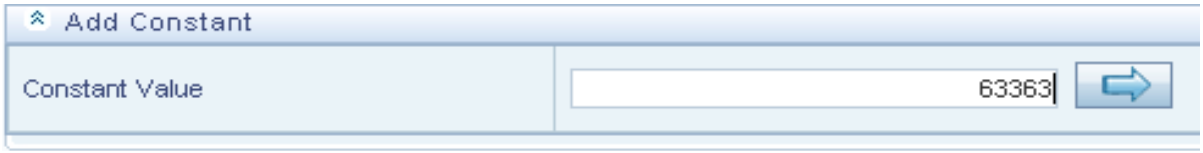
Constants

You may also add constant coefficient values to your formulas. For example, rates are generally stored in the form of percentages where 5.12 in the database means 5.12%.

You may wish to modify your absolute value formula to divide by 100. To do so you would continue by double clicking on the division operator (/). After the formula is updated to include the division operator, click on the Add Constant control located in the first row beneath the Entity Group Selection container.



Enter a constant value and click on the right arrow control, thus completes the expression.



After the Variants, Functions and Operators are entered, click on Save in the New - Expression screen to validate the entries and capture the defined Expression.

The records are inserted successfully and are listed in Expressions list in the Expression Summary screen. Click Cancel if you want to ignore the entries and return to the Expression screen.

Operator types

The operators available are of 3 types:

9. Arithmetic
10. Comparison
11. Other

Operator type	Notation	Example depicting Usage
Arithmetic	+	CUR_BOOK_BAL = CUR_PAR_BAL + DEFERRED_CUR_BAL
	-	AS_OF_DATE = MATURITY_DATE – REMAIN_TERM_C
	*	Remaining Balance after Off-set = Opening balance – (Expected balance on every payment date * Mortgage off-set %)
	/	CUR_PAYMENT = ORG_BOOK_BAL/ (ORG_TERM/ PMT_FREQ [in months])
Comparison	=	CUR_PAYMENT = principal + interest

	<>	If ADJUSTABLE_TYPE_CD <> 0, INTEREST_RATE_CD = 001 to 99999.
	>	If ORIGINATION_DATE > AS_OF_DATE, LAST_PAYMENT_DATE = ORIGINATION_DATE.
	>=	AS_OF_DATE >= ORIGINATION_DATE
	<	AS_OF_DATE < NEXT_REPRICE_DATE
	<=	If ORIGINATION_DATE <= AS_OF_DATE, LAST_PAYMENT_DATE >= ORIGINATION_DATE
Other	(	Parentheses group segments of an expression to make logical sense.
	)	MATURITY_DATE <= NEXT_PAYMENT_DATE + (REMAIN_NO_PMTS_C * PMT_FREQ)
	,	The comma separates statements of a function.

Function Types and Functions

You select the type of function for your expression 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 in the Functions Sub-container enable you to perform various operations on the data. The following table lists each available function and Detail on the operations of each function in which it appears.

Function type	Function Name	Notation

Mathematical	Absolute	ABS(a)	Re th
	Ceiling	Ceiling (a)	Ro hi
	Greatest	Greatest(a,b) GREATEST(column or expression, column or expression)	Re nu ur
	Least	LEAST(column or expression, column or expression) Least (a,b)	Re be
	Natural Log	LN(number) LN(a)	Re of rit st
	Minimum	Min(a)	Re of
	Maximum	Max(a)	Re of
	Power	POWER(coefficient, exponent) Power(a,b)	Ra of
	Round	ROUND (number, precision) Round(a,b)	Ro of
	Sum	Sum(a)	Su da m tra m (n

	Weighted Average	WAvg (column being averaged, weight column) WAvg(a,b)

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.

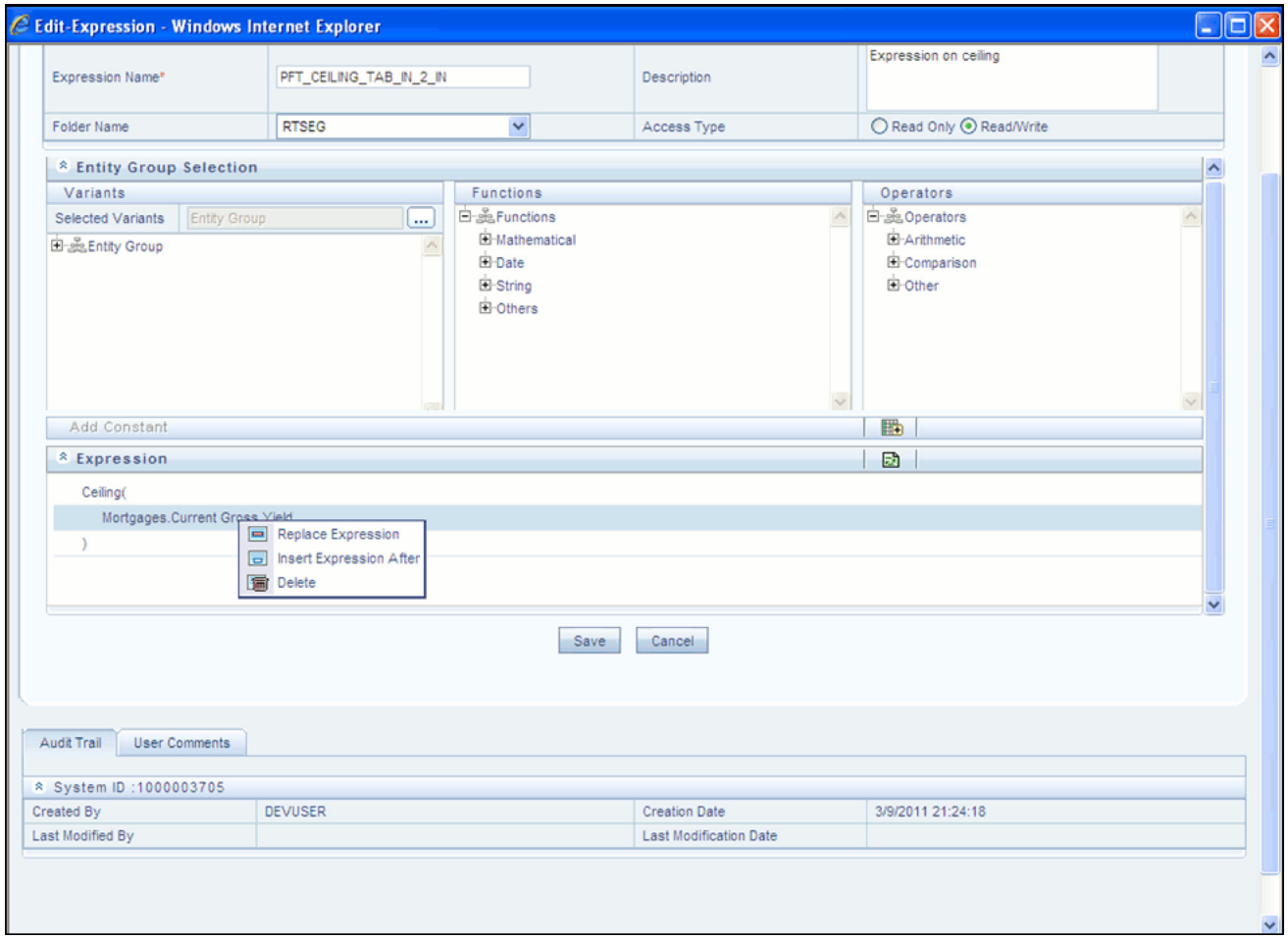
Date	Build Date	BuildDate(year,month,days)

	Go Month		Ac of no ex th ca in
	Example:	**Date Column**	**#**
		1/31/94	1
		1/15/94	2
		2/28/94	3
		6/30/94	-1
	Year	Year(date)	Ye ye
	Month	Month(date)	M in m
String	Trim All	AllTrim(a)	

Other	If statement	If(a=b,c,d)
	Lookup	Lookup(OrigCol,Lookup-Col,…,ReturnedCol)

Expression Container

The Expression container displays your formula step-by-step as you build it. When your formula is complete you may save the Expression rule. Saving an Expression rule invokes validation logic to ensure that you have constructed a legitimate formula, i.e., one that may be legally applied to your database.



In the Expression grid, you can right-click the expression and do the following:

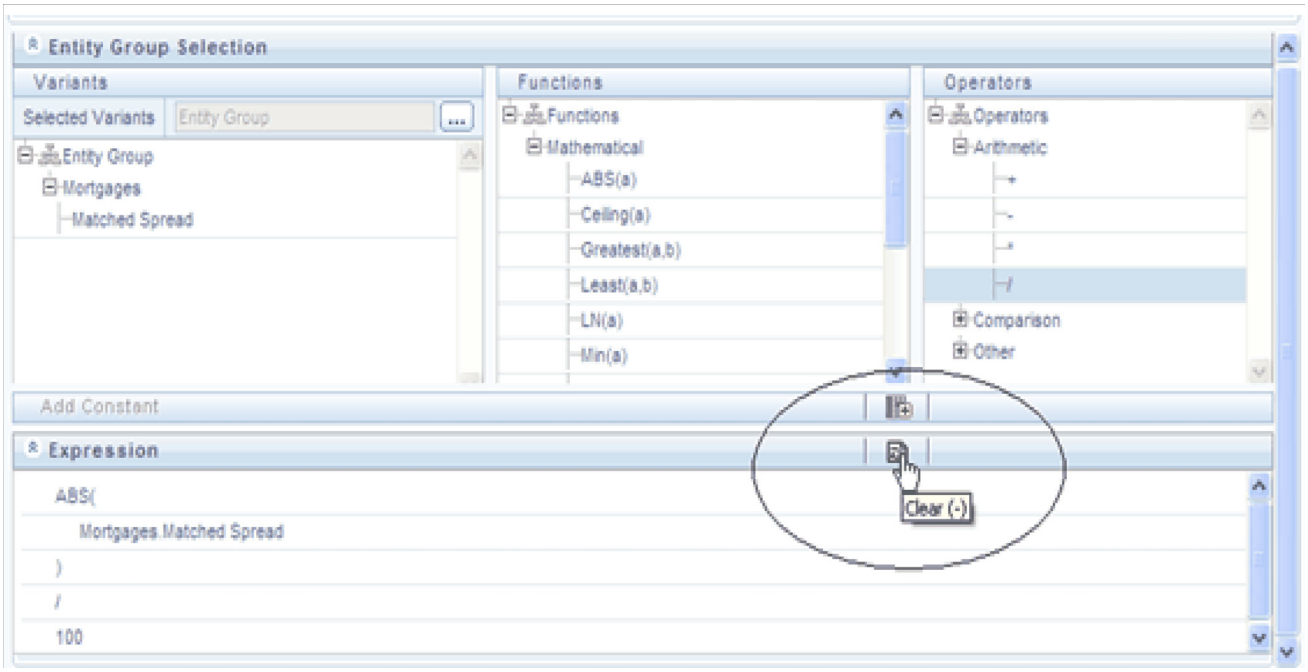
Click **Replace Expression** to replace the expression with a new one.

Click **Insert Expression After** to insert a new expression after the selected expression.

Click **Delete** to delete a selected expression.

You can also click **clear(-)** button in the Expression grid to clear the Expression.

If you encounter errors or if for any reason you want to reconstruct a formula, click on the Clear control at the top of the Expression container.



After clicking on the Clear control, you will be prompted to ensure you wish to clear the formula. If you answer OK, the formula is erased and you may start over in specifying your formula.

CHAPTER 10 OFSAA Rate Management

Overview

OFSAA Rate Management is a comprehensive utility enabling you to manage currencies, yield curves, and interest rate & currency exchange rate data with a high degree of security and control. OFSAA Rate Management also allows you to maintain economic forecasts such as GDP growth, inflation rates, or unemployment projections that may be linked to your models for interest rates, exchange rates, or new business growth.

Historical rate data obtained from OFSAA Rate Management is utilized within all of the Enterprise Performance Management (EPM) applications (OFSAA Funds Transfer Pricing, OFSAA Profitability Management, OFSAA Asset Liability Management, and OFSAA Balance Sheet Planning). Details regarding how each application draws upon Rate Management data are provided in the body of this chapter.

Rate Management Subject Areas

There are four primary subject areas or modules within Common Object Maintenance > Rate Management:

- Interest Rates
- Currency
- Currency Rates
- Economic Indicators

Note: Economic Indicators option is not applicable for Hedge Management.

Interest Rates

The quality and availability of interest rate information varies throughout the world. In many markets, gathering comprehensive rate information is a challenge because of insufficient security types, inconsistent quoting conventions, and lack of liquidity. The Interest Rates module within OFSAA Rate Management allows you to define and manage complex yield curve definitions using multiple rate formats and other rate attributes to give you data storage capabilities appropriate to your market. The Interest Rates module also supports the entry and maintenance of historical rate data for each yield curve you define.

Historical interest rate data from OFSAA Rate Management is utilized within OFSAA Transfer Pricing to generate transfer rates and option costs. Historical interest rate data is also utilized within OFSAA Asset Liability Management and within OFSAA Balance Sheet Planning in the generation of forecasted interest rate scenarios.

Currency

Financial institutions commonly transact business in more than one currency. Transacting business in multiple currencies demands functional capabilities for multi-currency accounting and currency rate management.

OFSAA Rate Management's Currency module supports the definitions and maintenance of currencies. Currency definitions are fundamental to the definition of both interest rate yield curves and currency exchange rates. A key attribute of every yield curve is the currency with which it is associated; and currency exchange rates can only be established between defined currencies. OFSAA Rate Management provides a comprehensive list of ISO-defined currencies; you may also define and add your own user-defined currencies.

Currency Rates

OFSAA Rate Management's Currency Rates module draws upon the currencies you have defined and activated in the Currency module to support the entry and maintenance of historical exchange rates. Currency exchange rates are utilized within:

- OFSAA Funds Transfer Pricing "Ledger Migration" processes (see *Oracle Financial Services Analytical Applications Funds Transfer Pricing User Guide*)
- OFSAA Asset Liability Management currency consolidation process (see *Oracle Financial Services Analytical Applications Asset Liability Management (OFSALM) User Guide*)
- OFSAA Profitability Management multi-currency allocations (see *Oracle Financial Services Analytical Applications Profitability Management (OFSPM) User Guide*)
- OFSAA Hedge Management and IFRS Valuations (see *Oracle Hedge Management and IFRS User Guide*)

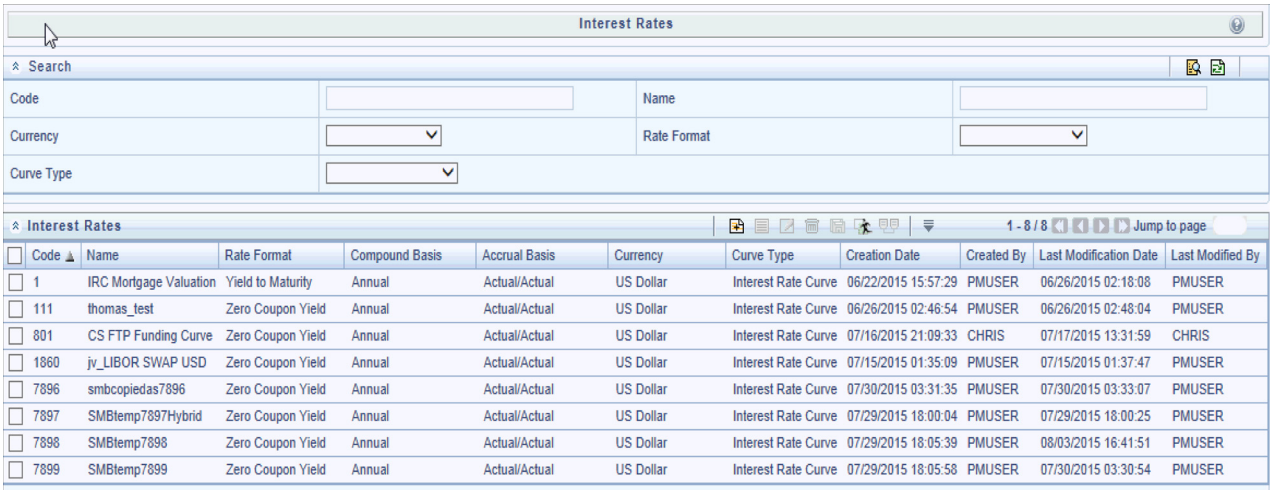
Economic Indicators

An economic indicator is any economic statistic such as the Consumer Price Index (CPI), the growth rate of the Gross Domestic Product (GDP), the unemployment rate, the Purchasing Managers Index, indices of consumer confidence, etc. Such macroeconomic statistics tell us how well the economy has behaved in the past. Some economic indicators are referred to as "lagging" indicators while others are classified as "leading" indicators. Leading indicators may provide insights into the future direction of the economy.

OFSAA Rate Management's Economic Indicators module allows you to define and store such historical indicators. Economic Indicators provide baselines from which OFSAA Asset Liability Management can generate forecasts of future values of economic statistics that can affect new business or other modeling assumptions.

Interest Rates Summary Screen

When you first navigate to Common Object Maintenance > Rate Management > Interest Rates, an empty screen will be displayed. After you have constructed one or more interest rate curves, navigating to Common Object Maintenance > Rate Management > Interest Rates will display a summary screen showing each of the interest rate curves that you have previously built.



Code	Name	Rate Format	Compound Basis	Accrual Basis	Currency	Curve Type	Creation Date	Created By	Last Modification Date	Last Modified By
1	IRC Mortgage Valuation	Yield to Maturity	Annual	Actual/Actual	US Dollar	Interest Rate Curve	06/22/2015 15:57:29	PMUSER	06/26/2015 02:18:08	PMUSER
111	thomas_test	Zero Coupon Yield	Annual	Actual/Actual	US Dollar	Interest Rate Curve	06/26/2015 02:46:54	PMUSER	06/26/2015 02:48:04	PMUSER
801	CS FTP Funding Curve	Zero Coupon Yield	Annual	Actual/Actual	US Dollar	Interest Rate Curve	07/16/2015 21:09:33	CHRIS	07/17/2015 13:31:59	CHRIS
1860	jv_LIBOR SWAP USD	Zero Coupon Yield	Annual	Actual/Actual	US Dollar	Interest Rate Curve	07/15/2015 01:35:09	PMUSER	07/15/2015 01:37:47	PMUSER
7896	smbcopiedas7896	Zero Coupon Yield	Annual	Actual/Actual	US Dollar	Interest Rate Curve	07/30/2015 03:31:35	PMUSER	07/30/2015 03:33:07	PMUSER
7897	SMBtemp7897Hybrid	Zero Coupon Yield	Annual	Actual/Actual	US Dollar	Interest Rate Curve	07/29/2015 18:00:04	PMUSER	07/29/2015 18:00:25	PMUSER
7898	SMBtemp7898	Zero Coupon Yield	Annual	Actual/Actual	US Dollar	Interest Rate Curve	07/29/2015 18:05:39	PMUSER	08/03/2015 16:41:51	PMUSER
7899	SMBtemp7899	Zero Coupon Yield	Annual	Actual/Actual	US Dollar	Interest Rate Curve	07/29/2015 18:05:58	PMUSER	07/30/2015 03:30:54	PMUSER

Search Container

A Search container is provided in which you may search for interest rate curves by Code, Name, Currency, Rate Format or Curve Type.

Search Control

Enter your desired search criteria and click on the Search control.

Reset Control

Clicking on the Reset control removes any Code, Name, Currency, Rate Format or Curve Type constraint you may have specified and refreshes the screen.

Interest Rates Container

The Interest Rates container presents a grid containing all of the interest rate curves that meet your search criteria. The Interest Rates summary grid offers several controls that allow you to perform different functions when an interest rate curve is selected.

To select an interest rate curve, click on a check box in the first column of the grid. More than one interest rate curve can be selected at a time but this will cause some of the controls to become disabled. Clicking on a checkbox a second time de-selects the interest rate curve.

You may select or deselect all of the interest rate curves in the summary grid by clicking on the check box in the upper left hand corner of the summary grid directly to the left of the Name column header.

Add

Clicking on the Add control begins the process of building a new interest rate curve. The Add control is disabled if any rows in the grid have been selected.

View

Selecting a single row out of the grid enables the View control. Clicking on the View control allows you to view the contents of an interest rate curve on a read-only basis. The View control is only enabled when a single interest rate curve has been selected.

Edit

Selecting a single row out of the grid enables the Edit control. Clicking on the Edit control allows you to modify a previously saved interest rate curve. The Edit control is only enabled when a single interest rate curve has been selected.

Note: You can control the number of rows to display on screen by selecting the "Pagination Options" icon from the action bar.

Copy

Selecting a single row out of the grid enables the Copy control. Clicking the Copy control allows you to create a copy of an existing interest rate curve. The Copy control is only enabled when a single interest rate curve has been selected.

Check Dependencies

Select an interest rate curve and then click the Check Dependencies control to generate a report on all rules that utilize your selected interest rate curve.

The Check Dependencies control is only enabled when a single interest rate curve has been selected.

Delete

Selecting one or more rows out of the grid enables the Delete control. Clicking on the Delete control deletes the interest rate curves you have selected.

Execute the Historical Interest Rates Data Loader

This Icon executes a function to import historical rates and parameters for all defined Interest rate Curves. For more information on setting up the automated process, see *Oracle Financial Services Analytical Applications Data Model Utilities User Guide.*

To execute a historical Interest Rate data load, click on the **Execute the Historical Interest Rates Data Loader** icon. A warning message will appear "Upload all available Interest Rates and Parameters?" Click ok, and all historical rates and parameters will be loaded.

Interest Rates Summary Grid

The following columns categorize each interest rate curve in the summary grid:

- Code
- Name
- Rate Format
- Compound Basis
- Accrual Basis
- Currency
- Curve Type
- Creation Date
- Created By
- Last Modification Date

- Last Modified By

Code

Displays the interest rate curve's code. Code is a number in the range 1 to 9999999. It is unique. Performing a "mouse-over" on a row within the grid displays the interest rate curve's detailed description.

Name

Displays the interest rate curve's short name.

Rate Format

Displays the interest rate curve's rate format (zero coupon or yield-to-maturity).

Compound Basis

Displays the interest rate curve's compounding basis (Annual, Semiannual, Monthly, or Simple).

Accrual Basis

Displays the interest rate curve's Accrual Basis (e.g., 30/360, Actual/Actual, etc).

Currency

Displays the currency (the Reference Currency) to which an interest rate curve is applicable.

Curve Type

Displays the curve type - Interest Rate Curve or Volatility Curve.

Creation Date

Displays the date and time at which an interest rate curve was created.

Created By

Displays the name of the user who created an interest rate curve.

Last Modification Date

Displays the date and time at which an interest rate curve was last modified.

Modified By

Displays the name of the user who last modified an interest rate curve.

Interest Rates Detail Screen

When you Add, Edit, or View an interest rate curve, the Interest Rate Code Detail Screen is displayed. The Interest Rate Code detail screen is comprised of an Interest Rate Code Details container, 5 Interest Rate Code tabs, and an Audit Trail container.

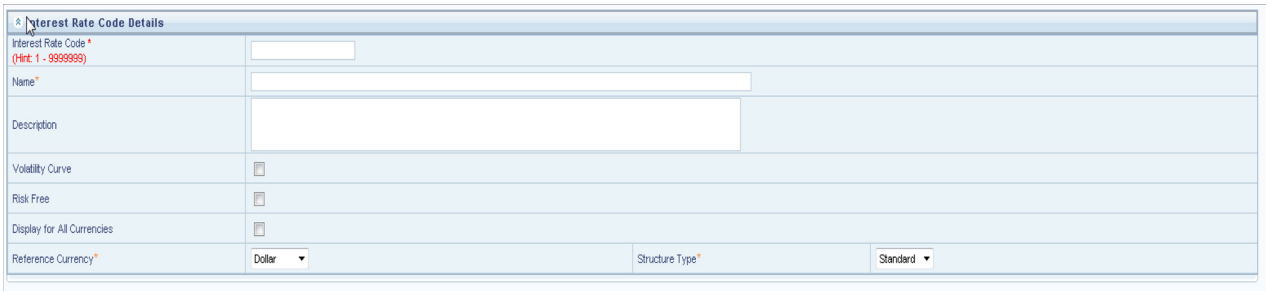
The Audit Trail container is a standard footer container for every OFSAA rule type. It displays Created By, Creation Date, Last Modified By, and Modification Date on the Audit Trail tab. The User Comments tab may be used to add comments to any rule, subject to a maximum of 4000 characters.

Interest Rate Code Details Container

This is explained in detail in the following sections.

Interest Rate Code

When constructing a new yield curve, you must specify an Interest Rate Code between 1 and 9999999. Interest Rate Codes are used internally to uniquely identify yield curves. When working with Rate Manager or other OFS Analytical Applications, you generally reference yield curves by Name, not by Interest Rate Codes. Interest Rate Codes, however, are embedded within your instrument data (for example, the INTEREST_RATE_CD and T_RATE_INT_RATE_CD columns within your instrument data are populated with Interest Rate Codes). Once you have saved a yield curve, you may not renumber its Interest Rate Code.



Name & Reference Currency

You must also provide a Name and Reference Currency for your yield curve. Unlike Interest Rate Codes, you may rename or change the Reference Currency for previously saved yield curves. While you may choose to rename a yield curve, however, it is very unlikely that you will chose to modify a yield curve's Reference Currency. A yield curve's Reference Currency is the currency for which your market rates are valid. For example, the Reference Currency for a Prime Rate yield curve would be US Dollars. LIBOR or other internationally quoted rates are always quoted with respect to an underlying Reference Currency (e.g., US Dollar LIBOR, Euro LIBOR, etc). The drop-down list box for Reference Currencies displays only "Active" currencies. See the section below entitled Currency for a discussion of Active and Inactive currencies.

Description

You may optionally provide a description of your yield curve; you may modify a yield curve's description at any time.

Structure Type

Another required attribute for each yield curve is its Structure Type. Structure Type supports both Standard and Hybrid yield curve definitions. Hybrid yield curves are re-expressions of one or more pre-existing Standard yield curves. For additional information, see Hybrid Term Structure Tab under Interest Rate Code Tabs below. Once you have saved the yield curve, you may not change the Structure Type selection.

Volatility Curve

You can select the Volatility Curve option to indicate the curve selected will contain volatility rates. If you select this option, all other curve attributes become disabled and the curve is used exclusively for managing volatility details. Both the Terms tab and Historical Rates tab are available with this option. Once you have saved the yield curve, you may not change the Volatility Curve selection.

Note: Volatility curves are used in Funds Transfer Pricing for calculating Rate Lock Option Costs.

Risk Free

This is for tagging IRC's as risk free. This field is an optional field. This flag is editable both in new and edit modes. It is available for non-hybrid curves and hybrid curves and not available for Volatility Curves.

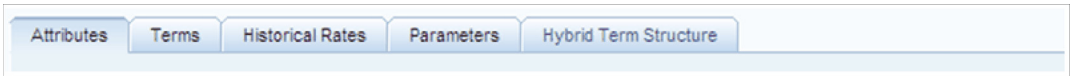
Display for all currencies

This option allows you to designate certain Interest Rate Curves that you would like to make available for assumption mapping to any currency. Typically, assumption rules will filter the list of Interest Rate Codes based on the currency, when defining assumptions for a specific product/currency combination. When this option is enabled the Interest Rate Code will appear in assumption rules for all currencies.

Interest Rate Code Tabs

Interest Rate Code tabs are used to define your yield curve and to add, edit, or delete historical interest rate data. The Interest Rate Code tabs are:

- Attributes
- Terms
- Historical Rates
- Parameters
- Hybrid Term Structure



Navigating Between Interest Rate Code Tabs

For new yield curves, you must begin with the Attributes tab. Once you have selected attributes for a yield curve, you will typically not change them. When you have finished assigning attributes, navigate to the Terms tab in order to establish a term structure for your yield curve or volatility curve, i.e., an overnight rate, a one month rate, a three month rate, etc. To navigate to the Terms tab, you may either select the Apply button on the Attribute tab or you may simply click the Terms tab.

Note: You must have specified an Interest Rate Code, a Name, and a Reference Currency in the Interest Rate Code Details container before you can navigate to the Terms tab.

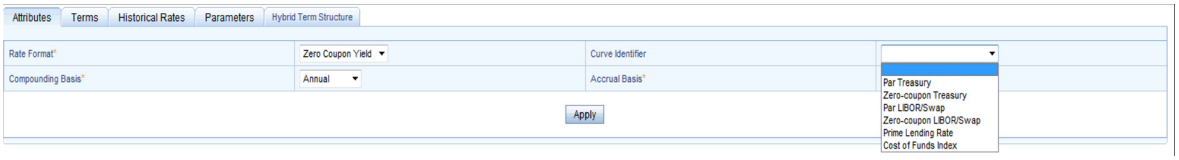
As with your yield curve attributes, once you have established a term structure for your yield curve you will only rarely come back to change it. The first time you navigate to the Terms tab, an initial 1 month term point is provided, but even if this is the one and only term point you want for your curve, you must select the Apply button to tell the system that you have finished your term structure specification. In future revisions to your curve's definition, you may navigate directly to the Historical Rates tab simply by clicking on it, but if you modify your term structure in any way, you must always select the Apply button on the Term tab before you can navigate to the Historical Rates tab.

The Historical Rates tab is used to input interest rate or volatility data. This is the tab you will most often return to for maintaining your interest rates database over time. To navigate to the Historical Rates tab, you may either select the Apply button on the Terms tab or you may simply click the Historical Rates tab if you have already established your term structure.

Note: You must have specified (1) an Interest Rate Code, a Name, and a Reference Currency in the Interest Rate Code Details container and (2) a term structure in the Terms tab before you can navigate to the Historical Rates tab.

Attributes Tab

Yield curve attributes include Rate Format, Compounding Basis, Accrual Basis, and Curve Identifier. Once you have initially saved a yield curve, you typically will not change these attributes, but Rate Management will allow you to do so.



Note: All Attribute fields will be disabled, if Volatility Curve is checked.

Rate Format

As part of your yield curve definition, you must select either the Zero Coupon or Yield-to-Maturity rate format. Regardless of which format you select, rates entered into Rate Management (in the Historical Rates tab) are always entered in nominal form, e.g., 5.125% or 6.875%, not as discount factors. For details on how the two rate formats affect internal cash flow engine calculations, see the *Oracle Financial Services Analytical Applications Cash Flow Engine Reference Guide.*

Compounding Basis

You must also select a compounding basis for your yield curve: Annual, Semiannual, Monthly, or Simple. Annual is the most common method. The Monthly option is enabled based on Rate Format selection (if Rate Format is selected as "Yield to Maturity"). For details on Compounding Basis and how different compounding bases affect cash flow calculations in OFSAA, see the *Oracle Financial Services Analytical Applications Cash Flow Engine Reference Guide.*

Accrual Basis

You must also select an accrual basis for your yield curve. The Accrual Basis list depends on Compounding Basis selection. If the Compounding Basis is selected as **Annual**, **Semiannual**, or **Monthly**, then the following Accrual Basis types are available:

Actual/Actual

30/365

Actual/365

If the Compounding Basis is selected as **Simple**, then the following Accrual Basis types are available:

30/360

Actual/360

Actual/Actual

30/365

30/Actual

Actual/365

For details on Accrual Basis and how different accrual bases affect cash flow calculations in OFSAA, see *Oracle Financial Services Analytical Applications Cash Flow Engine Reference Guide.*

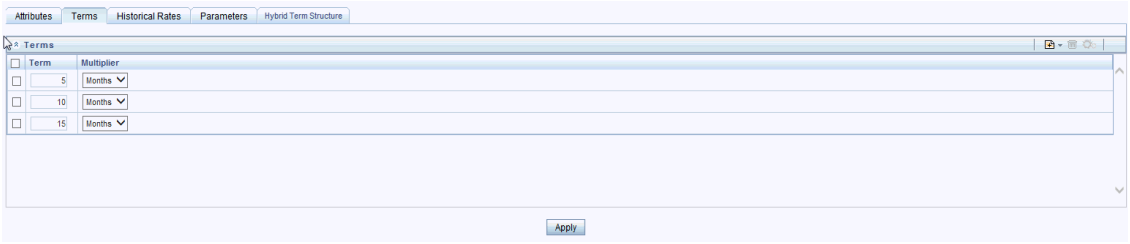
Curve Identifier

This is a drop-down list that contains the 6 curve identifier types, that is, Par Treasury, Zero-coupon Treasury, Par LIBOR/Swap, Zero-coupon LIBOR/Swap, Prime Lending Rate, and Cost of Funds Index. These curve identifiers can be mapped to the Adjustable Rate Mortgage (ARM) indices used for ADCO prepayment model processing. The Reference Currency for these indices is always US Dollar.

Note: This identifier is optional when the IRC is not being used for ADCO prepayment model processing. This is applicable only in ALM and HM applications.

Terms Tab

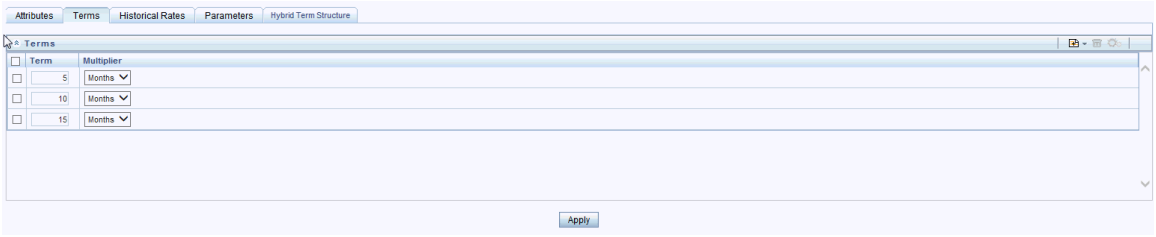
Use the Terms tab to construct your yield curve's term structure. You may specify as many yield curve terms as you wish ranging from 1 day to 100 years.



Note, when constructing a volatility curve, there are two term types available, e.g. Contract Term and Expiration Term. You must add the relevant terms for each of these dimensions. Select the Apply button after defining terms for each dimension to save the assumptions before proceeding.

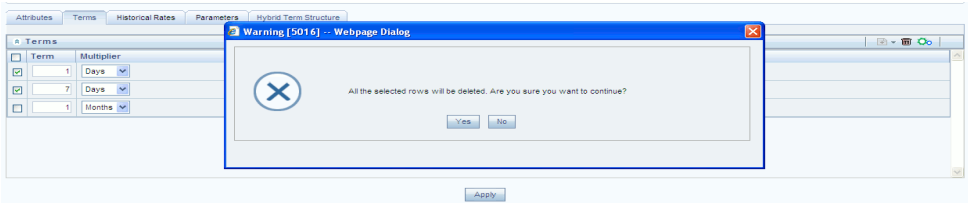
Adding New Term Points

Click the Add control to add new term points. After clicking the Add control, select a Term value and a Multiplier (e.g., 7 days, 2 months, 5 years, etc). You can also add term points using the Data Input Helper.



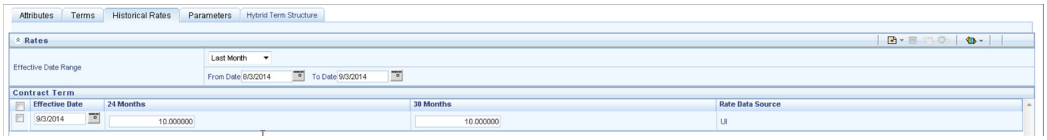
Deleting Existing Term Points

If you wish to delete an existing term, select the term point (or terms) you wish to delete and click the Delete control, and confirm that you want to delete the term (or terms) you have selected.



Historical Rates Tab

Use the Historical Rates tab to enter, modify, or view interest rate data. Data should be entered as simple percentages (e.g., 5.125, 4.875, etc). If you are entering historical rates for a volatility curve, you will have to enter volatilities for the combination of contract term and expiration term. Select the desired expiration term from the drop list to complete the volatility matrix. Effective dates should be entered separately for each expiration term in the list.



By default, the Historical Rates tab will display interest rate data for the past month (i.e., for the 30 days leading up to the current date). Click the Effective Date Range drop-down list box to expand your view to the last 3 months, 6 months, one year, 3 years, 6 years or all rate data.

Note: Volatility curves are only applicable to FTP Rate lock option cost calculations.

If you are entering historical rates for a volatility curve, you will have to enter volatilities for the contract term. Select the desired expiration term from the droplist to complete the volatility matrix. Effective dates should be entered for each expiration term.

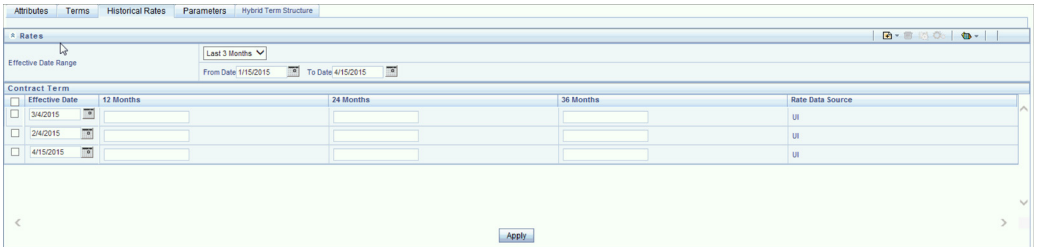
The Rate Data Source is a parameter that depicts from where the rates have been taken from, either they are entered through the UI or loaded through the data loader or generated using the Generate Rates of Hybrid IRC.

Generate Graph

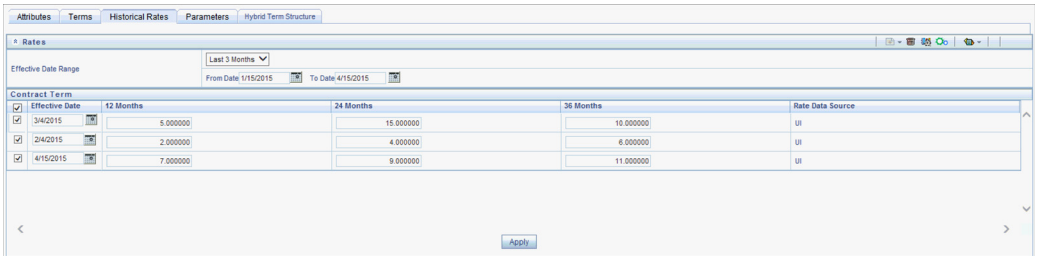
Generate Graph option allows you to generate the graph for selected Historical rates.

To generate a graph, follow the steps given below:

1. Select the Effective Date Range for which you want to generate the graph.
   The From Date and To Date fields will be automatically updated after selecting the Effective Date Range.
2. Select the Effective Date using corresponding calendar options.

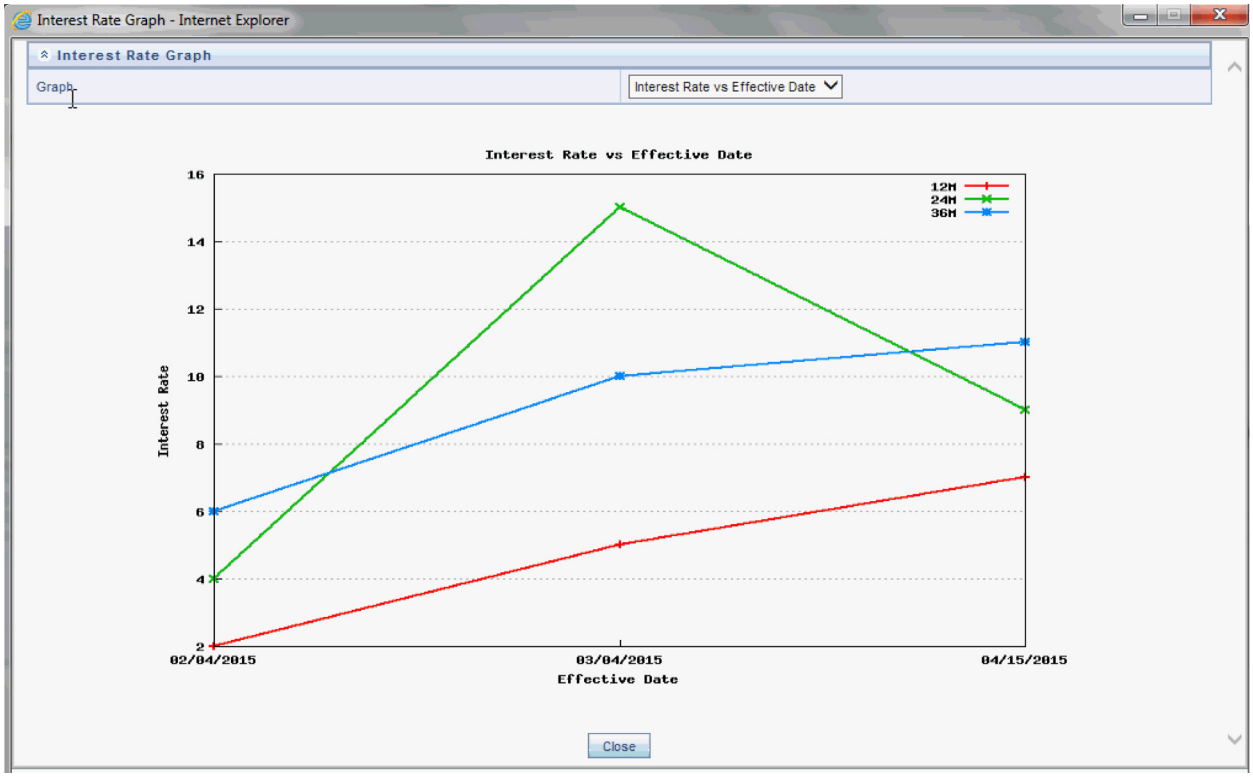


3. Enter the term points in respective fields and click Apply button.
4. Select the Terms using the corresponding check-boxes.



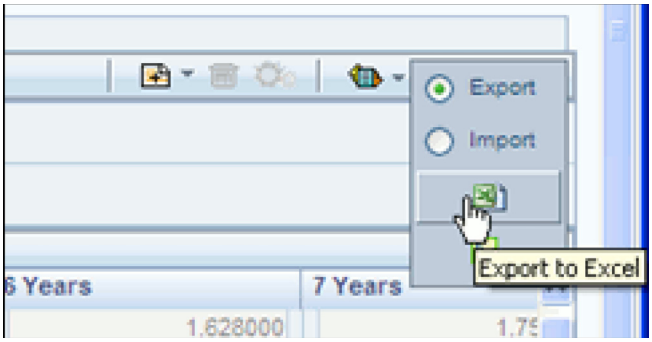
5. Click on Generate Graph icon.

6. The graph will be generated. Here, you can view the graph for Interest Rate vs Effective Date or Interest Rate vs Term Point.

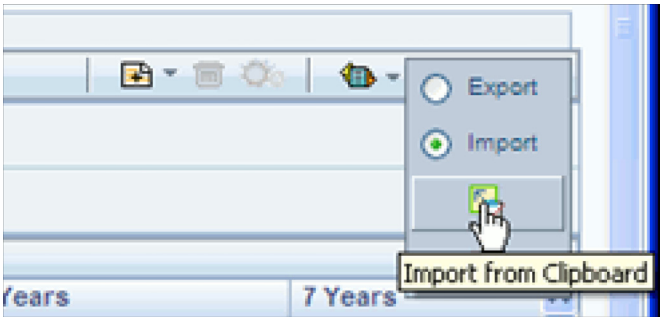


Excel Import/Export

To aid in data entry, use the excel import/export functionality to add or edit rate data to historical rates. On the rates tool bar, click the excel icon. Click the 'export' toggle box to export data for the chosen selected effective date range. Within the same block, choose to export to excel. Doing so will launch the excel application and output the data grid, including headers.



You can add rows to the grid in the same format. After all data is input (or existing data is edited), copy the range of the grid you want to append, and go back to the rates screen. In the same block, click the 'import' toggle box, and directly below click the import from clipboard icon. The data copied from excel will appear in the rate history grid.



1. If appending data that preexisted for the same effective date, the import it will overwrite existing data.
2. In some cases, there are fields that will be output to the grid that are not editable, such as bucket start and end dates (when defining forecast assumptions). Be sure to only add or edit data in the columns that would be editable in the UI itself.

Deletion of Historical Rates

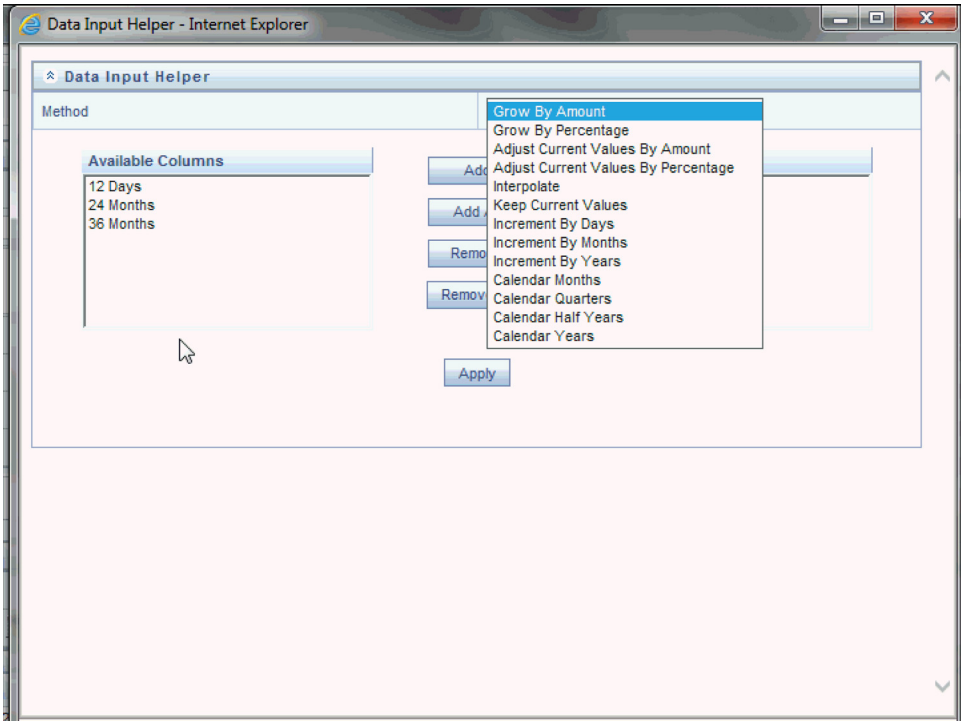
You can delete historical rates entered by selecting one or more rows and then clicking the delete control.

Data Input Helper

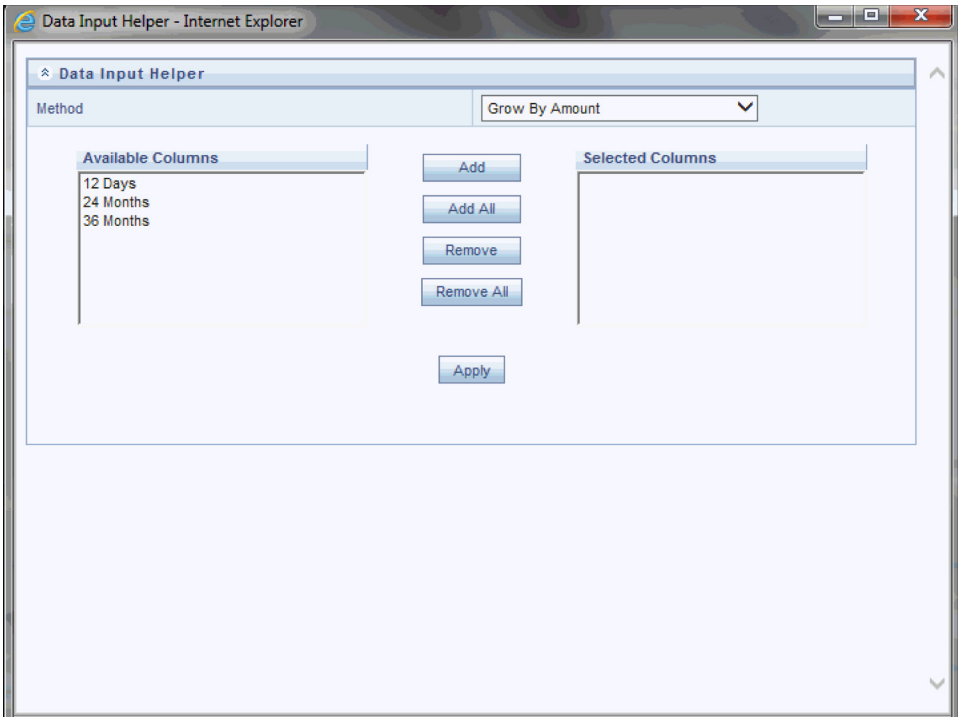
You may want to utilize the Data Input Helper to copy from a row where you have already defined the interest rate definition or apply a fixed value down the page. The following optional steps describe how to use this feature.

1. Select the checkbox next to the rows that you want to work with or use the "Select ALL" option by selecting the checkbox on the header row.
2. Select the Data Input Helper icon.

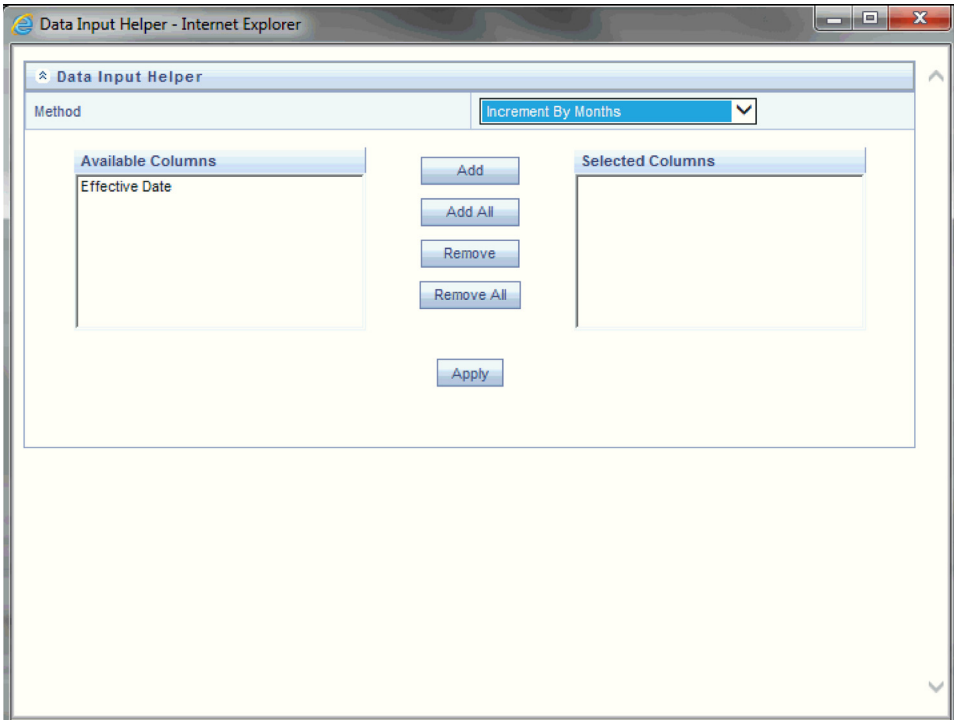
3. From the Data Input Helper – popup screen, select **Method** – "Grow by Amount" or some other appropriate method.



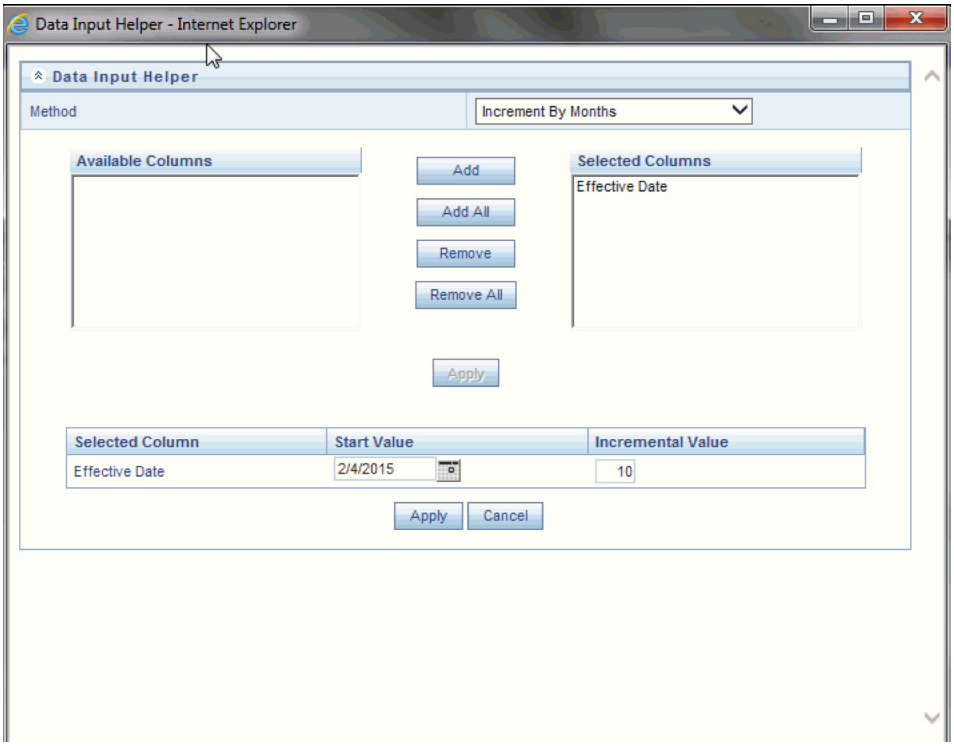
4. Select the term points from the left side (Available Columns) of the shuttle box.



Based on selected **Method**, the list of **Available Columns** will vary. If **Method** is selected as "Increment By Months", "Increment By Days", or "Increment By Years", then only Effective Date option will be displayed in **Available Columns** list.



After clicking on **Apply** button, you can modify the Start date and enter the Incremental Value.



5. Select **APPLY**.

Rate Lookup Behavior Between Term Points

The OFSAA cash flow engine is common to OFSAA Funds Transfer Pricing, OFSAA Pricing Management (Transfer Pricing Component), OFSAA Asset Liability Management, and OFSAA Balance Sheet Planning. In looking up rates from OFSAA Rate Management, the cash flow engine will, where necessary, perform an interpolation between yield curve term points. For example, in determining a straight term transfer rate (common for products such as time deposits), the engine may need to determine a three month rate from a yield curve that contains only a one month rate and a six month rate. In such a case, the cash flow engine will perform an interpolation to determine the implied three month rate. While each of the above applications supports simple linear interpolation, OFSAA Transfer Pricing and OFSAA Asset Liability Management also support cubic and quartic spline interpolation methods. These more advanced methods will be supported for all OFS Analytical Applications in a future release.

Rate Lookup Behavior Beyond Term Points

In cases where the cash flow engine needs to determine a rate from a yield curve for a term point smaller than the first term point of the yield curve, the engine will utilize the first term point of the yield curve. For example, if the engine needs to determine an overnight rate from a yield curve whose first term point is one month, the engine will utilize the one month rate. Similarly, in cases where the cash flow engine needs to determine a rate from a yield curve for a term point greater than the longest term point on the yield curve, the engine will utilize the last term point of the yield curve. For example, if the engine needs to determine a 30 year rate from a yield curve whose last term point is 10 years, the engine will utilize the 10 year rate.

Rate Lookup Behavior Between Effective Dates

In looking up rates from OFSAA Rate Management for a business date, the cash flow engine may find that there is no rate data for that specific business date. For example, in generating an original term transfer rate for an

instrument with an origination date of June 14, 2010, the cash flow engine may find rate data for May 31, 2010 and for June 30, 2010 but no rate data for any dates between May 31, 2010 and for June 30, 2010. In such cases, the cash flow engine always falls back to the latest available rate data prior to the business date of interest (May 31, 2010 in this case).

Parameters Tab

Fixed income instruments are used for forecasting and simulating the Cash Flows. The Cash Flow Engine needs interest rate models to simulate the evolution of interest rates. The Cash Flow Engine uses these models as part of the stochastic engine. You can enter the parameters for these models in several ways:

- System-generated calculations via Parameter Estimation
- Direct input into the UI
- Excel Import
- UI entry via Data Input Helper methods
- Data Loader

Following interest rate models are available:

- Extended Vasicek
- Ho and Lee
- Merton
- Vasicek

Parameter Estimation

This section explains the procedure to calculate estimated parameters.

Conditions for Parameter Estimation

If the following conditions are met, you can calculate parameters for any Term Structure Model for a given Effective Date, based on your relative lookback term and a sufficient number of observations (available historical rates) for the IRC. If you rerun with a different lookback term, it will overwrite the existing parameters for the selected Term Structure Model on that IRC's Effective Date.

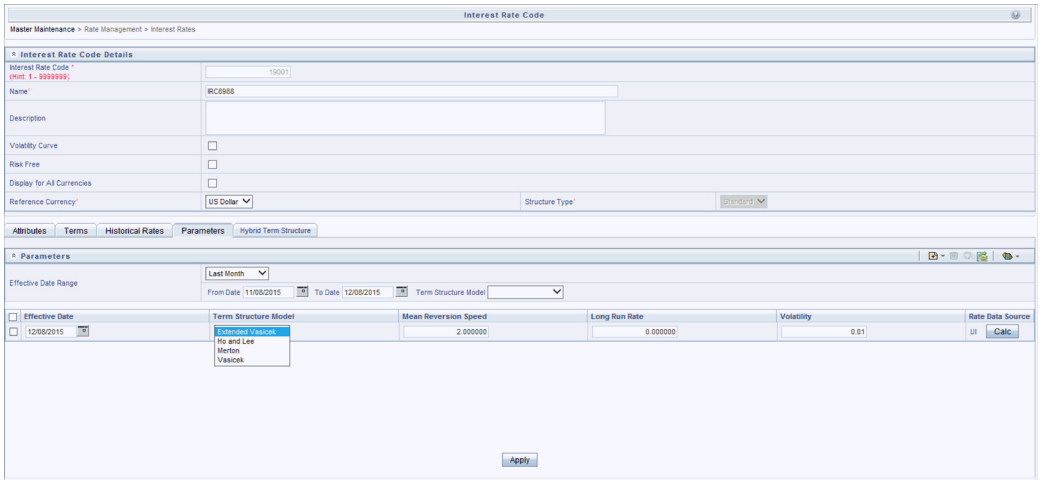
Conditions:

- **Term point:**Underlying historical rates must be available for a 30-Day or 1-Month term point.
- Minimum number of historical rates: A total of at least 10 historical rates ("observations") are required, on appropriate lookback dates.
- **Lookback dates:**Historical rates must be available on dates looking back from the Parameter's Effective Date (the End Date), in roughly 30-day intervals moving backwards from End Date to Start Date, for a minimum of 10 intervals.

  For example: If the first rate's Effective Date is 1 Jan. 2013, then the second rate's date should be 2 Dec. 2012 (1 Jan. 2013 ¿ 30 days = 2 Dec. 2012), and so on. If a rate is not found for the required date, the engine looks for a rate within the neighborhood of 5 days up or down (therefore a total range of 10 days), searching iteratively starting with Date -1, then Date +1, through Date +5, then Date -5. The next rate lookup would be 60 days prior to the End Date, and so on.

The minimum relative term for all lookbacks must be at least 300 Days (i.e., to accommodate a minimum of ten 30-day intervals). Using the abpve logic, if a rate is not found for the lookup date (or date within the neighboring range), an error will be logged in FSI_PROCESS_ERRORS with ID_Number there identifying the Interest Rate Code, then the parameter estimation engine will exit.

Procedure



1. If you wish to edit or recalculate existing Parameters, you can enter the Effective Date Range filter.

   Following Standard toolbar buttons are available here:

- Add
- Delete
- Data Input Helper
- Refresh
- Excel Export/Import

2. Initially, default parameters for the Extended Vasicek Model will be displayed for one Effective Date (the system date on which the Interest Rate Code was created). You can edit these parameters. You can also add new parameters using the Add button. Use the Refresh button to return to existing Parameters.

   Note: Steps 3 and 4 are applicable only if you are Adding or Editing Parameters.

   If you are adding or editing parameters, you can use the Data Input Helper or Excel Import/Export. For more details, refer "Excel Import/Export," on page 33 and "Data Input Helper," on page 13.

3. Enter the Effective Date. Here, Effective Date cannot be greater than Current System Date.
4. Select the Model from Term Structure Model drop-down list. Effective Date + Term Structure Model combination must be unique within this IRC.

   The following term structure models are utilized in stochastic modeling of interest rates in OFSAA Transfer Pricing and OFSAA Asset Liability Management:

- Extended Vasicek
- Ho and Lee
- Merton

- Vasicek

5. The parameters needed by the models are as follows:

Model	Parameter 1	Parameter 2	Parameter 3
Extended Vasicek	**Volatility**	**Mean Reversion Speed**	
Ho and Lee	Volatility		
Merton	Volatility		
Vasicek	Volatility	Mean Reversion Speed	Long Run Rate

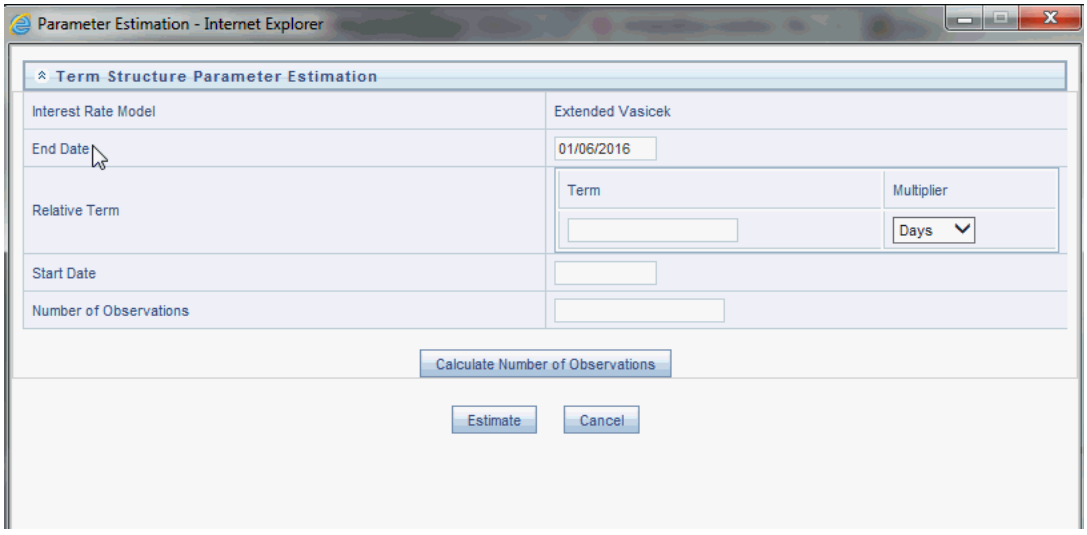
Values for Long Run Rate and Volatility are assumed to be percentages.

For example, a long run rate of 5% is displayed as 5.000. To maintain the integrity of your data, Rate Management restricts the input values it accepts. Note the valid range and default setting for each parameter.

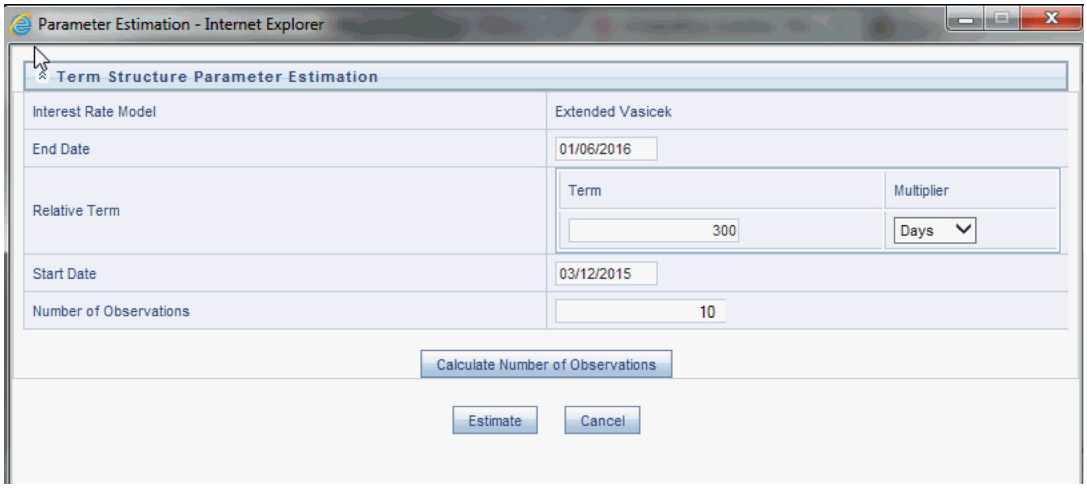
Parameter	Valid Range	Default Value
Volatility	**0% to 500%**	**0.01**
Mean reversion speed	0.00 to 500	0.0
Long run rate	0.00% to 500%	0.0

6. Rate Data Source will indicate if you have directly entered Parameters through the UI. It will also allow you to Calculate the Parameters to display system-generated values.
7. When you select **Calculate** option, the following **Term Structures Parameter Estimation** window is displayed:

   If you are directly entering the Parameters, then enter values appropriate to the Model, as noted above, then click **Apply** else click **Calculate**.



8. End Date will be auto-populated with Effective Date. Enter the Relative Term with Multiplier to define the rate lookback period. The Term/Multiplier value should be at least 300 Days.
9. Start Date is automatically updated after entering Relative Term.



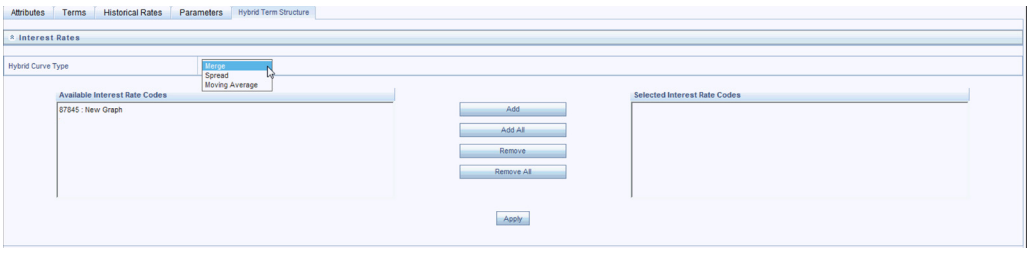
10. Click Calculate Number of Observations to confirm number of rates found for appropriate dates within the Relative Term. If there are at least 10 observations, the Estimate button will become active. For more information, refer to Conditions for Parameter Estimation section.
11. Click Estimate to Calculate the Parameters and store them in the historical parameters table (FSI_IRC_TS_PARAM_HIST). You will then see a confirmation box. Click Ok. The calculation will complete and you will be directed back to the Parameters screen.
12. Similar to the validation used for direct input from the UI, if any of the calculated parameters are outside of the valid range, the engine will write an error message.

You can delete parameters by selecting one or more rows and then clicking Delete. For details on term structure models and stochastic processing, refer to *Oracle Financial Services Funds Transfer Pricing User Guide, Oracle Financial Services Asset Liability Management (OFSALM) User Guide,* and *Oracle Financial Services Analytical Applications Cash Flow Engine Reference Guide.*

Hybrid Term Structure Tab

Hybrid term structures will allow you to specify three types of hybrid yield curves:

- Spread
- Moving Average
- Merge



Note: The Parameters and Hybrid Term Structure tabs will be disabled, if Volatility Curve is checked.

Hybrid yield curves are built up from either one or more standard yield curves. When you add, modify, or delete any historical rate data from a standard yield curve, the data associated with any related hybrid yield curve should also be updated (see Generate Historical Rates below). Once defined, Hybrid Yield Curves are used like any other interest rate curve in the system. You can reference these curves within OFSAA application business rules that allow selection of an Interest Rate Code.

Spread

A Spread hybrid yield curve is defined as the difference between two standard yield curves. The "spread" type of hybrid yield curve may be useful in establishing liquidity risk or basis risk yield curves.

Moving Average

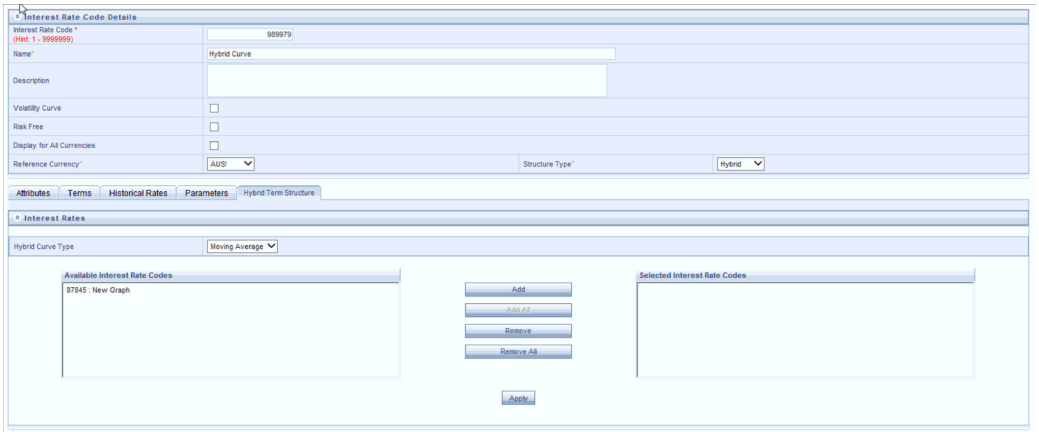
Moving average hybrid yield curves represent moving average data of a single underlying standard yield curve. These curves are typically used in Funds Transfer Pricing.

Merge

Merge hybrid yield curves represent a blending of two or more underlying yield curves. In constructing a "merge" type of hybrid yield curve, you specify the percentage weighting applicable to each of the underlying standard hybrid yield curves.

Defining a Hybrid Curve

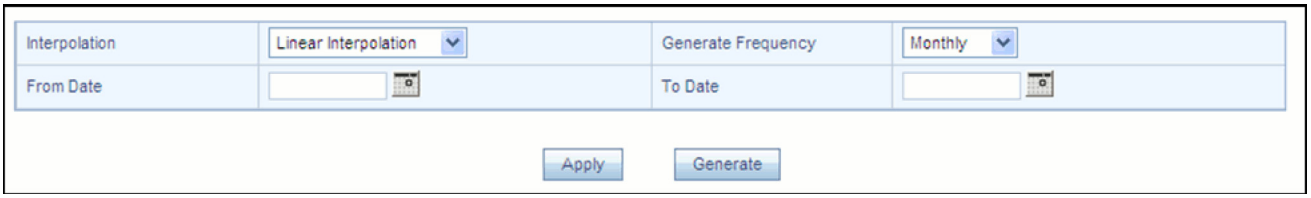
To define a hybrid curve select the Source Type: Hybrid, in the Hybrid Term Structure tab, select the Hybrid Curve Type (Spread, Moving Avg., or Merge), and select the Interest Rate Code(s) for the hybrid type. Click "Apply."



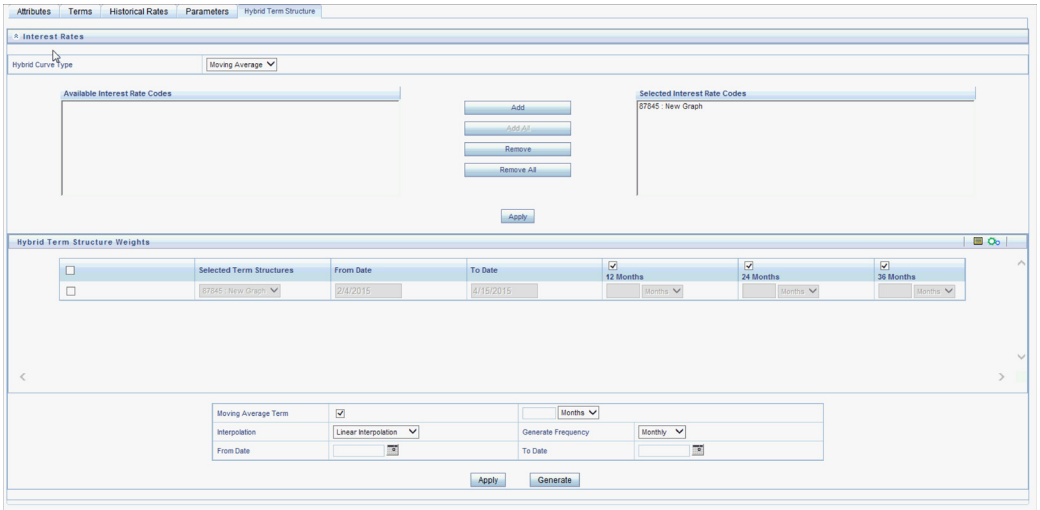
Generate Historical Rates

Once a hybrid curve is defined, you can generate historical rates as far back as the rate source curves allow. The Generate Frequency determines the frequency of the historical rates populated with the Generate function. If you choose the generate frequency of monthly, it will generate month end values only. If you choose daily, it will generate the maximum number of historical values.

To generate the rates, select the interpolation method (Linear, Cubic or Quartic), select the Generate Frequency (Daily, Weekly, Bi-Weekly, or Monthly) and enter the specific date range (From Date / To Date), Click the "Generate" button. The rates will be populated and you will be directed to the Historical Rates tab to view the results.



If Hybrid Curve Type selected as Moving Average, then you can select the Moving Average Term in Days, Months, or Years.



Automate (Schedule) the Generate Rates Action in Hybrid IRCs

The generation of the Hybrid IRC rates which is currently available within the Rate Management user interface > Hybrid IRC, as a manual process, can additionally be scheduled to run through an ICC Batch process or through a Simplified Batch process.

When running Generate Rates through the user interface, there are 3 parameters provided by the user.

- Interest Rate Code: For example, the user is in edit mode for a particular Hybrid IRC when they execute the Generate Rates option, so the IRC is implied.
- FROM DATE: this is the start date of the generate rates process
- TO DATE: this is the date to which hybrid rates will be computed

When generating Hybrid Rates through a batch (ICC or Simplified), specify 'ALL' in the Parameter list to generate rates for all Hybrid IRCs. On the other hand, a list of IRCs can be specified by means comma separated values within quotes.

'IRC_Code1, IRC_Code2, IRC_Code3' and so on

Note: If you want to use all IRCs, then use 'ALL' in the Parameter list.

Additionally, the "TO DATE" is determined based on the Effective Date specified for the Batch and the "FROM DATE" for each IRC is determined by referring to the last (maximum) effective date in the current historical rates table +1 day.

There is one exception to the calculated "FROM DATE". In cases where a new Hybrid IRC is generating rates for the first time, then the minimum Effective Date from the Parent IRC is used as the "FROM DATE".

Note: Hybrid Rates generated by the Generate Rates procedure are written to the FSI_IRC_RATE_HIST table. Outputs from the procedure can be verified within the Interest Rates UI or by querying this table directly.

The following topics are covered in this section:

- Dependent Tables
- Prerequisites to running - Hybrid IRC batches
- Batch Creation and Running Batches
- Viewing Log Messages

Dependent Tables

FSI_IRCS: Holds header information of all Interest Rate Codes.

FSI_IRC_HYBRID_STRUCT_WEIGHT: Holds the Hybrid IRCs' - interest rate term, interest rate term mult and rate weightage. It is the child Table of FSI_IRCS.

FSI_IRC_RATE_HIST: This Output table holds calculated rates for the Hybrid IRCs, as well as all historical rates for non-hybrid IRCs input through the Interest Rates UI or loaded directly using the interest rates data loader program.

FSI_MESSAGE_LOG: Holds error log information.

DATE_TASK_MASTER: Located in the Config Schema, this table should have a seeded date for IRC_HYBRID_SCHEDULER DT.

DATE_TASK_STEP_PRECEDENCE : Similar to DATE_TASK_MASTER, this table should also have an entry for IRC_HYBRID_SCHEDULER DT

Prerequisites to Running Hybrid IRC Batches

- The Function FN_FSI_IRC_HYBRID_SCHEDULER should be in “compiled” status in the ATOMIC schema. Sometimes, the functions created in Database can be in invalid state due to some issues (by the installer), so you can use compile option in DB to get them in valid state.
- Users can create the ICC batch using the "IRC_HYBRID_SCHEDULER" rule name, which is seeded with the installation.
- Hybrid IRC rates are calculated based on their underlying standard IRC rates, which are also stored in the FSI_IRC_RATE_HIST table. Historical Rates should already exist for all parent and dependent IRCs for the relevant effective date range.

Note: Seeded data related to Batch information should be present in the DATE_TASK_MASTER and DATE_TASK_STEP_PRECEDENCE tables in the Config schema.

Batch Creation

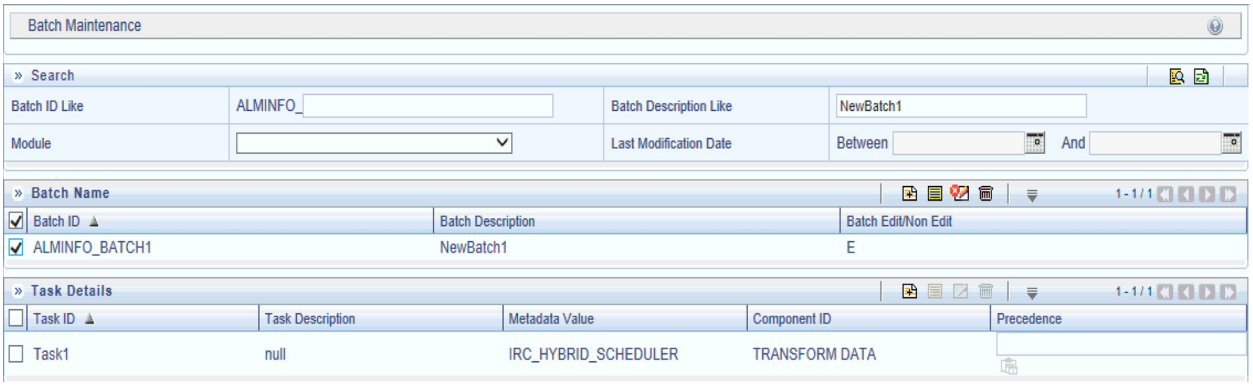
As mentioned earlier, there are two methods for creating and running batch processes, ICC Batch and Simplified Batch. The following section describes how to setup and run Hybrid Rate Generation using both approaches.

Running Hybrid Rate Generation using ICC Batch:

1. Navigate to: *Common Object Maintenance> Operations > Batch Maintenance > Create Batch*
   - Component = “Transform Data”
   - Rule Name = “IRC_HYBRID_SCHEDULER”

- Parameter List = 'IRC_Code'

Note: If you want to use all IRCs, then use 'ALL' in the Parameter list.



2. Save the batch
3. Navigate to: *Applications> Common Object Maintenance> Operations> Batch Execution*
4. Search for and Select the Batch created under Batch Maintenance.
5. Input the "Information Date" for the batch.
6. Select "Execute Batch"

To schedule a future Hybrid Rate Generation Batch Process, or to schedule Hybrid Rate Generation Batch Process on a recurring basis, do the following:

1. Navigate to *Applications> Common Object Maintenance> Operations> Batch Scheduler.*
2. Search for and select the Batch to schedule.
3. Select New Schedule or Existing Schedule:

   Note: An Existing Schedule can be selected only if there are existing scheduled batches to view.
4. If New Schedule is selected, the New Schedule grid appears. Enter the Scheduled task name.

   _ To run the Hybrid Rate Generation process once, select once. Go to Step 6.

   _ To schedule the Hybrid Rate Generation on a recurring basis, select Daily, Weekly, Monthly or Adhoc.
5. In the Schedule Task grid, in the Date field, enter the start date and end date.
6. In the Run Time field, input the time for the next validation to be run.
7. Click **Save** to set the schedule as specified or **Cancel** to drop your changes.

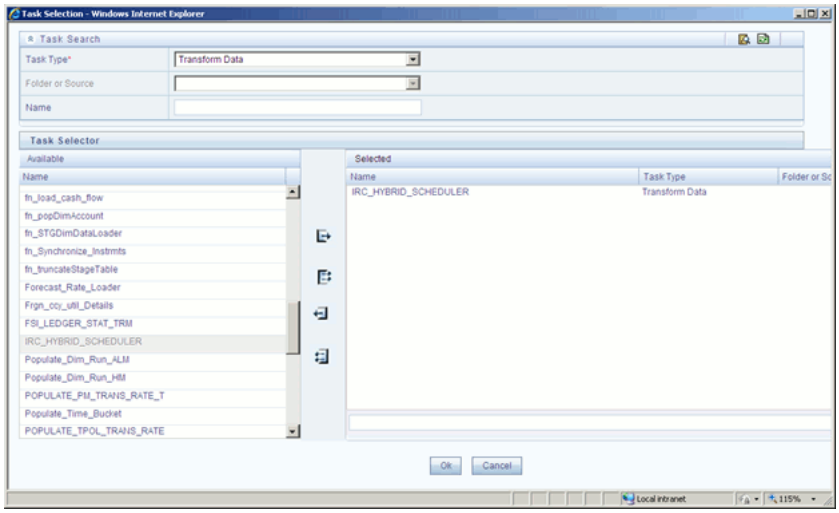
   Any error messages or warnings generated during the Hybrid Rate Generation process are displayed in the View Log.

Running Hybrid Rate Generation using Simplified Batch

To run Hybrid Rate Generation using Simplified Batch, use the following steps:

1. Under Financial Service Applications, click *Applications> Common Object Maintenance> Operations> Simplified Batch> Add.*

2. From the Task Details block, click Select Task. In the Task Selection window, choose Task Type as Transform Data. Then, click Search. In the Task Selector, Scroll down the left shuttle box (Available tasks) and select IRC_HYBRID_SCHEDULER (move to right shuttle box), then click **Ok**.



3. Enter the parameters and click **Save**.
4. In the Simplified Batch summary page, search for and select your Hybrid Rate Generation batch, then click the Run icon.
5. Click YES to confirm you want to continue, enter a date (this will be your "TO DATE") and click **Ok** to continue.
6. You will receive a message that the batch has been successfully launched.
7. Click **Ok**. When the batch is complete, optionally navigate to Operations > View Log to view the processing log.
8. Any error messages or warnings are accessible from the View Log screen.
9. **Note:** Simplified Batch does not yet provide access to logs for Transform Data tasks.

Viewing Log Messages

Any error messages or warnings generated during the Rate Generation Batch are displayed in the Log Information window. To access this window:

1. Click *Operations* > *View Log*.
2. Enter search criteria: Data Transformation and related Batch ID
3. Select the Task ID hyperlink to view the log information

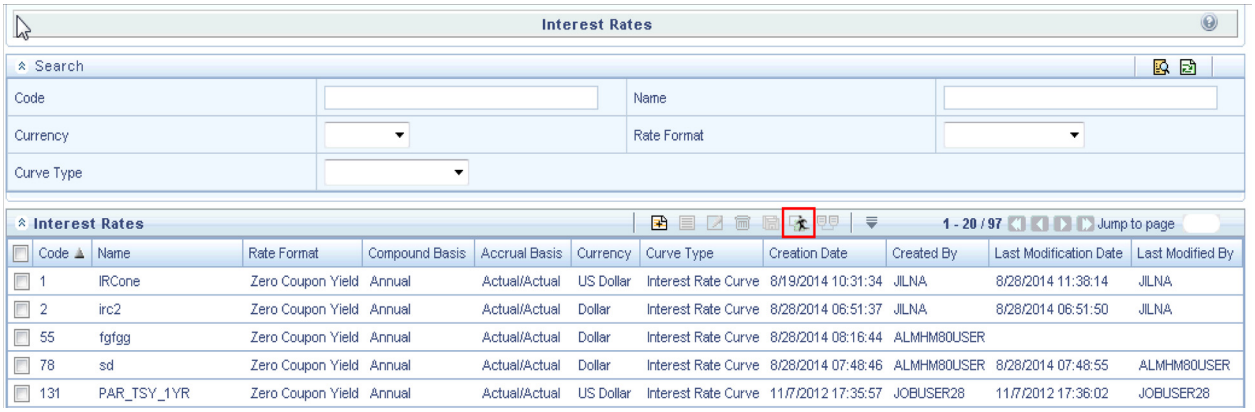
Users can additionally query the FSI_MESSAGE_LOG table directly to view the error log details.

Data Loader

The Data Loader Icon executes a function to import historical interest rates and parameters for all defined IRCs. For more information on setting up the automated process, see *Oracle Financial Services Analytical Applications Data Model Utilities User Guide.*

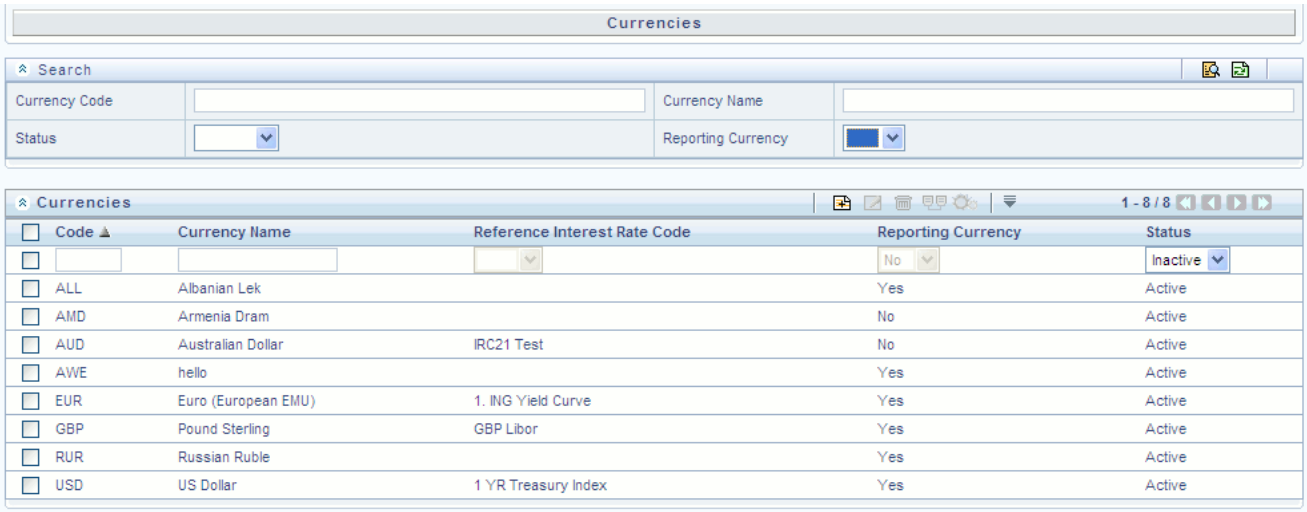
To execute a data load, click the Data Loader icon. A warning message will appear *Update all available interest rates and parameters?*

Note: Upon clicking the data loader icon, the loader will execute all interest rates and parameters.



Currency

Upon initially navigating to Common Object Maintenance > Rate Management > Currency, a summary screen displays a comprehensive list of more than 170 seeded ISO currency codes.



Search Container

A Search container is provided in which you may search for currencies by Name, by Currency (by ISO currency code), by status or by reporting currency.

Search Control

Enter your desired search criteria and click on the Search control.

Reset Control

Clicking on the Reset control removes search constraint you may have specified and refreshes the screen.

Currencies Container

The Currencies container presents a grid containing all of the currencies that meet your search criteria. The Currencies summary grid offers several controls that allow you to perform different functions when a currency is selected.

To select a currency, click on a check box in the first column of the grid. More than one currency can be selected at a time but this will cause some of the controls to become disabled. Clicking on a checkbox a second time de-selects the currency.

You may select or deselect all of the currencies in the summary grid by clicking on the check box in the upper left hand corner of the summary grid directly to the left of the Code column header.

Add

Clicking on the Add control begins the process of adding a new currency. The Add control is disabled if any rows in the grid have been selected.

Edit

Selecting a single row out of the grid enables the Edit control. Clicking on the Edit control allows you to modify an existing currency. The Edit control is only enabled when a single currency has been selected.

Note: You can control the number of rows to display on screen by selecting the "Pagination Options" icon from the action bar.

Delete

Selecting one or more rows out of the grid enables the Delete control. Clicking on the Delete control deletes the currency or currencies you have selected.

Check Dependencies

Select a currency and then click the Check Dependencies control to generate a report on all rules that utilize your selected currency.

The Check Dependencies control is only enabled when a single currency has been selected.

Currencies Summary Grid

The following columns categorize each currency shown in the summary grid:

- Code
- Currency Name
- Reference Interest Rate Code
- Reporting Currency
- Status

Code

For seeded currencies, these are ISO Currency Codes. For user-defined currencies, these may be any pure character string (no numbers) up to a length of 3 characters.

Currency Name

For seeded currencies, these are ISO Currency Codes. For user-defined currencies, these may be any string up to a length of 40 characters.

Reference Interest Rate Code

Reference Interest Rate Code is the Interest Rate Code with which a currency is associated for forecasting purposes. You may define multiple yield curves each of which has the same Reference Currency, but a currency may only have one Reference Interest Rate Code.

Reporting Currency

A reporting currency is an active currency to which balances in other currencies may be consolidated in order to facilitate reporting. Balances in reporting currencies may be, in turn, consolidated to the functional currency. For example, an American multinational bank might consolidate its holdings in Asian currencies to the Japanese yen (reporting currency) and its balances in European currencies to the Euro (reporting currency) after which it might consolidate these reporting currencies to the U.S. dollar (functional currency).

Status

The status of any currency may be either Active or Inactive. You must "activate" a currency before you can:

- Define that currency as a Reference Currency for a yield curve (see Reference Currency above under the section entitled Interest Rates Detail Screen)
- Enter exchange rate data for a currency (see the section below entitled Currency Rates)
- Define Forecast Rates for that currency within OFSAA Asset Liability Management (see Forecast Rates in the *Oracle Financial Services Asset Liability Management (OFSALM) User Guide*)

Editing Currencies

To edit a currency, select a currency and then click on the Edit control. You may not modify any currency Code value. You may, however, modify Currency Name, the Reference Interest Rate Code, the Reporting Currency value (limited to Yes or No), or the currency's Status (limited to Active or Inactive).

You may not inactivate any currency that is:

- Defined as the Reference Currency for any yield curve
- Associated with any exchange rate data
- Utilized within any Forecast Rates rule within OFSAA Asset/Liability Management

Once you have completed your edits, click **Save**.

Adding Currencies

The first row in the Currencies container is an empty row that is ready for you to edit as a new currency. You may select this empty row, click on the Edit control, and generate a new currency. You may also generate a new currency by clicking on the Add control. This will generate another empty row at the top of the Currencies container that is ready for you to edit.

Deleting Currencies

Click on one or more currencies and then select the Delete control. You may not delete any currencies that are utilized elsewhere in the system (see exclusions above under Editing Currencies).

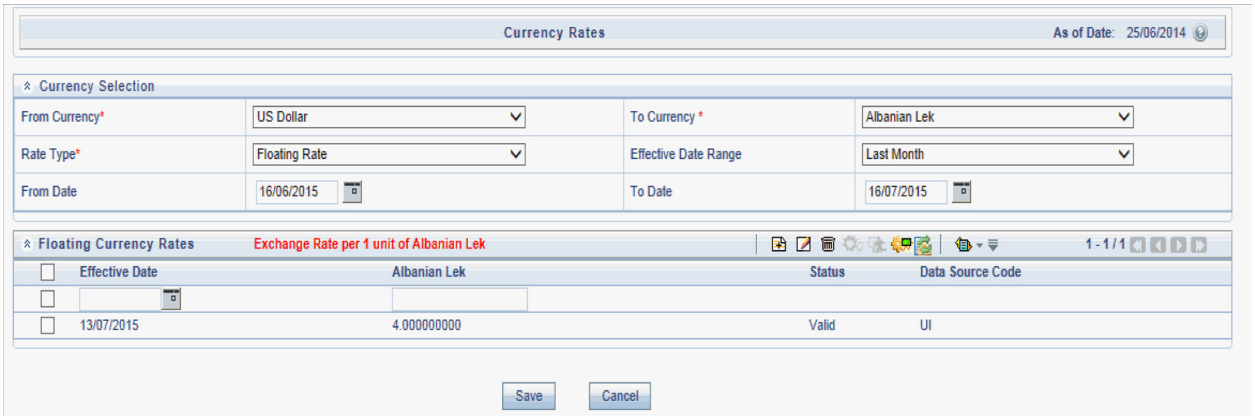
Currency Rates

Upon navigating to Common Object Maintenance > Rate Management > Currency Rates, the Currency Rates screen is displayed. Within this screen, you may manage historical exchange rates between currencies.

For ALM, TP and PFT, **From Currency** is to be defaulted to the Initial Currency selection from the Assumption Management Defaults in the active Application Preferences UI. You may select another From Currency. The From Currency drop-down list displays all Active currencies.

Preparing to Work with Exchange Rate Data

In order to begin the process of viewing, entering, modifying, or deleting exchange rate data, you must supply a "To Currency" value. As with the From Currency, the To Currency drop-down list box displays only Active currencies.



After having selected a To Currency value, select a value for Rate Type: Floating Rate or Fixed Rate (the default selection is Floating Rate). Once you have selected a To Currency value, a second container is displayed: Floating Currency Rates (if you have chosen a Rate Type of Floating Rate) or Fixed Currency Rates (if you have chosen a Rate Type of Fixed Rate).

Floating Rates

Floating exchange rates, such as those between the US Dollar (USD), the Pound Sterling (GBP), the Japanese Yen (JPY), and the Euro (EUR), are market driven and may change from day-to-day, hour-to-hour, or minute-to-minute.

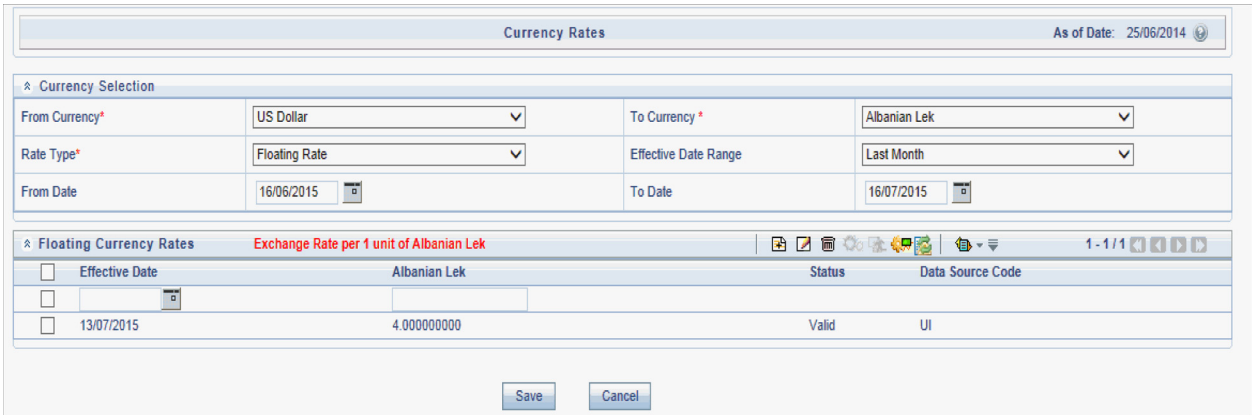
Fixed Rates

Some countries, especially smaller countries or countries that have experienced significant inflation in the recent past, may wish to "peg" their currency to a larger, more stable currency such as the US Dollar, Japanese Yen, or Euro.

Adding Exchange Rate Data

Once you have specified a value for To Currency, the Floating Currency Rates container appears. If you wish to define a Fixed Rate relationship, select the "Fixed Rate" Rate Type and the Floating Currency Rates container will be replaced by the Fixed Currency Rates container.

Both Currency Rates containers initially display a single blank row followed by the most recent month's exchange rate data (if any such exchange rate data already exists). To enter a single new exchange rate data point, enter your data into the blank row and click **Save**.



Effective Date

Directly enter a date or select the calendar control to choose an effective date for your new exchange rate data point.

Rate Management stores historical exchange rate data. You may not enter exchange rate data for dates greater than the current date. For more information regarding rate forecasts and the relationship between historical exchange rates for forecasted exchange rates, see *Forecast Rate Scenarios* chapter. If you have gaps in your historical exchange rate data, any OFS Analytical Application that needs to perform a rate translation function will fall back to the most recent date for which exchange rate data exists. For example, if an OFS Analytical Application needs to translate a rate from USD to EUR for February 22, 2010 and the latest available USD to EUR rate data in the Rate Management database is February 11, 2010, the application will utilize the exchange rate for February 11, 2010.

Status

Status is a read-only display which is updated after the Currency Rates Validation has been run.

Data Source Code

The Data Source Code is displayed read only and indicates whether the rates were input through the UI or via the data loader.

Currency Exchange Rate

For both Floating Rates and Fixed Rates, units of the From Currency are converted to one unit of the To Currency. For example:

From Currency	To Currency	Approximate Rate
USD – US Dollar	GBP—Pound Sterling	1.50
USD – US Dollar	EUR – Euro	1.36
USD – US Dollar	JPY – Japanese Yen	0.01105

Adding Multiple Exchange Rates

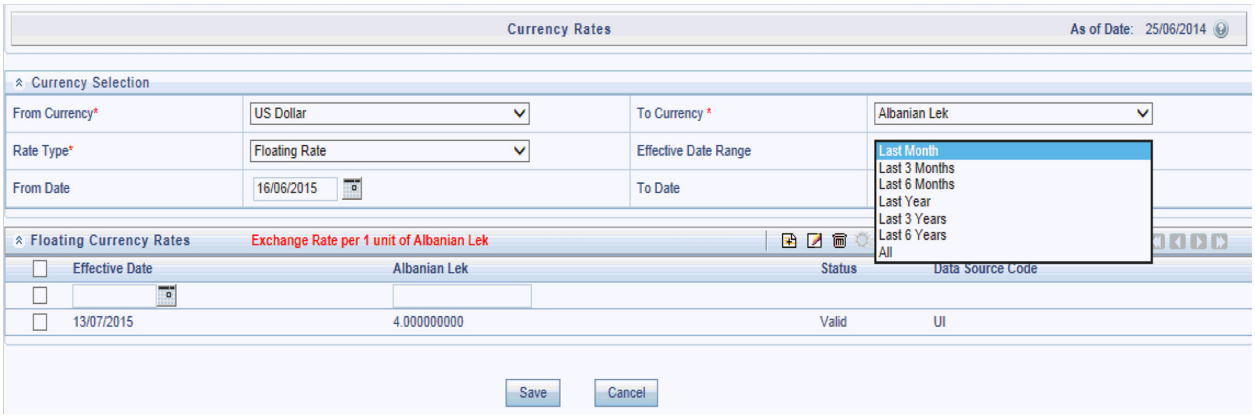
Click **Add** to add additional blank rows into which you may enter additional Effective Dates and Exchange Rates. When you have finished adding multiple new exchange rates, click **Save**.

Editing Exchange Rate Data

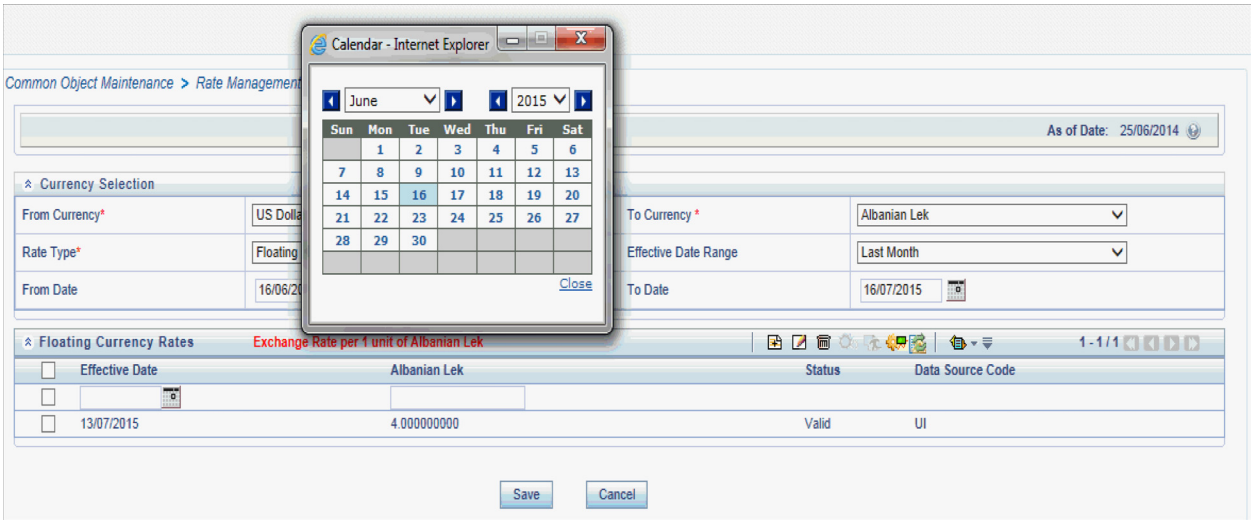
Clicking on the check box on the left hand side of any row of data enables the **Edit**. After clicking **Edit**, the row becomes active and you may edit Effective Date and/or the Exchange Rate after which you may Save your changes.

Viewing Exchange Rate Data

By default, both the Floating Currency Rates container and the Fixed Currency Rates container display the most recent month of historical exchange rate data. You can control the amount of data displayed by selecting a different value from the Effective Date Range drop-down list box in the Currency Selection container.

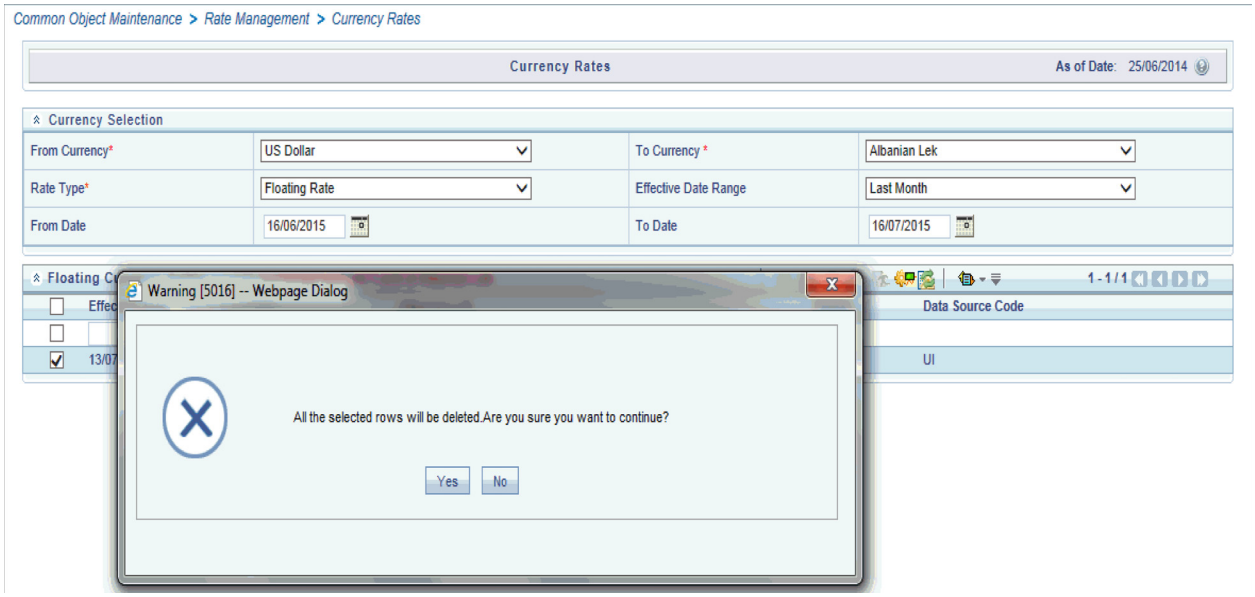


You may also choose to view a specific range of effective dates by modifying the From Date, the To Date, or both dates within the Currency Rates container.



Deleting Exchange Rate Data

Clicking on one or more check boxes on the left hand side of any row of data enables the Delete button. After clicking **Delete**, you will be asked to confirm that you wish to delete the rows you have selected.

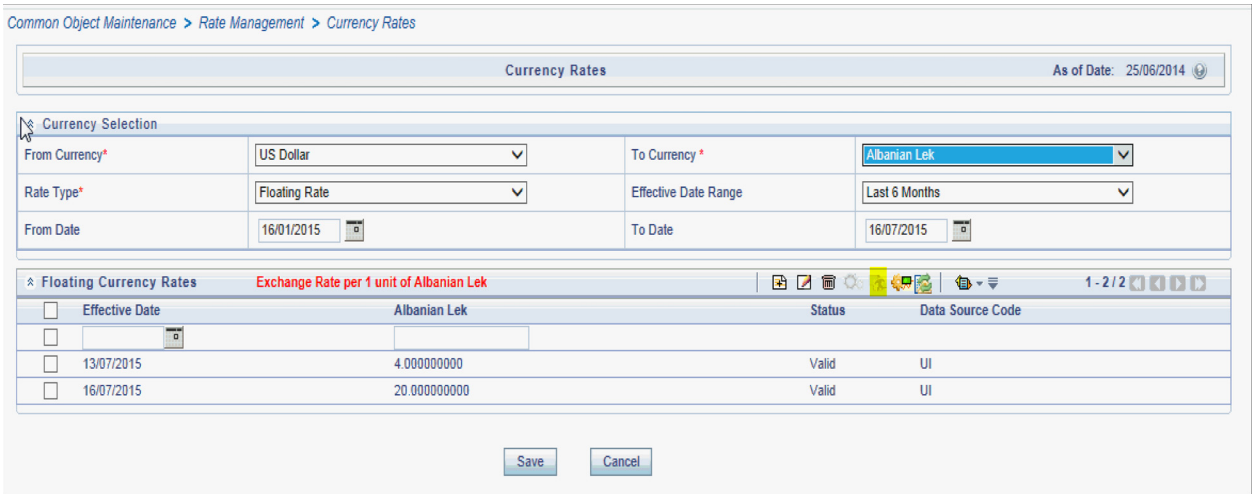


Data Loader

The Data Loader Icon executes a function to import historical Currency rates for all defined Currencies. For more information on setting up the automated process, see *Oracle Financial Services Analytical Applications Data Model Utilities User Guide.*

To execute a data load, click on the Data Loader icon. A warning message will appear *Upload all available Currency Rates?*

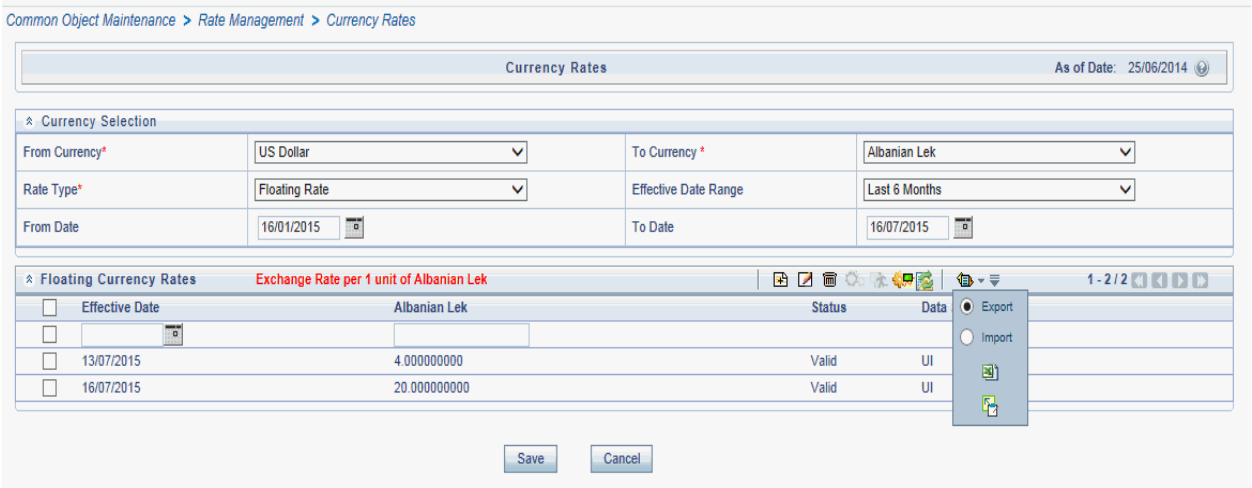
Note: Upon clicking on the data loader icon, the loader will execute all currency rates.



Excel Import/Export

Excel import/export functionality is used for adding/editing historical exchange rates.

Note: To export exchange rates, "Enable visual style buttons and controls in webpages" option in Internet Explorer should be enabled. Otherwise, it may show error message.



Currency Exchange Rate Validation

Currency Rate Validation – Overview

Features:

Exchange Rate Validation contains the following features:

- Movement of historical exchange rates to the Currency Direct Access table.

- Calculation of inverse exchange rates for reporting currencies.
- Calculation of triangulated exchange rates where possible.

Note: This feature is equivalent to the Rate Validation capability in OFSA 4.5 Rate Manager.

Exchange Rate Validation – Feature Description

The goal of exchange rate validation is to ensure that exchange rates from all active currencies to all reporting currencies are available for processing in OFSAA applications. Some of these rates may come from the validated direct input, others are calculated based on relationships with other rates. To support triangulation, all fixed exchange rates are available for all currencies that make up a conversion that needs to be triangulated. In addition, a direct exchange rate between each Child currency and each reporting currency is calculated and supplied to support quick access to exchange rates. If a Child currency is a reporting currency, then exchange rates are calculated for all currencies having an exchange relationship with the Parent currency.

Currency Rate Validation – Procedure

1. Load currency rates through the Rate Management UI or by using the Historical Rate Data Loader. Notice the initial status is "Not Yet Validated".
2. Execute the Currency Rate Validation engine.

   Navigate to: *Operations* > *Batch Maintenance* > *Create Batch*

   - Component = "Transform Data"

   - Rule Name = "Rate_Validation"

   - Parameter List (Required) = FROM_DATE and TO_DATE, for example, '20110101', '20110131'

   Note: After completion of the validation process, notice the status in the Currency Rates UI changes to **Valid** or in case there is an issue, **Invalid**.
3. View both input and calculated results in the FSI_EXCHNG_RATE_DIRECT_ACCESS table.
4. All of the OFSAA processing engines read from this table for sourcing historical exchange rates.

   Note: Executing Rate Validation is a **required** step when multi-currency setup is enabled. All of the OFSAA processing engines require exchange rates to be validated through this process in order to convert results from base currency to a selected reporting currency. If exchange rate validation is not run or required exchange rates are not available, the engines will use default exchange rates = 1.

Validating Exchange Rate Relationships

Users should run the exchange rate validation process after adding or modifying exchange rate data. You can run the process immediately or schedule one or more to be run in the future.

Each exchange rate is placed in one of the following statuses:

Status	Description
Not Yet Validated	The exchange rate has been input or loaded but not yet validated
Valid	The exchange rate has been validated.
Invalid	The exchange rate has violated one or more acceptance rules.

Only exchange rates in Valid status are available for processing and they are not subject to future validation unless you edit them.

The rate validation status is displayed in the Rate Management > Currency Rates UI.

Exchange Rate Validation Criteria

In the rate validation process all exchange rate relationships in the database are examined for compliance with the following criteria. Error messages and warnings are displayed if one or more criteria are not met. (See *Viewing the Messages* section.)

1. If a currency is defined as a Child in a fixed exchange relationship then it must not be in any floating (standard) exchange rate relationship at the same time. Consequently all floating exchange rates to or from the Child currency must be defined through the Parent currency. If this criterion is not met then the following message is displayed : *Invalid fixed relationship—Child currency exists in a standard exchange rate within the same time period.*
2. A Child currency within a fixed relationship must not be a Child currency in any other fixed relationship during the same time period. If this criterion is not met then the following message is displayed : *Invalid fixed relationship—Child currency already exists in a fixed relationship for same time period.*
3. A circular relationship must not exist. In other words, a Child currency cannot link back to its Parent in any other fixed rate relationship within the same time period. If it does, then the following message is displayed : *Invalid fixed relationship creates circular relationship with other fixed exchange rates.*
4. Regarding new floating (standard) exchange rates, From and To currencies must not exist as Child currencies within any fixed exchange rate relationships. If this criterion is not met then the following message is displayed : *From/To/Both currency(ies) in new exchange rate already exist in a fixed relationship for the same time period.*
5. If any exchange rate is equal to 0, then a warning message is displayed. Generally speaking, 0 is a valid value. You can use it, for example, to designate an exchange rate with a currency of a country that no longer exists.

If two exchange rate relationships fail to meet these criteria then both of them will be labeled Invalid. (Exception: if one of the relationships is already in Valid status, then the other one will be labeled Invalid.) For example, if a currency is defined as a Child in a fixed rate relationship and is also defined as being in a floating relationship at the same time, then both fixed and floating rates for that currency will be labeled Invalid.

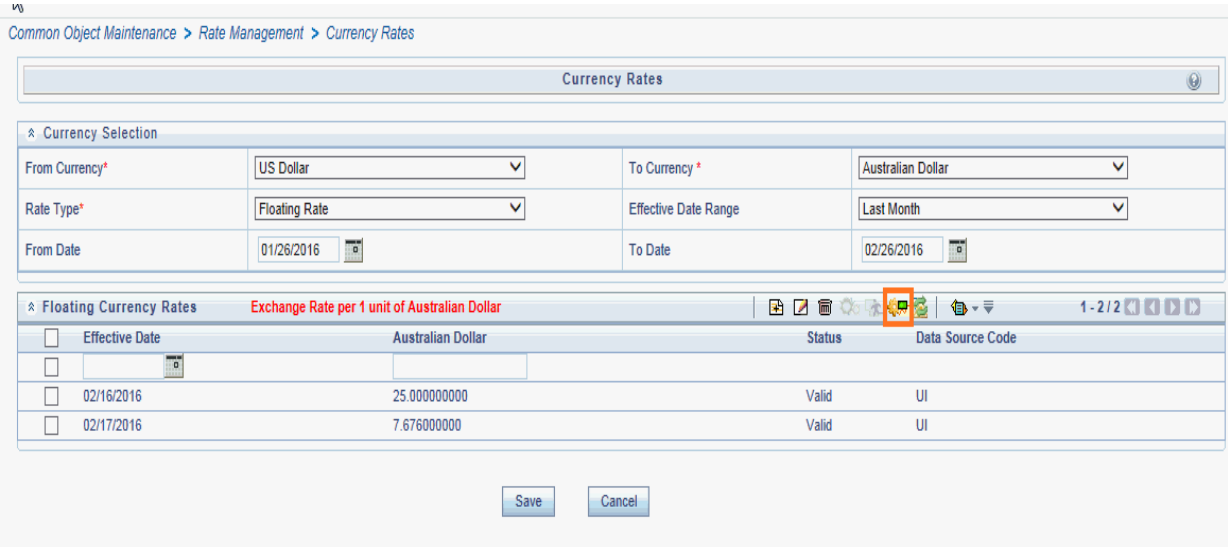
If there are both direct and inverse floating exchange rates defined for any two currencies (in other words, one currency is both a To and a From currency in relation to the other), then both relationships will be marked Valid.

Running an Exchange Rate Validation

You can run a validation immediately or schedule one or more for later. The validation status is displayed in the Rate Management > Currency Rates UI.

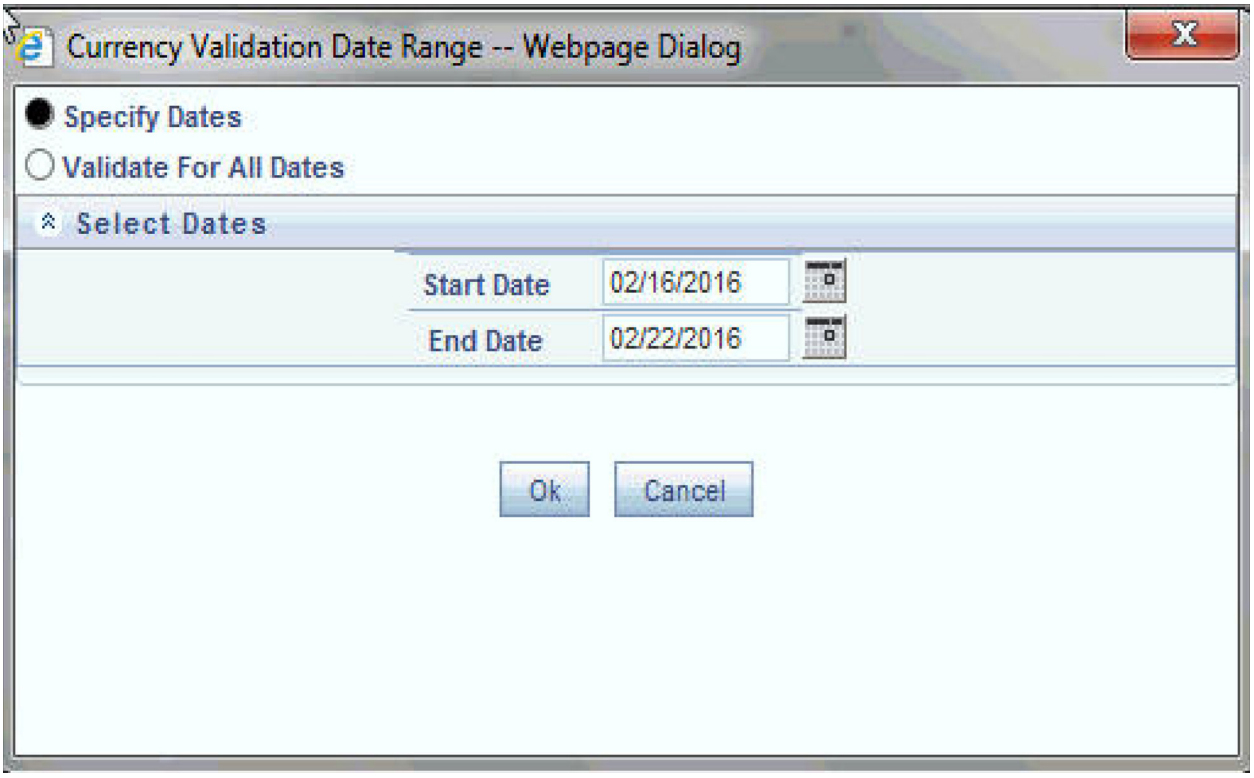
Running a Validation Immediately

You can execute exchange rate validation using the "Currency Rates validation" option from the toolbar.



To execute exchange rate validation from the Currency Rates user interface, the following two options are available:

- **Specify Dates:** When you select this option, a **Select Dates** section will be displayed that allows you to input/verify the FROM_DATE and TO_DATE parameters and these dates will be passed to the batch for execution.



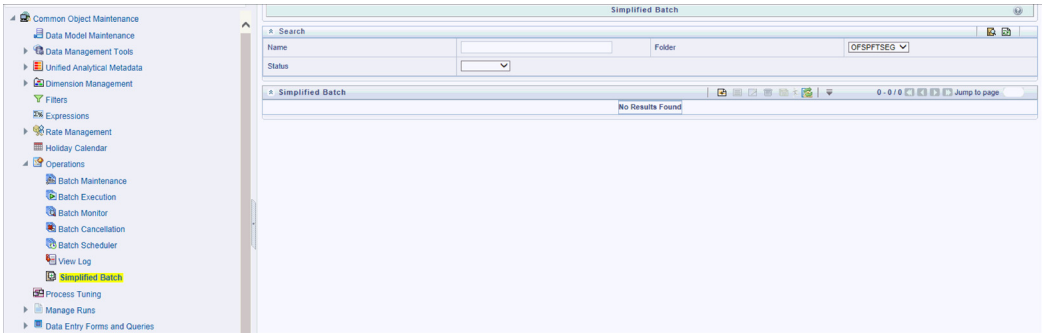
- FROM_DATE: This is defaulted to the date of last rate validation.
- TO_DATE: This is defaulted to the current date.
- **Validate For All Dates:** If you select this option, then it will validate all rates irrespective of dates.

Note: This option will replace all of the validated exchange rate history and can be a time consuming process depending on the amount history available to be processed.

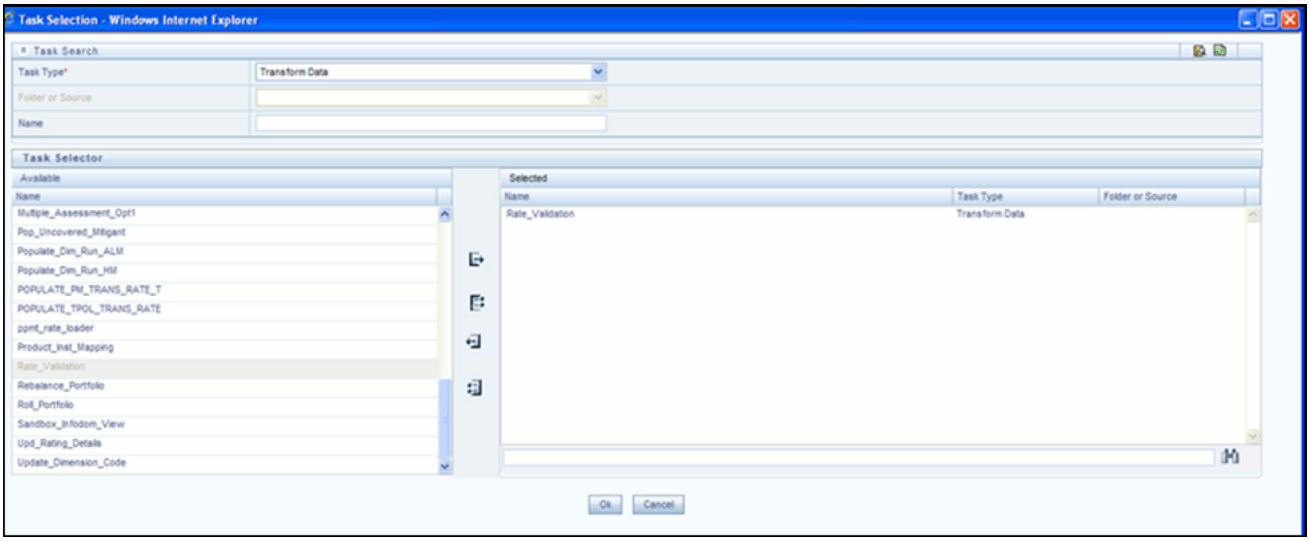
You can execute rate validation using a Simplified Batch process or from the ICC Batch Screen, within the OFSAAI framework. You can also launch it from the Currency Rates UI (Currency Rates Validation toolbar button).

To run the validation using Simplified Batch, perform the following steps:

1. Click Common Object Maintenance-> Simplified Batch -> Add.



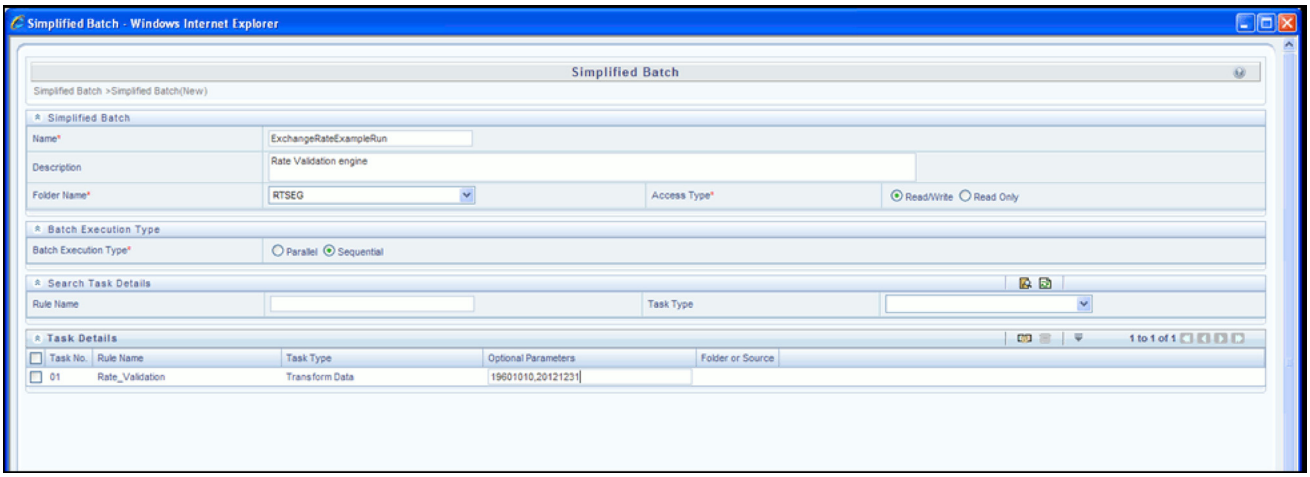
2. From the Task Details block, click Select Task. In the Task Selection window, choose Task Type as Transform Data. Then, click Search. In the Task Selector, Scroll down the left shuttle box (Available tasks) and select Rate_Validation (move to right shuttle box), then click **Ok**.



3. Back in the Simplified Batch definition window, enter the optional parameters to specify the From and To dates, using the format 'YYYYMMDD','YYYYMMDD'.

   Note: FROM_DATE and TO_DATE should not be the same value. Set FROM_DATE equal to the last rate validation date and TO_DATE to the current date. This will ensure that the Effective To Date for the prior record is set correctly.

   Then click **Save**.



4. In the Simplified Batch summary page, search for and select your batch, then click Run.
5. Click Yes to confirm you want to continue, enter a date and click **Ok** to continue. You will receive a message that it has been successfully launched.
6. Click **Ok**. When the batch is complete, optionally navigate to Operations -> View Log to view the processing log.

7. Any error messages or warnings are displayed in View Log. (See Viewing the Messages)

Note: Simplified Batch does not yet provide access to logs for Transform Data tasks.

To run the validation using the ICC Batch Framework, perform the following steps:

1. Navigate to Operations -> Batch Maintenance -> Add, and create a new batch.
2. Search for the above batch, and select it.
3. In the Task Details block (toolbar), click Add. In the Task Selection window, choose Task Type as Transform Data. Then, click Search. In the Task Selector, Scroll down the left shuttle box (Available tasks) and select Rate_Validation (move to right shuttle box), then click **Ok**.
4. Back in the Task definition window, select the Rule Name Rate_Validation and enter the optional parameters to specify the From and To dates, using the format 'YYYYMMDD','YYYYMMDD'.

   Note: FROM_DATE and TO_DATE should not be the same value. Set FROM_DATE equal to the last rate validation date and TO_DATE to the current date. This will ensure that the Effective To Date for the prior record is set correctly.

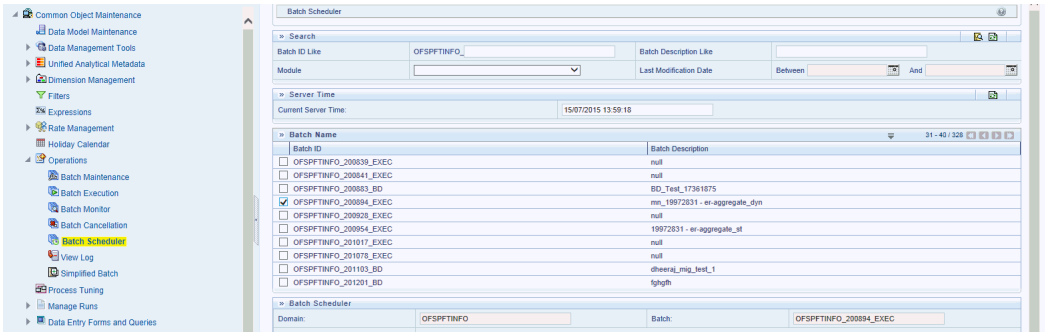
   Then click **Save**.
5. Navigate to Operations -> Batch Execution. Search for and select your batch, enter Information Date, then click **Execute Batch**.
6. Click **Ok** to confirm you want to continue. A message is displayed stating Batch triggered successfully, also displaying the Batch Run ID.
7. Click **Ok**.
8. To view rates, query the database table FSI_EXCHNG_RATE_DIRECT_ACCESS after the run is complete.
9. FSI_EXCHNG_RATE_DIRECT_ACCESS: This output table holds the valid currency codes and their exchange rate with respect to the reporting currency for a period of time say “from date” value to optional “to date” value. When Exchange Rate Validation runs, if data already exists for the selected date range, the Rate Validation package will overwrite the existing values. If no dates are given, the Rate Validation package truncates this table and re-loads data for the entire historical date range. The following describes the structure of the FSI_EXCHNG_RATE_DIRECT_ACCESS table:

Column Name	Nullable	Data Type
FROM_CURRENCY_CD	Not Null	varchar2(15)
TO_CURRENCY_CD	Not Null	varchar2(15)
EFFECTIVE_FROM_DATE	Not Null	Date
EFFECTIVE_TO_DATE	Not Null	Date
EXCHANGE_RATE	Not Null	Number(15,9)
EXCHANGE_RATE_CONVERT_TYPE_CD	Not Null	Number(5)
EXCHANGE_RATE_CONV_FORMULA	Not Null	Number(15)

10. When the batch is complete, optionally navigate to Operations -> View Log to view the processing log.

    Any error messages or warnings are displayed in View Log. (See Viewing the Messages)

Scheduling One or More Validations



To schedule a future validation, or to schedule validations on a recurring basis, do the following:

1. Navigate to Operations -> Batch Scheduler. The Batch Scheduler window appears.
2. In the Batch Name block, select the Scheduled Batch ID. An unchecked box means that no validation is scheduled to run.
3. Select New Schedule or Existing Schedule:

   Existing Schedule can be selected only if there are existing schedule batches to view.

   If New Schedule is selected, the New Schedule grid appears. Enter the Scheduled task name.

   _ To run the validation once, select once. Go to *Step 5*.

   _ To schedule the validation on a recurring basis, select Daily, Weekly, Monthly or Adhoc.
4. In the Schedule Task grid, in the Date field, enter the start date and end date.
5. In the Run Time field, input the time for the next validation to be run.
6. Click **Save** to set the schedule as specified or **Cancel** to drop your changes.

   Any error messages or warnings generated during the validation process are displayed in the View Log.

Viewing the Messages

Any error messages or warnings generated during the exchange rate validation process are displayed in the Log Information window. To access this window: Click Operations -> View Log.

Click the Task ID. The Log Information window will display.

These exception messages could also be seen in FSI_MESSAGE_LOG table with the help of the batch_id which was used during execution.

Economic Indicators Summary Screen

When you first navigate to Common Object Maintenance > Rate Management > Economic Indicators, an empty screen will be displayed. After you have constructed one or more Economic Indicators, navigating to Common Object Maintenance > Rate Management > Economic Indicators will display a summary screen showing each of the Economic Indicators that you have previously built.

Search Container

A Search container is provided in which you may search for Economic Indicators by Name or by Country. Each Economic Indicators rule is specific to one country.

Search Control

Enter your desired search criteria and click on the Search control.

Reset Control

Clicking on the Reset control removes any Name or Country constraint you may have specified and refreshes the screen.

Economic Indicators Container

The Economic Indicators container presents a grid containing all of the Economic Indicators that meet your search criteria. The Economic Indicators summary grid offers several controls that allow you to perform different functions when an Economic Indicators is selected.

To select an Economic Indicators, click on a check box in the first column of the grid. More than one Economic Indicators can be selected at a time but this will cause some of the controls to become disabled. Clicking on a checkbox a second time de-selects the row.

You may select or deselect all of the Economic Indicators in the summary grid by clicking on the check box in the upper left hand corner of the summary grid directly to the left of the Name column header.

Add

Clicking on the Add control begins the process of building a new Economic Indicator. The Add control is disabled if any rows in the grid have been selected.

View

Selecting a single row out of the grid enables the View control. Clicking on the View control allows you to view the contents of an Economic Indicator on a read-only basis. The View control is only enabled when a row has been selected.

Edit

Selecting a single row out of the grid enables the Edit control. Clicking on the Edit control allows you to modify a previously saved Economic Indicator. The Edit control is only enabled when a single row has been selected.

Delete

Selecting one or more rows out of the grid enables the Delete control. Clicking on the Delete control deletes the Economic Indicators you have selected.

Copy

Selecting a single row out of the grid enables the Copy control. Clicking the Copy control allows you to create a copy of an existing economic indicator. The Copy control is only enabled when a single economic indicator has been selected.

Check Dependencies

Select an interest rate curve and then click the Check Dependencies control to generate a report on all rules that utilize your selected economic indicator.

The Check Dependencies control is only enabled when a single economic indicator has been selected.

Data Loader

The Data Loader Icon executes a function to import historical economic indices for all defined Economic Indicators. For more information on setting up the automated process, see *Oracle Financial Services Analytical Applications Data Model Utilities User Guide*.

To execute a data load, click on the Data Loader icon.

A warning message will appear “Upload all available Economic Indicators?" Click Ok, and all historical indices will be loaded.

Economic Indicators Summary Grid

The following columns categorize each Economic Indicator in the summary grid:

- Name
- Country
- Creation Date
- Created By
- Last Modification Date
- Last Modified By

Name

Displays the Economic Indicator's short name. Performing a “mouse-over” on a row within the grid displays the Economic Indicator's detailed description.

Country

Displays the Country to which an Economic Indicator applies.

Creation Date

Displays the date and time at which an Economic Indicator was created.

Created By

Displays the name of the user who created an Economic Indicator.

Last Modification Date

Displays the date and time at which an Economic Indicator was last modified.

Modified By

Displays the name of the user who last modified an Economic Indicator.

Economic Indicators Detail Screen

When you Add, Edit, or View an Economic Indicator, the Economic Indicator Detail Screen is displayed. The Economic Indicator detail screen is comprised of an Economic Indicator Details container, an Economic Indicators – Historical Data Container, and an Audit Trail container.

The Audit Trail container is a standard footer container for every OFSAA rule type. It displays Created By, Creation Date, Last Modified By, and Modification Date on the Audit Trail tab. The User Comments tab may be used to add comments to any rule, subject to a maximum of 4000 characters.

Economic Indicator Details Container

When creating a new Economic Indicator, you must supply a Name, a Frequency, a Value Type, and a Country. You may optionally provide a Description.

Name

The name you give to your Economic Indicator is the means by which you will subsequently refer to your rule within other OFS Analytical Applications. You may not rename existing Economic Indicators.

Frequency

The frequency of your Economic Indicator should match the frequency which with the indicator's data is made public. Unemployment statistics, for example, are generally released on a monthly frequency. Select a frequency from the Frequency drop-down list box. Available frequencies are Weekly, Monthly, Quarterly, Semi-Annually, and Annually.

Value Type

Select a Value Type from the Value Type drop-down list box. Available Value Types are Numeric, Percentage, and Amount.

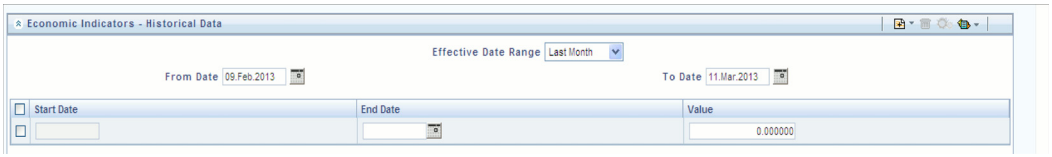
Value Type	Value Range
Numeric	0-999999
Percentage	-100 to +100
Amount	0-999999

Country

Select a country to which your Economic Indicator applies from the Country drop-down list box. The value set of Countries is drawn from the seeded Country dimension. OFSAA is seeded with over 70 country values, and you may also add your own user-defined countries (see Chapter 6: OFSAA Dimension Members).

Economic Indicators – Historical Data Container

Once you have made your selections in the Economic Indicator Details container, you may save your new rule. To build out your historical data, you must enter data within the Economic Indicators – Historical Data container.



The Economic Indicators – Historical Data container initially displays a single blank row followed by the most recent period's data (if data has previously been stored in the database).

Start Date & End Date

Select the calendar control immediately adjacent to the End Date to choose an ending date for your Economic Indicator data point. The application will automatically populate the Start Date based on your Economic Indicator's frequency. For example, if your Economic Indicator is an unemployment statistic that has a monthly frequency, select an end date that is the last day of the month that the unemployment rate describes. In this example, the application will automatically populate the Start Date with the first day of the month you have chosen.

Value

Enter the value for your Economic Indicator (e.g., the unemployment rate).

Adding Multiple Data Points

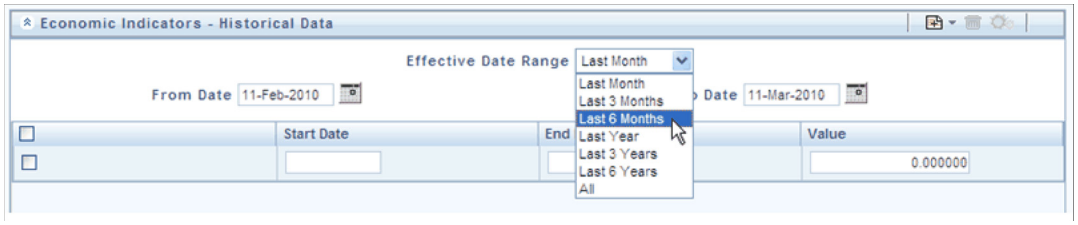
Click on the Add control to add additional blank rows into which you may enter additional Economic Indicator data. When you have finished adding data, click **Save**.

Editing Economic Indicators – Historical Data

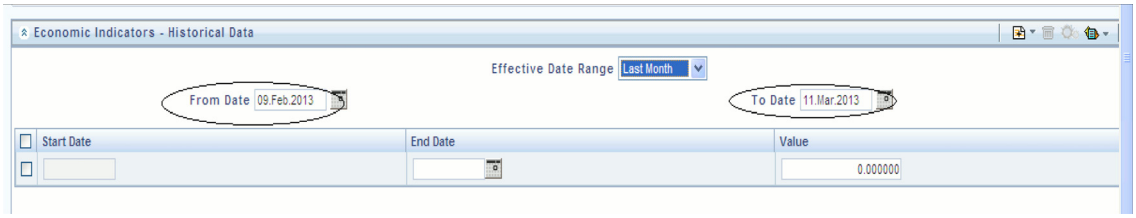
Clicking on a single check box on the left hand side of any row of data enables the Edit control. After clicking on the Edit control, the row you have selected becomes active. You may edit this row and subsequently save your changes.

Viewing Economic Indicators – Historical Data

By default, the Economic Indicators – Historical Data container displays the most recent month of historical data. You can control the amount of data displayed by selecting a different value from the Effective Date Range drop-down list box.



You may also choose to view a specific date range by modifying the From Date, the To Date, or both dates within the Economic Indicators – Historical Data container.



Deleting Economic Indicators – Historical Data

Clicking on one or more check boxes on the left hand side of any row of data enables the Delete control. After clicking on the Delete control, you will be asked to confirm that you wish to delete the rows you have selected.

Data Loader

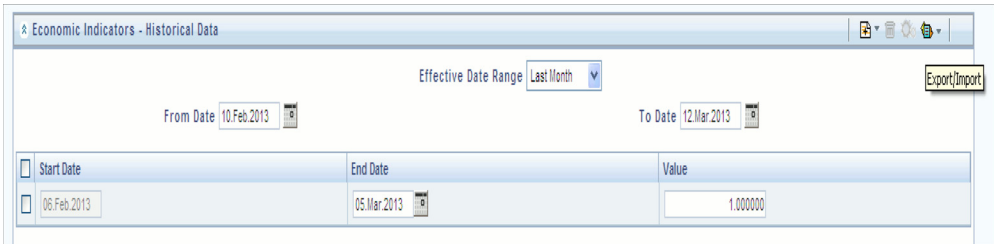
The Data Loader Icon executes a function to import historical economic indicators for all defined economic indicators. For more information on setting up the automated process, see *Oracle Financial Services Analytical Applications Data Model Utilities User Guide*.

To execute a data load, click the Data Loader icon. A warning message will appear "Upload all available Economic Indicators?"

Note: Upon clicking the data loader icon, the loader will execute all economic indicators.

Excel Import/Export

Excel import/export functionality is used for adding/editing historical economic indicators.


Economic Indicators - Historical Data
Effective Date Range
Last Month
Export|Import
From Date
10.Feb.2013
To Date
12.Mar.2013
Start Date
End Date
Value
06.Feb.2013
05.Mar.2013
1.000000

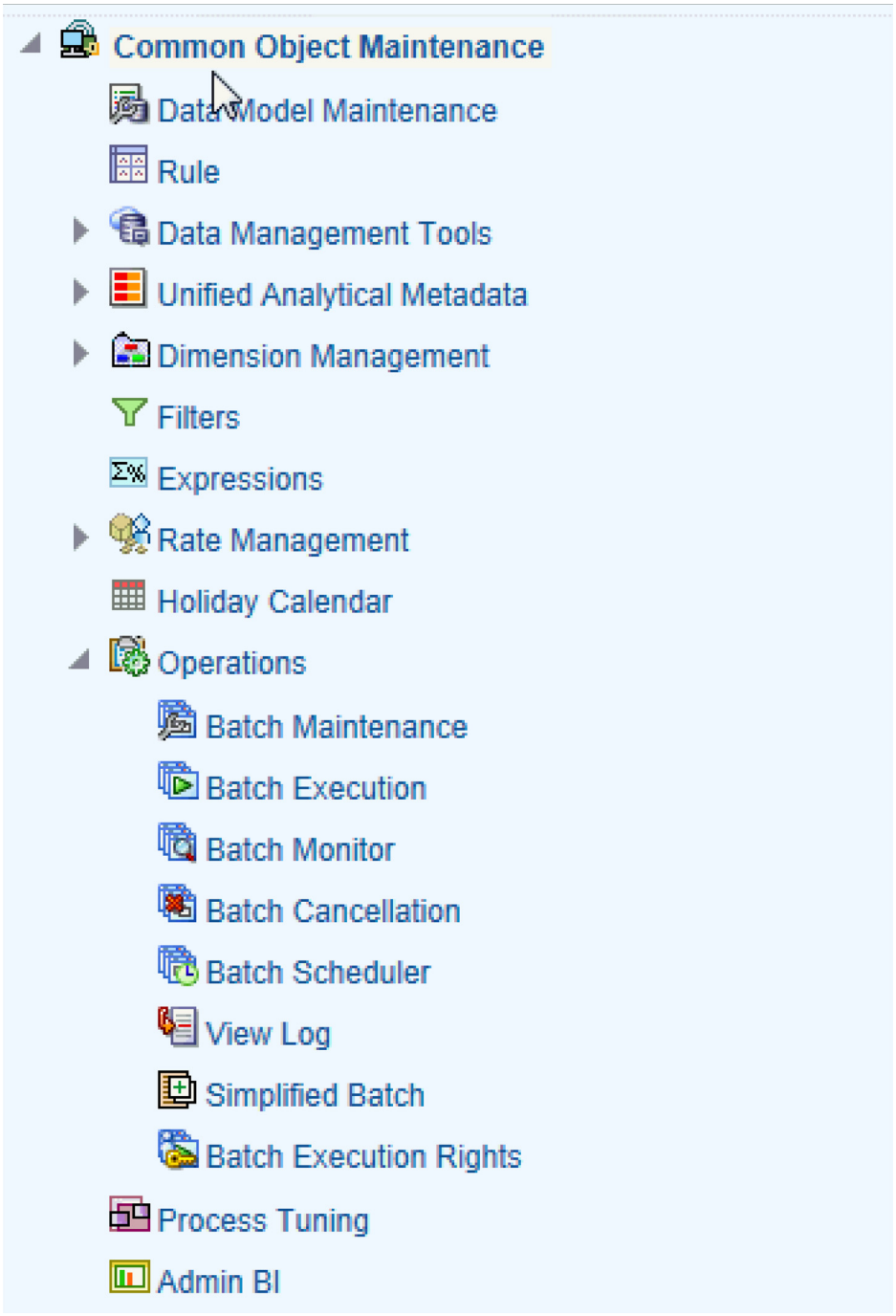
CHAPTER 11 Simplified Batches

Overview of Simplified Batches

Simplified Batches provide a streamlined version of the functionality available in the broader standard Oracle Financial Services Analytical Applications (OFSAA) Infrastructure batch module (Common Object Maintenance > Operations). The Simplified Batch feature is designed to facilitate creation, maintenance, and execution of batches for the EPM application engines and various other OFSAA components. Users will find its drag-and-drop approach to task selection especially helpful in the management of large batches.

Standard OFSAA Infrastructure Batching Functionality

You may view, execute, schedule, and monitor Simplified Batches within the broader OFSAA Infrastructure Operations batching framework. However, Simplified Batches may be built and maintained only through summary and detail screens with Common Object Maintenance > Operations > Simplified Batch user interfaces.



Batch Maintenance

You may view Simplified Batches here, but they will be noneditable. You can create and modify them within the Simplified Batch screens, described later in this chapter.

Batch Execution

Simplified Batches may be executed either from the Simplified Batch summary screen (see details as follows) or from OFSAA Infrastructure > Operations > Batch Execution.

Other Operations Batch Functionality

Other Operations batch functionality including Batch Scheduler, Batch Monitor, Batch Processing Report, Batch Cancellation, and View Log apply equally to Simplified Batches and to batches that have been built under Common Object Maintenance > Operations > Batch Maintenance.

The remainder of this chapter describes the creation, maintenance and execution of Simplified Batches. Specifically, this chapter will cover:

- Simplified Batch Summary and Detail Screens
- Navigation within the Simplified Batch Summary Screen
- Navigation within the Simplified Batch Detail Screen
- Task Selection
- Running a Simplified Batch
- Viewing the Task Logs of a Simplified Batch
- Additional Batch Options

Summary and Detail Screens

When you initially navigate to Common Object Maintenance > Operations> Simplified Batch, it displays a summary screen listing any existing Simplified Batch rules. Using search criteria, you can control the set of batches that are displayed.

When you Add, Edit, or View a rule, a detail screen is displayed.

Navigation within the Summary Screen

The Simplified Batch summary screen presents two containers: a Search container and Simplified Batch container (the summary grid). When you first navigate to the Simplified Batch summary screen, the batches stored within your preferred Folder are presented in a summary grid. Your **preferred** Folder is determined by the set of Application Preferences that were last saved in which you selected the **Active for Master Maintenance** checkbox.

Search Container

The Search container allows you to restrict the batches visible within the summary grid by any combination of Name, Folder, or Status. Searches by Name are wildcard searches, that is, searching for Name like *pricing* will find all batches that include *pricing* within their names.

Search Control

Enter your desired search criteria and click the **Search** control.

Reset Control

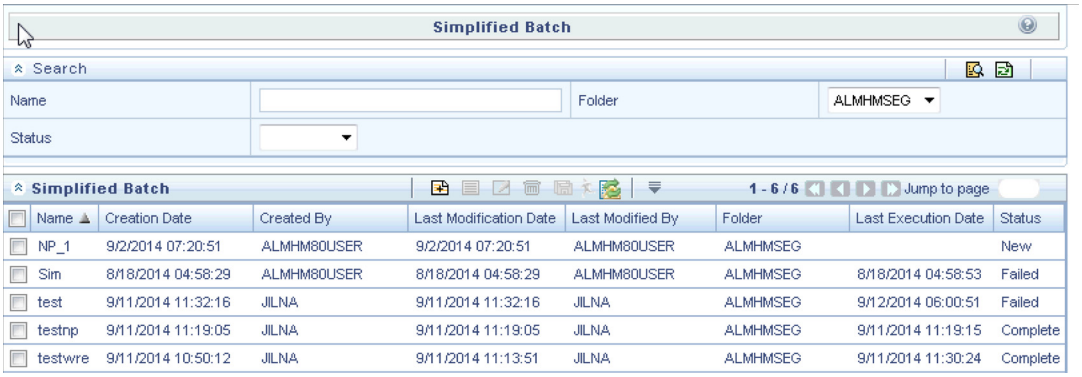
Click the **Reset** control to clear any search criteria you may be using and refresh the Simplified Batch summary grid.

Simplified Batch Container

The Simplified Batch container presents a grid containing all of the batches that meet your search criteria. The Simplified Batch summary grid offers several controls that allow you to create a new batch or perform different functions when a batch is selected.

To select a batch rule, click a checkbox in the first column of the grid. More than one batch can be selected at a time but this will cause some of the controls to become disabled. Clicking on a checkbox a second time deselects the batch. You may select or deselect all of the batches in the summary grid by clicking on the checkbox in the upper left hand corner of the summary grid directly to the left of the Name column header.

You can sort on any column in the summary grid by clicking on the column header (the column name).



Name	Creation Date	Created By	Last Modification Date	Last Modified By	Folder	Last Execution Date	Status
NP_1	9/2/2014 07:20:51	ALMHM80USER	9/2/2014 07:20:51	ALMHM80USER	ALMHMSEG		New
Sim	8/18/2014 04:58:29	ALMHM80USER	8/18/2014 04:58:29	ALMHM80USER	ALMHMSEG	8/18/2014 04:58:53	Failed
test	9/11/2014 11:32:16	JILNA	9/11/2014 11:32:16	JILNA	ALMHMSEG	9/12/2014 06:00:51	Failed
testnp	9/11/2014 11:19:05	JILNA	9/11/2014 11:19:05	JILNA	ALMHMSEG	9/11/2014 11:19:15	Complete
testwre	9/11/2014 10:50:12	JILNA	9/11/2014 11:13:51	JILNA	ALMHMSEG	9/11/2014 11:30:24	Complete

Add

Clicking the **Add** control begins the process of building a new Simplified Batch. The Add control is disabled if any rows in the grid have been selected.

View

Selecting a single row in the grid enables the **View** control. Clicking the View control allows you to view the detailed definition of a Simplified Batch on a read-only basis. The View control is only enabled when a single batch has been selected.

Edit

Selecting a single row in the grid enables the Edit control. Clicking the **Edit** control allows you to modify an existing Simplified Batch. The Edit control is only enabled when a single batch has been selected.

Delete

Selecting one or more rows in the grid enables the Delete control. Clicking the **Delete** control deletes the batch or batches you have selected.

Copy

Selecting a single row in the grid enables the Copy control. Clicking the **Copy** control allows you to create a copy of an existing Simplified Batch. The Copy control is only enabled when a single Simplified Batch has been selected. You can also duplicate a batch using the Save As option from the detail page, as described later in this chapter.

Run

Selecting a single row in the grid enables the Run control. Clicking on the **Run** control executes the selected Simplified Batch rule. The Run control is only enabled when a single Simplified Batch rule has been selected. The As-of-Date and other parameters applicable to each task within a Simplified Batch will vary by task type (for details, see Specifying Task Parameters chapter in *Oracle Financial Services Analytical Applications Infrastructure User Guide*).

Refresh

Click the **Refresh** control to refresh the Simplified Batch summary grid, including updates to the Last Execution Date and Status.

Simplified Batch Summary Grid

The following columns categorize each Simplified Batch in the summary grid:

- Name
- Creation Date
- Created By
- Last Modification Date
- Last Modified By
- Folder
- Last Execution Date
- Status

Name

Displays the Simplified Batch rule's short name. Performing a **mouse-over** on a batch name displays the rule's system identifier, long name, and description. Note that the rule's long name consists of a concatenation of the Information Domain (InfoDom) and the rule's short name. This long name is the name under which the batch is submitted internally through Oracle Financial Services Analytical Applications (OFSAA) Infrastructure.

Creation Date

Displays the date and time at which a Simplified Batch rule was created.

Created By

Displays the name of the user who created a Simplified Batch rule.

Last Modification Date

Displays the date and time at which a Simplified Batch rule was last modified.

Last Modified By

Displays the name of the user who last modified a Simplified Batch rule.

Folder

Displays the name of the Folder in which a Simplified Batch rule is stored.

Last Execution Date

Displays the date and time at which a Simplified Batch was last executed.

Status

Displays the latest status for a batch rule and includes the following possible values:

- Complete
- Failed
- New
- Ongoing
- Cancelled

Navigation within the Detail Screen

When you Add, Edit, or View a batch, the Simplified Batch Detail Screen is displayed. The detail screen presents five containers for defining and maintaining your batch:

- Simplified Batch - header level information such as Rule Name, and so on
- Batch Execution Type - Sequential vs. Parallel
- Search Task Details - Search container
- Task Details - Task Details grid
- Audit Trail

The Audit Trail container is a standard footer container for every OFSAA rule type. It displays Created By, Creation Date, Last Modified By, and Modification Date on the Audit Trail tab. The User Comments tab may be used to add comments to any rule, subject to a maximum of 4000 characters.

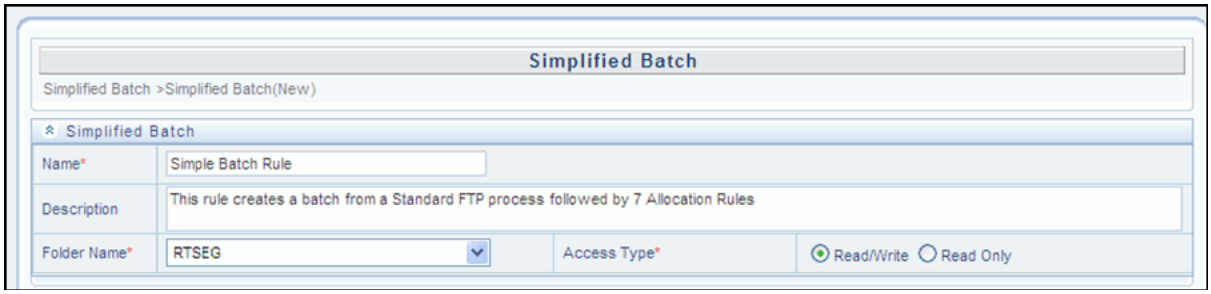
The detail page also provides action buttons specific to the mode you are using (Add, Edit, or View). In View mode, you can duplicate the rule using the Save As button. This will allow you to specify the basic identifiers for the new rule, for example, Name, Description, Folder, and the Access Type selection.

Simplified Batch Container

Specify the Simplified Batch Name and Description, select a Folder in which the batch is to be stored, and specify whether you want the batch rule to be **Read/Write** or **Read Only** (Access Type). Naming your batch is required before it can be saved.

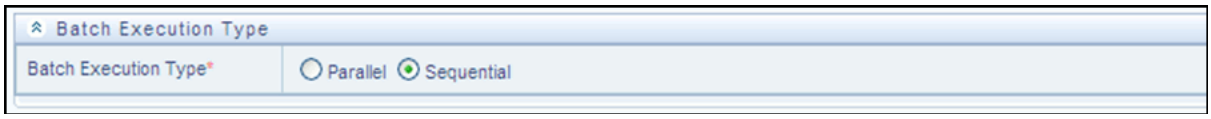
Note:

- Unlike other OFSAA rules, you cannot edit the Name after you have created the rule.
- The maximum length for the Name is based on len (name+infodom), subject to the total length not exceeding 42 characters. Underscore (_) is the only special character allowed for simplified batch name.
- The maximum length for the Description is 300 characters. Allowed special characters for Simplified Batch description are underscore (-), hyphen (-), Colon(:), Dot(.), Space().



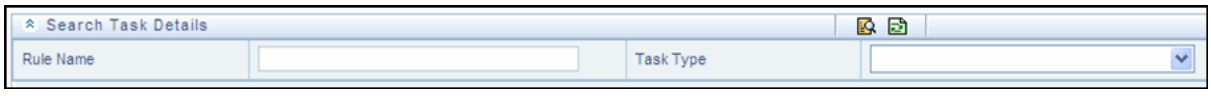
Batch Execution Type Container

Select whether you want the tasks in your batch to run in Parallel or to run Sequentially. Should you wish to run some tasks sequentially and some in parallel, you must utilize the OFSAA Infrastructure Operations batching framework to construct your batch. The Simplified batching framework provides a simpler and faster pathway to specify many of the batches that you will require, but the Infrastructure Operations framework offers you more flexibility.



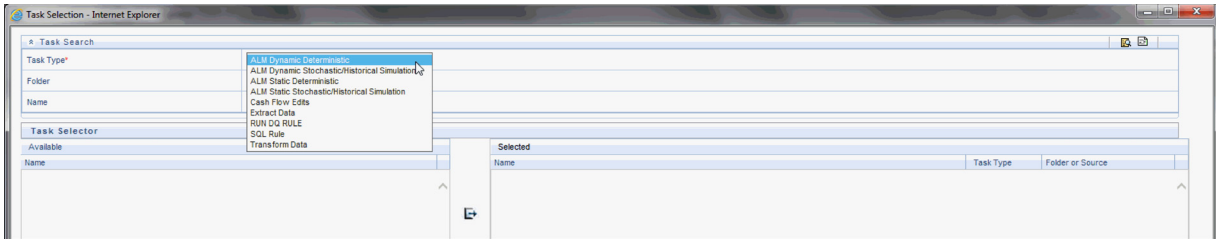
Search Container

You may sometimes construct batches containing dozens or even hundreds of tasks. In such cases it may become difficult to isolate a specific task. The Search container allows you to **focus** the Task Details display to a specific task name or task type. The Rule Name search is a wildcard search. Click the **Search** control to execute a search. Click the **Refresh** control to remove your search criteria and refresh the Task Details Container to display all tasks within the batch.



Task Details Container

For a new batch rule, the Task Details container will initially be empty. Through the use of the Task Selector described below, you will populate the Task Details container with the processes that you wish to run in your batch. For a Sequential batch, the Task Details container presents the tasks in the order in which they will be run. For a Parallel batch, all tasks will be initiated in parallel.



Task Number

Each task is itemized serially by task number.

Rule Name

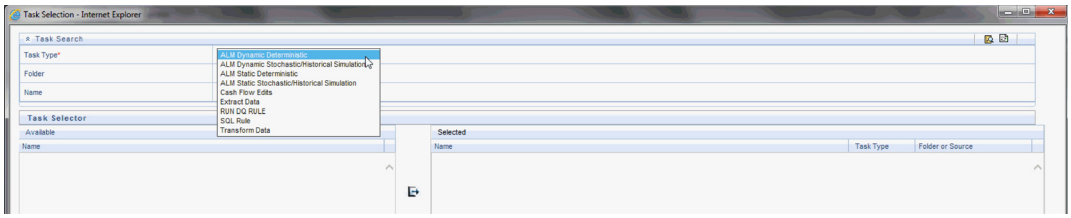
Displays the task's short name, such as an Allocation rule name. The complete or **long name** under which the task is submitted for execution (becoming the task's Batch Run ID) is a concatenation of several identifiers, as noted below in the View Log section.

Task Type

Using Simplified Batches you may submit different tasks for each of the application engines and various other components. For ALM, the task types you may submit within a Simplified Batch include:

- ALM Dynamic Deterministic
- ALM Dynamic Stochastic/Historical Simulation
- ALM Static Deterministic
- ALM Static Stochastic/Historical Simulation
- Cash Flow Edits
- Extract Data
- RUN DQ RULE
- SQL Rule
- Transform Data

This list will vary based on installed Application pack(s).



As of Dates and Additional Parameters

The As-of-Date applicable to each task within a Simplified Batch will vary by task type. Some task types also accept runtime parameters. For additional information on task parameters, see Specifying Task Parameters chapter in *Oracle Financial Services Analytical Applications Infrastructure User Guide.*

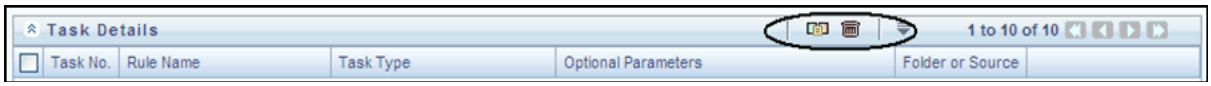
Folder or Source

For Extract Data tasks, values in this column represent Sources. For Transform Data tasks, this column is not applicable and is left blank. For all other task types, values in this column represent the Folder in which a rule is stored.

Task Selection

Controls on the Task Details Container

The Task Details container provides a Task Selector control that invokes a pop-up screen to support the maintenance of tasks in your batch. The Task Details container also provides a Delete control for removing tasks from your batch.



Delete

Selecting one or more rows out of the Task Details grid enables the Delete control. Clicking on the **Delete** control deletes the task or tasks that you have selected. You can also remove tasks through the Task Selection pop-up screen.

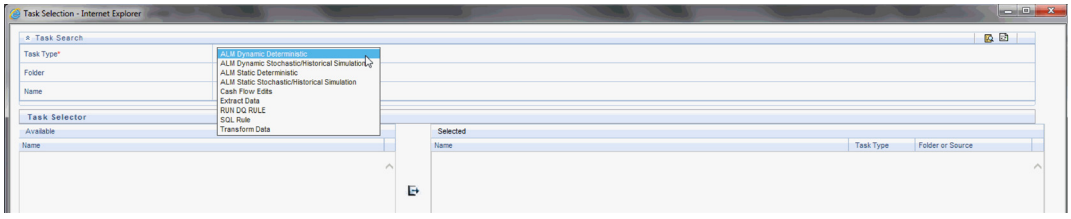
Task Selector

The Task Selector control is always enabled. Clicking on the **Task Selector** invokes the Task Selection pop-up screen.

Navigation within the Task Selection screen

Use the Task Selection screen to:

- Choose tasks to include in your batch
- Remove tasks from your batch
- Re-order tasks within your batch



Task Search Container

When you initially invoke the Task Selection screen, the list of **Available** tasks on the left-hand side of the Task Selector container is blank. To populate the list of available tasks, you must execute a search using the Search control. Prior to clicking on the Search control, you must select a specific type of task from the Task Type list box, and optionally specify search criteria for Folder (or Source) and Name, where applicable to the task type.

Selecting Task Types

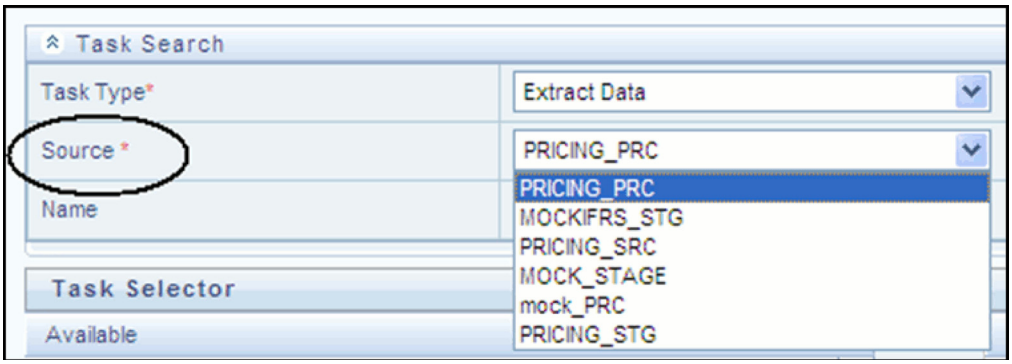
For ALM, the available task types include:

- ALM Dynamic Deterministic
- ALM Dynamic Stochastic/Historical Simulation
- ALM Static Deterministic
- ALM Static Stochastic/Historical Simulation
- Cash Flow Edits
- Extract Data
- RUN DQ RULE
- SQL Rule
- Transform Data

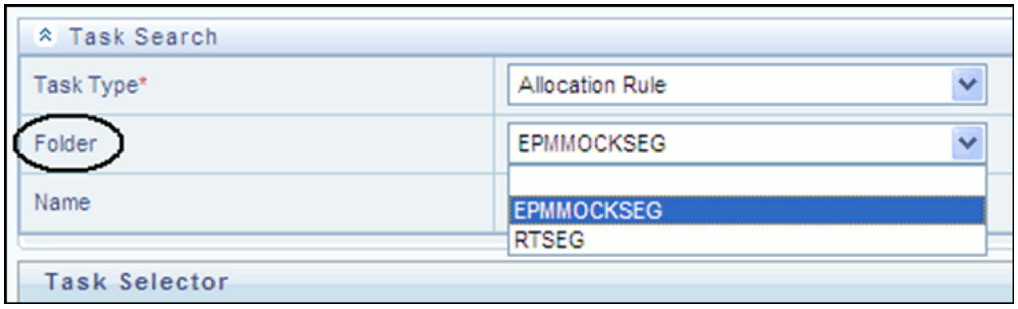
This list will vary based on installed Application pack(s).

Source or Folder

- **Extract Data Task**
- When you choose the Extract Data task, you must select a data source prior to executing your search.



- **Transform Data Task**
- When you choose the Transform Data task, it is not necessary for you to select a Folder prior to executing your search.
- **All Other Task Types**
- When you select any other Task Type, you may constrain your search to a particular folder. Alternatively, you may search for your tasks in all Folders by selecting **blank** (all folders).



Executing a search for tasks always refreshes the Available list of tasks, but never has any impact on tasks that you have already selected (tasks on the right-hand side of the screen entitled **Selected**).

Name

You may further refine your search by entering a task Name. Searches by Name are wildcard searches, that is , searching for Name like *rate* will find all tasks that include *rate* within their Name.

Task Selector Container

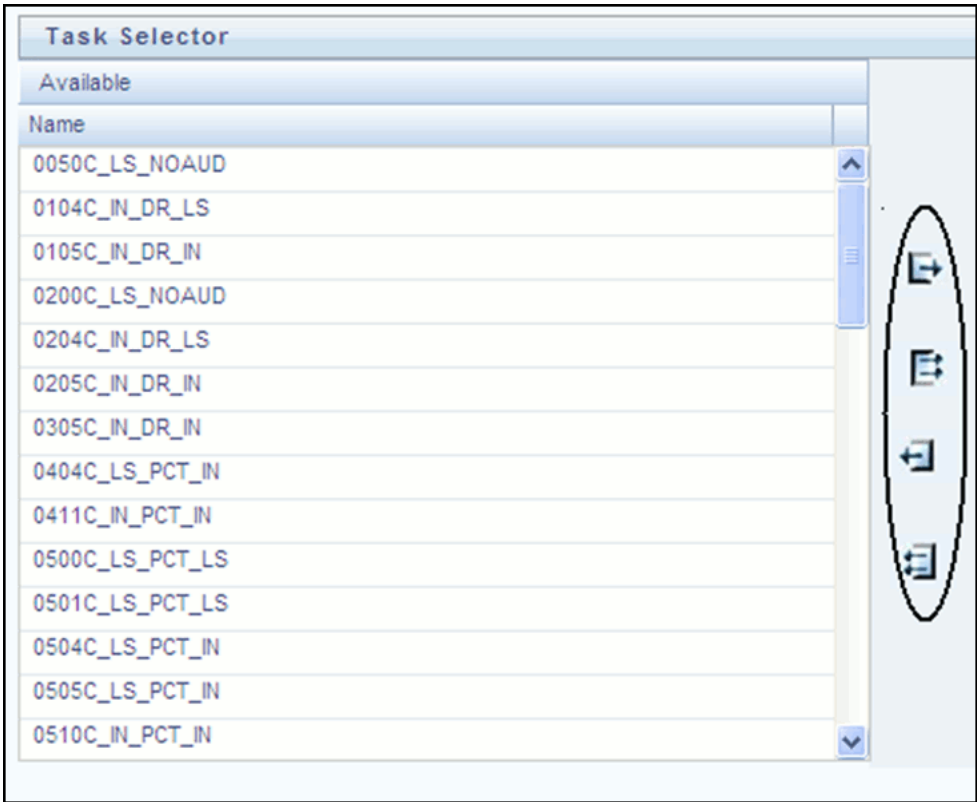
Navigating the list of Available tasks

For task types with potentially large volumes of tasks, the Available list is divided into pages. Use the vertical scrollbar to navigate to the bottom of each page, then click **more** to display the names in the next page. To navigate back a page, scroll to the top of the page and click the hyperlink to return to the Previous page. You can control the number of tasks listed per page by changing the setting in SIMPLE_BATCH_PAGE_SIZE parameter in FusionApps.properties file in WEB-INF/props under context root. The recommended default value is 50 records/page. As you increase the value over a certain amount, you will start to see a slower response in the UI.

Moving tasks between the Available and Selected lists

You may use the Select or Select All shuttle controls to move rules from the displayed page of the Available list to the Selected list or vice versa. The Select control moves rules from the left to the right, adding rules from the Available list to the bottom of the Selected list. Moving rules from the right to the left removes rules from the Selected list. You can also use the drag-and-drop feature (described as follows) to place the rules in a specific position in the Selected list to specify execution order for a Sequential type batch.

On both the Available side and the Selected side, you may highlight multiple tasks. To select a range of tasks, click on the first task, hold down the Shift key, and then click on the last task. To select a non-sequential list of tasks, you may select them individually while holding down the Control key.



Tasks within the Available list of tasks are disabled (greyed-out) once they have been selected (that is, included within the Selected list of tasks).

Drag and Drop Operations

The Task Selector also supports drag and drop operations for choosing Available tasks, removing Selected tasks, or rearranging the sequence of your Selected tasks.

- You may click on an Available task and then drag and drop it anywhere within the Selected list, where the targeted placement is displayed in red line.
- Dragging a task from the Selected list and dropping it into the Available list removes that task from the Selected list.
- To select or deselect a range of tasks, click first task in the range to be selected, hold the Shift key down, click last task in the range to be selected, and then drag and drop your set of tasks.
- To select or deselect a set of tasks which are not in sequence, click each task individually while holding down the Control key; after clicking on the last task you may drag and drop the set of tasks.

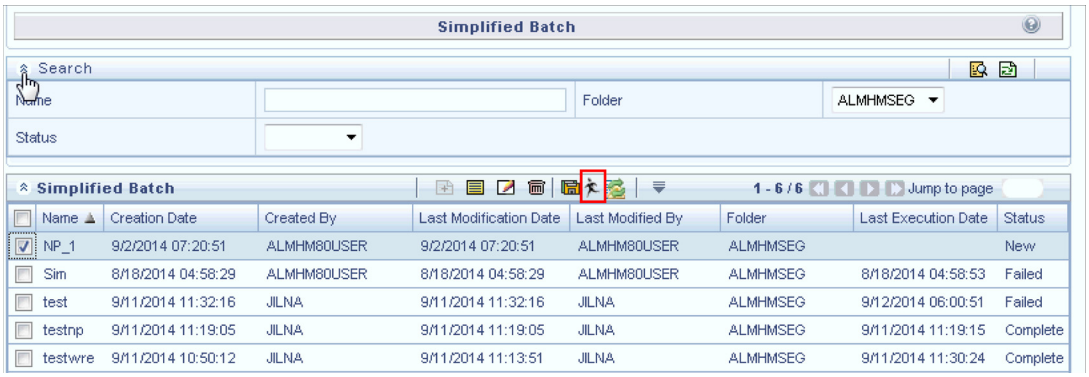
Finding a Selected Task

To search for any of your selected tasks, enter the task name or partial name in the field under the Selected list, then click the **adjacent** button to find each successive match.

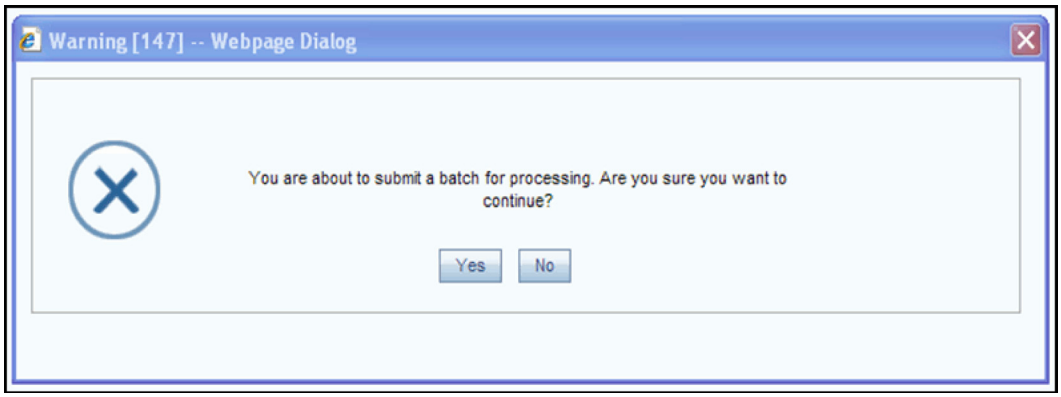
Running a Simplified batch

To run a Simplified Batch from the Simplified Batch summary page, complete the following steps:

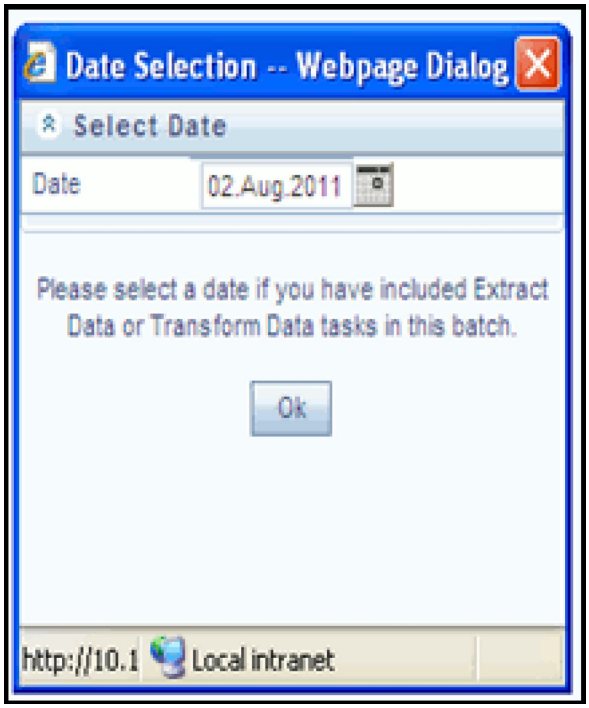
7. Select a Simplified Batch from the summary grid.



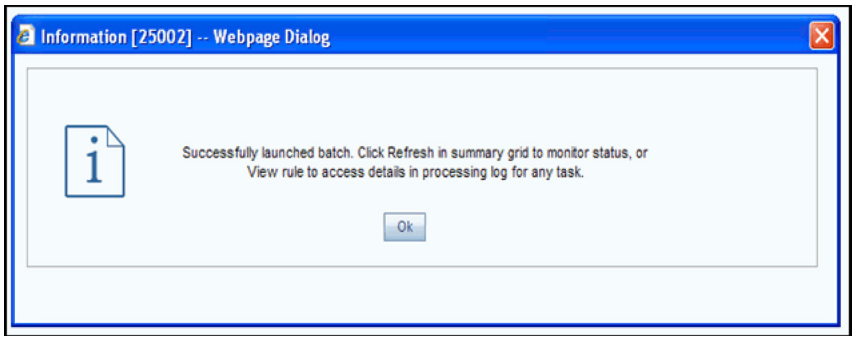
8. Click **Run** to execute the batch.
9. A popup window will appear asking for confirmation before proceeding. Click **Yes** to proceed, or **No** to return to the summary page.



10. If you clicked **Yes** to proceed, you will see a Date Selection popup. If you have included any Extract Data or Transformation Data tasks in your batch, select the appropriate date for use in processing (it will ignore this date for all other task types). The date defaults to the system date. If you wish to change the date, you can either directly enter a date in the format displayed, or you can use the Calendar tool to select a date.



11. Click **Ok** to proceed.
12. You will now see a message indicating the batch has been launched. Click **Ok** to proceed.



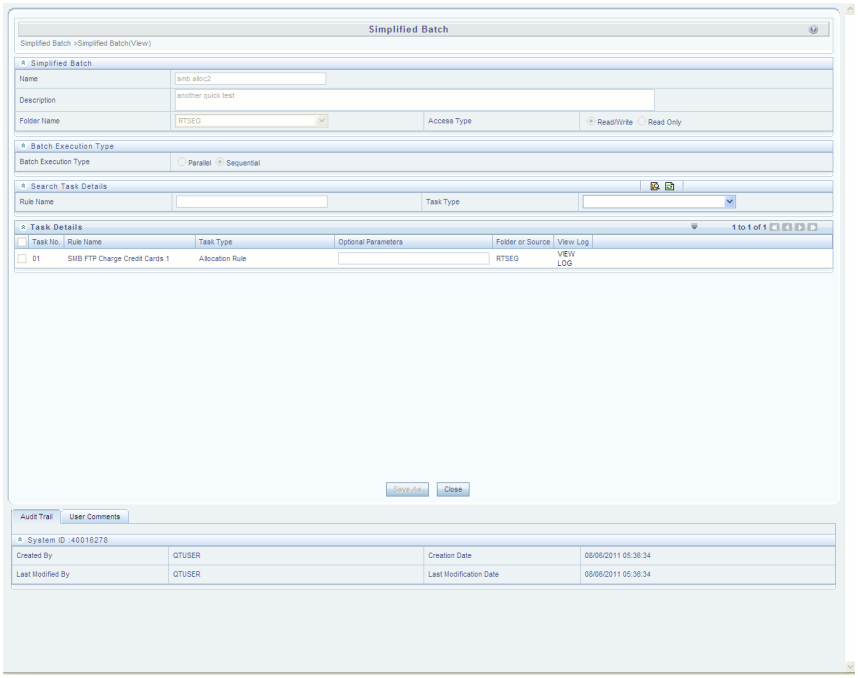
13. You can monitor the status from the summary grid or detail page.
14. To monitor from the summary grid, click **Refresh**. The summary grid will update the Last Execution Date with the current date and the Status at completion (for example, **Complete**, or **Failed** if there was a critical problem).
15. To monitor from the detail page, please refer to the section on Viewing the Task Logs.
16. **Note:** This currently applies to all task types except Extract Data and Transform Data.

Viewing the Task Logs

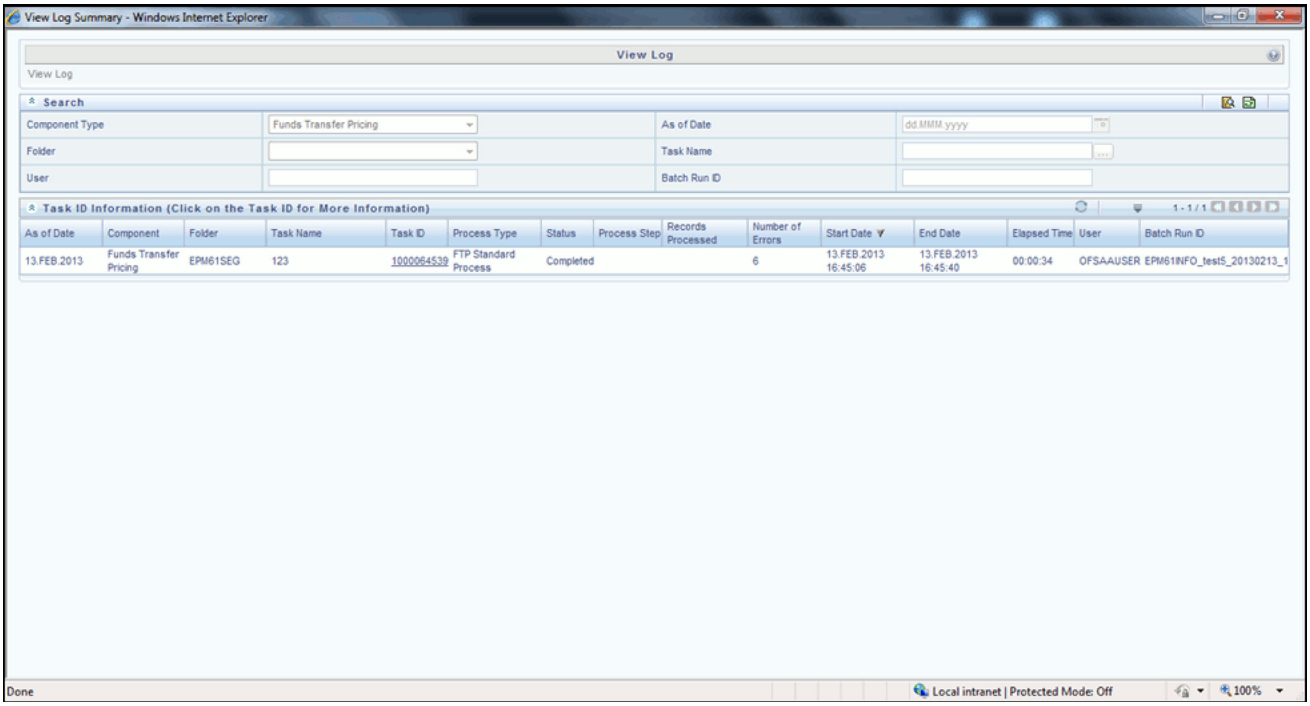
Note: This currently applies to all task types except Extract Data and Transform Data.

To view the processing log for each task in your batch, you can navigate to the log from the Simplified Batch detail page:

1. Select your batch from the summary grid.
2. Click **View** to navigate to the detail page.
3. For a specific task in the Task Details container, navigate to the processing log through View Log.



4. In the View Log page, you can drill down to the log details through the Task ID hyperlink.



The Task ID represents the System ID of the task (for example, in Profitability Management, an Allocation Rule's System ID).

The task's Batch Run ID is a concatenation of several identifiers. For example, Batch Run ID 'OELPMINFO_Task1_smb alloc2_20110805_2' represents the following:

- Information Domain name (for example, OELPMINFO)
- Task sequence within the Simplified Batch (for example, Task1)
- Simplified Batch rule name (for example, smb alloc2)
- The run date in YYYYMMDD format and the sequential run number for that date (for example, 20110805_2, for the second execution on August 5, 2011).

Additional Batch Options

As noted in the Overview for this chapter, you may also view, execute, schedule, monitor, cancel, and view task logs for Simplified Batches within the broader OFSAA Infrastructure Operations batching framework.

CHAPTER 12 Holiday Calendar

This chapter discusses the procedure for creating a Holiday Calendar and generating a list of weekend and holiday dates. Individual applications may consume the holiday calendar events in different ways, so please refer to application specific user guides and/or the Cash Flow Engine Reference Guide for more details.

This chapter covers the following topics:

Overview of Holiday Calendars

Searching for a Holiday Calendar

Creating a Holiday Calendar

Executing Holiday Calendar

Holiday Exceptions

Excel Import/ Export

Overview of Holiday Calendars

A Holiday is a day designated as having special significance for which individuals, a government, or some religious groups have deemed that observance is warranted and thus no business is carried on this day. The Holiday Calendar code can range from 1 to 99999.

The procedure for working with and managing a Holiday Calendar is similar to that of other OFSAA business rules. It includes the following steps:

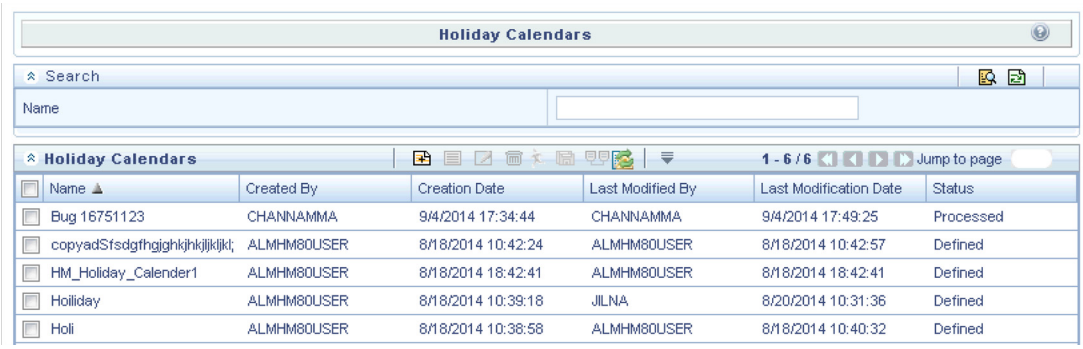
- Searching for a Holiday Calendar.
- Viewing and Updating a Holiday Calendar.
- Copying a Holiday Calendar.
- Deleting a Holiday Calendar.
- Check Dependencies in the Holiday Calendar definitions.
- Refresh the Holiday Calendar summary page.

Searching for a Holiday Calendar

Search for a Holiday Calendar to perform any of the following tasks:

- View
- Edit
- Copy
- Delete
- Check Dependencies

- Refresh



Prerequisites

Predefined Holiday Calendar

Procedure:

5. Navigate to the Holiday Calendar summary page. This page is the gateway to all Holiday Calendars and related functionality. You can navigate to other pages relating to Holiday Calendar from this page.
6. Enter the Search criteria.

- Enter the name of the Holiday Calendar.
- Click the Search icon.

Only holiday calendars that match the search criteria are displayed.

Note: You can control the number of rows to display on screen by selecting the "Pagination Options" icon from the action bar.

Related Topics

Overview of Holiday Calendars, on page 63

Creating a Holiday Calendar

You create holiday calendars to capture holidays for a given date range for any organization. It is possible to create and use multiple holiday calendars.

Procedure:

1. Navigate to the Holiday Calendar summary page.
2. Click Add Holiday Calendar.
3. The Holiday Calendar details page is displayed.
4. Enter a code value for the new holiday calendar.

   Note: The code, is a numeric identifier for the holiday calendar. The code value must be a number between 1 and 99999. The code value you assign to the new holiday calendar must be unique.

5. Enter the name and a brief description for the holiday calendar.

   Note: The name you assign to the holiday calendar must be unique. Name can hold a maximum of 30 characters.

6. In the Holiday Properties grid, select not more than two weekend days. Then choose the Holiday Period. The Holiday Period can be defined for a range of up to 40 years less than the current date and 40 years greater than the current date, totally spanning a maximum of 80 years.

7. In the Holiday Details grid, define the Holiday details for the any period within the holiday range defined in step 6. There are two types of holidays that can be defined: **Fixed** and **Moving**.

   A **fixed holiday** is one which is deemed as a holiday for every year in the holiday period, for that particular day.

   25th December – Christmas, is a fixed holiday.

   Note: To define a fixed holiday, input the holiday date for the first occurrence in the date range. For example, if your Date Range runs from 01-JAN-2000 to 31-DEC-2050, you should input the fixed holiday, Christmas, as 25-DEC-2000. The holiday calendar procedure will populate all subsequent 25-DEC entries in the holiday list table (FSI_HOLIDAY_LIST). A HOLIDAY_TYPE code = 0 is a Fixed type holiday, code = 1 is a Moving type holiday, and code = 2 is a weekend.

   The holiday calendar procedure will also ensure that holiday and weekend entries are not duplicated. For example, if weekends are defined as Saturday/Sunday and Christmas falls on a weekend day, there will be only one entry in the FSI_HOLIDAY_LIST table. The PREVIOUS_WORKINGDAY and NEXT_WORKINGDAY fields designate the valid prior and following working days, respectively.

   A **moving holiday** is one which is deemed as a holiday only for that particular date and year, and not for every year in the holiday period. All occurrences of a moving holiday must be input manually.

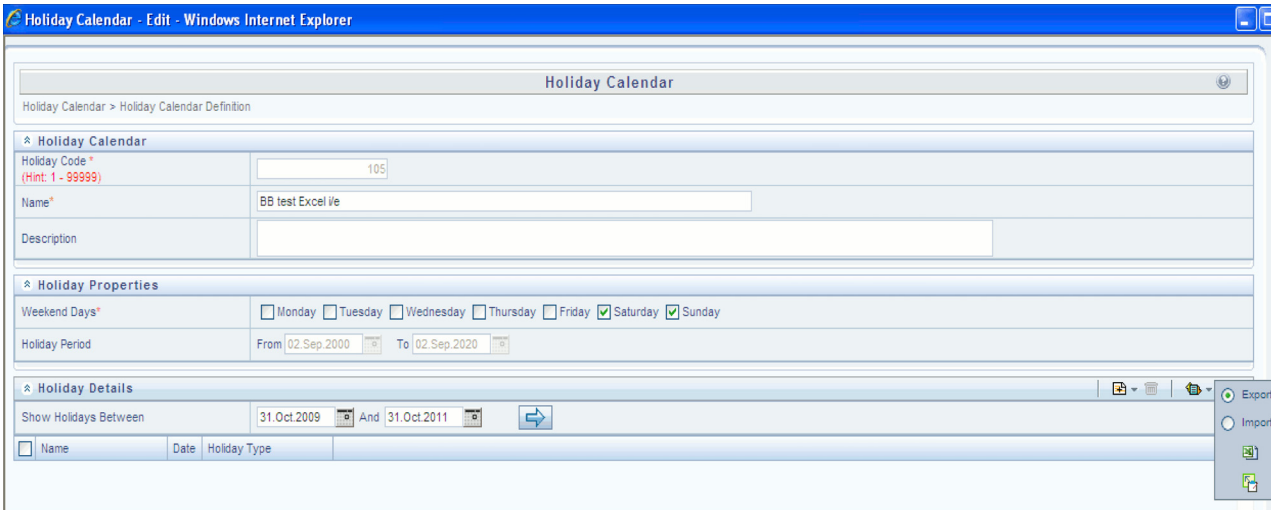
   20th August 2012 is a moving holiday on account of the muslim festival, Ramzan.

8. Once the holiday calendar definition is saved, its status in the summary page is marked as **defined**.

9. A holiday calendar created can also be deleted. Select one or more rows of holiday calendar definitions and click the Delete control.

Excel Import / Export

Excel import/export functionality is used for adding/editing holiday calendar definitions.



Related Topics

Overview of Holiday Calendars, on page 63

Executing Holiday Calendar

You execute a holiday calendar definition to generate calendar dates listing the various types of holidays for a given holiday period.

Prerequisites

Predefined Rules

Procedure:

1. Navigate to the Holiday Calendar summary page.
2. Search for a rule.
3. Select a Holiday Calendar and Click the **Generate Calendar Dates** icon to execute the selected holiday calendar. **Holiday list for holiday ID #1 generated successfully** message appears **(where #1 is the holiday calendar code)**. The holiday list can be confirmed by querying the FSI_HOLIDAY_LIST table.
4. The status of a holiday calendar where holiday dates have been generated displays as "processed" in the status column in the summary page.

   Tip: In case you do not want to Generate Calendar dates immediately, you can select that particular holiday calendar anytime later from the summary page with its status defined, and then click the **Generate Calendar Dates** icon to execute the selected holiday calendar.
5. The generated holiday list is no longer valid if

- There is a change in the definition of the holiday calendar.
- There is any update or modification to the Holiday Exceptions defined for that holiday calendar.

  In such a case, the user will get a message "This holiday calendar has been modified, Please generate the holiday list again" and the holiday calendar state will be changed to "Defined" until the holiday list is regenerated with new definition.

Related Topics

Overview of Holiday Calendars, on page 63

Holiday Exceptions

Note: This section is applicable to Release Version 6.1 and higher.

1. You can specify exceptions to holidays. As a prerequisite, a holiday calendar should have been properly defined and the status of the holiday calendar in the summary page should be **Processed**. Generating the holiday list will populate the holidays (weekends, fixed and moving) along with the working days. Then the **Show Exceptions** button is enabled in the detail page. Any changes in the holiday definition will disable the "Show Exceptions" button. The user must generate the holiday list again to define or view the exceptions.
2. Click **Show Exceptions** in the Holiday Exceptions grid. The Holiday Exceptions window opens.
3. The search block in the Exceptions page has 6 fields: From(Year) , To(year), Fixed Holidays, Moving Holidays, Holiday Date and All Exceptions.

   From and To - Denotes the range of years which is a subset out of the holiday list generated, for which exceptions are required to be defined.

   Fixed Holidays – You can filter the list of holidays by the type of Fixed Holidays.

   Moving Holidays – You can filter the list of holidays by the type of Moving Holidays.

   Holiday Date – For a particular known holiday date, exceptions can be defined.

   All Exceptions - This checkbox when selected lists all the exceptions, if already defined, for the holidays within the From, To Date range.

   The search result gives the list of all holidays based on the selection of the above search criteria fields.
4. In the Holiday Exceptions block, there are two types of exceptions that can be defined: **Not a holiday** and **Shift to**.

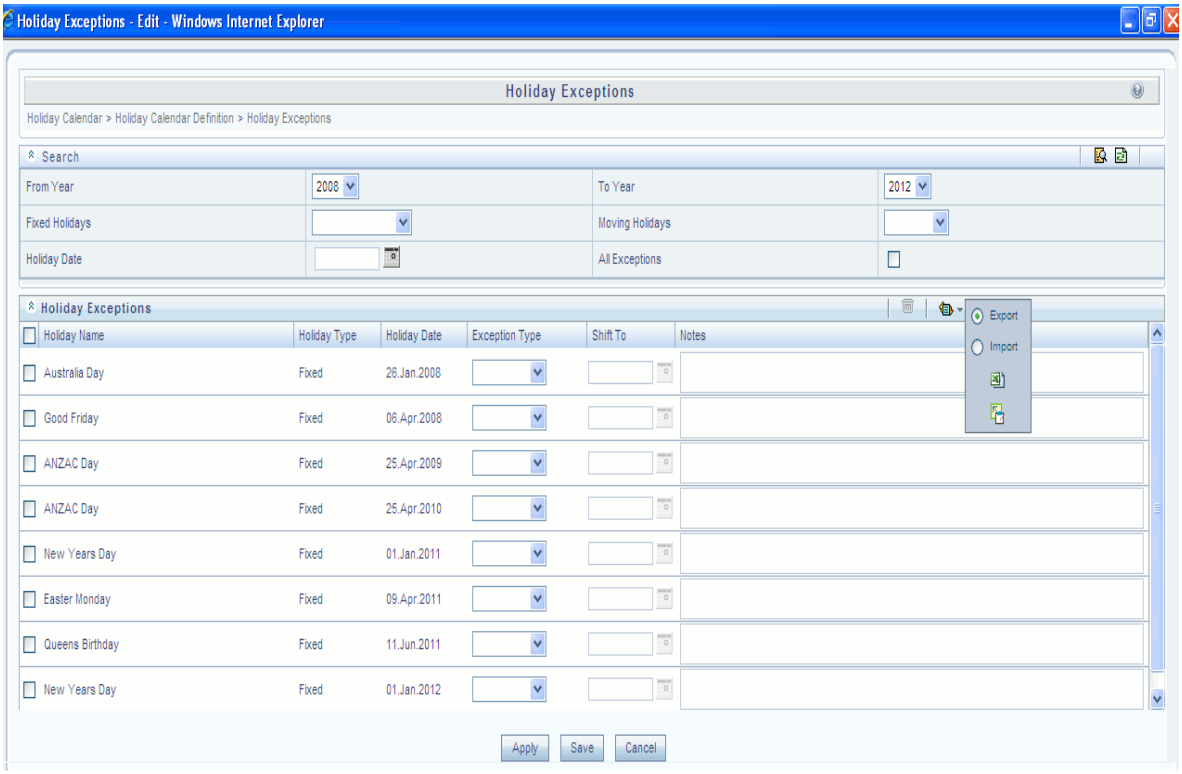
   Any holiday can be marked as not a holiday, in which case that day is removed from the Holiday List. If the drop-down list in the exception type is selected as "Not a Holiday", then the "shift to" date picker field is disabled.

   Spring earlier considered as a holiday in the holiday calendar can be marked as Not a Holiday in the Exceptions Window. Further the user can write his comments or remarks in the Notes Text Box next to the Exception Type drop-down list.

   Any holiday can be shifted to another day, in which case the earlier declared holiday is removed from the Holiday List, while the shifted to day is included as a holiday.

Excel Import/ Export

Excel import/export functionality is used for adding/editing holiday exceptions.


Holiday Exceptions - Edit - Windows Internet Explorer
Holiday Exceptions
Holiday Calendar > Holiday Calendar Definition > Holiday Exceptions
Search
From Year
2008
To Year
2012
Fixed Holidays
Moving Holidays
Holiday Date
All Exceptions
Holiday Exceptions
Export
Import
Holiday Name
Holiday Type
Holiday Date
Exception Type
Shift To
Notes
Australia Day
Fixed
26.Jan.2008
Good Friday
Fixed
06.Apr.2008
ANZAC Day
Fixed
25.Apr.2009
ANZAC Day
Fixed
25.Apr.2010
New Years Day
Fixed
01.Jan.2011
Easter Monday
Fixed
09.Apr.2011
Queens Birthday
Fixed
11.Jun.2011
New Years Day
Fixed
01.Jan.2012
Apply
Save
Cancel

CHAPTER 13 The Oracle Funds Transfer Pricing Process

This chapter describes the steps that you need to follow to transfer price your balance sheet using Oracle Funds Transfer Pricing.

This chapter covers the following topics:

- Overview of the Oracle Funds Transfer Pricing Process
- Defining Transfer Pricing Rules
- Transfer Pricing Methodologies and Rules
- Defining Prepayment Rules
- Defining Adjustment Rules
- Defining Alternate Rate Output Mapping Rules
- Defining and Executing a Transfer Pricing Process
- Defining and Executing a Break Identification Process
- The Ledger Migration Process
- Defining Behavior Patterns
- Defining Payment Patterns
- Performing Cash Flow Edits
- Creating Interest Rate Codes
- Accessing Transfer Pricing Detail Cash Flow Results for Audit Purposes
- Accessing Transfer Pricing Interest Rate Audit Results
- Analyzing Results
- Reviewing Processing Errors
- Reprocessing Erroneous Accounts
- Reconciling the Data

Overview of the Oracle Funds Transfer Pricing Process

Oracle Funds Transfer Pricing (FTP) is based on the Oracle Financial Services Analytical Applications Infrastructure (OFSAAI). OFSAAI is the central, integrated data source on which Oracle Financial Services Analytical (OFSAA) applications are built. This description of the Oracle Funds Transfer Pricing process assumes that your system administrator has set up the OFSAAI data repository and has populated it with your enterprise-wide business data.

See: *Oracle Financial Services Analytical Applications Infrastructure User Guide.*

Tip: Oracle Funds Transfer Pricing allows you to transfer price instruments, such as mortgages and commercial loans, stored in your Instrument tables, as well as aggregated information, such as cash and other assets, and equity, residing in the Management Ledger table, also known as LEDGER_STAT.

Consequently, while transfer pricing you need to select the Account tables as the data source for instruments and the Management Ledger Table for aggregated information.

The Oracle Funds Transfer Pricing process comprises the following steps:

Tip: Although the following list of steps is sequential, not all users need to follow all of these steps. While some of these steps might not be applicable to your product portfolio, some others are optional, and it is up to you to decide whether you want to include them to fine tune your transfer pricing results. All the required steps are explicitly marked as mandatory in the list of steps, as well as in the sections where they are described in detail.

1. Reconciling the data
2. Cleansing the data by Performing Cash Flow Edits
3. Setting Application Preferences
4. Capturing instrument behavior by
5. Defining Behavior Patterns
6. Defining Payment Patterns
7. Defining Repricing Patterns
8. Activating Currencies and loading exchange rates
9. (Mandatory) Deciding on historical rate information and managing it by Creating Interest Rate Codes
10. Setting Stochastic Rate Index Rules
11. (Mandatory) Defining Transfer Pricing Rules
12. Setting Prepayment Model Rules
13. Defining Prepayment Rules
14. Defining Adjustment Rules
15. Defining Alternate Rate Output Mapping Rules
16. Creating a Propagation Pattern
17. (Mandatory) Defining and Executing the Transfer Pricing Process
18. Reviewing processing errors
19. Accessing Transfer Pricing, Detail Cash Flow Results for Audit Purposes
20. Accessing Transfer Pricing, Interest Rate Audit Results
21. Analyzing results
22. Reprocessing erroneous accounts

Defining Transfer Pricing Rules

Defining Transfer Pricing rules is one of the mandatory steps in the Oracle Funds Transfer Pricing process. You must define Transfer Pricing rules, in order to transfer price your products. A Transfer Pricing rule is used to manage the association of transfer pricing methodologies to various product-currency combinations. It can also be used to manage certain parameters used in option costing.

To reduce the amount of effort required to define the transfer pricing methodologies for various products and currencies, Oracle Funds Transfer Pricing allows you to define transfer pricing methodologies using node level and conditional assumptions.

Node Level Assumptions

Oracle Funds Transfer Pricing uses the Product Dimension that has been selected within Application Preferences, to represent a financial institution's product portfolio. Using this dimension, you can organize your product portfolio into a hierarchical structure and define parent-child relationships for different nodes of your product hierarchy. This significantly reduces the amount of work required to define transfer pricing, prepayment, and adjustment rule methodologies.

You can define transfer pricing, prepayment, and adjustment rule methodologies at any level of your product hierarchy. Children of parent nodes on a hierarchy automatically inherit the methodologies defined for the parent nodes. However, methodologies directly defined for a child take precedence over those at the parent level. See: *Defining Transfer Pricing Methodologies Using Node Level Assumptions,* on page 92

Conditional Assumptions

The conditional assumption feature allows you to segregate your product portfolio based on common characteristics, such as term to maturity, origination date, and repricing frequency, and assign specific transfer pricing methodologies to each of the groupings.

For example, you can slice a portfolio of commercial loans based on repricing characteristics and assign one global set of Transfer Pricing, Prepayment, or Adjustment rule methods to the fixed-rate loans and another to the floating-rate loans. See: *Associating Conditional Assumptions with Assumption Rules,* on page 93

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Defining Transfer Pricing Methodologies, on page 216

Transfer Pricing Methodologies and Rules

The transfer pricing methodologies supported by Oracle Funds Transfer Pricing can be grouped into the following categories:

- **Cash Flow Transfer Pricing Methods:** Cash flow transfer pricing methods are used to transfer price instruments that amortize over time. They generate transfer rates based on the cash flow characteristics of the instruments.

  In order to generate cash flows, the system requires a detailed set of transaction-level data attributes, such as, origination date, outstanding balance, contracted rate, and maturity date, which resides only in the Instrument tables. Consequently, cash flow methods apply only if the data source is Account tables. Data stored in the

Management Ledger Table reflects only accounting entry positions at a particular point in time and does not have the required financial details to generate cash flows, thus preventing you from applying cash flows methodologies to this data.

The cash flow methods are also unique in that Prepayment rules are used only with these methods. You can select the required Prepayment rule when defining a Transfer Pricing Process .

Oracle Funds Transfer Pricing supports the following cash flow transfer pricing methods:

- *Cash Flow : Average Life,* on page 73
- *Cash Flow: Duration,* on page 74
- *Cash Flow: Weighted Term,* on page 75
- *Cash Flow: Zero Discount Factors,* on page 76

- **Non-cash Flow Transfer Pricing Methods:** These methods do not require the calculation of cash flows. While some of the noncash flow methods are available only with the Account tables data source, some are available with both the Account and Ledger table data sources.

  Oracle Funds Transfer Pricing supports the following noncash flow transfer pricing methods:

  - *Moving Averages,* on page 78
  - *Straight Term,* on page 79
  - *Spread from Interest Rate Code,* on page 80
  - *Spread from Note Rate,* on page 81
  - *Redemption Curve,* on page 81
  - *Tractor Method,* on page 82
  - *Caterpillar,* on page 86
  - *Weighted Average Perpetual,* on page 87
  - *Unpriced Account,* on page 87

Oracle Funds Transfer Pricing also allows .Mid-period Repricing. This option allows you to take into account the impact of high market rate volatility while generating transfer prices for your products. However, the mid-period repricing option applies only to adjustable rate instruments and is available only for certain non-cash flow transfer pricing methods.

Note on Bulk Updates versus Row by Row Processing: Any TP method that does not refer to individual account characteristics utilizes a bulk update to assign a single transfer rate to a group of instrument records. Any TP Method that needs to refer to individual account characteristics in order to process will execute on a row by row basis. In general, Bulk updates will be faster than row by row processing.

The following TP methods, when not defined through a conditional assumption and not utilizing Mid-Period Repricing, use Bulk Updates:

Redemption Curve (Assignment Date = As of Date only)

Moving Average

Spread from Note Rate

Spread from IRC (Assignment Date = As of Date only)

Tractor

Caterpillar

All other TP Methods are processed row by row.

Note: When Conditional Assumptions or Mid Period Repricing are used, processing will always be row by row, regardless of TP Method selection.

Related Topics

Transfer Pricing Methodologies and Rules, on page 71

Defining Transfer Pricing Methodologies, on page 216

Cash Flow : Average Life

The Average Life method determines the average life of the instrument by calculating the effective term required to repay back half of the principal or nominal amount of the instrument. The TP rate is equivalent to the rate on the associated interest rate curve corresponding to the calculated term.

$$\text{Average Life} = \sum_{i=1}^{n} \frac{P_i}{P} t_i$$

Where:

P is the principal

Pi is the principal repayment in coupon *i*, hence

$\frac{P_i}{P}$ is the fraction of the principal repaid in coupon *i*, and

t_i is the time from the start of coupon i

Oracle Funds Transfer Pricing derives the Average Life based on the cash flows of an instrument as determined by the characteristics specified in the Instrument Table and using your specified prepayment rate, if applicable. The average life formula calculates a single term, that is, a point on the yield curve used to transfer price the instrument being analyzed. The Average Life calculation does not differentiate between fixed rate and adjustable rate instruments. It applies the same calculation logic to both. i.e. it computes the Average Life of the loan (to maturity).

Note: The Average Life TP Method provides the option to Output the result of the calculation to the instrument record (TP_AVERAGE_LIFE). This can be a useful option if you'd like to refer to the average life as a reference term within an Adjustment Rule.

Users also have the choice to populate the TP_AVERAGE_LIFE column directly with a value computed outside of OFSAA FTP. If this value is populated, the FTP engine will read the TP_AVERAGE_LIFE and will lookup the FTP rate for the given term. In this case, the TP Engine will not generate cash flows and will not re-compute the Average Life. It will simply use the value that has been provided and lookup the appropriate FTP rate from the specified TP Interest Rate Curve.

Cash Flow: Duration

The Duration method uses the Macaulay duration formula:

$$\text{Duration} = \frac{\sum_{n=1}^{N}\left[\frac{CF_n}{(1+r)^m} \times t_n\right]}{\sum_{n=1}^{N}\left[\frac{CF_n}{(1+r)^m}\right]}$$

In this formula:

N = Total number of payments from Start Date until the earlier of repricing or maturity

CFn = Cash flow (such as regular principal, prepayments, and interest) in period *n*

r = Periodic rate (current rate/payments per year)

m = Remaining term to cash flow/active payment frequency

tn = Remaining term to cash flow *n,* expressed in years

Oracle Funds Transfer Pricing derives the Macaulay duration based on the cash flows of an instrument as determined by the characteristics specified in the Instrument Table and using your specified prepayment rate, if applicable. The duration formula calculates a single term, that is, a point on the yield curve used to transfer price the instrument.

- Within the Duration calculation, the discount rate or current rate, r, is defined in one of three ways, based on how the methodology is setup by the user:
  - Current rate is defined as current net rate if the processing option, "Model with Gross Rates" is not selected and current gross rate if the option is selected. The current rate is used as a constant discount rate for each cash flow.
  - The user may directly input, while defining the TP rule, a constant rate to use for discounting. If specified, this rate is used as a constant discount rate for each flow.
  - The user can select to discount the cash flows using spot rates from a selected interest rate curve. With this approach, a discount rate is read from the selected interest rate curve corresponding to the term of each cash flow.
- Remaining term to cash flow is the difference between the date of each cash flow and the modeling start date for that instrument.

Note: The Duration TP Method provides the option to Output the result of the calculation to the instrument record (TP_DURATION). This can be a useful option if you'd like to refer to the duration as a reference term within an Adjustment Rule.

Users also have the choice to populate the TP_DURATION column directly with a value computed outside of OFSAA FTP. If this value is populated, the FTP engine will read the TP_DURATION and will lookup the FTP rate for the given term. In this case, the TP Engine will not generate cash flows and will not re-compute the DURATION. It will simply use the value that has been provided and lookup the appropriate FTP rate from the specified TP Interest Rate Curve.

Related Topics

Transfer Pricing Methodologies and Rules, on page 71

Defining Transfer Pricing Methodologies, **on page 216**

Cash Flow: Weighted Term

The Weighted Term method builds on the theoretical concepts of duration. You can use the Cash flow Duration TP method approach to Cash flow Weighted Term method. Based on that, following two Cash Flow Discounting Methods are used:

- Multiple Rate
- Single Rate

For more information, refer to Transfer Pricing Rule section.

As shown earlier, duration calculates a weighted-average term by weighting each time period, *n*, with the present value of the cash flow (discounted by the rate on the instrument) in that period.

Since the goal of the Weighted Term method is to calculate a weighted average transfer rate, it weights the transfer rate in each period, *yn*, by the present value for the cash flow of that period. Furthermore, the transfer rates are weighted by an additional component, *time*, to account for the length of time over which a transfer rate is applicable. The time component accounts for the relative significance of each strip cash flow to the total transfer pricing interest income/expense. The total transfer pricing interest income/expense on any cash flow is a product of that cash flow, the transfer rate, and the term. Hence, longer term cash flows will have relatively larger impact on the average transfer rate. The Weighted Term method, with "Discounted Cash Flow" option selected, can be summarized by the following formula:

$$\text{Weighted-Average} = \bar{y} = \frac{\sum_{n=1}^{N}\left[y_n \times \frac{CF_n}{(1+r)^m} \times t_n\right]}{\sum_{n=1}^{N}\left[\frac{CF_n}{(1+r)^m} \times t_n\right]}$$

In this formula:

N = Total number of payments from Start Date until the earlier of repricing or maturity

CFn = Cash flow (such as regular principal, prepayments, and interest) in period *n*

r = Periodic rate(current rate/payments per year)

m = Remaining term to cash flow *n*/active payment frequency

tn = Remaining term to cash flow *n*, expressed in years

yn = Transfer rate in period n

Within the Weighted Average Cash Flow method definition screen, users can choose whether or not to discount the cash flows as described above. If the "Cash Flow" option is selected, rather than the "Discounted Cash Flow", the following simplified formula is applied:

$$\text{Weighted Average} = \bar{y} = \left(\frac{\Sigma_{n=1}^{N} \left[y_n \times CF \times t_n \right]}{\Sigma_{n=1}^{N} \left[CF \times t_n \right]} \right)$$

The discount rate or current rate, r, is defined in one of three ways, based on how the methodology is setup by the user:

- Current rate is defined as current net rate from the instrument record unless the processing option, "Model with Gross Rates" is selected, in which case, current gross rate is used. The current rate is used as a constant discount rate for each cash flow.
- The user may directly input, while defining the TP rule, a single constant rate to use for discounting. If specified, this rate is used as a constant discount rate for each cash flow.
- The user can select to discount the cash flows using spot rates from a selected interest rate curve. With this approach, a discount rate is read from the selected interest rate curve corresponding to the term of each cash flow.

Note: When validating the Cash Flow Weighted Term transfer rate, FE 492 (Discount Factor) from detail cash flow output is useful. FE 490 (Discount Rate) however, may be incorrect in the detail cash flow output if Current Net Rate is specified as the discount rate. This condition does not affect the accuracy of the calculated discount factor, only the audit table rate output for FE 490. If multiple rate discounting (based on IRC) or a single custom rate is specified, then FE 490 will be correct. For more information on FEs,, refer to *Oracle Financial Services Cash Flow Engine Reference Guide Release 6*

Related Topics

Defining Transfer Pricing Rules, on page 71

Defining Transfer Pricing Methodologies, **on page 216**

Cash Flow: Zero Discount Factors

The Zero Discount Factors (ZDF) method takes into account common market practices in valuing fixed rate amortizing instruments. For example, all Treasury strips are quoted as discount factors. A discount factor represents the amount paid today to receive $1 at maturity date with no intervening cash flows (that is, zero coupon).

The Treasury discount factor for any maturity (as well as all other rates quoted in the market) is always a function of the discount factors with shorter maturities. This ensures that no risk-free arbitrage exists in the market. Based on this concept, one can conclude that the rate quoted for fixed rate amortizing instruments is also a combination of some set of market discount factors. Discounting the monthly cash flows for that instrument (calculated based on the constant instrument rate) by the market discount factors generates the par value of that instrument (otherwise there is arbitrage).

ZDF starts with the assertion that an institution tries to find a funding source that has the same principal repayment factor as the instrument being funded. In essence, the institution strip funds each principal flow using its funding curve (that is, the transfer pricing yield curve). The difference between the interest flows from the instrument and its funding source is the net income from that instrument.

Next, ZDF tries to ensure consistency between the original balance of the instrument and the amount of funding required at origination. Based on the transfer pricing yield used to fund the instrument, the ZDF solves for a single transfer rate that would amortize the funding in two ways:

Its principal flows match those of the instrument.

The Present Value (PV) of the funding cash flows (that is, the original balance) matches the original balance of the instrument.

ZDF uses zero coupon factors (derived from the original transfer rates, see the example below) because they are the appropriate vehicles in strip funding (that is, there are no intermediate cash flows between origination date and the date the particular cash flow is received). The zero coupon yield curve can be universally applied to all kinds of instruments.

This approach yields the following formula to solve for a weighted average transfer rate based on the payment dates derived from the instrument's payment data.

Zero Discount Factors = y =

$$100 \times \left[\frac{B_0 - \sum_{n=1}^{N}(B_{n-1} \times DTP_n) + \sum_{n=1}^{N}(B_n \times DTP_n)}{\sum_{n=1}^{N}(B_{n-1} \times DTP_n)} \right] \times p$$

In this formula:

B0 = Beginning balance at time, 0

Bn-1 = Ending balance in previous period

Bn = Ending balance in current period

DTPn = Discount factor in period n based on the TP yield curve

N = Total number of payments from Start Date until the earlier of repricing or maturity

p = Payments per year based on the payment frequency; (for example, monthly payments gives p=12)

Deriving Zero Coupon Discount Factors: An Example

This table illustrates how to derive zero coupon discount factors from monthly pay transfer pricing rates:

Term in Months	(a) Monthly Pay Transfer Rates	(b) Monthly Transfer Rate: (a)/12	(c) Numerator (Monthly Factor): 1+ (b)	(d) PV of Interest Payments: (b)*Sum((f)/ 100 to current row	(e) Denominat or (1 - PV of Int Pmt): 1 - (d)	(f) Zero Coupon Factor: [(e)/(c) * 100
1	3.400%	0.283%	1.002833	0.000000	1.000000	99.7175
2	3.500%	0.292%	1.002917	0.002908	0.997092	99.4192
3	3.600%	0.300%	1.003000	0.005974	0.994026	99.1053

Note: For zero discount factor method, the discount factor used for discounting cash flows is output as FE 490, after multiplied by 100. For more information on FEs,, refer to *Oracle Financial Services Cash Flow Engine Reference Guide Release 6*

Related Topics

Transfer Pricing Methodologies and Rules, on page 71

Defining Transfer Pricing Methodologies, on page 216

Moving Averages

Under this method, a user definable moving average of any point on the transfer pricing yield curve can be applied to a transaction record to generate transfer prices. For example, you can use a 12-month moving average of the 12-month rate to transfer price a particular product.

The following options become available on the user interface (UI) with this method:

- **Interest Rate Code:** Select the Interest Rate Code to be used as the yield curve to generate transfer rates.
- **Yield Curve Term:** The Yield Curve Term defines the point on the Interest Rate Code that is used.
- **Historical Range:** The Historical Term defines the period over which the average is calculated.

The following table illustrates the difference between the yield curve and historical terms.

Yield and Historical Terms: An Example			
Moving Average		Historical Range	Yield Curve Term
Six-month moving average of 1 year rate		6 months	1 year (or 12 months)
Three-month moving average of the 6 month rate		3 months	6 months

The range of dates is based on the As of date minus the historical term plus one, because the historical term includes the As of date. Oracle Funds Transfer Pricing takes the values of the yield curve points that fall within that range and does a straight average on them.

For example, if As of Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system will calculate the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms.

Note: The Moving Averages method applies to either data source: Management Ledger Table or Account Tables.

Related Topics

Transfer Pricing Methodologies and Rules, on page 71

Defining Transfer Pricing Methodologies, on page 216

Straight Term

When you select the Straight Term method and standard Term approach, the system derives the transfer rate using the last repricing date and the next repricing date for adjustable rate instruments, and the origination date and the maturity date for fixed rate instruments.

- Standard Calculation Mode:
  - For Fixed Rate Products (Repricing Frequency = 0), use Yield Curve Date = Origination Date, Yield Curve Term = Maturity Date-Origination Date.
  - For Adjustable Rate Products (Repricing Frequency > 0)
    - For loans still in tease period (tease end date > As of Date, and tease end date > origination date), use Origination Date and Tease End Date - Origination Date.
    - For loans not in tease period, use Last Repricing Date and Repricing Frequency.
- Remaining Term Calculation Mode:
  - For Fixed Rate Products, use As of Date and Maturity - As of Date.
  - For Adjustable Rate Products, use As of Date and Next Repricing Date - As of Date.

In addition to the above standard logic used for determining the appropriate "Term", users also have the option to select either Original Term or Repricing Frequency and also have the option to modify these terms using simple mathematical operators. These options can be useful in cases where the straight term method needs to be applied to the same record under different circumstances. For example, for calculating the base rate on an adjustable rate instrument, the standard approach should be used. For the same instrument, users may further want to use the entire original term for applying a liquidity premium or other add-on rate. To support the second case, we give the option to directly specify the term to be used, and we further provide the option to modify the term using simple operators, such as +, -, *, /.

The following options become available in the application with this method:

- **Term:** Select from Standard, Original Term or Reprice Frequency. Standard is the default selection and resulting Term will follow the above logic. The Original Term and Reprice Frequency options allow users to override the standard logic and specify which term to use.

- **Adjustment Operator:** When either Original Term or Reprice Frequency is selected as the Term, the Adjustment Operator becomes active. The term adjustment is optional, and gives users the ability to modify the term
- **Adjustment Amount:** This input works together with the adjustment operator to indicate how the term should be modified
- **Interest Rate Code:** Select the Interest Rate Code to be used for transfer pricing the account.
- **Mid-Period Repricing Option:** Select the check box beside this option to invoke the Mid-Period Repricing option.
- **Holiday Calendar:** Select if a holiday calendar is applicable for calculating the charges/credits or for calculating Economic Value
- **Rolling Convention:** Select the appropriate business day rolling convention if a Holiday Calendar is selected
- **Interest Calculation logic:** Select the appropriate option to indicate how the interest payment should be adjusted when a holiday date is encountered

Note: The Straight Term method applies only to accounts that use Account Tables as the data source.

Form more information, refer to *Transfer Pricing Rule* chapter.

Related Topics

Transfer Pricing Methodologies and Rules, on page 71

Defining Transfer Pricing Methodologies, on page 216

Spread from Interest Rate Code

Under this method, the transfer rate is determined as a fixed spread from any point on an Interest Rate Code. The following options become available on the application with this method:

- **Interest Rate Code:** Select the Interest Rate Code for transfer pricing the account.
- **Yield Curve Term:** The Yield Curve Term defines the point on the Interest Rate Code that will be used to transfer price. If the Interest Rate Code is a single rate, the Yield Curve Term is irrelevant. Select Days, Months, or Years from the drop-down list, and enter the number.
- **Lag Term:** While using a yield curve from an earlier date than the Assignment Date, you need to assign the Lag Term to specify a length of time prior to the Assignment Date.
- **Rate Spread:** The transfer rate is a fixed spread from the rate on the transfer rate yield curve. The Rate Spread field allows you to specify this spread.
- **Assignment Date:** The Assignment Date allows you to choose the date for which the yield curve values are to be picked up. Choices available are the As of Date, Last Repricing Date, Origination Date, or TP Effective Date.
- **Mid-Period Repricing Option:** Select the check box beside this option to invoke the Mid-Period Repricing option.

Note: The Spread From Interest Rate Code method applies to either data source: Ledger Table or Account Tables.

Related Topics

Transfer Pricing Methodologies and Rules, on page 71

Defining Transfer Pricing Methodologies, **on page 216**

Spread from Note Rate

To generate transfer prices using this method, you need to provide just one parameter: a rate spread. This spread is added or subtracted from the coupon rate of the underlying transaction to generate the final transfer rate for that record.

While entering the rate spread, make sure to input it with the appropriate positive or negative sign, as illustrated in the following table. The first row describes a situation where you are transfer pricing an asset and want to have a positive matched spread for it (the difference between the contractual rate of the transaction and the transfer rate is positive). Here, you need to enter a negative rate spread.

Example of Rate Spread

Account Type	Sign of Rate Spread	Matched Spread
Asset	Negative	Positive (Profitable)
Asset	Positive	Negative (Unprofitable)
Liability or Equity	Positive	Positive (Profitable)
Liability or Equity	Negative	Negative (Unprofitable)

The following option becomes available in the application when you select this method:

Mid-Period Repricing Option: Select the check box beside this option to invoke the Mid-Period Repricing option.

Note: The Spread From Note Rate method applies only to accounts that use Account Tables as their data source.

Related Topics

Transfer Pricing Methodologies and Rules, on page 71

Defining Transfer Pricing Methodologies, **on page 216**

Redemption Curve

This method allows you to select multiple term points from your transfer pricing yield curve and calculate an average transfer rate based on the weights you assign to each term point. The following options become available in the application with this method:

- **Interest Rate Code:** Select the Interest Rate Code which you want to use as the transfer pricing yield curve.
- **Assignment Date:** The Assignment Date allows you to choose the date for which the yield curve values will be picked up. Choices available are the As of Date, Last Repricing Date, Origination Date, TP Effective Date., Adjustment Effective Date, or Commitment Start Date.
- **Percentages/Term Points:** See: *Redemption Curve,* on page 81

- **Mid-Period Repricing Option:** Select the check box beside this option to invoke the Mid-Period Repricing option.

Note: The Redemption Curve method applies to either data source: Ledger Table or Account Tables.

Related Topics

Defining Transfer Pricing Methodologies, on page 216

Tractor Method

The Tractor Method extends the concept of "Strip Funding" to instruments that do not have contractual cash flows. These products are known as perpetual or non-maturity products and hence do not generate contractual cash flows. The process of determining transfer rates requires adopting the strip funding approach by splitting these products into Core and Volatile portions based on statistically established Behavioral Profiles. With this method, the volatile portion is considered to have an overnight maturity and the core portion is assigned a longer maturity (through a Behavior Pattern) which is comprised of a series of balance strips corresponding to the maximum tenor of the portfolio (on origination of the portfolio, original strips will have shorter maturities). Each strip is assigned a transfer rate corresponding to its origination date and corresponding term. The historical, active strips are retained for the portfolio and the portfolio transfer rate is determined based on the weighted average transfer rate of the strips comprising the portfolio. The weighted average rate from the strip portfolio is written back to all instrument records that are mapped to this portfolio through the Transfer Pricing rule.

The characteristics of the replicating portfolio used by the Tractor Method are defined through a Non-Maturity Behavior Pattern with replicating portfolio option. The following example illustrates the behavior of a small 3 day portfolio rolling across 4 days.

Replicating Portfolio

Day 0

31-Jan-11

Strip	Start	Maturity	Balance	TP Rate	Date rolled	Comment
0A	31-Jan-11	1-Feb-11	100	5.00%		Initial portfolio
0B	31-Jan-11	2-Feb-11	100	5.10%		Initial portfolio
0C	31-Jan-11	3-Feb-11	100	5.20%		Initial portfolio
	Day 0 - Maturity Profile					
	Total	Day 1	Day 2	Day 3		
		1-Feb-11	2-Feb-11	3-Feb-11		Tractor TP Rate

	300	100	100	100		5.10%

Day 1

1-Feb-11	Daily rollover					
Strip	**Start**	**Maturity**	**Balance**	**Rate**	**Date rolled**	**Comment**
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	Matures and rolls to 1A
0B	31-Jan-11	2-Feb-11	100	5.10%		
0C	31-Jan-11	3-Feb-11	100	5.20%		
1A	1-Feb-11	4-Feb-11	100	5.30%		Rollover strip, TP'd by engine
	Day 1 - Maturity Profile					
	Total	Day 1	Day 2	Day 3		
		2-Feb-11	3-Feb-11	4-Feb-11		Tractor TP Rate
	300	100	100	100		5.20%

Day 2

2-Feb-11	Daily rollover					
Strip	**Start**	**Maturity**	**Balance**	**Rate**	**Date rolled**	**Comment**
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	
0B	31-Jan-11	2-Feb-11	100	5.10%	2-Feb-11	Matures and rolls to 2A
0C	31-Jan-11	3-Feb-11	100	5.20%		
1A	1-Feb-11	4-Feb-11	100	5.30%		

2A	2-Feb-11	7-Feb-11	100	5.40%		Rollover strip, TP'd by engine
	Day 2 - Maturity Profile					
	Total	Day 1	Day 2	Day 3		
		3-Feb-11	4-Feb-11	7-Feb-11		Tractor TP Rate
	300	100	100	100		5.30%

Day 3

3-Feb-11 Daily rollover, and new business (reduction of $30)

Strip	Start	Maturity	Balance	Rate	Date rolled	Comment
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	
0B	31-Jan-11	2-Feb-11	100	5.10%	2-Feb-11	
0C	31-Jan-11	3-Feb-11	100	5.20%	3-Feb-11	Matures and rolls to 3A
1A	1-Feb-11	4-Feb-11	100	5.30%		
2A	2-Feb-11	7-Feb-11	100	5.40%		
3A	3-Feb-11	8-Feb-11	100	5.50%		Rollover strip, TP'd by engine
3B	3-Feb-11	4-Feb-11	-10	5.50%		New Business strip, TP'd by engine
3C	3-Feb-11	7-Feb-11	-10	5.50%		New Business strip, TP'd by engine
3D	3-Feb-11	8-Feb-11	-10	5.50%		New Business strip, TP'd by engine
	Day 3 - Maturity Profile					

	Total	Day 1	Day 2	Day 3	
		4-Feb-11	7-Feb-11	8-Feb-11	Tractor TP Rate
	270	90	90	90	5.39%

Day 4

4-Feb-11 Daily rollover

Strip	Start	Maturity	Balance	Rate	Date rolled	Comment
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	
0B	31-Jan-11	2-Feb-11	100	5.10%	2-Feb-11	
0C	31-Jan-11	3-Feb-11	100	5.20%	3-Feb-11	
1A	1-Feb-11	4-Feb-11	100	5.30%	4-Feb-11	Matures and rolls to 4A
2A	2-Feb-11	7-Feb-11	100	5.40%		
3A	3-Feb-11	8-Feb-11	100	5.50%		
3B	3-Feb-11	4-Feb-11	-10	5.50%	4-Feb-11	Matures and rolls to 4A
3C	3-Feb-11	7-Feb-11	-10	5.50%		
3D	3-Feb-11	8-Feb-11	-10	5.50%		
4A	4-Feb-11	9-Feb-11	90	5.60%		Rollover strip, TP'd by engine

Day 4 - Maturity Profile

	Total	Day 1	Day 2	Day 3	
		7-Feb-11	8-Feb-11	9-Feb-11	Tractor TP Rate
	270	90	90	90	5.50%

The above example assumes a business day calendar is enabled with the following business days defined:

Business Day

Calendar

31-Jan-11

1-Feb-11

2-Feb-11

3-Feb-11

4-Feb-11

7-Feb-11

8-Feb-11

9-Feb-11

10-Feb-11

11-Feb-11

****

Caterpillar

The Caterpillar method extends the concept of "strip funding" to instruments that do not have contractual cash flows. These products are known as Perpetual or Non-Maturity Products and hence do not generate contractual cash flows. The process of determining Transfer Rates requires adopting the **'Strip Funding Approach'** by splitting these products into **'Core'** and **'Volatile'** portions based on statistically established **Behavioral Profiles**. With this approach, the volatile portion may be considered as an overnight funding strip and the core portion can be dealt with in accordance with an assumed maturity structure defined through a Behavior Pattern. For example statistical analysis may imply that the Savings Account portfolio behaves 20% as volatile and 80% as core of which the maturity is likely to be 3 months. Hence the Funding Strips that would get created are 20% 1 month, and 80% 3 month.

BEHAVIORAL PATTERN: 20% 1 Month; 80% 3 Months

		Productio n	IRC					
Period	EOP Balance	1M	2M	3M	1M	2M	3M	TP Rate
Mth 1	4000	800		3200	4.00%	4.25 %	4.50%	4.40%
Mth 2	7000	760	320 0	3040	4.50%	4.75 %	5.00%	4.72%
Mth 3	8500	3652	304 0	1808	5.00%	5.25 %	5.50%	4.92%

Mth 4	9000	3870	1808	3322	5.50%	5.75%	6.00%	5.52%
Mth 5	8000	2382	3322	2296	6.00%	6.25%	6.50%	6.03%

In the example above we assume that once a funding strip is assigned a certain Transfer Rate based on its original term, the rate remains constant until the strip matures. Each strip is funded for the original term based on the yield curve in effect at the start of the strip. In month 4, when the balance is 9000, the strips still outstanding from earlier months are: 3040 as a 3 month term strip, created in month 2 at 5% having a remaining term 1 month; (3870-3040) 1 month term strip created in month 4, 1808 3 month term strip created in month 3 with 2 month remaining term, and 3322 3 month term strip created in month 4. The weighted average rate of these strips comes to **5.52**% as illustrated in the example above.

In summary:

Month 4 Transfer Rate = (3040*5% + (3870-3040)*5.5% + 1808*5.5% + 3322*6%) / 9000 = 5.52%

Weighted Average Perpetual

This method calculates the simple weighted average of the applicable balance based on maturity bands defined through a Behavior Pattern. In the following example, the end of period balance as of Jan 31 is split into Core and Volatile strips and the relevant rates are applied to arrive at the weighted average Transfer Rate.

BEHAVIORAL PATTERN: 20% 1 Month; 80% 3 Months

Run Date	EOP Balance	1M Strip	3M Strip	1M Rate	3M Rate	TP Rate
Jan 31	100000	20000	80000	3.10%	3.50%	3.42%
Feb 28	200000	40000	160000	3.25%	3.60%	3.53%
Mar 31	300000	60000	240000	3.20%	3.55%	3.48%

Transfer Rate = (20000*3.10% + 80000*3.50%) / 100000 = 3.42%

- Behavior Pattern: Select the Behavior Pattern that is associated with the Product / Currency combination being defined.
- Interest Rate Code: Select the Interest Rate Code which you want to use as the transfer pricing yield curve.

Note: The Weighted Average Perpetual method applies only to accounts that use the Ledger Table as their data source.

Unpriced Account

Under the unpriced account method, the transfer rate for the account is defined as the weighted average of the Product dimension members. While using the unpriced account methodology, you can specify whether the weighted average of transfer rates has to be taken across all organizational units or for accounts only within that organizational unit.

The following options become available in the application with this method:

- **Add Dimension Values:** Allows you to select the Product dimension members whose weighted average transfer rate will be assigned to the product being defined. **Caution:** You should not base an unpriced account on another unpriced account.
- **Across all Organization Units:** Allows you to specify whether weighted average of transfer rates should be taken across all organization units. If this option is not selected, the weighted average rate will be calculated for each individual org unit. To calculate for each individual Org Unit, you must also select the Org Unit dimension under Migration Dimensions in the Transfer Pricing Process.

Note: The Unpriced Account method applies only to accounts that use the Ledger Table as their data source.

Transfer Pricing Methods and the Mid-Period Repricing Option

The mid-period repricing option allows you to take into account the impact of high market rate volatility while generating transfer rates for your products. However, the mid-period repricing option applies only to adjustable rate instruments and is available only for the following non-cash flow transfer pricing methods:

- Straight Term.
- Spread from Interest Rate Code.
- Spread from Note Rate.
- Redemption Curve.

The rationale behind mid-period repricing is as follows. If you do not select the Mid-Period Repricing option, Oracle Funds Transfer Pricing computes the transfer rate for an adjustable rate instrument based upon its last repricing date. The assumption behind this method of calculation is that the input transfer rate for a month should be the daily average transfer rate for that entire month. Consequently, all instruments repricing in that month derive their transfer rates from the same (average) transfer pricing yield curve. However, this approach misstates the transfer rate, in periods when the interest rate level has moved substantially since the last repricing.

Take the example of a one-year adjustable rate loan. Suppose it reprices on the 15th of the month, and that transfer rates have moved up 200 basis points since the last reprice. In such a case, the theoretically pure transfer rate for the first half of the month should be 200 basis points lower than the transfer rate for the second half of the month. In order to apply such theoretical accuracy to your transfer pricing results, you should select the Mid-Period Repricing option.

Mid-Period Repricing Computations

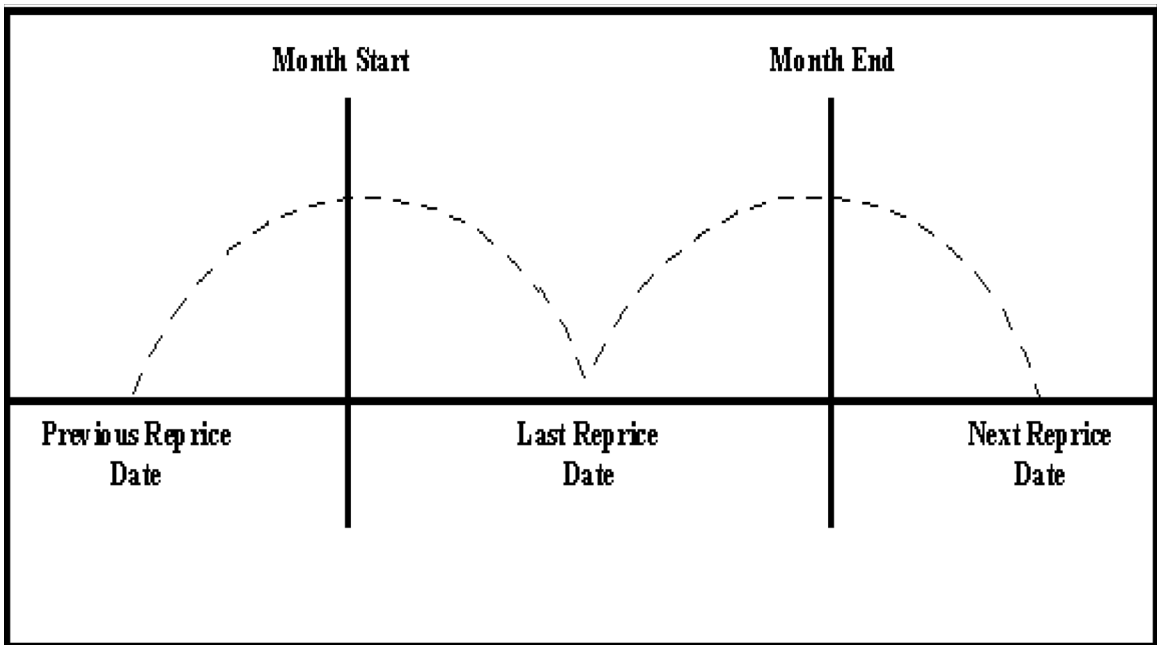
The Mid-Period Repricing option uses two columns in the Instrument Tables (Current- and Prior- Repricing Period Average Daily Balance: CUR_TP_PER_ADB, PRIOR_TP_PER_ADB) that are exclusively devoted to this option. These columns must be accurately populated for the Mid-Period Repricing results to be accurate.

The Mid-Period Repricing Computation process comprises the following steps:

1. Computation of transfer rate for current repricing period.
2. If the computed last repricing date > beginning of processing month, roll back to prior repricing date.
3. Computation of prior period transfer rate.
4. Repetition of steps 2 and 3 as necessary.
5. Computation of the final transfer rate by weighting the results (from current and previous repricing periods) by average balances and days.
6. Application of the final transfer rate to the instrument record.

Typical Calculations

The following diagram depicts a typical Mid-Period Repricing situation where the instrument reprices during the current processing month.



If an instrument reprices during the current processing month, then there are multiple repricing periods spanning the current month. In this example, there are two repricing periods in the current processing month and the computed last repricing date > beginning of processing month. Consequently, the repricing dates need to be rolled back by the repricing frequency until the Prior Last Repricing Date (Prior LRD) <= Beginning of Month and the Mid-Period Repricing Computation process should be executed as follows:

- Computation of transfer rate for current repricing period.
  - Transfer Pricing Term: Next Reprice Date - Last Reprice Date
  - Transfer Pricing Date: Last Reprice Date
  - Number of Days at that Rate: End of Month + 1- Last Reprice Date **Note:** If the Computed Next Reprice Date (the next repricing date for a given repricing period) is less than or equal to the End of Month, then the Number of Days calculation uses the Computed Next Reprice Date in place of End of Month. In other words, Number of Days equals the Minimum (End of Month + 1, Computed Next Reprice Date) - Maximum (Beginning of Month, Computed Last Reprice Date). This example assumes the use of the Straight Term transfer pricing method. The following table describes the logic for the computation of the transfer rates for each method.

Method	Date for Rate Lookup	Terms	Interest Rate Code	Spread
Straight Term	Beginning of Reprice Period	Transfer Pricing Term	Specified in Transfer Pricing rule	Not Applicable

Spread from Interest Rate Code	Beginning of Reprice Period (adjust by Lag Term in TP Rule)	Specified in Transfer Pricing rule	Specified in Transfer Pricing rule	Specified in Transfer Pricing rule
Spread from Note Rate	Beginning of Reprice Period	Transfer Pricing Term	Interest Rate Code from Record	Specified in Transfer Pricing rule
Redemption Curve	Beginning of Reprice Period	Specified in Transfer Pricing rule	Specified in Transfer Pricing rule	Not Applicable

- If the computed last repricing date > beginning of processing month, roll back to prior repricing date. Since the Last Repricing Date is greater than the Beginning of the Processing month, the Roll Back is done as follows:

  Computed Next Reprice Date is reset to Last Reprice Date

  Computed Last Repricing Date is reset to Last Repricing Date - Reprice Frequency (Prior LRD)

- Computation of prior period transfer rate.
  - Transfer Pricing Term: Last Reprice Date - Prior LRD
  - Transfer Pricing Date: Prior LRD
  - Number of Days at that Rate: Last Reprice Date - Beginning of Month

  Note: If the Computed Last Reprice Date (the last repricing date for a given repricing period) is greater than the Beginning of Month, then the Number of Days calculation uses Computed Last Reprice Date in place of the Beginning of Month. In other words, Number of Days equals Minimum (End of Month + 1, Computed Next Reprice Date) - Maximum (Beginning of Month, Computed Last Reprice Date).

- Repetition of steps 2 and 3 as necessary. In this example, only one iteration is needed because Prior LRD is less than the Beginning of the Month.

- Computation of the final transfer rate by weighting the results (from current and previous repricing periods) by average balances and days.

$$((CUR_TP_PER_ADB * Cur\ Period\ Transfer\ Rate * Cur\ Period\ Days) + \Sigma\ (PRIOR_TP_PER_ADB * Prior\ Period\ Transfer\ Rate * Prior\ Period\ Days)) / ((CUR_TP_PER_ADB * Cur\ Period\ Days) + \Sigma\ (PRIOR_TP_PER_ADB * Prior\ Period\ Days))$$

  The calculation makes the following assumptions:
  - CUR_TP_PER_ADB is the balance applying since the last reprice date
  - PRIOR_TP_PER_ADB is the balance applying to all prior repricing periods

- Application of the final transfer rate to the instrument record.

Exceptions to Typical Calculations

There are two exceptions to typical mid-period repricing computations:

Teased Loan Exception

When the TEASER_END_DATE is the first repricing date, it overrides all other values for LAST_REPRICE_DATE and NEXT_REPRICE_DATE. During the Teased Period, then, the Computed Last

Repricing Date equals the Origination Date and the Computed Next Reprice Date equals the TEASER_END_DATE. Consequently:

- If the TEASER_END_DATE is greater than the AS_OF_DATE, the Mid-Period Repricing does not apply. The logic to compute the Transfer rate is based upon the term equal to the TEASER_END_DATE - ORIGINATION_DATE, date equals the ORIGINATION_DATE.
- When rolling backwards by repricing frequency, if the TEASER_END_DATE is greater than the Computed Last Repricing Date, Transfer Pricing computes the transfer rates for that period based on the teased loan exception.

Origination Date Exception

While performing mid-period repricing computations, Oracle Funds Transfer Pricing assumes that if the origination date occurs during the processing month, the calculation of the number of days (used for weighting) originates on the first day of the month. This is a safe assumption because the PRIOR_TP_PER_ADB value shows this instrument was not on the books for the entire month. This impact is measured because the PRIOR_TP_PER_ADB value is used in computing the weighted average transfer rate. If Oracle Funds Transfer Pricing were to shorten the number of days (as in the weighted average calculation), it would double-count the impact.

Origination Date Exception: An Example

The following table displays a situation where the origination date occurs during the processing month:

Period 1	Period 2	Period 3
Nov 1 - Nov 10	Nov 11 - Nov 20	Nov 21 - Nov 30
	Loan is originated	Loan reprices
Loan Balance = 0	Loan Balance = 100	Loan Balance = 100
Transfer Rate = 0	Transfer Rate = 6%	Transfer Rate = 8%
Days = 10	Days = 10	Days = 10
Weighting Balance = 50 = PRIOR_TP_PER_ADB	Weighting Balance = 50 = PRIOR_TP_PER_ADB	Weighting Balance = 100 = CUR_TP_PER_ADB

Note: The cumulative average daily balance for period 1 plus period 2 is 50.

Taking the origination date exception into account, the Mid-Period Repricing calculation is done as follows:

(6% * $50 * 20 days) + (8% * $100 * 10 days) / ($50 * 20 days + $100 * 10 days) = 7%

If period 1 was not taken into account, the result would have been, (6% * $50 * 10 days) + (8% * $100 * 10 days) / ($50 * 10 days + $100 * 10 days) = 7.33%, which is incorrect.

Related Topics

Transfer Pricing Methodologies and Rules, on page 71

Defining Transfer Pricing Methodologies, on page 216

Defining Transfer Pricing Methodologies Using Node Level Assumptions

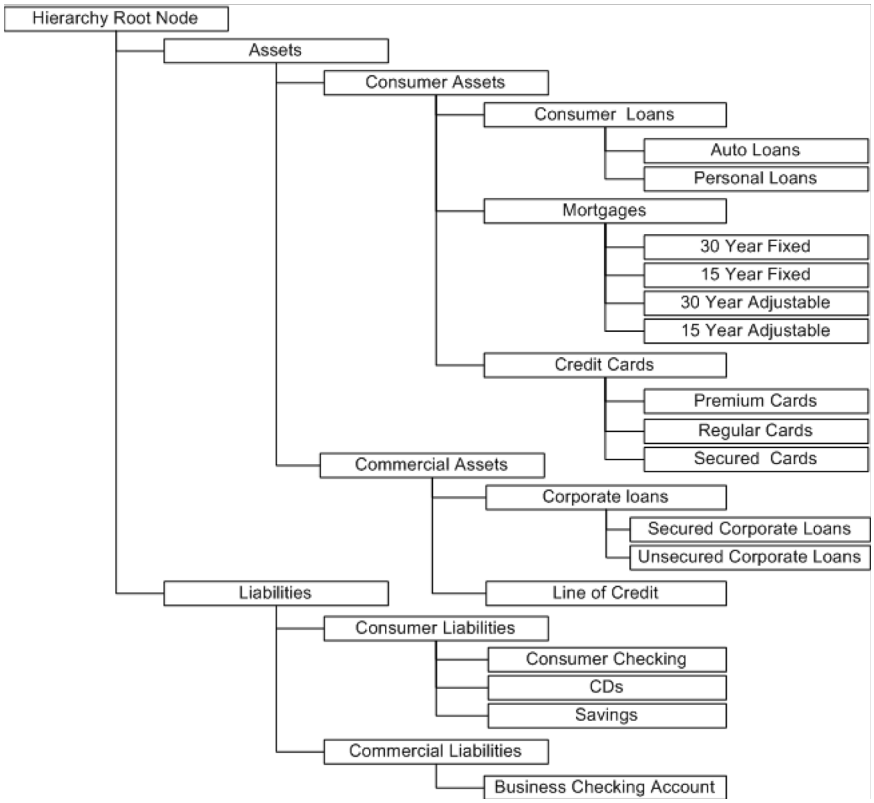
In Oracle Funds Transfer Pricing, your product portfolio is represented using the Product Dimension specified in your FTP Application Preferences. Node Level Assumptions allow you to define transfer pricing, prepayment, and adjustment assumptions at any level of the Product dimension Hierarchy. The Product dimension supports a hierarchical representation of your chart of accounts, so you can take advantage of the parent-child relationships defined for the various nodes of your product hierarchies while defining transfer pricing, prepayment, and adjustment assumptions. Child nodes for which no assumptions have been specified automatically inherit the methodology of their closest parent node. Conversely, explicit definitions made at a child level will take precedence over any higher level parent node assumption.

Node level assumptions simplify the process of applying rules in the user interface and significantly reduce the effort required to maintain business rules over time as new products are added to the product mix. It is also not required for all rules to assign assumptions to the same nodes. Users may assign assumptions at different levels throughout the hierarchy.

Note: During creating a new rule, if you perform any activities (such as, conditional assumption creation, defining products, search, copy across and so on) in Assumption window and click Cancel button, the Rule will be saved with basic Rule definition and displayed in Rule Summary page.

Behavior of Node Level Assumptions

The following graphic displays a sample product hierarchy:



Suppose you want to transfer price this product hierarchy using the Spread from Interest Rate Code transfer pricing method except for the following products:

- Mortgages: You want to transfer price these using the Zero Discount Factors cash flow based method.
- Credit Cards: You want to transfer price all but secured credit cards using the Spread from Note Rate method.

To transfer price in this manner, you need to attach transfer pricing methods to the nodes of the product hierarchy as follows:

- Hierarchy Root Node: Spread from Interest Rate Code
- Mortgages: Zero Discount Factors Cash Flow
- Credit Cards: Spread from Note Rate
- Secured Credit Cards: Spread from Interest Rate Code

The transfer pricing method for a particular product is determined by searching up the nodes in the hierarchy. Consider the Secured Credit Cards in the above example. Since Spread from IRC is specified at the leaf level, the system does not need to search any further to calculate the transfer rates for the Secured Credit Cards. However, for a Premium Credit Card the system searches up the hierarchical nodes for the first node that specifies a method. The first node that specifies a method for the Premium Credit Card is the Credit Card node and it is associated with the Spread from Note Rate method.

Note: Not specifying assumptions for a node is not the same as selecting the "Do Not Calculate" method. Child nodes for which no assumptions have been specified automatically inherit the methodology of their closest parent node. So if neither a child node nor its immediate parent has a method assigned, the application searches up the nodes in the hierarchy until it finds a parent node with a method assigned, and uses that method for the child node. If there are no parent nodes with a method assigned then the application triggers a processing error stating that no assumptions are assigned for the particular product/currency combination. However, if the parent node has the "Do Not Calculate" method assigned to it then the child node inherits "Do Not Calculate", obviating the need for calculation and for a processing error.

All parameters that are attached to a particular methodology (such as Interest Rate Code) are specified at the same level as the method. If multiple Interest Rate Codes are to be used, depending on the type of the product, the method would need to be specified at a lower level. For instance, if you want to use IRC 211178 for Consumer Products and IRC 3114 for Commercial Products, then the transfer pricing methodologies for these two products need to be specified at the Commercial Products and Consumer Products nodes.

You need not specify prepayment assumptions at the same nodes as transfer pricing methods. For example, each mortgage category can have a different prepayment method while the entire Mortgage node uses the Zero Discount Factors cash flow method for transfer pricing.

Related Topics

Defining Transfer Pricing Rules, **on page 71**

Defining Transfer Pricing Methodologies, **on page 216**

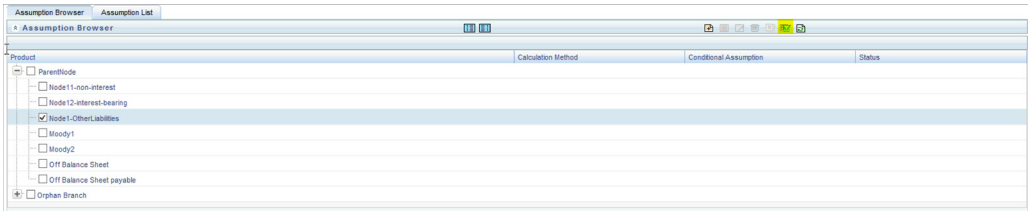
Associating Conditional Assumptions with Assumption Rules, **on page 93**

Associating Conditional Assumptions with Assumption Rules

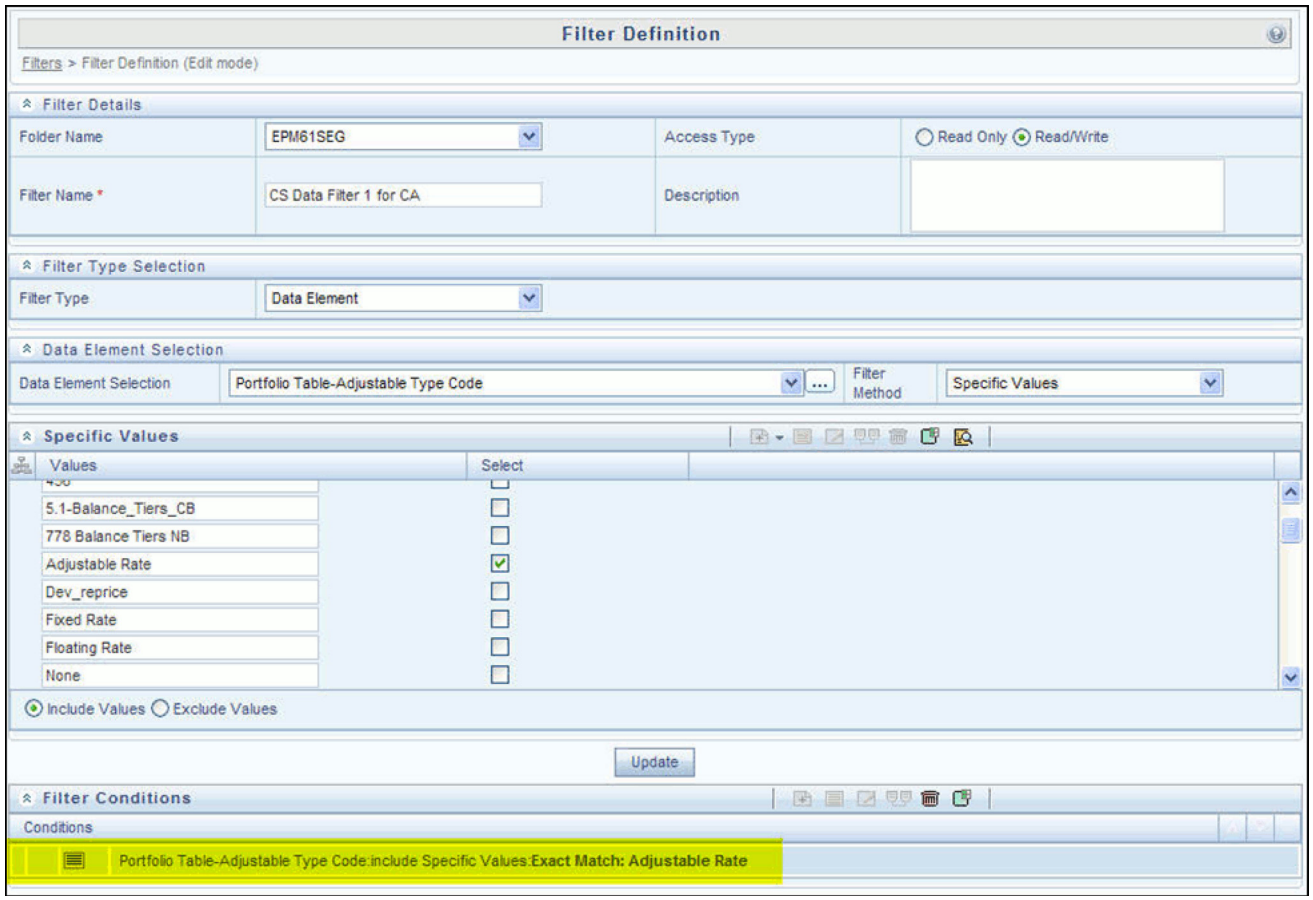
Oracle Funds Transfer Pricing extends setup and maintenance of assumptions by allowing users to integrate conditional logic (optional) into the setup of transfer pricing, prepayment, and TP adjustment methods.

Note: From release 8.0.2, Caterpillar method under Transfer Pricing Rules will not available for selection under Conditional Assumptions.

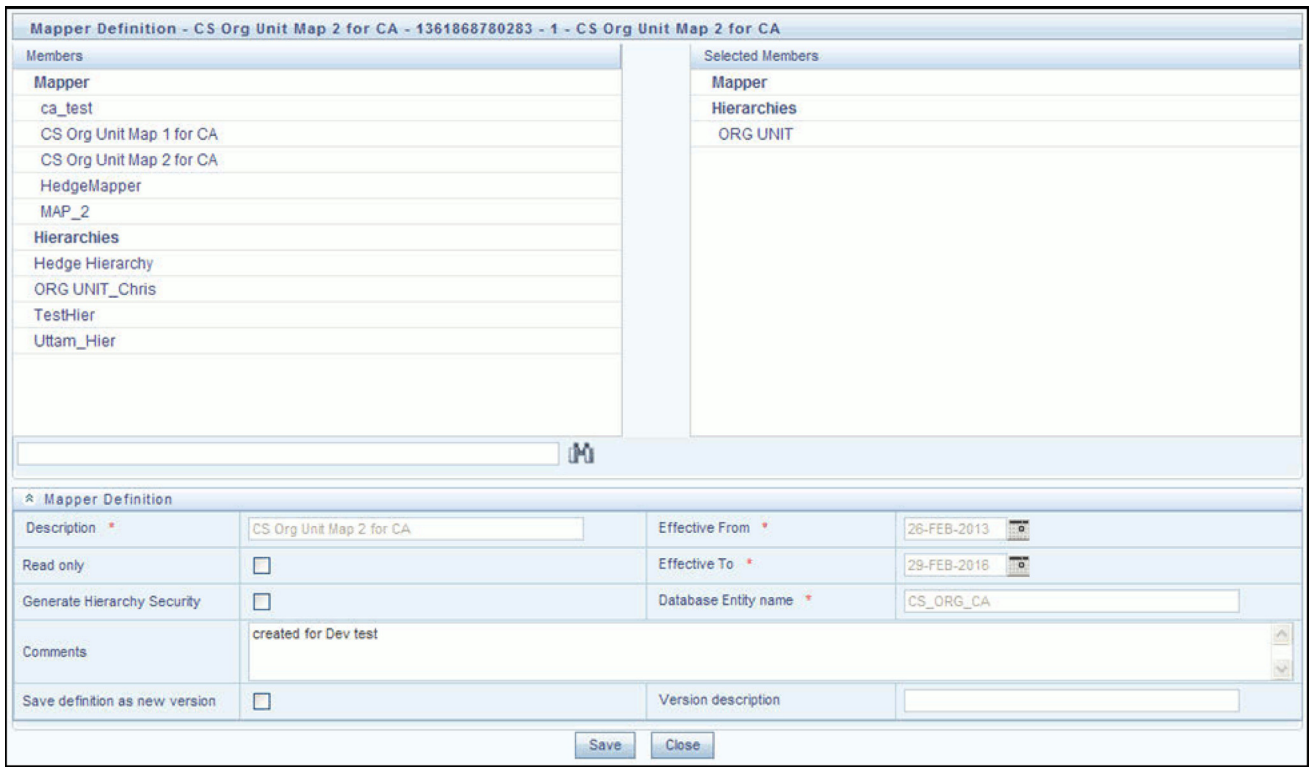
The Conditional Assumption UI is accessed from the Assumption Browser by selecting the Conditional Assumption icon.



The conditional logic is defined through use of Data Filters and/or Maps. These existing objects provide the building blocks for defining Conditional logic. For example, each Data Filter can provide the logic for a specific condition. In the example below, the where clause is "Adjustable Type Code = 'Adjustable Rate'". This type of Data Filter can be selected within the Conditional Assumption UI.



Similarly, a Mapper object provides the necessary reference to one or more hierarchies, when dimension / hierarchy data is needed to define conditional logic. In the example below, this map refers to a hierarchy created on the Organization Unit dimension.



Note: Maps are accessed from the Infrastructure (HOME) page. You can find them at the following path:

Common Object Maintenance > Unified Analytical Metadata > Map Maintenance

1. Navigate to Map Maintenance
2. Select icon to create new Map
3. On the left hand side, select one or more hierarchies that were enabled in the initial step
4. Fill in required information, e.g. Name, Effective Dates, and Entity Name
5. Save
6. From the Map Maintenance Summary page, select the Map and the icon for "Mapper Maintenance"
7. Here, you will see the hierarchy and all parent/child relationships

The range of product attributes supported for conditional assumptions and available for use within Data Filters is determined by columns which are part of the "Portfolio" definition. The "Portfolio" table class is seeded with the installation, and can be extended to include user defined columns.

For more information on adding user defined columns to the Portfolio table class, refer toData Model Utilities Guide, Chapter 2 – Object Management.

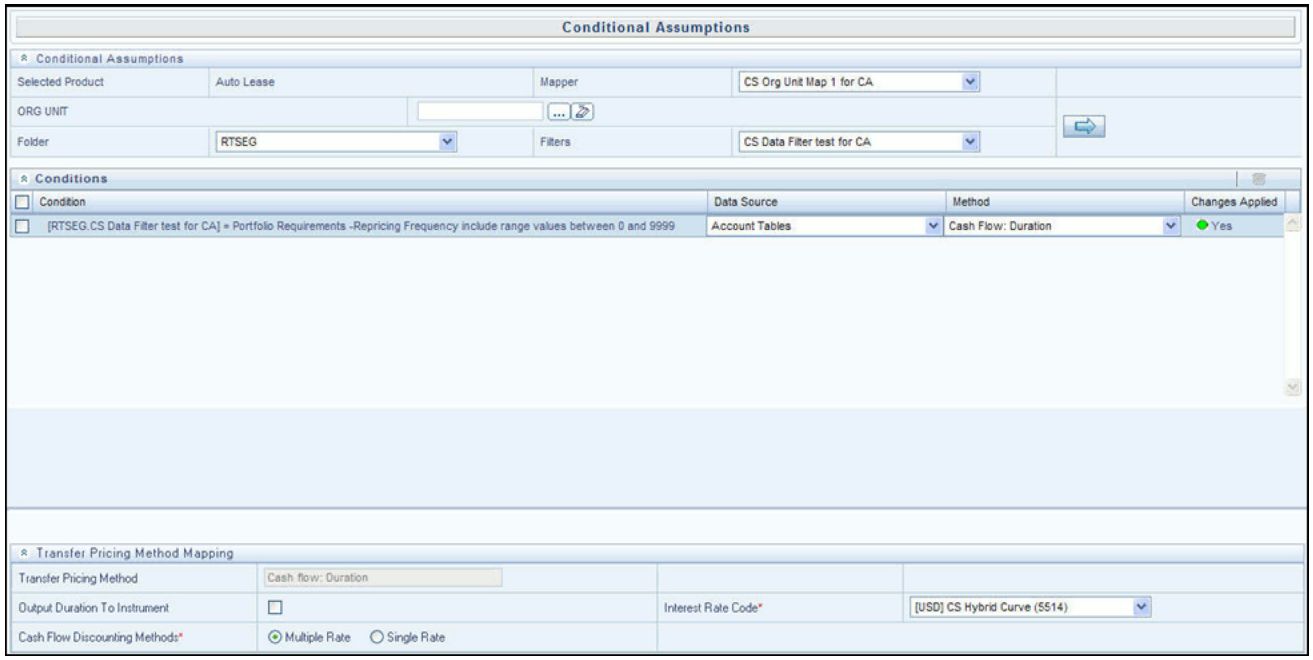
When using mappers, Conditional Assumptions can be attached to any level of the hierarchy, allowing assumptions to be inherited from parent nodes by child nodes.

For example, you can use the Org Unit column to drive the assignment of Transfer Pricing Methods for all members of a particular Organization. You can create one Conditional Assumption to convey the entire Transfer Pricing

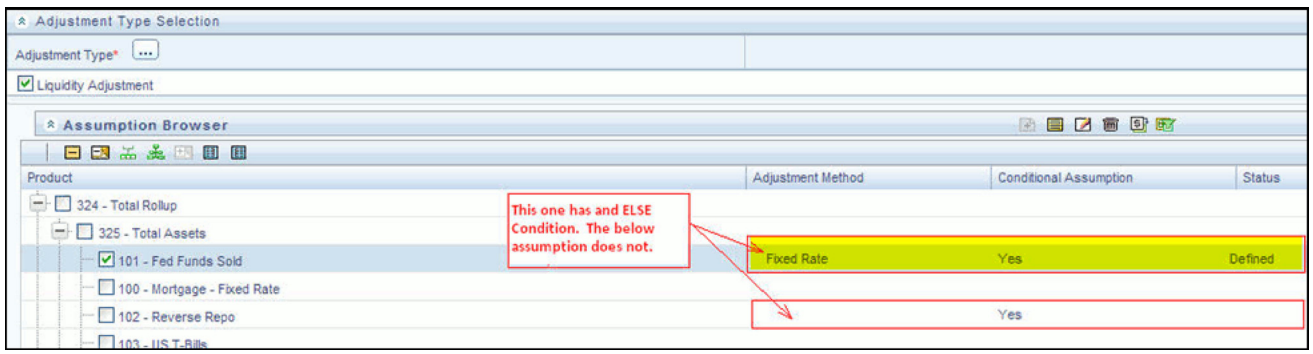
Methodology logic and attach it to the top-level node of the Org Unit hierarchy. All nodes below the top-level node will inherit the same Transfer Pricing assumption.

The logic included in a Conditional Assumption determines the specific Transfer Pricing method, Prepayment assumption or Adjustment Rule that the system will assign to each individual instrument record at run time.

The Conditional Assumption screen allows users to select explicit conditions (from Data Filters and/or Maps) and apply methods and rule selections to each condition directly. The Filter Conditions are processed by the engine in the order that they appear on the screen. As soon as a condition is satisfied, the related assumption is applied. The following screenshot displays a representative Conditional Assumption using a Data Filter:



Note: If an instrument record does not meet any of the conditions, then the rule logic reverts to the standard assumption that is directly assigned to the Product / Currency combination. In the example below, you can see that Fed Funds has both a direct assignment and a conditional assumption. If the condition is not met, the "Fixed Rate" assumption (ELSE condition) will be applied. In the case of Reverse Repo's, there is only a Conditional Assumption. In the absence of an ELSE assumption, the engine will use the conditional assumption in all cases for the Product/Currency pair. To avoid this, users should define the Standard/Else assumption with an appropriate input.



Conditional Assumptions can be applied only to detailed account records (data stored in the Instrument Tables). Instrument tables must have the TP - Cash Flow, Table Classification Code (200) in or order to use Conditional Assumptions.

Related Topics

Data Element Filters, on page 139

For more information on defining Maps, see *Oracle Financial Services Analytical Applications InfrastructureGuide*

Defining Prepayment Rules

One of the major business risks faced by financial institutions engaged in the business of lending is prepayment risk. Prepayment risk is the possibility that borrowers might choose to repay part or all of their loan obligations before the scheduled due dates. Prepayments can be made by either accelerating principal payments or refinancing.

Prepayments cause the actual cash flows from a loan to a financial institution to be different from the cash flow schedule drawn at the time of loan origination. This difference between the actual and expected cash flows undermines the accuracy of transfer prices generated using cash flow based transfer pricing methods. Consequently, a financial institution needs to predict the prepayment behavior of instruments so that the associated prepayment risk is taken in to account while generating transfer rates. Oracle Funds Transfer Pricing allows you to do this through the Prepayment Rule.

A Prepayment Rule contains methodologies to model the prepayment behavior of various amortizing instruments and quantify the associated prepayment risk. See:*Defining Prepayment Methodologies,* on page 230

Prepayment methodologies are associated with the product-currency combinations within the Prepayment rule. See: *Prepayment Rules,* on page 229

Oracle Funds Transfer Pricing allows you to make use of the node level and conditional assumption while defining prepayment methodologies for your products. See: *Associating Node Level and Conditional Assumptions with Prepayment Rules,* on page 105

Tip: Prepayment assumptions are used in combination with only the four cash flow based transfer pricing methods: Weighted Term, Duration, Average Life and Zero Discount Factors.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Defining Prepayment Rules, on page 97

Prepayment Methodologies and Rules

You can use any of the following four methods in a Prepayment rule to model the prepayment behavior of instruments:

Constant Prepayment Method, on page 98

Prepayment Model Method, on page 98

PSA Method, on page 100

Arctangent Calculation Method, on page 100

Related Topics

Defining Prepayment Methodologies, on page 230

Defining Prepayment Rules, on page 97

Constant Prepayment Method

The Constant Prepayment method calculates the prepayment amount as a flat percentage of the current balance.

You can create your own origination date ranges and assign a particular prepayment rate to all the instruments with origination dates within a particular origination date range.

Note: All prepayment rates should be input as annual amounts.

Related Topics

Prepayment Methodologies and Rules, on page 97

Defining Prepayment Methodologies, on page 230

Defining the Constant Prepayment Method, on page 234

Prepayment Model Method

The Prepayment Model method allows you to define more complex prepayment assumptions compared to the other prepayment methods. Under this method, prepayment assumptions are assigned using a custom Prepayment model.

You can build a Prepayment model using a combination of up to three prepayment drivers and define prepayment rates for various values of these drivers. Each driver maps to an attribute of the underlying transaction (age/term or rate) so that the cash flow engine can apply a different prepayment rate based on the specific characteristics of the record.

Note: All prepayment rates should be input as annual amounts.

Prepayment Model Structure

A typical Prepayment model structure includes the following:

- **Prepayment Drivers:** You can build a Prepayment model using one to three prepayment drivers. A driver influences the prepayment behavior of an instrument and is either an instrument characteristic or a measure of interest rates.
- **The Prepayment Driver Nodes:** You can specify one or more node values for each of the prepayment drivers that you select.
- **Interpolation or Range method:** Interpolation or Range methods are used to calculate prepayment rates for the prepayment driver values that do not fall on the defined prepayment driver nodes.

Types of Prepayment Drivers

The prepayment drivers are designed to allow the calculation of prepayment rates at run time depending on the specific characteristics of the instruments for which cash flows are being generated. Although nine prepayment drivers are available, a particular prepayment model can contain only up to three prepayment drivers.

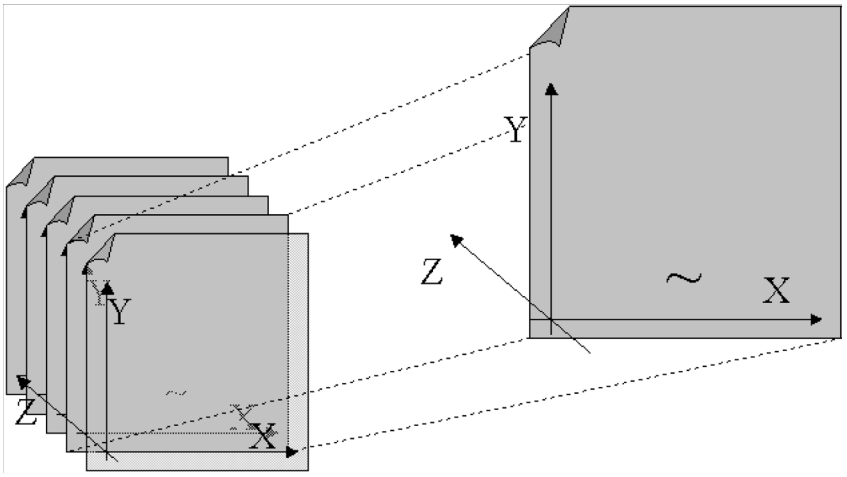
The prepayment drivers can be divided into the following two categories:

- **Age/Term Drivers:** The Age/Term drivers define term and repricing parameters in a Prepayment model. All such prepayment drivers are input in units of months. These Drivers include:

- **Original Term:** You can vary your prepayment assumptions based on the contractual term of the instrument. For example, you could model faster prepayment speeds for longer term loans, such as a 10-year loan, than for short term loans, such as a 5-year loan. You would then select the Original Term prepayment driver and specify two node values: 60 months and 120 months.
- **Repricing Frequency:** You can vary your prepayment assumptions based on the repricing nature of the instrument being analyzed. Again, you could specify different prepayment speeds for different repricing frequencies and the system would decide which one to apply at run time on a record by record basis.
- **Remaining Term:** You can specify prepayment speeds based on the remaining term to maturity. For example, loans with few months to go until maturity tend to experience faster prepayments than loans with longer remaining terms.
- **Expired Term:** This is similar to the previous driver but instead of looking at the term to maturity, you base your assumptions on the elapsed time. Prepayments show some aging effect such as the loans originated recently experiencing more prepayments than older ones.
- **Term to Repricing:** You can also define prepayment speeds based on the number of months until the next repricing of the instrument.

- **Interest Rate Drivers:** The Interest Rate drivers allow the forecasted interest rates to drive prepayment behavior to establish the rate-sensitive prepayment runoff. Interest Rate Drivers include:
  - **Coupon Rate:** You can base your prepayment assumptions on the current gross rate on the instrument.
  - **Market Rate:** This driver allows you to specify prepayment speeds based on the market rate prevalent at the time the cash flows occur. This way, you can incorporate your future expectations on the levels of interest rates in the prepayment rate estimation. For example, you can increase prepayment speeds during periods of decreasing rates and decrease prepayments when the rates go up.
  - **Rate Difference:** You can base your prepayments on the spread between the current gross rate and the market rate.
  - **Rate Ratio:** You can also base your prepayments on the ratio of current gross rate to market rate.

The following diagram illustrates a three-driver prepayment model:



The ~ signifies a point on the X-Y-Z plane. In this example it is on the second node of the Z-plane. The Z -plane behaves like layers.

Oracle Funds Transfer Pricing allows you to build prepayment models using the Prepayment Model rule. The Prepayment Model rule can then be referenced by a Prepayment Rule.

Related Topics

Prepayment Methodologies and Rules, on page 97

Defining Prepayment Methodologies, on page 230

PSA Method

The PSA Prepayment method (Public Securities Association Standard Prepayment Model) is a standardized prepayment model that is built on a single dimension, remaining term. The PSA curve is a schedule of prepayments which assumes that prepayments will occur at a rate of 0.2 percent CPR in the first month and will increase an additional 0.2 percent CPR each month until the 30th month and will prepay at a rate of 6 percent CPR thereafter ("100 percent PSA"). PSA prepayment speeds are expressed as a multiple of this base scenario. For example, 200 percent PSA assumes annual prepayment rates will be twice as fast in each of these periods -- 0.4 percent in the first month, 0.8 percent in the second month, reaching 12 percent in month 30 and remaining at 12 percent after that. A zero percent PSA assumes no prepayments.

You can create your own origination date ranges and assign a particular PSA speed to all the instruments with origination dates within a particular origination date range.

Note: PSA speed inputs can be between 0 and 1667

Arctangent Calculation Method

The Arctangent Calculation method uses the Arctangent mathematical function to describe the relationship between prepayment rates and spreads (coupon rate less market rate).

Note: All prepayment rates should be input as annual amounts.

User defined coefficients adjust this function to generate differently shaped curves. Specifically:

CPRt = k1 - (k2 * ATAN(k3 * (-Ct/Mt + k4)))

where CPRt = annual prepayment rate in period t

Ct = coupon in period t

Mt = market rate in period t

k1 - k4 = user defined coefficients

A graphical example of the Arctangent prepayment function is shown below, using the following coefficients:

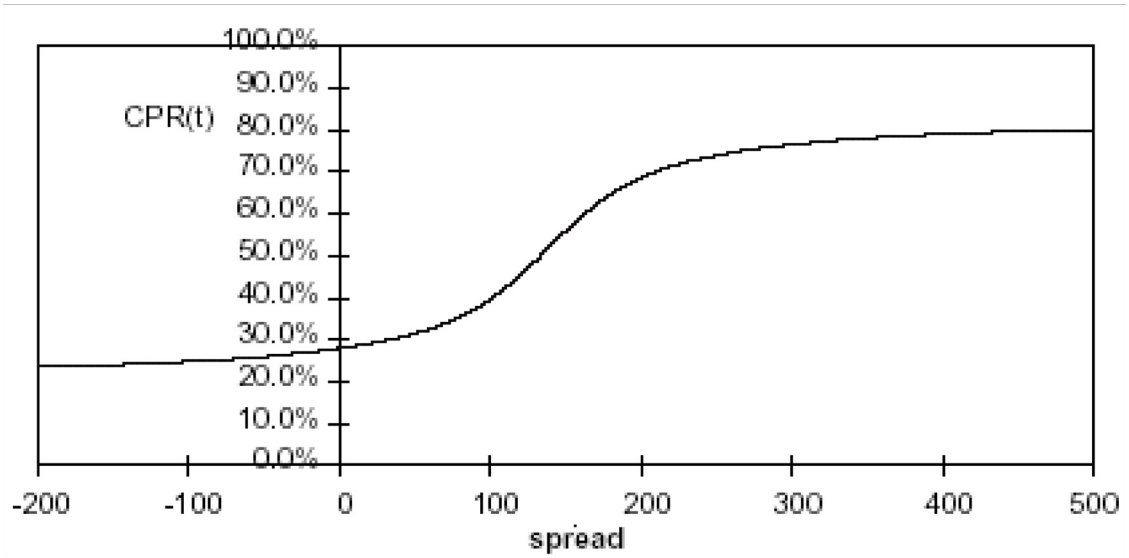
k1 = 0.3

k2 = 0.2

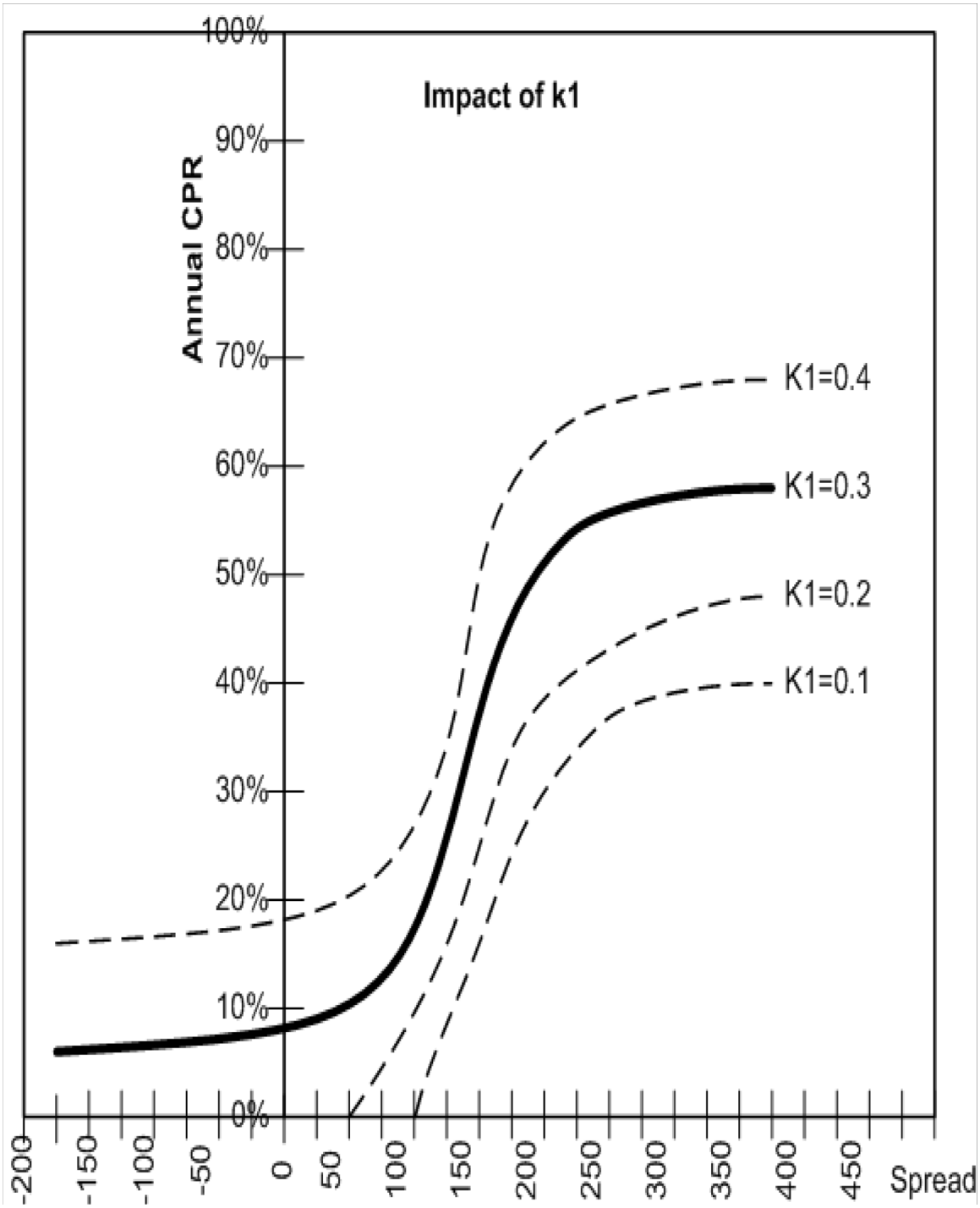
k3 = 10.0

k4 = 1.2

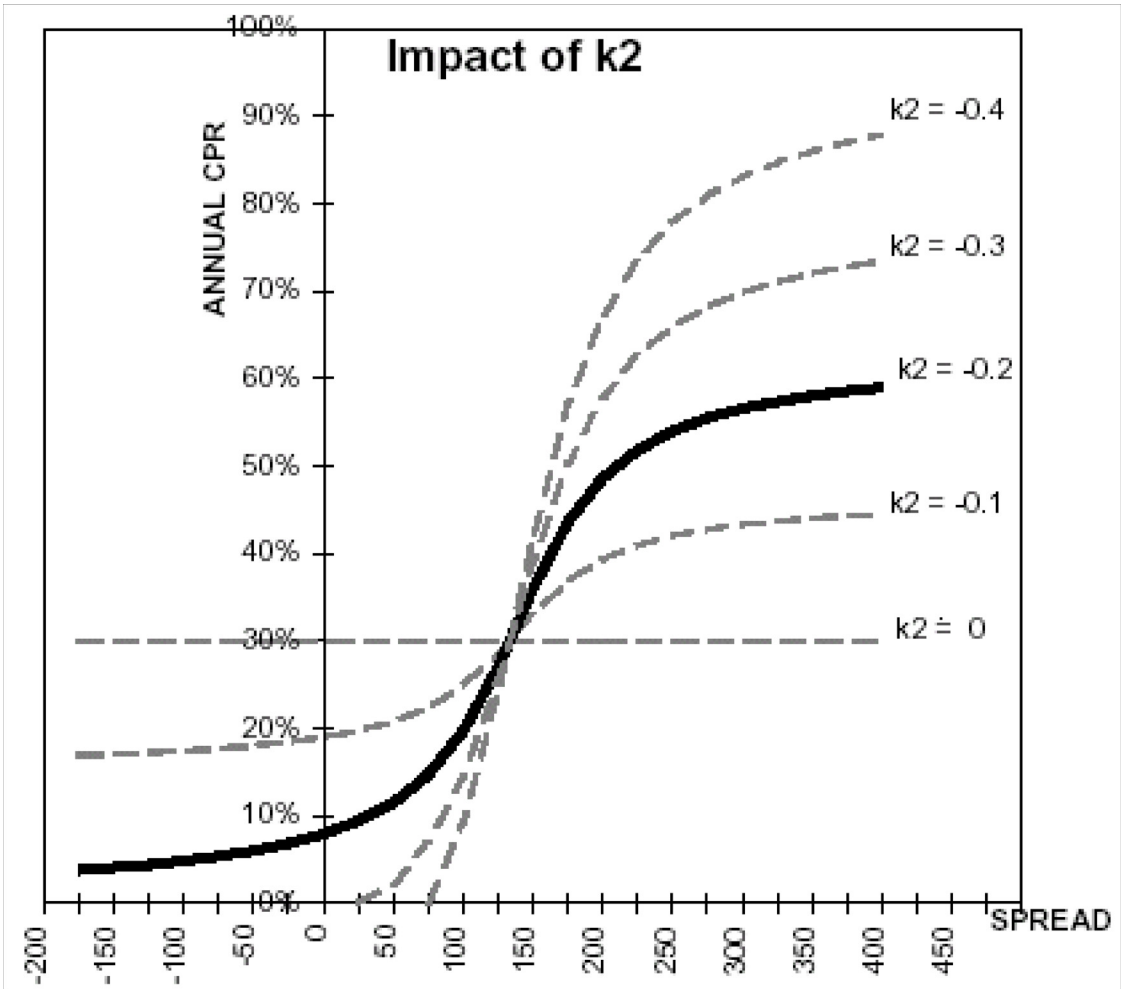
Each coefficient affects the prepayment curve in a different manner.



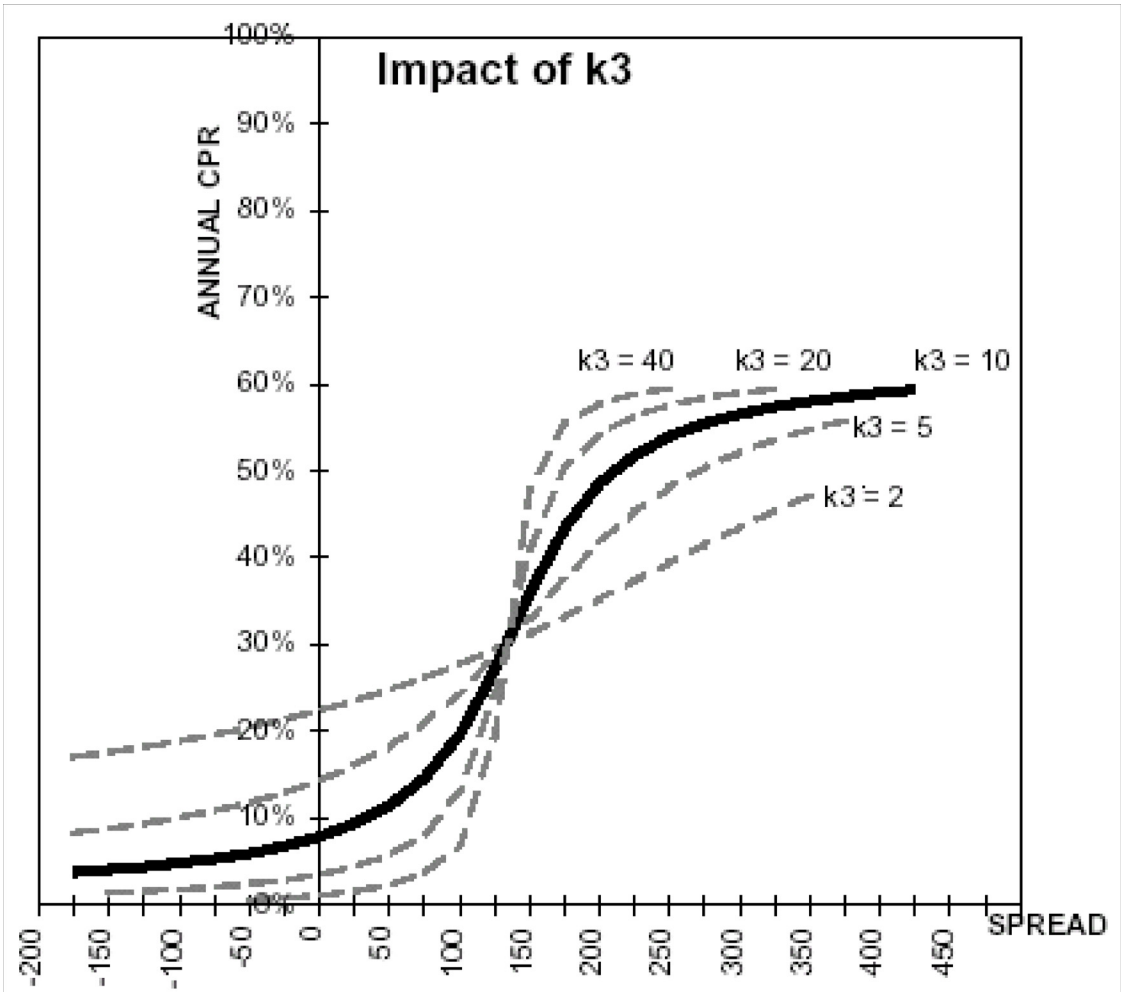
The following diagram shows the impact of K1 on the prepayment curve. K1 defines the midpoint of the prepayment curve, affecting the absolute level of prepayments. Adjusting the value creates a parallel shift of the curve up or down.



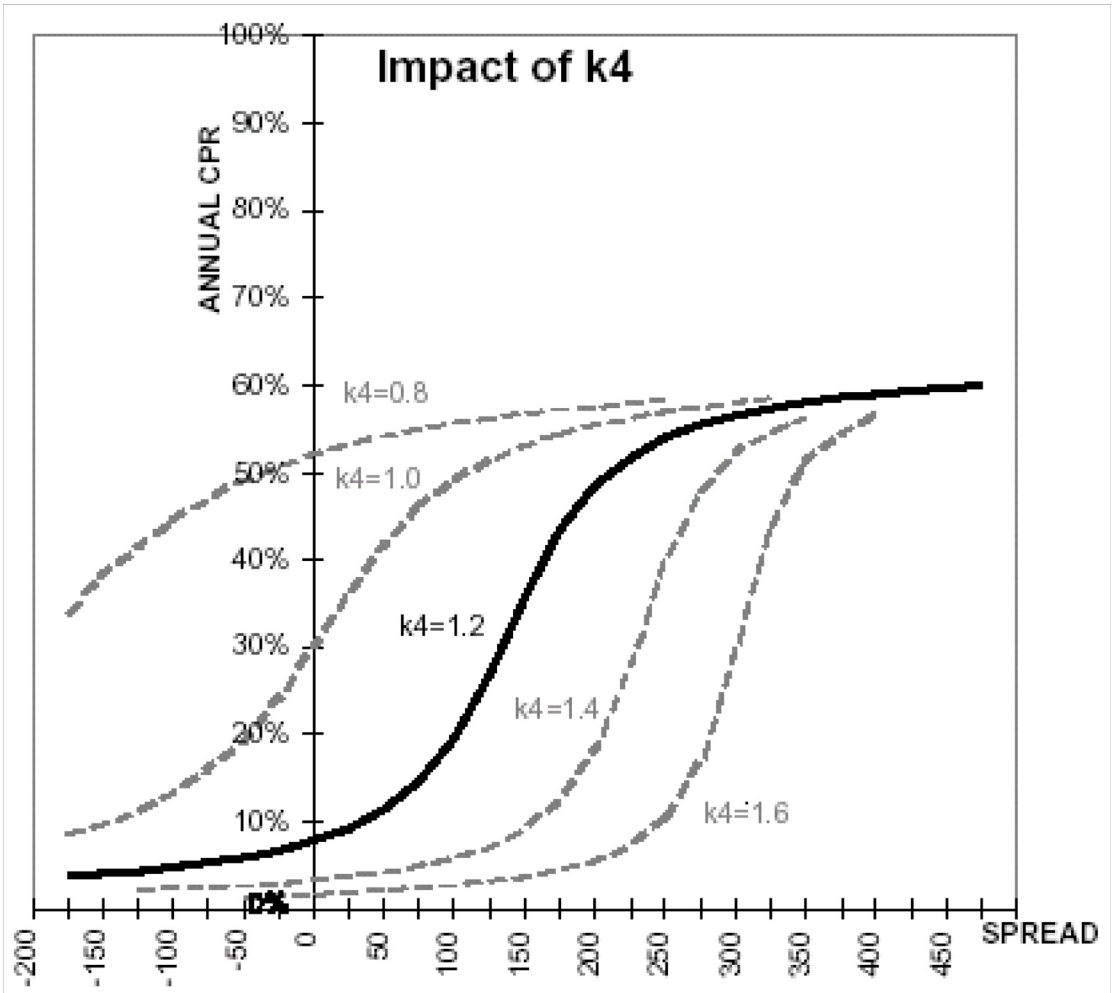
The following diagram shows the impact of K2 on the prepayment curve. K2 impacts the slope of the curve, defining the change in prepayments given a change in market rates. A larger value implies greater overall customer reaction to changes in market rates.



The following diagram shows the impact of K3 on the prepayment curve. K3 impacts the amount of torque in the prepayment curve. A larger K3 increases the amount of acceleration, implying that customers react more sharply when spreads reach the hurdle rate.



The following diagram shows the impact of K4 on the prepayment curve. K4 defines the hurdle spread: the spread at which prepayments start to accelerate. When the spread ratio = k4, prepayments = k1.



Related Topics

Prepayment Methodologies and Rules, on page 97

Defining Prepayment Methodologies, on page 230

Defining the Arctangent Calculation Method, on page 236

Associating Node Level and Conditional Assumptions with Prepayment Rules

You can define prepayment methodologies at any level of the product hierarchy. Children of a hierarchical node automatically inherit the assumptions defined at the parent level. Methodologies directly defined for child nodes take precedence over those defined at the parent level. See: *Defining Transfer Pricing Methodologies Using Node Level Assumptions,* on page 92

You can also use the conditional logic of Conditional Assumptions to define prepayment methodologies based on particular characteristics of financial instruments. See: *Associating Conditional Assumptions with Assumption Rules,* on page 93

Related Topics

Defining Prepayment Rules, on page 97

Defining Adjustment Rules

Adjustment Rules allow users to define Transfer Pricing Add-on rates that are assigned incrementally to the base FTP rate to account for a variety of miscellaneous risks such as Liquidity risk or Basis risk or to supplement strategic decision making through use of Pricing Incentives, Breakage Charges or other types of rate adjustments.

Within both the Standard and Stochastic Transfer Pricing Processes, users can select an appropriate Adjustment rule to calculate add-on rates or breakage charges.

Add-on rates can be a fixed rate, a fixed amount, or a formula based rate. Breakage Charges can be a fixed percentage, a fixed amount or can be calculated on an Economic Loss basis. The adjustments are calculated and output separately from the base funds transfer pricing rate, so they can be easily identified and reported. In addition, Adjustments allow you to apply event-based logic through the use of conditional assumptions that are applied or varied only if a specific condition is satisfied.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, **on page 69**

Creating Adjustment Rules, **on page 247**

Adjustment Methods and Rules

You can use any of the following methods in an Adjustment rule when the selected Adjustment Type is Liquidity Premium, Basis Risk Cost, Pricing Incentive or Other Adjustment:

Fixed Rate

Fixed Amount

Formula Based Rate

Alternatively, you can use any of the following methods in an Adjustment rule when the selected Adjustment Type is Breakage Charge:

Economic Loss

Fixed Amount

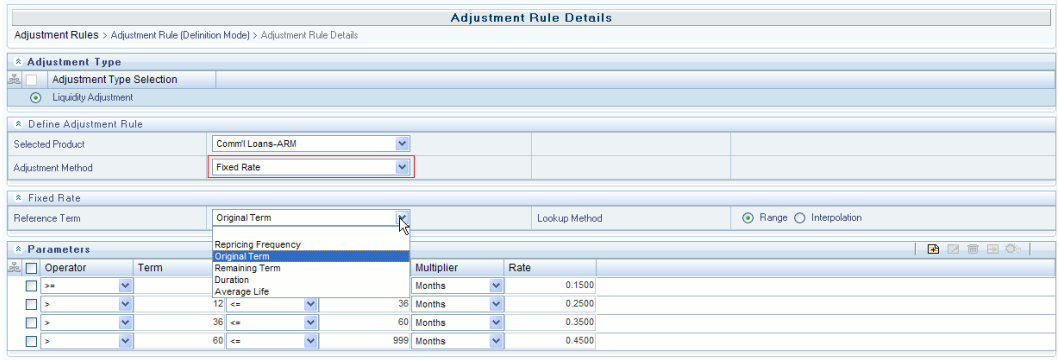
Fixed Percentage

Related Topics

Defining Adjustment Rules, on page 106

Defining Adjustment Methods, on page 248

Adjustment - Fixed Rate



The Fixed Amount Adjustment method allows the user to associate an amount with specific terms or term ranges. Reference term selections include

- Repricing Frequency: The fixed amount is matched to the specified reprice frequency of the instrument. If the instrument is fixed rate and, therefore, does not have a reprice frequency, the fixed amount lookup happens based on the original term of the instrument.
- Original Term: The calculation assigns the fixed amount based on the original term on the instrument.
- Remaining Term: The calculation assigns the fixed amount based the remaining term of the instrument. The remaining term value represents the remaining term of the contract and is expressed in days.

  Remaining Term = Maturity Date – As of Date
- Duration (read from the TP_DURATION column): The calculation assigns the fixed amount based on the Duration of the instrument, specified in the TP_DURATION column.
- Average Life (read from the TP_AVERAGE_LIFE column): The calculation assigns the fixed amount based on the Average Life of the instrument, specified in the TP_AVG_LIFE column.

You can create your own reference term ranges and assign a particular adjustment amount to all instruments with a reference term falling within the specified range.

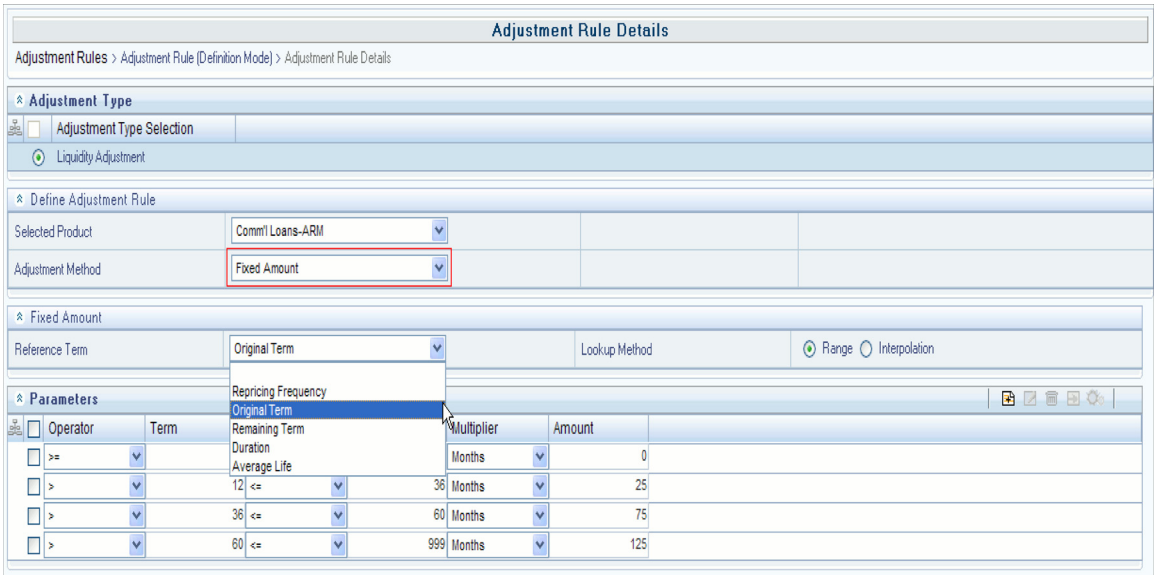
Note: All adjustment rates should be input as annual rates.

Related Topics

Adjustment Methods and Rules, on page 106

Defining Adjustment Methods, on page 248

Adjustment - Fixed Amount



The Fixed Amount Adjustment method allows the user to associate an amount with specific terms or term ranges. Reference term selections include:

- Repricing Frequency: The calculation retrieves the rate for the term point equaling the reprice frequency of the instrument. If the instrument is fixed rate and, therefore, does not have a reprice frequency, the calculation retrieves the rate associated with the term point equaling the original term on the instrument.
- Original Term: The calculation retrieves the rate for the term point equaling the original term on the instrument.
- Remaining Term: The calculation retrieves the rate for the term point corresponding to the remaining term of the instrument. The remaining term value represents the remaining term of the contract and is expressed in days. Remaining Term = Maturity Date – As of Date
- Duration (read from the TP_DURATION column): The calculation retrieves the rate for the term point corresponding to the Duration of the instrument, specified in the TP_DURATION column.
- Average Life (read from the TP_AVERAGE_LIFE column): The calculation retrieves the rate for the term point corresponding to the Average Life of the instrument, specified in the TP_AVG_LIFE column.

You can create your own reference term ranges and assign a particular adjustment amount to all instruments with a reference term falling within the specified range.

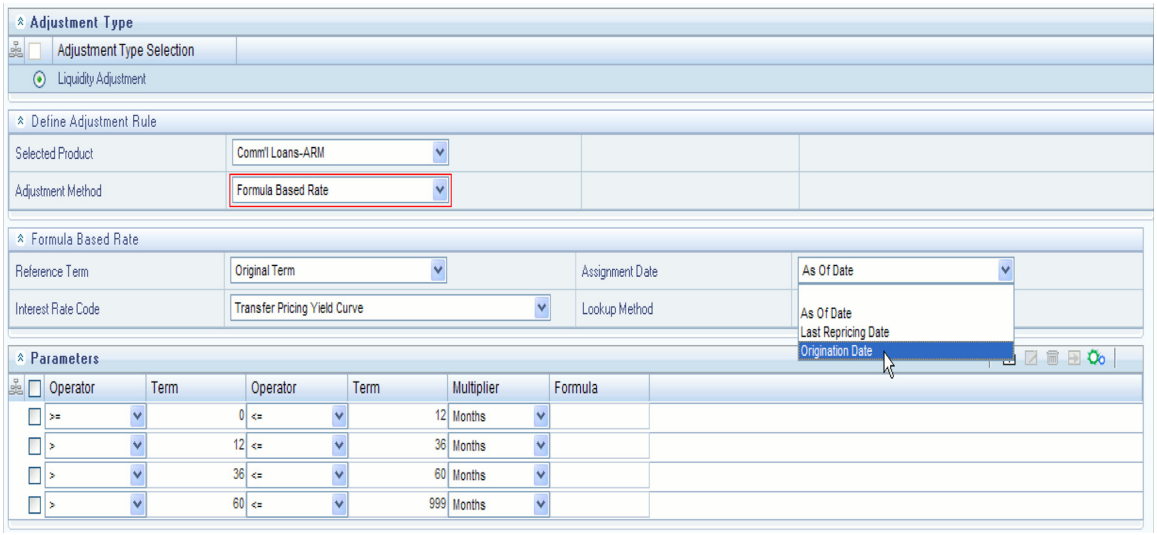
Note: All adjustment amounts should be input in base currency for the selected product / currency combination.

Related Topics

Adjustment Methods and Rules, on page 106

Defining Adjustment Methods, on page 248

Adjustment - Formula Based Rate



The Formula Based Rate Adjustment method allows the user to determine the add-on rate based on a lookup from the selected yield curve, plus a spread amount and then the resulting rate can be associated with specific terms or term ranges. Reference term selections include:

- Repricing Frequency: The calculation retrieves the rate for the term point equaling the reprice frequency of the instrument. If the instrument is fixed rate and, therefore, does not have a reprice frequency, the calculation retrieves the rate associated with the term point equaling the original term on the instrument.
- Original Term: The calculation retrieves the rate for the term point equaling the original term on the instrument.
- Remaining Term: The calculation retrieves the rate for the term point corresponding to the remaining term of the instrument. The remaining term value represents the remaining term of the contract and is expressed in days.
- Remaining Term = Maturity Date – As of Date
- Duration (read from the TP_DURATION column): The calculation retrieves the rate for the term point corresponding to the Duration of the instrument, specified in the TP_DURATION column.
- Average Life (read from the TP_AVERAGE_LIFE column): The calculation retrieves the rate for the term point corresponding to the Average Life of the instrument, specified in the TP_AVG_LIFE column.

You can create your own reference term ranges and assign a particular formula based adjustment rate to all instruments with a reference term falling within the specified range.

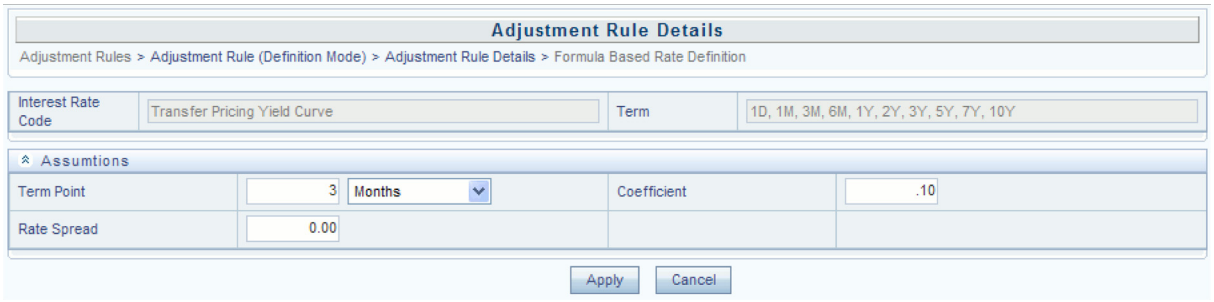
With this method you also specify the Interest Rate Code and define an Assignment Date for the Rate Lookup. The Interest Rate Code can be any IRC defined within Rate Management, but will commonly be a Hybrid IRC defined as a Spread Curve (e.g. Curve A – Curve B).

Assignment Date selections include:

- As of Date
- Last Repricing Date

- Origination Date
- TP Effective Date

The formula definition is comprised of the following components



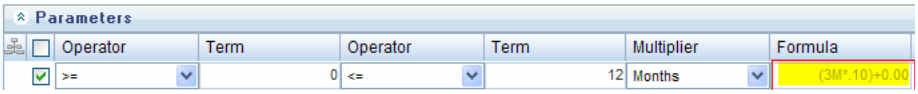
Term Point: Allows you to associate a specific term point from the IRC to each Term Range.

Coefficient: Allows you to define a multiplier which is applied to the selected rate.

Rate Spread: Allows you to define an incremental rate spread to be included on top of the IRC rate.

The resulting formula for the adjustment rate is: **(Term Point Rate * Coefficient) + Spread**

e.g.



Note: For increased precision, you can reduce the Term Ranges to smaller term increments allowing you to associate specific IRC rate tenors with specific terms.

Related Topics

Adjustment Methods and Rules, on page 106

Defining Adjustment Methods, on page 248

Breakage Charges

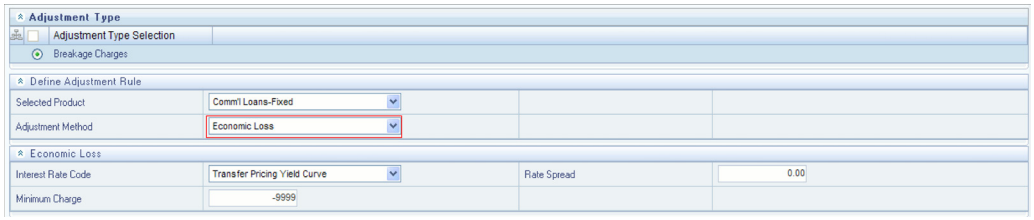
A breakage charge represents the cost of breaking a contractual obligation. In Bank Finance this typically means the early prepayment of a loan by a customer or the early withdrawal of deposit funds by a customer. "Early" in this sense means before the contractual maturity date.

The gain or loss **to the Bank** from such early prepayments and withdrawals is the opportunity cost of not being able to replace the spread earned on the asset or deposit being lost. For example, the early withdrawal of funds from a 2 year term deposit exposes the bank to the risk of replacing that funding in a higher rate environment and thereby reducing the net interest margin earned before the withdrawal. With matched-term transfer pricing, this risk is split between the Line Unit and Treasury. The Line Unit holds the risk of deteriorating credit spread, but Treasury holds the funding risk (the risk that the funding spread between the Bank's assets and liabilities will narrow).

There are three Breakage Charge methods available including:

- Economic Loss
- Fixed Amount
- Fixed Percentage

Breakage Charge – Economic Loss



The Economic Loss breakage charge method sets out to compute the cost to the organization (economic loss) incurred for terminating the funding liability (also known as the shadow liability). The calculation assumes the funding liability has the exact attributes of the funded / terminated instrument. The rate of the funding liability is equal to the Transfer Rate. Economic Loss is computed as follows:

For Assets:

Economic Loss =BV - MV

For Liabilities:

Economic Loss = MV– BV

Where:

MV: Market Value of the funding Liability

BV: Book Value of the broken instrument

The following is a simplified example of the Economic Loss calculation for a standard Term Deposit:

Book Value: $1,000.00

Original Term: 24 Months

Break after: 12 Months

Original TP Rate: 2.40% (based on straight term method)

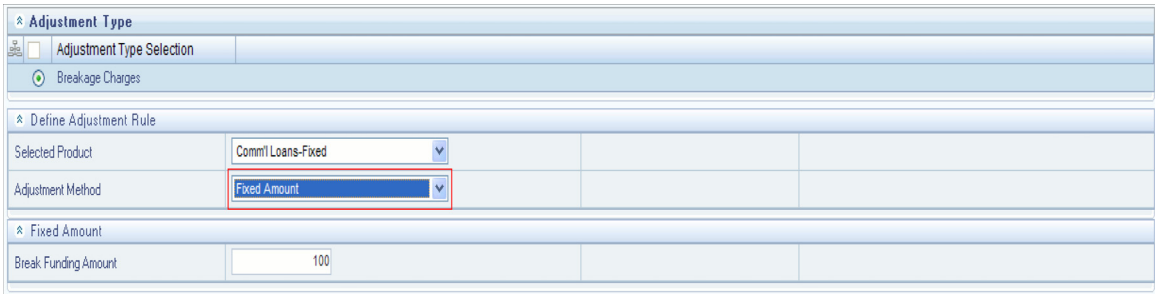
Reference Rates:

Effective Date	12 M	24 M		1M
At Origination	2.00	2.40	1.75	
At Month 12	2.00	2.40	1.75	

Cash flows of remaining funding after break event:			
		Original TP COF	Total
Month	Principal	@ 2.40%	CF Orig TP
13		$ 2.00	$2.00
14		$2.00	$2.00
15		$2.00	$2.00
16		$2.00	$2.00
17		$2.00	$2.00
18		$2.00	$2.00
19		$2.00	$2.00
20		$2.00	$2.00
21		$2.00	$2.00
22		$2.00	$2.00
23		$2.00	$2.00
24	$1,000.00	$2.00	$1,002.00
Market Value at Month 12		1,003.957	
Book value		-1,000.00	
Breakage charge		3.957	

Note: If you are calculating Breakage Charges, using the Economic Loss method, you must select the "Remaining Term" option in your Transfer Pricing Process, to generate the correct cash flows for the funding liability.

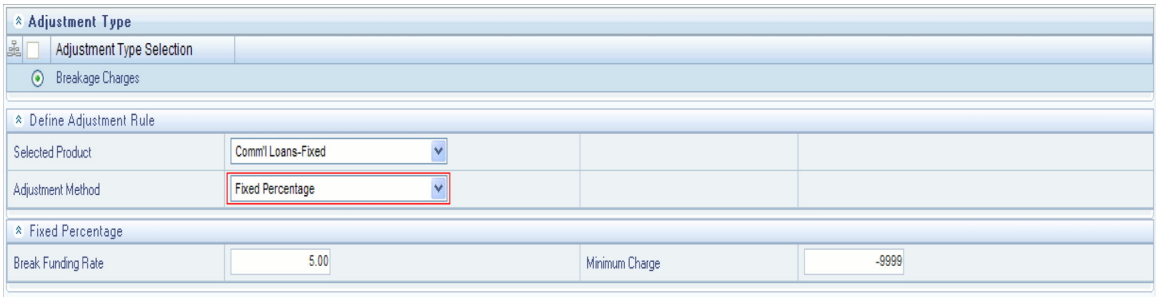
Breakage Charge – Fixed Amount



The Fixed Amount method allows users to directly input the amount of the breakage charge. This method would typically be used in cases where the cash flows and Economic Loss method are not appropriate for determining the breakage cost.

The only input required for this method is the breakage charge amount.

Breakage Charge - Fixed Percentage



An alternative to the Fixed Amount method, the Fixed Percentage approach allows you to input a percentage that is multiplied by the breakage amount to determine the breakage charge.

Calculation:

Breakage Charge = Break Amount x (Charge % / 100)

If the resulting amount is greater than the specified minimum charge, the calculated amount is output. Otherwise the minimum charge will be output.

Pre-requisites for calculating Breakage Charges:

1. Break event records should be populated in the FSI_D_BREAK_FUNDING_CHARGES table. This can be done directly through a manual data loading process or can be automated using an FTP Break Identification Process. (see *Break Identification Process,* on page 297)
2. An Adjustment Rule should be defined with Breakage Charge assumptions created for all of the relevant Product / Currency combinations (see *Adjustment Rules,* on page 247)
3. A Standard TP Process should be defined with the following: (see *Transfer Pricing Process ,* on page 269

- The Break Funding Charges table selected on the Product Selection block
- Adjustments must be selected on the Calculation Elements block

- An Adjustment Rule containing the required Breakage Charge assumptions must be selected

Associating Node Level and Conditional Assumptions with Adjustment Rules

You can define adjustment methods at any level of the product hierarchy. Children of a hierarchical node automatically inherit the assumptions defined at the parent level. Methodologies directly defined for child nodes take precedence over those defined at the parent level. See: *Defining Transfer Pricing Methodologies Using Node Level Assumptions,* on page 92

You can also use the conditional logic of Conditional Assumptions to define Adjustment methods based on the particular characteristics of your financial instruments. See: *Associating Node Level and Conditional Assumptions with Prepayment Rules,* on page 105

Related Topics

Adjustment Rules, on page 247

Defining Alternate Rate Output Mapping Rules

Within the Standard Transfer Pricing Process, users can select an appropriate Alternate Rate Output Mapping rule to output transfer pricing results to the seeded or user-defined alternate columns instead of the standard default column.

The Alternate Rate Output Mapping rule lets you select the alternate columns to output transfer rate, option cost, and adjustment calculation results for each instrument record for a transfer pricing process run. This functionality allows you to output more than one transfer rate, option cost, or adjustment calculation result for each instrument record through multiple transfer pricing process runs.

For example, you may run Oracle Funds Transfer Pricing once without selecting an Alternate Rate Output Mapping rule and thus use the original default output columns, such as TRANSFER_RATE and MATCHED_SPREAD_C, to store transfer pricing results. You may then run the application a second or third time using an Alternate Rate Output Mapping rule in different Transfer Pricing Processes, which run against the same instrument records. The result would be two or three transfer rate, option cost, or adjustment calculation results populated into distinct columns for each instrument record in the specified Instrument tables.

Related Topics

Defining and Executing a Transfer Pricing Process , on page 114

Defining and Executing a Transfer Pricing Process

Defining and executing a Transfer Pricing Process is one of the mandatory steps in Oracle Funds Transfer Pricing. The Transfer Pricing Process allows you to:

- Select transfer pricing, prepayment, and adjustment assumptions, respectively contained in the associated Transfer Pricing, Prepayment, and Adjustments rules, within the Transfer Pricing Process.
- Determine the data that you want to process in a particular run.
- Define the calculation elements used in transfer rate, option cost, economic value and adjustment calculations in addition to migrate transfer pricing results to the Management Ledger table.

- Choose the calculation mode for generating transfer pricing results, such as Remaining Term or Standard.
- Select which calculations, such as, Transfer Rates, TP Rate Adjustments or Option Costs, to perform.
- Optionally select an Alternate Rate Output Mapping Rule. Alternate Rate Output Mapping rules can be used when you want to direct the FTP output to non- standard columns.

Once a Transfer Pricing Process has been created, a user may select RUN from the summary page to execute it.

When a Transfer Pricing Process rule is executed, detail records are processed and individual records are updated with the results of the transfer pricing process. These results are based on the calculation elements selected.

The following table displays the Instrument table fields that may be updated as a result of transfer pricing processing when you select Account tables as the data source.

Instrument Table Fields Updated by Transfer Pricing Processing

Calculation Type	Account Table Field	Calculation Mode
Transfer Rates	TRANSFER_RATE and MATCHED_SPREAD_C CHARGE_CREDIT_TRATE	Standard
Transfer Rates	TRAN_RATE_REM_TERM CHARGE_CREDIT_TRATE_REM_TERM	Remaining Term
Option Costs	HISTORIC_STATIC_SPREAD and HISTORIC_OAS	Standard
Option Costs	CUR_STATIC_SPREAD and CUR_OAS	Remaining Term
Adjustments - Liquidity Adjustment	LIQUIDITY_PREMIUM_RATE LIQUIDITY_PREMIUM_AMT LIQUIDITY_PREM_CHARGE_CREDIT	Any
Adjustments - Basis Risk Cost	BASIS_RISK_COST_RATE BASIS_RISK_COST_AMT BASIS_RISK_CHARGE_CREDIT	Any
Adjustments - Pricing Incentives	PRICING_INCENTIVE_RATE PRICING_INCENTIVE_AMT PRICING_INC_CHARGE_CREDIT	Any

Adjustments - Other Adjustments	OTHER_ADJUSTMENTS_RATE OTHER_ADJUSTMENTS_AMT OTHER_ADJ_CHARGE_CREDIT	Any
Adjustments - Breakage Charges	BREAK_FUNDING_RATE BREAK_FUNDING_AMT BREAK_FUNDING_MV	Remaining Term
Economic Value - All In TP Rate	EV_ALLIN_TP_RATE	Any
Economic Value - TP Rate	EV_TP_RATE	Any
Economic Value - Liquidity Premium Rate	EV_LIQ_PREM_RATE	Any
Economic Value - Pricing Incentive Rate	EV_PRIC_INC_RATE	Any
Economic Value - Basis Risk Rate	EV_BASIS_RISK_RATE	Any
Economic Value - Other Adjustment Rate	EV_OTH_ADJ_RATE	Any
Economic Value - Other Adjustment Rate Alt	EV_OTH_ADJ_RATE_ALT	Any

Additionally, you may choose the Ledger table as the data source for transfer pricing certain products. If the Ledger table data source is selected, the following rows are created for each product:

- Financial Element 170, Average Transfer Rate
- Financial Element 450, Charge/Credit
- Financial Element 172, Average Remaining Term Transfer Rate
- Financial Element 452, Charge/Credit Remaining Term

Note: For a given combination of Organizational Unit and Product dimensions, only one row should exist for transfer rate (170 or 172) and charge/credits (450 or 452).

Tip: Depending on the Charge Credit Balance type selected in your Application Preferences, Either Average Balance, Financial Element 140 or Ending Balance, Financial Element 100, must exist in the Ledger Table in order to successfully transfer price ledger balances.

TP_EFFECTIVE_DATE is used by the FTP Standard Process as an override date for determining the historical rate from the specified interest rate curve (IRC). TP_EFFECTIVE_DATE is typically used in cases where the customer rate on the instrument record is set before the origination date and users wish to align the TP Rate lookup with the date that the customer rate was set.

The FTP process normally uses the ORIGINATION_DATE for fixed rate instruments or LAST_REPRICE_DATE for adjustable rate instruments to determine historical rate effective date for the transfer rate lookup. This input allows users to specify an alternate effective date.

If applicable, set the TP_EFFECTIVE_DATE = ISSUE_DATE or the date on which the customer rate was set.

- TP_EFFECTIVE_DATE should be NULL if not applicable. Do not default TP_EFFECTIVE_DATE (for example, 01-JAN-1900) to a valid date as the TP Engine will reference any valid date.
- TP_EFFECTIVE_DATE <> ORIGINATION_DATE
- TP_EFFECTIVE_DATE <> LAST_REPRICE_DATE

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Defining Transfer Pricing Rules, on page 71

Defining Prepayment Rules, on page 97

Defining Alternate Rate Output Mapping Rules, on page 114

Defining Adjustment Rules, on page 106

Transfer Pricing Option Cost, *Oracle Financial Services Cash Flow Engine Reference Guide*

Transfer Pricing Process and the Propagation Pattern

Transfer Pricing theory suggests that a Transfer Rate on a fixed rate instrument should apply throughout its entire life (for Fixed Rate Instruments) or Repricing Term (for Adjustable Rate Instruments). We apply this theory to Transfer Rate propagation.

Note: Adjustment Rates will be propagated regardless of their fixed / adjustable rate characteristic.

The Propagation Patterns allow you to pull forward (propagate) the Transfer Rate and Matched Spread on any applicable instrument record from a prior period of history. Propagation methodologies are defined at the application level and apply to all TP process rules.

When Propagation is run in a single process, together with Transfer Pricing rate calculations, the TP Engine will first propagate rates and then will calculate rates for the remaining un-priced records.

Note: Use the "skip non-zero rates" selection option in the TP Process to avoid overwriting TP rates on records that have either propagated rates or rates previously populated.

The Propagation process will generally refer to details on the individual instrument records to determine if Transfer Rates are eligible for propagation.

For example,

If an instrument is fixed rate, then propagate.

If an instrument is adjustable, and a repricing has not occurred between prior period and current period, then propagate.

In addition to the above general logic, if Transfer Rate calculation is also selected in the same TP Process, then an additional test to confirm whether the TP Method for the applicable products is a "Bulk update" TP method then additionally, propagation will not happen for related instrument records.

The test to determine if a TP method is a bulk method is as follows:

Spread from Interest Rate Code with mid-period repricing not selected

Moving Average

Spread from Interest Rate Code or Redemption Curve with mid-period repricing not selected and Origination Date = As of Date

The Standard Transfer Pricing Process allows you to propagate Transfer Rates and Adjustment Rates, and the Stochastic Transfer Pricing Process allows you to propagate Options Costs and Adjustment Rates. Depending upon your requirements, you can choose to propagate prior period results on the Transfer Pricing Calculation Selection block.

The main goal of using propagation is to improve performance. Since Propagation uses a bulk processing approach, it provides significant performance improvement over processing instruments with a row-by-row approach. Although precise performance numbers may vary depending on the hardware and database configuration, processing a set of instrument records using propagation is significantly faster than doing it on the same set of records on a row-by-row basis.

Note: The Transfer Pricing engine will propagate rates for instruments where it finds a matching ID_NUMBER for the As_of_date data set and the selected prior period data set.

Related Topics

Defining and Executing a Transfer Pricing Process , on page 114

Transfer Pricing Process and Audit Options

Transfer Pricing Processes provide you with three audit options: Detailed Cash Flow, Forward Rates, and 1 Month Rates. While Detailed Cash Flow audit option is applicable to both Standard and Stochastic TP Processes, the Forward Rates and 1 Month Rates audit options are applicable only to Stochastic TP processing.

By selecting the Detail Cash Flow option in the Transfer Pricing Process Audit block, you can audit daily cash flow results generated by the Oracle Funds Transfer Pricing application. Selecting this option writes out all cash flow and repricing events that occur for processed records. The number of records written is determined by the user based on the value input for the Number of Records.

The relevant financial elements for each instrument record and the cash flow results are stored in the FSI_O_PROCESS_CASH_FLOWS table.

Note: Propagation plus Detail Cash Flow output should not be checked in the same process, as this may result in less than the expected number of instrument records being output.

After processing cash flows from Transfer Pricing, do the following to view the audit results:

- Determine the value of the ID Numbers for the instruments that you want to process.
- View data by:
  - Querying the FSI_O_PROCESS_CASH_FLOWS table with Oracle SQL Developer, SQL Plus, Toad or an equivalent SQL query tool.

Related Topics

Defining and Executing a Transfer Pricing Process , on page 114

SQL Query Results

The results of running a SQL query can be exported to an Excel file for validation.

Financial Elements

The FINANCIAL_ELEMENT_ID column lists the financial elements written for each payment and repricing event processed by the cash flow engine. An initial set of data is also written, recording the balance and rate as of the last payment date.

The following table describes the financial elements that can be present in a base set of financial elements written during a cash flow audit process:

Financial Elements Written During Audit

Financial Element	Description
Initial Event	
100	Ending balance. Final balance on payment date, after the payment has occurred.
430	Interest cash flow.
210	Total principal runoff, including scheduled payments, prepayments, and balloon payments.
60	Beginning balance. Starting balance and payment date, prior to payment.
120	Runoff Net Rate. Rate at the time of payment, weighted by ending balance. To view actual rate, divide financial element 120 by financial element 100.
490	Discount factor used to determine present value of cash flow on the payment date.
Initial Event	
250	Par balance at time of repricing.
280	Before Reprice Net Rate. Rate prior to repricing, weighted by reprice balance. To determine true rate, divide this financial element value by financial element 250.
290	After Reprice Net Rate. Newly assigned net rate after repricing occurs, weighted by reprice balance. To determine true rate, divide this financial element value by financial element 250.

Initial Event	
100	Initial balance at start of processing.
120	Initial net rate at start of processing.

Cash Flow Codes

The Cash Flow Code column lists a code for each row that describes the event modeled by the cash flow engine.

The following table describes the different cash flow codes:

Description of Cash Flow Codes

Cash Flow Code	Description
1	Initial recording of balances and rates.
2	Payment event only.
20	Reprice event only (not during tease period).
8	Reprice during tease period.
22	Reprice and payment event together (not during tease period).
10	Reprice and payment during tease period.

Data Verification

You can export results from your SQL query into Excel format and use Excel to validate the results. If the cash flows do not behave as expected, examine instrument table data or your assumptions. For more information on Cash Flow Calculations, See: *Oracle Financial Services Cash Flow Engine Reference Guide.*

Transfer Pricing Process Rule and Calculation Modes

You can choose to transfer price your product portfolio either in the Standard or in Remaining Term calculation mode.

The Standard calculation mode allows you to calculate transfer rates for instrument records based on the Origination date or Last Repricing Date of the instruments. It can also be used to calculate Option Costs based on the Origination Date.

The Remaining Term calculation mode allows you to calculate transfer rates and option costs for instrument records based on the remaining term of the instrument from the calendar period end date of the data, rather than the Origination Date or Last Repricing Date of the instruments.

The Remaining Term calculation mode treats your portfolio as if you acquired it on the As of Date of your data and thereby allows you to measure current rate risk spread. Once you know the current rate risk spread, you can segregate your total rate risk spread into that accruing from taking current rate risk and that accruing from taking embedded rate risk:

Embedded Rate Risk Spread = Total Rate Risk Spread - Current Rate Risk Spread

It is important to segregate total rate risk into embedded and current rate risks for the following reasons:

- The current rate risk can be actively managed through an effective Asset/Liability Management process.
- Embedded rate risk is a result of rate bets taken in the past. However, it is important to measure and monitor this risk. When you are aware of your embedded rate risk you will neither be lulled into a false sense of security or take drastic actions in response to profit or losses caused by the embedded rate risk.

Transfer Pricing Process and Migration Options

The purpose of the Ledger Migration process is to generate dollar charges or credits for funds provided or used for a combination of dimensions. The information necessary to generate these charges or credits (through transfer rates, adjustments and option cost processing) originates from the Instrument Tables and the results are inserted into the Management Ledger table, and are available for use in the calculation of profitability and risk measures.

Note: The Management Ledger table is also known as LEDGER_STAT.

Within the Transfer Pricing Process definition screen, on the "Migration" block, users can select from 2 options for the charge / credit method:

Account Level

Ledger Level

The Account Level method will sum the charge / credit amounts computed at the individual instrument level (based on the instrument's current or average book balances) and will group the results by the set of selected dimensions and migrate the amounts, together with the weighted average transfer rates to the Management Ledger table.

The Ledger Level method will compute the weighted average transfer rates from the instrument data and will migrate these values to the Management Ledger table. The migration process will then multiply the weighted average transfer rates by the Ending or Average balances on the Management Ledger Table to arrive at the TP charge or credit amounts.

The following Migration – Charge/Credit Methods are available:

With both methods, the following rows are created for each product (and combination of selected dimensions). An offset entry to the funding center (offset org unit) is also created.

When Transfer Rate is selected (based on Standard or Remaining Term option):

- Financial Element 170, Average Transfer Rate
- Financial Element 450, Charge/Credit
- Financial Element 172, Average Remaining Term Transfer Rate
- Financial Element 452, Charge/Credit Remaining Term

When Adjustments are selected (based on population of noted adjustment type):

- Financial Element 174, Average Liquidity Adjustment Rate
- Financial Element 414, Liquidity Adjustment Charge/Credit
- Financial Element 175, Average Basis Risk Cost Rate
- Financial Element 415, Basis Risk Cost Charge/Credit
- Financial Element 176, Average Pricing Incentive Rate
- Financial Element 416, Pricing Incentive Charge/Credit

- Financial Element 177, Average Other Adjustment Rate
- Financial Element 417, Other Adjustment Charge/Credit

When Option Costs are selected: (based on Standard or Remaining Term option)

- Financial Element 171, Average Historic Option Cost
- Financial Element 451, Historic Option Cost Charge/Credit
- Financial Element 173, Average Current Option Cost
- Financial Element 453, Current Option Cost Charge/Credit

Note: For a given combination of Organizational Unit and Product dimensions (or any other combination of dimensions), only one row should exist for the associated rate (170 - 177) and charge/credit amount (414-417 or 450-453). An offset posting to the "Offset Org Unit" or Funding Center, is also made for each posting.

Oracle Funds Transfer Pricing provides great flexibility in the ledger migration process and the generation of corresponding charges and credits. Users can specify ledger migration for a combination of an extended list of dimensions, including organizational unit, product, channel, gl account, geography or any other dimension that is part of key dimension set.

Tip: Only the key dimensions are available for inclusion during the migration process. This is because Oracle Funds Transfer Pricing displays only the processing key dimensions in the user interface.

You can choose to migrate the transfer rate, adjustment amounts or the option costs, within the respective Standard or Stochastic Transfer Pricing Process.

Related Topics

Defining and Executing a Transfer Pricing Process , on page 114

Transfer Pricing Process and Calculating Economic Value

You can choose to calculate Economic Value as part of a Standard Transfer Pricing Process by selecting the Economic Value calculation element. This calculation option refers to the Economic Value assumptions defined within the Transfer Pricing rule and is also eligible for Alternate Rate Output mapping. Additionally, there are seeded output columns available corresponding to each of the seeded interest type elements.

Note: All Transfer Rate types (Transfer Rate, Transfer Rate Alt, Remaining Term Transfer Rate and Remaining Term Transfer Rate Alt) will be written to a single/shared column, Economic Value Transfer Rate (EV_TP_RATE). If it is necessary to store more than one of these EV outputs, Alternate Rate Output mapping can be used. Each type of Adjustment Rate is mapped to its own corresponding EV column. For example:

- Economic Value Liquidity Premium Rate - EV_LIQ_PREM_RATE
- Economic Value Basis Risk Rate - EV_BASIS_RISK_RATE
- Economic Value Pricing Incentive Rate - EV_PRIC_INC_RATE
- Economic Value Other Adjustment Rate - EV_OTH_ADJ_RATE
- Economic Value Other Adjustment Alternate Output - EV_OTH_ADJ_RATE_ALT

In addition, the All-in TP Rate is mapped to a corresponding EV column.

Economic Value All in Transfer Rate - EV_ALLIN_TP_RATE

The output format for the Economic Value calculation (inputs defined through the Transfer Pricing rule) is as follows:

For Assets:

Economic Value = MV - BV

For Liabilities:

Economic Value = BV– MV

where

BV = Book Value = CUR_BOOK_BAL

MV = Market Value = Net Present Value of Principal (FE210) and Interest (FE430) Cash Flows

Note: For Adjustable Rate records, the calculation assumes maturity at the first reprice date. In this case, the Repricing Balance (FE250) is additionally used to derive the final principal cash flow amount.

In addition to the above calculation logic, users can specify the following two parameters:

Interest Only: If this option is selected, the Net Present Value calculation considers only the Interest Cash Flows (FE430). In this case, the output format is as follows:

Economic Value = MV

Exclude Accrued Interest: If this option is selected, the first interest cash flow will be computed from the As of Date to the Next Payment Date. The resulting market value will reflect the clean price.

In the case of forward starting instruments, that is, instruments that are not yet on the balance sheet, that is, ORIGINATION_DATE > AS_OF_DATE, The logic for computing Economic Value is as follows:

Economic Value =MV

Note: For forward starting instruments where ORIGINATION_DATE > AS_OF_DATE, the initial principal cash flow (FE210) will be negative, representing the cash outflow. For such instruments the ORG_BOOK_BAL and CUR_BOOK_BAL should be the same since the instrument is coming into existence in the future.

Stochastic Transfer Pricing Process and Option Cost Parameters

In addition to transfer rates (created by a Standard TP Process), the Stochastic Transfer Pricing Process allows you to calculate the cost of options that are associated with your instruments. If you want to calculate option costs, you need to define the parameters used in option costing within the Stochastic Transfer Pricing Process.

The purpose of option cost calculations is to quantify the cost of optionality, in terms of a spread over the transfer rate, for a single instrument. The cash flows of an instrument with an optionality feature change under different interest rate environments and thus should be priced accordingly.

For example, many mortgages can be prepaid by the borrower at any time without penalty. In effect, the lender has granted the borrower an option to buy back the mortgage at par, even if interest rates have fallen in value. Thus, this option has a cost to the lender and should be priced accordingly.

In another case, an adjustable rate loan may be issued with rate caps (or floors) which limit its maximum (or minimum) periodic cash flows. These caps and floors constitute options.

Such flexibility given to the borrower raises the bank's cost of funding the loan and will affect the underlying profit. The calculated cost of these options may be used in conjunction with the transfer rate to analyze profitability.

Oracle Funds Transfer Pricing uses the Monte Carlo technique to calculate the option cost. Oracle Funds Transfer Pricing calculates and outputs two spreads and the related option cost (rate) which is the difference between these two spreads. The two spreads are:

- Static spread (HISTORIC_STATIC_SPREAD)
- Option-adjusted spread (HISTORIC_OAS)

The option cost is derived as follows:

- Option cost (rate) = OAS – Static Spread

The Option Cost calculation process will also compute the charge/credit amount using the Option Cost (rate), Average Balance and Accrual Factor and will write the result to the following column:

- CHARGE_CREDIT_OCOST

The static spread is equal to margin and the OAS to the risk-adjusted margin of an instrument. Therefore, the option cost quantifies the loss or gain due to risk. For more information on Transfer Pricing Option Cost, See *Oracle Financial Services Cash Flow Engine Reference Guide.*

Related Topics

Defining and Executing a Transfer Pricing Process , on page 114

Stochastic Transfer Pricing Process and Stochastic Rate Indexing Rules

The Stochastic Rate Indexing rule is one of the assumption rules that you need to select within a Stochastic Transfer Pricing Process to calculate option costs.

The purpose of the Stochastic Rate Indexing Rule is to establish relationships between a risk-free Interest Rate Code (IRCs) and other interest rate codes or Indexes. The Stochastic Rate Indexing rule allows you to select the valuation curve that the system uses during stochastic processing. The Rate Index rule provides full support for multi-currency processing by allowing you to select one valuation curve per currency supported in your system.

During stochastic FTP processing, the system generates future interest rates for the valuation curve you selected, which are then used to derive the future interest rates for any Index associated to that valuation curve based on the relationship you define. The rates thus forecasted for the IRCs or Indexes depend on the risk-free curve used for valuation of instruments associated with the derived IRCs or Indexes. As the risk-free rates change, the non risk-free interest rates change accordingly.

Related Topics

Defining and Executing a Transfer Pricing Process , on page 114

Defining and Executing a Break Identification Process

Break Identification processing should be run if automatic break detection is the preferred approach to populating the break events table (FSI_D_BREAK_FUNDING_CHARGES). Users also have the option to populate this table manually during data loading, or use a hybrid approach. The Break Funding Charges table is the source table for calculating breakage charges.

To complete the breakage charge calculation process, after populating breakage data, the Break Funding Charges table should be selected in a Transfer Pricing Process as the source table and the calculate Adjustments option should be selected under Calculation Selection. Finally, an appropriate Adjustment Rule (containing Breakage

Charge assumptions), should be selected in the TP Process to apply the desired Breakage Charge calculation method.

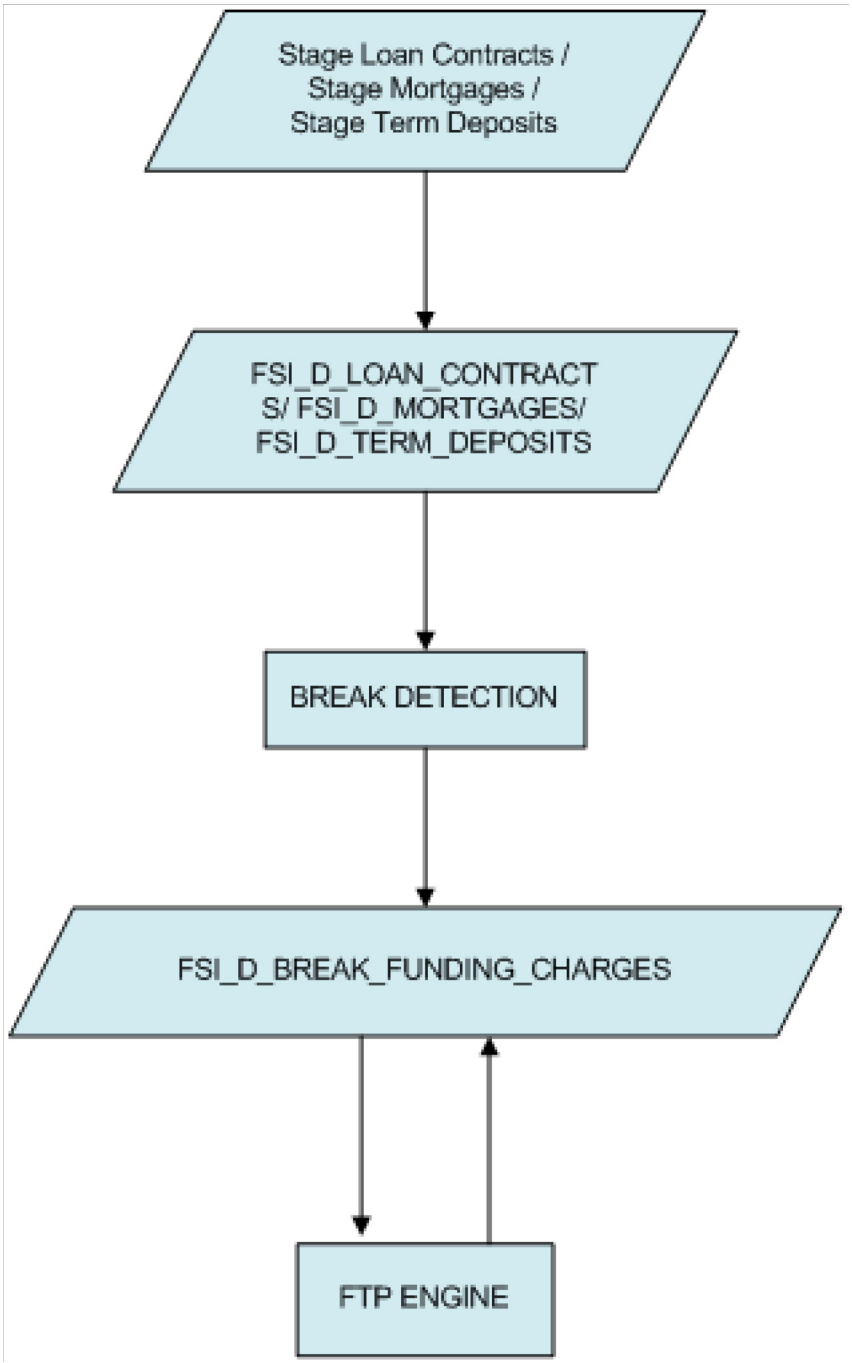
The Break Identification Process supports 4 Break Types:

- Full Break (type 1)
- Partial Break (type 2)
- Change in Attributes (type 3)
- Partial Break + Change in Attributes(type 5)

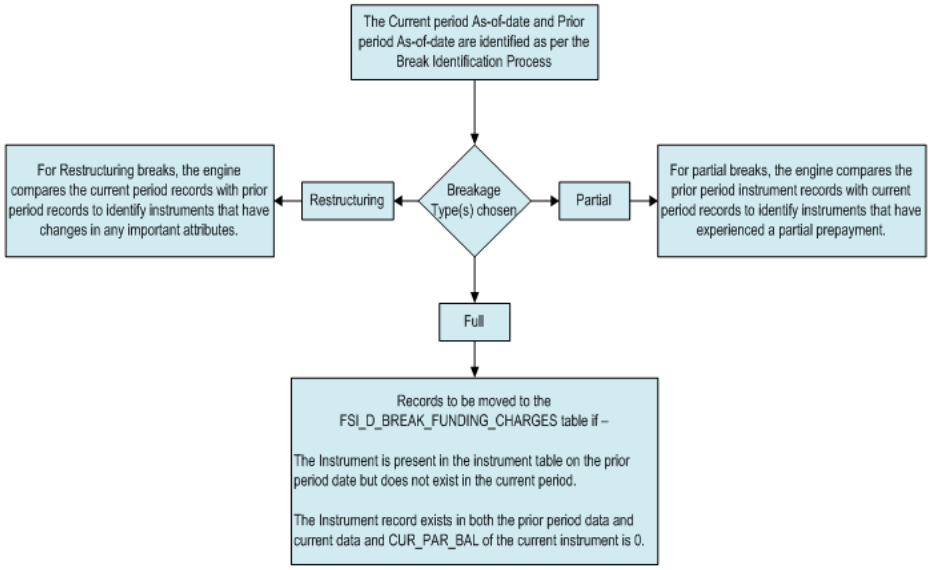
Assumptions

1. It is assumed that instruments that are fully repaid or terminated will not be available in the instrument table for the current period. If users choose to include fully re-paid instruments, in the current data, these records should have a current balance of zero and account open flag = No.
2. Records will be indentified and compared uniquely based on ID Number. It is assumed that ID Number will not be duplicated for a given period within an instrument table.
3. Both current and prior period data exist in the same instrument table. Current period refers to As of Date specified in FTP Application Preferences. Prior period is calculated based on assumptions given in the Break Identification Process.
4. When the Nearest Prior Date option is selected in the Break Identification Process for determining the prior period as of date, it is assumed that the process has been previously executed and an entry exists in the Process Run History table.

The following data flow illustrates how Break Identification processing works in context of the overall staging and instrument table design:



The following figure shows the overview of Break Identification process:



Full Breaks

The following accounts are considered as full breaks, fully repaid or terminated:

- The Instrument is present in the instrument table on the prior period date but does not exist in the current period and the maturity date of the prior period record is greater than the current period as of date
- The Instrument record exists in both the prior period data and current data and CUR_PAR_BAL of the current instrument is 0 and account open flag is NO.

For the above scenarios, the Break Identification Process populates the source and Break Funding Charges instrument tables with the following:

- BREAKAGE_FLG = 2 (*Source record only) (External break will populate flag=1)
- BREAKAGE_TYPE_CD = 1
- BREAKAGE_AMOUNT = CUR_PAR_BAL (prior period)

Additionally, the FSI_D_BREAK_FUNDING_CHARGES table is populated as follows:

- If Prior record NEXT_PAYMENT_DATE > Current AS_OF_DATE then:
  - CUR_PAR_BAL = Prior Period CUR_PAR_BAL
  - CUR_BOOK_BAL = Prior Period CUR_BOOK_BAL
- If Prior record NEXT_PAYMENT_DATE <= Current AS_OF_DATE then:
  - CUR_PAR_BAL = AFTER_PAYMENT_BALANCE
  - CUR_BOOK_BAL = AFTER_PAYMENT_BALANCE
- AS_OF_DATE = AS_OF_DATE defined in Application Preferences
- BREAKAGE_AMOUNT = Prior Period CUR_PAR_BAL
- BREAKAGE_TYPE_CD = 1

- All additional fields are carried forward from the prior period record

For Full Breaks, Next Payment Date gets rolled forward till Maturity Date. Break record has AS_OF_DATE = NEXT_PAYMENT_DATE.

If NEXT_PAYMENT_DATE <= AS_OF_DATE, then Next Payment Date = Next Payment Date + Payment Frequency/Multiplier. This should not exceed the Maturity Date.

If NEXT_PAYMENT_DATE <= AS_OF_DATE for the current period, then Break Amount = AFTER_PAYMENT_BAL from the prior record. This is used when you do not want to pay a break charge against the current period's scheduled principal payment.

Partial Breaks

For partial breaks, the engine compares the prior period instrument records with current period records to indentify instruments that have experienced a partial prepayment.

The Break Identification Process uses Identity Code to determine which record is current and which is prior. It is assumed the Prior record Identity Code will be < Current Period.

The following accounts are considered as partial breaks:

Case 1: If the NEXT_PAYMENT_DATE on the prior period record is less than or equal to the AS_OF_DATE of the current period record, then:

- To detect a partial break, compare the AFTER_PAYMENT_BALANCE of the prior period record with the CUR_PAR_BAL of the current period record. If the difference is more than the MINIMUM_BREAK_AMOUNT then the instrument is classified as a Partial Break.

For the above scenario, the Break Identification Process populates the source and Break Funding Charges instrument tables with the following:

- BREAKAGE_FLG = 2 (*Source - Current record only) (External break will populate flag=1)
- BREAKAGE_TYPE_CD = 2
- BREAKAGE_AMOUNT = AFTER_PAYMENT_BALANCE of prior record – CUR_PAR_BAL of the current record

Additionally, the FSI_D_BREAK_FUNDING_CHARGES table is populated as follows:

- Both the prior period record and the current record are copied into the FSI_D_BREAK_FUNDING_CHARGES table. The as of date for the prior record is changed to the current as of date.
- The BREAKAGE_AMOUNT of the prior record =0
- The BREAKAGE_AMOUNT of the current record = AFTER_PAYMENT_BALANCE of prior record – CUR_PAR_BAL of current record
- BREAKAGE_TYPE_CD = 2
- Specific Fields updated on prior break funding record:
  - Next Payment Date: If Next Payment Date <= AS_OF_DATE then Next Payment Date +Payment Frequency/Multiplier
  - Last Payment Date: If Next Payment Date <= AS_OF_DATE then Next Payment Date
  - Next Reprice Date: If Next Reprice Date <= AS_OF_DATE then Next Reprice Date + Reprice Frequency/Multiplier

  - Last Reprice Date: If Next Reprice Date <= AS_OF_DATE then Next Reprice Date
  - Remaining Number of Payments: If Next Payment Date <= AS_OF_DATE then Remaining Number of Payments -1
- All additional fields are carried forward from the prior period record

Case 2: If the NEXT_PAYMENT_DATE on the prior period record is greater than the as of date of the current period, then:

- To detect a partial break, compare the CUR_PAR_BAL of the prior period record with the CUR_PAR_BAL of the current record. If the difference is more than the Minimum Break Amount, then the instrument is classified as a partial break.

  For the above scenario, the Break Identification Process populates the source and Break Funding Charges instrument tables with the following:

- BREAKAGE_FLG = 2 (*Source - Current record only)
- BREAKAGE_TYPE_CD = 2
  - If both Partial and Change in Attributes are detected, then BREAKAGE_TYPE_CD = 5
- BREAKAGE_AMOUNT = CUR_PAR_BAL of the prior period record – CUR_PAR_BAL of the current record

Additionally, the FSI_D_BREAK_FUNDING_CHARGES table is populated as follows:

- Both the prior period record and the current record are copied into the FSI_D_BREAK_FUNDING_CHARGES table. The as of date for the prior record is changed to the current as of date.
- The BREAKAGE_AMOUNT of the prior record =0
- The BREAKAGE_AMOUNT of the current record = CUR_PAR_BAL of prior record – CUR_PAR_BAL of current record
- BREAKAGE_TYPE_CD = 2
- **Note:** If it is NULL, 0 or 1, the breakage charge calculation will treat as a full break and will not correctly calculate BREAK_FUNDING_AMT_CHG.
- RECORD_IND = -1 for Prior Record and 1 for Current Record
- All additional fields are carried forward from the prior period record

Note: Partial Breaks are also detected when there is an increase in balance.

Example - Partial Break

Prior Record:

As-of-date = 30-SEP-2012

Next_reprice_Date = 01-OCT-2012

Last_reprice_date = 01-SEP-2012

REPRICE_FREQ = 1M

Current Record:

As-of-date = 01-OCT-2012

Next_reprice_Date = 01-NOV-2012

Last_reprice_date = 01-OCT-2012

REPRICE_FREQ = 1M

Break occurs on 01-OCT-2012 and break is detected on this date. This is also the Application Preferences As of Date given by user.

Records moved to FSI_D_BREAK_FUNDING_CHARGES will be:

Prior Record:

Since next_reprice_Date (1-Oct-2012) <= active as of date (1-Oct-2012),

As_of_date = 01-OCT-2012

Next_reprice_date = 01-NOV-2012

Last_reprice_date = 01-OCT-2012

Current Record:

As_of_date = 01-OCT-2012

Next_reprice_date = 01-NOV-2012

Last_reprice_date = 01-OCT-2012

The engine can only process the modified record in FSI_D_BREAK_FUNDING_CHARGES when Last_reprice_date <= as_of_date < next_reprice_date.

Change in Attributes Break

For Change in Attributes Break, the engine compares the current period records with the prior period records to determine if any changes have been made to critical attributes (other than balances). If any of the critical attributes have changed then it qualifies as a break event.

The Break Identification Process uses Identity Code to determine which record is current and which is prior. It is assumed the Prior record Identity Code will be < Current Period.

The following key attributes are compared when analyzing data for Change in Attributes Break:

- ACCRUAL_BASIS_CD
- ADJUSTABLE_TYPE_CD
- AMRT_TYPE_CD
- COMPOUND_BASIS_CD
- CUR_NET_RATE (for fixed rate instruments)
- CUR_PAYMENT (for fixed rate instruments)
- MATURITY_DATE
- NEG_AMRT_AMT
- NEG_AMRT_EQ_DATE
- NEG_AMRT_EQ_FREQ
- NEG_AMRT_EQ_MULT

- NEG_AMRT_LIMIT
- PMT_FREQ
- PMT_FREQ_MULT
- REPRICE_FREQ
- REPRICE_FREQ_MULT
- RESIDUAL_AMOUNT

If any of the above fields are identified as changed while comparing current and prior records, the records are flagged as a break.

For the above scenario, the Break Identification Process populates the source and Break Funding Charges instrument tables with the following:

- BREAKAGE_FLG = 2 (Source – Current record only)
- BREAKAGE_TYPE_CD = 3
    - If both Partial and Change in Attributes are detected, then BREAKAGE_TYPE_CD = 5
        - BREAKAGE_AMOUNT = CUR_PAR_BAL

  Additionally, the FSI_D_BREAK_FUNDING_CHARGES table is populated as follows:
- Both the prior period record and the current record are copied into the FSI_D_BREAK_FUNDING_CHARGES table. The as of date for the prior record is changed to the current as of date.
- BREAKAGE_TYPE_CD = 3

  Note: If it is NULL, 0 or 1, the breakage charge calculation will treat as a full break and will not correctly calculate BREAK_FUNDING_AMT_CHG.
- RECORD_IND = -1 for Prior Record and 1 for Current Record
- All additional fields are carried forward from the prior period record

IF prior record's next_reprice_date <= active as_of_date,

THEN next_reprice_date = next_reprice_date + reprice_freq

AND last_reprice_date = Old (prior record's) next_reprice_date

Note: Active As of Date means the Application Preferences As of Date which is also the current record's as of date. Change applies only to the prior record. Current record will be corrected from the source system.

Related Topics

Breakage Charges, on page 110

Adjustment Rules, on page 247

Break Identification Process, on page 297

The Ledger Migration Process

This section discusses the process for generating charges or credits, for funds provided or used, and their migration to the Management Ledger table when using the "Ledger Level"- Charge/Credit migration option in the TP Process. This section provides a detailed description of how the information required for generating these charges or

credits originates through transfer rate, adjustment rate and option cost processing from the instrument tables and how the results are inserted into the Management Ledger table.

The Ledger Migration Process covers the following topics:

- Overview of the Ledger Migration Process
- Understanding Ledger Migration
- Requirements for Successful Ledger Migration
- Example of Transfer Rate Ledger Migration
- Ledger Migration of Option Costs

Overview of the Ledger Migration Process

Ledger migration is the process of generating aggregated charges (expenses) and credits (revenues) for funds provided or used for a combination of dimensions and their migration to the Ledger table. The information necessary to generate these charges and credits (through transfer rates, adjustments and option cost processing) originates from the instrument tables and results are inserted into the Ledger table (ledger_stat or fsi_d_management_ledger) You can select only one Ledger Table per FTP process, either Ledger Stat or the Management Ledger. The engine will work only on one Ledger Table and never on multiple within any single FTP Process. Multiple Instrument tables are allowed as usual. Transfer pricing charge and credit information provides the basis for measuring net interest income contribution for a group of products, organizational units, or a combination of other dimensions, and is available for use in further calculations of profitability, risk forecasting and planning.

Oracle Funds Transfer Pricing provides great flexibility in the ledger migration process and in the generation of corresponding charges, credits, and option costs. Users can specify ledger migration for a combination of an extended list of dimensions. This feature provides flexibility to users who are also using Oracle Profitability Management for profitability reporting across organizational, product, channel, geography, or other user-defined dimensions.

In addition, Oracle Funds Transfer Pricing provides multi-currency support that allows you to generate charges or credits for funds based on entered and functional currency. You can choose to migrate the transfer rate, adjustment rates or option costs by selecting the appropriate options on the Calculation Elements block of your Transfer Pricing Process rules. See: *Transfer Pricing Process.*

Financial Elements related to Ledger Migration

The following financial elements are used:

- 100 – Ending Book Balance (Input FE)
- 140 – Average Book Balance (Input FE)
- 170 - Average Transfer Rate – Pertains to Standard Term
- 172 - Average Remaining Term Transfer Rate – Pertains to Remaining Term
- 174 - Average Liquidity Adjustment Rate
- 175 - Average Basis Risk Cost Rate
- 176 - Average Pricing Incentive Rate
- 177 - Average Other Adjustment Rate
- 171 - Average Historic Option Cost – Pertains to Standard Term

- 173 - Average Current Option Cost – Pertains to Remaining Term
- 414 - Liquidity Adjustment Charge/Credit
- 415 - Basis Risk Charge/Credit
- 416 - Pricing Incentive Charge/Credit
- 417 - Other Adjustment Charge/Credit
- 450 - Transfer Rate Charge/Credit – Pertains to Standard Term
- 451 - Historic Option Cost Charge/Credit – Pertains to Standard Term
- 452 - Transfer Rate Charge/Credit Remaining Term – Pertains to Remaining Term
- 453 - Current Option Cost Charge/Credit – Pertains to Remaining Term
- 419 - Rate Lock Option Cost
- 459 - Breakage Charge

Note: Input FE's can be Average Book Balance, Ending Book Balance or even Custom Balance FE's can be used if setup as new FE's and selected in Application Preferences.

Understanding Ledger Migration

To understand the process of creating average transfer rate, adjustment rates, option cost, and charge/credit rows in the Management Ledger table (financial elements 170/172, 174-177, 171/173, and 450/451, 414-417, 452/453, respectively), you need to make the following assumptions:

- All rows in the relevant Instrument tables have already been transfer-priced and/or assigned an option cost.
- All rows contain a valid rate in one or more of the following columns:
  - TRANSFER_RATE
  - TRAN_RATE_REM_TERM
  - LIQUIDITY_PREMIUM_RATE
  - BASIS_RISK_RATE
  - PRICING_INCENTIVE_RATE
  - OTHER_ADJUSTMENTS_RATE
  - CUR_OAS
  - HISTORIC_OAS
- Average Balance or Ending Balance (financial element 140 / 100) information has been loaded into the Management Ledger table with dimensionality that matches the instrument table data being migrated.

This document describes the mechanics which occur just after the Instrument tables transfer pricing or option cost calculations have been completed successfully and just before transfer rate, adjustment rate or option cost ledger migration starts. For example, the mechanics that occur just after Instrument tables have been populated with valid transfer rates and just before the weighted average transfer rate (WATR) and the Charge/Credit rows in the Management Ledger table have been updated.

The ledger migration of option costs works on the same lines as transfer rate and adjustment rate migration. However, there are certain differences.

Transfer Rate, Adjustment Rate and Option Cost Calculation

The Oracle Funds Transfer Pricing engine calculates and writes balance-weighted average rates to the Management Ledger table, using current book balance, average book balance or a user defined balance from each instrument record to perform the weighting process. The financial elements that the engine uses to write the weighted rates to Ledger_Stat are as follows:

- 170 Average Transfer Rate
- 172 Average Rem Term Transfer Rate
- 171 Historic Option Cost
- 173 Current Option Cost
- 174 Average Liquidity Adjustment Rate
- 176 Average Pricing Incentive Rate
- 177 Average Other Adjustment Rate

Charge/Credit Generation

In addition to the calculation of the weighted average rate values at the combination of the Organizational Unit and the selected Product dimensions, charge/credit generation involves the following steps:

- Aggregation of the corresponding average or ending balance records from the Management Ledger table for each Org Unit/Product dimension combination.
- Multiplication of the average or ending balance from the Management Ledger by the weighted average rates.
- Application of an accrual factor to de-annualize the amount.

Oracle Funds Transfer Pricing then writes the result as dollar charges/credits to the Management Ledger table using the following financial elements:

- 414 Liquidity Adjustment Charge/Credit
- 415 Basis Risk Charge/Credit
- 416 Pricing Incentive Charge/Credit
- 417 Other Adjustment Charge/Credit
- 450 Transfer Rate Charge/Credit
- 451 Historic Option Cost Charge/Credit
- 452 Charge/Credit Remaining Term
- 453 Current Option Cost Charge/Credit

Note: Instrument Charge/Credit (TP, Adjustments and Option Cost)', when 'Calculation Mode' = 'Remaining Term' or 'Standard Term', the selected values for 'Accrual Type' (Daily or Monthly) has an impact on the calculation of the Accrual period for Charge/Credit calculation.

Direct Transfer Pricing of Ledger Balances

Oracle Funds Transfer Pricing allows users to calculate transfer rates for ledger average or ending balances that do not have corresponding Instrument table records using the following transfer pricing methodologies:

- Moving Averages
- Spread from Interest Rate Code

- Redemption Curve
- Caterpillar
- Weighted Average Perpetual
- Un-priced Account
- Tractor method

Direct Transfer Pricing of Ledger Balances will always have to be done on only one Ledger Table, be it Ledger Stat or Management Ledger, whichever is selected in the Process. Typically users will do direct transfer pricing for ledger balances that do not have corresponding Instrument table records. And they will do Migration for those ledger balances that have corresponding instrument table records.

Oracle Transfer Pricing also generates records in the Management Ledger table which are posted to the organizational unit (Org Unit) designated as the Transfer Pricing Offset Unit (typically a special Treasury Unit). During this process, an offset charge or credit amount is calculated for each normal charge/credit posted at the intersection of Organization Unit and Product dimensions in the processes outlined above.

The sum of the Org Unit charges and credits at the Product dimension member level is multiplied by -1 and posted to the offset Org Unit designated in the Offset Org attribute for the Org Unit dimension. After this processing is complete, the total entity level charges and credits net to zero.

Note: If no Offset Org Unit is specified, the offset amount will be posted to a default Org Unit (-99100). Users should be aware that the TP Migration process does not read the Offset Org ID attribute defined against any other dimension (Product, GL Account, Common).

Financial Elements related to Direct Transfer Pricing of Ledger Balances

- 100 – Ending Book Balance (Inputs to the calculations)
- 140 – Average Book Balance (Inputs to the calculations)
- 170 - Average Transfer Rate (Only one out of 170 and 172 will get generated at a time, depending on Standard or Remaining Term)
- 172 - Average Remaining Term Transfer Rate
- 450 - Transfer Rate Charge/Credit (Only one out of 450 and 452 will get generated at a time, depending on Standard or Remaining Term)
- 452 - Charge/Credit Remaining Term

Note: Input FE's can be Average Book Balance, Ending Book Balance or even Custom Balance FE's can be used if setup as new FE's and selected in Application Preferences.

Ledger Migration and the Management Ledger Table

A thorough understanding of the ledger migration process requires familiarity with the Management Ledger table standards such as data signage, editing standards, and WATR and charge/credit rows.

Data Signage

The Management Ledger table supports variable data signs. You can load data into the Management Ledger table in the following three variations:

- **Absolute**: All account types are positive, and all contra accounts are negative.
- **GAAP or Standard**: The signs reflect standard accounting principles, with revenue, liability, and owners' equity as negative, and expenses and assets as positive.

- **Reverse of GAAP (Standard) or User Defined**: Revenue, liability, and owners equity are positive, and expenses and assets are negative.

Management Ledger Table Editing Standards

You should be extremely careful while editing the Management Ledger table directly. If you ever get unexpected results in the Management Ledger table after ledger migration, then review the data you have entered.

WATR, WAAR's and Charge/Credit Rows

The weighted average transfer rate (WATR), weighted average adjustment rates (WAAR) and the resulting charge/credit for funds are represented in the Management Ledger table by financial elements listed above.

- **Financial Elements 170/172 (WATR)**: If you select the Remaining Term calculation mode while defining the Transfer Pricing Process, then the financial element generated is 172. Otherwise, it is 170. Only one 170/172 row should exist for a given combination of Organization Unit and Product dimensions.
- **Financial Elements 450/452 (Charges/Credits for Funds)**: If you select the Remaining Term calculation mode while defining the Transfer Pricing Process Rule, then the system generates financial element 452. If not, it would be Financial Element 450 for the Transfer Rate Charge/Credit amount. Only one financial element, 450 or 452, should exist for a given combination of Organization Unit and Product dimensions.
- **Adjustment Rate Financial Elements 174-177 / 414-417**: The Adjustment Rate outputs are not impacted by the Standard Term / Remaining Term selection. Results will be the same in either case.

Ledger Migration and the Virtual Memory Table

To calculate transfer rates at the Product dimension member level in the Management Ledger table, all rows in the Instrument tables must be accumulated to arrive at the weighted average transfer rate (WATR) and weighted average adjustment rates (WAAR) for each member. All data used in the ledger migration process passes through a table, called the Virtual Memory table (VMT), built in the memory.

This table exists only during the ledger migration process and the information is never written to disk, and thus it cannot be examined for problem-solving purposes. Understanding the operation of the VMT, however, is crucial to understanding the ledger migration process.

The VMT comprises the following three types of columns:

- Organization Unit and Product dimension columns, which uniquely identify each row.
- Balance and WATR/WAAR columns to hold data accumulated from the Instrument tables.
- Balance and WATR/WAAR columns to hold data accumulated from Management Ledger table and Instrument table calculations.

Requirements for Successful Ledger Migration

Successful ledger migration of transfer pricing results requires correct configuration of the following parameters:

- Application Preferences
- Dimensions
- Entered and Local Currency
- Transfer Pricing Rule
- Adjustment Rule
- Product / Source Selection

- Migration and Product Dimension Set Up
- Offset Org Unit
- Transfer Pricing Process
- Calculation Mode
- Charge/Credit Accrual Factor

Together these parameters determine the way transfer rate, adjustment rate and option cost calculations are carried out for every instrument record.

Application Preferences

You need to configure the following application preference parameters:

- **As of Date**: Must match the period for which you are trying to migrate transfer rates, adjustment rates and option costs.
- **Ledger Migration – Rate Weighting Element**: Select the instrument table balance to use for weighting the rates during the migration process. Choose from Average Book Balance, Ending Book Balance or Custom Balance.
- **TP Charge/Credit Balance**: select the Balance to use for calculating the Charge / Credit amount. Choose from Ending Book Balance or Average Book Balance when using the "Ledger" based migration option. For calculating instrument level charge/credit amounts, you may also choose the Custom Balance option.

Dimensions

To be eligible for inclusion in the ledger migration process, a dimension must exist and be actively populated with dimension values in both the Instrument tables and in the Management Ledger table. Given below is a list of dimensions available for inclusion in the ledger migration process:

Mandatory Dimensions:

- PRODUCT (the required product dimension is based on your Application Preference selection)

Other Available Dimensions:

- ORGANIZATION UNIT
- COMMON COA
- GL ACCOUNT

Entered and Local Currency

Oracle Funds Transfer Pricing provides you with the option of performing ledger migration and writing charges and credits in the entered or local currency, designated in the ISO_CURRENCY_CD column, or in the functional currency.

Source of Currency and Exchange Rate Information

Oracle Funds Transfer Pricing sources currency and exchange rate information from Rate Management > Currency and Currency Rates screens. Ledger migration should only be performed for currencies that have been activated or enabled.

If currency code values that have not been activated are discovered in the ledger migration process, an error message is written to the process errors log, and the ledger migration process skips records with those values.

Calculation of Functional Currency Values

To calculate and write charge/credit values expressed in functional currency to the Management Ledger table, a typical situation in multi-currency implementations, you should take the following steps:

1. Choose between entered or functional ledger migration while defining the Transfer Pricing Process.
2. Derive charge/credit amounts in the entered or local currency first, using transfer rate and balance information expressed in those currencies, and then convert the calculated charge/credit values for the "as of date" to the functional currency.
3. Assume the last date associated with the "as of date" as the basis for ledger migration, and generally use currency exchange rates corresponding to that date to perform conversions to functional currency for charges and credits written to the Management Ledger table.
4. Use the following algorithm for exchange rate access:

- If exchange rate exists, use the rate for the last day of period being processed.
- If no exchange rate exists for last day of period being processed, use the latest exchange rate available in the rates table for the period being processed.
- If no exchange rate exists for the period being processed, use an exchange rate value of 1.

Transfer Pricing Rule

The Transfer Pricing Rule is used to define the transfer pricing and option cost methodologies for each product dimension member. While defining transfer pricing methodologies, ensure that all required supporting data for the method actually exists. For example, if the selected method is Spread from Interest Rate Code, ensure that the corresponding yield curve has been properly defined and has been populated with rates.

Adjustment Rule

The Adjustment Rule is used to define logic for applying TP Rate Adjustments or Add-on Rates for each appropriate product dimension member.

Product / Source Selection

Calculating and migrating transfer rates, adjustment rates and option costs for an entire product portfolio can be a time-consuming process. Source table selection or data selection through the Product Hierarchy option together with use data filters, allow you to reduce the ledger migration time as follows:

- **Data Filters**: Allow you to transfer price or migrate to ledger a subset of your portfolio.
- **Source / Product Selection**: This feature gives you the option of selecting the Instrument tables or individual products for ledger migration during a particular Transfer Pricing Process run.

Ledger Migration and Product Dimension Set Up

All Product dimensions (Product, Common COA, GL Account) contain an attribute, < accrual basis>, that is used to designate the accrual factor for a particular product used in calculating the charge or credit for funds. This attribute should be defined for all products when the user wishes to base charge and credit calculations on product-specific accrual factors rather than a single process-specific accrual factor defined at the Transfer Pricing Process Rule level.

Offset Org Unit

During Direct Transfer Pricing of Ledger Balances and Ledger Migration, FTP generates records in the Ledger table that are posted to the Organization Unit designated as the Transfer Pricing Offset Unit (as defined via attribute within each Org Unit dimension member). During this process, an offset charge or credit amount is calculated for each normal charge/credit posted at the intersection of Organization Unit and Product (and any other dimensions selected for migration).

If no Offset Org Unit is specified through the attributes within each Org Unit Dimension member, the offset amount will be posted to a default Org Unit (-99100). The TP Migration process does not read the Offset Org ID attribute defined against any other dimension (Product, GL Account, Common COA).

Transfer Pricing Process Rule

The Transfer Pricing Process acts as a container for all the ledger migration parameters and submits them to the Transfer Pricing engine as a processing job. A Transfer Pricing Process rule typically contains the following ledger migration specifications:

- The dimensions that you want to include in the ledger migration process.
- The tables that are to undergo transfer pricing, adjustment rate or option cost calculations.
- Filters (optional) that are to be applied to the rows in each table.
- Transfer pricing, Adjustment rule or prepayment assumptions to be used.
- Option cost calculation parameters.
- Ledger Migration Method (Ledger level or Instrument level)
- Charge/credit accrual basis to be used.

Calculation Mode

The choice of calculation mode, on the Transfer Pricing Process – Calculation Selection block, not only affects the transfer rate and option cost calculation processes, but also the migration process. It determines the results that will be migrated to the Management Ledger table. If the calculation mode is set to Standard then the following results are used in migration:

- Transfer_Rate
- Adjustment Rates
- Historic Option Cost (Historic_Static_Spread - Historic_OAS)

Consequently, the transfer pricing engine generates results for the following financial elements:

- 170 Average Transfer Rate
- 171 Historic Option Cost
- 174 Average Liquidity Adjustment Rate
- 175 Average Basis Risk Cost Rate
- 176 Average Pricing Incentive Rate
- 177 Average Other Adjustment Rate
- 414 Liquidity Adjustment Charge/Credit
- 415 Basis Risk Charge/Credit
- 416 Pricing Incentive Charge/Credit
- 417 Other Adjustment Charge/Credit
- 450 Transfer Rate Charge/Credit
- 451 Historic Option Cost Charge/Credit

If the calculation mode is set to Remaining Term, then the migration process uses the following result columns:

- Tran_Rate_Rem_Term

- Current Option Cost (Cur_Static_Spread - CUR_OAS)

Consequently, the transfer pricing engine generates results for following financial elements:

- 172 Average Rem Term Transfer Rate
- 173 Current Option Cost
- 452 Charge/Credit Rem Term
- 453 Current Option Cost Charge/Credit

Note: Adjustment Rates are not affected by the calculation mode selection. Adjustment rates will be migrated as noted above under either "Mode" selection.

Charge/Credit Accrual Factor: Select the Charge/Credit Accrual Factor on the Transfer Pricing Process Migration block or, alternatively, define the Accrual Factor as an attribute for each Product dimension member. In case no selection is made, an Accrual Factor of 30/360 is applied.

Example of Transfer Rate Ledger Migration

Ledger migration requires you to select, among others, the following options while creating and executing the Transfer Pricing Process:

- Select both the Instrument tables and the Management Ledger table as the SOURCE tables to be processed.
- Select the transfer rate calculation (optional if previously executed), adjustment rate calculation (optional if previously executed) and the ledger migration processing options. Selecting the transfer rate and/or adjustment rate calculation options leads to the generation of transfer rates or adjustment rates for all records in the Instrument tables and for those records in the Management Ledger table for which you have defined a transfer rate with a "Ledger" source type. Selecting the ledger migration processing option instructs the application to gather balances, transfer rate and adjustment rate information, generate credits and charges for funds, and output the results to the Management Ledger table.

Oracle Funds Transfer Pricing allows you to include multiple dimensions in the ledger migration process. However, to keep this description simple, the following example assumes that only two dimensions, the Organization Unit dimension and the Product dimension, are selected to generate results. The following table displays the Instrument table data for this example.

Instrument Tables (for example, FSI_D_MORTGAGES)

ORG_UNIT_ID	CUR_BOOK_BAL	TRANSFER_RATE		PRODUCT_ID
1	100	4.00	3	
1	125	4.50	4	
1	200	3.00	5	
1	200	3.00	3	

The following table displays the pre-migration data in the Management Ledger table used in the example.

Management Ledger Table (LEDGER_STAT)

ORG_UNIT_ID	FINANCIAL_ELEM_ID	MONTH_xx	PRODUCT_ID
1	140	250.00	3
1	140	200.00	4
1	140	100.00	5
1	140	200.00	10
1	140	990.00	100

As you compare the Instrument tables and the Management Ledger table data, notice the following:

- Product IDs 3, 4, and 5 matches in both tables. These Product IDs represent the simplest case of ledger migration.
- Product ID 10 does not exist in the Instrument tables. This example assumes that it is a ledger-only account that is transfer priced directly using an acceptable Management Ledger Table data source-only method (part of the assumption definition in the Transfer Pricing Rule).
- Product ID 100 does not exist in the Instrument tables. This example assumes that it is a ledger-only account that will be transfer priced using the Un-priced Account Methodology, based on Product IDs 4, 5, and 10. (This transfer pricing method is defined in the Transfer Pricing Rule.)

The ledger migration process essentially comprises the following two broad phases:

- Instrument Tables Accumulation
- Management Ledger Table Processing

However, this example with a view to illustrating the operation of the ledger migration process in general and that of the virtual memory table (VMT) in particular demonstrates the following possible variations of the ledger migration process and special cases:

- Transfer Pricing Accounts with the Ledger-Only Data Source
- Transfer Pricing Un-priced Accounts
- Ledger Migration of Transfer Rates Under Remaining Term Calculation Mode

Instrument Tables Accumulation

The first operation in the ledger migration process is to accumulate all individual detail rows from the Instrument tables into a single row for each unique combination of Org Unit and Product dimensions in the Virtual Memory Table (VMT).

In this example, Bal_x_TfrRate for Product 3 is calculated as follows:

```
(100 * 4.00) + (200 * 3.00) = 1,000.00 = Bal_x_TfrRate
```

The following table represents the VMT after Account table accumulation has taken place.

VMT Post Instrument Table Accumulation

ORG_UNIT_ID	Bal	Bal x TfrRate	LSBal x TfrRate		PRODUCT_ID
1	300.00	1000.00		3	
1	125.00	562.50		4	
1	200.00	600.00		5	

Management Ledger Table Processing

The first step in the ledger migration process with respect to the Management Ledger table is to clear all the information stored in the table with financial elements 170 and 450 (172 and 452 if remaining term pricing is being used) for the particular combination of dimensions being used in the process.

The next step is Management Ledger table accumulation: the Virtual Memory Table (VMT) is populated with the balance information stored in the Management Ledger Table. The following table represents the VMT after Management Ledger Table accumulation has taken place.

Note: The updates are shown in bold.

VMT Post Management Ledger Table Accumulation

ORG_UNIT_ID	Bal	Bal x TfrRate	LS Bal	LSBal x TfrRate		PRODUCT_ID
1	300.00	1000.00	250		3	
1	125.00	562.50	200		4	
1	200.00	600.00	100		5	

Management Ledger table processing involves the calculation of the weighted average transfer rate (WATR). The WATR is calculated by prorating the WATR by the ratio between the Account tables and the Management Ledger table balances as follows:

```
(Bal x TfrRate / Bal) * LSBal = LSBal x TfrRate
```

For example, the WATR for Line Item 3 is calculated as follows:

```
(1,000.00 / 300.00) * 250.00 = 833.33
```

The following table represents the VMT after WATR calculation has taken place.

VMT Post WATR Calculation

ORG_UNIT_ID		Bal	Bal x TfrRate	LS Bal	LSBal x TfrRate		PRODUCT_ID
1		300.00	1000.00	250.00	833.33	3	
1		125.00	562.50	200.00	900.00	4	
1		200.00	600.00	100.00	300.00	5	

Transfer Pricing Accounts with Ledger-Only Data Source

At this stage, all rows in the Management Ledger table that relate (directly or indirectly) to rows in the Instrument tables are accumulated into the VMT. However, the accumulation process still needs to deal with account types that are transfer priced using Ledger as the data source (as specified in the Transfer Pricing Rule). In this example, Product 10 is a Direct Transfer Price product with a Management Ledger balance of 200.00.

The following table represents a VMT with a direct transfer price product.

VMT with a Direct Transfer Price Product

ORG_UNIT_ID		Bal	Bal x TfrRate	LS Bal	LSBal x TfrRate		PRODUCT_ID
1		300.00	1000.00	250.00	833.33	3	
1		125.00	562.50	200.00	900.00	4	
1		200.00	600.00	100.00	300.00	5	
1				200.00	1000.00	10	

Transfer Pricing Un-priced Accounts

Accounts using the Un-priced Account method are a special case of direct transfer pricing in the Management Ledger table. The Un-priced Account transfer pricing methodology uses the WATR from other accounts to derive a WATR for the un-priced account. This is accomplished by averaging the WATR for the component accounts, weighted by their relative LS Balances.

In this example, Product 100 is an un-priced account that is transfer priced based on Products 4, 5, and 10. First, as shown in the following table, a new row is added to the VMT and populated with the balance stored in the Management Ledger table.

VMT with a New Row Displaying Management Ledger Table Balance

ORG_UNIT_ID	Bal	Bal x TfrRate	LS Bal	LSBal x TfrRate		PRODUCT_ID
1	300.00	1000.00	250.00	833.33	3	
1	125.00	562.50	200.00	900.00	4	
1	200.00	600.00	100.00	300.00	5	
1			200.00	1000.00	10	
1			990.00		100	

Then, the WATR for Product 100 is calculated by computing the weighted average of the WATRs of Products 4, 5, and 10. The WATR for Product 100 is calculated as follows:

```
(900 + 300 + 1,000)/(200 + 100 + 200) = 4.4
```

The VMT is then updated with the standard form of WATR

```
(990.00 * 4.4) = 4,356.00 = LSBal_x_TfrRate
```

The following table represents the VMT after the un-priced account has been transfer priced.

VMT displaying the WATR of Un-priced Account

ORG_UNIT_ID	Bal	Bal x TfrRate	LS Bal	LSBal x TfrRate		PRODUCT_ID
1	300	1000.00	250.00	833.33	3	
1	125	562.50	200.00	900.00	4	
1	200	600.00	100.00	300.00	5	
1			200.00	1000.00	10	
1			990.00	4356.00	100	

Calculation of Overall WATR (Financial Element 170)

Once all the Instrument tables and the Management Ledger table information has been accumulated in the VMT, the overall WATR can be calculated for each Org Unit/Product dimension combination and posted to the Management Ledger table. The WATR is simply the sum of all component WATRs (represented in the VMT as LSBal x TfrRate).

For example, WATR is calculated as follows:

```
833.33 + 900.00 + 300.00 + 1,000.00 + 4,356.00 = 7,089.33= WATR
```

Generation of Charge/Credit for Funds (Financial Element 450)

Once the overall WATR is known, the charge/credit for funds in any period is given by the formula:

```
WATR * Balance * Accrual Factor = Charge/Credit for Funds
```

As Oracle Transfer Pricing stores WATR as WATR * Balance, this reduces to:

```
WATR * Accrual Factor = Charge/Credit for Funds
```

For example, Charge/Credit for Funds is calculated as follows:

```
7,089.33 * (30/360) = 590.77 = Charge/Credit for Funds
```

Ledger Migration of Transfer Rates Under Remaining Term Calculation Mode

The ledger migration process is identical under the Remaining Term calculation mode except that Financial Elements 452 and 172 are substituted for 450 and 170 respectively.

Note that under the Remaining Term calculation mode, the transfer rate source in the Instrument tables is Tran_Rate_Rem_Term.

Ledger Migration of Option Costs

Ledger migration of option costs is similar to that of the transfer rate. However, there are no steps for calculating option costs directly on the Management Ledger Table, because the calculation of option cost is a cash-flow based method that requires the Instrument table data.

Normally, option cost is represented in the Instrument table record as the difference between two columns, HISTORIC_ STATIC_SPREAD and HISTORIC_OAS (Option Adjusted Spread) and is expressed as a rate, in percent.

Option Cost = HISTORIC_STATIC_SPREAD - HISTORIC_OAS

If option cost ledger migration is specified in the Stochastic Transfer Pricing Process, option cost is accumulated in the Virtual Memory table (VMT) and written to the Management Ledger table as Financial Element 171, Average Historical Option Cost. The corresponding charge/credit for Funds is written as Financial Element 451, Historical Option Cost Charge/Credit.

Option Cost Ledger Migration under the Remaining Term Calculation Mode

The option cost ledger migration process is nearly identical under the Remaining Term calculation mode, except that Financial Elements 453 and 173 are substituted for 451 and 171, respectively.

Note that under the Remaining Term calculation mode, the option cost source in the Instrument tables is the difference between the Cur_Static_Spread and Cur_OAS columns.

Usage of Intermediate Tables in the Engine for Management Ledger

Ledger migration with Management ledger tables uses intermediate tables. Intermediate tables can be Global Temporary tables or Normal tables. Creation of intermediate table depends on Application Preferences' Debug setting. If Debug setting is - Do not output any message, then Global Temporary table is created. For any other debug setting, normal table is created. Global Temporary table which is created gets dropped at the end of execution. Usage of global temporary table will increase the performance of execution since data doesn't last after execution. Normal tables are not dropped at the end. To drop the tables, user has to execute purge script at regular intervals. All intermediate table names will start with zML_GTT_<process sys id>_<slno>. The naming convention is same for both global temporary table and normal table. Here process sys id stands for process definition id and slno is number of intermediate table.

For migration of data from instrument table to ledger tables, in total 3 intermediate tables will be used. They are as shown below for example

zML_GTT_<process sys id>_1

zML_GTT_ <process sys id>_2

zML_GTT_<process sys id>_3

Migration Options- 'Functional Currency' and 'Entered & Functional Currency'

FTP provides the option to the user to perform Ledger Migration in the Entered/Transaction currency (the one in the ISO_CURRENCY_CD column of the Instrument table – the currency in which the transaction takes place) or in the Functional currency. These are supported in the new Management Ledger table. The selections for 'Functional Currency' and 'Entered and Functional Currency' are present in the Migration block of the Standard and Stochastic Processes. To give the user control over how FTP multi-currency postings happen, we currently have the option to select 'Functional' or 'Entered and Functional'.

- If you choose 'Functional', this would assume that all Entered Balances in ML = Functional Balances. So, all non-functional currency balances from instrument data would be converted to functional currency and the same amount would be posted to both the Entered Balance and Functional Balance columns. The Functional currency is fetched from FSI_DB_INFO. The currency conversion would be done based on FSI_EXCHNG_RATE_DIRECT_ACCESS table.
- Similarly, if users choose 'Entered and Functional', then assumption is that ML data contains detailed currency information and Entered Balance <> Functional Balance (except where entered and functional currency is the same). In this case, FTP would convert non-functional currency balances to functional currency for purposes of posting to the Functional Balance column, but would not convert the amount posted to Entered Balance column and Iso_Currency_cd would equal the currency from the instrument data. This approach assumes that FE 100/140 data in ML is similarly loaded with a consistent approach. I.e. if Functional and Entered is selected, the FE 100 or 140 data should also reflect multiple iso_currency_cd's and Entered Bal <> Functional Bal

Note: Input Ledger Balance will always be available in Functional currency. Entered Balance can be <> Functional Balance, but Functional Balance should always be available for the Input FE's 100, 140 and Custom Input Balance FE's if any.

FSI_DB_INFO DEPENDENCY for Multi Currency

For our purposes in FTP, there is no mandatory connection or reference to multi_currency_enabled_flg or currency_type_enabled_flg from FSI_DB_INFO table. Column Currency_Type is not present in the new Management Ledger structure.

Daily Charge/Credit - Migration

The new Management Ledger design allows us to support daily charge credit postings much more easily. In Ledger Stat, each day of posting will be cumulative to the existing value, so over a month (MONTH_x columns) you will have 30 daily postings, but prior day amounts were not sure because each day these values would be overwritten by the new cumulative amount. In the new ledger structure, each day will be posted separately, so there will be full transparency around each and every posting that is made over a month. An example is provided below to show the comparison. Three 'Accrual Type' dropdowns are present in the Process screen and each one is used specifically for each type of Charge/Credit.

Example:

FSI_D_MANAGEMENT_LEDGER

In the new table, the daily ledger entries are not Additive in nature. Instead, each day will be posted as a new record.

For example: If a ledger process is run on 1-Jan-2000, results are posted for that with As of Date as 1-Jan-2000

If a ledger process is run on 2-Jan-2000, results are posted in another row with As of Date as 2-Jan-2000

If a ledger process is run on 15-Jan 2000, then results are posted in another row with As of Date as 15-Jan-2000

Defining Behavior Patterns

A prerequisite for transfer pricing your product portfolio is capturing instrument behavior. Payment and repricing characteristics for most instruments can be accommodated through the data attribute values in the Instrument tables. However, certain instruments may not have contractual cash flows or may have cash flows that are based on unique payment and repricing patterns that are too complex to be accommodated in the standard fields of the Instrument tables. Oracle Funds Transfer Pricing allows you to define custom behavior, payment and repricing patterns to accurately model the unique characteristics for such instruments.

In a user defined Behavior pattern, you can assign a unique amortization type code to a set of payment tenors, and define principal cash flow amounts (via percentages) for the following instrument types:

- Non-maturity Instruments
- Non Performing Instruments
- Devolvement and Recovery of Guarantees

In Funds Transfer Pricing, there are three TP Methods that take Behavior Patterns (non-maturity type) as inputs:

- Tractor Method
- Caterpillar Method
- Weighted Average Perpetual Method

Each of these transfer pricing methods will generate runoff amounts corresponding to the maturity profile defined in the behavior pattern. The Tractor Method requires replicating portfolio type non-maturity behavior patterns and the Caterpillar and Weighted Average Perpetual Methods utilize standard non-maturity behavior patterns.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Behavior Pattern Structure

There are three types of behavior patterns:

- Non Maturity*
- Non Performing
- Devolvement and Recovery

These behavior patterns differ in terms of how they allow you to categorize cash flows based on the specific behavior type being modeled.

The following table summarizes the various payment types available for each type of behavior pattern:

Pattern Type	Payment Type
Non Maturity	Volatile Core
Non Performing	Substandard Doubtful Loss
Devolvement and Recovery	Sight Devolvement Sight Recovery Usance Devolvement Usance Recovery

Note: *The non-maturity behavior pattern provides an additional option to create a Replicating Portfolio. The replicating portfolio type pattern is exclusively used by the Tractor TP Method.

Related Topics

Defining Behavior Patterns, on page 147

Payment Events

You must define one or more payment events to complete a behavior pattern. A payment event is a set of payment characteristics, which define the time line and amount of a specific payment in the behavior pattern. While the payment types can change based on the pattern type selected, there are three inputs that are required for all behavior patterns:

- Term
- Amount
- Type

Principal Runoff Term

The Term of the principal runoff is determined by the input of a Tenor and Multiplier. For example, if you are defining the “Volatile” component of a non-maturity instrument, you would likely define the runoff term for the first amount as “1 Day”. In this case, Tenor = “1” and Multiplier = “Day”

Amount

The cash flow amount is defined as a percentage of the end of period balance. For example, in the case of Non Maturity behavior pattern type, if the assumption for the Volatile runoff amount is that 25% of the portfolio is to be categorized as "volatile", the input should be "25". The sum of the percentages for Non Maturity behavior pattern type must equal 100%. The "Total Percentage" is shown at the bottom of the Pattern detail area indicating the cumulative percentage.

Payment Type

The payment type selection categorizes all payment runoff into meaningful groupings. The principal runoff type is carried forward by the cash flow engine and can be identified in the cash flow results by the following financial element codes.

- 186 Writeoff Positive

- 187 Timing of Writeoff Positive
- 188 Writeoff Negative
- 189 Timing of Writeoff Negative
- 200 Non Maturity - Core Runoff
- 201 Timing of Non Maturity - Core Runoff
- 202 Non Maturity - Volatile Runoff
- 203 Timing of Non Maturity - Volatile Runoff
- 204 Devolvement Runoff
- 205 Timing of Devolvement Runoff
- 206 Recovery Runoff
- 207 Timing of Recovery Runoff
- 208 Non Performing Asset Runoff
- 209 Timing of Non Performing Asset Runoff

Defining Payment Patterns

A prerequisite for transfer pricing your product portfolio is capturing instrument behavior. Payment and repricing characteristics for most instruments can be accommodated through the data attribute values in the Instrument tables. However, certain instruments may not have contractual cash flows or may have cash flows that are based on unique payment and repricing patterns that are too complex to be accommodated in the standard fields of the Instrument tables. Oracle Funds Transfer Pricing allows you to define custom behavior, payment and repricing patterns to accurately model the unique characteristics for such instruments.

In a user defined payment pattern, you can assign a unique amortization type code to a set of payment events, which may include some of the following customized features:

- Changes in payment frequency
- Seasonal payment dates
- Nonstandard or variable payment amounts

Once you create a payment pattern, you can use it by entering the payment pattern code as the amortization type code for the instrument.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Defining Payment Patterns, on page 149

Payment Pattern Structure

Oracle Funds Transfer Pricing allows you to build three types of payment patterns:

Absolute

Relative

Split

These payment patterns differ in terms of how they address payment schedules, which determine whether the payment events constituting the pattern are determined by calendar dates or periods. Absolute patterns are defined with sets of payment characteristics scheduled on specific calendar dates. Relative patterns are defined with sets of payment characteristics scheduled for certain periods of time.

You can also define a payment pattern with both absolute and relative payment events. This type of pattern is called a split pattern.

In addition, for each payment pattern, you need to specify a payment type, either conventional, level principal, or non-amortizing. Your choice of the pattern type and the payment types will determine the fields that are used for calculation.

Note: Oracle Funds Transfer Pricing's Payment Pattern interface supports simultaneous multiple-user access.

Related Topics

Defining Payment Patterns, on page 149

Payment Events

You must define one or more payment event to complete a payment pattern. A payment event is a set of payment characteristics, which define the time line and amount of a specific payment in the payment pattern.

Though the characteristics of the payment phase change based on whether you are defining an absolute, relative, or split pattern, there are two characteristics that are required for all amortizing patterns:

Payment method

Value

Payment Method

The payment methods determine the payment amount for the payment event. There are six different methods.

The following table describes the different payment methods.

Payment Methods

Method	Description
% of Original Balance	This method calculates the payment as a percentage of the original balance; the percentage being defined by the input percent. This method is useful for apportioning the starting balance on a level principal instrument over several payments. This method is only available for payment patterns defined with a level principal payment type.
% of Current Balance	This method calculates the payment as a percentage of the current balance prior to payment; the percentage being defined by the input percent. This method is only available for payment patterns defined with a level principal payment type.
% of Original Payment	This method calculates the payment as a percentage of the original payment column from the detail instrument data. This percentage is defined by the input percent.

% of Current Payment	This method calculates the payment as a percentage of the previous payment; the percentage being defined by the input percent. This payment is calculated on the payment date based on the characteristics of the instrument at the time of the payment, including the current rate, current balance, and current payment frequency.
Absolute Payment	This is an input payment amount. This amount represents both principal and interest for a conventional payment type, and represents only principal for a level principal payment type. For both types of patterns, absolute value payment amounts are entered as gross of participations.
Interest Only	This is a calculated payment amount. An interest-only payment is calculated during processing as balance times rate times accrual factor.

Value

The value reflects the percentage or payment amount based on the method chosen for the payment event. Value is disabled for phases using the Interest Only payment method.

Payment amounts for conventional pattern phases must reflect both principal and interest payments. Payment amounts for level principal pattern phases only reflect 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.

Note: The payment method and value columns are not displayed for payment patterns defined with a non-amortizing payment type. All payments are assumed to be interest only for this type of payment pattern.

Related Topics

Defining Payment Patterns, on page 149

Absolute Payment Patterns

Absolute payment patterns are commonly used for instruments that pay on a seasonal schedule, such as agricultural or construction loans that require special payment handling based on months or seasons.

Take the example of a loan that follows a seasonal payment pattern, in which the payment patterns for January, February and March are scheduled for interest-only payments. As revenues for the customer increase, the payment amount also increases. Therefore, the payments for April and May are 80% of the original payment, and June through September is 100% of the original payment. The payment decreases as the production season slows. The payment for October is decreased to 80% of the original payment, and the payments for November and December are decreased again to 50% of the original payment.

Note: You can define absolute payment patterns only up to a year. This is because all entries are automatically ordered by date and are scheduled in a single year rotation.

Related Topics

Defining Payment Patterns, on page 149

Relative Payment Patterns

Relative payment patterns are commonly used for modeling instruments with irregular payment frequencies or for instruments where the payment type changes over time.

Take the case of a four-year loan for example. The payment for the first 12 months could only be interest. The first 35 payments are scheduled for 50% of the currently scheduled payment, and the last payment is a balloon payment for the balance of the loan.

Related Topics

Defining Payment Patterns, on page 149

Split Payment Patterns

A split pattern contains multiple sets of payment patterns 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 termed a time line and assigned a percentage of the balance. A Split Pattern can constitute both absolute and/or relative payment patterns within itself. See: Defining a Split Payment Pattern.<XREF>

Related Topics

Defining Payment Patterns, on page 149

Defining Repricing Patterns

User defined repricing patterns provide a mechanism to capture the repricing structure of instruments whose rates change according to complex schedules which cannot be captured in the standard fields of account tables.

The user defined repricing pattern allows you to define multiple changes to various elements affecting repricing including:

Rates

Margins

Frequency

A repricing pattern has two major components:

User Defined Repricing Pattern

User Defined Repricing Event

Note: Repricing Patterns are a common capability within OFSAA applications, but FTP users should be aware that while the FTP application recognizes instruments with Repricing Patterns (custom ADJUSTABLE_TYPE_CD), the TP Engine does not behave differently when compared to standard adjustable rate instruments. The behavior is the same, because FTP always considers the information provided on the instrument record first. When processing adjustable rate instruments, including standard and repricing pattern based products, the FTP engine will refer to the LAST_REPRICE_DATE and NEXT_REPRICE_DATE to determine the relevant fixed rate period. For pattern based records, users should ensure that these dates are consistent with the repricing pattern dates.

The above note applies for standard FTP processing. However, when calculating Option Costs using the Monte Carlo Engine in FTP, the Repricing Pattern information will be fully used to determine the future rates, rate cap/floor information and any associated pricing margins that would need to be applied over the life of the instrument record.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Defining Payment Patterns, on page 149

User Defined Repricing Pattern

The user defined repricing pattern provides you with the ability to define a series of repricing patterns and events that describe the interest rate adjustment characteristics over the life of a cash flow instrument. One repricing pattern can be assigned to many cash flow instruments.

There are two types of repricing patterns that you can define:

Defining Absolute Repricing Patterns, on page 209

Defining Relative Repricing Patterns, on page 211

Related Topics

Defining Repricing Patterns, on page 152

Overview of Repricing Patterns, on page 207

User Defined Repricing Event

The events of a repricing pattern define changes to the interest rates of an instrument during its life. Every pattern begins with an initial event, which describes the behavior for the initial period.

Note: This initial event is required for the setup of all repricing patterns but is not used in Oracle Funds Transfer Pricing. This feature is used only by Oracle ALM, another Oracle Financial Services analytical application, when assigning a rate at origination of new business and transaction strategy records.

The second event describes the change in behavior after the initial period is over. A third event describes the next change in behavior and so on. In relative repricing patterns, you can also define the number of times an event will be repeated before the next event is triggered.

At least one event must be defined for a repricing pattern. All events are listed in the Repricing Events table. The repricing pattern type, absolute or relative, determines the data required to be populated in the events table.

Caution: You have the option to change the repricing pattern type at any time during the create process. However, changing the repricing pattern type causes the system to automatically refresh the Repricing Events table, and the loss of all the data that you previously entered.

Event Detail

You define each event with a repricing type of either flat rate or indexed rate. The repricing types determine the event detail characteristic that are available.

Flat Rate

Selecting the flat rate repricing type allows you to set the rate of the instrument to a fixed value. For example, 6%.

The following table describes the event detail characteristics that are available when the flat rate repricing type is selected.

Characteristic	Description
Net Rate	The new net rate value

Gross Rate	The new gross rate value
Transfer Rate	The new transfer rate

Flat rate always overrides the caps and floors defined on the instrument record.

Indexed Rate

Selecting the indexed rate repricing type allows you to set the rate of the instrument to an adjustable value, defined as the index rate plus a margin.

The following table describes the event detail characteristics that are available when the indexed rate repricing type is selected:

Event Detail Characteristics: Indexed Rate

Characteristic	Description
Interest Rate Code	Reference interest rate used as the index rate to set gross and net rates. This list of values is pulled from the current Historical Rates database.
Transfer Interest Rate Code	Interest rate used to calculate the transfer rate.
Yield Curve Term	Term used in interest rate code lookups; if left blank, defaults to the term until the next repricing; set with a value and multiplier.
Net Margin	Added to index rate to get net rate.
Gross Margin	Added to index rate to get gross rate.
Transfer Margin	Added to index rate to get transfer rate.
Rate Cap Life	The upper limit for gross rate.
Rate Floor Life	The lower limit for gross rate.
Rate Set Lag	Period by which the date of the interest rate used for calculation precedes the event date; set with a value and a multiplier.

Related Topics

Defining Repricing Patterns, on page 152

Overview of Repricing Patterns, on page 207

Absolute Repricing Pattern

The absolute repricing pattern is used for instruments that are date dependent. Each specific date is a separate event.

You may have up to one year of defined events that repeat for the life of the instrument. For example, you could define one event for each day of the year; the maximum number of events that you can define is 365. However, you can only define one event for any given date. See: Defining Absolute Repricing Pattern.<XREF>

Related Topics

Defining Repricing Patterns, on page 152

Overview of Repricing Patterns, on page 207

Relative Repricing Pattern

The relative repricing pattern is a series of repricing events that are driven by user defined time lines. It is used for instruments where the repricing is determined by elapsed time since origination. You specify the duration of each repricing period (frequency) and the number of times the event should occur (repeat) before calculating the next event in the pattern.

For example, an event can be defined with a frequency of 1, a multiplier of Months, and a repeat value of 3. This translates into an event that reprices every month for a duration of 3 consecutive months.

You may have a graduated rate mortgage that requires three rate changes over the life of the instrument. You will have three events following the initial event. If you wish the instrument to retain the behavior defined for the last event, the repeat value should be set to 999. This prevents *wrapping*, or the recycling of all the defined events until the life of the instrument runs out.

Related Topics

Defining Repricing Patterns, on page 152

Overview of Repricing Patterns, on page 207

Pricing with Balance Tiers

Repricing Patterns include the option to set rates based on the balance of the instrument being priced. This selection is optional and users can select "None", meaning there are no balance tiers needed, or they can select "Current Balance". If Current Balance is selected, then users can define balance tier ranges and include different pricing details for each balance tier. This option is useful for applying pricing to products such as Savings Accounts or Money Market Accounts that pay different levels of interest based on the account balance.

Balance tiered pricing can be applied to detailed instrument records or to aggregate balances. When applying to aggregate balances, it is important to define the mix percentage of the portfolio for which the pricing will be applied. This is necessary because the original mix of accounts containing the related balance information is lost when the data is aggregated. The mix percentage input solves this problem. When balance tiered pricing is applied to detailed accounts, the mix percentage input is not required.

Example:

Suppose the repricing pattern is defined with the following balance tiers:

Balance > 0 and < 25,000 then current rate = 0.00%, mix % = 50%

Balance >=25,000 then current rate = 2.5%, mix % = 50%

Scenario 1, the instrument table contains detailed account records

Account #1 = $10,000

Account #2 = $10,000

Account #3 = $10,000

Account #4 = $10,000

Account #5 = $10,000

Account #6 = $50,000

The resulting rate will be [($50,000 x 0.00%) + ($50,000 x 2.50%)] / $100,000 = 1.25%

Scenario 2, the instrument table contains 1 aggregated instrument record

Account #1 = $100,000

Note: In scenario 2, the mix percentage is needed.

The resulting rate will be (0.00 x .50) + (2.50 x .50) = 1.25%

Performing Cash Flow Edits

It is extremely important that the data in the Instrument tables is clean, accurate, and complete before it is used to generate cash flows and for further processing. Oracle Funds Transfer Pricing provides seeded Cash Flow Edit rules to edit (clean and prepare) Instrument table data. You can create multiple Cash Flow Edit Processes depending on the data to be cleansed. In addition, you can view actual results of Cash Flow Edits by accessing the audit data written into the FSI_PROCESS_ERRORS table.

You can also select the preview mode option so that you can preview the changes that will be made to the Instrument table data as a result of cash flow edits before those changes are applied in the Instrument tables.

It is highly recommended that you create and run Cash Flow Edits before processing data to generate any type of cash flow-related results.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Creating Interest Rate Codes

Oracle Funds Transfer Pricing uses historical interest rate information to transfer price your balance sheet. The final transfer rate or add-on rate assigned to the records in your instrument tables is based on the historical rates information stored in the system. Consequently, you must decide on the type and amount of historical rate information you require to satisfy your transfer pricing requirements at the outset of an Oracle Funds Transfer Pricing implementation.

The quality and availability of interest rate information varies throughout the world. In many markets, gathering comprehensive rate information is a challenge because of insufficient security types, inconsistent quoting conventions, and lack of liquidity. This necessitates careful management of the interest rate data. In Oracle Funds Transfer pricing, this is done using reference interest rates, called interest rate codes.

Creating interest rate codes is a mandatory step in the Oracle Funds Transfer Pricing process. Interest Rate Codes (IRC) are defined and managed within the Rate Management area of the application.

Oracle Funds Transfer Pricing facilitates the process of inputting and viewing interest rates by giving you data storage capabilities appropriate to your market. This is possible as the application supports multiple rate formats and allows you to store the following rate attributes:

- Rate format (zero-coupon or yield-to-maturity)
- Accrual basis

- Compound basis

In addition to historical interest rate information, OFSAA Rate Management allows you to manage the term structure modeling parameters, such as volatility and mean reversion speed, as well as currency rates and economic indicators.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

OFSAA Rate Management, on page 1

Interest Rate Codes and Rate Lookups

A rate lookup is performed to derive a transfer rate for the appropriate date/term combination.

Date Used: Oracle Funds Transfer Pricing accesses the yield curve based on the appropriate lookup date. If no match is found, it uses the first date before the date of your lookup.

Term Used: Oracle Funds Transfer Pricing selects the term on the yield curve on an exact number of days basis, calculated by subtracting the cash flow date from the transfer pricing date, which may be the as of date, the last reprice date, the origination date or the TP Effective Date depending on the method and the instrument characteristics.

If the yield curve term is expressed in months or years, the term will be converted internally during rate lookups to a days basis, as follows:

If Multiplier = M (month), Term in Days = Term in Months * 30.42

If Multiplier = Y (year), Term in Days = Term in Years * 365

The rate is then derived from the yield curve by performing linear, cubic spline or quartic spline interpolation to the two points between which the lookup term falls.

Rate Lookup at Endpoints

If the term < shortest point on the yield curve, then the rate = the shortest point.

If the term > longest point on the yield curve, then the rate = the longest point.

If the date for the lookup > dates available then the lookup is on the last date for the yield curve.

If the date for the lookup < dates available then the lookup is on the first date for the yield curve.

Rate Lookup: An Example

The following table displays transfer rates for different date/term combinations:

Date	1 Day	1 Month	3 Months	1 Year
01/01/2010	2.00	3.00	4.00	5.00
01/15/2010	2.10	3.10	4.10	5.10
01/31/2010	2.20	3.20	4.20	5.20
02/15/2010	2.30	3.30	4.30	5.30

The following table displays Date/Term Combinations for Lookup:

Date	Lookup Term	Yield Curve Date Used	Term Before	Term After	Rate	Comments
01/07/2010	60 days	01/01/2010	1 Month	3 Months	3.50	Rate is approximately half way between 3 Months (91.26 Days) and 1 Month (30.42 Days).
11/30/2009	182 days	01/01/2010	3 Month	1 Year	4.33	3 Months Rate + (182 Days - 91.26 Days) * (1 Year Rate - 3 Months Rate) / (365 Days - 91.26 Days) (such as 1/3 of the Way between 3 Months and 1 Year).
03/15/2010	2 Year	02/15/2010	1 Year	None	5.30	Uses last point on Yield Curve.

Accessing Transfer Pricing Detail Cash Flow Results for Audit Purposes

Detailed cash flow results for individual account records can be written to an audit table for validation purposes. If you select the Detailed Cash Flows audit option on the Transfer Pricing Process Audit Block, the detailed cash flow results are written to the FSI_O_PROCESS_CASH_FLOWS table.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Accessing Transfer Pricing Interest Rate Audit Results

Forward Rates and 1 Month Rates audit results can be written to an audit table to facilitate validation of option cost results.

Within the Stochastic Transfer Pricing Process Audit Block, selecting the Forward Rates option allows you to audit the static spread calculations, and the 1 Month Rates option allows you to audit the option-adjusted spread calculations by writing out the different paths of one-month rates. Since 360 one-month rates are written out for each rate path, the process can be time consuming.

The Forward Rates and 1 Month Rates audit results are written to the FSI_INTEREST_RATES_AUDIT table.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Analyzing Results

You should always analyze results obtained from the Transfer Pricing engine. For example, you should review the historical rates information (Interest Rate Codes) to ensure that the new cost of funds reflect the current interest rate reality.

In addition, a detailed transfer rate/matched spread query should be generated at the product level to ensure that every account has been assigned a transfer rate and that the matched spread for each account is as expected.

The following table lists some steps to find out whether an account has not been transfer priced correctly:

Steps to Analyze Transfer Pricing Results

Query	Results
Stratification by transfer rate	Look for any transfer rate <= a selected value (such as 3.00) or >= another value (such as 12.00)
Stratification by matched spread	Look for large (positive or negative) matched spreads. (for example, >= 4.00 or <= -2.00)
Stratification of fixed rate instruments by origination date and term with weighted average transfer rate and matched spreads as columns	Look for general pattern to reflect the Transfer Pricing Yield Curves for each origination date
Stratification of adjustable rate instruments by last repricing date and term with weighted average transfer rate and matched spreads as columns	Look for general pattern to reflect the Transfer Pricing Yield Curves for each last repricing date

The weighting factor for CONVEXITY, DURATION, and MODIFIED_DURATION is Market Value. The weighting factor for YTM, CUR_WARM, and AVERAGE_LIFE are weighted by cur par bal.

In case a result (transfer rate) generated by the system is suspect, then you can view all of the cash flows for any specified instrument record, by selecting the Detailed Cash Flow option in either the Standard or Stochastic Transfer Pricing Process. This option should be selected together with a filter, which identifies the specific instruments to be included in the Audit process.

After ensuring that each account has been assigned an accurate transfer rate, you should review the funding center impact and compare it to the results from prior periods.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Reviewing Processing Errors

There is always the possibility that errors may occur during the execution of a Transfer Pricing Process. A log of such errors is generated during processing and can be accessed by selecting the "View Log" link from both Standard or Stochastic Transfer Pricing Process summary page. Within this log, the report lists the specific transaction for which an error was generated and provides the internally generated identifier of the Transfer Pricing Process that generated it.

As part of the rectification process, it is advisable to determine what caused the error and what should be done to correct it for the next run.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Reprocessing Erroneous Accounts

While reviewing your results, you might discover accounts with invalid results that need to be reprocessed. Transfer Pricing Processes allow you to rerun a subset of information to make corrections to appropriate products when needed.

If you need to reprocess a portion of your instrument data, make sure that you reprocess all the Product dimensions members, across all instrument tables, particularly if you need to re-calculate the Ledger Charge / Credit amounts.

If any of the records being reprocessed are used as the basis for unpriced accounts, those unpriced accounts also should be reprocessed.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

Reconciling the Data

Reconciliation is the process of comparing the information carried in the Instrument tables to the general ledger balances (contained in Ledger Stat).

The goal of the Transfer Pricing Process is to transfer price your entire balance sheet, as represented on the general ledger. Many ledger accounts have corresponding data in the Instrument tables. In such instances, the balances from the instrument data must be compared with the corresponding ledger balances.

The reconciliation process involves defining a level at which some piece of information in the Instrument tables is to be compared to the General Ledger data carried in the Management Ledger (also known as LEDGER_STAT), That level can be one dimension (to reconcile for each general ledger account number, for example, General Ledger Account ID) or multiple dimensions (to reconcile for each general ledger account number within each business unit, for example, General Ledger Account and Organization Unit).

The most common type of reconciliation is to compare the current balance of Instrument table data to the general ledger ending balance. The data carried in the database is a snapshot of the portfolio as of a given date. Consequently, comparing the current balances from the Instrument table to the general ledger ending balance measures the degree to which the extracted data is in balance with, or reconciles to, the general ledger.

Variances between the Instrument table and the Management Ledger table should be corrected. If the magnitude of the variances is high, plug entries should be created to force the reconciliation to zero.

Related Topics

Overview of the Oracle Funds Transfer Pricing Process, on page 69

CHAPTER 14 Transfer Pricing Concept

This chapter describes the transfer pricing concept and the traditional and matched rate approaches to funds transfer pricing. A description of how matched rate transfer pricing overcomes the shortcomings of the traditional approaches is also provided. The chapter ends with a description of the role of matched rate transfer pricing in the evaluation of interest rate risk.

This chapter covers the following topics:

- Overview of Transfer Pricing
- Traditional Approaches to Transfer Pricing
- A New Approach to Transfer Pricing
- How Matched Rate Transfer Pricing Works
- Evaluating Interest Rate Risk

Overview of Transfer Pricing

Over the past few decades, financial institutions, such as banks, have evolved as semiautonomous lines of business. Consequently, management requires separate income statements and balance sheets for each line of business to assess its performance. However, creating separate income statements and balance sheets requires the division of the net interest income among the business units. Oracle Funds Transfer Pricing fulfills this need. Transfer pricing is a mechanism for dividing the net interest income of a financial institution (such as a bank) among its constituent business units (such as the deposit, treasury, and the credit groups).

Transfer pricing makes use of transfer rates to divide the net interest income into manageable components by separately identifying the spread earned from interest rate risk and the spread earned from risks managed by the lines of business such as credit risk. The transfer rate for funds is an interest rate representing the value of those funds to a financial institution, that is, the interest rate at which the financial institution can buy or sell those funds in open market.

The transfer rate provides a benchmark for determining whether the yield on a loan (an asset), is enough to cover the associated credit risk and operating cost, besides the cost of acquiring the funds. In addition, a transfer rate for funds allows you to compare the total cost of each source of funds, such as deposits (a liability), to other funding opportunities, for example money or capital market funds. In effect, you use a transfer rate to measure the profit contribution of an asset or liability.

The following table shows a typical bank balance sheet.

Typical Bank Balance Sheet		
Asset		Liability
Less Transfer Cost of Funds/Spread on Assets		Less Cost of Funds/Spread on Liability

Most large banks have recognized the value of transfer pricing and it has been a part of their performance measurement systems for years. However, the gains from adopting a transfer pricing framework depend on the maturity of methodology being used.

Traditional Approaches to Transfer Pricing

Banks following the traditional approaches to transfer pricing applied a single transfer rate to the net volume of funds generated or consumed by a business unit. They generally used either the average or the marginal cost of funds as the single transfer rate.

Until the 1960s, banks generally used the average cost of funds as the single transfer rate, primarily for loan pricing. If the yield on a loan was higher than the average cost of funds, banks believed that the loan had a positive spread and made the loan. Over time, the problem with this approach became obvious. Regulated low rate deposits, such as Demand Deposit Accounts (DDA) and Savings Accounts, held the average cost of funds for many banks at a level well below the cost of the new funds. As a result, spreads on new volumes were nowhere near what had been expected. Moreover, the low average cost of funds tempted many banks to under price loans, sometimes to the point where the true spreads on new volumes were negative.

Consequently, even a stable rate environment was potentially dangerous for banks using the average cost approach to transfer pricing because the balance sheet could grow while earnings dropped.

Recognizing that the use of an average cost of funds could result in unprofitable growth, most banks concluded they should use a transfer price reflecting their real cost of incremental funds. Typically, these banks used the cost of 30 or 90 day certificates of deposit (CDs) as the cost of marginal funds.

Pitfalls of the Traditional Approaches

The shortcomings of the transfer pricing approaches that advocate the use of a single transfer rate are:

- **Potential for Inadvertent Unprofitable Growth**: Banks assumed that using the marginal cost of funds would make it almost impossible to add volume at a negative spread. This is a fair assumption but it only applies to times when interest rates are stable.
- **Rate Risk Trap**: The single, marginal funds transfer rate led some financial institutions into a rate risk trap. In the 1960s and 1970s, because the yield curve was normal, long term assets offered the largest spreads against a 30 or 90 day transfer rate. So some banks, and almost the entire savings and loan industry, borrowed short and lent long. Interest rates skyrocketed in 1979 and into the 1980s, and consequently the margins disappeared.
- **Loss of the Credibility of Performance Measurement Systems**: Most banks were able to avoid the extreme interest rate risk exposure, which nearly destroyed the savings and loan industry. However, the use of a single marginal transfer rate undermined the credibility of performance measurement systems. Most line of business managers found that their bottom lines fluctuated wildly with interest rates. Since market interest rates were obviously beyond the control of line managers, they increasingly viewed profit goals for their units with skepticism.
- **Loss of Managerial Value:** The traditional approaches failed to offer any generally accepted (or politically acceptable) method for determining the net interest contribution of the different business units of a bank. Consequently, business unit profitability reporting lost its managerial decision-support value.

In summary, the traditional approaches to transfer pricing were acceptable when interest rates were stable. However, they lost most of their decision-supporting value once rates became volatile.

A New Approach to Transfer Pricing

As the shortcomings of the traditional transfer pricing systems became obvious, the financial services industry began to search for alternatives. The best solution was developed and implemented by a few leading financial institutions in 1979 and 1980.

This approach, called matched rate transfer pricing, uses multiple transfer rates. Assets and liabilities are given transfer rates that reflect their specific maturity and repricing characteristics. Matched rate transfer pricing resolves the problems inherent in traditional methodologies by:

- Clearly showing whether new volumes have a positive spread by using a marginal rate. This eliminates the potential for inadvertent unprofitable growth.
- Identifying potential rate risk traps in advance using a marginal rate. In addition, the exposure of a bank to interest rate risk is identified and measured in a manner that makes it easier to manage.
- Ensuring that the performance measurement system is consistent, fair, and credible by using a transfer rate that reflects real funding opportunities currently available to the bank.

Matched rate transfer pricing achieves these objectives by dividing the interest rate spread into three components: credit spread, funding spread, and rate risk spread.

Example of Dividing Interest Rate Spread

Suppose a retail financial institution, a bank for example, relies on a retail customer base for low cost funds that have interest rates lower than funds purchased in money markets. It uses these funds to make loans that have a yield much higher than what the financial institution would pay for funds having the same maturity.

Consider a consumer loan that yields 200 basis points higher than what the financial institution would pay for funds having the same maturity. Suppose the bank decides to fund the loan with matched maturity funds, say, certificates of deposit that costs 100 basis points less than similar maturity funds purchased in money markets. Then, the bank will have a total interest rate spread of 300 basis points.

Matched rate transfer pricing divides this interest rate spread as follows. While the loan yields 200 basis points more than matched funding costs (transfer rate), the funds cost 100 basis points less than other alternatives (transfer rate). Therefore, the total spread of 300 basis points is the sum of a funding spread (transfer rate - cost of funds) of 100 points and a credit spread (yield on loans - transfer rate) of 200 points.

However, if the financial institution funds the consumer loan with shorter term deposits, then the spread would be larger than 300 basis points. The added spread result from taking interest rate risk (borrowing short and lending long) and is called rate risk spread. The three components of the interest rate spread can be seen by plotting the loan and deposit against the yield curve. However, the portion of total spread derived from taking interest rate risk can be volatile.

Advantages of Matched Rate Transfer Pricing

The main advantages of matched rate transfer pricing are as follows:

- **Stabilization of Business Unit Margins:** The use of multiple matched transfer rates stabilizes the margins of the different business units. Since assets and liabilities are either funded or sold to transfer pools with corresponding maturities or repricing periods, swings in interest rates do not affect the spread. In addition,

the division of the interest rate spread into credit, funding, and rate risk spreads ensures that the bottom line for a business unit reflects only that business and is within the control of the line management.

- **Decision Support**: Under the matched rate transfer pricing approach, the bottom line for a business unit is a fair basis for its performance measurement and management. For example, if some types of loans consistently fail to cover the cost of funds, operating costs, and the credit risk, there is no reason to make those loans. It would be more profitable to buy bonds, or to find other, more profitable lending opportunities. This is the reason why many banks no longer make small installment loans.
- Similarly, if the operating costs of gathering low cost consumer deposits are too high, it may be more economical to purchase funds in money markets. This explains the growing number of branch closures, as well as the imposition of increasingly higher minimum balances on some types of consumer deposits.
- **Identifying Exposure to Interest Rate Risk**: Using matched rate transfer pricing, banks can identify their exposure to interest rate risk and its impact on their current earnings. In addition, the banks can isolate the spread from rate risk exposure from their total spreads. This helps them clearly determine the profitability of their business units. Also, banks have found that the interest rate risk becomes increasingly manageable when isolated in a separate business unit. Under the matched rate transfer pricing approach, the rate risk exposure, and its impact on current earnings, is revealed in a new profit center called Treasury.

In summary, matched rate transfer pricing works well even when interest rates are volatile. It provides an approach to performance measurement that meets the decision making needs of both line managers (consistency, fairness, controllability) and executive managers (accuracy, flexibility). The financial services industry has recognized these benefits. Consequently, there are an increasing number of financial institutions that have either implemented, or are in the process of implementing performance measurement systems based on matched rate transfer pricing.

How Matched Rate Transfer Pricing Works

Matched rate transfer pricing is often administered by the Treasury. The Treasury conceptually buys the funds from the deposit gathering group and sells them to the credit group. Line officers get a rate quote representing either the cost of the funds they want to lend, or the value of the deposits they are gathering. The spread between this quoted rate and the interest rate on the asset or liability is fixed at a known level and maintained for the life of the asset or liability. Any fluctuation in this spread, whether caused by changes in the asset or liability yield curves or in the funds transfer yield curve, gets accumulated at the Treasury level.

The Treasury can manage the fluctuation in the spread in several ways, for example:

- Maintain a discretionary portfolio of assets and liabilities with the sole purpose of offsetting the risk that has been transferred from other business units.
- Use off-balance sheet transactions, such as swaps and futures, to hedge risk.

Matched rate transfer pricing requires more accounting discipline than traditional transfer pricing approaches. However, it is a straightforward process and is applied in a logical manner, using standard principles of dual-entry accounting.

Matched Rate Transfer Pricing Example

Suppose a line officer wants to make a loan, and is trying to decide on its pricing. The line officer is given a cost of funds that reflects the maturity and repricing characteristics of the loan. If it is to be a long-term, fixed rate loan, the bank quotes the cost of the long-term funds that can be used to match that loan. Conversely, if the loan is to be short term, the line officer is quoted a short-term rate.

If the yield curve is normal, the transfer rate for a short term loan is less than the rate for a long-term loan. The line officer then figures out how to price the loan to attain a target spread over the quoted cost of funds.

When the loan is booked:

- The business unit of the line officer books a shadow liability equal in volume to the size of the loan, having a cost that equals the transfer rate that was quoted. This accounting transaction balances the books of the business unit, and locks in a spread as long as the loan stays on the books.
- The books of the corporation must be balanced. Banks do this by creating a shadow asset with equal size and rate to the shadow liability. This shadow asset is housed in a separate business unit, usually Treasury.

The same type of accounting is applied to liabilities also. This type of accounting divides the bank's profits into three components: lending profit, deposit gathering profit, and rate risk profit. These three components add up to the total profit of the bank.

To sum up, under the matched rate transfer pricing approach, banks attach a matched transfer rate to an asset or liability when it is booked, using a standard, double-entry accounting approach. This transfer rate remains constant over the life of the asset or liability, stabilizing the spread for the line of business.

Evaluating Interest Rate Risk

Matched rate transfer pricing divides the net interest income of your institution into three components: lending, deposit, and the rate risk profit (or loss). The rate risk profit is derived by subtracting all credits for funds (funding center expense) from all charge for funds (funding center income).

A net positive number implies that part of your interest margin is a result of any rate bets (or rate risk) your institution has taken. A negative number implies that you have incurred a loss due to rate risk.

Current and Embedded Rate Risks

The total rate risk profit (or loss) figure is made up from two sources:

- **Current Rate Risk Profit**: The result of rate risk inherent in your current exposure. You can actively manage this profit through effective Asset/Liability management.
- **Embedded Rate Risk Profit**: The result of interest rate bets. You can no longer manage this component of earnings because the relationships are contractual. All you can do is to wait it out.

Embedded Rate Risks Example

Suppose a bank, on day one, raises $1,000 in the form of a one-year certificate of deposit at 4%. If the wholesale (open market) alternative to one year funds costs 5% then, the matched transfer rate is 5%.

The bank then lends the $1,000 in the form of a five year non-amortizing (bullet) loan at 10%. If the cost of five-year wholesale funds is 8% then the matched transfer rate for five year funds is 5%.

This table shows the components of the bank's interest rate margin on day one:

Income Statement Component	Rate	Transfer Rate	Spread
Asset	10.00%	8.00%	2.00%
Liability	4.00%	5.00%	1.00%
Funding Center Spread		3.00%	
Net Interest Margin	6.00%		

Over the next year, interest rates rise by 200 basis points. Now, the bank, eager to eliminate future rate risk, issues a new four-year $1,000 CD at 8.5%. However, the four-year transfer rate is now 9.5%.

This table describes the components of the interest margin for the bank after one year:

Income Statement Component	Rate	Transfer Rate	Spread
Asset	10.00%	8.00%	2.00%
Liability	8.50%	9.50%	1.00%
Funding Center Spread		-1.50%	
Net Interest Margin	1.50%		

Although the bank is now perfectly matched from a current rate risk perspective (a four-year bullet loan funded by a four-year CD), it is losing 150 basis points at the funding center.

On day one the bank took a rate bet by funding short. The bet was that one year from the loan origination date the bank would be able to raise four-year funds at less than the cost of funding the original five-year loan, or 8%. Since the four year transfer rate on day one was 7%, when interest rates went up by 200 basis points, the bank got badly hit.

Although the net interest margin of the bank is still 150 basis points, the bank could have locked in a 300 basis point net interest margin for five years on day one if it had not taken a rate bet by issuing a five-year CD.

The loss of 150 basis points on the $1,000 loan is a result of the embedded rate risk taken by the bank. The bank can do nothing to eliminate embedded rate risk, except wait.

Measuring Current and Embedded Rate Risks

Even though nothing can be done about embedded rate risk, it is important to identify the impact of embedded rate risk for planning ahead. For example, if a bank had a large profit in the funding center owing to embedded rate risk, and was unaware of this, it can be lulled into a false sense of security. That bank might be surprised when this source of profit evaporates.

Conversely, if a bank is experiencing a large loss in the funding center due to embedded rate risk, and it is able to measure it, the bank might choose to wait it out rather than taking drastic and immediate actions.

Measuring Current Rate Risk

You can measure current rate risk by transfer pricing your entire balance sheet as if it were originated today. Everything should be transfer priced based upon its remaining term. Under this method, a five-year CD with one year until maturity would receive the same transfer rate as a three-year CD with one year left.

Measuring Embedded Rate Risk

The total rate risk profit is made up of Embedded Rate Risk and Current Rate Risk.

Embedded Rate Risk = Total Rate Risk Result - Current Rate Risk Result

CHAPTER 15 Common Rule Management Tasks

This module focuses on the rule management tasks that are common across all rules in this application.

This chapter covers the following topics:

- Overview of Common Rule Management Tasks
- The Rule Summary Page
- Searching for Rules
- Creating Rules
- Viewing and Editing Rules
- Copying Rules
- Deleting Rules
- Dependency Checking

Overview of Common Rule Management Tasks

The rule management tasks that are common to business rules in this and other OFSAA applications are as follows.

- The Rule Summary Page
- Searching for Rules
- Creating Rules
- Viewing and Editing Rules
- Copying Rules
- Deleting Rules

Note: You can perform these tasks from the Summary page for the type of rule with which you are working. Depending on the rule type, some tasks might not be available.

The procedures for carrying out these tasks are the same for each rule type, except for rule-specific steps explicitly stated in the rule-specific documentation.

The Rule Summary Page

The Rule summary page is the gateway to all rules and related functionality of the application. From there, you can navigate to other related pages.

On the header of the Rule summary page, you can perform simple queries on Folder, Rule Name and in many cases, the dimension upon which the rule is based.

The following table shows the page components.

Name	Type	Default Value	Required/ Optional	Updatable	LOV, additional information
Folder	Drop-Down list	Set in Application Preferences	Required - for filtering the rules under the folder	No – Only able to select from presented list.	N/A
(Rule) Name	Text Box	None	Optional – for filtering the rules on Rule Name	Yes	You can specify all or part of a rule name. For example, if you want to see only those Rules which start with 'A' – Enter A in the text field.
Dimension	Drop-Down list	Set in Application Preferences		No - Only able to select from presented list	N/A
Search	Button	N/A	N/A	No	Initiates rule search based on specified criteria.
Reset	Button	N/A	N/A	No	Restores default search criteria.
Add	Button	N/A	N/A	No	Initiates the Data or Ledger Loader rule creation process
(Rule) Name	Display Value	N/A	N/A	No	Mouseover shows the rule description and in some cases also displays the unique system id number.
Created By	Display Value	N/A	N/A	No	Who created the Rule version.
Creation Date	Display Value	N/A	N/A	No	When was the rule created.
Last Modified By	Display Value	N/A	N/A	No	Who last modified the rule.
Last Modified Date	Display Value	N/A	N/A	No	When the rule was last modified.
View	Icon	N/A	N/A	N/A	Opens the selected rule in read only mode.
Edit	Icon	N/A	N/A	N/A	Opens the selected rule in edit mode.
Delete	Icon	N/A	N/A	N/A	Deletes the selected Rule.
Copy	Icon	N/A	N/A	N/A	Initiates process for copying rules. Explained later in this document.
Run	Button	N/A	N/A	N/A	Initiates process for running Rules. Explained later in this document.
Pagination Options	Icon	Set in Global Preferences	N/A	N/A	Indicates the number of rows to display per page in the summary table.

Searching for Rules

Search for a business rule to perform any of the following tasks:

- Update, Copy, delete or run existing rules
- Define methodologies for products or define other processing assumptions

Procedure

1. Navigate to the rule summary page for the appropriate rule type.
2. Search for the rule, as follows:
   - Select the folder in which the rule is stored.
   - (Optional) Enter the name of the rule.
   - Click Search.

Only rules that match the search criteria are displayed.

Creating Rules

You create a rule to specify the way you want a particular task or business process to be carried out by the application. Creating a rule is a process, in which you specify the properties for the rule itself.

Procedure to Create a Rule

1. Navigate to the summary page of the rule you want to create.
2. Click Add to display the rule definition page.
3. Enter a name for the rule.

   Tip: The name of a rule must be unique within the selected folder for each rule type.
4. Select the folder in which you want to store the rule.
5. (Optional) Enter a description for the rule.
6. Select the required access for other users.
7. Click Apply or Save, depending on the rule type.
8. Specify any other properties or options that may apply for the rule that you are creating.

Viewing and Editing Rules

You can view existing rules, and you can edit existing rules, provided you have read / write privileges.

Procedure

1. Navigate to the summary page of the rule you want to update.
2. Search for a rule.
3. Select the appropriate rule and click Edit to open the rule you want to update.

Procedure to Update a Rule

1. Update the Name or Description.
2. Click Apply or Save, depending on the rule type.

Copying Rules

You can copy rules to avoid having to enter data multiple times. This saves time and effort and also reduces mistakes.

Procedure

1. Navigate to the summary page of the rule you want to copy.
2. Search for a rule.
3. Select the appropriate rule and click Copy corresponding to the rule that you want to duplicate.
4. Select a folder.

5. Enter a unique name for the new rule.
6. (Optional) Enter a brief description for the rule.
7. Select the access type.
8. Click Save.

Deleting Rules

You can delete rules that are no longer needed.

Caution: Once deleted, a rule cannot be retrieved.

Restrictions on deleting rules are:

- You cannot delete rules if you have only Read privileges. Only users with read/write privilege and rule owners can delete rules.
- You cannot delete a rule that has dependency.

Procedure

1. Navigate to the summary page of the rule you want to delete.
2. Search for a rule.
3. Select the appropriate rule and click the Delete icon.

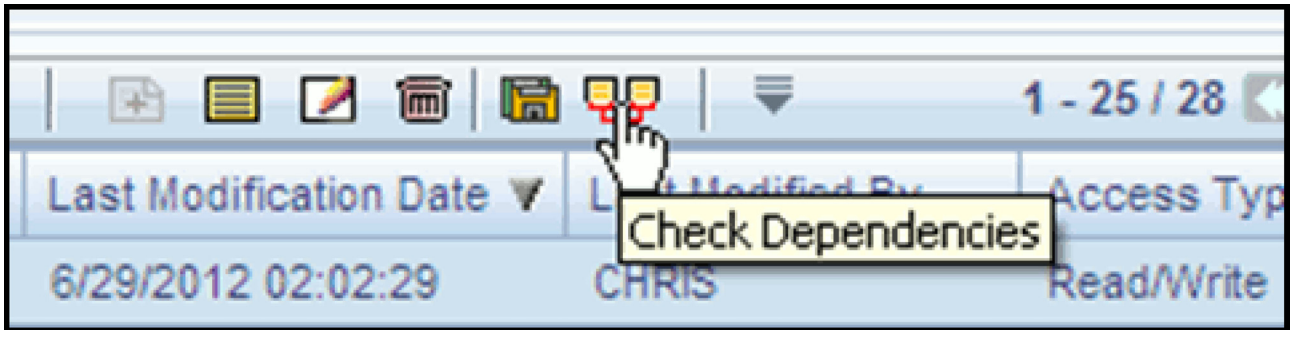
Dependency Checking

You can check dependencies for rules to know where a particular rule, dimension, member, attribute, IRC has been used. Also, this prevents accidental deletion of rules having dependencies.

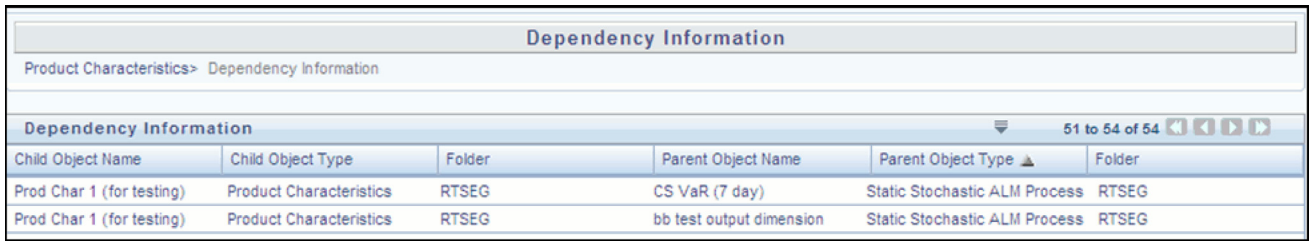
Procedure

1. Navigate to the summary page of the rule you want to check dependencies.
2. Search for a rule.
3. Select the appropriate rule(s) and click check dependencies corresponding to the rule that you want to check for.

   Note: You can select more than one rule at a time to check dependencies.



4. The Dependency Information window opens containing the following information: Child object Name, Child Object Type, Folder, Parent Object Name, Parent Object Type, Folder.



If a Product Characteristics rule 'A' which has been used in a static deterministic process 'P' is checked for dependencies, then the following information is displayed in the Dependency Information window.

Child object Name –A

Child Object Type – Product Characteristics

Folder – The folder name in which A resides

Parent Object Name - P

Parent Object Type – Static Deterministic Process

Folder - The folder name in which P resides

Caution: You cannot delete a child object which has dependencies. You will get a message: Dependencies found. Cannot delete.

In order to delete the child, you must first delete the outermost parent object which uses the child.

CHAPTER 16 Application Preferences

This chapter discusses the Procedure for defining and maintaining your FTP Application Preference settings.

This chapter covers the following topics:

Overview of FTP Application Preferences

Updating FTP Application Preferences

Overview of FTP Application Preferences

Application Preferences allow both Administrators and End Users to establish default values and to manage other core application parameters that affect the way business rules are created and the way Transfer Pricing Processes are run.

The procedure for working with and managing Application Preferences includes the following steps:

Updating FTP Application Preferences.

Related Topics

Overview of OFSAA Infrastructure > Application Preferences

Updating FTP Application Preferences

Updating FTP Application Preferences is a one-step process. You navigate to the Application Preferences screen and you define your Preferences.

Procedure

This table describes key terms used for this procedure.

Selected Terminology

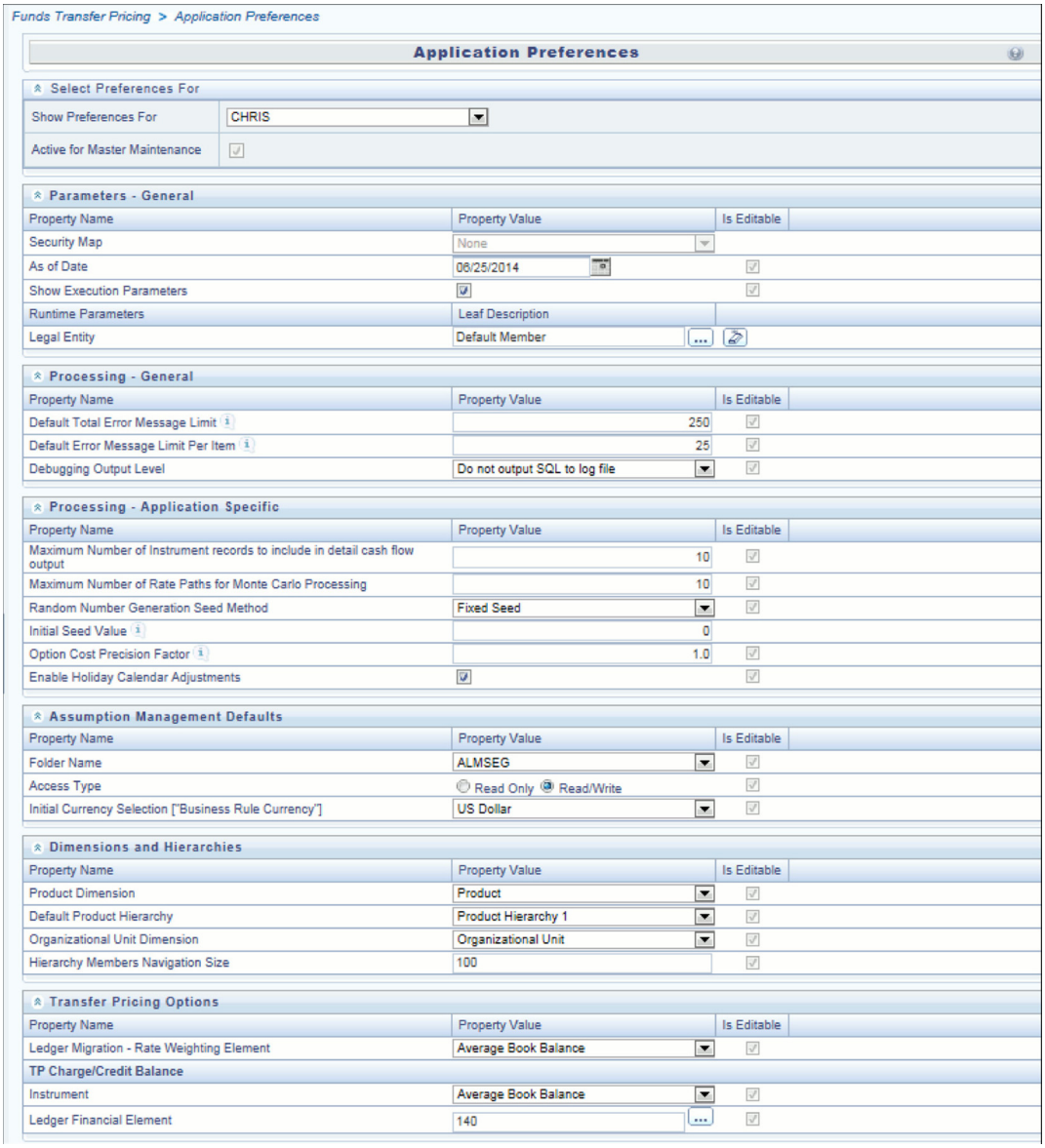
Term	Description
Show Preferences For	There are two modes in which you can access Application Preferences: **Administrator**: If the user has Administrator privileges, he can define preferences for the “All User” group and for his own personal account, which may be the same or different from the “All User” settings. The Administrator can also designate the “All User” preferences as Editable or Non-editable on a row by row basis. If the individual preference is checked as “ Is Editable”, then End Users can update or override the Administrator’s default value for their own individual account. If the “is editable” box is not checked, then End Users are not able to change the default for their own account. **End User**: If the user does not have administrator privileges, then certain preference items may have been pre-set by the administrator and the user may not be allowed to change the value. All Application Preference settings are displayed, regardless of access privilege.

Active for Master Maintenance	If a user has more than one application available on their Left Hand menu, then they will need to designate Application Preferences from one of their applications as “Active for Master Maintenance”. Certain preferences such as the default folder and read / write access setting will be referenced by items within Master Maintenance based on this selection.
Security Map	This option allows you to select an existing security map. Security Maps can be used to control the dimensions and dimension members each user can access when building and executing rules. For more information on Security Mapping, refer to *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) User Guide Release 8.0*.
As of Date	All processes reference this date at run time to determine the data to include in the process. The As-of-Date value you set in Application Preferences applies to interactive job execution (i.e., when you choose to execute a process directly from a Summary screen). For batch processing, the As-of-Date is an input parameter.
Show Execution Parameters	If this option is selected, a pop-up window appears whenever you execute a process interactively from a Summary screen. Within this pop-up window, you may confirm or modify your run execution parameters (As-of-Date and Legal Entity).
Legal Entity	Similar to As-of-Date, all processes reference Legal Entity at run time to determine the data to include in the process. The value of Legal Entity you set in Application Preferences applies to interactive job execution (i.e., when you choose to execute a process directly from a Summary screen). For batch processing, Legal Entity is an input parameter. **Note:** Legal Entity is designed to support implementations that require multi-entity or multi-tenant functionality. If your implementation does not require this functionality, you may utilize the Default Legal Entity in all your processes. No additional parameter is required for Legal Entity for command line execution. EPM Engines read the default Legal Entity from the Application preference value saved for the User who is executing from command line. The default legal entity is a per user preference setting. To set this, the following steps are required: 1. Create a security-map in AAI containing the legal-entity hierarchy as an app-admin. 2. Set the default security-map in a user preferences. 3. Navigate to "execution parameters" block in user-preferences and choose the default legal-entity member. If you do not want to use the Multi-Entity feature with Security, you need to save the Application preference for the user executing the batch. The usual choice for Legal Entity would be Default Member in Application preferences.
Default Total Error Message Limit	Transfer Pricing Processes log error details into the FSI_PROCESS_ERRORS table. This parameter defines the limit on the total number of errors that will be logged for any TP Process.
Default Error Message Limit Per Item	This parameter defines the total number of errors that will be logged for a given type of error.

Debugging Output Level	The debugging output level determines the amount of sql that will be written to the processing log. There are three levels available: **Do not output SQL:** A log file will not be created. **Output Significant Calculation SQL**: Log file is created and will contain those SQLs that are tagged as significant. **Output All SQL:** Log file is created and will contain all the SQL that the engines execute. The log files can be accessed by the system administrator in the following location on the server: **$FIC_HOME/ficdb/log/FusionApps/ folder** The file names will be prefixed with the application initials and will also contain the unique batch run id of the execution request. for example: **ofstp.<batch-run-id>.log**
Maximum Number of Instrument Records to Include in Detail Cash Flow Output	This parameter allows administrators to define the maximum number of instrument records that any user can select within a process for outputting detailed cash flows. In Funds Transfer Pricing, the maximum value is 10,000. It is recommended however, that this value be set to 100 or less.
Maximum Number of Rate Paths for Monte Carlo Processing	This parameter allows administrators to limit the number of rate paths that can be selected by a user when running a monte carlo based process. The maximum value is 2,000.
Random Number Generation Seed Method	Determines the type of random number generation seed method for Monte Carlo processing. Selections include Fixed Seed (default) and Variable Seed.
Initial Seed Value	The Initial seed value input is available when the Seed Value Method is Fixed Seed. The default value is zero.
Option Cost Precision Factor	The Option Cost calculator - Static Spread value is calculated using the Newton-Raphson algorithm. Users can control the convergence speed of the algorithm by adjusting this value. Precision increases as this value decreases, but processing time also increases as the value decreases. The default value is one.
Enable Holiday Calendar Adjustments	Select this option to enable the Holiday Calendar Adjustment capability for the FTP Application. If this option is not selected, the TP Engine will ignore all Holiday Calendar information, including instrument level inputs and assumption rule level inputs. Logic for applying Holiday Calendar assumptions is as follows: If Application Preferences – ‘Enable Holiday Calendar Adjustments’ checkbox is on, then the CFE will handle these Holiday Calendar assumptions based on the Account Level values first. If Application Preferences – ‘Enable Holiday Calendar Adjustments’ checkbox is on, and if Holiday Calendar inputs are not defined at the Account Level, then the CFE will refer to the Product/Currency assumptions (TP rule and Adjustment rule). If Application Preferences – ‘Enable Holiday Calendar Adjustments’ checkbox is on, and if Holiday Calendar inputs defined at the Account Level AND Product/Currency Assumption level, then the CFE will refer to the Account level inputs. If Application Preferences – ‘Enable Holiday Calendar Adjustments’ checkbox is off, then no Holiday Calendar assumptions will be applied.
Folder Name	This parameter allows you to define the default folder selection. The folder selection for all rule types will be defaulted to this selection within the summary page search screen and when creating a new rule. This selection acts as the starting value for convenience only and users can change to any other available value at their discretion.

Access Type	This parameter allows you to set the default access type setting. Selections include Read / Write and Read Only. This selection acts as the starting value for convenience only and users can change at their discretion.
Initial Currency Selection (“Business Rule Currency”)	This parameter allows you to select the starting currency to be displayed within all business rules. This selection is made for convenience and can be changed within all business rules at the user's discretion.
Product Dimension	Transfer Pricing requires users to declare one of the “Product” dimensions as the TP Product dimension. The model is seeded with 3 possible selections: Product Common COA GL Account Users can also add user defined product dimensions, which would also appear in the above list. Transfer Pricing business rules are based on the Product dimension selected here. The suggested default is the “Product” dimension.
Default Product Hierarchy	The list of values for Default Product Hierarchy is based on the Default Product Dimension selection. The hierarchy selected here will be the default hierarchy selection in all business rules that support node level assumptions. This selection acts as the starting value for convenience only and users can change at their discretion within each business rule.
Organizational Unit Dimension	Reserved for future release.
Hierarchy Members Navigation Size	This parameter allows you to specify the maximum number of members that a parent node within a Hierarchy or Assumption Browser can show at a given time. When you expand a branch in a Hierarchy or Assumption Browser and the number of members in that branch exceed the specified Navigation Size, it will provide "More" and "Previous" options to enable you to navigate through the member list. **Note:** Recommended values for Navigation Size are 50 to 100. Higher value settings could impact screen refresh performance. The UI allows you to enter a value up to 10000.
Ledger Migration – Rate Weighting Element	Select the instrument table balance to use for weighting the rates during the migration process. Following options are available: Average Book Balance, Ending Book Balance, or Custom Balance. If “Custom Balance” is selected, the user is presented with a list of Balance type columns to use as the weighting element. The list of available “Custom Balance” columns is read from the “Portfolio” table classification list.
TP Charge / Credit Balance	Select the Balance to use for calculating the Charge/Credit amount. Select from Ending Book Balance or Average Book Balance when using the "Ledger" based migration option. For calculating instrument level charge/credit amounts, you may also choose the Custom Balance option. The formula used is: Rate x TP Charge / Credit Balance x Accrual Basis Available selections include Ending Balance, Average Balance and Custom Balance. If Custom Balance is selected, the user is presented with a list of Balance type columns to choose from. The list of available “Custom Balance” columns is read from the “Portfolio” table classification list. **Note:** The user should be aware of the Transfer Pricing Migration methodology being used before making this selection. The **custom balance** option only applies to the Instrument Charge / Credit method and does not apply to Ledger Migration.

1. Navigate to the FTP Application Preferences page.



2. Input values for all line items.
3. **Note:** If you are the application administrator define default values for the "All User" group by making the appropriate selection from the drop list at the top of the page. Pay particular attention to the "Is Editable" status and determine which items require administrative control and which items non-administrative users will be able to set for themselves.
4. Select Apply to confirm changes.

CHAPTER 17 Cash Flow Edits

This module discusses the procedure for validating and cleansing your Instrument table data before you process it to generate cash flow based results.

This chapter covers the following topics:

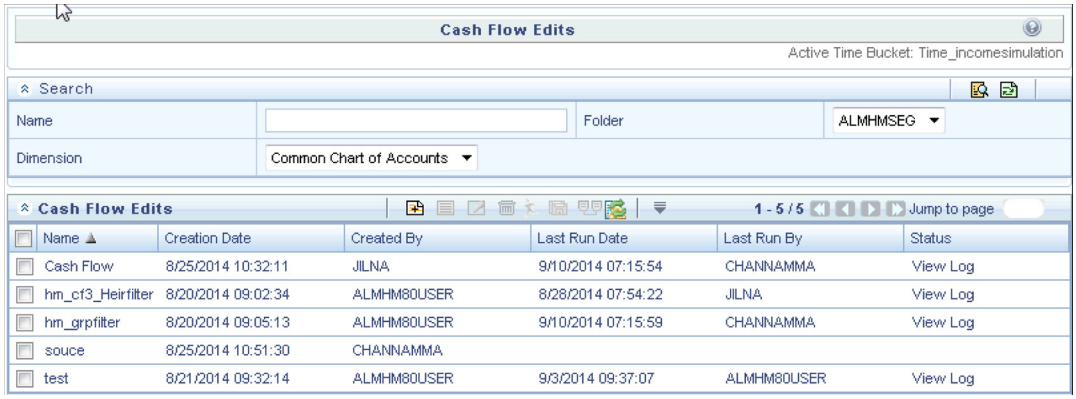
- Overview of Cash Flow Edit Processes
- Creating Cash Flow Edit Processes
- Executing Cash Flow Edit Processes

Overview of Cash Flow Edit Processes

Cash Flow Edit processes allow you to verify the accuracy and check the completeness of your Instrument table data.

The procedure for working with and managing a Cash Flow Edit process is similar to that of other Oracle Funds Transfer Pricing and Oracle Asset Liability Management Processes. It includes the following steps:

- Searching for Cash Flow Edit processes.
- Viewing and Updating Cash Flow Edit processes.
- Copying Cash Flow Edit processes.
- Deleting Cash Flow Edit processes.
- Check Dependencies in the Cash Flow Edit processes.
- Refresh the Cash Flow Edit summary page.



Ideally, you should create and run Cash flow Edit Processes on your Instrument table data before you submit cash flow engine based rules for processing. See:

Creating Cash Flow Edit Processes

Executing Cash Flow Edit Processes

Related Topics

Cash Flow Edit Logic, *Oracle Financial Services Cash Flow Engine Reference Guide*

Creating Cash Flow Edit Processes

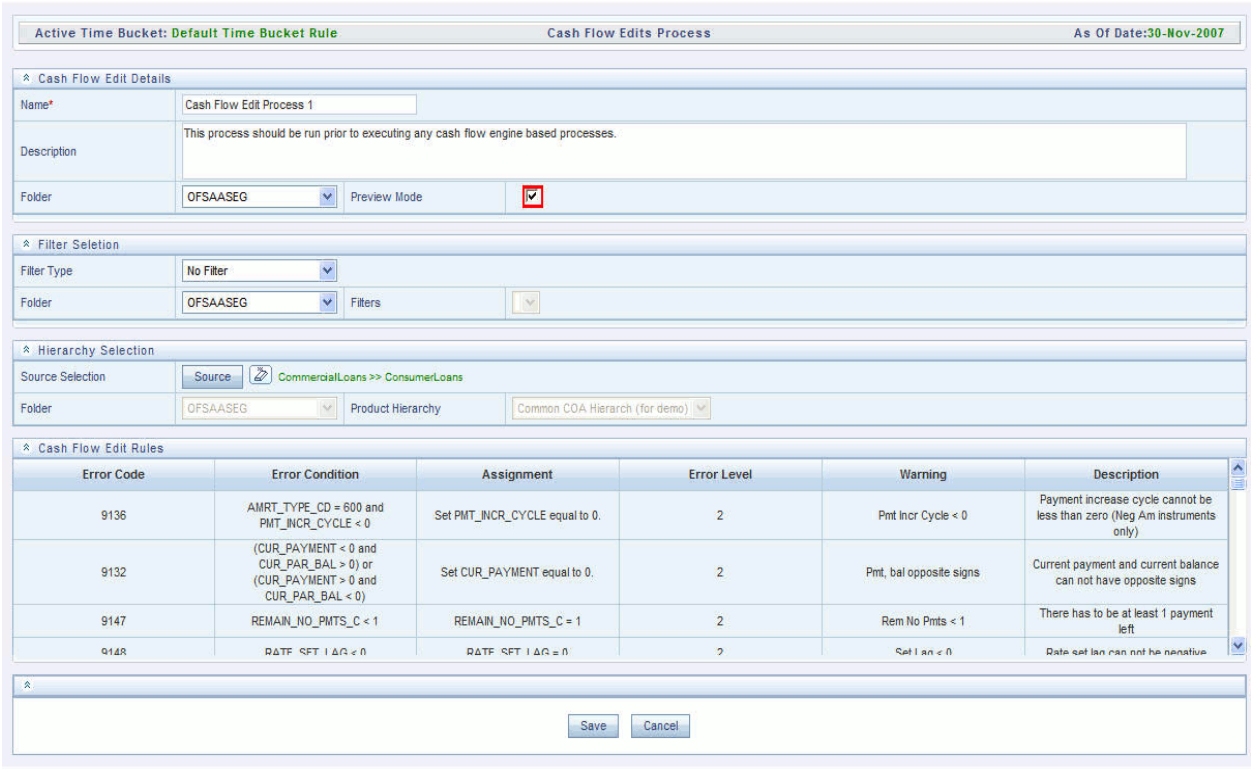
Creating a Cash Flow Edit process is a one-step process. You define both the attributes that uniquely describe a particular Cash Flow Edit process and the data to be validated or cleansed by that process on the Create Cash Flow Edit process page.

Procedure

This table describes key terms used for this procedure.

Term	Description
Filters	One of the two components that determine the data that will be cleansed by Cash Flow Edit processes. This field allows you to select a subset of data for processing by selecting a Filter that was previously created. Its default value is "No Filter".
Source Selection	One of the two components that determine the data that will be cleansed by Cash Flow Edit processes. This field allows you to select the Instrument tables that need to be included in a Cash Flow Edit process. Alternatively, you can select a hierarchy and then select the desired product members that will be included in the process. Note that the Source selection and Hierarchy selection options are mutually exclusive. You can define your dataset by selecting one or the other, but not a combination of both.
Preview Mode	Selecting this check box allows you to view the results of running a Cash Flow Edit process before the system updates the underlying records in the Instrument tables. The default value is checked.
Source Selection: Available Tables	When the "Source Selection" option is made, you are presented with two Shuttle Control windows which contain the names of the Instrument Tables available for inclusion during a Cash Flow Edit process.
Source Selection: Selected Tables	One of the two Shuttle Control windows, it contains the names of the tables that have already been selected for processing by the Cash Flow Edit process.
Cash Flow Edit Rules	The Cash Flow Edit Rule section provides a summary of all seeded cash flow edit rules. Users can refer to this list to understand the validations that are applied to the cash flow fields on the instrument records and also view the default values that are applied when errors are found.

1. Navigate to the Cash Flow Edits summary page.
2. Click Add. The Create Cash Flow Edits Process page is displayed.



Complete standard steps for this procedure. See: *Creating Rules,* on page 169

Note: At this point, you can input the components to ensure that the data processed by Cash Flow Edits will be clean. If you save the Rule without selecting Instrument tables or selecting product members from the hierarchy, the Process will be saved but no data would be selected for cleansing.

3. (Optional) Select a Filter.
4. Select the Instrument tables or use a hierarchy to make Product member selections.

   Note: Use the Source Selection: Shuttle Control to select the Instrument tables that you want to include in the Cash Flow Edit process. You can move Instrument tables from Available Tables into Selected Tables and vice versa by using Move, Move All, Remove, and Remove All. These tables can also be reordered to change the order of processing.

   Initially, the selected tables list is empty. However, during subsequent runs, the selected tables list retains the names of the tables that you selected previously. For example, if you select two tables and save the Cash Flow Edits Process, the system shows them the next time you open the rule.

   A table name shown in the Selected Tables list does not appear in the Available Tables.
5. Click Save. The Cash Flow Edits process is saved and the summary page is displayed.

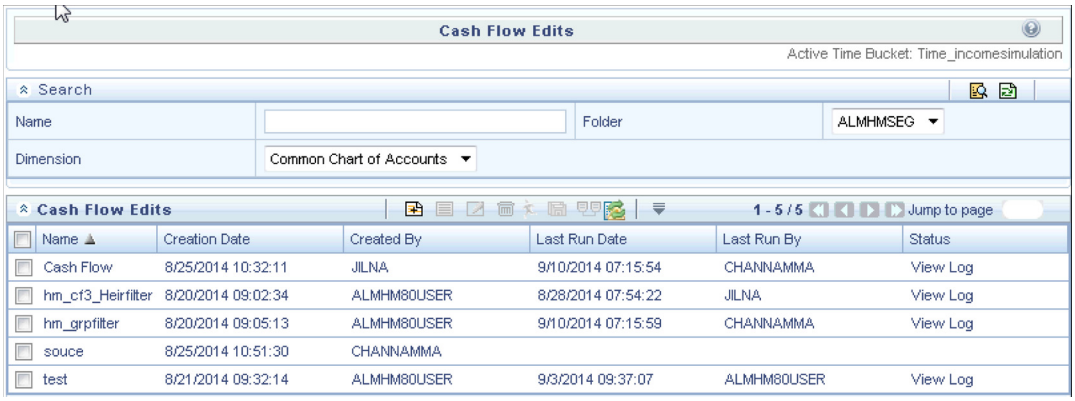
Executing Cash Flow Edit Processes

You execute a Cash Flow Edit process to check the accuracy and the completeness of your Instrument table data. When you run in Preview mode, you can view the results of running a Cash Flow Edits process by querying the

FSI_PROCESS_ERRORS table for generated errors before the system updates the underlying records in the Instrument tables.

Prerequisites

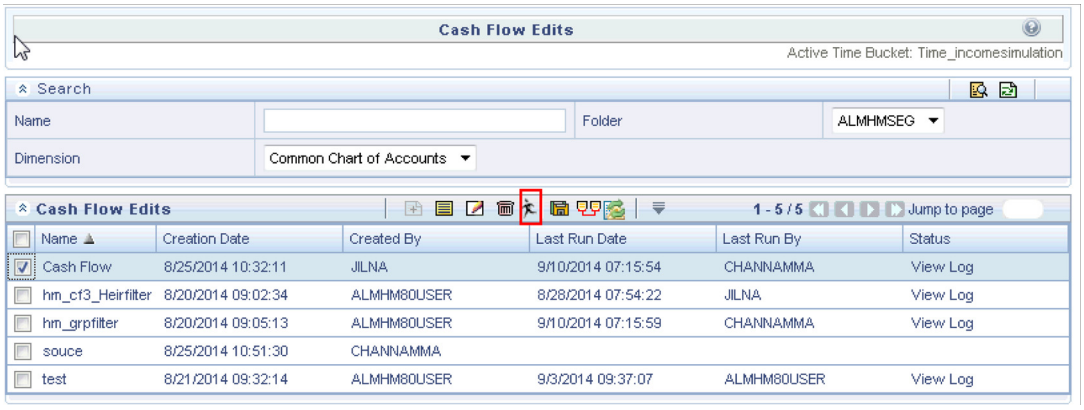
Predefined Rules



Procedure

1. Navigate to the Cash Flow Edits summary page.
2. Search for a rule.
3. Select a rule and Click the **Run** icon to execute the selected process. The Cash Flow Edits run confirmation page is displayed.

Note: You can view the results of running a Cash Flow Edits rule before the system updates the underlying records in the Instrument tables, provided you selected Preview Mode while defining it. If run in Preview Mode, query the FSI_PROCESS_ERRORS table for any generated errors.



Related Topics

Overview of Cash Flow Edit Processes

CHAPTER 18 User Defined Behavior Patterns

This chapter describes the procedure for defining principal flows through Behavior Patterns, for instruments that do not have contractual amortization schedules.

This chapter covers the following topics:

- Overview of User Defined Behavior Patterns
- Searching for Behavior Patterns
- Creating Behavior Patterns

Overview of User Defined Behavior Patterns

User defined behavior patterns allow you to define principal amortization schedules and replicating portfolio characteristics for non-maturity products in your portfolio. You can utilize a behavior pattern while generating cash flows (for use in ALM and Liquidity Risk Management) by entering the behavior pattern code as the amortization type code (AMRT_TYPE_CD) for the relevant instrument records. In Funds Transfer Pricing, for certain TP Methods, you can select a Behavior Pattern to support your Transfer Pricing assumptions.

In many cases, particularly for ALM processing, the "non-maturity" instruments will be aggregated or summarized balances.

The Behavior Pattern codes can range from 70000 to 99999.

Creating Behavior Patterns

Note: Depending on the Transfer Pricing method, the Behavior Pattern mapped to the individual instrument records (amrt_type_cd), may or may not be used. For cash flow TP methods, the engine will read the Behavior Pattern from the instrument record. For Tractor, Caterpillar and Weighted Average Perpetual methods, the Behavior Pattern is assigned directly within the TP Rule at a Product / Currency level and hence, the TP engine will not refer to the Behavior Pattern assigned to the individual instrument records for these methods.

The procedure for working with and managing Behavior Patterns is similar to that of other Oracle Funds Transfer Pricing assumption rules. It includes the following steps:

Searching for Behavior Pattern

Creating Behavior Pattern

Viewing and Editing Behavior Patterns.

Copying Behavior Patterns.

Deleting Behavior Patterns.

Searching for Behavior Patterns

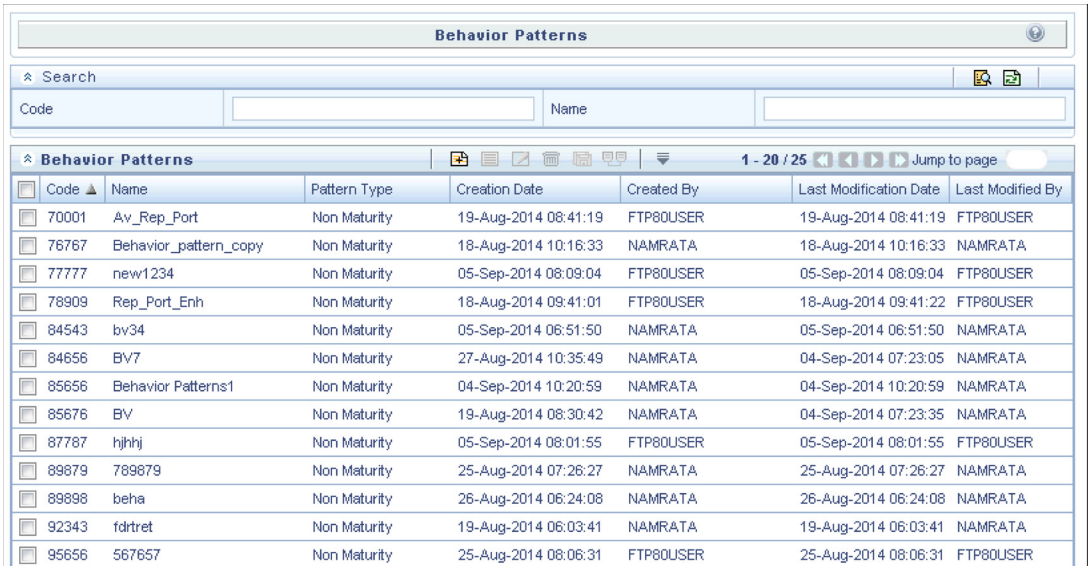
Search for a behavior pattern to perform any of the following tasks:

- View

- Edit
- Copy
- Delete
- Check Dependencies

Prerequisites

- Predefined behavior patterns



Code	Name	Pattern Type	Creation Date	Created By	Last Modification Date	Last Modified By
70001	Av_Rep_Port	Non Maturity	19-Aug-2014 08:41:19	FTP80USER	19-Aug-2014 08:41:19	FTP80USER
76767	Behavior_pattern_copy	Non Maturity	18-Aug-2014 10:16:33	NAMRATA	18-Aug-2014 10:16:33	NAMRATA
77777	new1234	Non Maturity	05-Sep-2014 08:09:04	FTP80USER	05-Sep-2014 08:09:04	FTP80USER
78909	Rep_Port_Enh	Non Maturity	18-Aug-2014 09:41:01	FTP80USER	18-Aug-2014 09:41:22	FTP80USER
84543	bv34	Non Maturity	05-Sep-2014 06:51:50	NAMRATA	05-Sep-2014 06:51:50	NAMRATA
84656	BV7	Non Maturity	27-Aug-2014 10:35:49	NAMRATA	04-Sep-2014 07:23:05	NAMRATA
85656	Behavior Patterns1	Non Maturity	04-Sep-2014 10:20:59	NAMRATA	04-Sep-2014 10:20:59	NAMRATA
85676	BV	Non Maturity	19-Aug-2014 08:30:42	NAMRATA	04-Sep-2014 07:23:35	NAMRATA
87787	hjhhj	Non Maturity	05-Sep-2014 08:01:55	FTP80USER	05-Sep-2014 08:01:55	FTP80USER
89879	789879	Non Maturity	25-Aug-2014 07:26:27	NAMRATA	25-Aug-2014 07:26:27	NAMRATA
89898	beha	Non Maturity	26-Aug-2014 06:24:08	NAMRATA	26-Aug-2014 06:24:08	NAMRATA
92343	fdrtret	Non Maturity	19-Aug-2014 06:03:41	NAMRATA	19-Aug-2014 06:03:41	NAMRATA
95656	567657	Non Maturity	25-Aug-2014 08:06:31	FTP80USER	25-Aug-2014 08:06:31	FTP80USER

Procedure:

Navigate to the Behavior Pattern summary page. This page is the gateway to all behavior patterns and related functionality. You can navigate to other pages relating to behavior patterns from this page.

Enter the Search criteria

Enter the code or name of the Pattern.

Click the Search icon.

Only patterns that match the search criteria are displayed.

Note: You can control the number of rows to display on screen by selecting the "Pagination Options" icon from the action bar

Related Topics

Defining Behavior Patterns

Overview of User Defined Behavior Patterns

Standard Navigation Paths

Creating Behavior Patterns

You create behavior patterns to capture the principal run-off behavior of product types that do not have contractual maturities.

Procedure:

1. Navigate to the Behavior Pattern summary page.
2. Click Add Behavior Pattern.
3. The Behavior Pattern details page is displayed.
4. Enter a code value for the new behavior pattern.
   Note: The code, also known as an amortization type code, is a numeric identifier for the behavior pattern. The code value must be a number between 70000 and 99999. The code value you assign to the new pattern must be unique. In addition, the code must be mapped to the appropriate instrument records, (AMRT_TYPE_CD field) to connect the instrument to the appropriate pattern.
5. Enter the name and a brief description for the pattern.
6. Select the Behavior Pattern Type: Non Maturity, Non Performing, Devolvement and Recovery.
   Note: The Replicating Portfolio option is enabled only for the Non Maturity Behavior Pattern. This option should be selected only when defining a Behavior Pattern for use in Funds Transfer Pricing – Tractor TP Method. Replicating Portfolio Behavior Pattern codes should not be mapped to instrument records (amrt_type_cd) and will not be available for selection in any UI other than Tractor TP Method.

7. Define the Behavior Pattern Term Specifications for maturity tranches.
8. The selection of the Behavior Pattern type made in the previous step determines the information you must provide to successfully define that pattern type. See:

   Defining Non Maturity Behavior Patterns (for non-Tractor TP Method use)

   Defining Non Maturity Behavior Patterns (for Tractor TP Method use)

   Defining Non Performing Behavior Patterns

Note: The Behavior Pattern details page above, displays the specifications associated with the Non Maturity Pattern Type. Should you change this value for one of the other two alternatives, Non Performing or Devolvement and Recovery, the system will refresh the payment specifications section corresponding to the new Pattern Type. Although you can change your selection of the Pattern Type at any point in this procedure, sometimes this might result in loss of data related to any prior selection.

Related Topics

Defining Behavior Patterns

Overview of User Defined Behavior Patterns

Standard Navigation Paths

Defining Non Maturity Behavior Patterns (for non-Tractor TP Method use)

Non Maturity behavior patterns are commonly used for deposit products like checking, savings and money market accounts as well as for credit card accounts. These account types are similar in that they do not have contractual cash flows because customers have the option to deposit or withdraw any amount at any time (up to any established limits).

When working with non maturity behavior patterns, your percentage weights, assigned to maturity terms must add up to 100%.

Prerequisites

Select Non Maturity as the Behavior Pattern Type.

Procedure:

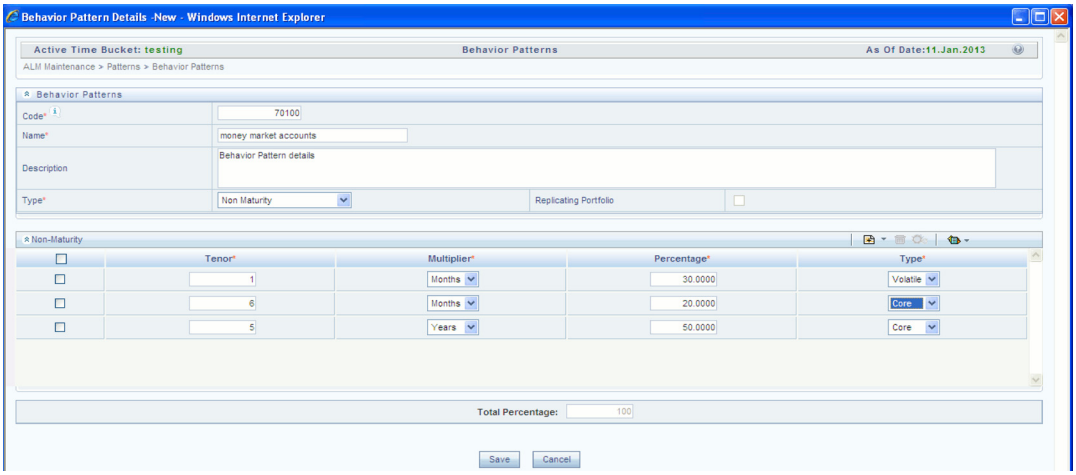
This table describes key terms used for this procedure.

Term	Description
Tenor	Used to specify the maturity term for the particular row. E.g. if “1 Day” is defined, then the applicable percentage of the balance will runoff (mature) on the As of Date + 1 Day.
Multiplier	The unit of time applied to the Tenor. The choices are: Days Months Years
Percentage	The relative amount of the principal balance that will mature on the date specified by the Tenor + Multiplier. The percentage amounts must add to 100%.
Type	Allows you to classify the runoff based on the appropriate type.
Add	Used to add one or more rows
Delete	Used to delete one or more rows

1. Define the maturity tenor and multiplier for the first maturity strip. The first strip usually represents non-core or “volatile” funds and typically has a very short maturity, such as “1 Day”.
2. Select the Percentage to apply to the outstanding balance indicating how much of the outstanding balance will mature on the specified term.
3. Select the Runoff Type as Core or Volatile.

   Note: There is no difference in behavior from a cash flow perspective, but the runoff amount will be written to a principal runoff financial element corresponding to the selected Runoff Type.

4. Click the Add icon to add additional payment strips to the Pattern. After defining the initial strip as Volatile, subsequent strips are typically classified as Core with varying maturity terms assigned.
5. To delete a row, select the check box corresponding to the row you want to remove and click the Delete icon.
6. Click Save.



7. The Behavior Pattern is saved and the Behavior Pattern summary page is displayed.

Related Topics

Defining Behavior Patterns

Creating Behavior Patterns

Defining Non Maturity Behavior Patterns (for Tractor TP Method use)

The Tractor Transfer Pricing Method, utilizes a replicating portfolio concept. Replicating Portfolio's are a special type of Non-Maturity Behavior Pattern and are created and managed through the Non-Maturity Behavior Pattern UI.

Through the replicating portfolio UI, users can define one or more core balance amounts. Users assign a term to each core and generate balance strips at any granularity (e.g. typically daily or monthly, depending on the frequency of the transfer pricing process). To maintain the portfolio over time, users must roll and re-balance the portfolio to update the volatile plug amount and if needed re-balance the core amount.

Prerequisites

Select Non Maturity as the Behavior Pattern Type and then check the Replicating Portfolio checkbox.

Procedure:

This table describes key terms used for this procedure.

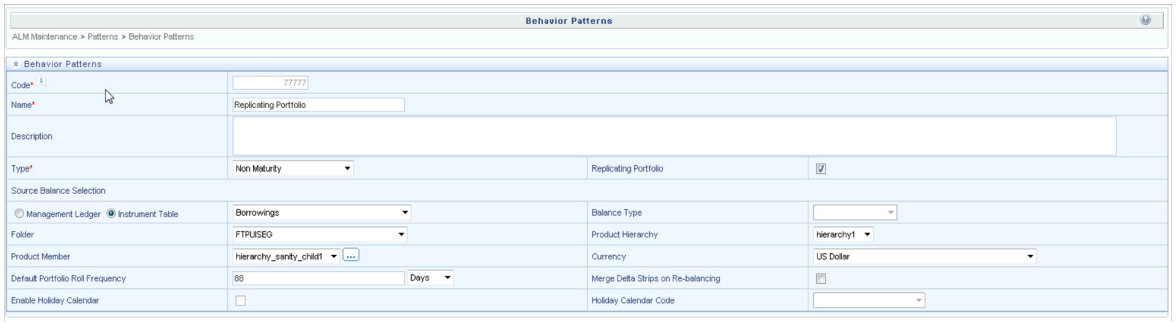
Term	Description
Core Allocation Input	This drop-down is a mandatory selection. The drop-down values are Amount and Percentage.

Core Allocation	The amount that is apportioned to each core. The Allocation amount in absolute or percentage for each strip is automatically determined (when Strip Tenor is "Days", or "Months") by evenly spreading the defined Core Amount across the number of strips for the portfolio. When Strip Tenor is "At Maturity", the entire amount is placed at the maximum term, determined by the inputs for "Term " and "Multiplier". If the user selects 'Amount' in the Core Allocation Input drop-down , then the 'Core Allocation' text box accepts values from 0.0000 to 9,999,999,999.9999. If the user selects 'Percentage' in the Core Allocation Input drop-down , then the 'Core Allocation' text box accepts only a percentage value between 0.0000 and 100.0000.
Tenor	Used to specify the maturity term for the portfolio. This term defines the maximum term for the initial strip balance and the rollover term for each rollover strip. When you manually select or schedule the replicating portfolio process, the Org term of the volatile strip is calculated. Replicating Portfolio generates the volatile strips that sets the ORG_TERM equal to the Period between Maturity date and Origination date.
Multiplier	The unit of time applied to the Tenor. The choices are: Days Months Years
Type	For replicating portfolio, type is defaulted to core. The Volatile strip is generated automatically as a reconciling plug entry to balance the portfolio. The term of the plug entry is defaulted to 1 Day, unless a holiday calendar is used, in which case the volatile amount maturity can be extended to the next business day.
Strip Tenor	Indicates the frequency of the strips generated for the portfolio. Available options are "Days", "Months" or "At Maturity". For example, if "Days" is selected, strips will be generated for each day from the as-of-date to the maturity term. If "At Maturity" is selected, a single strip will be generated and the balance will be placed at the maturity term.
Source Balance Selection	The source balance selection allows the user to define the source Instrument Table (or Ledger Table) and product / currency against which the core balance will be reconciled. The difference between the core balance and the actual instrument balance will determine the amount of the Volatile Plug strip for the current period.
Balance Type	The Balance type allows you to select the type of the Balance. It can be either Average Balance or Ending Balance. This option will be enable if the Source Balance is selected as "Management Ledger".
Enable Holiday Calendar	Replicating Portfolio's allow users to enable a holiday calendar. If this option is selected, portfolio strips will not be generated on weekends or holidays. In addition, during rollover of maturing strips new maturity dates will be adjusted to ensure maturities fall only on working days.
Holiday Calendar Code	The holiday calendar code allows users to select the applicable holiday calendar.
Holiday Calendar Rolling Convention	The rolling convention within replicating portfolios is defaulted to next business day. Related to this method is an additional date adjustment to ensure that only one core strip falls on a single date. We refer to this secondary adjustment as an exclusive business day convention.
Default Portfolio Roll Frequency	The default portfolio roll frequency option allows you to set default rolling frequency of replicating portfolio.
Merge Delta Strips on Re-balancing	If Merge Delta Strips on Re-balancing option is enabled, then the core strips will be merged during the rebalancing.

Generate the Portfolio	After initially creating (and saving) the replicating portfolio definition, users should Generate the Portfolio. This action launches a background process which generates the strip records for the portfolio. Prior to running this process be mindful of the As-of-date defined in your Application Preferences, as this date will be used as the initial Origination Date for the newly created strips. If % is selected as the Core Allocation Input type, the procedure will read the current period balance (CUR_BOOK_BAL or Ending Balance), for the selected "Product Member" (from Source Balance selection) and determine the Required Core Amount based on the resulting Balance x Core %. This applies to both Management Ledger (Ending Balance) and Instrument table (CUR_BOOK_BAL).
Roll the Portfolio	Each period (day or month), users will need to roll the portfolio forward. The new as-of-date for the portfolio will be determined based on the existing as-of-date plus the default roll frequency. As a general rule, users should update their as-of-date in application preferences prior to running the Roll Portfolio Process.
Re-balance the Portfolio	After rolling the portfolio, users will need to re-balance the portfolio. There are two options provided for re-balancing: **Plug to Volatile Strip.** This option should be selected when no changes to the core allocation have been made. This process will compare the current period source balance with the current portfolio strip balance. The difference will be posted to the new volatile strip. **Note:** The "Plug to Volatile Strip" Re-balance method will not be relevant when the Core input type is % as the portfolio balance will change with every new as-of-date and new balancing / delta strips will be required to re-balance the portfolio. **Rebalance Core Strips.** This option should be selected only when users have modified the Core Allocation or when the Core input type is %. If the Core Allocation has increased or decreased, balancing strips will be generated for each tenor to bring the core strip balance back in line with the Core Allocation Balance. This process will additionally run the Plug to Volatile process to create the plug strip.
View the Portfolio	This option allows you to view the portfolio strips.

1. Make your required selections in the Source Balance Selection section.
2. Enter the Portfolio Default Roll Frequency.
3. Optionally select Enable Holiday Calendar and select the Holiday Calendar Code. This is to ensure that maturity dates of the Replicating Portfolio strips are not falling on holidays or weekends.

   Note: The Rolling Convention is defaulted to Exclusive Next Business Day. This method ensures that no two strips will fall on the same day.
4. Click Add Core (one or more) to input the core amount, associated maturity term and strip frequency.
5. To delete a row, select the check box corresponding to the row you want to remove and click the Delete icon.
6. Click Save.



7. The Behavior Pattern is saved and the Behavior Pattern summary page is displayed.
8. Return to the Behavior Pattern / Replicating Portfolio in EDIT mode and execute the portfolio maintenance activities, including:

- Generate Portfolio
- Roll Portfolio
- Rebalance Portfolio
- View Portfolio

Note: Once the Replicating Portfolio is generated and the volatile plug has been updated for the current period, it is ready for processing by the FTP Engine. FTP Processes utilizing the Tractor TP Method should not be run until all Replicating Portfolio's have been updated.

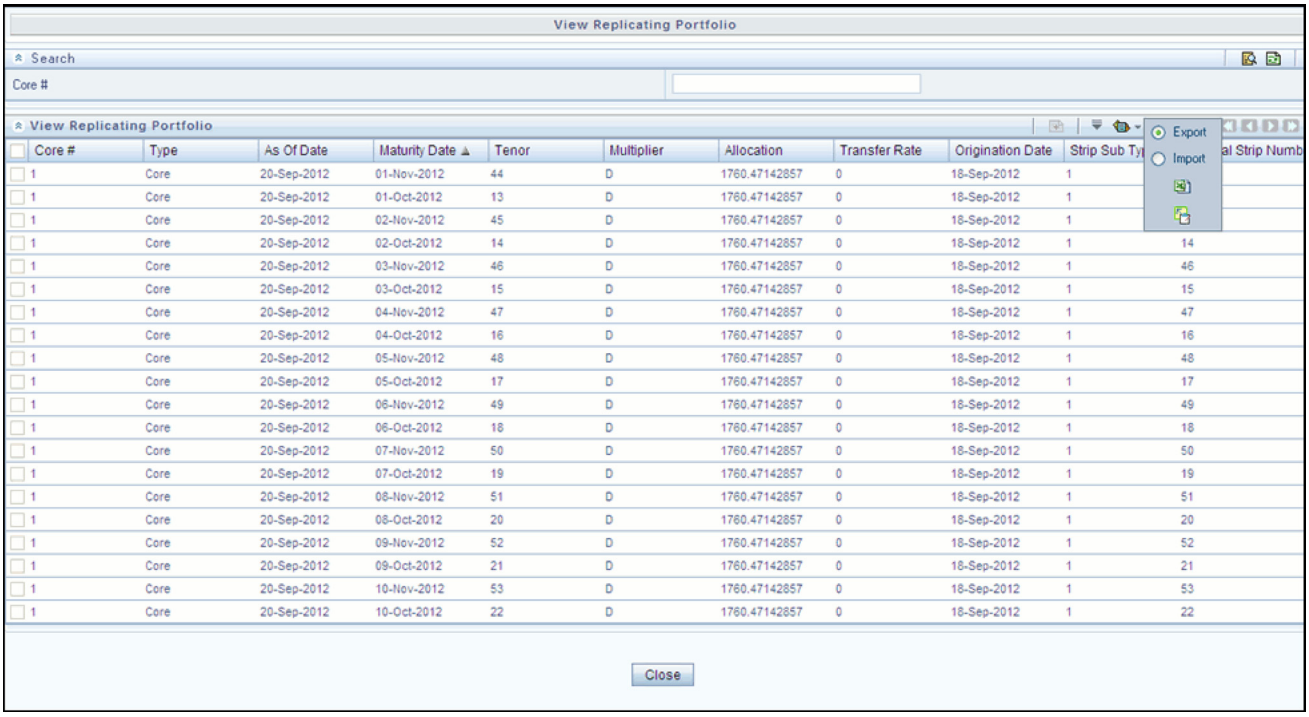
Related Topics

Defining Behavior Patterns

Creating Behavior Patterns

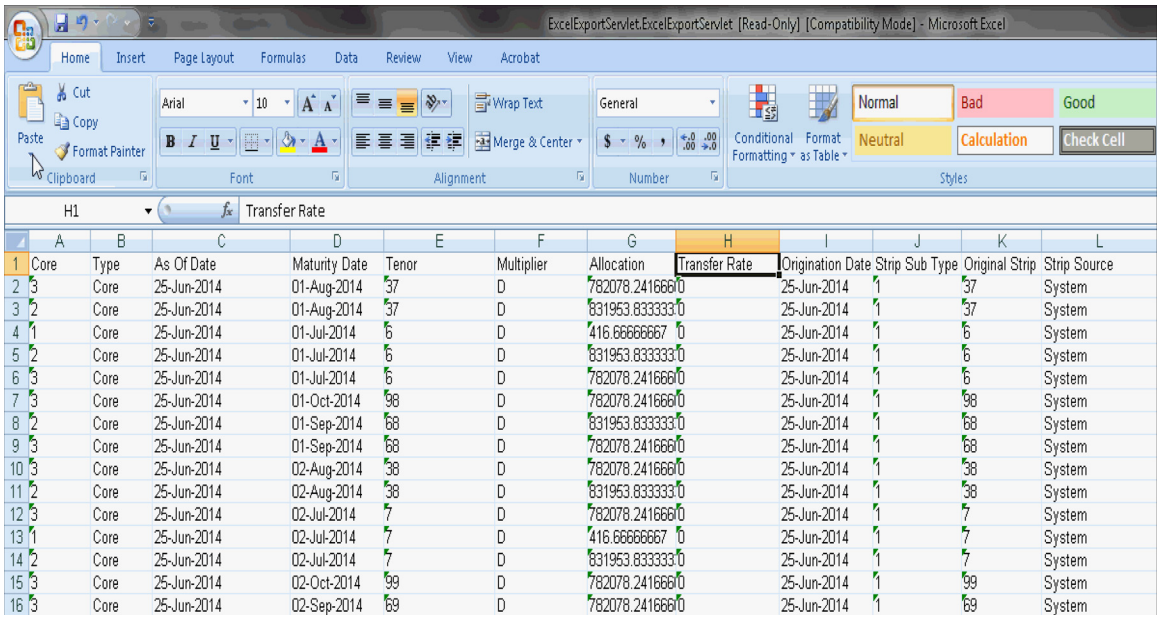
Export/Import Replicating Portfolio Data in Excel

There is an option through the Replicating Portfolio > View Portfolio UI to manually edit existing portfolio strips through Export and Import of the active Strip Data. The following screenshot illustrates the functionality:



Core #	Type	As Of Date	Maturity Date	Tenor	Multiplier	Allocation	Transfer Rate	Origination Date	Strip Sub Ty	al Strip Numb
1	Core	20-Sep-2012	01-Nov-2012	44	D	1760.47142857	0	18-Sep-2012	1	
1	Core	20-Sep-2012	01-Oct-2012	13	D	1760.47142857	0	18-Sep-2012	1	
1	Core	20-Sep-2012	02-Nov-2012	45	D	1760.47142857	0	18-Sep-2012	1	
1	Core	20-Sep-2012	02-Oct-2012	14	D	1760.47142857	0	18-Sep-2012	1	14
1	Core	20-Sep-2012	03-Nov-2012	46	D	1760.47142857	0	18-Sep-2012	1	46
1	Core	20-Sep-2012	03-Oct-2012	15	D	1760.47142857	0	18-Sep-2012	1	15
1	Core	20-Sep-2012	04-Nov-2012	47	D	1760.47142857	0	18-Sep-2012	1	47
1	Core	20-Sep-2012	04-Oct-2012	16	D	1760.47142857	0	18-Sep-2012	1	16
1	Core	20-Sep-2012	05-Nov-2012	48	D	1760.47142857	0	18-Sep-2012	1	48
1	Core	20-Sep-2012	05-Oct-2012	17	D	1760.47142857	0	18-Sep-2012	1	17
1	Core	20-Sep-2012	06-Nov-2012	49	D	1760.47142857	0	18-Sep-2012	1	49
1	Core	20-Sep-2012	06-Oct-2012	18	D	1760.47142857	0	18-Sep-2012	1	18
1	Core	20-Sep-2012	07-Nov-2012	50	D	1760.47142857	0	18-Sep-2012	1	50
1	Core	20-Sep-2012	07-Oct-2012	19	D	1760.47142857	0	18-Sep-2012	1	19
1	Core	20-Sep-2012	08-Nov-2012	51	D	1760.47142857	0	18-Sep-2012	1	51
1	Core	20-Sep-2012	08-Oct-2012	20	D	1760.47142857	0	18-Sep-2012	1	20
1	Core	20-Sep-2012	09-Nov-2012	52	D	1760.47142857	0	18-Sep-2012	1	52
1	Core	20-Sep-2012	09-Oct-2012	21	D	1760.47142857	0	18-Sep-2012	1	21
1	Core	20-Sep-2012	10-Nov-2012	53	D	1760.47142857	0	18-Sep-2012	1	53
1	Core	20-Sep-2012	10-Oct-2012	22	D	1760.47142857	0	18-Sep-2012	1	22

- The Export option works against the entire active portfolio. For example, a user can currently filter on a specific CORE # or look at results for all Core's. Additionally, the selection of Strips can span multiple pages, for example - as seen in the preceding screenshot, 1-20 of 71. In this example, all 71 active strips are exported to Excel.
- The import function will replace ALL existing "Active" strips.
- The strip data being imported is validated to confirm that all required data is included. If the data is not complete, for example, it does not provide information for Core #, Strip Type, As of Date, Maturity Date, Tenor, Multiplier, Allocation (or Amount), then a warning message is given indicating that "The selected data is incomplete and cannot be imported. Please re-check the data and try again." The portfolio can also be edited directly on the view portfolio screen after new strips have been imported.
- When you click Strip Source option, the status column in the summary table shows the tagged strip records that have been created by system or manually. You can edit these tags for strips that are manually created or existing strips after exporting them into Excel.



	A	B	C	D	E	F	G	H	I	J	K	L
1	Core	Type	As Of Date	Maturity Date	Tenor	Multiplier	Allocation	Transfer Rate	Origination Date	Strip Sub Type	Original Strip	Strip Source
2	3	Core	25-Jun-2014	01-Aug-2014	37	D	782078.2416666	0	25-Jun-2014	1	37	System
3	2	Core	25-Jun-2014	01-Aug-2014	37	D	831953.8333333	0	25-Jun-2014	1	37	System
4	1	Core	25-Jun-2014	01-Jul-2014	6	D	416.6666667	0	25-Jun-2014	1	6	System
5	2	Core	25-Jun-2014	01-Jul-2014	6	D	831953.8333333	0	25-Jun-2014	1	6	System
6	3	Core	25-Jun-2014	01-Jul-2014	6	D	782078.2416666	0	25-Jun-2014	1	6	System
7	3	Core	25-Jun-2014	01-Oct-2014	98	D	782078.2416666	0	25-Jun-2014	1	98	System
8	2	Core	25-Jun-2014	01-Sep-2014	68	D	831953.8333333	0	25-Jun-2014	1	68	System
9	3	Core	25-Jun-2014	01-Sep-2014	68	D	782078.2416666	0	25-Jun-2014	1	68	System
10	3	Core	25-Jun-2014	02-Aug-2014	38	D	782078.2416666	0	25-Jun-2014	1	38	System
11	2	Core	25-Jun-2014	02-Aug-2014	38	D	831953.8333333	0	25-Jun-2014	1	38	System
12	3	Core	25-Jun-2014	02-Jul-2014	7	D	782078.2416666	0	25-Jun-2014	1	7	System
13	1	Core	25-Jun-2014	02-Jul-2014	7	D	416.6666667	0	25-Jun-2014	1	7	System
14	2	Core	25-Jun-2014	02-Jul-2014	7	D	831953.8333333	0	25-Jun-2014	1	7	System
15	3	Core	25-Jun-2014	02-Oct-2014	99	D	782078.2416666	0	25-Jun-2014	1	99	System
16	3	Core	25-Jun-2014	02-Sep-2014	69	D	782078.2416666	0	25-Jun-2014	1	69	System

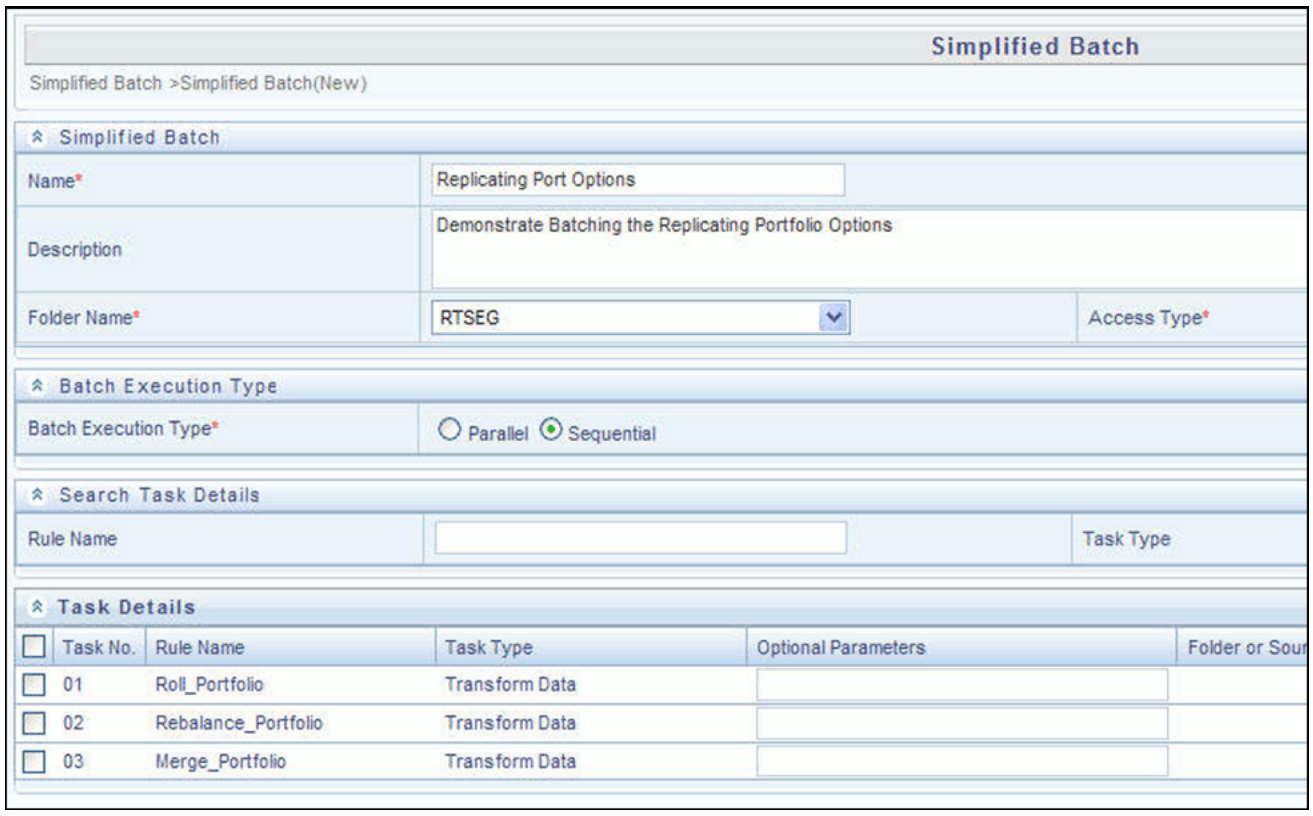
Scheduling Replicating Portfolio Actions

In addition to using the "Roll Portfolio" and "Re-balance Portfolio" button options in the Replicating Portfolio UI or the "Merge Portfolio" option, users have the ability to batch and schedule these functions through a Simplified Batch or ICC Batch process.

There are three seeded tasks listed under the Transform Data task type for scheduling these actions:

- Roll_Portfolio
- Rebalance_Portfolio
- Merge_Portfolio

The following screenshot illustrates these tasks selected within a Simplified Batch process.



The following parameters are required for each task:

Roll Portfolio

- Run ID: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Process ID: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Execution ID: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Run Surrogate Key: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Pattern Code, for example, '70001'
- Application ID, for example, 'TP' (this is a static value)
- FTP User, for example, 'TP USER 1'

These parameters would appear as follows in the simplified batch parameter input block:

","","","','70001','TP','TP USER 1'

When executing from the Run Rule Framework, the user does not have to pass the Run ID, Process ID, Execution ID, and Run Surrogate Key, as the framework itself passes these values along with the Batch ID and MISDATE. The parameters would appear as follows:

"70001","TP","TP USER 1"

Re-balance Portfolio

- Run ID: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Process ID: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Execution ID: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Run Surrogate Key: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Pattern Code, for example, '70001'
- Re-balance type, for example, '1' (plug to volatile) or '2' (rebalance core strips)
- FTP User, for example, 'TP USER 1'
- Application ID, for example, 'TP' (this is a static value)

These parameters would appear as follows in the simplified batch parameter input block:

",",",", '70001', '1', 'TP USER 1', 'TP'

When executing from the Run Rule Framework, the user does not have to pass the Run ID, Process ID, Execution ID, and Run Surrogate Key, as the framework itself passes these values along with the Batch ID and MISDATE. The parameters would appear as follows:

"70001","1","TP USER 1","TP"

Merge Portfolio

- Run ID: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Process ID: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Execution ID: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Run Surrogate Key: when running via ICC batch and Simplified batch process, this parameter can be passed as "
- Pattern Code, for example, '70001'
- FTP User, for example, 'TP USER 1'
- Application ID, for example, 'TP' (this is a static value)
- When to merge (roll versus rebalance): when running via ICC batch and Simplified batch process, this parameter should always be 'N'
- Maturity date identifying maturing strips to be merged on roll : when running via ICC batch and Simplified batch process, this parameter should always be "

These parameters would appear as follows in the simplified batch parameter input block:

",",",",'70001', 'TP USER 1', 'TP', 'N', "

When executing from the Run Rule Framework, the user does not have to pass the Run ID, Process ID, Execution ID, and Run Surrogate Key, as the framework itself passes these values along with the Batch ID and MISDATE. The parameters would appear as follows:

"70001","TP USER 1","TP","N",""

Defining Non Performing Behavior Patterns

Non Performing behavior patterns are commonly used for balances that are classified as non-earning assets. These balances are typically sourced from the management ledger as aggregate balances. Users are able to assign expected maturity profiles to these balances classifying them into appropriate categories of Sub Standard, Doubtful or Loss.

Prerequisites

Select Non Performing as the Behavior Pattern Type.

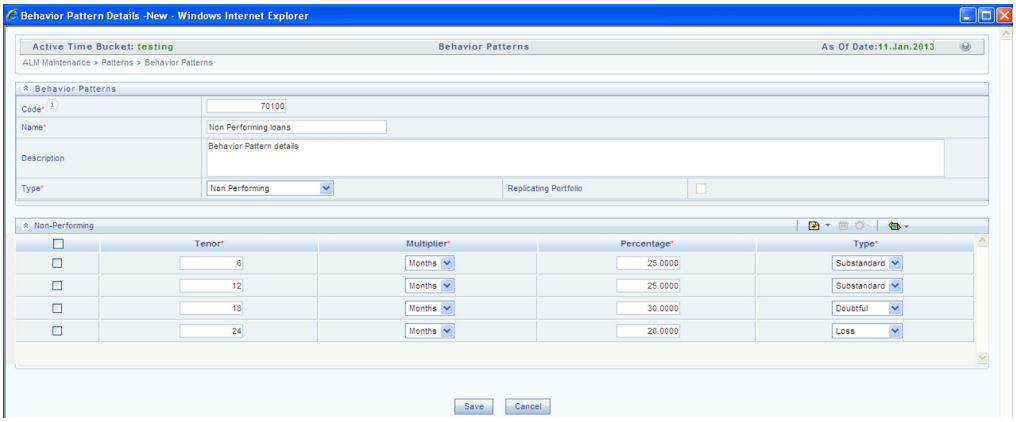
Procedure:

This table describes key terms used for this procedure.

Term	Description
Tenor	Used to specify the maturity term for the particular row. E.g. if "1 Day" is defined, then the applicable percentage of the balance will runoff (mature) on the As of Date + 1 Day.
Multiplier	The unit of time applied to the Tenor. The choices are: Days Months Years
Percentage	The relative amount of the principal balance that will mature on the date specified by the Tenor + Multiplier. The percentage amounts can exceed 100% for non performing patterns.
Runoff Type	Allows you to classify the runoff based on the appropriate type.
Add	Used to add one or more rows
Delete	Used to delete one or more rows

1. Define the maturity tenor and multiplier for the first maturity strip. The first strip can be any of the three categories including Substandard, Doubtful or Loss.
2. Select the Percentage to apply to the outstanding balance indicating how much of the outstanding balance will mature on the specified term.
3. Select the Runoff Type as Substandard, Doubtful or Loss.

   Note: There is no difference in behavior from a cash flow perspective, but the runoff amount will be written to a principal runoff financial element corresponding to the selected Runoff Type.
4. Click the Add icon to add additional payment strips to the Pattern and define appropriate assumptions for each strip.
5. To delete a row, select the check box corresponding to the row(s) you want to remove and click the Delete icon
6. Click Save.



7. The Behavior Pattern is saved and the Behavior Pattern summary page is displayed.

Defining Devolvement and Recovery Behavior Patterns

Devolvement and Recovery behavior patterns are commonly used for estimating cash flows associated with Letters of Credit and Guarantees. These product types are typically categorized as off balance sheet accounts. Users are able to assign expected maturity profiles to the related balances classifying them into appropriate categories of Sight Devolvement and Sight Recovery or Usance Devolvement and Usance Recovery. Sight Devolvement and Recovery are the most common types.

Prerequisites

Select Devolvement and Recovery as the Behavior Pattern Type.

Procedure:

This table describes key terms used for this procedure.

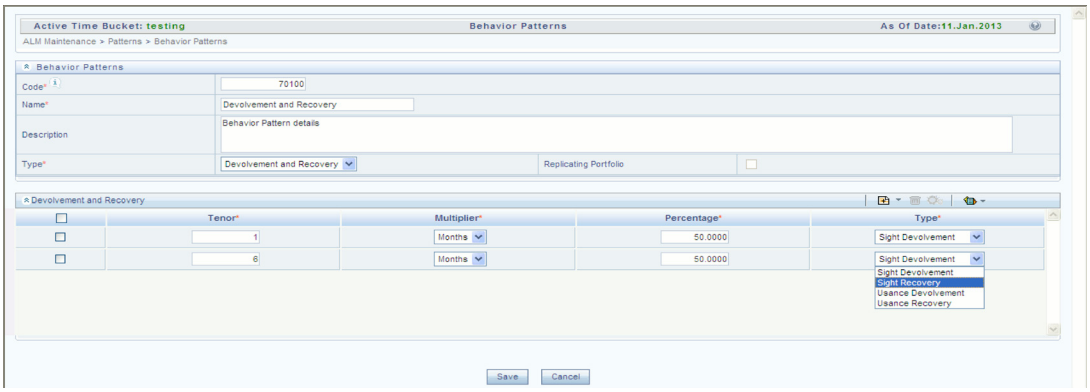
Tenor	Used to specify the maturity term for the particular row. E.g. if “1 Day” is defined, then the applicable percentage of the balance will runoff (mature) on the As of Date + 1 Day.
Multiplier	The unit of time applied to the Tenor. The choices are: Days Months Years
Percentage	The relative amount of the principal balance that will mature on the date specified by the Tenor + Multiplier. The percentage amounts can exceed 100% for devolvement and recovery patterns.
Runoff Type	Allows you to classify the runoff based on the appropriate type. **Sight**: indicates the Beneficiary is paid as soon as the Paying Bank has determined that all necessary documents are in order. This is preferred approach. **Usance**: is a period of time which can be between 30 and 180 days after the bill of lading date.
Add	Used to add one or more rows
Delete	Used to delete one or more rows

1. Define the maturity tenor and multiplier for the first maturity strip.
2. Select the Percentage to apply to the outstanding balance indicating how much of the outstanding balance will mature on the specified term.
3. Select the Runoff Type as Sight Devolvement, Sight Recovery, Usance Devolvement and Usance Recovery.

   Note: There is no difference in behavior from a cash flow perspective, but the runoff amount will be written to a principal runoff financial element corresponding to the selected Runoff Type.
4. Click the Add icon to add additional payment strips to the Pattern and define appropriate assumptions for each strip.

To delete a row, select the check box corresponding to the row(s) you want to remove and click the Delete icon

5. Click Save.



6. The Behavior Pattern is saved and the Behavior Pattern summary page is displayed.

CHAPTER 19 User Defined Payment Patterns

This chapter describes the procedure for capturing instrument payment patterns that are too complex to be accommodated in the standard fields of Instrument tables.

This chapter covers the following topics:

- Overview of User Defined Payment Patterns
- Searching for Payment Patterns
- Creating Payment Patterns

Overview of User Defined Payment Patterns

User defined payment patterns allow you to define custom repayment patterns for products in your portfolio. You can include a payment pattern while generating cash flows by entering the payment pattern code as the amortization type code for the instrument. The Payment Pattern code can range from 1000 to 69999.

The procedure for working with and managing Payment Patterns is, similar to that of other Oracle Funds Transfer Pricing assumption rules. It includes the following steps:

- Searching for Payment Pattern
- Creating Payment Patterns
- Viewing and Editing Payment Patterns.
- Copying Payment Patterns.
- Deleting Payment Patterns.

Related Topics

Standard Navigation Paths

Searching for Payment Patterns

Search for a payment pattern to perform any of the following tasks:

- View
- Edit
- Copy
- Delete
- Check Dependencies

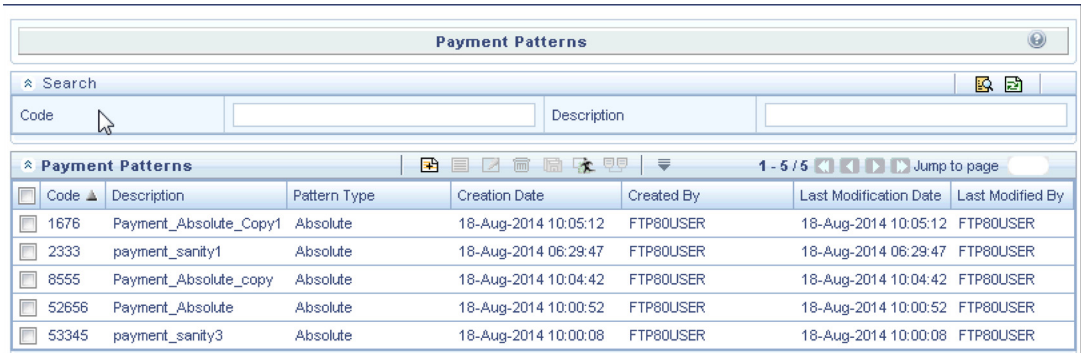
Prerequisites

- Predefined payment patterns

Procedure:

7. Navigate to the Payment Pattern summary page. This page is the gateway to all payment patterns and related functionality. You can navigate to other pages relating to payment patterns from this page.
8. Enter the Search criteria.

- Enter the code or description of the Pattern.
- Click the Search icon.
- Only patterns that match the search criteria are displayed.



Code	Description	Pattern Type	Creation Date	Created By	Last Modification Date	Last Modified By
1676	Payment_Absolute_Copy1	Absolute	18-Aug-2014 10:05:12	FTP80USER	18-Aug-2014 10:05:12	FTP80USER
2333	payment_sanity1	Absolute	18-Aug-2014 06:29:47	FTP80USER	18-Aug-2014 06:29:47	FTP80USER
8555	Payment_Absolute_copy	Absolute	18-Aug-2014 10:04:42	FTP80USER	18-Aug-2014 10:04:42	FTP80USER
52656	Payment_Absolute	Absolute	18-Aug-2014 10:00:52	FTP80USER	18-Aug-2014 10:00:52	FTP80USER
53345	payment_sanity3	Absolute	18-Aug-2014 10:00:08	FTP80USER	18-Aug-2014 10:00:08	FTP80USER

Note: You can control the number of rows to display on screen by selecting the "Pagination Options" icon from the action bar

Related Topics

Defining Payment Patterns

Overview of User Defined Payment Patterns

Standard Navigation Paths

Creating Payment Patterns

You create payment patterns to capture the repayment behavior of instruments that are too complex to be accommodated through use of the standard instrument table fields.

Procedure:

1. Navigate to the Payment Pattern summary page.
2. Click Add Payment Pattern.
   The Add Payment Pattern page is displayed.
3. Enter a code value for the new payment pattern.

   Tip: The code, also known as an amortization type code, is a numeric internal identifier for the payment pattern. The code value must be a number between 1000 and 69999. The code value you assign to the new pattern must be unique. In addition, the code must be mapped to the appropriate instrument records (AMRT_TYPE_CD field) to connect the instrument to the appropriate pattern.
4. Enter a brief description for the pattern.
5. Select the Payment Pattern Type: Absolute, Relative, or Split.

6. Define the Payment Pattern Term Specifications for payment phases.

   The selection of the payment pattern type made in the previous step determines the information you must provide to successfully define that pattern type. See:

   Defining Absolute Payment Patterns

   Defining Relative Payment Patterns

   Defining Split Payment Patterns

Note: The Payment Pattern Details page displays the specifications associated with the Absolute Payment Pattern Type, which is the default Payment Pattern Type value. Should you decide to change this value for any of the other two alternatives, Relative or Split, the system will refresh the payment specifications corresponding to the new Pattern Type. Although you can change your selection of the Pattern Type at any point in this procedure, sometimes this might cause loss of data related to any prior selection.

Related Topics

Defining Payment Patterns

Overview of User Defined Payment Patterns

Standard Navigation Paths

Defining Absolute Payment Patterns

Absolute payment patterns are commonly used for instruments that are on a seasonal schedule, such as agricultural or construction loans that require special payment handling based on months or seasons.

When working with absolute payment patterns, it is sufficient to define payments for one calendar year. Once the term exceeds a year, the payment schedule will loop until the instrument matures.

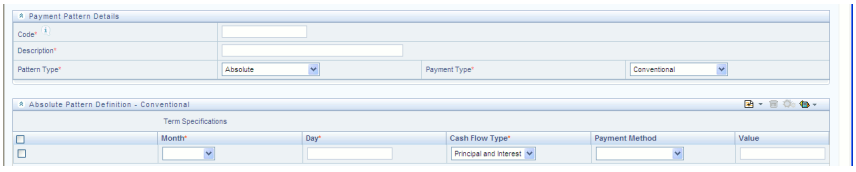
Prerequisites

Select Absolute as the Pattern Type.

Procedure:

This table describes key terms used for this procedure.

Term	Description
Month	This drop-down list allows you to select the month of the payment phase being defined.
Day	Used to specify the day of the month the payment is due.
Add	Used to add one or more rows
Delete	Used to delete a row.



1. Select the Payment Type from the drop-down list: Conventional, Level Principal, or Non-Amortizing.

   Note: The Payment Type determines the type of information required to successfully define the Payment Phase. See: *Relation between Payment Phase Attributes and Payment Types*..

2. Define the Payment Phases.

   Note: A Payment Phase is a set of payment characteristics that defines the time line of the instrument's amortization.

- Select a Month for the pattern.
- Enter a Date for the pattern.
- Select the Payment Method.
  Note: The available Payment Methods depend on the Payment Type. See: *Relation between Payment Method and Payment Types* for details. Payment Methods do not apply to the Non-Amortizing Payment Type.
- Enter the Value for the Payment Method you selected in the previous step for applicable Payment Types.
- **Note:** If you selected the Interest Only Payment Method in the previous step, the Value field does not apply.
- Click Add Another Row to add additional Payment Phases to the Pattern and click Delete corresponding to the rows you want to delete.
  Tip: A Payment Pattern must have at least one valid Payment Phase to be successfully defined. The system raises a warning if you try to save a Payment Pattern with an incomplete Payment Phase. You can define up to 365 Payment Phases for each Payment Pattern.
- Click Save.
  The Payment Pattern is saved and the Payment Pattern summary page is displayed.

Guidelines

When a detail instrument using an Absolute Payment Pattern is processed for Remaining Term cash flow processing, the Next Payment Date is internally calculated to determine which Payment Phase should be used. The calculated Next Payment Date is only used for this purpose. The Next Payment Date stored on the Instrument record in the Instrument table is always the date used for processing the initial payment.

The following table describes the relationship between Payment Phase properties and Payment Types.

	Level Principal	Non Amortizing		Conventional
Month	Yes	Yes	Yes	
Day	Yes	Yes	Yes	
Payment Method	Yes		Yes	
Value	Yes		Yes	

The following table describes relationship between Payment Method and Payment Types.

Payment Method	Level Principal	Non-Amortizing	Conventional
Percentage of Original Balance	Yes		
Percentage of Current Balance	Yes		
Percentage of Original Payment	Yes	Yes	
Percentage of Current Payment	Yes	Yes	
Absolute Payment	Yes	Yes	
Interest Only	Yes	Yes	

Related Topics

Defining Payment Patterns

Creating Payment Patterns

Defining Relative Payment Patterns

You create Relative Payment patterns for instruments that have irregular scheduled payments.

Prerequisites

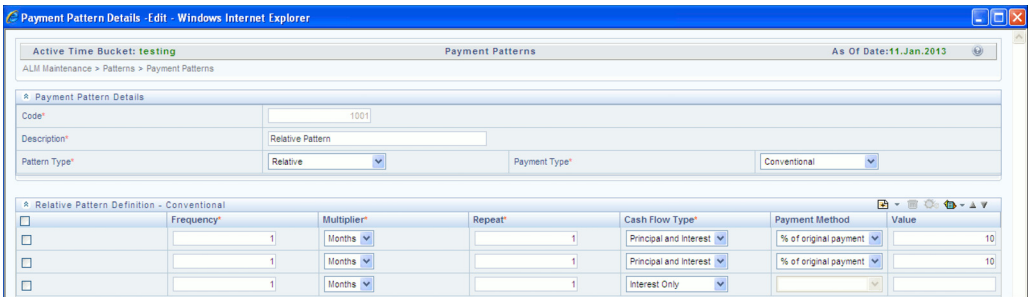
Select Relative as the Pattern Type.

Procedure:

This table describes key terms used for this procedure.

Term	Description
Frequency	The frequency of the payment.
Multiplier	The unit of time applied to the frequency. The choices are: Days Months Years
Repeat	The number of times the Payment Phase should be repeated.
Move Up	Allows you to move a particular Payment Phase row up by one position. **Note:** The Move Up icon for the first row of the table is always inactive.

Move Down	Allows you to move a particular row down by one position. **Note:** The Move Down icon for the last row of the table is always inactive.
Delete	Allows you to delete a row.



1. Select the Payment Type from the drop-down list: Conventional, Level Principal, or Non-Amortizing.
   The payment type determines the available characteristics for defining the payment amount.
2. Define the Payment Phase.
   Note: The payment type determines the type of information required to successfully define the payment phase. See: *Relation between Payment Phase Attributes and Payment Types* .

- Enter the Frequency for each payment phase.
- Select the appropriate Multiplier for each payment phase.
- Enter the number of times each Payment Phase should be repeated in the Repeat column.
- Select the Payment Method.
  Note: The available payment methods depend on the payment type. See: *Relation between Payment Method and Payment Types* for details. Payment Methods do not apply to the Non-Amortizing Payment Type.
- Type the Value for the Payment Method you selected in the previous step for applicable Payment Types.
- Click Add Another Row to add additional Payment Phases to the Pattern and click Delete corresponding to the rows you want to delete.
  Tip: A Payment Pattern must have at least one valid Payment Phase to be successfully defined. The system raises a warning if you try to save a Payment Pattern with an incomplete Payment Phase. You can define up to 365 Payment Phases for each Payment Pattern.

3. Click **Apply**.
   The payment pattern is saved and the Payment Pattern home page is displayed.
   Note: Any empty rows are ignored and not saved with the payment pattern.

Guidelines

It is not necessary to set up relative payment patterns for the complete term of an instrument. The payment pattern automatically repeats until maturity date. Suppose a payment pattern is created to make monthly payments for the first year and quarterly payments for the next three years. If you apply this pattern to an instrument record with an original term of five years, the payment pattern wraps around and the fifth year is scheduled for monthly payments.

An easy way to set up payment patterns for instruments with varying original terms is to use the repeat value of 999 in the last row of the payment pattern. For example, a payment pattern that pays monthly for the first year and quarterly thereafter, can be set up with two rows. The first row shows 12 payments at one month. The second row

shows 999 payments at three months. When this payment pattern is processed it repeats the three-month payment frequency until the maturity date is reached.

The following table describes the relationship between payment phase attributes and payment types.

Payment Phase Attributes	Payment Types: Level Principal	Payment Types: Non-Amortizing	Payment Types: Conventional
Frequency	Yes	Yes	Yes
Multiplier	Yes	Yes	Yes
Repeat	Yes	Yes	Yes
Payment Method	Yes		Yes
Value	Yes		Yes

Related Topics

Defining Payment Patterns

Creating Payment Patterns

Defining Split Payment Patterns

You use a Split payment pattern for financial instruments that make principal payments along two concurrent amortization schedules. Split patterns may be a combination of Absolute and Relative Payment Patterns for example, and contain multiple sets of payment phases under a single amortization code. These patterns could further use a combination of Conventional, Level Principal, and Non-Amortizing Payment Types.

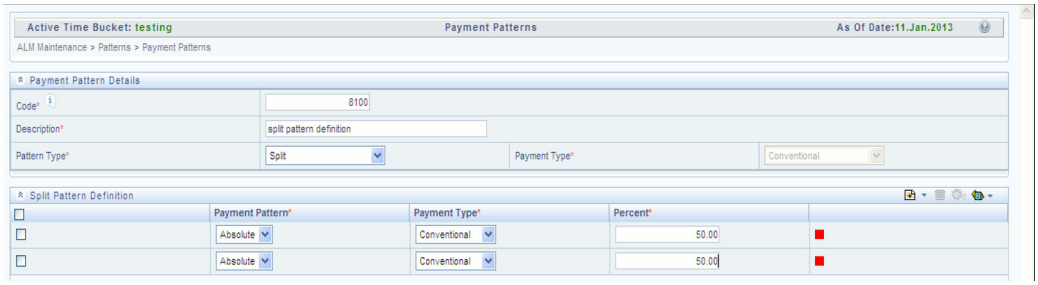
Prerequisites

Select Split as the pattern type.

Procedure:

This table describes key terms used for this procedure.

Term	Description
Percent	The percent value represents the percentage weight of the time line being defined for the individual payment phases (each row). The sum of the percentage weights must total 100%.



1. Select Pattern Type Split.

   The Create Term Specifications page is displayed.

2. Select the required Pattern Type for each leg.

- Absolute
- Relative

3. Enter the percentage value for each split.

   Tip: The sum of the percent values of all splits must add up to 100.

4. Select the Payment Type for each Payment Phase or Split.

   Tip: The payment pattern term specifications for different payment phases or splits vary depending on whether you select the Absolute or Relative Pattern Type. You can define the term specifications for the splits following the steps described previously for defining payment phases for these patterns. See:

- Defining Absolute Payment Patterns
- Defining Relative Payment Patterns

5. Select one of the legs and then select Apply to define pattern details for the leg.
6. Click Save.
7. The Split payment pattern is saved and the Payment Pattern summary page is displayed.

Related Topics

Defining Payment Patterns

Creating Payment Patterns

CHAPTER 20 User Defined Repricing Patterns

This chapter discusses the procedure for working with and managing user defined repricing patterns.

This chapter covers the following topics:

- Overview of Repricing Patterns
- Searching for Repricing Patterns
- Creating Repricing Patterns

Overview of Repricing Patterns

User defined repricing patterns provide a mechanism to capture instrument repricing patterns that are too complex to be accommodated through the use of the standard account table fields. See: Defining Repricing Patterns.

The procedure for working with and managing repricing patterns is, similar to that of other Oracle Funds Transfer Pricing business rules. It includes the following steps:

- Searching for Repricing Patterns
- Creating a Repricing Pattern.
- Viewing and Editing Repricing Patterns.
- Copying Repricing Patterns.
- Deleting Repricing Patterns.

Related Topics

Standard Navigation Paths

Searching for Repricing Patterns

Search for a repricing pattern to perform any of the following tasks:

- View
- Edit
- Copy
- Delete
- Check Dependencies

Prerequisites

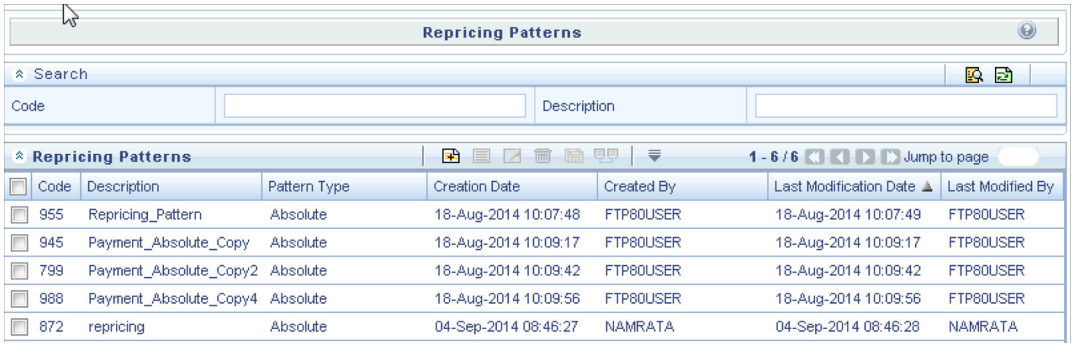
Predefined repricing patterns

Procedure:

1. Navigate to the Repricing Pattern summary page. This page is the gateway to all repricing patterns and related functionality. You can navigate to other pages relating to repricing patterns from this point.

2. Enter the Search criteria.
   - Enter the code or description of the pattern.
   - Select the Search icon.

Only patterns that match the search criteria are displayed.



Code	Description	Pattern Type	Creation Date	Created By	Last Modification Date	Last Modified By
955	Repricing_Pattern	Absolute	18-Aug-2014 10:07:48	FTP80USER	18-Aug-2014 10:07:49	FTP80USER
945	Payment_Absolute_Copy	Absolute	18-Aug-2014 10:09:17	FTP80USER	18-Aug-2014 10:09:17	FTP80USER
799	Payment_Absolute_Copy2	Absolute	18-Aug-2014 10:09:42	FTP80USER	18-Aug-2014 10:09:42	FTP80USER
988	Payment_Absolute_Copy4	Absolute	18-Aug-2014 10:09:56	FTP80USER	18-Aug-2014 10:09:56	FTP80USER
872	repricing	Absolute	04-Sep-2014 08:46:27	NAMRATA	04-Sep-2014 08:46:28	NAMRATA

Related Topics

Overview of Repricing Patterns

Standard Navigation Paths

Creating Repricing Patterns

You create Repricing patterns to capture the repricing behavior of instruments whose rates change according to complex schedules.

Procedure:

1. Navigate to the Repricing Pattern summary page.
2. Click Add Repricing Pattern.

   The Add Repricing Pattern page is displayed.
3. Type a code value for the new Repricing Pattern.

   Tip: The code is a numeric internal identifier for the repricing pattern. The code value must be a number between 500 and 4999 and the code value you assign to the new pattern must be unique. In addition, the code must be mapped to the appropriate instrument records (ADJUSTABLE_TYPE_CD field) to connect the instrument to the appropriate pattern.
4. Type a brief description for the pattern.
5. Select the Repricing Pattern Type: Absolute or Relative.

   The selection of the repricing pattern type determines the fields that are displayed in the Repricing Events table and the information you must provide to successfully define that pattern type. See:

   Defining Absolute Repricing Patterns

   Defining Relative Repricing Patterns

   Note: The Add Repricing Pattern page displays the parameters associated with the Absolute repricing pattern type, which is the default repricing pattern type value. If you change this value to Relative, the system refreshes

the repricing specifications corresponding to the new pattern type, and any data entered previously is lost. However, a warning message is displayed when you change the pattern type. The data is discarded only after your confirmation.

Related Topics

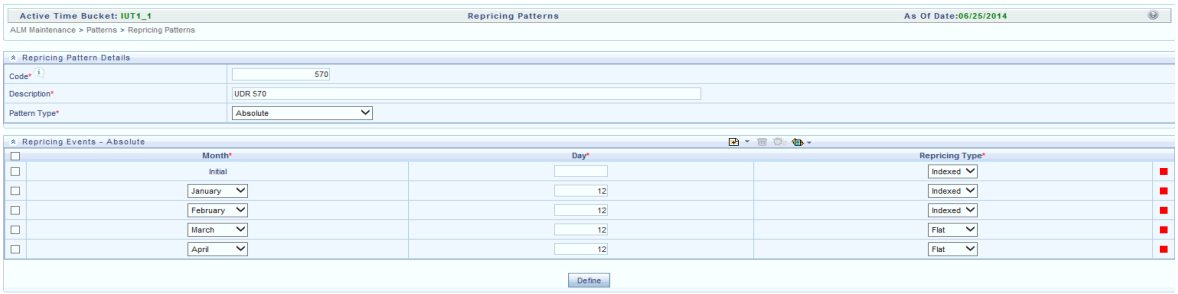
Overview of Repricing Patterns

Defining Repricing Patterns

Standard Navigation Paths

Defining Absolute Repricing Patterns

The Absolute repricing pattern is used for instruments that are date dependent. Each specific date is a separate event. You need to enter the month and day for each event, except for the initial event.



Prerequisites

Selecting Absolute as the pattern type.

Procedure:

This table describes key terms used for this procedure.

Term	Description
Month	In conjunction with the Day field, this drop-down menu, allows you to specify a unique month-day combination for a repricing event.
Day	In conjunction with the Month drop-down menu, this field allows you to specify a unique month-day combination for a repricing event.
Repricing Type	A drop list, it displays the repricing type, Flat rate or Indexed rate, associated with a particular event.
Add Row	Allows you to Add one or more repricing events.
Delete	Allows you to delete specific rows in the Repricing Events table.

1. Click Add Event.
2. Select the Repricing Type: Flat or Indexed.

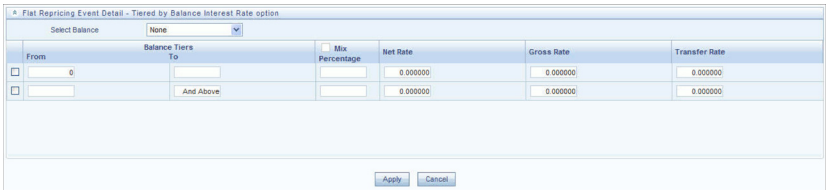
The default is Flat. If you select Indexed, the system automatically changes the fields available for entry. See: Indexed Repricing.

Note: You can change your selection of the repricing type at any point in this process. Sometimes it may cause a loss of data.

Flat Rate

A Flat rate is a specific rate—it is directly input. See: User Defined Repricing Event.

To define a Flat Rate Event, select check box for the event you are going to define and select the **Define** button. Notice the bottom half of the screen refreshes, displaying the required inputs. Complete the following steps on the Add Repricing Events page:



- Select Balance Tier option:
  - None
  - Current Balance
    If None is selected, then Balance Tiered pricing is not applied.

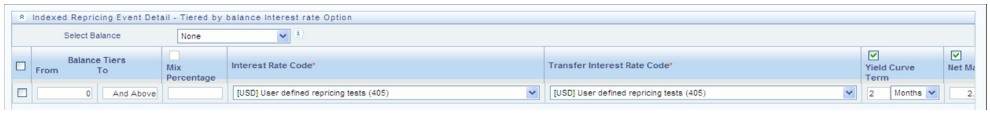
    If Current Balance is selected, then users can define balance tiers and associate different rates with the corresponding balance tier level.

    - Specify the required month-day combination for the event. **Note:** You cannot specify a month-day combination for the first event as this row is reserved for the initial period.
    - Enter the Net Rate.
    - Enter the Gross Rate.
    - Enter the Transfer Rate. **Tip:** You must enter a valid value for at least one of these rate fields.
    - Click Apply.
    - The Event summary Page is displayed. Note the status indicator has changed from Red to Green indicating that details for the event have been defined. At this point, you have the option of defining additional events or saving. To add an additional event, repeat Step 1: Click Add Event. If you want to save the repricing pattern and events, advance to the next step.

Indexed Repricing

An Indexed rate is a set of parameters used to calculate a rate. See: User Defined Repricing Event.

To define an Indexed Repricing Event, select check box for the event you are going to define and select the **Define** button. Notice the bottom half of the screen refreshes, displaying the required inputs. Complete the following steps on the Add Repricing Events page:



Note: Select the checkbox above each column that you want to include in the repricing event

- Select a Balance Tier option:
  - None
  - Current Balance

  If None is selected, then Balance Tiered pricing is not applied.

  If Current Balance is selected, then users can define balance tiers and associate different rates with the corresponding balance tier level.
  - Select the Interest Rate Code.
  - Select the Transfer Interest Rate Code.
  - Enter the Net Margin.
  - Enter the Yield Curve Term and select the appropriate Multiplier.
  - Enter the Gross Margin.
  - Enter the Transfer Rate Margin.
  - Enter the Rate Cap Life.
  - Enter the Rate Floor Life.
  - Enter the Rate Set Lag and select the appropriate Multiplier.
  - Click Apply. The Event Summary page is displayed.
    At this point, you have the option of defining additional events or saving. To add an additional event, repeat Step 1 Add Create Event. If you want to save the repricing pattern and events, advance to the next step.
- Click Save at the bottom of the page.
  The repricing pattern is saved and the Repricing Pattern summary page is displayed.

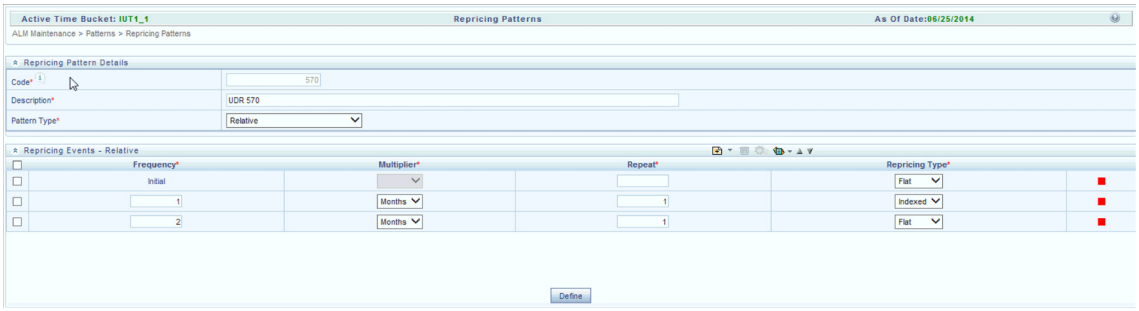
Related Topics

Defining Repricing Patterns

Creating Repricing Patterns

Defining Relative Repricing Patterns

The Relative repricing pattern is used for instruments where the repricing is determined by elapsed time since origination. Defining a Relative repricing pattern involves the definition of a series of repricing events applicable to a specific repricing pattern code. You need to specify the length of each repricing period and the number of times that event should occur before calculating the next event in the pattern.



Prerequisites

Selecting Relative as the pattern type.

Procedure:

This table describes key terms used for this procedure.

Selected Terminology

Term	Description
Frequency	In conjunction with the Multiplier drop-down menu, this field allows you to specify how often repricing occurs.
Multiplier	The unit of time applied to the frequency. The choices are: Days Months Years
Repeat	Allows you to specify the number of times a repricing event should be repeated.
Repricing Type	A drop list, it displays the repricing type, Flat rate or Indexed rate, associated with a particular event.
Add	Allows you to Add one or more repricing events.
Move Up	Allows you to move a particular row up by one position. **Note:** This action for the first and second rows is not active.
Move Down	Allows you to move a particular row down by one position. **Note:** This action for the first and last rows is not active.
Delete	Allows you to delete specific rows in the Repricing Events table.

The steps to create Relative repricing patterns are similar to creating Absolute repricing patterns.

The only difference is that the fields in the Repricing Events table are different. You need to specify the following parameters in the Repricing Events table for a Relative repricing pattern:

- Frequency
- Multiplier
- Repeat

Related Topics

Defining Repricing Patterns

Creating Repricing Patterns

CHAPTER 21 Transfer Pricing Rules

This chapter describes the procedure for working with and managing Transfer Pricing rules.

This chapter covers the following topics:

- Overview of Transfer Pricing Rules
- Creating Transfer Pricing Rules
- Defining Transfer Pricing Methodologies
- Copying Assumptions Across Currencies

Overview of Transfer Pricing Rules

Transfer Pricing rules allow you to specify methodologies for transfer pricing your product portfolio. A Transfer Pricing rule may contain a transfer pricing methodology defined for a particular product, or a set of methodologies defined for all products (Dimension Members) in a particular product hierarchy. In addition, it contains certain parameters used in defining option cost methodologies.

The Transfer Pricing rule is a key component of the Transfer Pricing Process. The Transfer Pricing Process, uses the transfer pricing methodologies contained in the Transfer Pricing rules to generate transfer rates. Consequently, before processing information for a new period, you need to review and validate the assumptions contained in your Transfer Pricing rules.

Note: If Transfer Pricing Assumptions are managed at the Parent / Node level, new product dimension members will automatically inherit TP Method assignments.

If new members are added to the applicable product dimension, you need to update your Transfer Pricing rules by defining appropriate methodologies for the new products.

The procedure for working with and managing the Transfer Pricing rule is similar to that of other Oracle Funds Transfer Pricing assumption rules. It includes the following steps:

- Searching for Transfer Pricing rules.
- Creating Transfer Pricing Rules.
- Viewing and Editing Transfer Pricing rules.
- Copying Transfer Pricing rules.
- Deleting Transfer Pricing rules.

As part of creating and editing Transfer Pricing rules, you can also define transfer pricing methodologies. See:

Defining Transfer Pricing Methodologies, on page 216

Defining the Redemption Curve Methodology, on page 225

Defining the Unpriced Account Methodology , on page 227

Oracle Funds Transfer Pricing provides you with the option to copy, in total or selectively, the product assumptions contained within the Transfer Pricing, Prepayment and Adjustments rules from one currency to another currency or a set of currencies.

Related Topics

Standard Navigation Paths, on page 343

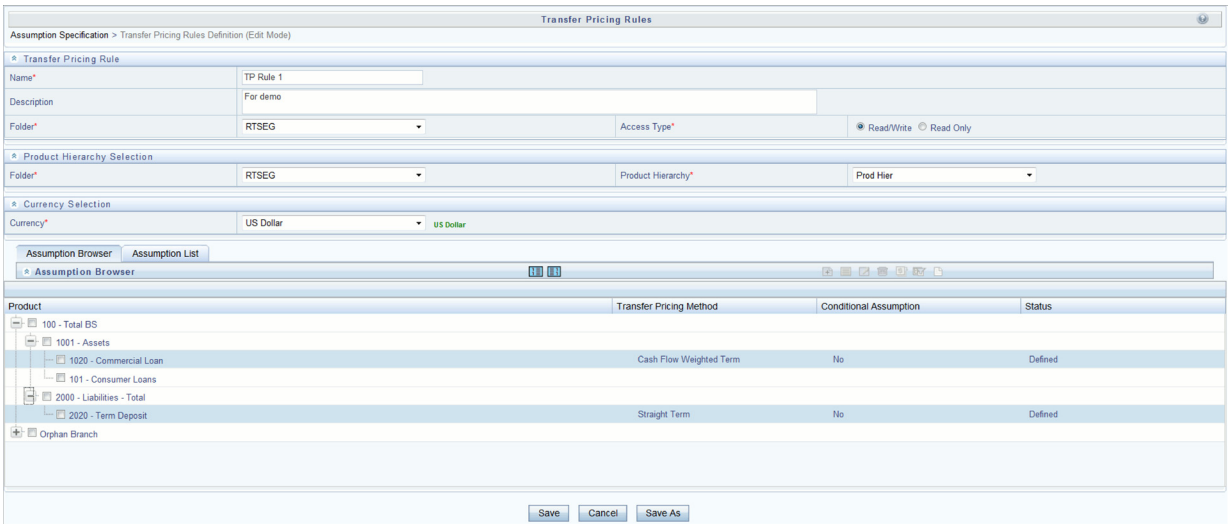
Creating Transfer Pricing Rules

You create a Transfer Pricing rule to map transfer pricing methodologies for your products.

Procedure

- Navigate to the Transfer Pricing rule summary page.
- Complete standard steps for this procedure.

Tip: In addition to the standard steps for creating rules, the procedure for creating a Transfer Pricing rule involves one extra step. After Standard Step 5, you need to select a product hierarchy. You can define methodologies at any level of the hierarchical product dimension. The hierarchical relationship between the nodes allows inheritance of methodologies from parent nodes to child nodes.



Related Topics

Overview of Transfer Pricing Rules, on page 215

Standard Navigation Paths, on page 343

Defining Transfer Pricing Methodologies

The assignment of transfer pricing methodologies is part of the Create or Edit Transfer Pricing rules process where assumptions about transfer pricing methodologies are made for product-currency combinations. When you click Save in the Create Transfer Pricing rules process, the rule is saved and the Transfer Pricing rule Summary page is displayed. However, the transfer pricing methodology has not yet been defined for any of your products at this point. Typically, you would start defining your methodologies for product-currency combinations before clicking Save.

The Transfer Pricing rule supports definition of assumptions for combinations of two dimensions: Product and Currency.

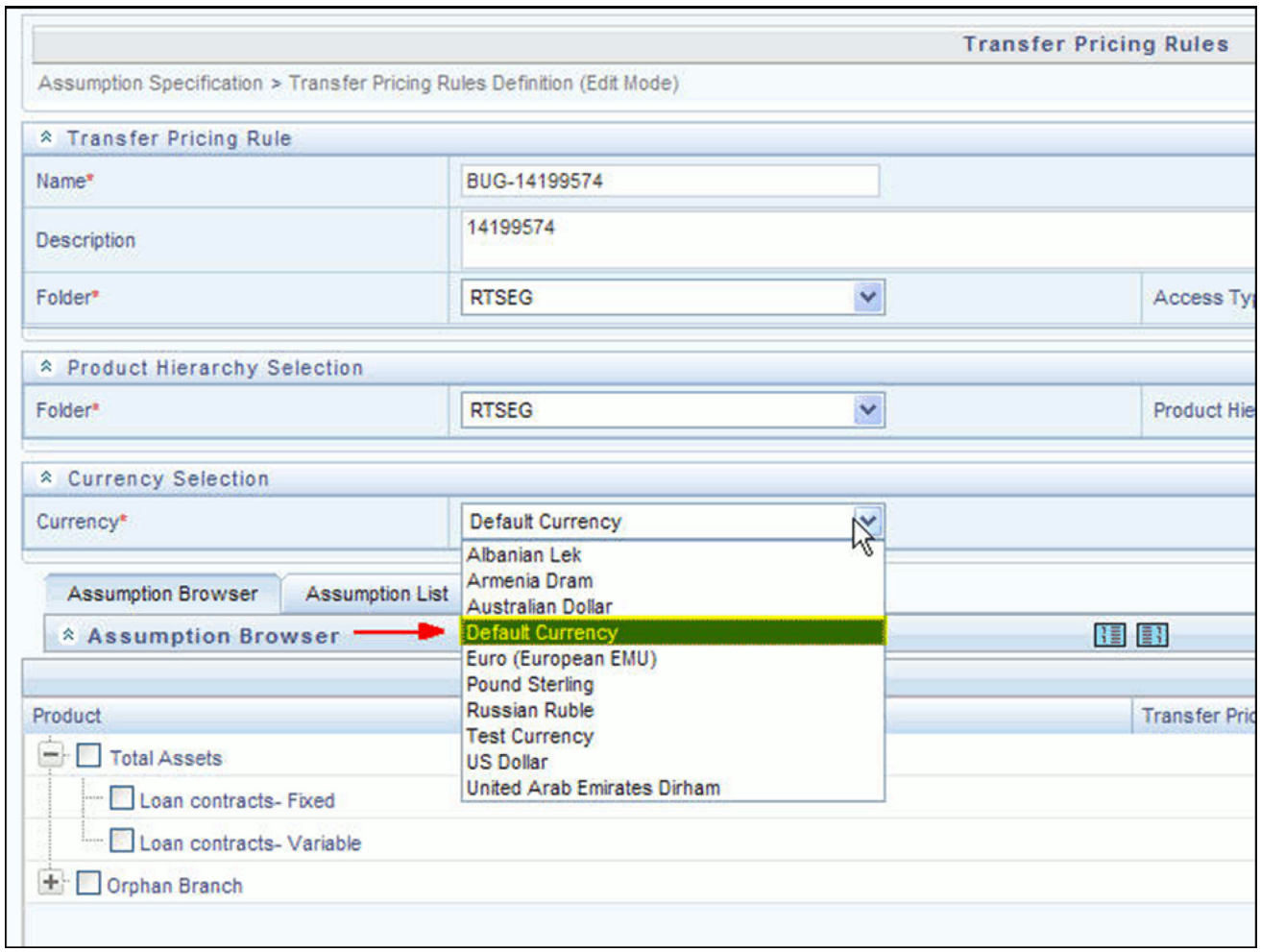
You can define transfer pricing methodologies for your entire product portfolio one currency at a time. Suppose your portfolio is comprised of products denominated in two currencies (US Dollar and Japanese Yen) and that you want to specify different transfer pricing assumptions and /or different Transfer Pricing yield curves, for each product group. Using the currency selection droplist, you can first define assumptions for the products denominated in US Dollars and then proceed with defining assumptions for the Yen-based products.

Once you have created a Transfer Pricing rule, you can assign transfer pricing methodologies to product-currency combinations in either of the following two ways:

- By creating a conditional assumption using conditional logic. See:
  - Associating Conditional Assumptions with Assumption Rules
- Directly on the Transfer Pricing methodology page, as described here.

Defining assumptions with the "Default Currency"

For cases where you have the same assumption (method and IRC) which is applicable to all currencies or multiple currencies, you can define rules for the combination of Product and "Default Currency". To define assumptions for the Default Currency, select a Product from the Hierarchy and “Default Currency” from the currency list and proceed with the assumption definition as described above. When processing data, the TP engine will first look for an assumption that exactly matches the product/currency of the instrument record. If not found, the engine will then look for the combination of product and the Default Currency. This is a useful option to utilize during setup when the same product exists across multiple currencies and shares the same TP assumption and Interest Rate Code.



Default Currency setup example: If you have two instrument records of the same Product, each with a different currency, e.g. 1 is 'USD' and the other is 'AUD', you have two configuration choices. You can either:

- Define the assumptions individually for each product currency combination using direct input or copy across,
- You can create 1 assumption for the combination of Product and “Default Currency”. When you use “Default Currency”, the TP Engine will apply this assumption to ALL currencies (unless a direct assumption is available for the product + currency being processed). In the case where users have many individual currencies that utilize the same TP Method and reference IRC rates, this is a useful option because you only have to define the assumption 1 time and it applies to many different Product + Currency combinations.

Prerequisite

Performing basic steps for creating or updating a Transfer Pricing rules

Procedure:

This table describes key terms used for this procedure.

Term	Description

Yield Curve Term	Defines the point on the yield curve that the system references to calculate transfer rates.
Historical Term	Specifies the period over which the average is to be taken for the Moving Averages method.
Lag Term	Specifies a yield curve from a date earlier than the Assignment Date for the Spread from Interest Rate Code method.
Rate Spread	The fixed positive or negative spread from an Interest Rate Code or Note Rate, used to generate transfer rates in the Spread from Interest Rate and Spread from Note Rate methods.
Model with Gross Rates	This option becomes available when you select Account tables as the data source and allows you to specify whether modeling should be done using the net or gross interest rate on the instrument. This option is only applicable when the Net Margin Code is also set to one, for example, Fixed. Gross rates are typically selected while modeling the effect of serviced portfolios where the underlying assets have been sold but the organization continues to earn servicing revenue based on the original portfolio.
Mid Period	This option applies to adjustable rate instruments only. It dictates whether the transfer rate is based on the last repricing date, current repricing period, prior repricing date, or some combination thereof.
Assignment Date	This is the effective date of the yield curve.
Percentage/Term Points	The term points that the system uses to compute the Redemption Curve method results. A percentage determines the weight assigned to each term point when generating results.
Add Dimension Values	Allows you to select the products that you want to use as source values when you transfer price using the Unpriced Account method.
Across All Organization Units	When this option is enabled, transfer price is calculated as a weighted average across all organization units for the matching product value and currency, and any optional migration dimensions selected in the Transfer Pricing Process rule. Otherwise, transfer price is calculated from accounts only within a particular Organizational Unit.
Holiday Calendar	Holiday Calendars are defined in the Holiday Calendars UI. In the Holiday Calendar you can specify weekend days and Holiday Dates as applicable.
Rolling Convention	Rolling conventions allow you to specify how dates falling on specified weekends or holidays should be handled.
Interest Calculation Logic	The interest calculation logic assumption allows you to specify whether to simply the date of the computed cash flow or to shift the date and recalculate the interest payment amount.

1. Navigate to the Assumption Browser page.
2. Select a Product Hierarchy
3. Select a Currency

   Note: The list of currencies available for selection is managed within Rate Management, and reflects the list of "Active" currencies.
4. Expand the hierarchy and Select one or more members (leaf values and/or node values) from the product hierarchy.

5. Click the Add icon to begin mapping Transfer Pricing methods to the list of selected product dimension members. The system displays a list of all the products (for which you can define assumptions) or currencies (that are active in the system).
6. From the TP Method selector page, Select the appropriate data source: Account Tables or Ledger Table.
7. Select the Transfer Pricing method for the selected product member.

   Tip: The Transfer Pricing methodologies available depend on the selected data source. See: *Transfer Pricing Combinations.*

   Depending on the transfer pricing method selected, certain required and optional parameter fields are displayed. You can update these fields as required. See: *Required Parameters for a Transfer Pricing Methodology.* See also:

   Defining the Redemption Curve Methodology, on page 225

   Defining the Unpriced Account Methodology , on page 227
8. Specify the desired Option Cost methodology. This option is available only when the data source is Account Tables. Here is how you can go about specifying an Option Cost Methodology:

- Select Run using Monte Carlo Option Cost Method. The Target Balance drop-down list is displayed.
- Select the required balance type. You can select any one of the following as the designated target balance for option cost calculations:
  - Par Balance
  - Book Balance
  - Market Value (note: the Market_Value_c column should be populated if you make this selection, either by an Oracle ALM process or via direct load from an external source)

  For more information on Transfer Pricing Option Cost, See *Oracle Financial Services Cash Flow Engine Reference Guide* and Stochastic Transfer Pricing Process and Option Cost Parameters.

9. Select the Holiday Calendar. The screen displays the Holiday Calendar inputs only for Cash Flow TP methods – Duration, Average Life, Weighted Term, Zero Discount Factors. The default assumption is "None", meaning Holiday Calendar adjustments are turned off. If a Holiday Calendar is selected, Holiday Calendar adjustments will be enabled and the following two additional inputs will be required:

   Rolling Convention

- Following Business Day
  The payment date is rolled to the next business day.
- Modified following business day
  The payment date is rolled to the next business day, unless doing so would cause the payment to be in the next calendar month, in which case the payment date is rolled to the previous business day.
- Previous business day
  The payment date is rolled to the previous business day.
- Modified previous business day
  The payment date is rolled to the previous business day, unless doing so would cause the payment to be in the previous calendar month, in which case the payment date is rolled to the next business day

  Interest Calculation Logic

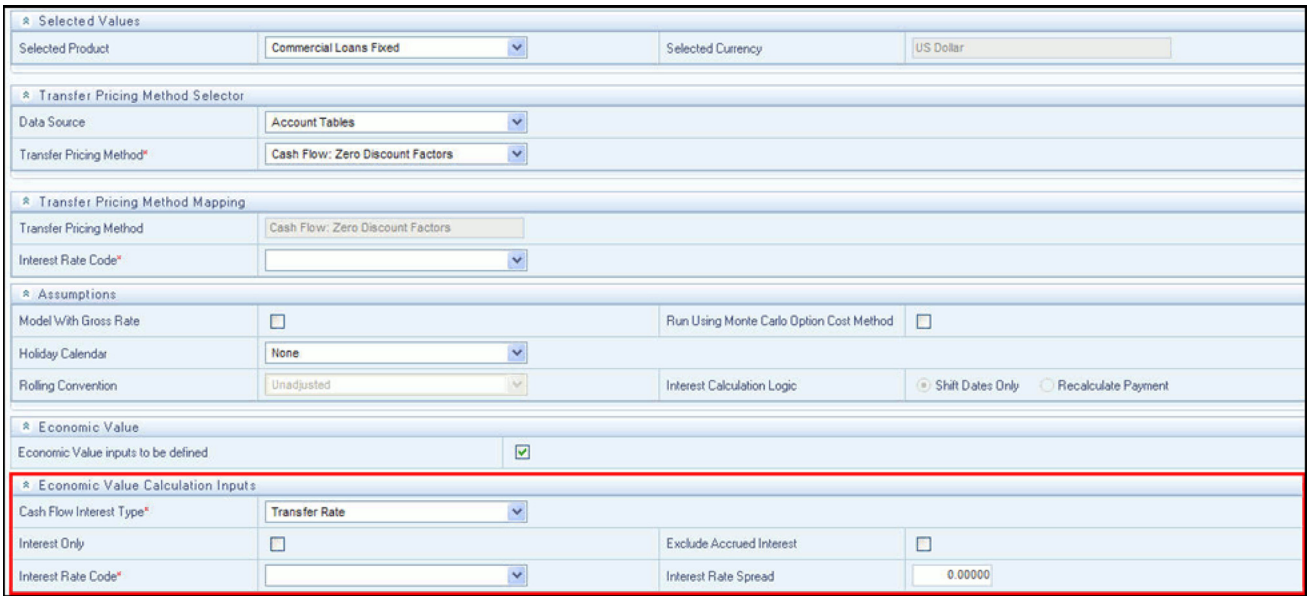
- Shift Dates Only

If a future payment date (as computed by the cash flow engine (CFE)) falls on a designated holiday (including weekends), the CFE will shift the payment date from the holiday as per the rolling convention. No changes will be made to the payment amount, or accrual amount; this is simply shifting the date on which the cash flow will post. The subsequent payment dates resume according to the original schedule.

- Recalculate Payment
  This option includes the same holiday calendar definition as in the Shift Dates Only option, but it also takes one additional step to recalculate the interest payment amount (and interest accruals) based on the actual number of days in the (adjusted) payment period. The instrument records use the payment frequency (term and multiplier) and the re-price frequency (term and multiplier) in association with the next/last payment date and next/last re-pricing date to determine when the cash flow will post. The CFE logic is enhanced to acknowledge holiday dates and re-compute the payment/interest amount given the change in days. In addition, the engine gets back on the scheduled track of payment events after a holiday event occurs in one (or many sequential) events.

  Note: Holiday Calendar adjustments can also be applied to the Tractor TP Method. For this method, the Holiday Calendar assumptions are defined within the Behavior Pattern > Replicating Portfolio UI.

10.



Select Economic Value. This section displays the inputs required for calculating Economic Value. These assumptions are optional and the section appears only when the "Economic Value inputs to be defined" check box is selected.

The following inputs are required for calculating Economic Value:

Cash Flow Interest Type: Select the interest rate to use for calculating the interest cash flow. This interest amount, together with the principal amount will be discounted and used to arrive at the Economic Value of the instrument record.

Interest Only: Select this option if you to exclude the principal cash flow from the Economic Value calculation.

Exclude Accrued Interest: Select this option if you want to exclude accrued interest, (interest computed from last payment date to as of date) from the Economic Value calculation. This will provide you with the clean price.

Interest Rate Code: Select the Interest Rate code to be used for discounting the cash flows.

Interest Rate Spread: Input any applicable spread to be added on top of the IRC rate.

11. Click Apply.

    At this point you can:

- Continue defining additional methodologies for other product-currency combinations contained in your selection set, by repeating the above procedure.
- Complete the process by clicking Cancel or by answering to NO to the confirmation alert after Applying assumptions for each Product / Currency combination in your select set.

12. From the Assumption Browser page, click Save.

    The new assumptions are saved and the Transfer Pricing rule selector page is displayed.

    Note: Oracle Funds Transfer Pricing provides you with the option to copy, in total or selectively, the product assumptions contained within the Transfer Pricing, Prepayment, and Adjustment rules from one currency to another currency or a set of currencies. See: *Copying Assumptions Across Currencies,* on page 227 .

Guidelines

Availability of Transfer Pricing Methodologies

The availability of transfer pricing methodologies depends on the data source that you select: Account Table or Ledger Table. The following table describes the Transfer Pricing Methodologies available for each of these data sources and displays whether that methodology requires the selection of a Transfer Pricing Interest Rate Code.

Note: The Interest Rate Code LOV is filtered by the selected Currency.

Transfer Pricing Combinations							
Transfer Pricing Methodology		Data Source: Ledger Table	Interest Rate Code	Behavior Pattern	Holiday Calendar		Data Source: Account Table
Do Not Calculate		Yes				Yes	
Cash Flow : Average Life			Yes		Yes	Yes	
Cash Flow : Duration			Yes		Yes	Yes	
Cash Flow : Weighted Term			Yes		Yes	Yes	

Cash Flow : Zero Discount Factors			Yes		Yes	Yes		
Moving Averages		Yes	Yes			Yes		
Straight Term			Yes			Yes		
Spread from Interest Rate Code		Yes	Yes			Yes		
Spread from Note Rate						Yes		
Redemption Curve		Yes	Yes			Yes		
Tractor Method		Yes	Yes	Yes	Yes	Yes		
Caterpillar		Yes	Yes	Yes		Yes		
Weighted Average Perpetual		Yes	Yes	Yes				
Unpriced Account		Yes						

Note: Not specifying assumptions for a node is not the same as selecting the Do Not Calculate methodology . Child nodes for which no assumptions have been specified automatically inherit the methodology of their closest parent node. So if neither a child node nor its immediate parent has a method assigned, the application searches up the nodes in the hierarchy until it finds a parent node with a method assigned, and uses that method for the child node. However, if no parent node has a method assigned then the application triggers a processing error stating that no assumptions are assigned for the particular product/currency combination. However, if the parent node has the method Do Not Calculate assigned to it then the child node inherits Do Not Calculate , obviating the need for calculation and for a processing error.

Required Parameters

You cannot define a transfer pricing methodology successfully, unless you specify the required parameters. The following table displays the parameters associated with each transfer pricing method and specifies whether they are required or optional. The optional parameter fields display default values. However, you may decide to change the values for the optional parameters for certain methodologies, such as, the Redemption Curve or the Unpriced Account methods.

Required Parameters for a Transfer Pricing Methodology

Transfer Price Method		Historical Range	Lag Term	Rate Spread	Assignment Date	Mid Period	Term Points	Dimension Values				Yield Curve Term
Cash Flow : Average Life												
Cash Flow : Weighted Term												
Cash Flow : Duration												
Cash Flow : Zero Discount Factors												
Moving Averages		Required						Required				
Straight Term						Optional						
Tractor Method												

Spread from IRC			Required	Required	Required	Optional			Required
Spread from Note Rate				Required		Optional			
Redemption Curve					Required	Optional	Required		
Caterpillar									
Do not Calculate									
Weighted Average Perpetual									
Unpriced Account								Required	
Tractor Method									

Related Topics

Defining Transfer Pricing Rules, on page 71

Overview of Transfer Pricing Rules, on page 215

Defining the Redemption Curve Methodology, on page 225

Defining the Unpriced Account Methodology , on page 227

Copying Assumptions Across Currencies, on page 227

Defining the Redemption Curve Methodology

As part of the process for defining the Redemption Curve methodology, you must select as many Term Points from your selected Transfer Pricing Yield curve as are needed and allocate the percentage weighting for each of those points.

Prerequisites

Performing basic steps for creating or updating a Transfer Pricing rule

Procedure to Add Term Points:

The steps involved in adding Term Points are listed below:

1. Click Add New Term Points.
   The Add New Term Points page is displayed.
2. Select the Transfer Pricing Yield Curve Points as required.
3. Click OK.
   The Term Point Selection section is displayed.
4. Update the percentage value for each Term Point.
   Note: The sum of all the percentages for all Term Points must add up to 100. To remove a Yield Curve Point from the Percentages/Term Points table, select the term point(s) and click the Delete icon.

Related Topics

Defining Transfer Pricing Rules, on page 71

Defining Transfer Pricing Methodologies, on page 216

Standard Navigation Paths, on page 343

Defining Tractor Methodology

Prerequisites

- Create a Non-Maturity Behavior Pattern with the Replicating Portfolio option enabled.
- Generate (and maintain) the Portfolio. Volatile and Core Instrument strips will be created in the FSI_M_REP_PORTFOLIO_STRIPS table.

Procedure to define and use a Tractor TP Method:

1. Define the Transfer Pricing Rule and select Tractor Method from the list of available TP Methods for relevant Product dimension members.
2. Select the appropriate Behavior Pattern. Note, the list will be limited to only those Behavior Patterns that have been defined as Replicating Portfolios.
3. Select the Transfer Pricing Interest Rate Code
4. Define a Transfer Pricing Process and Run using the TP rule
   - TP Process will transfer price the non-zero portfolio strips using straight term method
   - TP Process will compute a weighted average TP rate for the portfolio and will update all instruments mapped through the TP rule to this method.

Related Topics

Defining Transfer Pricing Rules, on page 71

Standard Navigation Paths, on page 343

Defining the Unpriced Account Methodology

When defining an Unpriced Account methodology, you need to select the Product dimension members (products) whose weighted average transfer rate will be assigned to the product / currency combination being defined.

Prerequisites

Performing basic steps for creating or updating a Transfer Pricing rule

Procedure to Add Dimension Values:

The steps involved in adding Dimension Values are listed below:

1. Click the Dimensional Values icon.

   The hierarchical Add Members page is displayed.

2. Search and select the required dimension members. Specify whether weighted average of transfer rates has to be taken across all organizational units or for accounts only within that organizational unit.

   Note: You must also select the Organization Unit dimension under migration dimensions in the TP Process when using this method.

3. Click Apply.

   The Transfer Pricing Assumption Browser page is displayed.

Related Topics

Defining Transfer Pricing Rules, on page 71

Defining Transfer Pricing Methodologies, on page 216

Standard Navigation Paths, on page 343

Copying Assumptions Across Currencies

This functionality provides you with the option to copy, in total or selectively, the product assumptions contained within the Transfer Pricing, Prepayment and Adjustment rules from one currency to another currency or a set of currencies.

Copy of assumptions across currencies enhances the usability of Oracle Funds Transfer Pricing in a multi-currency environment. For example if you have 10 currencies enabled in the application, you need to input only one set of assumptions and then copy those assumptions across all enabled currencies, instead of having to input 10 full sets, thereby saving a significant amount of input time.

This functionality also reduces the risk associated with data input errors as you need to audit inputs for a single set of assumptions before executing the copy procedure. The copy across currencies process requires users to select a replacement Transfer Pricing yield curve for each target currency. These currency specific IRC's replace the IRC selection made for each product in the source currency selection set.

Prerequisite

Define Transfer Pricing, Prepayment, and/or Adjustments rules related product assumptions. See:

Defining Transfer Pricing Methodologies, on page 216

Defining Prepayment Rules, on page 97

Defining Adjustment Rules, on page 106

Procedure

Use the following procedure to copy assumptions across currencies:

1. Navigate to the appropriate (Transfer Pricing, Prepayment, or Adjustments rule) Assumption Browser.
2. Select the Source currency.
3. Select defined product assumptions individually using the check boxes corresponding to each product (or Node on the hierarchy).
4. Click the Copy Across Currencies icon.
5. On the Copy Across Currencies details page, select the listed currencies either individually using the corresponding check boxes or in total using Select All.
6. Specify an interest rate code for each selected currency. This is necessary because each interest rate code is specific to a single currency. When copying product assumptions across currencies, you must define the interest rate code for each target currency to replace the interest rate code used for the source currency assumptions. For Transfer Pricing rules that use the Redemption Curve method, users should pay careful attention to the structure of the Interest Rate Codes selected for the Target currencies to ensure they contain all of the Term Points used in the definition of the source assumptions. If the selected target Interest Rate Code structures are missing required Term Points, the UI will display a notification regarding the missing Term Points, and assumptions cannot be copied until the user takes corrective action.
7. Click Apply to initiate the copy process and to return to the Assumption Browser page.

   Note: You can review the results of the copy process from the Assumption Browser by selecting a different currency and following the usual navigation to view or edit assumptions. The application displays new assumptions for each product that was included in the original source selection. The copy process replaces pre-existing assumptions for any product-currency combination that is included in the target selection.
8. Click Save on the Assumption Browser page to save the assumptions to the database.

Related Topics

Overview of Transfer Pricing Rules, on page 215

Standard Navigation Paths, on page 343

CHAPTER 22 Prepayment Rules

This chapter describes the procedure for working with and managing Prepayment rules.

This chapter covers the following topics:

Overview of Prepayment Rules

Creating Prepayment Rules

Defining Prepayment Methodologies

Overview of Prepayment Rules

Prepayment rules allow you to specify methodologies to model the loan prepayment and deposit early redemption behavior of products in your portfolio and quantify the associated prepayment risk in monetary terms. See:*Defining Prepayment Rules,* on page 97

The methodologies contained in the Prepayment rule are referenced by both Transfer Pricing and ALM Processes. These prepayment assumptions are used in combination with cash flow based transfer pricing methods to generate transfer pricing results.

The procedure for working with and managing the Prepayment rule is similar to that of other Oracle Funds Transfer Pricing business rules. It includes the following steps:

- Searching for Prepayment rules.
- Creating Prepayment Rules
- Viewing and Editing Prepayment rules.
- Copying Prepayment rules.
- Deleting Prepayment rules.

As part of creating and updating Prepayment rules, you can also define prepayment methodologies for all relevant product / currency combinations. See:

Defining Prepayment Methodologies, on page 230

Defining the Constant Prepayment Method, on page 234

Defining the Prepayment Model Method, on page 234

Defining the PSA Prepayment Method, on page 235

Defining the Arctangent Calculation Method, on page 236

Oracle Funds Transfer Pricing provides you with the option to copy, in total or selectively, the product assumptions contained within the Prepayment, Transfer Pricing, and Adjustment rules from one currency to another currency or a set of currencies or from one product to another product or a set of products.

Related Topics

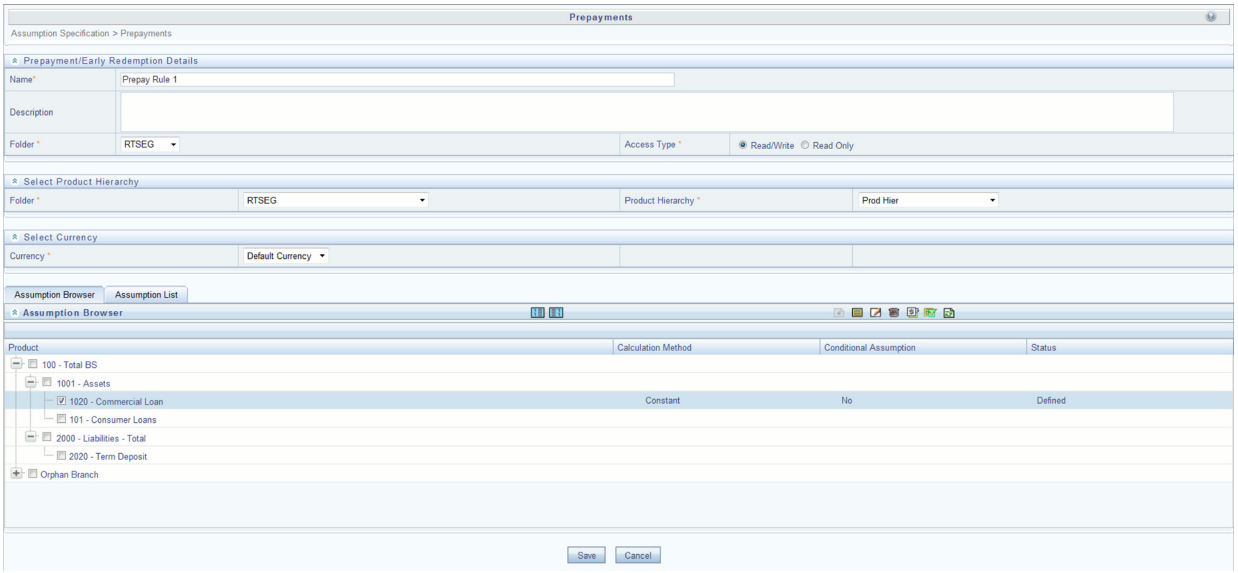
Standard Navigation Paths, on page 343

Creating Prepayment Rules

You create a Prepayment rule to define prepayment assumptions for new products.

Procedure:

1. Navigate to the Prepayment rule summary page.
2. Complete standard steps for this procedure.



Tip: In addition to the standard steps for creating rules, the procedure for creating a Prepayment rule involves one extra step. After Standard Step 6, you can select a product hierarchy. You can define methodologies at any level of the hierarchical product dimension. The hierarchical relationship between the nodes allows inheritance of methodologies from parent nodes to child nodes.

Related Topics

Overview of Prepayment Rules, on page 229

Standard Navigation Paths, on page 343

Defining Prepayment Methodologies

The assignment of prepayment assumptions is part of the Create or Edit Prepayment rule process where assumptions about loan prepayments or deposit early redemptions are made for product-currency combinations. When you click Save in the Create Prepayment rules process, the rule is saved and the Prepayment rule Summary page is displayed. However, prepayment assumptions have not yet been defined for any of your products at this point. Typically, you would start defining your prepayment assumptions for product-currency combinations before clicking Save.

The Prepayment rule supports definition of prepayment assumptions for combinations of two dimensions: Product and Currency.

Once you have created a Prepayment rule, you can assign prepayment methodologies to product-currency combinations in either of the following two ways:

- By creating a conditional assumption using conditional logic.
- Directly on the Prepayment methodology page, as described here.

Prerequisites

Performing basic steps for creating or editing a Prepayment rule

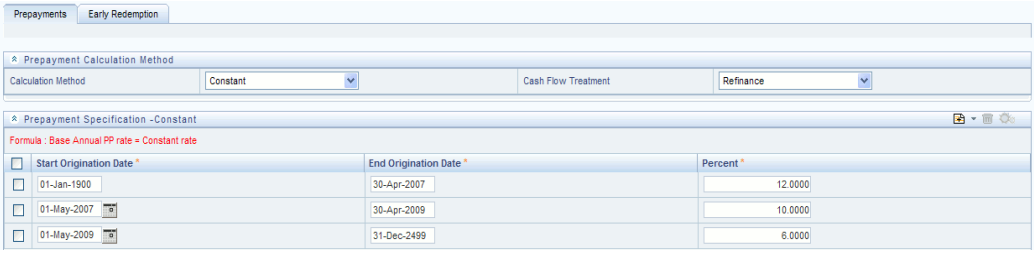
Procedure:

This table describes key terms used for this procedure.

Term	Description
Calculation Method	The method used to model prepayment behavior of instruments. Oracle Funds Transfer Pricing provides four prepayment calculation methods: Constant, Prepayment Model, PSA, and Arctangent.
Cash Flow Treatment	Allows you to specify one of the following two ways in which prepayments are made. **Refinance**: This is the most commonly used option. Select refinance to keep payment amounts after prepayment consistent with a portfolio-based assumption. This reduces the scheduled payment amount on each loan and maintains the same maturity term. **Curtailment**: Select curtailment to change the periodic payment amounts due. The prepayments are treated as accelerated payments, with a payoff earlier than the originally scheduled term.
Market Rate	The market rate is defined as the sum of the Index (the yield curve rate as described by the Interest Rate Code) and the Spread (the difference between the customer rate and market rate).
Associated Term	Allows you to define the term for the point on the yield curve selected in the Market Rate definition that will be used in obtaining the market rate. **Remaining Term:** The number of months remaining until the instrument matures. **Reprice Frequency:** The frequency with which the instrument reprices. This defaults to the original term for a fixed rate instrument. **Original Term:** The number of months that was the originally scheduled life of the instrument.
Prepayment Rate Definition	This table allows you to specify constant annual prepayment rate, or the associated factors, that you want to apply to the instruments having origination dates in a particular date range.
Seasonality	This table allows you to specify seasonality adjustments. Seasonality refers to changes in prepayments that occur predictably at given times of the year. Seasonality adjustments are based on financial histories and experiences, and should be modeled when you expect the amount of prepayments made for certain types of instruments to increase or decrease in certain months. The default value for seasonality factors is 1, which indicates that no seasonality adjustment is made for a month. Changing the seasonality factors is optional. You can change the seasonality factors for none, one, or multiple months. To make seasonality adjustments, you need to enter a value between 0.00 and 99.9999 for the seasonality factors associated with each month. Seasonality factors less than 1 mean that prepayments are decreased for a particular month. Seasonality factors greater than 1 indicate that prepayments are increased for a particular month.

1. Navigate to the Prepayment assumption details page by selecting a currency and one or more products from the hierarchy.
2. Select a Calculation Method, Constant, Prepayment Model, PSA , or Arctangent.

Note: The default value for the Calculation Method drop down list is Constant. If you select "Do not calculate" as the calculation method, no prepayment assumptions will be assigned to the particular product-currency combination. This is a particularly useful option when using node level assumptions because it allows you to exclude a particular child from inheriting a parent assumption.



3. Select a Cash Flow Treatment type, Refinance or Curtailment.

   Note: Refinance is the most commonly used method.

   Define the parameters and annual prepayment rates for the selected calculation method: Constant, Prepayment Model, PSA or Arctangent.

   Tip: The parameters displayed on the Prepayment methodology page vary depending on the calculation method (Constant, Prepayment Model, PSA or Arctangent) that you have selected. See:

   Defining the Constant Prepayment Method, on page 234

   Defining the Prepayment Model Method, on page 234

   Defining the PSA Prepayment Method, on page 235

   Defining the Arctangent Calculation Method, on page 236

4. Click Apply.

   The assumption browser definition page is displayed.

   At this point you can:

- Continue defining additional methodologies for other product-currency combinations by repeating the above procedure.
- Complete the process by clicking Save.

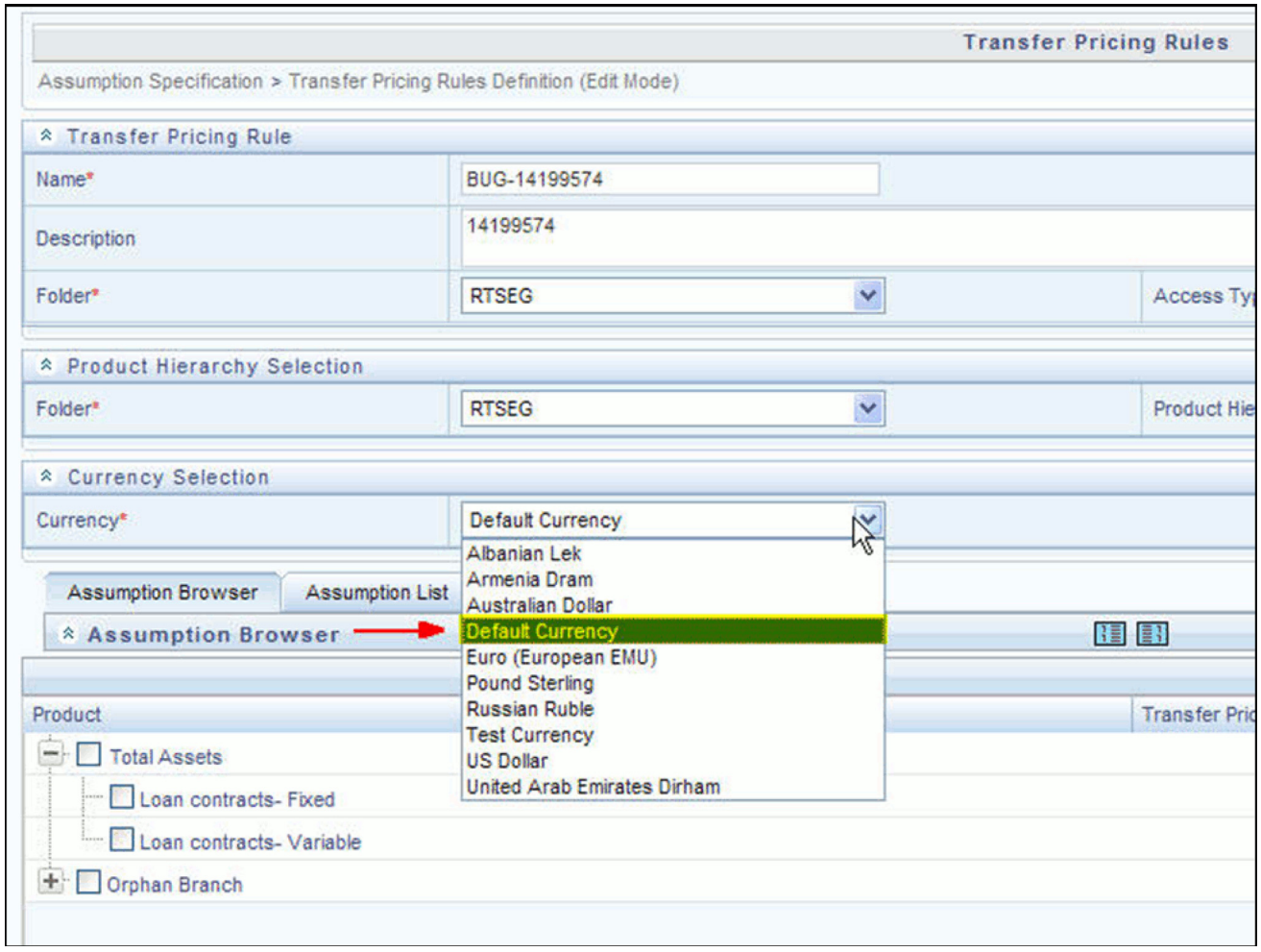
Note: When you click Save, the prepayment assumptions are saved and the Prepayment rule summary page is displayed.

Note: Oracle Funds Transfer Pricing provides you with the option to copy, in total or selectively, the product assumptions contained within the Prepayment, Transfer Pricing, and Adjustment rules from one currency to another currency or a set of currencies or from one product to another product or set of products.

Defining assumptions with the "Default Currency"

For cases where you have the same assumption (method and IRC) which is applicable to all currencies or multiple currencies, you can define rules for the combination of Product and "Default Currency". To define assumptions for the Default Currency, select a Product from the Hierarchy and “Default Currency” from the currency list and proceed with the assumption definition as described above. When processing data, the TP engine will first look for an assumption that exactly matches the product/currency of the instrument record. If not found, the engine will then look for the combination of product and the Default Currency. This is a useful option to utilize during setup

when the same product exists across multiple currencies and shares the same TP assumption and Interest Rate Code.



Default Currency setup example: If you have two instrument records of the same Product, each with a different currency, e.g. 1 is 'USD' and the other is 'AUD', you have two configuration choices. You can either:

- Define the assumptions individually for each product currency combination using direct input or copy across,
- You can create 1 assumption for the combination of Product and “Default Currency”. When you use “Default Currency”, the TP Engine will apply this assumption to ALL currencies (unless a direct assumption is available for the product + currency being processed). In the case where users have many individual currencies that utilize the same TP Method and reference IRC rates, this is a useful option because you only have to define the assumption 1 time and it applies to many different Product + Currency combinations.

Related Topics

Defining Prepayment Methodologies, on page 230

Overview of Prepayment Rules, on page 229

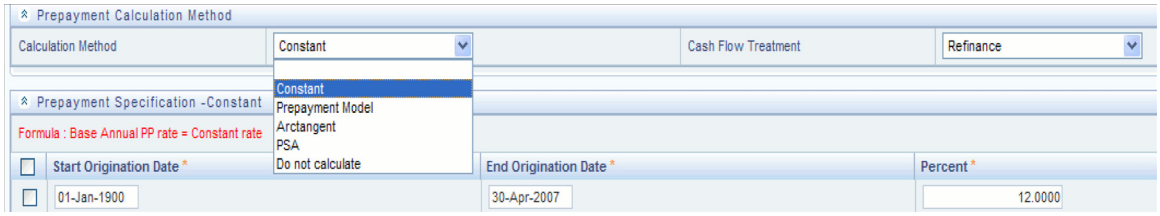
Standard Navigation Paths, on page 343

Defining the Constant Prepayment Method

Use this procedure to define prepayment assumptions using the Constant Prepayment method.

Prerequisites

Performing basic steps for creating or updating a Prepayment rule



Procedure:

1. Select the Start Origination Date using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.

   Note: The first cell in the Start Origination Date column and all of the cells in the End Origination Date column are read only. This ensures that all possible origination dates have supporting reference values when Prepayment assumption lookups occur. Each row in the End Origination Date column is filled in by the system when you click Add Row or save the rule.

   The first Start Origination Date (in row 1) has a default value of January 1, 1900. When you enter a Start Origination Date in the next row, the system inserts a date that is a day prior to the previous End Origination Date field.

2. Enter the annual prepayment rate percent that you want to apply to the instruments having origination dates in a particular Start Origination-End Origination Date range.

   Note: The Percent column represents the actual annualized prepayment percentage that the system uses to generate the principal runoff during the cash flow calculations.

3. Click Add Row to add additional rows and click the corresponding Delete icon to delete a row. You can add as many rows in this table as you require. However you need to enter relevant parameters for each new row.

4. Define Seasonality assumptions as required to model date specific adjustments to the annual prepayment rate. Inputs act as multiplier, e.g. an input of 2 will double the prepayment rate in the indicated month.

Related Topics

Defining the Constant Prepayment Method, on page 234

Defining Prepayment Methodologies, on page 230

Standard Navigation Paths, on page 343

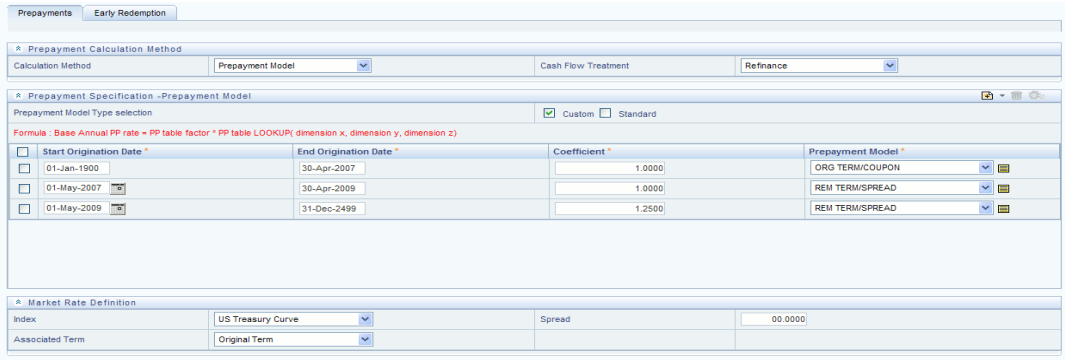
Defining the Prepayment Model Method

Use this procedure to define prepayment assumptions using the Prepayment Model Calculation method.

Prerequisites

Performing basic steps for creating or updating a Prepayment rule

Creating Prepayment Model rule



Procedure:

1. Define the source for the Market Rate by Selecting an Index (Interest Rate Code) from the list of values.
2. Enter the Spread. A Spread is the difference between the Customer Rate and the Market Rate.
3. Select an Associated Term: Remaining Term, Reprice Frequency, or Original Term.
4. Specify the Prepayment Model parameters.

- Select the Start Origination Date using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
- Enter the Coefficient (if needed) by which the Prepayment Rate should be multiplied. This multiple is applied only to the instruments for which the origination date lies in the range defined in the Start Origination Date-End Origination Date fields.
- Select a predefined prepayment model from the Prepayment model Rule list of values. Click the View Details icon to preview the selected Prepayment Model. The system uses the prepayment model assumptions to calculate the prepayment amounts for each period. You need to associate a prepayment model for every Start Origination-End Origination Date range.
- Click Add Another Row to add additional rows and click the corresponding Delete to delete a row. You can add as many rows in this model as you require. However you need to enter relevant parameters for each new row.

5. Define Seasonality assumptions as required to model date specific adjustments to the annual prepayment rate. Inputs act as multiplier, e.g. an input of 2 will double the prepayment rate in the indicated month.

Related Topics

Defining Prepayment Methodologies, **on page 230**

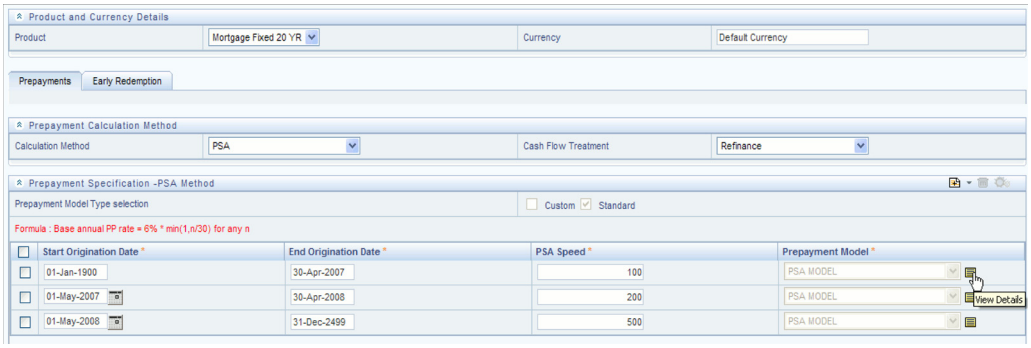
Standard Navigation Paths, **on page 343**

Defining the PSA Prepayment Method

Use this procedure to define prepayment assumptions using the PSA Prepayment method.

Prerequisites

Performing basic steps for creating or updating a Prepayment rule



Procedure:

1. Select the Start Origination Date using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.

   Note: The first cell in the Start Origination Date column and all of the cells in the End Origination Date column are read only. This ensures that all possible origination dates have supporting reference values when Prepayment assumption lookups occur. Each row in the End Origination Date column is filled in by the system when you click Add Row or save the rule.

   The first Start Origination Date (in row 1) has a default value of January 1, 1900. When you enter a Start Origination Date in the next row, the system inserts a date that is a day prior to the previous End Origination Date field.

2. Enter the PSA speed that you want to apply to the instruments having origination dates in a particular Start Origination-End Origination Date range. The PSA method is based on a standard PSA curve. You can view the seeded model by selecting the View Details icon.

   Note: The default value is 100 PSA and inputs can range from 0 to 1667.

3. Click Add Row to add additional rows and click the corresponding Delete icon to delete a row. You can add as many rows in this table as you require. However you need to enter relevant parameters for each new row.

4. Define Seasonality assumptions as required to model date specific adjustments to the annual prepayment rate. Inputs act as a multiplier, e.g. an input of 2 will double the prepayment rate in the indicated month.

Related Topics

Defining Prepayment Methodologies, **on page 230**

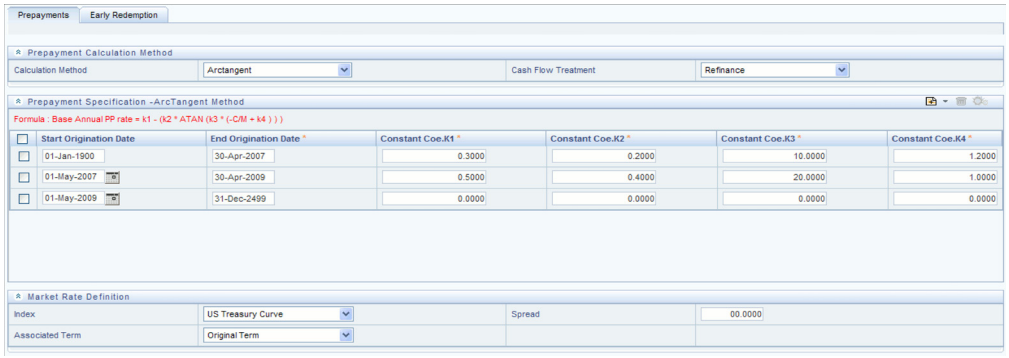
Standard Navigation Paths, **on page 343**

Defining the Arctangent Calculation Method

Use this procedure to define prepayment assumptions using the Arctangent Calculation method.

Prerequisites

Performing basic steps for creating or updating a Prepayment rule



Procedure:

1. Define the source for the Market Rate by Selecting an Index (Interest Rate Code) from the list of values.
2. Enter the Spread. A Spread is the difference between the Customer Rate and the Market Rate.
3. Select an Associated Term: Original Term, Reprice Frequency, or Remaining Term.
4. Specify the Arctangent Argument table parameters.
5. Select the Start Origination Date using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
6. Enter the values for the Arctangent parameters (columns K1 through K4) for each Start Origination Date in the table. The valid range for each parameter is -99.9999 to 99.9999.
7. Click Add Another Row to add additional rows and click the corresponding Delete to delete a row. You can add as many rows in this table as you require. However you need to enter relevant parameters for each new row.
8. Define the Seasonality assumptions as required to model date specific adjustments to the annual prepayment rate. Inputs act as multiplier, e.g. an input of 2 will double the prepayment rate in the indicated month.

Related Topics

Defining Prepayment Methodologies, **on page 230**

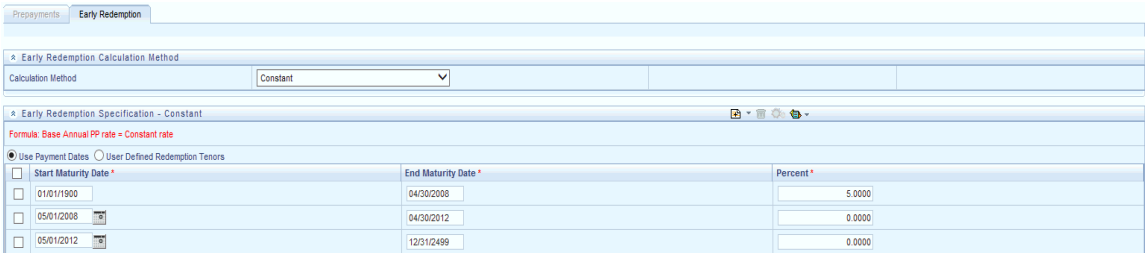
Standard Navigation Paths, **on page 343**

Defining Early Redemption Assumptions

If you are working with deposit products, it is possible to define Early Redemption assumptions within the Prepayment Rule. While defining these assumptions, the Prepayment rule will consider whether or not the product is an asset or liability (based on the account type attribute defined in dimension member management). If the product is an asset, then the Prepayments tab will be active in the prepayment assumption detail page. If the product is a liability, then the Early Redemption tab will be active.

Prerequisites

- Performing basic steps for creating or updating a Prepayment rule
- To define Early Redemption assumptions, the account type for the selected product must be a Liability



Procedure:

The procedure for defining Early Redemptions is the same as noted above for prepayments, with two exceptions:

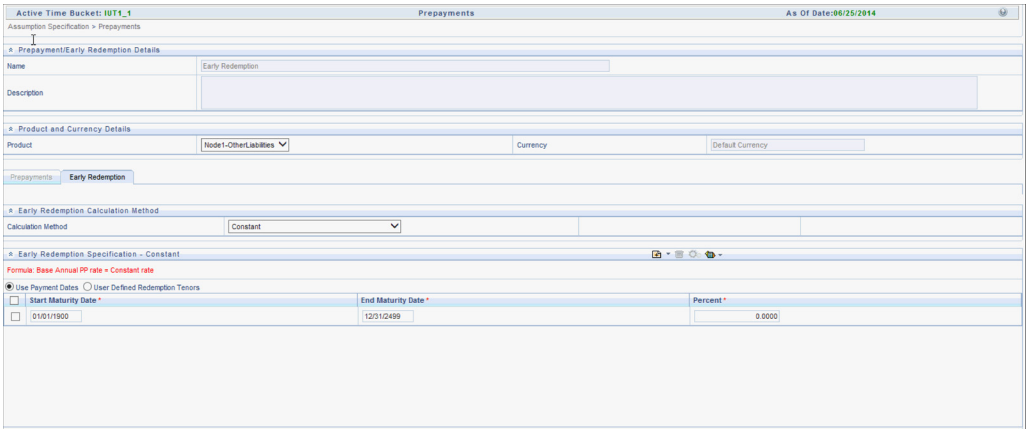
- The list of Calculation Methods is limited to Constant and Prepayment Models
- The range definitions are based on Maturity Date ranges of the instruments rather than Origination Date ranges

Users also have two options for determining the timing of the early redemption assumption. Options include:

- **Use Payment Dates:** This is the default option. If selected early redemption runoff will occur on scheduled payment dates only
- **User Defined Redemption Tenors:** If selected, users can specify any runoff timing. For example, users might choose to define the early redemption to runoff on the first day of the forecast.
  To define Early Redemptions within the Prepayment Rule, follow the steps given below:

  Use Payment Dates:

  - Select the "Use Payment Dates" option



  - Enter the Start Maturity and End Maturity Dates.
  - **Note:** The first cell in the Start Maturity Date column and all of the cells in the End Maturity Date column are read only. This ensures that all possible origination dates have supporting reference values when Prepayment assumption lookups occur. Each row in the End Origination Date column is filled in by the system when you click Add Row or save the rule. The first Start Origination Date (in row 1) has a default value of January 1, 1900. When you enter a Start Maturity Date in the next row, the system inserts a date that is a day prior to the previous End Maturity Date field.

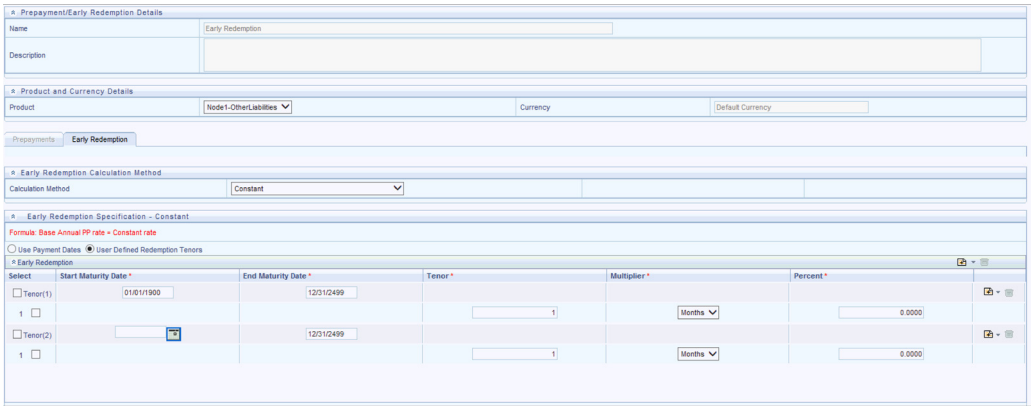
- Enter the annual prepayment rate percent that you want to apply to the instruments having origination dates in a particular Start Maturity-End Maturity Date range.

Note: The Percent column represents the actual annualized prepayment percentage that the system uses to generate the principal runoff during the cash flow calculations.

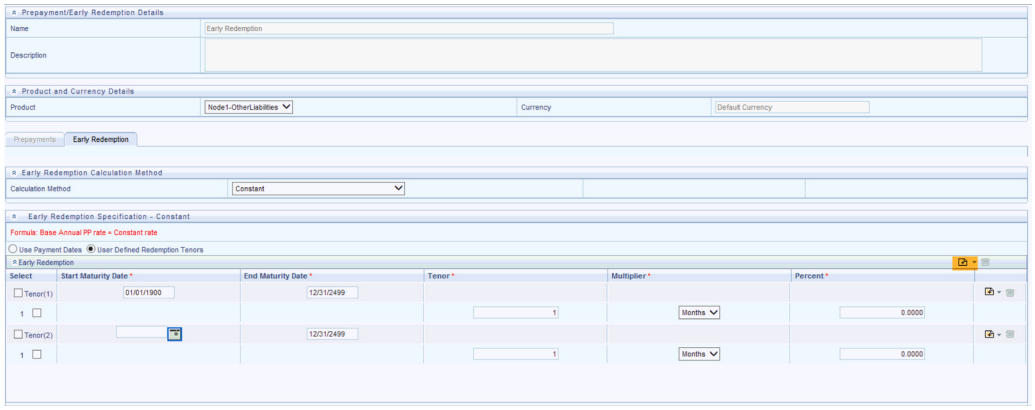
- Click Add Row to add additional rows and click the corresponding Delete icon to delete a row.
- You can add as many rows in this table as you require. However you need to enter relevant parameters for each new row.
- You can use Data Input Helper feature. For more information, refer to *Data Input Helper*, page 10-14.
- You can also use the Excel import/export feature to add the Prepayment rate information. For more details, refer *Excel Import/Export*, page 10-13.

User Defined Redemption Tenors:

- Select the User Defined Redemption Tenors option. This option allows you to specify the term to runoff for the particular row. E.g. if "1 Day" is defined, then the specified balance (redemption %), will runoff (mature) on the As of Date + 1 Day.



- Enter the Start Maturity and End Maturity date ranges, add additional ranges as required using the Add Row button.
- Enter the term to runoff tenor and multiplier for each of the date ranges.
- Enter the early redemption runoff percentage for each of the date ranges.
- Click Add Row to add additional runoff % rows and click the corresponding Delete icon to delete a row.



- Define Seasonality assumptions as required to model date specific adjustments to the annual prepayment rate or early redemption rate. Inputs act as multiplier, for example an input of 2 will double the runoff rate in the indicated month.

Related Topics

Defining Prepayment Methodologies, **on page 230**

Standard Navigation Paths, on page 343

CHAPTER 23 Prepayment Models

This chapter describes the procedure to build prepayment models using Prepayment Model Rules.

This chapter covers the following topics:

Overview of Prepayment Models

Creating Prepayment Models

Editing Prepayment Models

Prepayment Rate Data Loader

Overview of Prepayment Models

The Prepayment Model rule allows you to build custom prepayment models. These prepayment models can be referenced by a Prepayment Rule to model prepayment behavior of instruments based on a range of instrument level attributes.

The procedure for working with and managing Prepayment Models is similar to that of other Oracle Funds Transfer Pricing business rules. It includes the following steps:

- Searching for Prepayment Models.
- Creating Prepayment Models
- Viewing and Editing Prepayment Models.
- Copying Prepayment Models.
- Deleting Prepayment Models.
- Loading Prepayment Models through a staging table. See: Using seeded data loaders page

Related Topics

Standard Navigation Paths, on page 343

Creating Prepayment Models

Creating a Prepayment Model comprises the following sub procedures:

Creating Prepayment Models

Defining the structure of the prepayment model

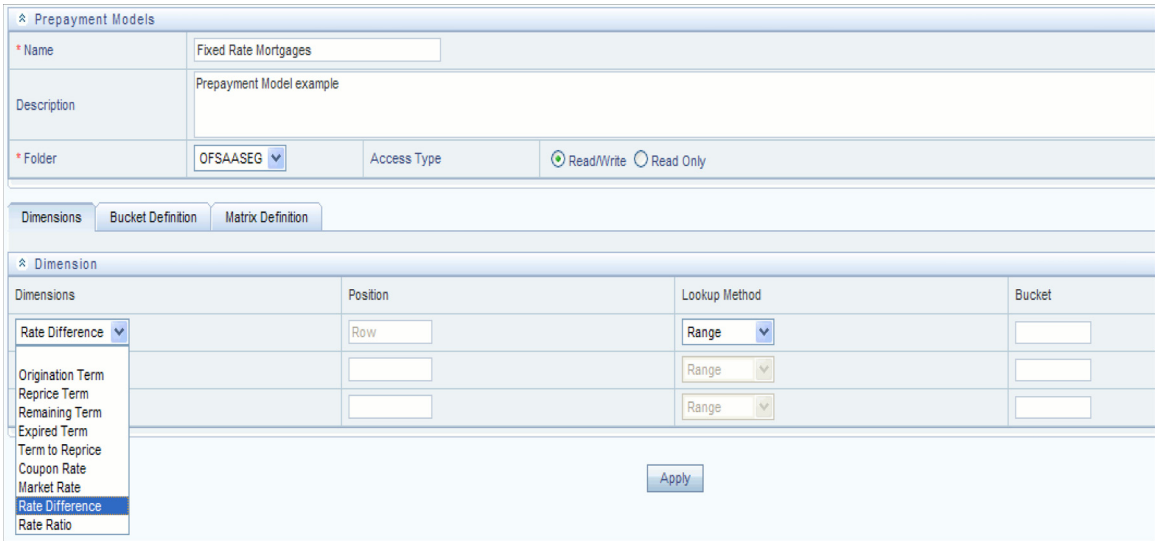
Assigning Node Values

Procedure to create a Prepayment Model

This table describes key terms used for this procedure.

Term	Description
Dimension	Influences the prepayment behavior of an instrument. You can build a prepayment model using up to three prepayment dimensions. Each dimension maps to an attribute of the underlying transaction (e.g. age/term or rate, etc.) so the cash flow engine can apply a different prepayment rate based on the specific characteristics of the record.
Lookup method	Used to calculate prepayment rates for the prepayment dimension values that do not fall exactly on the defined prepayment dimension nodes. Oracle Funds Transfer Pricing offers the following lookup methods: **Interpolation:** Under this method, the prepayment rates are determined by calculating an exact value on an axis. This method assumes that prepayment speeds change on a straight-line basis between the two nodes and calculates accordingly. **Range:** Under this method, the prepayment rates are determined by calculating a range of values on an axis. This method assumes that the prepayment speed will remain the same for the entire range. The following example explains the differences between these two lookup methods. The following lists show the age and corresponding prepayment rates of instruments. Age 12 24 36 60 Prepayment Rates 5 10 15 20 Under the Interpolation method, the prepayment speeds increase gradually. In this example, the Interpolated prepayment rate of an instrument aged 30 months is 12.5%. This is exactly halfway between the 10% and 15% rate. However, under the Range method, the Prepayment speeds increase in steps. Using the Range method, the prepayment rate is 10%, as this rate percentage would apply to the range from 24 months to 35.9999 months.
Nodes	Exact points for each dimension where attribute information has been defined.

1. Navigate to the Prepayment Model summary page.
2. Complete standard steps for this procedure.



Procedure to Define the Structure of the Prepayment Model

The Prepayment Model consists of the Prepayment Dimensions and the Bucket Values for these Dimensions which you select on this page. To define the prepayment model structure, you can select a maximum of three prepayment dimensions. Once the dimensions and the number of buckets (tiers) are defined, you need to assign values to the buckets.

Note: You can use the analogy of a three dimensional table to understand how to deal with the prepayment dimensions. The first dimension you select would resemble the row (X-axis). The second dimension would act as the column (Y-axis). The final third dimension will be the page (Z-axis).

3. Select the first Dimension.
4. Select a lookup method for that Dimension.
5. Enter the number of Buckets for the Dimension.
6. This number may vary from dimension to dimension.
7. If required, repeat the previous three steps for up to two additional Dimensions.

   Tip: There are certain restrictions while defining Dimensions:

- You must select the Dimension type for a row and define the values for that dimension.
- You cannot define the second (row) dimension until you have defined the first (row) dimension. Similarly, the third dimension can not be defined until you have defined the first two dimensions.

8. Click Apply.

   The Define Dimensions page is refreshed. You can now assign the bucket values for each dimension. At this point, you can also modify the structure of the table, if required.

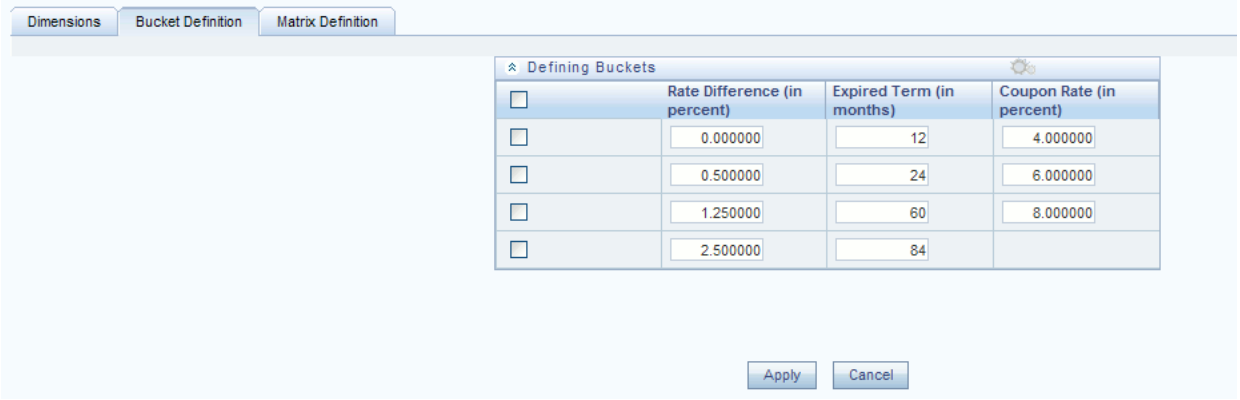
   Modifying the Table Structure

- To add more buckets to a particular Dimension, update the number of buckets for the Dimension and click Apply.
- To delete buckets from a particular Dimension, reduce the number of buckets to the desired value and click Apply.

Note: To change the lookup method of a particular Dimension, select the required method from the corresponding list of methods from the Dimensions tab.

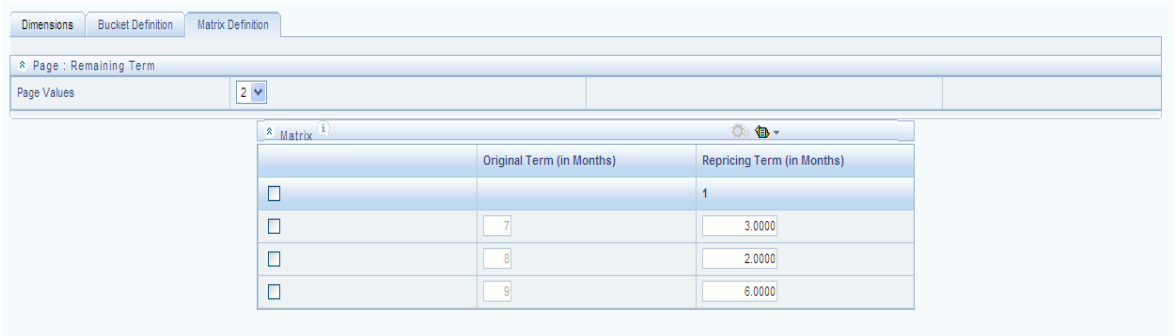
Procedure to Assign Bucket Values

9. Assign values for each of the buckets.



10. Click Apply. The Prepayment Model, Prepayment Dimensions, and Buckets are saved.
11. Enter the Prepayment Rates in the Prepayment Model.

    Bucket values for the row and column dimensions are displayed as a table, while the bucket values for the page dimensions (if selected) are shown in the drop down list.



12. Repeat the process for all bucket values of the page driver. To change the bucket value along the page driver, select the required value from the drop-down list.

    Note: Bucket values will be displayed in the drop-down list only if you selected three drivers.

13. Click Apply. The Prepayment Rates are saved and the Prepayment Model Rule summary page is displayed.

Related Topics

Creating Prepayment Models, on page 241

Standard Navigation Paths, on page 343

Editing Prepayment Models

As part of editing Prepayment models, you can modify Prepayment rates and the structure of the Prepayment Model. You can also modify the lookup methods (Range or Interpolation), the number of Buckets, and the actual values of the Buckets. However, if you update the dimensions your previously entered prepayment rate data may be lost.

Prerequisites

Predefined Prepayment Models.

Procedure:

1. Search for the Prepayment Model, which you want to edit.
2. Select the check box next to the Prepayment Model and select the Edit icon.

   The Prepayment Model will open in Edit mode.

Procedure to Update Rates

1. Modify the Prepayment Rates in the table as required.

Procedure to Update Dimensions Values

1. Click Update Dimensions Values. The Update Dimensions page is displayed.
2. Update the structure as required.

- To add more Nodes to a particular Dimension, update the number of Nodes for the Dimension and click Go.
- To delete Nodes from a particular Dimension, click the delete icon corresponding to the Node.
- **Note:** Nodes cannot be deleted by reducing their numbers. Also, all Nodes cannot be deleted and at least one Node must exist in each Dimension.
- To change the method of a particular Dimension, select the required method from the corresponding list.
- To change the value of a Node, update the value in the corresponding field.

3. Click Apply.

The Prepayment Model summary page is displayed.

Related Topics

Overview of Prepayment Models, on page 241

Standard Navigation Paths, on page 343

Editing Prepayment Rates in a Prepayment Model

Once the basic structure of the prepayment model has been created, prepayment rates can be added to, or modified for, each of the bucket values along the chosen dimensions. Use this procedure to add or edit annual prepayment rates in the prepayment model.

Procedure

1. Search for the Prepayment Model, for which you want to define prepayment rates. See: Searching for Rules.

2. Select the check box next to the Prepayment Model and select the Edit icon. The Prepayment rate input page is displayed.
3. Enter the Prepayment Rates in the Prepayment Model for the required dimensions.

   Node values for the row and column dimension are displayed as a table on the Prepayment rate input, while the node values for page dimension (if selected) are shown in the drop down list.
4. Repeat the process for all node values of the page dimension. To change the node value along the page dimension, select the required node value from the drop-down list.

   Note: Node values will be displayed in the drop-down list only if you selected three dimensions. If prepayment rates are left blank for any of the dimensions, prepayment rates are assumed to be zero.
5. Click Apply. The table with updated prepayment rates is saved.
6. Click Save.

   All updates to the Prepayment Model are saved and the Prepayment Model summary page is displayed.

Excel Import/Export:

Excel import/export functionality is used for adding/editing prepayment rate information. For more details, refer Excel Import/Export.

Related Topics

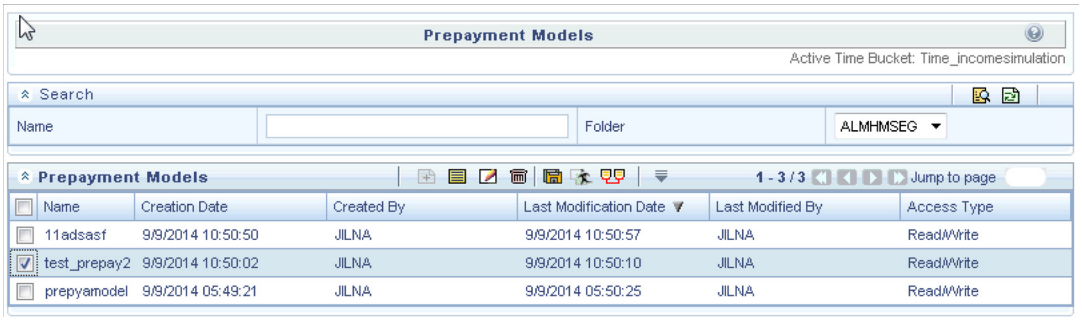
Overview of Prepayment Models, on page 241

Standard Navigation Paths, on page 343

Prepayment Rate Data Loader

Prepayment Rate Loader procedure populates prepayment model rates in OFSAA metadata tables from staging tables. This loader program can be used to update the prepayment model rates on a periodic basis. For more information on setting up the automated process, see *Oracle Financial Services Analytical Applications Data Model Utilities User Guide.*

To execute the Data loader process, click the Data Loader icon on the Prepayment Models rule bar. The process will load all of the data included in the staging tables as defined in the Data Model Utilities User Guide.



CHAPTER 24 Adjustment Rules

This chapter describes the procedure for working with and managing Adjustment rules.

This chapter covers the following topics:

Overview of Adjustment Rules

Creating Adjustment Rules

Defining Adjustment Methods

Overview of Adjustment Rules

Adjustment rules allow you to specify methodologies to calculate Transfer Pricing add-on rates and breakage charges for the relevant products in your portfolio. The methodologies contained in the Adjustments rule are referenced by the Standard Transfer Pricing Process.

The procedure for working with and managing Adjustment rules is similar to that of other Oracle Funds Transfer Pricing business rules. It includes the following steps:

- Searching for Adjustment rules.
- Creating Adjustment Rules
- Viewing and Editing Adjustment rules.
- Copying Adjustment rules.
- Deleting Adjustment rules.

As part of creating and editing Adjustment rules, you define adjustment methodologies for applicable products.

Availability of Adjustment Methods.

Adjustment Method Parameters.

Procedure to Define the Formula Based Rate Adjustment Method.

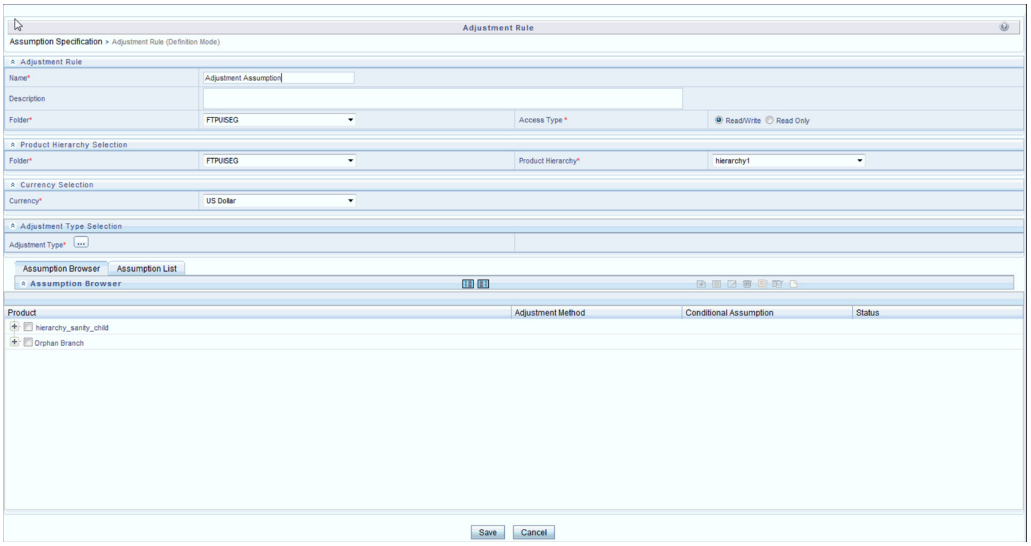
Oracle Funds Transfer Pricing provides you with the option to copy, in total or selectively, the product assumptions contained within the Adjustments, Transfer Pricing, and Prepayment rules from one currency to another currency or a set of currencies or from one product to another product or a set of products.

Creating Adjustment Rules

You create an Adjustments rule to define adjustment methodologies for your products.

Procedure

1. Navigate to the Adjustments rule summary page.
2. Select the Adjustment Type from Adjustment Type Selection section.



Here, you cannot select Breakage Charge with other adjustment types. You can select either Breakage Charge, or any combination of other Adjustment Types.

3. Complete standard steps for this procedure.

Tip: In addition to the standard steps for creating rules, the procedure for creating an Adjustments rule involves one extra step. After Standard Step 5, you need to select a product hierarchy. You can define methodologies at any level of the hierarchical product dimension. The hierarchical relationship between the nodes allows inheritance of methodologies from parent nodes to child nodes.

Related Topics

Overview of Adjustment Rules, on page 247

Standard Navigation Paths, on page 343

Defining Adjustment Methods

The definition of adjustment methods is part of the Create or Edit Adjustments rule process. When you click Save in the Create Adjustments rule process, the rule is saved and the Adjustments rule summary page is displayed. However, adjustment assumptions have not yet been defined for any of your products at this point. Typically, you would start defining your adjustment assumptions for product-currency combinations before clicking Save.

Prerequisites

Performing basic steps for creating or editing an Adjustments rule

Procedure:

This table describes key terms used for this procedure.

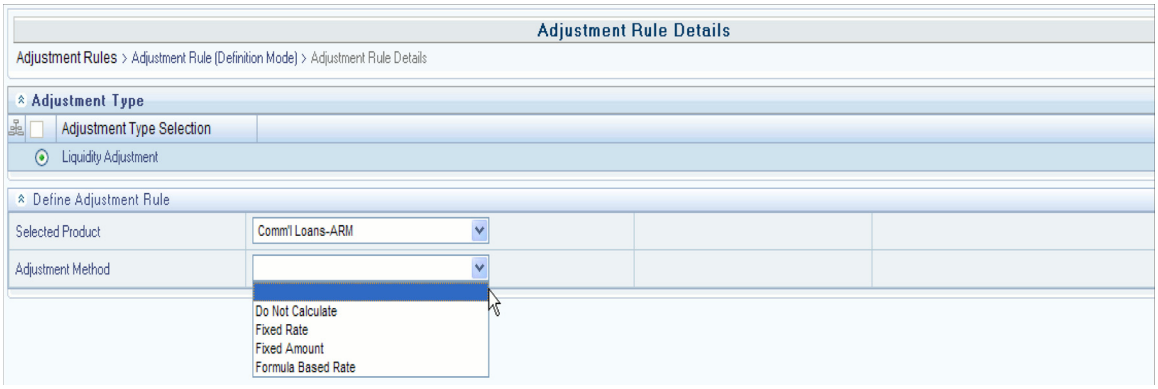
Selected Terminology

Term	Definition
Reference Term	The associated term used for the add-on rate assignment. You can select one of the following types of reference terms: Original Term (the contractual term to the maturity of the account), Repricing Frequency (the frequency at which the account reprices), Remaining Term (the number of months until the account matures).
Lookup Method	Method used to derive an add-on rate for different reference term values. Specify Range as the lookup method if you want the application to apply the rates defined in the Adjustments rule to a range of reference term values, using the terms defined in the rule to specify the lower end of the range. Note that for values less than the lowest term point, the application uses the value associated with the lowest point. Specify Interpolation as the lookup method if you want the application to interpolate add-on rate values for applicable reference terms falling between node points specified in the Adjustments rule, using straight line interpolation between the term points.
Term	In conjunction with the Multiplier, this field allows you to specify the value for the Reference Term, for a given lookup tier.
Multiplier	The unit of time applied to the Term. The choices are: Days, Months, Years.
Rate	The add-on rate to be applied to instruments where Reference Term is the product of the Term and Multiplier defined for the row. The rate should be in percentage form, for example, 1.25 percent should be input as 1.25.
Amount	The add-on amount to be applied to instruments where Reference Term is the product of Term and Multiplier defined for the row.
Assignment Date	Allows you to choose the date for which the yield curve values are to be sourced. Choices available are the As of Date, Last Repricing Date, TP Effective Date, Origination Date, Commitment Start Date, or Adjustment Effective Date.
Interest Rate Code	Used for the rate lookup for the Formula Based Rate, and in the Breakage Charge - Economic Loss method when discounting cash flows.
Formula	The mathematical formula used in the Formula Based Rate adjustment method to determine the Add-on rate: (Term Point Rate * Coefficient) + Rate Spread
Term Point	In conjunction with the Multiplier (day, month, or year), it is used in the Formula Based Rate method when looking up the rate for the designated Interest Rate Code.
Coefficient	Coefficient by which the Term Point rate should be multiplied.
Rate Spread	The spread added to the interest rate read from the selected Interest Rate Code. Rate Spread is used in the Formula Based Rate and Breakage Charge - Economic Loss adjustment methods. For the Formula Based Rate method, the spread is added to the result of the Term Point Rate * Coefficient. Enter the Rate Spread in percentage form, for example, 1.25 percent should be input as 1.25.

Minimum Charge	Used in the Fixed Percentage and Economic Loss adjustment methods for Breakage Charges. If the calculated Break Funding Amount is less than the Minimum Charge, then the Minimum Charge overrides the calculated amount, and is written to the Break Funding Amount column.
Original Term	Enter the Original Term to define the contractual term from the origination date. Note that it is possible to define more than one term for the selected product/currency. If more than one term is defined, then multiple records will be created for pricing, i.e. one corresponding to each Product/Currency and Term.
Repricing Frequency	Enter the Repricing Frequency to define the frequency of rate change of a product.
Remaining Term	Enter the Remaining Term to define the number of months remaining until the instrument matures.

Availability of Adjustment Methods

The list of adjustment methods depends on the adjustment type that you select: add-on rates (including Liquidity Adjustments, Basis Risk costs, Pricing Incentives, and Other adjustments), or Breakage Charges. The following table describes the adjustment methods available for each of the adjustment types.



Availability of Adjustment Methods

Adjustment Method	Adjustment Type: Breakage Charges	Adjustment Type: Add-On Rates (Liquidity Adjustments, Basis Risk Costs, Pricing Incentives, and Other Adjustments)
Do Not Calculate	Yes	Yes
Fixed Rate		Yes
Fixed Amount	Yes	Yes
Formula Based Rate		Yes

Economic Loss	Yes
Fixed Percentage	Yes

Note: If you select "Do not calculate" as the calculation method, no adjustment assumptions will be assigned to the particular product-currency combination. This is a particularly useful option when using node level assumptions because it allows you to exclude a particular child from inheriting a parent assumption.

Adjustment Method Parameters

To define an adjustment calculation method, you must specify one or more parameters, depending on the method. The parameter fields may display a default value, which you can override.

The following tables display the parameters associated with the adjustment methods for different adjustment types.

Parameters Applicable to the Adjustment Methods for the Add-On Rate Adjustment Typesdefining adjustment methodsparametersadd-On rates adjustment type parameters

Adjustment Method	Lookup Method	Term	Multiplier	Rate	Amount	Assignment Date	Interest Rate Code	Formula		Reference Term
Do Not Calculate										
Fixed Rate	Yes	Yes	Yes	Yes					Yes	
Fixed Amount	Yes	Yes	Yes		Yes				Yes	
Formula Based Rate	Yes	Yes	Yes			Yes	Yes	Yes	Yes	

Note: The Add-On Rate adjustment types include Liquidity Adjustments, Basis Risk Costs, Pricing Incentives, and Other Adjustments.

Parameters Applicable to the Adjustment Methods for the Breakage Charge Adjustment Typedefining adjustment methodsparametersbreakage charges adjustment type parameters

Adjustment Method	Break Funding Rate	Interest Rate Code	Rate Spread	Minimum Charge		Break Funding Amount
Do Not Calculate						
Fixed Amount					Yes	
Economic Loss		Yes	Yes	Yes		
Fixed Percentage	Yes			Yes		

Prerequisites

Performing basic steps for creating or editing an Adjustments rule

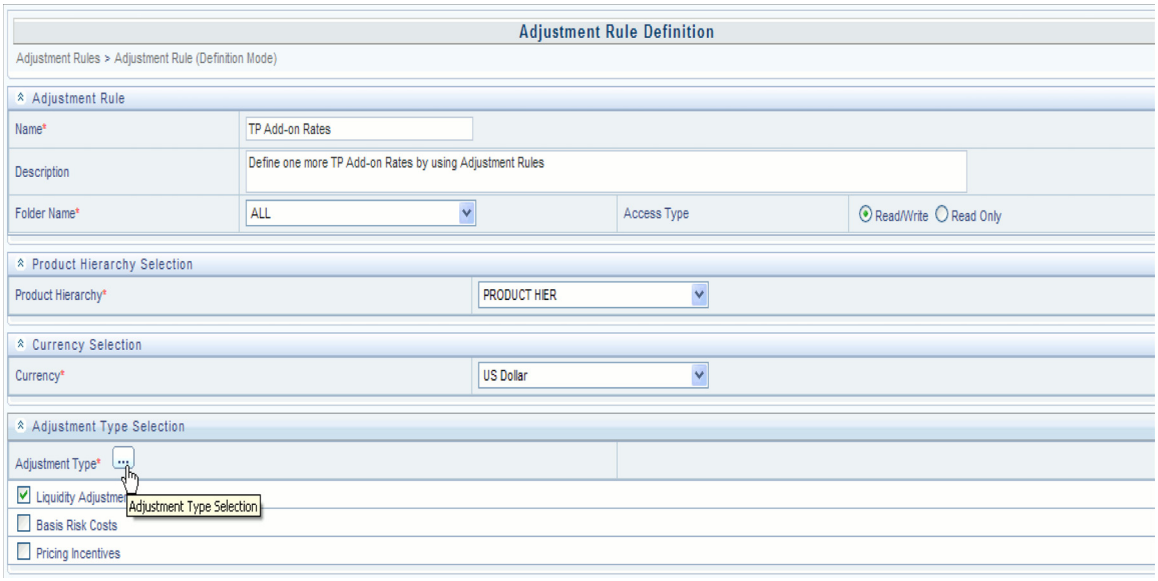
Procedure

Once you have created an Adjustments rule, you can assign adjustment methodologies to product-currency combinations in either of the following two ways:

1. By creating a conditional assumption using conditional logic.
2. Directly on the Adjustment methodology page, as described here.

Use the following procedure to define an adjustment method:

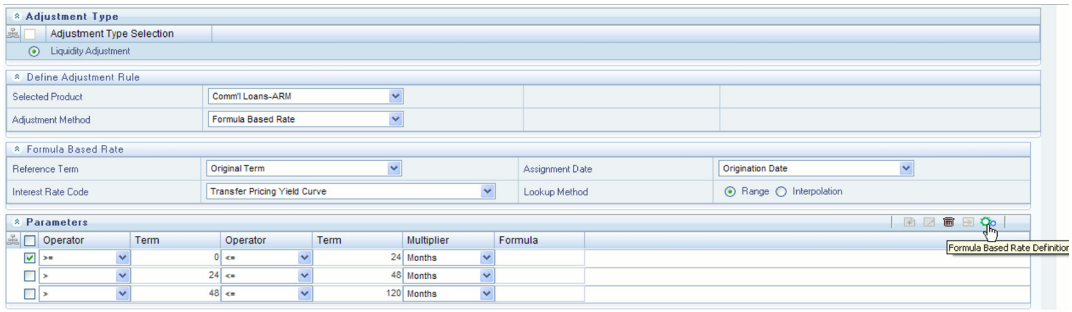
1. Navigate to the Adjustments assumption browser page.



2. Select an appropriate adjustment type: Liquidity Adjustment, Basis Risk Costs, Pricing Incentives, Other Adjustment, or Breakage Charge by opening the Adjustment Type selector window. You can enable one or more adjustment types within a single Adjustment Rule and apply more than one Adjustment to a single product.

Note: The product hierarchy refreshes when you change your Adjustment Type selection, but note that all selections made within the rule are saved. For example, when Liquidity Adjustment is selected, the hierarchy displays the status of Liquidity Adjustment mappings within the hierarchy. If you change your Adjustment Type selection to Basis Risk Cost, the hierarchy will refresh and you will see the status of all Basis Risk Cost mappings, etc.

3. Select a Product Hierarchy.
4. Specify a currency.
5. Based on the selected hierarchy, the application displays a list of all the products (for which you can define assumptions).
6. Select the check box for one or more products for which you want to define adjustment details.
7. Select an adjustment method and enter the appropriate parameters.



Tip: The adjustment methods available depend on the selected adjustment type. Depending on the Adjustment Type and Adjustment Method combinations selected, certain required and optional parameter fields are displayed. You can update these fields as required. See:

Selected Terminology

Adjustment Method Parameters.

Procedure to Define the Formula Based Rate Adjustment Method.

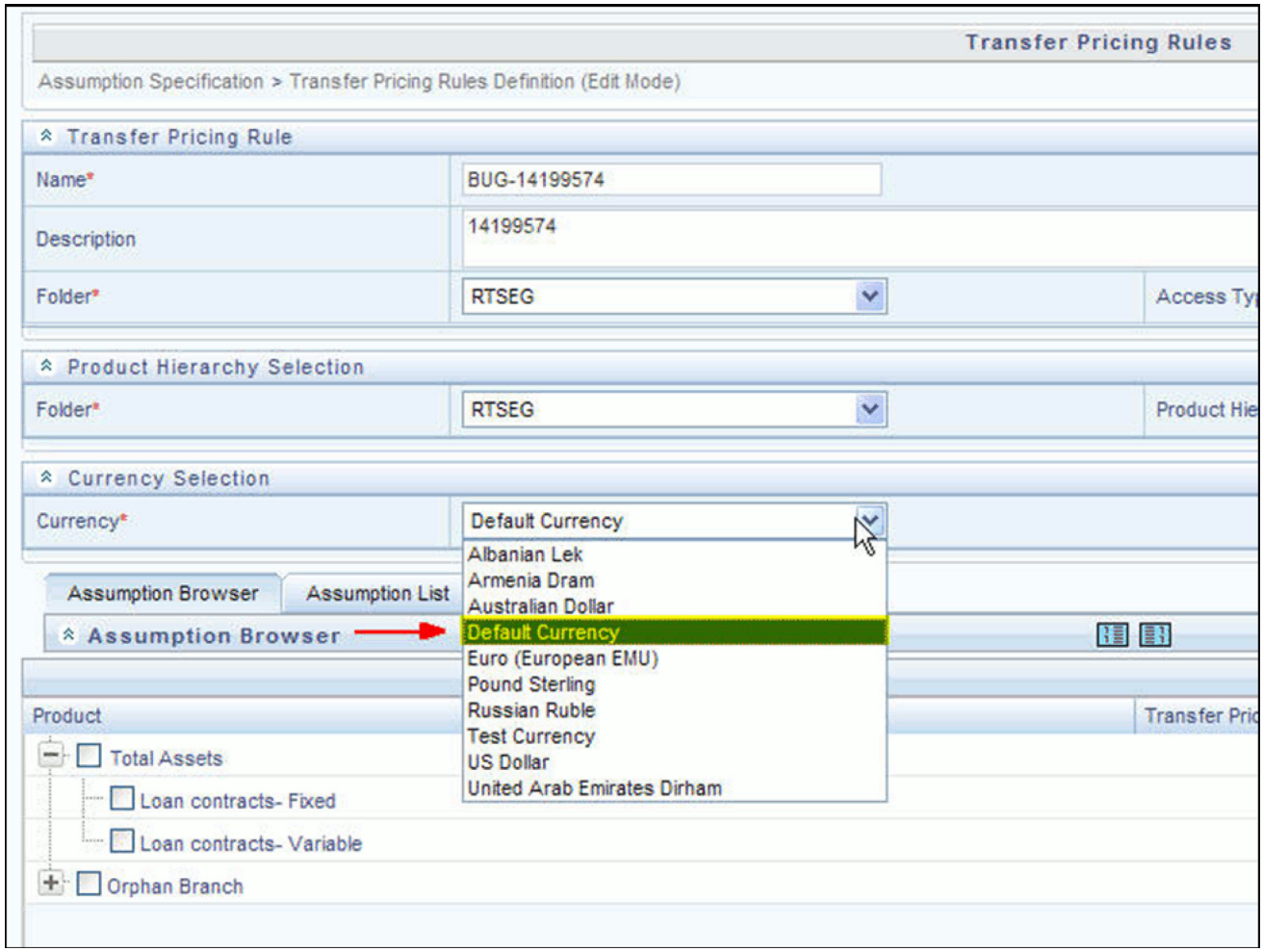
8. Click Apply. If only one product was selected, the assumption browser page is displayed. If more than one product was selected on the assumption browser page, then each subsequent product in the select list will appear in the Selected Product drop list and each item should be defined appropriately. After completing the assumption details for each selected product, the assumption browser page will be displayed. At this point you can:

- Continue defining assumptions for additional product-currency combinations for the selected Adjustment Type, by repeating the above procedure.
- Select a new Adjustment Type and continue defining assumption details for the required set of products
- Complete the process by clicking Save. The new assumptions are saved and the Adjustments rule summary page is displayed.

Note: Oracle Funds Transfer Pricing provides you with the option to copy, in total or selectively, the product assumptions contained within the Adjustments, Transfer Pricing, and Prepayment rules from one currency to another currency or a set of currencies or from one product to another product or set of products.

Defining assumptions with the "Default Currency"

For cases where you have the same assumption (method and IRC) which is applicable to all currencies or multiple currencies, you can define rules for the combination of Product and "Default Currency". To define assumptions for the Default Currency, select a Product from the Hierarchy and “Default Currency” from the currency list and proceed with the assumption definition as described above. When processing data, the TP engine will first look for an assumption that exactly matches the product/currency of the instrument record. If not found, the engine will then look for the combination of product and the Default Currency. This is a useful option to utilize during setup when the same product exists across multiple currencies and shares the same TP assumption and Interest Rate Code.



Default Currency setup example: If you have two instrument records of the same Product, each with a different currency, e.g. 1 is 'USD' and the other is 'AUD', you have two configuration choices. You can either:

- Define the assumptions individually for each product currency combination using direct input or copy across,
- You can create one assumption for the combination of Product and Default Currency. When you use “Default Currency”, the TP Engine will apply this assumption to ALL currencies (unless a direct assumption is available for the product + currency being processed). In the case where users have many individual

currencies that utilize the same TP Method and reference IRC rates, this is a useful option because you only have to define the assumption 1 time and it applies to many different Product + Currency combinations.

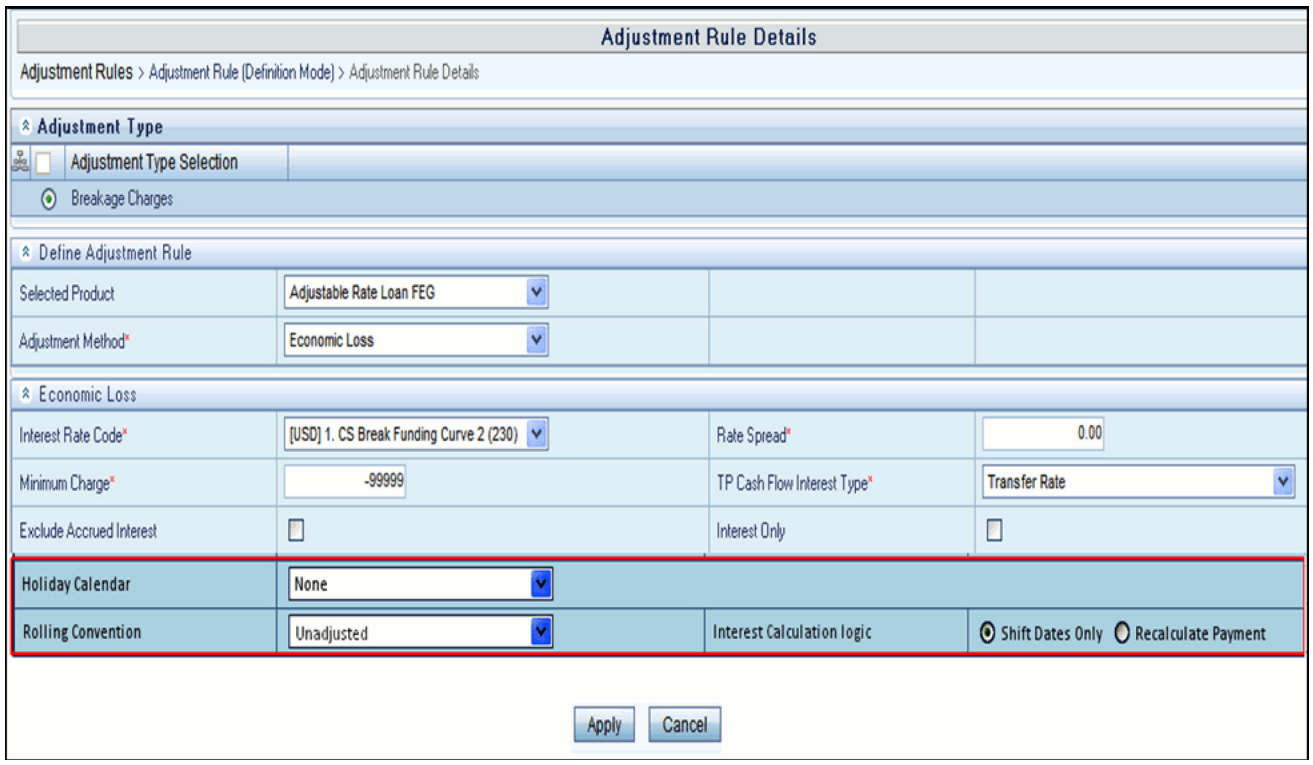
Procedure to Define the Formula Based Rate Adjustment Method

Defining the Formula Based Rate adjustment method involves the following additional steps

1. Select the Parameters row to update.
2. Click the Formula Based Rate Definition button to define the formula. The Formula Based Rate Definition page is displayed.
3. Specify the Term Point, Coefficient, and Rate Spread in the Formula Based Rate Definition page.

Procedure to Define the Breakage Charge Economic Loss Method

Defining the Economic Loss Breakage Charge assumption requires the following additional steps:



1. Select the Interest Rate Code and Rate Spread to use for discounting the remaining term cash flows.
2. Select the minimum charge amount. Default to -99999 if you want to calculate both gains and losses.
3. Select the TP Cash Flow Interest Type. This is the interest rate that will be used to generate interest cash flows.
4. Select the option to "Exclude Accrued Interest" if applicable.
5. Select the "Interest Only" option to discount only the Interest cash flows.
6. Select a Holiday Calendar if you want to adjust cash flows for Holidays and Weekends.

   The default selection for Holiday Calendar is "None". If this option is selected, then Holiday Calendar adjustments will not be applied to cash flow dates. If you wish to apply Holiday Calendar Adjustments, then select the appropriate Calendar.
7. Select the appropriate Rolling Convention. When "Holiday Calendar" has been selected in the preceding field, this drop-down list becomes active and contains 4 values:

- Following Business Day
- Modified following business day
- Previous business day
- Modified previous business day

8. Select the appropriate Interest Calculation Logic – There are two options:

- Shift Dates Only
- Recalculate Payment

9. Select Apply.

Related Topics

Overview of Adjustment Rules, on page 247

Standard Navigation Paths, on page 343

Holiday Calendar, on page 63

CHAPTER 25 Stochastic Rate Indexing Rules

This chapter describes the steps you need to take to work with and manage Stochastic Rate Indexing Rules.

This chapter covers the following topics:

- Overview of Stochastic Rate Indexing Rules
- Defining Stochastic Rate Indexes

Overview of Stochastic Rate Indexing Rules

The purpose of the Stochastic Rate Index Rule 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 Stochastic Rate Index Rule is used only in stochastic processing and is one of the business rules that you need to select within the Stochastic TP Process for option cost processing.

The procedure for working with and managing the Stochastic Rate Index rule is similar to that of other Oracle Funds Transfer Pricing business rules. It includes the following steps:

- Searching for Stochastic Rate Index rules.
- Creating Stochastic Rate Index rules.
- Viewing and Editing Stochastic Rate Index rules.
- Copying Stochastic Rate Index rules.
- Deleting Stochastic Rate Index rules.

Related Topics

Standard Navigation Paths, on page 343

Defining Stochastic Rate Indexes

A formula must be defined for each interest rate index tied to an instrument. That formula takes the following form:

$$\text{Index Rate}_{\text{term m}} = K_1 \text{ Risk Free Rate}_1^{x1} + K_2 \text{ Risk Free Rate}_2^{x2} + \ldots K_8 \text{ Risk Free Rate}_8^{x8} + \text{Spread}$$

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 a different rate forecast generated for each instrument, with a given IRC. The definition of rate indexes is part of the create Stochastic Rate Index rule process in which rate indexes are defined for currency-valuation curve combinations. When you click Save in the create Stochastic Rate Index rule process, the rule is saved and the Stochastic Rate Index rule summary page is displayed. However, the rate indexes have not yet been defined for any of the currency-valuation curve combinations. Typically, you would start defining the rate indexes for currency-valuation curve combinations before clicking Save.

Prerequisites

Creating Interest Rate Codes

Performing basic steps for creating or editing a Stochastic Rate Index rule.

Procedure

This table describes key terms used for this procedure.

Selected Terminology

Term	Description
Valuation Curve	The Valuation curve is used to calculate the future rates of Indexes (IRCs) defined in a Stochastic Rate Index rule and these future rates are used to calculate option costs. Oracle Funds Transfer Pricing allows you to assign a Valuation curve for each currency during the create process of the Stochastic Rate Index rule. Typically, the Valuation curve and the indexed rate curves derived from it have the same Referenced Currency. For example, you will use the US Treasury Yield Curve as the Valuation curve to calculate the forward rates of any US dollar-based Interest Rate Code.
Coefficient	A multiplier to weight each term selection.
Exponent	An exponent to allow for polynomial curve-fitting.

Index Term

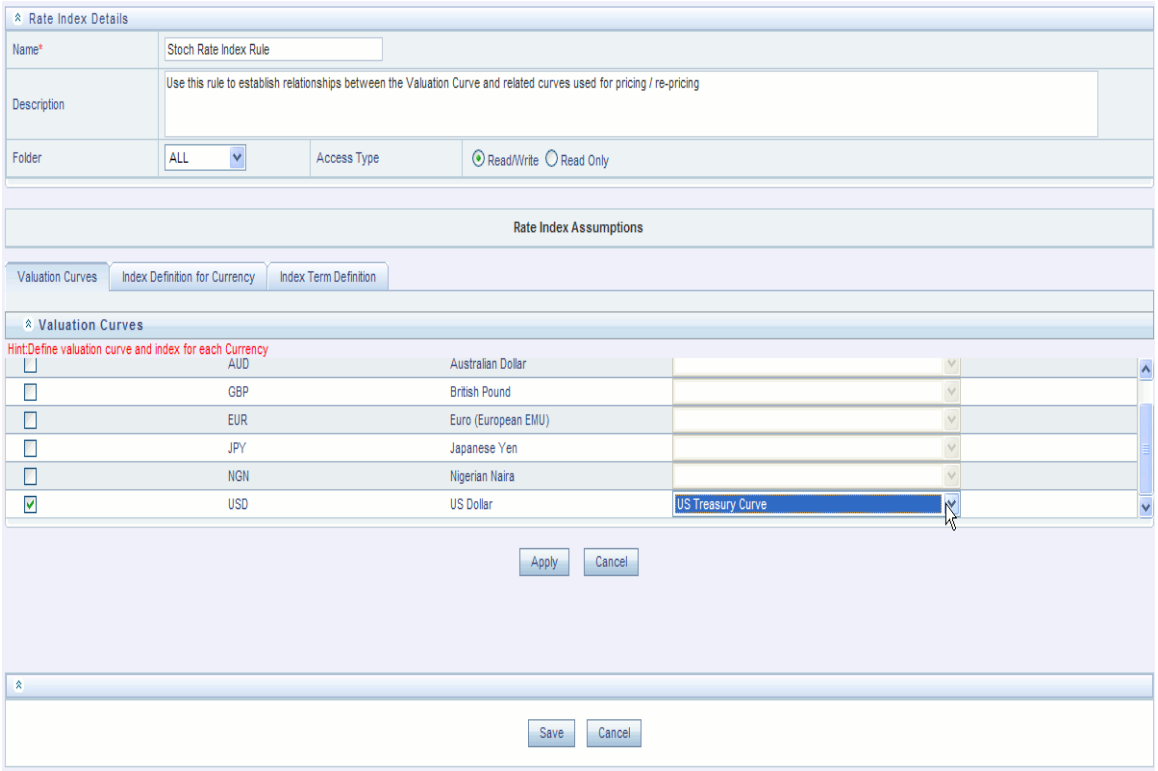
An Interest Rate Code is made up of one or many term points that denote a particular interest rate yield curve structure. Oracle Funds Transfer Pricing generates future rates for term points in the Interest Rate Code based on an arithmetic formula that has the following components:
A combination of term point rates from the valuation curve (with a maximum selection of eight terms or elements), which need not be the standard term points as defined in IRC definition of the valuation curve
A coefficient and an exponent for each of the valuation curve term points
A single spread per index term point

A formula must be defined for each index tied to an instrument. That formula takes the following form:

$$\text{Index Rate}_t = \sum_{n=8}^{1} [\text{Coefficient}_n \times (\text{RFR}_T)^{\text{Exponent}_n}] + \text{Spread}_n$$

Where:
t is the term point of the index
T is the term point of the valuation curve
n is the number of term points of the valuation curve referenced
RFR is the rate of the specific term point on the valuation curve

To create your formula, you can select up to eight term points (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 for each of the term points used in the formula.

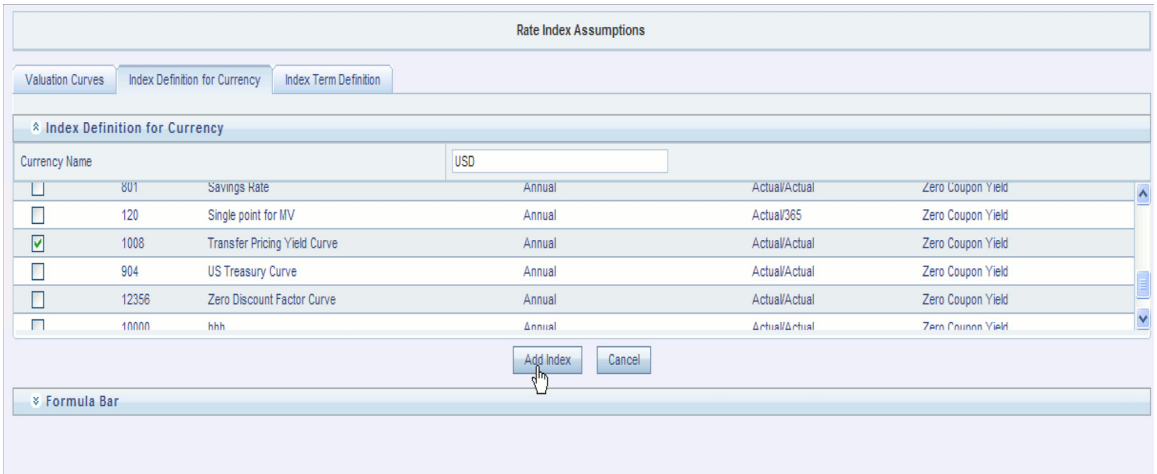


1. Navigate to the Stochastic Rate Index Valuation Curve assignment page.
2. Select the currency you want to work with.
3. Select a Valuation Curve for the currency you selected in the previous step.

   Tip: Only a single Valuation Curve can be associated with a particular currency. For example, if the Valuation Curve for US Dollars is US Treasury Curve, all US Dollar indexes will be associated with the US Treasury curve.

   Ideally, you need to select a risk free interest rate structure. Not all the Interest Rate Codes in the application will have the characteristics of a risk free rate curve, but the application will not prevent you from selecting any curve as the Valuation Curve.
4. Select Apply. The Index Definition for Currency page is displayed

   Procedure to Add the Index

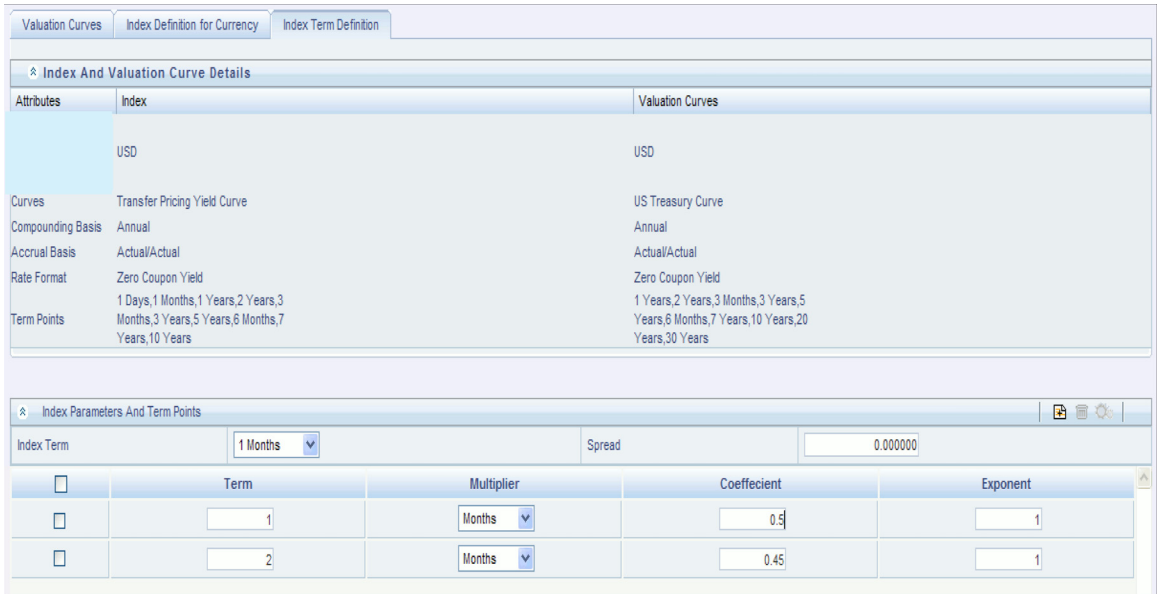


5. Select the Index you want to define.
6. Click Add Index.

   The Add Index Term Definition page is displayed. The general attributes of both the valuation curve and the selected IRC, are displayed. This information can be used as a reference when you define the terms.

   Procedure to Add Index Term Definitions

   Each Index Term Point can be calculated from up to eight elements of the valuation curve. The valuation curve elements specified can be any term point on the yield curve; it is not restricted to the points displayed for the valuation curve.



7. Select the Index Term you want to define.

   Not all IRCs have Term Points defined. To successfully define an Index, you must define at least one of its terms. Optionally, you could define one, many or all of the Index Terms. The selection of Index Term is limited to the standard Term Points as defined in the IRC definition.

8. Enter a Spread for the Index Terms, if required.

   A Spread is a constant percentage added to the rate produced as a result of the Monte Carlo calculations, multiplication with the defined coefficient and raising to the power of the mentioned exponent.

9. Enter the Valuation Curve Term Point and select the multiplier.

10. Enter a coefficient for the element.

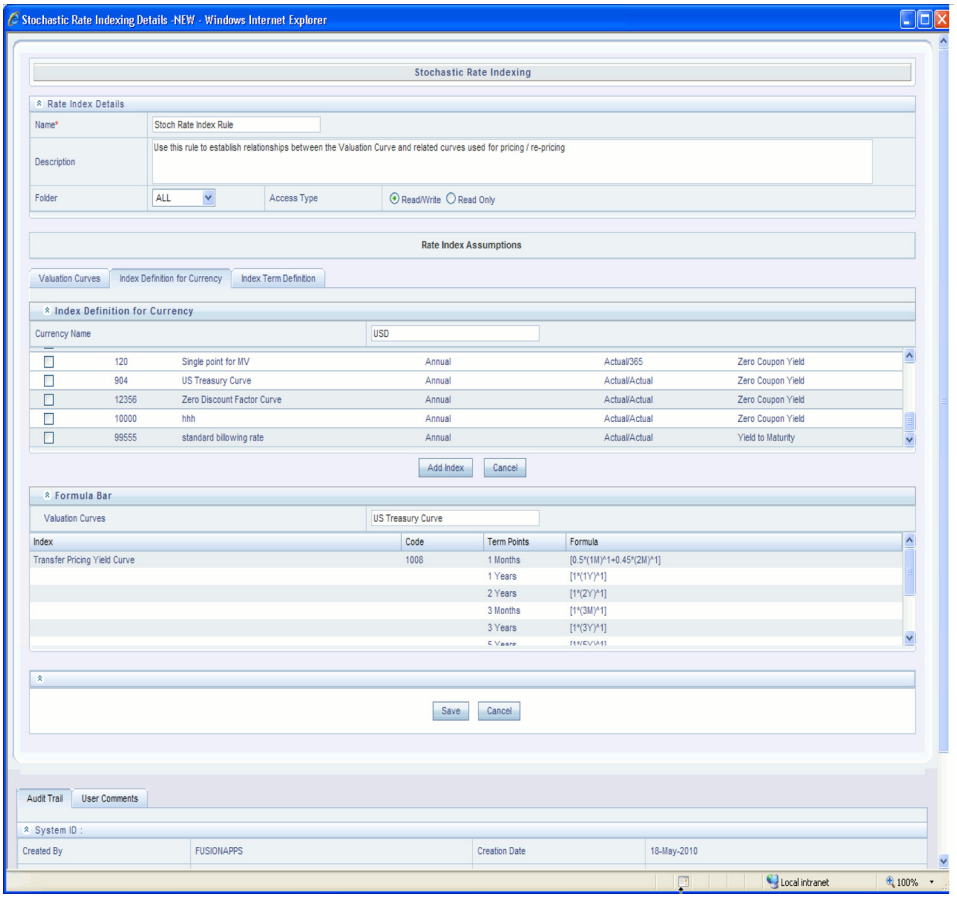
11. Enter an exponent for the element.

12. Repeat the last four steps for a maximum of seven more elements for each term.

13. Click Apply (from the bottom of the page) when indexing has been completed for all required term points.

    The Stochastic Rate Index Valuation Curve page is displayed. You can navigate to the Index Definition tab and continue defining rate index relationships for the existing currency selection or you can switch currencies, define the valuation curve for the new currency and proceed with Rate Index definitions.

    Note: Note, during rule creation, on the Index Definition for Currency tab, all undefined IRC's are displayed in the top half of the screen and all defined IRC's are displayed on the bottom half of the screen. Upon saving the rule and re-entering in Edit mode, you see the status reflected for all defined (green) and undefined (red) IRC's in the top half of the screen. If you want to Edit any of the Rate Index relationships, while in rule EDIT mode, select the appropriate IRC and again select Add Index and proceed with any changes.



14. Click Save to save the changes.

    The Stochastic Rate Index rule summary page is displayed.

Related Topics

Overview of Stochastic Rate Indexing Rules, on page 259

Standard Navigation Paths, on page 343

CHAPTER 26 Alternate Rate Output Mapping Rules

This chapter describes the procedure to output transfer pricing results to the seeded or user-defined alternate columns instead of default columns of the application.

Alternate Rate Output Mapping Rules allow you to map transfer pricing results to alternate or user defined columns rather than to the standard output columns. Alternate Rate Output Mapping rules are optional components of a Transfer Pricing process. If these rules are excluded from a process, then results are written to the standard default columns on the instrument tables. If an alternate rate mapping table is included then outputs will be written based on target columns specified by the user. This functionality allows users to calculate and output more than one transfer rate, option cost or TP add-on rate for each instrument record.

This chapter covers the following topics:

- Overview of Alternate Rate Output Mapping Rules
- Creating Alternate Rate Output Mapping Rules
- Registering Alternate Output Columns for Account Tables

Overview of Alternate Rate Output Mapping Rules

In Oracle Funds Transfer Pricing, you can output transfer pricing results either to the default columns of the application or to the seeded or user-defined alternate columns selected using the Alternate Rate Output Mapping rule.

The Alternate Rate Output Mapping rule is referenced by both the Standard Transfer Pricing Process and Stochastic Transfer Pricing Process to output transfer rate, option cost, and adjustment calculation results for each instrument record.

The procedure for working with and managing the Alternate Rate Output Mapping rule is similar to that of other Oracle Funds Transfer Pricing business rules. It includes the following steps:

- Searching for Alternate Rate Output Mapping rules.
- Creating Alternate Rate Output Mapping Rules
- Viewing and Editing Alternate Rate Output Mapping rules.
- Copying Alternate Rate Output Mapping rules.
- Deleting Alternate Rate Output Mapping rules.

Before creating Alternate Rate Output Mapping rules, you will need to register any user defined columns that you have added as alternate output columns for instrument tables. Note that a full set of alternate target columns is seeded with each instrument table, so it is not a requirement to create and register user defined columns. You can either utilize the seeded alternate columns or create your own custom alternate columns.

Related Topics

Standard Navigation Paths, on page 343

Creating Alternate Rate Output Mapping Rules

Prerequisites

Register Alternate Output Columns for Account Tables

Procedure

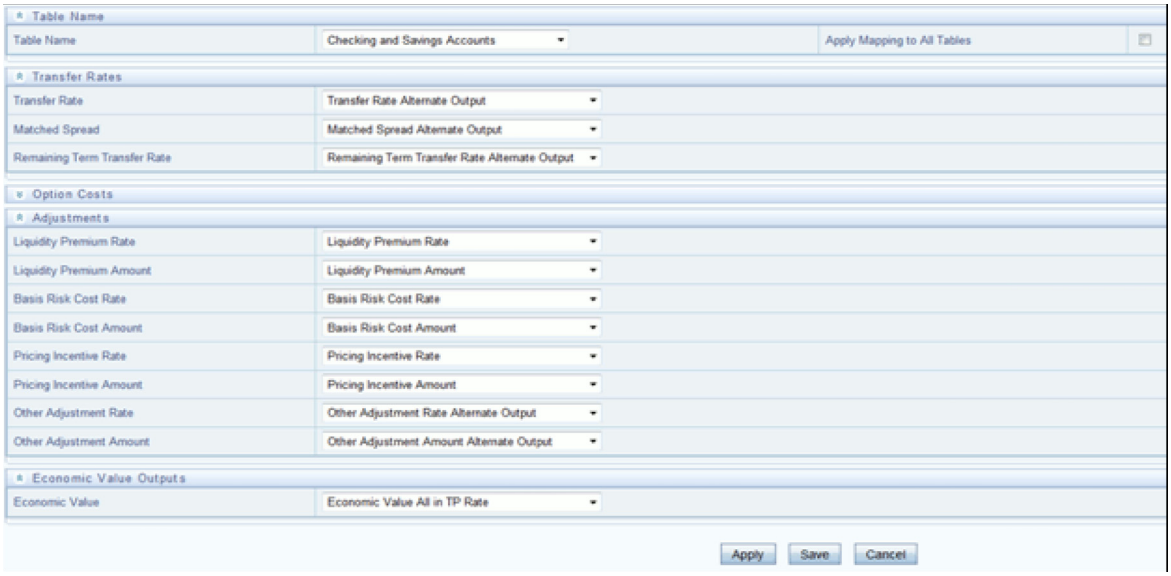
You create an Alternate Rate Output Mapping rule to select the alternate columns to output transfer rate, option cost, and adjustment calculation results for each instrument record in an account table for a transfer pricing process run.

1. Navigate to the Alternate Rate Output Mapping rule summary page.
2. Complete standard steps for this procedure.

Additional steps to create Alternate Rate Output Mapping Rule

In addition to the standard steps for creating rules, the procedure for creating Alternate Rate Output Mapping rules involves the following extra steps after standard step 9:

1. Select the instrument table for which you want to output transfer pricing results into alternate columns.



2. (Optional) Select an alternate column mapping for the following result types:

- **Transfer Rates:** Transfer Rate, Matched Spread, and Remaining Term Transfer Rate. **Note:** When selecting an alternate Transfer Rate column, you must select an alternate Matched Spread column.
- **Option Costs:** Historic Option Adjusted Spread, Historic Static Spread, Current Option Adjusted Spread, and Current Static Spread. **Tip:** Option Cost output columns are displayed only for tables registered with the Option Cost classification.
- **Adjustments:** Liquidity Premium Rate, Liquidity Premium Amount, Basis Risk Cost Rate, Basis Risk Cost Amount, Pricing Incentive Rate, Pricing Incentive Amount, Other Adjustment Rate, Other Adjustment Amount. **Note:** If you are using alternate rate output, you should define alternate columns for all Transfer Rate and Adjustment Rate columns.

- **Breakage Charges:** If the source table is Break Funding Charges, then the following alternate output columns can additionally be defined. Break Funding Market Value, Break Funding Amount, Break Funding Rate, and Break Funding Amount Change
- **Economic Value Outputs:** The Economic Value dropdown contains the following list of values with the corresponding linked columns: Economic Value All in TP Rate, Economic Value Basis Risk Cost Rate, Economic Value Liquidity Premium Rate, Economic Value Other Adjustment Alternate Rate, Economic Value Other Adjustment Rate, Economic Value Pricing Incentive Rate, and Economic Value Transfer Rate

3. (Optional) Deselect the Apply Mappings to All Tables option: The default setting of the Apply Mappings to All Tables option is selected. This functionality lets you apply alternate column mappings from the current page to all other instrument tables in which the selected result columns are available and replaces any previous selections in the other instrument tables. If a result type exists in the target table but is not displayed on the current page (for example, when the target table is classified for Option Cost, but the current source table does not have the Option Cost classification), the rule maps results to default columns in the target table (in our example, it would map to Historic Option Adjusted Spread Alternate column, Historic Static Spread Alternate column, etc.). If you deselect the Apply Mappings to All Tables option, the rule saves mappings to the default columns on any table for which you have not explicitly selected alternate output columns.

Related Topics

Overview of Alternate Rate Output Mapping Rules, on page 265

Standard Navigation Paths, on page 343

Registering Alternate Output Columns for Account Tables

It is possible to add user defined columns to your instrument tables and to designate certain columns as target columns for alternate rate output. The following steps will allow you to register these columns for use within the application and will allow you to select the columns from within the Alternate Rate Output Mapping rule screen.

1. Create the new user defined column(s) in the Erwin model and define the new User Defined Property (UDP) for the column(s).
2. For alternate rate output mapping, following are the applicable UDP's:

- Transfer Pricing Output (80)
- Option Cost Output (81)
- Liquidity_rate_column (95)
- Liquidity_amount_column (96)
- Basis_rate_column (97)
- Basis_amount_column (98)
- Pricing_rate_column (99)
- Pricing_amount_column (100)
- Other Adjustment Spread Output (82)
- Other Adjustment Amount Output (83)

- Economic Value Output (86)

Note: When adding or modifying an instrument table column within Erwin, the UDP properties tab will list all applicable properties available at a column level. The above UDP's will correspond to the alternate rate output column types noted above. You need to specify the value of the relevant property as YES (in CAPS) to enable display in the appropriate section of the Alternate Rate Output Mapping screen.

3. Upload the modified data model. Once the saved model is uploaded, and the table classification procedure re-executed, the Alternate Rate Output Mapping screen will display the new columns
4. Depending on the selected UDP's, the new column(s) will appear in the appropriate drop list within the Alternate Rate Output Mapping definition screen.

   Once you make appropriate Column User Defined Property Assignment to the alternate columns, they become available in the Alternate Rate Output Mapping rule under the appropriate result types. Selecting alternate output columns for each Transfer Pricing Column is typically a one-time setup process. However, the application lets you modify the alternate output columns setup if necessary.

   Note: For further information on the Table Column User Defined Property Assignment step of the table registration process, see: *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide* and *Oracle Financial Services Analytical Applications Data Model Utilities User Guide.*

Related Topics

Overview of Alternate Rate Output Mapping Rules, **on page 265**

Standard Navigation Paths, **on page 343**

CHAPTER 27 Transfer Pricing Process

This chapter discusses the procedure for working with and managing Transfer Pricing Processes. Transfer Pricing Processes are split into two types:

- **Standard**: Allows you to calculate Transfer Rates and Adjustments
- **Stochastic**: Allows you to calculate Option Costs

This chapter covers the following topics:

- Overview of Transfer Pricing Processes
- Creating a Standard Transfer Pricing Process
- Creating a Stochastic Transfer Pricing Process
- Executing a Transfer Pricing Process

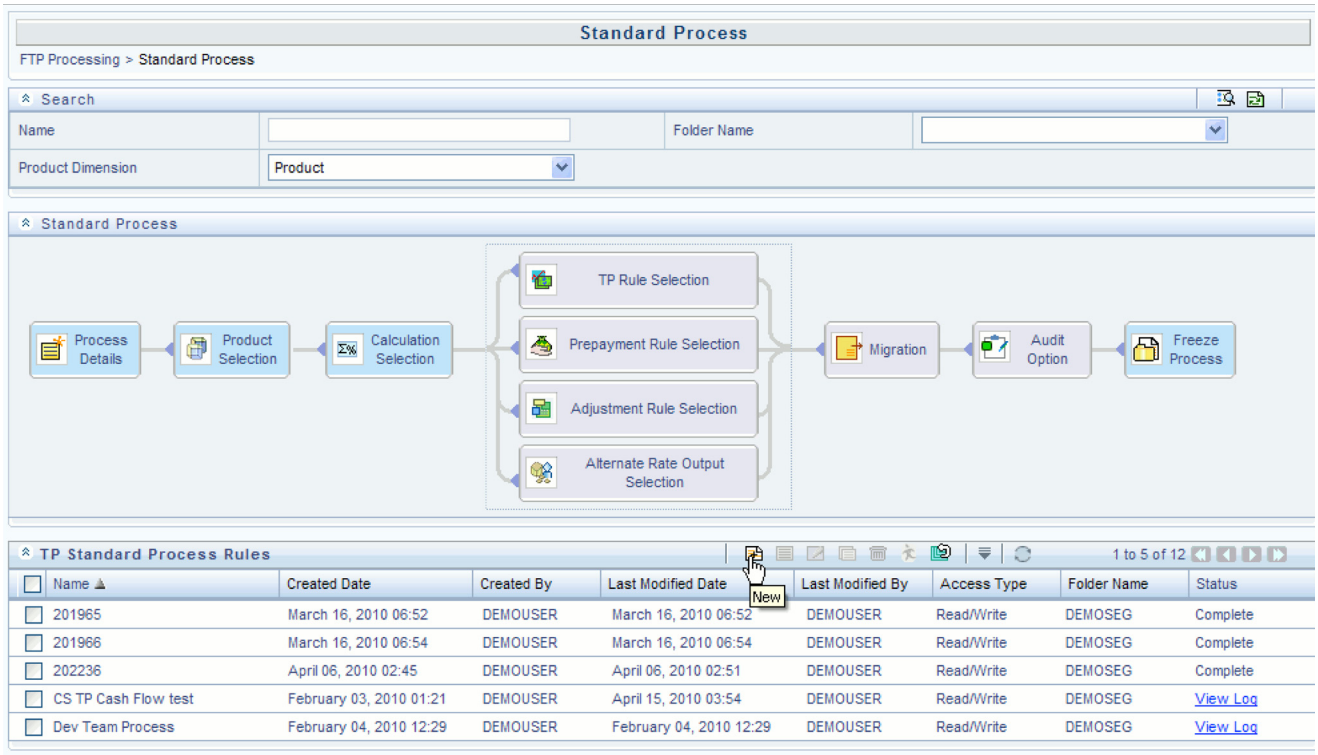
Overview of Transfer Pricing Processes

The Transfer Pricing Process allows you to perform the following tasks:

- Determine the data that you want to process (Product Selection block).
- Submit to the Transfer Pricing engine the transfer pricing, prepayment, and adjustments assumptions you want to process (Rule Selection block).
- Specify to the Transfer Pricing engine whether you want to generate transfer rates, tp rate adjustments, economic value or option costs (Calculation Selection).
- Specify to the Transfer Pricing engine whether you want to calculate or propagate transfer pricing results (Calculation Selection).
- Specify to the Transfer Pricing engine the alternate columns in which to output transfer rate, option cost, economic value and adjustment calculation results for each instrument record in an account table for a transfer pricing process run (Alternate Rate Output Selection block).
- Calculate and migrate charges and credits for funds provided or used as well as rate lock option costs or breakage charges for a combination of dimensions to the Management Ledger table (Migration block).
- Enable the output of detailed cash flows for audit purposes (Audit Options block).
- Formulate and execute the transfer pricing request and generate results (Transfer Pricing Process Summary Page).

See: *Defining and Executing a Transfer Pricing Process ,* on page 114.

The procedure for working with and managing the Transfer Pricing Process is similar to that of other Oracle Funds Transfer Pricing business rules. It includes the following steps:



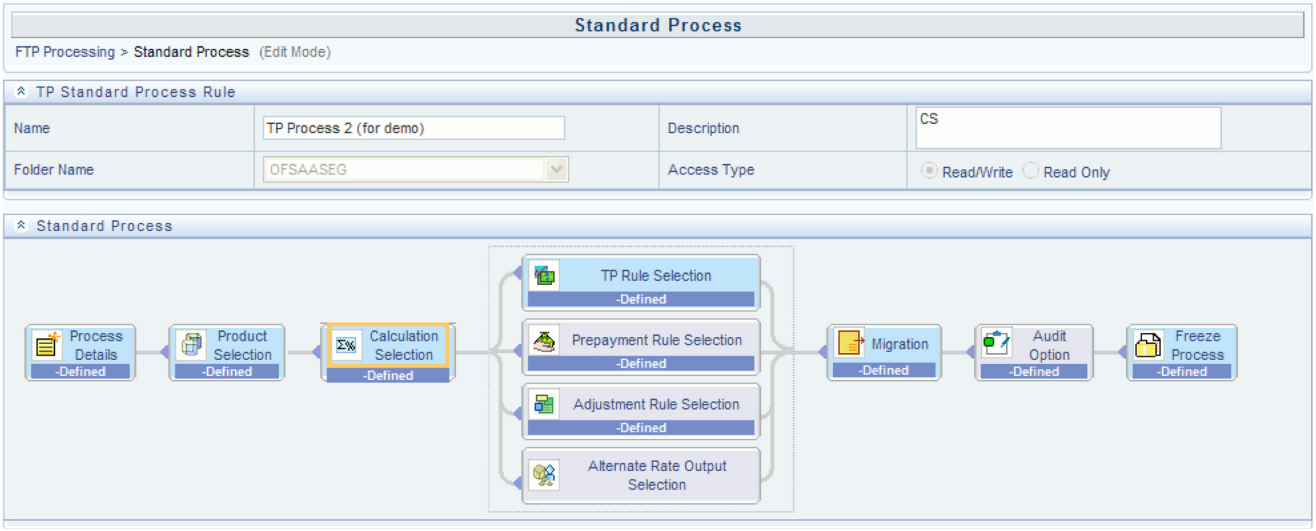
- Searching for Transfer Pricing Processes
- Creating Transfer Pricing Process Rules
- Viewing and Editing Transfer Pricing Processes
- Copying Transfer Pricing Processes
- Deleting Transfer Pricing Process rules.

Transfer Pricing Processes are executed from the Transfer Pricing Process Summary Page.

Related Topics

Standard Navigation Paths, on page 343

Creating a Standard Transfer Pricing Process



Create a Standard Transfer Pricing Process:

- To define and execute transfer pricing processing requests.
- To calculate Transfer Rates, TP Rate adjustments (TP Add-on rates), and related charge / credit amounts.
- To propagate transfer rates or adjustment rates for any applicable instrument table from a prior period.
- To migrate charges or credits, for funds provided or used, to the Management Ledger Table (LEDGER_STAT).
- To Calculate the All-in Transfer Rate
- To Calculate Economic Value of the Portfolio
- To calculate and/or migrate Rate Lock Option Costs
- To calculate and/or migrate Breakage Charges
- To select alternate columns to output transfer rate or adjustment calculation results for each record in an instrument table for a transfer pricing process run.

Prerequisites

Performing basic steps for creating or editing a Transfer Pricing rule.

Performing basic steps for creating or editing an Adjustment rule.

Procedure

This table describes key terms used for this procedure.

Selected Terminology

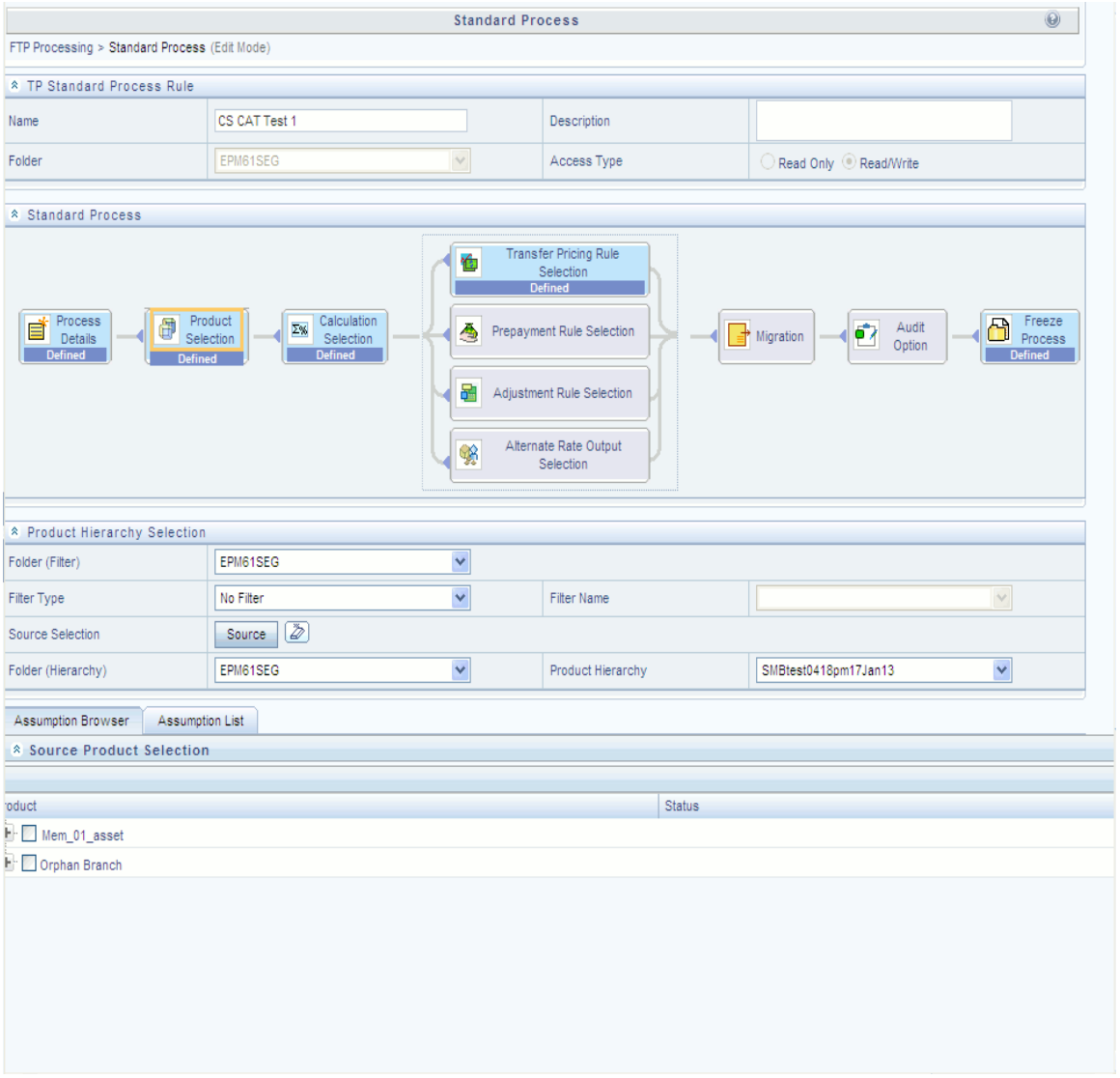
Term	Description
Product Hierarchy	Displays the selected product hierarchy. The Product Hierarchy allows you to select Product Members to include in the Process. Note, you have two methods for selecting data that will be included in the process. You can select Parents / Children from a hierarchy or you can use Source selection.
Source	Allows you to select one or more source tables to include in your process. If sources are selected directly then the Product Hierarchy will be disabled and selections made within the hierarchy will be lost. Users can utilize one method or the other to define data that will be included in the process, but not both methods at the same time.
Filter	Filters allow you to restrict your data selection based on any attribute that exists within an instrument table. You define filters under Common Object Maintenance, and reference your filter within the Product Selection block of your Process. The supported Filter Types are: Attribute Filter, Data Filter, Hierarchy Filter, and Group Filter
Transfer Pricing rule	This LOV allows you to select a Transfer Pricing rule. The Transfer Pricing rule provides the application with assumptions that are applied to products to calculate their transfer rates and option costs.
Prepayment Rule	This LOV allows you to select a Prepayment rule. The Prepayment rule provides the application with prepayment assumptions that you want to apply to products in conjunction with cash flow transfer pricing methods.
Adjustments Rule	This LOV allows you to select an Adjustments rule. The Adjustments rule lets you apply transfer pricing add-on rates to an instrument record for purposes of determining specific charge and credit amounts.
Alternate Rate Output Mapping Rule	This LOV allows you to select an Alternate Rate Output Mapping rule. The Alternate Rate Output Mapping rule lets you select the alternate columns to output transfer rate, and adjustment calculation results for each instrument record in an account table for a standard transfer pricing process run. This functionality allows you to output more than one transfer rate, or adjustment calculation result for each record in the instrument table through multiple transfer pricing process runs.
Calculation Method	Within the Calculation Selection block, there are two calculation options: Standard or Remaining Term. Standard is the most commonly used method and applies traditional transfer pricing logic. Remaining Term allows you to assign Transfer Rates based on current period rates
Interpolation Method	A calculation selection parameter, Interpolation Method allows users to decide between Linear, Cubic Spline or Quartic Spline interpolation methods. This selection affects how rate lookups happen for terms that fall between anchor points on your Interest Rate Curves.
Charge Credit Method	A migration block parameter, the Charge Credit Method selection determines how the Ledger Level TP Charge or Credit will be calculated during the migration process. There are two options available: Instrument Level: With this method, the instrument level charges and credits that were posted during the Transfer Pricing process are added and posted to the Ledger table, together with the weighted average transfer rate. Ledger Level: With this method, the instrument level transfer rates are weighted by the balance of the instrument (average, ending or other) to arrive at a weighted average transfer rate. The weighted average transfer rate is migrated to the Ledger table and multiplied by the corresponding Ledger Balance (average or ending) to arrive at the charge / credit amount.

Charge/Credit Accrual Basis	Select the Charge/Credit Accrual Basis on the Transfer Pricing Process Migration block or, define the Accrual Basis as an attribute for each Product dimension member in the Dimension Management – Members screen. In case no selection is made, a default Accrual Factor of Actual/Actual should be applied. Charge/Credit Accrual Basis denotes the basis on which the Ledger level interest accrual is calculated. You need to select the accrual factor to be applied when calculating the Ledger Level cost of funds. For instrument level charges and credits, the accrual basis from the instrument record is always used. When the Ledger Level charge / credit method is selected, the cost of funds is calculated using the following formula: Cost of Funds = Balance x Assigned Transfer Rate x Charge/Credit Accrual Factor **Note:** the type of balance is determined by the TP Charge Credit Balance selection made within TP Application Preferences. Choices include Average Balance, Ending Balance or Other Balance Oracle Funds Transfer Pricing offers the following accrual basis options: **30/360:** This is the default Charge/Credit Accrual Basis option. It applies the accrual basis calculation of 30 days divided by 360 days. **Actual/360:** Applies the accrual basis calculation of number of days in the month divided by 360 days. **Actual/Actual:** Applies the accrual basis calculation of number of days in the month divided by number of days in the year. **30/365:** Applies the accrual basis calculation of 30 days divided by the 365 days. **30/Actual:** Applies the accrual basis calculation of 30 days divided by the number of days in the year. **Actual/365:** Applies the accrual basis calculation of number of days in the month divided by 365 days. **Business/252:** Applies the accrual basis calculation of number of business days in the month divided by 252 days. A Holiday calendar selection is required if business/252 accrual basis is selected. If the holiday calendar is not selected, the engine considers Accrual type ACT/ACT as a default for calculation.
Accrual Type	A Calculation Selection Parameter and Migration Block Parameter. Users have the option to choose between Monthly and Daily charge/credit accrual. The default selection is Monthly. If Daily is selected, a holiday calendar is also required to determine the number days to accrue. For example, on weekdays (typically Monday - Thursday), 1 day of accrual will be posted and on weekends (Friday), 3 days of accrual will be posted at Friday's rate. When additional holidays are encountered on any other day of the week, similar logic is applied to extend the number of accrual days accordingly.
Currency Output	A migration block parameter, it allows you to select the output currency. Oracle Funds Transfer Pricing offers you the following currency output options: Entered and Functional Currency Functional Currency Only The following example illustrates the difference between entered and functional currency. A bank's loan may have Yen as entered currency. However, the bank might use US dollar to display its consolidated annual results. In this case, US dollar is the functional currency. In other words, the currency in which an organization keeps its books is its functional currency.
Migration Dimensions	Dimensions for which you want to migrate charges or credits, for funds provided or used, to the Management Ledger Table (LEDGER_STAT). Oracle Funds Transfer Pricing provides you with a Shuttle Control component to specify migration dimensions.

Available Dimensions	One of the two Shuttle Control windows, it contains the names of the dimensions available, in addition to the selected Product, for inclusion during the migration process. The dimensions available are: Common Chart of Account Organizational Unit GL Account Product Legal Entity **Tip:** Only the Management Table, LEDGER_STAT, processing key dimensions are available for inclusion during the migration process.
Selected Dimensions	One of the two Shuttle Control windows, it contains the names of the dimensions, in addition to the selected Product dimension that have already been selected for migration.
Audit Options	Within the Audit Options block, you have the option to output detailed cash flows. Select the check box to enable this option and define the number of instrument records for which you would like to output details. Note, the Administrator can limit the maximum number of instrument for which you can compute cash flows, because this can be a time consuming process. In any case, the maximum allowable value is 10,000 instruments.
Freeze Process	The freeze process block allows you to finalize the assumptions made in the Process definition flow or to clear all assumptions.

1. Navigate to the Standard Transfer Pricing Process summary page.
2. Complete standard steps for this procedure.

   Additional Steps to Specify Standard Transfer Pricing Process Parameters
3. Product Selection Block



- Select a Product Hierarchy and select nodes from the hierarchy corresponding to data you want to include in the process, OR
- Alternatively, select the Source Selection button, and select the instrument tables corresponding to the data you want to include in the process.
- Select a Filter (optional), to further constrain the data to be included in the process. Filters work as a secondary constraint, applied after the data set is determined based on Product Hierarchy member selection or Source Selection.

Tip: Before using the product hierarchy approach for selecting data to include in your process, there is a procedure that must be run ("**PRODUCT TO INSTRUMENT MAPPING**"). This procedure can be executed from the Batch Scheduler – Run - interface.

The purpose of the Product to Instrument mapping procedure is to scan all instrument tables (FSI_D_xxx) and populate the mapping table ("**FSI_M_PROD_INST_TABLE_MAP**") with a listing of the product dimension members that exist within each instrument table. When you select Products (parents or children) within an ALM or FTP process definition, the process refers to this mapping table to identify the instrument tables to include in the process.

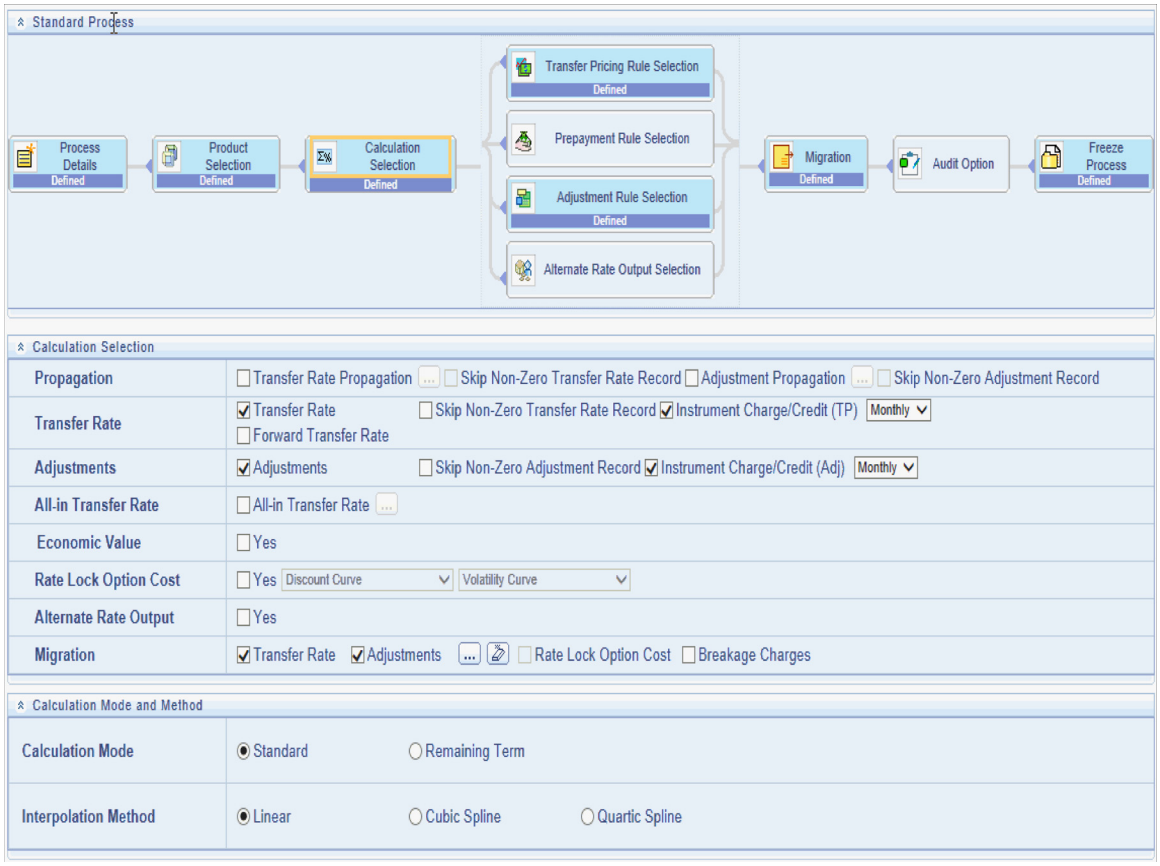
It is recommended that you establish an internal process whereby this procedure is executed after every data load to ensure that mappings are up to date.

Related Topics

For more information on Product to Instrument mapping procedure, see *Oracle Financial Services Analytical Applications Data Model Utilities User Guide*..

- Select Source from Source Selection.
  You can select both Ledger Stat and New Management Ledger table at the same time. You can select only one Ledger Table per FTP process, either Ledger Stat or the Management Ledger. Here, multiple Instrument tables are allowed as usual. The engine is using the selected Ledger Table for both Direct Transfer Pricing of Ledger Balances and Ledger Migration. So the engine will work only on one Ledger Table not on multiple within any single FTP Process.
- Select APPLY

4. Calculation Selection Block



- Select one or more calculation elements required for the process. You must select at least one calculation item from: Transfer Rate, Adjustments, Propagation, Economic Value or Migration.
- Choose Skip Non-Zero rates (optional) if you have already populated Transfer Rates or Adjustments through a separate process.
    - Implied forward rates are used for transfer pricing forward starting instruments when the Forward Transfer Rate calculation selection is checked. If selected in the Audit Block, the forward rates are written to an Audit table FSI_FTP_IMP_FWD_RATES_AUDIT.
- Choose the Charge/Credit calculation (optional), to calculate and output the Instrument level TP charges and credits. If you select the Instrument Charge/Credit option, you must also choose between Monthly and Daily charge/credit accrual. The default selection is Monthly. If Daily is selected, a holiday calender is also required (defined within the TP rule for each applicable product/currency) to determine the number of days to accrue. For example, on weekdays (typically Monday - Thursday), 1 day of accrual will be posted and on weekends (Friday), 3 days of accrual will be posted at Friday's rate. When additional holidays are encountered on any other day of the week, similar logic is applied to extend the number of accrual days accordingly.
- Choose Transfer Rate Propagation/Adjustment Propagation (optional) after selecting Transfer Rate, to pull forward rates from a prior period based on the Propagation Pattern definition.
  If you select one or both of the "Instrument Charge/Credit" options for either Transfer Rate or Adjustments, together with Propagation, the process will additionally compute the account level charge/credit amounts for the account records which have propagated rates.

  Note: The Propagation process is independent of the Transfer Pricing and Skip non-zero selections. If you select the combination of Propagation + Transfer Pricing and skip non-zero in a single process, the propagation process will execute first pulling forward all rates for eligible instruments. If an instrument already has a TP Rate or Adjustment Rate, the Propagation Process will overwrite the existing value, unless you select the “Skip Non Zero” option on the Propagation line. After Propagation runs, then remaining instruments will be Transfer Priced and the skip non-zero condition, from the Transfer Rate Line will be applied during this step. The same behavior applies to Adjustment Rate propagation and calculation.

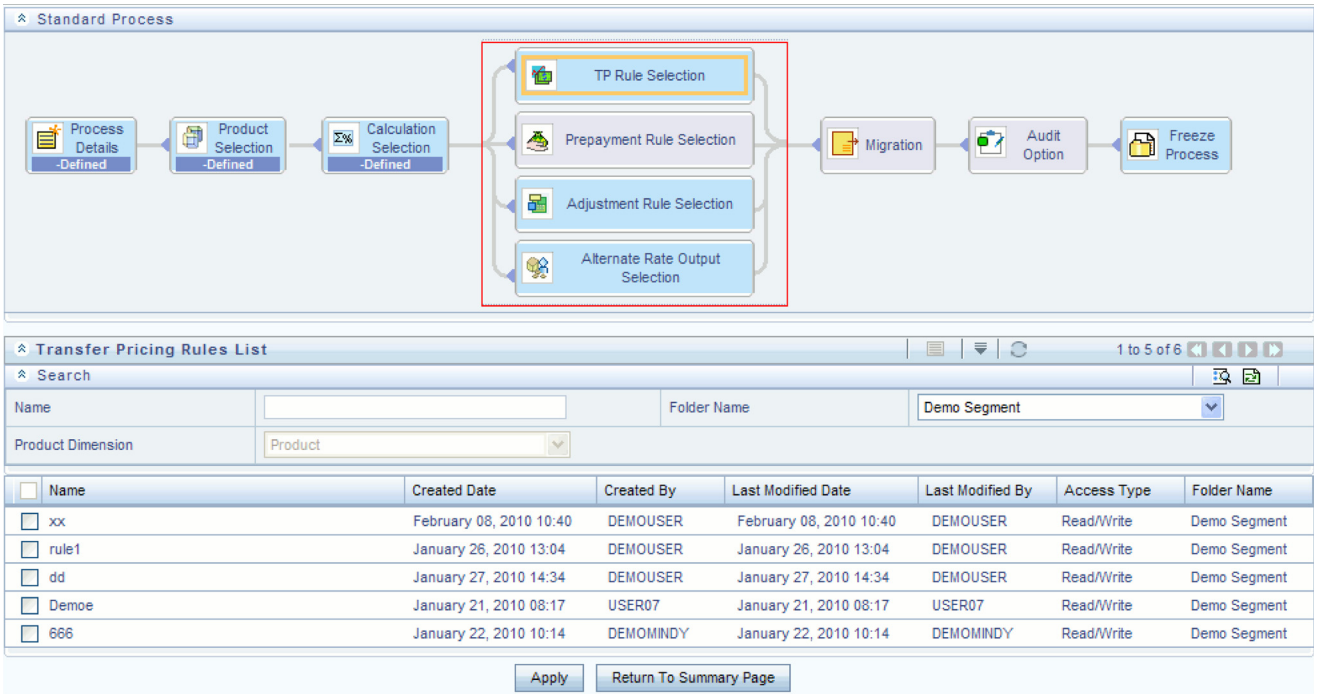
  When Adjustment calculation is selected together with Transfer Rate and TP Rate Propagation, then due to TP Propagation and TP Rate Calculation, the skip non-zero on TP Rate column is implicitly applied. In this case, during calculation processing, the TP engine skips all records that have a Transfer Rate, even in context of the Adjustment Rate calculation (that is, when the TP Rate calculation and Adjustment Rate calculation options are selected together, the TP engine will process both assumptions in a single pass (to optimize performance) and Adjustment rate calculations may be missed). To avoid this issue, users may need to create two separate Transfer Pricing processes , one each for the Transfer Rate calculation and another for the Adjustment Rate(s).
- Choose All-in Transfer Rate (optional) if you want the TP process to calculate and post the all-in transfer rate for each instrument record. This option allows you to define the aggregation logic for combining any Add-on Rates with the base Transfer Rate. When you select the search icon, you can define for each product the rates to include in the calculation and the related signage for each rate.
- Choose Economic Value to calculate the Economic Value for each instrument record. By default this optional calculation is unchecked.

- The user can choose to select 'Economic Value' individually or together with other calculation options.
- If the user selects only the 'Transfer Rate' calculation item, then in the 'TP Rule Selection' block, all TP rules, will be displayed.
- If the user selects only 'Economic Value', then in the 'TP Rule Selection' block, only TP rules where Economic Value Calculation inputs are defined (EV_INPUTS_DEFINED flag is on), will be displayed.
- If the user selects both 'Transfer Rate' and 'Economic Value', then in the 'TP Rule Selection' block, only TP rules where Economic Value Calculation inputs are defined (EV_INPUTS_DEFINED flag is on) will be displayed.
- It is also be possible to select Economic Value together with Adjustments, Migration, Propagation, Alt Rate Output

- Choose Rate Lock Option Cost to calculate the Option Cost for Rate Lock options. Rate locks are commonly granted to users when they apply for mortgage loans and generally carry a term of 30, 60 or 90 days. These rate locks fix the interest rate on the loan for the duration of the lock period. Many times, lenders also offer a one time option to borrowers to take a lower rate if market rates drop during the commitment period. The cost of this option can be calculated and should be charged by treasury back to the line of business as an internal cost. See Chapter 30 for a full description of this functionality.
- Choose Alternate Rate Output Mapping (optional), to assign TP results to alternate columns.
- Choose Migration options (optional), if you want to include migration of your Transfer Pricing results, Breakage Charges or Rate Lock Option Costs to the Management Ledger table.
- Choose the Calculation Mode. The default selection is Standard which applies traditional transfer pricing logic within the process. This entails transfer pricing fixed rate instruments from the origination date (or TP Effective Date if provided) and transfer pricing adjustable rate instruments from the last repricing date. If remaining term is selected the effective date for transfer pricing all instruments will be the current "as of date". **Note:** If you are calculating Breakage Charges, using the Economic Loss method, you must select the "Remaining Term" option, to generate the correct cash flows for the funding liability.
- Choose the Interpolation Method to specify between Linear (default), Cubic Spline and Quartic Spline methods.
- Select APPLY

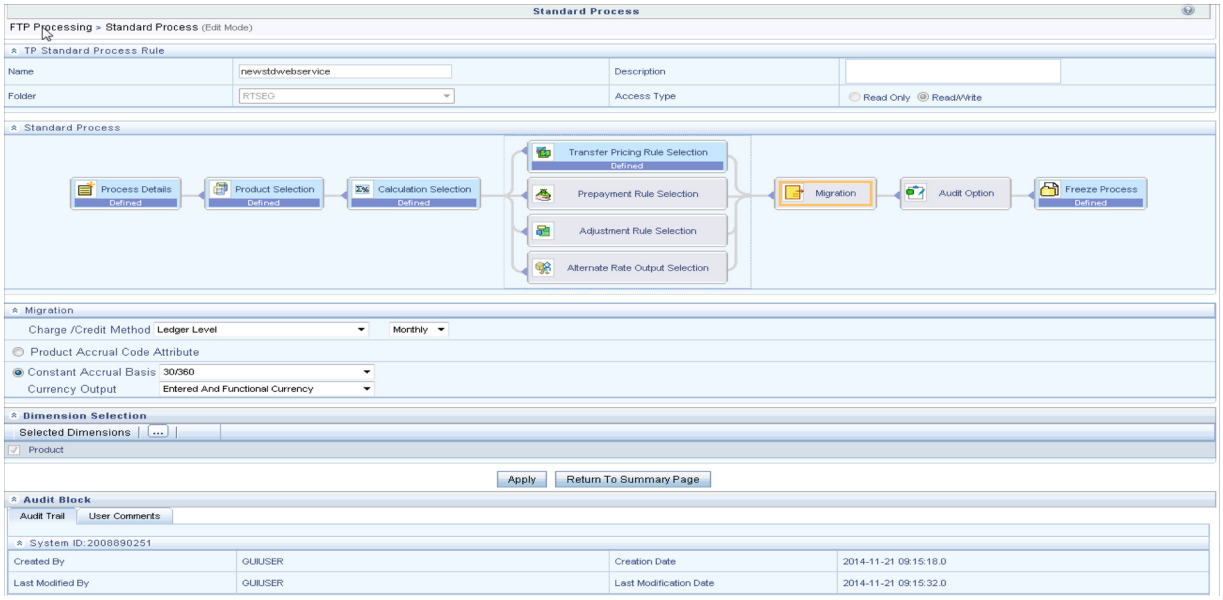
  Note: Upon selecting a calculation element, you will notice the corresponding assumption rule blocks become mandatory (shaded blue).

5. Rule Selection Blocks



- Select the assumption rules corresponding to each calculation element. The blocks shaded blue are mandatory and the blocks shaded grey are optional.
- After selecting an assumption rule for each process block, select Apply to move on.
- Select APPLY.

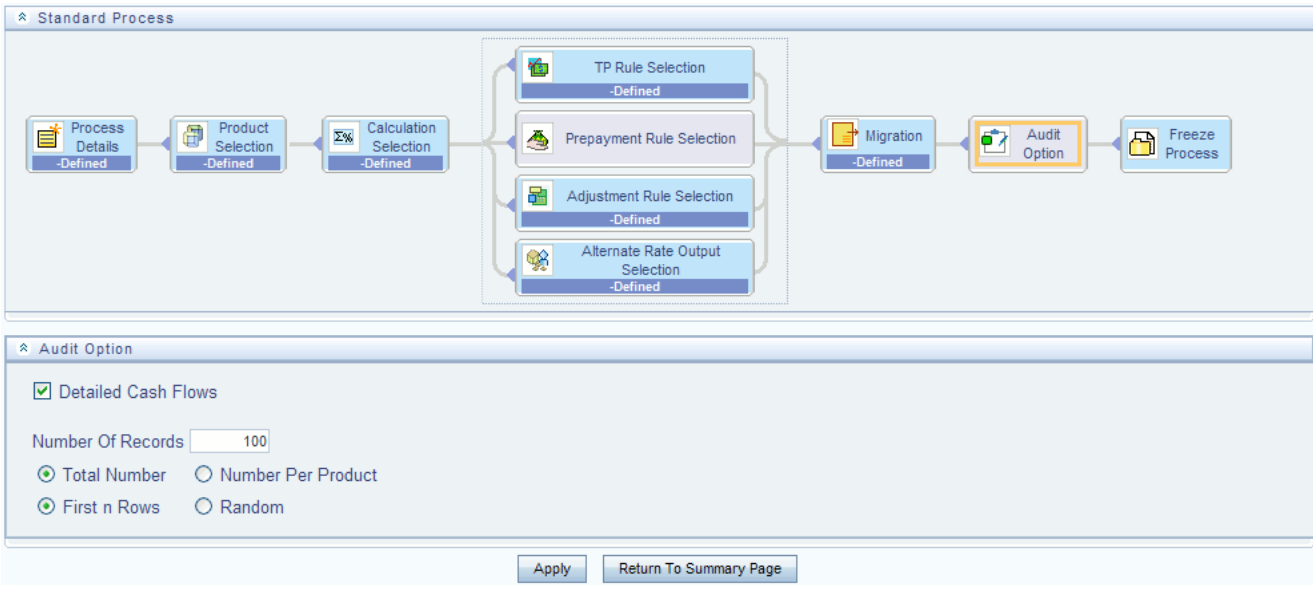
6. Select Migration Parameters



- Select the Migration Charge / Credit Method. Choose either Account Level or Ledger Level.

- Choose between Monthly and Daily charge/credit accrual. The default selection is Monthly. If Daily is selected, a holiday calendar is also required to determine the number days to accrue. For example, on weekdays (typically Monday - Thursday), 1 day of accrual will be posted and on weekends (Friday), 3 days of accrual will be posted at Friday's rate. When additional holidays are encountered on any other day of the week, similar logic is applied to extend the number of accrual days accordingly.
- **Note:** The Accrual Type selection is only available for Account Level migration when the "Daily" accrual option is also selected on the Calculation Selection page.
- If the Ledger Level Charge / Credit method is selected, then also specify the Accrual Basis source as either the Product dimension attribute or constant value.
- Select the Currency Output option. Choose either Functional Currency Only or Entered and Functional Currency.
- Select the Migration Dimensions.
- **Note:** Upon selecting the Dimension Selection button (see above), Oracle Funds Transfer Pricing provides you with a Shuttle Control component to select the dimensions for the migration process. The two areas of the Shuttle Control are Available Dimensions and Selected Dimensions. You can move dimensions from Available Dimensions into Selected Dimensions and vice versa by using the Move, Move All, Remove, and Remove All buttons.
- Select APPLY

7. Select Audit Options



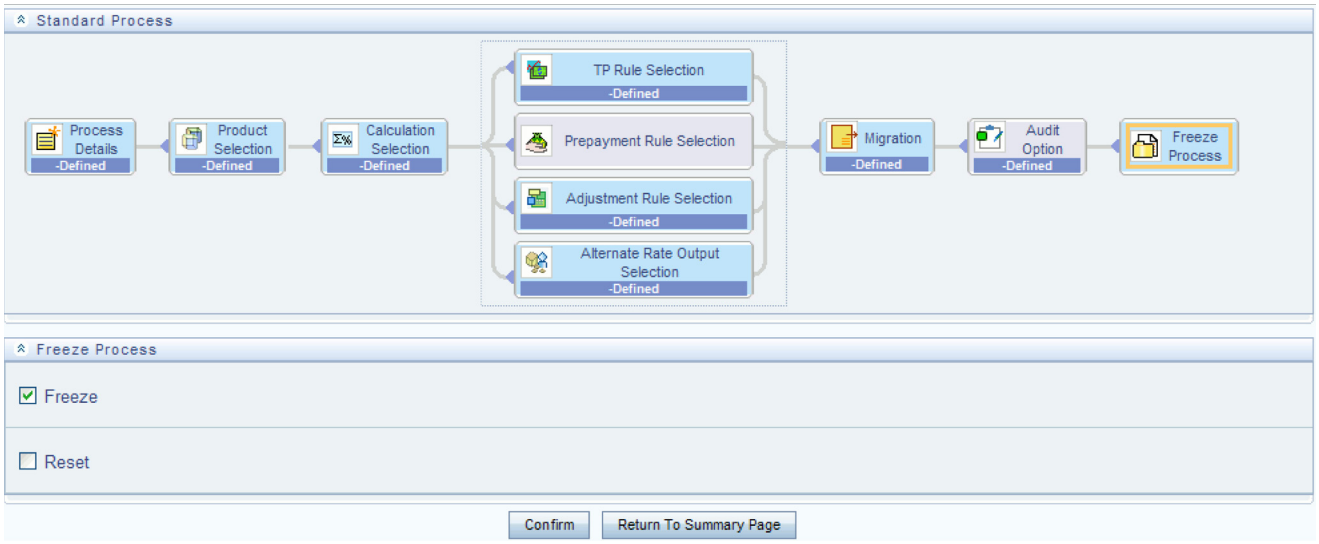
- Select the Detailed Cash Flows option to output cash flow details for instrument records. This option is typically used for audit purposes when users want to validate the cash flows being generated by the cash flow engine for certain types of instruments.
- Select the Number of Records to include in detail cash flows. This input is constrained by the FTP Application Preference setting and controlled by the Administrator. Selection of a large number of instrument records to include in detail cash flow output can result in a very time consuming process. Within Transfer Pricing, the maximum value for the Number of Records input is 10,000.

- Select additional parameters for detailed cash flows. The default values for number of records is "Total Number" and "First n Rows". It is also possible to specify the number records per Product ID and Random selection as opposed to the First n.
- Select Implied Forward Rates to output relevant rates to an Audit table. This checkbox is active only when –
  - The "Forward Transfer Rate" option has been selected in the Calculation Selection block.
  - The "Detailed Cash Flows" checkbox is selected in the Audit block.

  Implied Forward Rates will be output only for relevant forward starting instrument records which apply to the "Detailed Cash Flows" selection. So, the "Number of records" input box is used for both "Detailed Cash Flows" and "Implied Forward rates". It is recommended that users apply a data filter that will highlight specific instrument records that users would like analyze via Audit output.

  Note: Implied Forward Rates are output only for instrument records that have an Origination Date > As Of Date. In this way, the number of records that have implied forward rates will always be <= the number of records included in detail cash flow output.
- Select APPLY

8. Freeze Process



- Select Freeze to complete the process.
- Select Reset to erase all selections made previously within the process definition flow.
- Select CONFIRM.

Transfer pricing for Future Dated Instruments

Calculating Implied Forward TP rates is possible from a FTP Standard Process. The base FTP rate quoted on the Commitment Start date is calculated using the current forward rates corresponding to the tenor of the Rate Lock period requested and the fixed rate loan period/payment frequency based on the TP method selected. If an instrument record has a commit_start_date <= as_of_date and origination_date > as_of_date, then FTP generates implied forward rates based on the commit_start_date spot IRC curve.

Implied forward rate calculation

An Implied Forward is that rate of interest that is predicted to be the spot rate at some point in the future. For more information, refer to *Rate Locks and the Loan Commitment Pipeline,* on page 305

Procedure

- Identify the record is as a Rate lock record, and select Forward Curve from Calculation Elements (Transfer Rate check-box as Forward Transfer Rates) under the TP Processing window. If you want to price Transfer rates off the Forward Curve, the Forward Curve can be generated for the same term points as the Spot curve under the Transfer Price Rule UI. For example, selected TP curve has the following term points – 1M, 2M, 3M, 6M, 12M, 2Y, 3Y, then the Forward TP rates will be calculated for the same term points.
- The approach is the same for both Cash Flow methods and Non Cash Flow methods.
- Once the Forward TP curve is ready with all the term points, the TP solution goes through the existing flow for calculating Transfer rates according to the method selected, except that the Forward TP curve is referenced instead of the Spot TP curve. If the required tenor/effective date is not directly available, then Interpolation will be used. Three types of Interpolation are available – Linear, Cubic Spline and Quartic Interpolation.

All TP Methods are able to reference the appropriate implied forward rates. Note: Forward rates are not required for 'Spread from Note Rate' TP method. Prior day results will be propagated forward, and after post processing, all open commitments will have a Transfer Rate and Rate Lock Option Cost assigned either through propagation or new calculation. The engine has to use only Standard Term for TP calculation and not Remaining Term.

Related Topics

Overview of Transfer Pricing Processes , on page 269

Standard Navigation Paths, on page 343

The Oracle Funds Transfer Pricing Process, on page 69

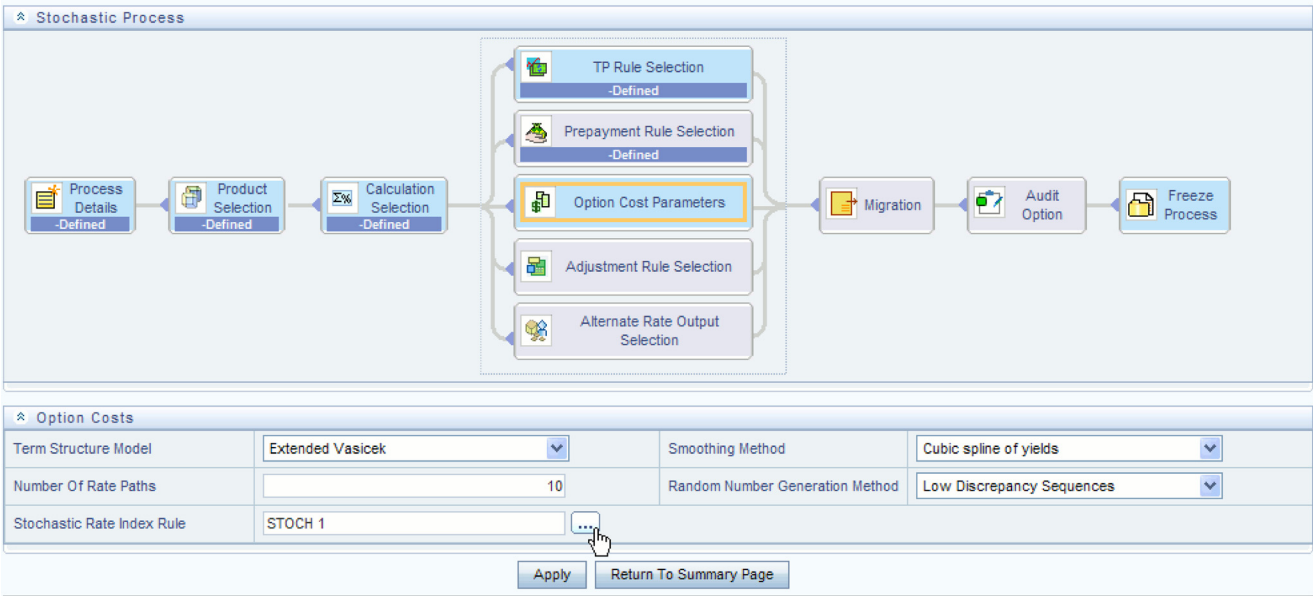
Transfer Pricing Rules, on page 215

Prepayment Rules, on page 229

Adjustment Rules, on page 247

Alternate Rate Output Mapping Rules, on page 265

Creating a Stochastic Transfer Pricing Process



Create a Stochastic Transfer Pricing Process:

- To define and execute option cost processing requests.
- To calculate option cost and related charge / credit amounts.
- To propagate option costs or adjustment rates for any applicable instrument table from a prior period.
- To migrate charges or credits, for funds provided or used, to the Management Ledger Table (LEDGER_STAT).
- To select alternate columns to output option cost results for each record in an instrument table for a transfer pricing process run.

Prerequisites

Performing basic steps for creating or editing a Transfer Pricing rule.

Performing basic steps for creating or editing an Adjustment rule.

Performing basic steps for creating or editing a Stochastic Rate Indexing Rule.

Procedure

This table describes key terms used for this procedure.

Selected Terminology

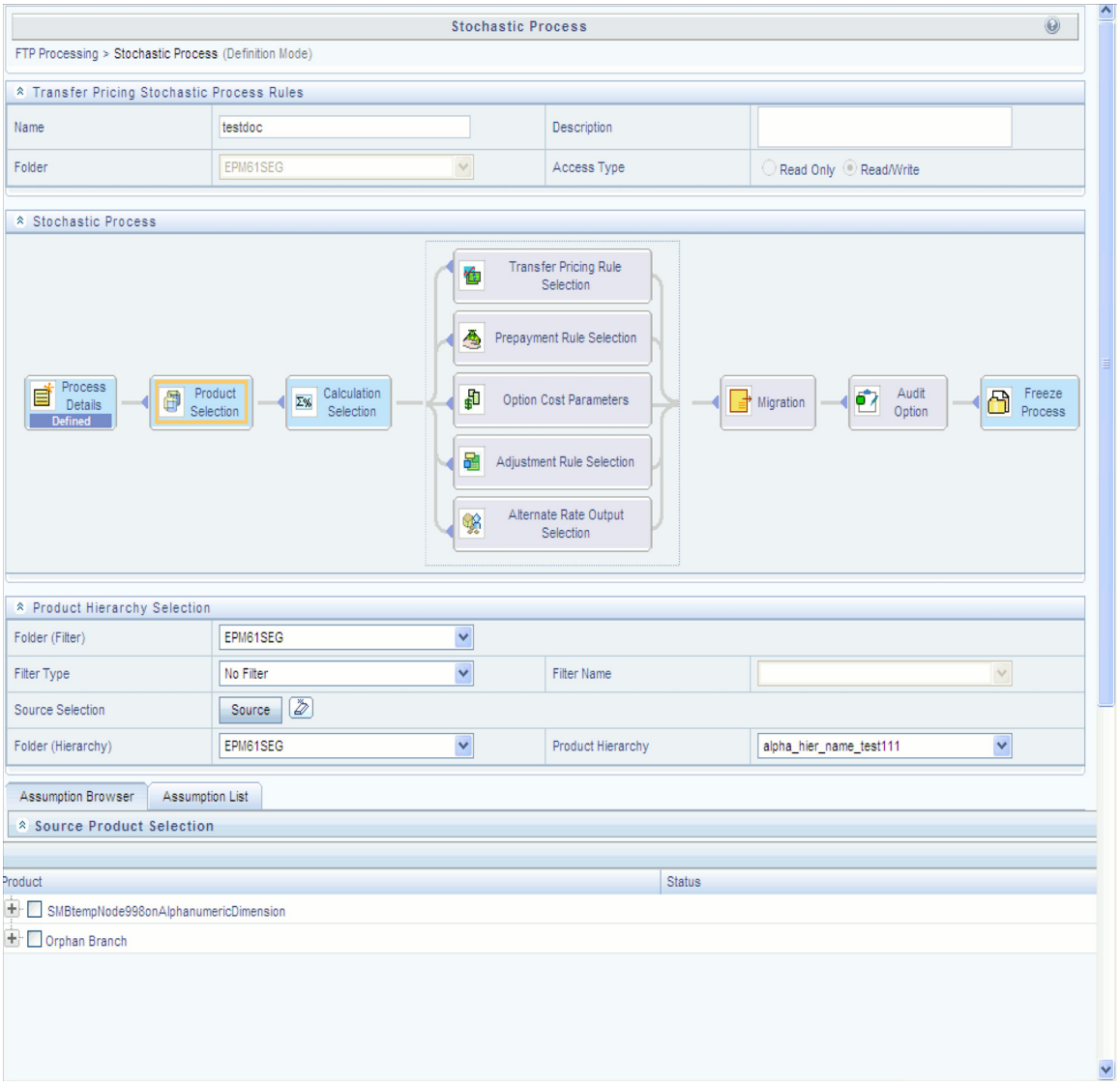
Term	Description

Product Hierarchy	Displays the selected product hierarchy. The Product Hierarchy allows you to select Product Members to include in the Process. Note, you have two methods for selecting data that will be included in the process. You can select Parents / Children from a hierarchy or you can use Source selection.
Source	Allows you to select one or more source tables to include in your process. If sources are selected directly then the Product Hierarchy will be disabled and selections made within the hierarchy will be lost. Users can utilize one method or the other to define data that will be included in the process, but not both methods at the same time.
Filter	Filters allow you to restrict your data selection based on any attribute that exists within an instrument table. You define filters under Common Object Maintenance, and reference your filter within the Product Selection block of your Process. The supported Filter Types are: Attribute Filter, Data Filter, Hierarchy Filter, and Group Filter
Transfer Pricing rule	This LOV allows you to select a Transfer Pricing rule. The Transfer Pricing rule provides the application with assumptions that are applied to products to calculate their transfer rates and option costs.
Prepayment Rule	This LOV allows you to select a Prepayment rule. The Prepayment rule provides the application with prepayment assumptions that you want to apply to products in conjunction with cash flow transfer pricing methods.
Term Structure Model	An Option Cost parameter, it governs the generation of one-month stochastic rates, discount factors for each scenario, and discrete rates for any maturity used in calculating the option-adjusted spread.
Smoothing Method	An Option Cost parameter, it is used to interpolate rates on the valuation curve for terms that fall between given points.
Stochastic Rate Index Rule	An Option Cost parameter, it is used to define the rates used to index adjustable-rate Instruments under the different Rate Paths generated by stochastic processing. The rates are defined automatically in terms of the valuation curve.
Number of Rate Paths	An Option Cost parameter, it ranges between 1 and 2000. Greater numbers of rate paths increase accuracy but also increase processing time. Experiment to find the optimal level for your institution's portfolio.
Random Number Generation Method	An Option Cost parameter, it determines how the Monte Carlo process selects random numbers. The Random Number Generation Method has two variations: **Low Discrepancy Sequences:** Low-discrepancy sequences, also known as quasirandom sequences, are designed to fill the space uniformly. These achieve better accuracy than pseudorandom sequences when applied to numerical problems, integration in high dimension, and so on. **Pseudorandom Sequences:** These are the traditional random numbers generated by most compilers. They are designed to do well on some statistical tests: low auto correlation, high period before the sequence repeats itself.
Adjustments Rule	This LOV allows you to select an Adjustments rule. The Adjustments rule lets you apply transfer pricing add-on rates to an instrument record for purposes of determining specific charge and credit amounts.

Alternate Rate Output Mapping Rule	This LOV allows you to select an Alternate Rate Output Mapping rule. The Alternate Rate Output Mapping rule lets you select the alternate columns to output option cost, and adjustment calculation results for each record in an instrument table for a stochastic transfer pricing process run. This functionality allows you to output more than one option cost, or adjustment calculation result for each record in the instrument table through multiple transfer pricing process runs.
Calculation Method	Within the Calculation Selection block, there are two calculation options: Standard or Remaining Term. Standard is the most commonly used method and applies traditional transfer pricing logic. Remaining Term allows you to assign Transfer Rates based on current period rates
Smoothing Method	A calculation selection parameter, Smoothing Method allows users to decide between Linear, Cubic Spline or Quartic Spline interpolation methods. This selection affects how rate lookups happen for terms that fall between anchor points on your Interest Rate Curves.
Charge Credit Method	A migration block parameter, the Charge Credit Method selection determines how the Ledger Level TP Charge or Credit will be calculated during the migration process. There are two options available: Instrument Level: With this method, the instrument level charges and credits that were posted during the Stochastic process are added and posted to the Ledger table, together with the weighted average Option Adjusted Spread and Static Spread. Ledger Level: With this method, the instrument level OAS and Static Spread are weighted by the balance of the instrument (average, ending or other) to arrive at weighted average rates. The weighted average rates are migrated to the Ledger table and multiplied by the corresponding Ledger Balance (average or ending) to arrive at the charge / credit amount.
Charge/Credit Accrual Basis	Select the Charge/Credit Accrual Basis on the Transfer Pricing Process Migration block or, define the Accrual Basis as an attribute for each Product dimension member in the Dimension Management – Members screen. In case no selection is made, a default Accrual Factor of Actual/Actual should be applied. Charge/Credit Accrual Basis denotes the basis on which the Ledger level interest accrual is calculated. You need to select the accrual factor to be applied when calculating the Ledger Level cost of funds. For instrument level charges and credits, the accrual basis from the instrument record is always used. When the Ledger Level charge / credit method is selected, the cost of funds is calculated using the following formula: Option Cost Charge = (Static spread - OAS) x Balance x (1 - percent sold/100) x accrual basis **Note:** the type of balance is determined by the TP Charge Credit Balance selection made within TP Application Preferences. Choices include Average Balance, Ending Balance or Other Balance Oracle Funds Transfer Pricing offers the following accrual basis options: **30/360:** This is the default Charge/Credit Accrual Basis option. It applies the accrual basis calculation of 30 days divided by 360 days. **Actual/360:** Applies the accrual basis calculation of number of days in the month divided by 360 days. **Actual/Actual:** Applies the accrual basis calculation of number of days in the month divided by number of days in the year. **30/365:** Applies the accrual basis calculation of 30 days divided by the 365 days. **30/Actual:** Applies the accrual basis calculation of 30 days divided by the number of days in the year. **Actual/365:** Applies the accrual basis calculation of number of days in the month divided by 365 days. **Business/252:** Applies the accrual basis calculation of number of business days in the month divided by 252 days. A Holiday calendar selection is required if business/252 accrual basis is selected. If the holiday calendar is not selected, the engine considers Accrual type ACT/ACT as a default for calculation.

Accrual Type	A Calculation Selection Parameter and Migration Block Parameter. Users have the option to choose between Monthly and Daily charge/credit accrual. The default selection is Monthly. If Daily is selected, a holiday calendar is also required to determine the number days to accrue. For example, on weekdays (typically Monday - Thursday), 1 day of accrual will be posted and on weekends (Friday), 3 days of accrual will be posted at Friday's rate. When additional holidays are encountered on any other day of the week, similar logic is applied to extend the number of accrual days accordingly.
Currency Output	A migration block parameter, it allows you to select the output currency. Oracle Funds Transfer Pricing offers you the following currency output options: Entered and Functional Currency Functional Currency Only The following example illustrates the difference between entered and functional currency. A bank's loan may have Yen as entered currency. However, the bank might use US dollar to display its consolidated annual results. In this case, US dollar is the functional currency. In other words, the currency in which an organization keeps its books is its functional currency.
Migration Dimensions	Dimensions for which you want to migrate charges or credits, for funds provided or used, to the Management Ledger Table (LEDGER_STAT). Oracle Funds Transfer Pricing provides you with a Shuttle Control component to specify migration dimensions.
Available Dimensions	One of the two Shuttle Control windows, it contains the names of the dimensions available, in addition to the selected Product, for inclusion during the migration process. The dimensions available are: Common Chart of Account Organizational Unit GL Account Product Legal Entity **Tip:** Only the Management Table, LEDGER_STAT, processing key dimensions are available for inclusion during the migration process.
Selected Dimensions	One of the two Shuttle Control windows, it contains the names of the dimensions, in addition to the selected Product dimension that have already been selected for migration.
Audit Options	Within the Audit Options block, you have the option to output detailed cash flows. Select the check box to enable this option and define the number of instrument records for which you would like to output details. Note, the Administrator can limit the maximum number of instrument for which you can compute cash flows, because this can be a time consuming process. In any case, the maximum allowable value is 10,000 instruments.
Freeze Process	The freeze process block allows you to finalize the assumptions made in the Process definition flow or to clear all assumptions.

1. Navigate to the Stochastic Transfer Pricing Process summary page.
2. Complete standard steps for this procedure.
   Additional Steps to Specify Stochastic Transfer Pricing Process Parameters
3. Product Selection Block



- Select a Product Hierarchy and select nodes from the hierarchy corresponding to data you want to include in the process, OR
- Alternatively, select the Source Selection button, and select the instrument tables corresponding to the data you want to include in the process.
- Select a Filter (optional), to further constrain the data to be included in the process. Filters work as a secondary constraint, applied after the data set is determined based on Product Hierarchy member selection or Source Selection.

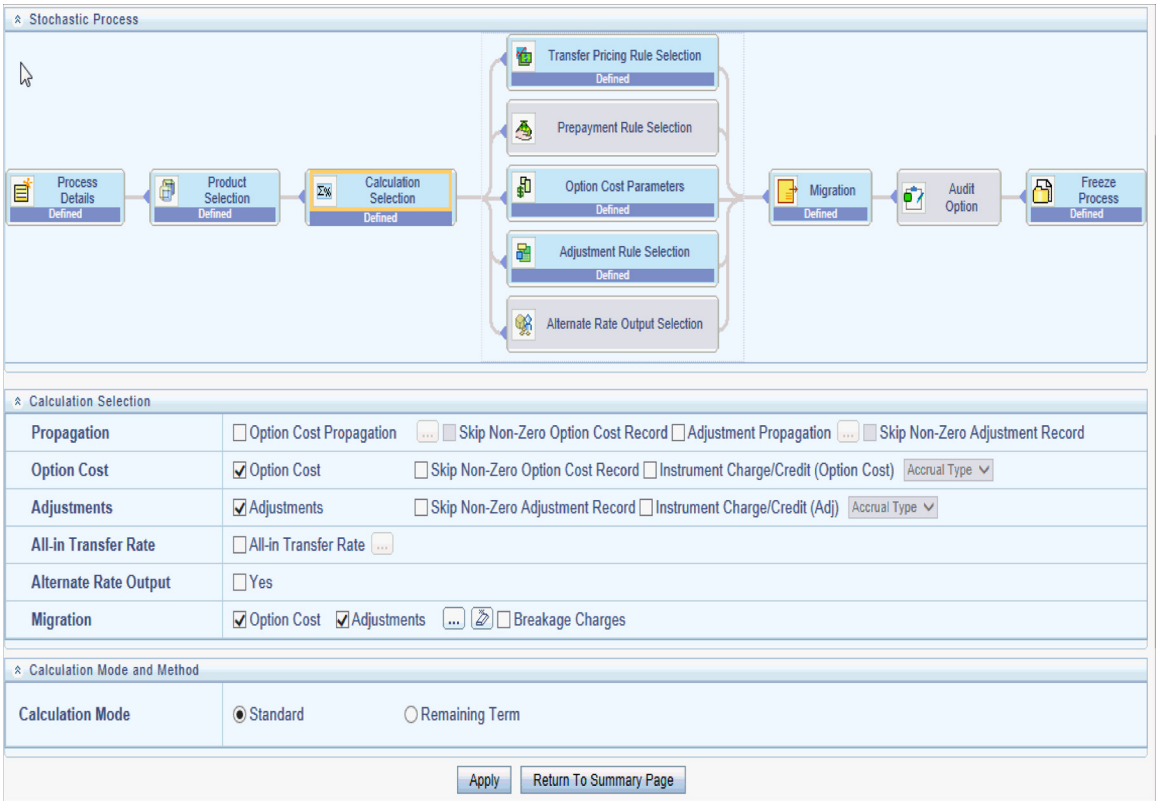
Tip: Before using the product hierarchy approach for selecting data to include in your process, there is a procedure that must be run ("**PRODUCT TO INSTRUMENT MAPPING**"). This procedure can be executed from the Batch Scheduler – Run - interface.

- The purpose of the Product to Instrument mapping procedure is to scan all instrument tables (FSI_D_xxx) and populate the mapping table ("**FSI_M_PROD_INST_TABLE_MAP**") with a listing of the product dimension members that exist within each instrument table. When you select Products (parents or children) within an ALM or FTP process definition, the process refers to this mapping table to identify the instrument tables to include in the process.
- It is recommended that you establish an internal process whereby this procedure is executed after every data load to ensure that mappings are up to date.

Related Topics

- For more information on Product to Instrument mapping procedure, see *Oracle Financial Services Analytical Applications Data Model Utilities User Guide.*
- Select Source from Source Selection.
- You can select both Ledger Stat and New Management Ledger table at the same time. You can select only one Ledger Table per FTP process, either Ledger Stat or the Management Ledger. Here, multiple Instrument tables are allowed as usual. The engine is using the selected Ledger Table for both Direct Transfer Pricing of Ledger Balances and Ledger Migration. So the engine will work only on one Ledger Table not on multiple within any single FTP Process.
- Select APPLY

4. Calculation Selection Block

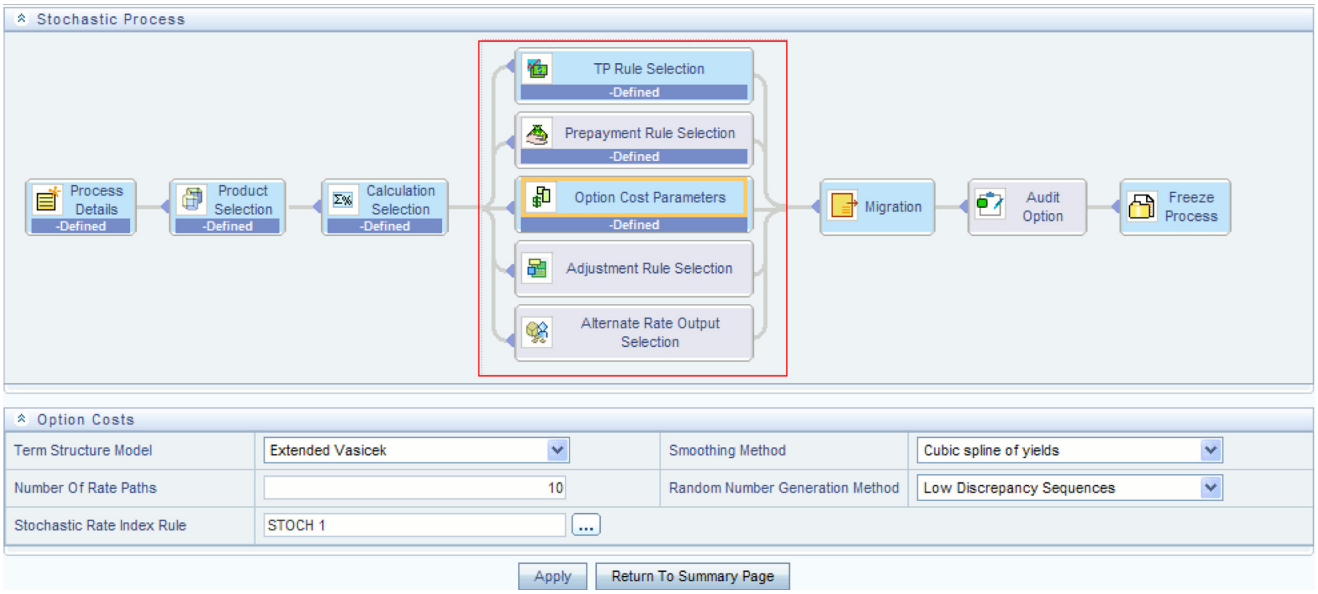


- Select one or more calculation elements required for the process. You must select at least one calculation item from: Option Cost, Adjustments or Migration.

- Choose Skip Non-Zero rates (optional) if you have already populated Option Costs or Adjustments through a separate process.
- Choose the Charge / Credit calculation (optional), to calculate and output the Instrument level TP charges and credits. If you select the Instrument Charge/Credit option, you must also choose between Monthly and Daily charge/credit accrual. The default selection is Monthly. If Daily is selected, a holiday calendar is also required (defined within the TP Rule for each applicable product/currency) to determine the number days to accrue. For example, on weekdays (typically Monday - Thursday), 1 day of accrual will be posted and on weekends (Friday), 3 days of accrual will be posted at Friday's rate. When additional holidays are encountered on any other day of the week, similar logic is applied to extend the number of accrual days accordingly.
- Choose Option Cost Propagation/Adjustment Propagation (optional) after selecting Option Cost, to pull forward rates from a prior period based on the Propagation Pattern definition.
- Choose All-in Transfer Rate (optional) if you want the TP process to calculate and post the all-in transfer rate for each instrument record. This option allows you to define the aggregation logic for combining any Add-on Rates with the base Transfer Rate. When you select the search icon, you can define for each product the rates to include in the calculation and the related signage for each rate.
- Choose Alternate Rate Output Mapping (optional), to assign Option Cost results to alternate columns.
- Choose Migration options (optional), if you want to include migration of your Option Cost results to the Management Ledger table.
- Choose the Calculation Mode. The default selection is Standard which applies traditional transfer pricing logic within the process. This entails calculating transfer rates for fixed rate instruments from the origination date (or TP Effective Date if provided) and transfer pricing adjustable rate instruments from the last repricing date. If remaining term is selected the effective date for transfer pricing all instruments will be the current “as of date”.
- Select APPLY

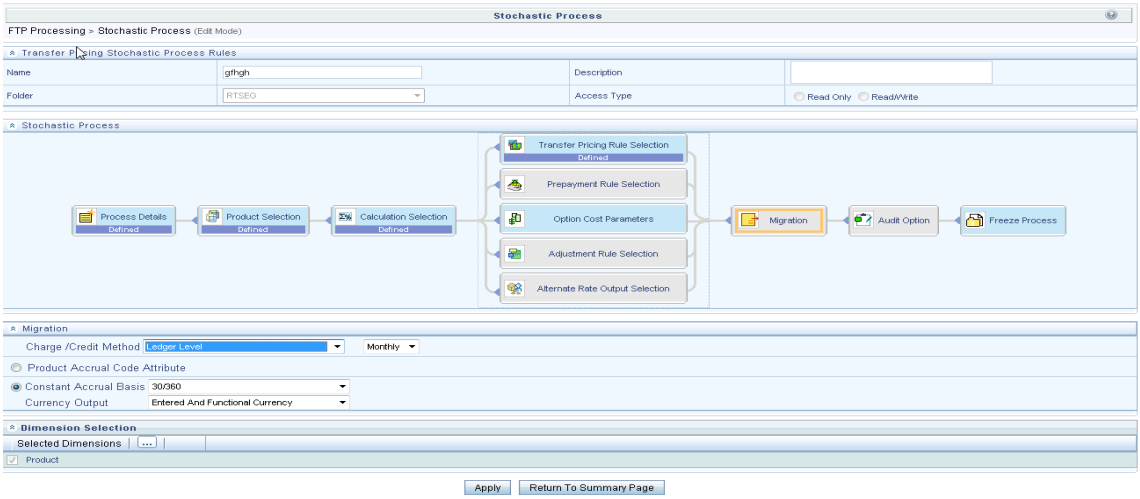
Note: Upon selecting a calculation element, you will notice the corresponding assumption rule blocks become mandatory (shaded blue).

5. Rule Selection Blocks



- Select the assumption rules corresponding to each calculation element. The blocks shaded blue are mandatory and the blocks shaded grey are optional.
- The standard assumption rules are included in this step. Notice the Stochastic Process flow has one additional Parameter Block, Option Cost Parameters:
  - Select a Term Structure Model
  - Select the Number of Rate Paths
  - Select the Smoothing Method
  - Select the Random Number Generation Method
  - Select a Stochastic Rate Indexing Rule
- Select APPLY.

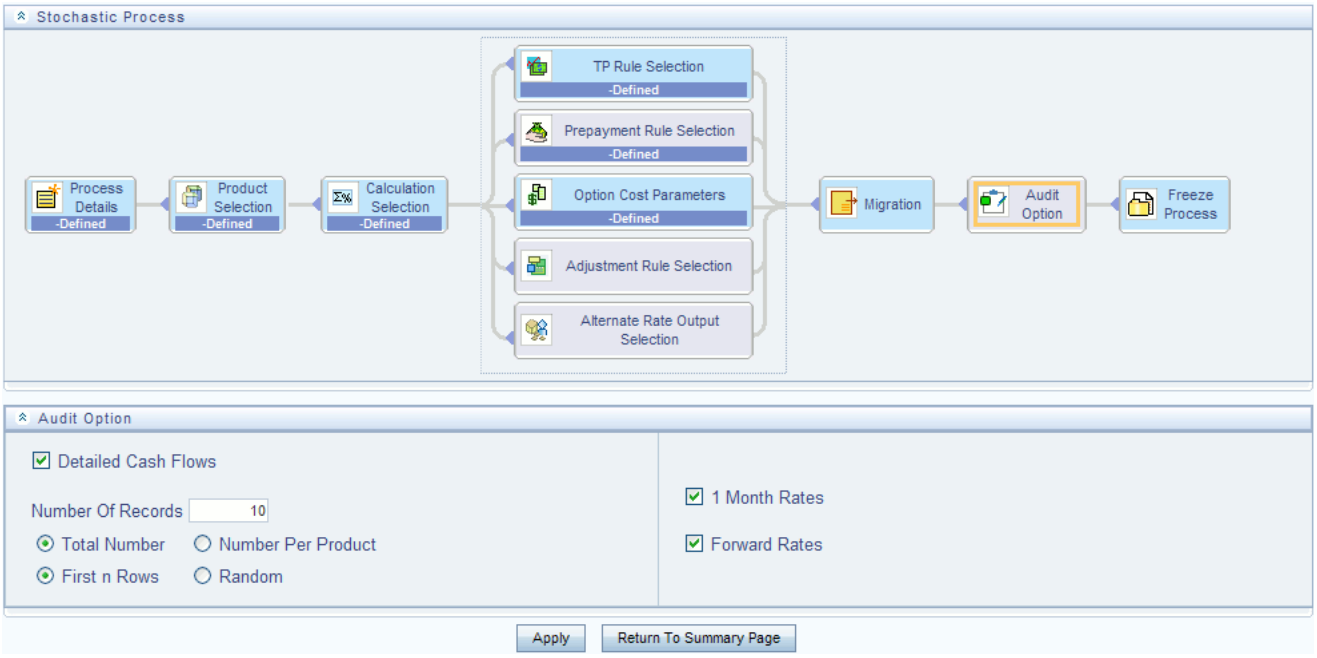
6. Select Migration Parameters



- Select the Migration Charge / Credit Method. Choose either Account Level or Ledger Level.
- Choose between Monthly and Daily charge/credit accrual. The default selection is Monthly. If Daily is selected, a holiday calendar is also required to determine the number days to accrue. For example, on weekdays (typically Monday - Thursday), 1 day of accrual will be posted and on weekends (Friday), 3 days of accrual will be posted at Friday's rate. When additional holidays are encountered on any other day of the week, similar logic is applied to extend the number of accrual days accordingly. **Note:** The Accrual Type selection is only available for Account Level migration when the "Daily" accrual option is also selected on the Calculation Selection page.
- If the Ledger Level Charge / Credit method is selected, then also specify the Accrual Basis source as either the Product dimension attribute or constant value.
- Select the Currency Output option. Choose either Functional Currency Only or Entered and Functional Currency.
- Select the Migration Dimensions

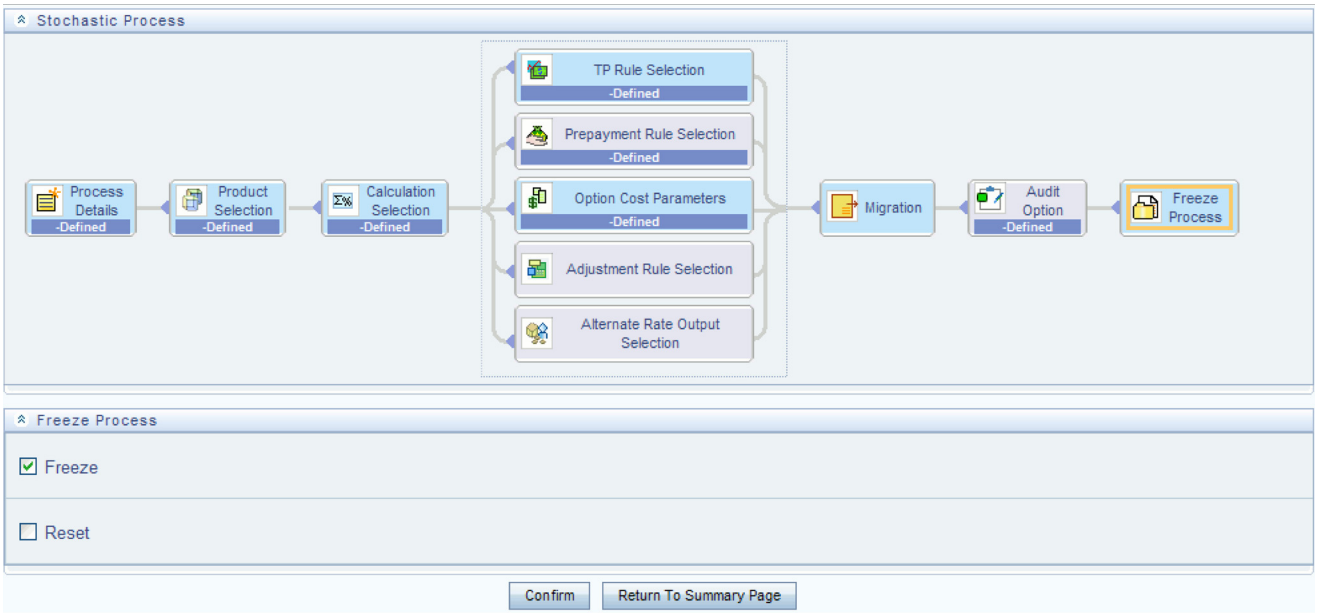
  Note: Upon selecting the Dimension Selection button (see above), Oracle Funds Transfer Pricing provides you with a Shuttle Control component to select the dimensions for the migration process. The two areas of the Shuttle Control are Available Dimensions and Selected Dimensions. You can move dimensions from Available Dimensions into Selected Dimensions and vice versa by using the Move, Move All, Remove, and Remove All buttons.
- Select APPLY

7. Select Audit Options



- Select the Detailed Cash Flows option to output cash flow details for instrument records. This option is typically used for audit purposes when users want to validate the cash flows being generated by the cash flow engine for certain types of instruments.
- Select the Number of Records to include in detail cash flows. This input is constrained by the FTP Application Preference setting and controlled by the Administrator. Selection of a large number of instrument records to include in detail cash flow output can result in a very time consuming process. Within Transfer Pricing, the maximum value for the Number of Records input is 10,000.
- Select additional parameters for detailed cash flows. The default values for number of records is "Total Number" and "First n Rows". It is also possible to specify the number records per Product ID and Random selection as opposed to the First n.
- Select 1 Month Rates and Forward Rates options to output rate details which can be access by the Business Intelligence applications for reporting.
- Select APPLY

8. Freeze Process



- Select Freeze to save the process.
- Select Reset to erase all selections made previously within the process definition flow.
- Select CONFIRM.

Related Topics

Overview of Transfer Pricing Processes , on page 269

Standard Navigation Paths, on page 343

The Oracle Funds Transfer Pricing Process, on page 69

Transfer Pricing Rules, on page 215

Prepayment Rules, on page 229

Adjustment Rules, on page 247

Alternate Rate Output Mapping Rules, on page 265

Executing a Transfer Pricing Process

You execute a Transfer Pricing Process:

- To generate transfer rates, tp add-on rates or option cost results.
- To propagate transfer pricing results for any applicable instrument table from a prior period.
- To migrate charges or credits, for funds provided or used, to the Management Ledger Table (LEDGER_STAT).
- To output, in pre-selected alternate columns, transfer rate, option cost, and adjustment calculation results for each instrument record in an account table for a transfer pricing process run.

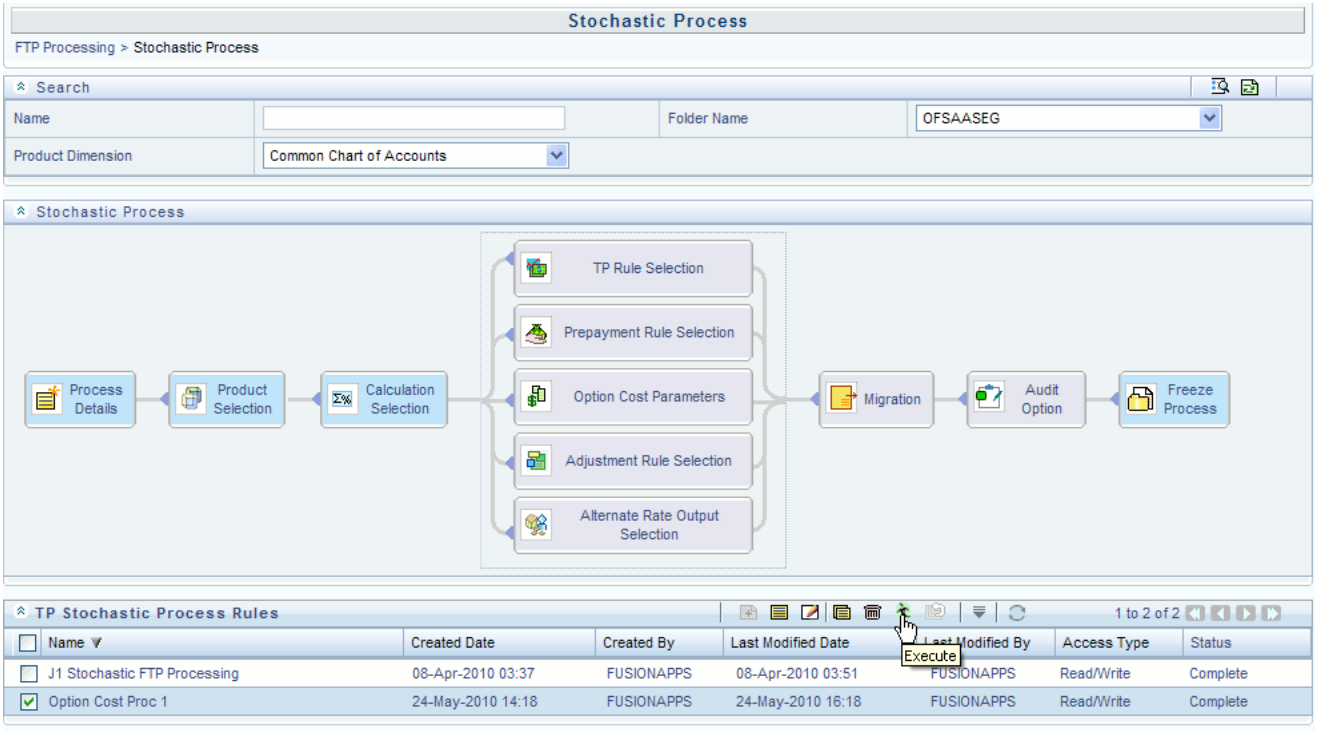
Executing a Transfer Pricing Process involves specifying the parameters necessary for successfully running an active version of the rule, and running the version.

Prerequisites

Performing basic steps for creating or editing a Standard Transfer Pricing Process .

Performing basic steps for creating or editing a Stochastic Transfer Pricing Process.

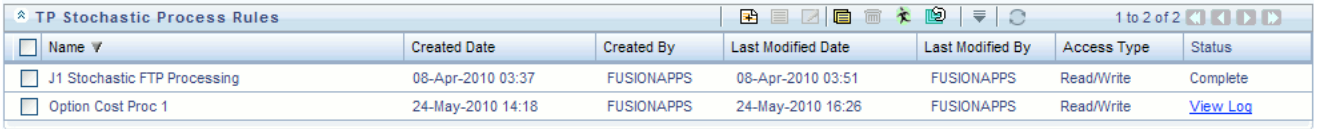
Procedure



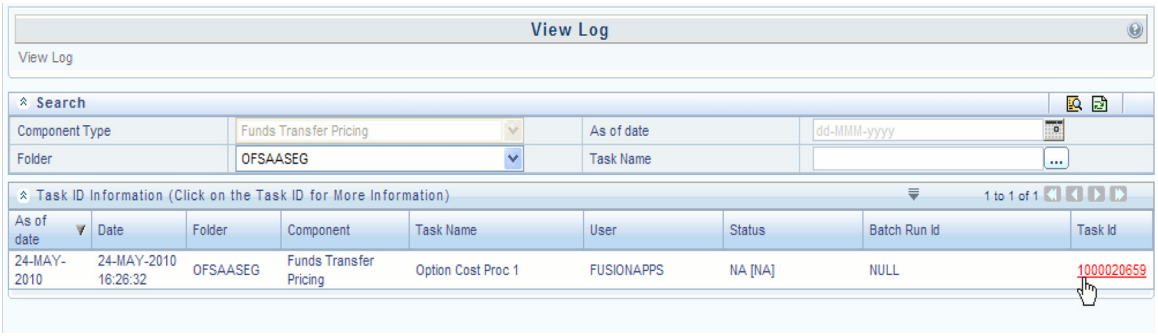
1. Navigate to the Transfer Pricing Process summary page.
2. Select a Process that you want to execute.

   Note: The status column indicates whether or not a process can be run. There are three possible status conditions:

   - Complete: Indicates the process is fully defined and ready to be run.
   - Incomplete: Indicates the process is partially defined and cannot be run.
   - View Log: Indicates the process has already been run and also indicates a process can be re-run. In this case View Log is a hyperlink that allows you to navigate to the Log Viewer page where you can review any processing errors or alerts related to this process.



3. After executing the process (above), select the View Log Hyperlink.



4. Select the Task ID (also known as the unique system identifier) to view a report for any processing errors.

   Note: If significant processing errors exist, you should re-run your process.

   The Transfer Pricing process is complete. You can access instrument level results and Management Ledger results through either the Enterprise Financial Performance Analytics BI application or the Asset Liability Management Analytics BI application.

Undo

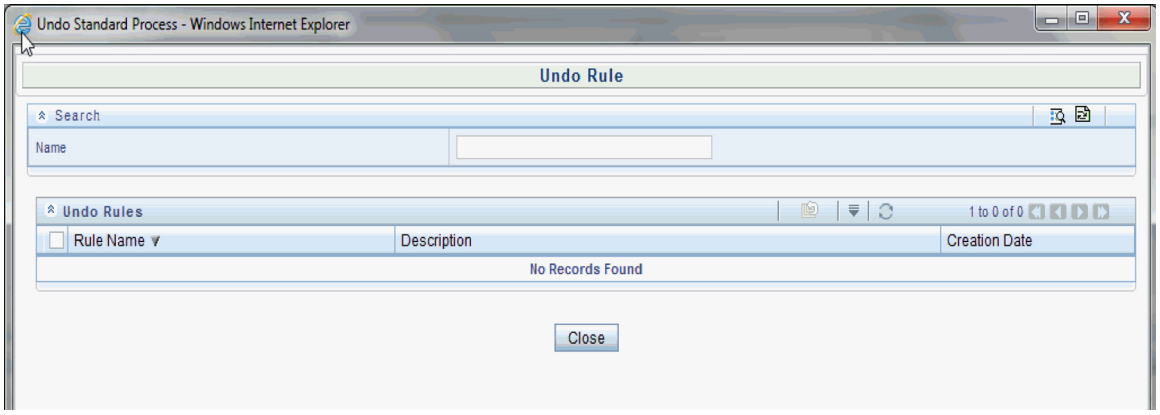
The Undo functionality allows you to undo the results of a recently executed FTP process. This is useful if you have by mistake executed a TP process rule.

This component will work with the new Management Ledger table structure. With the new structure, Management Ledger will work correctly to support multiple UNDO's given that each incremental process will insert rather than update. Because of this, you can UNDO any process.

The UNDO feature is applicable to both Standard and Stochastic Processes. To execute the UNDO process, click the Undo button on the TP Process Summary Page.

The Undo window is displayed.

Search for the TP Process rule that you want to undo. The rule will be displayed in Undo Rules list. Select a rule and click Undo.


Undo Standard Process - Windows Internet Explorer
Undo Rule
Search
Name
Undo Rules
1 to 0 of 0
Rule Name
Description
Creation Date
No Records Found
Close

CHAPTER 28 Break Identification Process

Breaks are associated with Assets and Liabilities that have fixed maturities and have experienced a full prepayment or pre-closure, partial prepayment, or restructuring. Any event that causes the bank to receive a change to scheduled contractual cash flows on a fixed maturity instrument results in a break funding event and should be evaluated. Transactions that could cause a change in future cash flows would include full loan prepayments, partial loan prepayments, early withdrawal of a term deposits, or a change in maturity tenor, payment amount, payment frequency or other contractual terms.

This chapter covers the following topics:

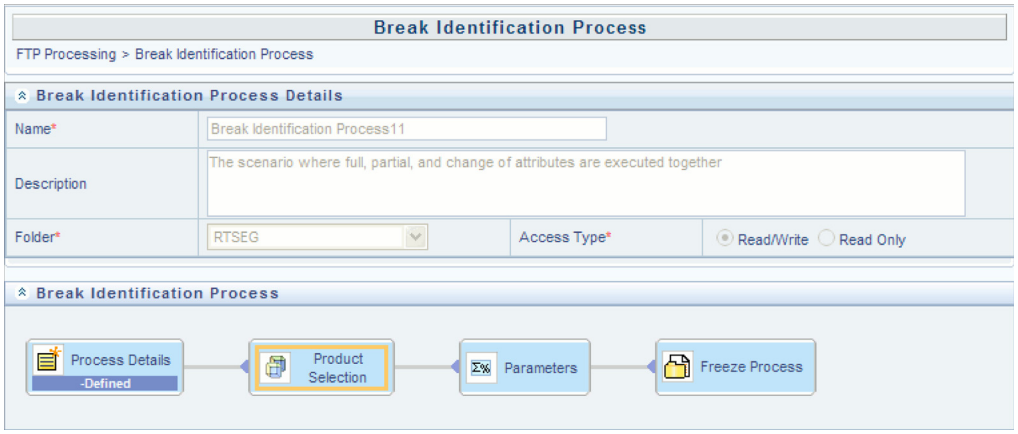
- Overview of Break Identification Process
- Creating a Break Identification Process
- Executing a Break Identification Process
- Performance Tuning Break Identification Processes

Overview of Break Identification Process

The Break Identification Process allows you to perform the following tasks:

- Determine the data that you want to process (Product Selection block).
- Specify the parameters for the process. The parameters include break types like full break, partial break, and change in attributes.
- Execute or run the break identification request and generate results (Break Identification Process Summary Page).

Creating a Break Identification Process



Create a Break Identification Process

To define and execute a break identification process. The Break Identification Process will compare current period instrument data with prior period instrument data to identify break events. When breaks are detected, the related instrument records are copied into the FSI_D_BREAK_FUNDING_CHARGES table. This table then becomes the source table for further FTP Adjustment Rule > Breakage Charge processing.

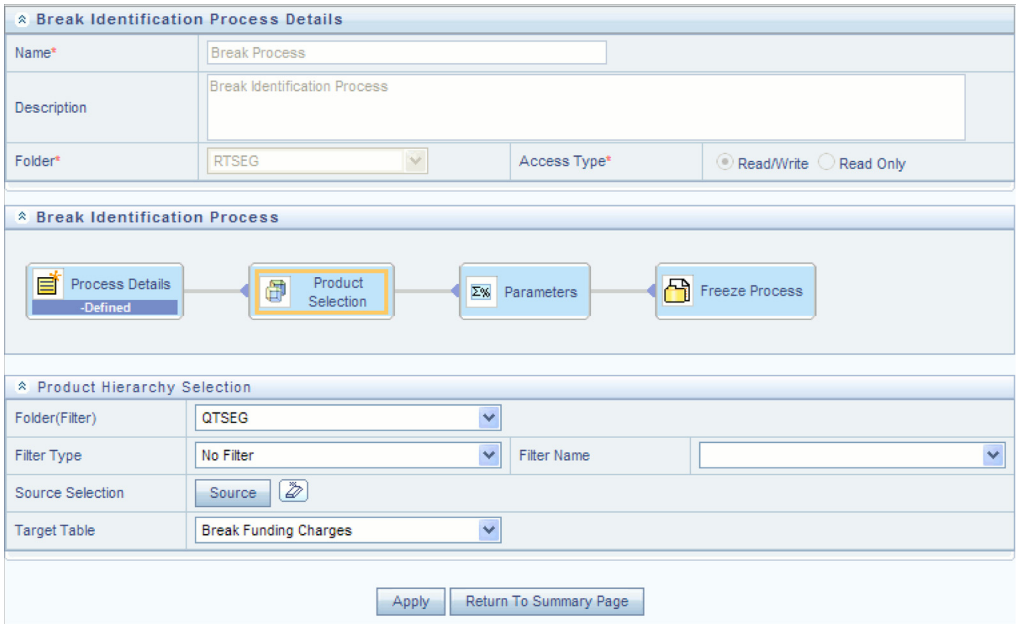
Procedure

The following table describes key terms used for this procedure.

Selected Terminology

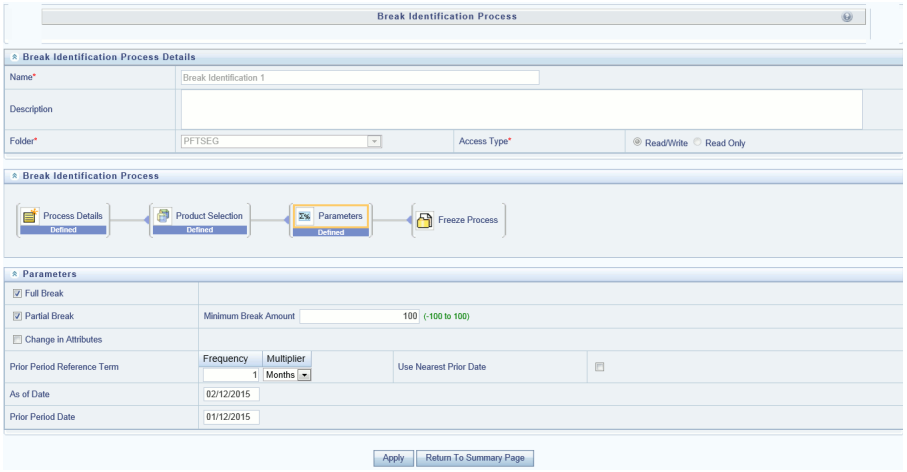
Term	Description
Folder	The folder where you can save the definition. You can give other users, read/write or read only privileges.
Filter	Filters allow you to restrict your data selection based on any attribute that exists within an instrument table. You define filters under Common Object Maintenance, and reference your filter within the Product Selection block of your Process. The choice of the data filter would determine the instrument records that should be picked up from the As-of-date and the prior period date for comparative analysis. The supported Filter Types are: Attribute Filter, Data Filter, Hierarchy Filter, and Group Filter.
Source	Allows you to select one or more source Instrument tables to include in your process. Based on the Instrument Table(s) selected, the instrument records on the As-of-date and the prior period date are chosen for comparison.
Target Table	Indicates the destination table where break event records will be posted. The default (seeded) table is the FSI_D_BREAK_FUNDING_CHARGES table. Users can additionally register user defined tables for posting Breakage Funding records if needed.
Parameters	There are three types of break parameters for the accounts. Full Break - Fully repaid or terminated accounts are considered as a Full Break. Partial Break - Partly repaid accounts are considered as Partial Break. Change in Attributes - Here a restructure of the Instrument record happens due to change in critical attributes or terms other than Balance. **Tip:** You can execute these breaks individually or together.
Minimum Break Amount	Minimum Break applies to both Positive and Negative breakage amounts. If the user enters minimum break as 1000, it means that minimum break amount ranges from -1000 to +1000. If the Breakage Amount that is calculated is less than or equal to the Minimum Break Amount, then it is not passed to the Break Funding Charges table.
Freeze Process	The freeze process block allows you to finalize the assumptions made in the Process definition flow or to clear all assumptions.

1. Navigate to the Standard Break Identification Process summary page and create a new Break Identification Process.
2. Product Selection Block



- Select a Filter (optional) to constrain the data to be included in the process. The supported Filter Types are: Attribute Filter, Data Filter, Hierarchy Filter, and Group Filter.
- Select the source table(s) that you want to include in the process.
- Select the target table, which is a Break Funding Instrument table.

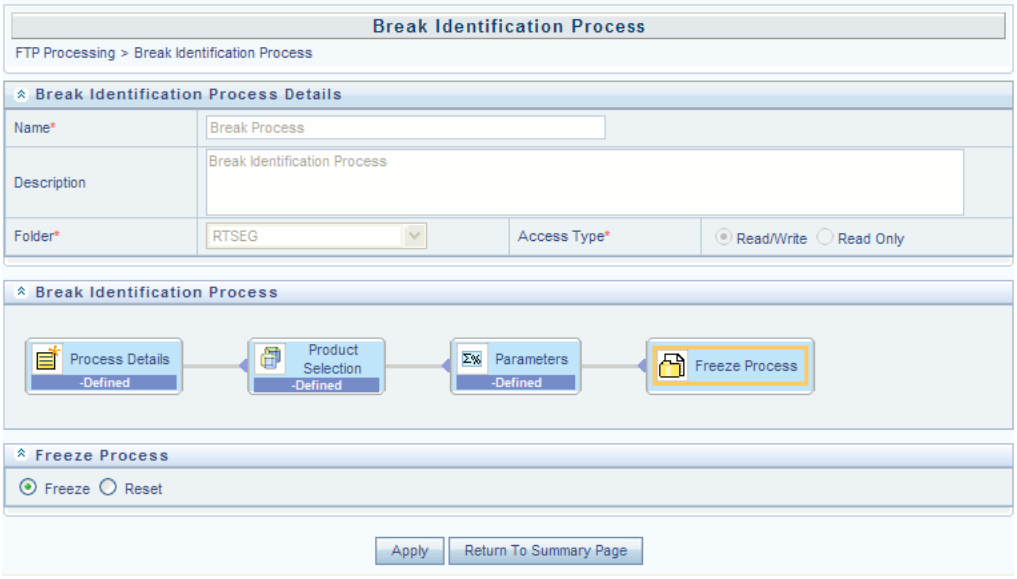
3. Parameters



- Select the type of break that you would like to search for and fill the related details. In the case of a Full Break, the filter will work only on the prior period instrument record. In the case of a Partial Break or Change in Attributes, the filter will work on both the prior period and current period instrument records.

- Input the **Minimum Break Amount** as a positive value. The engine will apply the absolute value of the amount input ranging from - input amount to + input amount. For example, if the input is 100, then break amounts between -100 and +100 will be excluded. This input allows you to filter very small / insignificant break amounts, reducing the amount of data copied into the Break Funding Charges table.
- Note there are two approaches for determining the Prior Period Date. You can input the Prior Period Reference Term and based on the current As of Date, the Prior Period Date will be calculated, or you can select the "Use Nearest Prior Date" option, and the engine will then look back at the historical data to determine the nearest prior As of Date and will use this as Prior Period Date.

4. Freeze Process



- Select Freeze to complete the process.
- Select Reset to erase all selections made previously within the process definition flow.
- Select Confirm.

Executing a Break Identification Process

You execute a Break Identification to compare current period and prior period data to identify different break types.

Prerequisites

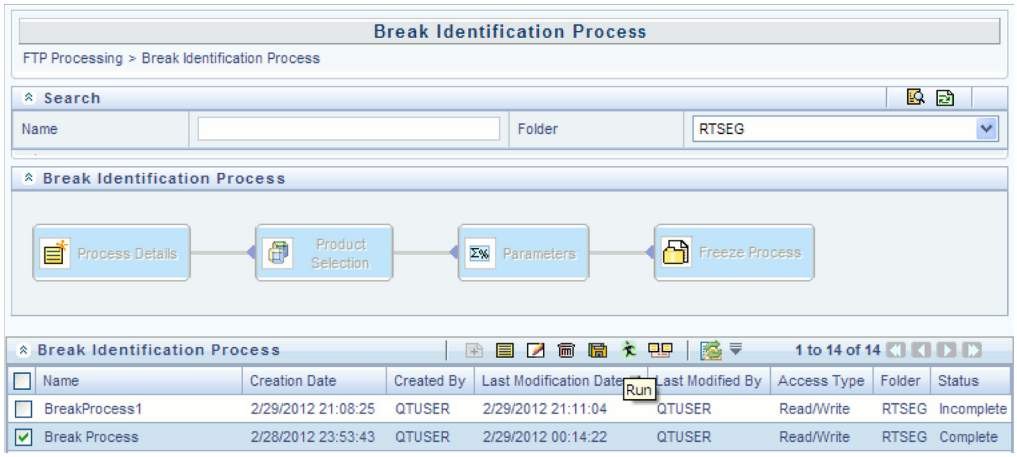
Performing basic steps for *Creating a Break Identification Process,* on page 297

Procedure

Following two approaches are available to execute the process:

- UI Based Procedure
- Batch Based Procedure

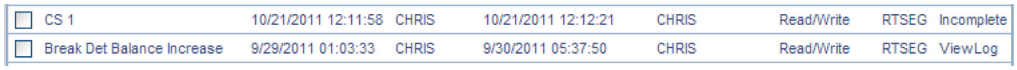
UI Based Procedure



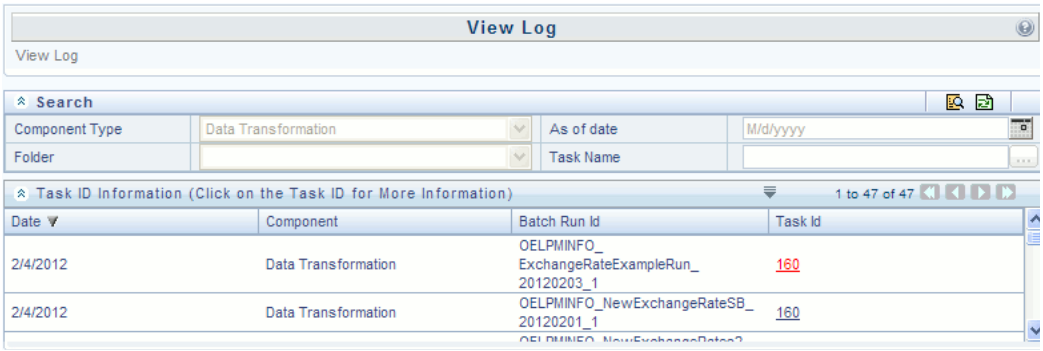
1. Navigate to the Break Identification Process summary page.
2. Select a Process that you want to execute or run.

   Note: The status column indicates whether or not a process can be run. There are three possible status conditions:

   - Complete: Indicates the process is fully defined and ready to be run.
   - Incomplete: Indicates the process is partially defined and cannot be run.
   - View Log: Indicates the process has already been run and also indicates a process can be re-run. In this case View Log is a hyperlink that allows you to navigate to the Log Viewer page where you can review any processing errors or alerts related to this process.



3. After executing the preceding process, select the View Log Hyperlink.



4. Select the Task ID (also known as the unique system identifier) to view a report for any processing errors.

   Note: If significant processing errors exist, you should re-run your process.

The Break Identification process is complete.

Batch Based Procedure

Break Identification Processes can also be executed as batch processes. The following approaches are available:

Simplified Batch

1. Navigate to Financial Services Applications > Administration > Simplified Batch.
2. Create a New Simplified Batch.
3. Select Task Type **Transform Data**.
4. Select **Break_Detection** from the list of seeded process types.
5. Input the following in the Optional Parameters text box: 'Break Detection Process System ID','User ID', for example, '200883','TPUSER'
6. Save the rule and Execute.

Related Topics

Simplified Batches, on page 47

ICC Batch

1. Navigate to Operations>Batch Maintenance.
2. Create a new batch.
3. Select the Batch Name to add the task.
4. Click **Add** button under the Task Details section.
5. Define the Task ID and Description.
6. Select Components as **Transform Data**.
7. Select **Break_Detection** rom the list of seeded process types.
8. Input the following required parameters: Break Detection Process System ID and User Name. These parameters should be given in the follow format (sys Id, User Id), for example: 101000, TPUSER.
9. Save the rule and Execute.

Run Rule Framework

1. Navigate to Rules Framework>Process.
2. Create a new rule.
3. Define the Folder, Code, and Name of rule.
4. Select the Component as **Transform Data**.
5. Select **Break_Detection** from the list of seeded process types.
6. Input the following required parameters: Break Detection Process System ID and User Name. These parameters should be given in the follow format (sys Id, User Id), for example: 101000, TPUSER.
7. Save the rule and Execute.

Performance Tuning Break Identification Processes

Processing time for Break Identification Processes can be reduced by modifying parallel processing parameters in the FSI_PARALLEL_PARAMETERS table.

Parallel execution related parameters for Break Identification are seeded by the application with a process_engine_cd value of "3" in the FSI_PARALLEL_PARAMETER table.

The Break Identification process looks for the value given in parallel_query field. If the value is given as "ENABLED", the engine uses the PARALLEL_DEGREE input and sets the degree of parallelism for execution of the queries within the Break Identification engine.

These values should be set by the user or implementation team, when they want to take advantage of parallel query executions. The optimal value for the PARALLEL_QUERY input depends on the environment and should be iteratively tested to arrive at the appropriate value.

CHAPTER 29 Rate Locks and the Loan Commitment Pipeline

Rate Locks on Loan Commitments

A Rate Lock is a lender's promise to hold a certain interest rate for the borrower, usually for a specified period of time and fee, while the loan application is being processed. Rate locks are commonly granted to borrowers when they apply for a mortgage loan and generally carry a term of 30, 60 or 90 days. In Oracle Funds Transfer Pricing these loan commitments (which are not yet on the balance sheet) are stored in the FSI_D_LOAN_COMMITMENTS table, separate from loans which are already funded. These loan commitments can be Transfer Priced using implied forward rates which correspond to the assumed loan start date (end of commitment period). This capability allows treasury to "lock-in" a loan funding rate at a point in time prior to the actual loan funding.

For more information on using the "Forward Rates" option, refer to Chapter 28 – Transfer Pricing Process.

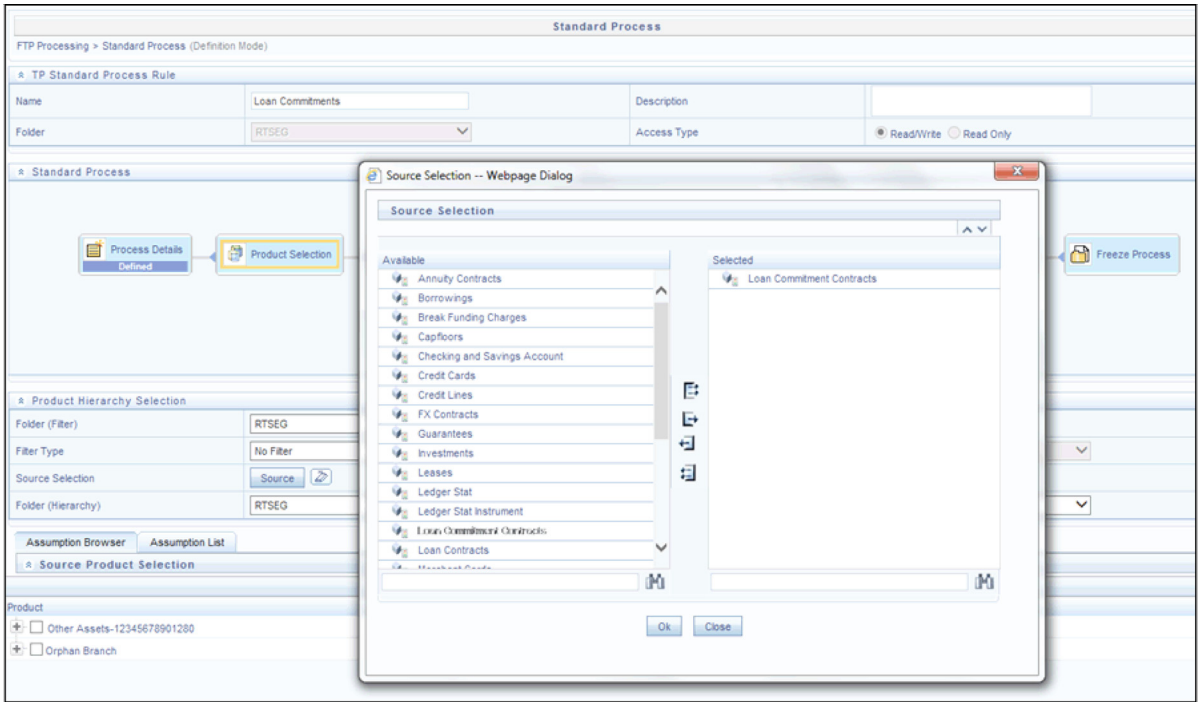
Rate Lock Options

Many times, lenders also offer a one time option to borrowers to take a lower rate if market rates drop during the commitment period. If on the settlement date, the advertised rate for the chosen fixed rate period falls below the 'locked rate', the borrower will benefit from the lower of the current advertised fixed rate and the 'locked rate'. The benefit granted to the user to receive the lower rate at time of settlement can be thought of as an option, specifically the bank sells the customer a European 'at the money spot' interest rate swaption. The cost of this option can be calculated and should be charged by treasury back to the line of business as an internal cost. Oracle FTP provides the capability to calculate the 'rate lock' option cost. The general approach assumes that loan commitment information will be available in sufficient detail from the source systems to support cash flow transfer pricing using forward FTP curves and all required information describing the terms of the rate lock.

How to Transfer Price using Forward Rates and Calculate Rate Lock Option Costs

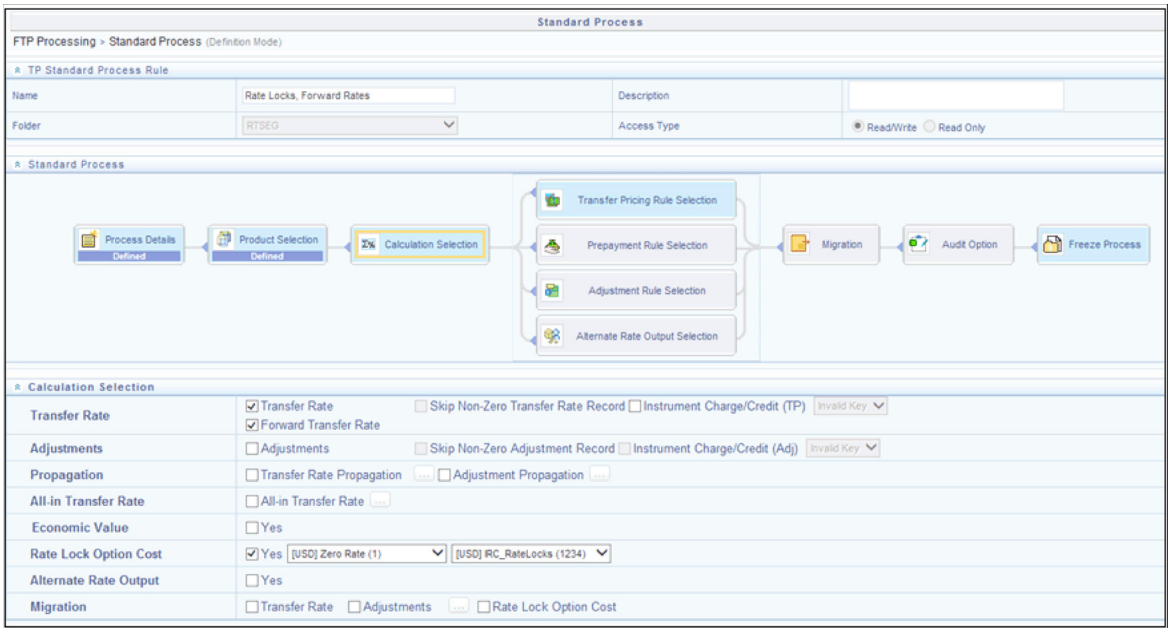
The Standard FTP Process provides setup options that allow you to Transfer Price data in the Loan Commitments table using forward rates and calculate the related rate lock option costs. To do this, please select the Loan Commitment table under Source Selection

The following options are available on the Calculation Selection page.



Note: These calculation options assume the user has also selected the Loan Commitments table on the Product Selection page under "Source Selection":

- Forward Transfer Rate – The Forward Transfer Rate option is required when the user wants to use an Implied Forward Curve as the reference curve for Transfer Pricing a future dated instrument records.
- Rate Lock Option Cost – The Rate Lock Option Cost selection option along with drop-down lists for selecting the Risk free curve and Discount curve are required for calculating the related Rate Lock Option Costs.
- Migration of Rate Lock Option Costs to Ledger Stat - If the Rate Lock Option Cost to Ledger Stat migration is needed, users should additionally select this option.



Rate Management

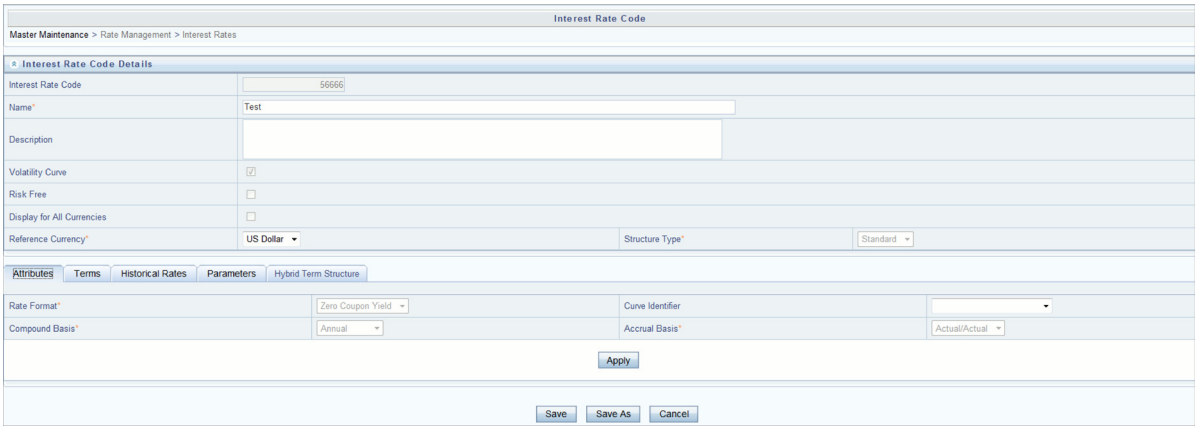
As shown in the TP Process screenshot above, the Rate Lock Option Cost calculation requires two inputs both of which come from the Rate Management > Interest Rates page.

- Discount Curve: This can be a standard interest rate curve
- Volatility Curve: This is a special form of interest rate curve, where the volatility curve option has been selected

To setup a volatility curve, while defining a new Interest Rate Curve, select the checkbox – 'Volatility Curve'. This checkbox selection signifies that the curve will hold volatility rates. Select the Reference Currency of the IRC being created.

When 'Volatility Curve' is checked, the following fields are disabled and are not applicable

- Compounding basis
- Accrual basis
- Rate Format



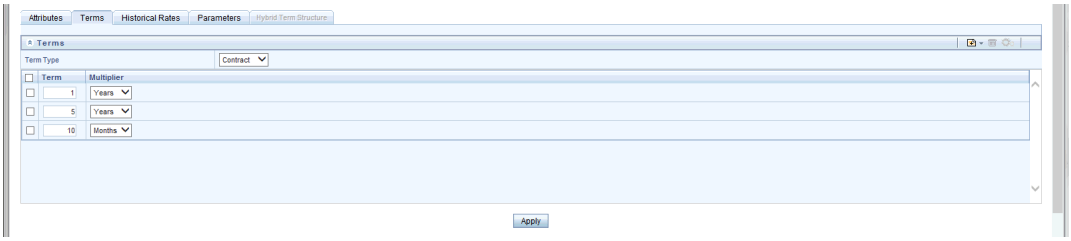
Terms tab

For a Volatility Curve, the Terms tab displays two types of Terms – The Contract term (Loan term) and the Expiration term (Rate Lock (option expiry) term). Users must provide the volatility inputs for all combinations of "Contract Term" and "Expiration Term".

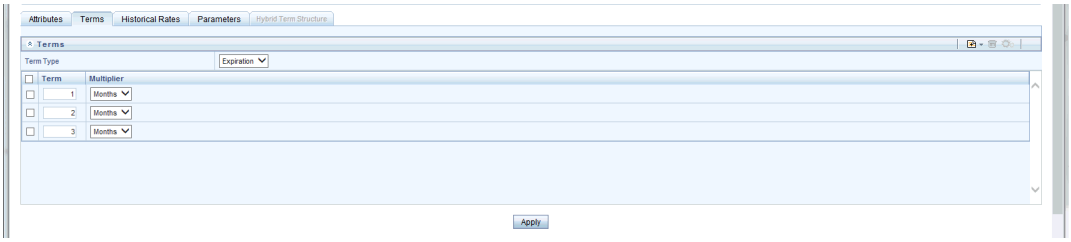
Note: In the moneyness dimension, typically associated with option volatility is not required, because Rate Lock Options are assumed to be granted “at the money”.

The following steps are required to complete the setup of a volatility curve:

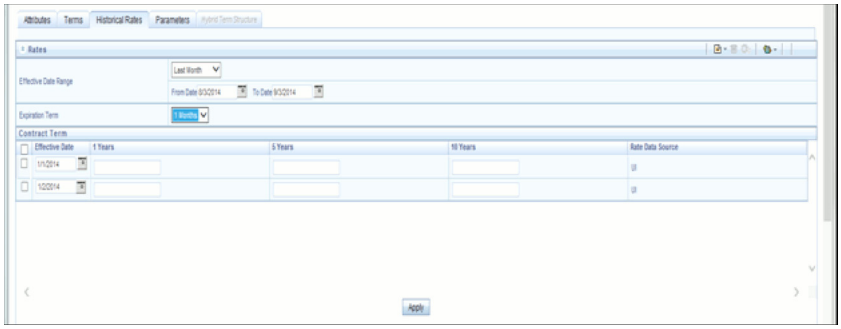
Terms tab – Contract Term: Add rows and input terms for the number of required loan terms. These are the maturity term of the loan. Select APPY to save the data.



Terms Tab – Expiration Term: Add rows and input terms for the number of required Expiration terms. These correspond to the number of rate lock terms being offered. Select APPLY to save the data.



Historical Rates Tab: After defining and applying the volatility curve dimensions, navigate to the Historical Rates tab and input the volatility rates for each combination of loan term and rate lock term and for each effective date that you wish to store historical volatility data.



Select APPLY when finished to save the data.

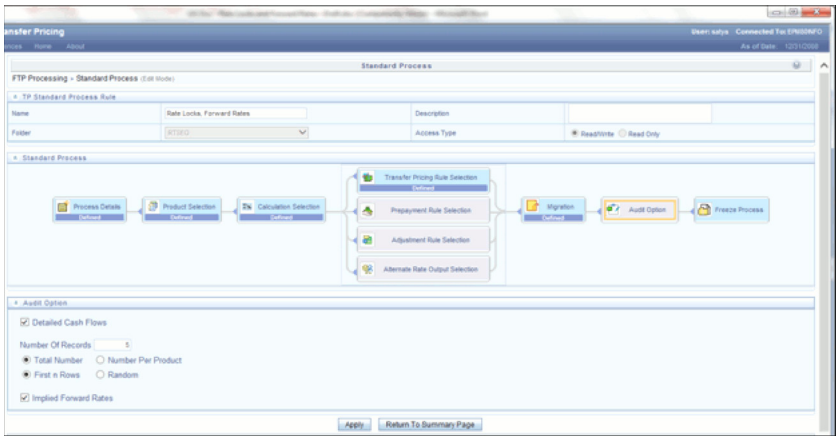
Implied Forward Rates Output

Users have the option to output the implied forward rates to an Audit Table if needed for validating the Transfer Rate result. To support the validation requirement, the FTP engine (optionally) writes the forward rates to an Audit table - FSI_O_FTP_IMP_FWD_RATES_AUDIT. The option to write implied forward rates is available in the Standard TP Process on the Audit block.

The Implied Forward Rates audit output is linked to the Detailed Cash Flows selection and Number of Records selection as a way to limit the amount of forward rate output. During processing, the FTP engine will output forward rates for any instrument records that also have detailed cash flows output, i.e. there one forward curve corresponding to each instrument record. Our assumption is that users will only need to output implied forward rates for a limited set of data records for the purpose of validating the forward curves and the related transfer rates generated by the TP engine.

The Checkbox 'Implied Forward Rates' will be active only when

- The “Forward Transfer Rate” option has been selected on the Calculation Selection block
- The 'Detailed Cash Flows' checkbox is selected in the Audit block



Transfer Pricing Future Dated Instruments (Loan Commitments)

The base FTP rate quoted on the Commitment Start date is calculated using the current forward rates corresponding to the tenor of the Rate Lock period requested and the loan period/payment frequency based on the TP method selected. If an instrument record has a commit_start_date <= as_of_date and origination_date > as_of_date, then FTP will generate implied forward rates based on the commit_start_date spot IRC curve.

Implied Forward Rate

Effective Date	Lookup tenor
COMMIT_END_DATE (for example, 30, 60, 90 days forward)	Term of the loan (or) Related cash flow terms, depending on the TP method

Once the record is identified as a Rate lock record, the Forward Curve is generated for the same term points as the Spot curve (selected in the Transfer Price Rule UI). Once this is done, the TP method that is selected follows its usual flow, except for using the Forward TP IRC instead of the Spot TP IRC. If required tenors are not found, interpolation is used.

Within the Loan Commitment table, prior day results can be propagated forward, so post processing, all open commitments will have a Transfer Rate and Rate Lock Option Cost assigned either through propagation or new calculation.

Note: The FTP engine uses only Standard Term for forward rate based TP calculation and not Remaining Term.

Implied Forward Rate Calculation

An Implied Forward is that rate of interest that is predicted to be the spot rate at some point in the future.

FORMULA

$$F_{t1,t2} = \left(\frac{(1 + S_{t2})^{d_{t2}}}{(1 + S_{t1})^{d_{t1}}} \right)^{(1/d_{t1,t2})} - 1 \longrightarrow \text{(Formula 1.a)}$$

$F_{t1,t2}$ is the forward rate between term t1 and term t2,

d_{t2} is the time length between time 0 and term t2 (in years),

d_{t1} is the time length between time 0 and term t1 (in years),

$d_{t1,t2}$ is the time length between time t1 and term t2 (in years),

S_{t1} is the interest rate for the period time 0 to term t1,

S_{t2} is the interest rate for the period time 0 to term t2

If 1 year TP Rate is 6.00% and 3 month TP Rate is 2.00% we can calculate the 3 month forward implied 9 month rate as follows:

$F_{t1,t2}$ *is the forward rate between term t1 and term t2,*

$d_{t2} = 1$ *year*

$d_{t1} = 3$ *months* $= 0.25$ *year*

$d_{t1,t2} = 9$ *months* $= 0.75$ *year*

$S_{t1} = 2\%$

$S_{t2} = 6\%$

$F_{t1,t2}$ = (((1+ 0.06)^(1) / (1+0.02)^(0.25)) ^ (1/0.75)) - 1 = 7.36%

Therefore, the market is implying that in 3 months time, 9 month TP Rate will be 7.36%.

Rate Lock Option Cost Calculation

The Rate Lock Option Cost calculation uses a standard Black European swaption pricing formula. This calculation is triggered from a Standard FTP Process, and can be performed for both fixed rate and adjustable rate instruments. The following conditions must hold true for instrument records in the FSI_D_LOAN_COMMITMENTS table:

commit_start_date <= as_of_date

origination_date > as_of_date

Black Formula for calculating Rate Lock Option Cost

$$d1 = \frac{Log(F/X) + T*0.5v^2}{Sqr(T)*v}$$

$$d2 = \frac{Log(F/X) + T*0.5v^2}{Sqr(T)*v} - Sqr(T)*v = \frac{Log(F/X) - T*0.5v^2}{Sqr(T)*v}$$

$$OptionCost = \frac{1-(1+F/m)^{(-t1*m)}}{F} * Exp(-r*T)*[F*CND(d1) - X*CND(d2)]$$

where:

- *t1 is the term to maturity of the loan*
- *T is the term to expiry of the option*
- *F is the forward instrument rate – to be picked from the calculated Forward curve*
- *X is the strike rate (same as F – Forward Instrument rate)*
- *v is volatility*
- *r is the continuously compounded "risk free" rate to option expiry*
- *m is the payment frequency of the underlying swap.*

Example: Option Cost Calculation

Calculate Rate Lock Option Cost for a Rate Lock arrangement with the following details			
Loan Face value - ORG_BOOK_BAL	10,000,000		
Tenor of Loan - ORG_TERM & ORG_TERM_MULT	5		years
Locked TP Rate - TRANSFER_RATE	8.20%		
Rate Lock Commitment period - COMMIT_TERM & COMMIT_TERM_MULT	90		days
Loan Payment frequency - PMT_FREQ	6		months
Volatility	20%		
Risk free rate to Option Expiry	4%		
REQUIRED INPUTS			
Term to maturity of the loan	t1	5	years

Term to expiry of the rate lock option	T	0.2465753	years
Strike rate - Locked TP Rate (Forward TP Rate as on Loan Origination)	X	8.20%	
Volatility	v	20%	
Details for Volatility - From the historical volatility curve that is loaded in Rate Management by the user, pick Volatility% with EFFECTIVE DATE = COMMIT_START_DATE and LOOKUP TENOR = Tenor of the Loan. In Release 6.0, 2 Dimensional Volatility curve was introduced with Contract term and Expiry term as the 2 dimensions.			
Payment frequency of the loan	m	6	months
Continuously Compounded TP rate to option expiry	r	4.08%	(Refer calculation (1) below)
Implied Forward TP rate	F	8.20%	(Refer calculation (2) below)

INTERMEDIATE CALCULATIONS			
(1) Continuously Compounded TP rate to option expiry	r	4.08%	
(2) Implied Forward TP rate (FDD v1.1 - Implied Forward Rate Calculation - Section 6.1.2.1) Inputs required - (Terminology for these inputs is according to Section 6.1.2.1)	F		
dt1 - Commitment term of Rate Lock	0.246575	years	
dt1,t2 - Tenor of Instrument	5	years	
dt2- Time length between Commitment Start Date and Loan maturity	5.246575	years	
St1- Spot Interest Rate as on COMMIT_START_DATE for Commitment Term of the Rate Lock (COMMIT_MAT_DATE – COMMIT_START_DATE)	4%		

St2- Spot Interest Rate as on COMMIT_START_DATE for Time length between Commitment Start Date and Loan maturity	8%	
Implied Forward Rate, F (Formula given above in explanation)	0.0820119	8.20%

Option Cost Calculation

$$d1 = \frac{Log(F/X) + T*0.5v^2}{Sqr(T)*v}$$ d1 0.049656353

$$d2 = \frac{Log(F/X) + T*0.5v^2}{Sqr(T)*v} - Sqr(T)*v = \frac{Log(F/X) - T*0.5v^2}{Sqr(T)*v}$$ d2 -0.049656353

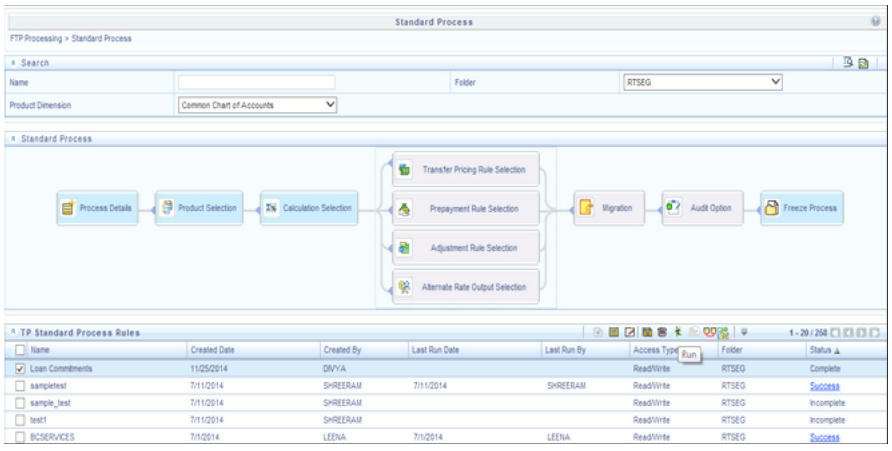
Option Cost = $$\frac{1-(1+F/m)^{(-t1*m)}}{F} * Exp(-r*T)*[F*CND(d1) - X*CND(d2)]$$ 0.013116536

(Payer_Swaption formula)

COMMIT_OPTION_COST_PCT **1.311654%**
COMMIT_OPTION_COST **1311.653566**

Execution and Results

You can execute the TP Process to calculate Forward Rates and Rate Lock Option Costs by selecting the process in the Summary screen and then clicking on the Run button



The following are the relevant output columns related to this feature –

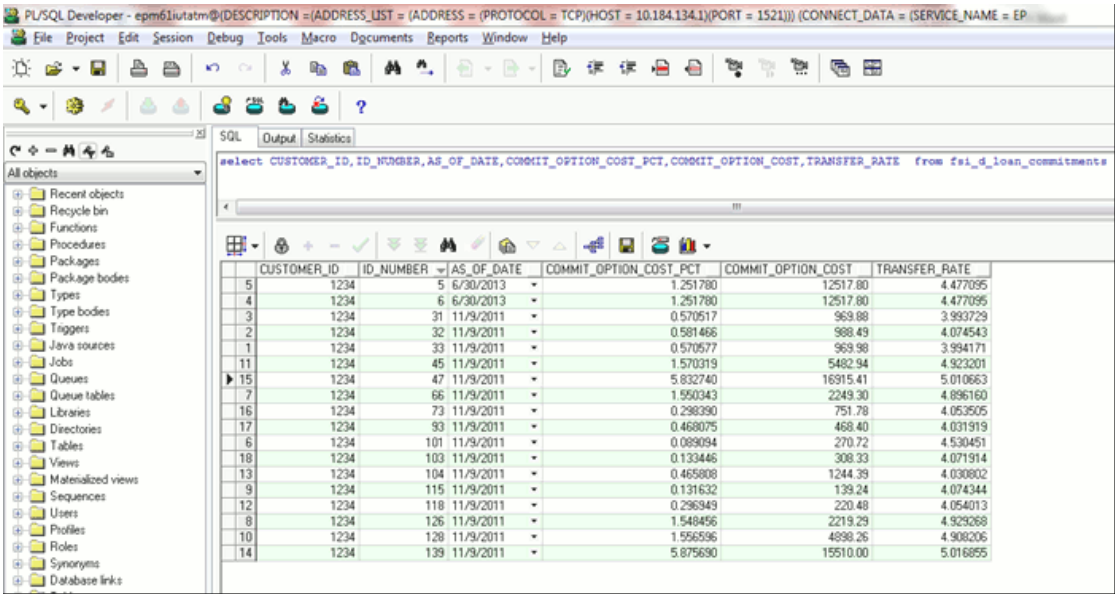
COMMIT_OPTION_COST_PCT - Rate Lock Option Cost in Percent terms

COMMIT_OPTION_COST – Rate Lock Option Cost in Amount terms

TRANSFER_RATE – Forward Transfer Rate

Users have the option to output the implied forward rates to an Audit Table if needed for validating the Transfer Rate result. To support the validation requirement, the FTP engine (optionally) writes the forward rates to an Audit table - FSI_O_FTP_IMP_FWD_RATES_AUDIT

Sample results of SQL queries shown below



	CUSTOMER_ID	ID_NUMBER	AS_OF_DATE	COMMIT_OPTION_COST_PCT	COMMIT_OPTION_COST	TRANSFER_RATE
5	1234	5	6/30/2013	1.251780	12517.80	4.477095
4	1234	6	6/30/2013	1.251780	12517.80	4.477095
3	1234	31	11/9/2011	0.570517	969.88	3.993729
2	1234	32	11/9/2011	0.581466	988.49	4.074543
1	1234	33	11/9/2011	0.570577	969.98	3.994171
11	1234	45	11/9/2011	1.570319	5482.94	4.923201
15	1234	47	11/9/2011	5.832740	16915.41	5.010663
7	1234	66	11/9/2011	1.550343	2249.30	4.896160
16	1234	73	11/9/2011	0.298390	751.78	4.053505
17	1234	93	11/9/2011	0.468075	468.40	4.031919
6	1234	101	11/9/2011	0.089094	270.72	4.530451
18	1234	103	11/9/2011	0.133446	308.33	4.071914
13	1234	104	11/9/2011	0.465808	1244.39	4.030802
9	1234	115	11/9/2011	0.131632	139.24	4.074344
12	1234	118	11/9/2011	0.296949	220.48	4.054013
8	1234	126	11/9/2011	1.548456	2219.29	4.929268
10	1234	128	11/9/2011	1.556596	4898.26	4.908206
14	1234	139	11/9/2011	5.875690	15510.00	5.016855

CHAPTER 30 FTP Rate Card

Overview of Rate Card

Rate card functionality allows the user to select standard products for viewing in their daily FTP Rate report. Administrators schedule a daily FTP run for the selected set of standard products and end users can view daily rates for relevant standard products by defining their Daily rate card reports.

Rate cards are used for informational purposes only. They are used to give an idea of the prevailing transfer rates as per the current market scenario, before actual transactions take place unlike a Standard Transfer Pricing Process where a bank generally runs at the end of each month to generate Transfer Rates for each booked instrument record.

To understand the use case better, we can think of a situation where a user (Bank Personnel, Account officer etc.) wants to refer to the current cost of funds rate before the transaction rate is quoted. Having access to this up to date information allows the banker to be pro-active with their pricing decisions having full knowledge of the cost of funds and prospective rate spread before quoting a rate to the customer.

Setting up a Product

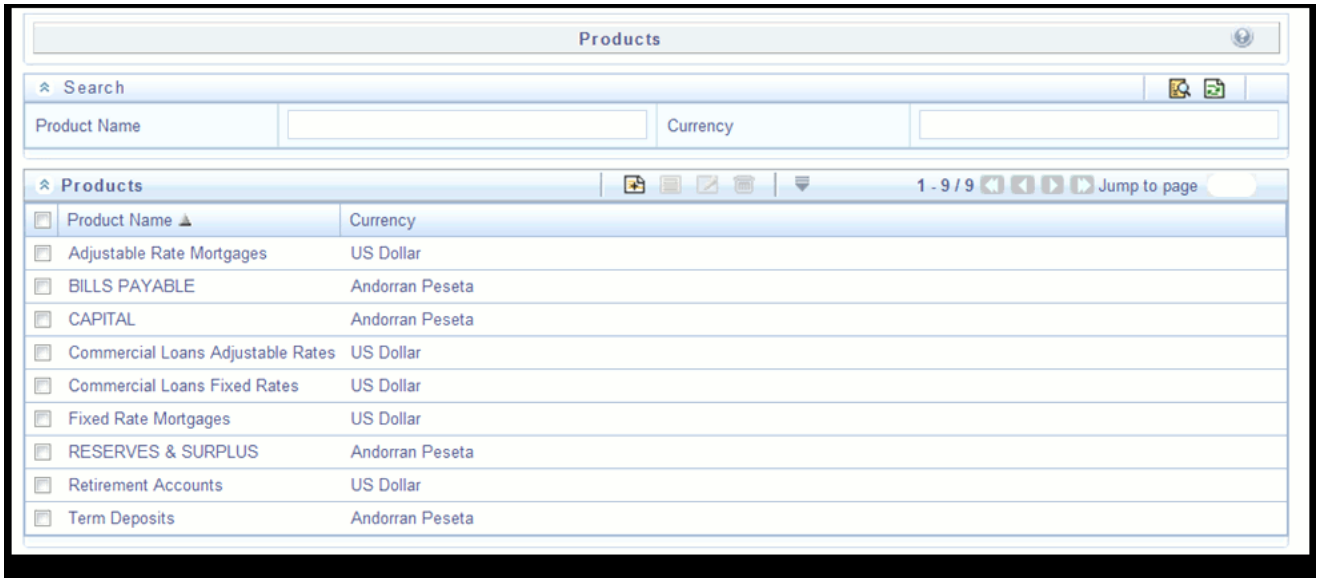
Product setup allows Administrators to define the default Product Characteristics for standard products. These assumptions will be defined for Products by the Administrator during the application setup through the provided user interface.

The Products window shows the list of default Product Characteristics for standard products and you can define the properties for them.

The procedure for working with and managing Products is similar to that of other Oracle Funds Transfer Pricing business rules. It includes the following steps:

- Searching for Products.
- Creating a Product definition
- Viewing and Editing Product definitions.
- Copying Product definitions.
- Deleting Product definitions.

As part of creating and editing Product definitions, the user defines the properties for applicable products.



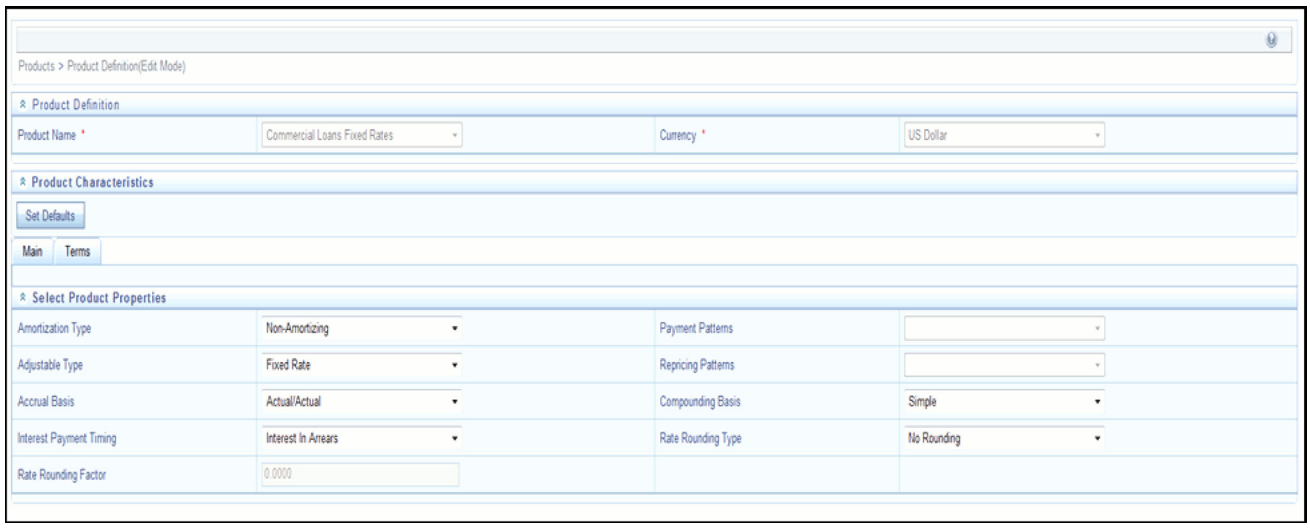
Defining a Product

To access the Products window, navigate to FTP Rate Card> Products.

Click **Add** icon to create a new Product definition.

The definition of Product is a part of the Create or Edit Product Definition page. When you click Save in the Create Product Definition page, the product definition is saved and the Product will be displayed in Product summary page.

Note: Only those Products which are defined by the Administrator will be included in the daily FTP Rate Card Process and similarly, only defined products will be available to end users for Rate Card reporting.



Prerequisites

Performing basic steps for creating or editing a Product.

Procedure

This table describes the key terms used for this procedure.

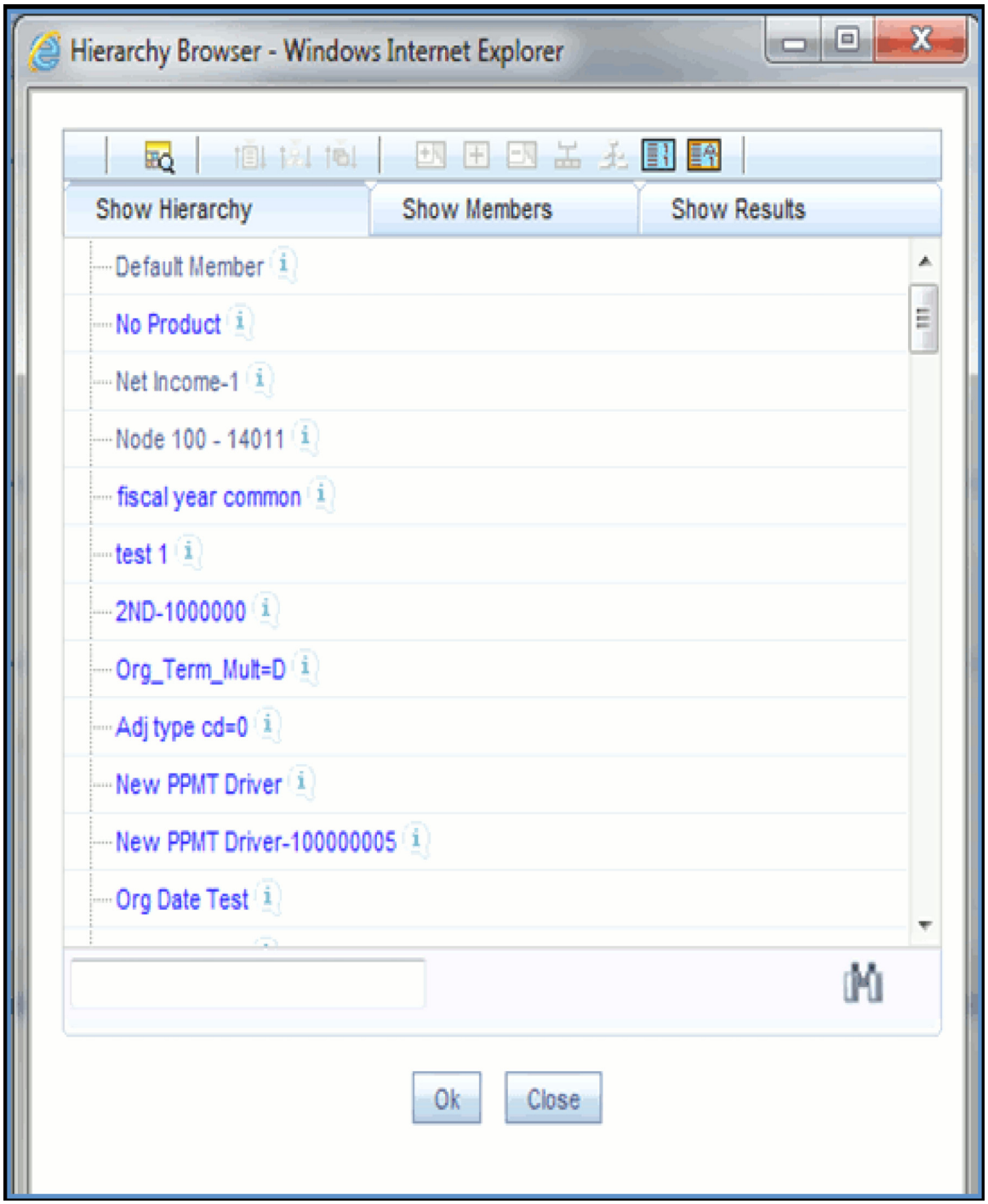
Term	Definition
Product	Provides a list of the “leaf” dimension members for the Product dimension selected in Application Preferences
Currency	The corresponding currency of the instrument to be priced.
Set Defaults	Select Set Defaults option, to restore default Product Characteristics
Main Tab	
Amortization Type	Select the Amortization Type. This defines the method by which an account's principal and interest will be amortized. The Default Amortization Type is "Non-Amortizing".
Payment Patterns	Optionally, select the Payment Pattern. This list is defined through Payment Pattern user interface.
Adjustment Type	Select the Adjustment Type. This selection indicates if the product is fixed rate or adjustable rate. The Default Adjustment Type is "Fixed Rate".
Repricing Patterns	Optionally, select the Repricing Pattern. This list is defined through the Repricing Pattern user interface.
Accrual Basis	Select the Accrual Basis. This is the basis on which the interest accrual is calculated. The default value is "Actual/Actual".
Compounding Basis	Select the Compounding basis. This selection indicates the compounding frequency used to calculate the interest income. The compounding basis for the interest payments can be monthly, annually, simple and so on. The default value is "Simple".
Interest Payment Timing	Define the Interest Payment Timing. You can pay the interest in Advance, Arrears. The default value is "Interest in Arrears".
Rate Rounding Type	Select the Rate Rounding Type to round off the Interest Rate. This selection indicates how the rate assigned to the product will be rounded.
The default value is "No Rounding".	
Rate Rounding Factor	Enter the rate rounding factor. If the Rate Rounding Type is Round Up, Round Down or Round Nearest, then rate rounding factor determines the precision of the rounding. The possible range of values for this is 0.0000 – 9.9999. The default value is 0.0000. This option is not applicable if Rate Rounding Type is selected as No Rounding.

Term Tab

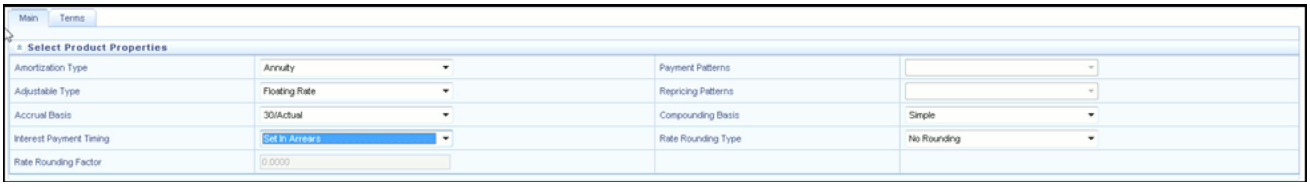
Original Term	Enter the Original Term to define the contractual term from the origination date. Note that it is possible to define more than one term for the selected product/currency. If more than one term is defined, then multiple records will be created for pricing, i.e. one corresponding to each Product/Currency and Term.
Payment Frequency	Enter the payment frequency. This allows you to define the frequency of payment.
Repricing Frequency	Enter the Repricing Frequency to define the frequency of rate change of a product.
Amortization Term	Define the assumed term used for payment calculation purposes. Typically, this will be equal to the Original Term of the instrument. It should only be different in cases where the instrument does not fully amortize over the life of the product. i.e. there is lump sum payment due on the maturity date.
Interest Rate Code	Enter the Interest Rate Code to be used for finding the coupon rate on the product.
Margin	Enter the margin that is the contractual spread, which is added to the pricing index and results in the financial institution's retention (net) rate.
Rate Set Lag	Define the period by which repricing lags the current interest rate changes. The default value is 0 Months.
Tease Period	Define the Tease Date, that is when the tease rate (introductory rate) ends and the normal product rate begins. The default value is 0 Months. This entry will be disabled if the Adjustable Type (defined from Main Tab) is a Repricing pattern or fixed.
Tease Discount	Enter the Tease Discount. The default value for tease discount is 0.0000. This entry will be disabled if the Adjustable Type is a repricing pattern or fixed rate or if the tease period is zero

Defining a Product: An Example

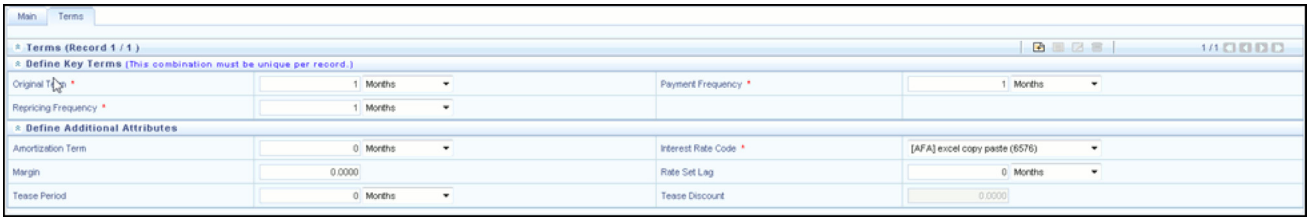
1. Select a standard Product using the hierarchy Browser.



2. Select the corresponding currency.
3. Define the properties of the Product in the Main tab.



4. Define the properties of the Product in Terms tab.



Note: Under a single product/currency selection, users may define multiple combinations of Original Term, Payment Frequency and Repricing Frequency. This is done by adding records using the "+" icon. Multiple records are useful when generating daily pricing sheets, where the standard product has multiple terms. For example, the product could be "Term Deposits", but users may want to view the daily FTP Rates for each available term, e.g. 3 month, 6 month, 12 month, 18 month, and 60 month. This example is possible by adding and defining 5 records under a single product/currency selection. For more information on the meaning of each of these fields, refer to Cash Flow Engine Reference Guide.

5. Click Save.

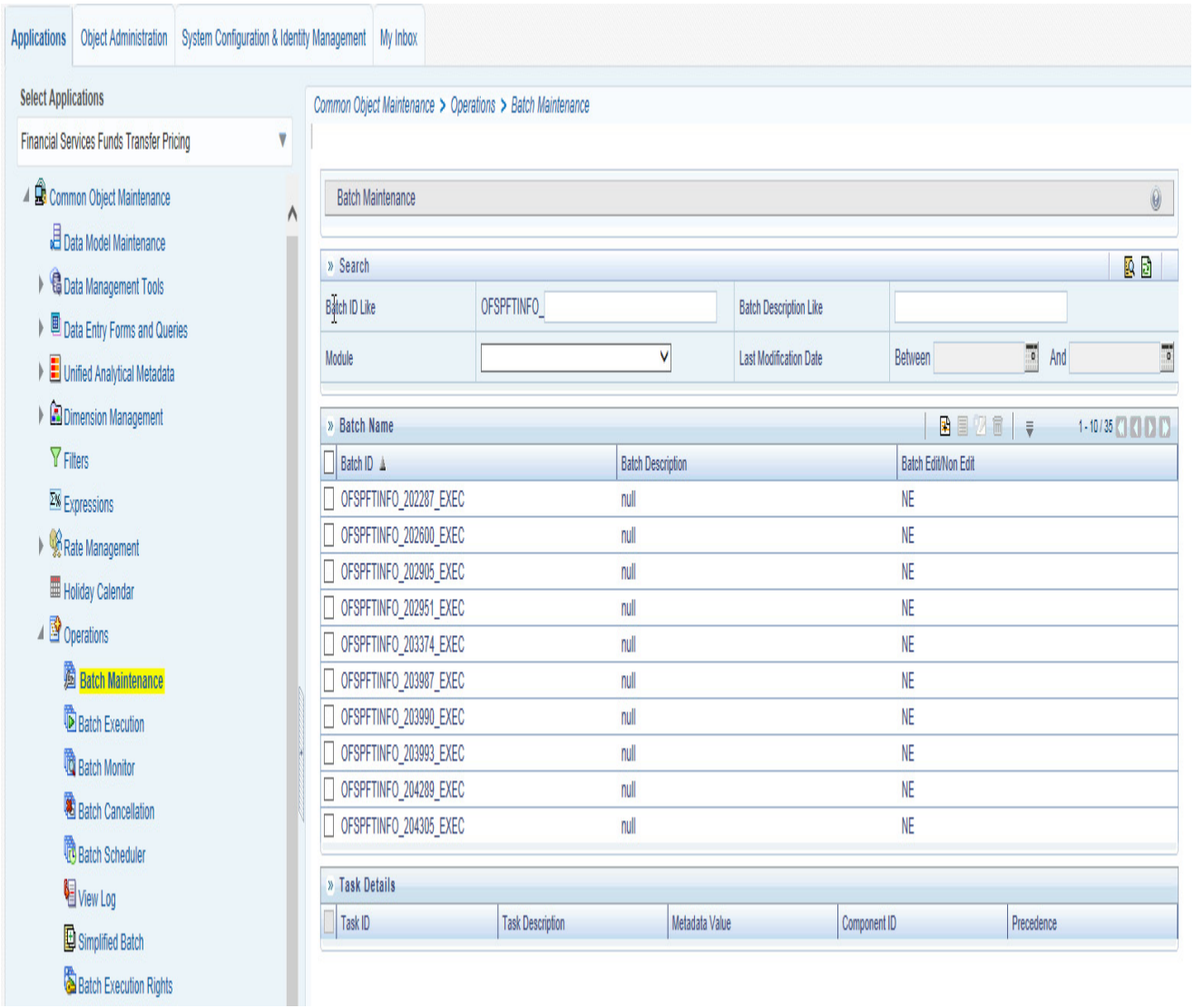
Note: On save of each Product (Main and Terms), one or more record(s) will be inserted in fsi_m_prod_characteristics table. When Multiple terms are defined for each product, multiple entries will be inserted into the fsi_m_prod_characteristics table. After the completion of first task tpol.sh run, fsi_pm_generated_instrmts table will be populated.

Setting up Batch Execution of Rate Card

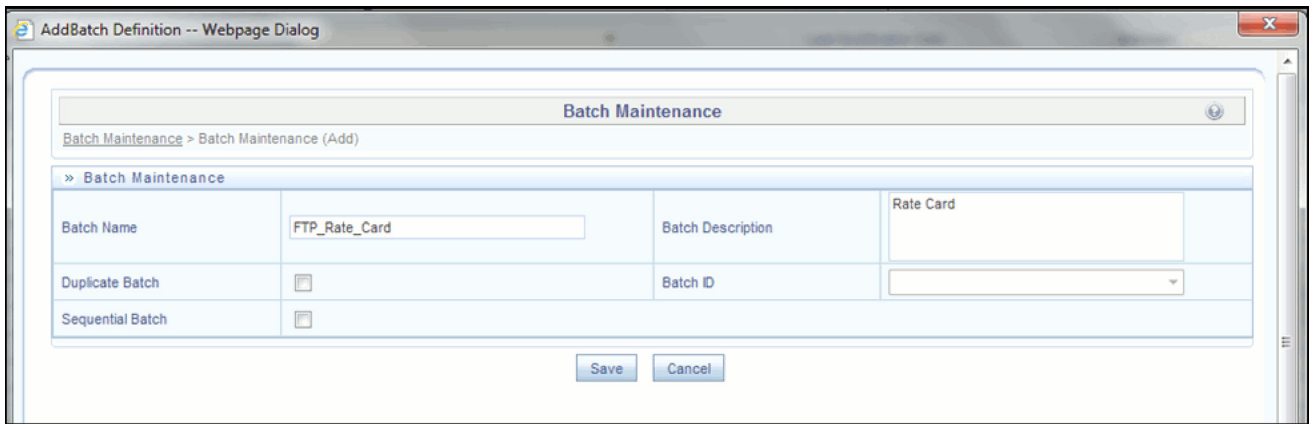
In order for the defined Products to become “dummy” instrument records and for these records to be Transfer Priced, a Batch process is required. The following steps describe how to create the required batch process.

Create a Batch for running the daily FTP process against standard products. This process should be scheduled to run each day (or at any required frequency) by the Administrator after the daily FTP reference rates have been loaded.

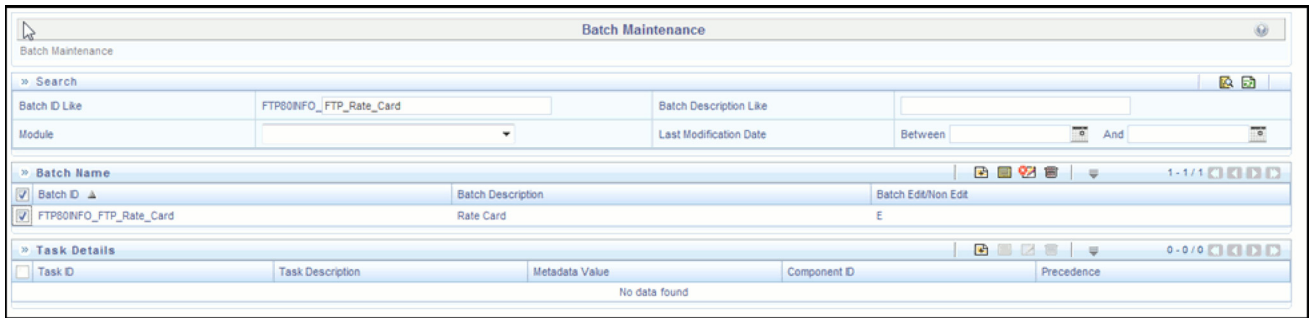
1. Click the Batch Maintenance option under Operations.



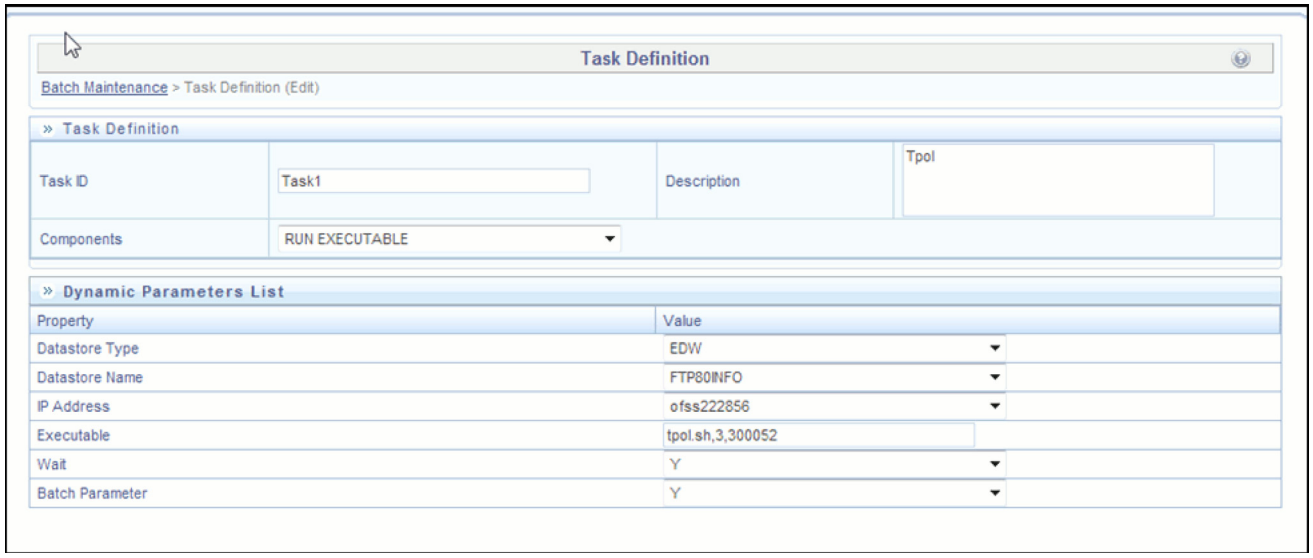
2. Click **Add** icon to create a Batch for running the daily FTP process against standard products.
3. Enter the Batch Name and description. Select the Duplicate Batch and/or Sequential Batch option(s) if required. Click Save to save a Batch details.



4. Search the created Batch using the Search criteria if required. Searched Batch will be displayed. Select the Batch to add the corresponding tasks to it.



5. Click **Add** to add the first task to the Batch, and enter the task description for first Task in Task Definition box. Select the component "RUN EXECUTABLE".



Enter the required parameters as follows:

Datastore Type: Leave the default value of "EDW"

Datastore Name: Leave the default value

IP Address: Leave the default value

Executable: Input appropriate values for the following required parameters, tpol.sh, Product dimension number, System ID number for the TP process (for example, tpol.sh,3,300052)

"tpol.sh" is the executable file for the first task. It takes process id and product dimension type as the input parameters. "tpol.sh" internally calls a java program which takes data from the UI tables and populates the FSI_PM_GENERATED_INSTRMTS table.

Process_id parameter usage in the tpol.sh task:

- The Process ID is used to identify the instrument table (i.e. the PM Generated Instruments table) and fires a delete on this table prior to processing. This process will work only for FSI_PM_GENERATED_INSTRMTS table, as it uses an explicit request_id which is null. This column is available only in the FSI_PM_GENERATED_INSTRMTS table.
- While generating the "dummy" instrument records, the tpol.sh process picks up data from Product Characteristic table but also joins to the process. It generates the instruments only if a TP rule is attached to the Process.

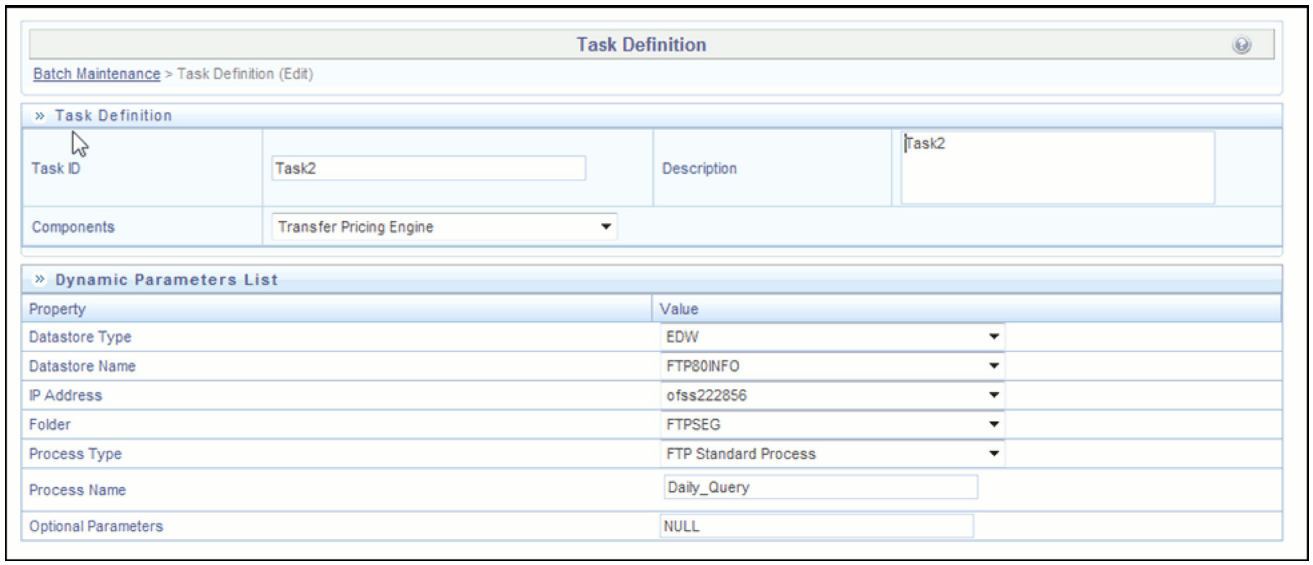
Wait: Y

Batch Parameter: Y

Note: Here, the name of Executable file is "tpol.sh". Following Product Dimension types are supported here:

- 2 – General Ledger
- 3- Common COA
- 4- Product

6. Click **Add** to add the second task to selected Batch, and enter the description for second task in Task Definition page. Select the component of task as "Transfer Pricing Engine". This process will execute a TP engine run, reading the instrument data from the FSI_PM_GENERATED_INSTRMTS table and will update the Transfer Rate column with the calculated result.



Note: Users must first create a Standard TP Process for selection in this batch. The TP Process should include the "PM Generated Instruments" table under Source Selection. The calculated items should include all relevant rate calculations, such as Transfer Rate and Adjustment Rates.

Enter the required parameters as:

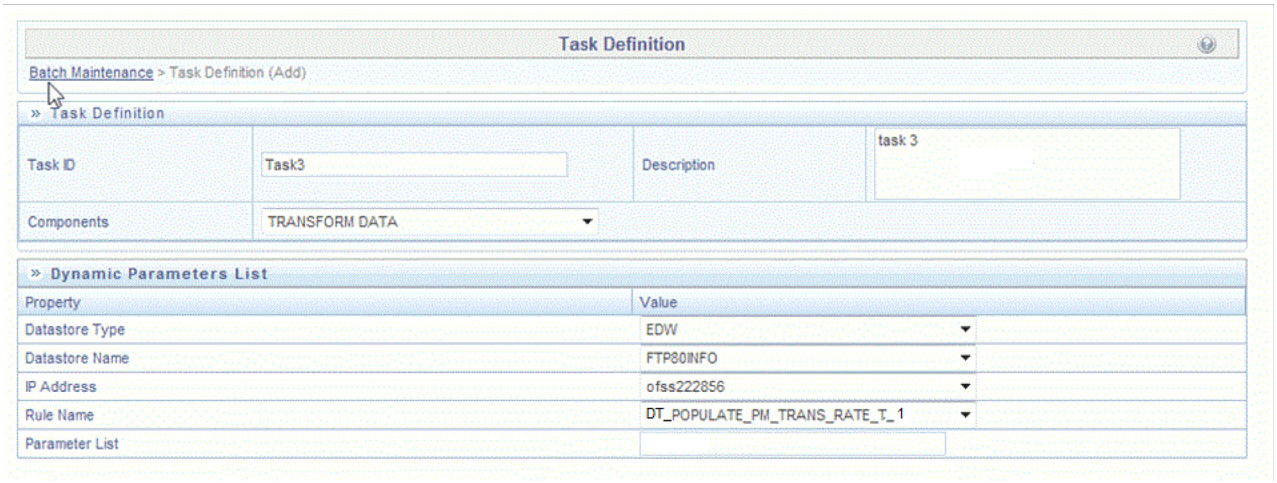
Folder: Select the folder in which the definition of the process that has to be scheduled for execution is lying.

Process Type: Here, the Process type can be Standard or stochastic

Process Name: The Process Name should be defined for process metadata value (system ID of process) which is defined in Task 1 under Executable parameter.

Optional Parameters:

7. Click **Add** to add the third task to selected Batch, and enter the description for third task in Task Definition page. Select the component of task as "Transform Data". This process will populate the FTP rate from fsi_pm_generated_instrmts table to the FSI_M_PROD_TRANSFER_RATE table, which is the source table for Rate Card reporting.

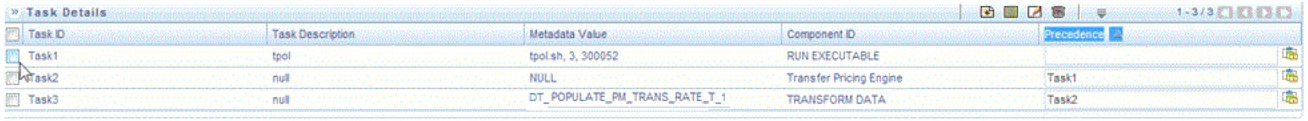


Enter the required parameter details as:

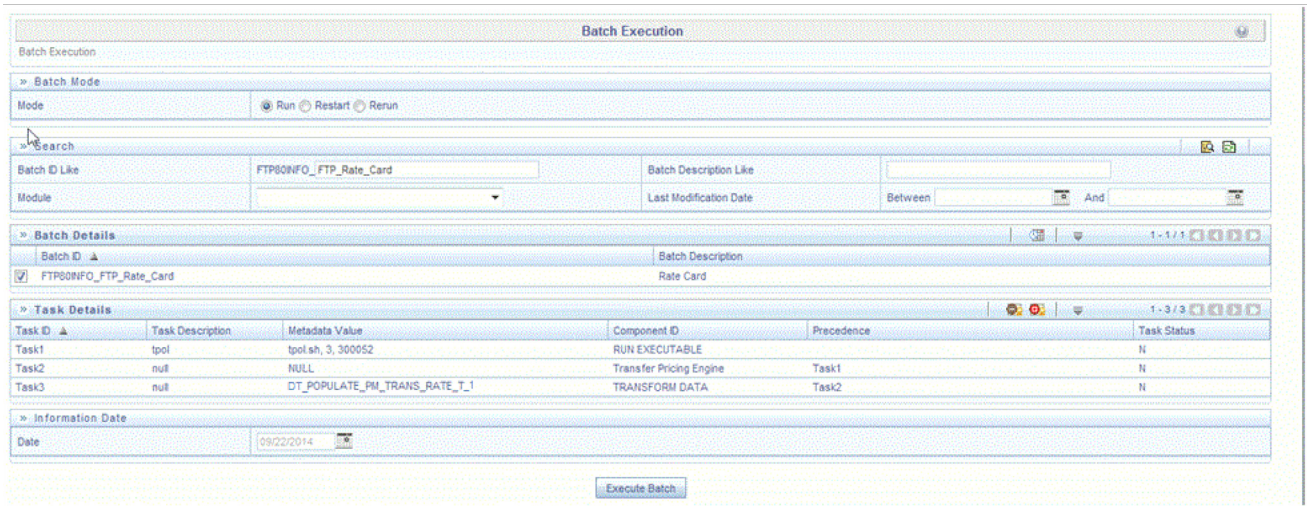
Rule Name: DT_POPULATE_PM_TRANS_RATE_T_1

Parameter List:

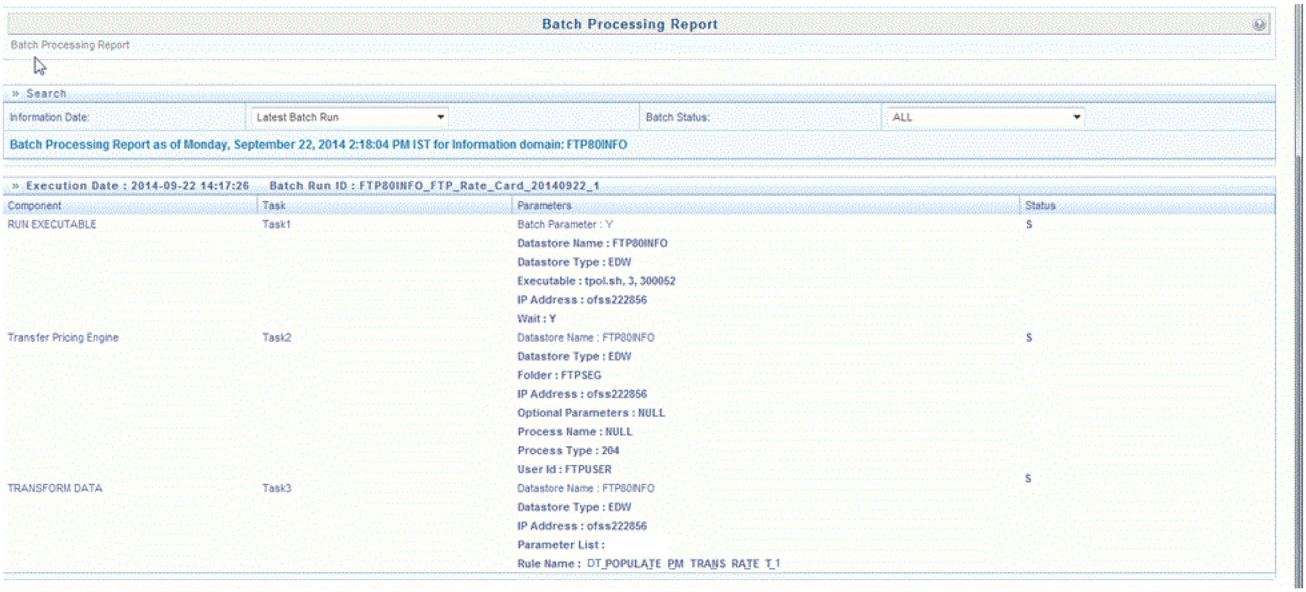
8. Define the precedence of the tasks. That is, Task 2 should be executed after Task 1, and Task 3 should be executed after Task 2.



9. To execute the Batch, click **Batch Execution** option under Operations. Select the Batch which you want to execute using search criteria. Select the Batch using the corresponding check-box.



10. You can also use the Schedule option if you want to schedule a Batch for later or recurring processing. Click **Execute Batch**. A message will be displayed: Batch Triggered Successfully. Click **Ok**.
11. To view the Batch Processing Report, click **Batch Processing Report** option under Operations. Expand the Execution Date.



At this point, "dummy" instrument records will have been generated, the records will have been transfer priced, inclusive of both base TP Rates and any Add-on Rates defined through an Adjustment Rule, and the results will have been moved into the Rate Card reporting table and will be available for reporting.

Defining a Rate Report

The Rate Card window allows users to select the set of standard products and the relevant historical date range to include in their report.

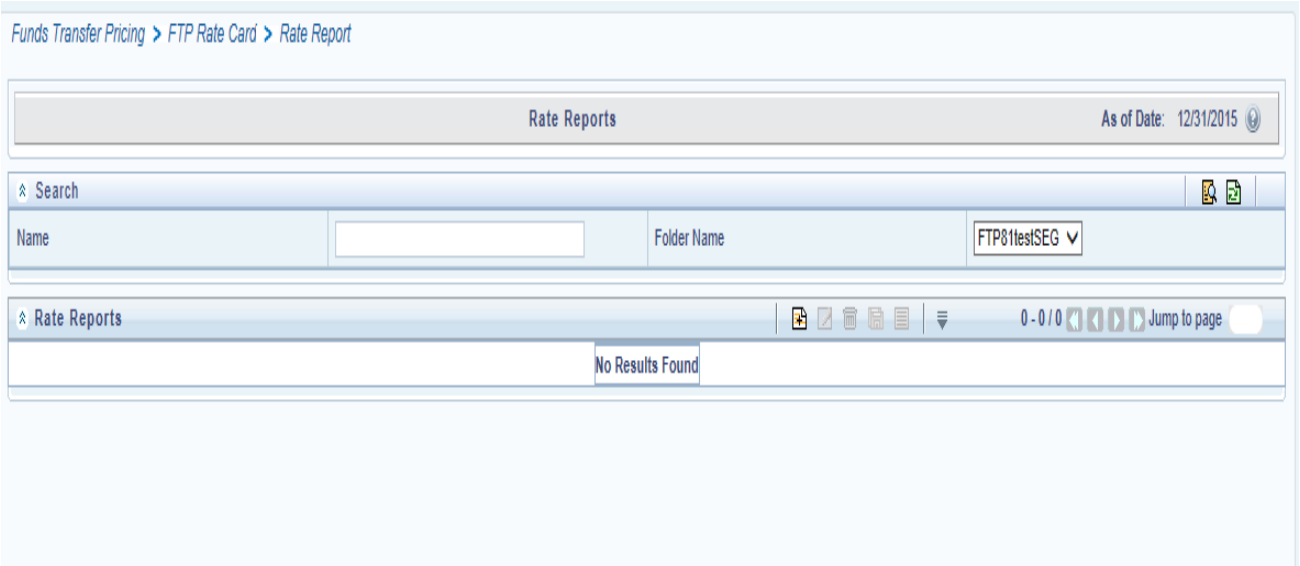
The Rate Card contains a Rate report definition page and a Report page. The Rate report definition includes the name of the Rate report, the historical time horizon for reporting and the set of standard products for which the user wants to fetch the rates.

The report contains eight columns including the calculated base Transfer Rate and remaining term Transfer Rate, as well as relevant product characteristics defined for the respective standard products.

The procedure for working with and managing Rate Report is similar to that of other Oracle Funds Transfer Pricing business rules. It includes the following steps:

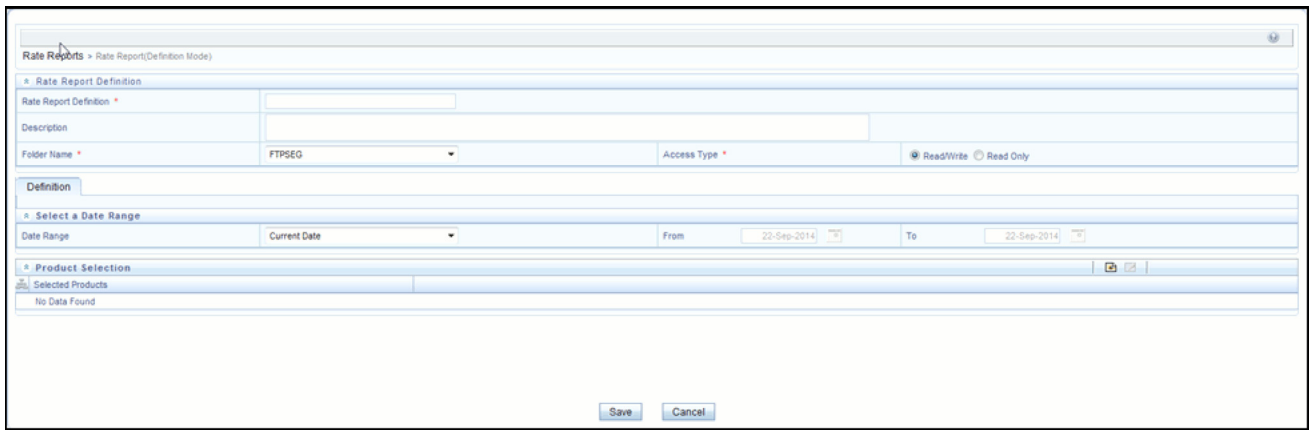
- Searching for Rate Reports.
- Creating Rate Report.
- Viewing and Editing Rate Report
- Copying Rate Report
- Deleting Rate Report.

As part of creating and editing a Daily Rate Report, the user defines the products and historical date range.



Defining Rate Report

To create a new Rate card, navigate to FTP Rate Card-> Rate Report. Click **Add** icon.



Prerequisites

Performing basic steps for creating or editing a Rate Card

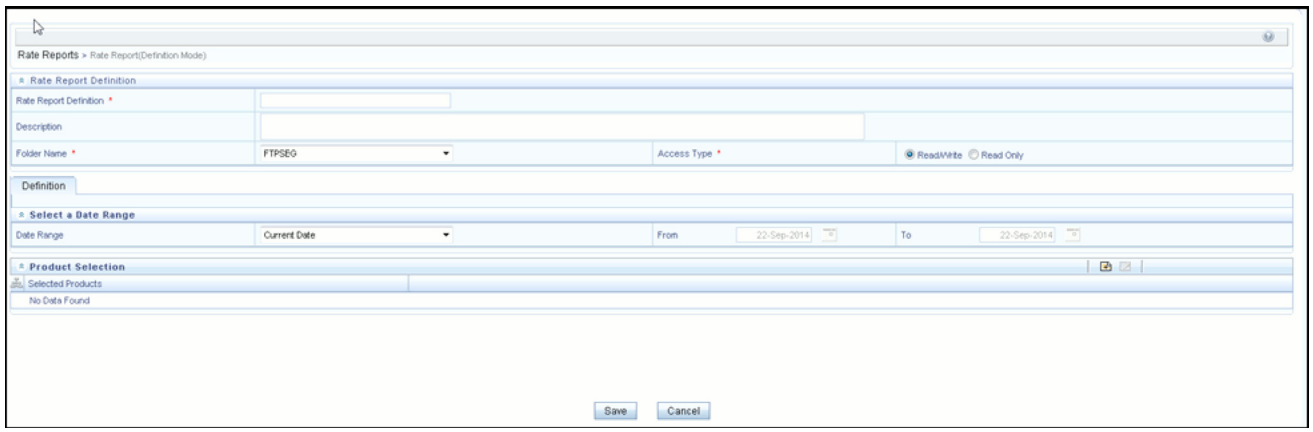
Procedure

This table describes key terms used for this procedure.

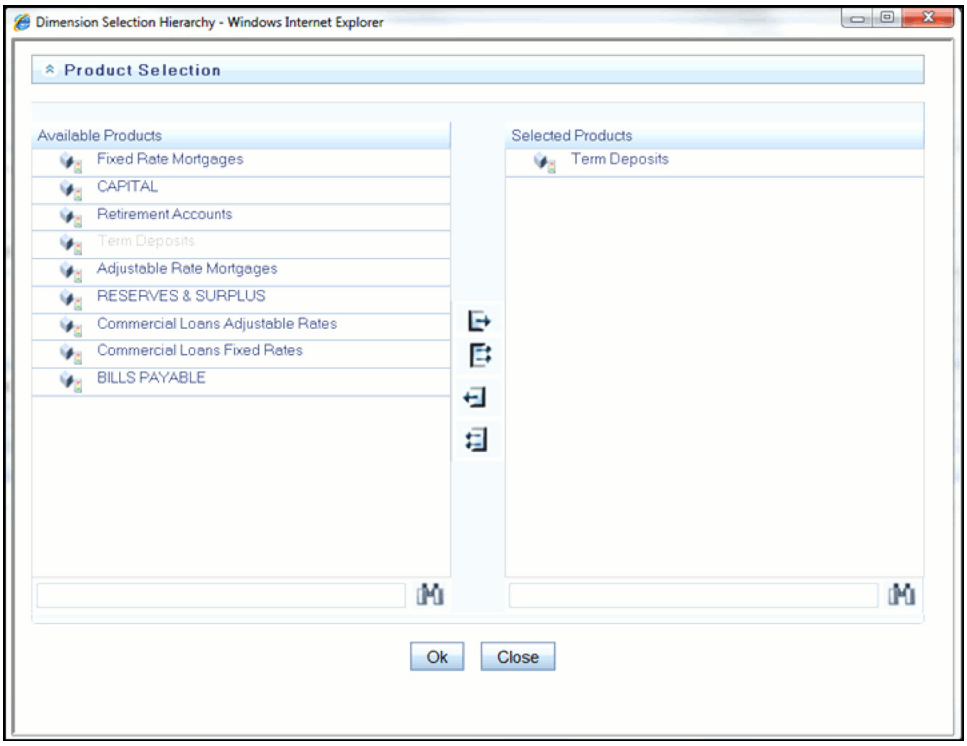
Term	Definition
Rate Report Definition	Enter the Rate Report name
Description	Enter the description of Rate Report
Folder	Select the Folder name
Access Type	Select the Access type of Rate Report as Read/Write or Read Only
Date Range	Select the date range for which you want to view the daily FTP rates. Here, you can give the specific date range also. The FROM and TO options will be enabled once you select the Specific Date Range option from Date Range drop-down list.
Product Selection	Click Product Mapping button to select the relevant standard products to be included in your pricing report.

Defining a Rate Report: An Example

1. Enter the Rate Report name and description.
2. Enter the Folder and Access Type details.



3. Select the Date Range.
4. Select the Product(s) from hierarchy browser using the Add icon. This hierarchy browser will have the list of defined standard products (as setup by the Administrator).



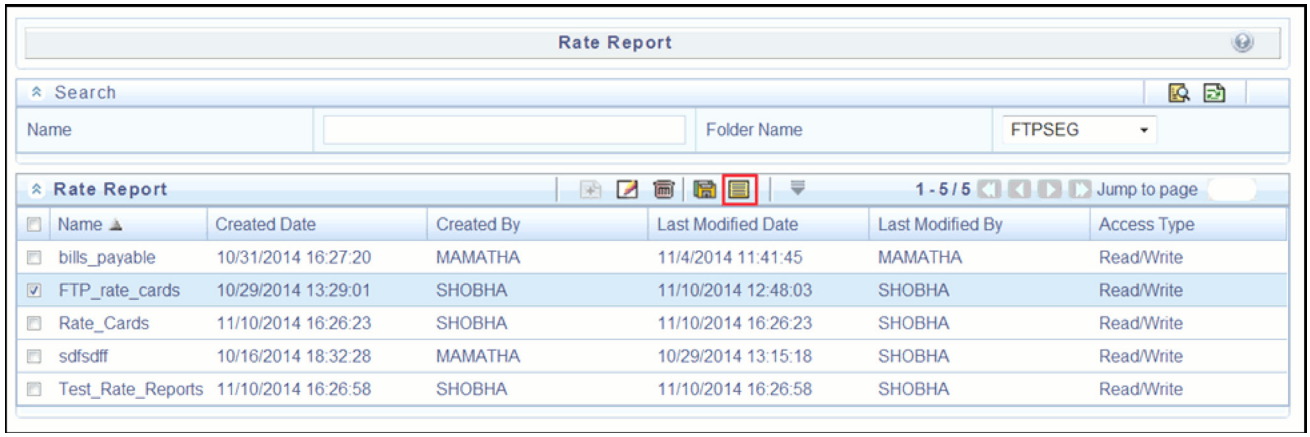
5. Click Save.

   You will be directed back to Rate Report Summary page and defined Rate Report will be displayed in Rate Report Summary page.

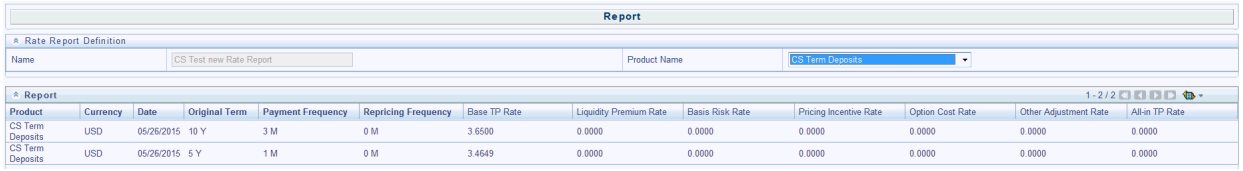
Viewing Rate Card Report

Rate Card report is available upon successful completion of the pricing run. To access a Rate Card Report, follow the steps given below:

1. Select the Rate Report Name using the corresponding check box and click on below icon.



2. Rate Card report is displayed.



CHAPTER 31 Viewing FTP Objects in Metadata Browser

Metadata Browser (Object and Application View)

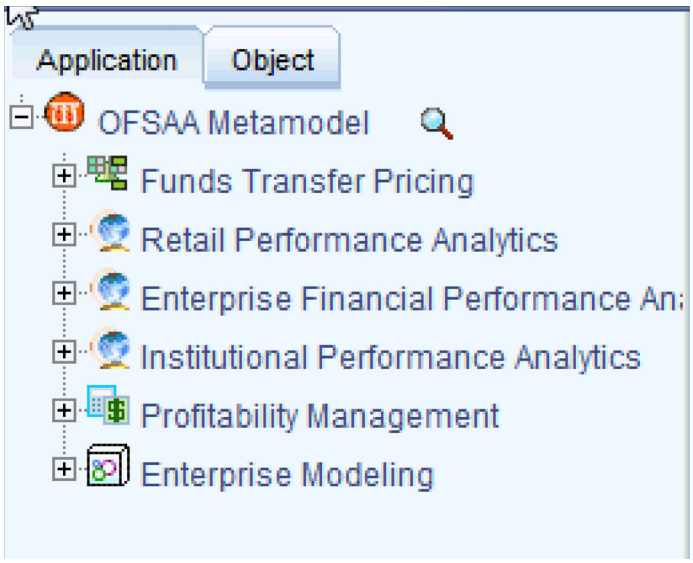
Metadata Browser (Object and Application View)

Metadata Browser (Object and Application View) provides common repository of metadata Objects created in OFSAAI and applications hosted in OFSAAI. Using this view, you can identify the usage of base Objects in higher level Objects and the mapping of Objects to Application. It enables to perform traceability and impact analysis. It also allows you to view the data flow and the work flow of the application and understand the usage of Objects within the application.

Metadata Browser (MDB) supports Application view and Object view: In Application view, you can browse through the metadata created using the applications hosted in OFSAAI. In Object view, you can view the metadata created in OFSAAI.

To access the Metadata Browser (Object and Application View), your role Business Analyst (SYSBAU) must be mapped to the SCR_MDB function. For more information on mapping functions to a role, see *Function - Role Map*.

The Application view provides the top-down approach to view the defined metadata. The Application view shows the list of Applications at the parent level, and the Child elements are Runs for the application. This list will grow dynamically based on the Run definitions mapped to Application, through this tab user can view Run execution details in Metadata Browser.

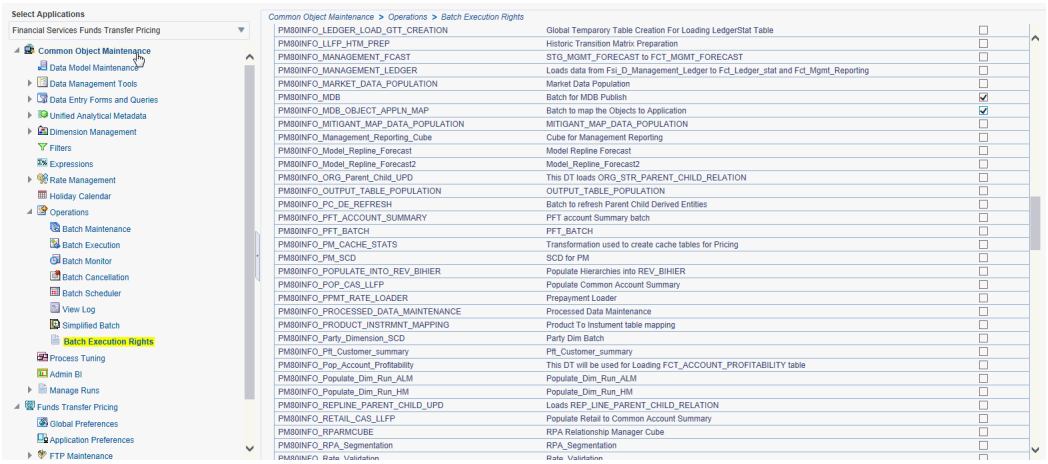


For more information on Metadata Browser, refer to Metadata Browser section of *Oracle Financial Services Analytical Application Infrastructure (OFSAAI) User Guide 8.0.0.0.0*.

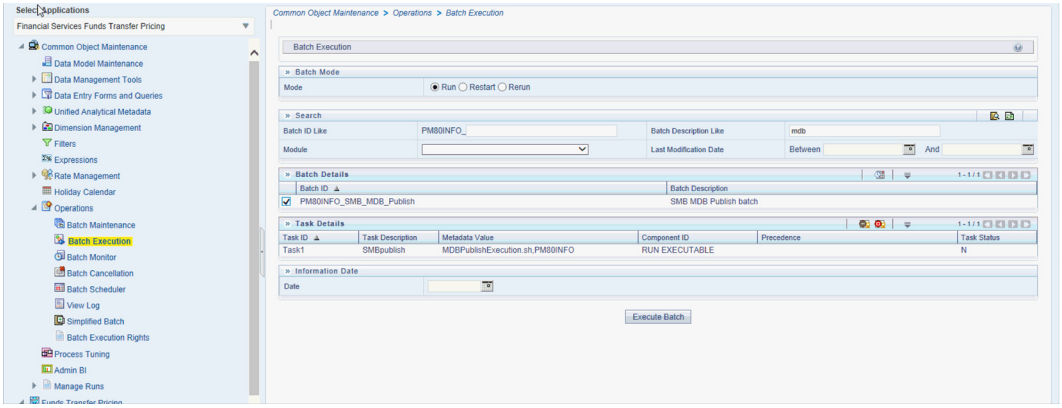
Configuring Metadata Browser

You can configure the Metadata Browser for ALM using the following steps:

1. Map the MDB batch to User - Group using the Common Object Maintenance > Operations> Batch Execution Rights as mentioned below:



2. For more information, refer to *Command Line Utility to Publish Metadata in Metadata Browser* section in OFSAAI User Guide.
3. Execute the Batch for MDB publish.



For more information, refer to ICC Batch Execution section of *Oracle Financial Services Analytical Application Infrastructure (OFSAAI) User Guide 8.0.0.0.0*.

4. Navigate to Metadata Browser (Object and Application) window of respective Application.

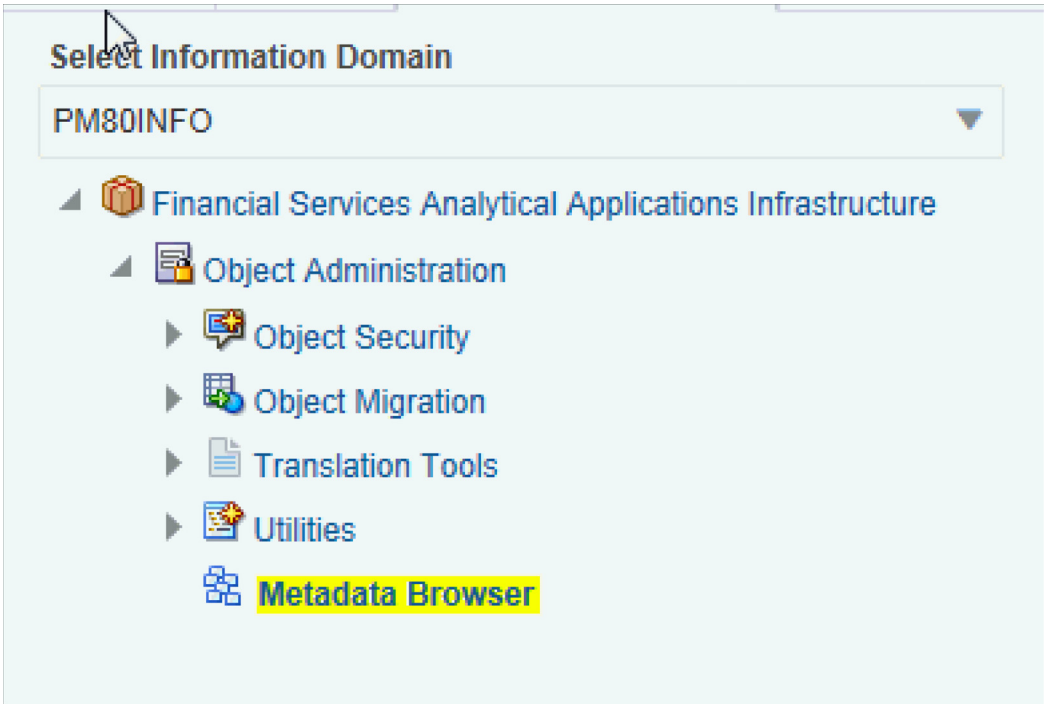
Viewing ALM Objects in Metadata Browser

Asset Liability Management under Oracle Financial Services Analytical Applications has the Metadata Browser (MDB).

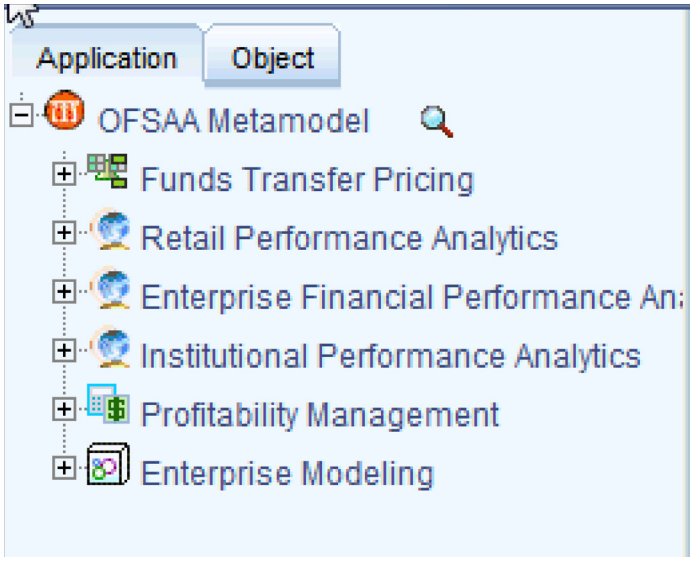
To view FTP applications and objects in MDB, perform the following steps:

1. After successful execution of the Batch for MDB Publish, in the Object

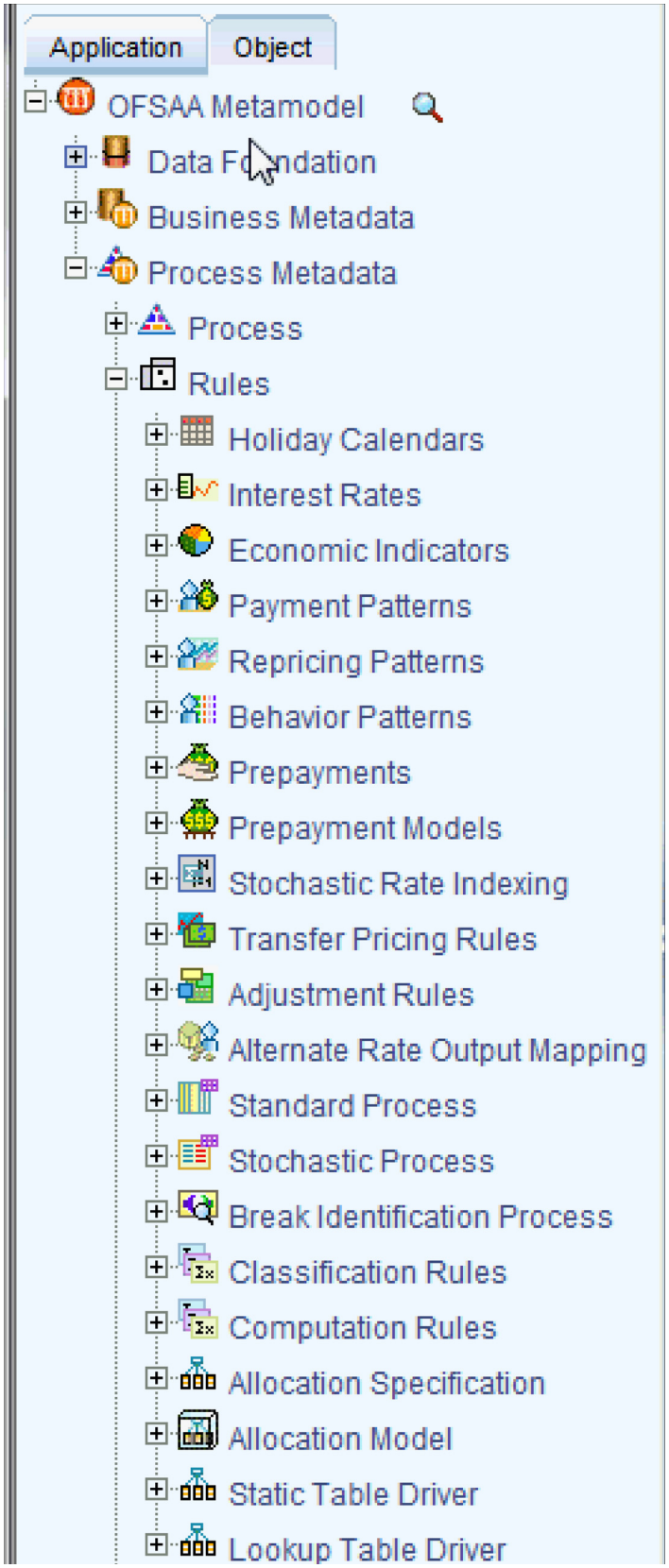
1. Administration tab of the Oracle Financial Services Analytical Applications window, in the Left-Hand Side (LHS) menu under Object Administration, choose Metadata Browser..



2. Click the Application tab under Metadata Browser window to view the FTP applications.



3. Click the Object tab under Metadata Browser window to view FTP objects:


Application
Object
OFSAA Metamodel
Data Foundation
Business Metadata
Process Metadata
Process
Rules
Holiday Calendars
Interest Rates
Economic Indicators
Payment Patterns
Repricing Patterns
Behavior Patterns
Prepayments
Prepayment Models
Stochastic Rate Indexing
Transfer Pricing Rules
Adjustment Rules
Alternate Rate Output Mapping
Standard Process
Stochastic Process
Break Identification Process
Classification Rules
Computation Rules
Allocation Specification
Allocation Model
Static Table Driver
Lookup Table Driver

4. Under Process Metadata > Rules, all the rules defined under FTP window are displayed.

CHAPTER A Multi Language Support

Overview

With the introduction of Multi Locale Support, the user interfaces can be viewed in various languages. The display language is a selection in the login screen.

In addition to the base language (American English, for example, en_US), the following languages are currently supported for Funds Transfer Pricing, by installing the associated Language Pack.

Language Name	Java Locale
Arabic	AR_EG
Portuguese	PT_BR
French	FR_FR
German	DE_DE
Indonesian	IN_ID
Italian	IT_IT
Japanese	JA_JP
Korean	KO_KR
Russian	RU_RU
Simplified Chinese	ZH_CN
Spanish	ES_ES
Thai	TH_TH
Traditional Chinese	ZH_TW
Vietnamese	VI_VN
Turkish	TR_TR
Hebrew	iw_IL
French Canada	fr_CA

Depending on the type of the rule, the Name/Description specified during create/edit is either attached to the login-locale or is stored independent of the login-locale. The selection of the login-locale therefore governs which assumption/rules are visible, and which are not visible.

The following illustrates the visibility of assumptions and rules, across languages in the 8.0 release. This applies to all Summary screens, embedded selections in subsequent screens etc.

Note: Starting from AAI 7.3.3.3.0, all Dimension Management Objects as well as Filters and Expressions would be visible in all languages (and therefore available for embedding), regardless of the language in which they were created.

Assumption / Rules	Visible across all languages	Visible only in the creation-language*
Common Object Maintenance		
Process Tuning		
Simplified Batch		
Common Object Maintenance> Rate Management		
Interest Rate Codes**		
Currencies**		
Funds Transfer Pricing		
FTP Maintenance		
Behavior Patterns		
Payment Patterns		
Repricing Patterns		
Propagation Pattern		
Assumption Specification		
Transfer Pricing Rules		
Adjustment Rules		
Prepayments		
Prepayment Models		
Alternate Rate Output Mapping		
Stochastic Rate Indexing		
FTP Processing		
Standard Process		
Stochastic Process		
Cash Flow Edits		
Break Identification Process		

Tip: * A future release (TBD) will expand visibility for many of these application object types, to provide visibility regardless of logged-in locale.

** These object-types are visible across all languages because the Name and Descriptions are not stored in translation-compatible structures, which is different from the storage format for AAI objects like Dimension Management, Filters and Expressions

CHAPTER B Standard Navigation Paths

This appendix gives you information to navigate through the pages referred to in this guide.

This appendix covers the following topics:

Standard Navigation Paths

Standard Navigation Paths

Typical Oracle Financial Services Funds Transfer Pricing navigation paths are shown in this table. Access all of these pages through the Oracle Funds Transfer Pricing Administrator (FTP Administrator) or Oracle Funds Transfer Pricing Analyst (FTP Analyst) responsibility.

Page	Navigation Path
Application Preferences Home	FTP Maintenance > Application Preferences
Transfer Pricing Rule Home	Assumption Specification > Transfer Pricing Rules
Transfer Pricing Methodology	Assumption Specification > Transfer Pricing Rules > New > TP Method Selector
Cash Flow Edits Process	FTP Processing > Cash Flow Edits
Behavior Pattern Home	FTP Maintenance > Patterns > Behavior Patterns
Payment Pattern Home	FTP Maintenance > Patterns > Payment Patterns
Repricing Pattern Home	FTP Maintenance > Patterns > Repricing Patterns
Adjustment Rule Home	Assumption Specification > Adjustments
Adjustment Methodology	Assumption Specification > Adjustments > New > Adjustment Method Selector
Alternate Rate Output Mapping Rule Home	Assumption Specification > Alternate Rate Output Mapping
Interest Rate Code Home	Common Object Maintenance > Rate Management > Interest Rates
Monitor Requests	Process Management > Requests > Monitor
Stochastic Rate Index Rule Home	Assumption Specification > Stochastic Rate Indexing
Prepayment Rule Home	Assumption Specification > Prepayments
Prepayment Methodology	Assumption Specification > Prepayments > New > Prepayment Method Selector > Add New
Prepayment Models Home	Assumption Specification > Prepayment Models

Propagation Pattern Home	FTP Maintenance > Patterns > Propagation Pattern
Standard Transfer Pricing Process Home	FTP Processing > Standard Process
Stochastic Transfer Pricing Process Home	FTP Processing > Stochastic Process
Currency Rates Home	Common Object Maintenance > Currency Rates
Currencies Home	Common Object Maintenance > Currency

CHAPTER C Transfer Pricing Error Messages

Transfer Pricing Error Messages

Error Code	Error Message	Explanation
105	[Rule_Name]:[Rule_Name] not found in database.	One or more assumption rules chosen in the Process rule have been deleted or corrupted in the database.
110	No match for IRC.	There is no IRC selected for the specific product member within the Transfer Pricing rule.
115	No data for IRC.	The IRC selected in the Transfer Pricing rule has no historical rates.
120	Dimension Type mismatch: COL vs. Cnfg ID.	The Product Leaf defined in Application Preferences is different from the Product leaf used in the methodology assignments in the Transfer Pricing rule.
505	Negative [rate type] Rate for Product: [number].	An instrument has been repriced at a negative rate due to lookup rate + margin is less than 0.
540	Prepayment tier not selected, zero prepayment rate used.	Either Prepayment Model or Prepayment Rate is undefined for a specific Prepayment Rule.
545	Last payment date is before origination date.	The last payment date is before the origination date for a specific record in the instrument table.
550	No reprice frequency for adjustable record.	The instrument record is an Adjustable record (adjustable_type_cd <> 0), and has a 0 Reprice Frequency (reprice_freq = 0).
555	No schedule found for record.	This error could occur in two different situations: The instrument record has a Schedule Amortization Code (amrt_type_cd = 800, 801, or 802) and has no matching record in the Payment Schedule table (fsi_d_payment_schedule). The Prepayment Method is set to a Prepayment Model which does not exist or has no dimensions set up.
560	Pattern data cannot be found for AMRT_TYPE: [number].	An instrument record with Custom Amortization Codes (amrt_type_cd > 999) has no User Defined Payment Pattern defined.
565	No pattern information found for record.	An invalid Adjustable Type Code was found in the instrument record.

570	Maturity date from record does not match schedule data.	For an instrument record with Schedule Amortization Code (amrt_type_cd = 800, 801, or 802), the remaining number of payments (remain_no_pmt_c) does not match the schedule of payments defined in the Payment Schedule Table (fsi_d_payment_schedule).
575	Conv amrt with interest in advance defaulted to arrears.	An instrument record with one of the following Amortization Codes: 100, 400, 500, 600, 710, must implicitly have an interest in arrears method. If Interest in advance Interest Type (int_type = 2) is defined for an instrument record with an implicit interest in arrears method, then this error is recorded and the Interest Type is set to arrears (int_type = 1) for cash flow generation purposes.
585	Invalid Amrt.Type detected. Defaulted to Simple Int.	The instrument record has an Amortization Code that is outside the reserved custom range, or is a non standard Amortization Code.
710	Insufficient memory to read[Rule Name]:[Rule Name].	The Historical Rates, Prepayment Rule, Adjustment Rule and Transfer Pricing Rule are all loaded into memory when processing. If several other applications are active on the machine, there may not be enough available memory to load any or all of these rules.
715	Transfer Pricing Method not implemented.	The transfer pricing methodology selected is listed but not yet available.
725	1st point used.	The origination date and term of the instrument fall before the first date on the IRC.
730	Last point used.	The origination date and term of the instrument is in the future after the last date on the IRC.
740	TP Rule out of sync on product[number].	The Transfer Pricing Rule still has methodology defined for a product leaf that is no longer defined in dimension member setup.
745	COL table empty; Dimension Type [member number] used.	Only leaf members with detail information can be used in the Transfer Pricing Rule. Some key dimensions defined in the Catalog_of_Leaves have associated detail information tables. This error occurs if a leaf member of a Transfer Pricing Rule does not have associated detail information, like account type or offset account.
755	Dimension key not found in Migration Table.	The combination of Common_COA_ID and Org_Unit_ID on the instrument data does not exist in Ledger_Stat.
760	Negative Transfer Rate.	Negative transfer rates can only occur with a cash flow transfer pricing methodology, if the cash flow fields on the instrument have bad data that create negative transfer rates.

775	Invalid TP method used for Ledger Stat data: [number].	An invalid transfer pricing method has been assigned to the Transfer Pricing Rule used in the TP Process. There are only six valid methods for use on the Ledger_Stat table: Moving Averages, Redemption Curve, Spread from Interest Rate Code, Caterpillar, Weighted Average Perpetual and Unpriced Account.
780	Account type not defined for leaf member [number], Earning asset used.	The account type attribute is not defined for a particular product leaf member.
785	0 Instrument Table rows processed.	There is no instrument data, or a filter is excluding all instrument data defined in the active Transfer Pricing Rule.
790	Invalid cash flows generated for this row or divide by zero.	One or more cash flow fields for detailed instrument data have bad data or missing data.
795	Invalid duration generated for this row.	One or more fields used for duration calculations from the instrument tables have bad or missing data.
800	Org Unit leaf member not defined, default offset used.	The Organizational Unit number is not defined in Dimension Management.
805	Org Unit offset not defined, default offset used.	The offset unit is not defined in Dimension Management.
810	Divide by zero.	Internal arithmetic calculation error encountered when there is a division by zero.
820	Not an instrument table.	The instrument table is missing required cash flow fields.
840	The calculated average life is 0	
845	No transfer pricing method defined for PRODUCT: [product], CURRENCY: [currency]	
850	PRODUCT: [product], CURRENCY: [currency] - no Adjustment Method has been defined	
860	Invalid conditional assumption defined for ID number [idnumber] ID_NUMBER, Product [Product id] PRODUCT_ID and currency [currency] ISO_CURRENCY_CD.	
865	Adjustment Rule Definition incomplete or missing for Rule Sys ID: [objdefid]OBJ_DEF_ID.Please complete rule definition for all relevant product/currency combinations	

875	No Alternate Rate Output Mapping Rule details found for the selected rule. (Object Definition ID: "[objdefid]OBJ_DEF_ID")
880	Invalid interest rate code [interest rate cd] IRC specified for currency [currency] CURRENCY.
900	None of the account tables selected in the Transfer Pricing Process Rule have the Break Funding classification, so Break Funding calculations were not run.
905	Transfer Pricing method [calc meth cd] METHOD used with product[product] PRODUCT is not appropriate for instruments in table [table name] TABLE_NAME.Cause:[table name] TABLE_NAME is not registered with the appropriate columns.
915	Negative Strips have been adjusted.
920	The selected TP Charge/Credit Balance option was not available in the Ledger Table.Defaulting to Ending Balance
925	No All-In TP Rule has been defined
930	Leaf Member accrual basis attribute not defined for Product ID:[product id]. Defaulted to 30/360
935	LRD_BALANCE = 0 and Adjustable Type Code > 0. Defaulting LRD_BALANCE = CUR_PAR_BAL
940	LRD_BALANCE and CUR_PAR_BALANCE = 0, Adjustable Type Code > 0. Unable to Process this instrument.
945	Dimension members not found in required format. Reverse Population has not been run for the selected FTP Product Hierarchy: [prod hier id]
955	Product :[product] is not a commitment record and the instrument table does not contain the required Commitment Date columns. The Adjustment Rule - Assignment date has been defaulted to As of Date

960	Transfer Rate is blank for the ID_NUMBER :[id_number]. Unable to Process Rate Lock Option Cost.

CHAPTER D Process Tuning

This module provides information on configuring the Oracle Financial Services Analytical Application (OFSAA) server-centric software for multiprocessing through the Process Tuning UI.

Caution: The Process Tuning UI is available for definition ONLY for a User who has a role mapping that of 'Administrator' or 'Auditor'. The 'Auditor' role mapped user has 'READ-ONLY' access to Process Tuning UI.

This appendix covers the following topics:

- Multiprocessing Model
- Multiprocessing Options
- Specifying Multiprocessing Parameters
- Tuning Multiprocessing

Multiprocessing Model

By default, multiprocessing is disabled for all applications. Multiprocessing is enabled by setting application specific parameters located under the Common Object Maintenance > Process Tuning. The following applications and features have multiprocessing settings:

- Asset Liability Management – Deterministic and Stochastic Processing
- Funds Transfer Pricing – Standard and Stochastic Processing

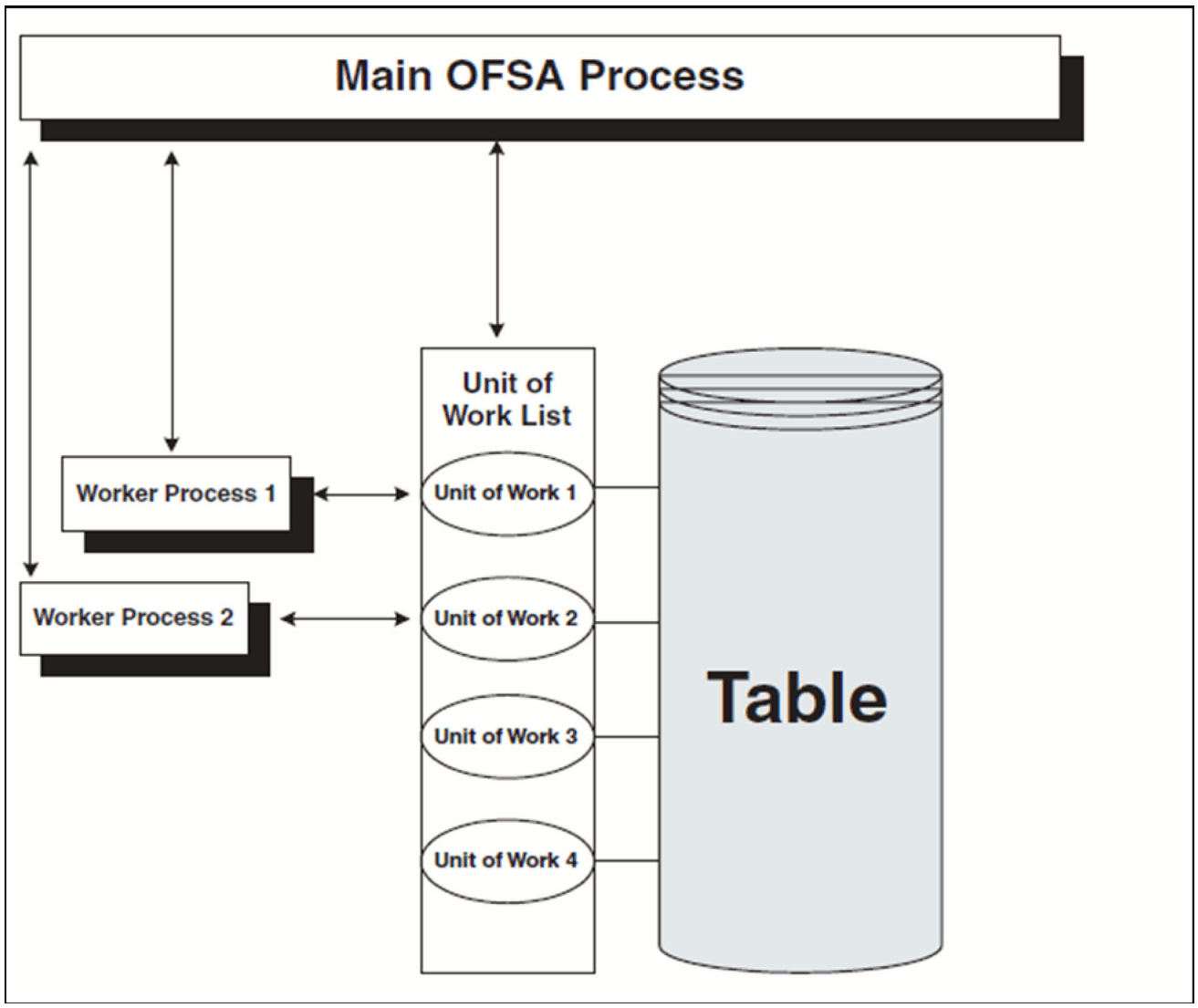
OFSAA multiprocessing is based on the concept of a *unit-of-work*. A unit-of-work is a set of rows from the database. A single OFSAA process becomes multiple processes by dividing the single process according to distinct sets of rows. Units of work are distributed to worker processes until all processes have been completed. To achieve multiple parallel processes, the following options must be configured:

Creating a list or lists of units of work

Defining the number of worker processes to service the units-of-work lists

Defining how the worker processes service the unit-of-work lists

The specifics of each option are discussed. The following diagram illustrates the basic multiprocessing principles:



5. The main process makes a list of all units of work that must be processed.
6. The main process spawns worker processes. Each worker process is assigned a unit of work by the main process.
7. When all units of work have been completed, the worker process exits and the main process finishes any clean-up aspects of processing.
8. During processing the following is true:

- Each worker process must form its own database connection.
- A unit of work is processed only by a single worker process.
- Different units of work are processed at the same time by different worker processes.

Note: If data is not distributed well across physical devices, I/O contention may offset the advantage of parallelism within OFSAA for I/O bound processing. It is recommended that users choose dimensions or combinations of dimensions that produce a relatively equal distribution of data records.

Multiprocessing Options

The Multiprocessing Options are the settings and parameters that control how individual ALM or FTP Processes are processed by the Cash Flow engine. The seeded data model includes default settings for all of the multiprocessing options, but you can also customize the settings for your own use. This section describes the different Multiprocessing options as well as how to customize each. These options are:

- Units of Work
- Unit-of-Work Servicing
- Worker Processes

Units of Work

The OFSAA processing engines determine units of work for any job based upon the Process Data Slicing Code (PROCESS_DATA_SLICES_CD) assignment. The Data Slicing Code comprises one or more columns by which data in the (processed) table is segmented. The individual segments are the defined Units of Work.

The Process Tuning user interface enables you to specify different unit-of-work definitions for your processes. You could specify one unit-of-work definition for one set of processes and then specify a different unit-of-work definition for another set of processes.

The OFSAA Processing Engines determine the units of work for a job by executing the following statement (with filtering criteria applied) on every table the process is run against:

```
select distinct<data slice columns>from<table>where<filter condition>;
```

where <data slice columns>is the comma-separated list of columns used for data slicing, <table>is the name of the instrument table being processed, and <filter condition>is the additional filter (if any) for the process. Any column or columns in a table can be used for data slicing.

Default Unit-of-Work Definitions

OFSAA provides three default unit-of-work definitions:

PROCESS_DATA_SLICES_CD	PROCESS_DATA_SLICES_SEQ	COLUMN_NAME
1	1	ORG_UNIT_ID
1	2	COMMON_COA_ID
2	1	ORG_UNIT_ID
3	1	COMMON_COA_ID

Any single Process Data Slice Code can comprise multiple columns. As an example of this, the PROCESS_DATA_SLICES_CD = 1 comprises both ORG_UNIT_ID and COMMON_COA_ID. The PROCESS_DATA_SLICES_SEQ identifies the precedence for the columns within the Process Data Slices CD.

Creating Customized Unit-of-Work Definitions

To create a customized unit-of-work definition, you must create a new PROCESS_DATA_SLICES_CD value and specify appropriate parameters for it.

FSI_PROCESS_DATA_SLICES and FSI_PROCESS_DATA_SLICES_DTL tables control the data slice columns and the resulting order of units of work. Data slicing methods are created by inserting a new code value into

FSI_PROCESS_DATA_SLICES.PROCESS_DATA_SLICES_CD. Similarly, the columns used for data slicing are created by inserting new rows into FSI_PROCESS_DATA_SLICES_DTL.

The descriptions for the columns in FSI_PROCESS_DATA_SLICES and FSI_PROCESS_DATA_SLICES_DTL are provided for your reference.

TABLE_NAME	COLUMN_NAME	DISPLAY_NAME	DESCRIPTION
FSI_PROCESS_DATA_SLICES	PROCESS_DATA_SLICES_CD	Process Data Slices Code	Process Data Slices Code
FSI_PROCESS_DATA_SLICES_DTL	PROCESS_DATA_SLICES_CD	Process Data Slices Code	Process Data Slices Code
FSI_PROCESS_DATA_SLICES_DTL	PROCESS_DATA_SLICES_SEQ	Process Data Slices Sequence	Precedence of slicing the data
FSI_PROCESS_DATA_SLICES_DTL	COLUMN_NAME	Column Name	Column name used for slicing

To create a customized unit-of-work definition, the prerequisite is to insert the required data into the FSI_PROCESS_DATA_SLICES and FSI_PROCESS_DATA_SLICES_DTL tables.

The following example illustrates a customized unit-of-work definition:

FSI_PROCESS_DATA_SLICES
PROCESS_DATA_SLICES_CD
4

FSI_PROCESS_DATA_SLICES_DTL			
PROCESS_DATA_SLICES_CD		COLUMN_NAME	
4		ORG_UNIT_ID	1
4		TP_COA_ID	2

PROCESS_DATA_SLICES_SEQ

Unit-of-Work Servicing

Unit-of-work servicing identifies how the OFSAA processing engines interact with Oracle Database Table Partitioning.

What is Partitioning

Partitioning addresses the key problem of supporting very large tables and indexes by enabling you to decompose them into smaller and more manageable pieces called partitions. Once partitions are defined, SQL statements can

access and manipulate the partitions rather than entire tables or indexes. Partitions are especially useful in data warehouse applications, which commonly store and analyze large amounts of historical data.

What Is Unit-of-Work Servicing?

Unit-of-work servicing specifies how individual units of work are processed for a table that is partitioned.

For a partitioned table, an application Rule Type/ Rule Step can create multiple units-of-work lists by executing the following statement (with filtering criteria applied) on every table partition the process is run against:

```
select distinct<data slice columns>from<table_partition_n>
```

where <data slice columns>is the comma-separated list of columns used for data slicing. Any column or columns in a table can be used for data slicing. <table_partition_n> are the unique table partitions of a table where n is assumed to be greater than 1.

The different Servicing methodologies are stored in the FSI_PROCESS_PARTITION_CD and FSI_PROCESS_PARTITION_MLS tables. You cannot add any customized Servicing methodologies. The Servicing methodologies provided in OFSAA are as follows:

PROCESS_PARTITION_CD	PROCESS_PARTITION
0	Do not use partitions (single servicing)
1	Use shared partitions (Cooperative Servicing)
2	Use non-shared partitions (Dedicated Servicing)

These methodologies are defined as follows:

- Single Servicing
- Cooperative Servicing
- Dedicated Servicing

Single Servicing

Single Servicing indicates that the OFSAA processing engine fulfils unit-of-work requests regardless of any table partitioning. As each individual process completes, it requests the next unit-of-work segment, whether or not that segment belongs in the same Table partition.

Use Single Servicing when you do not have Oracle Table Partitioning in your database.

Cooperative Servicing

Cooperative Servicing indicates that the OFSAA processing engine fulfils unit-of-work requests so that each process works against a specific partition unless it is idle. Idle processes then work against the next available unit-of-work segment, whether or not that segment belongs in the same Table partition.

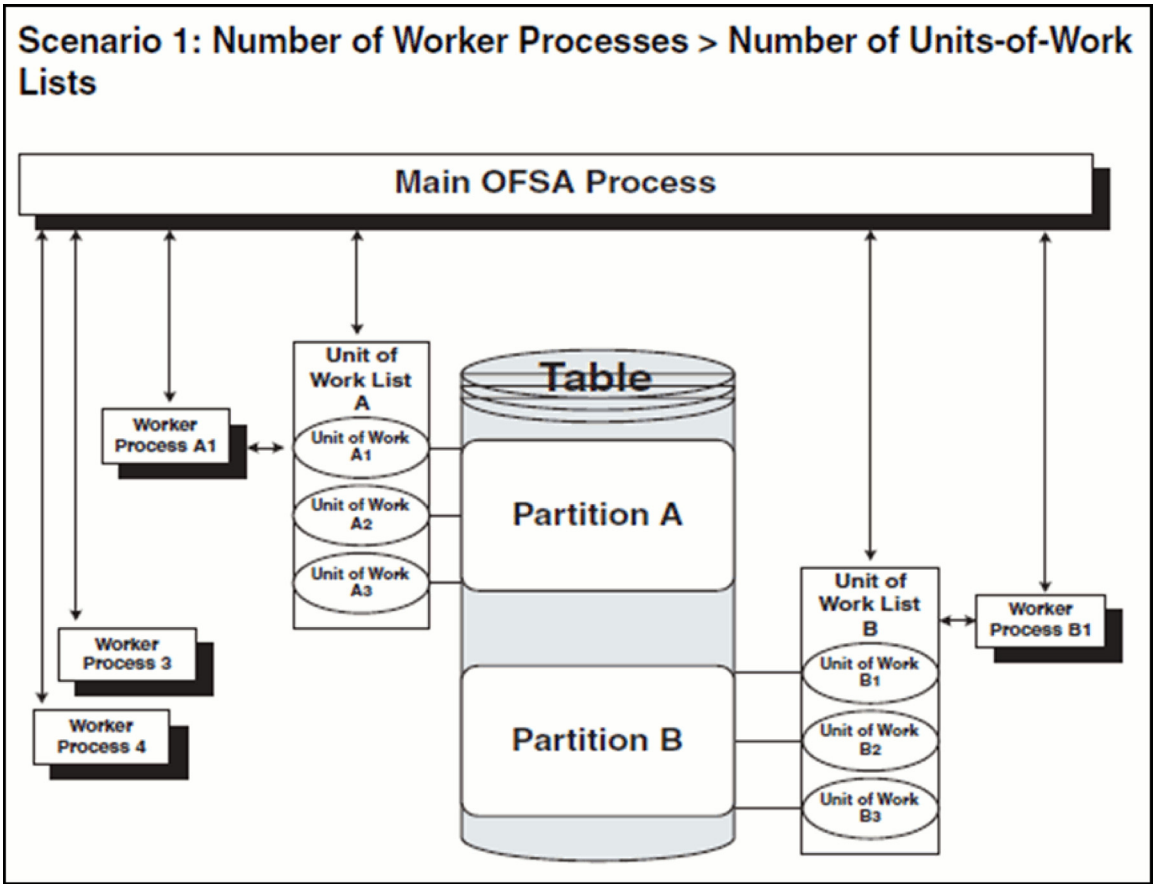
Dedicated Servicing

Dedicated Servicing indicates that the OFSAA processing engine fulfils unit-of-work requests so that each process works against a specific partition.

Examples of How Worker Processes Service Units of Work

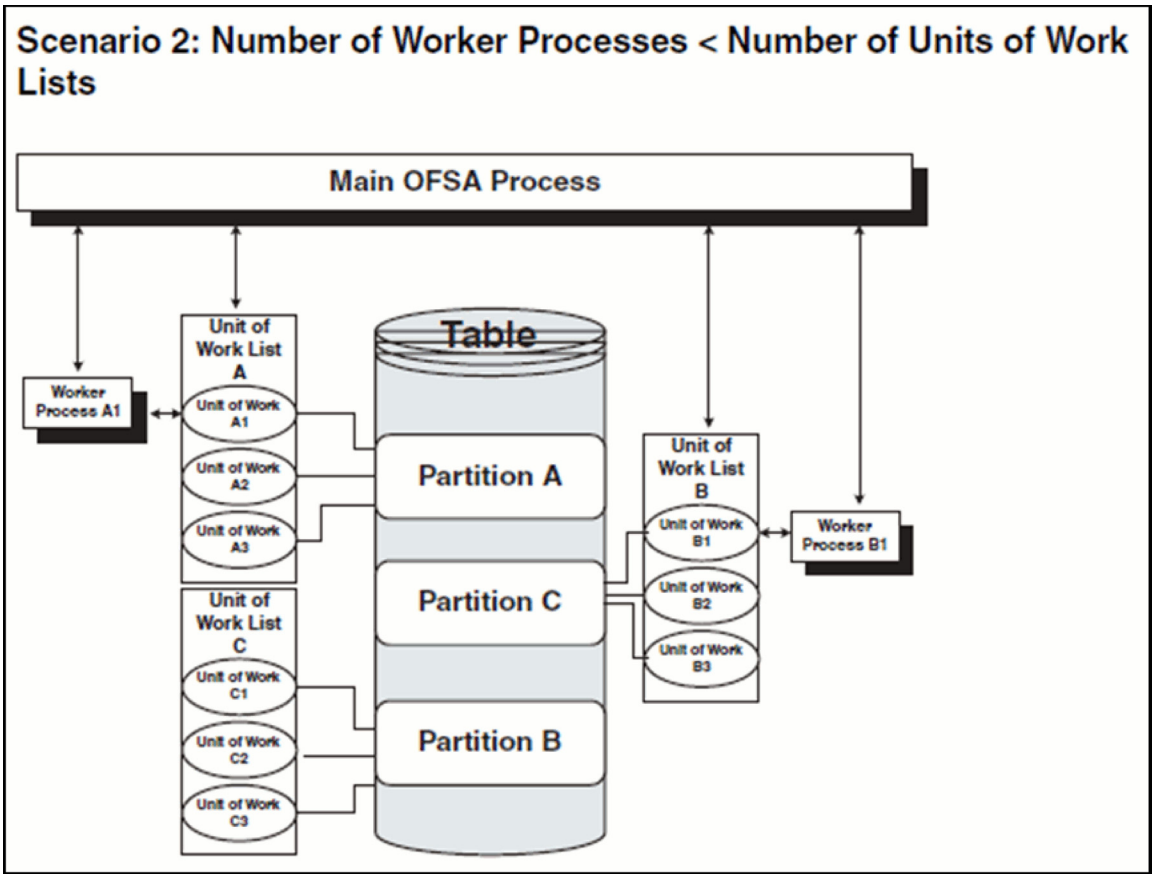
FSI_PROCESS_ID_STEP_RUN_OPT.PROCESS_PARTITION_CD defines how Worker Processes service the units-of-work list or lists. As explained in the define units-of-work list or lists step, an FSI_PROCESS_ID_STEP_RUN_OPT.PROCESS_PARTITION_CD equal to 0 results in a single units-of-work list. With a single units-of-work list, all available worker processes service the list until all units of work are complete. When FSI _PROCESS_ID_STEP_RUN_OPT.PROCESS_PARTITION_CD equals 1 or 2 and the table to be

processed is partitioned, multiple units of work lists are created. The following scenarios explain how the worker processes service multiple units-of-work lists:



- The main process makes two lists of all units of work that need to be processed, unit-of-work list A and unit-of-work list B, respectively. (The setup is that the Table has two partitions.)
- The main process spawns four worker processes. A dedicated worker process is assigned to service each units-of-work list, Worker Process A1 and Worker Process B1 respectively. (The setup is (FSI_PROCESS_ID_STEP_RUN_OPT.NUM_OF_PROCESSES = 4)
  - If FSI_PROCESS_ID_STEP_RUN_OPT.PROCESS_PARTITION_CD equals 1, Worker Process 3 and Worker Process 4 assist Worker Process A1. When a unit-of-work list is complete, the available worker processes assist dedicated worker process on their unit-of-work List.
  - If FSI_PROCESS_ID_STEP_RUN_OPT.PROCESS_PARTITION_CD equals 2, Worker Process 3 and Worker Process 4 do not assist the dedicated worker processes.
- When all units of work have been completed, the worker process exits and the main process finishes any clean-up aspects of processing.
- During processing the following is true:
  - Each worker process must form its own database connection.
  - A unit of work is processed only by a single worker process.

- Different units of work are processed at the same time by different worker processes.



- The main process makes three lists of all units of work that need to be processed: unit-of-work list A, unit-of-work list B, and unit-of-work list C, respectively. (The setup is that the Table has three partitions.)
- The main process spawns two worker processes. A dedicated worker process is assigned to service a units-of-work list, Worker Process A1 and Worker Process B1 respectively. (The setup is (FSI_PROCESS_ID_STEP_RUN_OPT.NUM_OF_PROCESSES = 2).
  - If FSI_PROCESS_ID_STEP_RUN_OPT.PROCESS_PARTITION_CD equals 1, Worker Process A1 and Worker Process B1 work until all units of work are complete from all three unit-of-work lists.
  - If FSI_PROCESS_ID_STEP_RUN_OPT.PROCESS_PARTITION_CD equals 2, the first worker process to complete their unit-of-work List services unit-of-work list C. When the other worker process completes their list, the worker process exits.
  - When all units of work have been completed, the worker process exits and the main process finishes any clean-up aspects of processing.
  - During processing the following is true:
    - Each worker process must form its own database connection.
    - A unit of work is processed only by a single worker process.

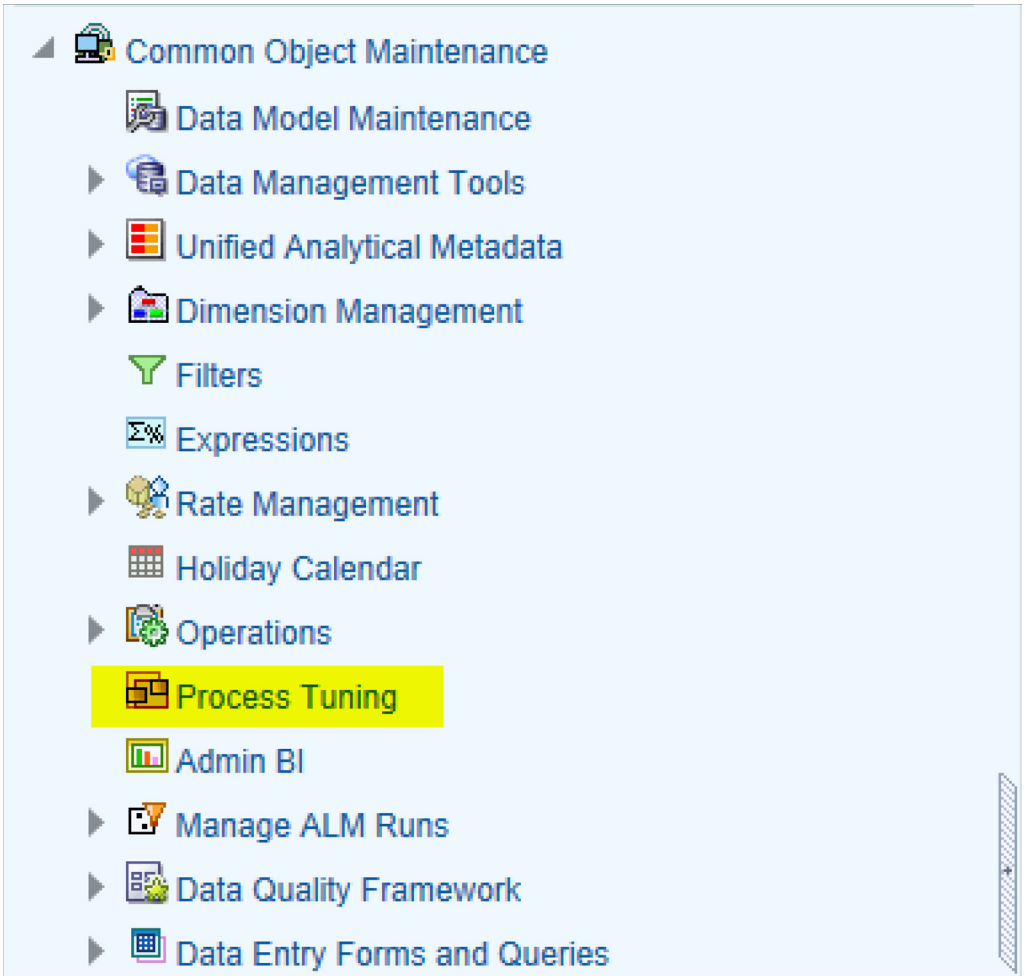
- Different units of work are processed at the same time by different worker processes.

Worker Processes

Worker Processes refer to the number of individual processes working simultaneously to complete the job. The Main OFSAA Process launches the individual worker processes. OFSAA enables you to specify the number of worker processes for your jobs.

Specifying Multiprocessing Parameters

Users can access the multi-processing / tuning UI under the **Common Object Maintenance** on the LHS menu:



The application installation process seeds default multiprocessing parameters. By default, multiprocessing is turned off for all processes. To turn on multiprocessing, Application Administrators can define Process tuning assumptions at the application level or for individual processes.

This section discusses the following topics:

- Multiprocessing Assignment Levels

- Defining Multiprocessing
- Engine Overrides

Multiprocessing Assignment Levels

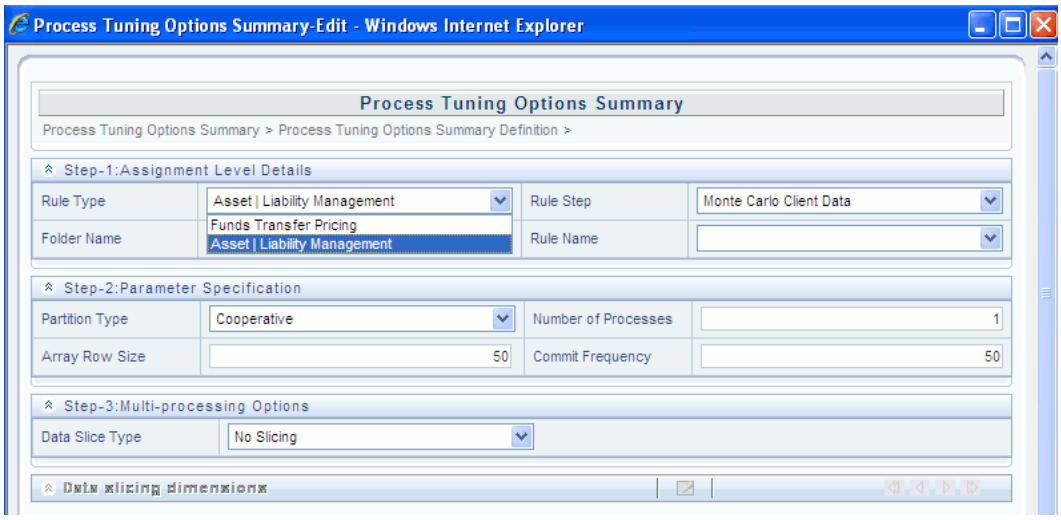
Multiprocessing parameters can be specified at different levels. A Multiprocessing Assignment Level is the category of ALM or FTP execution that is processed with a designated set of multiprocessing parameters.

OFSAA provides multiprocessing assignments at the following levels:

- Rule Type
- Rule Step
- Rule Name

Rule Type

When specifying multiprocessing parameters at the Rule Type level, all Rule Names for that Rule Type are processed with the designated parameters.



The valid Rule Type values present in the 'Rule Type' drop-down list are:

FSI_PROCESS_ENGINE_CD				RULE TYPE
PROCESS_ENGINE_CD		DESCRIPTION		
2		Asset | Liability Management Process	Asset | Liability Management	

3		Funds Transfer Pricing Process	Funds Transfer Pricing	

The OFSAA multiprocessing UI allows you to designate a set of multiprocessing parameters used for a specific Rule step within a given Rule Type.

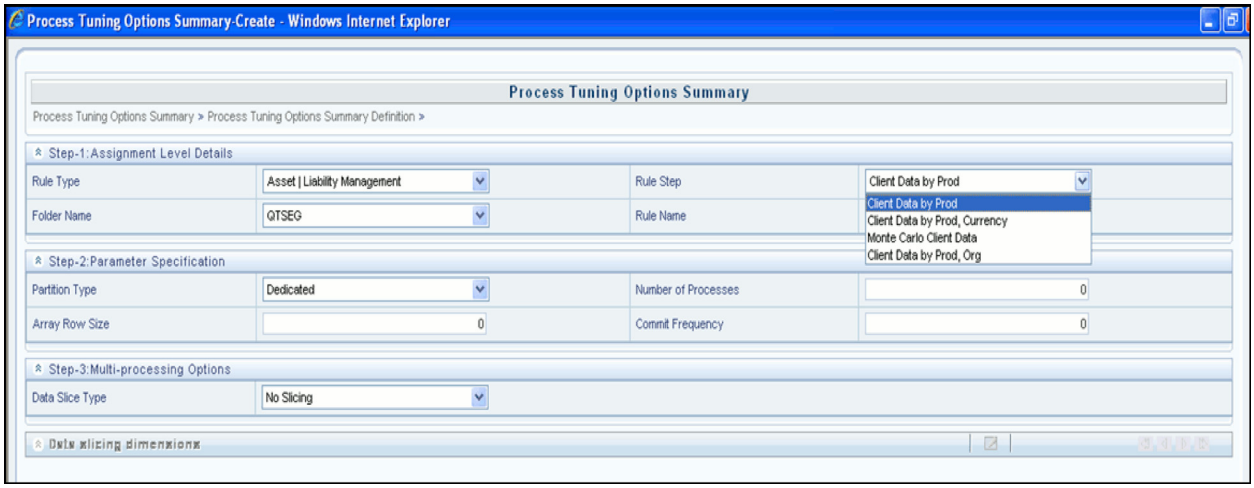
Rule Step

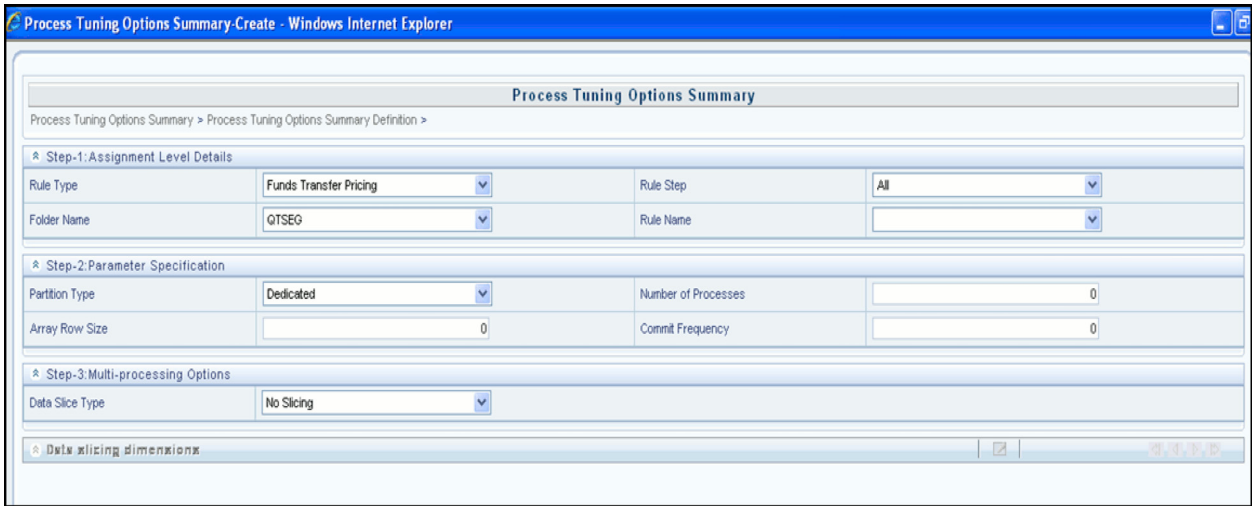
The Rule Step identifies a particular phase of an OFSAA process. Rule Steps are reserved names specific to each Rule Type.

Each Rule Step Name applies to a specific Rule Type.

The mapping of the list of valid Rule Steps and the Rule Type for which they apply is as follows:

PROCESS_ENGINE_CD	RULE STEP NAME
0	ALL
2	Client Data by Prod
2	Client Data by Prod, Org
2	Client Data by Prod, Currency
2	Monte Carlo client data
3	ALL





Rule Name

Users can optionally specify multiprocessing parameters at the Rule Name level to override any parameters assigned at the Rule Type level. This enables you to individualize your multiprocessing options to handle situations unique to specific Processes. In most cases, defining multi-process assumptions at the Application / Rule Step level is sufficient.

The list of valid Rule Names is populated from the FSI_M_OBJECT_DEFINITION_B and FSI_M_OBJECT_DEFINITION_TL tables.

Only Rule Names of the following Process types are available for multi-processing:

- Asset | Liability Management Process
- Funds Transfer Pricing Process

Defining Multiprocessing

The process of defining Multiprocessing involves associating multiprocessing parameters to OFSAA Rule Types and/or Rule Names. Included in this section are the following topics:

- Parameter Tables
- How to Specify Parameters

Parameter Tables

While defining multiprocessing, the user interface inserts data into the following objects:

FSI_PROCESS_ID_RUN_OPTIONS

FSI_PROCESS_ID_STEP_RUN_OPT

FSI_PROCESS_ID_RUN_OPTIONS_V (Read Only View)

TABLE_NAME	DISPLAY_NAME	DESCRIPTION

FSI_PROCESS_ID_RUN_OPTIONS	Process ID Run Options	This table specifies the Rule Name (ALM Process / FTP Process) for a single Process Type.
FSI_PROCESS_ID_STEP_RUN_OPT	Process ID Step Run Options	This table stores the Process Tuning Definition and contains the Rule Name (ALM Process / FTP Process) and process tuning option selections.
FSI_PROCESS_ID_RUN_OPTIONS_V	Process ID Run Options View	This table provides a read-only view based on FSI_PROCESS_ID_RUN_OPTIONS and FSI_PROCESS_ID_STEP_RUN_OPT tables.

Each table is described as follows:

FSI_PROCESS_ID_RUN_OPTIONS

COLUMN_NAME	DESCRIPTION	Display Name
PROCESS_RUN_OPTION_SYS_ID	Rule Name (ALM Process / FTP Process) System ID Number	System ID Number
PROCESS_ENGINE_CD	Process Engine Code that run this Rule Name (ALM Process / FTP Process)	Process Engine Code

FSI_PROCESS_ID_STEP_RUN_OPT

COLUMN_NAME	DESCRIPTION	Display Name
PROCESS_STEP_RUN_SYS_ID	This stores the Rule Name's (ALM Process / FTP Process) System ID Number.	System ID Number
PROCESS_ENGINE_STEP_CD	Rule Step of the Rule Name getting the Process Data Slices Code and Process Partition Code	Step Name
NUM_OF_PROCESSES	Number of Processes	Number of Processes
COMMIT_FREQ	The number of rows after which the process commits changes.	Commit Frequency
ARRAY_SIZE_ROWS	The number of rows updated in a single call to the database.	Array Size Rows

PROCESS_PARTITION_CD	Process Partition code used by this Rule Name (ALM Process / FTP Process) in this step	Process Partition Code
PROCESS_DATA_SLICES_CD	Process Data Slices Code used by this Rule Name (ALM Process / FTP Process) in this step	Process Data Slices Code
PROCESS_ENGINE_CD	Process Engine Code that run this Rule Name (ALM Process / FTP Process)	Process Engine Code

FSI_PROCESS_ID_RUN_OPTIONS_V

COLUMN_NAME	DESCRIPTION	Display Name
SYS_ID_NUM	Rule Name (ALM Process / FTP Process) System ID Number	System ID Number
STEP_NAME	Rule Step of the Rule Name getting the Process Data Slices Code and Process Partition Code	Step Name
PROCESS_ENGINE_CD	Process Engine Code that run this Rule Name (ALM Process / FTP Process)	Process Engine Code
NUM_OF_PROCESSES	Number of Processes	Number of Processes
PROCESS_DATA_SLICES_CD	Process Data Slices Code used by this Rule Name (ALM Process / FTP Process) in this step	Process Data Slices Code
PROCESS_PARTITION_CD	Process Partition code used by this Rule Name (ALM Process / FTP Process) in this step	Process Partition Code
COMMIT_FREQ	The number of rows after which the process commits changes.	Commit Frequency
ARRAY_SIZE_ROWS	The number of rows updated in a single call to the database.	Array Size Rows

How to Specify Parameters

The setup of multiprocessing is broken down into the following steps:

Assignment Level Details

Parameter Specification

Multi-Processing Options

Assign Unit-of-Work Servicing Methodology

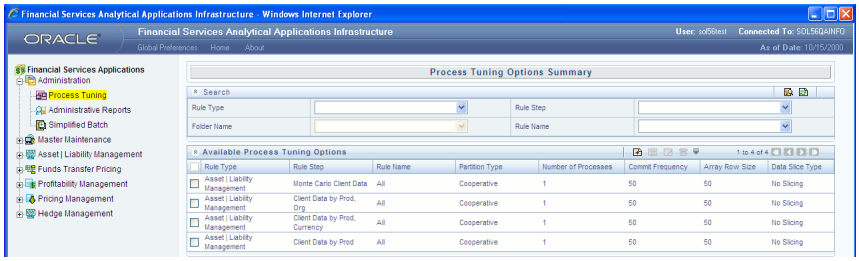
For each step, the relevant multiprocessing parameters are described. Some applications override the multiprocessing configuration in order to handle special processing conditions. The Engine Overrides section explains these special processing conditions.

Assignment Level Details

The 'Rule Type', 'Rule Step' and 'Rule Name' columns identify the Assignment Level for multiprocessing.

Procedure:

1. Log on to Financial Services Applications with the User ID/password that has 'Administrator' Privileges.
2. Navigate to Common Object Maintenance > Process Tuning Options Summary Page. This page is the gateway to Process Tuning Options related functionality.
3. Click Add to create a new Process Tuning assumption. Note, you can create only one process tuning assumption per combination of Rule Type and Rule Name.



4. The Process Tuning Options Summary – Create page is displayed.
5. Step - 1: Assignment Level Details Block is the first block.

6. This block contains 4 fields - Rule Type, Rule Step, Folder Name and Rule Name.
7. Select the required Rule Type.
8. Folder Name is a drop-down to assist rule-name selection, filtered by selected folder.
9. Select the required Rule Step. Rule Step is a drop-down that is filtered based on its mapping to the Rule Type selected.
10. Select the required Rule Name. Rule Name is a drop-down that displays rules of the selected type, within the specified folder.

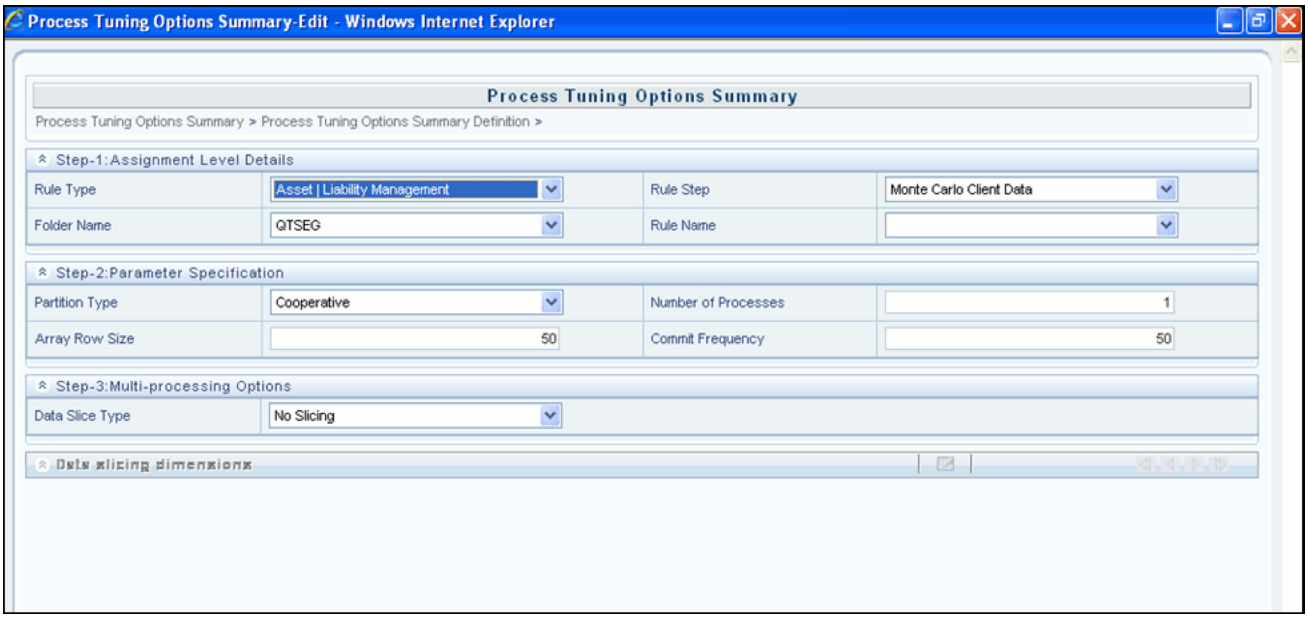
The system supports four assignment levels. Because an application allows configurations that mix these levels, it is important to understand the order in which the application resolves the multiprocessing parameters when the configuration mixes assignment levels. The order is:

1. Specific Step of a specific Process for an engine
2. All Steps of a specific Process for an engine

3. Specific Step of all Processes for an engine

The next step after defining Assignment Level details is to define the Multiprocessing Parameters. Multiprocessing parameters include inputs for the following:

- Partition Type
- Array Row Size
- Number of Processes
- Commit Frequency



The following describes inputs for each parameter:

Partition Type

Partition Type selection is required when table partitioning is being used within your instrument tables. If no portioning is being done, then the default selection of "No Partitioning" should be selected. If parttiioning is being done, then users should select either Dedicated or Cooperative. For more information on these selections, refer to the section on Multiprocessing Options > Unit of Work servicing.

Number of Processes

The number of processes selection indicates the number of concurrent processes to be launched by the engine. Typically, the number of processes should be less than or equal to the number of CPUs available on the server. Users should experiment with the number of processes setting to find the optimal value.

Assign Array Updates and Commit Frequency

Setting the array update size to be greater than the commit frequency has no effect because the array update size is limited by commit frequency. Oracle recommends setting the commit frequency to zero unless rollback segment limitations require doing a commit more often. Oracle also recommends using the default array update size of 50 unless tests show a benefit to increasing this size.

Step 3 in the multiprocessing setup includes the following selections:

Data slice type

Data Slice Type is a static drop-down with 2 values [Distinct Values, No Slicing]. Users should choose distinct values to enable multiprocessing. After choosing distinct values, users are required to further select their Data Slicing dimensions.

Data slicing dimensions

Choose the edit option to launch a pop-up window to select the slicing dimensions. This popup will contain the list of seeded dimensions.

Note: Only Key dimensions can be used for data-slicing.

Engine Overrides

For some conditions, the OFSAA Processing Engines override the multiprocessing definition for an assignment level. The overrides are as follows:

Funds Transfer Pricing

Funds Transfer Pricing configures the data slicing columns automatically using the Product Leaf Column defined in the active Application Preferences as the default slicing column for all runs. Different steps in the same processing run can use different additional slicing columns, however. Bulk and propagation calculation steps, as well as Non-Cash Flow and LEDGER_STAT pricing/migration runs, use the ORG_UNIT_ID column as an additional slicing column. The Cash Flow Transfer Pricing step also uses the ORG_UNIT_ID column if not combined with Option Cost Calculations. For Option Cost Calculation, the engine employs ORIGINATION_DATE as the primary slicing column with the Product Leaf Column as secondary.

Asset Liability Management

Asset Liability Management configures the data slicing columns automatically using the Product Leaf Column defined in the active Application Preferences as the default slicing column for all runs. The Asset Liability Management engine adds more slicing columns based upon the parameters specified in the Asset Liability Management Process, as follows:

- If Product/Organizational Unit functional dimensions are selected, the engine adds ORG_UNIT_ID as an additional slicing column.
- If Product/Currency functional dimensions are selected, the engine adds ISO_CURRENCY_CD as an additional slicing column.
- If Product/Organizational/Currency functional dimensions are selected, the engine adds ORG_UNIT_ID and ISO_CURRENCY_CD as additional slicing columns.

Tuning Multiprocessing

Tuning for optimal multiprocessing settings is an exercise similar to tuning a database. It involves experimentation with different settings under different load conditions.

Database Bound versus Engine Bound Jobs

OFSAA jobs fall into the following two categories:

- Database bound—Those jobs that spend more time within database manipulations.
- Engine bound—Those jobs whose calculations are complex, with the time spent with database Operations being small compared to the amount of time doing calculations.

The following table lists OFSAA jobs by Application and identifies whether the job is usually database bound or Engine bound.

Application	Job Type	Generic Job Type	OFSAA / DB Bound	MP Enabled	Comments
Funds Transfer Pricing	Ledger Migration	Bulk	DB	Yes	
Funds Transfer Pricing	Bulk Transfer Pricing	Bulk	DB	Yes	
Funds Transfer Pricing	Non-Cash Flow Transfer Pricing	Row by Row	DB	Yes	
Funds Transfer Pricing	Cash Flow Transfer Pricing	Row by Row	OFSAA	Yes	
Funds Transfer Pricing	LEDGER _STAT Migration	Row by Row	DB	Yes	
Asset | Liability Management	Detail Processing (Current position, Gap, Market Value)	Row by Row	OFSAA	Yes	All processing except Formula Results and Auto Balancing
Asset | Liability Management	Formula Results	Row by Row	OFSAA	No	Formula Results is not currently functional, and will available in a later release
Asset | Liability Management	Auto Balancing	Row by Row	OFSAA	No	

The scalability of database-bound jobs is largely determined by size of the database server. The scalability of Engine bound jobs is determined by the size of the application server.

Tuning the OFSAA Database from the Application Layer

Despite the many multiprocessing options, tuning the OFSAA database from the application layer is achieved by following a simple process. The process is as follows:

1. Identify the OFSAA job types that are used by your organization.
2. For each job type, time the runs for a series of Number of Processes settings, defined in Step 2: Parameter Details.
3. Based on the results, determine the appropriate setting per application.

LEDGER_STAT Updating

Funds Transfer Pricing, LEDGER_STAT migration and direct Transfer Pricing against the Ledger table both update the LEDGER_STAT using an update/insert methodology where an update is attempted and, if no rows are affected, an insert is performed. This methodology prevents OFSAA from performing LEDGER_STAT updates in parallel. When LEDGER_STAT is updated (either because the LEDGER_STAT buffer has filled or the process has ended), the updating is done by only one process. All other processes must wait for the updating to be completed. As the ratio between rows written to LEDGER_STAT and rows read to LEDGER_STAT increases, the time spent writing LEDGER_STAT dominates the time spent reading, resulting in drastically reduced scalability.

Special Considerations

Because of the nature of parallel processing performed by OFSAA, different processes tend to need to access the same tables at the same time. Unless care is taken in designing the layout of the database tables, this can lead to I/O contention, which in turn, can reduce scalability.

CHAPTER E External Break Process Flow

Breaks Event Data Loaded from External Source Systems

The following approach is recommended when break data is provided by 3rd party source systems and loaded via standard ETL. This is an alternative and possibly a complimentary approach to using the FTP Break Identification Process.

Data flow

- Current period data is moved from staging tables to break funding charges table.
- Prior period data is moved from instrument tables to break funding charges table.

Assumptions

Source systems need to provide the information related to breaks in the following fields.

1. Loans
   - Prepayment indicator – column to indicate if a prepayment has happened in the current period.
   - Closed indicator – column to indicate if an account is closed in the current period.
   - Ending Principal balance – column to store the outstanding principal balance.
   - Prepayment amount – column to store the amount that is pre-paid in case of partial or full pre-payment.
   - Restructured indicator – column to indicate if the account is restructured.
2. Term Deposits
   - Early Redemption indicator – column to indicate if the account is redeemed early.
   - Redeemed amount – column to indicate that is redeemed in the current period.
   - Closed indicator – column to indicate if the account is closed in the current period.
   - Ending balance – column to store the ending balance of the account.

Creating and Executing T2T Processes

The following are the T2T definitions which move data from the staging table(s) to Break Funding table, when Breaks data is available from Source Systems.

Full Breaks and Partial Breaks:

- T2T_BROKEN_ACCOUNT_LOANS_FP
- T2T_BROKEN_ACCOUNT_TD_FP

Restructuring Accounts:

- T2T_BROKEN_ACCOUNT_LOANS_R

- T2T_BROKEN_ACCOUNT_TD_R

For moving prior period records for Partial and Restructured accounts: The following T2T's will used for moving prior records into the Break Funding table for Partial Break and Restructuring of accounts.

- T2T_LOAN_PAR_RESTRUCTURED
- T2T_MORTGAGES_PAR_RESTRUCTURED
- T2T_TD_PAR_RESTRUCTURED

For executing these T2T's, perform the following steps:

1. Create a batch.
2. Add the relevant tasks to the newly created batch.
3.
4. Add the Transform Data task for updating the Process Run History table.

   The T2T_Process_Update procedure will insert/update the Last Execution Date in Process Run History table which will be used in the next T2T for fetching prior period AS_OF_DATE .

   - T2T_LOAN_PAR_RESTRUCTURED
   - T2T_MORTGAGES_PAR_RESTRUCTURED
   - T2T_TD_PAR_RESTRUCTURED

5. Execute the new batch process from the Batch Execution Screen.

CHAPTER F FTP Web Services

Overview of FTP Web Services

FTP web services (v8.0) provide the capability to query Transfer Pricing results from existing account records and execute Transfer Pricing calculations against ad-hoc instruments in near real-time. The FTP web service calculations utilize the same transfer pricing methodologies and calculations that are used when running standard transfer pricing processes. FTP web services are applicable to all FTP calculations including Transfer Rates (all TP Methods), TP Add-on rates (all methods) and Breakage Charges. FTP web services are generally available to be called by any 3rd party system within the bank.

FTP web services support the following use cases:

- Ability to query FTP information for existing instrument records for a specified date
- Ability to query FTP Daily Rate Card information for standard products
- Ability to execute an existing TP Process in real time, which can refer to any TP Rule, Prepayment Rule, Adjustment Rule and (optionally) an Alternate Rate Output Mapping assumption for a single ad-hoc instrument record
- Ability to calculate an Economic Loss Breakage Charge in real time, for an ad-hoc instrument record

General steps for executing web service calls:

1. Create/generate the applicable request.xml, related to the particular web service that is being called
2. To support testing of the FTP web services, we provide a sample java program that can be called directly. This jar file allows you to call the FTP web services. Please ensure the FTPWSclient.jar file is located in the same folder as the xml file(s)
3. Open Command Line and navigate to the location of the xml files
4. Run the command mentioning the relevant web service and xml file,
   For example: java -jar FTPWSclient.jar<parameter>Request.xml <WSDL_URL>
5. The final results will appear in the command line

Note: Configuration parameters are given in the ofsaaws.properties file found in the following location: $FIC_WEB_HOME/WEB-INF/classes.

The following parameters must be provided:

infodom= for example: OFSPFTINFO

userId= for example: ftpuser1

pollFrequency=1000 [in milliseconds]

pollIterations=3

Instrument_tables=210,230~FSI_D_TERM_DEPOSITS;130~FSI_D_MORTGAGES;110,120,180~FSI_D_LOAN_CONTRACTS;160~FSI_D_CREDIT_LINES;

cpp_component= bcservices

For a full description of how to install and configure FTP web services, refer to the FTP Installation Guide.

Description of FTP Web Services

Note: The following use cases refer to a single java program (FTPWSclient.jar), which is available from the OFSAA Support Team. If required, please raise a service request to receive a copy of the file. It is assumed that anyone looking to deploy the FTP web services will have some basic knowledge of web service development and will be constructing similar wrapper programs for their specific use cases. This java program can be used for testing purposes.

- **Ability to query existing instrument records that contain FTP information for a specified date:** A relationship manager may want to retrieve the FTP information for existing account records from the database. For example, a customer may have multiple accounts with the bank, one is a personal loan and another is term deposit. The relationship manager can query the transfer rate information for these existing accounts and use the actual margin information (positive or negative) as basis to offer rates for the new products. Providing this kind of information in real time allows the banker to make informed pricing decisions.
  Function name: FTP WS Client getTPRate

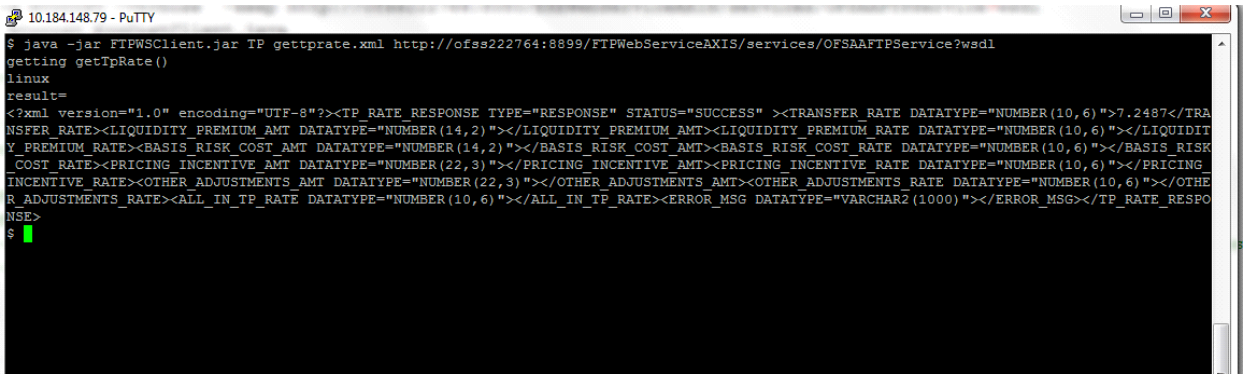
  Note: this function is part of the **Economic Cost** web service configuration

  Function parameters (supplied within request.xml file):

  - Account Number
  - As of Date
  - Instrument Type Code

  This screenshot illustrates how the web service call is made and what the return information looks like, when run from command line. For example: java -jar FTPWSClient.jar TP Request.xml < WSDL_URL >

  Note: "TP" in the above command indicates you are calling the getTPRate program for this web service. A value of "EC" would indicate you are calling the getEconomicCost program.



The following table provides an example of the required inputs in XML format. The xml file should be located in the same directory as the *.jar file. If located in another directory, then the full path must be given in the command line, e.g. folder path and xml file name. The highlighted information below represents sample values, similar to those that must be provided for this web service to execute

Function Name	XML FORMAT
getTPRate	<?xml version="1.0" ?> <TP_RATE> <ACCOUNT_NUMBER >TD_1322 /ACCOUNT_NUMBER> <AS_OF_DATE >20150131< /AS_OF_DATE > <INSTRUMENT_TYPE_CODE >230 /INSTRUMENT_TYPE_CD> </TP_RATE>

The getTPRate web service works with data from the following tables.

The specific table where the instrument record lookup will execute is identified in the request.xml based on INSTRUMENT_TYPE_CODEd6

- FSI_D_TERM_DEPOSITS (230)
- FSI_D_MORTGAGES (130)
- FSI_D_LOAN_CONTRACTS (180)
- FSI_D_CREDIT_LINES (160)

This list of tables can be extended by including additional tables in the "ofsaaws.properties" file.

Return values:

- TRANSFER_RATE
- LIQUIDITY_PREMIUM_AMT
- LIQUIDITY_PREMIUM_RATE
- BASIS_RISK_COST_AMT
- BASIS_RISK_COST_RATE
- PRICING_INCENTIVE_AMT
- PRICING_INCENTIVE_RATE
- OTHER_ADJUSTMENTS_AMT
- OTHER_ADJUSTMENTS_RATE
- ALL_IN_TP_RATE

- **Ability to query FTP Daily Rate Card information for standard products:** Users who generate Daily FTP Rate Card's within Funds Transfer Pricing, can use this web service to query the pre-calculated results. This web service is useful for embedding the latest FTP rate quotes into systems that support pricing decisions.
  Function Name: PricingClient.jar getTPRate

  Function parameters:

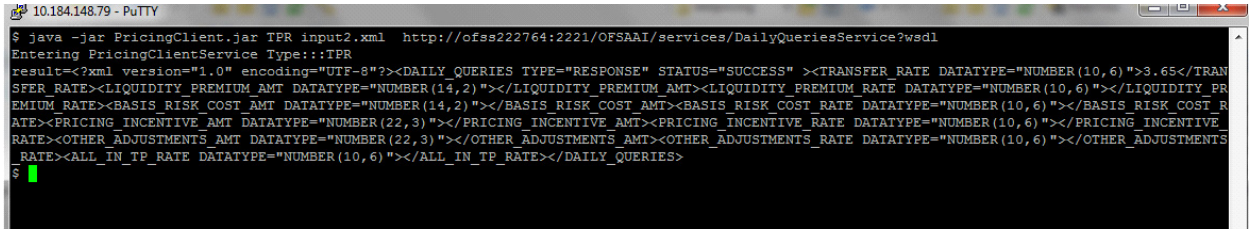
  - PRODUCT_ID
  - CURRENCY_CODE
  - ORIGINAL_TERM

- PAYMENT_FREQUENCY
- REPRICING_FREQUENCY
- AS_OF_DATE

This screenshot illustrates how the web service call is made when run from command line. For example: java -jar PricingClient.jar TPR input2.xml < WSDL_URL >

Note: "TPR" in the above command indicates you are calling the getTPRate program for this web service.

The following table provides an example of the required inputs in XML format. The xml file should be located in the same directory as the *.jar file. If located in another directory, then the full path must be given in the command line, e.g. folder location and xml file name.



Function Name	XML FORMAT
getTPRate	< ?xml version="1.0" ? > < PRICING > < TP_RATE > < PRODUCT_ID >101< /PRODUCT_ID > < CURRENCY_CODE >USD< /CURRENCY_CODE > < ORIGINAL_TERM >2Y< /ORIGINAL_TERM > < PAYMENT_FREQUENCY >6M< /PAYMENT_FREQUENCY > < REPRICING_FREQUENCY >0M< /REPRICING_FREQUENCY > < AS_OF_DATE >20160415< /AS_OF_DATE > < TP_RATE > < PRICING >

Return Values

- TRANSFER_RATE
- LIQUIDITY_PREMIUM_AMT
- LIQUIDITY_PREMIUM_RATE
- BASIS_RISK_COST_AMT
- BASIS_RISK_COST_RATE
- PRICING_INCENTIVE_AMT
- PRICING_INCENTIVE_RATE
- OTHER_ADJUSTMENTS_AMT
- OTHER_ADJUSTMENTS_RATE

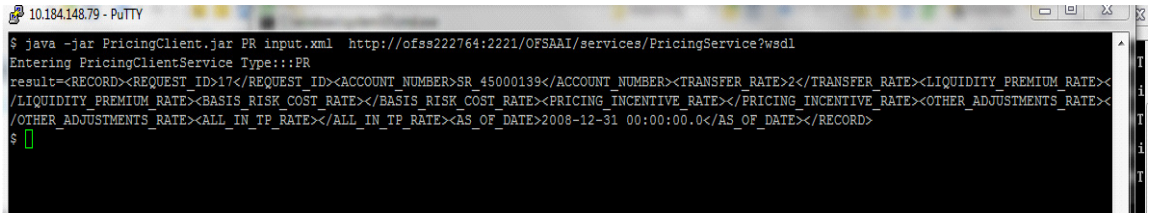
- ALL_IN_TP_RATE

- Ability to execute an existing TP Process which can refer to any TP Rule, Prepayment Rule, Adjustment Rule and (optionally) an Alternate Rate Output Mapping assumption in real time for a single ad-hoc instrument record:
  This web service supports provisioning of FTP rate quotes for more complicated instrument records, which are not supported by the Daily FTP Rate Card process. For cases where pricing for non-standard products is required, details for the entire data record can be passed through this web service to the TP Engine and results will be generated in near real time. This web service works in the following way:
  - The data record provided in xml is inserted by the java web service program "getPricing" into FSI_PM_GENERATED_INSTRMTS table
  - The Process ID of the TP Process (references TP Rule and Adjustment Rule) given in xml is executed to generate transfer pricing results for the row of data
  - The Product ID given in the xml is used to lookup TP Method and Adjustment assumptions
  - If processing is completed within the time set in ofsaaws.properties, then request ID and results will be returned automatically - If processing is not completed within the time set in the ofsaaws.properties, then only the request ID is returned
  - In case the results are not returned due to longer processing time, users can setup a second web service call to re-query the results using the "getPricingData" web service program by passing the request ID that was returned by the getPricing call.

  Function name(s): getPricing

  This screenshot illustrates how the web service call is made when run from command line. For example: java -jar PricingClient.jar PR input.xml < WSDL_URL >

  Note: "PR" in the above command indicates you are calling the getPricing program for this web service. A value of "PRD" would indicate you are calling the getPricingData program.



Function parameters (for getPricing):

- PROCESS_ID
- ACCOUNT_NUMBER
- AS_OF_DATE
- CURRENT_NET_RATE
- ORIGINAL_TERM_TO_MATURITY
- ORIGINAL_TERM_MULTIPLIER
- PAYMENT_FREQUENCY

- PAYMENT_FREQUENCY_MULTIPLIER
- ADJUSTABLE_TYPE_CODE
- CURRENT_GROSS_BOOK_BALANCE
- ACCRUAL_BASIS_CODE
- AMORTIZATION_TERM
- AMORTIZATION_TERM_MULTIPLIER
- AMORTIZATION_TYPE_CODE
- CURRENT_GROSS_PAR_BALANCE
- CURRENT_PAYMENT_AMOUNT
- INTEREST_RATE_CODE
- LAST_REPRICING_DATE
- MATURITY_DATE
- NEXT_PAYMENT_DATE
- NEXT_REPRICING_DATE
- ORIGINAL_GROSS_PAR_BALANCE
- ORIGINATION_DATE
- ISSUE_DATE
- REMAINING_NO_OF_PAYMENTS
- LAST_PAYMENT_DATE
- INTEREST_TYPE_CODE
- COMPOUNDING_BASIS_CODE
- REPRICING_FREQUENCY
- REPRICING_FREQUENCY_MULTIPLIER
- PRODUCT_ID
- ISO_CURRENCY_CD

** payment schedules are not currently supported by this web service

The following table provides an example of the required inputs in XML format. The xml file should be located in the same directory as the *.jar file. If located in another directory, then the full path must be given in the command line, e.g. folder path and xml file name. The highlighted information below represents sample values, similar to those that must be provided for this web service to execute.

Function Name	XML FORMAT

getPricing

```
< ?xml version="1.0" ? >
< PRICING >
< PROCESS_ID > 200098< /PROCESS_ID >
< REQUEST >
< ACCOUNT_NUMBER DATATYPE="VARCHAR2(30)" > SR_45000139 <
/ACCOUNT_NUMBER >
<AS_OF_DATE DATATYPE="DATE" FORMAT="YYYYMMDD" > 20150615< /AS_OF_DATE >
<CURRENT_NET_RATE DATATYPE="NUMBER(10,6)" > 6 < /CURRENT_NET_RATE >
<ORIGINAL_TERM_TO_MATURITY DATATYPE="NUMBER(5)" > 2 <
/ORIGINAL_TERM_TO_MATURITY >
< ORIGINAL_TERM_MULTIPLIER DATATYPE="CHAR(1)" > Y <
/ORIGINAL_TERM_MULTIPLIER > < PAYMENT_FREQUENCY DATATYPE="NUMBER(5)" >
1< /PAYMENT_FREQUENCY > < PAYMENT_FREQUENCY_MULTIPLIER
DATATYPE="CHAR(1)" > M< /PAYMENT_FREQUENCY_MULTIPLIER > <
ADJUSTABLE_TYPE_CODE DATATYPE="NUMBER(5)" > 0< /ADJUSTABLE_TYPE_CODE >
< CURRENT_GROSS_BOOK_BALANCE DATATYPE="NUMBER(14,2)" > 1000000<
/CURRENT_GROSS_BOOK_BALANCE > < ACCRUAL_BASIS_CODE
DATATYPE="NUMBER(5)" > 1< /ACCRUAL_BASIS_CODE > < AMORTIZATION_TERM
DATATYPE="NUMBER(5)" > 2< /AMORTIZATION_TERM > <
AMORTIZATION_TERM_MULTIPLIER DATATYPE="CHAR(1)" > Y<
/AMORTIZATION_TERM_MULTIPLIER > < AMORTIZATION_TYPE_CODE
DATATYPE="NUMBER(5)" > 100< /AMORTIZATION_TYPE_CODE > <
CURRENT_GROSS_PAR_BALANCE DATATYPE="NUMBER(14,2)" > 1000000<
/CURRENT_GROSS_PAR_BALANCE > < CURRENT_PAYMENT_AMOUNT
DATATYPE="NUMBER(14,2)" > 716< /CURRENT_PAYMENT_AMOUNT > <
INTEREST_RATE_CODE DATATYPE="NUMBER(5)" > 12< /INTEREST_RATE_CODE > <
LAST_REPRICING_DATE DATATYPE="DATE" FORMAT="YYYYMMDD" > 20140615<
/LAST_REPRICING_DATE > < MATURITY_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD" > 20160615< /MATURITY_DATE > < NEXT_PAYMENT_DATE
DATATYPE="DATE" FORMAT="YYYYMMDD" > 20150715< /NEXT_PAYMENT_DATE > <
NEXT_REPRICING_DATE DATATYPE="DATE" FORMAT="YYYYMMDD" > 20160615 <
/NEXT_REPRICING_DATE > < ORIGINAL_GROSS_PAR_BALANCE
DATATYPE="NUMBER(14,2)" > 1000000< /ORIGINAL_GROSS_PAR_BALANCE > <
ORIGINATION_DATE DATATYPE="DATE" FORMAT="YYYYMMDD" > 20140615<
/ORIGINATION_DATE > < ISSUE_DATE DATATYPE="DATE" FORMAT="YYYYMMDD" >
20140615< /ISSUE_DATE > < REMAINING_NO_OF_PAYMENTS DATATYPE="NUMBER(5)" >
24< /REMAINING_NO_OF_PAYMENTS > < LAST_PAYMENT_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD" > 20150615< /LAST_PAYMENT_DATE > < INTEREST_TYPE_CODE
DATATYPE="NUMBER(5)" > 0< /INTEREST_TYPE_CODE > <
COMPOUNDING_BASIS_CODE DATATYPE="NUMBER(5)" > 160<
/COMPOUNDING_BASIS_CODE > < REPRICING_FREQUENCY DATATYPE="NUMBER(5)" >
0< /REPRICING_FREQUENCY > < REPRICING_FREQUENCY_MULTIPLIER
DATATYPE="CHAR(1)" > M< /REPRICING_FREQUENCY_MULTIPLIER > < PRODUCT_ID
DATATYPE="NUMBER(14)" > 101< /PRODUCT_ID > < ISO_CURRENCY_CD
DATATYPE="VARCHAR2(15)" > USD< /ISO_CURRENCY_CD > < /REQUEST > < /PRICING >
```

Return values:

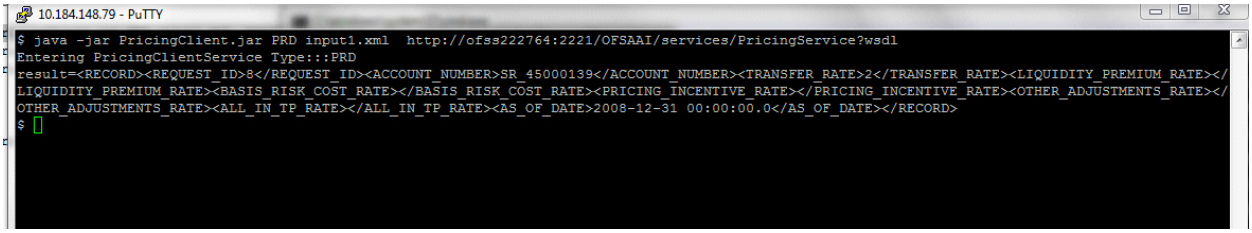
- REQUEST_ID
- ACCOUNT_NUMBER
- TRANSFER_RATE
- LIQUIDITY_PREMIUM_RATE
- BASIS_RISK_COST_RATE

- PRICING_INCENTIVE_RATE
- OTHER_ADJUSTMENTS_RATE
- ALL_IN_TP_RATE
- AS_OF_DATE

If the TP Process exceeds the allotted time limit, the web service will return only the REQUEST_ID. In this case, you can re-query the results using the getPricingData web service.

Function name(s): getPricingData

This screenshot illustrates how the web service call is made when run from command line. e.g. java -jar PricingClient.jar PRD input1.xml < WSDL_URL >



Function parameters (for getPricingData):

- REQUEST_ID

The following table provides an example of the required inputs in XML format. The xml file should be located in the same directory as the *.jar file. If located in another directory, then the full path must be given in the command line, e.g. folder path and xml file name. The highlighted information below represents sample values, similar to those that must be provided for this web service to execute.

Function Name	XML FORMAT
getPricingData	< ?xml version="1.0" ? > < PRICING > < REQUEST_ID > 8 < /REQUEST_ID > < PRICING >

Return values:

- REQUEST_ID
- ACCOUNT_NUMBER
- TRANSFER_RATE
- LIQUIDITY_PREMIUM_RATE
- BASIS_RISK_COST_RATE
- PRICING_INCENTIVE_RATE
- OTHER_ADJUSTMENTS_RATE
- ALL_IN_TP_RATE

- AS_OF_DATE

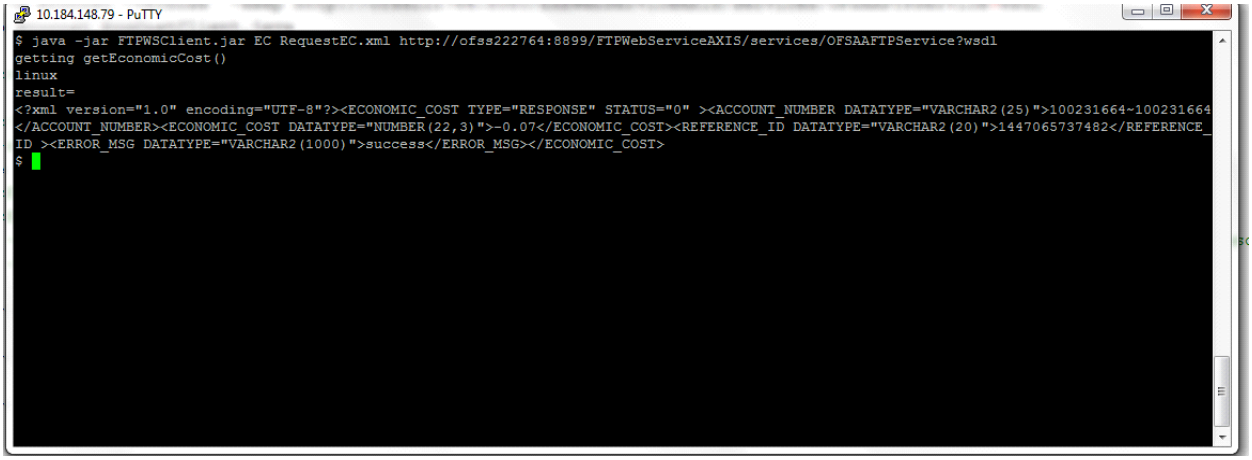
- **Ability to calculate a breakage charge in real time, for a specified instrument record:** This web service supports the calculation of an economic loss breakage charge. This calculation can be embedded in a front line application to provide breakage charge quotes to customers. This calculation supports all 3 types of breaks including, full break, partial break and change in attributes break. A few examples of common break events are as follows:

  - A customer wants to redeem their term deposit before expiry. The bank charges a fee equal to the actual economic loss incurred on the account due to early redemption of the deposit.
  - A customer approaches the bank to prepay the total outstanding balance on their Mortgage loan and want to know what the penalty will be. The bank can calculate the economic breakage charge to be paid by the customer and advise the customer prior to the payoff.
  - A customer approaches the bank wanting to convert the interest rate on their loan from fixed to floating or vice versa. The bank can calculate the economic loss (or gain) and advise the customer on any fees they would incur.

  Function name: getEconomicCost

  This screenshot illustrates how the web service call is made and what the return information looks like, when run from command line. e.g. java -jar FTPWSClient.jar EC Request.xml <WSDL_URL>

  Note: "EC" in the above command indicates you are calling the getEoncomicCost program for this web service. A value of "TP" would indicate you are calling the getTPRate program.



Function parameters: (the following attributes are passed for both the current period (post break) record and prior period (prior to break) record) via reqest.xml file.

- ACCOUNT_NUMBER
- AS_OF_DATE
- CURRENT_NET_RATE
- ORIGINAL_TERM_TO_MATURITY
- ORIGINAL_TERM_MULTIPLIER

- PAYMENT_FREQUENCY
- PAYMENT_FREQUENCY_MULTIPLIER
- ADJUSTABLE_TYPE_CODE
- CURRENT_GROSS_BOOK_BALANCE
- ACCRUAL_BASIS_CODE
- AMORTIZATION_TERM
- AMORTIZATION_TERM_MULTIPLIER
- AMORTIZATION_TYPE_CODE
- CURRENT_GROSS_PAR_BALANCE
- CURRENT_PAYMENT_AMOUNT
- **INTEREST_RATE_CODE** (The specified IRC will be used both for Transfer Pricing the record, if TP Rate is not given and for looking up current rates to calculate the Breakage Charge)
- LAST_REPRICING_DATE
- MATURITY_DATE
- NEXT_PAYMENT_DATE
- NEXT_REPRICING_DATE
- ORIGINAL_GROSS_PAR_BALANCE
- ORIGINATION_DATE
- ISSUE_DATE
- ISSUE_DATE
- REMAINING_NO_OF_PAYMENTS
- LAST_PAYMENT_DATE
- INTEREST_TYPE_CODE
- COMPOUNDING_BASIS_CODE
- REPRICING_FREQUENCY
- REPRICING_FREQUENCY_MULTIPLIER
- TP_RATE (If provided, the TP Method choice below, is not applicable. This TP rate will be used instead of re-calculating. If TP Rate is not given, then it will be a lookup from database or calculated using the below method)
- INSTRUMENT_TYPE_CODE
- TP_METHOD_CODE (10 - Cash Flow: Zero Discount Factor or 4 - Straight term)
- INTERPOLATION_METHOD (1- Linear, 2- Cubic spline, 3- Quartic spline)
- ASSET_LIABILITY (1- Asset, 2- Liability)
- SERVICE_TYPE (A- Actual or S-Simulated) If "A" is selected (recommended) details will be logged to an audit table, FSI_ECONOMIC_COST_HIST

**Payment Schedules are not currently supported by this web service.

In order to calculate the Breakage Charge, a Transfer Rate must be available. The transfer rate can be arrived at in any of three ways:

- If the TP_RATE is provided in the request.xml it will be used
- If TP_RATE is not provided, then ACCOUNT_NUMBER, AS_OF_DATE and INSTRUMENT_TYPE_CD, if provided, will be used to lookup the Transfer Rate from the existing instrument record
- If neither of the above cases are provided, then the Transfer Rate will be calculated using the indicated TP Method and Interest Rate Curve

The getEconomicCost web service works with data from the following tables. The specific table where the instrument record lookup will execute is identified in the request.xml based on INSTRUMENT_TYPE_CODE.

- FSI_D_TERM_DEPOSITS (230)
- FSI_D_MORTGAGES (130)
- FSI_D_LOAN_CONTRACTS (180)
- FSI_D_CREDIT_LINES (160)

This list of tables can be extended by including additional tables in the "ofsaaws.properties" file. The following table provides an example of the required inputs in XML format. The xml file should be located in the same directory as the *.jar file. If located in another directory, then the full path must be given in the command line, e.g. folder path and xml file name. The highlighted information below represents sample values, similar to those that must be provided for this web service to execute.

The following table provides an example of the required inputs in XML format. The xml file should be located in the same directory as the *.jar file. If located in another directory, then the full path must be given in the command line, e.g. folder path and xml file name. The highlighted information below represents sample values, similar to those that must be provided for this web service to execute.

Function Name	XML Format
getEconomicCost	<?xml version="1.0" encoding="UTF-8"?> <ECONOMIC_COST TYPE="REQUEST"> <CURRENT> <ACCOUNT_NUMBER DATATYPE="VARCHAR2(30)"> 100029316 </ACCOUNT_NUMBER> <AS_OF_DATE DATATYPE="DATE"FORMAT="YYYYMMDD"> 20131231

```
</AS_OF_DATE>

<CURRENT_NET_RATE DATATYPE="NUMBER(10,6)">

10

</CURRENT_NET_RATE>

<ORIGINAL_TERM_TO_MATURITY
DATATYPE="NUMBER(5)">

12

</ORIGINAL_TERM_TO_MATURITY>

<ORIGINAL_TERM_MULTIPLIER
DATATYPE="CHAR(1)">

M

</ORIGINAL_TERM_MULTIPLIER>

<PAYMENT_FREQUENCY DATATYPE="NUMBER(5)">

1

</PAYMENT_FREQUENCY>

<PAYMENT_FREQUENCY_MULTIPLIER
DATATYPE="CHAR(1)">

M

<PAYMENT_FREQUENCY_MULTIPLIER>

<ADJUSTABLE_TYPE_CODE
DATATYPE="NUMBER(5)">

0

</ADJUSTABLE_TYPE_CODE>

<CURRENT_GROSS_BOOK_BALANCE
DATATYPE="NUMBER(14,2)">

25000

</CURRENT_GROSS_BOOK_BALANCE>

<ACCRUAL_BASIS_CODE DATATYPE="NUMBER(5)">

1

</ACCRUAL_BASIS_CODE>

<AMORTIZATION_TERM DATATYPE="NUMBER(5)">

12
```

</AMORTIZATION_TERM>

<AMORTIZATION_TERM_MULTIPLIER
DATATYPE="CHAR(1)">

M

</AMORTIZATION_TERM_MULTIPLIER>

<AMORTIZATION_TYPE_CODE
DATATYPE="NUMBER(5)">

700

/AMORTIZATION_TYPE_CODE>

<CURRENT_GROSS_PAR_BALANCE
DATATYPE="NUMBER(14,2)">

25000

</CURRENT_GROSS_PAR_BALANCE>

<CURRENT_PAYMENT_AMOUNT
DATATYPE="NUMBER(14,2)">

0

</CURRENT_PAYMENT_AMOUNT>

<INTEREST_RATE_CODE DATATYPE="NUMBER(5)">

801

</INTEREST_RATE_CODE>

<LAST_REPRICING_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20131231

</LAST_REPRICING_DATE>

<MATURITY_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20141231

</MATURITY_DATE>

<NEXT_PAYMENT_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20140131

</NEXT_PAYMENT_DATE>

<NEXT_REPRICING_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20140131

</NEXT_REPRICING_DATE>

<ORIGINAL_GROSS_PAR_BALANCE
DATATYPE="NUMBER(14,2)">

100000

</ORIGINAL_GROSS_PAR_BALANCE

<ORIGINATION_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20131231

</ORIGINATION_DATE>

<ISSUE_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20131231

</ISSUE_DATE>

<REMAINING_NO_OF_PAYMENTS
DATATYPE="NUMBER(5)">

12

</REMAINING_NO_OF_PAYMENTS>

<LAST_PAYMENT_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20131231

</LAST_PAYMENT_DATE>

<INTEREST_TYPE_CODE DATATYPE="NUMBER(5)">

1

</INTEREST_TYPE_CODE>

<COMPOUNDING_BASIS_CODE
DATATYPE="NUMBER(5)">

120

</COMPOUNDING_BASIS_CODE>

<REPRICING_FREQUENCY DATATYPE="NUMBER(5)">

0

</REPRICING_FREQUENCY>

<REPRICING_FREQUENCY_MULTIPLIER
DATATYPE="CHAR(1)">

M

</REPRICING_FREQUENCY_MULTIPLIER>

<TP_RATE DATATYPE="NUMBER(10,6)"/>

<INSTRUMENT_TYPE_CODE
DATATYPE="NUMBER(2)">

160

</INSTRUMENT_TYPE_CODE>

<TP_METHOD_CODE DATATYPE="NUMBER(2)">

10

</TP_METHOD_CODE>

</CURRENT>

<PRIOR>

<ACCOUNT_NUMBER DATATYPE="VARCHAR2(30)">

100029316

</ACCOUNT_NUMBER>

<AS_OF_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20131231

</AS_OF_DATE>

<CURRENT_NET_RATE DATATYPE="NUMBER(10,6)">

10

</CURRENT_NET_RATE>

<ORIGINAL_TERM_TO_MATURITY
DATATYPE="NUMBER(5)">

12

</ORIGINAL_TERM_TO_MATURITY>

<ORIGINAL_TERM_MULTIPLIER DATATYPE="CHAR(1)"

M

</ORIGINAL_TERM_MULTIPLIER.

<PAYMENT_FREQUENCY DATATYPE="NUMBER(5)">

1

</PAYMENT_FREQUENCY>

<PAYMENT_FREQUENCY_MULTIPLIER
DATATYPE="CHAR(1)">

M

</PAYMENT_FREQUENCY_MULTIPLIER>

<ADJUSTABLE_TYPE_CODE
DATATYPE="NUMBER(5)">

0

</ADJUSTABLE_TYPE_CODE>

<CURRENT_GROSS_BOOK_BALANCE
DATATYPE="NUMBER(14,2)">

50000

</CURRENT_GROSS_BOOK_BALANCE>

<ACCRUAL_BASIS_CODE DATATYPE="NUMBER(5)">

1

</ACCRUAL_BASIS_CODE>

<AMORTIZATION_TERM DATATYPE="NUMBER(5)">

12

</AMORTIZATION_TERM.

<AMORTIZATION_TERM_MULTIPLIER
DATATYPE="CHAR(1)">

M

</AMORTIZATION_TERM_MULTIPLIER>

<AMORTIZATION_TYPE_CODE
DATATYPE="NUMBER(5)">

700

</AMORTIZATION_TYPE_CODE>

<CURRENT_GROSS_PAR_BALANCE
DATATYPE="NUMBER(14,2)">

50000

</CURRENT_GROSS_PAR_BALANCE>

<CURRENT_PAYMENT_AMOUNT
DATATYPE="NUMBER(14,2)">

0

</CURRENT_PAYMENT_AMOUNT>

<INTEREST_RATE_CODE DATATYPE="NUMBER(5)">

801

</INTEREST_RATE_CODE>

<LAST_REPRICING_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20131231

</LAST_REPRICING_DATE>

<MATURITY_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20141231

</MATURITY_DATE

<NEXT_PAYMENT_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20140131

</NEXT_PAYMENT_DATE>

<NEXT_REPRICING_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20140131

</NEXT_REPRICING_DATE>

<ORIGINAL_GROSS_PAR_BALANCE
DATATYPE="NUMBER(14,2)">

0

</ORIGINAL_GROSS_PAR_BALANCE>

<ORIGINATION_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20131231

</ORIGINATION_DATE>

<ISSUE_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20131231

```
</ISSUE_DATE>

<REMAINING_NO_OF_PAYMENTS
DATATYPE="NUMBER(5)">

12

</REMAINING_NO_OF_PAYMENTS>

<LAST_PAYMENT_DATE DATATYPE="DATE"
FORMAT="YYYYMMDD">

20131231

</LAST_PAYMENT_DATE>

<INTEREST_TYPE_CODE DATATYPE="NUMBER(5)">

1

</INTEREST_TYPE_CODE>

<COMPOUNDING_BASIS_CODE
DATATYPE="NUMBER(5)">

120

</COMPOUNDING_BASIS_CODE>

<REPRICING_FREQUENCY
D+B32ATATYPE="NUMBER(5)">

1

</REPRICING_FREQUENCY>

<REPRICING_FREQUENCY_MULTIPLIER
DATATYPE="CHAR(1)">

M

</REPRICING_FREQUENCY_MULTIPLIER>

<TP_RATE DATATYPE="NUMBER(10,6)"/>

<INSTRUMENT_TYPE_CODE
DATATYPE="NUMBER(2)">

160

</INSTRUMENT_TYPE_CODE>

<TP_METHOD_CODE DATATYPE="NUMBER(2)">

10

</TP_METHOD_CODE>

</PRIOR>
```

```
<INTERPOLATION_METHOD
DATATYPE="NUMBER(5)">

1

</INTERPOLATION_METHOD>

<ASSET_LIABILITY>

1

</ASSET_LIABILITY>

<SERVICE_TYPE DATATYPE="CHAR(1)">

A

</SERVICE_TYPE>

</ECONOMIC_COST>
```

Return values

- ACCOUNT_NUMBER
- ECONOMIC_COST
- Reference ID
- Status

Related Topics

See OFSAA Funds Transfer Pricing Installation Guide for more information on installing and configuring FTP Web Services

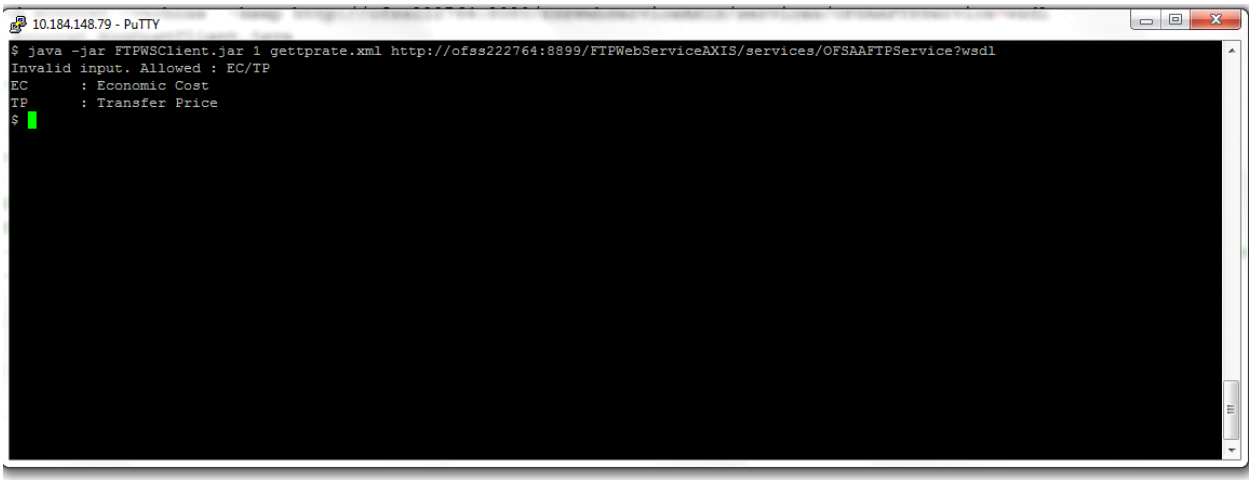
See OFSAA Cash Flow Engine Reference Guide, chapter.5 for detailed information on the meaning and possible values of each instrument record data attribute mentioned above

Debugging

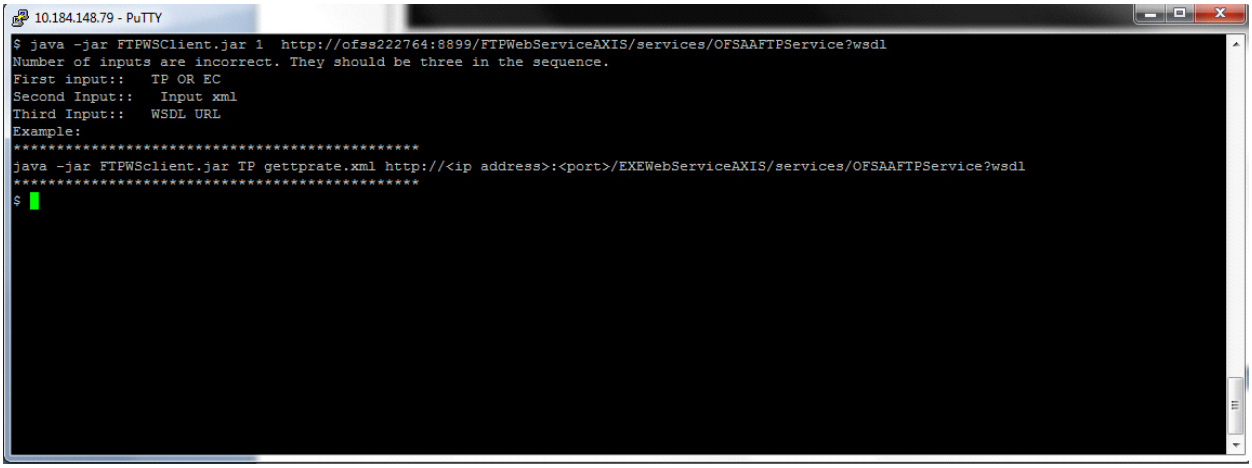
Logs related to FTP webservices will be found in

<ExeWebservice_deployed_Location>/logs/webservices.logs

Also, if user inputs parameters other than EC/TP, following notice is displayed:



If the user doesn't input any of EC/TP, input.xml or WSDL, then following notice is displayed:



CHAPTER G Glossary

A

absolute payment pattern

A type of payment pattern commonly used for instruments that are on a seasonal schedule, such as agricultural or construction loans, and require special payment handling based on months or seasons.

See also: payment pattern

absolute repricing pattern

A type of repricing pattern commonly used for instruments with date dependent repricing characteristics.

See also: repricing pattern

Account table

Stores a detailed set of transaction-level data attributes pertaining to instruments. For example, origination date, outstanding balance, contracted rate, and maturity date.An account table is also known as an instrument table.

assignment date

Indicates the relevant date for which the associated yield curve has to be referenced. This parameter is used for defining the Spread from Interest Rate Code and Redemption Curve transfer pricing methods. You can choose origination date, last repricing date, or the last day of the associated calendar period as the assignment date.

assumptions

A set of values or methodologies that apply to dimension values.

attributed dimension

A dimension whose members can have other properties or qualifiers known as *dimension attributes*.

C

calculation mode

Any of the two ways, *standard* or *remaining term*, of calculating transfer rates and options costs supported by Oracle Funds Transfer Pricing.

Cash Flow Edits

A process that allows you to verify and correct your Instrument table data.

cash flow edit logic

A set of checks that are performed in a specified order on the Instrument table data during a Cash Flow Edits Process run.

cash flow transfer pricing methods

Methods that generate transfer rates based on the cash flow characteristics of the instruments. These methods are typically used for instruments that amortize over time.

charge/credit accrual basis

The basis on which charge/credit accrues for a business unit and the offsetting treasury unit, similar to the accrual basis used in calculation of interest.

D

Data set

A dimension used for segregating data into different sets according to its use or its source, for example, to separate actuals data, budget data, and encumbrances data. Other uses include separating test data from production data and creating separate data sets for *what-if* analysis.

dimension

A structure that can be used to categorize business data. A dimension contains members. A dimension can be hierarchical in that you can organize the members into one or more hierarchies, or nonhierarchical.

dimension attribute

A property or qualifier that further describes a dimension member. An attribute can be anything such as a date, a number, or a character string. For example, the Geography dimension can have an attribute Population that designates how many people live in that area. Each member of the Geography dimension therefore has an associated population.

dimension based rule

A business rule whose definition varies depending on the dimensional values of the data to which it is applied.

dimension identifier

A numeric string that uniquely identifies each member of a dimension. Dimension identifiers are non- translatable, as they are the same regardless of the language context. Each dimension has its own unique set of columns in the Analytical Applications Infrastructure staging tables that serve as the dimension identifier for that dimension.

dimension member

The values used to populate dimension columns in account, transaction, or statistical tables. Such values represent the individual organization units, distribution channels, products, and so on of which each dimension is comprised. In a hierarchy, both *lowest level* and *node level* values are considered to be dimension members.

driver

A variable that influences the prepayment behavior of an instrument. You can build a custom prepayment model using up to three prepayment drivers. Each driver maps to an attribute of the underlying transaction (age or term, or rate) so the cash flow engine can apply a different prepayment rate based on the specific characteristics of the record.

E

entered currency

The currency in which business transactions take place. Entered currency might be different from functional Currency.

See also: functional currency

F

fact table

A table that contains data uniquely differentiated by dimension columns.

Filter

A business object that filters the source data that is used as input to a process.

functional currency

The currency in which an organization keeps its books of accounts. Functional currency is associated with a particular ledger.

H

hierarchy

A structure of dimension members organized by parent-child relationships.

historical term

The period preceding the assignment date over which the average of daily interest rates from a yield curve is taken. This parameter is used in Moving Averages transfer pricing method.

I

instrument table

See: Account table

Interest Rate Codes

Allows you to define and manage historical interest rates and term structure parameters for various interest rate curves.

interpolation method

A prepayment rates lookup method. The interpolation method is used when the value of prepayment driver does not fall on the nodes defined for it. This method assumes that prepayment speeds change on a straight-line basis between the two nodes and calculates accordingly.

See also: lookup method

L

lag term

Indicates that interest rate should be referenced from a yield curve for a date earlier than the assignment date. Lag term is applicable to the Spread from Interest Rate Code transfer pricing method.

leaf

A node, in a hierarchy, that has no children. All dimension members are nodes, but not all nodes are lowest level dimension numbers. This is the dimension member that is mapped to the instrument data.

ledger migration

The process for generating charges or credits, for funds provided or used, for migration to the Management Ledger table based on the transfer rates, adjustments or option costs, obtained from transfer pricing and option cost calculations or propagation processing.

LEDGER_STAT

See: Management Ledger table

level

A property of hierarchical dimensions that designates a category of like members.For example, in the Geography dimension there might be a level named City and a level named State. Geography members such as Tulsa and Dallas belong in the City level, while Geography members such as Texas and Oklahoma belongs in the State level. The designation of level is the same across all hierarchies within a dimension. In other words, Texas is always a state in all Geography hierarchies.

lookup method

Method used to calculate prepayment rates for prepayment driver values that do not fall on the nodes defined for that particular prepayment driver.

low discrepancy sequences

Sequences, also known as quasirandom sequences, designed to fill the space uniformly. These achieve better accuracy with fewer scenarios than pseudorandom sequences when applied to numerical problems, integration in high dimension, and so on.

M

Management Ledger table

Also known as LEDGER_STAT, the most central fact table in the OFS Analytical Applications Infrastructure. It contains ledger and some statistical data and highly aggregated information, such as cash and other assets, and equity. This table supports Oracle Financial Services analytical applications.

mid-period repricing option

Allows you to take into account the impact of high market rate volatility while generating transfer prices for your products. However, the mid-period repricing option applies only to adjustable rate instruments and is available only for certain noncash flow transfer pricing methods.

N

node

A dimension value located anywhere in a hierarchy.

node level assumption

An assumption assigned to a dimension value at a level higher than a leaf level. A node level assumption is typically associated with a business rule that uses a hierarchical dimension.

See also: Product dimension

noncash flow transfer pricing methods

Transfer pricing methods that do not require the calculation of cash flows. While some of the noncash flow methods are available only with the Account tables data source, some are available with both the Account and Ledger table data sources.

O

option cost

The cost of optionality in terms of a spread over the transfer rate. Consider a mortgage that can be prepaid by the borrower at any time without penalty. Here the lender has granted the borrower an option to buy back the mortgage on par, even if interest rates have fallen in value. Thus, this option has a cost to the lender.

P

payment event

A set of payment characteristics, which define the time line and amount of a specific payment in a payment pattern.

payment pattern

A user-defined custom amortization pattern. Payment patterns allows the cash flow engine to correctly generate cash flows for instrument records that amortize in a nonstandard way. Payment Patterns are linked to instrument records through user-defined amortization type codes.

preparation

The phase in which the transfer pricing engine gathers information and prepares data structures for the run. This phase is only executed once per engine run.

prepayment methodologies

A set of methods used to model the prepayment behavior of amortizing instruments and quantify the associated prepayment risk.

prepayment risk

The possibility that borrowers might choose to repay part or all of their loan obligations before the scheduled due dates. Prepayments can be made by either accelerating principal payments, also known as curtailment, or refinancing.

Prepayment rule

A business rule used to manage the association of prepayment methodologies and rates to various product-currency combinations.

process data

Data required to produce results.

processing table

Instrument table available for, or included in, a Transfer Pricing Process rule run.

Product dimension

A Product dimension on which Oracle Funds Transfer Pricing product level assumptions are based. The Product dimension should be populated with your product chart of account at a level of detail appropriate for assigning transfer pricing assumptions to your data.

propagation pattern

Allows you to specify parameters, such as source tables, used in propagation of transfer rates and option costs, for any applicable instrument table from a prior period.

propagation process

The process for copying historical results, either transfer rates or option costs, or both, that were generated by the application in a previous run for a prior period, to the current period records.

R

rate conversion

A process, involving the use of conversion formula, for transforming interest rates from their starting format into a format proper for their use in any given process.

random number generation method

Method to determine how the Monte Carlo process selects random numbers. The random number generation method has two variations, low discrepancy and pseudorandom sequences.

range method

A prepayment rates lookup method. Under this method, the prepayment rates are determined by calculating a range of values on an axis. This method assumes that the prepayment speed remains the same for the entire range.

rate lookup

The procedure for deriving a transfer rate for the appropriate date-term combination from a particular yield curve.

rate spread

The fixed positive or negative spread from an Interest Rate Code or Note Rate, used to generate transfer rates in the Spread from Interest Rate and Spread from Note Rate methods.

reference currency

Currency in which the instrument data is expressed and designated by the currency code on the record. Within the application, the reference currency must be selected to indicate assumptions that will be applied to corresponding currency designations contained in the account data.Reference currency is also the currency with which an Interest Rate Code is associated. When you create an Interest Rate Code, you select the reference currency.

relative payment pattern

A type of payment pattern commonly used for modeling instruments with irregular payment frequencies or for instruments where the payment type changes over time.

See also: payment pattern

relative repricing pattern

A type of repricing pattern comprising a series of repricing events driven by user defined time lines. A relative repricing pattern is used for instruments where the repricing is determined by elapsed time since origination.

See also: repricing pattern

remaining term calculation mode

Allows you to calculate transfer rates and option costs for instrument records based on the remaining term of the instrument from the calendar period end date of the data, rather than the origination date or last repricing date of the instruments. This mode is one of the two calculation modes supported by Oracle Funds Transfer Pricing.

repricing pattern

A user-defined custom repricing pattern. Repricing patterns allow the cash flow engine to correctly generate interest for instrument records that reprice in a nonstandard way. Repricing patterns are linked to instrument records through user-defined adjustable type codes.

rule

A grouping of assumptions, also known as a business rule.

Rule of 78

An approach used by banks to formulate a loan amortization schedule. Also known as The Rule of the Sum of the Digits, this method of computing unearned interest is used on installment loans with add-on interest. The number

78 is based on the sum of the digits from 1 to 12. This approach causes a borrower to pay more interest at the beginning of the loan when there is more money owed and less interest as the obligation is reduced.

S

simple dimension

A dimension that does not have hierarchies or attributes. A simple dimension is just a list of members.

smoothing method

Method used to interpolate rates on the valuation curve for terms that fall between given points. Also know as Interpolation Method.

split payment pattern

A split pattern contains multiple sets of payment patterns under a single amortization code.

See also: payment pattern

spread

The difference between the customer rate and the transfer rate or market rate (determined by a reference IRC).

standard calculation mode

Allows you to calculate transfer rates for instrument records based on the origination or last repricing date of the instruments. You can also use it to calculate option costs based on the origination date. This mode is one of the two calculation modes supported by Oracle Funds Transfer Pricing.

Stochastic Rate Index rule

A business rule used to establish a relationship between an Interest Rate Code, typically a risk-free yield curve, and other Interest Rate Codes. Stochastic Rate Index rules are used to generate forward rates for option cost calculations using stochastic interest rate models.

T

Term Structure Model

Model for governing the generation of forward stochastic rates, discount factors for each scenario, and discrete rates for any maturity used in calculating the option-adjusted spread.

transfer pricing methodologies

A set of methods used to generate transfer rates for different types of instruments, including amortizing and nonamortizing instruments.

Transfer Pricing rule

A business rule used to manage the association of transfer pricing methodologies and certain parameters used in option costing to various product-currency combinations.

Transfer Pricing Process

A business rule used to formulate and execute transfer pricing or option cost processing requests.

U

user-defined dimension

A dimension that enables additional customization, beyond the standard dimensions provided by OFS Analytical Applications Infrastructure. AAI supports user-defined dimensions containing hierarchies and attributes, as well as user-defined simple dimensions.

user-defined payment pattern

See: payment pattern

user-defined repricing pattern

See: repricing pattern

Y

yield curve term

The point on the yield curve that the system references to calculate transfer rates.