Oracle Financial Services

Asset Liability Management Cloud User Guide

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Contents

1 About This Content

2 Revision History

3 Getting Started

3.1 Getting Started with Oracle Cloud 1
3.1.1 Welcome to Oracle Cloud 1
3.1.1.1 About Oracle Cloud 1
3.1.1.2 Supported Web Browsers 2
3.1.1.3 Order Oracle Cloud Applications 2
3.1.2 Getting Started with your Cloud Service 2
3.1.2.1 Create and Activate New Cloud Account 3
3.1.2.2 Add to an Existing Oracle Cloud Account 4
3.1.2.3 Accessing the Cloud Account 4
3.1.2.4 Subscribing to a Disaster Recovery Infrastructure Region 4
3.1.2.5 Create an Environment 5
3.1.2.6 Access Oracle Identity and Access Management 6
3.1.2.7 Activate Application User Account 7
3.1.3 Managing Application Users 7
3.1.3.1 User Summary- Application Users 7
3.1.3.2 Creating New Application Users 8
3.1.3.3 Creating a New User Group 9
3.1.3.4 Assign Groups to Users 9
3.1.3.5 Bulk Import Application Users 10
3.1.4 Managing User Groups 10
3.1.4.1 Map Application with the User Groups 10
3.1.4.2 Map Application with the Groups 11
3.1.4.3 Map Users to Groups 11
3.1.4.4 Unmap User from Groups 12
3.1.4.5 Creating a New User Group 12
3.1.5 User Management 13
3.1.5.1 Application Users 13

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3.1.5.2 User Roles and Privileges 13
3.1.6 Configuring Session Timeout 19
3.1.6.1 How to configure Session Lifetime Timeout? 20
3.1.7 Authenticating for Token Generation 21
3.1.7.1 Download the Application Certificate 21
3.1.7.2 Get the OAuth Client ID and Client Secret 21
3.1.7.3 Generate the Access Token 22
3.1.7.4 Generate the Refresh Token 23
3.1.7.5 Invoke the API using the Access Token 24
3.2 Introduction to Oracle Asset Liability Management Cloud Service 24
3.2.1 Key Features 24
3.2.2 User Groups 25
3.2.3 Guidelines for Working with ALM 25
3.2.4 Launching Asset Liability Management 26
3.2.4.1 Asset Liability Management Home Page 27
3.2.4.2 Common Icons 33
3.2.4.3 Common Feature Controls 37
3.2.5 Quick Tour 38
3.3 Introduction to Admin Console 40
3.3.1 Accessing Admin Console 41
3.4 System Configuration 42
3.4.1 Metering 42
3.4.2 Component Details 43
3.4.3 Audit Trail Report 44
3.4.4 Configurations 45
3.4.5 Reports For Download 46
3.4.5.1 Prerequisites 46
3.4.5.2 Access Reports for Download 46
3.4.5.3 Data Reporting - Data View 46
3.4.5.4 View the Report Details 47
3.4.5.5 Apply a Custom Filter to the Data View 47
3.5 Identity Management 48
3.5.1 Users Summary Page 48
3.5.1.1 User Details 49
3.5.1.2 Mapped/Unmapped Groups 49
3.5.1.3 Available Groups 50
3.5.2 Groups Summary Page 50
3.5.2.1 Group Details 50
3.5.2.2 Mapped/Unmapped Roles 51
3.5.2.3 Available Roles 51
3.5.2.4 Create custom groups 51
3.5.3 Roles Summary Page 52

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3.5.3.1 Roles Details 52
3.5.3.2 Mapped/Unmapped Functions 53
3.5.3.3 Available Functions 53
3.5.4 Functions Summary Page 53
3.5.4.1 Function Details 54
3.5.5 Folders Summary Page 54
3.5.5.1 Folder Details 54
3.5.5.2 Editing Folder Details 54

4 Data Management Tools

4.1 Data Model Extension 1
4.1.1 Registering Dimensions 2
4.1.1.1 Register a Simple Dimension 3
4.1.1.2 Register a Key Processing Dimension 5
4.1.2 Registering Columns 7
4.1.3 Registering a Management Ledger 9
4.1.3.1 Adding a Management Ledger 10
4.1.4 Approving or Rejecting the Registrations 11
4.2 Data File Administration 12
4.2.1 Data File Specification 13
4.2.1.1 Searching for a Data File Specification 14
4.2.1.2 Creating a Data File Specification 15
4.2.1.3 Creating the Data File 18
4.2.1.4 Data Loaders 19
4.2.2 File Upload and Download Utility 39
4.2.2.1 Upload or Download File from Object Store Using Console 40
4.2.2.2 Uploading/Downloading a File Using Utility 40
4.2.2.3 Uploading/Downloading a File Using PAR URL 41
4.2.3 File Upload Automation 42
4.2.3.1 Step 1: Generate Access Token 42
4.2.3.2 Step 2: Generate PAR URL 43
4.2.3.3 Step 3: Upload file to Object Store 43
4.2.3.4 Step 4: Scan the file to ensure Upload was Successful 44
4.2.3.5 Automating the File Upload Process Using File Upload Utility 44
4.2.4 Generating PAR URL for File Operations 46
4.2.4.1 Generating PAR URL for File Upload 46
4.2.4.2 Generating PAR URL For File Download 49
4.2.5 Deleting A File 50
4.2.5.1 End Point Details 51
4.2.5.2 Deleting a File Using the File ID 51
4.2.5.3 Deleting a File Using Filename 52

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4.2.5.4 Deleting Multiple Files Using Filenames 52
4.2.5.5 Delete files using a prefix value 53
4.2.6 Data File History 54
4.3 Data Maintenance Interface 57
4.3.1 Access the Data Maintenance Interface 59
4.3.2 Form Builder 60
4.3.2.1 Creating New Forms in Form Builder 61
4.3.2.2 Approving and Rejecting New Form Definitions 68
4.3.2.3 Managing Form Definitions 69
4.3.2.4 Viewing Form Definitions 70
4.3.2.5 Editing/Amending Form Definitions 70
4.3.2.6 Copying Form Definitions 70
4.3.2.7 Re-Uploading Form Definitions 71
4.3.2.8 Deleting Form Definitions 71
4.3.3 Data Entry 71
4.3.3.1 Viewing Data Entry 71
4.3.3.2 Adding Data to Table – Forms Created Using Data Entry 72
4.3.3.3 Forms Created Using Excel Upload 74
4.3.3.4 Approving and Rejecting Records 75
4.3.3.5 Exporting Data Exporter Form Definitions 76
4.3.4 Adding DMI Tasks in Scheduler Service 77
4.4 Data Quality Framework 79
4.4.1 Introduction to Data Quality Framework 79
4.4.2 Roles and Functions for Managing DQ Framework 79
4.4.3 Data Quality Rules 80
4.4.3.1 Data Check Definitions 80
4.4.3.2 Creating Expressions 84
4.4.3.3 DQ Rules Summary 85
4.4.3.4 Creating DQ Rule 86
4.4.3.5 Editing DQ Rules 87
4.4.3.6 Approving/Rejecting a Data Quality Rule 88
4.4.3.7 Deleting a Data Quality Rule 89
4.4.3.8 Purging a Data Quality Rule 89
4.4.4 Data Quality Groups 90
4.4.4.1 DQ Groups Summary 90
4.4.4.2 Creating DQ Groups 91
4.4.4.3 Editing DQ Groups 92
4.4.4.4 Approving/Rejecting a Data Quality Group 92
4.4.4.5 Executing DQ Groups 93
4.4.4.6 Deleting a Data Quality Group 94
4.4.4.7 Purging a Data Quality Group 94
4.4.5 Adding a DQ Check Task 94

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4.4.6 Execution Summary 95
4.4.6.1 Viewing Run Details 96
4.5 Data Verification 96
4.6 Data Housekeeping 101
4.6.1 Create Data Housekeeping Policy 103
4.6.1.1 Create Drop Partition Policy 103
4.6.1.2 Create Archive Policy 107
4.6.1.3 Create Delete Policy 110
4.6.1.4 Create Nullify Policy 113
4.6.2 Authorize a Policy 118
4.6.3 Withdraw a Policy 119
4.7 Balance Reconciliation 120
4.7.1 Reconciliation Definition 121
4.7.1.1 Adding a New Reconciliation Definition 122
4.7.1.2 Reconciliation Balance 124
4.7.1.3 Actions Performed on Reconciliation Definition 124
4.7.2 Duplicate Runs for Same As-of-Date 127
4.7.3 Historical Difference Report 128
4.7.4 Default Attributes 130
4.7.4.1 Creating a New Product-Currency Combination and Default Attributes 131
4.7.5 Reconciliation using Batch Process 133
4.8 Data Redaction 135
4.8.1 Redaction Functions 136
4.8.2 Redaction Policies 136
4.8.2.1 View redaction policies 137
4.8.2.2 Create redaction policies 137
4.8.2.3 Modify a redaction policy 138
4.8.2.4 Drop a redaction policy 138
4.8.2.5 Refresh a redaction policy 138
4.8.3 Redaction Approval 138
4.9 Data Stratification 139
4.9.1 Data Stratification Tier 143
4.9.1.1 Create Data Stratification Tier 144
4.9.2 Data Stratification Rules 146
4.9.2.1 Create Data Stratification Rule 147
4.9.2.2 Executing a Stratification Rule 151
4.10 Cash Flow Edits 152
4.10.1 Configure Cash Flow Edits Rule 152
4.10.1.1 Create Cash Flow Edits Rule 154
4.10.1.2 Cash Flow Edits Process Errors 156
4.10.2 Cash Flow Edits Process 191
4.10.2.1 Create Cash Flow Edits Process 193

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4.10.2.2 Executing Cash Flow Edits Process 196
4.10.2.3 Viewing Execution Details of Cash Flow Edits Process 197
4.11 ALM Table Cleanup 198
4.12 ALM Output Export 200

5 Administrative Tools

5.1 Custom PLSQL Extension 1
5.1.1 PLSQL Starter Kit 1
5.1.2 Steps to introduce Custom PLSQLs 1
5.1.2.1 Generate, Download and Install the Starter Kit 2
5.1.2.2 Develop Custom PLSQL Extensions 2
5.1.2.3 Extract and Submit the Custom PLSQLs for Oracle Due Diligence 3
5.1.2.4 Request for Archive Deployment of the Custom PLSQLs on the preferred PBSM SaaS Instance 3
5.1.2.5 Access User Extension through Scheduler 3
5.1.3 PLSQL Starter Kit User Interface 5
5.1.4 PLSQL Starter Kit Installation 6
5.1.4.1 Verify the System Requirements 6
5.1.4.2 Configure and Create a Database Schema 7
5.1.4.3 Configure Environment Variables 8
5.1.4.4 Install StarterKit 9
5.1.4.5 Create PLSQL Extensions 12
5.1.5 PLSQL Properties 12
5.1.6 Appendix 13
5.1.6.1 Process for Submitting of Custom PLSQL Archives to Oracle 13
5.1.6.2 SaaS Deployment of the Custom PLSQL Extensions 15
5.1.6.3 Frequently Asked Questions 16
5.1.6.4 Custom PLSQL Master Tables List 19
5.1.6.5 Redaction DDLs [Data Definition Language] 19
5.2 Data Foundation Integration 19
5.2.1 User Group for Managing Data Foundation Integration 20
5.2.2 Data Services Subscription 20
5.2.3 ADS Run History 23
5.2.4 Create and Execute Batch 25
5.2.5 List of Seeded Data File Specifications 27

6 Business Rules Administration

6.1 Reference Data 1
6.1.1 Currencies Setup 2
6.1.1.1 Currency Setup 2

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6.1.1.2 Currency Rates 5
6.1.2 Dimension Management 11
6.1.2.1 Object Security 11
6.1.2.2 Components of Dimension Management 11
6.1.2.3 Attributes 12
6.1.2.4 Members 16
6.1.2.5 Hierarchy 19
6.1.2.6 Viewing Data in a Summary Page 24
6.1.3 Interest Rates 25
6.1.3.1 Creating an Interest Rate Curve 27
6.1.3.2 IRC Data Migration 43
6.1.4 Economic Indicators 43
6.1.4.1 Add an Economic Indicator 45
6.1.5 Multi Dimensional Balance Sheet Structure 48
6.1.5.1 Create Multi Dimensional Balance Sheet Summary 52
6.1.5.2 Examples of Multi Dimensional Balance Sheet Structure 60
6.1.5.3 Autobalancing in MDBSS 63
6.1.6 Volatility Surface 66
6.1.6.1 Create Volatility Surface Rule 67
6.2 Common Rules 69
6.2.1 Preferences 69
6.2.1.1 Select Preferences For 70
6.2.1.2 Global Preference 70
6.2.1.3 User Preference 71
6.2.1.4 Application Preference 74
6.2.2 Patterns 81
6.2.2.1 Behavior Patterns 82
6.2.2.2 Repricing Patterns 92
6.2.2.3 Payment Patterns 98
6.2.3 Holiday Calendars 105
6.2.3.1 Create a Holiday Calendar 106
6.2.3.2 Holiday Exceptions 109
6.2.4 Management Ledger Configuration 110
6.2.5 Ledger Load History 111
6.2.5.1 Navigation in Ledger Load History 113
6.2.5.2 Ledger Load UNDO Functionality 116
6.2.6 Filters 116
6.2.6.1 Filter Definition Types 116
6.2.6.2 Filter Summary 117
6.2.6.3 Creating Filter Definitions 118
6.2.6.4 Managing Filter Definitions 123
6.3 Application Specific Rules 125

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6.3.1 Forecast Rates 125
6.3.1.1 Create Forecast Rate Rule 127
6.3.2 Behavioral Assumptions 150
6.3.2.1 Prepayment Rules 151
6.3.2.2 Prepayment Models 169
6.3.2.3 Behavior Pattern Rules 179
6.3.2.4 Time Buckets 188
6.3.2.5 Discount Methods 195
6.3.2.6 Currency Gain/Loss 206
6.3.2.7 Standardized IRRBB Shocks 213
6.3.3 Forecast Assumptions 215
6.3.3.1 Product Characteristics 216
6.3.3.2 Forecast Balance Rules 234
6.3.3.3 Pricing Margin 252
6.3.3.4 Forecast All Business 260
6.3.3.5 Maturity Mix 282
6.3.3.6 Rate Dependency Patterns 290
6.3.3.7 Transaction Strategy Rules 298
6.3.4 Transfer Pricing Rules 328
6.3.4.1 Overview of Transfer Pricing Methodologies and Rules 329
6.3.4.2 Working with Transfer Pricing Rules 358
6.3.4.3 Creating Transfer Pricing Rules 358
6.3.4.4 Navigating in the Summary Screen 360
6.3.4.5 Defining Transfer Pricing Methodologies 361
6.3.4.6 Defining the Redemption Curve Methodology 369
6.3.4.7 Copying Assumptions across Currencies 370
6.3.4.8 Copying Assumptions across Products 371
6.3.5 Add-on Rate Rules 372
6.3.5.1 Create Add-on Rate Rule 374
6.3.5.2 Defining Add-on Rate Methods 375
6.3.5.3 Defining Assumptions with the Default Currency 380
6.3.5.4 Define the Breakage Charge Economic Loss Method 388
6.3.5.5 Copying Assumptions across Currencies 395
6.3.5.6 Copying Assumptions across Products 396
6.3.6 Processes 396
6.3.6.1 Static Deterministic Process 397
6.3.6.2 Dynamic Deterministic Process 416
6.4 Modelling 438
6.4.1 Prepayment 438
6.4.1.1 Prepayment Data Creation Process 438
6.4.1.2 Prepayment Model Analysis 446
6.4.2 Non Maturity 459

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6.4.2.1 Non-Maturity Products Data Creation Process 459
6.4.2.2 Non Maturity Products Model Analysis 468

7 Operations

7.1 Scheduler Services 1
7.1.1 Accessing Scheduler Services 2
7.1.2 User Roles and Functions 2
7.1.3 Scheduler Service Dashboard 2
7.1.4 Define Batch 3
7.1.4.1 Creating a Batch/Batch Group 4
7.1.4.2 Editing a Batch/Batch Group 5
7.1.4.3 Copying a Batch/Batch Group 6
7.1.4.4 Deleting a Batch/Batch Group 6
7.1.4.5 Pinning/Unpinning a Batch/Batch Group 6
7.1.5 Define Tasks 7
7.1.5.1 Adding a Task 8
7.1.5.2 Modifying a Task 9
7.1.5.3 Define Task Precedence 9
7.1.5.4 Deleting a Task 10
7.1.6 Schedule Batch 10
7.1.6.1 Execute Batch/Batch Group 10
7.1.6.2 Adding Pre-Conditions For Batch Group Execution 11
7.1.6.3 Edit Dynamic Parameters 11
7.1.6.4 Scheduling and Automating Batch/Batch Group Execution 12
7.1.6.5 Re-run Batch/Batch Group 14
7.1.6.6 Re-start Batch/Batch Group 14
7.1.7 Monitor Batch/Batch Group 15
7.1.8 Scheduler Configuration 16
7.1.8.1 Batch to User Configuration 16
7.1.8.2 General Configuration 17
7.2 Object Migration 19
7.2.1 Migration Object Types 20
7.2.2 Accessing Object Export and Object Import Features 23
7.2.3 Export Object 23
7.2.3.1 Creating Export Definitions 24
7.2.3.2 Editing Export Object Definitions 24
7.2.3.3 Exporting Object Definition 25
7.2.3.4 Viewing Export Object Details 25
7.2.3.5 View Object Definition Export Log Details 25
7.2.3.6 Downloading Dump File 26
7.2.3.7 Deleting Export Object Definition 26

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7.2.4 Import Object 26
7.2.4.1 Creating Object Import Definitions 27
7.2.4.2 Editing Import Definitions 29
7.2.4.3 Importing Object Definitions 29
7.2.4.4 Viewing Import Object Details 30
7.2.4.5 Viewing Object Import Log Details 31
7.2.4.6 Deleting Import Definition 31
7.3 Changing Object Ownership 32

8 Analytics

8.1 Asset Liability Management Cloud Reports 1
8.1.1 Access Business Intelligence (BI) Reports 1
8.1.2 Creating Adhoc Reports and Analysis 2
8.1.2.1 Amend Out-of-the-Box Reports 2
8.1.2.2 Ad-hoc Analysis Folder 4
8.1.2.3 Working with Out-of-the-Box Subject Area 5
8.1.3 SQL Query Browser 6
8.1.4 Raw Data Analysis 11
8.1.4.1 Staging Instrument Data 14
8.1.4.2 Staging Instrument Supplementary Data 21
8.1.4.3 Staging Ledger Data 25
8.1.4.4 Staging Transaction Summary Data 32
8.1.4.5 Processing Instrument Data 36
8.1.4.6 Processing Instrument Supplementary Data 43
8.1.4.7 Processing Ledger Data 47
8.1.4.8 Processing Transaction Summary Data 53
8.1.5 Operational Analysis 57
8.1.5.1 Dimensions Registry 57
8.1.5.2 Currency Rates 67
8.1.5.3 Interest Rate Curves 70
8.1.5.4 Data Quality Checks 73
8.1.5.5 File Uploads 80
8.1.5.6 Groups and Roles 82
8.1.6 Input Data Analysis 86
8.1.6.1 Cash Flow Edits 86
8.1.7 Process Results 94
8.1.7.1 Financial Results 94
8.1.7.2 Financial Results MDBSS 111
8.1.7.3 Interest Rate Risk 120
8.1.7.4 Interest Rate Risk MDBSS 135
8.1.7.5 Liquidity Risk 140

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8.1.7.6 Liquidity Risk MDBSS 154
8.1.7.7 Market Value 160
8.1.7.8 Market Value MDBSS 166
8.1.7.9 Cash flow Detail 171
8.1.7.10 Balance Sheet 173
8.1.7.11 Income Statement 175
8.1.8 Rates and Markets 177
8.1.8.1 Forecast Interest Rates 177
8.1.8.2 Forecast Currency Rates 180
8.1.8.3 Forecast Economic Indicator 183
8.1.9 Process Error 185
8.1.9.1 Process Error Account Details 185
8.1.9.2 Process Error Summary 187
8.1.10 ALM Assumptions 188
8.1.10.1 Behavioral Assumptions 188
8.1.10.2 Patterns 190
8.1.10.3 Forecast Rates 192
8.1.10.4 Forecast Assumptions 193
8.1.10.5 Process Definitions 194
8.1.11 ALCO 195
8.1.12 Customization of Report 206

9 Technical Documents

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1

About This Content

This guide provides information on the Oracle Financial Services Asset Liability Management Cloud Service (OFS ALMCS).

Audience

This guide is intended for the users of Oracle Financial Services Asset Liability Management Cloud Service (OFS ALMCS).

Documentation Accessibility

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Related Resources

See these Oracle resources:

- What's New in Your Update
- Oracle Financial Services Profitability and Balance Sheet Management Cloud Service
- Oracle Financial Services Asset Liability Management Cloud Service
- Licensing Information User Manual
- Public APIs for Profitability and Balance Sheet Management Cloud Service
- Data Security Management Guide

Conventions

The following text conventions are used in this document.

Table 1-1 Conventions

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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2

Revision History

Table 2-1 Document Control

Release and Version Number	Revision Date	Change Log
R 25B	August 2025	See Learn What's New in Your Update

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3
Getting Started

This section includes the following topics:

- Get Started with Cloud Service: Oracle Cloud is the industry's broadest and most integrated cloud provider, with deployment options ranging from the public cloud to your data center. Oracle Cloud offers best-in-class services across Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS).
- Get Started with Asset Liability Management Cloud Service: Oracle Financial Services Asset Liability Management Cloud Service(OFS ALMCS), helps financial services institutions measure and monitor Interest Rate Risk, Liquidity Risk, and Foreign Currency Risk. This solution measures and models every loan, deposit, investment, and portfolio individually, using both deterministic and stochastic methods. OFS ALM is a nextgeneration solution fully integrated with Oracle's Financial Services Analytical Applications and shares a common account level relational data model.
- Introduction to Admin Console: Use the Admin Console to perform System Configuration and Identity Management. It is a single point of access to manage identity functions and view administrative features such as Metering, Audit Trail Report and other miscellaneous configuration details in the Profitability and Balance Sheet Management Cloud Service (PBSMCS).

3.1 Getting Started with Oracle Cloud

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

Topics:

- Managing Application Users
- Managing User Groups
- User Management
- Configuring Session Timeout

3.1.1 Welcome to Oracle Cloud

Oracle Cloud is the industry's broadest and most integrated cloud provider, with deployment options ranging from the public cloud to your data center.

Oracle Cloud offers best-in-class services across Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS).

3.1.1.1 About Oracle Cloud

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

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

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

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

3.1.1.2 Supported Web Browsers

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

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

3.1.1.3 Order Oracle Cloud Applications

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

To order a subscription to Oracle Cloud Applications:

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

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

3.1.2 Getting Started with your Cloud Service

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

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

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

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

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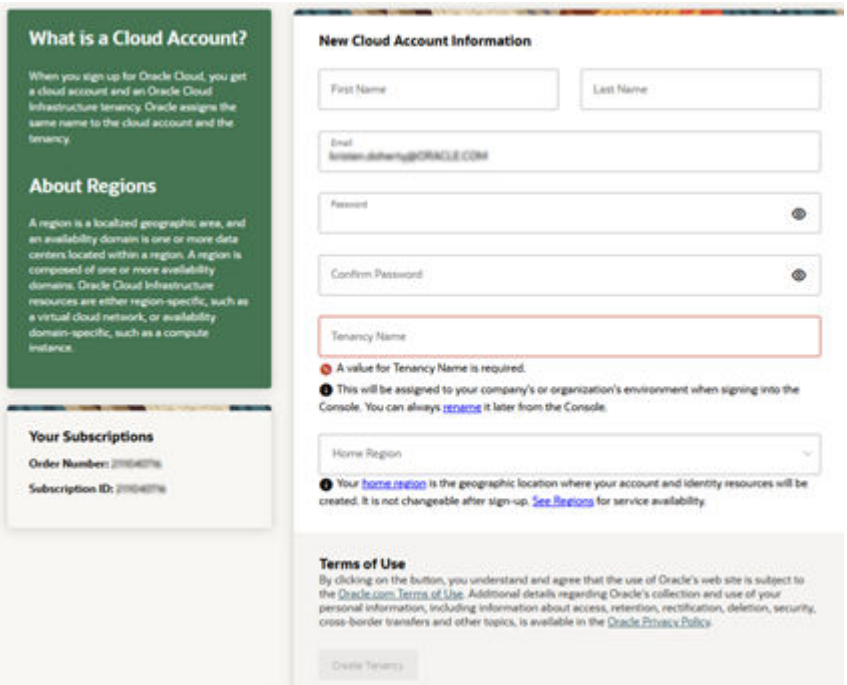
3.1.2.1 Create and Activate New Cloud Account

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

To create and activate a new cloud account:

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

Figure 3-1 New Cloud Account Information page



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

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

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

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

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

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

3.1.2.2 Add to an Existing Oracle Cloud Account

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

To add an existing Cloud account:

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

3.1.2.3 Accessing the Cloud Account

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

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

To access your Cloud account:

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

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

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

3.1.2.4 Subscribing to a Disaster Recovery Infrastructure Region

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

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

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

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3.1.2.5 Create an Environment

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

To create an environment/instance:

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

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

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

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

   > **Note**
   >
   > You can select the region only for the first environment/subscription and for the additionally added instances, the region cannot be modified.

7. Enter the following **Environment Details**, and click **Create**.
   - **Name**: The name of the new environment or instance.

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

   - **Instance type**: Select one of the following instances:
     - **Production**: If the environment is used for Production activities.
     - **Non-production**: If the environment is used for testing and development purposes. For example, a sandbox environment.

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- **Admin email**: The administrator email ID used to log in to the Cloud Console. You can also enter a different email ID that needs to be part of the cloud tenancy. For more details, see Managing Users.
- **Admin first name** and **Admin last name**: The first and last names of the Administrator.

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

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

3.1.2.6 Access Oracle Identity and Access Management

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

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

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

To access the **IAM** Console:

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

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

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

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

As an Administrator, you can create and manage users with different access rights to the Cloud Service.

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For example, the IAM Administrator has superuser privileges for an Oracle Identity and Access Management Domain. This administrator can create users, groups, group memberships, and so on.

3.1.2.7 Activate Application User Account

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

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

To log in and activate your application user account:

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

3.1.3 Managing Application Users

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

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

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

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

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

3.1.3.1 User Summary- Application Users

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

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

- To view the **User ID** and **Username** of the selected User - Select the **Username** in the **User Summary** page and select **Details**.
- To search for a specific User, type the first few letters of the required **Username** in the **Search** box and click **Search**.

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- Using the navigation buttons at the bottom of the summary page, you can browse to the different pages. Also, you can enter the number of entries to be listed on a single page in the **Records** box or use the buttons to increase or decrease the number of entries.
- Enter the page number in the **View Bar Control** and jump to the required page.

3.1.3.2 Creating New Application Users

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

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

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

To create users in the IAM Console:

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

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

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

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

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

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

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3.1.3.3 Creating a New User Group

Create groups to manage user access to applications and resources.

To create a user group :

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

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

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

3.1.3.4 Assign Groups to Users

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

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

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

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

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

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

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3.1.3.5 Bulk Import Application Users

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

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

To import user accounts :

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

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

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

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

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

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

3.1.4 Managing User Groups

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

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

3.1.4.1 Map Application with the User Groups

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

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

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

3.1.4.2 Map Application with the Groups

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

To map the application to a User Group, log in to IAM and follow these steps:

1. Search for **Domain**.
2. Select the **Default Domain** and then from the LHS menu, select **Oracle Cloud Services**.

   The screen displays the various Oracle Cloud Services.
3. Select the Cloud Services you are subscribed to like, **<Cloud_service_Name> xxxx-prd** and **<Cloud_Service_Name> xxxx-nprd**

   Where **Description** is mentioned as your registered Cloud Service.
4. From the LHS menu, select **Groups**.
5. Click **Assign Groups**, and then select the relevant **Group**.
6. Click **Assign**.

3.1.4.3 Map Users to Groups

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

To map a user to a user group:

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

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

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

   Or

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

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

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

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

5. Select a **User Group**.

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

6. Click **Map**.

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

3.1.4.4 Unmap User from Groups

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

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

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

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

3.1.4.5 Creating a New User Group

Create groups to manage user access to applications and resources.

To create a user group :

1. In the IAM Console, click **Profile** and select **Identity Domain**.
2. In the Identity Domain left pane, click **Groups** and select **Create group**.

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3. Enter the **Group Name** and the **Group Description**.
4. Select **User can request access**, to allow users to request access to this group.
5. Check the check box adjacent to each user to add that user to the group.
6. Click **Create** to create the new user group with the selected users.

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

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

3.1.5 User Management

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

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

3.1.5.1 Application Users

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

For more information, see Create Application Users.

3.1.5.2 User Roles and Privileges

Oracle Financial Services Asset Liability Management Service (ALMCS) Users are assigned roles through which they gain access to functions and data. Users can have any number of roles.

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

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Figure 3-2 User Roles and Privileges

3.1.5.2.1 Role Based Access Control

Role-based security in Oracle Financial Services **Asset Liability Management** Cloud Service Controls who can do what and to which data.

The following table provides examples of role-based access.

Table 3-1 Examples of Role Based Access

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

3.1.5.2.2 User Groups and Activities

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

User Groups	Activities
Identity Administrator	· View Reports · View Object Storage · View OAuth Credentials · Perform Identity and Access Management Operations
IAM Administrator	· Create Users · Map Users to the Instance
ALM Admin Group	· Configure the Folders · Configure Application, Global and User Preferences

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ALM Analyst Group	· Extend Data Model · Setup Dimension Management · Create/import members · Create/import hierarchy · Setup Interest rate curve · Setup Currency · Setup Economic Indicators · Setup Holiday Calendar · Setup Behavior Pattern · Setup Repricing Pattern · Setup Payment Pattern · Prepayment Rule · Prepayment Model · Forecast Rates · Discount Methods · Setup Filters · Asset Liability Management Process · Cash Flow Edits Process · Data File Specification · Data Loader · Create and Execute Batches · Generate Reports
ALM Auditor Group	· Review/Analyze Results · Review Process Logs · View reports
Scheduler Administrator Group	Manage Batches
PBSM Batch Operator Group	View Batches
ALM BI Administrator	• Review/Analyze Results • Review Process Logs • View Reports
ALM BI Analyst	• Review/Analyze Results • Review Process Logs • View Reports
ALM BI Auditor	• Review/Analyze Results • Review Process Logs • View Reports

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

3.1.5.2.3 User Roles and Activities

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

ALM Administrator

ALM Analyst

ALM Auditor

ALM BI Administrator

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ALM BI Analyst

ALM BI Auditor

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

The user roles ALM Administrator, ALM Analyst, and ALM Auditor are required to access the main application for view, edit and other purposes, based on the User Persona accessing the same. An Analyst User Persona can view all ALM screens and Edit-specific screens. Similarly, an Admin Persona can view and edit all ALM screens. These different Persona tasks are facilitated by the User Roles. Thus, these User Roles facilitates the accesses and activities for the corresponding User Groups. Thus, these three User Roles facilitates the accesses and activities for the corresponding User Groups that are mentioned in the following table.

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

3.1.5.2.4 User Persona and Analytics Menu Access Details

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

Table 3-2 User Persona and Analytics Menu Access Details

User Group Code	Mapped Role Code	User Access Type	Persona	Analytics Application Role
ALMBIADMINGRP	ALMBIADMIN	R/W	Data Steward	DV Content Author
ALMBIANALYSTGRP	ALMBIANALYST	R/W	Application Analyst	DV Content Author
ALMBIAUDITORGRP	ALMBIAUDITOR	R	Application Auditor	DV Consumer

Table 3-3 Analytics Menu Access Privileges

level 1 menu	level 2 menu	level 3 menu	level 4 menu	ALM Persona
Asset Liability Management Cloud Service	**Analytics >**	**Home Page**		**Data Steward, Application Analyst, Application Auditor**
		SQL Query Browser		**Data Steward, Application Analyst**
		Raw Data Analysis		**Data Steward, Application Analyst, Application Auditor**

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Table 3-3 (Cont.) Analytics Menu Access Privileges

Operational Analysis >	Dimensions Registry	Data Steward, Application Analyst, Application Auditor
	Currency Rates	Data Steward, Application Analyst, Application Auditor
	Interest Rates Curves	Data Steward, Application Analyst, Application Auditor
	Data Quality Checks	Data Steward, Application Analyst, Application Auditor
	File Uploads	Data Steward, Application Analyst, Application Auditor
	Groups and Roles	Data Steward, Application Analyst, Application Auditor
Input Data Analysis >	Cash Flow Edits	Data Steward, Application Analyst, Application Auditor
Process Results >	Financial Results	Data Steward, Application Analyst, Application Auditor
	Financial Results MDBSS	Data Steward, Application Analyst, Application Auditor
	Interest Rate Risk	Data Steward, Application Analyst, Application Auditor

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Table 3-3 (Cont.) Analytics Menu Access Privileges

		Interest Rate Risk MDBSS	Data Steward, Application Analyst, Application Auditor
		Liquidity Risk	Data Steward, Application Analyst, Application Auditor
		Liquidity Risk MDBSS	Data Steward, Application Analyst, Application Auditor
		Market Value	Data Steward, Application Analyst, Application Auditor
		Market Value MDBSS	Data Steward, Application Analyst, Application Auditor
		Cash Flow Detail	Data Steward, Application Analyst, Application Auditor
	Rates and Markets >	Forecast Interest Rates	Data Steward, Application Analyst, Application Auditor
		Forecast Currency Rates	Data Steward, Application Analyst, Application Auditor
		Forecast Economic Indicator	Data Steward, Application Analyst, Application Auditor
	Audit >	Process Errors	Data Steward, Application Analyst, Application Auditor

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Table 3-3 (Cont.) Analytics Menu Access Privileges

	ALM Assumptions	**Data Steward, Application Analyst, Application Auditor**

3.1.5.2.5 User Group and User Role Mapping

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

Table 3-4 User Group and User Role Mapping

User Group	Mapped User Role
Asset Liability Management Application Administrator	Asset Liability Management Application Administrator
Asset Liability Management Application Analyst	Asset Liability Management Application Analyst
Asset Liability Management Application Auditor	Asset Liability Management Application Auditor

The BI User Roles of ALM BI Administrator, ALM BI Analyst, ALM BI Auditor are not mapped OOTB to any seeded User Group but can be mapped to any User Group to provide the Analytics access to users under than User Group. Customers can custom User Groups and map the seeded or Custom User Roles as it suites the requirement.

3.1.6 Configuring Session Timeout

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

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

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

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

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

3.1.6.1 How to configure Session Lifetime Timeout?

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

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

To configure the session timeout:

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

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Figure 3-3 Session Settings

3.1.7 Authenticating for Token Generation

An Authentication token is required to invoke an API to generate the File Upload/Download PAR URL. The Authentication Process for token generation, utilizes cURL Commands in a CLI Tool to generate the access token and invoke REST APIs.

The Authentication Token is generated through the OAuth Client ID and Secret Credentials created in IAM during Provisioning. The Authentication Token does not require that you log in to the required Cloud Service to invoke the REST APIs from external applications.

Ensure that you have the appropriate log-in credentials to access the required Cloud Service and the appropriate roles to perform specific operations using the API Resources. Below is a list of authentication steps, with subsequent sections offering detailed information:

1. Download application certificate
2. Get the OAuth Client ID and Client Secret
3. Generate the access token
4. Generate refresh token
5. Invoke API using the access token

3.1.7.1 Download the Application Certificate

The Application Certificate is required for verification purposes when you use cURL commands.

You may choose not to download the certificate if you plan to turn off the cURL Certificate Verification and use an insecure connection (if you add the `--insecure` Flag to the cURL command).

To download the Application Certificate:

1. Log in to your Cloud service.
2. Click **View site information/Verified by** in the Browser URL Address Bar.
3. Select **More information**, to view the certificate.
4. Click **View Certificate** and then click **PEM(cert)** to download the certificate.

3.1.7.2 Get the OAuth Client ID and Client Secret

An OAuth Cliend ID and Client secret are required to generate an access token.

To get the OAuth Client ID and Client Secret:

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1. Enter the **Oracle Identity and Access Management (IAM)** URL in the browser's Address bar to access the **Oracle Cloud Account Sign In** page.
2. Log in to **IAM** portal.
3. Click **Navigation** to view a list of available functions.
4. Select **Oracle Cloud Services**.

   For more information, see Access Service Consoles from **Administering Oracle Identity Cloud Service**.
5. From the Oracle Cloud Services, select the required Cloud Service (in **<Cloud_service_name> <tenant-id>** format) from the list. For example, the cloud service name - **AMLCS tenant-prd**
6. Click the **Configuration** tab.

   The Client ID and Client Secret Details are displayed in the General Information section.
7. Copy the `Client ID` and `Client Secret`.
8. Open a CLI Tool.
9. Proceed to generate the access token.

You can also get the OAuth client ID and client secret using Admin Console.

3.1.7.3 Generate the Access Token

Access token is required to invoke API and you can generate an access token using cURL commands.

To generate the Access Token, add the Client ID, Client Secret, User Name, and Password using cURL Commands in the CLI Tool. You can use an insecure connection (if you add the `--insecure` / `-k Flag` to the cURL command). The following is an example:

```
curl -k -i -H "Authorization: Basic  < Base64 Encoded
      Outh Cred >" -H "Content-Type: application/x-www-form-
urlencoded;charset=UTF-8"
      --request POST https://<iam_tenant>:443/oauth2/v1/token -d

"grant_type=password&scope=urn:opc:idm:__myscopes__+offline_access&username=<u
serid>&password=<Password>"
```

Sample Code

```
curl -k -i -H "Authorization: Basic
YWFpdGVzdGRldjEwMDEtcHJkX0FQUElEOjQyYjJlYWVlLTY1OGEtNDgzYi1hMWI2LTBlYzU0MzBmYW
QwNQ==" -H "Content-Type: application/x-www-form-urlencoded;charset=UTF-8" --
request POST https://
iam-0cb0c2b3ba624afca67467fd5eb9db49.identity.c9dev2.oc9qadev.com:443/
oauth2/v1/token -d
"grant_type=password&scope=urn:opc:idm:__myscopes__+offline_access&username=cn
eadmin&password=Password@12345"
```

After generating the Access Token, invoke the API as shown in the following section.

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> **Note**
>
> The Access token expiry (in seconds) is configurable and can be set at the time of generating the access token. In the preceding example, it is set to 3600 seconds ~ 1 hour. By default, the expiry is set to 3600 seconds ~ 1 hour. You can configure this to a value of your choice up to a maximum value of 31536000 seconds ~ 1 year.

The token is sent as a response. Store the token in a secure location.

Sample Access Token (Truncated example)

```
{"access_token":"eyJ4NXQjUzI1NiI6IlF5azRtb3pIakhuQjJoQnVWdmZXZUpVeVZrNHhUdWd6a
WpHSC1pV21xb1EiLCJ4NXQiOiJDRFhHYVlWZXI3STVhQ1l
...
...
DB_be0Rtw1aMxFYg8Ft0VaK14wOVFGhgg1Cr6GiNvbgeYRG5uwgJGqw","token_type":"Bearer"
,"expires_in":3600,"refresh_token":"AgAgYjA1OGVlMjJiMWY2NGU3YWFkM2NjZWNlOTc2Mj
NiNDgIABBmZRHXpaHil2VBXkevFX-
iAAAAMMq9uQDo86eVVVisw3kYn80iX8qRJ2m7hMLmMAh1dY9Wgy-ESu8WYzdTBXOsnwHr7A=="}
```

3.1.7.4 Generate the Refresh Token

Refresh tokens are used to generate access tokens for invoking APIs.

To generate a Access token using Refresh token, use the following Curl command. You can use an insecure connection (if you add the `--insecure` / `-k` flag to the cURL command). The following is an example:

```
curl -k -i -H "Authorization: Basic <base64Encoded clientid:secret>" -H
"Content-Type:
        application/x-www-form-urlencoded;charset=UTF-8" --request POST
        https://<IdentityDomainURL>/oauth2/v1/token -d

"scope=urn:opc:idm:__myscopes__&grant_type=refresh_token&refresh_token=<refres
h_token>"
```

Sample Code

```
curl -k -i -H "Authorization: Basic

cWppMHBkLXByZF9BUFBJRDplZjFjMTVmZi1lZDBiLTQxNmItYTFmYy0wNjhlYzM5NmUxM2Y=" -H
        "Content-Type: application/x-www-form-urlencoded;charset=UTF-8" --
request POST
        https://<IdentityDomainURL>/oauth2/v1/token -d

"scope=urn:opc:idm:__myscopes__&grant_type=refresh_token&refresh_token=AgAgYjA
1OGVlMjJiMWY2NGU3YWFkM2NjZWNlOTc2MjNiNDgIABBmZRHXpaHil2VBXkevFX-
iAAAAMMq9uQDo86eVVVisw3kYn80iX8qRJ2m7hMLmMAh1dY9Wgy-ESu8WYzdTBXOsnwHr7A=="
```

Sample Refresh Token (Truncated example)

```
{"access_token":"eyJ4NXQjUzI1NiI6IlF5azRtb3pIakhuQjJoQnVWdmZXZUpVeVZrNHhUdWd6a
WpHSC1pV21xb1EiLCJ4NXQiOiJDRFhHYVlWZXI3STVhQ1l...
```


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```
...
...
token_type":"Bearer","expires_in":3600,"refresh_token":"AgAgYjA1OGVlMjJiMWY2NG
U3YWFkM2NjZWNlOTc2MjNiNDgIABA4t8V_dYVyc5lOuKezofTUAAAAMJrpmKRhDWf3-
ejCreU8_Po5Bb95srwUDDs5cV1gT-x26twbAfp_ffMCiEgjqGeDNw==}
```

3.1.7.5 Invoke the API using the Access Token

After creating an access token using OAUth Client ID and Client secret, you can invoke the Specific API.

To invoke the API using the generated Access Token, refer to the following example executed using cURL Commands in the CLI Tool:

```
curl -iL -H "Authorization: Bearer <access token>" -H "Content-Type:
<content_type>" -d "<request_body>" --cacert <certificate(.pem)> -X
<http_verb> <api_url>

curl -iL -H "Authorization: Bearer <AUTH_TOKEN>"

-H "Content-Type: application/json" -d "{\"type\":\"files\",\"data\":
[{\"fileName\":\"testtoken\",\"mimeType\":\"text/plain\",\"fileSize\":

123}]}" --cacert outcert.pem -X POST https://<OCI-URL>/<TENANT><APP_ID>/dsa/
utils/getObjStoreParUrl
```

3.2 Introduction to Oracle Asset Liability Management Cloud Service

Oracle Financial Services Asset Liability Management Cloud Service(OFS ALMCS), helps financial services institutions measure and monitor Interest Rate Risk, Liquidity Risk, and Foreign Currency Risk. This solution measures and models every loan, deposit, investment, and portfolio individually, using both deterministic and stochastic methods. OFS ALM is a next generation solution fully integrated with Oracle's Financial Services Analytical Applications and shares a common account level relational data model. With this versatile forecasting tool, powerful analytical functions can be modeled for every instrument, including derivatives and embedded options. Modeling at the account level of detail (loan-by-loan and deposit-by-deposit) provides highly accurate modeling results. Flexible assumption rules and reporting structures support a wide range of analytical power.

3.2.1 Key Features

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

- A wealth of output information. OFS ALMCS calculates and stores a variety of financial risk indicators including, VaR, EaR and related probability distributions; static and dynamic market value, duration and convexity; static and dynamic Gaps based on both repricing and liquidity bucket definitions; income simulation capabilities.

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- Rigorous Calculations. OFS ALMCS is designed to operate on transaction-level data, using Oracle's highly accessible and flexible financial services data model. Each account, as well as all forecasted new-business activity, is modeled independently on a daily cash flow basis.
- A flexible time horizon and free-form timing bucket increments for reporting are critical to meeting the wide range of forecasting requirements of financial institutions. Unconstrained chart of accounts definition is a basic requirement of effective modeling.
- A structured process for defining and controlling assumptions is critical to any successful modeling process.
- An unconstrained batching of scenarios, with flexible assumptions sets, is required to achieve an effective and efficient analytical process.

3.2.2 User Groups

Table 3-5 User Groups

User Group	Description
ALM Admin	Performs all functional and technical activities. Given to experts who need to create and administer applications and service components.
ALM Analyst	Can create and administer service components, such as assumptions, rules, analysis, dashboards, and reports. Enters data and runs analysis for dimension members to which they have access, also designs reports and other analytical outputs.
ALM Auditor	View and analyze data using various analytical features
For Reports ALM BI Administrator ALM BI Analyst ALM BI Auditor	View and analyze reports

3.2.3 Guidelines for Working with ALM

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

For ALM Administrators

ALM Administrators can perform the following steps to set up ALM:

- Define the folders before creating the assumptions, rules, and processes.
- Extend the Data Model, if required, by registering placeholder columns and tables.

For ALM Analysts

ALM Administrators and Analyst Users of ALM can perform the following steps to set up an application:

- Activate one or multiple Currency
- Define dimensions (such as business dimensions, and so on) using Dimension Management to build the main objects within the application.

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- Define Global, User, and Application Preferences
- Define the Interest Rates and Economic Indicators
- Create assumptions and rules.
- Define Cash Flow Edits Process and ALM Processes
- Load the data.
- Create and execute the batches
- Validate the ALM Application Structure to ensure that the application structure confirms to Validation Rules.
- Set up analysis views and other analytic tools so those with User and Viewer Roles can use them.
- Analysis the results.

For ALM Auditor

All users, including ALM Auditor, can do most of the following:

- View rules and assumptions setup in ALM.
- Analyze the Calculated Result Reports.
- Use the analytics features to track and report on ALMBI.

3.2.4 Launching Asset Liability Management

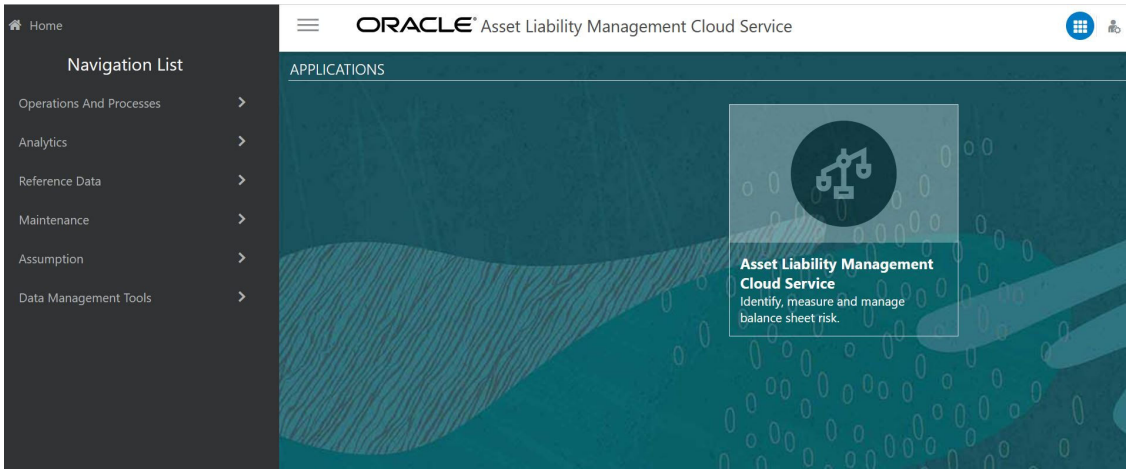
You can launch Asset Liability Management from the Web Browser.

To open Asset Liability Management, perform the steps as follows:

1. In the **Web browser**, click the link provided by Oracle.
2. Enter your user name and password.
   If requested, select an application.

   The password is case-sensitive.
3. Click **Sign In**.
   The **Asset Liability Management** Page is displayed.

Figure 3-4 Asset Liability Management Home Page



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3.2.4.1 Asset Liability Management Home Page

When you log in, you see the Asset Liability Management Home page.

The Home page contains these main areas:

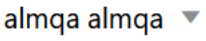
- **Figure 3-5 Navigator Screen**

Navigator Screen to access menu items.

- **Figure 3-6 Admin Console**

to Navigate to Admin Console.

- Displays the language of service.
- **Figure 3-7 User Name**



The User Name menu with your user name in the header.

- **Figure 3-8 View Setup Information**

Click it to view setup information.

Click

Figure 3-9 Navigation Screen

to display the Navigator Screen. This screen serves as a sitemap of the application features and displays links to all of the pages you can access. Use the Navigator Screen to navigate

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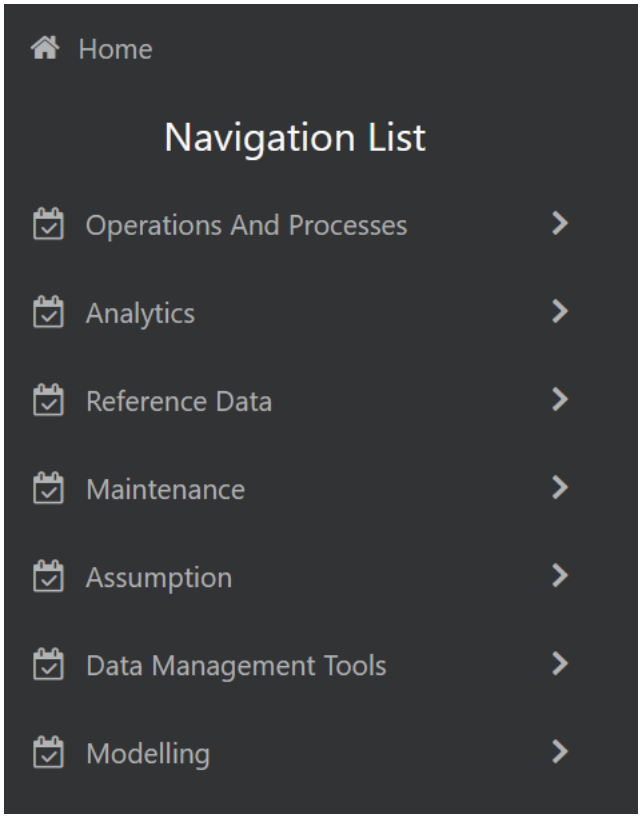
among the rules and processes required to define, review, and analyze the application, and to report results.

Figure 3-10 Navigation Path



PBSM Asset Liability Management Cloud Service Navigation Paths are displayed in the List of Navigation Paths. Access all these pages through the ALM Administrator, ALM Auditor, or ALM Analyst Responsibility.

Table 3-6 List of Navigation Paths for Asset Liability Management Cloud Service

Page	Navigation Path
Operations and Processes	
Static Deterministic Process	Select **Asset Liability Management Cloud Service** menu, select **Operations and Processes**, and then select **Static Deterministic Process**
Dynamic Deterministic Process	Select **Asset Liability Management Cloud Service** menu, select **Operations and Processes**, and then select **Dynamic Deterministic Process**
Cash Flow Edits Process	Select **Asset Liability Management Cloud Service** menu, select **Operations and Processes**, and then select **Cash Flow Edits Process**

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Table 3-6 (Cont.) List of Navigation Paths for Asset Liability Management Cloud Service

Page	Navigation Path
Scheduler	Select **Asset Liability Management Cloud Service** menu, select **Operations and Processes**, and then select **Scheduler**. Following sub-menus are available under Scheduler: Dashboard Define Batch Define Task Schedule Batch Monitor Batch
Object Administration	Select **Asset Liability Management Cloud Service** menu, select **Operations and Processes**, and then select **Object Administration**. Following sub-menus are available under Object Administration: Export Object Import Object Import Migration
Analytics	
SQL Query Browser	Select **Asset Liability Management Cloud Service** menu, select **Analytics**, and then select **SQL Query Browser**
Raw Data Analysis	Select **Asset Liability Management Cloud Service** menu, select **Analytics**, and then select **Raw Data Analysis**
Operational Analysis	Select **Asset Liability Management Cloud Service** menu, select **Analytics**, and then select **Operational Analysis**
Input Data Analysis	Select **Asset Liability Management Cloud Service** menu, select **Analytics**, and then select **Input Data Analysis**
Process Results	Select **Asset Liability Management Cloud Service** menu, select **Analytics**, and then select **Process Results**
Rates and Markets	Select **Asset Liability Management Cloud Service** menu, select **Analytics**, and then select **Rates and Markets**
Process Errors	Select **Asset Liability Management Cloud Service** menu, select **Analytics**, and then select **Process Errors**
ALM Assumptions	Select **Asset Liability Management Cloud Service** menu, select **Analytics**, and then select **ALM Assumptions**
ALCO	Select **Asset Liability Management Cloud Service** menu, select **Analytics**, and then select **ALCO**.
Reference Data	
Multi Dimensional Balance Sheet Structure	Select **Asset Liability Management Cloud Service** menu, select **Reference Data**, and then select **Multi Dimensional Balance Sheet Structure**

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Table 3-6 (Cont.) List of Navigation Paths for Asset Liability Management Cloud Service

Page	Navigation Path
Economic Indicators	Select **Asset Liability Management Cloud Service** menu, select **Reference Data**, and then select **Economic Indicators**
Interest Rates	Select **Asset Liability Management Cloud Service** menu, select **Reference Data**, and then select **Interest Rates**.
Currencies	Select **Asset Liability Management Cloud Service** menu, select **Reference Data**, and then select **Currencies**.
Currency Rates	Select **Asset Liability Management Cloud Service** menu, select **Reference Data**, and then select **Currency Rates**
Volatility Surfaces	Select **Asset Liability Management Cloud Service** menu, select **Reference Data**, and then select **Volatility Surfaces**
Dimension Management	Select **Asset Liability Management Cloud Service** menu, select **Reference Data**, and then select **Business Management**. Following sub-menus are available under Business Management: Attributes Members Hierarchies
Holiday Calendars	Select **Asset Liability Management Cloud Service** menu, select **Reference Data**, and then select **Holiday Calendars**
Maintenance	
Preferences	Select **Asset Liability Management Cloud Service** menu select **Maintenance**, and then select **Preferences**
Time Buckets	Select **Asset Liability Management Cloud Service** menu select **Maintenance**, and then select **Time Buckets**
Payment Patterns	Select Asset Liability Management Cloud Service menu, select Maintenance, and then select **Payment Patterns**.
Behavior Patterns	Select **Asset Liability Management Cloud Service** menu, select **Maintenance**, and then select **Behavior Patterns**.
Repricing Patterns	Select **Asset Liability Management Cloud Service** menu, select **Maintenance**, and then select **Repricing Patterns**.
Cash Flow Edits	Select **Asset Liability Management Cloud Service** menu, select **Maintenance**, and then select **Cash Flow Edits** .
Filters	Select **Asset Liability Management Cloud Service** menu, select **Maintenance**, and then select **Filters**.
Standardized IRRBB Shocks	Select **Asset Liability Management Cloud Service** menu, select **Maintenance**, and then select **Standardized IRRBB Shocks**.

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Table 3-6 (Cont.) List of Navigation Paths for Asset Liability Management Cloud Service

Page	Navigation Path
Currency Gain/Loss Basis	Select **Asset Liability Management Cloud Service** menu, select **Maintenance**, and then select **Currency Gain/Loss Basis**.
Cash Flow Edits	Select **Asset Liability Management Cloud Service** menu, select **Maintenance**, and then select **Cash Flow Edits**.
Management Ledger Configuration	Select **Asset Liability Management Cloud Service** menu, select **Maintenance**, and then select **Management Ledger Configuration**.
Ledger Load History	Select **Asset Liability Management Cloud Service** menu, select **Maintenance**, and then select **Ledger Load History**.
Assumption	
Prepayments	Select **Asset Liability Management Cloud Service** menu, select **Assumption**, and then select **Prepayments**. Following sub-menus are available under Prepayments: Prepayments Rules Prepayment Models
Forecast Rates	Select **Asset Liability Management Cloud Service** menu, select **Assumption**, and then select **Forecast Rates**
Discount Methods	Select **Asset Liability Management Cloud Service** menu, select **Assumption**, and then select **Discount Methods**
Behavior Pattern Rules	Select Asset Liability Management Cloud Service menu, select **Assumption**, and then select **Behavior Pattern Rules**
Forecast Assumptions	Select Asset Liability Management Cloud Service menu, select **Assumption**, and then select **Forecast Assumptions**. Following sub-menus are available under Forecast Assumptions: Product Characteristics Pricing Margin Forecast All Business Forecast Balances Transaction Strategies Maturity Mix Rate Dependency Pattern
Transfer Pricing Rules	Select Asset Liability Management Cloud Service menu, select **Assumption**, and then select **Transfer Pricing Rules**.
Add-on Rate Rule	Select Asset Liability Management Cloud Service menu, select **Assumption**, and then select **Add-on Rate Rule**.
Data Management Tools	
Data Model Extension	Select **Asset Liability Management Cloud Service** menu, select **Data Management Tools**, and then select **Data Model Extension**

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Table 3-6 (Cont.) List of Navigation Paths for Asset Liability Management Cloud Service

Page	Navigation Path
Data File Administration	Select **Asset Liability Management Cloud Service** menu, select **Data Management Tools**, and then select **Data File Administration**. Following sub-menus are available under Data File Administration: Data File Specifications Data File History File Upload and Download
Data Management Interface	Select **Asset Liability Management Cloud Service** menu, select **Data Management Tools**, and then select **Data Management Interface**. Following sub-menus are available under Data Management Interface: Form Builder Data Entry
Data Quality Framework	Select **Asset Liability Management Cloud Service** menu, select **Data Management Tools**, and then select **Data Quality Framework**. Following sub-menus are available under Data Quality Framework: Data Quality Rules Data Quality Groups Execution Summary
Data Verification	Select **Asset Liability Management Cloud Service** menu, select **Data Management Tools**, and then select **Data Verification**.
Data Housekeeping	Select **Asset Liability Management Cloud Service** menu, select **Data Management Tools**, and then select **Data Housekeeping**.
Balance Reconciliation	Select **Asset Liability Management Cloud Service** menu, select **Data Management Tools**, and then select **Balance Reconciliation**.
Redaction Framework	Select **Asset Liability Management Cloud Service** menu, select **Data Management Tools**, and then select **Redaction**. Following sub-menus are available under Redaction: Redaction Functions Redaction Policies Redaction Approval
Data Stratification	Select **Asset Liability Management Cloud Service** menu, select **Data Management Tools**, and then select **Data Stratification**. Following sub-menus are available under Data Stratification: Stratification Rules Stratification Tiers
Modelling	

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Table 3-6 (Cont.) List of Navigation Paths for Asset Liability Management Cloud Service

Page	Navigation Path
Prepayment	Select **Asset Liability Management Cloud Service** menu, select **Modelling**, and then select **Prepayment**. Following sub-menus are available under Non Maturity: Prepayment Data Creation Process Prepayment Model Analysis
Non Maturity	Select **Asset Liability Management Cloud Service** menu, select **Modelling**, and then select **Non Maturity**. Following sub-menus are available under Non Maturity: Non Maturity Data Creation Process Non Maturity Products Model Analysis
Admin Tools	
Data Foundation Integration	Select **Asset Liability Management Cloud Service** menu, select **Admin Tools**, and then select **Data Foundation Integration**. Following sub-menus are available under Non Maturity: Data Services Subscriptions ADS Run History

3.2.4.2 Common Icons

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

Table 3-7 Common Icons

Icon Name	Icon	Uses
Add		Click Add icon to build a new rule.

Figure 3-11 Add icon

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Table 3-7 (Cont.) Common Icons

Icon Name	Icon	Uses
Refresh	**Figure 3-12 Refresh icon** 	Click to refresh the Summary Page.
Help	**Figure 3-13 Help icon** 	Click to view the Holiday Calendar Rule Help.
Multiple Delete	**Figure 3-14 Multiple Delete icon** 	Select one or more rules in the table and then click the (-) icon at the top right of the Summary Page to delete more than one rule at the same time.
Search	**Figure 3-15 Search icon** 	To Search the rule(s)
List View	**Figure 3-16 List View** 	To view the Rule Summary Page items in List View.

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Table 3-7 (Cont.) Common Icons

Icon Name	Icon	Uses
Table View	**Figure 3-17 Table View** 	To view the Rule Summary Page items in Table View.
Ascending and Descending	**Figure 3-18 Ascending icon** and **Figure 3-19 Descending icon** 	To sort the rules on Rule Summary Page.
Action	**Figure 3-20 Action icon** 	Click to perform view various action options.
View/Edit	**Figure 3-21 Edit icon** 	Click in the Action column and select View/Edit to view or edit the contents of a rule in Read/ Write format. Depending on User Privileges, the rule will open in either View or Edit mode.

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Table 3-7 (Cont.) Common Icons

Icon Name	Icon	Uses
Copy or Save As	**Figure 3-22 Save As icon** 	Click in the Action column and select Save As to create a copy of an existing rule.
Delete	**Figure 3-23 Delete icon** 	Click in the Action column and select Delete to delete an existing rule.
Execute	**Figure 3-24 Execute icon** 	To execute a process
Execution Details	**Figure 3-25 Execution Details icon** 	To view the execution details of the process.
Add New	**Figure 3-26 Add New icon** 	Click Add icon to add new items on Rule screen.

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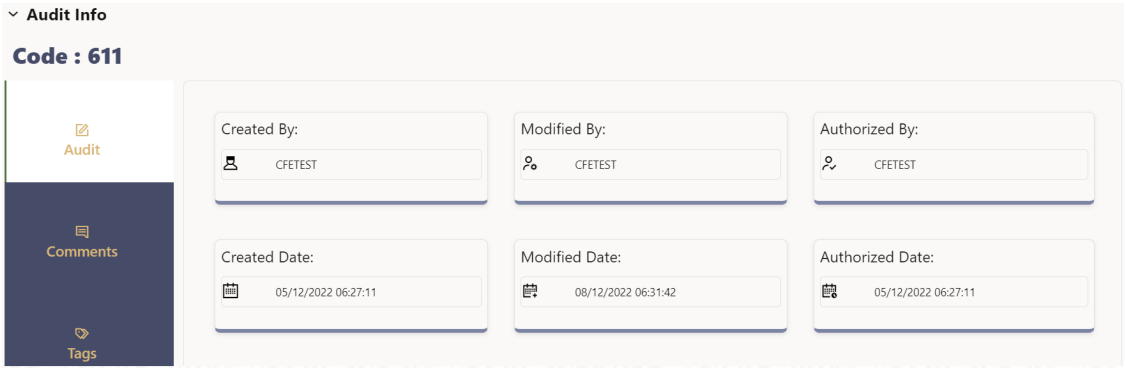
Table 3-7 (Cont.) Common Icons

Icon Name	Icon	Uses
Add Multiple Rows	**Figure 3-27 Add Multiple Rows**	Click Add Multiple Rows to add multiple rows at a time.
Add Row	**Figure 3-28 Add Row**	This allows you to Add one Row at a time.

3.2.4.3 Common Feature Controls

PBSM Cloud Service includes many common feature controls.

Figure 3-29 Audit Info



Audit

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

User Comments

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

Tags

The Tags tab allows you to add a tag to the selected Rule ID.

3.2.5 Quick Tour

The following table provides a bird's eye view of the tasks and the order to execute these tasks using the application. Click the links to read details of each task. You can use the links on this page to help you immediately begin using ALM Cloud Service.

Table 3-8 Quick Tour

Order	Task	Who Does This?	Action
1	CPQ Order Placement	Tenant Admin	Subscribe to the application. You will receive a Welcome e-mail with the URL and temporary password.
2	Provision Users	Sys Admin	Configure the Security Management System (SMS) to create users, assign roles, and implement user authorization and authentication. For more information, see Getting Started. Review Standard User Groups and Roles Create Groups and Roles Create/Import Users Assign applications and groups to users Send notification to users.
3	Set up Application	Business User (ALM Admin)	Performs following tasks: Setup Folder Extend Data Model (if required) Turn on seeded fields Register table-column from UI Placeholder Dimension and Column Registration.

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Table 3-8 (Cont.) Quick Tour

Order	Task	Who Does This?	Action
4	Configure Rules	Business User (ALM Analyst)	Configure following ALM Rules: Activate Currency Configure or load Dimension Members and Attribute Configure or Load Hierarchy Set global application and user preferences Configure Economic Indicator Configure Interest Rate Curve Configure Holiday Calendar Configure Repricing Pattern Configure Behavior Pattern Configure Prepayment Model Configure Prepayment Rule Configure Forecast Rates Configure Discount Methods Configure Filter Configure new Cash Flow Edit Rules Configure Static Deterministic Process Configure Cash Flow Edits Process
4	Create and Execute Jobs and Batches	Operator	Setup Technical Configuration for ALM Configure Batches for Data Loaders Configure Batches for Cash Flow Edits Process Configure Batches for Static Deterministic Process For more information, see Scheduler Service.

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Table 3-8 (Cont.) Quick Tour

Order	Task	Who Does This?	Action
3	Load Data	Data Admin	Configure Data File Specifications Load Historical Interest Rate Curve Data from UI Load Historical Currency Exchange Rate Data from UI Load Historical Economic Indicator Data from UI Upload Dimension Data files to object store Run Dimension Data Loader Update Dimension Data from UI Upload Instrument Data files to object store Run Stage Instrument Data Loader For more information, see Data Loading.
5	Run Process Rules, generate and analyze Reports	Analyst	Review raw Data Analysis Report Correct/reload data files and rerun Stage Loader, if required Run Processing Instrument Data Loader Review Instrument Data Report Run Static Deterministic Process from process UI and/or Batch Review Cash Flow edit log and modify data, if required Run Static Deterministic Process from process UI and/or Batch Review Static Deterministic Process Log Review ALM Report

3.3 Introduction to Admin Console

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

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

3.3.1 Accessing Admin Console

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

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

Before logging into the Admin Console, ensure that:

> **Note**
>
> - The Cloud Administrator who creates your account has granted you administrative privileges to access the Admin Console. For more information on the privileges available, see OFS AML Users and User Privileges.
> - If the Cloud Administrator has granted only Identity Management privileges and no other cloud application privilege, you will be automatically redirected to the Admin Console specific to subscribed cloud service, after a successful login.
> - After a user signs in to the Cloud Service, the user to user-group Mapping created in the IAM Console will onboard into the Master and Mapping Tables. If you unmap a user from a group in the Admin Console, go to the IAM Console and open the **Assign User to Groups**. Unselect the user corresponding to the user group and click **Finish**. This step is mandatory to unmap the user.

To access the Admin Console:

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

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

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

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

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3.4 System Configuration

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

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

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

The components are as follows:

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

3.4.1 Metering

View annual usage of transactions and report types.

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

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

Table 3-9 Metering Methodology

Product	Metering Methodology
Transaction Monitoring Cloud Service	Number of transactions per month.
Regulatory Reporting Cloud Service	Number of templates configured of a country or jurisdiction for filing to a regulator.
Know Your Customer (KYC) Cloud Service	Count of Risk Assessments created for both KYC Onboarding and KYC Continuous Monitoring in the production environment. Metering excludes the deployment initiation batch (first time risk assessment of all existing customers for a client).
Customer Screening Cloud Service	Sum of customers screened via batch per day and via real time for a duration of one month.
Transaction Filtering Cloud Service	Sum of transaction messages screened via real time for a duration of one month.
Compliance Agent Cloud Service	Number of experiments run.

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Table 3-9 (Cont.) Metering Methodology

Product	Metering Methodology
Investigation Hub Cloud Service	Pooled Named User (Defined as an individual authorized by you to access the hosted service, regardless of whether the individual is actively accessing the hosted service at any given time during one calendar month).
iHub Real-time Customer Screening	Pooled Named User (Defined as an individual authorized by you to access the hosted service, regardless of whether the individual is actively accessing the hosted service at any given time during one calendar month).
Studio Cloud Service	Number of Transactions
Monitor Cloud Service	Pooled Named User (Defined as an individual authorized by you to access the hosted service, regardless of whether the individual is actively accessing the hosted service at any given time during one calendar month).
Automated Scenario Calibration Cloud Service	Number of transactions per month
AI Assistant Cloud Service (AIACS)	Number of cases having AI generated narrative

3.4.2 Component Details

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

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

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

To access Component Details:

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

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

   - **OCI Console** : Access the **OCI Console URL** from the **OCI Console** tab.
   - **Object Storage Standard** : When you provision an instance of the application, two buckets, a standard storage bucket and an archive storage bucket are automatically provisioned. The objects data that you want to load into the application for processing must be uploaded to the standard storage bucket.
     Access and copy the following details related to the objects which are currently in use and require fast, immediate, and frequent access.
     - **Object Store Bucket Name**: The logical container in which objects are stored
     - **Pre-Authenticated URL (PAR URL)**: Request that enables you to access a bucket without providing any credentials

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

3.4.3 Audit Trail Report

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

To generate an Audit Trail Report:

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

Table 3-10 Audit Trail Report Filters

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

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

Table 3-11 Audit Trail Report Details

Field	Description
User Name	The user name selected in the **User Name** filter field.
Action Details	The action selected in the **Action Detail** filter field.
Action Code	The type of action performed by the user.

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Table 3-11 (Cont.) Audit Trail Report Details

Field	Description
Status	The status of the action performed. The values are **Successful** or **Failure**.
Action Subtype	The sub type of the action.
Operation Time	The date and time of the action performed.

4. Click **Reset** to clear all values from the filter fields and enter new search criteria.

3.4.4 Configurations

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

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

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

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

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

Preferences

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

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

Master Encryption Key

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

Notification Configuration

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

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Email Domains

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

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

3.4.5 Reports For Download

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

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

3.4.5.1 Prerequisites

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

3.4.5.2 Access Reports for Download

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

3.4.5.3 Data Reporting - Data View

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

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

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  - **Authorizer** - Displays the User ID of the authorizer who approved the report to be displayed in the window.
  - **Authorizer Comments** - Displays the comments entered by the authorizer when approving the report to be displayed in the window.

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

3.4.5.4 View the Report Details

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

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

The procedure to view report details is described as follows:

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

3.4.5.5 Apply a Custom Filter to the Data View

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

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

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

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

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

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3.5 Identity Management

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

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

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

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

3.5.1 Users Summary Page

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

To access the Users Summary page:

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

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

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

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

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

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

3.5.1.1 User Details

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

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

3.5.1.2 Mapped/Unmapped Groups

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

To map/unmap a user to a user group:

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

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

   b. Click **Map**.

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

   b. Click **Unmap**.

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

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

6. Click on **New Mapping** and then switch to **Authorization View** to retrieve the pending authorization.

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

3.5.1.3 Available Groups

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

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

3.5.2 Groups Summary Page

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

To access the Groups Summary page:

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

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

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

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

3.5.2.1 Group Details

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

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

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3.5.2.2 Mapped/Unmapped Roles

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

To map/unmap roles to user groups:

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

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

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

   c. Click **Map**.

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

   b. Click **Unmap**.

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

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

3.5.2.3 Available Roles

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

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

3.5.2.4 Create custom groups

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

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

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

You can create new groups using the following:

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1. PBSM Admin Console
2. IDCS

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

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

3.5.3 Roles Summary Page

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

To access the **Roles Summary** page:

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

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

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

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

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

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

3.5.3.1 Roles Details

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

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

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3.5.3.2 Mapped/Unmapped Functions

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

To map/unmap roles to functions:

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

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

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

   c. Click **Map**.

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

   b. Click **Unmap**.

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

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

3.5.3.3 Available Functions

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

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

3.5.4 Functions Summary Page

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

To access the **Functions Summary** page:

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

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

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

3.5.4.1 Function Details

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

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

3.5.5 Folders Summary Page

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

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

To access the **Folders Summary** page:

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

   The **Folders Summary** page is displayed.

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

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

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

3.5.5.1 Folder Details

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

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

3.5.5.2 Editing Folder Details

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

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

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

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4

Data Management Tools

This chapter covers the following topics:

- Data Model Extension: The PBSM Cloud Service provides OOTB placeholder Columns and Tables that can be configured to use as custom Columns, Custom Dimensions, and Custom Management Ledger Tables as suitable to the business requirements. However, these Columns and Table are placeholder items and must be registered before use. The Data Model Extension module enables you to register these Columns and Tables.
- #unique_100: The Data File Specification module helps you to load the data from your systems to the PBSM Cloud Services.
- File Upload and Download Utility: The File Upload and Download Utility enables you to upload or download files to the Object Store.
- Data Quality Framework: Data Quality Framework Data Quality Framework consists of a scalable rule-based engine which uses a single-pass integration process to standardize, match, and duplicate information across global data.
- Data Verification: Data Verification UI allows you to carry out small edits on the imported data. You can also add few entries manually using this UI.
- Data Housekeeping: The Data Housekeeping UI helps you to Delete data from selected tables, Drop partitions and truncate subpartitions from selected tables, and Archive the data from selected tables.
- Configure Cash Flow Edits Rule: The Cash Flow Edits Configuration Window allows you to configure a new Cash Flow Edits Rule.
- Cash Flow Edits Process: The Cash Flow Edits Process allows you to verify the accuracy and check the completeness of your Instrument Table Data.
- ALM Output Export: This module discusses the procedure to download the ALM Output details. When you download the data, it moves to Object Store.
- ALM Table Cleanup: This module discusses the procedure to delete data from ALM Output Tables.
- Balance Reconciliation: Balance Reconciliation module helps you to Reconcile the selected processing/instrument/account balances against the Management Ledger. If any differences are found, you will have the flexibility to choose significant differences and create plug entries for those in the Ledger_Instruments table.

4.1 Data Model Extension

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

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

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

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

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

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

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

The Data Model Extension summary screen displays the following tiles:

- Dimensions
- Columns
- Management Ledger
- Pending Registration

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

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

4.1.1 Registering Dimensions

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

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

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

4.1.1.1 Register a Simple Dimension

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

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

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

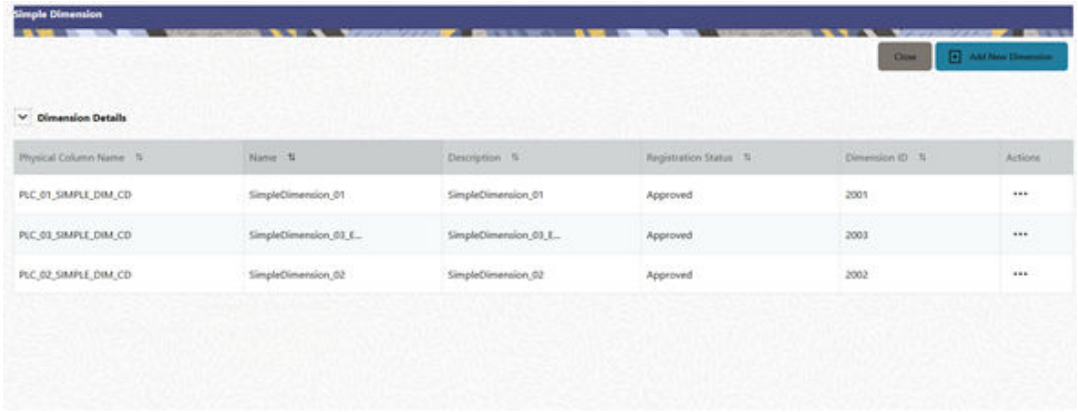
The Cloud Service Data Model comes with a set of placeholder Simple Dimensions for configuration and use. The member details of simple dimensions are stored in two tables:

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

To register a Simple Dimension:

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

Figure 4-1 Simple Dimension summary screen



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

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

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

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

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

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

   Or

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

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

4.1.1.1.1 View a Simple Dimension

To view a Simple Dimension, perform the following steps.

To view a Simple Dimension, perform the following steps:

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

4.1.1.1.2 Edit a Simple Dimension

To edit a Simple Dimension, perform the following steps:

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

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

4.1.1.1.3 Delete a Simple Dimension

To delete a Simple Dimension, perform the following steps:

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

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

4.1.1.2 Register a Key Processing Dimension

Key Processing Dimensions have the following features:

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

Metadata for Key Processing Dimensions is stored in four tables:

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

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

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

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

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

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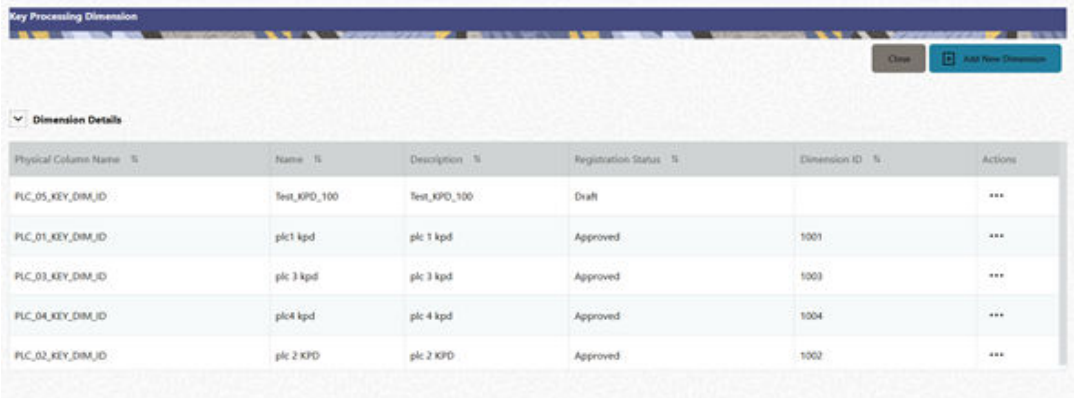
Figure 4-2 Key Processing Dimensions summary screen



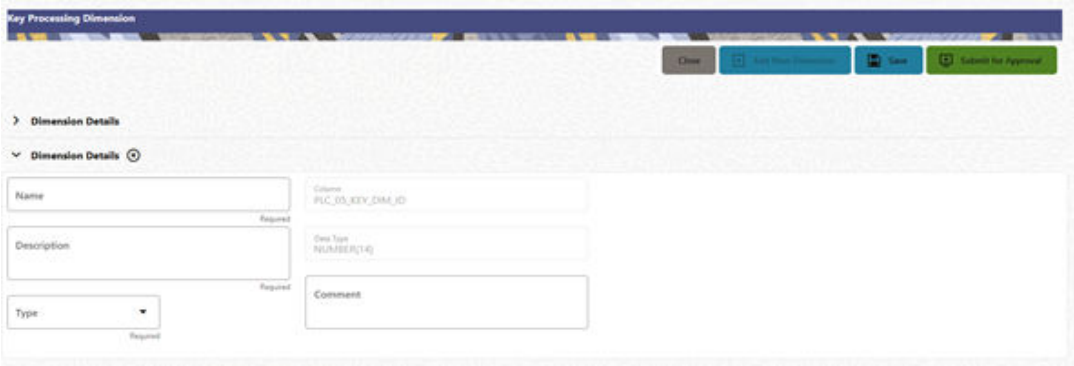
The summary screen displays the summary of existing Key Processing Dimensions with the details Physical Column Names, Name, Description, Registration Status, Dimension ID, and Actions icon.

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

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

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

Figure 4-3 Key Processing Dimension screen



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

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

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

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

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

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

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

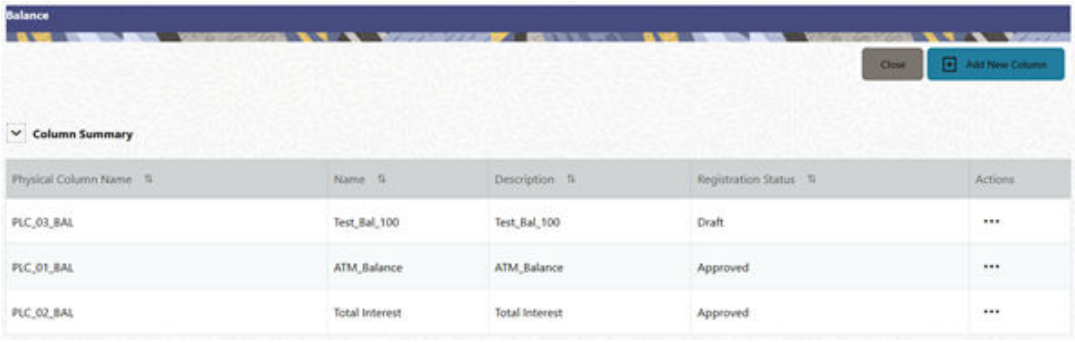
4.1.2 Registering Columns

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

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

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

Figure 4-4 Column Summary screen



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

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

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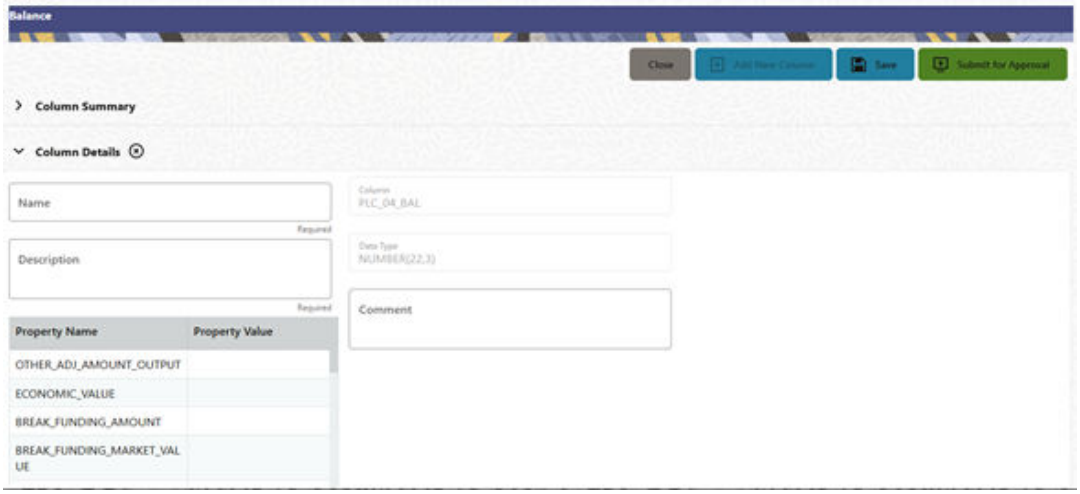
2. Click **Add New Column** to collapse the Column Summary and to display the Column Details.
When you click **Add New Column**, the UI displays the **Save** and **Submit for Approval** buttons.

Figure 4-5 Column Screen



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

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

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

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Domain Types

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

Table 4-1 Domain Types

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

4.1.3 Registering a Management Ledger

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

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

To view and edit the Management Ledger:

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

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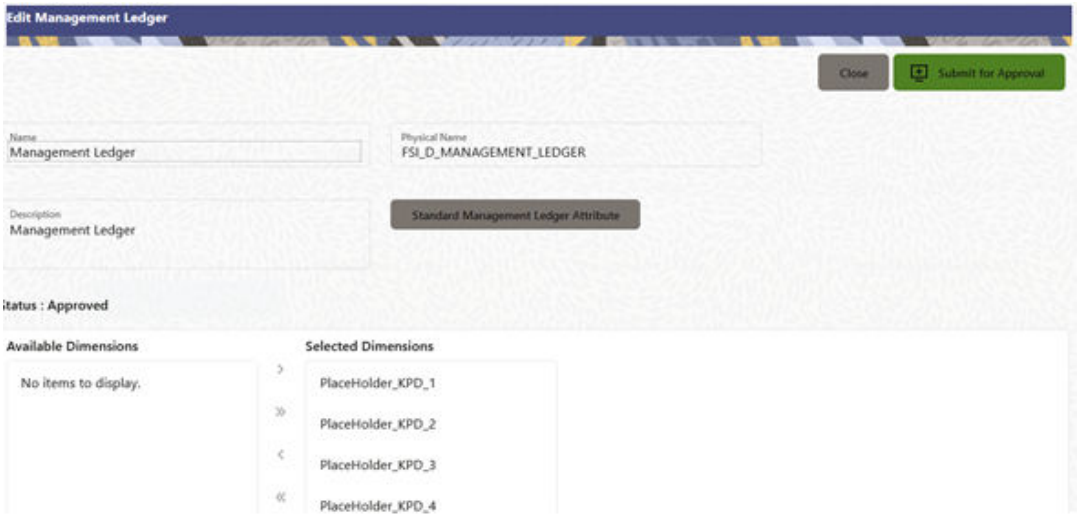
Figure 4-6 Edit Management Ledger Screen



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

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

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

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

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

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

4.1.3.1 Adding a Management Ledger

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

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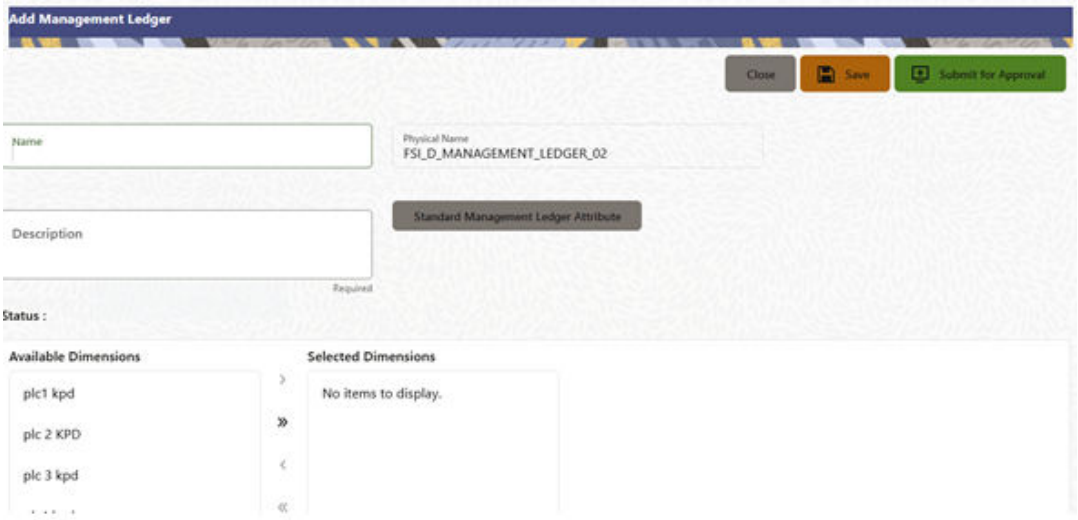
1. Navigate to the Summary screen, and click the **Add Management Ledger** tile to display the Add Management Ledger screen.

Figure 4-7 Add Management Ledger Screen



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

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

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

4.1.4 Approving or Rejecting the Registrations

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

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

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

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Figure 4-8 Data Model Extension Summary Screen

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

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

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

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

4.2 Data File Administration

This topic covers the following sub-topics:

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

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

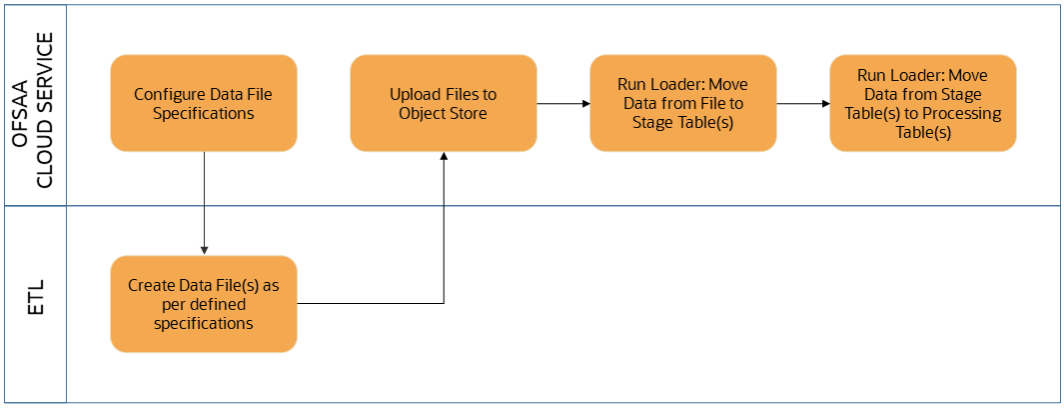
4.2.1 Data File Specification

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

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

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

Figure 4-9 Loading External Data



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

Uploaded Data Files are temporarily stored in the Object Storage for Data Loaders to read and move them to the corresponding Database Tables for further use by the individual services.

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

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

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

Ensure that there are no duplicate records in a single Data File. If there are duplicate records, then the Data File Upload results in a failure.

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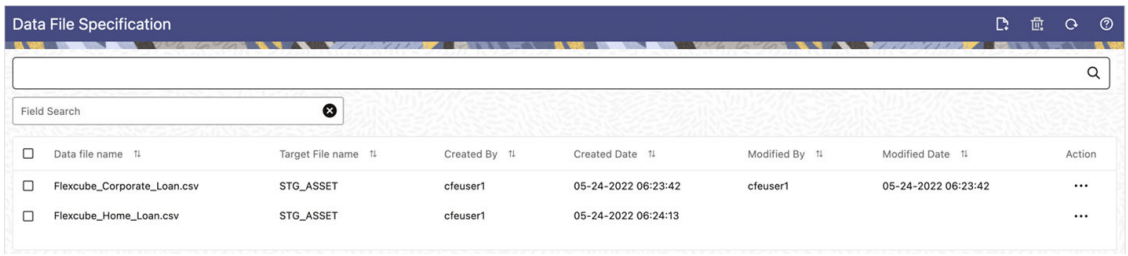
To open the Data File Specification Window, navigate to the **Data Management Tools**, select **Data File Administration**, and then select **Data File Specification** to display the Data File Specification Summary Page.

Figure 4-10 Data File Specification Summary Screen



The Summary Page of Data File Specification displays the Search Criteria Pane, Specific Search Pane, and the already created Data Files and their details.

4.2.1.1 Searching for a Data File Specification

There are two Search Panes provided to search the Data Files on the Summary Page.

To search the Data File:

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

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

4.2.1.2 Creating a Data File Specification

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

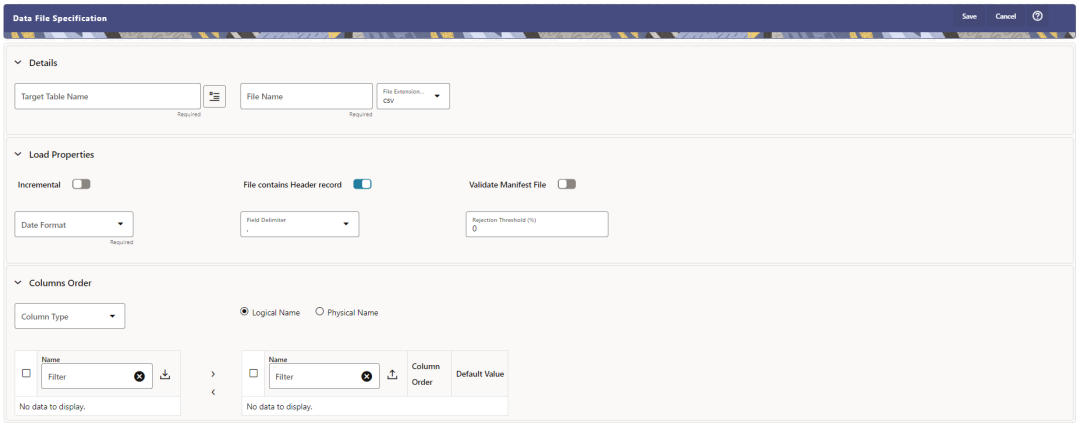
For the complete list of available columns, see the Data Requirements as follows:

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

To create a new Data File Specification:

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

Figure 4-11 Data File Specification



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

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

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

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

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

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

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

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

Table 4-2 MANIFEST File Details

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

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

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

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

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

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

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

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

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

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

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

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

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

Figure 4-12 Column Preview

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

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Figure 4-13 Columns Preview

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

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

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

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

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

4.2.1.3 Creating the Data File

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

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

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

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

See the following sample files for your reference:

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

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

4.2.1.4 Data Loaders

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

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

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

4.2.1.4.1 Dimension Data Loader

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

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

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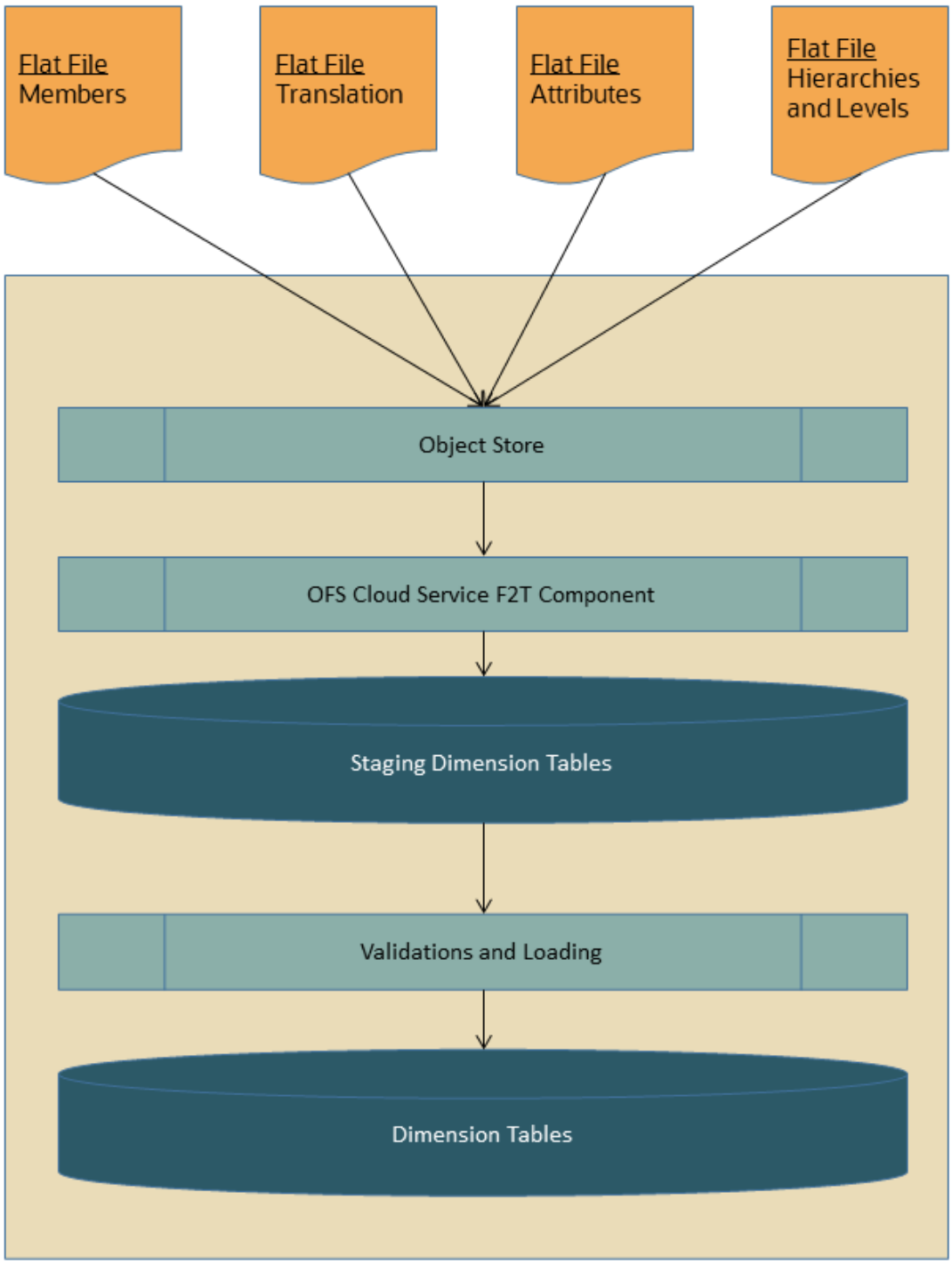
The following illustration depicts the process of Dimension Loading.

Figure 4-14 Dimension Loading Process



The Dimension Loader is used to:

- Load the Dimension Members and their Attributes from the Staging area into the Dimension Tables that are registered with OFS Cloud Service framework.

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

The following are the features of Dimension Loader:

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

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

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

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

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

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

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

4.2.1.4.1.1 For Key Dimensions

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

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

Stage Dimension Loaders (Task 1):

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

Stage Hierarchy Loaders (Task 2):

- input_stg_hierarchies_intf.dat
- input_stg_hierarchy_levels_intf.dat

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

To load the Dimensions:

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

Table 4-3 Dimension Loading Process Tasks

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

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Table 4-3 (Cont.) Dimension Loading Process Tasks

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

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

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3. Execute the Batch.

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

Dimension Loader with ZIP File Support

To to upload the Dimension data using a zip file:

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

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

4.2.1.4.1.2 For Simple Dimensions

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

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

Stage Dimension Loaders (Task 1):

- input_stg_dimensions_b_intf.dat
- input_stg_dimensions_tl_intf.dat

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

To load the Dimensions, perform the following steps:

1. Define a new Batch and save it.

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2. Add the following Tasks to the above Batch:

Table 4-4 Dimension Loading Process Tasks

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

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

3. Execute the Batch.

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

Dimension Loader with ZIP File Support

To to upload the Dimension data using a zip file:

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

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

4.2.1.4.1.3 Clear and Back up Dimension Data

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

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

To clear the Dimension Data:

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

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

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

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

Table 4-5 Sample Table Names

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

4.2.1.4.1.4 Data Preparation Guidelines

While creating the data files, ensure the following:

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

4.2.1.4.2 Instrument and Ledger Data Loaders

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

File to Stage

To load the Data to Staging Tables:

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

Table 4-6 Data Loader – File to Stage Data

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

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

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Table 4-7 Sample Data File Specification and File Name

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

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

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

Profitability and Balance Sheet Management Cloud Service - Stage to Processing

To load the Data from Staging Tables to Processing:

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

Table 4-8 Data Loader – Stage to Processing Data

Task Code	Task Name	Component	Parameters
1 *	Custom Task Name *	Select the relevant Component depending on the Data that you want to process. The options are: • Instrument Data Loader • Ledger Data Loader • Transaction Summary Loader	**Stage Table**: select the stage table name from the available list. **Data File Specification**: select the Data File Specification name from the available list.

Climate Change Analytics Cloud Service - Stage to Processing

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

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

1. Add the following Tasks to the Batch:

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Table 4-9 Data Loader – Stage to Processing Data

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

4.2.1.4.3 Generic Data Loader

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

To load the data:

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

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

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

Table 4-10 Data File

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

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

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

The following are the sample files for reference:

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

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

Table 4-11 Loader Type

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

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

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

4.2.1.4.4 Interest Rates Loader

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

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

- Stage Loader
- Stage Validator
- Processing Loader

To upload the Interest Rate Data file:

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

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

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

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

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

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

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

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

   Warnings are displayed in the View Log.

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

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

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

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

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

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

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

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

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

4.2.1.4.5 Interest Rates Definition Loader

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

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

- Stage Loader
- Stage Validator
- Processing Loader

To upload the Interest Rate Definition file:

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

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

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

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

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

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

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

Warnings are displayed in the View Log.

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

4.2.1.4.6 Rate Lock Option Volatility Loader

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

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

To upload the Interest Rate Data file:

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

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

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

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

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

Figure 4-15 Rate Lock Volatility Loader Sample File

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

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

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

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

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

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

Warnings are displayed in the View Log.

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

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

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

4.2.1.4.7 Generating Holidays for Holiday Calendar using Scheduler

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

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

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

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

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

   The UI displays the status of the batch.

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

4.2.1.4.8 Gather Stats of Database Tables

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

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

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

To Gather Stats of database tables, following these steps:

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

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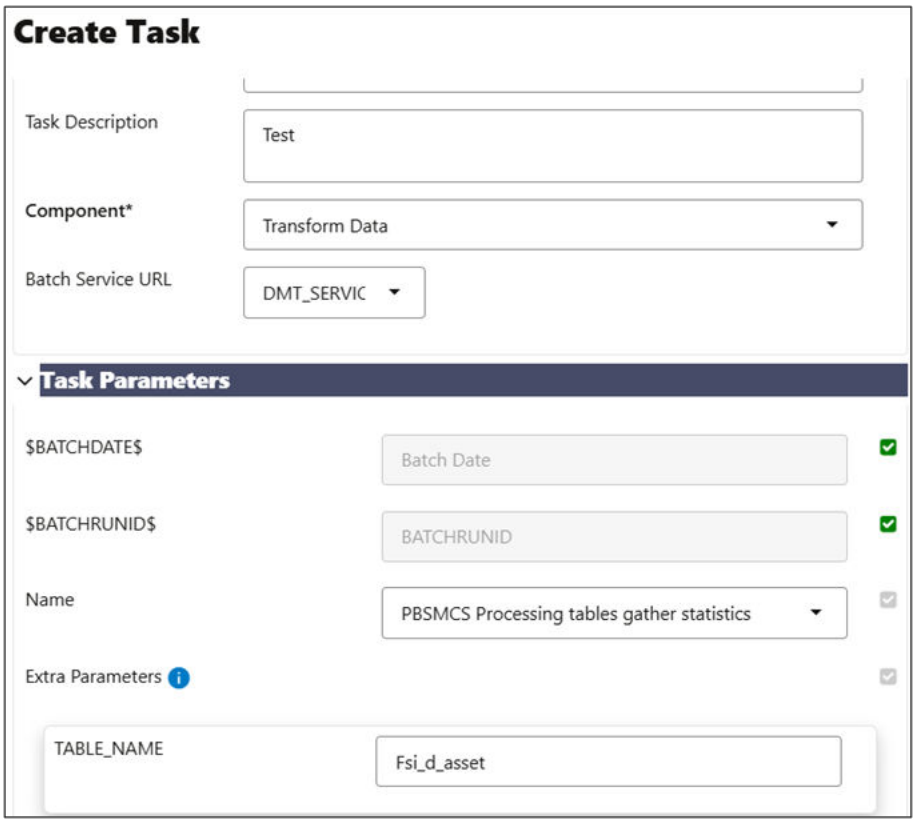
10. In the **Extra Parameter** field, enter the table name on which the gather stats to be done. You can enter only one table at a time. Individual tables need to be added in task and executed. Wildcard characters are not supported in Table Name.

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

Figure 4-16 Create Task



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

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

4.2.2 File Upload and Download Utility

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

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

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4.2.2.1 Upload or Download File from Object Store Using Console

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

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

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

Related Topics

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

4.2.2.2 Uploading/Downloading a File Using Utility

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

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

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

   The file name is automatically updated in the **Selected File** field.
3. Enter the **Prefix** to be added to the file name.

   The Prefix is added to the file name. In case, you have two files with the same file name, you can save them with different prefixes.
   Example: **/abc/test.txt** and **/def/test.txt**. Both these files have the same file name but different Prefixes.
4. Click **Upload** to upload the selected file.

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

   Complete the following steps to download a single file.

   a. Click the **Actions** menu corresponding to the file you want to download and select **Download.**
   b. Specify a name (optional) and file type (optional).

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c. Click **Save**.

Complete the following steps to download multiple files at once.

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

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

c. Specify a name for the compressed folder type.

d. Click **Save**

Deleting file(s)

Complete the following steps to delete single file.

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

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

Complete the following steps to delete multiple files at once.

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

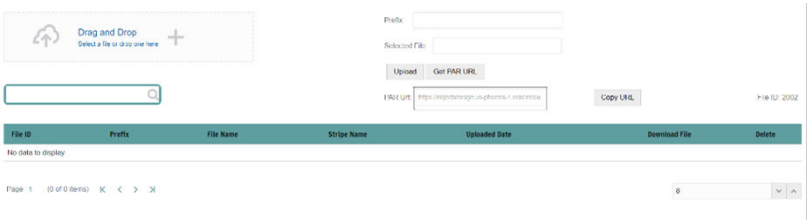
b. Click the **Delete Multiple Files** icon (top left corner).

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

4.2.2.3 Uploading/Downloading a File Using PAR URL

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

Figure 4-17 Get PAR URL



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

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

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

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

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

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

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

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

   ```
   curl -X PUT --data-binary '@<local-filename>' <unique-PAR-URL>
   ```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You can also use the following command.

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

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

   Use the following CURL command, to Scan using CLI:

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

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

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

4.2.3 File Upload Automation

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

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

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

4.2.3.1 Step 1: Generate Access Token

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

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

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

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


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4.2.3.2 Step 2: Generate PAR URL

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

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

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

PAR URL Generation Code Snippet

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

PAR URL Variable Assignment Code Snippet

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

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

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

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

4.2.3.3 Step 3: Upload file to Object Store

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

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

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

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

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

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

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

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

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

4.2.3.5 Automating the File Upload Process Using File Upload Utility

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

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

4.2.3.5.1 Executing the File Upload Automation Script

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

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

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

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

     Oracle Cloud Infrastructure Console > Identity Cloud.

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

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

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

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

  > **Note**
  >
  > The user should have appropriate roles and privileges. For more information about roles and priveleges, refer to #unique_153.

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

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

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

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

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

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

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

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

4.2.4 Generating PAR URL for File Operations

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

4.2.4.1 Generating PAR URL for File Upload

Generate PAR URL for File Upload

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

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

4.2.4.1.1 End Point Details

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

4.2.4.1.2 Calling the API to Generate the URL

To call the API:

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

   Syntax

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


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Example (truncated)

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

4.2.4.1.2.1 Request JSON Parameters

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

Table 4-12 Request JSON Parameters

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

Request JSON Sample

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


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4.2.4.1.2.2 Response JSON Parameters

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

Table 4-13 POST JSON Response

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

Response JSON Sample

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

4.2.4.1.3 Viewing List of Uploaded Files

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

Syntax

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

Example

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


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

Response

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

4.2.4.2 Generating PAR URL For File Download

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

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

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

To call the API:

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

   Syntax

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

   Example

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

   Response

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


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

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

To call the API, follow these steps:

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

Syntax

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

Example

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

Response

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

4.2.5 Deleting A File

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

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

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

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

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4.2.5.1 End Point Details

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

4.2.5.2 Deleting a File Using the File ID

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

To delete a file:

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

   Syntax

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

   Example (truncated)

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

   Response

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


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4.2.5.3 Deleting a File Using Filename

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

To delete a file:

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

Syntax

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

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

Example (truncated)

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

Response

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

4.2.5.4 Deleting Multiple Files Using Filenames

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

To delete multiple files:

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

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

   Syntax

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

   Example (truncated)

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

   Response

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

4.2.5.5 Delete files using a prefix value

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

To delete files using a prefix value:

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

   Syntax

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


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

Example (truncated)

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

Response

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

4.2.6 Data File History

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

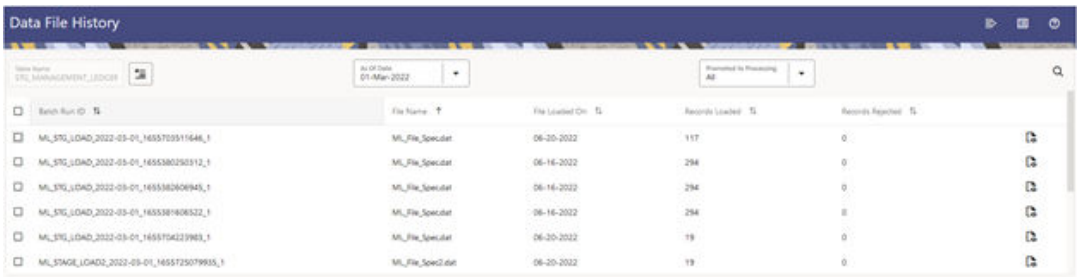
The Data File History summary screen allows you to do the following:

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

To open the Data File History window:

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

Figure 4-18 Data File History summary screen



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

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

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

Figure 4-19 File Details

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

Table 4-14 Advanced Actions

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

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

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  - **Delete Data from Processing**: The processing data uploaded from a file will be deleted.
  - **Scan for Invalid Members**: To scan the staging data and identifying the dimension member codes present in the staging table, but not present in the corresponding dimension tables.
  - **Create Invalid Members**: To populate the dimension tables with members identified in the above scan.
- **Help** (Button): Click the Help icon to view the Data File History help.

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

Table 4-15 Scan and create Invalid Members

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

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

Promoting a Data File for Processing

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

To promote a Data File for processing:

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

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

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

Reloading a Data File

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

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

4.3 Data Maintenance Interface

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

Form Builder

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

Data Entry

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

Process of DMI Windows

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

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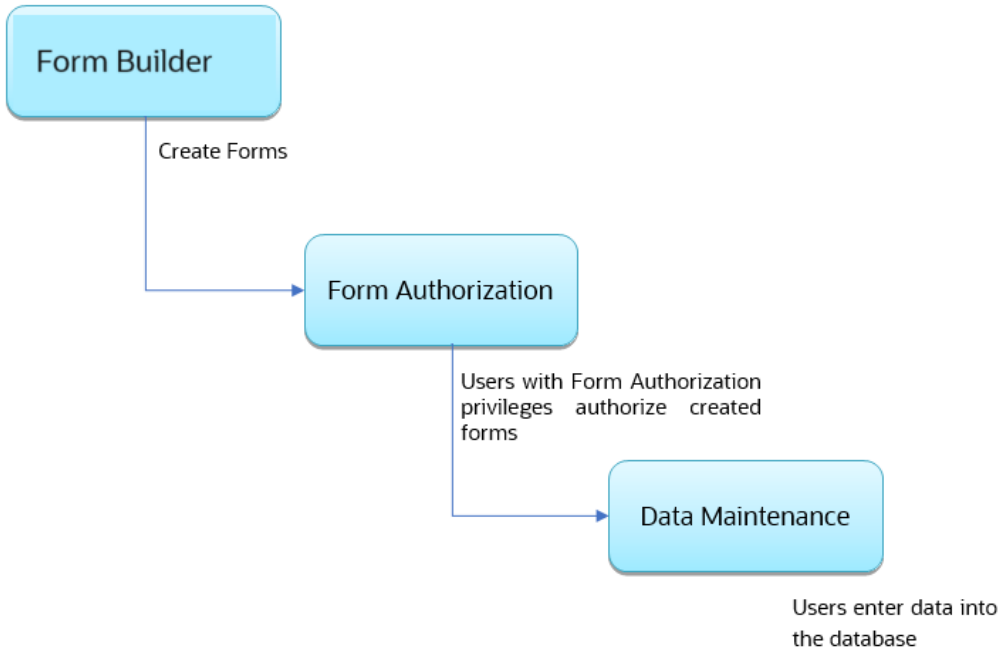
Figure 4-20 DMI Process Flowchart



User Role Mapping and Access Rights

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

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

Table 4-16 User Role Mapping for Data Maintainence Interface

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

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Table 4-16 (Cont.) User Role Mapping for Data Maintainence Interface

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

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

4.3.1 Access the Data Maintenance Interface

To access the Data Maintenance Interface (DMI):

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

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

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

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

4.3.2 Form Builder

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

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

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

To view the Form Definitions Summary:

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

   The following details are included the Summary page.

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

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

     - **Data Exporter** – creates form based on an entity table.
     - **Data Entry** – creates the form based on the entities, attributes and rulesets provided by the user.
   - **Status** - The processing status of the form definition. The various processing statuses are:
     - **Draft** – when the form is under development and is yet to be submitted for approval.
     - **Pending Approval** – When the approval is pending.

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  - **Approved** – When the form definition is approved.
- **Created By** - The Username of the logged in User who created the form.
- **Actions** - View, copy or edit or amend a form definition.
- **Info** - The form definition details including:
  - Created Date
  - Last Modified By
  - Authorizer
  - Authorizer comments

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

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

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

4.3.2.1 Creating New Forms in Form Builder

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

To add a form :

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

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

4.3.2.1.1 Creating Forms Using Excel Upload

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

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

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

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

To create forms using Excel Upload:

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

   At any point of time during the form creation, click **Save** to add the new form to the Form Summary. The form is saved in the **Draft** format. Click **Actions** and select **Edit**, to update the form definition.
2. Click **Continue** to access the **File Upload** tab.
3. In the **File Upload** tab, enter the following details:
   - **Template Name** and **Description** for the excel template.
   - Click **Drag and Drop** and select the excel file to update the required table.

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

   The excel file is uploaded and a confirmation box is displayed, and the **Mapped Entities Tab** is displayed.
4. After entering the **File Upload** information, click **Continue** to access the **Mapped Entities** tab.
5. In the **Mapped Entities** tab, select the **Primary Entity** name of the table that needs to be modified.

   > **Note**
   >
   > Only the tables data which can be edited are displayed in the **Entity** drop-down list.

   If the table has Child tables, the Child tables are displayed in the **Mapped Entities** tab. You can select the required child tables for which data should be input during data entry.
6. Select **Enable Bulk Authorization** if you want to enable the bulk authorization of all the records when you edit an approved Form from Data Entry.

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7. Enable **Auto Approve** if you want the Forms Definition to be automatically approved from Forms Definition Summary page and is enabled for data entry.

   Alternatively, you can also get the form approved manually. For manual approval, disable the auto approve option.

   A user with the required role can then perform the data entry without the need for an approval process. For more information, see User Role Mapping and Access Rights.

8. Click **Continue**, to proceed with the **Mapped Attributes** tab.
9. Click the drop-down arrow corresponding to the table in the Entity Name.

   The source attributes from the table and the mapped attributes from the Excel file are displayed. If the selected table has Child tables, the Child tables that you select from the Mapped Entities tab are also displayed in the **Mapped Attributes** tab. You can configure the attributes for the master table and its child tables here.

10. Click the required mapping in the **Override Mapping Column** and enter the required attribute name if you want to change the default mapping.
11. To activate data security, Select the check box next to the **Attribute Name**, in the **Mapped Attributes** Column.
12. Click the **Lock** icon adjacent to a specific attribute name, to configure a specific data security condition.

    The condition that you configure is applicable when a user performs the data entry for the table records for each approved Forms Definition from the Data Entry Page. For more information, refer Enabling Data Security for New Form Definitions.

13. Click **Continue** to proceed to the **User Security** tab.
14. Select the user or user groups who can perform data entry to maintain the data in the table.

    For more information about adding user security, refer to Enabling User Security for New Form Definitions.

15. Click **Data Preview** to preview the form data.
16. Click **Save** if you want to save the forms definition in draft format. The form is added to the **Form Summary** with **Draft** status.
17. Click **Submit** if you want to submit the Forms Definition for manual/auto approval.

    For more information refer to Approving and Rejecting New Form Definitions. After approval/auto approval, the form is added to the **Form Definition Summary**.

4.3.2.1.2 Creating Forms Using Data Entry Option

Use the Data Entry option to create a Forms Definition and select the table and attributes that you want to modify.

You can enter the values for the table records in the approved Forms Definition from Data Entry, after the new Forms Definition is approved from the Forms Definition Summary Page.

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

To create a forms definition:

1. Select **Data Entry** in Create New Form Definition page and enter the required details.
2. Enter the following details:
   - **Code** - Unique form code. This value is auto-generated.

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- **Name** - The form name. You can enter between 3 to 100 characters. Only alphabets, numbers, spaces, and underscores are allowed.
- **Description** - The form definition description. You can enter between 3 to 100 characters. Only alphabets, numbers, spaces, and underscores are allowed.
- **Threshold** - The maximum number edits allowed per row.

3. Click **Continue** to access the **Entities tab**.
4. Select the table that you want to modify in the **Primary Entity** Field.

> **Note**
>
> Only the tables data which can be edited are displayed in the **Entity** drop-down list.

If the selected table have child tables, the child tables is also displayed. You can select the required Child tables for which you wish to input the data during data entry.

> **Note**
>
> You can select up to four child tables only for each master table.

5. Select **Enable Bulk Authorization**, if you want to enable the bulk authorization of records while performing data entry.
6. Enable **Auto Approve** if you want the Forms Definition to be automatically approved from Forms Definition Summary page and is enabled for data entry.

   Alternatively, you can also get the form approved manually. For manual approval, disable the auto approve option.

   A user with the required role can then perform the data entry without the need for an approval process. For more information, see User Role Mapping and Access Rights.
7. Click **Continue**, to proceed with the **Attributes** tab.
8. Select the **Filter** from the existing filters in the drop-down list or click **Filter** to apply a new attribute filter to the form definition.
9. Click the drop-down arrow corresponding to the table in the **Entity Name**, to view the attributes in the entity table.

   If your table has child tables, the Child tables that you select from the Entities tab also gets displayed in the Attributes tab.
10. Select the attributes for which you want to modify the data from the **Attribute Name**.
11. Select **Participate in Data Security** if you want to configure a specific condition.
12. Click the **Lock** icon adjacent to a specific attribute name, to configure a specific data security condition.

    The configured condition is applicable when a user enters data in table for each approved Forms Definition from the Data Entry Page. For more information, refer Enabling Data Security for New Form Definitions.
13. Enter **Select Columns** to search and select specific columns.
14. Click **Continue** to access the **Ruleset** tab.

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The list of attributes associated with the parent and the Child tables are displayed in the Ruleset tab.

15. Assign permission to add data during data entry for those attributes that are set to Editable/Read-only mode. You cannot modify the key fields set in read-only mode.
16. Click Continue and proceed to the **User Security** tab.
17. Click **User Security** to select the user or user groups who can perform data entry to maintain the data in the table.

    For more information about adding user security, refer to Enabling User Security for New Form Definitions.
18. Click **Submit** if you want to submit the Forms Definition for manual/auto approval.

    For more information refer to Approving and Rejecting New Form Definitions. After approval/auto approval, the form is added to the **Form Definition Summary**.

4.3.2.1.3 Creating Forms Using Data Exporter

Forms created using Data Exporter are used to export table data to `CSV` or `JSON` format.

While creating forms using Data exporter, you can also include filters and dynamic placeholders to view and export specific set of data.

To create forms using Data Exporter:

1. Select **Data Exporter** in Create New Form Definition page.
2. Enter the following details:
   - **Source** - Select the input source as table/view.
   - **Code** - Unique Form Code. This is auto-generated.
   - **Name** - The name of the form in Form Name. You can enter between 3 to 100 characters. Only alphabets, numbers, spaces, and underscores are allowed.
   - **Description** - The Form Definition description. You can enter between 3 to 100 characters. Only alphabets, numbers, spaces, and underscores are allowed.
   - **Row Limit Per File** - The number of maximum table rows allowed per file. The minimum number of rows is 100 and the maximum limit is 100000.

     For example, if you have 500 rows in a table and the row limit is set to 100, then the table is split into 5 files.
3. Click **Continue** to proceed with the **Entity and Attributes Details** tab.
4. **Compress File**: Keep this option selected to automatically compress files into a .zip archive when downloading. Example: If you have 500 rows in a table and the row limit is set to 100, then the table is split into 5 files. With the **Compress File** option enabled, the user can download these 5 files compressed into a single .zip file.
5. **Redaction**: Keep this option selected to redact personal information (PI) from users who do not have the DATASECURITY role. For more details, see User Role Mapping and Access Rights.

   For information on how full and partial redaction are performed, see Redaction Functions in Data Security Management Guide.
   - The redacted data is displayed as stored in the database. Example: For the number data type, if the redacted data is appearing as 0, the Data Preview window shows the data as 0. Similarly, for the VARCHAR data type, if the redacted data is appearing empty in the database, the Data Preview window shows the data as empty.

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- If the report contains redacted data, the user must have the DATASECURITY role to download it from the **Forms Definition – Summary** page.

6. Select the table that you want to modify in the **Entity** Field.

   If the selected table have child tables, the child tables is also displayed. You can select the required Child tables for which you wish to input the data during data entry.

   > **Note**
   >
   > You can select up to four Child tables only for each Master table.

7. Select the **Filter** from the existing filters in the drop-down list or click **Filter** to apply a new attribute filter to the form definition.
8. Click **Select columns** to view only specific columns.
9. Enable **Auto Approve** if you want the Forms Definition to be automatically approved from Forms Definition Summary page and is enabled for data entry.

   Alternatively, you can also get the form approved manually. For manual approval, disable the auto approve option.

   A user with the required role can then perform the data entry without the need for an approval process. For more information, see User Role Mapping and Access Rights.
10. Click the drop-down arrow corresponding to the table in the **Entity Name**, to view the source attributes from the table and the mapped attributes from the Excel file.

    If the selected table has Child tables, the Child tables that you select from the Mapped Entities tab are also displayed in the **Attributes** tab. You can configure the attributes for the master table and its child tables.
11. Click **Continue** to access the **Data Preview** tab preview the form data.
12. Click **Submit** if you want to submit the Forms Definition for manual/auto approval.

    For more information refer to Approving and Rejecting New Form Definitions. After approval/auto approval, the form is added to the **Form Definition Summary**.

4.3.2.1.4 Creating Data Filters for New Form Definitions

Filters help to view and export specific set of data from data exporter forms.

Complete the following steps if you want to add filters to the Forms Definition:

1. Click **Filter**, to access the **Filter Condition** pane.
2. Enter/ select the following details.
   - **Column** - Select the column from the applying the filter.
   - **Condition** - Select one of the following filter conditions, to filter the column data.
     - **Comparison** - '=', '!=', '< >', '>', '<', >=, <=,'IN', 'NOT IN', 'ANY', 'BETWEEN', 'LIKE', 'IS NULL', and 'IS NOT NULL'.
   - **Type** - Select one of the following filter types.
     - **Static** - Select Static, to enter a value and execute the filter using only one value. You cannot change the value at a later point.
     - **Dynamic** - Select Dynamic, to change the filter value when needed.
       After setting the filter type to Dynamic, select the **Placeholder** and set one of the default seeded values, to process the filter.

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> **Note**
>
> Only values that are already seeded in the Database table, are displayed in the Placeholder drop-down list.

- **Filter Value** - Select/enter the filter value.

> **Note**
>
> For Language Placeholder the default locale language is displayed and cannot be modified.

3. Click **Add** to add a new Filter expression. You can add multiple Filter expressions to the same filter.

   The filter is added to the list of filters.

   Mouse-over the place holder filter, to view more details about the filter.

4. Click **Validate** to verify the filter condition is valid.

   A confirmation is message is displayed, if the filter is valid.

5. Click **Apply**, to add the new filter to the filter condition.
6. Click **Reset**, to clear all the filter expressions and create a new expression.
7. Click **Delete** to delete an existing filter expression.
8. Click **Edit** to modify a filter expression. After editing the expression, click **Validate**, to verify if the condition is valid.
9. Click **Apply** to add the filter expression to the form definition.

4.3.2.1.5 Enabling Data Security for New Form Definitions

Data security conditions allows you to apply certain filters when a user performs the data entry for the table records for each approved Forms Definition from the Data Entry page.

Consider that you configure the condition `COUNTRY_NAME = 'INDIA'` for the reference table **DIM_COUNTRY**. When a user performs the data entry for this Forms Definition from the Forms Definition - Summary Page and enters a country name other than 'INDIA', the record gets rejected by the application when another user approves this record.

Complete the following steps to configure Data Security for the Forms Definition:

1. Select the check box next to the **Attribute Name**, in the **Mapped Attributes** Column.

> **Note**
>
> Data Security information must be configured for each attribute name, separately.

2. Click the **Lock** icon, to access the **Data Security page**.
3. Select the **Reference Table** based on which you want to build your condition from the Reference Table drop-down list.
4. Select the required column, condition, and filter value, and build the required expression.
5. Click **Apply**, to enable the data security for the new form definitions.

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4.3.2.1.6 Enabling User Security for New Form Definitions

The User Security option helps you to select the users/user groups who can add, edit, delete and/or authorize data entry.

To enable user security:

- Select the required user group or user to assign permissions from the **Map Users / Groups**, to complete the user security configuration.

  When you select the user group or user, the permissions for each approved Forms Definition are displayed. These permissions are the actions that the selected user group or user can perform while performing Data Entry.

Table 4-17 Permissions in the Map Users / Groups Pane

Option	Description
Add /Edit	Add or modify records in an approved Forms Definition
Delete	Delete records in an approved Forms Definition
Authorize	Authorize the records in an approved Forms Definition
Duration From	Optional. Select the start date for which the permissions are available to the user or user group.
Duration To	Optional. Select the end date for which the permissions are available to the user or user group.

> **Note**
>
> If you select a user group for User Security, you can view the users mapped to that group by clicking the **Users** icon.

4.3.2.2 Approving and Rejecting New Form Definitions

You can validate and approve the new Forms Definition if you have the required role assigned to you.

If the configuration in the Forms Definition is incorrect, you can reject the Forms Definition. The rejected Forms Definition changes into Draft status. You can then request the required user to edit the Forms Definition and submit it for approval again.

You can also view, copy, and edit each Forms Definition from the Forms Definition – Summary page by clicking Menu. These actions are available based on the roles assigned to you. For more information, refer User Role Mapping and Access Rights.

4.3.2.2.1 Approving a Forms Definition

You can approve new forms based on the assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights.

To approve a Forms Definition:

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1. In the Form Builder, click **Menu** in the Forms Definition that is in **Pending Approval** status, and then click **Approve**, to access the **Configure page**.
2. Click **Approve** and then enter the required description for the approval in the Comments field.
3. Click **Submit**, to approve the form definition and view it in the **Data Entry page**.

   Once the form is approved, you can edit/amend the approved forms if you have **DMIDGNAMND** role assigned.

4.3.2.2.2 Rejecting a Forms Definition

You can reject new forms based on the assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights.

To reject a Forms Definition:

1. In the Form Builder, click **Menu** in the Forms Definition that is in **Pending Approval** status, and then click **Reject**, to access the **Configure page**.
2. Click **Reject** and then enter the required description for the approval in the Comments field.
3. Click **Submit**.

   The Forms Definition is rejected, moved to **draft** status. The form definition is displayed in Forms Definition Summary page. You can then edit the Forms Definition in draft status and submit it for approval again.

   For more information on editing a Forms Definition, see Editing Form Definitions.

4.3.2.3 Managing Form Definitions

You can view, edit, copy, and delete the existing Form Definitions from the Form Definition Summary Page, based on the assigned roles.

To check about the assigned roles, refer to User Role Mapping and Access Rights.

In the Summary Page, highlight a specific Definition and click **Action**. The following options are displayed:

Table 4-18 Action Details

Action	Description
View	View the **Member details** for a specific Member Definition.
Edit/Amend	Edit/amend the **Member details** of a form definition.
Copy	Copy the Member Definition Details and create another Member Definition by changing Alphanumeric Code, Numeric Code and Name.
Re-Upload	Upload a new Excel sheet for an Excel upload form definition. You need to delete the attached excel sheet before uploading the new data.
Delete	

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Table 4-18 (Cont.) Action Details

Action	Description
Approve	If you have the required role, you can approve a new Form that is in Awaiting Approval status. For more information, refer to Approving a Forms Definition.
Reject	If you have the required role, you can approve a new Form that is in Awaiting Approval status. For more information, refer to Rejecting a Forms Definition.

4.3.2.4 Viewing Form Definitions

You can view the form definition details using the View option, based on the assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights.

You can view the details of an individual Form Definition:

1. Highlight the Form Definition and click **Action**.
2. Click **View**, to access the **Form Definition page** with the selected Form definition details.

4.3.2.5 Editing/Amending Form Definitions

You can modify both approved and rejected form definitions, based on the assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights. Forms that are already approved cannot be edited. You can amend the approved forms if you have **DMIDGNAMND** role assigned.

> **Note**
>
> You cannot amend an approved form, if the form has any pending data entry activity.

To edit individual form details:

1. Highlight the form definition and click the **Action**.
2. Click **Edit**, to access the **Form Definition page** with the details.

   To modify an approved form, click **Amend**.
3. Update the required information and click **Submit**.

   You can also **auto-approve** the form during submission.

   The modified form definition is updated in the form design summary.

4.3.2.6 Copying Form Definitions

You can copy individual Definition Details, to recreate another new Definition, if you have assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights.

To copy an existing form definition:

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1. Highlight the Definition and click **Action**.
2. Click **Copy**, to view the **Form Definition Page**.
3. Edit the unique information and modify details like entity table, attribute filters, user and data security details and click **Save**, to create a new form definition.

4.3.2.7 Re-Uploading Form Definitions

You can attach a new Excel Sheet to an Excel upload form definition and re-upload the form definition, based on the assigned roles.

To check about the assigned roles, refer to User Role Mapping and Access Rights..

To re-upload an Excel upload form definition:

1. Highlight the Definition and click **Action**.
2. Click **Re-Upload**, to access the **Form Definition page**.
3. In the **File Upload** tab, click **Remove**, to delete the existing Excel sheet.
4. Click **Drag and Drop** and select the new Excel sheet to be uploaded.

4.3.2.8 Deleting Form Definitions

You can delete the form definitions that are in Draft status, based on the assigned roles.

To check about the assigned roles, refer User Role Mapping and Access Rights.

To delete a form definition :

1. Highlight the form definition and click the **Action**
2. click **Delete**.

   The selected form definition is deleted after confirmation.

4.3.3 Data Entry

The Data Entry feature of Data Maintenance Interface (DMI) enables you to maintain or modify the table data by using the Forms Definition that is created and approved from Forms Definition Summary page. For more information on Forms Definitions, see Creating Forms Definition.

If the approved Forms Definition is created by using the designer option, a user with the necessary role can add or modify the records in the table as per the configuration in the Forms Definition. These records are then sent to another user with the necessary permission for final approval.

If the approved Forms Definition is created by using an Excel file, a user with the necessary permission can verify and approve the records that are modified with the values from the Excel file. If the records modified by the Excel file are incorrect, the user can reject the records. The rejected record can be modified by a different user with the necessary role and can be sent for the final approval again. The Forms Definitions that are created by using an Excel file are labeled with an Excel icon in Data Entry.

4.3.3.1 Viewing Data Entry

You can view records based on the assigned roles. For more information about the roles, refer to User Role Mapping and Access Rights.

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Complete the following steps to view Data entry:

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

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

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

3. Click **Data Management Tools** and click **Data Management Interface**.

   The **Navigation List** is displayed.

4. Click **Data Entry**.

   The **Data Entry page** is displayed. All the approved forms are displayed in the Data Entry page. Forms in Draft and Awaiting Approval status can be accessed from the Form Builder page.

4.3.3.2 Adding Data to Table – Forms Created Using Data Entry

If the Forms Definition is created using the designer option, the user with the necessary role can add or delete records and also update the values for the table records as per the configuration in the Forms Definition.

These records are then submitted for approval to another user with the necessary role. For more information, refer to User Role Mapping and Access Rights.

To update/delete data in the table records:

1. Highlight the record and click the **Action**.
2. Click **Edit**, to update the records.

   The records are classified based on the following Status:

   - **Draft** – Records that are created but not submitted. In Draft state, you can add new rows or delete/edit an existing row submitted for auto-approval.
   - **Ready** – Records that are approved. You can only edit the records.

   For adding/deleting records and editing existing draft or Ready records, refer to the following sections:

Related Topics

- Adding/Editing a Draft Record
  You can add a record to the table or edit a record set in the Draft status. The added record is set to Draft status.
- Deleting Draft Records

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4.3.3.2.1 Adding/Editing a Draft Record

You can add a record to the table or edit a record set in the Draft status. The added record is set to Draft status.

When adding/editing a draft record, the data is displayed as entered in the UI. You can view/ modify data in the personal information (PI) columns based on the assigned roles. For more information about the roles, refer to User Role Mapping and Access Rights.

To add or edit a draft record:

1. Select **Draft** from the **Status** drop-down list, to view all the entity records set to **Draft** status.
2. To add a new record, click **Add**.

   A new entry set to **Draft** status is added to Entity details page. This entry is empty. Edit the record to add the attribute details.
3. To edit a record, click **Edit** next to the record.
4. In the **Edit** page, enter the values in the attributes that you want to modify and click **OK**.

   You can repeat the steps for all the records for which the data needs to be entered.
5. To modify all the entries in a specific column, click **Bulk Update**.
   a. Select the column to modify the data.
   b. Enter the new value and click **OK**.
6. Click the modified record in draft status, and then click **Submit for Approval** or **Submit with Auto Approval**.

   If the record is submitted with auto approval, it is approved instantaneously.

   If the record is submitted for approval, is sent for approval, and is changed to **Awaiting status**. A user with the necessary role can approve these records. For more information, see Approving and Rejecting Records after Data Entry.

   After approval, the status is changed from **Draft** to **Ready** status. Refer Editing Approved Records, to edit the records in **Ready** status.

> **Note**
>
> If the user has configured the **Participate In Data Security** option while creating a Forms Definition, you must enter the value as per the configured condition. If you enter a value that does not meet the condition, then the record is rejected by the application and the approval gets failed. You can view the details of the rejection by using the Audit trail option for each record. For information on the Participate In Data Security option, see Enabling Data Security for New Form Definitions.

4.3.3.2.2 Deleting Draft Records

You can delete the records in Draft status. If the record is approved and moved to Ready status, it cannot be deleted.

1. Select **Draft** from the Status drop-down list.

   The entity records with Draft status are displayed for entering data are displayed.
2. Select a record and click **Delete**.

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To delete multiple records, select all the required records and click **Delete**.

To bulk delete all the records, select the Check box on the Header. All the records are selected. Then, click **Delete**.

4.3.3.2.3 Editing Approved Records

The approved records are set to Ready Status.

When editing records in Ready Status, the data is displayed as stored in the database. You can view/modify data in the personal information (PI) columns based on the assigned roles. For more information about the roles, refer to User Role Mapping and Access Rights.

When you edit the record, it is moved to Draft Status.

1. Select **Ready** from the Status drop-down list, to view the entity records with Ready status are displayed.
2. To edit a record, click **Edit** next to the record.
3. Update the values for the attributes that you want to modify and click **OK**.

   You can repeat the steps for all the records for which the data needs to be entered.
4. To modify all the entries in a specific column, click **Bulk Update**.
   a. Select the column to modify the data.
   b. Enter the new value and click **OK**.
5. Click the modified record in draft status, and then click **Submit for Approval** or **Submit with Auto Approval**.

   To submit multiple records, select all the required records and click **Submit**.

   To bulk submit all the records, select the check-box on the header. All the records are selected. Then, click **Submit**.

   If the record is submitted with auto approval, it is approved instantaneously. The record is sent for approval and is changed to Awaiting status. A user with the necessary role can approve these records. For more information, see Approving and Rejecting Records after Data Entry.

> **Note**
>
> If the user has configured the Participate In Data Security option while creating a Forms Definition, you must enter the value as per the configured condition. If you enter a value that does not meet the condition, then the record is rejected by the application and the approval gets failed. You can view the details of the rejection by using the Audit trail option for each record. For information on the Participate In Data Security option, see Enabling Data Security for New Form Definitions.

4.3.3.3 Forms Created Using Excel Upload

When a Forms Definition created using an Excel file is approved from Forms Definition Summary Page, the table records in the selected table are updated using the data in the Excel file.

The records are set to **Awaiting** status for the approved forms definition in data entry page. You can verify the records modified by the Excel file records and approve them if you are assigned to the necessary role. If the records modified by the Excel file are incorrect, you can

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reject the records. The status of the rejected records is changed to Draft. A user with the necessary role can edit the records in draft status and submit them for approval again.

- To approve records, see Approving a Draft Record.
- To reject records, see Rejecting a Record.
- To edit a record in draft status, see Editing a Rejected Record.

4.3.3.4 Approving and Rejecting Records

A user with the necessary role can approve or reject the edited records.

For more information related to user roles, refer to User Role Mapping and Access Rights.

4.3.3.4.1 Approving Draft Records

You can approve the records set to Draft status.

To approve records :

1. In the **Data Entry** page, select **Draft** from the **Status** drop-down list.

   The entity records with Draft status are displayed.
2. Select the required record.

   You can select multiple records, to perform bulk Approval. Bulk Approval is enabled only if Bulk Authorization is activated during Form Creation.
3. Enter the required comment in the Comments Field, and then click **Approve**.

   The record is approved successfully with the values from the Excel file.

4.3.3.4.2 Rejecting a Record

You can reject an record set to Awaiting status.

To reject a record :

1. Click **Menu** in the required Forms Definition from the Data Entry page.
2. Click **Edit**.

   The Entity Details page is displayed. The records that are waiting for the final approval are displayed here.

   Select the required record, and then click **Reject**.

   You can select multiple records to perform bulk rejection. Bulk rejection is enabled only if Bulk Authorization is activated during Form Creation.
3. Enter the required comment in the Comments field, and then click **Reject**.

   The record is rejected, and the status is changed to **Draft**. A user with the necessary role can now edit the record.

4.3.3.4.3 Editing a Rejected Record

You can edit the records that are in draft status and send them approval to the user with the necessary role.

To edit a record:

1. Select **Draft** from the **Status** drop-down list.

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2. Click **Edit** in the record that you want to edit.
3. Modify the required attributes, and click **OK**.
4. Select the record and then click **Send for Approval**.

   The modified record is now moved to **Awaiting** status. A user with the necessary role can approve the record.

> **Note**
>
> If the user has configured the **Participate In Data Security** option while creating a Forms Definition, you must enter the value as per the configured condition. If an incorrect value is entered, the record gets rejected by the application and the approval is failed. You can view the details of the rejection by using the Audit Trail option for each record. For information on the Participate In Data Security option, see Enabling Data Security for New Form Definitions.

4.3.3.5 Exporting Data Exporter Form Definitions

After creating data exporter form definitions, you can export or download the reports to CSV or JSON format.

To export or download a report:

- In the Data Entry summary page, click **Action** next to the data exporter form to be exported and select one of the following options
  - Custom Export - export the report only for selected attributes. You can also create and apply filter conditions to specific columns to generate customized reports.
  - Export - export the report for all the attributes. A complete report including all the records and attributes is generated.

4.3.3.5.1 Custom Exporting Data Exporter Forms

When you create forms using Data Exporter option, you can export the report to .CSV format.

To custom export data exporter forms :

1. Click **Action** next to the form to be exported and click **Custom Export**, to view the **Data Exporter - Configure** page.
2. Click **Start**, to access the **Entity and Attributes** tab.
3. Select the attributes to be added to the custom report.
4. Click **Continue**, to view the **Filters** tab.
5. Set the filter conditions for specific columns and click Continue to view the **Data Preview** tab.
6. Select the report file format (.CSV or JSON) and also the number of records per page.
7. View the list of records to validate the data.
8. Click **Export** to export the report in CSV format.

   The Data export request will be submitted.
9. Proceed to the Data entry page to view the status of the form and download the report.

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4.3.3.5.2 Exporting Data Exporter Forms

Forms created using Data Export option can be exported as a .CSV file or a JSON file.

Export Data Exporter forms:

1. Click **Action** next to the form to be exported and click **Export**.

   The Data export request is submitted.

2. Proceed to the Data entry page to view the status of the form and download the report.

4.3.3.5.3 Viewing Data Exporter Report Status

View the status of all the reports generated based on a Data Exporter form.

To view report status:

- Click **Action** next to the form to be exported and click **Status/Download**, to view the status of all the reports generated for a specific data exporter form.

4.3.3.5.4 Downloading Reports

You can download the reports exported as .CSV file.

If the report contains redacted data, you must have the DATASECURITY role to download it. See User Role Mapping and Access Rights.

To download a report:

1. Click **Data View**.

   The **Data Entry page** is displayed.

2. Click **Action** next to the form to be exported and click **Status/Download**, to access the **Data exporter Report Status** page.

3. Click the **Download** icon adjacent to a report to download the report to the local directory in `.CSV` format.

   You can also copy the link to download the report. Enter the link in a Web browser, to access the report.

4.3.4 Adding DMI Tasks in Scheduler Service

The Data maintenance Interface is now integrated with the Scheduler services and you can use Scheduler services, to process form definitions created using Data Exporter.

By using Scheduler Services for DMI automation, you can automate and streamline the data processing for form definitions created using the Data Exporter options.

Ensure that you have the assigned roles to perform automated data exporter form download.

To schedule a DMI task for form definitions created using Data Exporter:

1. Log in to your **Cloud services** and access **Scheduler Services**.
2. Select **Define Batch**, to view the list of existing batches.
3. In the Define Batch page, click **Create**, to access the **Create Batch** page.
4. Enter the generic Batch information (**Code, Batch Name, Batch Description, and Batch Parameters**), and click **Save** to create a new Batch and proceed with creating a new Task.

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5. In the **Left Navigation list**, select **Define Tasks**, to access the list of existing tasks.
6. In the Define Task page, select the **DMI Batch** to associate the new task
7. Click **Add**, to **Create a new task**.
8. Enter the generic Task details (**Task Code, Task Name and Task Description**), and the following DMI specific details:
   - **Component** - Select Data Maintenance Interface, to assign this as a DMI specific task.
   - **Report Template** - Select **Pre-defined template**, to access the following DMI specific template parameters.
     - **App ID** - The unique application ID of the application utilizing the Scheduler services for task automation.
     - **Module Name** - Select the module required for the DMI tasks, from the list of Seeded modules.
     - **Report Code** - Select the Report code to be added to the generated report.
     - **Report Type** - Set the report type to `CSV/JSON`.
     - **Available Place holders** - (Optional). Select the placeholder required for the report.
     - **Placeholder Values** - (Optional). Enter the placeholder values to be included in the generated report.
     - **Additional Filters** - (Optional). Enter the filters to be applied to the data, to generate reports with specific information. For details, see Dynamically export relevant records.
     - **Report Name Prefix** - (Optional). Enter the unique prefix to be added to the report name for easy identification of the report.
     - **Report Name** - (Optional). Provide a name for the report to be generated.

   > **Note**
   >
   > If the export definition was created before 24D release, you must recreate it. This is required because an enhancement in Scheduler Services now captures the base URL as part of the definition.

9. Click **Save** to create a new DMI specific task, and proceed with scheduling the batch.
10. In the Left Navigation list, select **Schedule Batch**, to access the list of batches.
11. Select the DMI batch for execution and click **Execute**.
12. During batch execution, click **Monitor Batch**, to check the progress.
13. Select the **Batch** and the **Run ID** to access the required task, and click **Start Monitor** to view the task execution progress in the **Visualizations** tab.
14. Click **List View** to view the task execution details of all the executed tasks.

    After the task execution is complete, the generated report is saved to the object store.
15. Click **View Execution Logs** corresponding to the DMI task, to view the execution log information.
16. Scroll to the required **Batch Run Id** and **copy the log details to clipboard**.
17. Paste the copied log information to a notepad, to get the PAR URL for downloading the report.

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18. Paste the PAR URL in a Web browser, to download the report to the local directory.

4.4 Data Quality Framework

Data Quality Framework consists of a scalable rule-based engine which uses a single-pass integration process to standardize, match, and duplicate information across global data.

Topics:

- Introduction to Data Quality Framework
- Roles and Functions for Managing DQ Framework
- Data Quality Rules
- Data Quality Groups
- Adding a DQ Check Task
- Execution Summary

4.4.1 Introduction to Data Quality Framework

Data Quality Framework consists of a scalable rule-based engine which uses a single-pass integration process to standardize, match, and duplicate information across global data.

Data Quality Framework within the Infrastructure system facilitates you to define rules and execute them to query, validate, and correct the transformed data existing in an environment. This framework includes the following components:

- Data Quality Rules - Data Quality Rules allows you to create a DQ (Data Quality) definition and perform Data Quality checks using Single column and Multi-column checks.
- Data Quality Groups - Data Quality Groups facilitates you to logically group the defined DQ definitions.

4.4.2 Roles and Functions for Managing DQ Framework

The following roles and function are required to create, view and manage the Rules and Groups in DQ Framework.

Role	Action
DQACC - DQ Access	Data Quality Rule Access Role
DQADVND - DQ Advanced	Data Quality Rule Advanced Role
DQAUTH - DQ Authorize	Data Quality Rule Authorize Role
DQAUTOAUTHR - DQ Auto Authorize Rulw	Data Quality Auto Authorize Rule
DQREAD - DQ Read	Data Quality Rule Read-only Role
DQWRITE - DQ Write	Data Quality Rule Write Role

Functions	Action
DQ_SUMM - Data Quality Rule Summary	Access DQ Rule Summary
DQ_GP_EXEC - Execute Data Quality Group	Execute DQ Rule Group
DQ_GP_ADD - Add Data Quality Group	Add DQ group
DQ_ADD - Add Data Quality Rule	Add DQ Rule
DQ_EDT - Data Quality Edit Rule	Edit DQ Rule

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Functions	Action
DQ_VIW - Data Quality View Rule	View DQ Rule
DQ_GP_VIW - Data Quality View Rule Group	View DQ Rule Group
DQ_GP_DEL - Data Quality Delete Rule Group	Delete DQ Rule Group
DQ_DEL - Data Quality Delete Rule	Delete DQ Rule
DQ_AUTH - Data Quality Authorisation Rule	Authorize DQ Rule
DQ_GP_EDT - Data Quality Edit Rule Group	Edit DQ Rule Group
DQ_GP_ADD -Data Quality Add Rule Group	Add DQ Rule Group
DQAUTOAUTH - Data Quality Auto Authorize	Save the Rule/Group in authorized state
DQ_PURGE - DQ Rule Purge	Purge the DQ Rule
DQ_GP_SUMM - Data Quality Group Summary	Access DQ Group Summary
DQ_GP_EXEC - Data Quality Execute Rule Group	Execute DQ Rule
DQ_GP_PURGE - DQ Group Purge	Purge the DQ Group
DQ_GP_AUTH - DQ Group Authorisation	Authorize DQ Group
DQ_EXE_SUMMARY- DQ Execution Summary	Access DQ Execution Summary
DQ_EXE_ASSIGN - DQ Execution Assignment	Enable Data correction in the execution summary

4.4.3 Data Quality Rules

Data Quality Rules allows you to create a DQ (Data Quality) definition using data quality checks based on single column or multiple columns of a single base table. The defined Data Quality Rules can be logically grouped and executed together.

4.4.3.1 Data Check Definitions

Data Check definitions included the Data Quality Rules help in performing data quality check and correction.

You can include the following Data quality checks in the DQ Rule.

- **Single Column Check** - You can set the Check Type to Single Column Check during DQ Rule creation. This check will perform Data Quality Check on only one column selected during Rule creation. For more details about the various Single column Checks, refer to Single Column Data Check Definitions.
- **Multi Column Check** -You can set the Check Type to Multi Column Check during DQ Rule creation. This check will perform Data Quality Check on one or more columns of a single base table, selected during Rule creation. For more details about the various Multi-column Checks, refer to Multi Column Data Check Definitions.

4.4.3.1.1 Single Column Data Check Definitions

Single Column Data Checks help to perform data quality check on only one column selected during DQ Rule creation.

You can include the following Data Quality checks in the DQ Rule, if the check type is set to Single Column Check.

- **Range Check** - Range Check identifies if the base column data falls outside a specified range of Minimum and Maximum value. Range check can be enabled only if the base column has date or number value.
  - Select the check-box to enable the Range check.

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- Set the warning level to **Severity**, **Warning** or **Information**.
- If the selected Base Column is of **Date** type, select Minimum and Maximum date range. If the selected base column is of **Number** type, enter the Range value. You can specify numeric, decimal, and negative values for number Data type.
- Check the Inclusive check-box, to include the specified date/value during the data check.
- Click **Edit** to add specific filter expressions, as additional conditions. For more information, refer to Creating Expressions.
- Select the **Assignment** option. The Assignment option is enabled only if Warning/ Information is selected as the Warning level.
  * Select the Assignment Type from the drop-down list. For more information, see Assignment Types.
  * Specify the **Assignment Value**.
  * Select the **Message Severity** as 1 or 2 from the drop-down list.
  * Select a pre-defined Message to be displayed from the drop-down list. To enter a specific message other than the listed pre-defined messages, select **Custom Message**, in the Message drop-box and enter the required **Custom Message**.

- **Null Value Check** -Null Value Check checks identifies if there is any null value in the selected column.
  - Select the check-box to enable the Null Value check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - Click **Edit** to add specific filter expressions, as additional conditions.
  - Select the **Assignment** option. The Assignment option is enabled only if Warning/ Information is selected as the Warning level.
    * Select the Assignment Type from the drop-down list. For more information, see Assignment Types.
    * Specify the **Assignment Value**.
    * Select the **Message Severity** as 1 or 2 from the drop-down list.
    * Select a pre-defined Message to be displayed from the drop-down list. To enter a specific message other than the listed pre-defined messages, select **Custom Message**, in the Message drop-box and enter the required **Custom Message**.
- **Blank Value Check** -Null Value Check checks identifies if there is any entry in the selected column is blank.
  - Select the check-box to enable the Blank Value check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - Click **Edit** to add specific filter expressions, as additional conditions.
  - Select the **Assignment** option. The Assignment option is enabled only if Warning/ Information is selected as the Warning level.
    * Select the Assignment Type from the drop-down list. For more information, see Assignment Types.
    * Specify the **Assignment Value**.
    * Select the **Message Severity** as 1 or 2 from the drop-down list.

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        * Select a pre-defined Message to be displayed from the drop-down list.
          To enter a specific message other than the listed pre-defined messages, select **Custom Message**, in the Message drop-box and enter the required **Custom Message**.

- **Data Length Check** -Data Length Check checks for the length of the base column data using a minimum and maximum value and identifies if it falls outside the specified range.
  - Select the check-box to enable the Data Length check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - Enter the Minimum and maximum values for validation.
  - Click **Edit** to add specific filter expressions, as additional conditions.
- **Duplicate Check** - Duplicate Check can be used when a combination of column is unique and identifies all the duplicate data of the base table in terms of the columns selected for the duplicate check.
  - Select the check-box to enable the Duplicate Check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - Click **Edit** to add specific filter expressions, as additional conditions.
  - Click **Edit** and select the required column to be added to the **Column List**, for duplicate check validation.
- **Custom Check/Business Check**- Custom Check/Business Check is a valid SQL query to identify the data with the query specified as the Custom/business SQL. You can define the SQL, but the Select clause of the query has to follow the order as specified in the template of the Custom Check panel.
  Sample Template : `"SELECT 'N_COUNTRY_SKEY' PKNAMES, N_COUNTRY_SKEY PK1, null PK2, null PK3, null PK4, null PK5, null PK6, null PK7, null PK8, V_COUNTRY_DESC ERRORCOL FROM DIM_COUNTRY WHERE N_COUNTRY_SKEY >50"`
  - Select the check-box to enable the Custom Check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - Enter the SQL Query to perform the custom check.
- **Column Reference/Specific Value Check** - Column Reference / Specific Value Check compares the base column data with another column of the base table or with a specified direct value using the list of pre-defined operators.
  - Select the check-box to enable the Column Reference check.
  - Set the warning level to **Severity**, **Warning** or **Information**. Column reference check can be enabled only if the base column has date or number value.
  - Select the **Mathematical Operator** from the drop-down list.
  - Select the **Filter Type** as one of the following:
    * Select **Specific Value** and specify the Value. You can specify numeric, decimal, and negative values for number Data type.
    * Select **Another Column** and select Column Name from the drop-down list.
  - Click **Edit** to add specific filter expressions, as additional conditions.
  - Select the **Assignment** option. The Assignment option is enabled only if Warning/ Information is selected as the Warning level.
    * Select the Assignment Type from the drop-down list. For more information, see Assignment Types.

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    * Specify the **Assignment Value**.
    * Select the **Message Severity** as 1 or 2 from the drop-down list.
    * Select a pre-defined Message to be displayed from the drop-down list.
      To enter a specific message other than the listed pre-defined messages, select **Custom Message**, in the Message drop-box and enter the required **Custom Message**.

- **List of Value** - List of Value Check verifies the values where a dimension / master table is not present. This check identifies if the base column data is not matching with any value or code specified in a list of values.
  - Select the check-box to enable the List of Value check.
  - Set the warning level to **Severity**, **Warning** or **Information**.
  - Select **Input Values** and specify the List of Values. You can specify numeric or String values.
  - Click **Edit** to add specific filter expressions, as additional conditions.
  - Select the **Assignment** option. The Assignment option is enabled only if Warning/ Information is selected as the Warning level.
    * Select the Assignment Type from the drop-down list. For more information, see Assignment Types.
    * Specify the **Assignment Value**.
    * Select the **Message Severity** as 1 or 2 from the drop-down list.
    * Select a pre-defined Message to be displayed from the drop-down list.
      To enter a specific message other than the listed pre-defined messages, select **Custom Message**, in the Message drop-box and enter the required **Custom Message**.
- **Referential Integrity Check** - Referential Integrity Check identifies all base column data which has not been referenced by the selected column of the referenced table. Here, the reference table and columns are user specified.
  - Select the check-box to enable the Referential Integrity Check.
  - Set the warning level to **Severity**, **Warning** or **Information**. Column reference check can be enabled only if the base column has date or number value.
  - Select the **Table** (Referential Integrity Check dimension table) from the drop-down list. The base table selected under the Select grid is excluded from the drop-down list.
  - Select the Column from the drop-down list. The list displays those columns that have the same Data Type as that of the Base Column selected under Select grid.
  - Select the **Is Composite Key** check-box if the base column is part of a Composite Key.
  - Click **Edit** to add specific filter expressions, as additional conditions.

4.4.3.1.2 Multi Column Data Check Definitions

Multi Column Data Check definitions help in data quality checks and correction of one or more columns of a single table, selected during Rule creation.

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4.4.3.1.3 Assignment Types

To populate the Assignment Type details, select any of the below Assignment Type option from the dropdown list and do the following:

- **No Assignment** - This assignment is selected by default and does not have any target column update, but the message details are pushed.
- **Direct Value** - Enter the **Assigned Value**. You can specify number, date or string values, as required.
- **Another Column** - Select the required Column as **Assigned Value** from the drop-down list.
- **Expression** - Specify the required expression in the Specify Expression Page. For more information, refer to Creating Expressions.

4.4.3.2 Creating Expressions

You can define an expression in the Expression Builder to combine two selected tables.

The expression builder includes the following sections:

- **Entities** - consists of the Entities folder with the list of tables that you selected from the Entity Groups folder. Double-click the Entities folder to view the selected dimension tables (Product and Segment tables).
- **Functions** – The 2 types of functions are,
  - **Database Functions** - consists of functions that are specific to databases.
  - **User Defined Functions** - use these functions along with Operators to specify the join condition.
- **Operators** - Consists of the function operators categorized into folders. The various types of operators are,
  - **Arithmetic** - +, -, %, * and /
  - **Comparison** - '=', '!=', '< >', '>', '<', >=, <=,'IN', 'NOT IN', 'ANY', 'BETWEEN', 'LIKE', 'IS NULL', and 'IS NOT NULL'.
  - **Logical** - 'NOT', 'AND' and 'OR'
  - **Set** - UNION, UNION ALL, INTERSECT and MINUS
  - **Other** - The Other operators are 'PRIOR', '(+)', '(' and ')'.

To specify the join condition:

1. Select the **Entity** of the fact table to which you want join the dimension entities.
2. Select a **Function** depending on the database type.
3. Select the **Operator** you want to use for the join condition.
4. Select the **Second Entity** from the Entities pane that you want to join with the first entity. You can also select more than one table and link to the fact table.

   The defined expression is displayed in the Expression pane. Click **Reset** to reset the values.
5. Click **OK**.

   The defined expression is validated as per the selected table and entity definition and on successful validation, it is added to the DQ Rule.

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4.4.3.3 DQ Rules Summary

The Data Quality Rule Summary page contains the list of user-defined Data Quality Rules with details such as Name, Status, Folder, Is Executed, Version, Is Grouped, Check Type and Base table.

Refer to the following procedure to view DQ Rules Summary and the relevant details:

- Click **Data Quality Rules**, to access the Data Quality Rules Summary.

  The Data Quality Rules Summary page with the following details is displayed.

  - **Name** - The Unique Identifier Name of the Data Quality Rule.
  - **Status** - The Approval status of the specific rule.
    - **Approval** - The Rule is approved and ready for execution. The approved rules can be grouped further for execution.
    - **Pending for Approval** - The rule requires approval and can be executed only after approval.
    - **Draft** - A defined rule is set to**Draft** status until it is submitted for approval by the creator.
    - **Rejected** - The rejected rules are sent back to the creator with the Approver comments.
  - **Folder** - The folder associated with the rule.
  - **Version** - The current active version of the rule.
    When a new definition is created, it will be saved as version 1 and once it is authorized, it will be in Active status. After you modify any DQ Rule and save, it will be saved with version as highest available version +1. For example, if you modify a DQ Rule of version 2 and the highest version available is 4, after you save the definition, its version becomes 5. Only the latest version will be in Active status.
  - **Check Type** - Select one of the following check types:
    - **Single Column Check** - define conditions based on individual checks on a single column. For more information, refer to Single Column Data Check Definitions.
    - **Multi Column Check** - define conditions based on multiple columns of a single base table. These checks are not pre-defined and can be specified (user-defined) as required. For more information, refer to Multi Column Data Check Definitions.
  - **Base Table** - The base table within the environment, associated with the rule.
  - **Created By** - The login name of the user who created the rule.
  - **Created Date** - The rule creation date.
  - **Action** - Click **Action**, to view, approve, reject edit, or delete the rule.

  To search for a particular rule, enter the first few letters of the rule name in the Search column.

  You can also sort the rule summary based on the Status, Folder name, check type, record status, Rule name and Select table.

  To sort the Summary based on the Status, click **Status** in the Search bar, and select the required status.

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4.4.3.4 Creating DQ Rule

You can create a Data Quality Rule Definition by specifying the DQ Definition details along with the entity details and the type of data quality check to be performed on the selected base table. You can also define the required search conditions to query and correct the transformed data.

1. To create a DQ Rule, click **Add Rule** on the DQ Rules Summary.

   The Data Quality Rules page with DQ Group Details and DQ Rules Mapping tab is displayed.

2. Click **Start**, to enter the following basic details for the new DQ Rule.

   - **Name** - The unique identifier name for the rule.
     The name should start with alphabet and should not be more than 50 characters.

     Blank space ( ), **Underscore (_)** and **Hyphen (-)** are allowed as special characters.
   - **Description** - The description/details for the rule.
     The description should start with alphabet and should not be more than 250 characters.
   - **Folder** - Select the folder present in the current environment, to be associated with the rule.
   - **Check Type** - Select one of the following check types for the rule.
     - **Single Column** - Select Single column to perform data quality check only on one column. For more information, refer to Single Column Data Check Definitions.
     - **Multi-Column** - Select Multi-Column to perform data quality check on more than one column in a single table. For more information, refer to Multi Column Data Check Definitions.
   - **Access-type** - Select one of the following Access types.
     - **Read-only** - only the creator can edit the rule. Other users can only view the rule.
     - **Read-Write** - all users can view, modify any fields (including Access Type), and also delete the DQ Rule.
   - Check **Auto DQ Group Required** option, to create a new DQ group, for this Rule.
     The new group will be associated only with the created DQ rule. The group name will be set as <DQ_Rule_Name_group>, and this group will have only Read-only access.
   - Check **Auto Assignment**, to execute the rule, and also perform the assignment.

     > **Note**
     >
     > The Auto Assignment is applicable only to the Auto DQ Group.

   - Click **Continue** to proceed with the Entity Selection page.

3. Enter/select the following entities:

   - **Table** - Select the basic table on which the rule is executed.
   - If the rule is a single-column rule, select the **Base Column**, to be included for the rule execution. Base column will not be present for Multi-Column rule.
     You can search table and columns based on their physical and logical names, using the toggle button.
   - Select the **Identifier Columns** required to execute the rule.

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The default primary key fields present in the selected entity table are automatically added as identifier columns. They cannot be deleted.

  - To select multiple columns, click **Edit**.
  - Select the required columns from the **Available Members** pane and move them to **Selected Members** pane.

- Click **Edit**, to include the filter expression.
  The **Specify Expression** page is displayed. For more information refer to Creating Expressions.
  - Select the entities to be included in the filter expression and click **OK**.

4. Click **Continue**, to proceed with the **Data Check Definitions**.
5. Select the required Data Check Definitions, to validate the data.

   Enter/select the required information for each Data Check Definition. For more information about each Data check type, refer to Data Check Definitions.
6. Click **Submit**, to submit the new DQ Rule for approval.

   The DQ Rule is saved with the status **Pending for Approval**, in the Rules Summary and a confirmation message is displayed.

   While creating the DQ Rule, you can also click **Save As Draft**, to save the new incomplete DQ Rule at any point of time and resume the process at a later point. A confirmation message is displayed, after the draft is saved successfully.

   The new Rule added to the DQ Rules Summary, and is set to **Draft** Status in the DQ Rules Summary.

> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, the Rule will be auto-approved.

4.4.3.5 Editing DQ Rules

You can update all the definition details except for the Definition Name, Check Type, Table, and the Base Column selected.

You can only edit the DQ rules that are set to **Draft, Approved** and **Rejected** status. You cannot edit the rules that are set to **Pending for Approval** status.

To edit the required Data Quality Rule definition details:

1. Click **Action** adjacent to the DQ Rule to be modified.
2. Click **Edit**, to modify the DQ Rule.
3. Click **Start** to edit the **DQ Rule Details**.
4. Modify the description and click **Continue** to proceed with editing the Entity Selection details.

   You can also click **Save as Draft**, to save the changes and proceed with Submission later.
5. Modify the Filter expression and click **Continue** to proceed to **Data Check Definitions** page.
6. Add/remove the data checks required during rule execution and click **Submit**, to submit the modified rule for approval.

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The rule is updated and added to the DQ Rules Summary. A confirmation message is displayed.
The Rule is set to **Pending for Approval** state.

> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, the Rule will be auto-approved.

4.4.3.6 Approving/Rejecting a Data Quality Rule

An authorizer can approve a user-defined Data Quality Rule definition or reject an inappropriate DQ Definition listed within the Data Quality Rule Summary.

You should be mapped to DQ Authorizer function role to approve or reject a DQ Definition.

> **Note**
>
> You can only approve those DQ Rules that are set to **Pending for Approval** status.
> If the user has **DQAUTOAUTH** Role assigned, the DQ rule will be auto-approved.

To view a Data Quality rule, and approve/ reject Data Quality rule:

1. Click **Action** adjacent to the DQ Rule to be approved/rejected.
2. Click **Preview**, to view the DQ Rule.

   All the details pertaining to the selected rule is displayed.
3. Click **Approve/Reject**, after reviewing the rule.
4. Enter valid reason for approval or rejection.
5. Click **Approve/Reject**.

   The DQ Rule is approved/rejected and a confirmation message is displayed.

4.4.3.6.1 Bulk Approving/Rejecting Data Quality Rules

An authorizer can approve multiple user-defined Data Quality Rule definitions or reject an inappropriate DQ Definition listed within the Data Quality Rule Summary.

You should be mapped to DQ Authorizer function role to approve or reject a DQ Definition.

> **Note**
>
> You can only approve those DQ Rules that are set to **Pending for Approval** status.
> If the user has **DQAUTOAUTH** Role assigned, the DQ rule will be auto-approved.

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> **Note**
>
> When you initiate bulk approval/rejection, all the selected rules are approved/rejected based on the user input. If you want to stop the approval/rejection of one specific rule, cancel the whole process and restart again.

To view several Data Quality rules, and approve/ reject them:

1. Filter Rule Summary, to view only the rules with **Pending For Approval** Status.

   All the rules that need be approved/rejected are displayed.

2. Select the rules for approval/rejection.

   You can select all the rules displayed in a page, by clicking the check box next to the **Name** header. To select all the rules in the Summary, with **Pending** Status, select **Click All Rules in Summary** link.

3. Click **View Details**, to view the Rule details of all the selected rules.

   All the rule details, and base table for the selected rules are displayed. Review the details and add appropriate comments and click **OK**.

   You can also **Proceed without Viewing** the details.

4. Click **Approve/Reject**.

   The selected DQ Rules are approved/rejected and a confirmation message is displayed.

4.4.3.7 Deleting a Data Quality Rule

You can remove the Data Quality Rule definition(s) that are not grouped in the Data Quality Framework. A grouped and non-executed Data Quality Rule definition can still be deleted by unmapping the same from all the associated group(s).

To delete a DQ Rule:

1. Click **Action** adjacent to the DQ Rule to be approved/rejected.
2. Click **Delete**, to delete the DQ Rule.

   The selected rule is set to **Pending for Approval** status and is deleted after approval.

> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, the Rule will be auto-deleted.

4.4.3.8 Purging a Data Quality Rule

You can delete a Data Quality Rule definition permanently from the setup.

You can purge only those DQ Rules that are deleted after approval.

To delete a DQ Rule:

1. Click **Action** adjacent to the deleted DQ Rule.
2. Click **Purge**, to delete the DQ Rule from the setup.

   The selected rule is is deleted permanently after confirmation.

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4.4.4 Data Quality Groups

Data Quality Groups facilitates you to logically group the defined DQ Definitions .

DQ Group Definitions can be executed through Scheduler Services. For more information, refer to Adding a DQ Check Task .

4.4.4.1 DQ Groups Summary

The Data Quality Groups Summary displays the list of user-defined Data Quality Groups with the other details such as Name, Folder, Creation Date, Created By, Last Modification Date, Last Modified By, Last Run Date, and Last Run Status. .

You can create and execute DQ Group definitions and view, modify, copy, refresh, or delete DQ Group definitions within the Data Quality Groups Summary.

- Click **Data Quality Groups**, to access the Data Quality Groups Summary.

  The Data Quality Rules Summary with the following details is displayed.

  - **Name** - The Unique Identifier Name of the Data Quality Group.
  - **Status** - The Approval status of the specific group.
    - **Approval** - The group is approved and ready for execution.
    - **Pending for Approval** - The group requires approval and can be executed only after approval.
    - **Draft** - A defined group is set to **Draft** status until it is submitted for approval by the creator.
    - **Rejected** - The rejected rules are sent back to the user with the Approver comments.
  - **Version** - The current active version of the group.
    When a new definition is created, it will be saved as version 1 and once it is authorized, it will be in Active status. After you modify any DQ Group and save, it will be saved with version as highest available version +1. For example, if you modify a DQ Group of version 2 and the highest version available is 4, after you save the definition, its version becomes 5. Only the latest version will be in **Active** status.
  - **Folder** - The folder associated with the group.
  - **Created Date** - The group creation date.
  - **Created By** - The login name of the user who created the Group.
  - **Last Run Date** - The last date on which the DQ Group was executed.
  - **Last Run Status** - The last execution state if the specific DQ Group.
    - **Success** - The last execution of the selected DQ Group was completed successfully.
    - **Failed** - The last execution did not complete.
    - **NA** - The DQ Group was not executed.
  - **Action** - Click **Action**, to view, approve, reject, edit, execute, delete, or view the dependency of the group.

  To search for a particular group, enter the first few letters of the group name in the Search column.

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You can also sort the groups summary based on the Status, Folder name, record status and group name.

4.4.4.2 Creating DQ Groups

You can create a DQ Group definition by defining the DQ Definition details and mapping the required DQ Rules which are authorized and approved within the system.

The DQ Group definition is flexible and purpose driven. Groups can be created for different subject areas such as Credit and Market or it can be application specific like Basel II, Economic capital.

1. To create a DQ Group, click **Add Group** in the DQ Group Summary.

   The Data Quality Group page with DQ group Details and DQ Rules Mapping tab is displayed.

2. Click **Start**, to enter the following basic details for the new DQ Group.

   - **Name** - The unique identifier name for the groups.
     The name should start with alphabet and should not be more than 50 characters.

     Blank space ( ), **Underscore (_)** and **Hyphen (-)** are allowed as special characters.
   - **Folder** - Select the folder present in the current environment, to be associated with the group.
   - **Description** - The description/details for the group.
     The description should start with alphabet and should not be more than 250 characters.
   - Check **Auto Assignment**, to execute the group, and also perform the assignment.
   - **Access-type** - Select one of the following access types.
     - **Read-only** - Only the creator can edit the group. Other users can only view the group.
     - **Read-Write** - All users can view, modify any fields (including Access Type), and also delete the DQ Group.

3. Click **Continue** to proceed with the Data Rules Mapping page.

   The list of available rules are displayed in the Data Rules Mapping page.

4. Select the Rules to be added to the new DQ Group.

5. Click **Submit**, to submit the new DQ Group for approval.

   The DQ Groups is saved with the status **Pending for Approval**,in the Group Summary and a confirmation message is displayed.

   While creating the DQ Group, you can also click **Save As Draft**, to save the new incomplete DQ Group at any point of time and resume the process at a later point. A confirmation message is displayed, after the draft is saved successfully.

   The new Group added to the DQ Groups Summary, and is set to **Draft** Status in the DQ Groups Summary.

> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, they can save and approve the DQ Group, immediatly after creating it.

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4.4.4.3 Editing DQ Groups

You can modify all the details of a saved Data Quality Group Definition, except the Group name.

To edit the required Data Quality Group Definition details:

1. Click **Action** adjacent to the DQ Group to be modified.
2. Click **Edit**, to modify the DQ Group.
3. Click **Start** to edit the **DQ Group Details**.
4. (Optional). Modify the description and click **Continue** to proceed with adding/deleting the rules associated with the DQ Group.
5. Add/remove the DQ Rules associated with the DQ Groups and click **Submit**, to submit the modified group for approval.

   The group is updated and added to the DQ Groups Summary. A confirmation message is displayed.
   The Group is set to **Pending for Approval** state.

> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, they can save and approve the DQ Group, immediatly after creating it.

4.4.4.4 Approving/Rejecting a Data Quality Group

An authorizer can approve a user-defined Data Quality Group definition for further execution or reject an inappropriate DQ Definition listed within the Data Quality Rule Summary.

You should be mapped to DQ Authorizer function role to approve or reject a DQ Definition.

> **Note**
>
> You can only approve those DQ Rules that are set to **Pending for Approval** status.
> If the user has **DQAUTOAUTH** Role assigned, they can save and approve the DQ Group, immediatly after creating it.

To view a Data Quality Group, and approve/ reject it:

1. Click **Action** adjacent to the DQ Groups to be approved/rejected.
2. Click **Preview**, to view the DQ Groups.

   All the details pertaining to the selected rule is displayed.
3. Click **Approve/Reject**, after reviewing the groups.
4. Enter valid reason for approval or rejection.
5. Click **Approve/Reject**.
6. The DQ Group is approved/rejected and a confirmation message is displayed.

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4.4.4.4.1 Bulk Approving/Rejecting Data Quality Groups

An authorizer can approve multiple user-defined Data Quality Groups or reject an inappropriate DQ Groups listed within the Data Quality Group Summary.

You should be mapped to DQ Authorizer function role to approve or reject a DQ Definition.

> **Note**
>
> You can only approve those DQ Groups that are set to **Pending for Approval** status. If the user has **DQAUTOAUTH** Role assigned, the DQ group will be auto-approved.

> **Note**
>
> When you initiate bulk approval/rejection, all the selected groups are approved/ rejected based on the user input. If you want to stop the approval/rejection of one specific group, cancel the whole process and restart again.

To view several Data Quality groups, and approve/ reject them:

1. Filter Group Summary, to view only the groups with **Pending For Approval** Status.

   All the groups that need be approved/rejected are displayed.

2. Select the groups for approval/rejection.

   You can select all the groups displayed in a page, by clicking the check box next to the **Name** header. To select all the groups in the Summary, with **Pending** Status, select **Click All Groups in Summary** link.

3. Click **View Details**, to view the Group details of all the selected Groups.

   All the group details, and base table for the selected groups are displayed. Review the details and add appropriate comments and click **OK**.

   You can also **Proceed without Viewing** the details.

4. Click **Approve/Reject**.

   The selected DQ groups are approved/rejected and a confirmation message is displayed.

4.4.4.5 Executing DQ Groups

You can execute an approved Data quality group.

To execute a data quality group:

1. Click **Action** adjacent to the DQ Group to be modified.
2. Click **Execute** to access the **Execute Group** page.
3. Enter/select the following details:
   - The **Threshold** percentage for the maximum number of errors permissible during the DQ check. By default, this is set to 100.

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- Set **Fail If Threshold Breaches** to **TRUE**, to abort the job and not include the failure records in the DQ table, when the DQ check errors are more than the set threshold value.
  If the **Fail If Threshold Breaches** is set to **FALSE**, the DQ group will be executed and the failure records will be inserted in the DQ Result tables.
- Set **Stop Insert on Threshold Breach** to **Y** , to the stop the execution when there is a thereshold breach. The execution will be stopped even if **Fail If Threshold Breaches** is set to **False**.
- Enter the **Additional Parameters** required for the Run DQ Rule filtering criteria for execution in the pattern: Key#Data type#Value; Key#Data type#Value; and so on.
- Set the **Rule Execution Connection** value. By default this is set to **Data**.
- Set the **Result Store Connection** value. By default, this is set to **Data**.
- Select **As of Date** to execute to DQ group.

4. After providing the required details, click **Run**, to begin the execution.

4.4.4.6 Deleting a Data Quality Group

You can remove the Data Quality Group definition(s) that are not grouped in the Data Quality Framework. A grouped and non-executed Data Quality Rule definition can still be deleted by unmapping the same from all the associated group(s).

To delete a DQ Group:

1. Click **Action** adjacent to the DQ Group.
2. Click **Delete**, to delete the DQ Group.

   The selected group is deleted after confirmation.

> **Note**
>
> If the user has **DQAUTOAUTH** Role assigned, the Group will be auto-deleted.

4.4.4.7 Purging a Data Quality Group

You can delete a Data Quality Group definition permanently from the setup.

To delete a DQ Group:

1. Click **Action** adjacent to the deleted DQ Group.
2. Click **Purge**, to delete the DQ Group from the setup.

   The selected Group is is deleted permanently after confirmation.

4.4.5 Adding a DQ Check Task

You can add a new DQ check Task in the Scheduler Services and add the task to a Batch Definition, for execution.

For more information about adding a task to the Batch and about Scheduler Services, refer to Scheduler Services documentation.

To add new task using the Define Tasks page in Scheduler Services, perform the following steps:

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1. Click **Define Tasks** from the Header panel.
2. Select the **Batch**, to add new task.
3. Click **Add**, to add a new DQ task in the **Create Task** page.
   - Complete all the generic details in the Create Task Page. For more information refer to Adding a Task.
   - Select the **Task Type** as DQ Task.
   - Select the **Group** to perform the DQ check.
   - Enter the **Threshold** percentage for the maximum number of errors permissible during the DQ check. By default this value is set to 100.
   - Set **Fail If Threshold Breaches** to **TRUE**, to abort the job and not include the failure records in the DQ table, when the DQ check errors are more than the set threshold value.

     If the **Fail If Threshold Breaches** is set to **FALSE**, the job will proceed further and the failure records will be inserted in the DQ Result tables.
   - Enter the **Additional Parameters** required for the Run DQ Rule filtering criteria for execution in the pattern: Key#Data type#Value; Key#Data type#Value; and so on.
4. Click **Save** to add the new DQ task to the selected Batch.

4.4.6 Execution Summary

The Execution Summary provides the consolidated list of executed DQ batches, for the last 30 days .

You can also view the consolidated details related to the total number of records analysed, total number of passed records and the pass percentage and total number of error records and their percentage.The number of error records categorized based on the Data checks is also displayed as a pie chart.

To view the Execution Summary Details:

- Click **Execution Summary**, to access the consolidated Execution Summary.

  The Execution Summary page with the following details is displayed.
  - **Batch ID** - The Unique Identifier Name of the particular Batch in which the DQ group is added for Data Quality Check.
  - **Process Instance ID** - The unique identifier of the execution process.
  - **DQ Group** - The DQ group associated with the Batch for Data Quality check.
  - **DQ Group Desc** - The DQ group description.
  - **FICMIS Date** - FICMIS Date refers to the date with which the data for the execution would be filtered. In case the specified MIS date is not present in the target table, execution completes with the message **No Records found**.
  - **Execution Date** - The last execution date of the Batch.
  - **Scanned Records** - The total number of records scanned for Data Quality check.
  - **Erroneous Records** - The total number of records that failed the Data Quality check.
  - **Execution Status** - The DQ Batch execution status.
  - **Assignment Status** - The current Assignment status of the DQ Batch.
  - **Action** - Click **Action**, to view the Run Details of the DQ Batch.

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To search for a particular Batch, enter the first few letters of the Batch name in the Search column.

You can also sort the Execution summary based on the Execution Date, FICMIS Date, Execution status and Group Name, Assignment Status, Batch Id and Process Instance ID.

4.4.6.1 Viewing Run Details

Execution Details page provides the information related to the Data Quality Rule and the Data Quality Check executed during a Batch Execution.

You can also view the consolidated details related to the total number of records analysed, total number of passed records and the pass percentage and total number of erro records and their percentage.
The number of error records categorized based on the Data checks is also displayed as a pie chart.

1. Click **Action** adjacent to the specific Batch.
2. Click **View Run Details**, to access the Run details of the particular Batch execution.

   The Run details of the selected Batch is displayed with the following information.

   - **Rule** - The Rule name of the executed DQ Rule.
   - **Entity** - The Table entity associated with the Rule.
   - **Column** - The column associated for Data Quality check
   - **Check Type** - The type of check performed on the Data.
   - **Consolidated Records Scanned** - The total number of records scanned.
   - **Error Records** - The total number of erroneous records.
   - **Assignment Type** - The assignment type set during the DQ rule creation.
3. Generate and download the report, and perform assignment action based on the report.

> **Note**
>
> To perform assignment, you must have the **DQ_EXE_ASSIGN** role assigned.

After the assignment process is completed, the Assignment status of the particular DQ Batch is set to **Success**.

4.5 Data Verification

The Data Verification UI helps you to verify the data that is loaded from the source systems to the Cloud Service's stage and processing tables, make minor corrections/adjustment to the data, and add new data directly into the tables. This UI allows you to add one record at a time and is not recommended for high volume additions as entering data is a lengthy process.

To open the Data Verification screen, from the LHS menu, select **Data Management Tool**, and then select **Data Verification**.

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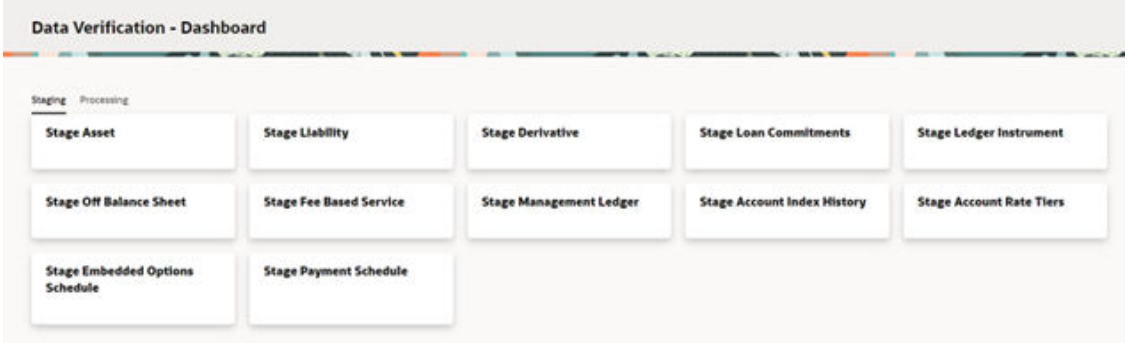
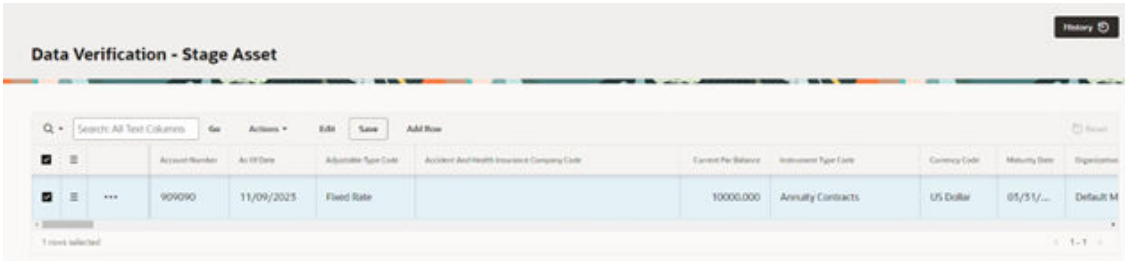
Figure 4-21 Data Verification Dashboard



This screen displays two tabs namely Staging and Processing. The Staging tab displays the tables that are in the staging level where you can select a table, see the data, carry out corrections, or add new data. The Processing tab displays the tables that are at the processing level and you can do all the actions similar to Staging tables.

When you select a table, a new window is displayed with a grid where you can see the selected columns.

Figure 4-22 Data Verification – Stage Asset (sample Staging table)



Navigating through Data Verification

Once you select a table and modify or verify your details, you can navigate back to the Dashboard or a specific Table by clicking the O logo at the bottom-right corner. This takes you to the Ask Oracle screen where the Dashboard and all the tables are listed. You can click on the line item that you want to go to that Dashboard.

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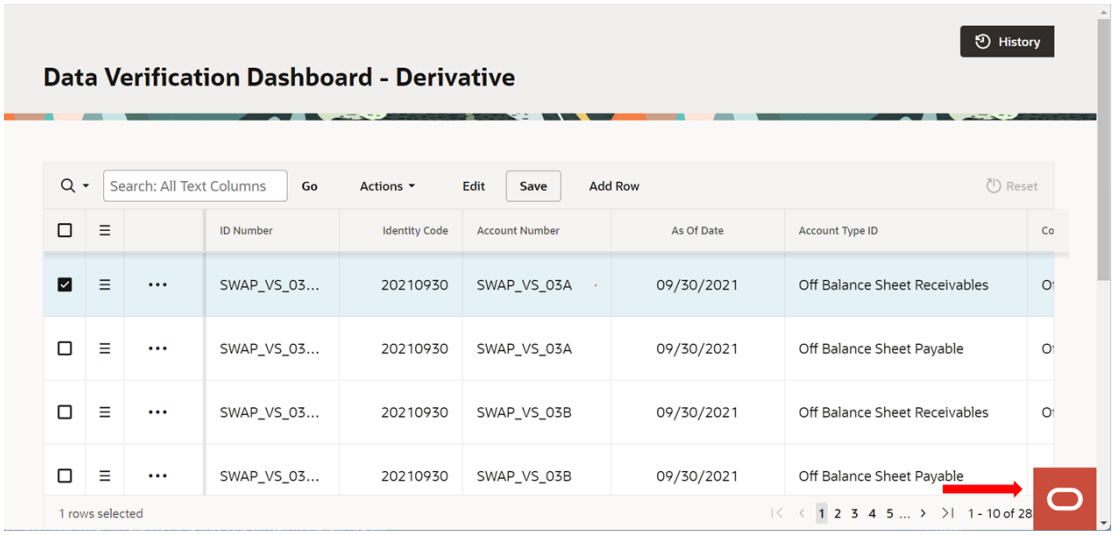
Figure 4-23 Navigation through Data Verification



Users and Roles

The following roles and functions are required to use the Data Verification UI, edits the data, and add data to the Stage and Processing tables.

Table 4-19 Roles and Role Names

Role	Role Name
RLGADMACC	Data Management Access
RLGADMWRITE	Data Management Write
RLGADMREAD	Data Management Read Only
RLGADMPASRN	Data Management PA Access

The access to the users can be restricted up to table level because all the users need not have access to all the tables.

Add a New Record

To add a new record to a selected stage/processing table, click **Add Row**. Enter/populate the mandatory and the relevant columns and then click Save. When you click **Add Row**, you must enter the mandatory key columns first, and then click ellipsis (…) icon. After this your can click the ellipsis (…) icon to open the Edit Table window, fill the relevant details and then save the details.

Delete a Row

To delete a row, select the row and click the hamburger icon to collapse the menu where you can select **Delete Row**.

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Duplicate a Row

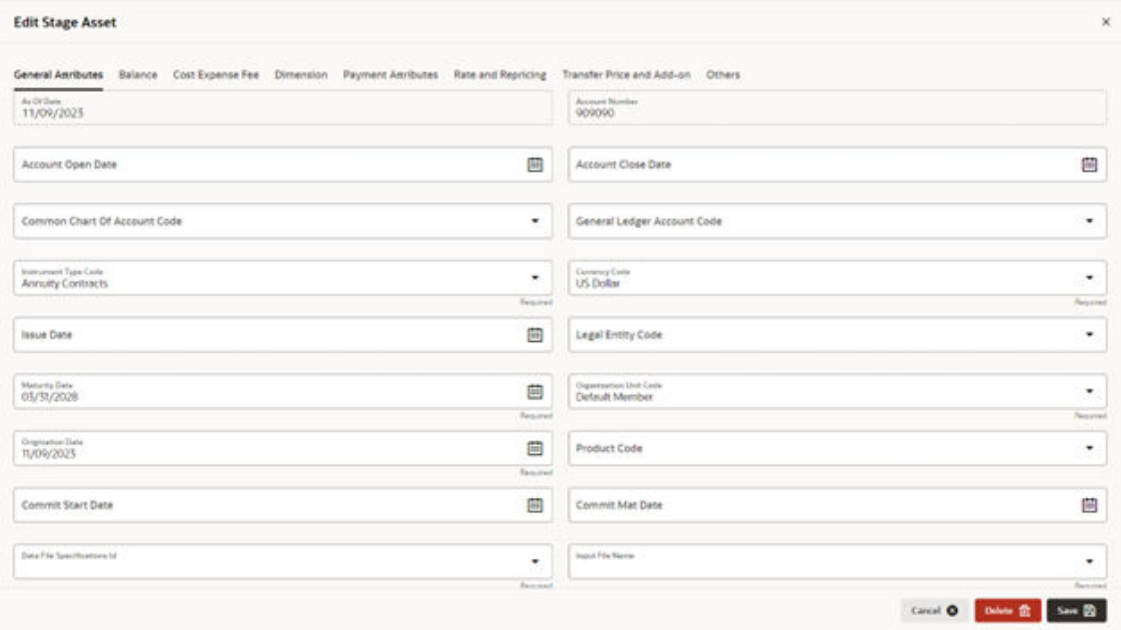
You can select a row and click **Duplicate Row** from the hamburger menu. This creates duplicate row with the same values in the Data Verification - <Table> screen.

Edit a Record

To edit a record, select a row from the Data Verification window. There are two ways in which you can edit the columns from the table.

- Select a row from the Data Verification grid and click the **Edit** button. This enables the columns that are exposed. You can double-click the entry to edit. Editing the key columns in the table is restricted.
- Select a row from the Data Verification grid and click the ellipsis (…) icon, and then click **Edit**. This opens the Edit Table window. This window displays all the columns from the table. The columns are categorized based on their nature and displayed in different tabs. You can select the relevant columns and edit. After you update the relevant details, click **Save**.

Figure 4-24 Sample Edit Table



Actions Menu

The Actions menu displays a list of actions that you can perform on a selected record. Few actions are explained below:

- **Columns**: This displays the Columns window where you reorder the displayed columns, remove form display columns that you don't want to be displayed. If you don't want to display a particular column, select the check-box against the column name, and then click Save.
- **Filter**: This helps you to set a criterion to search a particular record.
  You can also set a filter by selecting the Search button on the top-left-corner of the grid. This collapses list of all the columns in the selected table. You can select a column and filter the records based on it.

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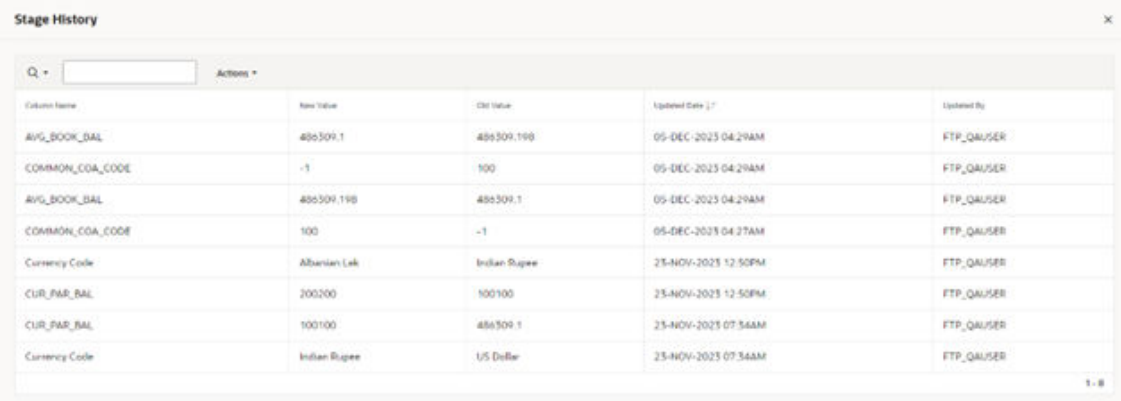
- **Data**: Displays sorting options.
- **Format**: From here, you can set the number of rows per page to be displayed.
- **Report**: This option allows you to generate and save a report.

View History

This option displays the changes carried out on a selected record. To see the history on a record, select the record, click the ellipsis (…) icon, and then select View History. This displays the history of updates on the selected record with details such as Column Name, New Value, Old Value, Updated Date, and Updated By.

Figure 4-25 History at Record Level



To navigate back to the Dashboard or the selected table's Data Verification screen, you can click on the O logo at the right-bottom corner, and then select Dashboard on the next screen. You can also type the table name for a quick search.

To see the history of all the records on a particular table, select the record and click the History button on the top right-hand corner of the screen. This displays all the updates done on the all the records in the table. A sample screen of the history on the table is as follows:

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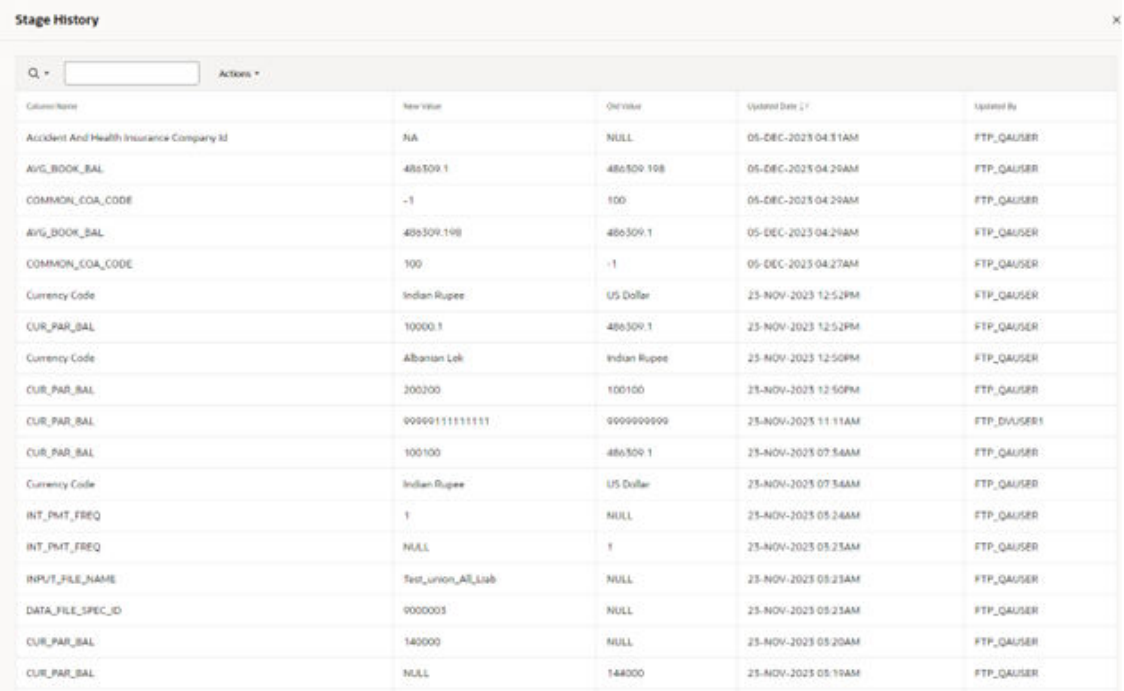
Figure 4-26 History at Table Level



4.6 Data Housekeeping

The Data Housekeeping UI helps you to perform the followings tasks based on user defined criteria:

- Delete data from selected tables
- Drop partitions and truncate subpartitions from selected tables
- Archive the data from selected tables

You can use this as data retention in PBSM cloud services.

To open the Data Housekeeping screen, from the LHS menu, select **Data Management Tool**, and then select **Data Housekeeping**.

Users and Roles

The following roles and functions are required to use the Data Housekeeping UI.

Table 4-20 Roles and Role Names

Role Code	Role Name	Function Code	Function Name
RLDHKANALYST	Data Housekeeping Analyst Role	DHKADD	Create Data Housekeeping Policy
		DHKRUN	Run Data Housekeeping Policy
		DHKDEL	Delete Data Housekeeping Policy
		DHKEDIT	Edit Data Housekeeping Policy

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Table 4-20 (Cont.) Roles and Role Names

		DHKVIEW	View Data Housekeeping Policy
		DHKLOG	View Data Housekeeping Policy execution log
RLDHKAUTH	Data Housekeeping Authorizer Role	DHKAUTH	Authorize Data Housekeeping Policy
		DHKADD	Create Data Housekeeping Policy
		DHKRUN	Run Data Housekeeping Policy
		DHK	Delete Data Housekeeping Policy
		DHKEDIT	Edit Data Housekeeping Policy
		DHKVIEW	View Data Housekeeping Policy
		DHKLOG	View Data Housekeeping Policy execution log
RLDHKAUDIT	Data Housekeeping Auditor Role	DHKVIEW	View Data Housekeeping Policy
		DHKLOG	View Data Housekeeping Policy execution log

Data Housekeeping Summary

Search Policy

Prerequisites: Predefined Policy

To search for a Policy:

1. You can search a policy is through the **Search** drop-down option. Select **Policy Name**, **Policy Type**, **Seeded Policy Flag**, **Last Execution Status**, and **Created By** from **Search** drop-down.
2. Enter the **Policy Name**, **Policy Type**, **Seeded Policy Flag**, **Last Execution Status**, and **Created By** in Search Criteria and click **Go**.

Rows that contain the string you are searching for are fetched and displayed in the Data Housekeeping Summary.

The Data Housekeeping Summary displays the following information:

New Policy: Click the New Policy icon on the page header to build a new policy.

- **Policy Name**: The policy name.
- **Schedule**: Shows the time when the policy is scheduled.
- **Type**: The Type (Archive, Drop Partition, Delete) of the policy.
- **Seeded Policy Flag:** Shows the type of policy as **Yes** if the policy is seeded.
- **Last Run Date:** The Date and Time when the policy was last modified.

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- **Created Date:** the date when policy was created.
- **Last Execution Status:** The status of policy after execution.
- **Actions:** Click this icon to view a list of actions that you can perform on the Policy.
  - **View:** View existing policy.
  - **Edit:** Edit existing policy. To edit a rule, you must have Read/Write privilege.
  - **Authorize:** Select Authorize to approve the policy for execution.
  - **Withdraw Jobs:** Select Withdraw Jobs to cancel the Job execution.
  - **View Log:** Select View Log to view the audit information of the policy. This information includes pending and running jobs.
  - **Delete:** You can delete policies that you no longer require. Note that only policy owners and those with Read/Write privileges can delete Policies. A policy that has a dependency cannot be deleted. A policy cannot be retrieved after deletion.
  - **Job Execution Details:** Shows the execution details of selected policy.

4.6.1 Create Data Housekeeping Policy

To create a new Data Housekeeping policy, follow these steps:

1. Navigate to the **Data Housekeeping Summary** Page.
2. Click the **New Policy** icon. The **Create Data Housekeeping** Page is displayed.
3. Click **Start** to create a new policy.
4. Enter the required details and Submit.

   Below are the supported Policy Types:

   - Create Drop-Partition Policy
   - Create Archive Policy
   - Create Delete Policy
   - Create Nullify Policy

4.6.1.1 Create Drop Partition Policy

This section provides the details on dropping the partition data from selected tables based on user defined criteria.

To create Drop Partition Policy, follow these steps:

1. Navigate to **New Policy** page.
2. Follow the steps mentioned in below sections:
   a. **Step 1:** Policy Definition
   b. **Step 2:** Selection
   c. **Step 2:** Preview and Submit

Step 1: Policy Definition section

1. From **Policy Details** tab, click **Start**. The **Policy Definition** page is displayed.

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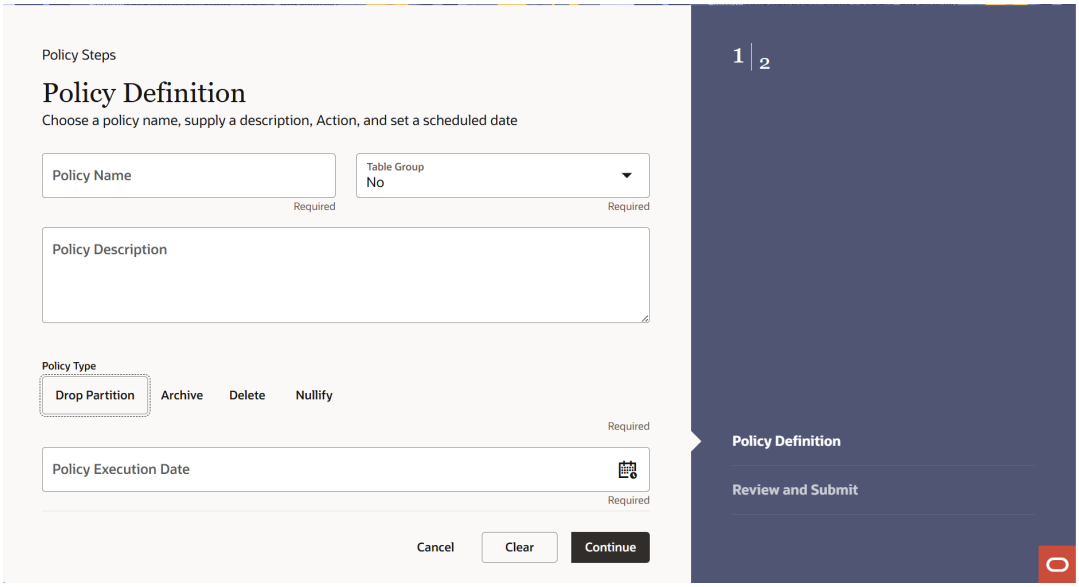
Figure 4-27 Policy Definition section



2. Enter the following details:
   - **Name:** Name of Policy
   - **Description:** Description of Policy
   - **Table Group:** If this option is selected as **No**, then you can select **Policy Type** as **Drop Partition**.
   - **Type:** Type of Policy as Drop Partition
   - **Policy Execution Date:** Select the execution date and time of policy using calendar
3. Click **Continue**.

Step 2: Selection section

1. Navigate to the **Selection** section. The **Selection** window is displayed to define the partitions.
2. Select the **Partition type** as **Drop Partition** or **Truncate Subpartition**.
   a. If **Partition type** is selected as **Drop Partition**, then following window is displayed:

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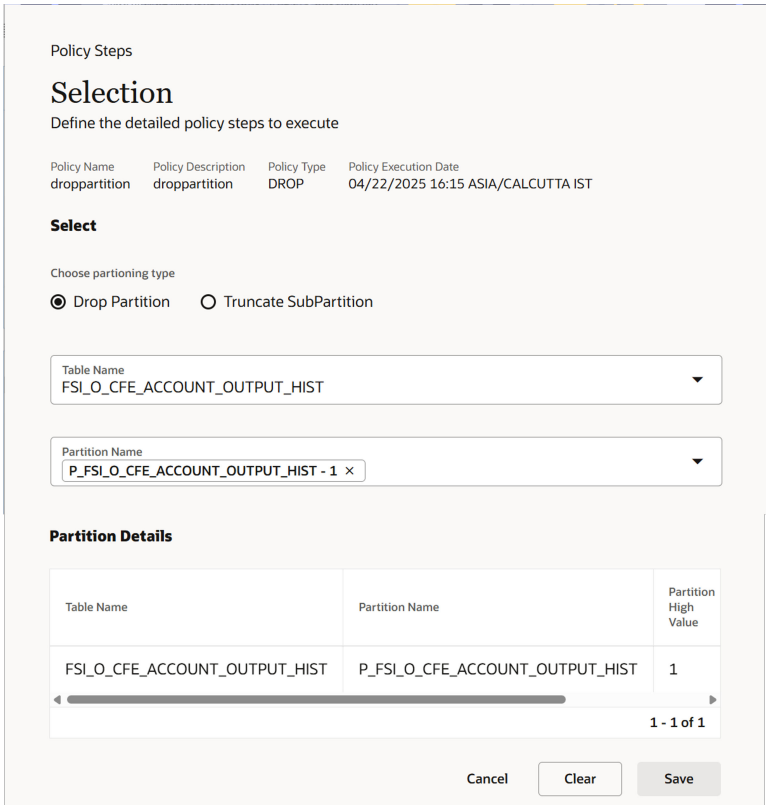
Figure 4-28 Partition type as Drop Partition



b. Select the table(s) for which you want to do the partitions. The list of available partitions is displayed that contain data.

c. Select the **Partition Name**. Partition Name shows the partition of the selected table from the database.
The Partition details will be displayed in **Partition Details** section. This shows the Table Name, Partition Name, column name and metdata on which partition is created. This doesn't show empty partitions.

d. Click **Continue**.

a. If **Partition type** is selected as **Truncate Subpartition**, then following window is displayed:

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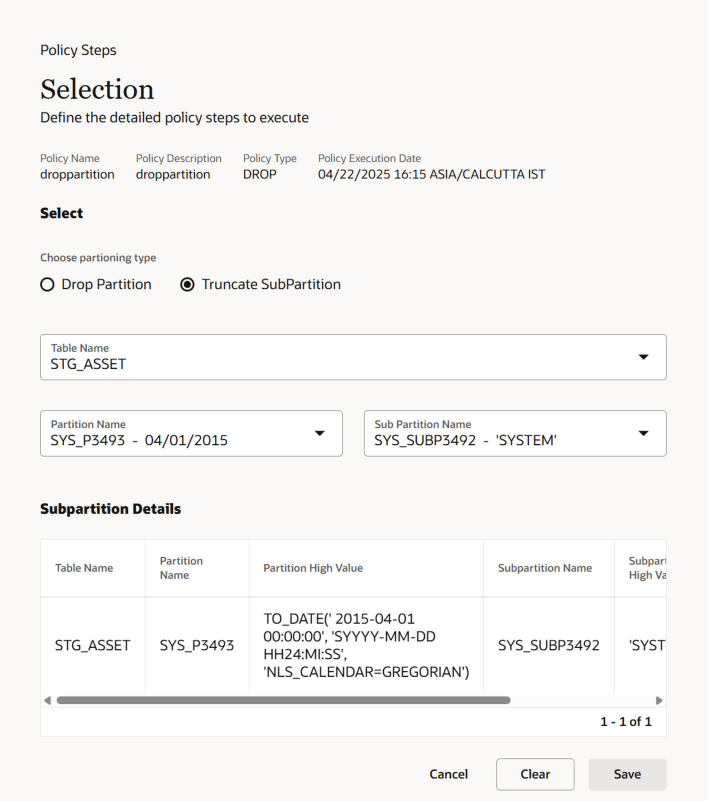
Figure 4-29 Partition type as Truncate Subpartition



b. Select the table(s) for which you want to do the sub partitions. The list of available sub partitions is displayed that contain data.

c. Select the **Sub Partition** Name. Sub Partition Name shows the columns and metadata on which sub-partition has been created.
The Sub Partition details will be displayed in **Subpartition Details** section. This shows the Table Name, Subpartition Name, column name and metdata on which partition is created. This doesn't show empty partitions.

d. Click **Continue**.

> **Note**
>
> If only sub-partition is selected to remove then only data from it will deleted. Sub-partition is not dropped to enable customer re-load data in it, if needed. Sub-partitions in PBSM data model is created with a pre-defined list.

3. Click **Save**.
4. Click **Continue**.

Step 3: Preview and Submit section

1. Navigate to **Preview and Submit** section. Review the policy details.

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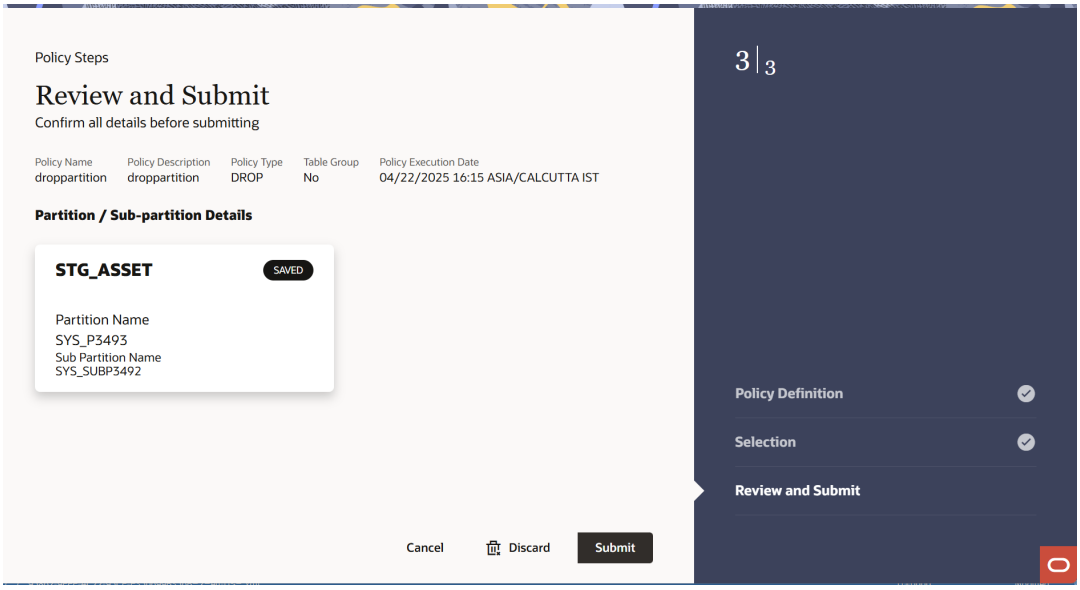
Figure 4-30 Preview and Submit section



2. Click **Submit** to create the policy. The created policy will be displayed on **Data Housekeeping Summary** page.

4.6.1.2 Create Archive Policy

This section provides the details on archiving the data from selected tables based on user defined criteria.

To create Archive Policy, follow these steps:

1. Navigate to **New Policy** page.
2. Follow the steps mentioned in below sections:
   a. **Step 1:** Policy Definition
   b. **Step 2:** Condition
   c. **Step 3:** Preview and Submit

Step 1: Policy Definition section

1. From **Policy Details** tab, click **Start**. The **Policy Definition** page is displayed.

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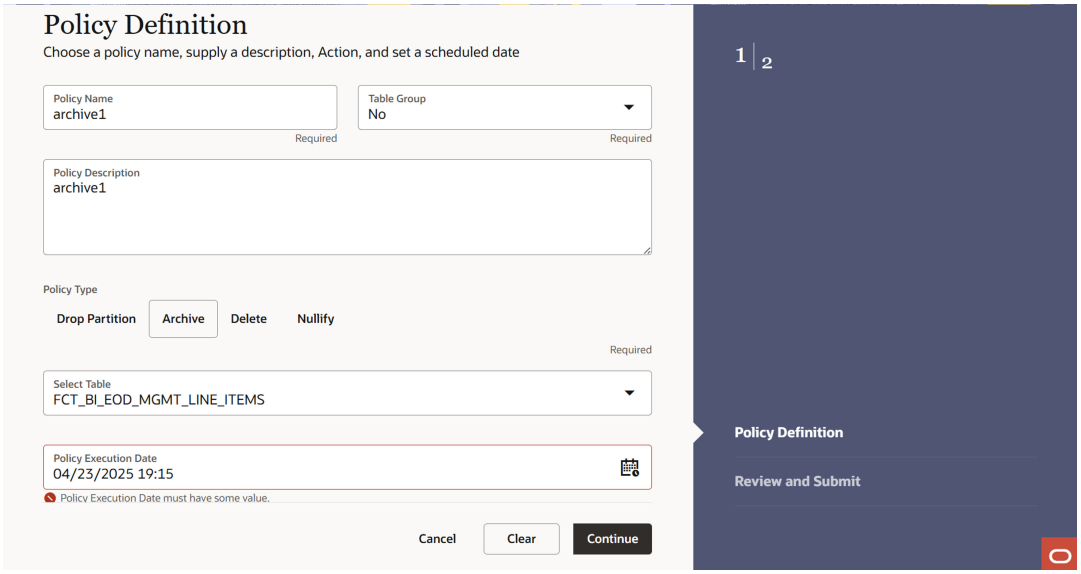
Figure 4-31 Policy Definition section



2. Enter the following details:
   - **Name:** Name of Policy
   - **Description:** Description of Policy
   - **Table Group:** If this option is selected as **No**, then you can select **Policy Type** as **Drop Partition**.
   - **Type:** Type of Policy as Archive
   - **Policy Execution Date:** Select the execution date and time of policy using calendar

Step 3: Conditions

This section allows you to define the conditions(s) to archive the table.

1. Navigate to the **Conditions** section.

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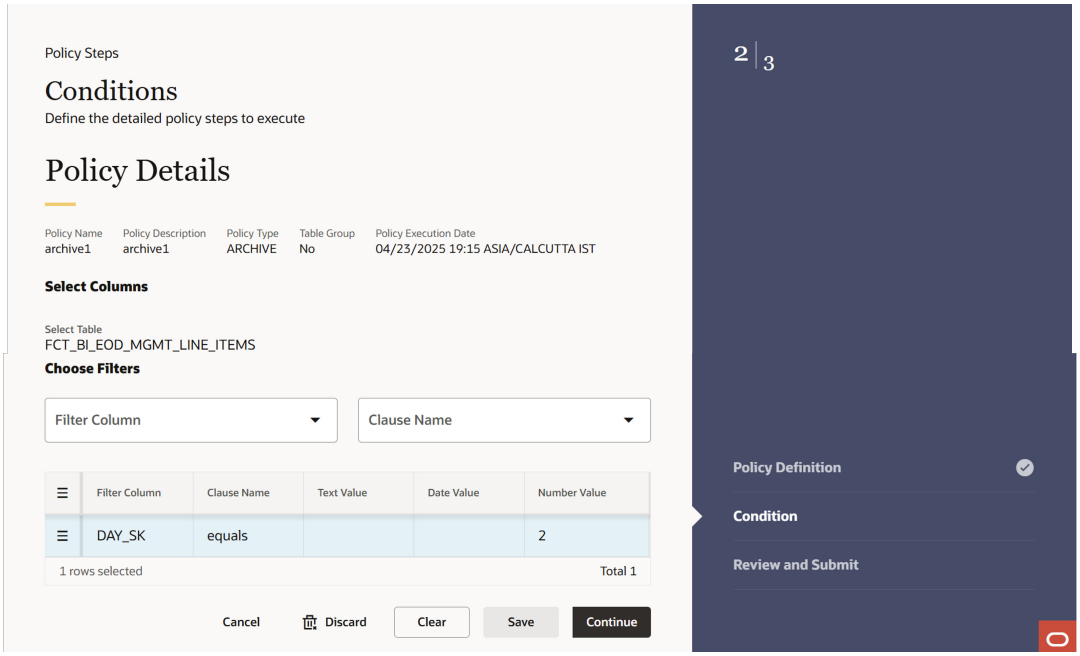
Figure 4-32 Conditions section



2. Select the column(s) using **Filter Column**.
3. Select operator from **Clause Name** drop-down. The list of operators displays based on the selected Column Name.

> **Note**
>
> You must select at least one condition to avoid the full table archive. Use AND if you want to use multiple columns. You can select columns from pre-defined list. Don't use wild card characters. Supported operators are: >, <, <=, and =>.

4. Enter condition value for selected column.
   For example, If you have selected **Column** as **Account Number**, then select **Equals** operator from **Clause Name** drop-down, and enter alphanumeric value in **Value** field.

   Click **Row Actions** icon to view single row, add a new row, create duplicate row, delete row, refresh row, or revert changes.

   To add more conditions, define the condition and click **Save**.
5. Click **Continue**.

Step 3: Preview and Submit section

1. Navigate to **Preview and Submit** section. Review the policy details.

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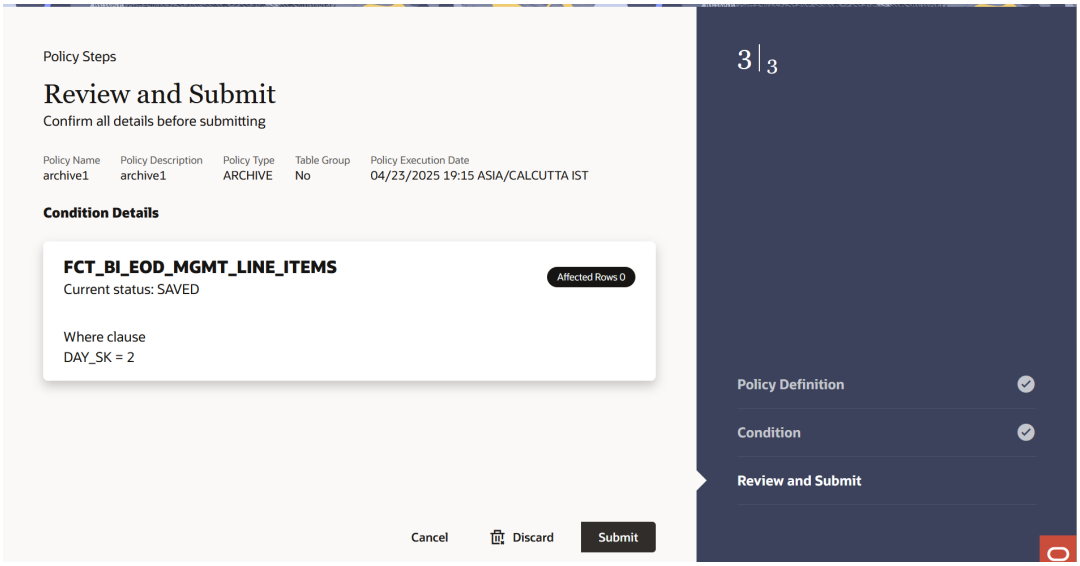
Figure 4-33 Preview and Submit section



2. Click **Submit** to create the policy. The created policy will be displayed on **Data Housekeeping Summary** page.

> **Note**
>
> Data that is archived remains in the same table but is invisible to user. Thus, they cannot be inserted back as it will violate unique constraint of concerned table.

4.6.1.3 Create Delete Policy

This section provides the details on deleting the data from selected tables based on user defined criteria.

To create Delete Policy, follow these steps:

1. Navigate to **New Policy** page.
2. Follow the steps mentioned in below sections:
   a. **Step 1:** Policy Definition
   b. **Step 2:** Condition
   c. **Step 3:** Preview and Submit

Step 1: Policy Definition section

1. From **Policy Details** tab, click **Start**. The **Policy Definition** page is displayed.

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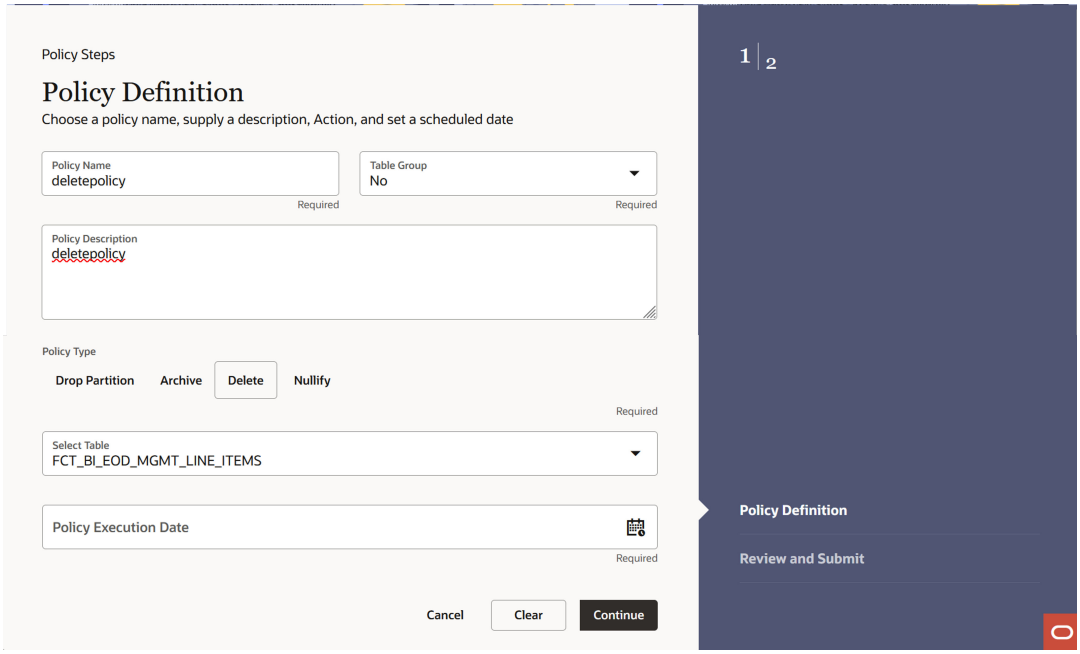
Figure 4-34 Policy Definition section



2. Enter the following details:
   - **Name:** Name of Policy
   - **Description:** Description of Policy
   - **Table Group:** If this option is selected as **No**, then you can select **Policy Type** as **Drop Partition**.
   - **Type:** Type of Policy as **Delete**
   - **Policy Execution Date:** Select the execution date and time of policy using calendar

Step 2: Conditions

This section allows you to define the conditions(s) to Delete the table.

1. Navigate to the **Conditions** section.

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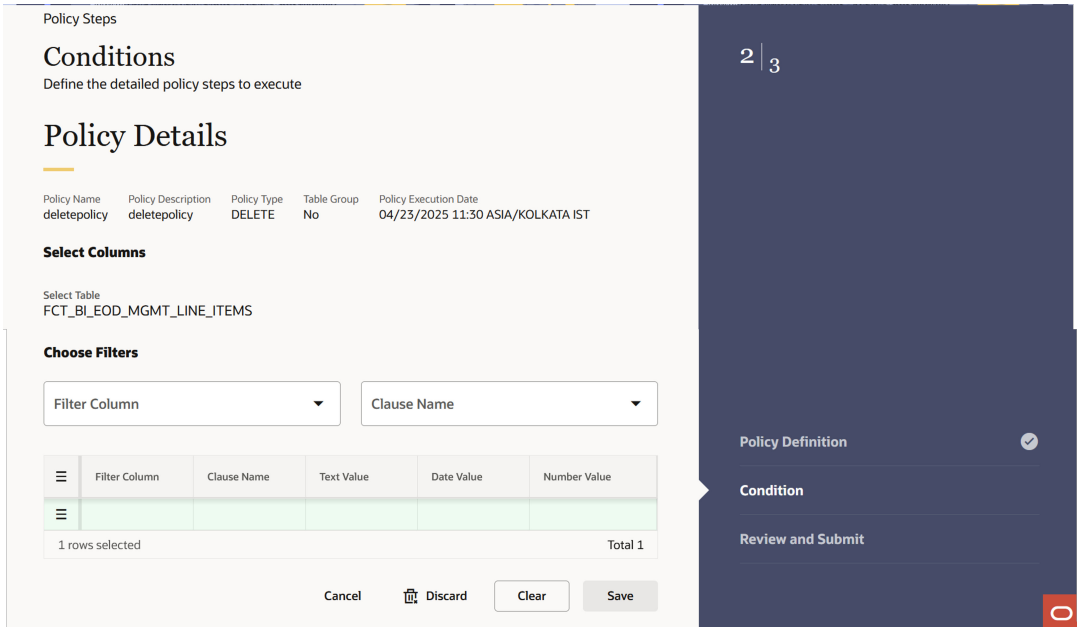
Figure 4-35 Conditions section



2. Select the column(s) using **Filter Column**.
3. Select operator from **Clause Name** drop-down. The list of operators displays based on the selected Column Name.

> **Note**
>
> You must select at least one condition to avoid the full table Delete. Use AND if you want to use multiple columns. You can select columns from pre-defined list. Don't use wlid card characters. Supported operators are: >, <, <=, and =>.

4. Enter condition value for selected column.
   For example, If you have selected **Column** as **Account Number**, then select **Equals** operator from **Clause Name** drop-down, and enter alphanumeric value in **Value** field.

   Click **Row Actions** icon to view single row, add a new row, create duplicate row, delete row, refresh row, or revert changes.

   To add more conditions, define the condition and click **Save**.
5. Click **Continue**.

Step 3: Preview and Submit section

1. Navigate to **Preview and Submit** section. Review the policy details.

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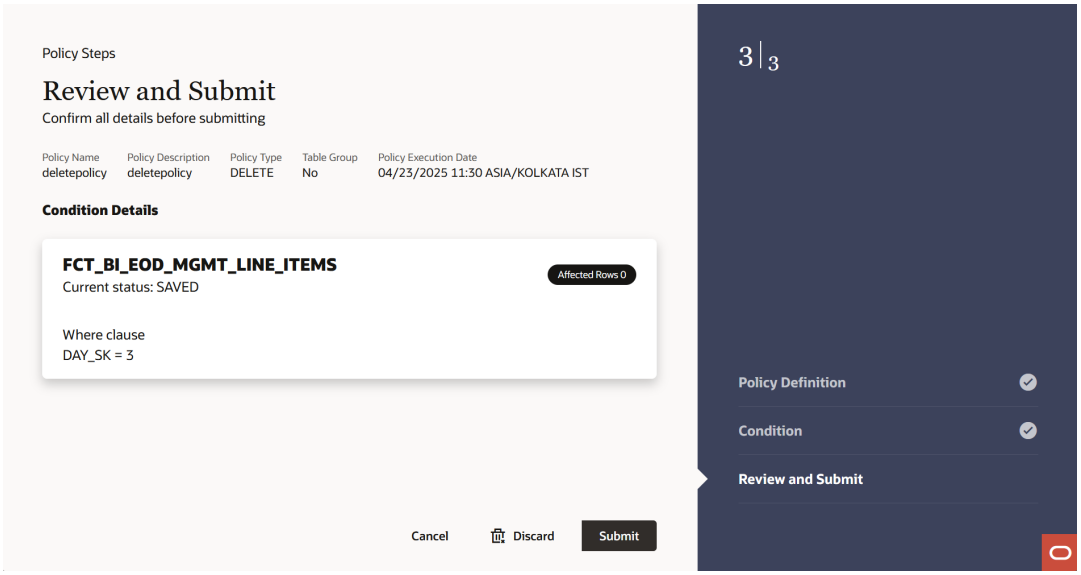
Figure 4-36 Preview and Submit section



2. Click **Submit** to create the policy. The created policy will be displayed on **Data Housekeeping Summary** page.

4.6.1.4 Create Nullify Policy

This section provides the details on nullifying the column from selected tables based on user defined criteria.

To create Nullify Policy, follow these steps:

1. Navigate to **New Policy** page.
2. Follow the steps mentioned in below sections:
   a. **Step 1:** Policy Definition
   b. **Step 2:** Choose Columns
   c. **Step 3:** Condition
   d. **Step 4:** Preview and Submit

Step 1: Policy Definition section

1. From **Policy Details** tab, click **Start**. The **Policy Definition** page is displayed.

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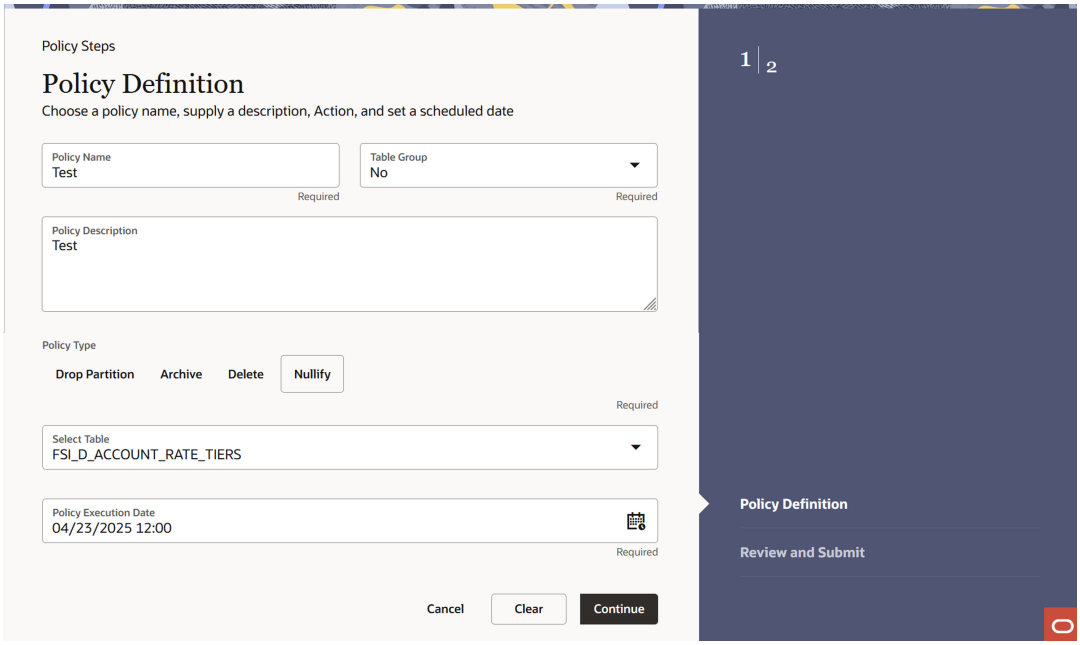
Figure 4-37 Policy Definition section



2. Enter the following details:
   - **Name:** Name of Policy
   - **Description:** Description of Policy
   - **Table Group:** If this option is selected as **No**, then you can select **Policy Type** as **Drop Partition**.
   - **Type:** Type of Policy as Nullify
   - **Policy Execution Date:** Select the execution date and time of policy using calendar

Step 2: Choose Columns section

1. Navigate to the **Choose Columns** section.

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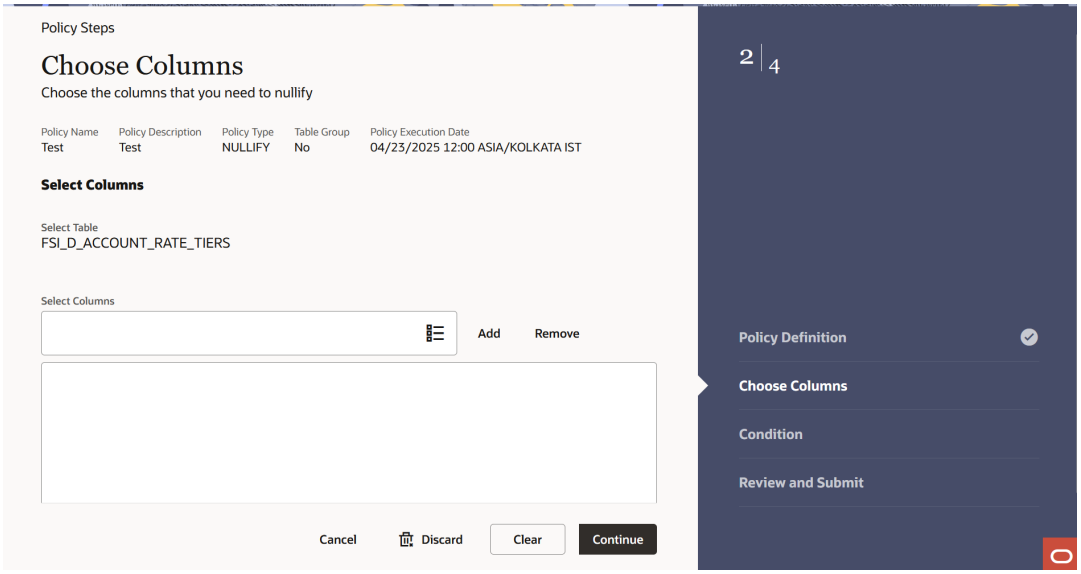
Figure 4-38 Choose Columns



2. To select the columns which you want to nullify, click

Figure 4-39 Search Columns

in Select Columns field. The Search window is displayed.

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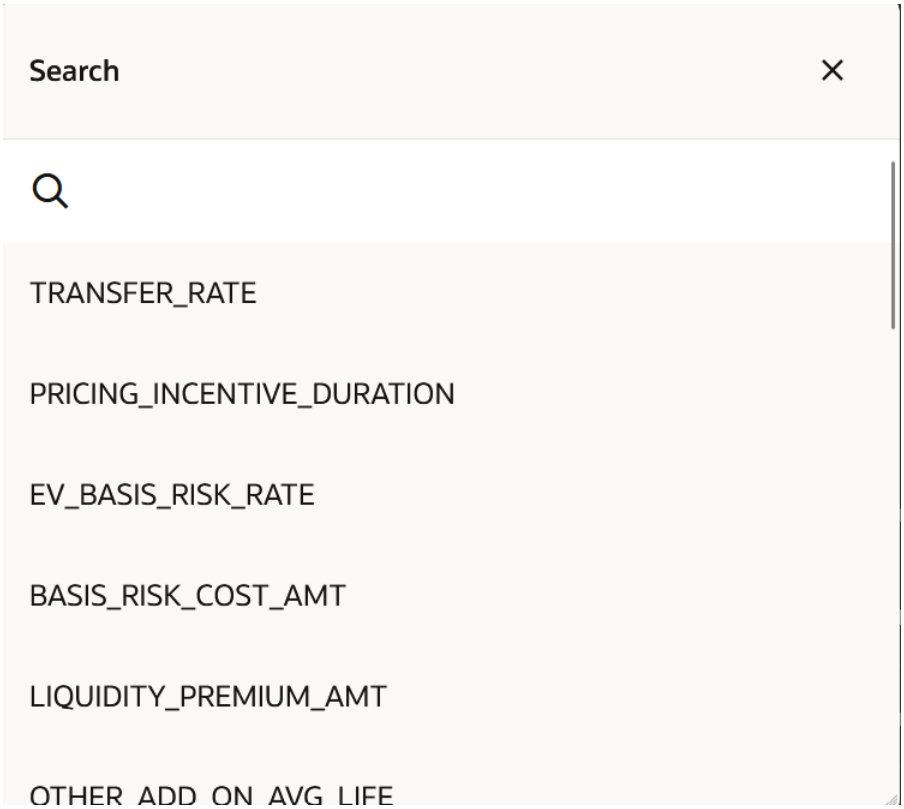
Figure 4-40 Search Columns



3. Select columns and click **Add**.
4. Click **Continue**.

Step 3: Conditions

This section allows you to define the conditions(s) to archive the table.

1. Navigate to the **Conditions** section.

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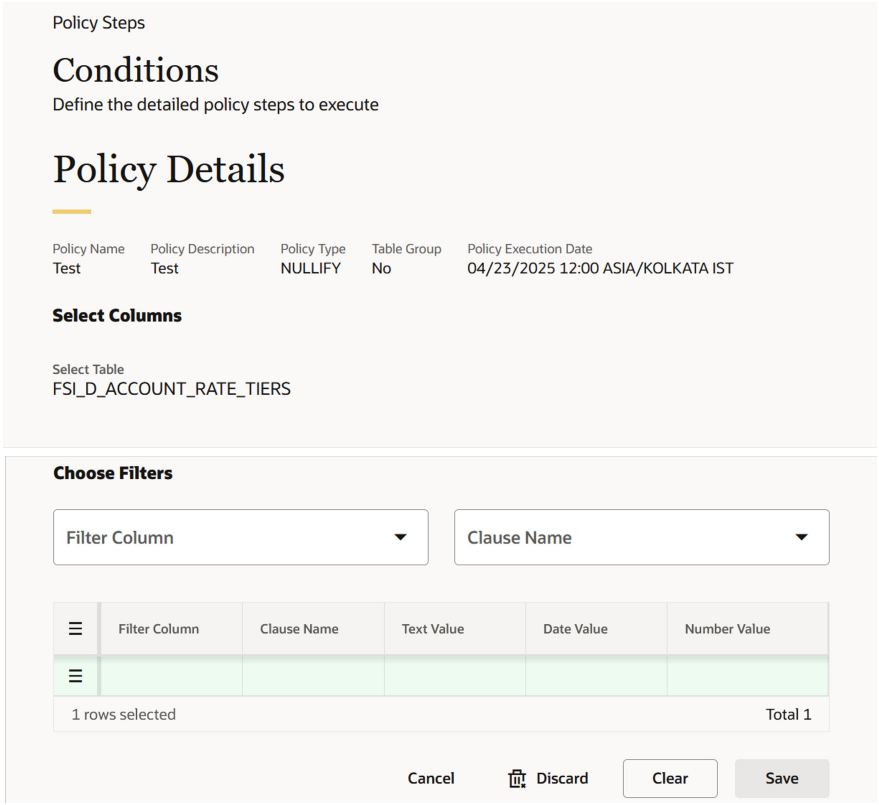
Figure 4-41 Conditions section



2. Select the column(s) using **Filter Column**.
3. Select operator from **Clause Name** drop-down. The list of operators displays based on the selected Column Name.

> **Note**
>
> You must select at least one condition to avoid the full table archive. Use AND if you want to use multiple columns. You can select columns from pre-defined list. Don't use wild card characters. Supported operators are: >, <, <=, and =>.

4. Enter condition value for selected column.
   For example, If you have selected **Column** as **Account Number**, then select **Equals** operator from **Clause Name** drop-down, and enter alphanumeric value in **Value** field.

   Click **Row Actions** icon to view single row, add a new row, create duplicate row, delete row, refresh row, or revert changes.

   To add more conditions, define the condition and click **Save**.
5. Click **Continue**.

Step 4: Preview and Submit section

1. Navigate to **Preview and Submit** section. Review the policy details.

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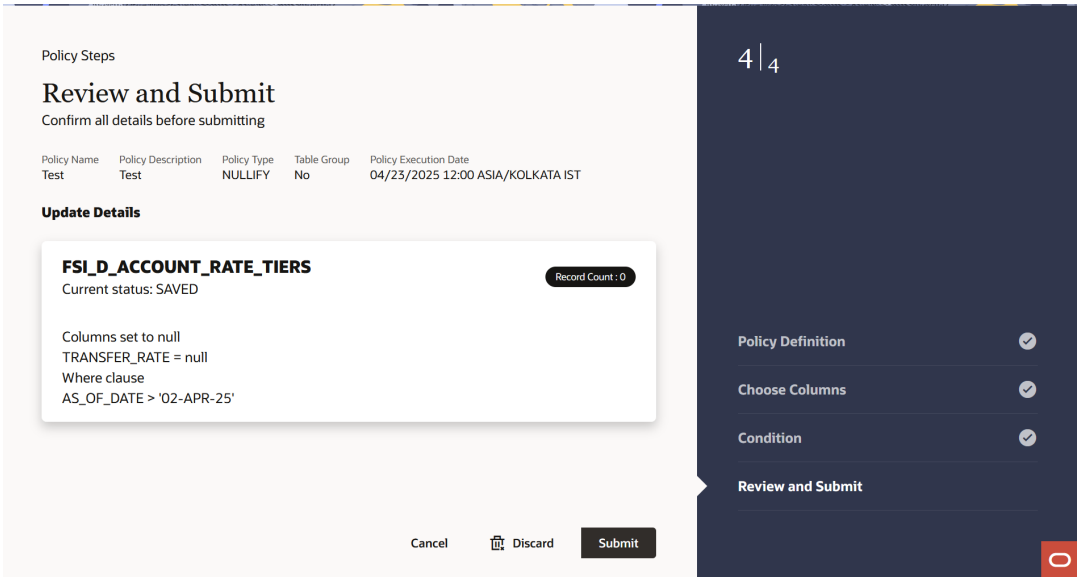
Figure 4-42 Preview and Submit section



2. Click **Submit** to create the policy. The created policy will be displayed on **Data Housekeeping Summary** page.

> **Note**
>
> Data that is archived remains in the same table but is invisible to user. Thus, they cannot be inserted back as it will violate unique constraint of concerned table.

4.6.2 Authorize a Policy

To authorize a policy, follow these steps:

Predefined Data Housekeeping Policy

1. Navigate to the **Data Housekeeping Summary** page
2. Search for a policy that you want to authorize. For further information, see the Data Housekeeping Summary section
3. Click on the **Action** icon against the policy name and select **Authorize**.

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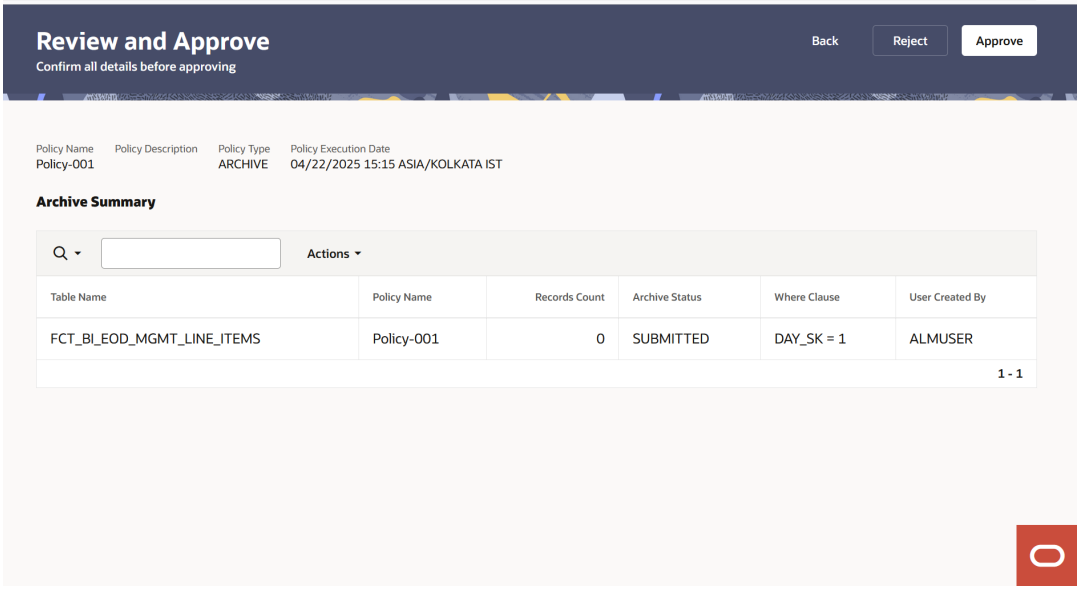
Figure 4-43 Authorize Policy



4. Click **Approve**.
5. Enter Policy comments and click **OK**.

Figure 4-44 Policy Comments

Data Housekeeping policy gets executed on scheduled date and time after authorization. It runs automatically at the defined date and time which was set during the policy creation.

4.6.3 Withdraw a Policy

> **Note**
>
> Policies can be withdrawn if there is more than 15 minutes left in the scheduled time.

To withdraw a policy, follow these steps:

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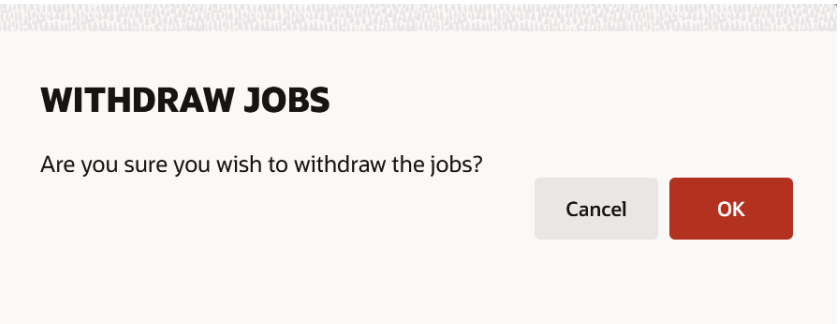
Predefined and approved Data Housekeeping Policy

1. Navigate to the **Data Housekeeping Summary** page
2. Search for a policy that you want to authorize. For further information, see the Data Housekeeping Summary section
3. Click on the **Action** icon against the policy name and select **Withdraw Jobs**.

   A confirmation box is displayed. Click OK.

Figure 4-45 Withdraw Jobs



4.7 Balance Reconciliation

The Profitability and Balance Sheet Management Cloud Service's Balance Reconciliation module helps you to Reconcile the selected processing/instrument/account balances against the Management Ledger. If any differences are found, you will have the flexibility to choose significant differences and create plug entries for those in the Ledger_Instruments table.

> **Note**
>
> All General Ledger Accounts must mandatorily have a Reconciliation product mapped to them.

You can define the dummy attributes for the Product-Currency combinations, whichever General Ledger Account is used for Reconciliation. Default dummy attributes are auto populated based on the linked product ID and currency selected in Reconciliation dimensions.

Reconciliation is a three-step process.

- Reconciliation Definition and Default Attributes setup
- Reconciliation Report verification
- Plug entry creation and writing the Reconciliation differences back to Ledger Instruments table

To access the Balance Reconciliation module, from the LHS Menu, navigate to **Data Management Tools**, and select **Balance Reconciliation**.

The Balance Reconciliation landing screen displays the following two cards:

- Reconciliation Definition
- Default Attributes

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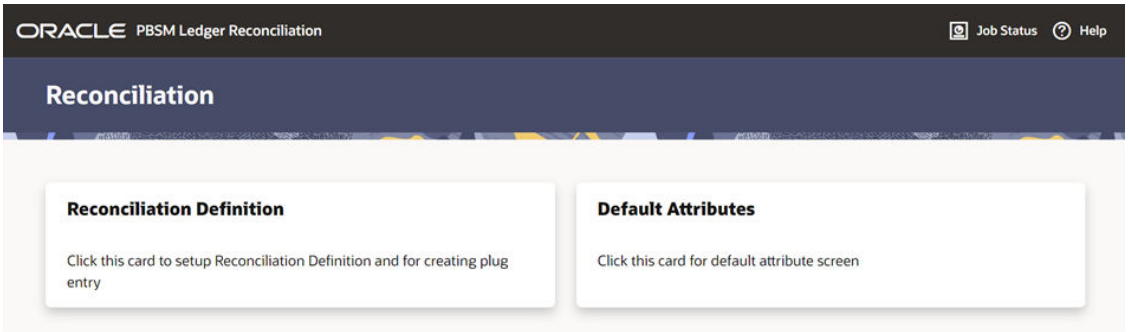
> **Note**
>
> 1. Ledger Balances with Balance Type CD as only 0, will be considered for reconciliation.
> 2. Balance Sheet category will be derived based on Common COA linked as attribute with selected GL account, which subsequently has Account Type defined as attribute of the concerned Common COA.
> 3. Reconciliation Product must be defined as attribute of GL accounts which participate in reconciliation, so system can pick account attributes for the plug entry creation.

Figure 4-46 Reconciliation Landing Screen

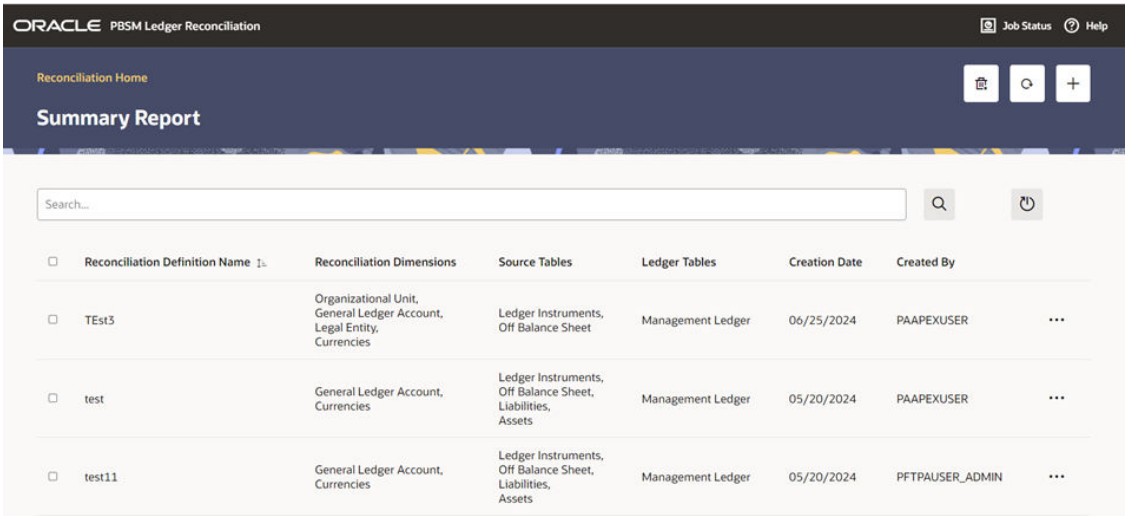


4.7.1 Reconciliation Definition

The Reconciliation Definition summary screen allows you to search for any definitions from the displayed list.

The Reconciliation Definition summary screen is as follows:

Figure 4-47 Reconciliation Definition Summary Screen



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This screen displays the following definition attributes for easy identification:

- Reconciliation Definition Name
- Reconciliation Dimensions across which reconciliation is performed
- Source Tables against which reconciliation is performed
- Ledger Tables
- Creation Date
- Created By
- Actions icon

4.7.1.1 Adding a New Reconciliation Definition

The Create Reconciliation screen allows you to define a new Reconciliation Definition.

To add a new Reconciliation Definition, click the **Add** button on the summary screen.

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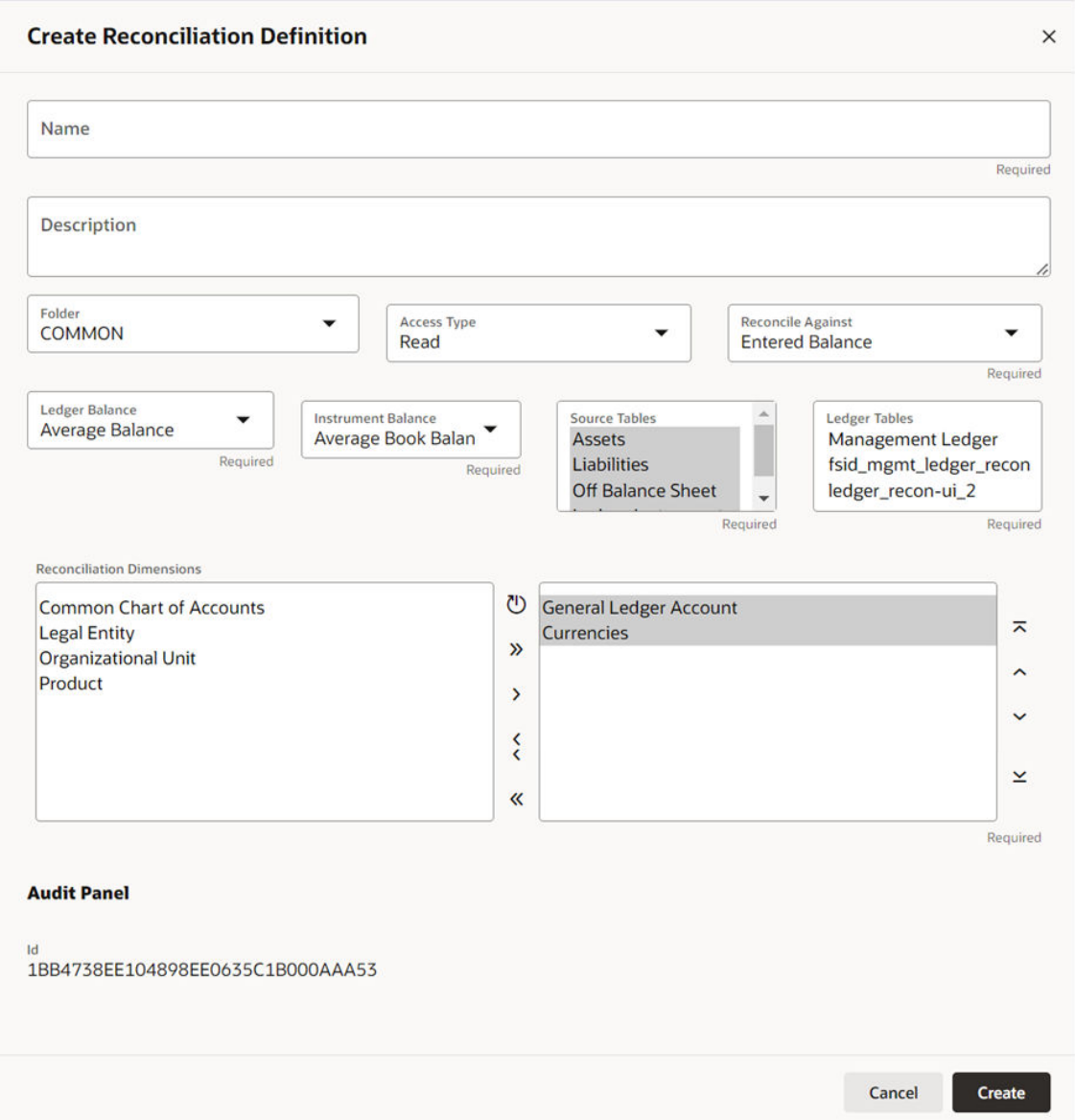
Figure 4-48 Create Reconciliation Definition Screen



Reconciliation Definition set up allows you to choose for which Instrument Table, across which Dimensions and on which Balance Type (Cur Book Bal or Cur Par Bal); you would like to perform reconciliation. For example, you can choose to reconcile against just GL Account ID and Currency or do reconciliation at much granular level by selecting the Org Unit, Legal Entity along with GL Account ID and Currency.

While selecting reconciliation key dimensions, you have the option to choose from activated placeholder dimensions as well along with seeded key dimensions.

Similarly, there is a seeded FSI_D_MANAGEMENT_LEDGER table, which will be used by default for balance reconciliation against selected portfolio of accounts. In case, there are any activated placeholder management ledgers as well, those will also be available for selection and subsequently for balance reconciliation.

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4.7.1.2 Reconciliation Balance

Management Ledger stores balance using Financial Elements, while corresponding Cur/Avg Balance can be picked directly from the dedicated columns in the Instrument Tables. So, you have an option to choose if you want to reconcile against 100 (ending balance)/140 (average balance). In the Management Ledger for FE 100, you can further select between CUR_BOOK_BAL/CUR_PAR_BAL from Instrument table. By Default, CUR_PAR_BAL would remain selected. You are allowed to create plug entries only when comparison is done against ending balance. For Average balance, you can only see the difference report but would not be allowed to create plug entries.

You can choose to reconcile in functional or local currency as per the selection made under ‘Reconcile Against’; Functional or Entered Currency.

You can do the comparison only for Asset, Liability, or can include Ledger Instrument table also. At run time, the As-of-Date can be passed for which Balance Reconciliation will be performed.

4.7.1.3 Actions Performed on Reconciliation Definition

To delete one or multiple Reconciliation Definitions, you can select the checkboxes against each one of them and press the **Delete** button.

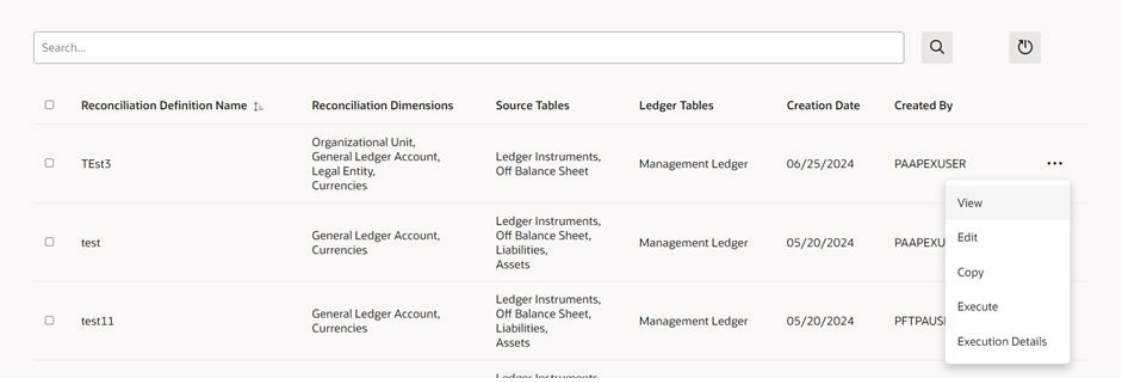
A confirmation message will let you confirm and delete selected definitions.

You can also perform search based on following fields:

- Name
- Reconciliation Dimensions
- Source tables against which reconciliation is performed
- Folder where the reconciliation definition is stored

The following screen display the **Actions** menu from which the different actions that you can perform on existing Reconciliation Definitions.

Figure 4-49 Actions Icon and Different Actions



The following are the actions:

- **View**: Click this action button and view the definition in read only format.

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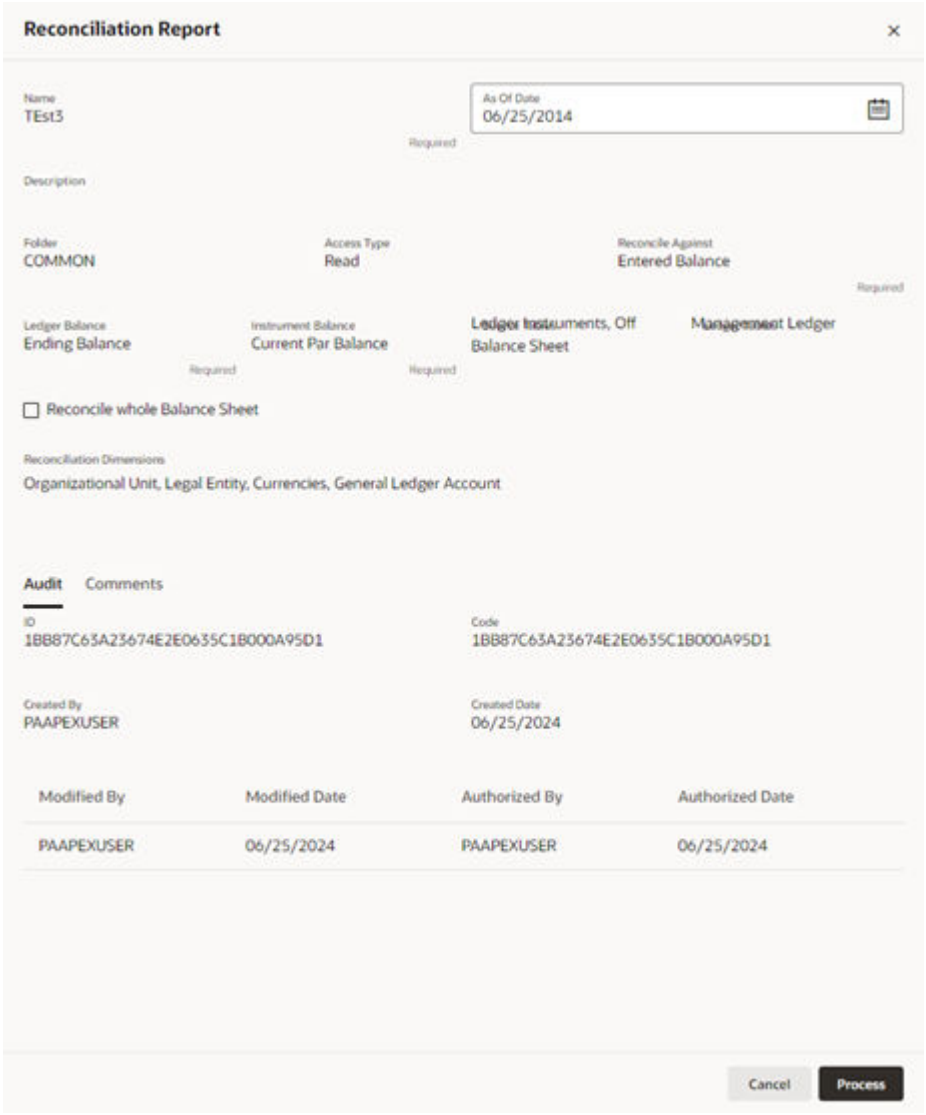
- **Edit**: Click this action button and edit the definition.
- **Copy**: Click this action button and copy the definition to create another definition with similar parameters.
- **Execute**: Click this action button and perform the reconciliation as per the selected parameters.
  As-of-Date is a run time parameter, you can choose for which date reconciliation needs to be performed. After clicking **Process**, the Reconciliation Difference Report will be generated as follows:

Figure 4-50 Reconciliation Report



Report starts with the summary across Balance Sheet categories and difference buckets pie charts, which can help you to get an idea about the reconciliation difference in a quick glimpse.

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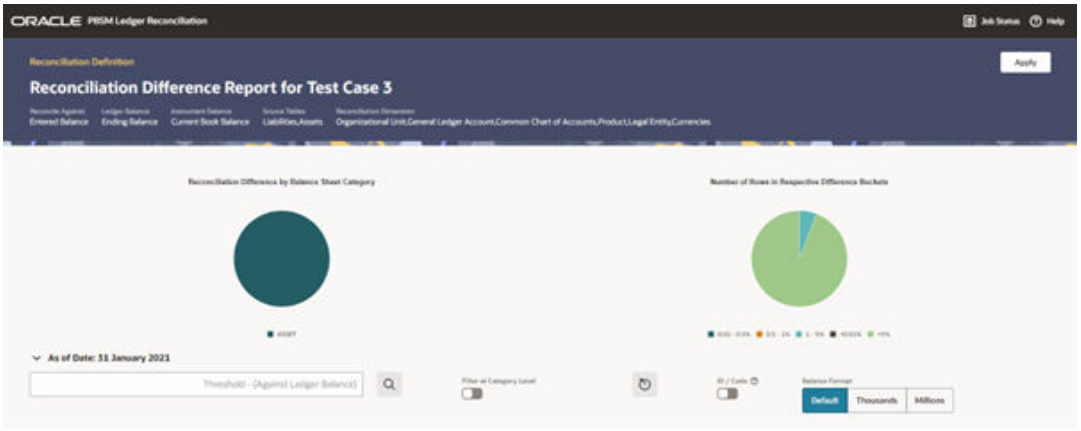
Figure 4-51 Reconciliation Difference Report



The detailed report is displayed as follows, where you can filter out insignificant difference using ‘Threshold Percentage’, also threshold can be applied at each row level or for whole Balance Sheet category level. If threshold is applied at Balance Sheet category level, all the rows that belong to the Balance Sheet category which is less than given percentage will be hidden from the Reconciliation Difference Report. A download button allows you to download the Reconciliation Report.

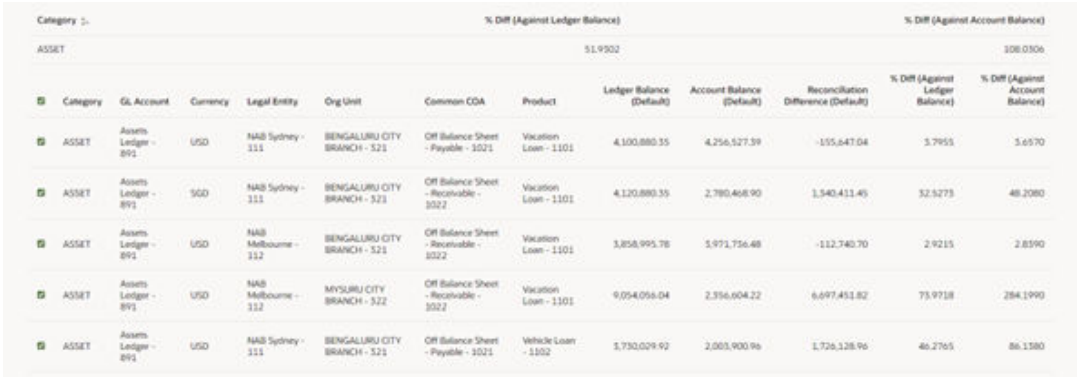
You can select **Filter at Category Level** toggle switch to apply threshold at ‘consolidated difference reports’, which is at balance sheet category level OR can directly apply the threshold to each difference row, which is available at the unique combination of selected key dimensions.

You can select the **ID / Code** toggle switch to see the CD data. By default, the toggle switch displays the ID data.

You can also change the unit of balance to thousands or millions.

You can see difference in both percentage and absolute format.

Figure 4-52 Differences in Percentage and Absolute Formats



As a next step to create the plug entries for filtered rows, you can click the **Apply** button in extreme right corner. Following a grid appears, along with default attributes fetched from default product attributes: if you like, you can update any of these attributes before plug entries are created for the selected difference records. You can use the **Edit** and **Save** button to edit the default product attributes like Amortization Type, Interest Rate Code, and

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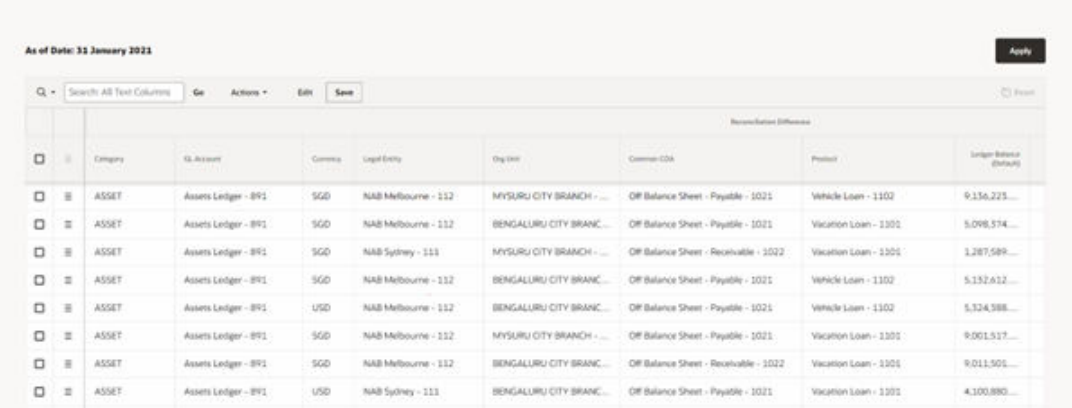
so on. You cannot edit any Code (CD) or VARCHAR attributes. Only attributes like Number, Rates, Dates, Term can be edited. All types of balances like Org balance, Current/Average balance are same as the reconciliation difference.

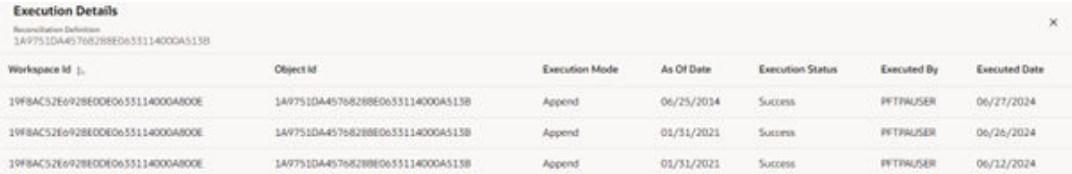
After you are convinced with the entered values for all the account attributes, you can click Apply. A job will be submitted and plug entries will be created in the FSI D Ledger Instruments table. To differentiate the plug entries from the customer real accounts, Data source CD will be used, with value 3, which signifies the 'Difference balance entries due to reconciliation performed between account and ledger'.

Figure 4-53 Differences in Percentage and Absolute Formats



- **Execution Details**: You can click this action button and view all the runs for a selected definition, along with the user information who has triggered the execution.

Figure 4-54 Excution Details



4.7.2 Duplicate Runs for Same As-of-Date

If for a particular As-of-Date plug entries are already created, you have an option to cancel the latest run and exit without creating any plug entries.

You can append to existing entries for same As-of-Date. This case is possible if different reconciliation definitions are being executed for different instrument tables.

You can delete all the existing plug entries for concerned As-of-Date and create all fresh entries. This case is possible if the intermediate day runs took place locally and finally at night a global run took place.

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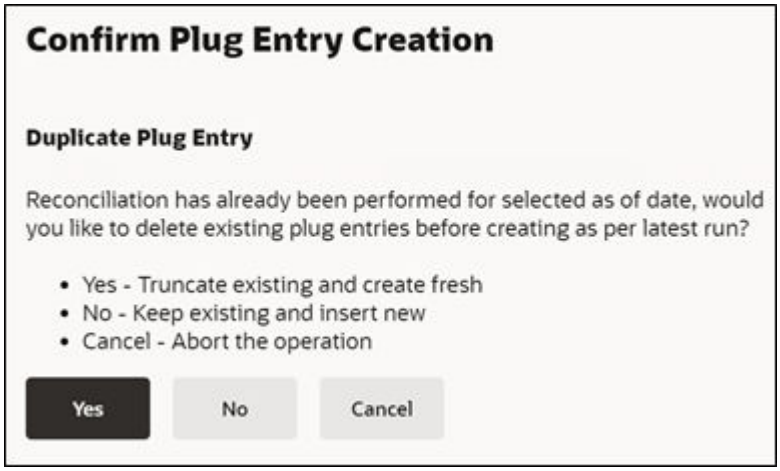
Figure 4-55 Confirm Plug Entry Creation



4.7.3 Historical Difference Report

You can open the Reconciliation Definition in **View** mode and get the Historical Difference Report using the **View Report** button.

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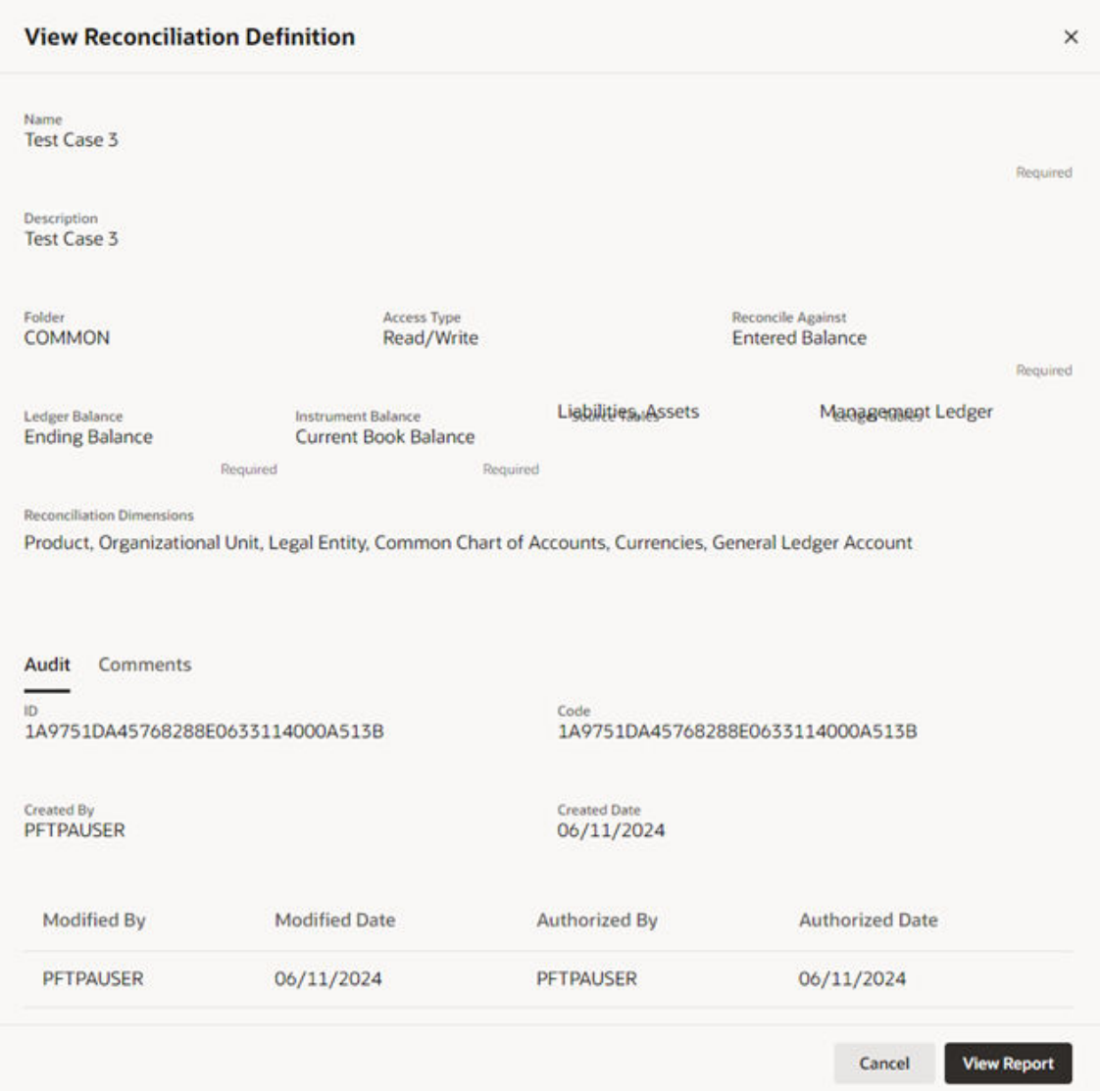
Figure 4-56 View Reconciliation Report



Here you can give a historical period by selecting the **From Date**, **To Date** and fetch all the reconciliation difference records along with the user comments to get the justification for plug entries creation.

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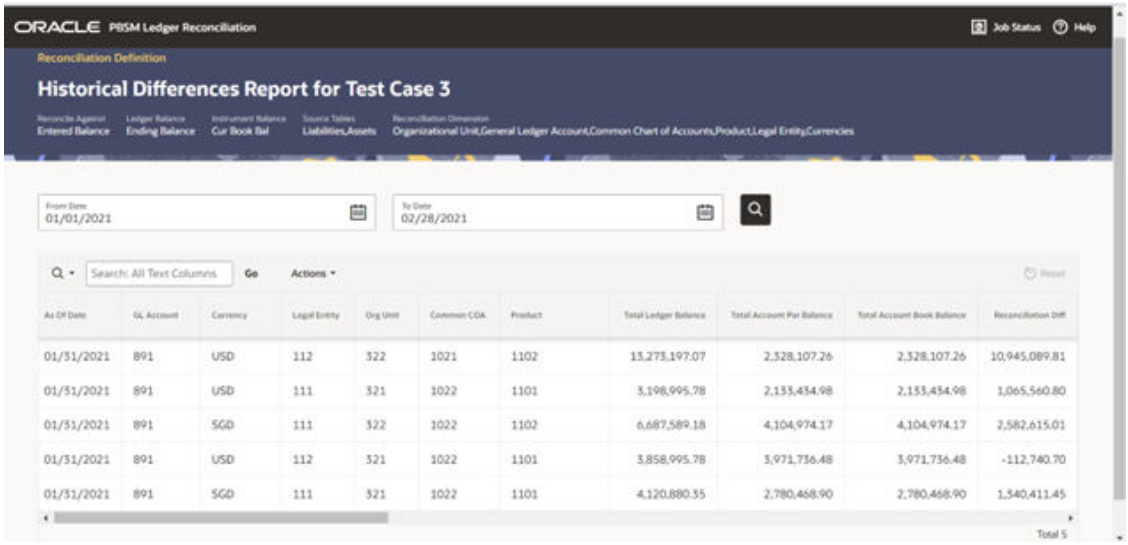
Figure 4-57 Historical Differences Report for FUNCT

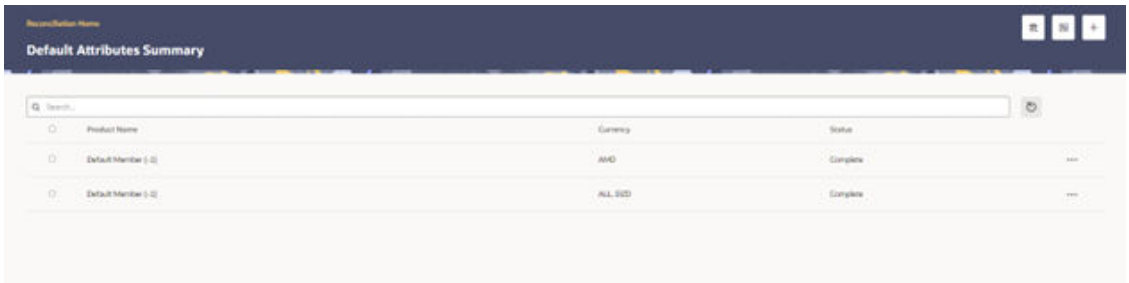


4.7.4 Default Attributes

The following is the Default Attribute Summary screen, where you can find all the default attributes defined for various Product-Currency combinations.

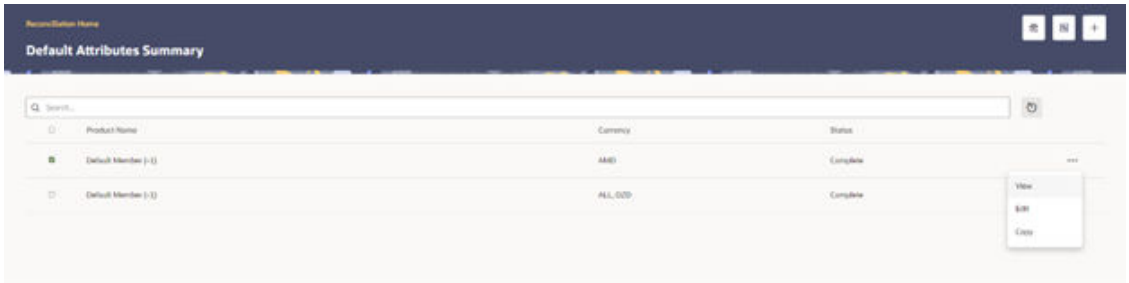
You can select one or multiple Product-Currency combinations and delete at once, by clicking the **Delete** button.

Figure 4-58 Default Attributes Summary



You can view/edit/copy an existing default attribute using respective button inn the Actions icon as follows.

Figure 4-59 Default Attributes Summary – Actions Column



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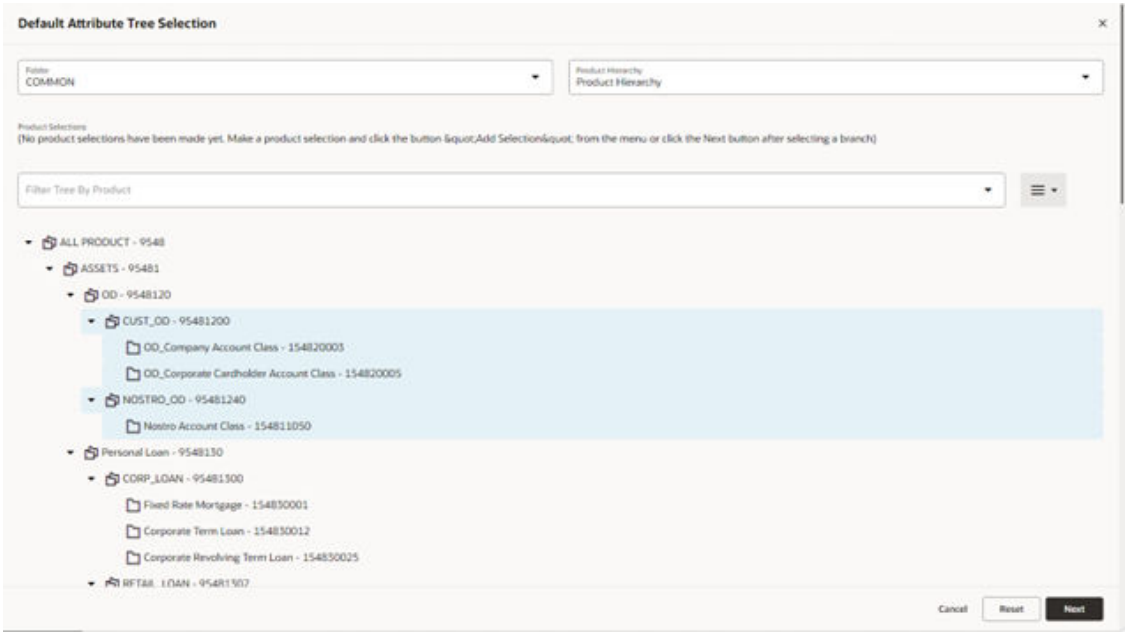
4.7.4.1 Creating a New Product-Currency Combination and Default Attributes

To create a new Product-Currency combination and default attributes for that. You can click the **Add** button, and a slide in pop-up will appear with three tabs:

Figure 4-60 Default Attribute Tree Selection



Core Product Attributes Tab: Here you can select one or multiple products and one or multiple currencies and start defining core product attributes as follows:

- Amortization Type
- Adjustable Type
- Interest Rate Code
- Net Interest Rate
- Original Term
- Original Term Type

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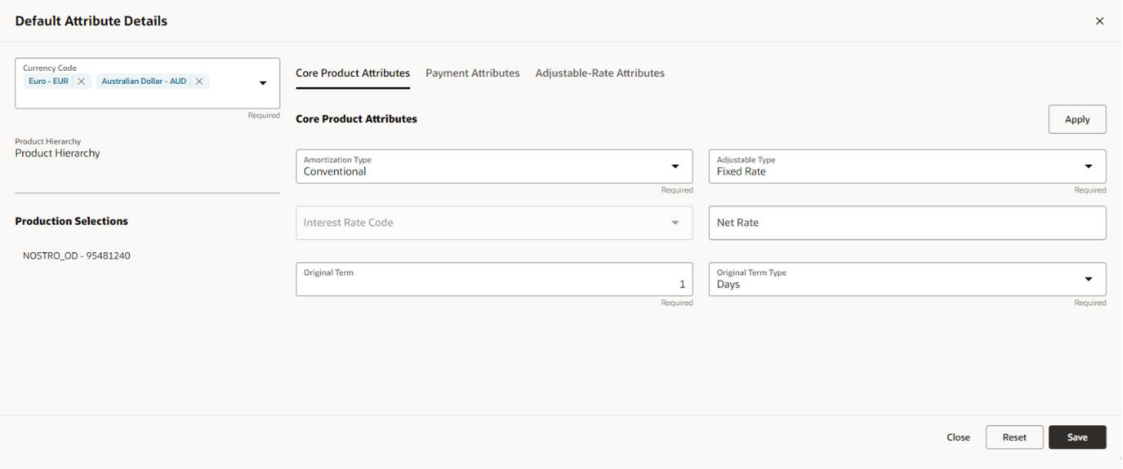
Figure 4-61 Core Product Attributes

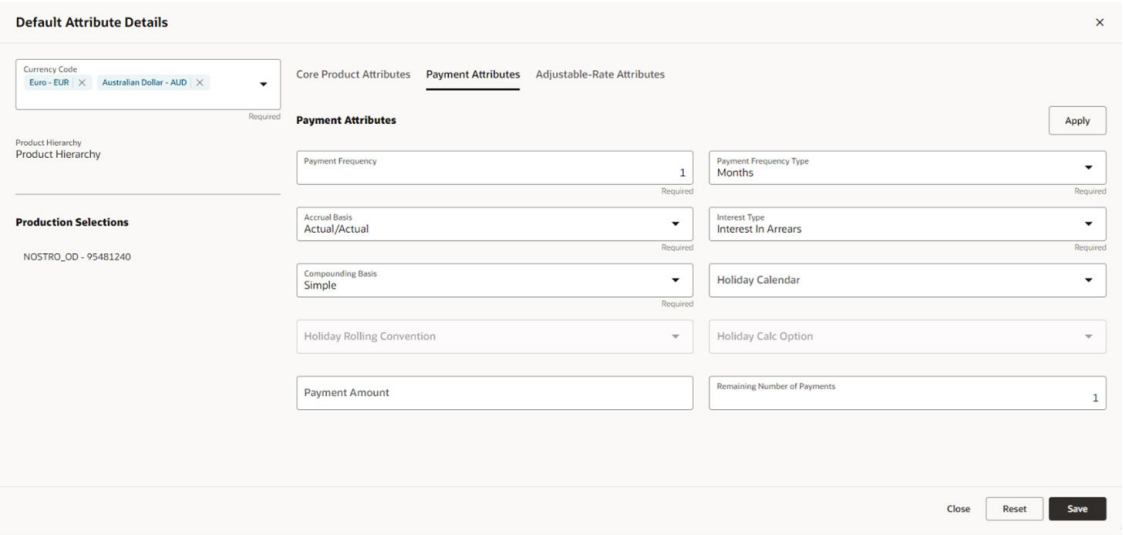


Click **Apply** and move to the Payment Attributes tab.

Payment Attributes Tab: To Define payment attributes, you can select this tab and start filling the following details:

- Payment Frequency
- Payment Frequency Type
- Accrual Basis
- Interest Type
- Compounding Basis
- Payment Amount
- Remaining Number of Payments

Figure 4-62 Payment Attributes



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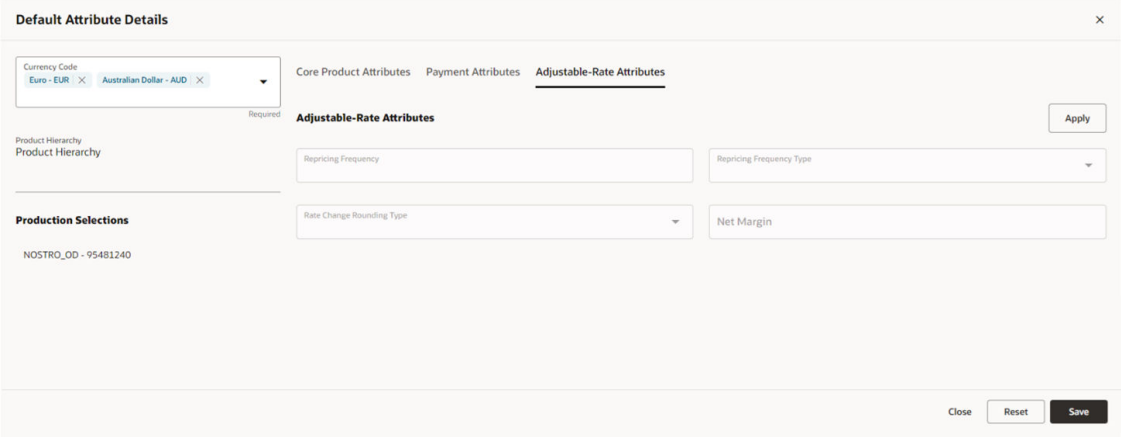
Click **Apply** and move to the Adjustable-Rate Attributes tab, which is applicable only for adjustable rate instruments:

Adjustable-Rate Attributes Tab: Here you can define following attributes:

- Repricing Frequency
- Repricing Frequency Type
- Rate Change Rounding Type
- Net Margin

Click **Apply** and then click **Save**. The Default Product Attribute for the selected Product-Currency combination is saved.

Figure 4-63 Adjustable-Rate Attributes



4.7.5 Reconciliation using Batch Process

You can do Reconciliation using the Scheduler Services.

To run the Reconciliation using Batch Process, follow these steps:

1. With the Define Batch feature, it is possible to create new batches and review existing ones.
2. Click **+** to create a new batch.
3. In the **Create Batch** screen, enter the following values:
   a. Code (spaces are not allowed in the code section).
   b. Batch Name
   c. Select the Service URL name as **RUN_CMD_SERVICE**.
   d. Click **Save**.
4. In the **Define Task** screen, you can define the tasks related to a specific batch.
   a. Navigate to Define Task.
   b. Select the name of the batch that has been created for this task.
5. Click **+** to create a new task.

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6. In the **Create Task** screen, enter the following values:
   a. Task Code (Spaces are not allowed in the code section). b.
   b. Task Name.
   c. Select the task type as **REST**.
   d. Select the component as **RUNCMD**.
   e. Select Batch Service URL as **RUN_CMD_SERVICE**.
   f. Click **Save**.
7. In the **Task Parameter** section, enter the following values:
   a. Select the Code as **RUN CMD RECONCILIATION**.
   b. Select the Execution Venue as **NATIVE**.
   c. Select the Optional Parameter as **THRESHOLD_OBJECTCODE_OPTION_RECONCILEWHOLEBALANCESHEET** format.
   d. Select the IP as **localhost**.

   The allowed values for the Option are either 0 or 1.

   - **0**: Truncate all existing data for concerned AS_OF_DATE/MIS_DATE for which reconciliation batch is getting executed and insert new data.
   - **1**: Append data on top of existing data for concerned AS_OF_DATE/MIS_DATE to ledger instrument and reconciliation difference Audit table (Table to retain comments for each plug entry).

   Threshold values must be greater than or equal to zero (0), negative values are not supported. Threshold values should be expressed as “threshold >= 0” The threshold will accommodate null values, allowing all data to be inserted into the ledger instrument and reconciliation difference audit tables.

   When a threshold is applied, plug entries will be created only for filtered data into the ledger instrument and reconciliation difference audit tables.

   > **Note**
   >
   > Select the appropriate object code/reconciliation definition to avoid errors in the batch process.

   The optional values should be passed in the following format:
   “THRESHOLD_OBJECTCODE_OPTION_RECONCILEWHOLEBALANCESHEET”

   Example 1: ‘’_F405734331FD795BE053D71A000AD329_0_Y

   (Threshold is null, and object code is: F405734331FD795BE053D71A000AD329, option value is 0, Y indicates Ledger only balances are included in the reconciliation)

   Example1: 12_F405734331FD795BE053D71A000AD329_1_N

   (Threshold is 12, and object code is: F405734331FD795BE053D71A000AD329, option value is 1, N indicated Ledger only balances will not be included in the reconciliation)
8. Schedule the batch using the **Schedule Batch** screen.
   Select the **Name** of the batch that has been created.

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You can use the **Edit Parameters** option to review the batch parameters and make any necessary changes to initializing the batch process.

9. The following tasks should be performed in a manner similar to what was outlined in point number 7.
    a. The **MIS Date** is used as the **As of Date** in the Reconciliation UI. Select the appropriate **MIS Date**.
    b. The values in point 6 are the default values for a specific environment.
    c. After completing the changes, click **Execute** or **Save**.
        i. By clicking **Save**, the definition of the batch will be saved, however, the batch will not be executed.
        ii. By clicking **Execute**, the batch will be executed.

    After the batch is executed, an **Execute Status** dialog is displayed, providing information about the executed batch.

    After the batch is executed, the information about the executed batch will be available in the **Monitor Batch** screen. Select the following options and check the Batch Status.

Sometimes, a batch may fail. The reason for the batch failure could be as follows:

- Entering an incorrect object code.
- Entering an incorrect option value. Only values of 0 or 1 are supported.
- Entering an incorrect threshold value. Only null or a value >= 0 are supported.

> **Note**
>
> Following roles mapping to the SKU User group should be present to enable RUNCMD listing and execution.
>
> - RCMDREAD
> - RCMDADVND

For detailed instructions for defining, executing, and monitoring a Batch, see the Scheduler Service documentation.

4.8 Data Redaction

OFSAAI is enhanced to enable masking of sensitive data and Personal Identification Information (PII) to adhere to Regulations and Privacy Policies.

Oracle Data Redaction provides selective, on-the-fly redaction of sensitive data in database query results prior to display by applications so that unauthorized users cannot view the sensitive data.

The stored data remains unaltered, while displayed data is transformed to a pattern that does not contain any identifiable information.

> **Note**
>
> Redaction is supported only on Oracle database.

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4.8.1 Redaction Functions

Use functions to define the type of redaction to be applied.

To define a redaction function:

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Functions**. The **Redaction Functions Summary** screen appears.
2. Click **Add** and provide the following details:
3. **Redact Function Name**: Specify a name for the function. Example: Email_ID.
4. **Description**: Provide a description for the function. Example: Function to redact email IDs.
5. **Redact Type**: Select the redaction type to be applied.
   - **Full**: You can redact all of the contents of the column data. The redacted value returned to the querying application user depends on the data type of the column. For example, columns of the NUMBER data type are redacted with a zero (0), and character data types are redacted with a single space.
   - **Partial Trailing**: You can hide or obscure a part of the data at the end of a column value. For example, you can redact a Social Security number with asterisks (*), except for the initial 4 digits.

     > **Note**
     >
     > Only VARCHAR and VARCHAR2 are supported.

   - **Partial Leading**: You can hide or obscure a part of the data at the beginning of a column value. For example, you can redact a Social Security number with asterisks (*), except for the last 4 digits.

     > **Note**
     >
     > Only VARCHAR and VARCHAR2 are supported.

     – **No of characters**: (Available only if partial redaction is applied). Specify the number of characters to be redacted.

     > **Note**
     >
     > You can't apply partial redaction to date type columns. Only full redaction is applicable to date type columns.

6. Click **Apply**.

4.8.2 Redaction Policies

You can use policies to map redaction functions to classification codes.

A classification code is a logical abstraction for a table column. Example: Social Security Number. These codes are pre-seeded.

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By mapping classification codes to redaction functions, you can redact the underlying table column.

4.8.2.1 View redaction policies

You can view the defined redaction policies using the Redaction Policies Summary screen.

To view the redaction policies:

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Policies**.

   The **Redaction Policies Summary** screen appears.
2. Enter the text of the second step here.

   See the table below for fields and their description.

Table 4-21 Redaction Policies Summary

Field	Description
Classification Name	Pre-seeded classification code name.
Redact Functions	Redact function name
Version	The latest version of the classification.
Request Type	Types of request: • Refresh: Map redaction as per latest addition of table columns. • Unmap: Remove redaction. • Map: Apply redaction
Status	Policy status
Policy Applied On	Date on which the policy was applied.
Created By	The user who created the policy.
Created Date	Date of creation of the policy.
Actions	You can perform the following actions: a. Edit b. Drop c. Refresh d. View

3. Click the **Actions** menu corresponding to the policy you want to view and select **View**.

The Redaction Policies Preview screen appears containing details of the policy.

4.8.2.2 Create redaction policies

Perform the following steps to create a redaction policy:

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Policies**.

   The **Redaction Policies Summary** screen appears.
2. Click **Add**.
3. Select the classification from the **Classification Name** drop-down list.
4. Select the function to be mapped to the classification name, from the **Redact Function Name** drop-down list.

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5. Click **Map**.

   The affected table and columns are displayed as a result of this mapping.

6. Click **Submit for Approval** or click **Reject** to cancel the mapping.

4.8.2.3 Modify a redaction policy

Perform the following steps to modify a redaction policy.

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Policies**.

   The **Redaction Policies Summary** screen appears.

2. Click the **Actions** menu corresponding to the policy you want to modify and select **Edit**.
3. Select the required function from the **Redact Function Name** drop-down list.
4. Click **Update Map**.

   The screen displays the affected table and columns as a result of this modification.

5. Verify the details and click **Submit for Approval**.

4.8.2.4 Drop a redaction policy

Perform the following steps to drop a redaction policy.

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Policies**.

   The **Redaction Policies Summary** screen appears.

2. Click the **Actions** menu corresponding to the policy you want to drop and select **Drop**.

   The screen displays the affected table and columns as a result of this drop action.

3. Verify the details and click **Submit for Approval**.

4.8.2.5 Refresh a redaction policy

Use the Refresh feature to extend redaction to newly added columns within an existing policy, preserving previous redactions.

To refresh a redaction policy:

1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Policies**.

   The **Redaction Policies Summary** screen appears.

2. Click the **Actions** menu corresponding to the policy you want to refresh and select **Refresh**.

   The **Refresh Dialog** appears.

3. Click **Run Refresh**.

4.8.3 Redaction Approval

You can approve or reject the redaction policies, using the Redaction Policies Authorization screen.

You must have the REDACT_AUTH role to approve/reject the policies.

Perform the following steps:

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1. Click **Data Management Tools** > **Redaction Framework** and select **Redaction Approval**. The **Redaction Policies Authorization Summary** screen appears listing the policies awaiting approval/rejection.
2. Click the **Actions** menu corresponding to the policy you want to approve/reject. The screen displays the affected tables and columns as a result of approving/rejecting this policy.
3. Verify the details and click **Approve & Execute** to approve the policy. Or, click **Reject** to cancel the policy.
4. Depending on the selection, provide the Approver Comments/Rejected Comments and click the **Approve & Execute**/**Reject** button once again to complete the action.

4.9 Data Stratification

Data Aggregation and Stratification enables you to summarize large volumes of financial instruments to a manageable scale for processing and reporting purposes. The stratification engine is used to intelligently group financial instrument records for processing. Grouping them in this way vastly reduces the processing time while retaining the necessary accuracy by still providing an instrument-level result. Using this feature is a multi-step process, which includes:

Financial Services users who load account level data into the Instrument/Account tables do not always have a need to process this data at the account level (for example, ALMCS). Many types of instruments carry the same financial characteristics or can be grouped along common lines without compromising processing accuracy. After grouping common data into stratified pools, processes run against this data requires significantly less processing time (that is, reduced from millions of individual records to several thousand, hundreds or even tens). Functional end users require functionality to define how grouping should occur and to execute this grouping (also known as stratification) at their discretion. They also require the ability to run stratification/aggregation multiple times against the same instrument level data set and retain all of the aggregated results as unique data sets.

- Understanding what you want and how you want to aggregate and stratify data.
- Optionally defining balance or rate tiers to be used for grouping data.
- Configuring the Data Map metadata for the source and target data maps that are to be used on the Stratification Definition page.
- Setting up stratification definitions and rules in the Stratification Rule pages.
- Testing the rules that you create

User and Roles

Role Code	Role Name	Function Code	Function Name
RLSTRATTIERADMIN	Stratification Tier Admin Role	STRATTIERADD	Add Stratification Tier
		STRATTIERDEL	Delete Stratification Tier
		STRATTIEREDIT	Edit Stratification Tier
		STRATTIERCOPY	Copy Stratification Tier Data
		STRATTIERVIEW	View Stratification Tier
		STRATTIERTRACE	Trace Stratification Tier Data
RLSTRATTIERANALYST	Stratification Tier Analyst Role	STRATTIERADD	Add Stratification Tier

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Role Code	Role Name	Function Code	Function Name
		STRATTIERDEL	Delete Stratification Tier
		STRATTIEREDIT	Edit Stratification Tier
		STRATTIERCOPY	Copy Stratification Tier Data
		STRATTIERVIEW	View Stratification Tier
		STRATTIERTRACE	Trace Stratification Tier Data
RLSTRATTIERAUDIT	Stratification Tier Auditor Role	STRATTIERVIEW	View Stratification Tier
RLSTRATRULEADMIN	Stratification Rule Admin Role	STRATRULEADD	Add Stratification Rule
		STRATRULERUN	Run Stratification Rule Data
		STRATRULEDEL	Delete Stratification Rule
		STRATRULEEDIT	Edit Stratification Rule
		STRATRULECOPY	Copy Stratification Rule Data
		STRATRULEVIEW	View Stratification Rule
		STRATRULETRACE	Trace Stratification Rule Data
RLSTRATRULEANALYST	Stratification Rule Analyst Role	STRATRULEADD	Add Stratification Rule
		STRATRULERUN	Run Stratification Rule Data
		STRATRULEDEL	Delete Stratification Rule
		STRATRULEEDIT	Edit Stratification Rule
		STRATRULECOPY	Copy Stratification Rule Data
		STRATRULEVIEW	View Stratification Rule
		STRATRULETRACE	Trace Stratification Rule Data
RLSTRATRULEAUDIT	Stratification Rule Auditor Role	STRATRULEVIEW	View Stratification Rule

Partial Aggregation

An extra filter option is given in the Stratification Definition, which limits the stratification, only for the accounts in the Source Table falling under the filter criteria. If the Filter is not being used, (case for all existing definitions), then the existing behavior remain as is.

For accounts in the Source Table, which does not satisfy the filter condition will not be aggregated and will be moved to the destination table as is. But whether column mappings which are defined in aggregation tab and under defaults will be applicable or not for non-aggregated records, will be dependent on the **Apply Column mapping for Non-Aggregated Accounts** check-box settings. If this check-box is selected, then the aggregated records column mappings will be applicable to the non-aggregated records. Else, the non-aggregated records will be moved to the destination aggregated table without using the column mappings.

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Stratification Action Operations

To create the pools of instruments, identify the operation for each of the attributes. Following choices are avialable in terms of how to populate each attribute in the instrument pool from the instrument data:

- **Discrete**: Directs the Stratification Engine to populate the instrument pool with discrete values.
  This option populates the pool with discrete values for an attribute if there is no logical or mathematical way to group instruments with different values, and the attribute is significant for reporting purposes. Selecting the discrete action for an attribute ensures that only instruments with matching values are grouped together in a pool. The discrete action may be the correct choice for important code fields. Be careful when using the Discrete user on amount, date, or rate fields. These types of fields tend to have many discrete values. Typical value for a discrete group by is an ID field or a yes/no flag, amortization type, adjustable type, accrual basis.
- **Default**: Used for attributes that user wants to set to a hard-coded value.
  If you are defining a stratification rule that you know is used only by one class or type of product, and you want all pools that are generated from that rule to have the same value for a specific attribute, select this option to force the attribute to have that predefined value. The Default option should be used with caution and only when you are sure that the value is valid for all pools that are created by the stratification rule. When you are unsure, a better choice is to either drop the attribute entirely, or populate the field with discrete values.
- **Tiers**: If you want to group the possible range of values into consistent ranges, the simplest grouping operation to use tiers.
  Identify the lower and upper value of tiers, and Stratification engine that groups the instruments into that range. Tiers are typically used for balance and rate fields to assist in grouping similar data into tranches or pools. Tiers should be defined on columns that impact the way assumptions are made, such as prepayments, interest rate margins or other meaningful assumptions.

Aggregation Action Operations

The following are the default aggregation action operations:

Amount Action
The following options are possible when aggregating records for BALANCE type columns:

1. Average: Calculates the average value of an attribute for all instruments in the pool.
2. Max: Maximum value of a given attribute for all the instruments that are part of the pool.
3. Min: Minimum value of a given attribute for all the instruments that are part of the pool.
4. Sum: Total sum value for a numeric attribute.
5. Default: Applies a specified default value.

Rate/Percent Action
The following options are possible when aggregating records for RATE type columns:

1. Average: Calculates the average value of an attribute for all instruments in the pool.
2. Max: Maximum value of a given attribute for all the instruments that are part of the pool.
3. Min: Minimum value of a given attribute for all the instruments that are part of the pool.
4. Sum: Total sum value for a numeric attribute.

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5. Weighted Average: Calculates the average weighted value for an attribute by another balance. Examples of attributes for which you may want to calculate the weighted average are interest rate fields: interest rate, cap rate, floor rate, and interest rate margin for floating rates. Other possibilities include loan-to-value, and so forth
6. Default: Applies a specified default value.

Date Action
The following options are possible when aggregating records for DATE type columns:

1. Max: Maximum value of a given attribute for all the instruments that are part of the pool.
2. Min: Minimum value of a given attribute for all the instruments that are part of the pool.
3. Median: Median Date value for all date values in the pool.
4. Default: Applies a specified default value.

Integer Action
The following options are possible when aggregating records for INTEGER type columns (example: payment frequency, reprice frequency, original term etc.):

1. Average: Calculates the average value of an attribute for all instruments in the pool.
2. Max: Maximum value of a given attribute for all the instruments that are part of the pool.
3. Min: Minimum value of a given attribute for all the instruments that are part of the pool.
4. Weighted Average: Calculates the average weighted value for an attribute by another balance.
5. Default: Applies a specified default value.

Text / Alphanumeric Action
The following options are possible when aggregating records for STRING, CODE type columns:

1. Max: Maximum value of a given attribute for all the instruments that are part of the pool.
2. Min: Minimum value of a given attribute for all the instruments that are part of the pool.
3. Default: Applies a specified default value.

Stratification Tips

Consider this criteria when evaluating how you want to stratify data:

- When identifying attributes that you want to include as part of the instrument pools, keep in mind the primary use of the stratified data you are creating. For example, the ALM engine uses only the current balance amount fields for its calculations. As far as the ALM engine is concerned, designing a stratification rule that populates other balance or amount fields is optional.
- You need to identify the stratification criteria for the attributes. This step is simplified by the fact that any attributes that you identify as needing to maintain discrete values for, or that are going to be dropped or defaulted by definition, cannot be used as grouping criteria for pools.
- Maximize efficient processing by designing rules to summarize the instruments into as few pools as possible, while at the same time only grouping instruments that generate the same or similar cash flows. In other words, all instruments that are grouped into a pool should share common and pertinent financial characteristics.

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> **Note**
>
> Unique Constraint on all Aggregated tables is the same as other instrument tables with ID Number and Identity Code. In order to preserve uniqueness, DEFAULT value should not be used for ID_NUMBER and IDENTITY_CODE mappings. MIN/MAX should be used for these fields accordingly

Also See:

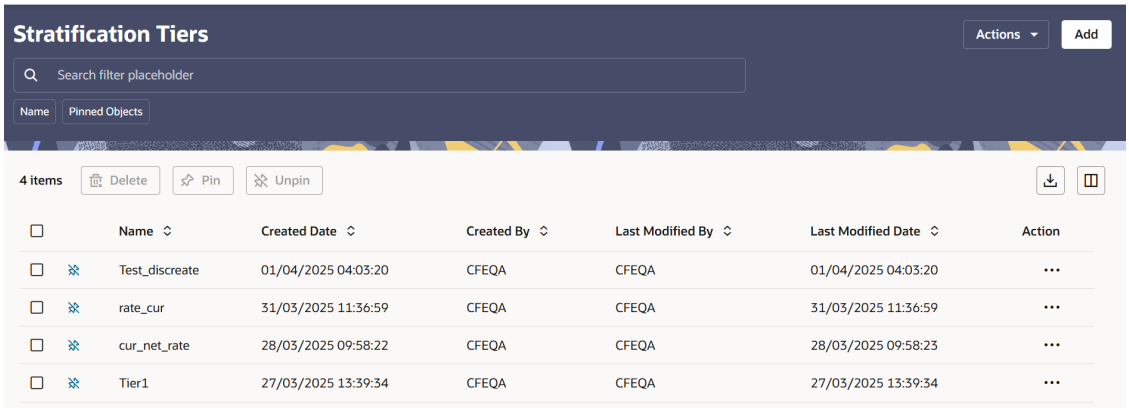
- Data Stratification Rule
- Data Stratification Tiers

4.9.1 Data Stratification Tier

An alternative to incremental grouping is to group according to tiers. You can use tiers on numbers, amounts, and rate fields. The main difference between using tiers versus other aggregation actions is that you can define the specific tiers that you want to stratify the data into to match business logic, reporting requirements, or both. Tiers also give you more control in terms of limiting the number of strata created for any given attribute to only ranges that are pertinent for processing or reporting purposes. For example, you could define a tier rule that groups the initial balance amounts in increments of 10,000. However, this could result in hundreds of strata if the balance amounts range anywhere from 1 to 100,000,000. A more efficient and logical way to group balance amounts may be to set up tiers so that the first tier contains records with amounts between 1 and 50,000; the second tier contains records with amounts between 50,000 and 1,000,000, and the third tier contains records with amounts between 1,000,000 and 100,000,000. Tiers are ideal for handling balance amounts

Data Stratification Tiers Summary

Figure 4-64 Data Stratification Tier



Search Stratification Tier

Prerequisites: Predefined Stratification Tier

To search for a Stratification Tier:

1. You can search a Stratification Tier is through the **Search** drop-down option. Select **Stratification Tier Name**, **Stratification Tier Type**, **Seeded Stratification Tier Flag**, **Last Execution Status**, and **Created By** from **Search** drop-down.

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2. Enter the **Stratification Tier Name**, **Stratification Tier Type**, **Seeded Stratification Tier Flag**, **Last Execution Status**, and **Created By** in Search Criteria and click **Go**.

Rows that contain the string you are searching for are fetched and displayed in the Data Stratification Tiers Summary.

The Data Stratification Tiers Summary displays the following information:

New Stratification Tier: Click the **Add** button on the page header to build a new Stratification Tier.

- **Name**: The Stratification Tier name.
- **Created Date:** The Date and Time when the Stratification Tier was created.
- **Created By:** Displays the Name of the user who created the Stratification Tier.
- **Last Modified By:** Displays the Name of the user who last modified the Stratification Tier.
- **Last Modification Date:** The Date and Time when the Stratification Tier was last modified.
- **Actions:** Click this icon to view a list of actions that you can perform on the Stratification Tier.
  - **View:** View existing Stratification Tier.
  - **Edit:** Edit existing Stratification Tier. To edit a rule, you must have Read/Write privilege.
  - **Delete:** You can delete rules that you no longer require. Note that only Stratification Tier owners and those with Read/Write privileges can delete rules. A Stratification Tier that has a dependency cannot be deleted. A Stratification Tier cannot be retrieved after deletion.
  - **Dependency Check:** You can check dependencies for rules to know where a particular Stratification Tier has been used. This also prevents accidental deletion of rules having dependencies. Click on the **Action** icon against the Stratification Tier Name and select Dependency Check to generate a report on all Rules that utilize your selected Stratification Tier.

4.9.1.1 Create Data Stratification Tier

This section provides the details on creating the data Stratification.

To create data Stratification rule, follow these steps:

1. Navigate to **Stratification Tiers** page.

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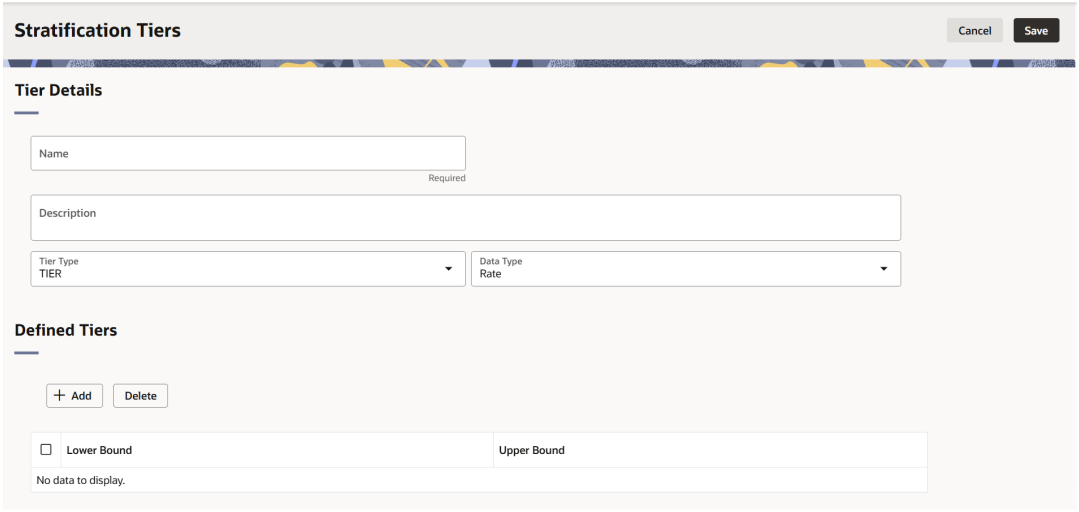
Figure 4-65 Data Stratification Tier



2. Provide a unique **Name** and **Description** for the Stratification Tier.
3. Select the **Tier Type** as **Tier** or **Discrete**.
   - **Tier:** This can be defined as a range of lower and upper values.
     Example (for amount):

Tier#	Lower Bound Value	Upper Bound Value
1	1	5,000
2	5,001	25,000
3	25,001	100,000

> **Note**
>
> Tier will have a lower and upper value. Following validations are applied on UI:
>
> a. Set the lower- and upper-bound amounts for the tiers.
> b. The lower-bound value must be less than or equal to the upper-bound value.
> c. The lower-bound value must be greater than the upper-bound value of previous range.
> d. Values must not overlap

   - **Discrete**: This is defined a discrete list of values and generally used for text or code fields example, yes/no flag.

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> **Note**
>
> The **Discrete** option populates the pool with discrete values for an attribute if there is no logical or mathematical way to group instruments with different values, and the attribute is significant for processing purposes. Select Discrete option for an attribute ensures that only instruments with matching values are grouped in a pool. The Discrete option may be the correct choice for important code fields. Be careful when using the discrete action on the amount, date, or rate fields. These types of fields tend to have many discrete values.

4. Select the column **Data Type** (Amount, Rate, Date, or Integer) that this definition will apply to. This selection will limit the columns where this Tier rule will be available for selection in the Stratification Definition Rule.
5. Define each tier with lower and upper bounds and add as a defined range. Click **Add** to add the tier. Additionally, use Delete to delete the individual tier definitions if required.
6. After all Tier ranges are defined, select **Save** to save the assumptions and exit the Tier screen.

The tier definitions created in this step are mapped to the individual columns in the Stratification Definition rule on the Stratification tab.

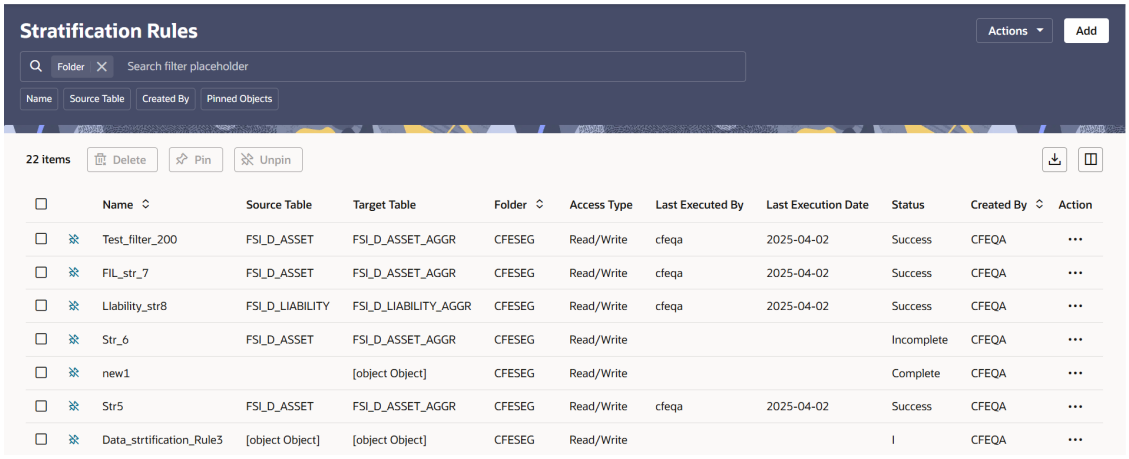
4.9.2 Data Stratification Rules

Stratification Rules are defined to specify aggregations that are different from the default. Stratification rules are the primary interface for defining how pools of instruments are assembled.

The engine that does the aggregation and stratification processing is the Data Stratification Rule. This feature enables you to perform mathematically intensive calculations on a relatively small number of instrument pools that are proxies for a much larger number of individual instrument records.

Data Stratification Rules Summary

Figure 4-66 Stratification Rules



Search Stratification Rule

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Prerequisites: Predefined Stratification Rule

To search for a Stratification Rule:

1. You can search a Stratification Rule is through the **Search** drop-down option. Select **Stratification Rule Name**, **Stratification Rule Type**, **Seeded Stratification Rule Flag**, **Last Execution Status**, and **Created By** from **Search** drop-down.
2. Enter the **Stratification Rule Name**, **Stratification Rule Type**, **Seeded Stratification Rule Flag**, **Last Execution Status**, and **Created By** in Search Criteria and click **Go**.

Rows that contain the string you are searching for are fetched and displayed in the Data Stratification Rules Summary.

The Data Stratification Rules Summary displays the following information:

New Stratification Rule: Click the **Add** button on the page header to build a new Stratification Rule.

- **Name**: The Stratification Rule name.
- **Source Table:** Displays the source table name.
- **Target Table:**Displays the target table name.
- **Folder:** Displays the Folder name where the Stratification Rule is saved.
- **Access Type:** Displays the access type of Rule. It can be Read-Only or Read/Write.
- **Last Executed By:** Displays the Name of the user who last runs the Stratification Rule.
- **Last Execution Date:** The Date and Time when the Stratification Rule was last modified.
- **Execution Status:** The status of Stratification Rule after execution.
- **Actions:** Click this icon to view a list of actions that you can perform on the Stratification Rule.
  - **View:** View existing Stratification Rule.
  - **Edit:** Edit existing Stratification Rule. To edit a rule, you must have Read/Write privilege.
  - **Delete:** You can delete rules that you no longer require. Note that only Stratification Rule owners and those with Read/Write privileges can delete rules. A Stratification Rule that has a dependency cannot be deleted. A Stratification Rule cannot be retrieved after deletion.
  - **Dependency Check:** You can check dependencies for rules to know where a particular Stratification Rule has been used. This also prevents accidental deletion of rules having dependencies. Click on the **Action** icon against the Stratification Rule Name and select Dependency Check to generate a report on all Rules that utilize your selected Stratification Rule.
  - **Execute:** Select Execute to execute an existing Stratification Rule. After clicking Execute, the Run Parameter Execution window is displayed. Select As of Date (Execution Date) and Legal Entity, and then click Run.

4.9.2.1 Create Data Stratification Rule

This section provides the details on creating the data Stratification.

To create data Stratification rule, follow these steps:

1. Navigate to **Data Stratification Definition** page.

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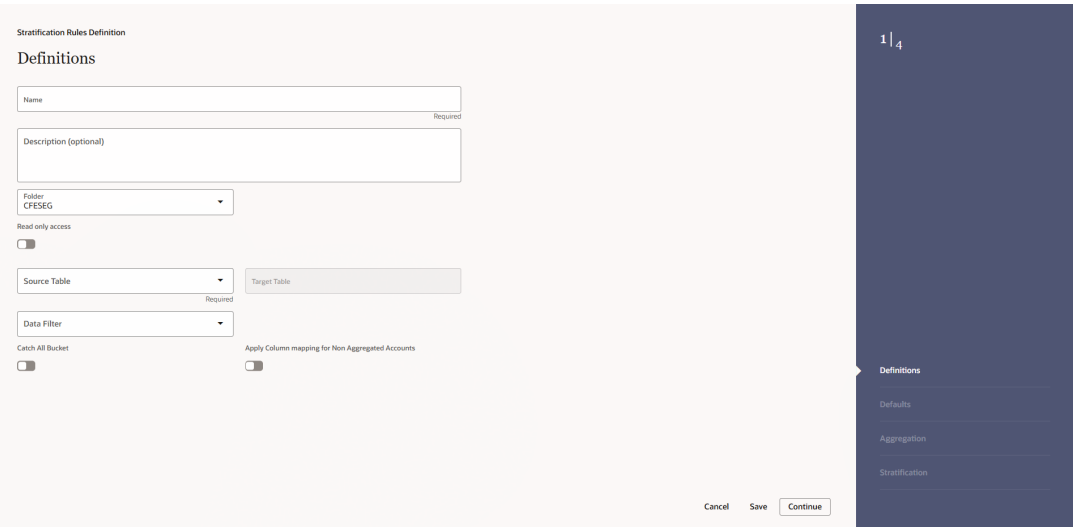
2. Follow the steps mentioned in below sections:
   a. **Step 1:** Definitions
   b. **Step 2:** Defaults
   c. **Step 3:** Aggregation
   d. **Step 4:** Stratification

Step 1: Definitions section

1. From **Definitions** tab, click **Start**. The **Definitions** page is displayed.

Figure 4-67 Definitions section



2. Enter the following details:
   - **Name:** Name of Data Stratification rule
   - **Description:** Description of Data Stratification rule
   - **Folder:** Folder where Data Stratification rule needs to be saved
   - **Source Table:** Select a Source Instrument Table (Asset and Liability). The list of values will include all seeded and properly registered instrument tables that contain account-level data records.
   - **Target Table:** Auto populated based on source table: Asset Aggregate, Liability Aggregate. You cannot modify this field.
   - **Data Filter:** Select Data filter. Displays data filters defined on Source Table
   - **Catch All Buckets:** Specify whether or not to include a catch-all bucket in the process. If this is selected, then all records from the source table must be accounted for in the target table.
   - **Apply Column mapping for Non Aggregated Accounts:**For accounts in the Source Table, which does not satisfy the filter condition will not be aggregated and will be moved to the destination table as is. But whether column mappings which are defined in aggregation tab and under defaults will be applicable or not for non-aggregated records, will be dependent on this switch. If switch is ON, then the aggregated records column mappings will be applicable to the non-aggregated records. Else the non-aggregated records will be moved to the destination aggregated table without using the column mappings.

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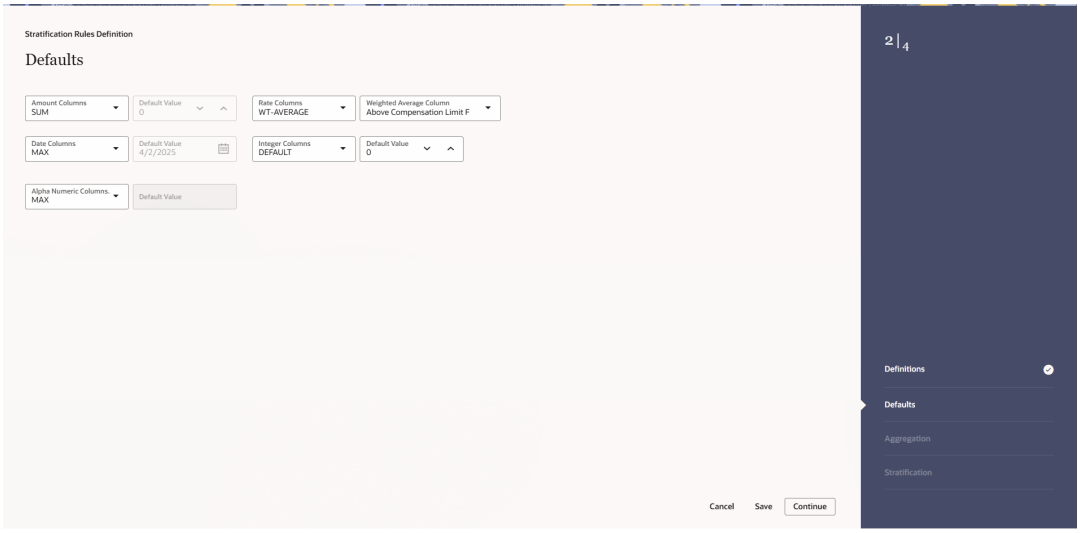
3. Click **Continue**.

Step 2: Defaults section

1. Navigate to the **Defaults** section.

Figure 4-68 Defaults section



2. Select the Amount default. Possible selections are MAX, MIN, SUM, AVG. The recommended selection is SUM.
3. Select the Date default. Possible selections are MAX, MIN, MEDIAN. The recommended selection is MEDIAN.
4. Select the Alpha Numeric default. Possible selections are MAX, MIN. The recommended selection is MAX.
5. Select the Rate default. Possible selections are MAX, MIN, SUM, AVG, and Weighted Average. Recommended selection is Weighted Average. If Weighted Average is selected, then additionally select the balance column to use for weighting.
6. Select the Integer default. Possible selections are MAX, MIN. The recommended selection is MAX
7. Click **Continue**.

Step 3: Aggregation

1. Navigate to the **Aggregation** section.

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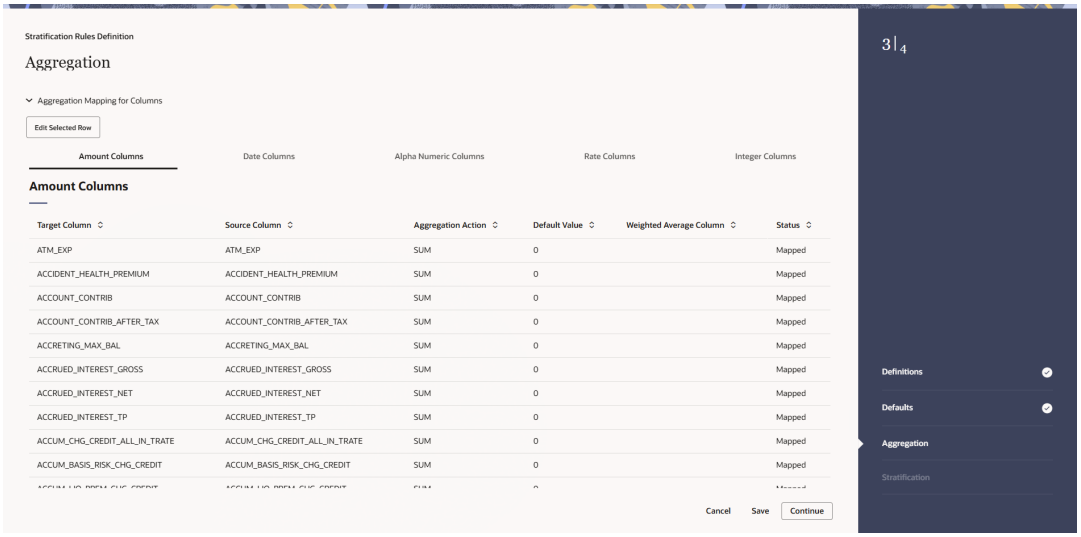
Figure 4-69 Aggregation section

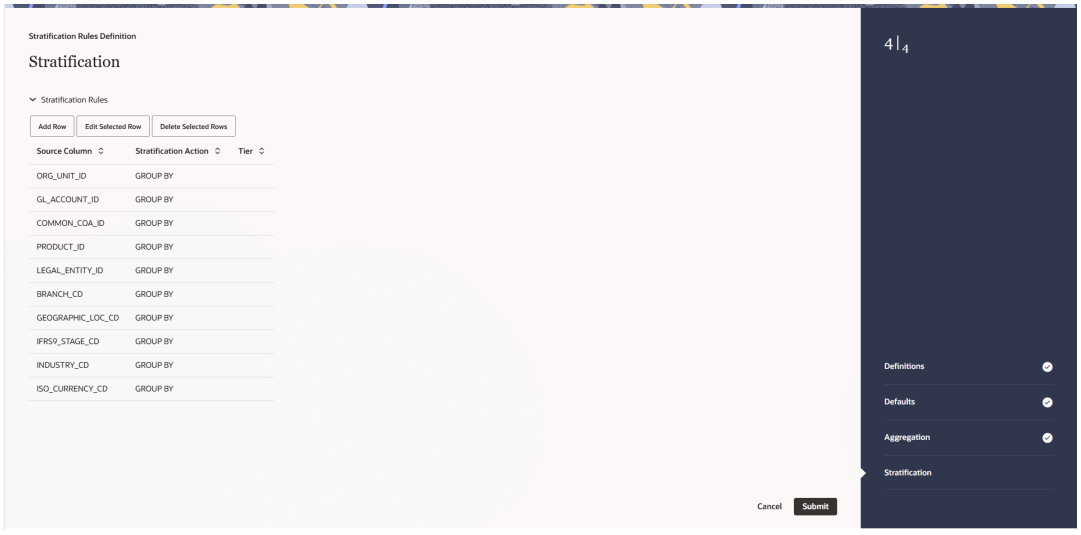


2. Select the specific row you want to define from the bottom half of the page. You have the option to use the default values previously input on the Defaults tab or you can input a different Aggregation Action at the top of the page.
3. Use the pagination selections at the bottom of the page to address/review all columns or type the column name or a portion of the column name to navigate directly to a specific column.
4. Click **Continue**.

Step 4: Stratification section

1. Navigate to **Stratification** section.

Figure 4-70 Stratification section



2. Select the Column(s) and Stratification Action that you want to use for grouping the detailed records into aggregate/pooled records. Typical columns used for grouping will be dimension columns, balance or rate columns, or any other meaningful columns that you want to be unique for each pool record.

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3. For each Stratification column, select the Stratification Action. Options are Tier, Discrete, and Group by. Both the Tier and Discrete options require an additional Stratification Tier definition to be selected.
4. Select Submit to save your inputs and close the rule

4.9.2.2 Executing a Stratification Rule

You can execute Data Stratification Rule using following methods:

- Data Stratification Rule UI
- Scheduler Service

4.9.2.2.1 Using Data Stratification Rule UI

To execute the Data Stratification Rule, follow these steps:

- Navigate to the **Data Stratification Rule Summary** page.
- Search for a Data Stratification Rule.
- Click on the **Action** icon against the Data Stratification Rule Name and select **Execute** to execute an existing Data Stratification Rule. The Run Parameter Execution window is displayed.
- Select the **As of Date (Execution Date)**, then click **Run**.

> **Note**
>
> You can select multiple Legal Entities in list view of hierarchy browser at a time for execution. In hierarchy mode you can select one Legal Entity at leaf or parent level. When parent Legal Entity is selected then data of selected entity along with its child and descendants are processed.

- The **Data Stratification Rule Run Confirmation** page is displayed. The status of the process is displayed in the **Status** column. After completion of the process, you can navigate to the Execution Details page by selecting the **Execution Details** option under the **Action** column.

4.9.2.2.2 Using Scheduler Service

To execute the Stratification Rule, follow these steps:

1. Navigate to **Operations and Processes** menu, and select **Scheduler**.
2. Define a new batch.
3. Enter the **Batch Name** and **Description**, and then save the batch.
4. To add a task, navigate to **Define Task.**
5. Select the Batch from Batch drop-down list on Define Task window.
6. Click the **Add** button.
7. Define the Task Code, Task Name, and Description.
8. Select Components as “Stratification Rule”.
9. Input the following mandatory parameters:
    - Rule Name: Select the Stratification Rule from drop-down list.

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10. Save and Execute the batch with Batch ID and MIS Date.

For more information, see the Scheduler Service.

4.10 Cash Flow Edits

In this section, you can find the details about all Cash Flow Edits.

- Configure Cash Flow Edit Rules: The Cash Flow Edits Configuration window allows you to configure a new Cash Flow Edits Rule and this rule configuration can be used and executed using Cash Flow Edits Process.
- Cash Flow Edits Process: The Cash Flow Edits Process allows you to verify the accuracy and check the completeness of your Instrument Table Data.

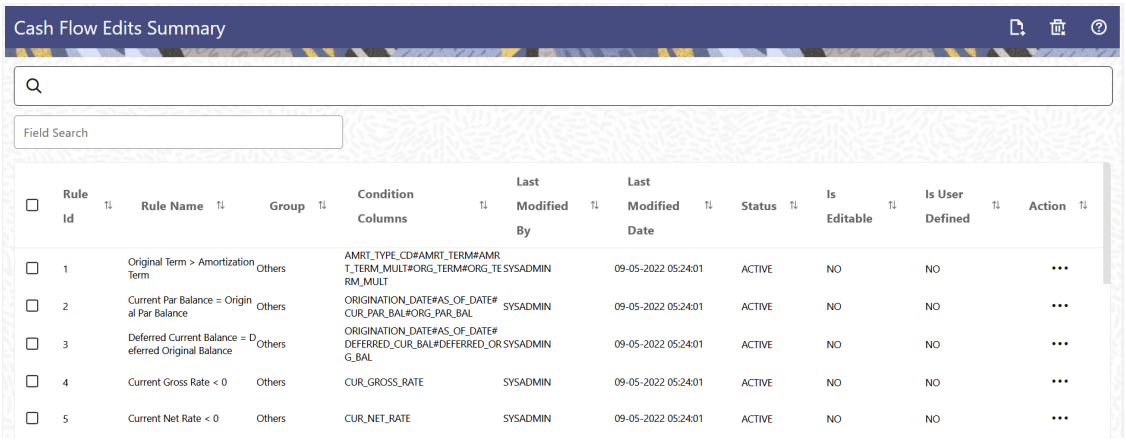
4.10.1 Configure Cash Flow Edits Rule

The Cash Flow Edits Configuration Window allows you to configure a new Cash Flow Edits Rule. Later, this rule configuration can be used and executed using Cash Flow Edits Process UI. 140 rules are seeded as part of OFSA Cloud Service.

Cash Flow Edits Rule Summary

This page is the gateway to all Cash Flow Edits Rules and related functionality. You can navigate to other pages relating to Cash Flow Edits Rules from this point.

Figure 4-71 Cash Flow Edits Summary



Search Cash Flow Edits Rule

Prerequisites: Predefined Cash Flow Edits rule

To search for a Cash Flow Edits Rule, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Cash Flow Edits rules that meet the search criteria.

Or

The other method to search a Cash Flow Edits rule is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter

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the **Code, Name, Description, Dimension, Hierarchy**, and **Folder** of the Cash Flow Edits rule and click **Search**.

The Cash Flow Edits summary displays the following information:

Add: Click **Add** icon at the top right of the summary page to build a new Cash Flow Edits rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Rule Id:** The code of Cash Flow Edits rule.
- **Rule Name:** The Cash Flow Edits Rule's short name.
- **Group:** The Group of Cash Flow Edits Rule.
- **Condition Columns:** The Columns on which of Cash Flow Edits Rule is made.
- **Last Modified By:** The user who last modified the Cash Flow Edits Rule.
- **Last Modified Date:** The Date and Time when the Cash Flow Edits Rule was last modified.
- **Status:** The Status of Cash Flow Edits Rule.
- **Is Editable:** The editable status of Cash Flow Edits Rule.
- **Is User Defined:** The user defined status of Cash Flow Edits Rule.
- **Action:** Click this icon to view a list of actions that you can perform on the Cash Flow Edits Rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Cash Flow Edits rules. To edit a rule, you must have Read/Write privilege.

    > **Note**
    >
    > You cannot edit out-of-box seeded rules.

  - **Save As:** You can reuse a Cash Flow Edits rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Cash Flow Edits rules that you no longer require. Note that only Cash Flow Edits Rule owners and those with Read/Write privileges can delete Cash Flow Edits Rules. A Cash Flow Edits Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.

    > **Note**
    >
    > You cannot delete out-of-box seeded rules.

You must create and run Cash Flow Edits processes on your Instrument Table Data before you submit Cash Flow Engine based rules for processing.

Also See:

- Create Cash Flow Edits Rule
- Cash Flow Edits Process Errors

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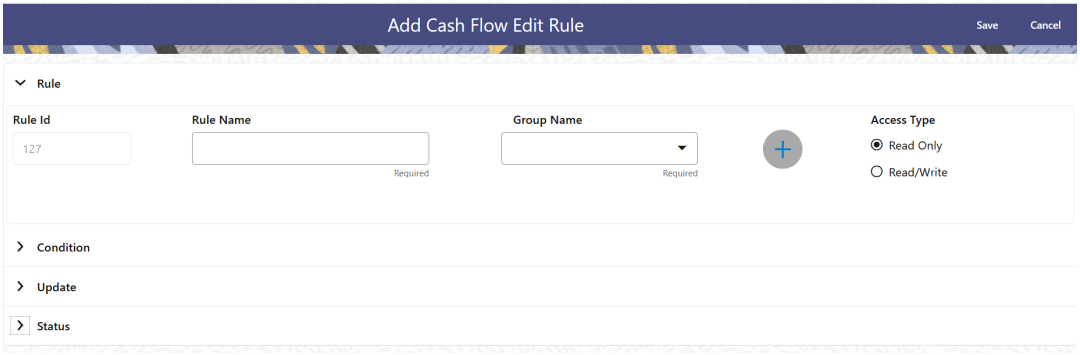
4.10.1.1 Create Cash Flow Edits Rule

To add a new Cash Flow Edits Rule, follow these steps:

1. Navigate to **Cash Flow Edits Summary** Page.
2. Click the **Add** icon. The **Add Cash Flow Edits Rule** Window is displayed.

Figure 4-72 Add Cash Flow Edits Rule



3. Enter the following details:

Table 4-22 List of fields used for Creating Cash Flow Edits Process

Field	Description
Rule ID	Shows the ID of the Cash Flow Edits Rule. This is an auto generated numeric field. You cannot modify this.
Rule Name	Enter the name of the Cash Flow Edits Rule. This is an alphanumeric field. The maximum length of this field is 1000 characters.
Group Name	Select the Group Name from Group Name drop-down list. For example, Cash Flow. You can add new a Group and Sub Group using Add icon. Adding a Sub Group To add a Sub Group, follow these steps: a. Click Add. The Add Group Window is displayed. b. Enter the following details: • **Group Name:** Name of new Group • **Parent Group:** Select Parent Group • **Group Id** is auto populated. To add a new Group select the 'Praent Group' switch and enter Group Name. These added Group/Sub Group Names will be populated in Cash Flow Edits Details section of Cash Flow Edits Process window.
Access Type	Select the Access Type as Read-Only or Read/ Write.

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Table 4-22 (Cont.) List of fields used for Creating Cash Flow Edits Process

Field	Description
Condition ID	This field shows the Condition ID. This is an auto generated numeric field. You cannot modify this.
Condition Columns	Select the Columns using which you want to define the error condition expression.
Condition Statement	This field allows you to define the expression of a rule. You can define condition expression for selected Condition Columns (using the Condition Columns field). When you click the Condition Statement Field, the Expression Window is displayed. Define the condition and click Save.
Condition Message	Select the Condition message. You can add a new condition message using Add icon. For more information on Cash Flow Edits messages, see the Cash Flow Edits Execution section. To add a Condition Message, follow these steps: a. Click **Add** icon. The Add Message Window is displayed. Enter the following details: • **Message Type:** Select as Error, Warning, or Information • **Message Description:** Enter the Message details. • **Message ID** is auto populated. b. Click **Save**.
Update Columns	Select the columns which you want to update if error condition is met
Default Value Column	Select the columns from which you want to update columns selected in Update Columns.
Default Value	Enter the values that you want to update the columns selected in Update Columns.
Update Order	If the same column is getting updated by more than one rule then the order in which each rule applies must be selected here.
Status	Set the status of the rule as Active or Inactive.
User Defined	This field shows the User Defined status as Yes or No. You cannot modify this.
Editable	Set the Editable status of rule as Yes or No.

4. Click **Save**.

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4.10.1.2 Cash Flow Edits Process Errors

> **Note**
>
> - **Error:** Engine does not process, however sometimes default value can get used for calculations.
> - **Warning:** Engine may use the default value or given wrong data for calculation, results may be incorrect.
> - **Info:** Does not impact any processing but results may not be as expected.

- **Rule ID: 1**

Error Condition	(AMRT_TYPE_CD <> 700 OR (amrt_type_cd = 700 AND amrt_term <> 0)) AND (CASE amrt_term_mult WHEN 'Y' THEN amrt_term * 365 WHEN 'M' THEN amrt_term * 30.41667 ELSE amrt_term END) < (CASE org_term_mult WHEN 'Y' THEN org_term * 365 WHEN 'M' THEN org_term * 30.41667 ELSE org_term END) THEN 'P' ELSE 'F' END
Error Description	Amortization term can only be equal to zero on Non-Amortizing instruments
Assignment	AMRT_TERM = ORG_TERM and AMRT_TERM_MULT = ORG_TERM_MULT
Warning	Original Term > Amortization Term
Error Level	Warning

- **Rule ID: 2**

Error Condition	(ORIGINATION_DATE < AS_OF_DATE and CUR_PAR_BAL is not NULL and ORG_PAR_BAL is not NULL and CUR_PAR_BAL = ORG_PAR_BAL)
Error Description	Instrument has originated in past but Current Par Balance and Original Par Balance are equal
Assignment	
Warning	Current Par Balance = Original Par Balance
Error Level	Warning

- **Rule ID: 3**

Error Condition	(ORIGINATION_DATE < AS_OF_DATE and DEFERRED_CUR_BAL is not NULL and DEFERRED_ORG_BAL is not NULL and DEFERRED_CUR_BAL = DEFERRED_ORG_BAL)
Error Description	Instrument has originated in past but Deferred Current Balance and Deferred Original Balance are equal
Assignment	

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Warning	Deferred Current Balance = Deferred Original Balance
Error Level	Warning

- **Rule ID: 4**

Error Condition	(CUR_GROSS_RATE is NULL or CUR_GROSS_RATE < 0)
Error Description	Current gross rate is negative
Assignment	
Warning	Current Gross Rate < 0
Error Level	Info

- **Rule ID: 5**

Error Condition	(CUR_NET_RATE is NULL or CUR_NET_RATE < 0)
Error Description	Current net rate is negative
Assignment	
Warning	Current Net Rate < 0
Error Level	Info

- **Rule ID: 6**

Error Condition	(ACCRUAL_BASIS_CD is NULL or ACCRUAL_BASIS_CD <1 or ACCRUAL_BASIS_CD >7)
Error Description	Accrual basis code must be between 1 and 7 inclusively
Assignment	ACCRUAL_BASIS_CD = 3
Warning	Invalid Accrual Basis
Error Level	Warning

- **Rule ID: 7**

Error Condition	(AMRT_TYPE_CD is NULL or AMRT_TYPE_CD not in (100, 400, 600, 700, 710, 800, 801, 802, 820, 840, 850, 10, 20))
Error Description	Amortization type must be a valid OFSAA code
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Amortization Type
Error Level	Warning

- **Rule ID: 8**

Error Condition	(AMRT_TYPE_CD = 20 and (PMT_PATTERN_CD is null or PMT_PATTERN_CD <= 0))
Error Description	Amortization type is Payment Pattern but Payment Pattern Code is invalid
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Payment Pattern
Error Level	Warning

- **Rule ID: 9**

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Error Condition	(AMRT_TYPE_CD = 20 and PMT_PATTERN_CD is not null and PMT_PATTERN_CD > 0 and PMT_PATTERN_CD not in (select AMRT_TYPE_CD from fsi_payment_pattern))
Error Description	Amortization type is Payment Pattern but Payment Pattern definition does not exist
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Payment Pattern
Error Level	Warning

- **Rule ID: 10**

Error Condition	(AMRT_TYPE_CD = 10 and (BEHAVIOUR_PATTERN_CD is null or BEHAVIOUR_PATTERN_CD <= 0))
Error Description	Amortization type is Behaviour Pattern but Behaviour Pattern Code is invalid
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Behaviour Pattern
Error Level	Warning

- **Rule ID: 11**

Error Condition	(AMRT_TYPE_CD = 10 and BEHAVIOUR_PATTERN_CD is not NULL and BEHAVIOUR_PATTERN_CD > 0 and BEHAVIOUR_PATTERN_CD not in (select PATTERN_CD from fsi_behaviour_pattern_master))
Error Description	Amortization type is Behaviour Pattern but Behaviour Pattern definition does not exist
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Behaviour Pattern
Error Level	Warning

- **Rule ID: 12**

Error Condition	(AMRT_TYPE_CD in (800, 801, 802) and NOT EXISTS (select 1 from FSI_D_Payment_Schedule WHERE FSI_D_Payment_Schedule.ID_NUMBER=SOURCE_TABLE.ID_NUMBER AND FSI_D_Payment_Schedule.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE AND FSI_D_Payment_Schedule.INSTRUMENT_TYPE_CD = SOURCE_TABLE.INSTRUMENT_TYPE_CD))
Error Description	Cannot find record with matching ID Number, Identity Code and Instrument Type Code in Payment Schedule table
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Payment schedule data
Error Level	Warning

- **Rule ID: 13**

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Error Condition	(AMRT_TYPE_CD in (800, 801, 802) and ORIGINATION_DATE > (select max(PAYMENT_DATE) from FSI_D_Payment_Schedule WHERE FSI_D_Payment_Schedule.ID_NUMBER=SOURCE_TABLE.ID_NUMBER AND FSI_D_Payment_Schedule.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE AND FSI_D_Payment_Schedule.INSTRUMENT_TYPE_CD = SOURCE_TABLE.INSTRUMENT_TYPE_CD))
Error Description	Origination Date is greater than highest date in Payment Schedule
Assignment	AMRT_TYPE_CD = 700
Warning	Invalid Payment schedule data
Error Level	Warning

- **Rule ID: 14**

Error Condition	(AMRT_TERM_MULT is NULL or AMRT_TERM_MULT not in ('D', 'M', 'Y'))
Error Description	Amortization term multiplier must be D, M, or Y
Assignment	AMRT_TERM_MULT = M
Warning	Invalid Amortization Term Multiplier
Error Level	Warning

- **Rule ID: 15**

Error Condition	(AMRT_TYPE_CD = 600 AND (NEG_AMRT_EQ_MULT is NULL or NEG_AMRT_EQ_MULT not in ('D', 'M', 'Y')))
Error Description	Negative Amortization Equalization Frequency multiplier must be D, M, or Y
Assignment	NEG_AMRT_EQ_MULT = M
Warning	Invalid Negative Amortization Equalization Frequency Multiplier
Error Level	Warning

- **Rule ID: 16**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_LIMIT is NULL or NEG_AMRT_LIMIT >=200 or NEG_AMRT_LIMIT < 0))
Error Description	Negative Amortization limit value does not fall in a valid range (0 to 200), Applicable to Negative amortization instruments only
Assignment	NEG_AMRT_LIMIT = 0
Warning	Invalid Negative Amortization Limit
Error Level	Warning

- **Rule ID: 17**

Error Condition	(ORG_TERM_MULT is NULL or ORG_TERM_MULT not in ('D', 'M', 'Y'))
Error Description	Original term multiplier must be D, M, or Y

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Assignment	ORG_TERM_MULT= M
Warning	Invalid Original Term Multiplier
Error Level	Warning

- **Rule ID: 18**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_CHG_FREQ is NULL or NEG_AMRT_PMT_CHG_FREQ < 0))
Error Description	Payment Change Frequency cannot be negative, Applicable to Negative amortization instruments only
Assignment	NEG_AMRT_PMT_CHG_FREQ = 0
Warning	Invalid Negative Amortization Payment Change Frequency
Error Level	Warning

- **Rule ID: 19**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_CHG_FREQ_MULT is NULL or NEG_AMRT_PMT_CHG_FREQ_MULT not in ('D', 'M', 'Y')))
Error Description	Negative Amortization Payment Change Frequency Multiplier must be D, M, or Y
Assignment	NEG_AMRT_PMT_CHG_FREQ_MULT = M
Warning	Invalid Negative Amortization Payment Change Frequency Multiplier
Error Level	Warning

- **Rule ID: 20**

Error Condition	(INT_PMT_FREQ_MULT is NULL or INT_PMT_FREQ_MULT not in ('D', 'M', 'Y'))
Error Description	Interest Payment frequency multiplier must be D, M, or Y
Assignment	INT_PMT_FREQ_MULT = M
Warning	Invalid Interest Payment Frequency Multiplier
Error Level	Warning

- **Rule ID: 21**

Error Condition	(PRIN_PMT_FREQ_MULT is NULL or PRIN_PMT_FREQ_MULT not in ('D', 'M', 'Y'))
Error Description	Principal Payment frequency multiplier must be D, M, or Y
Assignment	PRIN_PMT_FREQ_MULT = M
Warning	Invalid Principal Payment Frequency Multiplier
Error Level	Warning

- **Rule ID: 22**

Error Condition	(RATE_CHG_RND_CD is NULL or RATE_CHG_RND_CD < 0 or RATE_CHG_RND_CD > 4)

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Error Description	Rate change round code must be between 0 and 4
Assignment	RATE_CHG_RND_CD = 0
Warning	Invalid Rate Change Rounding Code
Error Level	Warning

- **Rule ID: 23**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and (RATE_SET_LAG_MULT is NULL or RATE_SET_LAG_MULT not in ('D', 'M', 'Y')))
Error Description	Rate Set Lag Multiplier must be D, M, or Y
Assignment	RATE_SET_LAG_MULT = M
Warning	Invalid Rate Set Lag Multiplier
Error Level	Warning

- **Rule ID: 24**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and (REPRICE_FREQ_MULT is NULL or REPRICE_FREQ_MULT not in ('D', 'M', 'Y')))
Error Description	Repricing Frequency Multiplier must be D, M, or Y
Assignment	REPRICE_FREQ_MULT = M
Warning	Invalid Repricing Frequency Multiplier
Error Level	Warning

- **Rule ID: 25**

Error Condition	(RATE_CHG_RND_FAC is NULL or RATE_CHG_RND_FAC < 0 or RATE_CHG_RND_FAC > 1)
Error Description	Rate change round factor must be between 0 and 1
Assignment	RATE_CHG_RND_FAC = 0
Warning	Invalid Rate Change Rounding Factor
Error Level	Warning

- **Rule ID: 26**

Error Condition	(MATURITY_DATE < NEXT_INT_PAYMENT_DATE)
Error Description	Maturity date cannot be before the next interest payment date
Assignment	MATURITY_DATE = (CASE PRIN_PMT_FREQ_MULT WHEN 'Y' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ * 12)) WHEN 'M' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ)) ELSE NEXT_PRIN_PAYMENT_DATE + ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ) END)
Warning	Maturity Date < Next Interest Payment Date

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Error Level	Warning

- **Rule ID: 27**

Error Condition	(MATURITY_DATE < NEXT_PRIN_PAYMENT_DATE)
Error Description	Maturity date cannot be before the next principal payment date
Assignment	MATURITY_DATE = (CASE PRIN_PMT_FREQ_MULT WHEN 'Y' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ * 12)) WHEN 'M' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ)) ELSE NEXT_PRIN_PAYMENT_DATE + ((REMAIN_NO_PMTS -1)* PRIN_PMT_FREQ) END)
Warning	Maturity Date < Next Principal Payment Date
Error Level	Warning

- **Rule ID: 28**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_EQ_FREQ is NULL or NEG_AMRT_EQ_FREQ < 0))
Error Description	Negative amortization equalization frequency cannot be negative, Applicable to Negative amortization instruments only
Assignment	NEG_AMRT_EQ_FREQ = 0
Warning	Negative Amortization Equalization Frequency < 0
Error Level	Warning

- **Rule ID: 29**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_EQ_FREQ is not null and NEG_AMRT_EQ_FREQ > 0 and NEG_AMRT_EQ_DATE <= greatest(ORIGINATION_DATE, AS_OF_DATE))
Error Description	Negative Amortization equalization date is less than origination date (future origination) or less than the as-of-date (past origination), Applicable to Negative Amortization instruments only
Assignment	NEG_AMRT_EQ_DATE = NEXT_REPRICE_DATE
Warning	Negative Amortization Equalization Date < Origination Date or As of Date
Error Level	Warning

- **Rule ID: 30**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_EQ_FREQ is not NULL and NEG_AMRT_EQ_FREQ > 0 and NEG_AMRT_EQ_DATE > MATURITY_DATE)

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Error Description	Next interest payment date is less than as-of-date (past origination case), As of Date cannot be greater than the origination date and greater than the next payment date.
Assignment	NEG_AMRT_EQ_DATE = NEXT_REPRICE_DATE
Warning	Negative Amortization Equalization Date > Maturity Date
Error Level	Warning

- **Rule ID: 31**

Error Condition	(AS_OF_DATE > ORIGINATION_DATE and AS_OF_DATE >= NEXT_INT_PAYMENT_DATE)
Error Description	Negative Amortization equalization date is after Maturity Date, Applicable to Negative Amortization instruments only
Assignment	NEXT_INT_PAYMENT_DATE = AS_OF_DATE + 1
Warning	Next Interest Payment Date < As of Date
Error Level	Warning

- **Rule ID: 32**

Error Condition	(AS_OF_DATE > ORIGINATION_DATE and AS_OF_DATE >= NEXT_PRIN_PAYMENT_DATE)
Error Description	Next principal payment date is less than as-of-date (past origination case), As of Date cannot be greater than the origination date and greater than the next payment date.
Assignment	NEXT_PRIN_PAYMENT_DATE= AS_OF_DATE + 1
Warning	Next Principal Payment Date < As of Date
Error Level	Warning

- **Rule ID: 33**

Error Condition	(ORIGINATION_DATE >= AS_OF_DATE and ORIGINATION_DATE >= NEXT_INT_PAYMENT_DATE)
Error Description	Next interest payment date is less than origination date (future origination case)
Assignment	NEXT_INT_PAYMENT_DATE = ORIGINATION_DATE + 1
Warning	Next Interest Payment Date < Origination Date
Error Level	Warning

- **Rule ID: 34**

Error Condition	(ORIGINATION_DATE >= AS_OF_DATE and ORIGINATION_DATE >= NEXT_PRIN_PAYMENT_DATE)
Error Description	Next principal payment date is less than origination date (future origination case)

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Assignment	NEXT_PRIN_PAYMENT_DATE= ORIGINATION_DATE + 1
Warning	Next Principal Payment Date < Origination Date
Error Level	Warning

- **Rule ID: 35**

Error Condition	(ORIGINATION_DATE <= AS_OF_DATE and NEXT_REPRICE_DATE <= AS_OF_DATE and REPRICE_FREQ > 0)
Error Description	Next repricing date is less than as-of-date (past origination case)
Assignment	NEXT_REPRICE_DATE = AS_OF_DATE + 1
Warning	Next Reprice Date < As of Date
Error Level	Warning

- **Rule ID: 36**

Error Condition	(ORIGINATION_DATE > AS_OF_DATE and NEXT_REPRICE_DATE < ORIGINATION_DATE and REPRICE_FREQ > 0)
Error Description	Next repricing date is less than the origination date (future origination case)
Assignment	NEXT_REPRICE_DATE = ORIGINATION_DATE + 1
Warning	Next Reprice Date < Origination Date
Error Level	Warning

- **Rule ID: 37**

Error Condition	(AMRT_TYPE_CD = 600 and (ORG_PAYMENT_AMT is NULL or ORG_PAYMENT_AMT = 0) and NEG_AMRT_PMT_DECR_LIFE > 0)
Error Description	Payment decrease life is expressed as a percent of a original payment, Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_DECR_LIFE = 0
Warning	Original Payment Amount = 0 and Negative Amortization Payment Decrease Limit (Life) <> 0
Error Level	Warning

- **Rule ID: 38**

Error Condition	(AMRT_TYPE_CD = 600 and (ORG_PAYMENT_AMT is NULL or ORG_PAYMENT_AMT = 0) and NEG_AMRT_PMT_INCR_LIFE > 0)
Error Description	Payment increase life is expressed as a percent of a original payment, Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_INCR_LIFE = 0
Warning	Original Payment Amount = 0 and Negative Amortization Payment Increase Limit (Life) <> 0
Error Level	Warning

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- **Rule ID: 39**

Error Condition	(ORG_TERM = 0 OR ORG_TERM <> (CASE ORG_TERM_MULT WHEN 'Y' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE)*12 WHEN 'M' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) ELSE (MATURITY_DATE - ORIGINATION_DATE) END))
Error Description	Original term should equal the time between the origination date and the maturity date
Assignment - Default Value	ORG_TERM#ORG_TERM_MULT = If MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END#
Warning	Original Term <> Maturity Date - Orgination Date
Error Level	Warning

- **Rule ID: 40**

Error Condition	(ORIGINATION_DATE is NULL or ORIGINATION_DATE < '1-Aug-1950' or ORIGINATION_DATE > '1-Aug-2099')
Error Description	Origination date must be acceptable
Assignment	ORIGINATION_DATE = 1-Jan-50
Warning	Origination date < 01/01/1950
Error Level	Warning

- **Rule ID: 41**

Error Condition	(INT_PMT_FREQ > (CASE INT_PMT_FREQ_MULT WHEN 'Y' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE)*12 WHEN 'M' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) ELSE (MATURITY_DATE - ORIGINATION_DATE) END))
Error Description	Interest Payment frequency cannot be greater than original term
Assignment - Default Value	INT_PMT_FREQ#INT_PMT_FREQ_MULT = If MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END#
Warning	Interest Payment Freq > Original Term
Error Level	Warning

- **Rule ID: 42**

Error Condition	(PRIN_PMT_FREQ >(CASE PRIN_PMT_FREQ_MULT WHEN 'Y' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE)*12 WHEN 'M' THEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) ELSE (MATURITY_DATE - ORIGINATION_DATE) END))

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Error Description	Principal Payment frequency cannot be greater than original term
Assignment - Default Value	PRIN_PMT_FREQ#PRIN_PMT_FREQ_MULT= If MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END#
Warning	Principal Payment Freq > Original Term
Error Level	Warning

- **Rule ID: 43**

Error Condition	((CUR_PAYMENT is NULL or CUR_PAYMENT < 0 and CUR_PAR_BAL > 0) or (CUR_PAYMENT > 0 and CUR_PAR_BAL < 0))
Error Description	Current payment and current par balance cannot have opposite signs
Assignment	CUR_PAYMENT = 0
Warning	Current Payment and Current Par Balance have opposite signs
Error Level	Warning

- **Rule ID: 44**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_PMT_CHG_FREQ > 0 and AS_OF_DATE > NEG_AMRT_PMT_ADJUST_DATE)
Error Description	Negative Amortization Payment Adjustment Date is less than the as-of-date (past origination), Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_ADJUST_DATE=NEXT_REPRICE_DATE
Warning	Negative Amortization Payment Adjustment Date < As of Date
Error Level	Warning

- **Rule ID: 45**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_PMT_CHG_FREQ > 0 and AS_OF_DATE < NEG_AMRT_PMT_ADJUST_DATE and NEG_AMRT_PMT_ADJUST_DATE < ORIGINATION_DATE)
Error Description	Negative Amortization Payment adjustment date is less than origination date (future origination), Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_ADJUST_DATE=NEXT_REPRICE_DATE
Warning	Negative Amortization Payment Adjustment Date < Origination Date
Error Level	Warning

- **Rule ID: 46**

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Error Condition	((INT_PMT_FREQ is NULL or INT_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE > AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE and MATURITY_DATE > ORIGINATION_DATE)))
Error Description	Interest Payment frequency is less than or equal to zero, and both maturity date and origination date are valid dates and can be used to calculate payment frequency.
Assignment	NEXT_INT_PAYMENT_DATE#ORG_TERM#ORG_TERM_MULT#INT_PMT_FREQ#INT_PMT_FREQ_MULT#REMAIN_NO_PMTS=MATURITY_DATE#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Interest Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 47**

Error Condition	((PRIN_PMT_FREQ is NULL or PRIN_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE > AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE and MATURITY_DATE > ORIGINATION_DATE)))
Error Description	Principal Payment frequency is less than or equal to zero, and both maturity date and origination date are valid dates and can be used to calculate payment frequency.
Assignment	NEXT_PRIN_PAYMENT_DATE#ORG_TERM#ORG_TERM_MULT#PRIN_PMT_FREQ#PRIN_PMT_FREQ_MULT#REMAIN_NO_PMTS=MATURITY_DATE#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Principal Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 48**

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Error Condition	((INT_PMT_FREQ is NULL or INT_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE <= AS_OF_DATE and NEXT_INT_PAYMENT_DATE > AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE AND MATURITY_DATE < ORIGINATION_DATE and NEXT_INT_PAYMENT_DATE > ORIGINATION_DATE)))
Error Description	Interest payment frequency is less than or equal to zero and maturity date is invalid, but next interest payment date can be used to calculate a valid payment frequency
Assignment	MATURITY_DATE#ORG_TERM#ORG_TERM_MULT#INT_PMT_FREQ#INT_PMT_FREQ_MULT#REMAIN_NO_PMTS=NEXT_INT_PAYMENT_DATE#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Interest Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 49**

Error Condition	((PRIN_PMT_FREQ is NULL or PRIN_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE <= AS_OF_DATE and NEXT_PRIN_PAYMENT_DATE > AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE AND MATURITY_DATE < ORIGINATION_DATE and NEXT_PRIN_PAYMENT_DATE > ORIGINATION_DATE)))
Error Description	Principal payment frequency is less than or equal to zero and maturity date is invalid, but next interest payment date can be used to calculate a valid payment frequency
Assignment	MATURITY_DATE#ORG_TERM#ORG_TERM_MULT#PRIN_PMT_FREQ#PRIN_PMT_FREQ_MULT#REMAIN_NO_PMTS=NEXT_PRIN_PAYMENT_DATE#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Principal Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 50**

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Error Condition	((INT_PMT_FREQ is NULL or INT_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE <= AS_OF_DATE and NEXT_INT_PAYMENT_DATE <= AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE AND MATURITY_DATE < ORIGINATION_DATE and NEXT_INT_PAYMENT_DATE < ORIGINATION_DATE)))
Error Description	Interest payment frequency is less than or equal to zero and all dates which can be used to calculate payment frequency are in the past
Assignment	MATURITY_DATE#NEXT_INT_PAYMENT_DATE#ORG_TERM#ORG_TERM_MULT#INT_PMT_FREQ#INT_PMT_FREQ_MULT#REMAIN_NO_PMTS=AS_OF_DATE + 1#AS_OF_DATE + 1#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Interest Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 51**

Error Condition	((PRIN_PMT_FREQ is NULL or PRIN_PMT_FREQ <= 0) and ((ORIGINATION_DATE <= AS_OF_DATE and MATURITY_DATE <= AS_OF_DATE and NEXT_PRIN_PAYMENT_DATE <= AS_OF_DATE) or (ORIGINATION_DATE > AS_OF_DATE AND MATURITY_DATE < ORIGINATION_DATE and NEXT_PRIN_PAYMENT_DATE < ORIGINATION_DATE)))
Error Description	Principal payment frequency is less than or equal to zero and all dates which can be used to calculate payment frequency are in the past
Assignment	MATURITY_DATE#NEXT_PRIN_PAYMENT_DATE#ORG_TERM#ORG_TERM_MULT#PRIN_PMT_FREQ#PRIN_PMT_FREQ_MULT#REMAIN_NO_PMTS=AS_OF_DATE + 1#AS_OF_DATE + 1#CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##CASE WHEN MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) < 1 THEN 1 ELSE MONTHS_BETWEEN(MATURITY_DATE, ORIGINATION_DATE) END##
Warning	Principal Payment Frequency <= 0
Error Level	Warning

- **Rule ID: 52**

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Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_INCR_CYCLE is NULL or NEG_AMRT_PMT_INCR_CYCLE < 0))
Error Description	Negative Amortization Payment increase limit (cycle) cannot be less than zero, Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_INCR_CYCLE=0
Warning	Negative Amortization Payment Increase Limit (Cycle) < 0
Error Level	Warning

- **Rule ID: 53**

Error Condition	(RATE_CAP_LIFE < CUR_GROSS_RATE and RATE_CAP_LIFE <> 0 and CUR_GROSS_RATE <> 0 and TEASER_END_DATE < AS_OF_DATE)
Error Description	Current gross rate is greater than the rate cap life
Assignment	RATE_CAP_LIFE=CUR_GROSS_RATE
Warning	Rate Cap Life < Current Gross Interest Rate
Error Level	Info

- **Rule ID: 54**

Error Condition	(RATE_CAP_LIFE < CUR_NET_RATE and RATE_CAP_LIFE <> 0)
Error Description	Current net rate is greater than the rate cap
Assignment	
Warning	Rate Cap Life < Current Net Interest Rate
Error Level	Info

- **Rule ID: 55**

Error Condition	(RATE_CHG_MIN is NULL or RATE_CHG_MIN < 0)
Error Description	Minimum rate change cannot be negative
Assignment	RATE_CHG_MIN=0
Warning	Rate Change Minimum < 0
Error Level	Warning

- **Rule ID: 56**

Error Condition	(RATE_DECR_CYCLE is NULL or RATE_DECR_CYCLE < 0)
Error Description	Rate decrease limit (cycle) must not be negative
Assignment	RATE_DECR_CYCLE=0
Warning	Rate Decrease Limit (Cycle) < 0
Error Level	Warning

- **Rule ID: 57**

Error Condition	(RATE_FLOOR_LIFE > CUR_GROSS_RATE and CUR_GROSS_RATE <> 0 and TEASER_END_DATE < AS_OF_DATE)
Error Description	Current gross rate is less than the rate floor

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Assignment	
Warning	Rate Floor Life > Currrent Gross Interest Rate
Error Level	Info

- **Rule ID: 58**

Error Condition	(RATE_FLOOR_LIFE > CUR_NET_RATE)
Error Description	Rate floor life must not be greater than the current net rate
Assignment	RATE_FLOOR_LIFE=CUR_GROSS_RATE
Warning	Rate Floor Life > Currrent Net Interest Rate
Error Level	Info

- **Rule ID: 59**

Error Condition	(RATE_INCR_CYCLE is NULL or RATE_INCR_CYCLE < 0)
Error Description	Rate increase limit (cycle) cannot be less than 0
Assignment	RATE_INCR_CYCLE=0
Warning	Rate Increase Limit (Cycle) < 0
Error Level	Warning

- **Rule ID: 60**

Error Condition	(REMAIN_NO_PMTS is NULL or REMAIN_NO_PMTS < 1)
Error Description	There has to be at least 1 payment left
Assignment	REMAIN_NO_PMTS=1
Warning	Remaining Number of Payments < 1
Error Level	Warning

- **Rule ID: 61**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and (RATE_SET_LAG is NULL or RATE_SET_LAG < 0))
Error Description	Rate set lag cannot be negative
Assignment	RATE_SET_LAG=0
Warning	Rate Set Lag < 0
Error Level	Warning

- **Rule ID: 62**

Error Condition	(TEASER_END_DATE < ORIGINATION_DATE)
Error Description	Teaser End Date cannot be before Origination Date
Assignment	TEASER_END_DATE=ORIGINATION_DATE
Warning	Teaser End Date < Origination Date
Error Level	Warning

- **Rule ID: 63**

Error Condition	(TEASER_END_DATE > MATURITY_DATE)

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Error Description	Teaser End Date cannot be after Maturity Date
Assignment	TEASER_END_DATE=MATURITY_DATE
Warning	Teaser End Date > Maturity Date
Error Level	Warning

- **Rule ID: 64**

Error Condition	(AMRT_TYPE_CD = 710 and ORG_PAR_BAL < CUR_PAR_BAL)
Error Description	Original balance on Rule of 78's instruments should be greater than current balance
Assignment	
Warning	Orginal Par Balance < Current Par Balance
Error Level	Info

- **Rule ID: 65**

Error Condition	(AMRT_TYPE_CD = 600 and (REPRICE_FREQ is NULL or REPRICE_FREQ = 0))
Error Description	Reprice Frequency cannot be zero for Adjustable Negative Amortization instrument
Assignment	
Warning	Adjustable Negative Amortization instrument has Reprice Frequency = 0
Error Level	Info

- **Rule ID: 66**

Error Condition	(REPRICE_FREQ <> 0 and LAST_REPRICE_DATE > NEXT_REPRICE_DATE)
Error Description	Last repricing date is greater than next repricing date
Assignment	LAST_REPRICE_DATE=(CASE REPRICE_FREQ_MULT WHEN 'Y' THEN ADD_MONTHS(NEXT_REPRICE_DATE, -REPRICE_FREQ*12) WHEN 'M' THEN ADD_MONTHS(NEXT_REPRICE_DATE, -REPRICE_FREQ) ELSE NEXT_REPRICE_DATE - REPRICE_FREQ END)
Warning	Last Reprice Date > Next Reprice Date
Error Level	Warning

- **Rule ID: 67**

Error Condition	(ADJUSTABLE_TYPE_CD in (50, 250) and (INTEREST_RATE_CD is NULL or INTEREST_RATE_CD <= 0))
Error Description	Interest rate code must be valid for adjustable rate instruments
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Adjustable Rate instrument has invalid Interest Rate Code
Error Level	Warning

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- **Rule ID: 68**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and INTEREST_RATE_CD > 0 and exists (select 1 from fsi_ircs where fsi_ircs.interest_rate_cd = SOURCE_TABLE.interest_rate_cd and fsi_ircs.volatility_curve_flg > 0))
Error Description	Interest rate code of instrument is not an yield curve. Repricing attributes will be ignored and processed as fixed interest rate;
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Invalid Interest Rate Code. Curve Type is not Interest Rate Curve
Error Level	Warning

- **Rule ID: 69**

Error Condition	(NET_MARGIN_CD is NULL or NET_MARGIN_CD not in (0, 1))
Error Description	Valid net margin codes are 0 or 1.
Assignment	NET_MARGIN_CD=0
Warning	Invalid Net Margin Code
Error Level	Warning

- **Rule ID: 70**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_DECR_CYCLE is NULL or NEG_AMRT_PMT_DECR_CYCLE < 0))
Error Description	Payment Decrease Limit (Cycle) cannot be less than zero. Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_DECR_CYCLE=0
Warning	Negative Amortization Payment Decrease Limit (Cycle) = 0
Error Level	Warning

- **Rule ID: 71**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_DECR_LIFE is NULL or NEG_AMRT_PMT_DECR_LIFE < 0))
Error Description	Payment Decrease Limit (Life) cannot be less than zero. Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_DECR_LIFE=0
Warning	Negative Amortization Payment Decrease Limit (Life) = 0
Error Level	Warning

- **Rule ID: 72**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_PMT_DECR_LIFE <> 0 and CUR_PAYMENT < ORG_PAYMENT_AMT * (1 - NEG_AMRT_PMT_DECR_LIFE/100))

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Error Description	Current payment is less than the minimum payment amount. Applicable to negative amortization instruments only
Assignment	
Warning	Current Payment is less than Life Pay Floor
Error Level	Info

- **Rule ID: 73**

Error Condition	(AMRT_TYPE_CD = 600 and (NEG_AMRT_PMT_INCR_LIFE is NULL or NEG_AMRT_PMT_INCR_LIFE < 0))
Error Description	Payment Increase Limit (Life) cannot be less than zero. Applicable to negative amortization instruments only
Assignment	NEG_AMRT_PMT_INCR_LIFE=0
Warning	Negative Amortization Payment Increase Limit (Life) = 0
Error Level	Warning

- **Rule ID: 74**

Error Condition	(AMRT_TYPE_CD = 600 and NEG_AMRT_PMT_INCR_LIFE <> 0 and CUR_PAYMENT > ORG_PAYMENT_AMT * (1 + NEG_AMRT_PMT_INCR_LIFE/100))
Error Description	Current payment is greater than the maximum payment amount. Applicable to negative amortization instruments only
Assignment	
Warning	Current Payment is greater than Life Pay Cap
Error Level	Info

- **Rule ID: 75**

Error Condition	(ISSUE_DATE > ORIGINATION_DATE)
Error Description	Issue date cannot be greater than origination date
Assignment	ISSUE_DATE=ORIGINATION_DATE
Warning	Issue Date > Origination Date
Error Level	Warning

- **Rule ID: 76**

Error Condition	(REPRICE_FREQ is NULL or REPRICE_FREQ < 0)
Error Description	Repricing frequency must not be negative
Assignment	REPRICE_FREQ=0
Warning	Reprice Frequency < 0
Error Level	Warning

- **Rule ID: 77**

Error Condition	(AMRT_TYPE_CD = 710 and REPRICE_FREQ <> 0)

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Error Description	Rule of 78's instruments are implicitly fixed rate.
Assignment	REPRICE_FREQ=0
Warning	Amortization type is Rule of 78's but Reprice Frequency is not 0
Error Level	Warning

- **Rule ID: 78**

Error Condition	(ORG_PAR_BAL = 0 and (REPRICE_FREQ is NULL or REPRICE_FREQ = 0))
Error Description	For transfer pricing of fixed rate instruments, the original balance should be populated.
Assignment	
Warning	Original Par Balance is 0 for a fixed rate instrument
Error Level	Info

- **Rule ID: 79**

Error Condition	(REPRICE_FREQ <> 0 and TEASER_END_DATE > ORIGINATION_DATE and TEASER_END_DATE > AS_OF_DATE and NEXT_REPRICE_DATE > TEASER_END_DATE)
Error Description	Next repricing date is greater than teaser end date.
Assignment	NEXT_REPRICE_DATE=TEASER_END_DATE
Warning	Next Reprice Date > Teaser End Date
Error Level	Warning

- **Rule ID: 80**

Error Condition	(ADJUSTABLE_TYPE_CD <> 0 and (LRD_BALANCE is NULL or LRD_BALANCE = 0))
Error Description	The balance as of the last repricing date cannot be equal to 0
Assignment	LRD_BALANCE=CUR_PAR_BAL
Warning	Balance on Last Reprice Date = 0
Error Level	Warning

- **Rule ID: 81**

Error Condition	(ADJUSTABLE_TYPE_CD <> 0 and (LAST_REPRICE_DATE < ISSUE_DATE or LAST_REPRICE_DATE < ORIGINATION_DATE))
Error Description	Transfer pricing will not occur when the last repricing date is less than the issue date and origination date
Assignment	LAST_REPRICE_DATE=ORIGINATION_DATE
Warning	Last Reprice Date < Issue/Origination Date
Error Level	Info

- **Rule ID: 82**

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Error Condition	(ADJUSTABLE_TYPE_CD = 0 and REPRICE_FREQ > 0)
Error Description	Repricing frequency and adjustable type code are inconsistent
Assignment	REPRICE_FREQ=0
Warning	Reprice Frequency > 0 for fixed rate instrument
Error Level	Info

- **Rule ID: 83**

Error Condition	(ADJUSTABLE_TYPE_CD <> 0 and (REPRICE_FREQ is NULL or REPRICE_FREQ = 0))
Error Description	Repricing frequency and adjustable type code are inconsistent
Assignment	
Warning	Adjustable Type is not fixed but Reprice Frequency is 0
Error Level	Info

- **Rule ID: 84**

Error Condition	(AMRT_TYPE_CD = 710 and ADJUSTABLE_TYPE_CD <> 0)
Error Description	Rule of 78's instrument should only have a Fixed adjustable type code.
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Amortization type is Rule of 78's but Adjustable Type is not fixed
Error Level	Warning

- **Rule ID: 85**

Error Condition	(AMRT_TYPE_CD = 600 and ADJUSTABLE_TYPE_CD = 0)
Error Description	Negative amortization instruments cannot have fixed adjustable type code
Assignment	AMRT_TYPE_CD=100
Warning	Adjustable Type is fixed rate for Negative amortization instrument
Error Level	Info

- **Rule ID: 86**

Error Condition	(LAST_INT_PAYMENT_DATE > NEXT_INT_PAYMENT_DATE and INT_PMT_FREQ > 0)
Error Description	Last interest payment date is greater than next interest payment date and can be calculated using interest payment frequency

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Assignment	LAST_INT_PAYMENT_DATE=(CASE INT_PMT_FREQ_MULT WHEN 'Y' THEN ADD_MONTHS(NEXT_INT_PAYMENT_DATE, -INT_PMT_FREQ*12) WHEN 'M' THEN ADD_MONTHS(NEXT_INT_PAYMENT_DATE, -INT_PMT_FREQ) ELSE NEXT_INT_PAYMENT_DATE - INT_PMT_FREQ END)
Warning	
Error Level	Warning

- **Rule ID: 87**

Error Condition	(LAST_INT_PAYMENT_DATE > NEXT_INT_PAYMENT_DATE and (INT_PMT_FREQ is NULL or INT_PMT_FREQ <= 0))
Error Description	Last interest payment date is greater than next interest payment date, but cannot be calculated using interest payment frequency.
Assignment	LAST_INT_PAYMENT_DATE=ORIGINATION_DATE
Warning	
Error Level	Warning

- **Rule ID: 88**

Error Condition	(LAST_PRIN_PAYMENT_DATE > NEXT_PRIN_PAYMENT_DATE and PRIN_PMT_FREQ > 0)
Error Description	Last principal payment date is greater than next principal payment date and can be calculated using principal payment frequency
Assignment	LAST_PRIN_PAYMENT_DATE=(CASE PRIN_PMT_FREQ_MULT WHEN 'Y' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, -PRIN_PMT_FREQ*12) WHEN 'M' THEN ADD_MONTHS(NEXT_PRIN_PAYMENT_DATE, -PRIN_PMT_FREQ) ELSE NEXT_PRIN_PAYMENT_DATE - PRIN_PMT_FREQ END)
Warning	
Error Level	Warning

- **Rule ID: 89**

Error Condition	(LAST_PRIN_PAYMENT_DATE > NEXT_PRIN_PAYMENT_DATE and (PRIN_PMT_FREQ is NULL or PRIN_PMT_FREQ <= 0))
Error Description	Last principal payment date is greater than next principal payment date, but cannot be calculated using principal payment frequency.
Assignment	LAST_PRIN_PAYMENT_DATE=ORIGINATION_DATE
Warning	Last principal payment date > Next principal payment date

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Error Level	Warning

- **Rule ID: 90**

Error Condition	(LAST_INT_PAYMENT_DATE < ORIGINATION_DATE)
Error Description	Last interest payment date cannot be less than the origination date
Assignment	LAST_INT_PAYMENT_DATE=ORIGINATION_DATE
Warning	Last Interest Payment Date < Origination Date
Error Level	Warning

- **Rule ID: 91**

Error Condition	(LAST_PRIN_PAYMENT_DATE < ORIGINATION_DATE)
Error Description	Last principal payment date cannot be less than the origination date
Assignment	LAST_PRIN_PAYMENT_DATE=ORIGINATION_DATE
Warning	Last Principal Payment Date < Origination Date
Error Level	Warning

- **Rule ID: 92**

Error Condition	(LAST_INT_PAYMENT_DATE > AS_OF_DATE and ORIGINATION_DATE <= AS_OF_DATE)
Error Description	Last interest payment date cannot be greater than the as-of-date if the instrument originated in the past.
Assignment	LAST_INT_PAYMENT_DATE=AS_OF_DATE
Warning	Last interest payment date > As of Date
Error Level	Warning

- **Rule ID: 93**

Error Condition	(LAST_PRIN_PAYMENT_DATE > AS_OF_DATE and ORIGINATION_DATE <= AS_OF_DATE)
Error Description	Last principal payment date cannot be greater than the as-of-date if the instrument originated in the past.
Assignment	LAST_PRIN_PAYMENT_DATE=AS_OF_DATE
Warning	Last principal payment date > As of Date
Error Level	Warning

- **Rule ID: 94**

Error Condition	(INTEREST_TIMING_TYPE_CD = 2 and AMRT_TYPE_CD in (100, 400, 600, 710, 800, 840, 850))
Error Description	Interest type can only be arrears for conventionally amortizing instruments.
Assignment	INTEREST_TIMING_TYPE_CD=1

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Warning	Amortization Type is conventional but interest timing is Advance
Error Level	Warning

- **Rule ID: 95**

Error Condition	(INTEREST_TIMING_TYPE_CD is NULL or INTEREST_TIMING_TYPE_CD not in (1, 2, 3))
Error Description	Interest type must be a valid OFSAA code.
Assignment	INTEREST_TIMING_TYPE_CD=1
Warning	Invalid interest timing type
Error Level	Warning

- **Rule ID: 96**

Error Condition	(COMPOUND_BASIS_CD is NULL or COMPOUND_BASIS_CD not in (110, 120, 130, 140, 150, 160, 170))
Error Description	Compounding basis code must be a valid OFSAA code
Assignment	COMPOUND_BASIS_CD=160
Warning	Invalid Compounding Basis Code
Error Level	Warning

- **Rule ID: 97**

Error Condition	(ACCRUAL_BASIS_CD IN (1, 4, 5) and (INT_PMT_FREQ_MULT = 'D' or AMRT_TYPE_CD in (800,801, 802)))
Error Description	Accrual basis code cannot have a 30 day month assumption on instruments defined by a payment schedule
Assignment	ACCRUAL_BASIS_CD=3
Warning	Amortization Type / Accrual Basis Error
Error Level	Warning

- **Rule ID: 98**

Error Condition	(ACCRUAL_BASIS_CD = 7 and (HOLIDAY_CALENDAR_CODE is NULL or HOLIDAY_CALENDAR_CODE <=0 or HOLIDAY_CALC_OPTION_CD is NULL or HOLIDAY_CALC_OPTION_CD not in (1, 2) or HOLIDAY_ROLLING_CONVENTION_CD is NULL or HOLIDAY_ROLLING_CONVENTION_CD not in (2,3,4,5)))
Error Description	Holiday calendar must be give when using Business/252 accrual basis
Assignment	
Warning	Holiday calendar not given for B/252 accrual basis
Error Level	Info

- **Rule ID: 99**

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Error Condition	(AMRT_TYPE_CD = 10 and BEHAVIOUR_TYPE_CD is NULL)
Error Description	Behaviour Type Code is Null, defaulted to 1 (Non-Maturity)
Assignment	BEHAVIOUR_TYPE_CD=1
Warning	Behaviour Type Code is Null
Error Level	Warning

- **Rule ID: 100**

Error Condition	(AMRT_TYPE_CD = 10 and BEHAVIOUR_TYPE_CD not in (1,2,3))
Error Description	Behaviour Type Code is invalid, defaulted to 1 (Non-Maturity)
Assignment	BEHAVIOUR_TYPE_CD=1
Warning	Invalid Behaviour Type Code
Error Level	Warning

- **Rule ID: 101**

Error Condition	(AMRT_TYPE_CD = 10 and BEHAVIOUR_TYPE_CD = 2 and (BEHAVIOUR_SUB_TYPE_CD is NULL or BEHAVIOUR_SUB_TYPE_CD not in (201, 202, 203)))
Error Description	Behaviour Sub Type should be 201 or 202 or 203 when Behaviour Type is Non-Performing
Assignment	BEHAVIOUR_SUB_TYPE_CD=201
Warning	Invalid Behavior Sub Type Code
Error Level	Warning

- **Rule ID: 102**

Error Condition	(AMRT_TYPE_CD = 10 and BEHAVIOUR_TYPE_CD = 3 and (BEHAVIOUR_SUB_TYPE_CD is NULL or BEHAVIOUR_SUB_TYPE_CD not in (305, 306)))
Error Description	Behaviour Sub Type should be 305 or 306 when Behaviour Type is Devolvement and Recovery
Assignment	BEHAVIOUR_SUB_TYPE_CD=305
Warning	Invalid Behavior Sub Type Code
Error Level	Warning

- **Rule ID: 103**

Error Condition	(AMRT_TYPE_CD = 840 and RESIDUAL_AMOUNT < 0)
Error Description	Residual Amount cannot be less than 0 for Lease instrument
Assignment	RESIDUAL_AMOUNT=0
Warning	Invalid Residual Amount for Lease instrument
Error Level	Warning

- **Rule ID: 104**

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Error Condition	(AMRT_TYPE_CD = 840 and RESIDUAL_AMOUNT > CUR_PAR_BAL)
Error Description	Residual Amount cannot be higher than Current Par Balance for Lease instrument
Assignment	RESIDUAL_AMOUNT=0
Warning	Invalid Residual Amount for Lease instrument
Error Level	Warning

- **Rule ID: 105**

Error Condition	(AMRT_TYPE_CD = 850 and MATURITY_AMOUNT > 0 and ADJUSTABLE_TYPE_CD > 0)
Error Description	Annuity instrument with maturity amount must have fixed interest rate
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Invalid Adjustable Type for Annuity with Maturity Amount
Error Level	Warning

- **Rule ID: 106**

Error Condition	(MOA_EXPECTED_BAL > 0 and (MOA_OFFSET_PERCENT is NULL or MOA_OFFSET_PERCENT < 0))
Error Description	Expected balance is greater than 0 but offset percentage is less than 0
Assignment	MOA_OFFSET_PERCENT=0
Warning	Invalid offset percent
Error Level	Warning

- **Rule ID: 107**

Error Condition	((MOA_EXPECTED_BAL * MOA_OFFSET_PERCENT/100) > CUR_PAR_BAL)
Error Description	Calculated Offset Balance is higher than Current Par Balance
Assignment	
Warning	Calculated Offset Balance > Current Par Balance
Error Level	Info

- **Rule ID: 108**

Error Condition	(ADJUSTABLE_TYPE_CD = 10 and (REPRICE_PATTERN_CD is NULL or REPRICE_PATTERN_CD <= 0))
Error Description	Invalid reprice pattern code given for instrument
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Invalid reprice pattern code
Error Level	Warning

- **Rule ID: 109**

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Error Condition	(ADJUSTABLE_TYPE_CD = 10 and REPRICE_PATTERN_CD > 0 and REPRICE_PATTERN_CD not in (select ADJUSTABLE_TYPE_CD from fsi_reprice_pattern))
Error Description	Invalid reprice pattern code given for instrument
Assignment	ADJUSTABLE_TYPE_CD=0
Warning	Invalid reprice pattern code
Error Level	Warning

- **Rule ID: 110**

Error Condition	(ADJUSTABLE_TYPE_CD = 0 and (ORG_PAYMENT_AMT is NULL or ORG_PAYMENT_AMT <= 0))
Error Description	Original payment amount is required for fixed-rate instruments
Assignment	ORG_PAYMENT_AMT=CUR_PAYMENT
Warning	Invalid Original Payment Amount
Error Level	Warning

- **Rule ID: 111**

Error Condition	(PERCENT_SOLD < 0 or PERCENT_SOLD > 99)
Error Description	Percent Sold must be greater than or equal to zero and less than 100
Assignment	PERCENT_SOLD=0
Warning	Invalid Percent Sold
Error Level	Warning

- **Rule ID: 112**

Error Condition	(CUR_PAR_BAL is NULL or CUR_PAR_BAL = 0)
Error Description	Instruments with Current Par Balance zero are not processed.
Assignment	
Warning	Current Par Balance = 0
Error Level	Warning

- **Rule ID: 113**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and AMRT_TYPE_CD <> 700)
Error Description	Embedded option is supported only for non-amortizing instrument
Assignment	EMBEDDED_OPTIONS_FLG=0
Warning	Invalid embedded options flag
Error Level	Warning

- **Rule ID: 114**

Error Condition	(ADJUSTABLE_TYPE_CD = 0 and TP_EFFECTIVE_DATE > ORIGINATION_DATE)

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Error Description	TP Effective Date must not be after Origination Date for fixed rate instrument
Assignment	
Warning	Invalid TP Effective Date
Error Level	Info

- **Rule ID: 115**

Error Condition	(ADJUSTABLE_TYPE_CD = 0 and TP_EFFECTIVE_DATE < ORIGINATION_DATE)
Error Description	TP Effective Date must not be before Origination Date for fixed rate instrument
Assignment	
Warning	Invalid TP Effective Date
Error Level	Info

- **Rule ID: 116**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and TP_EFFECTIVE_DATE > LAST_REPRICE_DATE)
Error Description	TP Effective Date must not be after Last Reprice Date for non-fixed rate instrument
Assignment	
Warning	Invalid TP Effective Date
Error Level	Info

- **Rule ID: 117**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and TP_EFFECTIVE_DATE <= NEXT_REPRICE_DATE)
Error Description	TP Effective Date must not equal to Next Reprice Date for non-fixed rate instrument
Assignment	
Warning	Invalid TP Effective Date
Error Level	Info

- **Rule ID: 118**

Error Condition	(TP_EFFECTIVE_DATE is not NULL and TP_EFFECTIVE_DATE < '01-JAN-1970')
Error Description	TP Effective Date is before '01-JAN-1970'
Assignment	TP_EFFECTIVE_DATE=ORIGINATION_DATE
Warning	Invalid TP Effective Date
Error Level	Info

- **Rule ID: 119**

Error Condition	(TP_EFFECTIVE_DATE > MATURITY_DATE)
Error Description	TP Effective Date is after maturity date
Assignment	TP_EFFECTIVE_DATE=ORIGINATION_DATE
Warning	Invalid TP Effective Date
Error Level	Info

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- **Rule ID: 120**

Error Condition	(ADJUSTABLE_TYPE_CD = 0 and ADJ_EFFECTIVE_DATE > ORIGINATION_DATE)
Error Description	Adjustment Effective Date must not be after Origination Date for fixed rate instrument
Assignment	
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 121**

Error Condition	(ADJUSTABLE_TYPE_CD = 0 and ADJ_EFFECTIVE_DATE < ORIGINATION_DATE)
Error Description	Adjustment Effective Date must not be before Origination Date for fixed rate instrument
Assignment	
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 122**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and ADJ_EFFECTIVE_DATE > LAST_REPRICE_DATE)
Error Description	Adjustment Effective Date must not be after Last Reprice Date for non-fixed rate instrument
Assignment	
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 123**

Error Condition	(ADJUSTABLE_TYPE_CD > 0 and ADJ_EFFECTIVE_DATE <= NEXT_REPRICE_DATE)
Error Description	Adjustment Effective Date must not equal to Next Reprice Date for non-fixed rate instrument
Assignment	
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 124**

Error Condition	(ADJ_EFFECTIVE_DATE is not NULL and ADJ_EFFECTIVE_DATE < '01-JAN-1970')
Error Description	Adjustment Effective Date is before '01-JAN-1970'
Assignment	ADJ_EFFECTIVE_DATE=ORIGINATION_DATE
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 125**

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Error Condition	(ADJ_EFFECTIVE_DATE > MATURITY_DATE)
Error Description	Adjustment Effective Date is after maturity date
Assignment	ADJ_EFFECTIVE_DATE=ORIGINATION_DATE
Warning	Invalid Adjustment Effective Date
Error Level	Info

- **Rule ID: 10001**

Error Condition	(OPTION_RFR_IRC_CD > 0 and exists (select 1 from fsi_ircs where fsi_ircs.RISK_FREE_RATE_FLG is null or fsi_ircs.RISK_FREE_RATE_FLG = 0 and fsi_ircs.INTEREST_RATE_CD=SOURCE_TABLE.OPTION_RFR_IRC_CD))
Error Description	Risk Free Interest Rate Curve is not defined as Risk-Free.
Assignment	
Warning	Invalid Risk Free Interest Rate Curve
Error Level	Error

- **Rule ID: 10002**

Error Condition	(OPTION_RFR_IRC_CD > 0 and exists (select 1 from fsi_ircs where fsi_ircs.ISO_CURRENCY_CD != SOURCE_TABLE.ISO_CURRENCY_CD and fsi_ircs.INTEREST_RATE_CD=SOURCE_TABLE.OPTION_RFR_IRC_CD))
Error Description	Currency of risk free Interest Rate Curve is different from currency of instrument record.
Assignment	
Warning	Invalid Risk Free Interest Rate Curve
Error Level	Error

- **Rule ID: 10003**

Error Condition	(OPTION_VOL_IRC_CD > 0 and exists (select 1 from FSI_VOL_SURFACE_MASTER where FSI_VOL_SURFACE_MASTER.ISO_CURRENCY_CD != SOURCE_TABLE.ISO_CURRENCY_CD and FSI_VOL_SURFACE_MASTER.VOL_SURFACE_SYS_ID=SOURCE_TABLE.OPTION_VOL_IRC_CD))
Error Description	Currency of Volatility Surface is different from currency of instrument record.
Assignment	
Warning	Invalid Volatility Surface
Error Level	Error

- **Rule ID: 10004**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and STRIKE_TYPE_CD not in (1,2))
Error Description	Strike Type must be Rate or Price for instruments with embedded options.

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Assignment	
Warning	Invalid Strike Type for Embedded Option
Error Level	Error

- **Rule ID: 10005**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and EXERCISE_TYPE_CD not in (1,2,3))
Error Description	Exercise type for instrument with embedded options must be American, Bermudan or European.
Assignment	
Warning	Invalid Exercise Type for Embedded Option
Error Level	Error

- **Rule ID: 10006**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and EXERCISE_TYPE_CD = 1 and OPTION_START_DATE <= AS_OF_DATE)
Error Description	Option Start Date for an American option must be after As of Date.
Assignment	
Warning	Invalid Option Start Date for American Option
Error Level	Info

- **Rule ID: 10007**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and OPTION_TYPE_CD not in (1,2))
Error Description	Option Type must be Call or Put for instrument with Embedded Option.
Assignment	
Warning	Invalid Option Type for Embedded Option
Error Level	Error

- **Rule ID: 10008**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and STRIKE_TYPE_CD = 2 and nvl(STRIKE_IRC_CD,0) < 1)
Error Description	Strike type is Rate for instrument with Embedded Option but Strike Interest Rate Curve is not available.
Assignment	
Warning	Invalid Strike Interest Rate Curve for Embedded Option
Error Level	Error

- **Rule ID: 10009**

Error Condition	(EMBEDDED_OPTIONS_FLG = 1 and STRIKE_TYPE_CD = 2 and nvl(RATE_LOOKUP_CD,0) not in (1,2,3,4))

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Error Description	Strike type is Rate for instrument with Embedded Option but Rate Lookup Code is not available.
Assignment	
Warning	Invalid Rate Lookup Code for Embedded Option
Error Level	Error

- **Rule ID: 10010**

Error Condition	(EXCHG_OF_PRINCIPAL is NULL OR EXCHG_OF_PRINCIPAL not in (0,1))
Error Description	Invalid Exchange of Principal flag
Assignment - Default Value	1
Warning	Invalid Exchange of Principal flag.
Error Level	Warning

- **Rule ID: 10011**

Error Condition	(ACCOUNT_TYPE in (150, 200, 350, 400, 610, 620) and AMRT_TYPE_CD not in (10, 820, 801, 700, 802))
Error Description	Invalid Amortization Type.
Assignment	
Warning	Invalid Amortization Type for non earning assets and liabilities
Error Level	Warning

- **Rule ID: 10012**

Error Condition	(ACCOUNT_TYPE in (150, 200, 350, 400, 610, 620) and (CUR_NET_RATE <> 0 or CUR_GROSS_RATE <> 0))
Error Description	Interest Rate of non earning assets and liabilities must be 0.
Assignment	
Warning	Invalid Interest Rate for non earning assets and liabilities
Error Level	Warning

- **Rule ID: 10013**

Error Condition	(ACCOUNT_TYPE in (150, 200, 350, 400, 610, 620) and ADJUSTABLE_TYPE_CD <> 0)
Error Description	Adjustable Type of non earning assets and liabilities must be 0.
Assignment	
Warning	Invalid Adjustable Type for non earning assets and liabilities
Error Level	Warning

- **Rule ID: 10014**

Error Condition	(ACCOUNT_TYPE in (150, 200, 350, 400, 610, 620) and INTEREST_TIMING_TYPE_CD <> 1)
Error Description	Interest timing type of non earning assets and liabilities must be Arrears.

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Assignment	
Warning	Invalid Interest timing type for non earning assets and liabilities
Error Level	Warning

- **Rule ID: 10015**

Error Condition	(ADJUSTABLE_TYPE_CD in (50, 250) and not exists (select 1 from fsi_ircs where fsi_ircs.interest_rate_cd = SOURCE_TABLE.interest_rate_cd and nvl(fsi_ircs.volatility_curve_flg,0) = 0))
Error Description	Interest rate code of instrument does not exist. Repricing attributes will be ignored and processed as fixed interest rate.
Assignment	
Warning	Wrong Interest Rate Code for adjustable rate instrument
Error Level	Warning

- **Rule ID: 10016**

Error Condition	(ORG_INT_PAYMENT_DATE is NULL OR ORG_INT_PAYMENT_DATE < ORIGINATION_DATE)
Error Description	Invalid Original Interest Payment Date
Assignment	
Warning	Invalid Original Interest Payment Date
Error Level	Warning

- **Rule ID: 10017**

Error Condition	(ORG_PRIN_PAYMENT_DATE is NULL OR ORG_INT_PAYMENT_DATE < ORIGINATION_DATE)
Error Description	Invalid Original Principal Payment Date
Assignment	
Warning	Invalid Original Principal Payment Date
Error Level	Warning

- **Rule ID: 10018**

Error Condition	(ADJUSTABLE_TYPE_CD = 300 and AMRT_TYPE_CD in (600, 850, 840))
Error Description	Amortization Type of Tiered Rate Account must not be negative amortization, annuity, and lease
Assignment	
Warning	Tiered rate functionality does not apply to negative amortization, annuity, and lease amortization types
Error Level	Warning

- **Rule ID: 10019**

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Error Condition	(ADJUSTABLE_TYPE_CD = 300 and nvl(INTEREST_TIMING_TYPE_CD,1) != 1)
Error Description	Interest Timing Type of Tiered Rate Account must be Interest in Arrears
Assignment	
Warning	Interest Timing Type of Tiered Rate Account cannot be Interest in Advance or Set in Arrears
Error Level	Warning

- **Rule ID: 10020**

Error Condition	(ADJUSTABLE_TYPE_CD NOT IN (0, 50, 250))
Error Description	Adjustable Type of tiers must be Fixed, Floating or Other Adjustable
Assignment	
Warning	Adjustable Type of tier must be Fixed, Floating or Other Adjustable
Error Level	Warning

- **Rule ID: 10021**

Error Condition	(ADJUSTABLE_TYPE_CD = 300 and EXISTS (select 1 from FSI_D_ACCOUNT_RATE_TIERS WHERE FSI_D_ACCOUNT_RATE_TIERS.ID_NUMBER= SOURCE_TABLE.ID_NUMBER AND FSI_D_ACCOUNT_RATE_TIERS.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE AND (select SUM(CUR_PAR_BAL) from FSI_D_ACCOUNT_RATE_TIERS WHERE FSI_D_ACCOUNT_RATE_TIERS.ID_NUMBER= SOURCE_TABLE.ID_NUMBER AND FSI_D_ACCOUNT_RATE_TIERS.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE) != SOURCE_TABLE.CUR_PAR_BAL))
Error Description	Tiered Rate Accounts Current Par Balance mismatch
Assignment	
Warning	Sum of CUR_PAR_BAL of tiers is different from CUR_PAR_BAL of account
Error Level	Info

- **Rule ID: 10022**

Error Condition	(ADJUSTABLE_TYPE_CD = 300 and EXISTS (select 1 from FSI_D_ACCOUNT_RATE_TIERS WHERE FSI_D_ACCOUNT_RATE_TIERS.ID_NUMBER= SOURCE_TABLE.ID_NUMBER AND FSI_D_ACCOUNT_RATE_TIERS.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE AND (select SUM(ORG_PAR_BAL) from FSI_D_ACCOUNT_RATE_TIERS WHERE FSI_D_ACCOUNT_RATE_TIERS.ID_NUMBER= SOURCE_TABLE.ID_NUMBER AND FSI_D_ACCOUNT_RATE_TIERS.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE) != SOURCE_TABLE.ORG_PAR_BAL))

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Error Description	Tiered Rate Accounts Original Par Balance mismatch
Assignment	
Warning	Sum of ORG_PAR_BAL of tiers is different from ORG_PAR_BAL of account
Error Level	Info

- **Rule ID: 10023**

Error Condition	(ADJUSTABLE_TYPE_CD IN (50, 250) AND (INTEREST_RATE_CD is NULL or INTEREST_RATE_CD <= 0))
Error Description	Adjustable Rate tier has invalid Interest Rate Code
Assignment	
Warning	Interest rate code must be valid for adjustable rate tiers
Error Level	Warning

- **Rule ID: 10024**

Error Condition	(ADJUSTABLE_TYPE_CD IN (50, 250) AND (NEXT_REPRICE_DATE is NULL or NEXT_REPRICE_DATE <= AS_OF_DATE) AND REPRICE_FREQ > 0)
Error Description	Adjustable Rate tier has invalid Next Reprice Date
Assignment	
Warning	Next Reprice Date must be valid for adjustable rate tiers
Error Level	Warning

- **Rule ID: 10025**

Error Condition	(ADJUSTABLE_TYPE_CD IN (50, 250) AND (REPRICE_FREQ_MULT is NULL or REPRICE_FREQ_MULT not in ('D','M','Y')))
Error Description	Adjustable Rate tier has invalid Reprice Frequency Multiplier
Assignment	
Warning	Repricing Frequency Multiplier must be D, M, or Y for adjustable rate tiers
Error Level	Warning

- **Rule ID: 10026**

Error Condition	(ADJUSTABLE_TYPE_CD IN (50, 250) AND (REPRICE_FREQ is NULL or REPRICE_FREQ <= 0))
Error Description	Adjustable Rate tier has invalid Reprice Frequency
Assignment	
Warning	Repricing Frequency must not be negative for adjustable rate tiers
Error Level	Warning

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- **Rule ID: 10027**

Error Condition	(ADJUSTABLE_TYPE_CD = 300 and NOT EXISTS (select 1 from FSI_D_ACCOUNT_RATE_TIERS WHERE FSI_D_ACCOUNT_RATE_TIERS.ID_NUMBER= SOURCE_TABLE.ID_NUMBER AND FSI_D_ACCOUNT_RATE_TIERS.IDENTITY_CODE = SOURCE_TABLE.IDENTITY_CODE))
Error Description	Rate tier details of account is not available
Assignment	
Warning	Adjustable Type of account is Tiered Rate but data of Account Rate Tiers is not available
Error Level	Warning

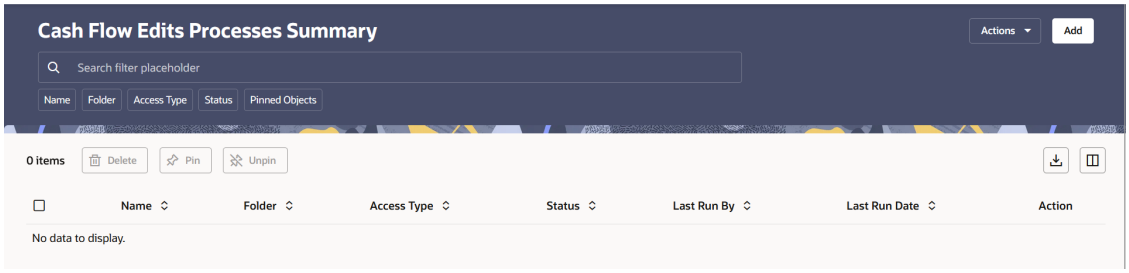
4.10.2 Cash Flow Edits Process

This module discusses the procedure for validating and cleansing your Instrument Table Data before you process it to generate Cash Flow-based results. The Cash Flow Edits Process allows you to verify the accuracy and check the completeness of your Instrument Table Data.

Cash Flow Edits Process Summary

This page is the gateway to all Cash Flow Edits Process Rules and related functionality. You can navigate to other pages relating to Cash Flow Edits Process Rules from this point.

Figure 4-73 Cash Flow Edits Process Summary Page



Search Cash Flow Edits Process

Prerequisites: Predefined Cash Flow Edits Process

To search for a Cash Flow Edits Process, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Cash Flow Edits Process Rules that meet the search criteria.

Or

The other method to search a Cash Flow Edits Process is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Id, Name, Group, Condition Column,** or **Is User Defined** of the Cash Flow Edits Process and click **Search**.

The Cash Flow Edits Process summary displays the following information:

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Add: Click **Add** icon at the top right of the summary page to build a new Cash Flow Edits Process.

Actions: Enables you to perform following tasks.

- **Refresh:** Retains the selected filters and refreshes the summary page with latest status.
- **Reset:**Clears the selected filters and refreshes the summary page.
- **Help:**Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple processes in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected process.

Export: Enables you to download the summary page details in **.CSV** format.

Columns: Allows you to view the summary page data using a customized list of columns.

The Cash Flow Edits Process summary table displays the following columns:

- **Name:** Displays the Cash Flow Edits Process's short name.
- **Folder:** Displays the Folder name where the Cash Flow Edits Process is saved.
- **Access Type:** Displays the access type of process. It can be Read-Only or Read/Write.
- **Last Run By:** Displays the Name of the user who last runs the Cash Flow Edits Process.
- **Last Run Date:** Displays the Date and Time when Cash Flow Edits Process was run last.
- **Status:** Displays the status of the Cash Flow Edits Process.
- **Action:** Displays the following list of actions that can be performed on the selected Cash Flow Edits Process.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Cash Flow Edits Processes. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Cash Flow Edits Process rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Cash Flow Edits Process rules that are no longer required. Click on the **Action** icon against the Cash Flow Edits Process Name and select **Delete** to delete an existing Cash Flow Edits Process. A process cannot be retrieved after deletion.

    > **Note**
    >
    > A Cash Flow Edits Process cannot be retrieved after deletion. Restrictions on deleting Cash Flow Edits Process Rules are:
    >
    > * You cannot delete Cash Flow Edits Process Rules if you have only Read privileges. Only users with Read/Write privileges and Cash Flow Edits Process owners can delete Cash Flow Edits Process Rules.
    > * You cannot delete a Cash Flow Edits Process that has a dependency.

  - **Dependency Check:** You can check dependencies for rules to know where a particular Cash Flow Edits Process has been used. This also prevents accidental deletion of rules having dependencies. Click on the **Action** icon against the Cash Flow

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Edits Process Name and select Dependency Check to generate a report on all Rules that utilize your selected Cash Flow Edits Process.

- **Execute:** Select Execute to execute an existing Cash Flow Edits Process. After clicking Execute, the Run Parameter Execution window is displayed. Select As of Date (Execution Date) and Legal Entity, and then click Run.
- **Execute Details:** Select Execute Details to view execution details of the Cash Flow Edits Process.

Also See:

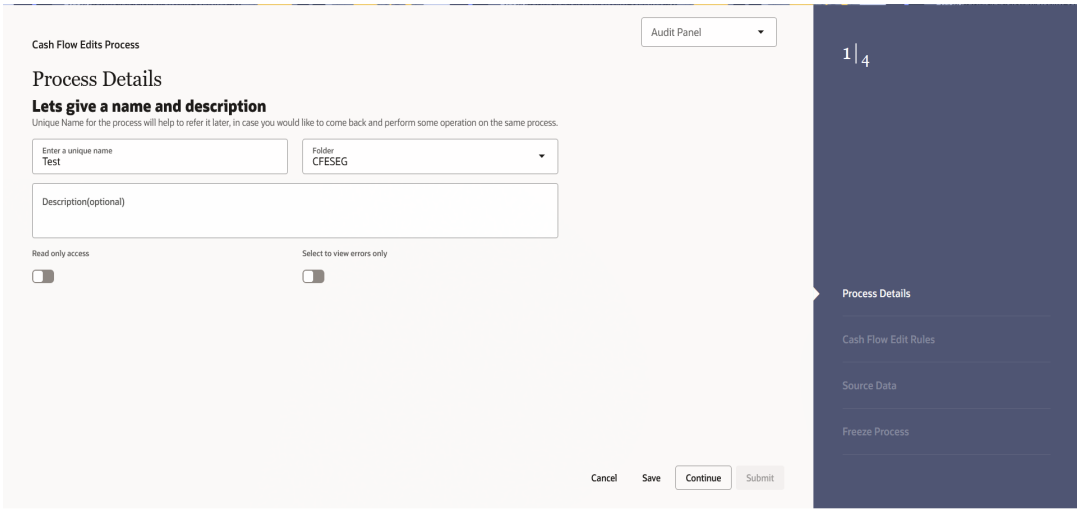
- Create Cash Flow Edits Process
- Execute Cash Flow Edits Process
- View Cash Flow Edits Process Execution Details

4.10.2.1 Create Cash Flow Edits Process

Creating a Cash Flow Edits Process is a one-step process. You define both the attributes that uniquely describe a particular Cash Flow Edits Process and the data to be validated or cleansed by that process on the Create Cash Flow Edits Process Page.

1. Navigate to the **Cash Flow Edits Process Summary** Page.
2. Click the **Add** icon. The **Create Cash Flow Edits Process** Page is displayed.

Figure 4-74 Process Details



3. Enter the process details as shown in the following table:

Table 4-23 List of Process details used for Creating Cash Flow Edits Process

Field	Description
Name	Enter the name of the Cash Flow Edits Process.
Description	Enter the description of the Cash Flow Edits Process.

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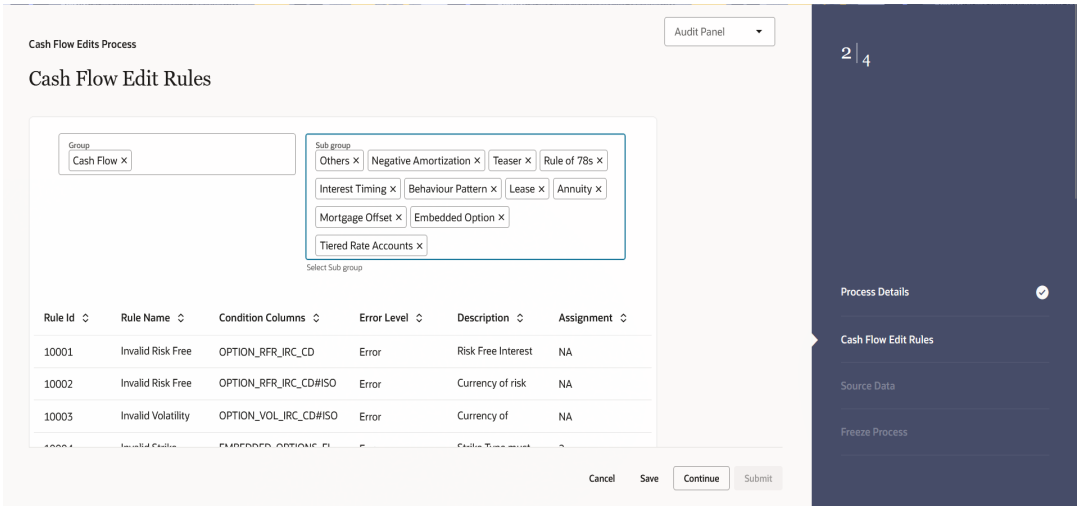
Table 4-23 (Cont.) List of Process details used for Creating Cash Flow Edits Process

Field	Description
Select to view errors only	Selecting this parameter allows you to view the results of running a Cash Flow Edits Process before the system updates the underlying records in the Instrument tables. The default value of this parameter is checked.
Folder	Enter the Folder details where Cash Flow Edits Process needs to be saved.
Access Type	Select the Access Type as Read-Only or Read/ Write.

4. Click **Apply** to navigate to the **Cash Flow Edits Rules** section.

Figure 4-75 Cash Flow Edits Rules



5. Enter the Cash Flow Edits Rules details shown in the following table:

Table 4-24 List of Cash Flow Edits Rules details used for Creating Cash Flow Edits Process

Field	Description
Group	Select the group of Cash Flow Edits Rules that you want to include in the process. For example, Cash Flow
Sub Group	Select the sub group of Cash Flow Edits Rules that you want to include in the process. The value of this field varies based on the selected Group. The list of Rules with conditions is displayed.

The details of the process for the selected group and sub-group are listed on the screen for reference.

6. Click **Apply** to navigate to the **Source Data** section.

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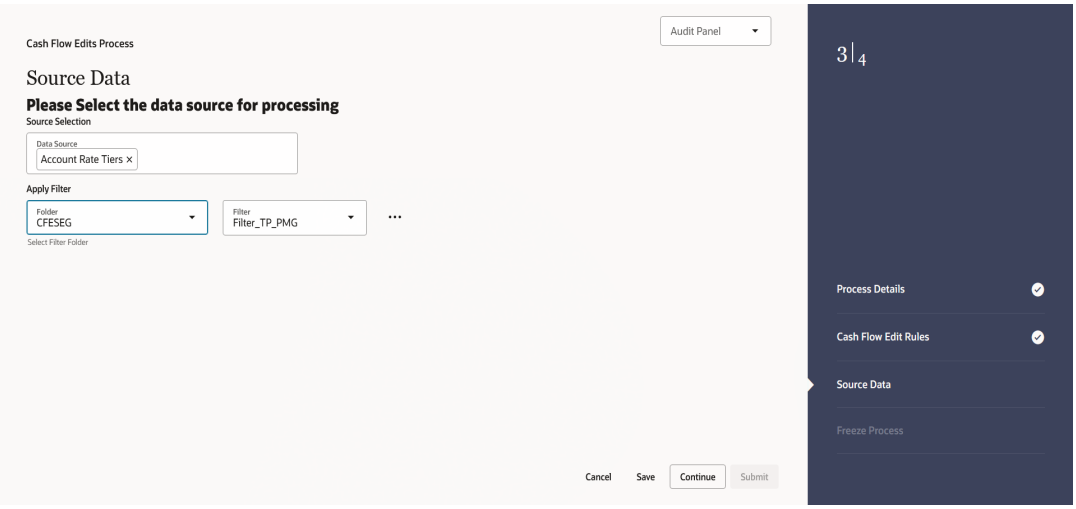
Figure 4-76 Source Data



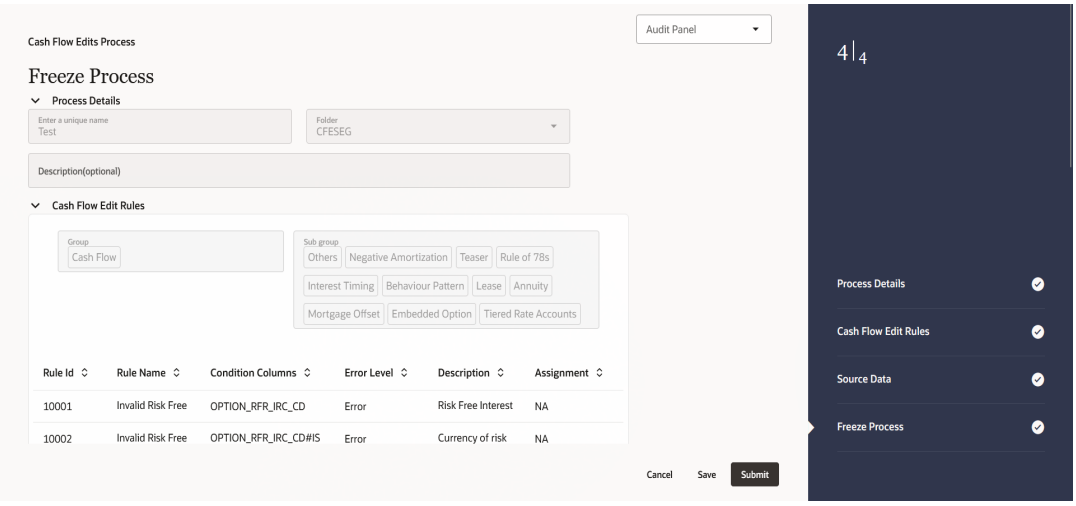
7. Enter the Source Data details as shown in the following table:

Table 4-25 List of Source Data details used for Creating Cash Flow Edits Process

Field	Description
Data Source	This field allows you to select the Instrument tables that must be included in a Cash Flow Edits Process.
Data Filter Folder	Select the Folder from which you want to apply Data Filter.
Data Filter	This field allows you to select a subset of data for processing by selecting a filter that was previously created. Click **Action** button next to Data Filter to add, edit or view the Data Filter.

8. Click **Apply** to navigate to the **Freeze Process** section.

Figure 4-77 Freeze Process



9. Click **Save** on the **Freeze Process** Window after verifying all the details.

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10. The Cash Flow Edits Process is saved and the Summary Page is displayed.

4.10.2.2 Executing Cash Flow Edits Process

Execute a Cash Flow Edits Process to check the accuracy and the completeness of your Instrument Table Data. When run in Preview Mode, you can view the results of running a Cash Flow Edits Process by querying the FSI_O_CFE_EDITS_MESSAGES_HIST table for generated errors before the system updates the underlying records in the Instrument tables.

You can execute Cash Flow Edits Process using following methods:

- Cash Flow Edits Process UI
- Scheduler Service

4.10.2.2.1 Using Cash Flow Edits Process UI

To execute the Cash Flow Edits Process, follow these steps:

1. Navigate to the **Cash Flow Edits Process Summary** Page.
2. Search for a process.
3. Click on the **Action** icon against the Cash Flow Edits Process Name and select Execute to execute an existing Cash Flow Edits Process. The **Run Parameter Execution** Window is displayed.
4. Select the **As of Date (Execution Date)** and **Legal Entity**, and then click **Run**.

> **Note**
>
> You can select multiple Legal Entities in list view of hierarchy browser at a time for execution. In hierarchy mode you can select one Legal Entity at leaf or parent level. When parent Legal Entity is selected then data of selected entity along with its child and descendants are processed.

5. The **Cash Flow Edits Run Confirmation** Page is displayed. The status of the process is displayed in the **Status** Column. After completion of the process, you can navigate to the Execution Details Page by selecting the **Execution Details** option under the **Action** Column.

> **Note**
>
> You can view the results of running a Cash Flow Edits Process before the system updates the underlying records in the Instrument tables, provided you selected Preview Mode while defining it. If the Process runs in Preview Mode, query the FSI_O_CFE_EDITS_MESSAGES_HIST table for any generated errors

4.10.2.2.2 Using Scheduler Service

A batch with following details gets automatically created when Cash Flow Edits Process is saved:

- **Code:** Process Id of Cash Flow Edits Process
- **Name:** Name of Cash Flow Edits Process

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- **Description:** Description of Cash Flow Edits Process

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

You can also define new batch to execute any Cash Flow Edits Process by following these steps:

1. Navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**.
2. Define a new batch.
3. Enter the Batch Name and Description, and then Save the batch.
4. To add a task, navigate to **Define Task**.
5. Select the Batch from the **Batch** drop-down list on the **Define Task** Window.
6. Click the **Add** button.
7. Define the task with below details:
    - **Task Code:** Must be same as the Process Id of Cash Flow Edits Process
    - **Task Name:** This can be same a name of the Cash Flow Edits Process or something else
    - **Task Description:** This can be same a name of the Cash Flow Edits Process or something else
    - **Task Type:** REST
    - **Component:** Cash Flow Edits
    - **Process Name:** Select one value from the list
    - **Legal Entity Hierarchy:** Select one value from the list
    - **Legal Entity:** Select one value from the list
8. **Save** and **Execute** the batch with Batch ID and MIS Date.

For more information, see the Scheduler Service.

4.10.2.3 Viewing Execution Details of Cash Flow Edits Process

To view the execution details of the Cash Flow Edits Process, follow these steps:

1. Navigate to the **Cash Flow Edits Process Summary** Page.
2. Search for a Process.
3. Click on the **Action** icon against the Cash Flow Edits Process Name and select **Execution Details**. The **Execution Details** window is displayed.
4. Click any **Execution ID** to view the log details. The **Log Viewer** Window shows the complete details of process along with Batch Run ID Information.
5. Click **Download** to export the details of cash flow edits in **csv** format. This will help you to understand errors found in instrument data.
6. If process is executed in '**Non-preview**' mode, then records which are modified by Cash Flow Edits Process can be identified by looking at columns `CF_EDITS_BATCH_RUN_ID` and `UPDATED_BY_CF_EDITS` in instrument processing table.

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4.11 ALM Table Cleanup

This module discusses the procedure to delete data from ALM Output Tables. During the delete process, partitions of Output Tables are truncated. The procedure deletes the data from Output Tables permanently and no backup is retained.

Steps

To clean up the ALM Output, follow these steps:

1. Navigate to **Operations and Processes** menu, and select **Scheduler**.
2. Select **Define Batch**. Create a new batch by entering Code, Name and Description.
3. Save the batch.
4. Navigate to **Define Task**.
5. Select the Batch created above from the **Batch** drop-down list.
6. Click the **Add** button from **Actions** drop-down.
7. Enter the following details in the Task Details Section:
   - **Task Code:** Enter a Code for the task.
   - **Task Name:** Enter Name for the task.
     The Task Name must be alphanumeric and must not start with a number. The Task Name must not exceed 60 characters in length. The Task Name must not contain any special characters except underscore (_).
   - **Description:** Enter the Task Description. Special characters are not allowed in Task Description. Words like Select From or Delete From (identified as potential SQL injection vulnerable strings) should not be entered in the Description.
8. Select the **Task Type** as **REST**.
9. Select **Component** as **Transform Data**.
10. Select **Batch Service URL** as **DMT_SERVICE**.
11. Select name as **ALM Process Results Data Delete** from **Name** drop-down. This a mandatory Task Parameter.
12. Enter the following extra parameters: These are mandatory Task Parameters.
    - **TABLE_GROUP:** Name of the Group ID (1 to 6) of table. The following tables store output from the ALM Engine.

Group_Id	Group_Name	Table_Name
1	Process Output	FSI_ALM_CASHFLOW_OUTPUT_HIST
1	Process Output	FSI_ALM_CASHFLOW_DYN_MV_OUTPUT_HIST
1	Process Output	FSI_CFA_RESULT_DETAILS
1	Process Output	FSI_CFA_LR_RESULT_DETAILS
1	Process Output	FSI_CFA_IR_RESULT_DETAILS
1	Process Output	FSI_CFA_ALM_RESULT_MASTER

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Group_Id	Group_Name	Table_Name
1	Process Output	FSI_CFA_ALM_ACCOUNT_SUMMARY
1	Process Output	FSI_CFA_DIMENSION_MAP_DTL
1	Process Output	FSI_CFA_TIME_BUCKET
1	Process Output	FSI_O_CFE_MESSAGES_HIST
1	Process Output	FSI_ALM_CFA_FCAST_INSTRUMENTS
2	Forecast Rates	FSI_O_FCAST_IRC_RATES_HIST
2	Forecast Rates	FSI_O_FCAST_IRC_IF_COEFF_HIST
2	Forecast Rates	FSI_O_FCAST_ECO_IND_RATES_HIST
2	Forecast Rates	FSI_O_FCAST_CCY_RATES_HIST
2	Forecast Rates	FSI_O_FCAST_VOL_RATES_HIST
4	Cash Flow Edits	FSI_O_CFE_EDITS_MESSAGES_HIST
5	Reporting Table	FSI_BI_ALM_FINANCIAL_RESULT
5	Reporting Table	FSI_BI_ALM_INTEREST_RATE_RISK
5	Reporting Table	FSI_BI_ALM_LIQUIDITY_RISK
5	Reporting Table	FSI_BI_ALM_RESULT_MASTER
5	Reporting Table	FSI_BI_ALM_ACCOUNT_SUMMARY
5	Reporting Table	FSI_ALM_CASHFLOW_OUTPUT_HIST
5	Reporting Table	FSI_ALM_CASHFLOW_DYN_MV_OUTPUT_HIST
6	Reporting Table Transposed	FSI_BI_ALM_FINANCIAL_RESULT_TRANSPOSE
6	Reporting Table Transposed	FSI_BI_ALM_INTEREST_RATE_RISK_TRANSPOSE
6	Reporting Table Transposed	FSI_BI_ALM_LIQUIDITY_RISK_TRANSPOSE
6	Reporting Table Transposed	FSI_BI_ALM_RESULT_MASTER_TRANSPOSE

- **EXECUTION_ID_VALUE:** Enter the Execution ID of ALM Process

13. **Use Effective Date:** Select this as YES or NO. This parameter does not impact on ALM Table Cleanup functionality.
14. Save the Task.
15. Navigate to **Schedule Batch** and execute the batch created above created batch with **Batch ID** and **MIS Date**.

For more information, see the Scheduler Service.

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4.12 ALM Output Export

This module discusses the procedure to download the ALM Output details. When you download the data, it moves to Object Store. To export the ALM Output, follow these steps:

1. Navigate to **Operations and Processes**, and then select **Scheduler**.
2. Select **Define Batch**. Create a new batch by entering Code, Name and Description.
3. Save the batch.
4. Navigate to **Define Task**. Select the Batch created above from the **Batch** drop-down list.
5. Click the **Add** button from **Actions** drop-down.
6. Enter the following details in the Task Details section:
   - **Task Code:** Enter a code for the task.
   - **Task Name:** Enter name for the task.

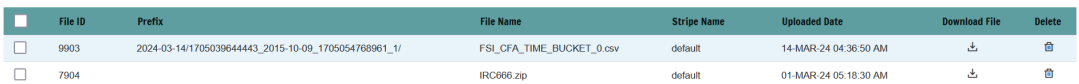
   The Task Name must be alphanumeric and must not start with a number. The Task Name must not exceed 60 characters in length. The Task Name must not contain any special characters except underscore (_).

   - **Description:** Enter the Task Description. Special characters are not allowed in Task Description. Words like Select From or Delete From (identified as potential SQL injection vulnerable strings) should not be entered in the Description.
   - Select **Component** as “**ALMCS_Process_Results_Output_Data_Export**”.
   - Leave **Batch Service URL** blank.
   - **Results Table Category:** Select one or more table for the displayed list. This is a Mandatory Task parameter. Below is the list of Results Tables:
     - Process Output
     - Forecast Rates
     - Cash Flow Edits
     - Reporting Table
     - Reporting Table Transposed
   - **Execution IDs:** Select one or more execution IDs from displayed list. You may prefer to select only one Execution ID at a time so that separate files get created for each else one file may have data from multiple executions. This is a Mandatory Task parameter.

   Save the task and execute the batch with Batch ID and MIS Date. For more information, see the Scheduler Service.

   After the batch is completed successfully, navigate to **Data Management Tools**, select the **Data File Administration**, and then select **File Upload and Download**. Download the exported file from object store.

Figure 4-78 ALMCS Output Export



File ID	Prefix	File Name	Stripe Name	Uploaded Date	Download File	Delete
9903	2024-03-14/1705039644443_2015-10-09_1705054768961_1/	FSI_CFA_TIME_BUCKET_0.csv	default	14-MAR-24 04:36:50 AM		
7904		IRC666.zip	default	01-MAR-24 05:18:30 AM		

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If you want to execute more than 10000 records, then part files are created with a suffix number such as _1, _2 and so on and will be added to Name of these files.

The File Name Column shows the name of file with Part number. The Prefix is displayed as a combination of As of Date, Process ID and Run execution ID.

Data can be exported from the following list of tables:

- Process Output
- Forecast Rates
- Cash Flow Edits
- Reporting Table
- Reporting Table Transposed

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5
Administrative Tools

This topic covers the following sub-topics:

- PLSQL Starter Kit

5.1 Custom PLSQL Extension

Financial Institutions are required to meet various statutory, regulatory and management reporting requirements that are released by the central banks of the geographies in which they operate. Quite often, these requirements are specific to the given region, and more importantly, compliance with these regulations are time bound. PBSM intends to allow customers to introduce custom PL/SQL code into the cloud services that helps them meet these statutory, regulatory, or even internal management requirements.

This a feature allows you to extend the functionality of the cloud service via custom PL/SQLs (subject to appropriate restrictions and controls), to complement/extend current calculation capabilities.

5.1.1 PLSQL Starter Kit

The Starter Kit is bundled with pre-packaged set of artefacts which will assist in the following:

- Creation of application specific factory bundled database objects for example – Tables, Synonyms, Functions, Procedures, etc.
- Bundles sample data which the you can choose to deploy.
- Bundles pre-packaged archival scripts along with basic validations.

Prerequisite: You should have a database schema created (referred to as Sandbox Database Schema in this document) in one of their local on-premises Data Center. For more information, see PLSQL Starter Kit Installation section.

5.1.2 Steps to introduce Custom PLSQLs

Support for Custom PLSQL is a workflow-based capability.

The different stages involved are:

- Generate, Download and Install the Starter Kit
- Develop Custom PLSQL Extensions
- Extract and Submit the Custom PLSQLs for Oracle Due Diligence
- Request for Archive Deployment of the Custom PLSQLs on the preferred PBSM SaaS Instance
- Access User Extension through Scheduler

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5.1.2.1 Generate, Download and Install the Starter Kit

PLSQL Starter Kit can be generated using Cloud Service User Interface located under the LHS menu ‘Admin Tools’. UI has options to Include Custom tables & Include data for all Custom tables as optional selections while generating a Starter Kit. The UI will display the current Status and previously generated Starter Kit Status details. The UI has a Download button using which you can download the generated Starter Kit.

Starter Kit will assist you to set up a sandbox database schema on your preferred on-premises database. Linux Shell operating environment is required to run the Starter Kit installation and deployment.

Refer Installation Guide for more details on system requirements and installation and deployment steps.

Starter Kit Components:

- Installation Guide: To assist users on how to Install Starter Kit artefacts.
- Deploys pre-packaged create table DDLs, insert DMLs & archive validation scripts.
- Archival scripts: for generating Custom PLSQL archives.

5.1.2.2 Develop Custom PLSQL Extensions

After installing the starter kit, you can develop Custom PLSQL extensions as per your business / functional requirements on the sandbox database schema which was created by using the Starter Kit. You must test the developed extensions in your sandbox database schema with test data. Thereafter, generate Custom PLSQL Archives using the Starter Kit bundled archival scripts. Custom PLSQL extensions are validated by the Archive Validation Scripts during the archival process.

Archives are generated with a Project ID or Project name, which is accepted as an input parameter during the archival script execution. The Project ID or name will be used while baselining the scripts by Oracle.

You must submit the full archive, including all earlier Custom extensions, every time against a project ID; Oracle will not merge one archive with previous archive submissions (if any) for a project ID.

Rules to be followed while developing custom PL/SQL extension objects are listed below:

- Naming Conventions to be followed while developing Custom PLSQL Extensions.
- Tables should not be altered or dropped.
- Seeded Data should not be altered or deleted.

See the following table for more details.

Table 5-1 Rules

SL No.	Rules	Details
1	Naming Conventions to be used while creating Custom Extensions	Please use a suffix while naming the PLSQL objects with “_CUSTOM” Example: FN_UPD_FSI_D_ASSETS_**CUSTOM**
2	Operations Allowed on Starter Kit Objects	Refer Appendix Section B

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Table 5-1 (Cont.) Rules

SL No.	Rules	Details
3	Creation of Global Temporary Tables (Dynamic Tables within Custom PLSQLs using execute immediate)	Allowed
4	Creation of Views	Allowed
5	Creation of Synonyms	Allowed
6	Creation of Functions	Allowed
7	Creation of Procedures	Allowed
8	Creation of Packages	Allowed
9	Creation of Materialized Views	Not Allowed

For more details on the process of submitting the archive, see Appendix 5.1.1.

5.1.2.3 Extract and Submit the Custom PLSQLs for Oracle Due Diligence

Oracle Due Diligence is an Oracle internal process to validate the submitted archives and confirm that the archives are ready for deployment on a target PBMS SaaS Instance.

> **Note**
>
> For detail refer appendix ….. (Processing for submitting Custom PLSQL Archives to Oracle).

5.1.2.4 Request for Archive Deployment of the Custom PLSQLs on the preferred PBSM SaaS Instance

In this stage the Custom PLSQL extension deployment pipeline will be executed to deploy the extensions on your preferred SaaS Instance. You will be notified on the readiness of the Custom PLSQL extensions on your SaaS instance.

For more details on how to request for archive deployment of the custom PLSQLs on the preferred PBSM SaaS instance. see Appendix 5.1.2.

5.1.2.5 Access User Extension through Scheduler

You can access the Customer PLSQL Extension using the Scheduler service.

To access User Extension using the scheduler service:

1. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**. For more details, see Define Batch.
2. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Task**. For more details, see Define Tasks.
   a. **Task Type**: REST
   b. **Component**: Select **Execute Custom PLSQL**.
   c. Under Task Parameters, select/enter the following:
      i. **CustomPLSQL Definition**: Select the relevant PLSQL function.

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ii. **Consumer Group**: There are 3 option which the user can select.

i. High

ii. Medium

iii. Low
The default selection is Medium. The use can choose the appropriate Consumer Group.

Figure 5-1 Consumer Group

When executing this function, the parameter will be assigned to the selected function as show below. It is mandatory to develop Customer PLSQL extensions with BatchID and MisDate as the first 2 parameters.

For example: Given below function signature:

```
create or replace FUNCTION FNUPDATERECORD (BatchID Varchar2,
                                                                    MisDate
Varchar2,

vCurrency varchar2,

vBalance number) return number is
```

The wrapper will be created in the following fashion:

```
DECLARE
                batchid     VARCHAR2(32767) :=
'user_extension_2024-09-30_16';
                misdate     VARCHAR2(32767) := '20240930';
                vCurrency    VARCHAR2(32767) := 'USD';
                vBalance     number := '100';
                vreturn     NUMBER(30);
BEGIN
                vreturn := fnupdaterecord(
                batchid     => batchid,
                misdate     => misdate,
                vCurrency    => vCurrency,
                vBalance    => vBalance);
END;
```

iii. **CustomPLSQL Params**: Enter the required parameters for selected PLSQL function. If there are multiple parameters use comma separator. For example: USD,200.

3. Save the Task.

4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**. For more information, see Execute Batch.

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5. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**. For more information, see Monitor Batch.
6. Select the Batch and then select the **MISDATE** and the **Batch name**. Select the latest execution and click **Start Monitor**.
   The UI displays the Status of the batch.

5.1.3 PLSQL Starter Kit User Interface

The PLSQL Starter Kit UI will allow users to generate a Starter Kit. UI has options to Include Custom tables & Include data for all Custom tables. The UI will display the current status and previously generated Starter Kit Status. The UI has a Download button using which you can download the generated Starter Kit.

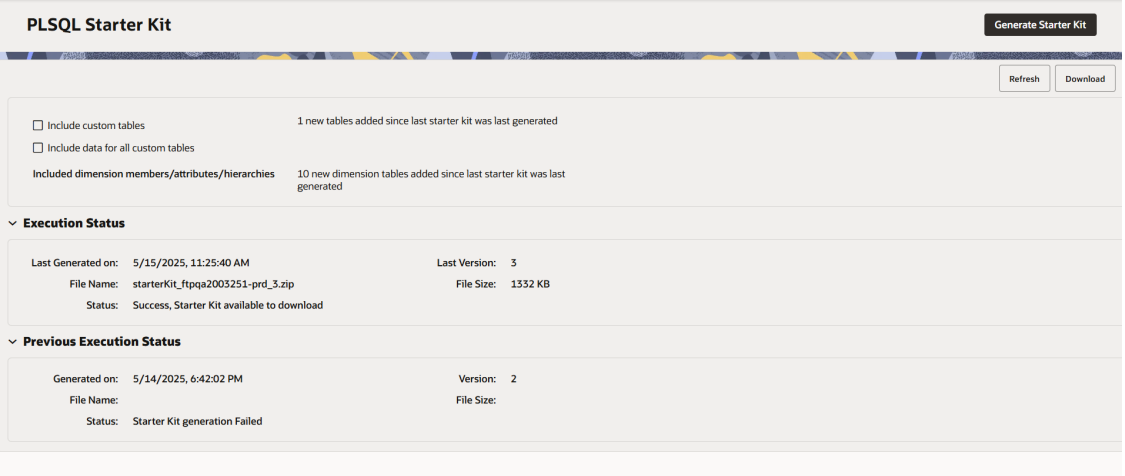
User must be mapped to below groups to access PLSQL Starter Kit UI:

- UG_GEN_STARTER_KIT_ADMIN
- UG_GEN_STARTER_KIT_ANALYST

For more details on mapping user groups, refer to Managing User Groups.

From the LHS menu, select **Admin Tools**, and then select **PLSQL Starter Kit**.

Figure 5-2 PLSQL Starter Kit



The PLSQL Starter Kit UI displays the following details:

- **Include Custom tables**: Check box indicates whether to include Custom Tables added as part of the Data Model Extensions User Interface. When Checked Starter Kit Generation will include Custom Tables added as part of the Data Model Extension UI.
- **Include data for all Custom tables**: Check box indicates whether to include data of the Custom Tables. When Checked Starter Kit Generation will include Custom Tables data.
- **Included dimension members/attributes/hierarchies**: These are included by default.
- **Execution Status**:
  - **Last Generated on**: Displays the date of starter kit generation.
  - **Last Version**: Displays the Version number if starter kit.

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  - **File Name**: Displays the Starter Kit File Name.
  - **File Size**: Displays the Starter Kit File Size.
  - **Status**: Displays the Status of Starter Kit Generation.
- Previous Execution Status shows the details of a previously generated Starter Kit:
  - **Generated on**: Displays the date of starter kit generation.
  - **Version**: Displays the Version number if starter kit.
  - **File Name**: Displays the Starter Kit File Name.
  - **File Size**: Displays the Starter Kit File Size.
  - **Status**: Displays the Status of Starter Kit Generation.
- Click **Generate Starter Kit** button to start generating the Starter Kit.
- **Refresh** button can be used to refresh the page to view the latest Status.
- **Download** button can be used to download the latest generated Starter Kit.

5.1.4 PLSQL Starter Kit Installation

Users who wish to install Starter Kit should download the StarterKit installer.

> **Note**
>
> For more information, see the PLSQL Starter Kit UI in the User Guide.

The following steps guide you to install the PLSQL Extension Starter Kit.

> **Note**
>
> The installer supports both fresh and upgrade installations.

Installation Tasks	Description
Verify the system requirements	This will entail the prerequisites required to start with the installation of Stater Kit.
Configure and create a Database Schema	Starter Kit installation requires a Database Schema. For more information, see the Create and Configure Database Schema Creation.
Configure Environment Variables	For more information. see the .profile Changes.
Install StarterKit	For instructions to install the Starter Kit, see Installation of Starter Kit.
Create User Extensions	For instructions, see Create PLSQL Extensions.

5.1.4.1 Verify the System Requirements

The following tables list the pre-installation checklist items.

Client Machine Requirements

Operating System	Linux Server 8.6+

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Software to be installed	• Oracle Client Version 19.17.0.0.0 and above • ksh • jq version 1.6 • Zip 3.0 • UnZip 6.00 • rsync version 3.1.3 • dos2unix

Server Requirements

Database Name	Oracle Database 19c Enterprise Edition Release 19.26.0.1.0 – Production or above
Oracle Database Instance Settings	Ensure that the following database instance settings are configured: • NLS_CHARACTERSET to AL32UTF8 • NLS_LENGTH_SEMANTICS to BYTE • OPEN CURSORS limit to greater than 1000

5.1.4.2 Configure and Create a Database Schema

Creation of a Database Schema requires sysdba access.

Log in as sys user and create an Oracle schema. This schema will be used by the Starter Kit during installation to deploy the Starter Kit objects.

Sample syntax to create a database schema:

```
create user <username> identified by <password>
```

> **Note**
> - `<username>` refers to the actual schema user name.
> - `<password>` refers to the actual schema password.

Example:

```
create user skituser identified by password123
```

Assign Tablespace and Quota to the Schema created.

DEFAULT TABLESPACE	Default Users tables or Assign any permissible existing valid tablespace.
TEMPTABLESPACE	Default TEMP or Any Permissible existing valid temporary tablespace name.

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QUOTA	Enter the quota to be set on the DEFAULTTABLESPACE attribute for the schema/ user. By default, the quota size is set to 500M. Minimum: 500M or Unlimited on default Tablespace.

Sample syntax to assign tablespace and quota to a database schema:

```
alter user <<username>> DEFAULT TABLESPACE <<USERS>> quota unlimited on
<<USERS>>;
```

> **Note**
>
> - <username> refers to the actual schema user name.
> - <USERS> refers to the actual default tablespace.

Example:

```
alter user skituser DEFAULT TABLESPACE USERS quota unlimited on USERS;
```

5.1.4.2.1 Assign Grants for Schema

Provide the following grants:

- grant create SESSION to <<username>>;
- grant create PROCEDURE to <<username>>;
- grant create SEQUENCE to <<username>>;
- grant create TABLE to <<username>>;
- grant create VIEW to <<username>>;
- grant create SYNONYM to <<username>>;
- grant create TYPE to <<username>>;

5.1.4.3 Configure Environment Variables

Do the following changes in the .profile file.

Table 5-2 .profile File Changes

Description	Example Value
set ORACLE_HOME pointing to the appropriate Oracle Client installation.	export ORACLE_HOME=/scratch/oraofss/app_client19c/product/ 19.0.0/client_1
Set the PATH	export PATH=/scratch/oraofss/app/product/19.0.0/dbhome_1/bin:$PATH
Set the STARTER_KIT_HOME	export STARTER_KIT_HOME=/scratch/iutusrext/shome
Set TNS_ADMIN pointing to the folder where tnsnames.ora file exists.	TNS_ADMIN=$HOME/tns

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Example (.profile)

```
#!/bin/bash
export ORACLE_HOME=/scratch/oraofss/app/product/19.0.0/dbhome_1
export PATH=/scratch/oraofss/app/product/19.0.0/dbhome_1/bin:$PATH
echo "PATH $PATH"
export STARTER_KIT_HOME=/scratch/iutusrext/shome
export TNS_ADMIN=$HOME/tns
```

Login to the Linux terminal and execute the .profile.

```
. ./.profile
```

5.1.4.4 Install StarterKit

To install the starterkit:

1. Create a directory and copy the generated starterkit zip file and unzip it.
2. mkdir -p <dir_name>
   Example:

   ```
   mkdir -p starterKit
   ```

3. Copy the downloaded starterkit zip file into the created directory.
4. cd <dir_name>

   ```
   cd starterKit
   ```

5. unzip <starterKitzipfilename>
   Example:

   ```
   unzip starterKit_cappsalm10dec-prd_20.zip
   ```

6. Assign EXECUTE permission installer script using the command:

   ```
   chmod 755 *
   ```

7. rm <starterKitzipfilename>
   Example:

   ```
   rm starterKit_cappsalm10dec-prd_20.zip
   ```

Ensure that the path specified in $STARTER_KIT_HOME exists. If it doesn't exist create the STARTER_KIT_HOME directory.STARTER_KIT_HOME is the same as what is mentioned in .profile in the Pre-installation Checklist section.

mkdir -p <starterkithome>

Example:mkdir -p shome

Edit the initParam.props file present inside starterKit/attributes folder.

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Table 5-3 initParam.props file

Parameter Name	Parameter Desc
HOST	Schema name where starterkit is installed. Same schema which was created in section. *Assign Grants for Schema*
DB_HOST	Database Host name
DB_PORT	Database Port number
DB_SERVICE_NAME	Database Service Name or SID
LOG_PATH	ABSOLUTE Log path where log files should reside.
EXTRACTOR_DUMP_HOME	ABSOLUTE Extractor Dump Home Folder path where export dump and import dump resides.
EXP_DUMP	Extractor Export Dump Folder name where extracted scripts reside. **Note** Values are defaulted and should not be changed.
PAR_HOME	ABSOLUTE PAR Home path
MANIFEST_FSAPPS_CREATE_SCRIPTS	Name of manifest file create scripts deployment. **Note** Values are defaulted and should not be changed.
MANIFEST_FSAPPS_INSERT_SCRIPTS	Name of manifest file insert scripts deployment. **Note** Values are defaulted and should not be changed.
IMP_DUMP	Extractor Import Dump Folder name. **Note** Values are defaulted and should not be changed.

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Sample initParam.props file

```
#Enter HOME Schema name
HOST=custom
#Enter DB Host name
DB_HOST=<DB HOST IP ADDRESS>
#Enter DB Port number
DB_PORT=<DB PORT NUMBER>
#Enter DB Service Name or SID
DB_SERVICE_NAME=NXG19PDB
#Provide ABSOLUTE Log path
LOG_PATH=/scratch/iutusrext/shome/logs
#Sleep param value
SLEEP_VAL=sleep 3
#Provide ABSOLUTE Extractor Dump Home Folder path
EXTRACTOR_DUMP_HOME=/scratch/iutusrext/objExtDump
#Extractor Export Dump Folder name
EXP_DUMP=expDump
#Extractor Import Dump Folder name
IMP_DUMP=impDump
#Provide ABSOLUTE PAR Home path
PAR_HOME=/scratch/iutusrext/parDump
#Manifest fsapps for create scripts deployment
MANIFEST_FSAPPS_CREATE_SCRIPTS=manifest_fsapps_create.sql
#Manifest fsapps for insert DML scripts deployment
MANIFEST_FSAPPS_INSERT_SCRIPTS=manifest_fsapps_insert.sql
```

Installation of starter kit

Navigate to the starter kit directory.

1. In case of upgrade installation of starterkit of version 25.03.01 or above on top of version 25.02.02 or below. Run the following script: `F_CEXTN_ARCHIVE_HANDLE_ERRORS.sql` in the paths `/objectExtractor/scripts/create` and `/objectExtractor/scripts/insert` in the upgrade version of starterkit has to be executed before applying the upgrade.

   You can ignore this step in case of fresh installation.

2. Run the command to invoke `setup.sh` as follows:
   `. ./setup.sh`

   During its run this shell prompts you to enter the username, password, etc. of the database in which the Starter Kit files are to be deployed. Please provide them carefully.

3. Verify the execution status by running the following query:
   `select * from setup_info`

   Check the column F_STATUS for value S (Success).

   In case of failure, this column will be updated with value F (Failed).

   Additionally, verify the `starterkit.log` file. The log path is mentioned in the properties file against the LOG_PATH parameter.

   In case of upgrade installation, ignore the following message: *ORA-01430: column being added already exists in table* that appears in the installation log file `update_install_fsapps_create_script.log`.

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5.1.4.5 Create PLSQL Extensions

The following object types can be used while developing User-Extensions:

- Sequence
- Procedure
- Function
- Package
- Type

Follow the naming convention and usage instruction mentioned in the User Guide while developing the User Extensions.

Generate an Archive of Created User Extensions

Create a par File

The par file list the object that need to be extracted during archival process. The par file is a newline delimited file. The par file path is passed a parameter during archive.

```
FN_UPD_FSI_D_ASSETS_CUSTOM

FN_UPD_FSI_D_LIABILITY_CUSTOM

CUSTOM_NO_SEQ_CUSTOM
```

To execute the archive, execute the following command:

```
cd $STARTER_KIT_HOME/bin
 . ./archive.sh SILENT "par file absolute path" "project_name"
```

Example:

```
. ./archive.sh SILENT "/scratch/devextusr/sampleobjects.par" "project_1"
```

The archived file will be present under path mentioned against the parameter `EXTRACTOR_DUMP_HOME` and `EXP_DUMP` in the init.props file.

For Example given the below values in the init.props file

```
EXTRACTOR_DUMP_HOME=/scratch/iutusrext/objExtDump

EXP_DUMP=expDump
```

`<EXTRACTION_ID>`: This generated by the Archive.

The path will be created as follows:

```
/scratch/iutusrext/objExtDump/expDump/8/OFS_ALMCS_USER_EXT_2000_29.10.01_1.tar.gz
```

5.1.5 PLSQL Properties

The Custom PLSQL Properties (Setup Parameters) user interface is used to capture placeholder configuration which might be required during the development of custom PLSQL extensions.

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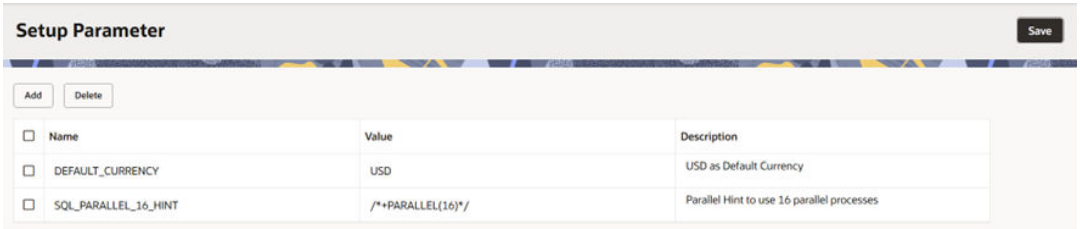
1. To access Custom PLSQL Properties user interface, select **Admin Tools**, and then select **Custom PLSQL Properties**.
   The Custom PLSQL Properties – Setup Parameters window is displayed.

Figure 5-3 Setup Parameter



2. Click **Add** to define a new custom parameter and enter the following details:
   - **Name**: Configuration parameter key or name. Name can accept up to 200 characters.
   - **Value**: Configuration parameter value. Value can accept up to 1000 characters.
   - **Description** (not mandatory): Provide a description for the parameter and value added. Description can accept up to 1000 characters.
3. Click **Save**.
4. If you want to edit an already defined parameter, select the checkbox against the Name and change the **Name** or **Value**.
   If the Name is already defined, then the system displays a message *Parameter name already exists*.

Example

The following is an example of how to consume the Custom PLSQL Properties parameter and its value:

- Declare a local variable (lv) in the Custom PLSQL extension definition for parameter SQL_PARALLEL_16_HINT for eg: lv_sql_parallel_16_hint
- Using a SELECT statement fetch the value of the SQL_PARALLEL_16_HINT parameter and assign it to the local variable defined.
  Example:

```
lv_sql_parallel_16_hint setup_master.parameter_value%TYPE;
select parameter_value into lv_sql_parallel_16_hint from setup_master
where parameter_name=" SQL_PARALLEL_16_HINT";
```

5.1.6 Appendix

This appendix covers the following topics:

- Process for Submitting of Custom PLSQL Archives to Oracle
- Frequently Asked Questions
- Custom PLSQL Master Tables List

5.1.6.1 Process for Submitting of Custom PLSQL Archives to Oracle

This section explains the process to be followed for submitting the customer developed Custom PLSQL extensions to Oracle.

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The process is a workflow-based approach and is broadly categorized as follows:

- Uploading the Custom PLSQL Extensions as an Archive
- SaaS Deployment of Custom PLSQL Extensions
- Summary Checklist

5.1.6.1.1 Uploading the Custom PLSQL Extensions as an Archive

This section explains the following questions on Custom PLSQL Extensions – what, how to generate an archive and where to upload the archive.

Custom PLSQL Extensions

Custom PLSQL Extensions here refers to the database objects that users may have created in their On-premises data center on a database schema containing of application objects which were created using the Starter Kit generated using Oracle's PLSQL Starter Kit User Interface.

Custom database Object Types are limited to the following:

Table 5-4 Database Object Types

Functions
Procedures
Packages
Views (Materialized Views not Supported)
Global Temporary Tables
Synonyms

Generating an Archive

Users are required to use the archive scripts bundled as part of the Starter Kit utility to generate Custom PLSQL extension archive.

For more details on How to Generate Custom PLSQL Extension Archive, see the Installation Guide.

Upload the Archive

Customers are required to use My Oracle Support (MOS) portal and create a Service Request (SR) and upload the Custom PLSQL extension archive.

Table 5-5 SR Details

Product ID	The Project Name / ID used while generating the Archive using Starter Kit Archive scripts

Project Name is a argument passed when executing the `archive.sh` shell. The project name should be a valid alpha numeric string.

- Project name can contain alphabets (A-Z, a-z).
- Project name can contain numbers (0-9).
- Spaces are NOT allowed.
- Underscore is allowed. Other special character (other than underscore) are not allowed.

Examples:

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Valid project name sample: **Project_ALMCS_01**

Invalid project name sample: **Project ALMCS 01 $@**

The project name is an identifier used to tag and logical groups objects for given submission. User can use the same project name when executing the archival process. When the same name is used all objects that are previously submitted using this project name will also be archived.

Archive Submission Service Request Status

SR status to be monitored by the Customers using MOS portal for the archive submitted.

5.1.6.2 SaaS Deployment of the Custom PLSQL Extensions

The prerequisite for SaaS Deployment of the Custom PLSQL Extensions would be a Successful Resolution of SR #1 and readiness of the deployment pipeline. These details will be published as part of the SR #1 status update.

Deployment of Archive

Customers are required to use My Oracle Support (MOS) portal and create a Service Request (SR) # 2 for requesting to deploy the Custom PLSQL extensions on their preferred SaaS instance.

Service Request #2 – for deploying the Custom PLSQL extension archive.

The following details must be used while raising an SR:

Table 5-6 SR Details

Project Name / ID	The Project Name / ID used while generating the Archive using Starter Kit Archive scripts
SaaS Instance Details	SaaS Instance tenancy details
Reference SR#	Reference to the SR# containing the successfully verified archives

Archive Deployment Service Request Status

SR status to be monitored by the Customers using MOS portal for the archive deployment updates.

> **Note**
>
> ** Separate SRs are required for deployment of archives into different SaaS Instances. For example: SR#1 = Test, SR#2 = Pre-Prod, SR#3 = Prod etc.

5.1.6.2.1 Summary Checklist

The following table lists the summary checklist.

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Table 5-7 Summary Checklist

Stage	Checklist	Dependency
Archive Submission	A. Custom PLSQL extensions archive uploaded against the SR (SR# 1) with the details mentioned in Table 4.1.1.3.	Archives containing Custom PLSQL objects.
SaaS Deployment Service Request	B. Service request (SR# 2) raised for SaaS deployment of the submitted Custom PLSQL extensions as part of SR# 1 and should contain the details mentioned in Table 4.1.2.1.	Successful Resolution of SR# 1

> **Note**
>
> Separate SRs are required for deployment of archives submitted as part of SR# 1 into different SaaS Instances.
> For example: SR#2 = Test, SR#3 = Pre-Prod, SR#4 = Prod and so on.

5.1.6.3 Frequently Asked Questions

This topic covers the frequently asked questions.

1. **What to expect during custom PLSQL archive deployment request?**
   Answer:
   a. Submitted archives should always be cumulative of all earlier submissions. If a custom artefact is no longer required, it should be excluded from the archive.
      i. Sequence value will not be reset during a subsequent archive-deploy request.
   b. If the archive omits database functions that were included in the earlier version of the archive and such functions are referred within one or more batches the archive deployment will be aborted.
      i. Such batches need to be modified to remove dependency tasks or tasks which are no longer required and then request for deployment.
   c. All database functions will be available for inclusion into a batch under the batch component name “Custom PLSQL Definition”.
2. **What is the signature for database Functions?**
   Answer:

   On-prem and SaaS signature comparison of Data Transformation parameters

   ICC - On-Prem Parameters

Parameter Name	Data type
BatchID	Varchar2
MisDate	Varchar2

   ICC - SaaS Parameters

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Parameter Name	Data type
BatchID	Varchar2
MisDate	Varchar2

Batch Id: This is a mandatory parameter expected in the custom PLSQL function. Value will be submitted by the application during runtime.

MisDate: This is a mandatory parameter expected in the custom PLSQL function. Value will be submitted by the application during runtime.

Sample PLSQL Function with expected parameters in the Custom PLSQL Extension is mentioned below for reference:

Default declaration of the function will be as follows:

```
create or replace FUNCTION FNUPDATERECORD_CUSTOM (BatchID Varchar2, MisDate
Varchar2, custom_param1 varchar2)
```

return number is

```
vstatus number;
```

```
/*
```

Signature of function with AUTHID CURRENT_USERwhen redaction is enabled is provided below:

```
create or replace FUNCTION FNUPDATERECORD_CUSTOM (BatchID Varchar2, MisDate
Varchar2, custom_param1 varchar2)
```

return number authid current_user is

```
vstatus number;
```

authid current_user: The user extension function should be created with AUTHID CURRENT_USER invoker rights. DML operation on any redacted tables will be allowed only for functions defined with AUTHID CURRENT_USER invoker rights.

Batch Id: This is a mandatory parameter expected in the custom PLSQL function. Value will be submitted by the application.

Misstate: This is a mandatory parameter expected in the custom PLSQL function. Value will be submitted by the application.

custom_param1: Optional parameters which custom PLSQL functions can have to meet their requirements. You have to provide the parameter value during Batch definition under the Custom PLSQL Parameter field. This field is available in the UI at the time of defining the Task.

```
*/
```

```
begin
```

/* Functional requirement based DML operations */

/* Calling Logger */

```
PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE(Piv_message => Message ',
Piv_msg_severity_cd => 20);
```

```
commit;
```

```
return 1;
```

Exception

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```
PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE(Piv_message => 'ERROR IN FUNCTION ',
Piv_msg_severity_cd => 75);

return 0;

end;
```

3. **How will the custom database functions or procedures or packages access parameters?**
Answer:

   The parameters are batch run ID, Task ID, component ID, MisDate, tenant ID, workspace ID, service ID, process ID, etc.

   These parameters are generally used for logging by the Logger functions. The application passes these parameter values into the logger table during runtime and custom PLSQL functions need not have to pass these parameters explicitly.

   However, if the custom procedures still want to include these parameter they can do so by using the below parameter names in the custom procedures

Parameter Name	Description	Data type
Gv_workspace_id	Workspace Id	Varchar2
Gv_tenant_id	Tenant Id	Varchar2
Gv_service_id	Service Id	Varchar2
Gv_process_id	Process id	Varchar2
Gv_batch_run_id	Batch Run Id	Varchar2
Gv_misdate	Misdate	Varchar2

4. **How to perform Logging?**
Answer:

   To perform Logging, use below Package:

Package Name	Parameter No	Parameter Name	Data Type	Details
PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE	1	Piv_message	VARCHAR2	
	2	Piv_msg_severity_cd	VARCHAR2 DEFAULT 20	20 for Info 75 for Error

   a. Add your message in the **Piv_message** field.

   b. The **Piv_msg_severity_cd** should be fixed to 20 for Information type messages and 75 for Error messages.

   For more details on sample PLSQL function, see Question 2.

   Other Examples:

   /* Calling Logger */

```
PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE(Piv_message => 'My Custom message here' ',
Piv_msg_severity_cd => 20);

PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE(Piv_message => SQLCODE ',
Piv_msg_severity_cd => 20);

PKG_CUSTEXT_LOGGER.PR_LOG_MESSAGE(Piv_message => SQLERRM ',
Piv_msg_severity_cd => 20);
```

5. **How to view the view the logs in the starter kit schema?**

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Answer: To view the logs in Starter Kit Schema, use below query:

```
SELECT * FROM AAICL_MESSAGE_LOG
```

5.1.6.4 Custom PLSQL Master Tables List

For downloading the Custom PLSQL Master Tables list (Custom_PLSQL_Master_Table_List.xls), refer to the Doc ID: 2869409..

5.1.6.5 Redaction DDLs [Data Definition Language]

Starter kit bundles redaction policy ddls for all the objects extracted as part of Starter Kit Generation. Redaction policy DDLs will be extracted and bundled as part of Starter Kit only if a redaction policy is enforced for an object using the redaction framework UI.

Please refer to Data Redaction on how to enable redaction using redaction framework user interface.

How to use the redaction policy DDLs bundled in the Starter Kit [Optional]:

- Redaction policy DDLs are bundled in a separate folder named redaction in the Starter Kit.
- Redaction policy DDLs can be executed in the schema where Starter Kit bundled objects are installed.
- Redaction policy DDLs are NOT executed as part of Starter Kit installation and needs to be executed manually.

Steps to execute:

1. Copy the redaction.sql available in the redaction folder to any user specified folder.
2. Login to database schema user where Starter Kit objects are installed.
   Example: sqlplus <schema_username>/<schema_password> @<db_service_name>
3. For logging enable spooling of execution logs:
   Example: spool <absolute_folderpath_for_logging>/redaction.log
4. Execute the redaction.sql from the sqlplus prompt.
   Example: @<absolute_path_of_redaction.sql>

5.2 Data Foundation Integration

This chapter is applicable if you have subscribed to Data Foundation Cloud Service (DFCS) along with Profitablity and Balance Sheet Management Cloud Service (PBSMCS) and you want to bring data into PBSMCS from DFCS. Below topics are covered here:

- Data Services Subscriptions: DFCS has pre-built connectors (called Application Data Services or ADS) to supply data to from its database to PBSMCS database. To use this feature the connection between both cloud services must be activated by configuring the required parameters from Data Services Subscriptions UI.
- ADS Run History: When the jobs to move data from DFCS to PBSMCS are executed, the progress and information of previous executions can be viewed from ADS Run History UI.

To access the Data Foundation services, from the LHS menu, select **Admin Tools**, select **Data Foundation Integration**, and then select any of the menu options.

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5.2.1 User Group for Managing Data Foundation Integration

User must be mapped to below user group to access Data Services Subscriptions, ADS Run History, create Scheduler batches and execute them.

Table 5-8 User Group

Group Code	Group Name
DFCS_PBSM_INTEGRATION	Application Data Service Admin Group

> **Note**
>
> User Roles must be mapped to DFCS_PBSM_INTEGRATION group.

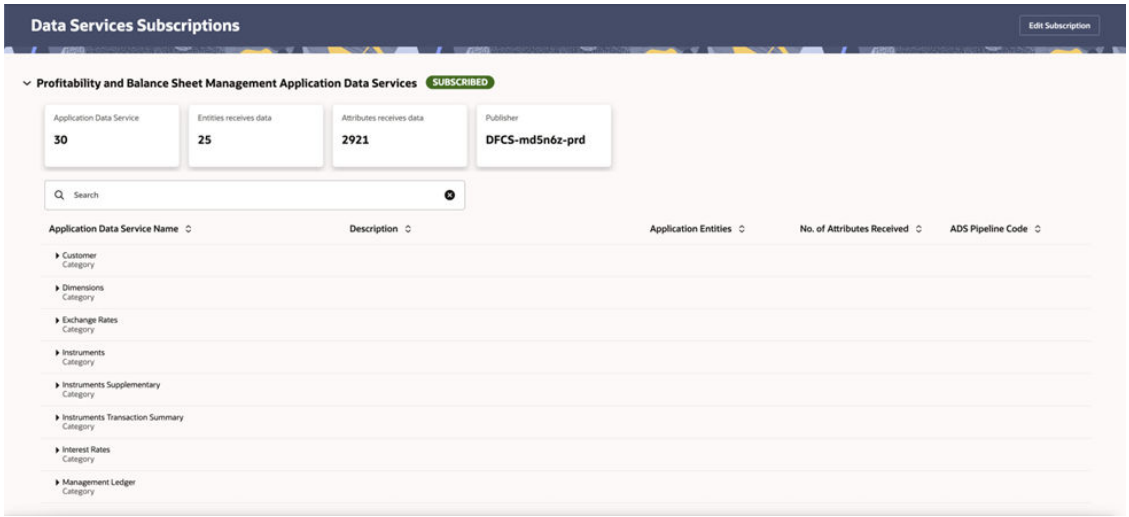
5.2.2 Data Services Subscription

It is necessary to have the subscription to the Data Foundation Cloud Service to operate.

To fill in subscription details of Data Foundation Services, select **Admin Tools**, select **Data Foundation Integration**, and then select **Data Services Subscriptions**.

The Data Services Subscriptions dashboard is displayed.

Figure 5-4 Data Services Subscriptions dashboard



The dashboard displays the following details:

- **Application Data Service**: Displays the total number of ADS or Connectors present.
- **Entities receives data**: The number entities receiving data.
- **Attributes receives data**: The number of attributes receiving data.
- **Publisher**: The Data Foundation Cloud Service tenant name.

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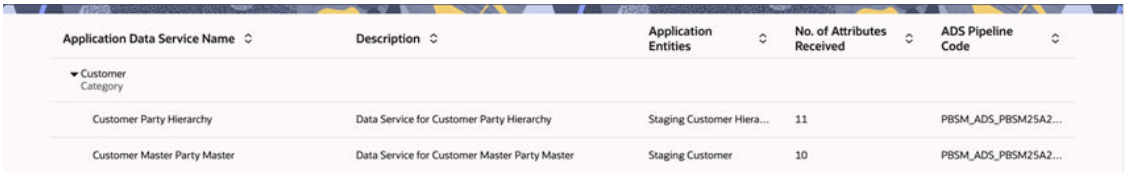
Figure 5-5 Data Services Subscriptions top pane

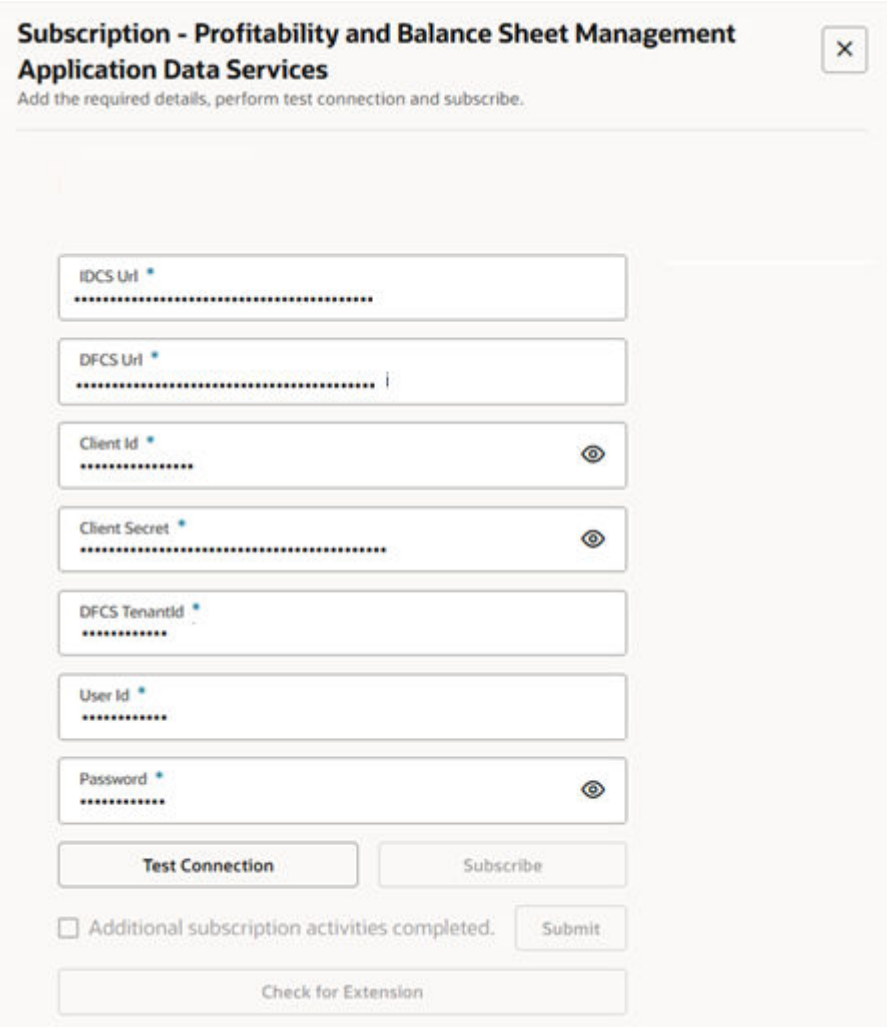


You can expand each of the Application Data Service Name to see the Name, Description, Application Entities, Number of Attributes received, and ADS pipeline code.

If you are already subscribed, then click **Edit Subscription** to edit the User Id and Password. You cannot edit IDCS URL, DFCS URL, Client Id, Client Secret, and DFCS Tenant Id as they are already populated after subscription.

However, if you are subscribing for first time, then click **Subscribe**. The Subscription window is displayed.

Figure 5-6 Subscription window



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1. Enter the following fields (all fields are mandatory):

Table 5-9 Application Data Service

Field	Description
IDCS URL	The URL of the **Identity Cloud Service (IDCS)** instance used for authentication. This allows PBSMCS to authenticate securely with DFCS. **Note** For more information on how to obtain the IDCS URL, see Get the OAuth Client ID and Client Secret section in the #unique_307 chapter.
DFCS URL	The base URL of the **Data Foundation Cloud Service (DFCS)** instance. It specifies the source environment from which PBSMCS will receive data. **Note** For more information on how to obtain the IDCS URL, see Get the OAuth Client ID and Client Secret section in the #unique_307 chapter.
Client ID	A unique identifier registered in IDCS for the application (PBSMCS). It is used as part of the OAuth2 authentication process when establishing a connection with DFCS. **Note** For more information on how to obtain the IDCS URL, see Get the OAuth Client ID and Client Secret section in the #unique_307 chapter.
Client Secret	A confidential key associated with the Client ID. It is used to authorize the PBSMCS application to access DFCS data securely. **Note** For more information on how to obtain the IDCS URL, see Get the OAuth Client ID and Client Secret section in the #unique_307 chapter.

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Table 5-9 (Cont.) Application Data Service

Field	Description
DFCS Tenant ID	The unique identifier for your DFCS tenant environment. It ensures that the connection and data transfer are scoped correctly to your organization's DFCS instance.
User ID	The DFCS application user's login ID authorized to access and retrieve data from the DFCS environment. This user must have the appropriate roles and permissions for data publishing. **Note** The User ID is case-sensitive and must be created in lowercase letters.
Password	The corresponding password for the DFCS User ID. It is used during authentication to validate the user's access when connecting PBSMCS to DFCS.

2. After entering the details, click **Test Connection**. If all the details are correct, then the **Subscribe** button will get enabled.
3. Select **Additional subscription activities completed** checkbox to upload the wallet details. After this step, you will be connected to the Data Foundation Cloud Service tenant.
4. Click **Check for Extension**. Once the subscription is complete the **Edit Subscription** button is enabled. You can click this button if you want to edit the User Id or Password. You cannot edit the remaining fields.

> **Note**
>
> Remember that once the subscription is done, it cannot be changed.

5. After the subscription is successful, in the dashboard, expand the Application Data Service Name and verify if the ADS Pipeline Code is displayed for the services.

5.2.3 ADS Run History

The ADS Run History provides information related to Batches that have been processed to move data from DFCS to PBSM.

> **Note**
>
> For the user to be able to see the ADS History, the user must be mapped to a group that has the required role. Role is not mapped in the OOTB set up.

To open the ADS Run History, from the LHS menu, , select **Admin Tools**, select **Data Foundation Integration**, and then select **ADS Run History**.

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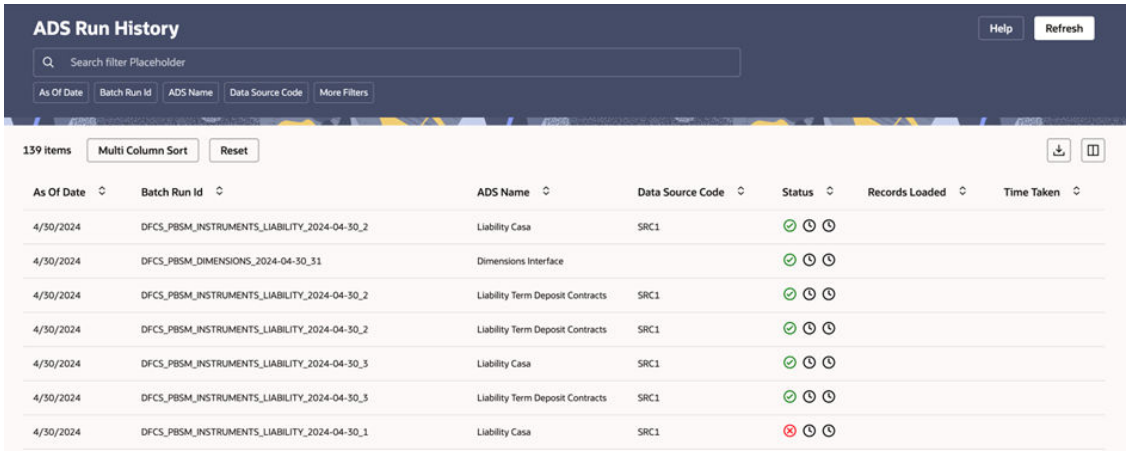
The ADS Run History page is displayed.

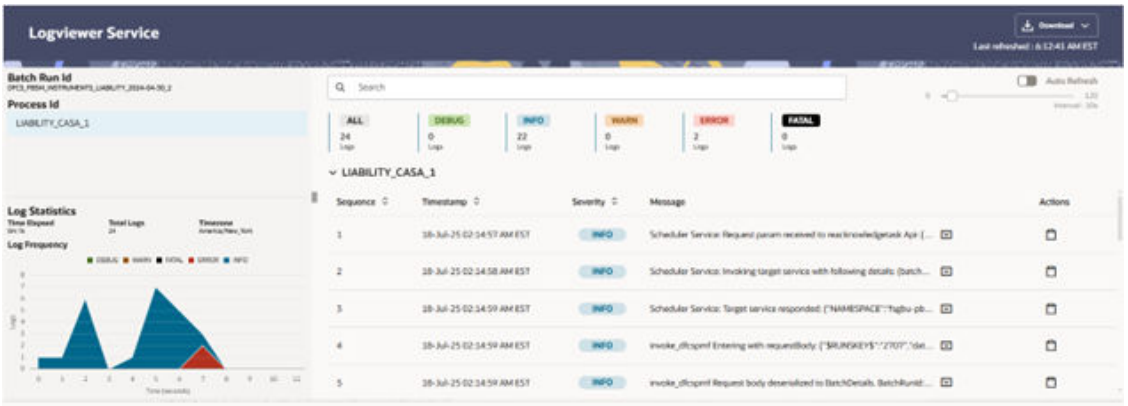
Figure 5-7 ADS Run History



This UI allows you to apply various filters namely, As Of Date, Batch Run Id, ADS Name, and Data Source Code. The default view of ADS Run History displays the mentioned details. You can click **More Filters** which are Data Load Status, Batch Name, Task Name, and Task Id to change the view from default.

You can click the icons under Status to see the status of the batch. The status displays Passed, Failed, and Pending status icons.

Figure 5-8 Log Viewer Service



The Multi Column Sort allows you to define different columns to be displayed in the UI.

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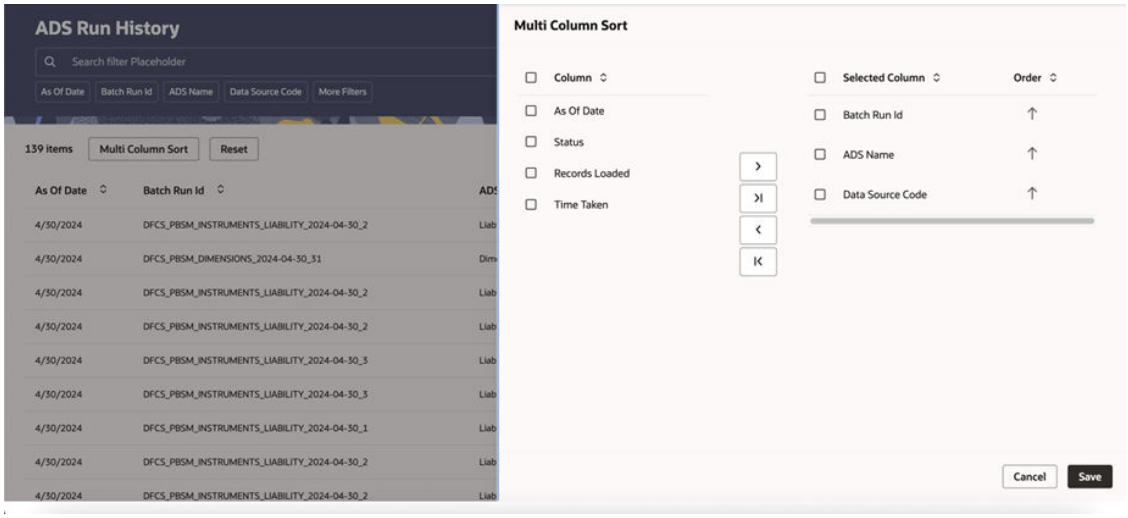
Figure 5-9 Multi Column Sort



Select the required Columns and move them to the **Selected Columns** box and then click **Save**. You can also define the order of the column appearance by selecting ascending or descending setting the order. The ADS Run History UI displays the rows as per selection.

If you click **Reset**, all the filters, columns order will be reset and the ADS Run History UI displays the default view.

5.2.4 Create and Execute Batch

To create and execute the batch:

1. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch**. For more details, see Define Batch.
2. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Task**. For more details, see Adding a Task.
   Refer to the following table for Component and Parameters to be defined for different tasks.

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Table 5-10 Components and Parameters

Component	Parameters	Target Tables
PBSM_DFCS_Data_Transfer_instruments	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Data File Specification Id**: This displays list of seeded and user defined DFS definitions. Select one relevant value for the selected ADS. **Data Source Id**: This displays members of 'Instrument Data Source' dimension. Select one value from LOV. Instrument data belonging to this source only will be moved from DFCS to PBSM. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage Assets Stage Liabilities Stage Derivatives Stage Fee Based Services Stage Loan Commitments Stage Off Balance Sheet
PBSM_DFCS_Data_Transfer_Dimensions	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage Dimensions Interface
PBSM_DFCS_Data_Transfer_ExchangeRates	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Rate Data Source Id**: This displays members of 'Rate Data Source' dimension. Select one value from LOV. Data belonging to this source only will be moved from DFCS to PBSM. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage Exchange Rates
PBSM_DFCS_Data_Transfer_InterestRates	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Rate Data Source Id**: This displays members of 'Rate Data Source' dimension. Select one value from LOV. Data belonging to this source only will be moved from DFCS to PBSM. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage IRC Rate History

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Table 5-10 (Cont.) Components and Parameters

Component	Parameters	Target Tables
PBSM_DFCS_Data_Transfer_InstrumentSupplementary	**ADS Id**: This displays list of data connectors available. Select one value from LOV. **Data File Specification Id**: This displays list of seeded and user defined DFS definitions. Select one relevant value for the selected ADS. **Data Source Id**: This displays members of 'Instrument Data Source' dimension. Select one value from LOV. Instrument data belonging to this source only will be moved from DFCS to PBSM. **Optional Input**: This can be used to specify any other input parameter in JSON Object/ String.	Stage Account Index History Stage Account Rate Tiers Stage Embedded Options Schedule Stage Payment Schedule

3. Select the seeded batch and click **Edit Parameters**. In the Dynamic Parameters pop-up window, change the date to the relevant As-of-Date, and then save the batch.
4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**. For more information, see Schedule Batch.
5. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**. For more information, see Monitor Batch.
6. Select the **Batch**, **MISDATE** and the **Batch name**. Select the latest execution and click **Start Monitor**.

5.2.5 List of Seeded Data File Specifications

The following pre-defined Data File Specifications are available for your use. You can choose to use them or your own definition while creating the batch as explained in previous section.

- ADS_Account_Index_History.csv
- ADS_Account_Rate_Tiers.csv
- ADS_Asset_Bill_Contracts.csv
- ADS_Asset_Cards.csv
- ADS_Asset_Investments.csv
- ADS_Asset_Leases_Contracts.csv
- ADS_Asset_Loan_Contracts.csv
- ADS_Asset_Overdraft_Accounts.csv
- ADS_Embedded_Options_Schedule.csv
- ADS_Fee_Based_Service_Other_Services.csv
- ADS_Ledger_Instrument_General_Ledger_Data.csv
- ADS_Liability_Borrowings.csv
- ADS_Liability_Casa.csv

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- ADS_Liability_Prepaid_Cards.csv
- ADS_Liability_Term_Deposit_Contracts.csv
- ADS_Loan_Commitments_Commitment_Contracts.csv
- ADS_Payment_Schedule.csv

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6
Business Rules Administration

This section covers the following topics:

1. Reference Data: This section explains about the baseline configurations like interest rate curves, Currencies set up, Economic indicators on which Various rules/assumptions can be defined. These configurations are referred across various modules and used in subsequent calculations.
2. Common Rules: This section explains about rules which are common across all multiple applications in Profitability and Balance Sheet Management Cloud Service suite like ALM, CFE, PFT, and FTP.
3. Asset Liability Management Cloud Service Specific Rules: This section explains about Asset Liability Management Cloud Service specific modules which are particularly referenced for Asset Liability Management Process calculations.

6.1 Reference Data

This section covers the following topics:

1. Currencies: Currencies module allows you to define and maintain the currencies and currency rates.
   - Currencies: Currency module supports the definitions and maintenance of currencies.
   - Currency Rates: Currency Rates module uses the currencies defined and activated in the Currency module to support the creation and maintenance of Historical Exchange Rates.
2. Dimension Management: Dimension Management facilitates you to categorize data into a single object as a Member; define levels and aggregate data to form the Hierarchies, and distinguish each member by defining the required Attributes.
   - Members: Dimension Members refer to the individual items that constitute a dimension when data is categorized into a single object such as Product, Organization, Time, and so on.
   - Attributes: Attributes refers to the distinguished properties or qualifiers that describes a Dimension Member.
   - Hierarchies: Hierarchies refer to Dimension Members that are arranged in levels, with each level representing the aggregated total of the data from the level below. One dimension type can have multiple hierarchies associated with it.
3. Interest Rate Curve: The Interest Rate Curve in PBSM Cloud Service allows you to define and manage complex Yield Curve definitions using multiple Rate Formats and other Rate Attributes to give you data storage capabilities appropriate to your market. The Interest Rate Curve supports the creation and maintenance of Historical Rate Data for each Yield Curve you define.
4. Economic Indicator: An Economic Indicator is any economic statistic such as the Consumer Price Index (CPI), growth rate of the Gross Domestic Product (GDP), unemployment rate, Purchasing Managers Index, indices of consumer confidence, and so on.

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5. Multi-Dimensional Balance Sheet Structure: The Multi-Dimensional Balance Sheet Structure or MDBSS is a comprehensive, user-defined, multi-dimensional hierarchy. It replaces the single dimension hierarchy for processing and reporting and allows you to incorporate one or more organizational hierarchies into a single concept. This new framework is designed to be a complete system that persists throughout the Application.
6. Volatility Curve: The Volatility Curve UI allows you to select the curve. 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.

6.1.1 Currencies Setup

Currencies module supports the definitions and maintenance of currencies. Currency definitions are fundamental to the definition of both interest rate yield curves and currency exchange rates.

6.1.1.1 Currency Setup

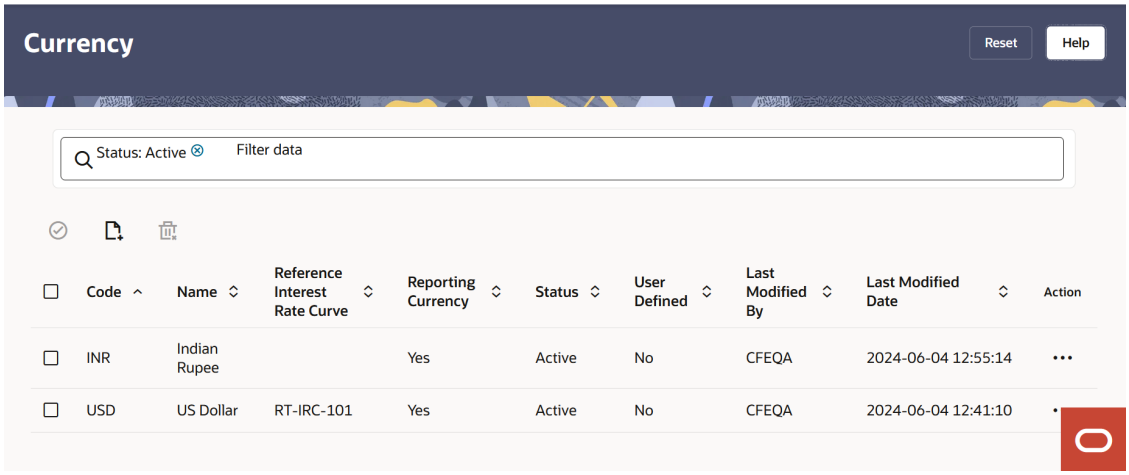
Financial institutions transact business in more than one currency. Transacting business in multiple currencies demands functional capabilities for multi-currency accounting and currency rate management.

Currency module supports the definitions and maintenance of currencies. Currency definitions are fundamental to the definition of both interest rate yield curves and currency exchange rates. A key attribute of every yield curve is the currency with which it is associated, and currency exchange rates can only be established between defined currencies. A comprehensive list of ISO-defined currencies is provided; you can also define and add your user-defined currencies.

Currency Summary

This page is the gateway to all Currencies and related functionality. You can navigate to other pages relating to Currencies from this point.

Figure 6-1 Currency Summary



Search Currency

Prerequisites: Predefined Currency

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To search for a Currency:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Currencies that meet the search criteria.

Or

An alternative method to search a Currency Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Currency Rule Summary. Enter the **Code, Name, Status, Reporting Currency**, or **User Defined** of the Currency and click **Search** .

The Currency Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Currency Rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Activate: Select one or more currency and click Activate icon to change status to active.

- **Code:** The 3-letter ISO code of Currency
- **Name:** The Currency's short name.
- **Reference Interest Rate Curve:** Displays the Reference Interest Rate Curve of Currency
- **Reporting Currency:** Indicates whether currency is marked for use as Reporting Currency
- **Status:** Displays the Active or Inactive status of Currency.
- **User Defined:** Identifies any user-defined currency, that is, a currency not seeded by Cloud Service
- **Action:** Click this icon to view a list of actions that you can perform on the Currency Rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Currency Rules. To edit a rule, you must have Read/Write privilege.
  - **Delete:** You can delete Currency Rules that you no longer require. Note that only Currency Rule owners and those with Read/Write privileges can delete Currency Rules. A Currency Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Dependency Check:** You can perform a dependency check to know where a particular Currency Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Currency Rules that have dependencies. A report of all rules that utilize the selected Currency Rule is generated.

Also See:

- Add a Currency

6.1.1.1.1 Add Currency

To add a Currency, follow these steps:

1. Navigate to **Reference Data** and select **Currency**.
2. Click **Add** icon on Currency summary page. The **Add Currency** page is displayed.

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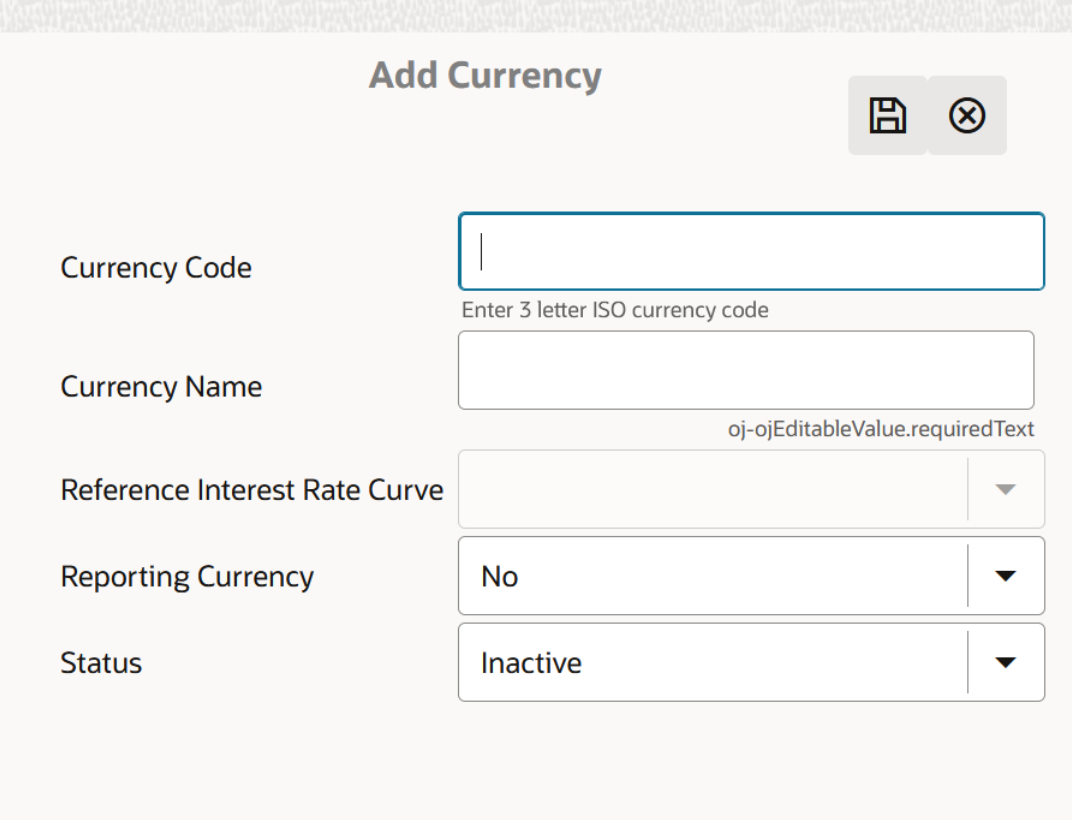
Figure 6-2 Add Currency Page



3. Enter the following details:

Table 6-1 Adding a Currency – Fields and Descriptions

Fields	Description
Currency Code	For seeded currencies, these are ISO Currency Codes. For user-defined currencies, these can be any pure character string (no numbers) up to a length of 3 characters.
Currency Name	For seeded currencies, these are ISO Currency Codes. For user-defined currencies, these can be any string up to a length of 40 characters.
Reference Interest Rate Curve	Reference Interest Rate Curve is the Interest Rate Curve with which currency is associated for exchange rate forecasting purposes. Define multiple yield curves each of which has the same Reference Currency, but a currency can only have one Reference Interest Rate Curve.

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Table 6-1 (Cont.) Adding a Currency – Fields and Descriptions

Fields	Description
Reporting Currency	A reporting currency is an active currency to which balances in other currencies can be consolidated to facilitate reporting. Balances in reporting currencies can be, in turn, consolidated to the functional currency. For example, an American multinational bank might consolidate its holdings in Asian currencies to the Japanese yen (Reporting Currency) and its balances in European currencies to the Euro (Reporting Currency) after which it might consolidate these reporting currencies to the U.S. dollar (Functional Currency).
Status	The status of any currency can be either Active or Inactive. You must Activate a currency before doing the followings: a. Define that currency as a Reference Currency for an Interest Rate curve. b. Enter Exchange Rate data for a currency. c. Define Forecast Rates for that currency. d. Define any other business rule like Prepayment, Transfer Pricing for that currency.

Note

- For the Oracle Financial Services Climate Change Analytics Cloud Service application, select '*Yes*' for the Reporting Currency. This supports the Exchange Rate Conversion in the Currency Rate feature.
- The Reference Interest Rate Curve is not applicable for processing and analytical purposes in Oracle Financial Services Climate Change Analytics Cloud Service.

4. Click **Save**.

6.1.1.2 Currency Rates

Currency Rates Module uses the currencies defined and activated in the Currency Module to support the creation and maintenance of Historical Exchange Rates. In the Currency Rate Window, you can manage historical Exchange Rates between currencies.

To Currency defaults to the Initial Currency selection from the Assumption Management defaults in the Active Preferences Window. You can select another To Currency from the drop-down list that displays all Active Currencies.

Editing Exchange Rate Data

Select the check box on the left-hand side of any row to enable the **Edit** icon. After clicking Edit, the row becomes active to edit the **Effective Date** and (or) the **Exchange Rate**. Click **Save** to save the changes.

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Viewing Exchange Rate Data

By default, both the Floating Currency Rates Pane and the Fixed Currency Rates Pane display the most recent month of historical Exchange Rate Data. You can control the amount of data displayed by selecting a different value from the **Effective Date Range** drop-down list in the **Currency Selection** Window.

From Date and **To Date** can also be modified to view relevant Currency Rates.

Deleting Exchange Rate Data

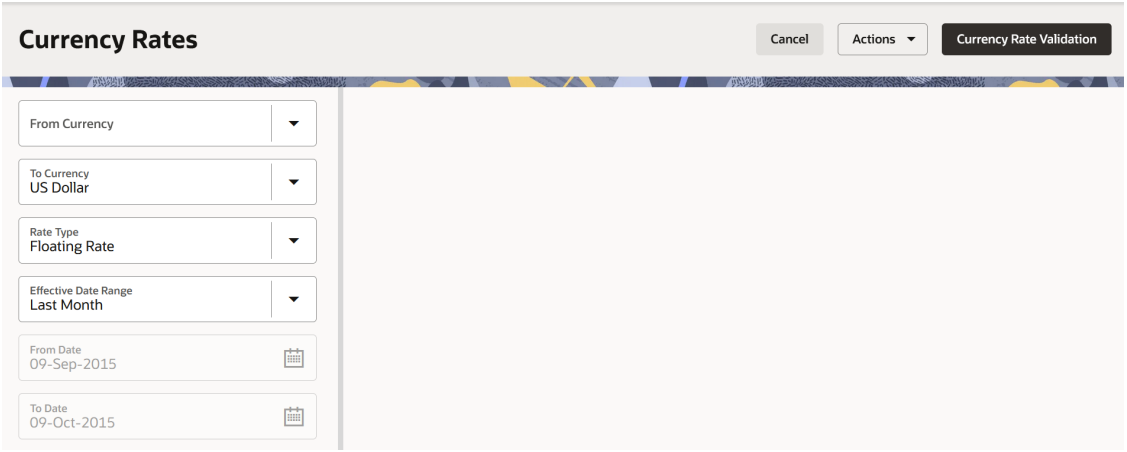
Select one or more check boxes on the left-hand side of any row to enable the **Delete** icon. After clicking Delete, a confirmation message is displayed. Click **Ok**.

6.1.1.2.1 Adding Exchange Rate Data

Based on the Rate Types, you can add the following Exchange Rate Data:

- **Floating Rates**
  Floating Exchange Rates, such as those between the US Dollar (USD), the Pound Sterling (GBP), the Japanese Yen (JPY), and the Euro (EUR), are market-driven and can change from day-to-day, hour-to-hour, or minute-to-minute.
- **Fixed Rates**
  Some countries, especially smaller countries or countries that have experienced significant inflation in the recent past, can wish to “peg” their currency to a larger, more stable currency such as the US Dollar, Japanese Yen, or Euro.

Figure 6-3 Currency Rates



Adding Floating Rate Data

To add the Exchange Rate Data, follow these steps:

1. Select a **From Currency**.
2. Select a **To Currency**.
3. Select **Rate Type** as **Floating Rate** (default selection is Floating Rate).
4. The RHS pane is displayed as Floating Currency Rates.

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5. Select **Effective Date Range** to enter the values in From Date and To Date fields.
6. Select the **Rate Provider**.
7. Currency Rate Pane initially displays a single blank row followed by the most recent month's Exchange Rate data (if any such Exchange Rate Data already exists). To enter a single new Exchange Rate Data Point, enter data into the blank row.

Table 6-2 Floating Currency Rates

Fields	Description
Effective Date	Directly enter a date or select the Calendar icon to choose an effective date for your new Exchange Rate data point. Rate Management Stores the Historical Exchange Rate Data. You cannot enter Exchange Rate data for dates greater than the current date.
Exchange Rate	This must be entered as 1 unit of From Currency are converted to n unit of To Currency.
Status	Status is a read-only display that is updated after the Currency Rates Validation has been run.
Data Origin	The Data Origin is displayed read-only and indicates whether the rates were input through the UI or the Data Loader.

8. Click **Save**.
9. Click **Add** to add additional blank rows to enter the additional Effective Dates and Exchange Rates. After adding the multiple new Exchange Rates, click **Save**.

Adding Fixed Rate Data

To add the Exchange Rate Data, follow these steps:

1. Select a **From Currency**.
2. Select a **To Currency**.
3. Select **Rate Type** as **Fixed Rate**.
4. After selecting a **To Currency** value, the RHS pane is displayed as Fixed Currency Rates.
5. Select **Effective Date Range** to enter the values in From Date and To Date fields.
6. Select the **Rate Provider**.
7. Currency Rate Pane initially displays a single blank row followed by the most recent month's Exchange Rate Data (if any such Exchange Rate Data already exists). To enter a single new Exchange Rate Data Point, enter data into the blank row.

Table 6-3 Fixed Currency Rates

Fields	Description
Effective From Date	Directly enter a date or select the Calendar icon to choose a starting effective date for your new Exchange Rate Data Point.
Effective To Date	Directly enter a date or select the Calendar icon to choose a ending effective date for your new Exchange Rate Data Point.

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Table 6-3 (Cont.) Fixed Currency Rates

Fields	Description
Currency Exchange Rate	This must be entered as 1 unit of From Currency are converted to n unit of To Currency.
Status	Status is a read-only display that is updated after the Currency Rates Validation has been run.
Data Origin	The Data Origin is displayed read-only and indicates whether the rates were input through the UI or the Data Loader.

8. Click **Save**.
9. Click **Add** to add additional blank rows to enter the additional Effective Start and End Dates and Exchange Rates. After adding the multiple new Exchange Rates, click **Save**.

6.1.1.2.2 Currency Exchange Rate Validation

Exchange Rate Validation has the following features:

- Movement of historical Exchange Rates to the Currency Direct Access Table.
- Calculation of inverse Exchange Rates for Reporting Currencies.
- Calculation of triangulated Exchange Rates where possible.

Features of Exchange Rate Validation

The goal of Exchange Rate Validation is to ensure that Exchange Rates from all active currencies to all reporting currencies are available for processing. Some of these rates can come from the validated direct input, others are calculated based on relationships with other rates. To support triangulation, all fixed Exchange Rates are available for all currencies that make up an exchange that needs to be triangulated. Also, a direct Exchange Rate between each Child Currency and each reporting currency is calculated and supplied to support quick access to Exchange Rates. If a Child currency is a Reporting Currency, then Exchange Rates are calculated for all currencies having an exchange relationship with the Parent Currency.

Validating Exchange Rate Relationships

You must run the Exchange Rate Validation Process after adding or modifying Exchange Rate Data. Run the process immediately or schedule one or more to be run in the future.

Each Exchange Rate has one of the following statuses:

Table 6-4 Details of Exchange Rates

Fields	Description
Not Yet Validated	The Exchange Rate has been input or loaded but not yet validated.
Valid	The Exchange Rate has been validated.
Invalid	The Exchange Rate has violated one or more acceptance rules.

Only Exchange Rates in valid status are available for processing and they are not subject to future validation unless you edit them. The Rate Validation Status is displayed in the Currency Rates Window of the Rate Management.

Exchange Rate Validation Criteria

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In the Rate Validation Process, all Exchange Rate relationships in the database are examined for compliance with the following criteria. Error messages and warnings are displayed if one or more criteria are not met.

- If a currency is defined as a Child in a fixed exchange relationship then it must not be in any floating (standard) Exchange Rate Relationship at the same time. Consequently, all floating Exchange Rates to or from the Child Currency must be defined through the Parent Currency. If this criterion is not met then the following message is displayed: Invalid fixed relationship—Child Currency exists in a standard Exchange Rate within the same time period.
- A Child Currency within a fixed relationship must not be a Child Currency in any other Fixed Relationship during the same time period. If this criterion is not met then the following message is displayed: Invalid fixed relationship—Child Currency already exists in a fixed relationship for the same time period.
- A Circular Relationship must not exist. In other words, a Child Currency cannot link back to its Parent in any other fixed rate Relationship within the same time period. If it does, then the following message is displayed: Invalid fixed relationship creates a circular relationship with other fixed Exchange Rates.
- Regarding new Floating (standard) Exchange Rates, from and To currencies must not exist as Child Currencies within any Fixed Exchange Rate Relationships. If this criterion is not met then the following message is displayed: From/To/Both currency(ies) in the new Exchange Rate already exist in a fixed relationship for the same time period.
- If any Exchange Rate is equal to 0, then a warning message is displayed. Generally speaking, 0 is a valid value. You can use it, for example, to designate an Exchange Rate with a currency of a country that no longer exists.

If two Exchange Rate Relationships fail to meet these criteria then both of them will be labeled Invalid. (Exception, if one of the relationships is already in Valid status, then the other one will be labeled Invalid.) For example, if a currency is defined as a Child in a Fixed Rate Relationship and is also defined as being in a Floating Relationship at the same time, then both Fixed and Floating Rates for that currency will be labeled Invalid.

If there are both direct and Inverse Floating Exchange Rates defined for any two currencies (in other words, one currency is both a To and a From Currency in relation to the other), then both relationships will be marked valid.

Running an Exchange Rate Validation

You can run a validation immediately or schedule one or more for later. The Validation Status is displayed in the **Currency Rates** window.

You can execute the Exchange Rate validation using the **Currency Rates Validation** option.

To execute the Exchange Rate Validation, follow these steps:

1. Click **Currency Rates Validation**.

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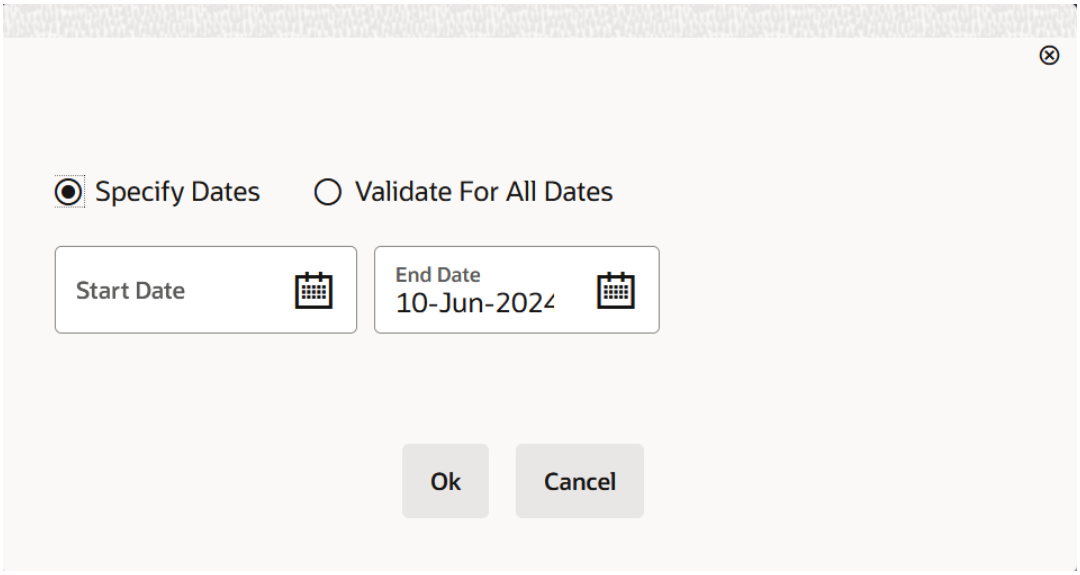
Figure 6-4 Currency Rates Validation



2. To execute Exchange Rate validation from the **Currency Rates** window, the following options are available:
   - **Specify Dates:** After selecting this option, a Select Dates Pane is displayed to enter or verify the Start Date and End parameters. These dates will be passed to the batch for execution.
   - **Validate For All Dates:** Select this option to validate all the rates irrespective of dates.
   - **Start Date:** This defaults to the date of last rate validation.
   - **End Date:** This defaults to the current date.

> **Note**
>
> This option will replace all of the validated Exchange Rate History and can be a time-consuming process depending on the amount of history available to be processed.

6.1.1.2.3 Download

The Download functionality is used to download the Historical Exchange Rates in **.csv** format.

6.1.1.2.4 Importing Currency Rates

To import the Currency Rate, follow these steps:

1. Navigate to the **Currency Rate** page.
2. Click **Actions** drop-down and select **Upload Data**.
3. Select the type of Rate as **Floating** or **Fixed**.
4. Click the **Drag and Drop** option to select the file.

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> **Note**
>
> The excel file, you are uploading should be in a specific format. You can download the template using the **Download Template** option. The Templates for Fixed and Floating Rate Types.
> Currency rates UI bulk upload supports only **YYYY-MM-DD** date format

5. Click **Upload**.

6.1.2 Dimension Management

Dimension Management facilitates you to categorize data into a single object as a Member; define levels and aggregate data to form the Hierarchies, and distinguish each member by defining the required Attributes.

The roles mapped to Dimension Management are as follows:

- Dimension Advanced
- Dimension Authorization
- Dimension Read Only
- Dimension Write

6.1.2.1 Object Security

Object Security helps to secure data and also to decide what each user can access. You can apply Object Security to various object definitions like Hierarchy definitions, Filters, Expressions and Migration definitions.

You can assign specific user roles and functions to user groups, to implement Object Security. To assign user roles and functions, Seeded User Groups and Seeded User Roles are mapped to the User Groups. If you are using the Seeded User Groups, the security to access objects depends on the associated User Groups.

Map your User Group to the folder in case of public or shared folder, for creating/editing/copying/removing an object in Dimension Management module. You should also be the owner of the folder in case of Private Folder. Additionally, the WRITE role should be mapped to your User Group.

To access the link and the Summary page, map your User Group to ACCESS role. You can view all objects created in Public Folders - Shared Folders to which you are mapped and Private Folders for which you are the owner.

6.1.2.2 Components of Dimension Management

You can create and manage the following Object Definitions using from Dimension Management:

- Members
- Attributes
- Hierarchy

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6.1.2.3 Attributes

Attributes refers to the distinguished properties or qualifiers that describes a Dimension Member. Attributes are applicable to key dimensions only.

6.1.2.3.1 Attribute Summary Page

The list of created attribute definitions are displayed in the Attribute Summary.

To access the attribute summary page :

1. From the left menu, click **Reference Data.**
2. Select **Dimension Management** and select **Attribute**, to access the The **Attribute Summary Page** .

   The Attribute Summary Page provides the list of attribute Definitions with the following details:

   - **Code** - The Numeric Code assigned to the Attribute Definition.
   - **Name** - The unique Attribute Definition Name.
   - **Data Type** - The Data Type associated with the attribute. The Data Type is set to Date, Dimension, Number or String.
   - **Required** - Select **Yes** or **No** to make this attribute a mandatory value for the associated dimension.
   - **Seeded** - Select **Yes**, if the attribute is seeded by the service or **No** if the attribute is created by the user.
   - **Action** - Click to view, edit, copy or delete an attribute definition. You can also access the list of objects dependent on this definition.

   To filter the summary based on specific search criteria, select and add the required search criteria to the **Search** field and enter/select the specific values.

> **Note**
>
> **Dimension** is a default and mandatory search filter. Select the dimension to access the member definitions available in that dimension. By default the first dimension from the **Dimensions** list is added as the search entry.

6.1.2.3.1.1 Navigating Attribute Summary Page

To access records in a Summary page, you can search, sort and navigate to multiple pages.

6.1.2.3.2 Creating Attribute Definition

To create a new Attribute for a dimension, complete the following steps:

1. Click the **Add** in the Attribute Summary Page.

   The **Add Attribute Definition** Page is displayed.
2. Enter the following **Attribute Details** :
   - **Dimension** - Select the Dimension for which the new Attribute is getting created.
   - **Numeric Code** - The Numeric Code to be assigned to the new Attribute Definition.

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You can enter any number between 0 and 999,999,999, or click **Generate Code**, to auto-generate a unique code. If you enter the value manually, the system will verify if the value is unique and assigns it.

- **Name** - The unique Attribute Definition Name. You can enter up to 100 characters. All characters are allowed except " & ' and " ' ".
- **Alphanumeric Field Value** - The name of physical column name that will be used to store attribute value in the Report Dimension Table. You can enter up to 100 characters. We recommend using only Underscore (“_”) as a special character.
- **Description** - A brief description about the Attribute Definition. You can enter up to 1000 characters. All characters are allowed except " & ' + @ and ~.

3. Enter the following **Attribute Properties** :
   - **Data Type** - Set the Data Type as Date, Dimension, Number, or String from the drop-down list.

     > **Note**
     >
     > If the data type is **Number**, enter a Scale value >= 0. If it equal to 0, only Integers are enabled. To enable decimal entries, the maximum Scale Value must be > 0 and <= the scale defined for NUMBER in the dimension's underlying attribute table. The maximum value of the NUMBER is set to 22.

   - **Dimension** - (Enabled only for Dimension data type.) Select the Dimension to be associated with the new Attribute Definition.
   - **Default Value** - The default value is set based on the selected data type. The Maximum characters allowed in Default Value field for String Data Type is 1000. The default value is mandatory if this attribute is set as a required attribute.

     Table 6-5 Data Type and Default Values

Data Type	Default Value
Dimension	Select the Default Value from the drop-down list of members mapped to the selected Dimension
Number	Enter a Numeric Value based on the define Scale.
Date	Set a valid date.
String	Enter the Alphanumeric Value

   - **Required Attribute** - Select **Yes**, if this attribute is mandatory for the associated dimension members. To set it as an optional attribute, select **No**.
   - **Seeded Value** - Select **Yes**, only when the attribute is seeded out of box by the Cloud Service. For a new attribute, select **No**.
4. After entering the required information, click **Save**, to create a new attribute.

6.1.2.3.3 Managing Attribute Definitions

You can view, edit, copy and delete the existing Attribute Definitions from the Summary Page.

In the Attribute Summary Page, highlight a specific Attribute Definition and click the **Action**. The following Options are displayed.

- **View**- View the **Attribute Details** for a specific attribute definition.

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- **Edit**- Edit the **Attribute Details** for a specific attribute definition.
- **Copy**- Copy the definition details and create another attribute Definition by changing the Alphanumeric Code, Numeric Code and Name.
- **Delete**- Delete the Attribute definition.
- **Check Dependency** - View the list of objects dependent on this definition.

Field	Description
View	View the **details** for a selected Attribute.
Edit	Edit theselected Attribute.
Copy	Copy the Attribute Definition Details and create another Attribute Definition by changing the unique values like Alphanumeric Field Value, Numeric Code and Name.
Delete	Delete the selected Attribute.

6.1.2.3.3.1 Viewing Attribute Definition

You can view individual Attribute Definition Details at any given point. The Read Only role should be mapped to your User Group.

To view the existing Attribute Definition details in the Attribute page:

1. Highlight the Attribute Definition and click **Action**.
2. Click **View** .

   The **Attribute Definition** Page is displayed with the details Code, Name, Data Type, Required and Seeded status.

6.1.2.3.3.2 Modifying Attribute Definition

Modify the Name, Description, or Default Value fields of an Attribute Definition. The Write role should be mapped to your User Group.

To modify an existing Attribute Definition in the Attributes summary:

1. Highlight the Attribute Definition and click **Action**.
2. Click **Edit**, to access the Attribute Definition page.

   Edit the required information and click **Save**.
   You can view the updates in the Attributes summary.

6.1.2.3.3.3 Copying Attribute Definition

The Copy Attribute Definition facilitates you to quickly create a new Attribute Definition based on the existing attributes or by updating the values of the required attributes.

To copy an existing Attribute Definition, the Write role should be mapped to your User Group.

Refer to the following steps, to copy an Attribute Definition.

1. Highlight the Attribute Definition and click **Action**.
2. Click **Copy**.

   The Attribute Definition page is displayed with the details: Code, Name, Data Type, Required and Seeded status.

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Edit the unique information such as Name, Alphanumeric Field Value, Numeric Code and click **Save**.

6.1.2.3.3.4 Deleting Attribute Definition

You can remove the Attribute Definitions which are not required in the system by deleting from the Attributes Summary.

To delete an attribute definition, the Write role should be mapped to your User Group.

1. Highlight the Attribute Definition and click the **Menu** button.
2. Click the **Delete** button.

   The Attribute Definition is deleted after confirmation.

> **Note**
>
> You cannot delete a definition if any dependency like Attribute, Hierarchy or Filter is attached to it. Detach the dependency before deleting the definition.

6.1.2.3.4 Dimensions and Associated Attributes

Dimensions and the associated attributes.

The following tables lists the seeded attributes with the details, associated with each dimension.

Table 6-6 Dimensions and Associated Seeded Attributes

Attribute Name	Data Type	Mandatory
Dimension - **Common Chart of Accounts**		
Account Type	Dimension	Yes
Accrual Basis	Dimension	No
Rollup Signage	Dimension	Yes
Dimension - **Financial Element**		
Weighting Financial Element	Dimension	No
Account Type	Dimension	Yes
Column Property	Dimension	Yes
Rollup Signage	Dimension	Yes
Dimension - **General Ledger Account**		
Accrual Basis	Dimension	No
Common Chart of Accounts	Dimension	Yes
Rollup Signage	Dimension	Yes
Account Type	Dimension	Yes
Reconciliation Product	Dimension	Yes
Dimension - **Legal Entity**		
Rate Data Source	Dimension	Yes
Group Company Party	String	Yes
Dimension - **Organizational Unit**		
Offset Organizational Unit	Dimension	No
Dimension - **Product**		

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Table 6-6 (Cont.) Dimensions and Associated Seeded Attributes

Attribute Name	Data Type	Mandatory
Accrual Basis	Dimension	No
Common Chart of Accounts	Dimension	Yes
Rollup Signage	Dimension	Yes
Account Type	Dimension	Yes
Amenability Rate	Dimension	Yes
Interest Rate Sensitivity	Dimension	Yes
Product Time Value	Number	Yes

6.1.2.4 Members

Dimension Members refer to the individual items that constitute a dimension when data is categorized into a single object such as Product, Organization, Time, and so on. Members are available within Dimension Management section.

6.1.2.4.1 Member Summary Page

The list of created member definitions are displayed in the Member Summary.

To access the member summary page:

1. From the left menu, click **Reference Data**.
2. Select **Dimension Management** and select **Members**.

   The **Member Summary page** containing the following details is displayed.

   - **Alphanumeric Code**- The alphanumeric code assigned to a member.
   - **Numeric Code**- The numeric code assigned to a member.
   - **Name**- The unique member name.
   - **Is Leaf**- The leaf node status of the member definition.
     - **Yes**- The member is set as a leaf node in any hierarchy and Child cannot be added to this node.
     - **No**- The member is a not a leaf and can have child nodes.
   - **Enabled** - The status of the member definition (Yes/No).
   - **Action**- Click to view, edit, copy or delete a member definition. You can also access the list of objects dependent on this definition.

   To filter the summary based on specific search criteria, select and add the required search criteria to the **Search** field and enter/select the specific values. Use **More Filters** to add additional search criteria.

> **Note**
>
> **Dimension** is a default and mandatory search filter. Select the dimension to access the member definitions available in that dimension. By default the first dimension from the **Dimensions** list is added as the search entry.

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6.1.2.4.2 Creating Member Definitions

You can add new Member Definitions from the Member Summary page.

To create a member definition :

1. To create a member definition, click the **Add** in the **Member Summary** page, to access the **Member Details** page.
2. Enter the following **Member Details** :
   - **Dimension**- Select the dimension to be associated with the new Member.
   - **Numeric Code**- The numeric code to be assigned to the new member definition. You can enter the value between 0 and 999,999,999 manually or click **Generate Code**, to auto-generate a unique code.
     If you enter the value manually, it is assigned after validation.
   - **Alphanumeric Field Value**- The alphanumeric Code to be assigned to the new Member Definition.
     You can enter up to 100 characters and enter only Underscore (“_”) as a special character.
   - **Name**- The unique member definition name.
     You can enter up to 100 characters. All characters are allowed except " & ' and " ' ".
   - **Description**- A brief description about the member definition.
     You can enter up to 1000 characters. All characters are allowed except " & ' and " ' ".
   - **Is Leaf**- Check this option if the member is a leaf of another member. By default, it is set to **Yes**.
     - **Yes**- The member can be used as a leaf node in any hierarchy and child cannot be added to this node.
     - **No**-The member is not set as a leaf and can have child nodes.

     > **Note**
     >
     > If a member is set as a non-leaf and is associated with child nodes, it cannot be set as a leaf again.

   - **Enabled**- This field is set to **Yes** by default. You can modify the **Enabled** status, after creating the member. To edit a member, refer Editing Member Definition Details.

     > **Note**
     >
     > You can change the option to **No** only when the particular member is not used in any hierarchy. The disabled members will not be displayed in Hierarchy Rules, or utilities which are based on Hierarchies, such as Hierarchy Filters and Hierarchical Assumption Browsers used in applications.

3. (Optional). Click **Copy**, to attach an existing attribute to this new member definition.

   You can also set the attribute values for a new member definition, manually. Enter/select the attribute values in the **Member Attributes** pane. All the attributes associated with the selected dimension are displayed in the Member Attributes pane.
4. Locate the Attribute to be copied and click **Move** and select **Copy**, located under **Actions**.

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5. Click **Save**, to create the new Member definition and view it the Member Summary.

   Click **Actions** and select **Edit Member Details** to edit the member details or select **Save and Add New**, to create the new member definition and proceed with adding another definition.

6.1.2.4.3 Managing Member Definitions

You can View, Edit, Copy, and Delete the existing Member Definitions from the Member Summary page.

In the members summary page, highlight a specific Member Definition and click the **Action**. The following Options are displayed:

- **View**- View the **Member Details** for a specific Member Definition.
- **Edit**- Edit the **Member Details** for a specific Member Definition.
- **Copy**- Copy the Member Definition Details and create another Member Definition by changing Alphanumeric Code, Numeric Code and Name.
- **Delete**- Delete the member definition.
- **Check Dependency** - View the list of objects dependent on this definition.

6.1.2.4.3.1 Viewing Member Definition Details

You can view the details of an individual Member Definition, from Member Summary page.

To view a Member Definition, the Read Only Role should be mapped to your User Group.

You can view the details of an individual Member Definition, using the following procedure:

1. Highlight the Member Definition and click the **Action**.
2. Click the **View** button.

   The Member Definition page is displayed with the details Dimension, Alphanumeric Code, Numeric Code, Name, Is Leaf and Enabled status.

6.1.2.4.3.2 Editing Member Definition Details

To edit the existing Member Definition details, the Write role should be mapped to your User Group.

You can edit individual Member Definition Details, using the following procedure:

1. Highlight the Member Definition and click the **Action**.
2. Click the **Edit** button.

   The Member Definition page is displayed with the details Dimension, Alphanumeric Code, Numeric Code, Name, Is Leaf and Enabled status.

   Edit the required information and click **Save**.

6.1.2.4.3.3 Copying Member Definition Details

To copy the Member Definition Details, the Write role should be mapped to your User Group.

You can copy individual Member Definition Details, to recreate another new Member Definition, using the following procedure:

1. Highlight the Member Definition and click the **Action**.
2. Click the **Copy** button.

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The **Member Definition Page** is displayed with the details Dimension, Alphanumeric Code, Numeric Code, Name, Is Leaf and Enabled status.

Edit the unique information such as Name, Alphanumeric Code, Numeric Code and click **Save**.

6.1.2.4.3.4 Deleting Member Definition Details

To delete a Member Definition, the Write role should be mapped to your User Group.

You can delete individual Member Definition Details, using the following procedure:

1. Highlight the Member Definition and click the **Action**.
2. Click the **Delete** button.

   The Member Definition is deleted after confirmation.

6.1.2.5 Hierarchy

Hierarchies refer to Dimension Members that are arranged in levels, with each level representing the aggregated total of the data from the level below. One dimension type can have multiple hierarchies associated with it. Hierarchies are available within the Dimension Management section.

A Default Hierarchy definition is required to support BI Users to perform multidimensional analysis, in the BI reporting. The hierarchy name of a default hierarchy definitions are suffixed with the term **System Hierarchy**. You can only view the details of the default hierarchy, from the Hierarchy Summary page. All orphan members under their corresponding default hierarchy, are automatically updated, when they are added/deleted to/from the system.

6.1.2.5.1 Hierarchies Summary Page

The list of existing hierarchy definitions is displayed in the Hierarchies Summary page.

To access the hierarchies summary page:

1. From the left menu, click **Reference Data**.
2. Click **Dimension Management** and select **Hierarchies**, to access the Hierarchies Summary page containing a list of existing hierarchies with the following details:
   - **Name** - The unique Hierarchy Name.

     > **Note**
     >
     > The name of a default hierarchy is always suffixed with the term **System Hierarchy**.

   - **Folder** - Folder in which the hierarchy is stored.
   - **Dimension** - Dimension associated with the hierarchy.
   - **Tags** - Labels to simplify the data search and locate the required details.
   - **Action** - Click to view, edit, copy or delete a hierarchy definition. You can also access the list of objects dependent on this definition.

6.1.2.5.1.1 Navigating Hierarchy Summary Page

To access records in a Summary page, you can search, sort and navigate to multiple pages.

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6.1.2.5.2 Creating Hierarchy Definitions

To create a Hierarchy Definition in the Hierarchy Summary page, complete the following steps:

1. Click **Add** in the **Hierarchy Summary** page. The **Hierarchy Details** page is displayed.
2. Enter the **Hierarchy Details** as described in the following table:

Table 6-7 Field Description

Field	Description
Name	The unique Hierarchy Definition Name. **Note** You can enter up to 100 characters. All characters are allowed except " & ' and " ' ".
Description	A brief description about the Hierarchy Definition. **Note** You can enter up to 1000 characters. All characters are allowed except " & ' + @ and ~.
Folder	Select the Folder in which the Hierarchy is to be stored.
Dimensions	Select the Dimension to be associated with the new Hierarchy Definition.
Click **Apply**.	
Hierarchy View	The Members associated with the selected Dimension are displayed. You can sort this list in Ascending/Descending order, expand or collapse the list to view in details and search for a specific Member. You can focus on a Member to view the Member Properties. You can add a Child or add a Sibling to an existing Member in the data grid.
Search View	The search results based on the specific keyword entered to search a Member is populated.

Table 6-8 Viewing interactive options for a Member

Icon	Description
Mouse-over a Member to see the following options. Select the required option to take action such as adding a child, deleting a node, paste as child, paste as sibling	

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Table 6-8 (Cont.) Viewing interactive options for a Member

Icon	Description
Figure 6-5 Add child, sibling, and leaf	Add a child, sibling and/or leaf.
Figure 6-6 Create and add	Create and a child, sibling and/or leaf to the Member.
Figure 6-7 Delete/undo delete	Delete a node or undo deletion.
Figure 6-8 Cut and paste child/siblings	Move child/siblings up or down as required.

To Add a Child to the Hierarchy:

a. In the **Hierarchy View** tab, mouse-over the hierarchy to which you want to add a child and click the **Add child, sibling and leaf** icon.

b. Select **Add Child** option. The **Add Members** page is displayed.

c. Select the required Member and click **Move Right**, to move the Member to the Selected Members panel. To select multiple members, press CTRL and select the members.
The selected members are added to the **Selected Members** pane.

- Click **Move All Right** to move all members listed in the Available Members pane, to the Selected Members pane. Click **Fetch from DB** to select all nodes/ members in the server.
- Select a member and click **Move Left** to deselect a Member. To remove multiple members, press CTRL and select the members.
- To remove all the members from the **Selected Members** pane, click **Move All Left**.

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- You can click **Search** button for the required member using Alphanumeric Code, Numeric Code, Name, Description, Attribute Name, or Attribute Value. Enter the search criteria and Click **Search**, in the Search Panel.
- You can also click **Search** button to toggle the display of Numeric Code left, right, or name and click button to display Alphanumeric Code left, right, or name.

d. Click **Add**. The selected member is displayed as child under data grid panel in the **Hierarchy View** tab.

3. **To add a Sibling to the Child in the Hierarchy Definition:**

   a. Mouse-over the child to which you want to add a sibling and click the **Add child, sibling and leaf** icon.).

   b. Select the option **Add Sibling**.
   The **Add Sibling** Page is displayed.

   c. Select the required Members and **Move Right**, to move the Member to the Selected Members panel.
   The Member is displayed in the **Selected Members** panel.

   d. Click **Add**. The selected Member is added as **Sibling** below the **Parent** under data grid Panel in the **Hierarchy View** tab.

4. **To add a Leaf under a Parent/Child or Sibling**:

   a. Mouse-over the Parent or Child and click the **Add child, sibling and leaf** icon.

   b. Select **Add Leaf**.
   The Add Member Page is displayed.

   c. Select the required Members and click **Move Right**, to move the Member to the Selected Members panel.
   The Member is displayed in the **Selected Members** panel.

   d. Click **Add**. The selected Member is displayed as Leaf below the Parent or Sibling under **Show Hierarchy** Panel in the **Hierarchy View** tab.

5. **To cut and paste Child or Sibling:**

   a. Right-click on any node and select **Cut**.

   b. Right-click on any node and **Paste as Child** or **Paste as Sibling**.

6. **To Delete/Undelete**

   a. Right-click on the node to be deleted and select **Delete Node**.
   The node deleted is struck out.

   b. Right-click and select **UnDelete** to cancel deletion of the node.

7. To view the Member Properties and Member Attributes of a node in the **Hierarchy View** Panel:

   a. Click on a Member.
   The properties such as Alphanumeric Code, Numeric Code, Name, Description, Enabled, Is Leaf, Created By, Creation Date, Last Modified By, Last Modification Date, Attribute, and Value of the selected Member are displayed in the Member Properties and Member Attributes Grids.

   In the Hierarchies page you can also:

   - Click **Collapse** or Expand, to collapse or expand a branch .
   - Click **Focus** or **Unfocus**, to focus or unfocus a selected node except the Root Node.

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- Click **Sort** to sort the list in ascending or descending order.

8. Click **Save**.
   The new Hierarchy Definition is created successfully.

6.1.2.5.2.1 Audit Info

The Audit Info section provides details such as Created By and Modified By Users, Creation and Modification Date, and Authorized By user Details. You can add additional information as comments and tags. Tags are labels that help to simplify the data search and locate the required details.

6.1.2.5.3 Managing Hierarchy Definitions

You can View, Edit, Copy, and Delete the existing Hierarchy Definitions from the Hierarchy Summary page.

In the Hierarchy Summary page, highlight a specific Hierarchy Definition and click **Action**. The following options are displayed:

- **View** - View the hierarchy details for a specific definition.
- **Edit** - Edit the hierarchy details for a specific definition.
- **Copy** - Copy the hierarchy details and create another definition by changing the unique values like name, description and so on.
- **Delete** - Delete the hierarchy definition.
- **Check Dependency** - View the list of objects dependent on this definition.

6.1.2.5.3.1 Viewing Hierarchy Definition Details

You can view the details of an individual Hierarchy Definition, using the following procedure:

1. Highlight the Hierarchy Definition and click **Action (three dots)**.
2. Click **View**.

   The Hierarchy Definition page is displayed with the details Name, Description, Folder, Dimension, Start Date and Hierarchy View details.

6.1.2.5.3.2 Editing Hierarchy Definition Details

You can edit individual Hierarchy Definition Details at any given point.

To edit the existing Hierarchy Definition Details:

1. Highlight the Hierarchy Definition and click the **Action (three dots)**.
2. Click **Edit**.

   The Hierarchy Definition Page is displayed with the details Name, Description, Folder, Dimension, Start Date and Hierarchy View details.

   Edit the required information and click **Save**.

6.1.2.5.3.3 Copying Hierarchy Definition Details

You can copy individual Hierarchy Definition Details, to recreate another new Member Definition. To copy the Member Definition Details:

1. Highlight the Hierarchy Definition and click **Action**.

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2. Click **Copy**.

   The Hierarchy Definition page is displayed with the details Name, Description, Folder, Dimension, Start Date and Hierarchy View details.

   Edit the unique information such as Name, Description, Folder, Dimension, Start Date and Hierarchy View details and click **Save**.

6.1.2.5.3.4 Deleting Hierarchy Definition Details

To delete a Hierarchy Definition:

1. Highlight the Hierarchy Definition and click **Action**.
2. Click **Delete**.

   The Hierarchy Definition is deleted after confirmation.

> **Note**
>
> You cannot delete a definition if any dependency like Attribute, Hierarchy or Filter is attached to it. Detach the dependency before deleting the definition.

6.1.2.6 Viewing Data in a Summary Page

A Summary page will contain a list of definitions associated with a specific Dimension Data, Filters, Batch or Schedules.

You can search, filter and customize the view to access the required data faster.

6.1.2.6.1 Searching Summary

Search for a specific Definition based on the following criteria. Select/Enter one or more unique values/tag or Leaf and Enabled status associated with the definition and click **Search**.

6.1.2.6.2 Sorting a Summary Page

Sort the list of definitions, to view a specific definition, in a definition Summary .

To sort the various Definitions list:

- **Sort By**: Group the based on the following fields:
  - **Member Summary** - Dimension, Name, Alphanumeric Code, Numeric Code, Enabled and Is Leaf Status, Attribute Name (if the selected Dimension has Dimension Type Attribute) and Attribute Value.
  - **Attribute Summary** - Branch, Name, Code and Data Type.
  - **Hierarchy Summary** - Dimension, Name, Tag and Folders.
  - **Filter Summary** - Name, Folder and Filter Type.
- **Sort Order**: Sort the Complete list in Ascending/Descending order.

6.1.2.6.3 Setting Number of Records per Page

Customize the number of records per page, to access the required record easily.

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At the bottom of the page, you can enter the number of entries that are available on a single page in the **Records** box. By default, this value is set to 8. You can increase or decrease the number of entries that are displayed using the up and down arrows.

To access a particular page, enter that page number in the Page Box located at the bottom of the page.

To navigate between pages:

- Use **First page** to view the entries in the first page.
- Use the **Previous page**, to view the entries in the previous page.
- Use the **Next page**,to view the entries in the next page.
- Use the **Last page**, to view the entries in the last page.

6.1.3 Interest Rates

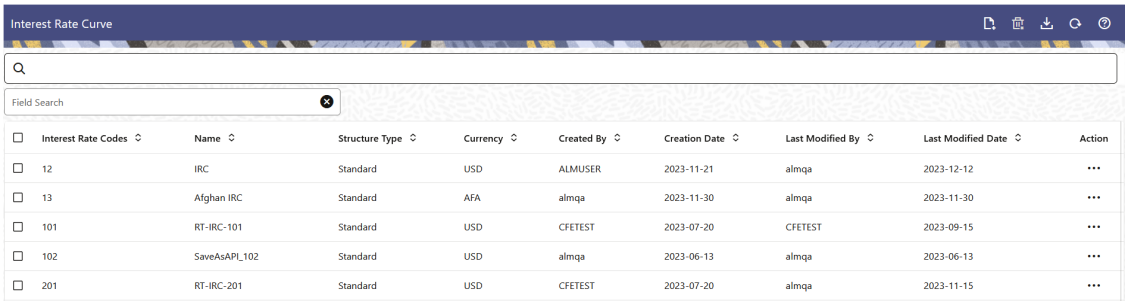
The quality and availability of Interest Rate information vary throughout the world. In many markets, gathering comprehensive rate information is a challenge because of insufficient security types, inconsistent quoting conventions, and lack of liquidity. The Interest Rate Curve in Cloud Service allows you to define and manage complex Yield Curve definitions using multiple Rate Formats and other Rate Attributes to give you data storage capabilities appropriate to your market. The Interest Rate Curve supports the creation and maintenance of Historical Rate Data for each Yield Curve you define.

Historical Interest Rate Data is utilized in the Cloud Service to generate the Transfer Rates, add-On Rates, rates for market value calculations, Option Costs, and Forecasted Interest Rate Scenarios.

Interest Rate Rule Summary

This page is the gateway to all Interest Rate Rules and related functionality. You can navigate to other pages relating to Interest Rate Rules from this point.

Figure 6-9 Interest Rate Curves Summary



Search Interest Rate Rule

Prerequisites: Predefined Interest Rate Rule

To search for an Interest Rate Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Interest Rate Rules that meet the search criteria.

Or

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An alternative method to search an Interest Rate Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Interest Rate Rule Summary. You can enter the **Interest Rate Code**, **Name**, **Currency**, **Rate Format**, and **Structure Type** of the Interest Rate Rule and click **Search** .

The Interest Rate Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Interest Rate Rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Download: Enables you to download the Interest Rate Summary report in .csv format.

- **Interest Rate Code**: The Interest Rate Curve's Code. The code is a unique number in the range of 1 to 9999999. Hover on a row in the pane to display the Interest Rate Curve's detailed description.
- **Name**: The Interest Rate Curve's short name.
- **Structure Type**: The Structure Type (Standard, Hybrid) of the Interest Rate Curve.
- **Currency**: The Currency (Reference Currency) for which Interest rate curve is defined.
- **Created By**: The Name of the user who created the Interest Rate Curve.
- **Creation Date**: The Date and Time when Interest Rate Curve was created.
- **Last Modified By:** The user who last modified the Interest Rate Rule.
- **Last Modified Date:** The Date and Time when the Interest Rate Rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Interest Rate Rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Interest Rate Rules. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse an Interest Rate Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Interest Rate Rules that you no longer require. Note that only Interest Rate Rule owners and those with Read/Write privileges can delete Interest Rate Rules. An Interest Rate Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Dependency Check:** You can perform a dependency check to know where a particular Interest Rate Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Interest Rate Rules that have dependencies. A report of all rules that utilize the selected Interest Rate Rule is generated.

> **Note**
>
> This is functionality will intended for a future release.

Also See:

- Create Interest Rate Rule

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6.1.3.1 Creating an Interest Rate Curve

To create an Interest Rate Curve, perform the following steps:

1. Click **Add** from the **Interest Rate Curve Summary** page.
2. Enter the following information in the **Interest Rate Curve Details** window.
   - **Interest Rate Code**: When constructing a new Yield Curve, you must specify an Interest Rate Code between 1 and 9999999. Interest Rate Codes are used internally to uniquely identify Yield Curves. When working with Cloud service, you reference Yield Curves by Name, not by Interest Rate Codes. Interest Rate Codes are embedded within your instrument data (for example, the INTEREST_RATE_CD columns within the Instrument Data are populated with Interest Rate Codes). After you have saved a Yield Curve, you cannot modify its Interest Rate Code.
   - **Name**: Provide a unique Name for the Interest Rate Curve.
   - **Description**: You can enter a description for the Interest Rate Curve. You can modify this description at any time using the Edit action.
   - **Display for All Currencies**: This flag allows you to designate certain Interest Rate Curves to make them available for assumption mapping to any currency. Assumption Rules filter the list of Interest Rate Codes based on the currency when defining assumptions for a specific Product/Currency combination. When this option is enabled, the Interest Rate Curve appears in assumption rules for all currencies.
   - **Reference Currency**: Select a Reference Currency for your Interest Rate Curve. You can change the Reference Currency for previously saved Interest Rate Curves though such changes are unlikely. An Interest Rate Curve's Reference Currency is the currency for which your market rates are valid. For example, the Reference Currency for a Prime Rate Yield Curve would be US Dollars. The Reference Currencies drop-down list displays only Active currencies. For more information on Active and Inactive currencies, see the Currency Documentation.
   - **Date Based Term Points**: This toggle switch is applicable only for Standard Structure Type. If you select Structure Type as Hybrid, the toggle switch is disabled. When you select the Date Based Term Points, and add a Term Point, the Historical Rates Tab allows you to define a Custom Date and Rate for each Term Point. By default, the Date is inserted based on the Term that you define. You can change the Date to a custom Date and define the Rate.
   - **Risk-Free**: (Optional) This flag is for tagging the Interest Rate Curve as risk-free. That is Edit Table in new and Edit Modes. It is available for Non-Hybrid Curves and Hybrid Curves.
   - **Structure Type**: This attribute is required for each Yield Curve. Structure Type supports Standard, Hybrid Yield Curve, and Managed Rates Definitions. Hybrid Yield Curves are re-expressions of one or more pre-existing Standard Yield Curves. For more information, see Hybrid Term Structure. Managed Rates are free form, user-defined formula, that is, equation based objects. For more information, see Managed Rates. Standard Interest Rate Curves are used to define the Yield Curve and to add, edit, or delete Historical Interest Rate Data. After you have saved the Yield Curve, you cannot change the selected Structure Type.

> **Note**
>
> IRC Structure Type **Managed Rates** is applicable only to ALMCS.

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- The Interest Rate Curve tabs are:
  - Terms & Attributes
  - Historical Rates
  - Parameters
  - Hybrid Term Structure
  - Managed Rates

  For new Yield Curves, you must begin with the **Terms & Attributes** tab. After you have selected the term structure and attributes for a Yield Curve, you cannot edit them. After assigning the attributes, navigate to the Terms tab to define a term structure for your Yield Curve, for example, an overnight rate, a one-month rate, a three-month rate, and so on. Click **Apply** after defining the term structure and attributes to the Interest Rate Curve.

  > **Note**
  >
  > You must specify an Interest Rate Code and Name in the **Interest Rate Curve Details** window before navigating to the **Terms & Attributes** tab.

  The first time you navigate to the **Terms & Attributes** tab, an initial 1-month term point is provided, but even if this is the only term point you want for the curve, you must click **Apply** to finish term structure specification. In future revisions to the Curve's Definition, navigate directly to the **Historical Rates** tab, but if you modify the term structure, you must always click **Apply** on the **Terms & Attributes** tab before navigating to the **Historical Rates** tab.

  The **Historical Rates** Tab is used to input historical interest rate data. This Tab is used for maintaining the Interest Rates Database. To navigate to the Historical Rates Tab, either click **Apply** on the **Terms & Attributes** tab or select the **Historical Rates** tab if you have already defined your term structure.

  > **Note**
  >
  > You must specify the following before navigating to the **Historical Rates** tab:
  >
  > - An Interest Rate Code, Name, and Reference Currency in the **Interest Rate Code Details** window.
  > - A term structure in the **Terms & Attributes** tab.

6.1.3.1.1 Terms & Attributes

The Terms & Attributes Tab displays the following fields:

- **Adding New Term Points**: Click **Add** to add a new row. (New term points by entering a Term value and selecting a Multiplier (such as 7 days, 2 months, 5 years, and so on). Rate Format, Compounding Basis, and Accrual Basis can be selected for the term point. Zero Coupon Yield, Annual, Actual/Actual are the pre-selected values in UI which you can modify.
  One Yield Curve can have two combinations of attributes. For example, first 3 term points have Zero Coupon Yield, Annual, Actual/Actual attributes and remaining term points are Yield to Maturity, Annual and 30/360.

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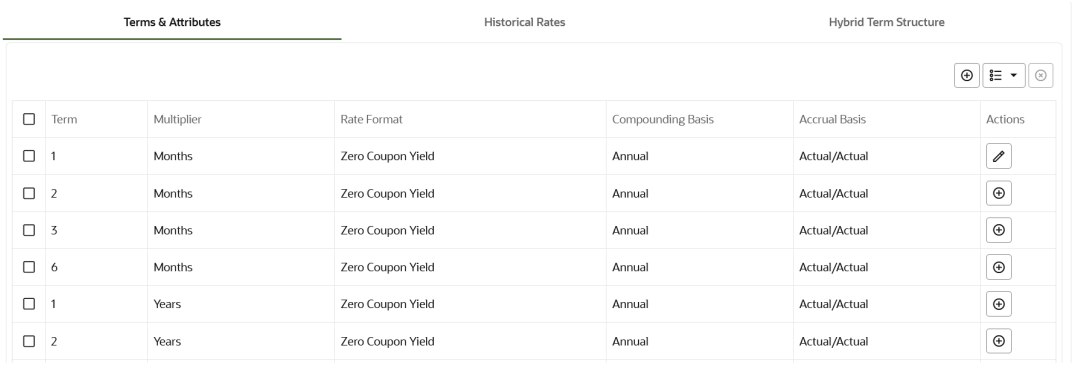
Figure 6-10 Terms and Attributes Tab



Term	Multiplier	Rate Format	Compounding Basis	Accrual Basis	Actions
1	Months	Zero Coupon Yield	Annual	Actual/Actual	
2	Months	Zero Coupon Yield	Annual	Actual/Actual	
3	Months	Zero Coupon Yield	Annual	Actual/Actual	
6	Months	Zero Coupon Yield	Annual	Actual/Actual	
1	Years	Zero Coupon Yield	Annual	Actual/Actual	
2	Years	Zero Coupon Yield	Annual	Actual/Actual	

Click “+” at the term point where you want to modify attributes. Rate Format, Compounding Basis, and Accrual Basis fields are enabled for modification.

- **Rate Format**: You should select either the Zero Coupon Yield or Yield to Maturity Rate Format. Rates entered in the Historical Rates Tab are always entered in the nominal form, such as 5.125% or 6.875%, not as discount factors.
- **Compounding Basis**: Select a Compounding Basis for the term point:
  - Daily
  - Monthly
  - Quarterly
  - Semiannual
  - Annual
  - Simple
  - Continuous
  - At Maturity
- **Accrual Basis**: Select an Accrual Basis for the Yield Curve.
  - 30/360
  - Actual/360
  - Actual/Actual
  - 30/365
  - 30/Actual
  - Actual/365
  - Business/252
- **Deleting Existing Term Points**: To delete an existing term, select the term point (or terms), and click **Delete**.

You can also click **Add Multiple Rows** to select the number of multiple rows that you want to add.

You can construct the Yield Curve's Term Structure. You can specify as many Yield Curve Terms from the 1 day to 100 years range. However, the UI allows only two combinations of Rate Format, Compounding Basis, and Accrual Basis per one Interest Rate Curve Definition.

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The Interest Rate Curve Definition Module automatically selects the combination of Rate Format, Compounding Basis, and Accrual Basis when a new Term Point is greater than the already defined Term Points. For example, if you define two Term Points with 15 Days, one Month Multipliers, and another Term Point with 2 Years Multiplier. When you define a new Term Point with 45 Days Multiplier, the Interest Rate Curve Definition Module automatically selects the combination of Rate Format, Compounding Basis, and Accrual Basis that is selected for the first two Term Points. Similarly, if you define a Term Point, which is greater than the 2 Years Multiplier, then the module selects the combination of Rate Format, Compounding Basis, and Accrual Basis that is selected for the 2 Years Term Point.

6.1.3.1.2 Parameters Tab

Fixed income instruments are used for forecasting and simulating the Cash Flows. The Cash Flow Engine needs interest rate models to simulate the evolution of interest rates. The Cash Flow Engine uses these models as part of the stochastic engine. You can enter the parameters for these models in the following ways:

- System-generated calculations through Parameter Estimation
- Direct input into the UI
- Excel Import
- Data Loader

The following interest rate models are available:

- Extended Vasicek
- Ho and Lee
- Merton
- Vasicek

Parameter Estimation

This section explains the procedure to calculate the 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 look back term and a sufficient number of observations (available historical rates) for the IRC. If you rerun with a different look-back term, it will overwrite the existing parameters for the selected Term Structure Model on that IRC's Effective Date.

- **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 look-back dates.
- **Lookback Dates**: Historical rates must be available on dates looking back from the Parameter's Effective Date (the End Date), in 30-day intervals moving backward 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 must 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 before the End Date, and so on.

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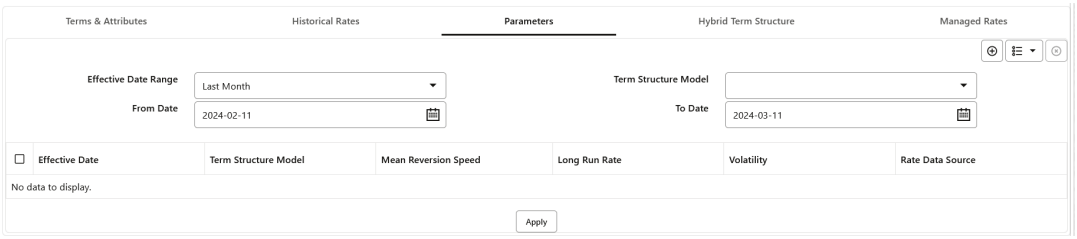
The minimum relative term for all lookbacks must be at least 300 Days (that is, to accommodate a minimum of ten 30-day intervals). Using the above logic, if a rate is not found for the lookup date (or date within the neighboring range), an error will be logged, user can check the error in the 'view logs'.

To define the Parameter Estimation, follow these steps:

1. Navigate to Parameters tab of Interest Rate Curve.

Figure 6-11 Parameters Tab on Interest Rate Curve window



2. Enter the Effective Date Range filter.
3. After clicking Add, default parameters for the **Extended Vasicek Model** are displayed for one Effective Date (the System Date on which the Interest Rate Code was created). You can edit these parameters or add new parameters using **Add**.
4. Enter the **Effective Date**. Note that the **Effective Date** cannot be greater than the **Current System Date**.
5. Select the Model from the **Term Structure Model** drop-down list. Effective Date and Term Structure Model combination must be unique within this IRC.
6. The following term structure models of interest rates:
   - Extended Vasicek
   - Ho and Lee
   - Merton
   - Vasicek
7. The following parameters needed by the models:

Table 6-9 List of supported parameters for Models Term structure models in Interest Rate

Model	Parameter 1	Parameter 2	Parameter 3
Extended Vasicek	Volatility	Mean Reversion Speed	
Ho and Lee	Volatility		
Merton	Volatility		
Vasicek	Volatility	Mean Reversion Speed	Long Run Rate

8. Enter values for **Long Run Rate** and **Volatility** in percentages.
For example, a Long Run Rate of 5% is displayed as 5.000. To maintain the integrity of data, Rate Management restricts the accepted input values. The valid range and the default setting for each parameter.

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Table 6-10 Valid Range and Default Values of Interest Rate Parameters

Parameter	Valid Range	Default Value
Volatility	0% to 500%	0.01
Mean reversion speed	0.00 to 500	0.0
Long run rate	0.00% to 500%	0.0

9. Click Apply.

6.1.3.1.3 Historical Rates

Use the Historical Rates Tab to define, modify, or view Interest Rate Data. Enter data in simple percentages (such as 5.125, 4.875, and so on).

The **Rate Data Source** Column shows from where the rates are taken from, they are either entered through the User Interface, loaded through the Data Loader, or generated using the Generate Rates of Hybrid IRC.

You can perform the following tasks:

- Add Historical Rates
- Excel Import or Export
- Deletion of Historical Rates

> **Note**
>
> FTP engine supports rate lookup from a future date as well, if engine looks for any particular effective date and that is not found, then next it looks for most recent date available in the past, even if that is not available, then it can pick the rate from most recent future date also.

6.1.3.1.3.1 Add Historical Rates

By default, the **Historical Rates** Tab displays Interest Rate Data for the past month (for example, for the 30 days leading up to the current date). Click the **Effective Date Range** drop-down list to expand your view to the last 3 months, 6 months, one year, 3 years, 6 years, or all rate data.

6.1.3.1.3.2 Deletion of Historical Rates

To delete Historical Rates entered, select one or more rows and then click **Delete**.

6.1.3.1.3.3 Excel Import or Export

To aid in data entry, use the Excel Import or Export functionality to add or edit rate data to Historical Rates. This is an optional step.

Excel Export:

To export the data, perform the following steps:

1. Click **Export** to export data for the chosen selected effective date range. Within the same block, select Export to Excel, which launches the Excel application and displays the Data Window including headers.

Excel Import:

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The excel file exported above can be used as a template to import the Historical Rates.

> **Note**
>
> Ensure that the date format is yyyy-MM-dd in the excel file. For example, 2022-06-13.

1. On the Interest Rates toolbar, click the **Import** icon. Select the file containing the Historical Rates.
2. Data from the file is displayed on the UI. If appending data that pre-existed for the same effective date, the import will overwrite existing data.
3. Add or edit data if required.
4. Click **Apply** to save.

6.1.3.1.4 Hybrid Interest Rate Curves

Hybrid Term Structures allows you to specify the following types of Hybrid Yield Curves:

- Merge
- Spread
- Moving Average
- Custom Weighted Average

Hybrid Yield Curves are built up from either one or more Standard Yield Curves. When you add, modify, or delete any historical rate data from a Standard Yield Curve, the data associated with any related Hybrid Yield Curve must be updated. After defining, the Hybrid Yield Curves can be used like any other Interest Rate Curve in the system. You can reference these curves within the Cloud Service Business Rules that allow the selection of an Interest Rate Code.

Hybrid Curve Type Spread: A Spread Hybrid Yield Curve is defined as the difference between two standard yield curves. The Spread type of hybrid yield curve is useful in establishing liquidity risk or basis risk yield curves.

- **Merge**: Merge hybrid yield curves represent a blending of two or more underlying yield curves. In constructing a Merge type of Hybrid Yield Curve, specify the percentage weighting applied to each of the underlying Standard Hybrid Yield Curves.
- **Spread**: A Spread hybrid yield curve is defined as the difference between two standard yield curves. The Spread type of Hybrid Yield Curve is useful in establishing liquidity risk or basis Risk Yield Curves.
- **Moving Average**: Moving average Hybrid Yield Curves represent moving average data of a single underlying Standard Yield Curve. These curves are used in Funds Transfer Pricing.
- **Custom Weighted Average**: Custom Weighted Average Rate is the sum of weighted rates as per the defined Custom Weights for the Historical Rates.

6.1.3.1.4.1 Define Hybrid Curve

Defining a Hybrid Curve supports the following different definitions based on the Hybrid Curve Type:

- Hybrid Curve Type as Merge
- Hybrid Curve Type as Spread

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- Hybrid Curve Type as Moving Average
- Hybrid Curve Type as Custom Weighted Average

6.1.3.1.4.1.1 Defining a Hybrid Curve with Hybrid Curve Type as Merge

To define a Hybrid Curve, perform the following steps:

1. Select the **Structure Type** as **Hybrid**, and then select the **Hybrid Curve Type** as **Merge**.
2. Select the **Interest Rate Curves** for the hybrid type and click **Apply**. You must select at least two Interest Rate Curve Definitions.

   The screen displays the Hybrid Term Structure Weights for the selected Interest Rate Curves and the Merge type Hybrid Curve.
3. By default, all the Term Points are selected and displayed. You can uncheck one or more Term Points.
4. You can click on the icon next to the Selected Term Structure to see the Term Points for the Interest Rate Curve. A box displays the Term and Multiplier for the select Interest Rate Curve.
5. Enter the Weights for the selected Terms.
6. Click **Apply** to save the Weights in the grid.

6.1.3.1.4.1.2 Defining a Hybrid Curve with Hybrid Curve Type as Spread

To define a Hybrid Curve, perform the following steps:

1. Select the **Structure Type** as **Hybrid**, and then select the **Hybrid Curve Type** as **Spread**.
2. Select the **Interest Rate Curves** for the hybrid type and click **Apply**. Only two Interest Rate Curves are allowed for selection.
3. Click the **Swap** icon to re-order the Interest Rate Curves.

   The screen displays the Hybrid Term Structure Weights for the selected Interest Rate Curves and the Merge type Hybrid Curve.
4. By default, all the Term Points are selected and displayed. You can uncheck one or more Term Points.
5. Click **Apply** to save the selected Terms.

6.1.3.1.4.1.3 Defining a Hybrid Curve with Hybrid Curve Type as Moving Average

To define a hybrid curve, perform the following steps:

1. Select the **Structure Type** as **Hybrid**, and then select the **Hybrid Curve Type** as **Moving Average**.
2. Select the **Interest Rate Curves** for the hybrid type and click **Apply**. Only one Interest Rate Curve Definition is allowed for selection.

   The screen displays the Hybrid Term Structure Weights for the selected Interest Rate Curves and the Merge type Hybrid Curve.
3. By default, all the Term Points are selected and displayed. You can uncheck one or more Term Points.
4. Enter the Terms and Multipliers for each of the selected Terms.

   OR Optionally, you can select the **Moving Average Term** toggle switch to define the Terms and Multipliers for the selected terms at once.
5. Click **Apply** to save the Terms in the grid.

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6.1.3.1.4.1.4 Defining a Hybrid Curve with Hybrid Curve Type as Custom Weighted Average

To define a Hybrid Curve, perform the following steps:

1. Select the **Structure Type** as **Hybrid**, and then select the **Hybrid Curve Type** as **Custom Weighted Average**.
2. Select the **Interest Rate Curves** for the Hybrid Type and click **Apply**. Only one Interest Rate Curve Definition is allowed for selection.

   The screen displays the Hybrid Term Structure Weights for the selected Interest Rate Curves and the Merge type Hybrid Curve.
3. By default, all the Term Points are selected and displayed. You can uncheck one or more Term Points.
4. Enter the Terms and Multipliers for each of the selected Terms.

   OR Optionally, you can select the **Moving Average Term** toggle switch to define the Terms and Multipliers for the selected terms at once.
5. Enter the Weights for the each term and respective Historical Effective Dates. By default, all the Weights are zero. You can change the values as per your requirement.
6. Click **Apply** to save the Terms in the grid.

6.1.3.1.4.2 Generate Hybrid Rates

After a Hybrid Curve is defined, generate the Historical Rates as far back as the Rate Source Curves allow. The Generate Frequency determines the frequency of the historical rates populated with the Generate function. If you select the Generate Frequency as monthly, it generates month-end values only. If you select daily, it generates the maximum number of Historical Values. By default, the Interpolation is selected as Linear and you cannot change it.

To generate the rates, perform the following steps:

1. Select the **Generate Frequency** (Daily, Weekly, Bi-Weekly, or Monthly) and enter the **Specific Date Range** (From Date and To Date). For Custom Weighted Average Hybrid Curve Type, you need to select only the From Date.
2. Click **Generate**. The rates will be populated and you will be directed to the Historical Rates Tab to view the results.

Generating Hybrid Rates using Scheduler

You can also generate the Hybrid rates using the Scheduler Service.

To generate the Hybrid rates:

1. From the LHS menu, navigate to Operations and Processes, select Scheduler, and then select Create Batch. For more details, Define Batch.
2. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Ceate Task**. For more details, see Define Tasks.
   a. Task Type: REST
   b. Component: IRC Hybrid Scheduler
3. Select the seeded batch and click **Edit Parameters**. In the Dynamic Parameters pop-up window, change the date to the relevant As-of-Date, and then save the batch.
4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Execute Batch**.

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5. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**. For more information, see Monitor Batch.
6. Select the **Batch** and then select the **MISDATE** and the **Batch name**. There may be multiple executions of the Hybrid rates batch. Select the latest execution and click **Start Monitor**.
   The UI displays the Status of the batch.

6.1.3.1.5 Managed Rates

Managed rates are IRC objects that are based on a logical and/or mathematical formula instead of being based on a yield curve. This is useful if you do not have a straight forward application function that generates a rate based on a formula. Managed Rates are formula-driven IRC (interest rate curve or yield curve) objects. The Managed Rates UI provides the following functionalities:

- Allows to create a managed rates formula with the help of equation builder.
- You can create a managed rates formula by using existing IRC, Currency, Economic Indicator objects and combining it with various mathematical operators.
- Execute managed rates using Scheduler Service

Managed Rate Formulas

Managed Rates are free form, user-defined formula, that is, equation based objects. You can use a variety of mathematical, logical, or reference functions to define a Managed Rate. Regardless of the complexity of the function, it always return only one numerical value every time when it is evaluated.

For example, there are three basic inputs for Market Rates formulas:

Numerical and mathematical values, including embedded functions (for example, "SUM" or "AVERAGE").

Existing Rate Management objects such as interest rate curves, economic indicators, and foreign currencies

Reference in time specification, that is, a relative or absolute reference in time either in the past, present, or future.

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Note

Formulas are statements. These can be mathematical, logical, or reference one or more Application objects, but it returns a *single* numerical value.

For example:

Formula input: 1+1

Returns: 2

It is not mandatory to include the "=" symbol in the expression as this is already implied.

There is no nominal value of the rate, that is, it cannot be an accrual, day count, compounding, or other rate identities; it is simply a number.

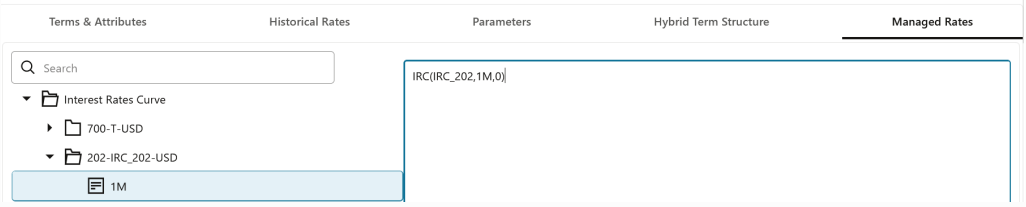
Basic syntax is required if other service objects are reference, then you must specify three distinct components:

1. Object type code or name
2. Object ID
3. Tenor
4. Place in time in the forecast

[Object type code].[Object ID].[Tenor if IRC, 0 if anything else].[Place in time]

For example, suppose you want a formula that refers to an interest rate curve's 1 month tenor on a current basis, then its syntax would look something like this:

Figure 6-12 Example of Managed Rate



Here,

[IRC_202] is the IRC code (Object ID)

[1M] is the Term.

[0] is time. This calculates Past, present or future dates/rates with ease for any term/ tenor and forecast method definition. The default value is 0. [0] means the now. [-1] refers to back one period. [$] refers to constrained time period.

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> **Note**
>
> If the time value falls outside of provided numbers, the Application will refer to the closest matching value. If no value can be retrieved or if the value is null, then the Managed Rate formula will not be evaluated.

Managed Rate Processes

When you validate Managed Rates, it is processed under two conditions:

1. **Managed Rates for Historical Values**

   You can use the entered managed rate to derive one or more historical values as specific points in time at or before the current As-of Date.

   Function is executed at the Rate Management level for Managed Rate functions. Specify one or more historical dates that you want to processed and then execute a batch to derive the associated values. All historical values would be stored in a managed rate historical table.

   If a Managed Rate formula has time references that are constrained, the formula will default to the last available value provided. If no value is provided (e.g. value cannot be retrieved or is null), then no rate will be provided for that historical date.

2. **Managed Rates for Forecasted Values**

   For forecasted values in an ALM process as established in Forecast Rates. Managed Rates will be forecasted using the forecasted base objects like IRC, Currency and Economic Indicator.

   For more information, see Interest Rate Forecast Methods.

To define Managed Rate, follow these steps:

1. Select **Structure Type** as **Managed Rates**.
2. Navigate to **Managed Rates** tab.

   > **Note**
   >
   > This tab will be active only when **Structure Type** is selected as **Managed Rates**.

3. Select the Function type as Interest Rate Curve, Currency, or Economic Indicator to define a formula.
4. Double-click the Function code to move it to Formula section.
5. Update the formula. Use arithmetical operator from Operator to define formula if required.

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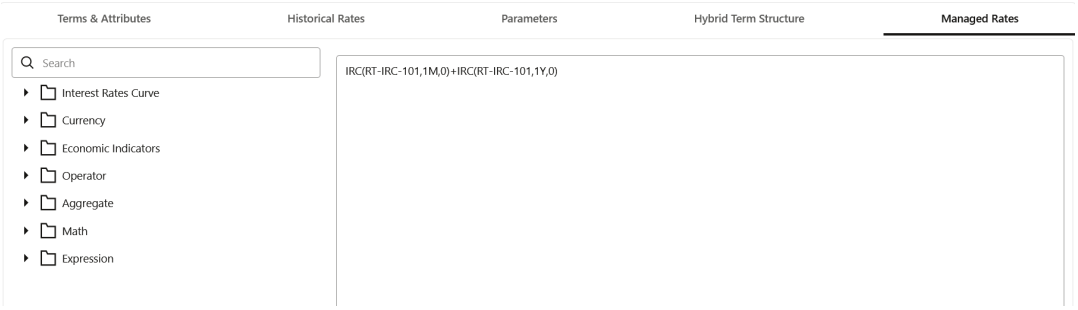
Figure 6-13 Formula section



Interest Rate Curve

This function evaluates rate of selected term point of Interest Rate Curve, in the past, present or future

IRC(Name, Term_Point, Time_Reference)

- **Name**: Must be an existing IRC
- **Term Point**: Must be an existing term point of named IRC
- **Time_Reference**: Time_Reference indicates the rate to be forward or backward looking. This should be zero or positive/negative whole number. If left null, replace with zero. 0 indicates current period, positive value indicate forward time and negative value indicates prior period. It can also be relative (moving) or absolute (fixed). Use '$' symbol for absolute Term Reference.

Currency

This function evaluates exchange rate of selected currency pair in the past, present or future

CCY(From_Currency, To_Currency, Time_Reference)

- **From_Currency**: Three letter code of active currency
- **To_Currency**: Three letter code of reporting currency
- **Time_Reference**: Time_Reference indicates the rate to be forward or backward looking. This should be zero or positive/negative whole number. If left null, replace with zero. 0 indicates current period, positive value indicate forward time and negative value indicates prior period. It can also be relative (moving) or absolute (fixed). Use '$' symbol for absolute Term Reference.

Economic Indicator

This function evaluates value of selected Economic Indicator in the past, present or future

ECOIND(Name,Time_Reference)

- **Name**: Must be an existing Economic Indicator
- **Time_Reference**: Time_Reference indicates the rate to be forward or backward looking. This should be zero or positive/negative whole number. If left null, replace with zero. 0 indicates current period, positive value indicate forward time and negative value indicates prior period. It can also be relative (moving) or absolute (fixed). Use '$' symbol for absolute Term Reference.

Aggregate

This includes the following functions:

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Menu	Description
Average	Calculates the average (mean) value of an expression in a result set. AVG(expr) *expr* is any expression that evaluates to a numerical value.
Max	Calculates the maximum value (highest numeric value) of an expression in a result set. MAX(expr) *expr* is any expression that evaluates to a numerical value.
Min	Calculates the minimum value (lowest numeric value) of an expression in a result set. MIN(expr) *expr* is any expression that evaluates to a numerical value.
Median	Calculates the median (middle) value of an expression in a result set. MEDIAN(expr) *expr* is any expression that evaluates to a numerical value.
StdDev	Returns the standard deviation for a set of values. STDDEV(expr) *expr* is any expression that evaluates to a numerical value.
Sum	Calculates the sum obtained by adding up all values satisfying the numeric expression argument. SUM(expr) *expr* is any expression that evaluates to a numerical value.
Geometric Mean	Calculates the the geometric mean of an array or range of positive numeric data. GEOMEAN(expr) *expr* is any expression that evaluates to a numerical value.

> **Note**
>
> At least two values/expression are required to calculate above aggregate functions.

Math

Menu	Description
Abs	Calculates the absolute value of a numerical expression. ABS(expr) *expr* is any expression that evaluates to a numerical value.

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Log	Calculates the natural logarithm of an expression. LOG(expr) *expr* is any expression that evaluates to a numerical value.
Log10	Calculates the base 10 logarithm of an expression. LOG10(expr) *expr* is any expression that evaluates to a numerical value.
Mod	Divides the first numerical expression by the second numerical expression and returns the remainder portion of the quotient. MOD(expr, divisor) *expr* is any expression that evaluates to a numerical value. *divisor* is any expression or number by which you want to divide
Power	Takes the first numerical expression and raises it to the power specified in the second numerical expression. POWER(expr, power) *expr* is any expression that evaluates to a numerical value. *power* is the exponent, to which the base expression or number is raised
Round	Rounds a numerical expression to n digits of precision. ROUND(expr, num_digits) *expr* is any expression that evaluates to a numerical value. *num_digits* is the number of digits to which you want to round. Negative rounds to the left of the decimal point; zero or omitted, to the nearest integer.
Round Down	Rounds down a number to either a decimal place or a whole number. ROUNDDOWN(expr, num_digits) *expr* is any expression that evaluates to a numerical value. *num_digits* is the number of digits to which you want to round. Negative rounds to the left of the decimal point; zero or omitted, to the nearest integer.
Round Up	Rounds up a number to either a decimal place or a whole number. ROUNDUP(expr, num_digits) *expr* is any expression that evaluates to a numerical value. *integer* is any positive integer that represents the number of digits of precision.

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Sqrt	Calculates the square root of the numerical expression argument. SQRT(expr) *expr* is any expression that evaluates to a nonnegative numerical value.
Product	Multiplies all numerical expressions given as arguments and returns the product. PRODUCT(expr1, expr2) *expr* is any expression that evaluates to a numerical value.
Quotient	Returns one numerical expression divided by numerical expression, without the remainder. QUOTIENT(expr1, expr2) *expr* is any expression that evaluates to a numerical value. Example: QUOTIENT(5,2). This will return 2, unlike division which returns 2.5
Exponent	Calculates e raised to the power of the numerical expression argument. EXP(expr) *expr* is any expression that evaluates to a numerical value.

Expression

Menu	Description
Case(If)	This form of the Case statement evaluates each WHEN condition and if satisfied, assigns the value in the corresponding THEN expression. If none of the WHEN conditions are satisfied, it assigns the default value specified in the ELSE expression. If no ELSE expression is specified, the system will automatically add an ELSE NULL. CASE WHEN request_condition1 THEN expr1 ELSE expr2 END *exprs* is any valid expression.

6. Click **Validate**. A successful formula validation message is displayed.
7. After defining and verifying the Managed Rates, execute the IRC using scheduler service.

Executing Managed Rates using Scheduler

To execute the batch, navigate to Operations and Processes and select Scheduler. Select Schedule Batch and search for **Historical Managed Rates** and execute.

OR

You can also define new batch to execute the Managed Rates by the following these steps:

1. Navigate to **Operations and Processes**, select **Scheduler**, and then select **Define Batch.**
2. Create a new Batch with a new Task with Component as **IRC Managed Rates**.
3. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Schedule Batch** to execute the batch. Select the batch and click Execute. For more details about Scheduler processes, see the Scheduler Services.

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4. From the LHS menu, navigate to **Operations and Processes**, select **Scheduler**, and then select **Monitor Batch**. There may be multiple executions of the batch. Select the latest execution and click Start Monitor.
The UI displays the status of the batch.

6.1.3.2 IRC Data Migration

On-prem to SaaS Migration

Data Export from On-prem

Users have to connect to the database and export the data in the prescribed CSV format. Name of the Data File must follow the format as given below:

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

Data Import to SaaS

For more information on importing the data, see Interest Rates Loader.

SaaS to SaaS Migration

Data Export from SaaS

Users have to export data using the Data Maintenance Interface and select the VW_FSI_IRC_RATE_HIST view. For more information about how to export data using the Data Maintenance Interface, see Data Maintenance Interface.

Data Import to SaaS

For importing the data, see Interest Rates Loader.

6.1.4 Economic Indicators

An Economic Indicator is any economic statistic such as the Consumer Price Index (CPI), growth rate of the Gross Domestic Product (GDP), unemployment rate, Purchasing Managers Index, indices of consumer confidence, and so on. Such macroeconomic statistics tell us how well the economy has behaved in the past. Some economic indicators are referred to as lagging indicators while others are classified as leading indicators. Leading indicators can provide insights into the future direction of the economy.

Economic Indicators Module allows you to define and store such historical indicators. It provides baseline from which forecasts of future values can be generated that can affect cash flow calculation for Inflation Indexed Instruments, new business or other modeling assumptions.

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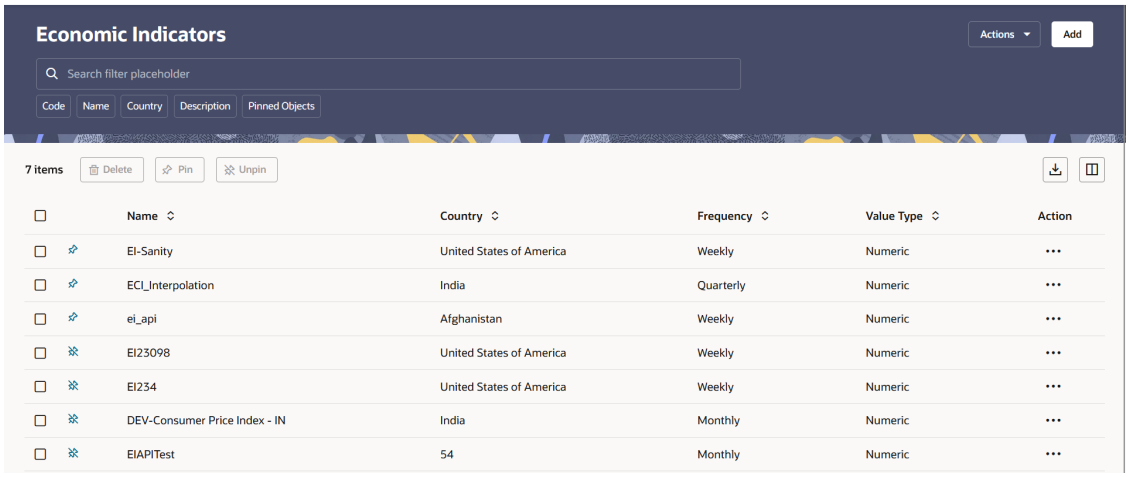
To view the Economic Indicators, navigate to Maintenance and then select Economic Indicators, an empty window is displayed. After you have defined one or more Economic Indicators, the Economic Indicators Summary Page shows all the Economic Indicators that you have previously defined.

Economic Indicator Rule Summary

This page is the gateway to all Economic Indicator Rules and related functionality. You can navigate to other pages relating to Economic Indicator Rules from this point.

Figure 6-14 Economic Indicator Summary



Search Economic Indicator Rule

Prerequisites: Predefined Economic Indicator Rule

To search for an Economic Indicator Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Economic Indicator Rules that meet the search criteria.

Or

The other method to search an Economic Indicator Rule is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Code, Name, Description,** and **Country** of the Economic Indicator Rule and click **Search** .

The Economic Indicator Rule summary displays the following information:

Add: Click the Add icon on the page header to build a new Economic Indicator Rule.

Actions: Enables you to perform following tasks.

- **Refresh:** Retains the selected filters and refreshes the summary page with latest status.
- **Reset:**Clears the selected filters and refreshes the summary page.
- **Help:**Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected rule.

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Export: Enables you to download the summary page details in .CSV format.

Columns: Allows you to view the summary page data using a customized list of columns.

The Economic Indicator Rule summary table displays the following columns:

- **Name:** The Economic Indicator Rule's name.
- **Country:** The Country of for which Economic Indicator has been defined.
- **Frequency:** The Frequency at which value of Economic Indicator is expected to be updated.
- **Hierarchy:** Hierarchy that is used to define Economic Indicator Rule.
- **Value Type:** The Value Type of an Economic Indicator.
- **Action:** Click this icon to view a list of actions that you can perform on the Economic Indicator Rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Economic Indicator Rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse the Economic Indicator Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Economic Indicator Rules that you no longer require. Note that only Economic Indicator Rule owners and those with Read/Write privileges can delete Economic Indicator Rules. A Economic Indicator Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular Economic Indicator Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Economic Indicator Rules that have dependencies. A report of all rules that utilize the selected Economic Indicator Rule is generated.

Also See:

- Add Economic Indicator Rule

6.1.4.1 Add an Economic Indicator

To add an Economic Indicator, follow these steps:

1. Navigate to the **Economic Indicator Summary** Page.
2. Click **Add**.
   The **Economic Indicator** Page is displayed.

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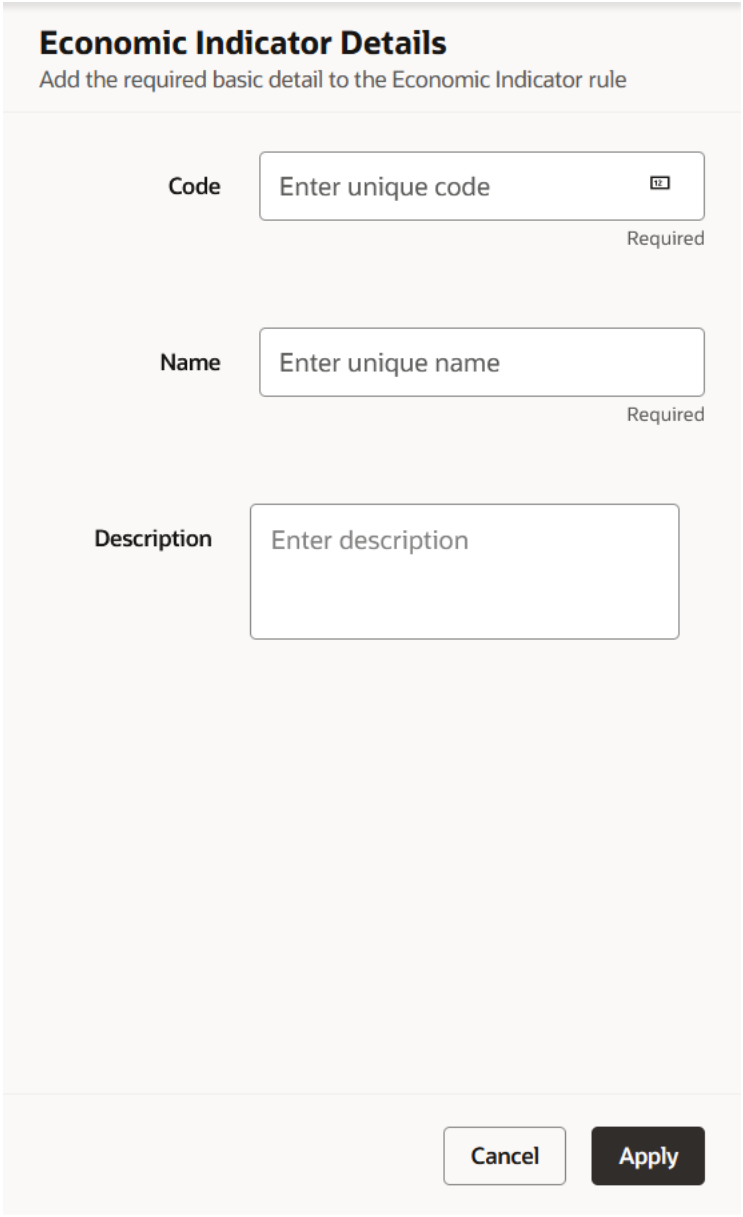
Figure 6-15 Economic Indicator Details Page



3. Enter the following information in the **Economic Indicator Details** section as tabulated.

Table 6-11 Economic Indicator Window – Fields and Descriptions

Fields	Description
Code	Enter the Code of Economic Indicator. You can click Generate Code Option in Code field to generate the code automatically.
Name	The name to your Economic Indicator is how you will subsequently refer to your rule within other the PBSM Services. You cannot rename existing Economic Indicators during Edit.
Description	Enter the Description of Economic Indicator. This field allows maximum 300 characters. Do not enter special characters ~, ‘, &, +, @.

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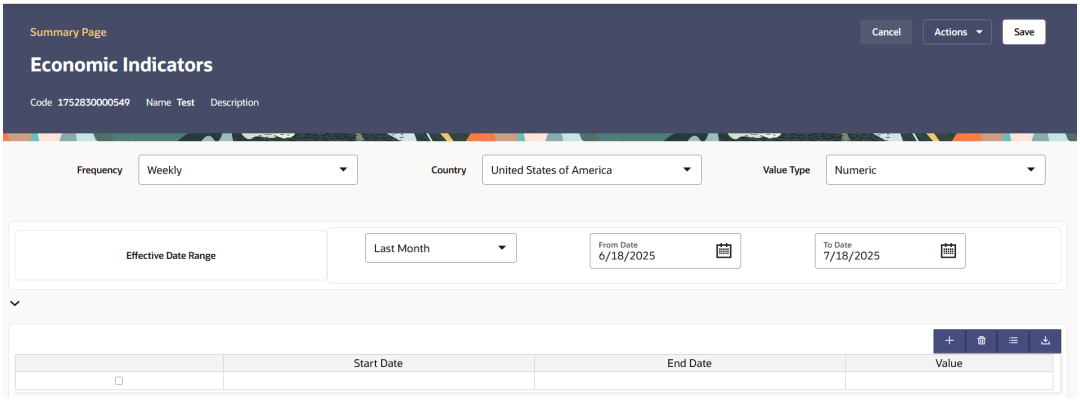
4. To build out your Historical Data, enter data within the **Economic Indicators – Historical Data** section. The **Economic Indicators – Historical Data** Section displays a single blank row followed by the most recent period's data (if data has previously been stored in the database).

Figure 6-16 Economic Indicator window



5. Enter the following information:

Table 6-12 Economic Indicator window – Fields and Descriptions

Fields	Description
Country	Select a country to which your Economic Indicator applies from the Country drop-down list. The value set of Countries is drawn from the seeded Country dimension. PBSM is seeded with over 70 country values, and you can add user-defined countries.
Frequency	The frequency of your Economic Indicator must match the frequency which with the indicator's data is made public. Unemployment statistics, for example, are generally released on a monthly frequency. Select a frequency from the Frequency drop-down list. Available frequencies are Weekly, Monthly, Quarterly, Semi-Annually, and Annually.
Value Type	Select a Value Type from the Value Type drop-down list. Available Value Types are Numeric, Percentage, and Amount. Numeric 0-999999 Percentage -100 to +100 Amount 0-999999
Effective Date Range	Enter effective Start Date and End Date.

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Table 6-12 (Cont.) Economic Indicator window – Fields and Descriptions

Fields	Description
Start Date and End Date	Select the Calendar icon immediately adjacent to the Start Date to choose a starting date for your Economic Indicator data point. The application will automatically populate the End Date based on the Economic Indicator's frequency. For example, if your Economic Indicator is an unemployment statistic that has a monthly frequency, select an start date that is the first day of the month that the unemployment rate describes. In this example, the application will automatically populate the End Date with the last day of the month you have selected.
Value	Enter the value for your Economic Indicator (such as the unemployment rate).
Adding a Data Points	Click Add to add a blank row into which you can enter additional Economic Indicator Data.
Adding Multiple Data Points	Click Add to add multiple blank rows into which you can enter additional Economic Indicator Data.
Deleting Data Points	Select one or more check boxes on the left-hand side of any row to enable the Delete icon. After clicking Delete, a confirmation message is displayed to delete the selected rows.
Download Excel	Excel export functionality is used to download the Economic Indicator information in xlsx format. Click Download Excel Option. After downloading, you can modify the value and paste back in the displayed data grid. Note: The date format in the Excel File should be same as provided in Global Preferences. For more information, see the Global Preference Section.

6.1.5 Multi Dimensional Balance Sheet Structure

The Multi-Dimensional Balance Sheet Structure or MDBSS is a comprehensive, user-defined, multi-dimensional hierarchy. It replaces the single dimension hierarchy for processing and reporting and allows you to incorporate one or more organizational hierarchies into a single concept. This new framework is designed to be a complete system that persists throughout the Application. This flexible structure supports the following functionalities:

- Organize the balance sheet with nodes and leafs of one or more dimensions
- Distribute parent dimension attributes down to descendant nodes, including currency
- Slot existing data at any node, not just the leaf level
- Place rules at any level with automatic inheritance
- Assign Forecast Methods (including balances and pricing) at any level
- Report on processing results with dimensional identity for both existing and new business

The MDBSS allows you the maximum flexibility to create, organize, plan, and report with your preferred balance sheet according to the key and simple dimensions (and other attributes) inherent in your data.

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> **Note**
>
> For MDBSS Migration, Dimension and Hierarchy migration is pre-requisite steps.

List of supported Dimensions and Hierarchies

Following are the supported dimensions and hierarchies that you can use in defining a Multi Dimensional Balance Sheet Structure:

- Adjustable type
- Amortization type
- Common Chart of Accounts*
- Credit Rating
- Currencies
- Customer Type
- General Ledger Account*
- Geographic Location*
- Legal Entity*
- Market Segment Code
- Organization Unit*
- Product*
- Product Amenability Category

***Signifies a Key Processing Dimension which supports user-defined hierarchies.

Key Features:

- **Existing Data Slotting in the Multi Dimensional Balance Sheet Structure**
  The Multi Dimensional Balance Sheet Structure allows you to load your organization's existing data throughout its framework. Unlike standard single-dimension hierarchies, the MDBSS can support the loading and placement of data at any node. The hierarchical relationship of data between parent and child nodes is preserved depending on the organizational parameters you define. This means that at the reporting level, a parent node will include its own and all its child balances if "collapsed" to that level of detail. No data will ever occupy more than one node, though depending upon how your MDBSS is configured not all data will necessarily be loaded.

  The placement of data in an MDBSS depends on several factors, including the number of unique dimension members and their spatial organization with each other. You can consider each MDBSS node as a unique criteria for data placement. Usually, the more unique dimension members in an MDBSS means fewer records per MDBSS node, and vice versa. You can determine what the appropriate level of detail required and organize the MDBSS accordingly. An important feature of the MDBSS is that the same data may slot differently in two different MDBSS, even if they use the same dimension members, depending on how the MDBSS dimension members are organized. This feature allows you to determine what is best given your processing and reporting objectives. As a general rule it is usually best to construct the MDBSS so that most data slots at or near the terminal nodes (or lowest level) of the Structure.

  When loading data, the Application takes the specified MDBSS and, starting at the lowest levels of the structure first, work its way up the Structure, placing existing data in every

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qualifying node. Existing data will never be placed at more than one node anywhere in the MDBSS. Once the data loading process reaches the highest node or nodes, the data loading process ends and existing data will be evaluated accordingly (depending on whether it is a static or dynamic forecast). The Application performs this data loading routine every time a process is executed so that any changes in the underlying data are always represented. All nodes do not need to have existing data slotted to them.

- **Organizational Rules for the Multi Dimensional Balance Sheet Structure**
  You can create and organize a Multi Dimensional Balance Sheet Structure according to your organizational objectives, created from one or more of your existing dimensions and hierarchies. There are rules and guidelines for creating and maintaining an MDBSS so that it preserves data integrity and processing efficiency.

  Following are the main rules for the MDBSS:

  1. The first dimension placed is the "anchor dimension" and all sibling nodes on this first level must also be the same dimension.
  2. The parent-child relationship of the source hierarchy must also be preserved when placing these dimension members in the MDBSS.
  3. On a single MDBSS branch each unique dimension must be kept adjacent.

- **Rule Placement for the Multi Dimensional Balance Sheet Structure**
  The Multi Dimensional Balance Sheet Structure allows you to place rules like Discount Methods or Prepayment & Early Redemption on any of its nodes. If a rule is placed on an MDBSS node that has child nodes then those child nodes will automatically inherit the parent node's rule. You can always modify or remove these inherited rules.

- **Currency Nodes in the MDBSS**
  Currency Nodes in the MDBSS are done with single dimension hierarchies. Rules are assigned on the MDBSS node and currency as a page filter of the rule. If your MDBSS also has a currency node, then that node and all its children will retain this identity regardless of the page filter currency of the rule. For example, if an MDBSS node is a currency type JPY and the rule's page filter currency is INR, then the JPY node of the MDBSS will disabled and not be eligible for modification. The currency of the MDBSS node and the currency of the active page filter currency must be the same (or default currency).

- **Dynamic Forecasting for the Multi Dimensional Balance Sheet Structure**
  The Multi Dimensional Balance Sheet Structure allows you to define, price, and forecast dynamic new business at any level of detail in any currency under any contractual features you specify. The balance behaviors of child nodes will be taken into consideration at higher nodes for certain Forecast Method types so that accurate targets are always achieved. All Forecasting rules intended to be used in a Dynamic process must use the same MDBSS.

- **Reporting for the Multi Dimensional Balance Sheet Structure**
  The Multi Dimensional Balance Sheet Structure allows you to report both existing and new business with all associated reporting output available. New business results inherits the dimensionality given in the MDBSS at every level of detail, thus reducing the amount of dimensional ambiguity that existed in a single dimension hierarchy. Expanding or collapsing the Structure will automatically calculate the sums and averages of all reporting values.

Multi Dimensional Balance Sheet Structure Rule Summary

The Multi Dimensional Balance Sheet Structure is a way to visualize your organization's balance sheet and execute processing and reporting at any level of detail needed by using the dimensions and hierarchies already defined in the Application and your data. The MDBSS has more features and functions than previous single dimension hierarchies and is the only supported hierarchy object in Oracle ALMCS for Dynamic Forecasting. The MDBSS represents

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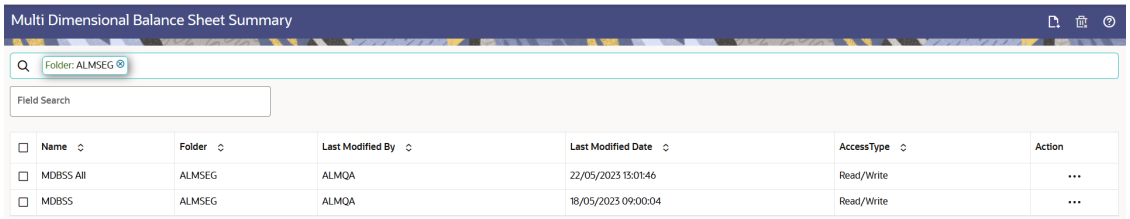
a single, end-to-end balance sheet solution that is used for all Application requirements including loading enterprise data, rule placement, forecasting, processing, and reporting.

The MDBSS works by taking its structure from one or more existing hierarchies whether they are nodes or leafs and organizing them together to represent your balance sheet at any level of detail. Both your existing data and your new business forecast data will inherit this implied dimensionality, thus reducing the dimensional ambiguity at the reporting level. In the MDBSS there is no longer a concept of hierarchical "Node" or "Leaf" as there is with a single dimension hierarchy, instead, all members of an MDBSS are considered nodes that can retain data, hold rules, and project forecast balances, all with full reporting structural integrity.

This page is the gateway to all Multi Dimensional Balance Sheet Structure Rules and related functionality. You can navigate to other pages relating to Multi Dimensional Balance Sheet Structure Rules from this point.

Figure 6-17 Multi Dimensional Balance Sheet Summary



Search Multi Dimensional Balance Sheet Structure Rule

Prerequisites: Predefined Multi Dimensional Balance Sheet Structure Rule

To search for a Multi Dimensional Balance Sheet Structure Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Multi Dimensional Balance Sheet Structure Rules that meet the search criteria.

Or

An alternative method to search a Multi Dimensional Balance Sheet Structure Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Multi Dimensional Balance Sheet Structure Rule Summary. You can enter the **Name, Description,** , and **Folder** of the Multi Dimensional Balance Sheet Structure Rule and click **Search** .

The Multi Dimensional Balance Sheet Structure Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Multi Dimensional Balance Sheet Structure Rule.

- **Name:** The Multi Dimensional Balance Sheet Structure Rule's short name.
- **Folder:** The Folder name where the Multi Dimensional Balance Sheet Structure Rule is saved.
- **Last Modified By:** The user who last modified the Multi Dimensional Balance Sheet Structure Rule.
- **Last Modified Date:** The Date and Time when the Multi Dimensional Balance Sheet Structure Rule was last modified.

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- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Multi Dimensional Balance Sheet Structure Rule.
  - **Multiple Delete:** Enables you to select and delete one or multiple rules in the table simultaneously.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Multi Dimensional Balance Sheet Structure Rules. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Multi Dimensional Balance Sheet Structure Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Multi Dimensional Balance Sheet Structure Rules that you no longer require. Note that only Multi Dimensional Balance Sheet Structure Rule owners and those with Read/Write privileges can delete Multi Dimensional Balance Sheet Structure Rules. A Multi Dimensional Balance Sheet Structure Rule that has a dependency cannot be deleted.
  - **Dependency Check:** You can perform a dependency check to know where a particular Multi Dimensional Balance Sheet Structure Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Multi Dimensional Balance Sheet Structure Rules that have dependencies. . A report of all rules that utilize the selected Multi Dimensional Balance Sheet Structure Rule is generated.

    > **Note**
    >
    > This is functionality will intended for a future release.

  - **Autobalance Assignment:** You can map hierarchy members to Auto-Balance Leafs. The mapped members are used to assign balances, retained earnings, taxes, dividends during auto-balancing step of Dynamic Deterministic Process.

Also See:

- Create Multi Dimensional Balance Sheet
- Examples of Multi Dimensional Balance Sheet Structure
- Autobalancing in MDBSS

6.1.5.1 Create Multi Dimensional Balance Sheet Summary

Before creating a new Multi Dimensional Balance Sheet Structure, you need to first consider your organization's goals. This will help you realize the full potential of the MDBSS system and achieve your objectives. You can create more than one MDBSS, with each designed to achieve a specific objective.

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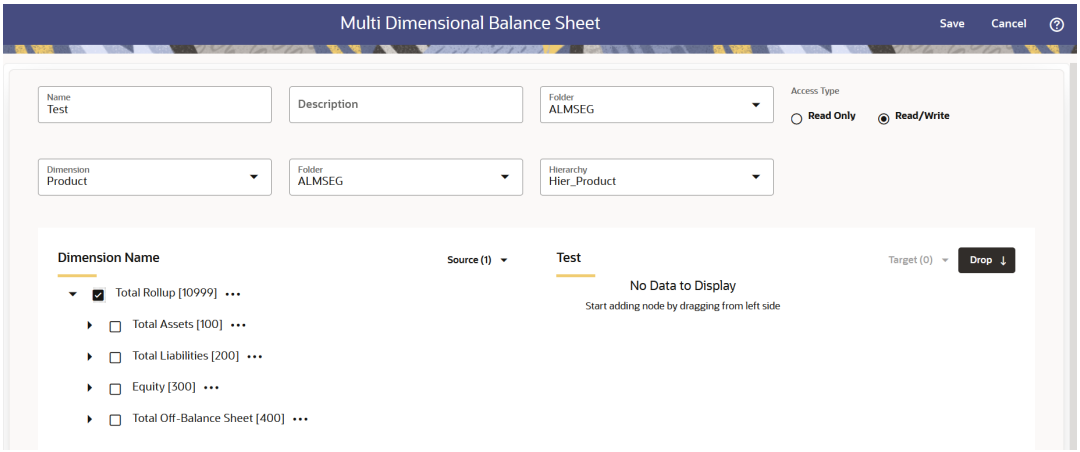
> **Note**
>
> Different MDBSS structures will slot existing data differently, even if they all use the same dimensions. While an MDBSS can place your organization's data at any node, this does not mean all data will necessarily be placed successfully depending upon the MDBSS organization. You should always carefully evaluate what organization data will and will not be included in a particular MDBSS. Ongoing maintenance of your MDBSS is highly recommended.

The MDBSS has organizational rules in place that allow you to maximize its full potential and prevent the possibility of duplicate data being loaded into the Structure.

To create the Multi Dimensional Balance Sheet, do the following:

1. Navigate to the **Multi Dimensional Balance Sheet** summary page.
2. Click **Add** icon. The **Multi Dimensional Balance Sheet** page is displayed.

Figure 6-18 MDBSS Rule



3. Enter the following details:

Table 6-13 Create MDBSS Rule

Fields	Description
Name	Enter the name of the Multi Dimensional Balance Sheet Rule.
Description	Enter the description of the Multi Dimensional Balance Sheet Rule. This is an optional field.
Folder	Select the Folder where the Multi Dimensional Balance Sheet Rule needs to be saved.
Access Type	Select the Access Type as Read-Only or Read/Write.
Dimension	Select the Dimension of the Multi Dimensional Balance Sheet Rule.
Folder	Select the Hierarchy Folder of the Multi Dimensional Balance Sheet Rule.
Hierarchy	Select the Hierarchy of the Multi Dimensional Balance Sheet Rule.

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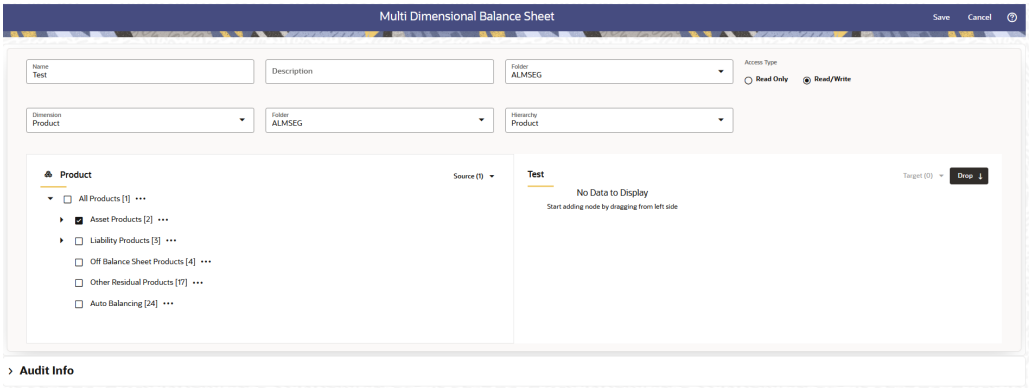
> **Note**
>
> Based on the selected Dimension from Dimension drop-down list, the Dimension Source selection options will vary. For example,

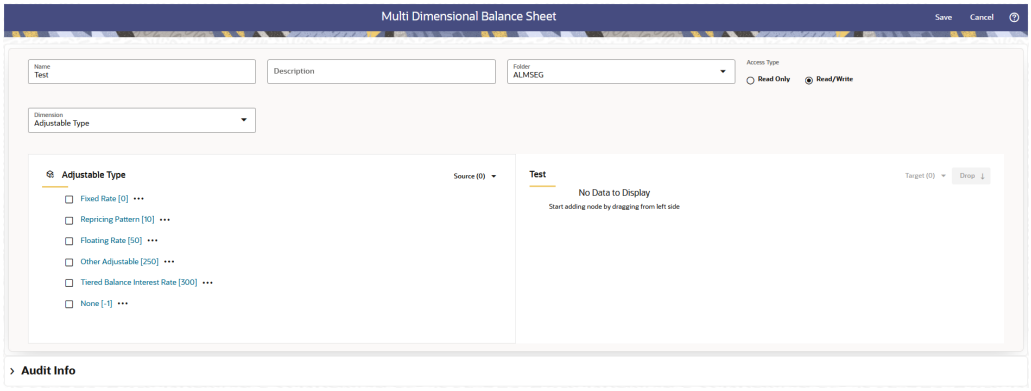
- If Dimension is selected as “Product”, then Product Folder and Product Hierarchy fields will be available.

Figure 6-19 MDBSS Rule



- If Dimension is selected as “Adjustable Type”, then only list of Adjustable Types will be available.

Figure 6-20 MDBSS Rule



4. Select the Source of Dimension from **Dimension** drop-down list. You can click **Source** option to **Select All** or **Unselect All**.
5. Select the Target Node of Dimension. Here, You can select more than one Nodes at a time.
6. Click **Drop**. You can use **Revert** option to reverse the selection.
7. Click **Target** option to **Select All** or **Unselect All**.
   - When you select a Node from Source section, then following options are available:

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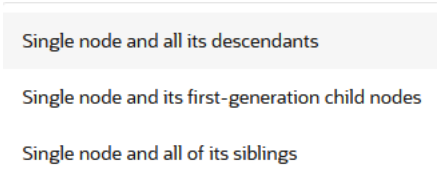
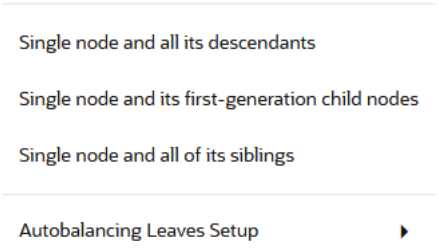
Figure 6-21 MDBSS Rule



- Single node and all its descendants: Allows to select node itself along with its descendants.
- Single node and its first-generation child nodes: Allows to select node itself along with its child nodes
- Single node and all of its siblings: Allows to select node itself along with its siblings nodes

- When node is moved to Target section, then following options are available:

Figure 6-22 MDBSS Rule



- Single node and all its descendants: Allows to select node itself along with its descendants.
- Single node and its first-generation child nodes: Allows to select node itself along with its child nodes
- Single node and all of its siblings: Allows to select node itself along with its siblings nodes
- Autobalancing Leaves Setup: Allows you to setup the Autobalancing for selected node as Asset, Liability, or Retained Earning.

8. Click **Save**.

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Note

If you are using Dimension Loader to modify members and hierarchies that have been used in MDBSS, follow below steps to refresh it with latest dimension data. These steps must be performed after dimension is loaded successfully.

1. Navigate to **Operations and Process** from LHS, then select **Scheduler**.
2. Create a Batch, and then click **Define Task**.
3. Add below two tasks in batch.

Task Code	Task Name	Component	Parameters
1 *	Task Name One *	MDBSS_Hierarchy_Refresh	• **Dimension Name**: Select 'ALL' or specific dimension where data has been modified. This parameter is mandatory. • **Hierarchy Name**: Select hierarchy where data been modified. This is optional. If any hierarchy is not selected, then all hierarchies will be considered during batch execution. If any single hierarchy is selected, then only that hierarchy will be considered during batch execution.

Note

Hierarchy drop-down will populate the hierarchies based on the

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				dimension selected in **Dimension Name** drop-down.
2 *	Task Name Two *	Member_Browser_Refresh	• **Dimension Name**: Select 'ALL' or specific dimension where data has been modified. This parameter is mandatory. • **Hierarchy Name**: Select hierarchy where data been modified. This parameter is optional. If any hierarchy is not selected, then all hierarchies will be considered during batch execution. If any single hierarchy is selected, then, only that hierarchy will be considered during batch execution. **Note** Hierarchy drop-down will populate the hierarchies based on the dimension select

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ed in **Dimension Name** drop-down.

- **Browser Type**: This is an optional parameter and can be left NULL.
- **Service Name**: This is an optional parameter and can be left NULL.
- **API**: This is an optional parameter and can be left NULL.

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

4. Execute the Batch. For more information, see the Scheduler Service.

Two seeded batches **MDBSS_HIERARCHY_REFRESH** and **MEMBER_BROWSER_REFRESH** have been provided.
'Member_Browser_Refresh' is an optional task, but it is suggested to execute it for search functionality in Member Browser to work properly.

Above two components can be put in the batch you may be using for Dimension Loader.

Note

Perform following steps after your environment is upgraded from version 24D to 25A if you have previously defined MDBSS Hierarchies:

1. Navigate to **Operation sand Process** from LHS, then select **Scheduler > Schedule Batch**.
2. Search for batch **MDBSS_KPD_SAVE**.
3. Edit parameters to select one or more MDBSS Hierarchy from the drop-down list.
4. Define the**Operation Type** and**Version**if required.
5. Execute the Batch. For more information, see the Scheduler Service.

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Note

Perform the following steps for your previously defined MDBSS Hierarchies if you are going to define Transfer Pricing and Add-On Rate rule for use in ALM processes.

1. Navigate to **Operations and Processes** menu, and select **Scheduler**.
2. Select **Define Batch**. Create a new batch by entering Code, Name and Description.
3. Save the batch.
   Or

   You can search for batch **'BT_HIERARCHY_REFRESH'** and add the tasks.
4. Navigate to **Define Task**.
5. Select the Batch created above from the **Batch** drop-down list.
6. Click the **Add** button from **Actions** drop-down to add task.
7. Enter the following details in the Task Details Section:
   - **Task Code:** Enter a Code for the task.
   - **Task Name:** Enter Name for the task.
     The Task Name must be alphanumeric and must not start with a number. The Task Name must not exceed 60 characters in length. The Task Name must not contain any special characters except underscore (_).
   - **Description:** Enter the Task Description. Special characters are not allowed in Task Description. Words like Select From or Delete From (identified as potential SQL injection vulnerable strings) should not be entered in the Description.
8. Select **Component** as **FTP_Reverese_Population**.
9. Select the following mandatory Task Parameters:
   - **Dimension Name** as "**Multi Dimensional Balance Sheet**".
   - Pre defined Hierarchy from **Hierarchy Name** drop-down.
10. Save the Task.
11. To add one more task, Select the Batch created above from the **Batch** drop-down list.
12. Click the **Add** button from **Actions** drop-down to add task.
13. Enter the following details in the Task Details Section:
    - **Task Code:** Enter a Code for the task.
    - **Task Name:** Enter Name for the task.
      The Task Name must be alphanumeric and must not start with a number. The Task Name must not exceed 60 characters in length. The Task Name must not contain any special characters except underscore (_).
    - **Description:** Enter the Task Description. Special characters are not allowed in Task Description. Words like Select From or Delete From (identified as potential SQL injection vulnerable strings) should not be entered in the Description.
14. Select **Component** as **Assumption_Hierarachy_Refresh**.
15. Select the following mandatory Task Parameters:

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- **Dimension Name** as "**Multi Dimensional Balance Sheet**".
- Pre defined Hierarchy from **Hierarchy Name** drop-down.

16. Save the Task.
17. Navigate to **Schedule Batch** and execute the batch created above created batch with **Batch ID** and **MIS Date**. After batch execution, MDBSS data will be loaded in the table OFSA_IDT_ROLLUP.

For more information, see the Scheduler Service.

6.1.5.2 Examples of Multi Dimensional Balance Sheet Structure

List of Examples:

1. The first dimension type placed is considered an "anchor dimension" on level 1, or the highest parent node. This first dimension type can be of any supported dimension or hierarchy member, but once placed all sibling branches on level 1 must be the same dimension type. For example, if you place a Product dimension member (node or leaf), then every new node placed on the first level must also be a Product dimension member.

Figure 6-23 Example 1

a. The node "Total Assets" is a Product member and its sibling "Total Liabilities" must also be a Product member.

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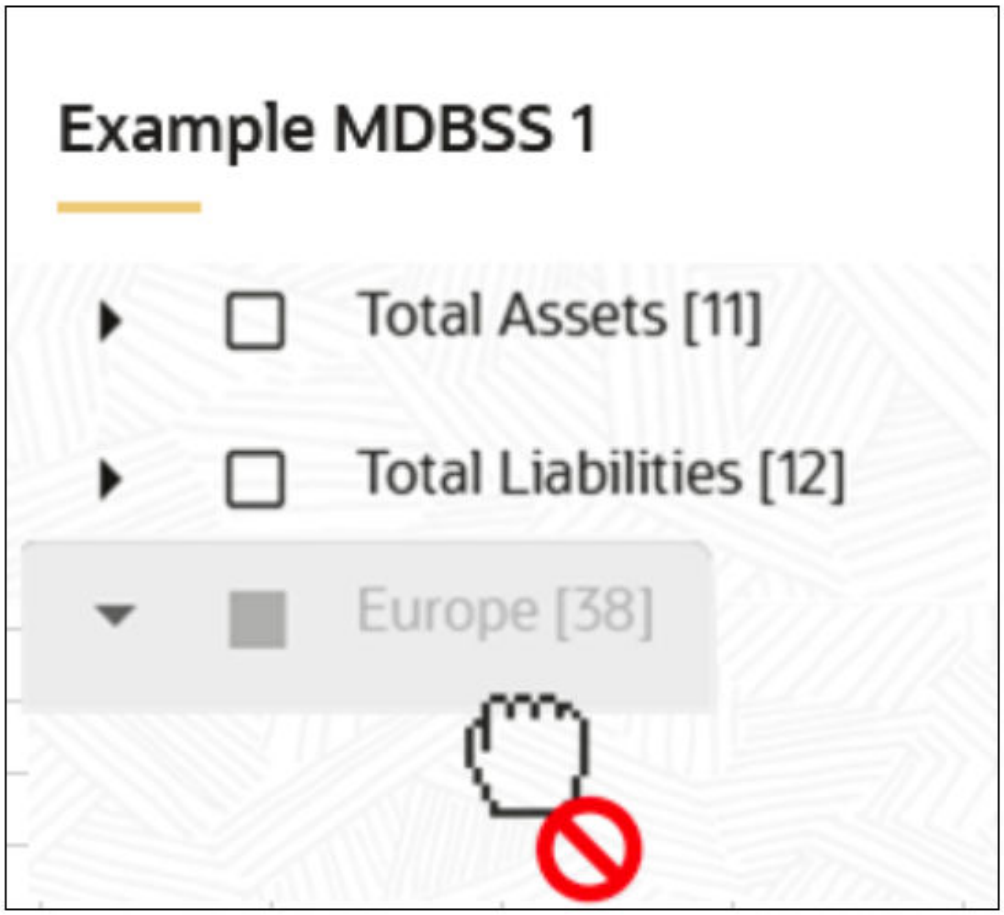
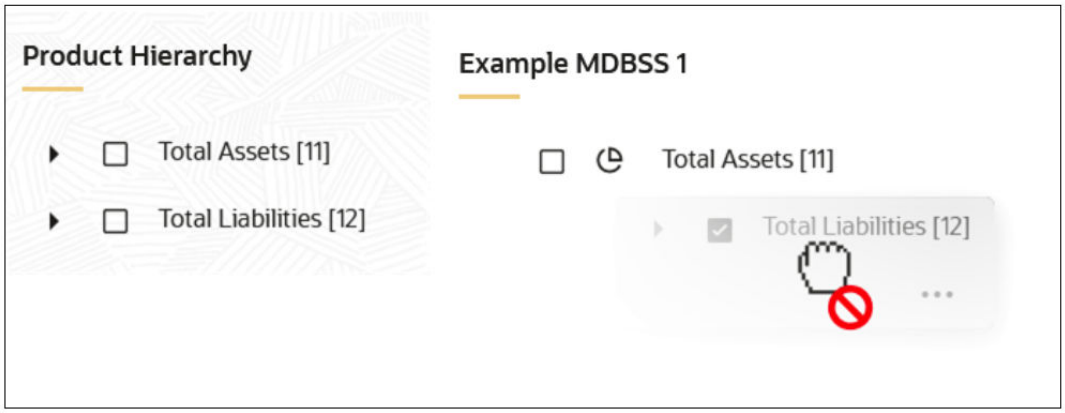
Figure 6-24 Example 2



b. The Legal Entity dimension "Europe" cannot be made a sibling of "Total Assets" and "Total Liabilities" since they have been placed first and are a Product dimension.

2. The parent-child relationship of the source hierarchy must be preserved when placing in the MDBSS.

Figure 6-25 Example 3



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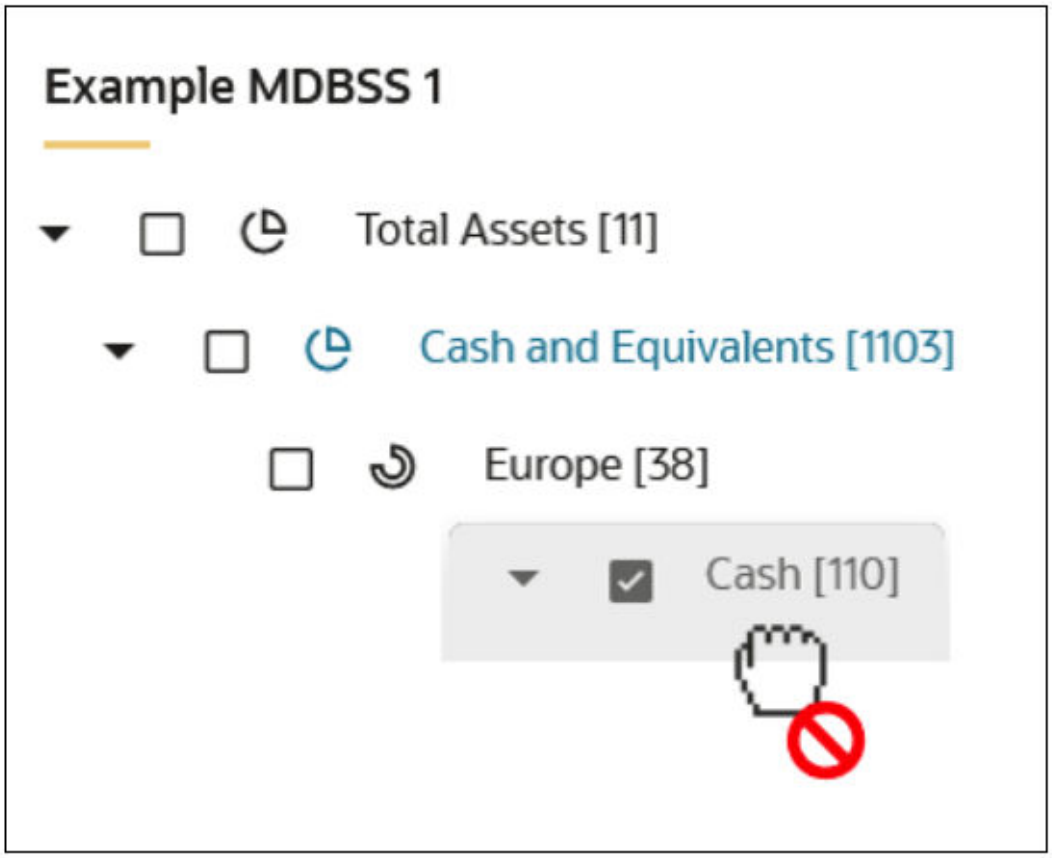
a. Node "Total Liabilities" is a sibling of "Total Assets" in the source hierarchy. This means that "Total Liabilities" cannot be made a child of "Total Assets" in an MDBSS since that would violate its parent-child relationship established in the source hierarchy.

3. Nonadjacent dimensions of the same type on a single branch is not allowed. Once a branch of a dimension has been added it cannot be reintroduced again on that same branch.

Figure 6-26 Example 4



a. The node "Cash" cannot be made a child of node "Europe" (a Legal Entity member) since it is not adjacent to the other Product hierarchy members on the same branch.

4. The MDBSS can be constructed of dimension hierarchy nodes, leafs, or both. Using a source hierarchy node implies that all its children are also included in the MDBSS.

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Figure 6-27 Example 5

a. You can place the node "GL Cash and Equiv" from its source hierarchy and it is implied that its children "A101" and "A102" will also be included in the MDBSS.

5. A source hierarchy branch does not need every member included in the MDBSS as long as it preserves the parent-child relationship of the source branch.

Figure 6-28 Example 6

a. Every member of the branch from hierarchy Legal Entity does not need to be included in the MDBSS as long as the overall parent-child relationship ("German Bank" is a descendant child of node "Europe").

Using these guidelines you can create as many Structures as needed. You can add, move, or delete nodes as long as the placement guidelines are followed.

> **Note**
>
> Once a Static or Dynamic process is completed using a specific MDBSS then that Structure is locked and cannot be modified. This is required to preserve reporting integrity.

6.1.5.3 Autobalancing in MDBSS

Overview

Autobalancing is a feature within the **ALM Dynamic Deterministic Process (DDP)** that serves as a *balance plug* to maintain the integrity of the projected balance sheet. Its primary function is to ensure that forecasted projections satisfy the fundamental accounting equation:

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Total Assets = Total Liabilities + Shareholders' Equity

This functionality long supported in the ALM On-Premises solution and continues to be available and enhanced in the **ALM Cloud Services** offering.

Purpose of Autobalancing

The **Autobalancing** feature is designed to replicate the financial adjustments that typically occur during the lifecycle of a balance sheet, ensuring the projected financials remain balanced and realistic. During forecast simulations, discrepancies may arise between assets and liabilities due to model assumptions, maturity mismatches, or cash flow timing. Autobalancing automatically applies corrective measures to maintain accounting equilibrium.

The functionality simulates and adjusts for a variety of balance sheet activities, including:

- **Unrealized Currency Gains/Losses**: Automatically accumulates unrealized foreign exchange gains or losses into the **Equity** section, reflecting currency valuation changes over time.
- **Overnight Funding Adjustments**: Simulates the **purchase of overnight funds** when cash shortfalls are detected, or the **investment of surplus cash** through the sale of overnight instruments to optimize liquidity.
- **Net Income Allocation**: Rolls forward **net income** from the income statement into **Retained Earnings**, capturing the effect of profit accumulation on the equity structure.
- **Dividend Payments**: Accounts for **dividends declared and paid**, reducing retained earnings accordingly to reflect shareholder distributions.
- **Tax Payments**: Simulates **federal and state tax liabilities**, reducing net income to reflect anticipated tax outflows during the forecast period.
- **Realized gains/losses**: adjust the equity portion by reflecting actual profit or loss from static ALM data, ensuring continuity between historical and forecasted balance sheets.

By automating these adjustments, Autobalancing helps ensure that the forecasted balance sheet is not only technically balanced but also reflects practical financial behavior under varying scenarios.

Process Types

Autobalancing is supported exclusively for the **MDBSS (Multi-Dimensional Balance Sheet Structure)** dimension within **Dynamic Deterministic Process (DDP)** execution. It applies to the following output types:

- **Scenario-based MDBSS outputs**
- **Consolidated scenario outputs for MDBSS**
- **Earnings-at-Risk (EaR) results**

Each of these process types leverages Autobalancing to maintain the integrity of forecasted financial statements, ensuring they remain accurate, complete, and in line with standard accounting principles.

Creation of Autobalancing leaves under Reference Data -- Multi-Dimensional Balance Sheet

As a prerequisite step we need to create Autobalancing Leaves under **Reference Data -- Multi-Dimensional Balance Sheet** thereafter which will be available in the Multi-Dimensional Balance Sheet Structure Summary for required Autobalance leaves to config as part of Dynamic Deterministic ALM process.

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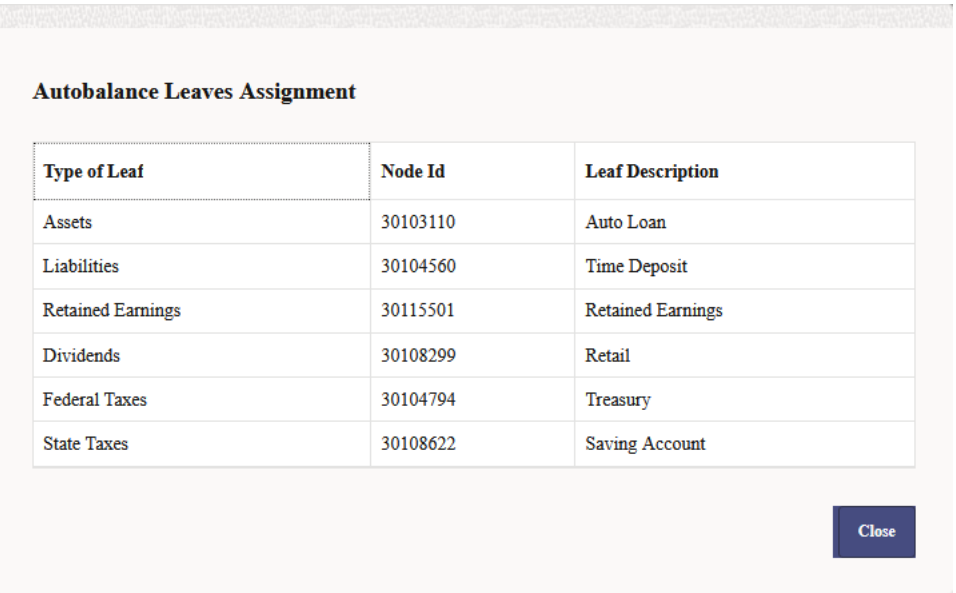
Note: All MDBSS members mapped for use in Autobalancing must have the correct account type attribute (via MDBSS) and all components must be mapped for the process to run. Also note, that each Autobalancing element should have a unique dimension member assignment as per below mentioned screen print.

Viewing Autobalancing Assignments

To view autobalancing on Multi-Dimensional Balance Sheet, follow these steps:

1. Navigate to the **Reference Data** and select **Multi Dimensional Balance Sheet**.
2. Search for a Rule.
3. Click on the action icon against the required Multi Dimensional Balance Sheet Name and select **Autobal Assignment**. The Autobalancing Leaves Assignment window displays the Type of Leaf along with mapped Node ID and Leaf Description.

Figure 6-29 Autobalancing Assignments



Below is the list of auto balancing leaves:

Asset

Liability

Retained Earnings

Dividends

Federal Taxes

State Taxes

> **Note**
>
> Here, Product characteristics of the parent node are used if definition of Autobalancing leaf (asset, liability) is not found.

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6.1.6 Volatility Surface

The Volatility Curve UI allows you to select the curve. 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.

> **Note**
>
> For FTP Volatility, both the Terms tab and Historical Rates tab are available with this option. Volatility curves are used in FTP to calculate the Rate Lock Option Costs.

For ALM Volatility, only the Historical Rates tab is available. After you have saved the Yield Curve, you cannot change the selected Volatility Curve.

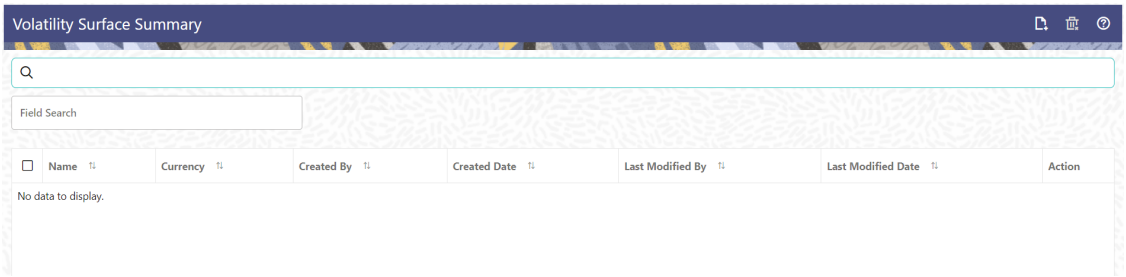
ALM Volatility is used to evaluate embedded options for the Black 76 market valuation.

For more information, see the Cash Flow Engine Reference Guide.

Volatility Surface Rule Summary

This page is the gateway to all Volatility Surface Rules and related functionality. You can navigate to other pages relating to Volatility Surface Rules from this point.

Figure 6-30 Volatility Surface Rule Summary



Search Volatility Surface Rule

Prerequisites: Predefined Volatility Surface Rule

To search for a Volatility Surface Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Volatility Surface Rules that meet the search criteria.

Or

An alternative method to search a Volatility Surface Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Volatility Surface Rule Summary. You can enter the **Code, Name, Currency**and **Description,** of the Volatility Surface Rule and click **Search**.

The Volatility Surface Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Volatility Surface Rule.

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Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Name:** The Volatility Surface Rule's short name.
- **Currency:** The Volatility Surface Rule's currency.
- **Created By:**The Name of the user who created the Volatility Surface.
- **Created Date:** The Date and Time at which the Volatility Surface was created.
- **Last Modified By:** The user who last modified the Volatility Surface Rule.
- **Last Modified Date:** The Date and Time when the Volatility Surface Rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Volatility Surface Rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Volatility Surface Rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Volatility Surface Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Volatility Surface Rules that you no longer require. Note that only Volatility Surface Rule owners and those with Read/Write privileges can delete Volatility Surface Rules. A Volatility Surface Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular Volatility Surface Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Volatility Surface Rules that have dependencies. A report of all rules that utilize the selected Volatility Surface Rule is generated.

Also See:

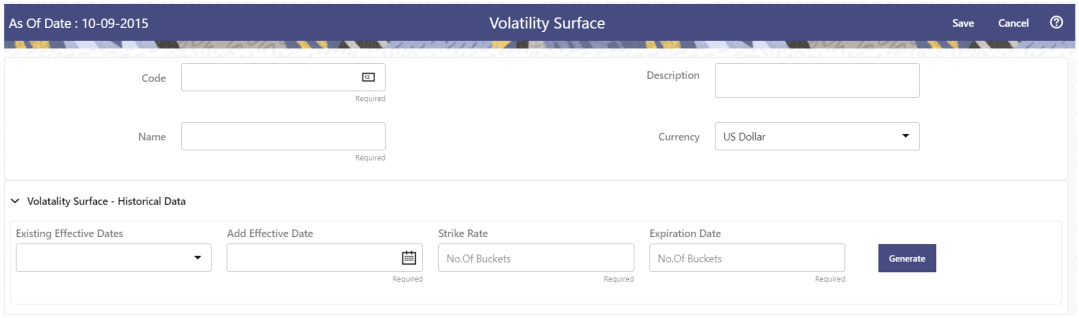
- Create Volatility Surface Rule

6.1.6.1 Create Volatility Surface Rule

To create a Volatility Surface Rule, follow these steps:

1. Navigate to the **Volatility Surfaces Rule Summary** page.
2. Click **Add**. The Volatility Surface Rule page is displayed.

Figure 6-31 Volatility Surface Rule



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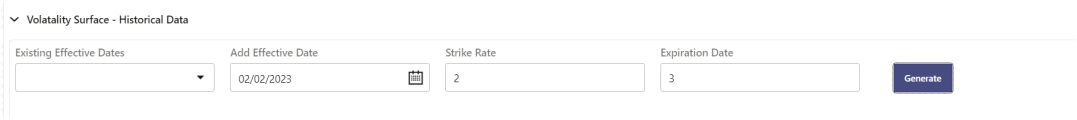
3. Enter the following details:
Table: Volatility Surface Details

Fields	Description
Code	Enter the code of the Volatility Surface Rate Rule.
Name	Enter the name of the Volatility Surface Rate Rule.
Description	Enter the description of the Volatility Surface Rule. This is an optional field.
Currency	Select the currency of the Volatility Surface Rate Rule.

4. Navigate to **Volatility Surface Historical Data** section.

Figure 6-32 Volatility Surface Section

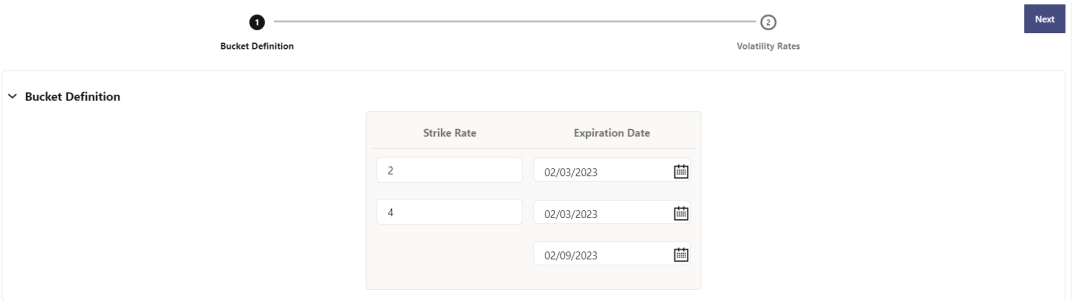


5. Enter the following details:
Table: Volatility Surface sections

Fields	Description
Existing Effective Dates	Select the existing Effective Dates.
Add Effective Dates	Select the As of Date as Effective Dates using Add Effective Dates field.
Strike Rate	This is the Vertical Axis dimension of historical rates for an ALM Volatility Surface
Expiration Date	This is the Horizontal Axis dimension of historical rates for an ALM Volatility Surface. Select the desired Expiration Term from the drop-down list to complete the Volatility Matrix

6. Click **Generate**. Enter the Strike Rate and Expiration Date in Bucket Definition section. Effective Dates must be entered for each Expiration Term.

Figure 6-33 Bucket Definition



7. Click **Next**.

8. Enter the breakpoints for Strike Rate and Expiration Date in **Volatility Rates** section. For Strike Rate, enter values in ascending order. For Expiration Date, enter values in

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ascending order with values greater than the currently specified As of Date. At every intersection of Strike Rate and Expiration Date, enter a volatility amount in percent (that is, 25 = 25%).

Figure 6-34 Volatility Rates

9. Click **Apply**.
10. Click **Save**.

6.2 Common Rules

This section covers the following topics:

1. Preferences: This section covers the procedures to set the Global Preference Settings and User Preference Settings.
2. Behavior Pattern: User Defined Behavior Patterns allow you to define Principal Amortization Schedules for Non-Maturity Products in your portfolio.
3. Repricing Pattern: 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.
4. Payment Pattern: User defined payment patterns allow you to define custom repayment patterns for products in your portfolio.
5. Holiday Calendar: 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.
6. Management Ledger Configuration: This section covers the procedure to define the Functional Currency and the Fiscal Year Start Month for each registered Management Ledger Table.
7. Ledger Load History: Ledger Load History allows you to review the Runtime History of a Management ledger Load.
8. Filters: Filters allow you to select data using the defined expressions.

6.2.1 Preferences

This section discusses the procedure to define and maintain the ALM Application, User, and Global Preference Settings.

Topics:

- Select Preference For
- Configure Global Preference

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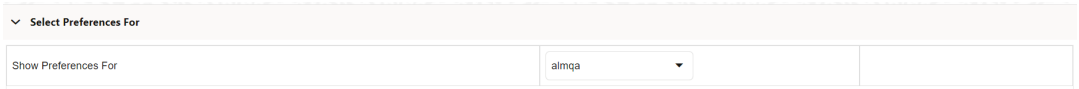
- Configure Application Preference
- Configure User Preference

6.2.1.1 Select Preferences For

To setup the Preferences, follow these steps:

1. Navigate to **Maintenance** and select **Preferences**.

Figure 6-35 Select Preferences For section



2. Select the user from **Show Preferences For** drop-down list. This has following options:
   - **All User:** If you have Administrator Privileges, you can define preferences for the All User Group and their individual account, which may be the same or different from the All User settings. 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 selected as is Editable, then End Users can update or override the Administrator's default value for their own individual account. If the **Is Editable** box is deselected, then End Users cannot change the default for their individual account.
   - **End-User:** If you do not have Administrator Privileges, then certain preference items are pre-set by the Administrator, and you may not be allowed to change the value. All Application Preference Settings are displayed, regardless of the access privilege.

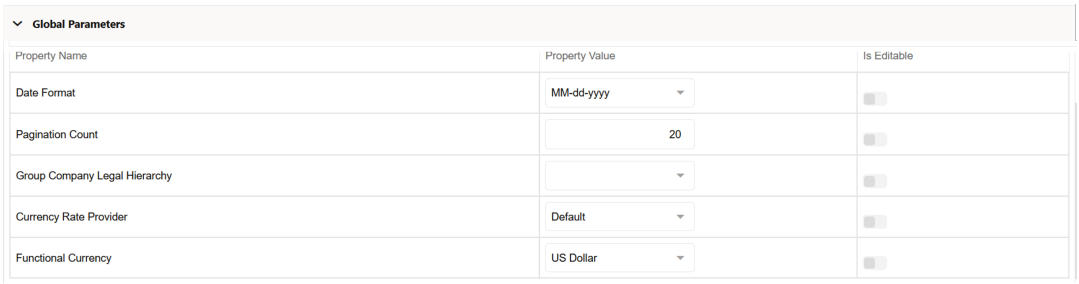
6.2.1.2 Global Preference

Global Preferences items are used to configure your User Interface (UI).

To update the Global Preferences, follow these steps:

1. Navigate to **Maintenance** and select **Preferences**.
2. Select **Global Parameters**.

Figure 6-36 Global Preference



3. Enter following values as described in table:

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Table 6-14 Global Preference

Fields	Description
Date Format	Select one value from the available list. dd-MMM-yy yyyy/MM/dd MM/dd/yyyy dd.MM.yyyy MM-dd-yyyy yyyy.MM.dd yyyy/MMM/dd dd-MMM-yyyy dd/MMM/yyyy yyyy.MMM.dd dd/MM/yyyy MM.dd.yyyy dd-MM-yyyy yyyy-MM-dd dd.MMM.yyyy yyyy-MMM-dd
Pagination Count	Pagination Records determine how many rows are displayed on summary and other screens. If you select Pagination Records to be 25 records, then any screen displaying results in a tabular format displays a maximum of 25 records.
Group Company Legal Hierarchy	This displays list of Legal Entity Hierarchies that have been configured in Dimension Management. Select one hierarchy that must be used to identify internal (part of same financial group) customers of the institutions.
Currency Rate Provider	This displays list of providers of Currency Exchange Rate. Value “Default” is seeded and selected as default. If you load exchange rates from more than one source like Reuters and Bloomberg ,then select one which you want the engine to use during processing. Members of Dimension Rate Data Source are displayed in the drop-down list.
Functional Currency	A common functional currency is required which can be set here. This is required to consolidate the accounts' balances or charges at multiple hierarchy levels. This is used in Ledger Reconciliation module.

4. **Is Editable status** cannot be turned on since individual users are not expected to modify these parameters.
5. Click **Save** to confirm the changes.

Reset to Default option enables the factory settings to default.

6.2.1.3 User Preference

User Preference items are used to configure the User Settings.

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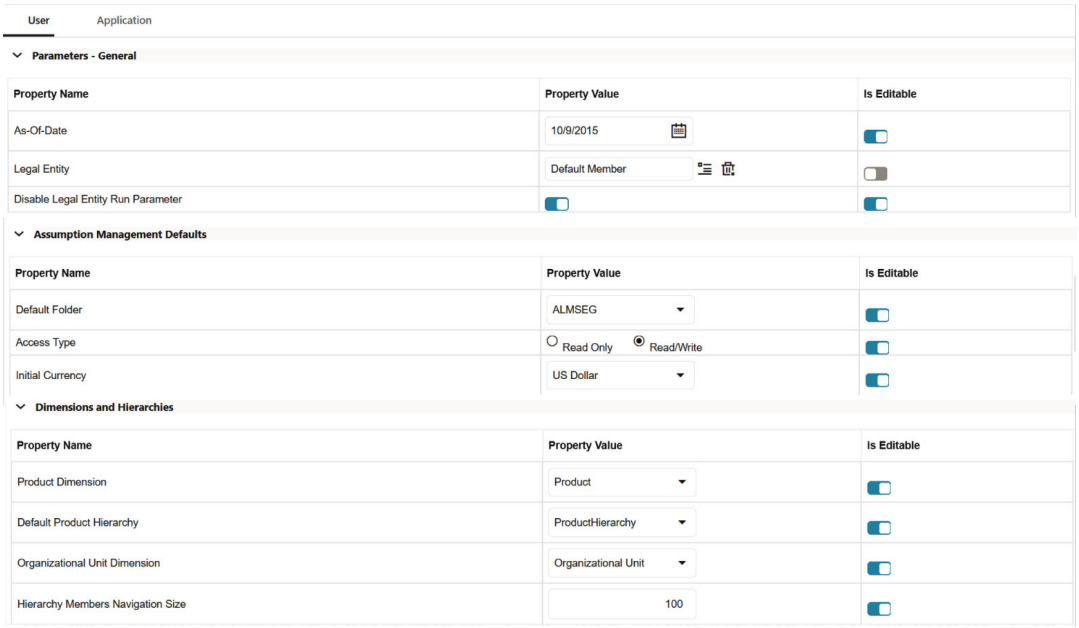
To update the Asset Liability Management User Preferences, follow these steps:

1. Navigate to the **Maintenance** and select **Preferences**.
2. Click the **User** tab.

Figure 6-37 User Preference section



3. Enter following values as described in table.

Table 6-15 User Preference

Fields	Description
Parameters – General	
As of Date	All processes reference this date at Runtime to determine the data to include in the process. The As-of-Date value you set in Application Preferences applies to interactive job execution (that is, when you choose to execute a rule directly from a Summary window). For batch processing, the As-of-Date is derived from the Information Date. As-of-Date is also referenced by some assumptions UI's to display relevant information therein.

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Table 6-15 (Cont.) User Preference

Fields	Description
Legal Entity	Similar to As-of-Date, all processes reference Legal Entity at Runtime to determine the data to include in the process. The value of the Legal Entity you set in Application Preferences applies to interactive job execution (that is, when you choose to execute a process directly from a Summary window) and Batch Processing. NOTE: Legal Entity is designed to support implementations that require multi-entity or multi-tenant functionality. If your implementation does not require this functionality, you may utilize the Default Legal Entity in all your processes. Default implies -1 code. The default value for the Legal Entity Dimension Column in the instrument data is -1
Disable Legal Entity Run Parameter	This parameter lets you display or hide the Legal Entity Run parameter on the Static Deterministic Process and Dynamic Deterministic Process UIs.
Assumption Management Defaults	
Default Folder	This parameter allows you to define the default folder selection. The folder selection for all rule types is defaulted to this selection within the summary page search window 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. Selections include Read / Write and Read Only. This selection acts as the starting value for convenience only and users can change at their discretion.
Initial Currency	This parameter allows you to select the starting currency to be displayed within all Business Rules. This selection is made for convenience and can be changed within all business rules at the users' discretion.
Dimensions and Hierarchies	
Product Dimension	Oracle PBSM requires users to declare one of the “Product Type” dimensions as the ALM Product Dimension. The model is seeded with the possible selections as follows: • Product • Common Chart of Accounts • General Ledger Account
Default Product Hierarchy	The list of values for Default Product Hierarchy is based on the Default Product Dimension Selection. The hierarchy selected here is a 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.

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Table 6-15 (Cont.) User Preference

Fields	Description
Organizational Unit Dimension	Organizational Unit ID is the standard organizational dimension in the OFSAA relational data model and is intended to equate to the organizational dimension found in the General Ledger (for example, Cost Center, Responsibility Center, Department, and so on). Unless Users have defined additional Organizational dimensions, the Organizational Unit Dimension is set by default to Organizational Unit ID. If Users have defined additional Organizational dimensions, then they may select any Org type dimension to serve as their Organizational Unit Dimension.
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 exceeds the specified Navigation Size, it provides "More" and "Previous" options to enable you to navigate through the member list. 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.

4. Click **Save** to confirm the changes.

6.2.1.4 Application Preference

Application Preferences UI allow Administrators and End Users to establish default values, manage other Core Application Parameters that affect the way Business Rules are created and the way Cash Flow Processes are run.

To update the Cash Flow Engine Application Preferences, follow these steps:

1. Navigate to **Maintenance** and select **Preferences**.
2. Click the **Application tab**.

> **Note**
>
> In the upgrade environment, the parameter details for the default user will remain unchanged. You can copy the parameter details using the **All USER** option of **Select Preferences For** section as required.

3. Enter the following values in Application tab as described in table:

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Figure 6-38

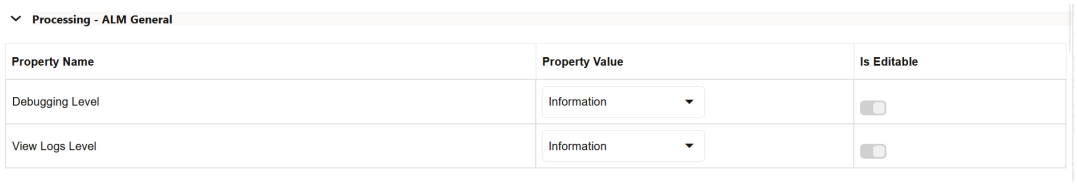

Table 6-16 Processing-ALM General section of Application Preference

Fields	Description
Debugging Level	The debugging output level determines the amount of SQL that will be written to the processing log. There are eight levels available: **a.** Trace: Designates finer-grained informational events than the DEBUG. **b.** All: All levels including custom levels. **c.** Error: Designates error events that might still allow the application to continue running. **d.** Information: Designates informational messages that highlight the progress of the application at coarse-grained level. **e.** Debug: Designates fine-grained informational events that are most useful to debug an application. **f.** Fatal: Designates very severe error events that will presumably lead the application to abort. **g.** Warning: Designates informational messages that highlight the progress of the application at coarse-grained level. **h.** Off: The highest possible rank and is intended to turn off logging. **Note:** A log request of level p in a logger with level q is enabled if p >= q. This rule is at the heart of log4j. It assumes that levels are ordered. For the standard levels, we have ALL < DEBUG < INFO < WARN < ERROR < FATAL < OFF.

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Table 6-16 (Cont.) Processing-ALM General section of Application Preference

Fields	Description
View Logs Level	This shows the severity of the information telling you how important a given log message is. This shows the View level of the Log. a. Trace: Designates finer-grained informational events than the DEBUG. b. All: All levels including custom levels. c. Error: Designates error events that might still allow the application to continue running. d. Information: Designates informational messages that highlight the progress of the application at coarse-grained level. e. Debug: Designates fine-grained informational events that are most useful to debug an application. f. Fatal: Designates very severe error events that will presumably lead the application to abort. g. Warning: Designates informational messages that highlight the progress of the application at coarse-grained level. h. Off: The highest possible rank and is intended to turn off logging.

Figure 6-39 Processing-ALM Process section of Application Preference

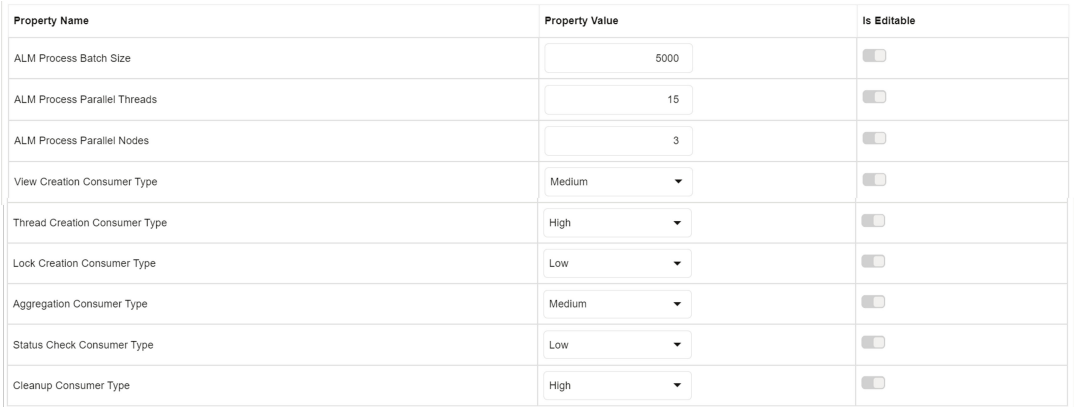

Table 6-17 Processing- ALM Process section of Application Preference

Fields	Description
ALM Process Batch Size	Number of Account or Instruments that must be processed in a single batch. Default Value of 5000 is seeded by the service, and you can modify it as needed

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Table 6-17 (Cont.) Processing- ALM Process section of Application Preference

Fields	Description
ALM Process Parallel Threads	Number of threads created by the executor for each batch. This is a performance tuning parameter for ALM Cloud Service. This defines how much memory can be used by the different components of the process such as the stack, data and text segments. Default Value of 15 is seeded by the service, and you can modify it as needed
ALM Process Parallel Nodes	Number of nodes created by the executor for each batch. Default Value of 3 is seeded by the service, and you can modify it as needed
View Creation Consumer Type	Shows the Creation Consumer Type as Low, high or Medium. Default value is Medium.
Thread Creation Consumer Type	Shows the Thread Creation Consumer Type as Low, high or Medium. Default value is High. **Note** If you are executing two processes simultaneously, then set this parameter to Medium.
Lock Creation Consumer Type	Shows the Lock Creation Consumer Type as Low or Medium. Default value is Low.
Aggregation Consumer Type	Shows the Aggregation Consumer Type as Low or Medium. Default value is Medium.
Status Check Consumer Type	Shows the Status Check Consumer Type as Low or Medium. Default value is Low.
Cleanup Consumer Type	Shows the Cleanup Consumer Type as Low, high or Medium. Default value is Medium.

Caution: These are performance tunning parameters. Do not modify the recommended values of these parameters. To modify these parameters, contact to Oracle Support. For more information, see Autonomous Database Serverless documentation.

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Note

Below example shows that how each parameter gets used.

	10	60	120	240	420	600	1200	3000	6000	12000
T-shirt Size	**P**	**Nano**	**Micro**	**XXS**	**XS**	**S**	**M**	**L**	**XL**	**XXL**
ALMCS - ALM Process										
ALM Process Batch Size	50000	50000	50000	50000	50000	100000	100000	100000	100000	100000
ALM Process Parallel Nodes	2	2	2	2	2	2	4	4	5	5
ALM Process Parallel Threads	2	2	2	4	4	6	8	8	25	25
Data Preparation Consumer Type	Low	Low	Low	Low	Low	Low	Medium	Medium	Medium	Medium
Work Unit Allocation Consumer Type	High	High	High	High	High	High	High	High	High	High
Data Processing Consumer Type	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Cleanup and BI Transformation Cons	Medium	Medium	Medium	Medium	Medium	Medium	High	High	High	High

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umer
Type

Figure 6-40 Processing-Cash Flow General section of Application Preference

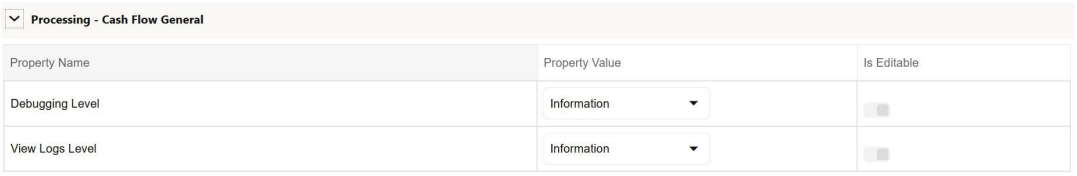

Table 6-18 Processing-Cash Flow General section of Application Preference

Fields	Description
Debugging Level	The debugging output level determines the amount of SQL that will be written to the processing log. There are eight levels available: a. Trace: Designates finer-grained informational events than the DEBUG. b. Error: Designates error events that might still allow the application to continue running. c. Information: Designates informational messages that highlight the progress of the application at coarse-grained level. d. Debug: Designates fine-grained informational events that are most useful to debug an application. e. Fatal: Designates very severe error events that will presumably lead the application to abort. f. Warning: Designates informational messages that highlight the progress of the application at coarse-grained level. **Note** A log request of level p in a logger with level q is enabled if p >= q. This rule is at the heart of log4j. It assumes that levels are ordered.

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Table 6-18 (Cont.) Processing-Cash Flow General section of Application Preference

Fields	Description
View Logs Level	This shows the severity of the information telling you how important a given log message is. This shows the View level of the Log. There are three levels available: a. Information: Designates informational messages that highlight the progress of the application at coarse-grained level. b. Debug: Designates fine-grained informational events that are most useful to debug an application.

Figure 6-41 Processing-Cash Flow Process section of Application Preference

Table 6-19 Processing-Cash Flow Process section of Application Preference

Fields	Description
Cash Flow Process Batch Size	Number of Account or Instruments that must be processed in a single batch. This is used by Cash Flow Engine for performance tuning. Default Value of 1000 is seeded by the service, and you can modify it as needed

Note

Below example shows that how each parameter gets used taking 100k records.

The given "Cash Flow Process Batch Size" values are based on single process execution at a time.

Cash Flow Process Batch Size = Below Cash Flow Process Batch Size/## no of parallel executions ##

T-shirt Size	P	Nano	Micro	XXS	XS	S	M	L	XL	XXL
CFECS - Cash Flow Process										
Cash Flow Process Batch Size	50000	50000	50000	50000	50000	100000	100000	100000	100000	100000

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Figure 6-42 Processing-Cash Flow Edits section of Application Preference

Table 6-20 Processing-Cash Flow Edits section of Application Preference

Fields	Description
Cash Flow Edits Batch Size	Number of Account or Instruments that must be processed in a single batch. This is used by Cash Flow Edits Engine for performance tuning. Default Value of 1000 is seeded by the service, and you can modify it as needed
Cash Flow Edits Flush Batch Size	Number of records that gets saved or updated in a batch during Cash Flow Process execution. This is used by Cash Flow Engine for performance tuning. Default Value of 500 is seeded by the service, and you can modify it as needed

Figure 6-43 Processing - Export Results

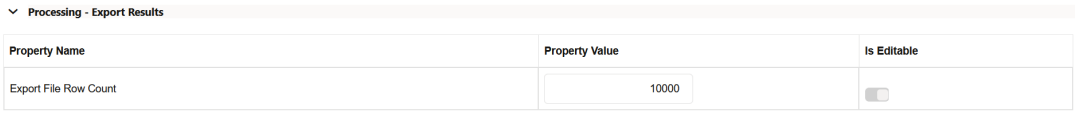

Table 6-21 Processing - Export Results section of Application Preference

Fields	Description
Export File Row Count	Number of records to be included in one file when cash flow output is exported from database to Object Storage. You must enter value greater than zero Default Value of 1000 is seeded by the service, and you can modify it as needed

4. **Turn-on** the Is Editable status.
5. Click **Save** to confirm the changes.

6.2.2 Patterns

This section covers the following topics:

1. Behavior Patterns: User Defined Behavior Patterns allow you to define Principal Amortization Schedules for Non-Maturity Products in your portfolio.

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2. 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.
3. Payment Patterns: User defined payment patterns allow you to define custom repayment patterns for products in your portfolio.

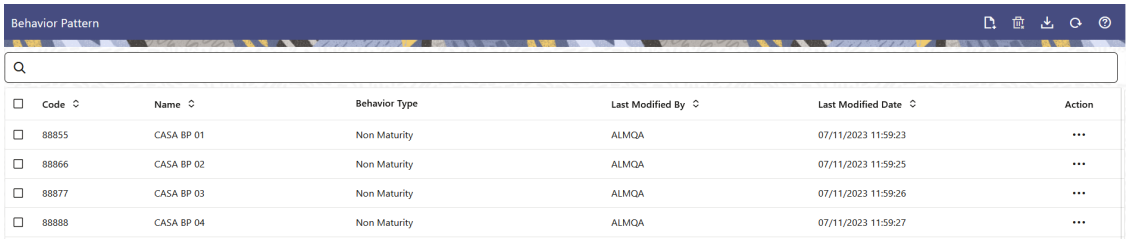
6.2.2.1 Behavior Patterns

PBSM (Profitability and Balance Sheet Management) Cloud Service's User Defined Behavior Patterns allow you to define Principal Amortization Schedules for Non-Maturity Products in your portfolio. You can utilize a Behavior Pattern to generate Cash Flows by entering the Amortization Type Code as "Behavior Pattern" along with the actual Behavior Pattern Code for the relevant Instrument Records.

Behavior Pattern Summary

This page is the gateway to all Behavior Patterns and related functionality. You can navigate to other pages relating to Behavior Patterns from this point.

Figure 6-44 Behavior Pattern Summary



Search Behavior Pattern

Prerequisites: Predefined Behavior Pattern

To search for a Behavior Pattern:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Behavior Patterns that meet the search criteria.

The Behavior Pattern Summary displays the following information:

- **Code:** Numeric code of the Behavior Pattern
- **Name:** The Behavior Pattern's name.
- **Behavior Type:** The type of Behavior Pattern.
- **Last Modified By:** The user who last modified the Behavior Pattern.
- **Last Modified Date:** The Date and Time when the Behavior Pattern was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Behavior Pattern.
  - **View:** You can view an existing Behavior Patterns.
  - **Edit:** Based on the user privilege assigned, you can edit existing Behavior Patterns. To edit a rule, you must have Read/Write privilege.

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- **Save As:** You can reuse a Behavior Pattern by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
- **Delete:** You can delete Behavior Patterns that you no longer require. A Behavior Pattern that has a dependency cannot be deleted.
- **Dependency Check:** You can perform a dependency check to know where a particular Behavior Pattern has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Behavior Patterns that have dependencies. A report of all rules that utilize the selected Behavior Pattern is generated.

> **Note**
>
> This is functionality will intended for a future release.

In addition to above actions, you can perform below actions using icons located at top right side of the summary:

- **Add**: Click the Add icon on the page header to build a new Behavior Pattern.
- **Multiple Delete**: Enables you to select and delete one or multiple rules in the tables simultaneously.
- **Download**: Export contents of summary to a CSV file
- **Refresh**: Click refresh icon to reload the summary.
- **Help**: Click help icon to access online guide to use Behavior Pattern.

Also See:

- Creating a Behavior Pattern

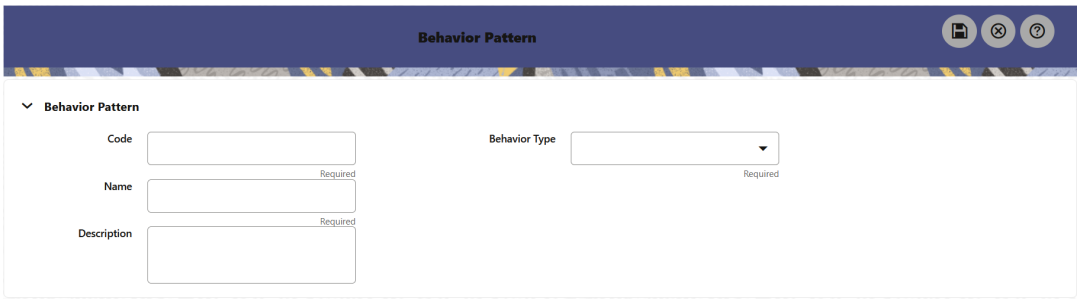
6.2.2.1.1 Creating Behavior Patterns

You create Behavior Patterns to capture the principal run-off behavior of product types that do not have contractual maturities.

To create a Behavior Pattern, perform the following:

1. Navigate to the **Behavior Pattern Summary** Page.
2. Click **Add** to display the Behavior Pattern Details Page.

Figure 6-45 Behavior Patterns Details Page



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3. Enter a unique Numeric Code for the new Behavior Pattern. The code is must be mapped the appropriate instrument record's BEHAVIOUR_PATTERN_CD if Amortization Type is Behavior Pattern to connect the instrument to the appropriate pattern.
4. Enter the **Name** and a **Description** for the pattern.
5. Select the Behavior Pattern Type from the following options:
   - Non Maturity
   - Non-Performing
   - Devolvement and Recovery.
6. Define the Behavior Pattern Tenor Specifications for the Maturity Branches.
7. The selection of the Behavior Pattern Type made in the previous step determines the information you must provide to successfully define that Pattern Type. For more information, see:
   - Defining Non-Maturity Behavior Patterns
   - Defining Non-Performing Behavior Patterns
   - Defining Devolvement and Recovery Behavior Patterns

> **Note**
>
> The Behavior Pattern Details Page above displays the specifications associated with the Non Maturity Pattern Type. Should you change this value for one of the other two alternatives, Non Performing or Devolvement and Recovery, the payment specifications section corresponding to the new Pattern Type get refreshed. Although you can change your selection of the Pattern Type at any point in this procedure, sometimes this might result in loss of data related to any prior selection.

6.2.2.1.1.1 Defining Non-Maturity Behavior Patterns

Non-Maturity Behavior Patterns are commonly used for deposit products like Checking, Savings, and Money Market Accounts as well as for Credit Card Accounts. These account types are similar in that they do not have Contractual Cash Flows because Customers have the option to deposit or withdraw any amount at any time (up to any established limits).

When working with Non-Maturity Behavior Patterns, your percentage weights, assigned to maturity terms must add up to 100%.

For Manual Model, you can perform the following steps:

1. In the Behavior Pattern Details Page, select Non Maturity as the Behavior Pattern Type.
2. Select Non-Maturity Products Profile Method as **Manual** or **Non Maturity Products Model**. Based on selected Profile Method, Behavior Pattern UI will vary.

Profile Type as Manual

To define Non Maturity Behavior pattern as manual, follow these steps:

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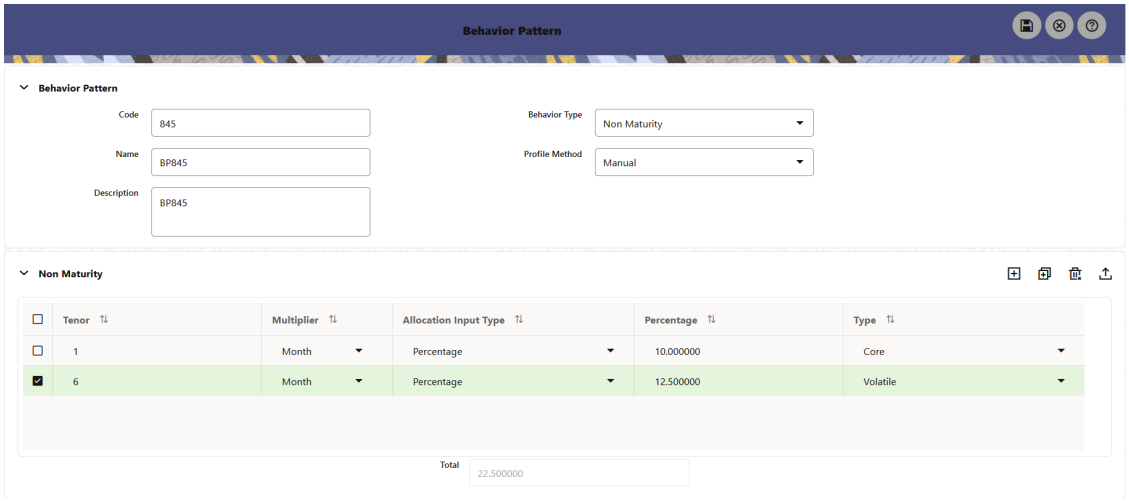
Figure 6-46 Profile Method as Manual



1. Enter or select the following details:
   - **Tenor:** Used to specify the maturity term for the particular row. For example, if “1 Day”is defined, then the applicable percentage of the balance will runoff (mature) on the As- of-Date + 1 Day.
   - **Multiplier:** Theunit of time applied to the tenor. The choices are as follows:
     - Days
     - Months
     - Years
   - **Allocation Input Type:** This field has a default value of Percentage for each maturity tier.
   - **Percentage:** The outstanding balance indicating how much of the outstanding balance will mature on the specified term. Enter a number 0 and 100.

     > **Note**
     >
     > During calculation, the rows with the 0% is ignored and remaining events from pattern are used.

   - **Type:** This allows you to classify the Runoff based on the appropriate type. If you select Percentage under 'Allocation Input Type', this allows you to select Core or Volatile.
2. Click the **Add**icon to add additional payment strips to the Pattern. After defining the initial strip as Volatile, subsequent strips are usually classified as Core with varying maturity terms assigned.

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> **Note**
>
> There is no difference in behavior from a Cash Flow perspective, but the Runoff Amount will be written to a Principal Runoff Financial Element corresponding to the selected Runoff Type.

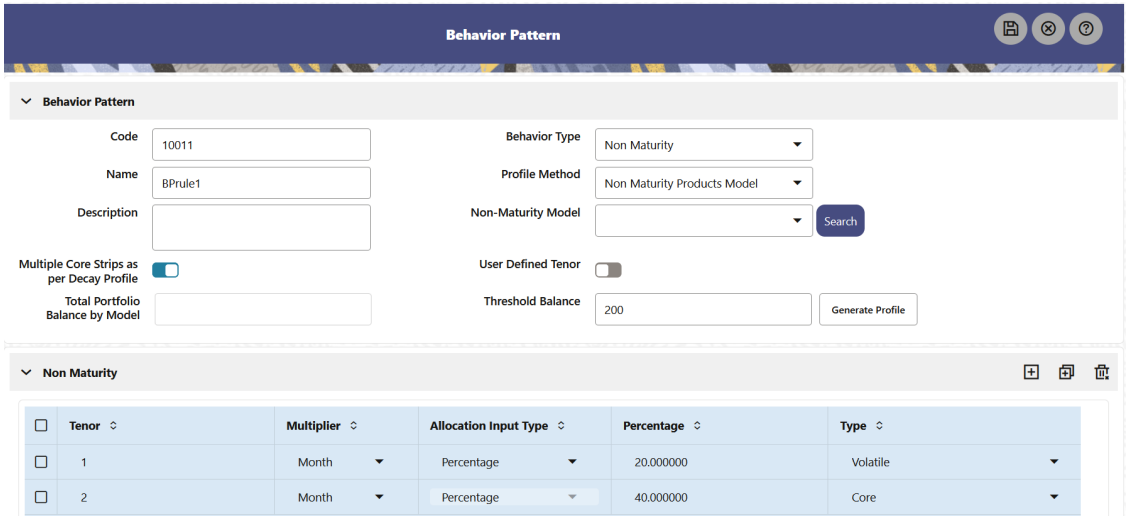
3. Click **Add Multiple Row** icon to open a window. Enter the number of rows you want to add and click Add Rows.
4. To delete a row, select the check box corresponding to the row you want to remove and click the Delete icon.
5. Click **Save**.

The Behavior Pattern is saved and the Behavior Pattern Summary Page is displayed.

Profile Type as Non Maturity Products Model

To define Non Maturity Behavior pattern with Non Maturity Product Model, follow these steps:

Figure 6-47 Profile Method as Non Maturity Products Model



1. Select the **Model** from on **Non Maturity Model** drop-down. You can search Non Maturity Product Model using product and currency criterias after clicking **Search** button.
   You can have single Core or Multiple Core strips based on if decay profile is being used:

   This will be based on model calculated core balance and corresponding Weighted average life based on calculated decay rate.

   Multiple Core and Volatile strips in percentage if “Multiple Core Strips as per Decay Profile” is selected.

   Once model is selected, you can define two types of strip definitions:

   - **Single Core Strip**: The model evaluates the core balance against a total point in time balance.
     - **Core Calculation:**Behavior pattern picks the core from the underlying model which is defined at certain portfolio level. Use the Non-Maturity Deposit Model Weighted Average Life as the tenor.
       The core percentage is calculated as:

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Figure 6-48 Core Calculation

$$\text{Core Percentage} = \left(\frac{\text{NMD Model (Core balance)}}{\text{Total Point in Time balance}} \right) \times 100$$

- **Volatile Percentage:**This is calculated as:

Figure 6-49 Volatile Percentage

$$\text{Volatile Percentage} = 100 - \text{Core Percentage}$$

The tenor for this calculation is set at 1 day and in relation to the strip tenor, with a default maturity assumption of "At Maturity".

- **Multiple Core Strips as per Decay profile:**
  If this is selected, there are following two options:
  - **Using Generate Profile:** You can select to **Generate Profile** with or without thresholds. Strips will be auto- generated based on decay profile frequency. For example, if the NMD model's decay profile is set to a daily frequency, tenors will be auto-populated on a daily basis.
    Total portfolio balance by Model (Model Output): Total balance is the balance available at the latest As of Date in the Historical Period selected for which model is created. For example, if the historical period is from January 1, 2020, to December 31, 2020, and the most recent date is December 31, 2020, the total available balance of all accounts included in the portfolio (based on product and currency) would represent the total Portfolio Balance.

    The **Threshold Balance** option will be active only when the **Multiple Core Strips as per Decay Profile** toggle button is selected. The default value of this field is

    0.0.It accepts only positive numbers or decimals values.

    When you use Decay Rate profile from the selected model, the balance keeps reducing using every period’s decay rate till threshold balance is reached. So, no further strips can be created beyond the Threshold balance.

    It is recommended to give some valid positive value as threshold balance, else after few initial strips, principal will become small and decaying part will be even smaller. If the number of strips reaches to 500 and the remaining balance is negligible, an error message is displayed.

    Once balance is reached equal or less than given threshold, then rest of the balance will run off in immediate next strip.

    For example, if the initial balance was 10,000 and the threshold is set at 500, and the decay profile indicates that the balance reaches 500 or less in the 11th strip, then in the immediate next strip (the 12th strip), the entire remaining balance will be deducted. This is necessary because the system needs to account for 100% of the remaining balance, and there is a check in the BP to ensure that the total of all strips adds up to 100%.

    The system uses the decay profile/decay rate generated by the model and creates Runoff Profile/Strips as per inputs data frequency to the NMD model which can be in Days/Months and Years. If the frequency is in Days, then the tenor of the defined strips would be days else it would be in months/years as per the model definition.

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– **Using User Defined Tenor:**If this is selected, then + icon will be available to add strips.

> **Note**
>
> The **User Defined Tenor** option will be active only when the **Multiple Core Strips as per Decay Profile** toggle button is selected. By default, it will be OFF.

Enter or select the following details:

* **Tenor:** Used to specify the maturity term for the particular row. For example, if “1 Day” is defined, then the applicable percentage of the balance will runoff (mature) on the As-of-Date + 1 Day.
* **Multiplier:** The unit of time applied to the tenor. The choices are as follows:
  * Days
  * Months
  * Years
* **Allocation Input Type:** This field has a default value of Percentage for each maturity tier.
* **Percentage:** The outstanding balance indicating how much of the outstanding balance will mature on the specified term. Enter a number 0 and 100.
* **Type:** This allows you to classify the Runoff based on the appropriate type. If you select Percentage under 'Allocation Input Type', this allows you to select Core or Volatile.
* Click the **Add** icon to add additional payment strips to the Pattern. After defining the initial strip as Volatile, subsequent strips are usually classified as Core with varying maturity terms assigned.

> **Note**
>
> Click **Add Multiple Row** icon to open a window. Enter the number of rows you want to add and click Add Rows.
>
> To delete a row, select the check box corresponding to the row you want to remove and click the Delete icon.

As per the defined tenor/multiplier decay rate percentages will be calculated and populated in core allocation. Core allocation input will be percentage if model is used.

2. Click **Generate Profile**. It creates the Profile Strips as per total and threshold balance. The system uses the decay profile/decay rate generated by the model and creates the strips as per tenors given by the user. E.g. if per month decay rate is 10% and user has defined first strip as 3 months, then total runoff in first strip will be 30%. Similarly subsequent strips allocation will be calculated based on user-defined term points. And Once threshold is reached, system will not do any further calculation but runoff all remaining balance in subsequent strip itself.

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> **Note**
>
> If number of strips generated is more than 500, then system displays error.

3. Click **Save**.

The Behavior Pattern is saved and the Behavior Pattern Summary Page is displayed.

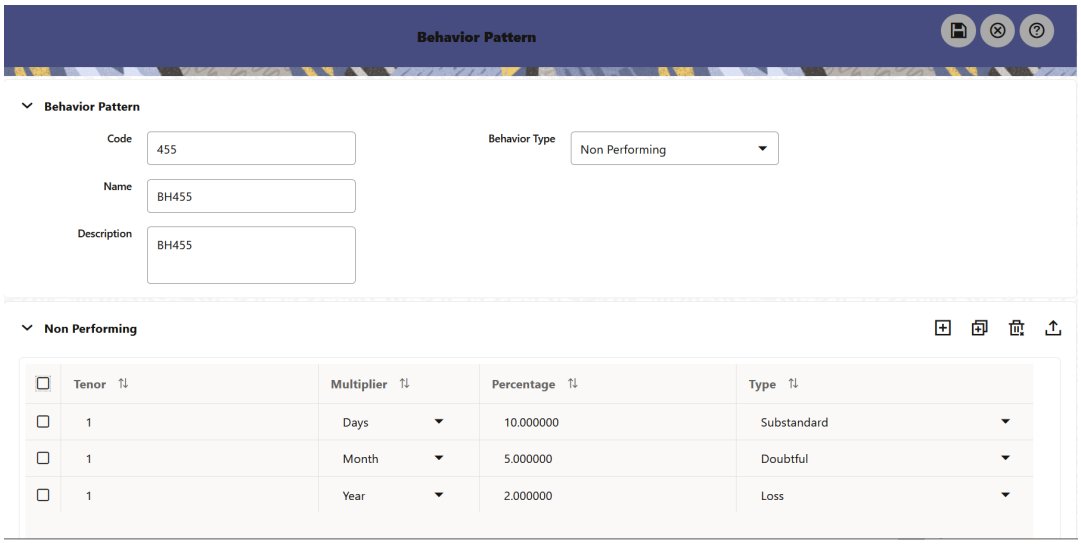
6.2.2.1.1.2 Defining Non-Performing Behavior Patterns

Non-Performing Behavior Patterns are commonly used for instruments that are classified as non-earning assets. Users can assign expected maturity profiles to these balances classifying them into appropriate categories of Sub Standard, Doubtful, or Loss.

To define the Non-Performing Behavior Patterns, perform the following steps:

1. In the Behavior Pattern Details Page, select **Non-Performing** as the **Behavior Pattern Type**.
2. Click the **Add** icon to open the **Non-Performing Behavior Patterns Summary** Page.

Figure 6-50 Behavior Pattern with Type as Non-Performing



3. Enter or select the following details:
   - **Tenor:** Specify the maturity tenor for the first maturity strip. For example, if “1 Day” is defined, then the applicable percentage of the balance will runoff (mature) on the As-of-Date + 1 Day.
   - **Multiplier:** The unit of time applied to the Tenor. The choices are:
     - Days
     - Months
     - Years
   - **Percentage:** The relative amount of the Principal Balance that will mature on the date specified by the Tenor + Multiplier. The percentage amounts can exceed 100% for Non-Performing Patterns.

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> **Note**
>
> During calculation, the rows with the 0% is ignored and remaining events from pattern are used.

- **Type:** This allows you to classify the Runoff based on the appropriate type. The options are:
  - Substandard
  - Doubtful
  - Loss

> **Note**
>
> There is no difference in behavior from a Cash Flow perspective, but the Runoff Amount will be written to a Principal Runoff Financial Element corresponding to the selected Runoff Type.

4. Click the **Add** icon to add additional payment strips to the Pattern and define appropriate assumptions for each strip.
5. To delete a row, select the check box corresponding to the row(s) you want to remove and click the **Delete** icon.
6. Click **Save**.

The Behavior Pattern is saved and the **Behavior Pattern Summary** Page is displayed.

6.2.2.1.1.3 Defining Devolvement and Recovery Behavior Patterns

Devolvement and Recovery Behavior Patterns are commonly used for estimating Cash Flows associated with Letters of Credit and Guarantees. These product types are categorized as Off-Balance-Sheet Accounts. Users can assign expected maturity profiles to the related balances classifying them into appropriate categories of Sight Devolvement and Sight Recovery or Usance Devolvement and Usance Recovery. Sight Devolvement and Recovery are the most common types.

To define the Non-Performing Behavior Patterns, perform the following steps:

1. In the **Behavior Pattern Details** Page, select **Devolvement and Recovery** as the Behavior Pattern Type.
2. Click the **Add** icon to open the Non-Performing Behavior Patterns Summary Page.

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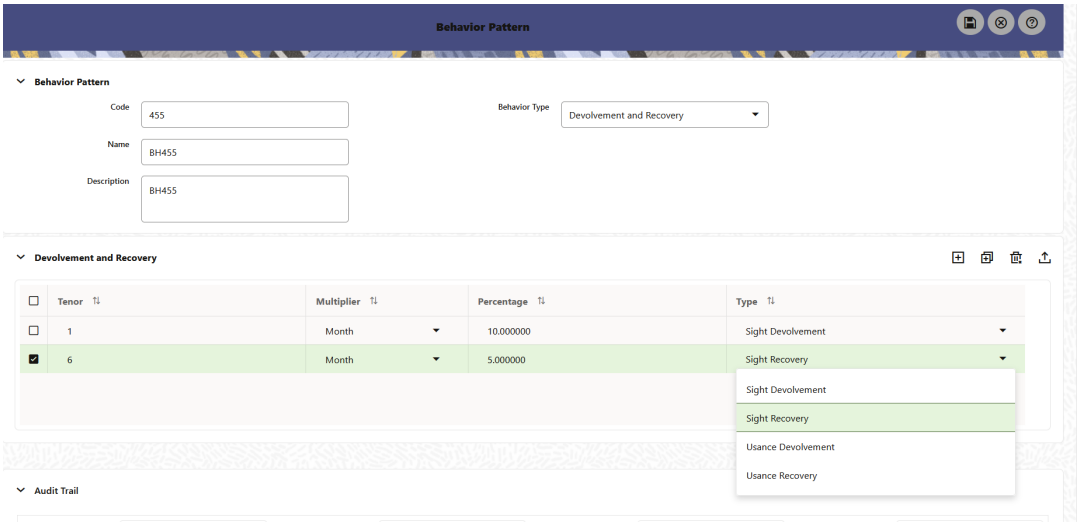
Figure 6-51 Behavior Pattern with Type as Devolvement and Recovery



3. Enter or select the following details:

- **Tenor:** Specify the maturity tenor for the first maturity strip. For example, if “1 Day” is defined, then the applicable percentage of the balance will Runoff (mature) on the As-of-Date + 1 Day.
- **Multiplier:** The unit of time applied to the Tenor. The choices are:
  - Days
  - Months
  - Years
- **Percentage:** The relative amount of the Principal Balance that will mature on the date specified by the Tenor + Multiplier. The percentage amounts can exceed 100% for devolvement and recovery patterns.

> **Note**
>
> During calculation, the rows with the 0% is ignored and remaining events from pattern are used.

- **Type:** This allows you to classify the Runoff based on the appropriate type. The options are:
  - **Sight Devolvement:** indicates the Beneficiary is paid as soon as the Paying Bank has determined that all necessary documents are in order. This is the preferred approach.
  - **Sight Recovery**
  - **Usance Devolvement:** Usance: is a period, which can be between 30 and 180 days after the bill of Lading Date.
  - Usance Recovery

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> **Note**
>
> There is no difference in behavior from a Cash Flow perspective, but the Runoff Amount will be written to a Principal Runoff Financial Element corresponding to the selected Runoff Type.

4. Click the **Add** icon to add additional payment strips to the Pattern and define appropriate assumptions for each strip.
5. To delete a row, select the check box corresponding to the row(s) you want to remove and click the **Delete** icon.
6. Click **Save**.

The Behavior Pattern is saved and the Behavior Pattern Summary Page is displayed.

6.2.2.2 Repricing Patterns

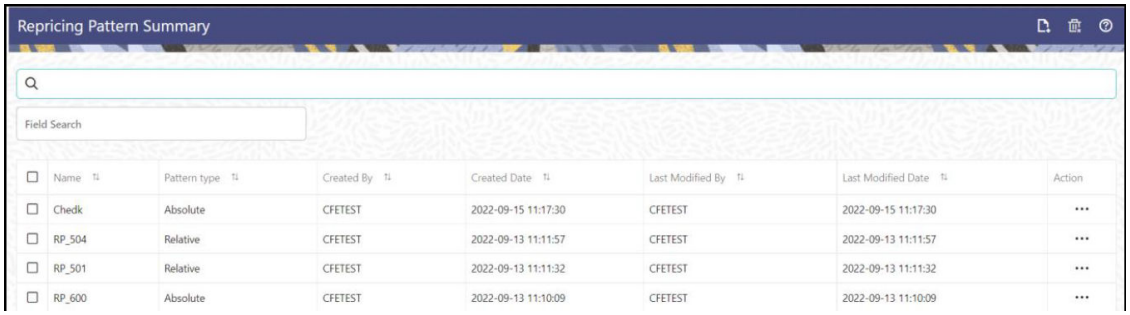
User Defined Repricing Patterns provide a mechanism to capture Instrument Repricing Patterns that are too complex to be accommodated through the use of the Standard Account Table Fields. You can utilize a Repricing Pattern to generating Cash Flows by entering the Adjustable Type Code as “Repricing Pattern” along with actual Repricing Pattern Code for the relevant Instrument Records.

The procedure for working with and managing Repricing Patterns is, similar to that of other Oracle Business Rules.

Repricing Pattern Summary

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.

Figure 6-52 Repricing Summary



Search Repricing Pattern

Prerequisites: Predefined Repricing Pattern

To search for a Repricing Pattern:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Repricing Patterns that meet the search criteria.

Or

An alternative method to search a Repricing Pattern is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.)

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partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Repricing Pattern Summary. You can enter the **Code, Name, Description** or **Pattern Type** of the Repricing Pattern and click **Search**.

The Repricing Pattern Summary displays the following information:

Add: Click the Add icon on the page header to build a new Repricing Pattern.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Name:** The Repricing Pattern's short name.
- **Pattern Type:** The Repricing Pattern Type, such as Absolute or Relative.
- **Created By:** The Name of the user who created the Repricing Pattern.
- **Created Date:** The Date and Time at which the Repricing Pattern was created.
- **Last Modified By:** The user who last modified the Repricing Pattern.
- **Last Modified Date:** The Date and Time when the Repricing Pattern was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Repricing Pattern.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Repricing Patterns. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Repricing Pattern by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Repricing Patterns that you no longer require. Note that only Repricing Pattern owners and those with Read/Write privileges can delete Repricing Patterns. A Repricing Pattern that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular Repricing Pattern has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Repricing Patterns that have dependencies. A report of all rules that utilize the selected Repricing Pattern is generated.

Also See:

- Create a Repricing Pattern

6.2.2.2.1 Create Repricing Patterns

You create Repricing patterns to capture the Repricing Behavior of instruments whose rates change according to complex schedules.

To create the Repricing Pattern, follow these steps:

1. Navigate to Repricing Pattern Summary Page.
2. Click **Add** icon.
   The Add Repricing Pattern Page is displayed.
3. Enter a Numeric Code Value for the new Repricing Pattern. You can also click Generate Code Option in Code field to generate the code automatically.
4. Enter the name of the pattern.

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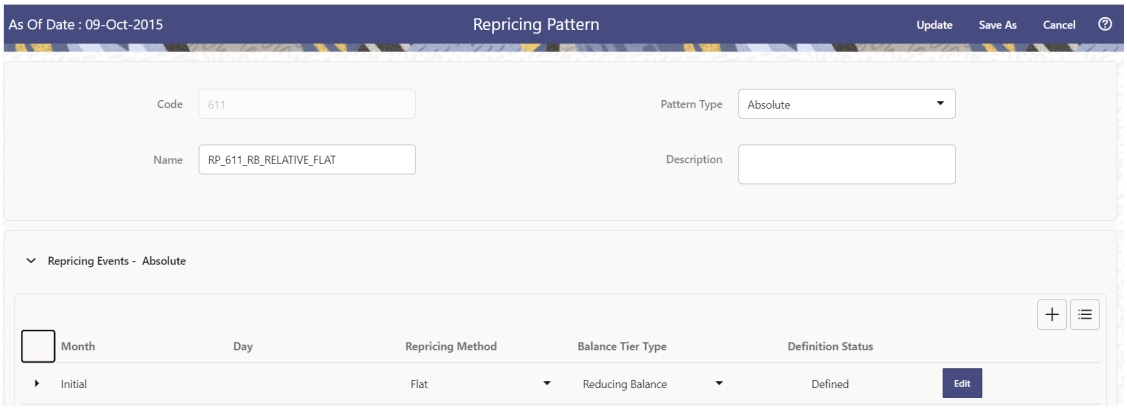
5. Type a brief description for the pattern.
6. Select the Repricing Pattern Type: Absolute or Relative.
   The selection of the Repricing Pattern type determines the fields that are displayed in the Repricing Events Table and the information you must provide to successfully define that pattern type. See:
   - Defining Absolute Repricing Patterns
   - Defining Relative Repricing Patterns
7. Click **Save**.

6.2.2.2.1.1 Define 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.

Figure 6-53 Define Absolute Repricing Pattern



Prerequisites

Selecting Absolute as the pattern type.

Procedure

This table describes key terms used for this procedure.

Table 6-22 Key Terms used in Absolute Repricing Pattern

Key Terms	Description
Add Row	Allows you to add one or more Repricing Events.
Add Multiple Rows	Allows you to add more Repricing Events.
Define	Add detail for each Repricing Event.
Delete	Allows you to delete specific rows in the Repricing Events Table.
Month	In conjunction with the Day field, this drop-down menu, allows you to specify a unique month-day combination for a Repricing Event.

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Table 6-22 (Cont.) Key Terms used in Absolute Repricing Pattern

Key Terms	Description
Day	In conjunction with the Month drop-down menu, this field allows you to specify a unique month-day combination for a Repricing Event.

To define Absolute Repricing Pattern, perform the following:

1. Select Pattern Type as **Absolute**.
2. Specify the required month-day combination for the event. You cannot specify a month-day combination for the first event as this row is reserved for the initial period.
3. Select the Repricing Type: **Flat** or **Indexed**.
   The default is flat. If you select Indexed, the system automatically changes the fields available for entry.

   > **Note**
   >
   > You can change your selection of the Repricing Type at any point in this process. Sometimes it may cause a loss of data.

   For more information on Flat Repricing Type, see Repricing Event is Flat Repricing.

   For more information on Index Repricing Type, see Repricing Event is Index Repricing.

   - Select Balance Tier option:
     - **None**: If selected, the Balance Tiered Pricing is not applied.
     - **Current Balance**: Users can define balance tiers and associate different rates with the corresponding balance tier level. Balance tier in this case is decided using the principal balance of instrument on As of Date. Thus, even when actual balance goes down due to repayment, the instrument continues to be in original balance tier.
     - **Reducing Balance:** If the Balance Type is selected as Reducing Balance, then the repricing rate will be calculated using principal balance as on Repricing Date. Thus, the balance tier applicable to instrument range over its life due to repayment.
4. Click **Define**.

Repricing Event is Flat Repricing

Flat Rate: A Flat Rate is a specific rate—it is directly input.

To define a Flat Rate Event, follow these steps:

1. Select the Flat option from Repricing Method drop-down list for the event you are going to define. Notice the bottom half of the screen refreshes, displaying the required inputs. Complete the following steps on the Add Repricing Events Page:
2. Enter the Net Rate.
3. Enter the Gross Rate.
4. Enter the Transfer Rate.

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> **Note**
>
> The Transfer Rate functionality will be released in future.
>
> You must enter a valid value for at least one of these rate fields.

5. 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 Click Add Row. You can edit the details of Defined Event.

Repricing Event is Indexed Repricing

An Indexed Rate is a set of parameters used to calculate a rate.

To define an Indexed Rate Event, follow these steps:

1. Select the Indexed option from Repricing Method drop-down list for the event you are going to define. Notice the bottom half of the screen refreshes, displaying the required inputs. Complete the following steps on the Add Repricing Events Page:
2. Select the Interest Rate Curve.
3. Select the Transfer Price Curve.

> **Note**
>
> The Transfer Price Curve functionality will be released in the future.

4. Enter the Yield Curve Term and select the appropriate Multiplier.
5. Enter the Net Margin.
6. Enter the Gross Margin.
7. Enter the Transfer Price Margin.
8. Enter the Rate Cap Life.
9. Enter the Rate Floor Life.
10. Enter the Rate Set Lag and select the appropriate Multiplier.
11. Click **Apply**. The Event Summary Page is displayed.
12. At this point, you have the option of defining additional events or saving. To add an additional event, repeat Click **Add Row**.
13. Click **Save**.
    The Repricing Pattern is saved and the Repricing Pattern Summary Page is displayed.

6.2.2.2.1.2 Define Relative Repricing Patterns

The Relative Repricing Pattern is used for instruments where the repricing is determined by the 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.

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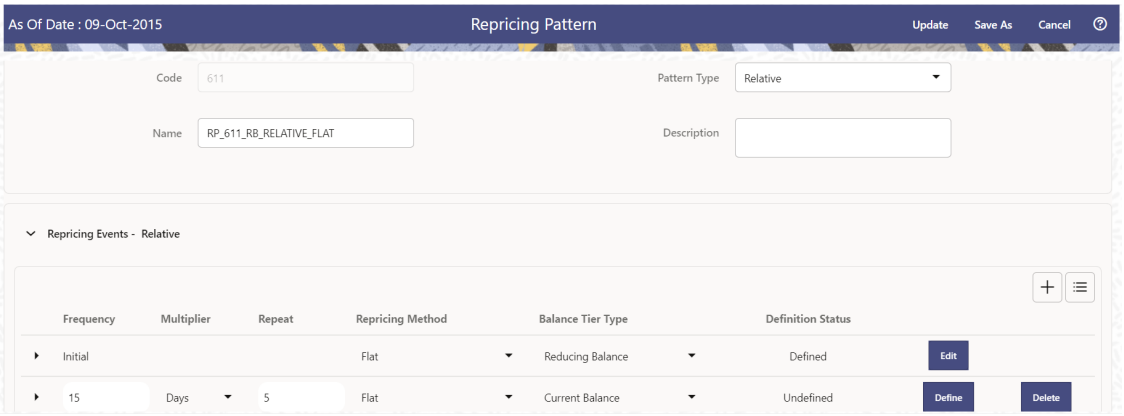
Figure 6-54 Define Relative Repricing Pattern



Prerequisites

Selecting Relative as the pattern type.

Procedure:

This table describes key terms used for this procedure.

Table: Key Terms used in Relative Repricing Pattern

Key Terms	Description
Add Row	This allows you to Add one or more Repricing Events.
Add Multiple Rows	Allows you to add more Repricing Events.
Delete	This allows you to delete specific rows in the Repricing Events Table. You need to specify the following parameters in the Repricing Events Table for a Relative Repricing Pattern:
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	This allows you to specify the number of times a repricing event should be repeated.
Repricing Method	A drop-down list, it displays the Repricing Type, Flat Rate or Indexed Rate, associated with a particular event.

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.

Select Pattern Type as Relative and follow the steps mentioned in Creating Absolute Repricing Patterns section.

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6.2.2.3 Payment Patterns

User defined payment patterns allow you to define custom repayment patterns for products in your portfolio. You can include a payment pattern while generating cash flows by entering the payment pattern code for the instrument.

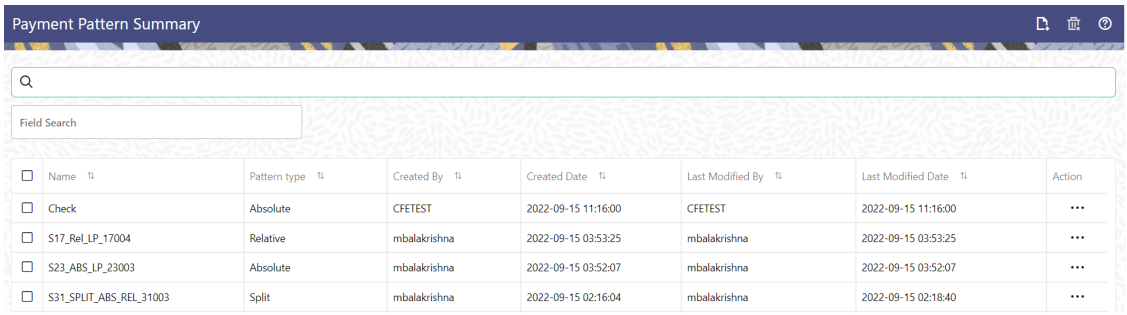
This chapter describes the procedure for capturing instrument payment patterns that are too complex to be accommodated in the standard fields of Instrument tables.

The procedure for working with and managing Payment Patterns is, similar to that of other Oracle assumption rules.

Payment Pattern Summary

This page is the gateway to all Payment Patterns and related functionality. You can navigate to other pages relating to Payment Patterns from this point.

Figure 6-55 Payment Summary



Search Payment Pattern

Prerequisites: Predefined Payment Pattern

To search for a Payment Pattern:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Payment Patterns that meet the search criteria.

Or

An alternative method to search a Payment Pattern is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Payment Pattern Summary. You can enter the **Code, Name, Description** or **Pattern Type** of the Payment Pattern and click **Search** .

The Payment Pattern Summary displays the following information:

Add: Click the Add icon on the page header to build a new Payment Pattern.

- **Name:** The Payment Pattern's short name.
- **Pattern Type:** The Payment Pattern Type, such as Absolute or Relative.
- **Created By:** The Name of the user who created the Payment Pattern.
- **Created Date:** The Date and Time at which the Payment Pattern was created.

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- **Last Modified By:** The user who last modified the Payment Pattern.
- **Last Modified Date:** The Date and Time when the Payment Pattern was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Payment Pattern.
  - Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Payment Patterns. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Payment Pattern by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Payment Patterns that you no longer require. Note that only Payment Pattern owners and those with Read/Write privileges can delete Payment Patterns. A Payment Pattern that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular Payment Pattern has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Payment Patterns that have dependencies. A report of all rules that utilize the selected Payment Pattern is generated.

Also See:

- Creating Payment Patterns

6.2.2.3.1 Create Payment Patterns

You create payment patterns to capture the repayment behavior of instruments that are too complex to be accommodated through the use of the standard instrument table fields.

To create the payment pattern, do the following:

1. Navigate to the **Payment Pattern** summary page.
2. Click **Add** icon. The **Add Payment Patter**n page is displayed.
3. Enter a Code value for the new payment pattern. You can also click Generate Code Option in Code field to generate the code automatically.

> **Note**
>
> The code value you assign to the new pattern must be unique. Also, the code must be mapped to the appropriate instrument records (PMT_PATTERN_CD field) to connect the instrument to the appropriate pattern.

4. Enter the Name for pattern.
5. Enter a brief Description for the pattern.
6. Select the Pattern Type: Absolute, Relative, or Split.
7. Select the Payment Type: Conventional, Level Principal, or Non-amortizing.

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> **Note**
>
> The Payment Type option is not available for Split Payment Pattern type.

The selection of the payment pattern type made in the previous step determines the information you must provide to successfully define that pattern type. See:

- Defining Absolute Payment Patterns
- Defining Relative Payment Patterns
- Defining Split Payment Patterns

8. Click **Save**.

6.2.2.3.1.1 Define Absolute Payment Patterns

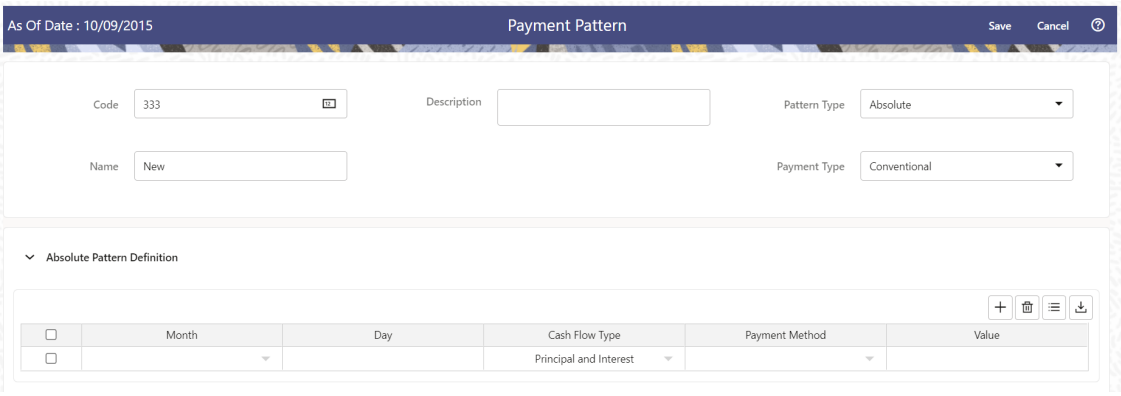
Absolute payment patterns are commonly used for instruments that are on a seasonal schedule, such as agricultural or construction loans that require special payment handling based on months or seasons.

When working with absolute payment patterns, it is sufficient to define payments for one calendar year. Once the term exceeds a year, the payment schedule will loop until the instrument matures.

Prerequisites

Selecting Absolute as the pattern type.

Figure 6-56 Absolute Payment Patterns



To define absolute payment pattern, do the following:

1. In the **Payment Patterns** page, select **Pattern Type** as **Absolute**.
2. Select the Payment Type from the drop-down list: **Conventional**, **Level Principal**, or **Non-Amortizing**. The Payment Type determines the type of information required to successfully define the Payment Phase.
3. Define the **Payment Phases**. A Payment Phase is a set of payment characteristics that defines the timeline of the instrument's amortization.
   a. Define the following parameters:

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- **Month:** This drop-down list allows you to select the month of the payment phase being defined.
- **Day:** Used to specify the day of the month the payment is due.

b. Select the **Cash Flow Type**. The available types depends on the Payment Type. This do not apply to the Non-Amortizing Payment Type.
Table: Relationship between Cash Flow Type and Payment Types

	Level Principal	Non-Amortizing	Conventional
Principal and Interest	Yes		Yes
Principal Only	Yes		
Interest Only	Yes	Yes	

c. Select the **Payment Method**. The available Payment Methods depend on the Payment Type. For more information, see: Relation between Payment Method and Payment Types. Payment Methods do not apply to the Non-Amortizing Payment Type.

d. Enter the Value for the Payment Method you selected in the previous step for applicable Payment Types.
If you selected the Interest Only Payment Method in the previous step, the Value field does not apply.

4. Click the **Add** icon to add additional Payment Phases to the Pattern. Click Delete icon corresponding to the rows you want to delete.
5. Click **Add Multiple Row** icon to enter the number of rows you want to add and click Go.
6. The **Download Excel** icon helps you to export payment information, modify and paste back in the UI.

> **Note**
>
> A Payment Pattern must have at least one valid Payment Phase to be successfully defined. The system raises a warning if you try to save a Payment Pattern with an incomplete Payment Phase.

7. Click Apply and Save.

The Payment Pattern is saved and the Payment Pattern summary page is displayed.

The following table describes the relationship between Payment Phase properties and Payment Types.

Relationship between Payment Phase Properties and Payment Types

	Level Principal	Non-Amortizing	Conventional
Month	Yes	Yes	Yes
Day	Yes	Yes	Yes
Payment Method	Yes		Yes
Value	Yes		Yes

The following table describes the relationship between Payment Method and Payment Types.

Relationship between Payment Methods and Payment Types

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Payment Method	Level Principal	Non-Amortizing	Conventional
Percentage of Original Balance	Yes		
Percentage of Current Balance	Yes		
Percentage of Original Payment	Yes		Yes
Percentage of Current Payment	Yes		Yes
Absolute Payment	Yes		Yes
Interest Only	Yes		Yes

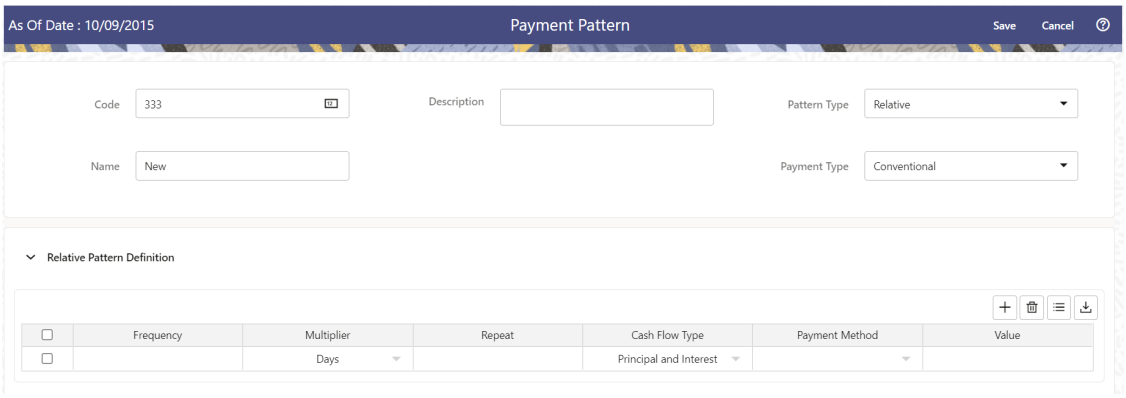
6.2.2.3.1.2 Define Relative Payment Patterns

You create Relative Payment patterns for instruments that have irregular scheduled payments.

Prerequisites

Selecting Relative as the pattern type.

Figure 6-57 Relative Payment Patterns



To define a relative payment pattern, follow these steps:

1. In the **Payment Patterns** page, select **Pattern Type** as **Relative**.
2. Select the Payment Type from the drop-down list: **Conventional**, **Level Principal**, or **Non-Amortizing**. The Payment Type determines the type of information required to successfully define the Payment Phase.
   The payment type determines the available characteristics for defining the payment amount.
3. Define the **Payment Phase**.
   The payment type determines the type of information required to successfully define the payment phase. For more details, see: Relation between Payment Phase Attributes and Payment Types.
   a. Enter the **Frequency** for each payment phase.
   b. Select the appropriate Multiplier for each payment phase from the following options:
      - Days

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- Months
- Years

c. Enter the number of times each Payment Phase should be repeated in the Repeat column.

d. Select the **Cash Flow Type**. The available types depend on the Payment Type. This do not apply to the Non-Amortizing Payment Type.
Table: Relationship between cash Flow Type and Payment Types

	Level Principal	Non-Amortizing	Conventional
Principal and Interest	Yes		Yes
Principal Only	Yes		
Interest Only	Yes	Yes	

e. Select the **Payment Method**.
The available payment methods depend on the payment type. For more details, see Relation between Payment Method and Payment Types. Payment Methods do not apply to the Non-Amortizing Payment Type.

f. Type the Value for the Payment Method you selected in the previous step for applicable Payment Types.

4. Click the **Add** icon to add additional Payment Phases to the Pattern. Click Delete icon corresponding to the rows you want to delete.
5. Click **Add Multiple Row** icon to enter the number of rows you want to add and click Go.
6. The **Download Excel** icon helps you to export payment information, modify and paste back in the UI.

> **Note**
>
> A Payment Pattern must have at least one valid Payment Phase to be successfully defined. The system raises a warning if you try to save a Payment Pattern with an incomplete Payment Phase.

7. Click **Apply** and **Save**.
The payment pattern is saved and the Payment Pattern home page is displayed.

> **Note**
>
> It is not necessary to set up relative payment patterns for the complete term of an instrument. The payment pattern automatically repeats until the maturity date. Suppose a payment pattern is created to make monthly payments for the first year and quarterly payments for the next three years. If you apply this pattern to an instrument record with an original term of five years, the payment pattern wraps around and the fifth year is scheduled for monthly payments.
>
> An easy way to set up payment patterns for instruments with varying original terms is to use the repeat value of 999 in the last row of the payment pattern. For example, a payment pattern that pays monthly for the first year and quarterly thereafter, can be set up with two rows. The first row shows 12 payments in one month. The second row shows 999 payments in three months. When this payment pattern is processed it repeats the three-month payment frequency until the maturity date is reached.

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The following table describes the relationship between payment phase attributes and payment types.

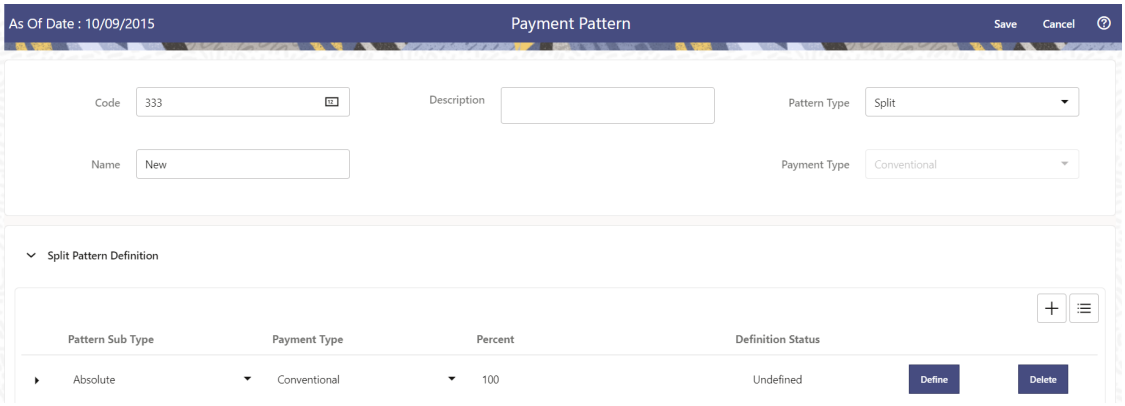
Relationship between Payment Phases and Payment Types

Payment Phase Attributes	Payment Types: Level Principal	Payment Types: Non-Amortizing	Payment Types: Conventional
Frequency	Yes	Yes	Yes
Multiplier	Yes	Yes	Yes
Repeat	Yes	Yes	Yes
Payment Method	Yes		Yes
Value	Yes		Yes

6.2.2.3.1.3 Define Split Payment Patterns

You can use a Split payment pattern for financial instruments that make principal payments along with two concurrent amortization schedules. Split patterns may be a combination of Absolute and Relative Payment Patterns for example, and contain multiple sets of payment phases under a single amortization code. These patterns could further use a combination of Conventional, Level Principal, and Non-Amortizing Payment Types.

Figure 6-58 Split Payment Patterns



To define a split payment pattern, follow these steps:

1. In the Payment Patterns page, select Pattern Type as Split.
2. Define Split Pattern definition.
   a. Select the required **Pattern Sub Type** for each leg.
      - Absolute
      - Relative
   b. Select the Payment Type for each Payment Phase or Split.
   c. Enter the Percent value to indicate the percentage weight of the timeline being defined for the individual payment phases (each row). The sum of the percentage weights must total 100%.

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> **Note**
>
> The payment pattern term specifications for different payment phases or splits vary depending on whether you select the Absolute or Relative Pattern Type. You can define the term specifications for the splits following the steps described previously for defining payment phases for these patterns. See:
>
> - Define Absolute Payment Patterns
> - Define Relative Payment Patterns

3. Select one of the legs and then select **Define** button to enter pattern details for the leg.
4. Select one of the legs and then select **Delete** button to delete pattern details for the leg.
5. Click the **Add** icon to add additional Payment Phases to the Pattern.
6. Click **Add Multiple Row** icon to enter the number of rows you want to add and click Go.
7. Click **Apply** and **Save**.

The Split payment pattern is saved and the Payment Pattern summary page is displayed.

6.2.3 Holiday Calendars

This section discusses the procedure to create a Holiday Calendar and generate a list of the weekend and holiday dates. Individual Cloud Service may consume the Holiday Calendar events in different ways.

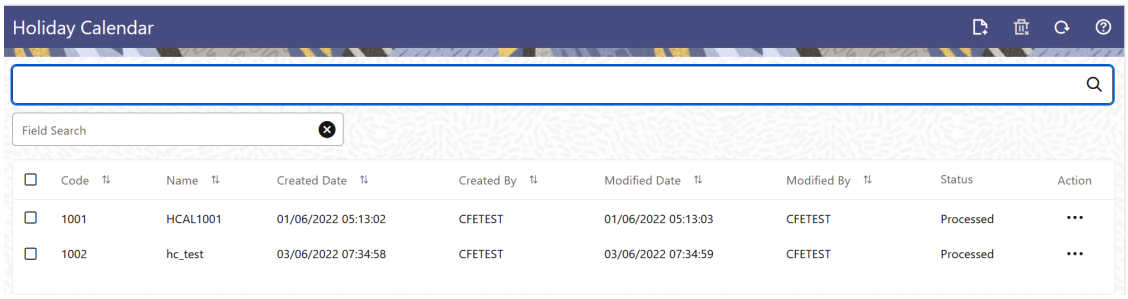
A Holiday is a day designated as having special significance for which individuals, a government, or some religious groups have deemed that observance is warranted and thus no business is carried on this day. The Holiday Calendar Code can range from 1 to 99999.

The **Generate Holiday Calendar** option on the **Holiday Calendar Definition** page allows you to generate the maximum 80 Holiday Calendar definitions at a time. Using the Scheduler Service, you can generate the Holiday Calendar definitions in bulk. For more information, see the Data Loader section.

Holiday Calendar Summary

This page is the gateway to all Holiday Calendars and related functionality. You can navigate to other pages relating to Holiday Calendars from this point.

Figure 6-59 Holiday Calendar Summary



Search Holiday Calendar Rule

Prerequisites: Predefined Holiday Calendar

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To search for a Holiday Calendar:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Holiday Calendars that meet the search criteria.

Or

An alternative method to search a Holiday Calendar rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Holiday Calendar Summary. You can enter the **Code, Name,** and **Description** of the Holiday Calendar and click **Search** .

The Holiday Calendar rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Holiday Calendar rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Code:** The code of Holiday Calendar
- **Name:** The Holiday Calendar's short name.
- **Created Date:** The Date when Holiday Calendar was created.
- **Created By:** The Name of the user who created the Holiday Calendar
- **Last Modified By:** The user who last modified the Holiday Calendar rule.
- **Last Modified Date:** The Date and Time when the Holiday Calendar rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Holiday Calendar rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Holiday Calendar rules. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Holiday Calendar rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Holiday Calendar rules that you no longer require. Note that only Holiday Calendar rule owners and those with Read/Write privileges can delete Holiday Calendar rules. A Holiday Calendar rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Dependency Check:** You can perform a dependency check to know where a particular Holiday Calendar rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Holiday Calendar rules that have dependencies. . A report of all rules that utilize the selected Holiday Calendar rule is generated.

Also See:

- Create Holiday Calendar

6.2.3.1 Create a Holiday Calendar

You create Holiday Calendars to capture holidays for a given date range for any organization. It is possible to create and use multiple Holiday Calendars.

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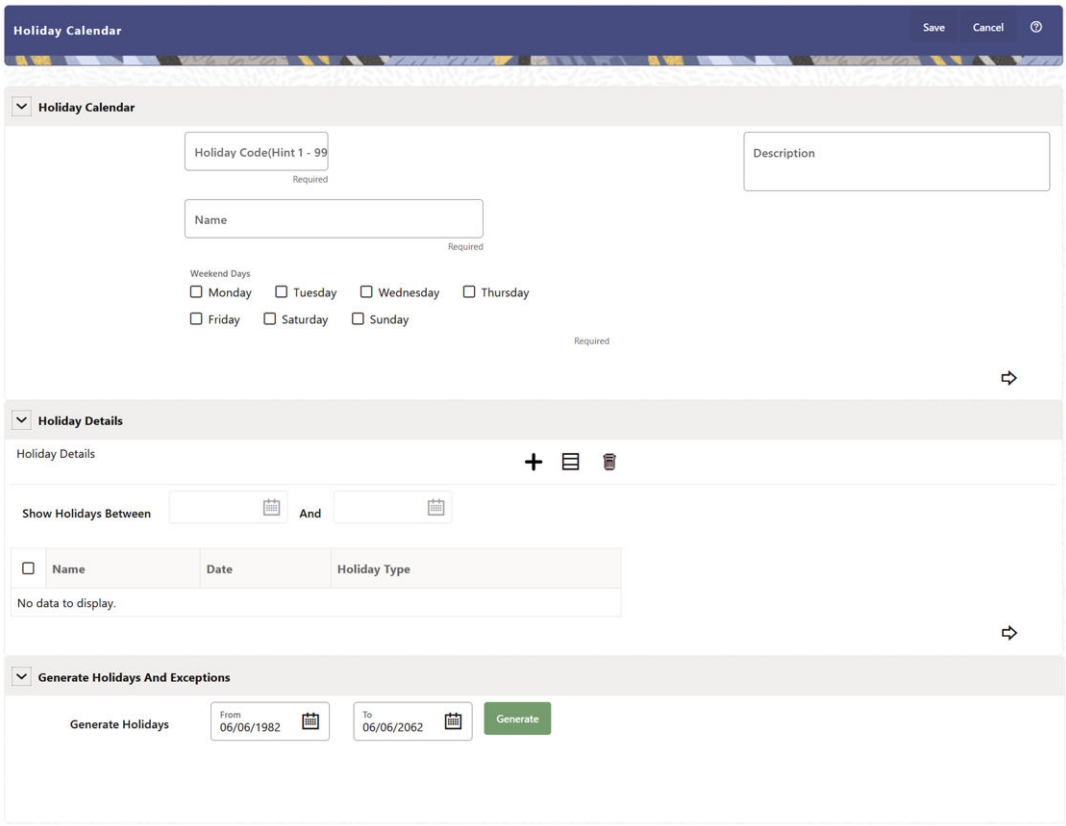
To create a new Holiday Calendar Rule, follow these steps:

1. Navigate to the Holiday Calendar Summary Page.
2. Click Add icon. The Holiday Calendar Details Page is displayed. This page is divided into following sections:
   - Holiday Calendar
   - Holiday Details
   - Generate Holidays And Exceptions

Figure 6-60 Holiday Calender Details Page



3. Enter details in above sections and Click **Save**.

Holiday Calendar section

1. Navigate to Holiday Calendar section.
2. Enter the following details:
   - **Holiday Code:** Enter a code value for the new Holiday Calendar. The code is a Numeric Identifier for the Holiday Calendar. The Code Value must be a number between 1 and 99999. The Code Value you assign to the new Holiday Calendar must be unique.
   - **Name:** Enter the name and a brief description for the Holiday Calendar. The name you assign to the Holiday Calendar must be unique. The name can hold a maximum of 30 characters.
   - **Description:** Enter the description of Holiday Calendar Rule.

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- **Weekend Days:** In the Holiday Weekend Days checkboxes, select not more than two weekend days.

3. Click **Next** to navigate to **Holiday Details** section.

Holiday Details section

1. Enter the following details in Holiday Details Section:
2. Click **Add** icon. Define the Holiday details for any period within the Holiday range. Enter the following details in Holiday Calendar Grid:
   - **Name:** Name of Holiday
   - **Date:** The date of Holiday
   - **Holiday Type:** Type of Holiday. Two types of holidays can be defined: Fixed and Moving.
     A Fixed Holiday is deemed as a Holiday for every year in the Holiday Period, for that particular day.

     Example

     25th December – Christmas, is a fixed Holiday.

> **Note**
>
> To define a Fixed Holiday, input the Holiday Date for the first occurrence in the date range. For example, if your Date Range runs from 01-JAN-2000 to 31-DEC-2050, you should input the fixed holiday, Christmas, as 25-DEC-2000. The Holiday Calendar Procedure will populate all subsequent 25-DEC entries in the holiday list table (FSI_HOLIDAY_LIST). A HOLIDAY_TYPE code = 0 is a Fixed type holiday, code = 1 is a Moving type Holiday, and code = 2 is a weekend. The Holiday Calendar Procedure will also ensure that Holiday and Weekend entries are not duplicated. For example, if weekends are defined as Saturday/ Sunday and Christmas falls on a weekend day, there will be only one entry in the FSI_HOLIDAY_LIST table. The PREVIOUS_WORKINGDAY and NEXT_WORKINGDAY fields designate the valid prior and following working days, respectively.
>
> A Moving Holiday is deemed as a Holiday only for that particular date and year, and not for every year in the Holiday Period. All occurrences of a Moving Holiday must be input manually.
>
> Example
>
> 10th April 2020 is a Moving Holiday for Good Friday.

   - You can add more Holiday Periods using **Add** icon. Add Multiple icon allows you to add multiple Holiday Periods.
   - Click **Next** to navigate to **Generate Holidays And Exceptions** section.

Generate Holidays And Exceptions Section

This section is used to execute a Holiday Calendar Definition to generate the Calendar Dates listing the various types of holidays for a given Holiday Period.

1. Enter the following details in Generate Holidays And Exceptions Section:

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- **Generate Holidays:** Enter the Holiday Period in Generate Holidays Section. The Holiday Period can be defined for a range of up to 40 years less than the Current Date and 40 years greater than the Current Date, totally spanning a maximum of 80 years.

2. Holiday List for Holiday ID #1 generated successfully message appears (where #1 is the Holiday Calendar Code).
3. The status of a Holiday Calendar where Holiday Dates have been generated displays as Processed in the Status column in the Summary Page.

In case you do not want to Generate Calendar Dates immediately, you can select that particular Holiday Calendar anytime later from the Summary Page with its status defined, and then click the Generate button to execute the selected Holiday Calendar.

The generated holiday list is no longer valid if:

- There is a change in the definition of the Holiday Calendar.
- There is any update or modification to the Holiday Exceptions defined for that Holiday Calendar.

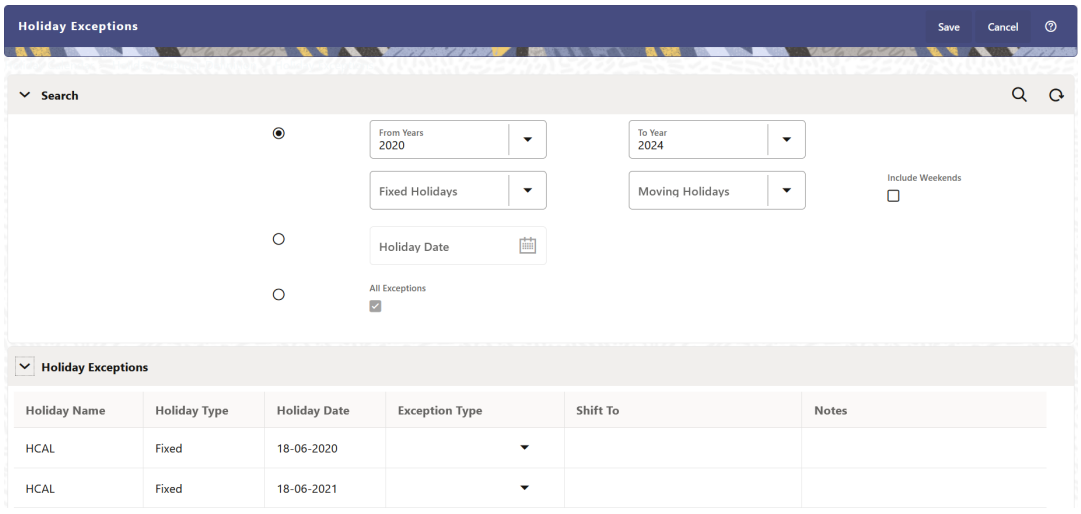
In such a case, you will get a message “This Holiday Calendar has been modified, Please generate the holiday list again.” and the Holiday Calendar state will be changed to defined until the Holiday list is regenerated with the new definition.

6.2.3.2 Holiday Exceptions

You can specify exceptions to Holidays. As a prerequisite, a Holiday Calendar should have been properly defined and the status of the Holiday Calendar on the Summary Page should be Processed. Generating the Holiday list will populate the Holidays (weekends, fixed, and moving) along with the working days. Then, the Exceptions button is enabled. Any changes in the Holiday Definition will disable the Exceptions Button. You must generate the Holiday List again to define or view the exceptions.

1. Click **Exceptions** in the **Generate Holidays And Exceptions** section. The **Holiday Exceptions** window opens.

Figure 6-61 Holiday Exceptions Page



2. The search section in the **Holiday Exceptions** window has the following fields:
   - **From and To:** Denotes the range of years which is a subset out of the Holiday List generated, for which exceptions are required to be defined.

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- **Fixed Holidays:** You can filter the list of holidays by the type of Fixed Holidays.
- **Moving Holidays:** You can filter the list of holidays by the type of Moving Holidays.
- **Holiday Date:** For a particular known Holiday Date, exceptions can be defined.
- **All Exceptions:** This check box when selected lists all the exceptions, if already defined, for the holidays within the From, To Date Range.

3. The search result gives the list of all holidays based on the selection of the above search criteria fields.
   - In the **Holiday Exceptions** section, there are two types of exceptions that can be defined: Not a Holiday and Shift to.
     - Any Holiday can be marked as not a Holiday, in which case that day is removed from the Holiday List. If you select **Not a Holiday** from the **Exception Type** drop-down, then the Shift to date field is disabled.
     - Spring earlier considered as a Holiday in the Holiday Calendar can be marked as Not a Holiday in the Holiday Exceptions Window. You can write your comments or remarks in the Notes next to the **Exception Type** drop-down list.
   - Any Holiday can be shifted to another day, in which case the earlier declared Holiday is removed from the Holiday List, while the shifted today is included as a Holiday.
   - Once the Holiday Calendar Definition is saved, its status in the Holiday Calendar Summary Page is marked as Defined.

6.2.4 Management Ledger Configuration

This screen enables you to define the Functional Currency and the Fiscal Year Start Month for each registered Management Ledger Table.

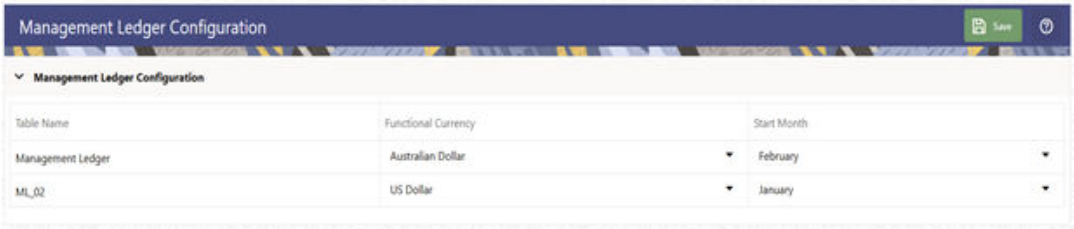
To configure the Management Ledger:

1. From the LHS menu , select **Maintenance**, and then select **Management Ledger Configuration**.

   This UI displays the details for each registered Management Ledger. You can modify the Functional Currency and the Start Month Information for each registered Management Ledger Table, but cannot delete the details for an activated Management Leger Table.

   By default, the UI displays a single row corresponding to the OOTB Regular Management Ledger Table (FSI_D_MANAGEMENT_LEDGER). As and when any Placeholder Management Ledger Table is registered, the UI displays an additional row corresponding to the Registered Management Ledger. On registering and activating of all the Management Ledger Tables, the UI displays six rows pertaining to – one row for the OOTB Management Ledger Table and five rows for the registered five placeholder Management Ledger Tables.

Figure 6-62 Management Ledger Configuration



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2. Select the following details:
   - **Functional Currency**: This field allows to select the functional currency that is applicable to the ledger table.
     Accounts and Instruments can be defined across various currencies, but to consolidate the accounts at multiple hierarchy Levels, across units, a common currency is required which you can set here. This currency can be the currency used in the primary economic environment where an entity operates, or in other words, the main currency used by a business unit.

     The default value of Functional Currency for any Management Ledger table is set as 'US Dollar'.
   - **Start Month**: The field is used to select the start month of the fiscal year. The default value of Start Month for any Management Ledger table is set as 'January'.
   - **Table Name**: This field displays the logical name of the Management Ledger table for which you want to input the details. The physical name of the Management Ledger table is displayed in a toolkit on mouse-hover over the logical name of the table.
3. Click **Save**.

6.2.5 Ledger Load History

Ledger Load History allows you to review the Runtime History of a Management ledger Load. You may see the order in which Ledger Loads are executed, and you may select any Ledger Load row and Undo the Ledger Load.

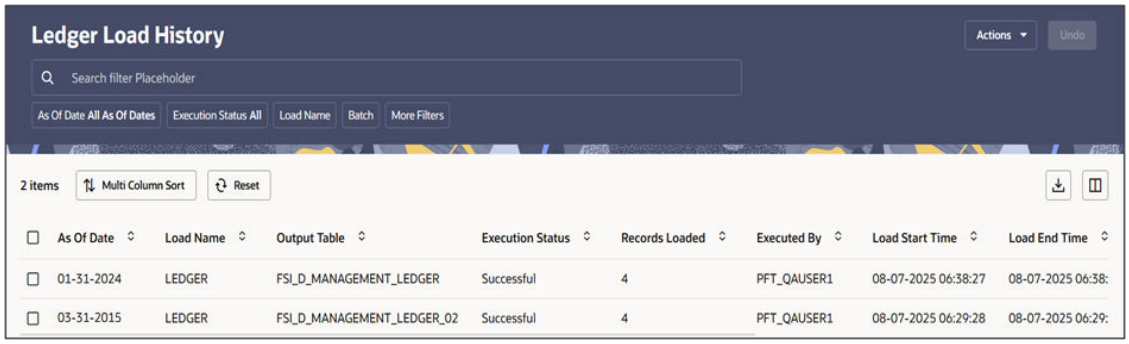
The screen presents a table that lists the Ledger Loads sorted by As-of-Date and by Load End Time. You may sort on any column you choose by clicking on the column header upward/ downward arrows, but the results are sorted first by As-of-Date and second by the Column, you have chosen.

Ledger Load History screen

To open this page, from the LHS menu, select **Profitability Management Cloud Service**, select **Operations And Processes**, and then select **Ledger Load History**.

A summary page is displayed showing a set of allocation rules executed on specific As Of Dates. Using search criteria, you can control the set of executed allocation rules that are displayed.

Figure 6-63 Ledger Load History screen



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Navigation in Ledger Load History screen

When you first enter the Ledger Load History screen, your results are shown for all As-of-Date values for which a ledger load was executed, with the Executed As-of-Dates displaying value “All As of Dates”. You may select a different As-of-Date from a drop-down list as required.

With the ‘All As of Dates’ selected, the Ledger Load History Table will display the load names sorted in descending order based on the As of Date and the Load End Time.

The Execution Status filter comes with the default value as 'All'.

The title bar of the summary page provides several actions for the user. They are:

- **Actions**: This lists three buttons:
  - **Search**: Click Search to initiate the search action based on the search filters applied.
  - **Reset**: Click Reset to reset the search filters applied.
  - **Help**: Click Help to view the Help Page.
- **Undo**: Click UNDO to undo or reverse one or more ledger loads. For details, see the Ledger Load Undo Functionality section.to undo a single or multiple rule.

There is a grid bar at the top of the Summary grid that displays two buttons on the left and two buttons on the right. They are, starting from the left to the right:

- **Multi-Column Sorting**: This button is used to sort the Summary table basis of multiple column values. This is unlike the single column sorting functionality that exists in the Summary table header adjacent to each column name.
  Clicking on this button opens a shuttle box that the user can use to shuttle the table columns from the left hand side available columns list to the right hand side selected columns list. The Summary table will be sorted in the same order of the columns in which the columns are selected and brought into the right hand side list. Further the sorting order of either Ascending or Descending by clicking on the upward/downward arrow adjacent to each selected column. Upward arrow indicates sorted in Ascending order and Downward arrow indicates sorted in Descending order.
- **Reset**: Click Reset to reset the search criteria and also refresh the Ledger Load History table.
- **Export**: Click Export to download the displayed information in the Summary table in .xls format.
- **Column Selector**: This button is used to select the columns of the Summary table, that will be displayed in the Ledger Load History page.
  Clicking on this button opens a window with the list of all columns available to be displayed in the Ledger Load History page, and some columns within the list as marked denoting that the column is already displayed page. User can mark or unmark any column to display or hide the column from the Ledger Load History page.

Search

In addition to the **As Of Date** and the **Execution Status** search filters, you may search based on the following constraints as well:

- **Load Name**: Performs a wild card search on Ledger Load Name.
- **Batch**: Performs a wild card search on Batch Name.
- **Executed By**: Performs a wild card search on the logged-in username that has executed the Management Ledger Load.

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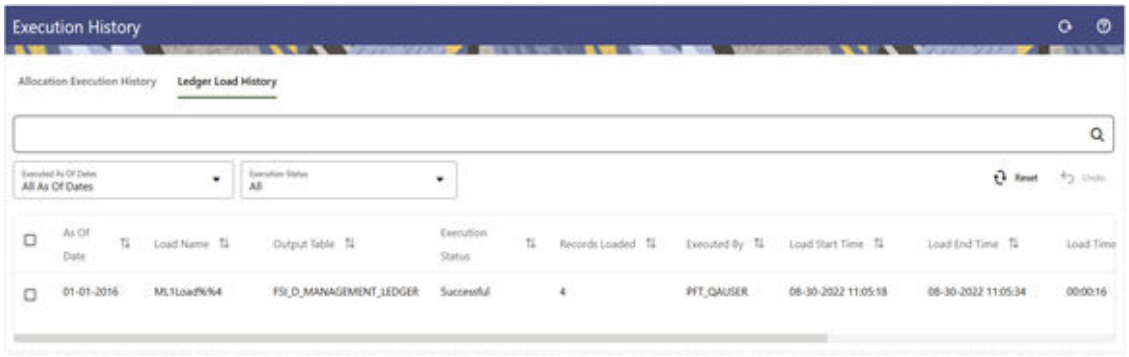
- **Output Table**: Performs a wild card search on the output table.
- **Load End Time**: Restricts the number of rules displayed on the Ledger Load History screen based on a user's specification of a Single Load Date, and a no earlier than Load End Time – Time From and a no later than Load End Time – Time To. You can execute the search when you select the Search button.

6.2.5.1 Navigation in Ledger Load History

When you first enter the Ledger Load History screen, your results are shown for all As-of-Date values for which a ledger load was executed, with the Executed As-of-Dates displaying value “All As of Dates”. You may select a different As-of-Date from a drop-down list as required.

With the ‘All As of Dates’ selected, the Ledger Load History Table will display the load names sorted in descending order based on the As of Date and the Load End Time.

Figure 6-64 Ledger Load History Screen



The title bar of the Screen displays several actions for the user. They are:

- **Refresh**: Click Refresh to refresh the Ledger Load History Page.
- **Help**: Click Help to view the Ledger Load History Help Page.

The Ledger Load History screen can be divided under three sections – the Search section, the Inline section and the Table section.

6.2.5.1.1 Search Section

The Search pane is used to specify the search criteria that will reduce the number of rule executions that gets displayed in the Allocation Execution History table.

To search the Allocation Rules, perform the following steps:

1. Click the **Search** icon on the Search Pane to display the Criteria Window.
2. Enter the **Allocation Rule Name**, **Allocation Model Name**, **Batch**, **Executed By**, **Execution End Time**, or the **Output Scenario** and click **Search** to display the Allocation Rules that match the criteria.
3. Click **Cancel** to remove the filter criteria on the Search Window and refresh the Window.
4. Click **Search** after entering the Search Criteria.

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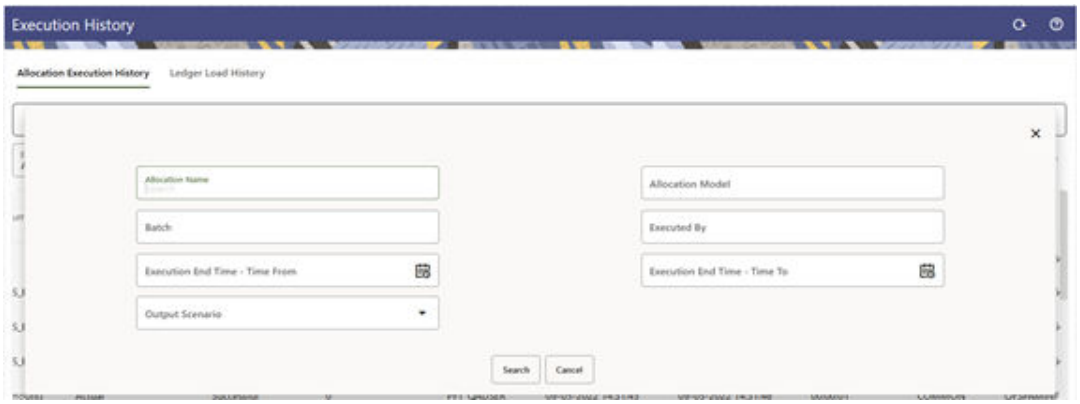
Figure 6-65 Allocation Execution History – Criteria Window



The screen displays the search results that meet the Search Criteria in a table containing all the Allocation Rules.

You may search based on the following parameters:

- **Allocation Name**: Performs a wild card search on Allocation Rule Name. You can execute the search when you select the Search button.
- **Allocation Model**: Performs a wild card search on Allocation Model Name under which different Allocation Rules are grouped together. You can execute the search when you select the Search button.
- **Batch**: Performs a wild card search on Batch Name. You can execute the search when you select the Search button.
- **Executed By**: Performs a wild card search on the logged-in username that has executed the rule when rule execution happened through Allocation Summary. While it performs a wild card search on the username that has been passed as a parameter in the batch when rule execution happened through batch method.
- **Execution End Time**: Restricts the number of rules displayed on the Allocation Execution History summary screen based on a user's specification of a single execution date and a no earlier than Execution End Time – Time From and a no later than Execution End Time – Time To. You can execute the search when you select the Search button.
- **Output Scenario**: Performs a wild card search on the Output scenario for any Allocation Rule. You can execute the search when you select the Search button.

6.2.5.1.2 Inline Section

The Inline section contains two additional filters as follows:

- Executed As-of-Dates with default value as 'All As of Dates'.
- Execution Status with default value as 'All'.

The following statuses occur when an Allocation Execution is initiated:

- **Processing**: Allocation Engine updates this status when rule execution is started.
- **Successful**: Allocation Engine updates this status when rule execution is successful.
- **Failed**: Allocation Engine updates this status when rule execution is failed.

An Undo operation on any Allocation Execution can lead to one of the following statuses:

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- **Undo in Progress**: Undo engine updates this status when it picks up a record for Undo so that another process does not pick up the same record.
- **Undo Failed**: Undo engine updates this status when the Undo is failed.
- **Undo Rolled Back**: When one of the rules as part of a Batch or an Allocation Model, is processed for Undo and fails, the status of the rule is marked as 'Undo Failed'.

All the previous rules in the Batch/Model that were successfully processed for Undo before the point of failure, will be rolled back, and the status of those records will be updated as 'Undo Rolled Back'.

User can apply these two filters to select the execution rows he wants to see in the Allocation Execution History Table.

This section also offers several controls that allow the user to perform different functions when an Allocation Rule is selected. You can select multiple Allocation Rules at a time, but this may disable some of the icons.

The following are the controls in the Inline section:

- **Reset**: Resets the search criteria and also refreshes the Allocation Execution History table. 'Reset' applies to all fields under the Criteria Window but not to the Inline filters.
- **View**: On choosing a single row of the Allocation Execution History table, select View to drill into an audit trail for the currently selected rule. The View icon is disabled if no rows have been selected or if multiple rows have been selected.
  See the Allocation Execution Audit Functionality section for details.
- **Undo**: You can use this icon to UNDO or reverse one or more allocation runs.
  For details, see the UNDO Functionality section.

6.2.5.1.3 Table Section

The following columns categorize each Allocation Execution row in the table:

You can sort any of these columns by clicking on the text in the column header.

- **As of Date**: Displays the As-of-Date when the Allocation Rule was executed.
- **Allocation Name**: Displays the Allocation Rule's short name. A “mouse over” on the Rule's name displays the Rule's long description as well as the Identity Code generated or used by that allocation. You can use Identity Codes in queries against the database to identify rows generated by the rule.
- **Output Table**: This denotes the target table name in the database where the Allocation is either posted or updated records. For example, Management Ledger, Assets, and so on.
- **Output Column**: This denotes the target column name in the database where the Allocation is either posted or updated records.
- **Output Scenario**: This denotes the scenario value configured in the Output Configuration of the executed Allocation Rule.
- **Execution Status**: Denotes the status of each allocation execution. See the Inline section for more details.
- **Record Loaded**: Displays the record count of the Allocation Execution, meaning the count of inserts or updates that has taken place.
- **Executed By**: Displays the username that has executed the Allocation Rule.
- **Execution Start Time**: Displays the date and time at which each Allocation Rule has been started.

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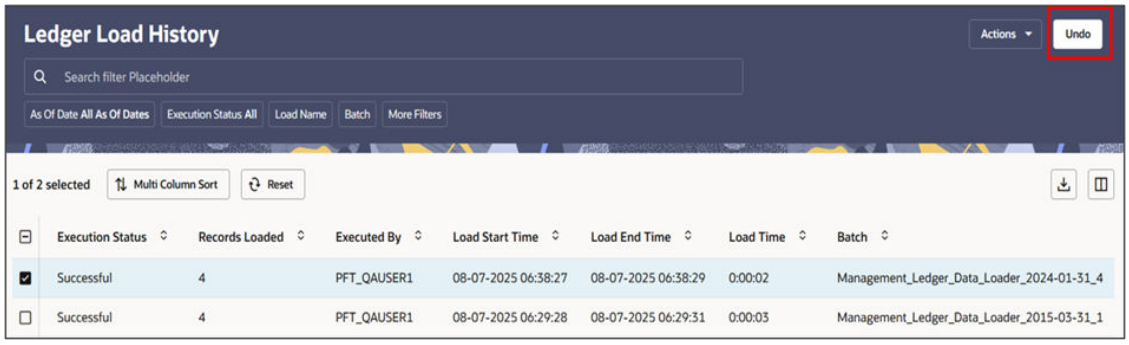
- **Execution End Time**: Displays the date and time at which each Allocation Rule is completed.
- **Execution Time**: Displays the elapsed time required for each Allocation Rule to complete, shown in hours, minutes & seconds.
- **Folder**: Displays the name of the Folder to which the Allocation Rule belongs.
- **Batch**: Displays the Batch name under which each Allocation Rule was executed. For rules executed directly from the Allocation Specification user interface, the system automatically generates synthetic batch names.
- **Allocation Model Name**: Displays the allocation model name under which the Allocation Rule is grouped. The Allocation Model consists of a list of individual Allocation Rules that can be executed as a single unit.

> **Note**
>
> Allocation Model Name column remains blank for any Allocation Rule that was not executed from within an Allocation Model.

6.2.5.2 Ledger Load UNDO Functionality

A Ledger Load Undo operation reverses the effect of the Ledger Load process meaning it deletes the rows that were inserted into a Management Ledger as part of the Ledger Load process.

Figure 6-66 Ledger Load History - Undo



The Undo icon is enabled whenever you select one or more rows from the table.

For details on restricting action to Undo functionality, see User Preferences section. This functionality works only if the **Enable Undo for Ledger Load** option in the User Preferences is set to **Yes**.

6.2.6 Filters

Filters allow you to view and select data using the defined expressions.

6.2.6.1 Filter Definition Types

Filter definitions are created based on the different object types.

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The following filter definition types are supported:

- Attribute Filter - filters based on one or more Dimension Type Attributes. For each attribute, you can select one or more values.
- Data element filter -filters the columns based on specific data constraint. These filters are used within other rule types such as Allocation Rules, Transfer Pricing Rules, Asset and Liability Management Rules.
- Group filter - combined filter containing multiple Data element filters logically connected using the **AND** operator.
- Hierarchy filter - filters using Rollup Nodes within a Hierarchy and exclude or include data within an OFSAA Rule.

6.2.6.2 Filter Summary

The **Filters Summary Page** shows the list of available filters.

- To access the Filter Summary page, click **Maintenance** and select **Filter**.

  The Filter Summary Page provides the list of already created Filter definitions with the following details.

  - **Name** - The unique Filter Name. You can mouse-over the filter name to view more details such as the description of the filter.
  - **Folder** - The folder in which the Filter Definition is stored.
  - **Filter Type** - One of the following Filter Types associated with the Filter Definition. The filter type is selected based on the type of the object that needs to filtered.
    - Attribute Filter
    - Data element filter
    - Group filter
    - Hierarchy filter
  - **Modified By** - The login name of the User who has modified the Filter Definition.
  - **Modification Date** - The date of modification.
  - **Action** - Using **Action** (**three dots**), you can perform the following tasks on a selected filter definition.
    - View - View the details of selected filter definition.
    - Edit - Edit a filter definition.
    - Copy - Copy a filter definition.
    - Delete - Delete a filter definition.
    - View SQL - View the SQL statement for a filter definition.
    - Check Dependency - Check the dependent objects associated with the filter definition.

  To filter the summary based on specific search criteria, select and add the required search criteria to the **Search** field and enter/select the specific values.

6.2.6.2.1 Searching Summary

You can search for a specific Definition based on the following criteria. Select/Enter one or more unique values/tag associated with the definition and click **Search**.

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- **Name** - Enter unique filter name, to search for a specific definition based on the entered name,
- **Folder** - Select a specific folder to view the definitions stored in that folder.
- **Filter Type** - Select the Filter type, to view all the definitions associated with it.
- **Description** - Enter one or more keywords, to view the definitions containing those keywords.

6.2.6.2.2 Sorting a Summary Page

Sorting helps to view/group the filter definitions sequentially based on the selected criteria

You can sort/group the Definitions based on the following parameters:

- Filter Type
- Folder
- Name

6.2.6.3 Creating Filter Definitions

To create a Filter definition, complete the following steps:

1. To create a Filter Definition, click the **Add** in the Filter Summary.

   The **Add Filter Definition** Page with the following details is displayed.

   - **Name** - The unique Filter Definition Name.

     > **Note**
     >
     > You can enter up to 120 characters. All allowed characters are **blank space ( )** , **Underscore (_)**,**comma (,)**, **dot (.)** and " **hyphen (-)** .

   - **Folder** - Select the Folder, to save the Filter definition.
   - **Description** - A brief description about the Filter Definition.

     > **Note**
     >
     > You can enter up to 250 characters. All characters are allowed except **" & ", "+ ", "@" and "~"**.

   - **Read-Only** - Select this option to give other users the access to only view the Filter Definition.
   - **Filter Type** - Select one of the following filter types, based on the type of the object that needs to filtered. For more information about creating a filter based on the filter type refer, to the respective sections.
     - Attribute Filter
     - Data Element filter
     - Group filter
     - Hierarchy filter
2. After including all the filters, Click **Save**.

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The new Filter Definition is created successfully and added to the Filter Summary.

6.2.6.3.1 Defining an Attribute Filter

Attribute Filters are created using defined Attributes. Attribute filters facilitates you to filter on one or more Dimension Type Attributes.

For each attribute, you can select one or more values.

1. Select the Filter Type as **Attribute**.
2. Select the required **Dimension** from the drop-down list.
3. Select the associated **Attribute** from the drop-down list.

   Only those attributes associated with the selected Dimension are displayed.
4. In the **Attributes Value** pane, click **Search**. The list of attribute values associated with the selected Attribute are displayed.
5. Click the **Action** adjacent to the attribute to be added and click **Copy**.

   The selected Attribute value is added the **Attribute Values** pane.
6. After adding the required filters, click **Save**, to add the Filter definition to the Filter Summary page.

   The filter definition is added and a confirmation message is displayed.

   To Delete a Filter, highlight the filter and click **Delete**.

   To view the SQL Query for a filter, highlight the filter and click **View SQL**.

6.2.6.3.2 Defining a Data Element Filter

Data Element Filter is a stored rule that expresses a set of constraints.

Data Element Filters can access most instrument columns and most columns in the Management Ledger. Data Element Filters are used within other rule types such as Allocation Rules, Transfer Pricing Rules, Asset and Liability Management Rules.

Only columns that match the data type of your Data Element selection are displayed in the drop-down list. For example, Balances between 10,000 and 20,000 Accounts opened in the current month Loans with amortization terms greater than 20 years.

Refer to the following steps, to create a Data Element filter:

1. Select the required database table from the **Table Name** drop-down list.
2. Select one or more columns from the **Column Name** to be included in the filter for viewing specific values.

   The columns that are present in the selected Database table are only listed.
3. Select the **Data Element** from the drop-down list.

   The Data elements are listed as a combination of the selected Database table and the selected column
4. Select one of the following Filter Methods to be applied to each data element, add the filter conditions based on the selected method.
   - Specific Values Filter
   - Ranges Filter
   - Another Element Filter

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- Expressions Filter

5. After adding the required filters, click **Save**, to add the Filter definition to the Filter Summary page.

   The filter definition is added and a confirmation message is displayed.

   To Delete a Filter, highlight the filter and click **Delete**.

   To view the SQL Query for a filter, highlight the filter and click **View SQL**.

6.2.6.3.2.1 Specific Values Filter

You can match a selected database column to a specified value or values, using the Specific Value filter.

You may either include or exclude Specific Values, to view the data.

To create a specific value filter, proceed with the following steps, after selecting the Database table name, column name and the Data element.

1. Select **Specific Values** in the Filter Methods.
2. Enter the required filter value in the **Values** column.
   - When comparing Specific Values for a date type column, select the date using the Calendar control.
   - When comparing Specific Values for a character type column, enter only Character strings.
3. To add another row click **Add** (Plus sign) on the right hand side corner of the **Specific Values** pane. Repeat the previous step, to enter multiple values.
4. To include or exclude the specific values, in the results:
   - To view the results containing the entered specific value, select the value and select **Include**. Click **Add** to add the expression to the filter condition.
   - To view the results without the entered specific value, select the value and select **Exclude**. Click **Add** to add the expression to the filter condition.
5. To delete a value, select the value by clicking the check-box adjacent to the value. Click **Delete**.
6. To view the SQL statement for the specific value, select the value and click **View SQL**.

6.2.6.3.2.2 Ranges Filter

You can match a selected database column to a specified range/ranges of values or to ranges of values.

You may either include or exclude Specific Values, to view the data.

To create a Ranges filter, proceed with the following steps, after selecting the Database table name, column name and the Data element.

1. Select **Ranges** in the Filter Methods.
2. Refer to the following steps, and create a range or multiple ranges, view require data.

   You can use Ranges for data types - Term, Frequency, Leaf, Code, Identity, Date, Numeric and Varchar.

   a. Select the **From Operator** (> or >=), to include the lower limit of the range.

   b. Enter the **Value From** which the Range begins.

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c. Select the **To Operator** (< or <=), to indicate whether to include the specified value in the higher limit of the range.

d. Enter the **Value To** , to include the higher limit of that range.

3. To include or exclude the specific range, in the results:
   - To view the results containing the entered specific range, select the range and select **Include**. Click **Add** to add the range to the filter condition.
   - To view the results without the entered specific range, select the range and select **Exclude**. Click **Add** to add the range to the filter condition.
4. To delete a range, select the range by clicking the check-box adjacent to the value. Click **Delete**.
5. To view the SQL statement for the specific range, select the range and click **View SQL**.

6.2.6.3.2.3 Creating Another Element Filter

You can match a selected database column to another database column.

When creating an Another Data Element Filter Method, you may only compare a column to other columns that you have already selected (the Data Element drop-down list box will only contain columns that you have already selected).

.

To create an Another Element filter, proceed with the following steps, after selecting the Database table name, column name and the Data element.

1. Select **Another Element** in the Filter Methods.
2. Select a **Table Column**, that needs to be compared with the Data Element Column.
3. Select one of the following mathematical operators for comparison.
   - **=** - Equal to
   - **<>** = Not equal to
   - **<** - Lesser than
   - **>** - Greater than
   - **<=** - Lesser than or equal to
   - **>=** - Greater than or equal to
4. Select a **Data Element**, that needs to be compared with the Table Column.
5. Click **Add** to add the expression to the filter condition.

   To edit an existing Another Element Filter entry, select the entry listed in the **Filter Condition** pane. Modify the expression in the Another Element Pane and click **Update**.

6.2.6.3.2.4 Expressions Filter

Expressions filters help to include calculated conditions in filters.

To create an Expression filter, proceed with the following steps, after selecting the Database table name, column name and the Data element.

Refer to the following steps, to create a Expressions filter:

1. Select **Expressions** in the Filter Methods.

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2. Refer to the following steps, to include an expression and filter the data based on the calculated output.
   a. Select one of the **Operator** (> or >=), to process the data in the specific column.
      - **=** - Equal to
      - **<>** - Not equal to
      - **<** - Lesser than
      - **>** - Greater than
      - **<=** - Lesser than or equal to
      - **>=** - Greater than or equal to
   b. Select the **Expression** for comparing the data in the selected table column.
3. Click **Add** to add the expression to the filter condition.

   To edit an existing Expression Filter entry, select the entry listed in the **Filter Condition** pane. Modify the expression in the Expressions pane and click **Update**.
4. To delete a range, select the range by clicking the check-box adjacent to the value. Click **Delete**.
5. To view the SQL statement for the specific range, select the range and click **View SQL**.

6.2.6.3.3 Defining Group Filter

Group Filters can be used to combine multiple Data Element Filters with a logical "AND".

For each attribute, you can select one or more values.

1. Select the Filter Type as **Group**.
2. Select the checkbox(s) adjacent to the required Data Element Filters in the **Available Filters** pane, and click **Move Selected Available Filters to Selected Filters**, to move them to **Selected Filters** pane.

   To select all the filters, click **Select All**.

   To search for a specific filter, enter the few letters from the filter name, and click the **Search**
3. To remove a filter from the **Selected Filters** pane, select the filter and click **Move Selected Filters to Available Filters**. Click Select All to move all the selected filters.
4. After adding the required filters, click **Save**, to add the Filter definition to the Filter Summary page.

   The filter definition is added and a confirmation message is displayed.

6.2.6.3.4 Defining Hierarchy Filter

Hierarchy Filter allows you to utilize Rollup Nodes within a Hierarchy to help you exclude (filter out) or include data within an OFSAA Rule.

For each attribute, you can select one or more values.

1. Select the Filter Type as **Hierarchy**.
2. Select the required **Dimension** from the drop-down list.
3. Select the required **Folder** from which you want to select the Hierarchy.
4. Select the **Hierarchy** from the list of Hierarchies displayed based on the selected Folder.

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5. Click **Launch Hierarchy Browser**, access the Hierarchy Browser and select/unselect the Child/Sibling Members to be included in the Filter.

   For more information about Hierarchy browser, refer Hierarchy Browser .

6. After adding the required filters, click **Save**, to add the Filter definition to the Filter Summary page.

   The filter definition is added and a confirmation message is displayed.

6.2.6.3.4.1 Hierarchy Browser

The Hierarchy Browser contains the list of available Members associated with the selected Hierarchy.

You can view the list of available members and the child nodes associated with the members, in the **Show Hierarchy** tab.

- To select a Member, click the check-box adjacent to the member.

> **Note**
>
> When a Member is selected, all the associated child members are also included in the Hierarchy filter. To include only a specific child member, expand the node and selected the required child member.

- To search for a specific member, click **Search**. Enter the keyword in the **Search Value** and click **Search** adjacent to the Search box.
  The searched members are displayed in the **Search Results** tab.
- You can view a selected tree member in a flat list, in the **Show Members** tab.
- To navigate through the list of available members.
  - Click **Expand/Collapse** to expand/collapse all the nodes. You can also click **Node** next to a member, to expand or collapse a Member node.
  - Click **Sort Ascending/Descending**, to view the list Members in alphabetical order.
  - In Search Results tab, click **Focus/Unfocus**, to select/deselect any specific node.

6.2.6.4 Managing Filter Definitions

You can view, edit, copy, delete and view SQL for the existing Filter Definitions from the Filter Summary.

In the Filter Summary Page, highlight a specific Filter Definition and click the **Action** (three dots). The following Options are displayed.

- View - View the details of selected filter definition.
- Edit - Edit a filter definition.
- Copy - Copy a filter definition
- Delete - Delete a filter definition.
- View SQL - View the SQL statement for a filter definition.
- Check Dependency - Check the dependent objects associated with the filter definition.

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6.2.6.4.1 Viewing Filter Definition Details

You can view the details of an individual Filter Definition, using the following procedure:

1. Highlight the Filter Definition and click **Action** (three dots).
2. Click **View** .

   The Filter Definition page is displayed with the details such as Name, Description, Folder, Filter Type, Filter Conditions and Audit Info.

6.2.6.4.2 Editing Filter Definition Details

You can edit individual Filter Definition details at any given point. To edit the existing Filter Definition details:

1. Highlight the Filter Definition and click **Action** (three dots).
2. Click **Edit**.

   The Filter Definition Page is displayed with the details: Name, Description, Folder, Filter Type, Filter Conditions and Audit Info. Edit the required information and click **Save**.

6.2.6.4.3 Copying Filter Definition Details

You can copy individual Filter Definition Details, to recreate another new Member Definition. To copy the Member Definition Details as follows:

1. Highlight the Filter Definition and click **Action** (three dots).
2. Click **Copy** button.

   The Filter Definition Page is displayed with the details Name, Description, Folder, Filter Type and Filter Conditions.

   Edit the unique information such as Name, Description, Folder, Filter Type and Filter Conditions, and click **Save**.

6.2.6.4.4 Deleting Filter Details

To delete a Filter Definition:

1. Highlight the Filter Definition and click **Action** (three dots).
2. Click **Delete** .

   The Filter Definition is deleted after confirmation.

> **Note**
>
> You cannot delete a definition if any dependency like Attribute, Hierarchy or Filter is attached to it. Detach the dependency before deleting the definition.

6.2.6.4.5 Checking Dependencies

To check the dependencies of a Filter Definition from the Filters Summary:

1. Click **Action** adjacent to the filter definition.
2. Click the **Check Dependency** .

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The list of Dependent Objects is displayed with Object ID, Name, and ID Type of the dependent Objects.

6.2.6.4.6 View SQL

To view SQL of a Filter Definition, perform the following steps:

1. Highlight the Filter Definition and click **Action** .
2. Click the **View SQL** button.

   The SQL statement of Filter Definition is displayed.

6.3 Application Specific Rules

This section covers the following topics:

1. Behavioral Assumptions: This section contains information about behavioral assumptions of Asset Liability Management Cloud Service, for example, Prepayment rules, Prepayment models, etc.
2. Forecast Rates: Forecast Rate scenario assumptions allow you to define future interest rates, future economic indicators, and future currency exchange rates. Use interest rate forecasts to project cash flows, including pricing new business, re-pricing existing business, calculating prepayments, and determining discount methods. Use Economic Indicator forecasts to include in behavioral modeling and scenario/stress analysis. Use currency exchange rate forecasts to account for the effects of currency fluctuations on income.
3. Process Definitions: This section provides the details on processes of Asset Liability Management Cloud Service.

6.3.1 Forecast Rates

Forecast Rate Scenario Assumptions allow you to define future interest rates, future economic indicators, future currency exchange rates, future interest rate volatility, and select Forecast Rate rule for cash flow calculation. Interest rate forecasts are used to project cash flows, including pricing new business, repricing existing business, calculating prepayments, and determining discount methods. Interest rate volatility forecast are used for option valuation. Economic Indicator forecasts are used to calculate cash flow for inflation-indexed instruments, included in Behavioral Modeling and scenario or stress analysis. Currency Exchange Rate Forecasts are used to account for the effects of currency fluctuations on income.

The Forecast Rate Assumptions use interest rate curve, volatility surface, economic indicator, active and reporting currencies, and Forecast Rate rule.

This module describes how to create a Forecast Rates Assumption Rule to forecast Cash Flows and, if you work with multiple currencies, to model relationships between Interest Rates and Exchange Rates.

Forecast Rate Rule Summary

This page is the gateway to all Forecast Rate Rules and related functionality. You can navigate to other pages relating to Forecast Rate Rules from this point.

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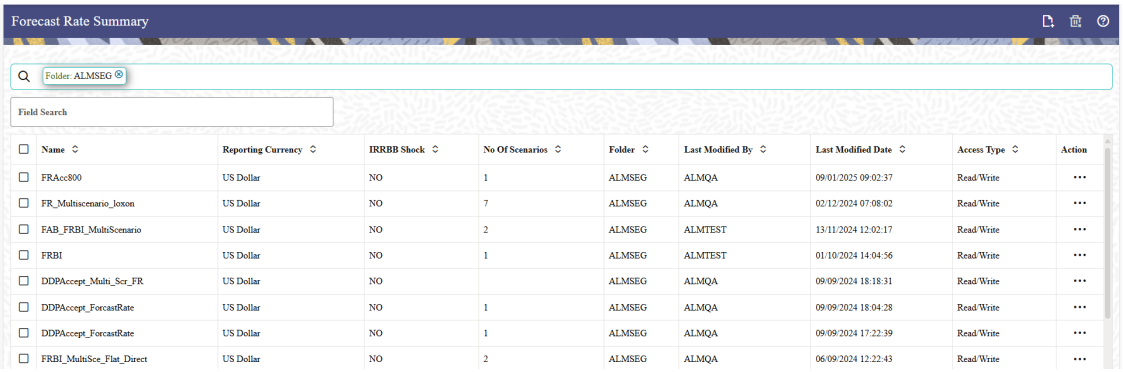
Figure 6-67 Forecast Rate Summary



Search Forecast Rate Rule

Prerequisites: Predefined Forecast Rate Rule

To search for a Forecast Rate Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Forecast Rate Rules that meet the search criteria.

Or

An alternative method to search a Forecast Rate Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Forecast Rate Rule Summary. You can enter the **Code, Name, Description, Dimension, Hierarchy**, and **Folder** of the Forecast Rate Rule and click **Search** .

The Forecast Rate Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Forecast Rate Rule.

- **Name:** The Forecast Rate Rule's short name.
- **Reporting Currency:** The Reporting Currency selected in the Forecast Rates Rule.
- **IRRBB Shock:** Displays Yes if IRRBB (Interest Rate Risk in Banking Book) scenario type is defined in the Forecast Rates Rule, Otherwise No is displayed.
- **No. of Scenarios:** The number of scenarios defined in the Forecast Rates Rule
- **Folder:** The Folder name where the Forecast Rate Rule is saved.
- **Last Modified By:** The user who last modified the Forecast Rate Rule.
- **Last Modified Date:** The Date and Time when the Forecast Rate Rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Forecast Rate Rule.
  - Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Forecast Rate Rules. To edit a rule, you must have Read/Write privilege.

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- Save As: You can reuse a Forecast Rate Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
- Delete: You can delete Forecast Rate Rules that you no longer require. Note that only Forecast Rate Rule owners and those with Read/Write privileges can delete Forecast Rate Rules. A Forecast Rate Rule that has a dependency cannot be deleted.
- Dependency Check: You can perform a dependency check to know where a particular Forecast Rate Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Forecast Rate Rules that have dependencies. . A report of all rules that utilize the selected Forecast Rate Rule is generated.

> **Note**
>
> This is functionality will intended for a future release.

Also See:

- Create Forecast Rate Rule

6.3.1.1 Create Forecast Rate Rule

To create a new Forecast Rate Rule, follow these steps:

1. Navigate to **Forecast Rates Summary** Page.
2. Click **Add** icon. The **Forecast Rates Details** Page is displayed.
3. Enter the following Details

Table 6-23 Forecast Rate Rule – Fields and Descriptions

Field	Description
Name	Enter the name of the Forecast Rate Rule.
Description	Enter the description of the Forecast Rate Rule. This is an optional field.
Folder	Select the Folder where the Forecast Rate Rule needs to be saved.
Access Type	Select the Access Type as Read-Only or Read/ Write.
IRRBB Shock	Select this checkbox if you want to define IRRBB Scenario. This option is available only in Asset Liability Management Cloud Service. If selected, IRRBB standardized and enhanced approach scenario types can be created.
Reporting Currency	Currencies that were marked as 'Reporting Currency' in Rate Management appear for selection here. Select one Reporting Currency.

.

4. Scenario 1 is selected by default. You can change the name of scenario. Click + to add more scenario, if needed. More than one scenario can be created only in Asset Liability Management Cloud Service.

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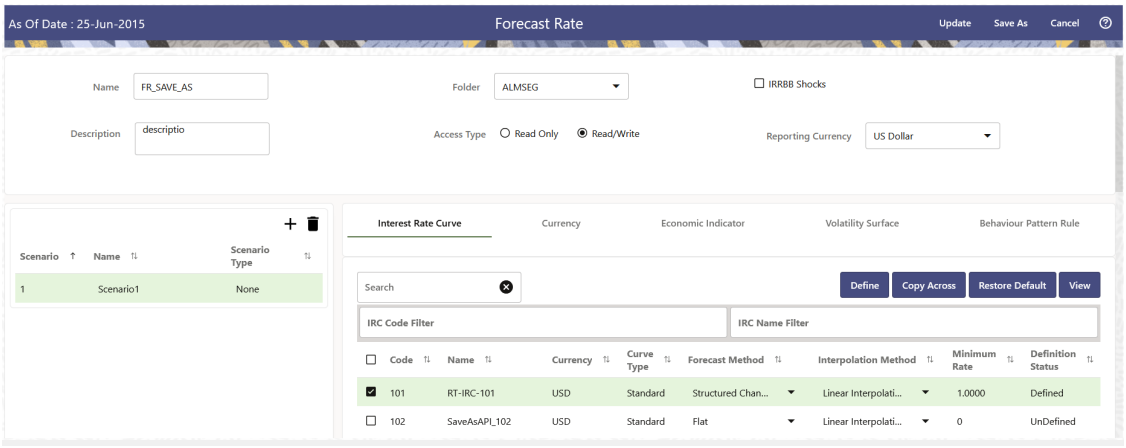
5. Scenario Type is ‘None’ by default. When IRRBB Shock is enabled then you can select one of the available values from second scenario onwards.
6. Click **Save**, if you want to save the Forecast Rate Rule and update it later.

6.3.1.1.1 Interest Rate Forecast Methods

The IRCs for all active currencies are listed under Interest Rate Curve section. The options under Interest Rate Curve Forecast Method provide multiple ways to model the effects on portfolio Cash Flows due to Interest Rate changes.

Figure 6-68 Interest Rate Curve Forecast Rates



You can define Interest Rate Forecast for the following methods:

Table 6-24 Forecast Rate rule – Methods and Descriptions

Method	Description
Flat	Forecast no change in the Interest Rate for all dates beginning with the As-of Date.
Direct Input	Type Interest Rates directly for any modeling period or Interest Rate term.
Structured Change	Forecast exchange rates as an incremental change from the previous period. Forecast rate changes in terms of absolute or percent change, for any modeling period or interest rate term, such as: +100 basis points on Day 1 -200 basis points over the first 6 months Yield curve rotation (short point decreasing, long point increasing). This option is available only in Asset Liability Management Cloud Service.
Implied Forward	Forecast interest rates based on the yield-curve interest rates in effect at the as-of date and consistent with the modeling bucket definitions. This option is available only in Asset Liability Management Cloud Service.

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Table 6-24 (Cont.) Forecast Rate rule – Methods and Descriptions

Method	Description
Yield Curve Twist	Flatten or steepen the yield curve around a specific point on the curve. This option is available only in Asset Liability Management Cloud Service.
Change from Base	Make incremental changes to an existing forecast scenario. This option is available only in Asset Liability Management Cloud Service.
IRRBB Standardized Approach Shocks	Forecast an interest rate shock according to one of the BCBS IRRBB Standardized Approach shock specifications (Scenario-level specification). This option is available only in Asset Liability Management Cloud Service
IRRBB Enhanced Approach Shocks	Forecast an interest rate shock according to user specifications that will flow into IRRBB Table B reporting. This option is available only in Asset Liability Management Cloud Service.
Formula	Hybrid and Managed Rate IRC can be forecasted using the formula defined in Managed Rate/ Hybrid section of IRC.

> **Note**
>
> Formula method is applicable to Hybrid and Managed Rates IRC.

For more information, see the Cash Flow Engine Reference Guide.

The following Interpolation Methods are available.

Table 6-25 Forecast Rate Rule – Interpolation Methods and Descriptions

Method	Description
Linear Interpolation	Linear interpolation uses Linear Yield Curve smoothing. Linear Yield Curves are continuous but not smooth; at each knot point, there is a kink in the yield curve. You may not want to use a Linear Yield Curve with a model that assumes the existence of a continuous Forward Rate Curve, due to the nonlinear and discontinuous knot points of a Linear Yield Curve.

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Table 6-25 (Cont.) Forecast Rate Rule – Interpolation Methods and Descriptions

Method	Description
Cubic Spline of Yields	A cubic spline is a series of third-degree polynomials that have the form: $y = a + bx + cx^2 + dx^3$ These polynomials are used to connect the dots formed by observable data. The polynomials are constrained so they fit together smoothly at each knot point (the observable data point.) This means that the slope and the rate of change in the slope with respect to time to maturity have to be equal for each polynomial at the knot point where they join. If this is not true, there is a kink in the yield curve and they are continuous but not differentiable. Two more constraints make the Cubic Spline Curve unique. The first restricts the zero-maturity yield to equal the 1-day interest rate. The second restricts the yield curve at the longest maturity to be either straight (y"=0) or flat (y'=0).
Quartic Spline	Quartic interpolation requires a minimum of 4 knot points. The quartic interpolation equation can be represented as: $Y = a + bX + cX^2 + dX^3 + eX^4$ The end knot points satisfy equations for one curve and all intermediate points satisfy two curves. Therefore, in a scenario with a minimum number of knot points, there are 6 equations. For n number of knot points, the number of equations is 2n-2. If n is the number of points to be interpolated, the order of the matrix to be formed is 5*(n-1) x 5*(n-1). The matrix is formed according to the following logic: The second derivative at the endpoints and the first derivative of the last point is Zero. At the points other than the endpoints, the value of the first derivatives, second derivatives, and the third derivatives of the function are equal.

In looking up the Forecast Rates, the Cash Flow Engine (where necessary) performs an interpolation between yield curve term points. For example, in determining a three-month rate from a yield curve that contains only a one-month rate and a six-month rate, the Cash Flow Engine performs an interpolation to determine the implied three-month rate. The Interpolation method used is defined by the selected interpolation method for the Interest Rate Curve.

Forecast rates for 360 calendar months starting from As-of-Date are generated.

Following options are available for Interest Rate Curve Forecast Rule:

- Define
- Copy Across
- Restore Default
- View

Define

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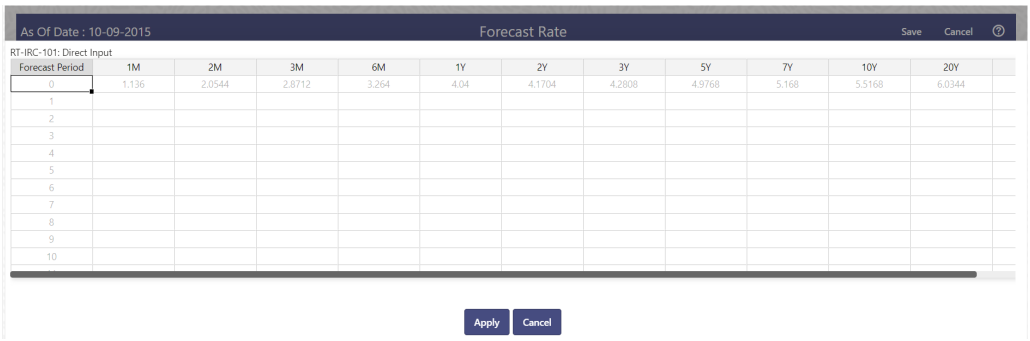
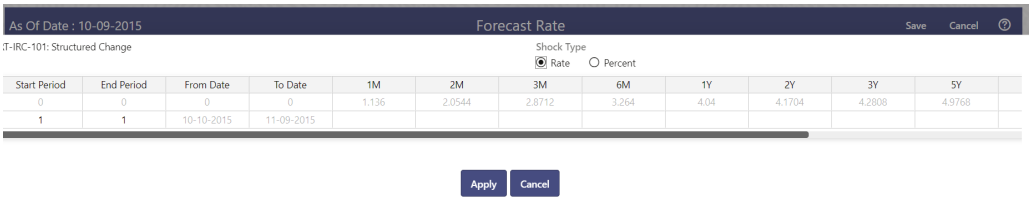
- **Flat Method**
  1. Select Interest Rate Curve using corresponding checkbox and select **Forecast Method** as **Flat**.
  2. Select the Interpolation method.
  3. Input Minimum Rate, if required.
  4. Click **Define**.
     The status of the Interest Rate Curve is changed to **Defined**.
- **Direct Input**
  1. Select Interest Rate Curve using corresponding checkbox and select **Forecast Method** as **Direct Input**.
  2. Select the **Interpolation Method**.
  3. Input Minimum Rate, if required.
  4. Click **Define**.
     The **Direct Input** window is displayed:

Figure 6-69 Direct Input



  5. Enter data and click **Apply**. Right click on data grid and select ‘Export to Excel’ to save visible data to excel file. You can also copy directly from the grid and paste data from an excel file to the grid.
  6. The status of the Interest Rate Curve is changed to **Defined**.
- **Structured Change**
  1. Select Interest Rate Curve using corresponding checkbox and select **Forecast Method** as **Structured Change** .
  2. Select the **Interpolation Method**.
  3. Input Minimum Rate, if required.
  4. Click **Define**.
     The **Structured Change** window is displayed:

Figure 6-70 Structured Change



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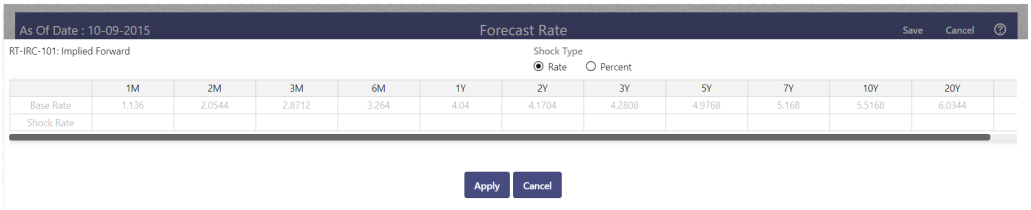
5. Select the Shock Type as Rate or Percent. Shock Type as Rate designates to absolute rate change and Shock Type as Percent designates to percent rate change.
6. Enter a shock amount to apply to the IRC in absolute rate or percentage change. Enter Start and End period from 1 to 360 months and corresponding shock amount to apply to the IRC. Right click on data grid to all more rows or delete rows. Use the Excel Import or Export feature to add the interest rate changes.
7. Click **Apply** to save.
8. The status of the Interest Rate Curve is changed to **Defined**.

- **Implied Forward**

1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as Implied Forward.
2. Select the **Interpolation** Method.
3. Input Minimum Rate, if required.
4. Click **Define**.
   The Implied Forward window is displayed:

Figure 6-71 Implied Forward

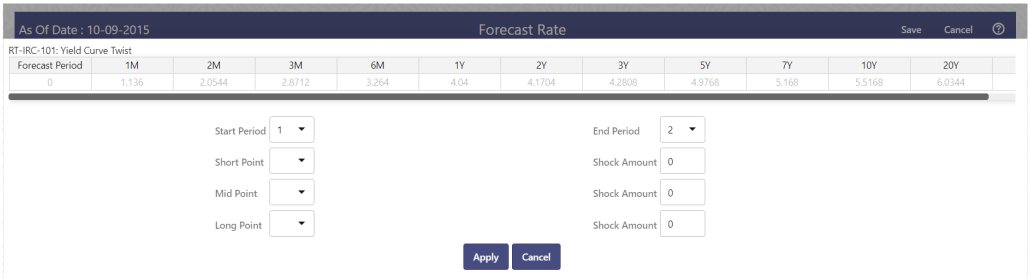


5. Select the Shock Type as Rate or Percent. Shock Type as Rate designates to absolute rate change and Shock Type as Percent designates to percent rate change.
6. Enter a shock amount to apply to the IRC in absolute rate or percentage change. If no change is required to the base curve, leave at 0.0, and click **Apply**.
7. The status of the Interest Rate Curve is changed to Defined.

- **Yield Curve Twist**

1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as Yield Curve Twist.
2. Select the **Interpolation** Method.
3. Input Minimum Rate, if required.
4. Click **Define**.
   The Yield Curve Twist window is displayed:

Figure 6-72 Yield Curve Twist



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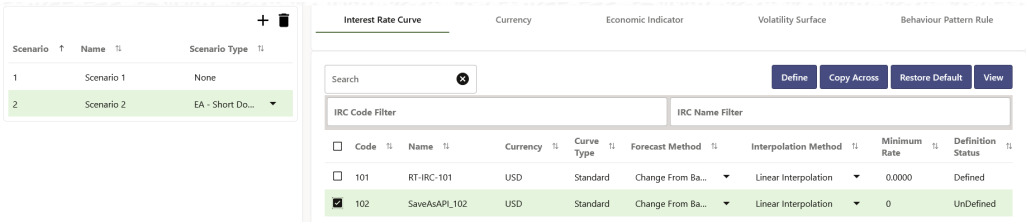
5. Select Start and End Period. Start Period must 1 or higher while highest End Period can be 360.
6. Select the tenors using the Short Point, Mid Point, and Long Point.
7. Add the required shock amounts for each tenor. At runtime and display time, the rate changes are added to the As-of-Date rates to create a future scenario.
8. Click **Apply**.
   The status of the Interest Rate Curve is changed to Defined.

- **Change From Base**

> **Note**
>
> This method is available from second scenario onwards.

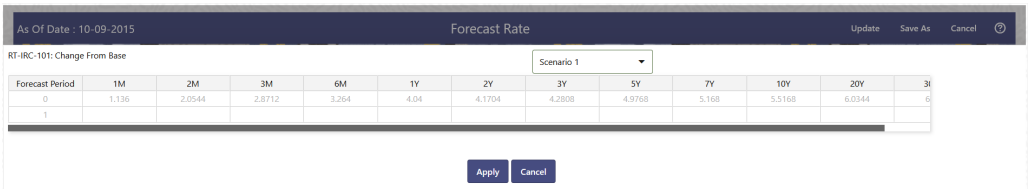
1. Select Scenario 2 or higher as Scenario.

Figure 6-73 Change From Base



2. Select Interest Rate Code using corresponding checkbox and select Forecast Method as Change from Base.
3. Select the Interpolation Method.
4. Input Minimum Rate, if required.
5. Click Define. The Change From Base window is displayed.

Figure 6-74 Change From Base



6. Scenario 1 is used as base scenario.
7. Enter the Forecast Period from 1 to 360 months and the corresponding change amount to apply to the base forecasts IRC. Right click on data grid to all more rows or delete rows. Use the **Excel Import or Export** feature to add the interest rate changes.
8. The status of the Interest Rate Curve is changed to Defined.

- **Standardized Approach Shocks**
  Standardized Approach shocks are different than other Interest Rate Rules as these are applied at the scenario level instead of at the IRC level. When you create a new Forecast Rates rule, update the IRC Forecast Method for IRRBB Shocks Scenarios.

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1. In Forecast Rates window, select the IRRBB Shocks. This allows you to define either Standardized or Enhanced Approach Scenarios, or both for a single Forecast Rates Rule. Once a forecast rates rule is designated as IRRBB Shocks, this checkbox cannot be unselected unless there are no defined scenarios as either Standardized or Enhanced Approach scenario type.
2. To apply a Standardized Approach scenario, click the Add Scenario.
3. In the Add Forecast Rates Scenario section, select the Scenario Type to apply the scenario. The following are the shock scenarios:
   - Standardized Approach Shock - Parallel UP
   - Standardized Approach Shock - Parallel DOWN
   - Standardized Approach Shock - Short UP
   - Standardized Approach Shock - Short DOWN
   - Standardized Approach Shock - Flattener
   - Standardized Approach Shock - Steppener
4. Only one Standardized Approach shock can be applied to a single scenario, and no two SA shocks of the same type may be applied to the same Forecast Rates rule. All qualifying IRCs will inherit this SA shock and cannot be changed except for their interpolation method and minimum rate.
5. Click Apply to make scenario as Standardized Approach shock.

- **Enhanced Approach Shocks**
  Like Standardized Approach shocks, Enhanced Approach shocks are scenario-level rules. When you create a new Forecast Rates rule, update the IRC Forecast Method for IRRBB Shocks Scenarios. However, unlike Standardized Approach shocks, the Forecast method for each IRC is not pre-established. This means that users must define the Forecast method, interpolation method and minimum rate for all Interest Rates in each scenario. Once defined and processed, the results will flow through into the Table B reporting.

  1. In the Forecast Rates window, select the IRRBB Shocks. This allows you to define either Standardized or Enhanced Approach scenarios, or both for a single Forecast Rate rule. After a Forecast Rate rule is designated as IRRBB Shocks, this checkbox cannot be unselected unless there are no defined scenarios as either Standardized or Enhanced Approach Scenario Type.
  2. To apply an Enhanced Approach scenario, click the Add Scenario. The following are the shock scenarios:
     a. Enhanced Approach Shock - Parallel UP
     b. Enhanced Approach Shock - Parallel DOWN
     c. Enhanced Approach Shock - Short UP
     d. Enhanced Approach Shock - Short DOWN
     e. Enhanced Approach Shock - Flattener
     f. Enhanced Approach Shock - Steppener
  3. Only one Enhanced Approach shock can be applied to a single scenario, and no two EA shocks of the same type can be applied to the same Forecast Rates rule. All IRCs in this scenario remain fully editable for the Forecast method, Interpolation method, and Minimum Rate.
  4. Click Apply to make the scenario as Enhanced Approach shock.

- **Formula**

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> **Note**
>
> This method is applicable for Hybrid and Managed Rate IRC definitions. For Hybrid and Managed Rate IRC definitions, following methods are applicable: Flat, Formula, and Direct Method.

1. Select Interest Rate Curve using corresponding checkbox and select **Forecast Method** as **Formula**.
2. Select the **Interpolation Method**.
3. Input Minimum Rate, if required.
4. Click **Define**.
5. The status of the Interest Rate Curve is changed to **Defined**.

Copy Across

This allows you to copy Forecast Method and related details from one IRC to another.

For example, if you have 10 IRCs enabled in the application and you must input only one set of assumptions, then copy those assumptions across all enabled IRCs, instead of having to input 10 full sets, thereby saving a significant amount of input time.

> **Note**
>
> You must select a defined IRC to Copy Across. For more information, see the Define section of Interest Rate Curve.

- **Flat Method**
  1. Select Interest Rate Curve using corresponding checkbox and select **Forecast Method** as **Flat**.
  2. Click **Copy Across**.
  3. Click **Apply Copy Across**.
  4. You can click **Cancel Copy Across** to cancel the Copy Across function.
- **Structured Change**
  1. Select Interest Rate Curve using the corresponding checkbox and select **Forecast Method** as **Structured Change.**.
  2. Click **Copy Across**.
  3. Click **Apply Copy Across**.
  4. You can click **Cancel Copy Across** to cancel the Copy Across function.
- **Implied Forward**
  1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as Implied Forward.
  2. Click Copy Across.
  3. Click Apply Copy Across.
  4. You can click Cancel Copy Across to cancel the Copy Across function.

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- **Change From Base**
  1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as Change From Base.
  2. Click Copy Across.
  3. Click Apply Copy Across.
  4. You can click Cancel Copy Across to cancel the Copy Across function.
- **Formula**

> **Note**
>
> This method is applicable for Hybrid and Managed Rate IRC definitions. For Hybrid and Managed Rate IRC definitions, following methods are applicable: Flat, Formula, and Direct Method.

  1. Select Interest Rate Curve using corresponding checkbox and select **Forecast Method** as **Formula**.
  2. Click **Copy Across**.
  3. Click **Apply Copy Across**.
  4. You can click **Cancel Copy Across** to cancel the Copy Across function.

Restore Default

Use this action to reset previously entered details to Undefined status.

- **Flat Method**
  1. Select Interest Rate Curve using corresponding checkbox and select **Forecast Method** as **Flat**.
  2. Click **Restore Default**.
  3. The status of the Interest Rate Curve is changed to **Undefined**.
- **Direct Input**
  1. Select Interest Rate Curve using corresponding checkbox and select **Forecast Method** as **Direct Input**.
  2. Click **Restore Default**.
  3. The status of the Interest Rate Curve is changed to **Undefined**.
- **Structured Change**
  1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as **Structured Change**.
  2. Click **Restore Default**.
  3. The status of the Interest Rate Curve is changed to Undefined.
- **Implied Forward**
  1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as **Implied Forward**.
  2. Click **Restore Default**.
  3. The status of the Interest Rate Curve is changed to Undefined.

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- **Yield Curve Twist**
  1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as **Yield Curve Twist**.
  2. Click **Restore Default**.
  3. The status of the Interest Rate Curve is changed to Undefined.
- **Change From Base**
  1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as **Change From Base**.
  2. Click **Restore Default**.
  3. The status of the Interest Rate Curve is changed to Undefined.
- **Formula**

> **Note**
>
> This method is applicable for Hybrid and Managed Rate IRC definitions. For Hybrid and Managed Rate IRC definitions, following methods are applicable: Flat, Formula, and Direct Method.

  1. Select Interest Rate Curve using corresponding checkbox and select **Forecast Method** as **Formula**.
  2. Click **Restore Default**.
  3. The status of the Interest Rate Curve is changed to **Undefined**.

View

After defining Forecast Method and other parameters for an IRC you can view the forecasted interest rates by clicking this button.

- **Flat Method**
  1. Select Interest Rate Curve using corresponding checkbox and select **Forecast Method** as **Flat**.
  2. Click **View** to see the output table.
- **Direct Input**
  1. Select Interest Rate Curve using corresponding checkbox and select **Forecast Method** as **Direct Input.**
  2. Click **View** to see the Output Table.
- **Structured Change**
  1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as **Structured Change**.
  2. Click **View** to see the Output Table.
- **Yield Curve Twist**
  1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as **Yield Curve Twist**.
  2. Click **View** to see the Output Table.
- **Implied Forward**

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1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as **Implied Forward**.
2. Click **View** to see the Output Table.

- **Change From Base**
  1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as **Change From Base**.
  2. Click **View** to see the Output Table.
- **Formula**

> **Note**
>
> This method is applicable for Hybrid and Managed Rate IRC definitions. For Hybrid and Managed Rate IRC definitions, following methods are applicable: Flat, Formula, and Direct Method.

1. Select Interest Rate Curve using corresponding checkbox and select Forecast Method as **Formula**.
2. Click **View** to see the Output Table.

6.3.1.1.2 Define Currency Forecast Methods

The following Currency Forecast methods are available when you select a currency (other than the reporting currency) from the **Currency Codes** list. Currency forecast methods is available in Asset Liability Management Cloud Service only.

Figure 6-75 Currency Forecast Methods

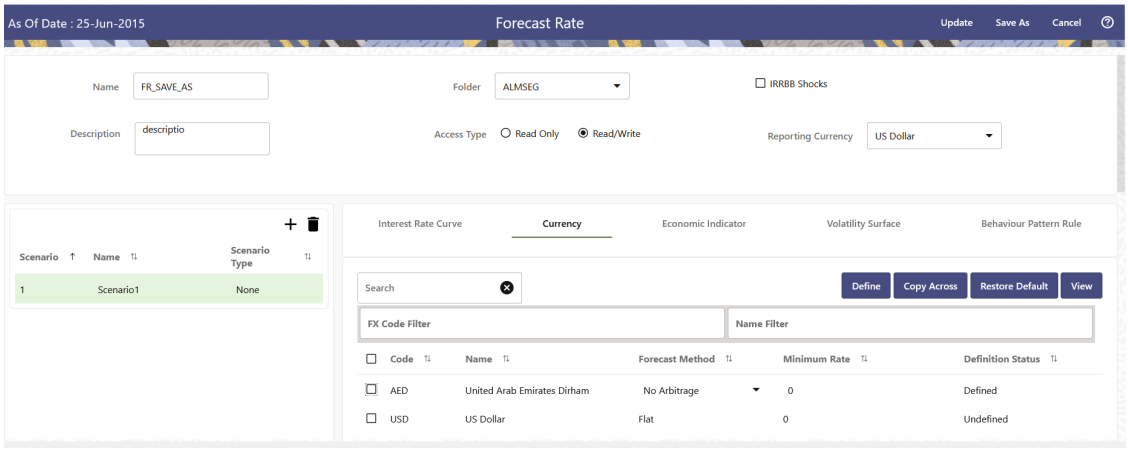

Table 6-26 Currency Forecast Methods

Method	Description
Flat	Forecast no change in the exchange rate for all dates beginning with the as-of date.
Structured Change	Forecast exchange rates as an incremental change from the previous period.

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Table 6-26 (Cont.) Currency Forecast Methods

Direct Input	Type exchange rates to use in forecasting.
Parity	Forecast the exchange rate between two currencies based on forecasted interest rate associated with the currencies. The parity method can be used only if both the reporting currency and the selected currency have a Reference IRC. If reference IRC is not available for both or any one currency then flat method is used.
No Arbitrage	Forecast the exchange rate required to maintain a no-arbitrage condition between two currencies. The No Arbitrage method can be used only if both the reporting currency and the selected currency have a Reference IRC. If reference IRC is not available for both or any one currency then flat method is used.

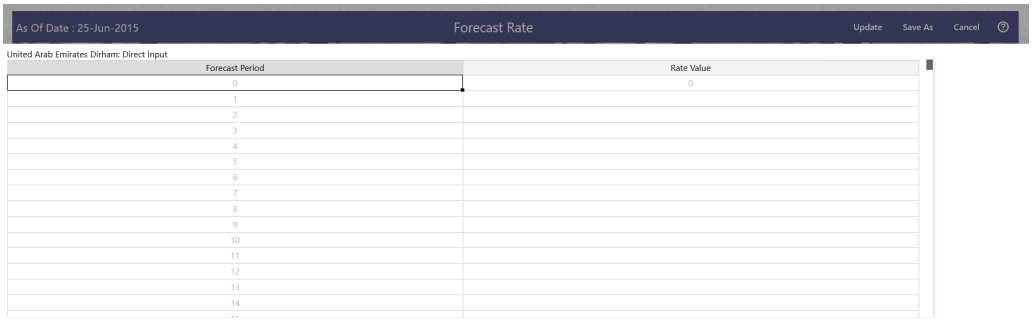
Following options are available for Currency Forecast Rule:

- Define
- Copy Across
- Restore Default
- View

Define

- **Flat Method**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Flat**.
  2. Input Minimum Rate, if required.
  3. Click **Define**.
  4. The status of the Currency Code is changed to **Defined**.
- **Direct Input**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Direct Input**.
  2. Input Minimum Rate, if required.
  3. Click **Define**. The **Direct Input** window is displayed:

Figure 6-76 Direct Input window



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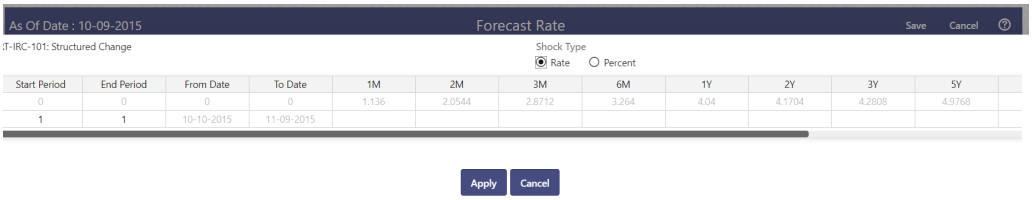
4. Right click on data grid and select 'Export to excel' to save visible data to excel file. You can also copy directly from the grid and paste data from an excel file to the grid. Enter data and click **Apply**.
5. The status of the Currency Code is changed to **Defined**.

- **Structured Change**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Structured Change**.
  2. Input Minimum Rate, if required.
  3. Click **Define**. The **Structured Change** window is displayed:

Figure 6-77 Structured Change window



  4. Select the Shock Type as Rate or Percent. Shock Type as Rate designates to absolute rate change and Shock Type as Percent designates to percent rate change.
  5. Enter Start and End period from 1 to 360 months and corresponding shock amount to apply to the Currency. Right click on data grid to all more rows or delete rows. Use the **Excel Import or Export** feature to add the interest rate changes. Click **Apply**.
  6. The status of the Currency Code is changed to **Defined**.
- **Parity**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Parity**.
  2. Input Minimum Rate, if required.
  3. Click **Define**.
  4. The status of the Currency Code is changed to **Defined**.
- **No Arbitrage**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **No Arbitrage**.
  2. Input Minimum Rate, if required.
  3. Click **Define**.
  4. The status of the Currency Code is changed to **Defined**.

Copy Across

This allows you to copy Forecast Method and related details from one Currency to another.

For example, if you have 10 Currency codes enabled in the application and you must input only one set of assumptions, then copy those assumptions across all enabled Currency codes, instead of having to input 10 full sets, thereby saving a significant amount of input time.

You must select a defined Currency to use Copy Across. For more information, see the Define section of Currency.

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- **Flat Method**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Flat**.
  2. Click **Copy Across**.
  3. Click **Apply Copy Across**.
  4. You can click **Cancel Copy Across** to cancel the Copy Across function.
- **Structured Change**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Structured Change**.
  2. Click **Copy Across**.
  3. Click **Apply Copy Across**.
  4. You can click **Cancel Copy Across** to cancel the Copy Across function.
- **Parity**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Parity**.
  2. Click **Copy Across**.
  3. Click **Apply Copy Across**.
  4. You can click **Cancel Copy Across** to cancel the Copy Across function.
- **No Arbitrage**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **No Arbitrage**.
  2. Click **Copy Across**.
  3. Click **Apply Copy Across**.
  4. You can click **Cancel Copy Across** to cancel the Copy Across function.

Restore Default

Use this action to reset previously entered details to Undefined status.

- **Flat Method**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Flat**.
  2. Click **Restore Default**.
  3. The status of the Currency Code is changed to **Undefined**.
- **Direct Input**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Direct Input**.
  2. Click **Restore Default**.
  3. The status of the Currency Code is changed to **Undefined**.
- **Structured Change**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Structured Change**.
  2. Click **Restore Default**.

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3. The status of the Currency Code is changed to **Undefined**.

- **Parity**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Parity**.
  2. Click **Restore Default**.
  3. The status of the Currency Code is changed to **Undefined**.
- **No Arbitrage**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **No Arbitrage**.
  2. Click **Restore Default**.
  3. The status of the Currency Code is changed to **Undefined**.

View

After defining Forecast Method and other parameters for a Currency you can view the forecasted Currency by clicking this button.

- **Flat Method**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Flat**.
  2. Click **View** to see the output table.
- **Direct Input**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Direct Input**.
  2. Click **View** to see the Output Table.
- **Structured Change**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Structured Change**.
  2. Click **View** to see the Output Table.
- **Parity**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **Parity**.
  2. Click **View** to see the Output Table.
- **No Arbitrage**
  1. Select Currency Code using corresponding checkbox and select Forecast Method as **No Arbitrage**.
  2. Click **View** to see the Output Table.

6.3.1.1.3 Define Economic Indicator Forecast Rule

The Economic Indicators (EI) defined previously are listed under EI Section. The options under EI Forecast Method provide multiple ways to model the effects on Portfolio Cash Flows due to changes in inflation index and other micro or macro-economic parameters.

The following Economic Indicator Methods are available.

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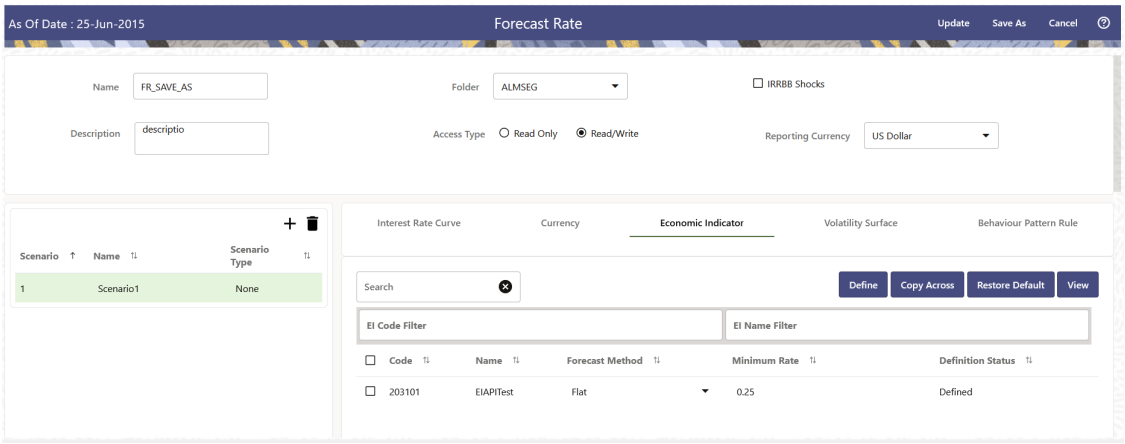
Table 6-27 Forecast Rate Rule – Economic Indicator Methods and Descriptions

Method	Description
Flat	Forecast no change in the EI rate for all dates beginning with the As-of Date.
Direct Input	Type-specific Economic Index Rates to use in forecasting.
Structured Change	Forecast the economic index as an incremental change from the previous period. This option is available only in Asset Liability Management Cloud Service.

Figure 6-78 Economic Indicator Forecast Rates



Following options are available for Economic Indicator Forecast Rule:

- Define
- Copy Across
- Restore Default
- View

Define

- **Flat Method**
  1. Select Economic Indicator Code using corresponding checkbox, select **Forecast Method** as **Flat** and enter minimum rate.
  2. Click **Define**. The status of Economic Indicator Code is changed to **Defined**.
- **Direct Input**
  1. Select Economic Indicator Code using corresponding checkbox, select Forecast Method as **Direct Input** and enter minimum rate.
  2. Click **Define**. The **Direct Input** window is displayed:

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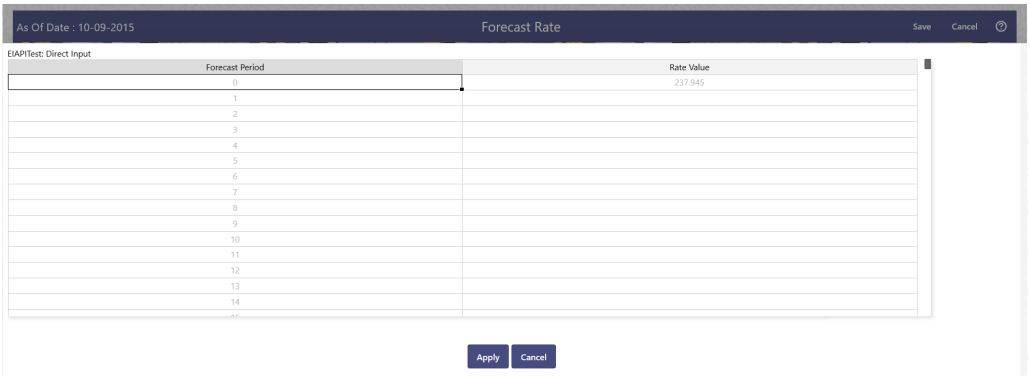
Figure 6-79 Direct Input window

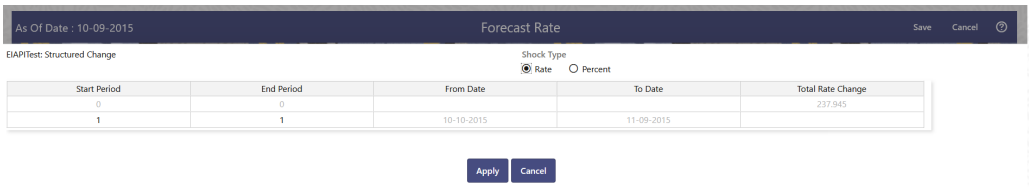


3. Right click on data grid and select 'Export to Excel' to save visible data to excel file. You can also copy directly from the grid and paste data from an excel file to the grid. Enter data and click **Apply**.
4. The status of Economic Indicator Code is changed to **Defined**.

- **Structured Change**

1.
2. Select Economic Indicator Code using corresponding checkbox, select Forecast Method as **Structured Change** and enter minimum rate.
3. Click **Define**. The **Structured Change** window is displayed:

Figure 6-80 Structured Change window



4. Enter Start and End period from 1 to 360 months and corresponding shock amount to apply to the Currency. Right click on data grid to all more rows or delete rows. Use the **Excel Import or Export** feature to add the interest rate changes. Enter data and click Apply.
5. The status of Economic Indicator Code is changed to Defined.

Copy Across

This allows you to copy Forecast Method and related details from one Economic Indicator Code to another.

For example, if you have 10 Economic Indicator Codes enabled in the application and you must input only one set of assumptions, then copy those assumptions across all enabled Economic Indicator Codes, instead of having to input 10 full sets, thereby saving a significant amount of input time.

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> **Note**
>
> You must select a defined Economic Indicator Code to use Copy Across. For more information, see the Define section of Economic Indicator.

- **Flat Method**
  1. Select Economic Indicator Code using corresponding checkbox and select Forecast Method as Flat.
  2. Click **Copy Across**.
  3. Click **Apply Copy Across**.
  4. You can click **Cancel Copy Across** to cancel the Copy Across function.
- **Direct Input**
  1. Select Economic Indicator Code using corresponding checkbox and select Forecast Method as Direct Input.
  2. Click **Copy Across**.
  3. Click **Apply Copy Across**.
  4. You can click **Cancel Copy Across** to cancel the Copy Across function.
- **Structured Change**
  1. Select Economic Indicator Code using corresponding checkbox and select Forecast Method as **Structured Change**.
  2. Click **Copy Across**.
  3. Click **Apply Copy Across**.
  4. You can click **Cancel Copy Across** to cancel the Copy Across function.

Restore Default

Use this action to reset previously entered details to Undefined status.

- **Flat Method**
  1. Select Economic Indicator Code using the corresponding checkbox and select **Forecast Method** as **Flat**.
  2. Click **Restore Default**.
  3. The status of the Economic Indicator Code is changed to **Undefined**.
- **Direct Input**
  1. Select Economic Indicator Code using the corresponding checkbox and select **Forecast Method** as **Direct Input**.
  2. Click **Restore Default**.
  3. The status of the Economic Indicator Code is changed to **Undefined.**
- **Structured Change**
  1. Select Economic Indicator Code using the corresponding checkbox and select **Forecast Method** as **Structured Change**.
  2. Click **Restore Default**.
  3. The status of the Economic Indicator Code is changed to **Undefined.**

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View

After defining forecast method and other parameters for an Economic Indicator Code you can view the forecasted interest rates by clicking this button.

- **Flat Method**
  1. Select Economic Indicator Code using corresponding checkbox and select **Forecast Method** as **Flat**.
  2. Click **View** to see the output table.
- **Direct Input**
  1. Select Economic Indicator Code using corresponding checkbox and select **Forecast Method** as **Direct Input**.
  2. Click **View** to see the output table.
- **Structured Change**
  1. Select Economic Indicator Code using corresponding checkbox and select **Forecast Method** as **Structured Change**.
  2. Click **View** to see the output table.

6.3.1.1.4 Define Volatility Surface Forecast Methods

The following Volatility Surface Forecast methods are available when you select a Volatility Surface from the **Volatility Surface Codes** list. Volatility Surface forecast method is available in Asset Liability Management Cloud Service only.

Figure 6-81 Volatility Surface Forecast Methods

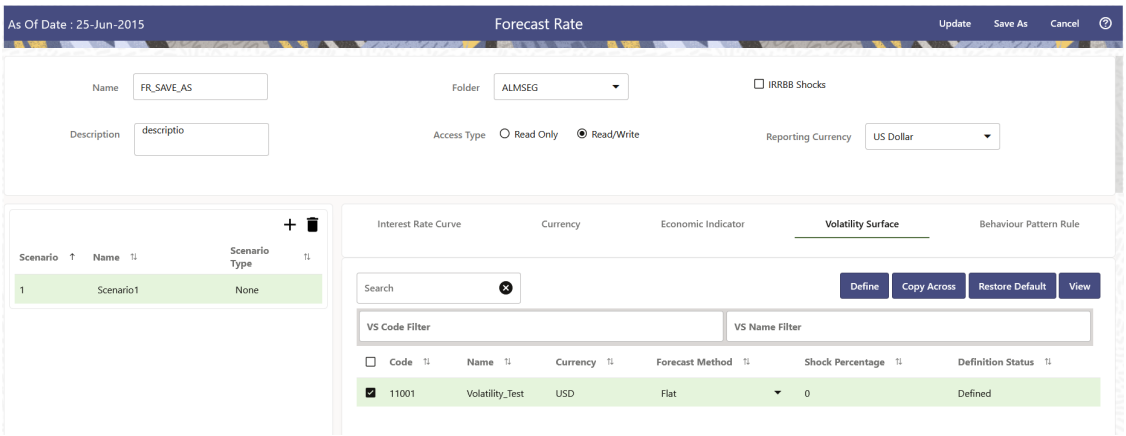

Table 6-28 Volatility Surface Forecast Methods

Method	Description
Flat	Forecast no change in the exchange rate for all dates beginning with the as-of date.
Global Shock	Single shock rate is defined and applied to base volatility matrix
Detail Shock	Shock rate is defined for every intersection of Strike & Expiry Date

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Table 6-28 (Cont.) Volatility Surface Forecast Methods

Direct Input	Implied volatility is given as input for every intersection of Strike & Expiry Date

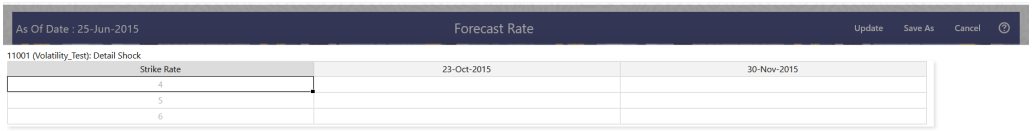
Following options are available for Volatility Surface Forecast Rule:

- Define
- Copy Across
- Restore Default
- View

Define

- **Flat Method**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Flat.
  2. Click Define.
  3. The status of the Volatility Surface Code is changed to Defined.
- **Global Shock**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Global Shock.
  2. Input Shock Percentage, if required.
  3. Click Define.
  4. The status of the Volatility Surface Code is changed to Defined.
- **Detail Shock**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Detail Shock.
  2. Click Define. The Detail Shock window is displayed:

Figure 6-82 Detail Shock window



  3. Right click on data grid and select ‘Export to Excel’ to save visible data to excel file. You can also copy directly from the grid and paste data from an excel file to the grid. Enter data and click Apply.
  4. The status of the Volatility Surface Code is changed to Defined.
- **Direct Input**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Direct Input.
  2. Click Define. The Direct Input window is displayed:

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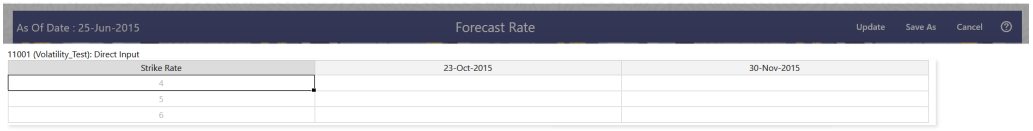
Figure 6-83 Direct Input window



3. Enter a shock amount to apply to the Volatility Surface. Right click on data grid and select 'Export to Excel' to save visible data to excel file. You can also copy directly from the grid and paste data from an excel file to the grid.
4. Click Apply.
5. The status of the Volatility Surface Code is changed to Defined.

Copy Across

This allows you to copy Forecast Method and related details from one Volatility Surface to another.

For example, if you have 10 Volatility Surface codes enabled in the application and you must input only one set of assumptions, then copy those assumptions across all enabled Volatility Surface codes, instead of having to input 10 full sets, thereby saving a significant amount of input time.

You must select a defined Volatility Surface to use Copy Across. For more information, see the Define section of Volatility Surface.

- **Flat Method**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Flat.
  2. Click Copy Across.
  3. Click Apply Copy Across.
  4. You can click Cancel Copy Across to cancel the Copy Across function.
- **Global Shock**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Global Shock.
  2. Click Copy Across.
  3. Click Apply Copy Across.
  4. You can click Cancel Copy Across to cancel the Copy Across function.
- **Detail Shock**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Detail Shock.
  2. Click Copy Across.
  3. Click Apply Copy Across.
  4. You can click Cancel Copy Across to cancel the Copy Across function.
- **Direct Input**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Direct Input.
  2. Click Copy Across.

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3. Click Apply Copy Across.
4. You can click Cancel Copy Across to cancel the Copy Across function.

Restore Default

Use this action to reset previously entered details to Undefined status.

- **Flat Method**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Flat.
  2. Click Restore Default.
  3. The status of the Volatility Surface Code is changed to Undefined.
- **Global Shock**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Global Shock.
  2. Click Restore Default.
  3. The status of the Volatility Surface Code is changed to Undefined.
- **Detail Shock**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Detail Shock.
  2. Click Restore Default.
  3. The status of the Volatility Surface Code is changed to Undefined.
- **Direct Input**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Direct Input.
  2. Click Restore Default.
  3. The status of the Volatility Surface Code is changed to Undefined.

View

After defining Forecast Method and other parameters for a Volatility Surface you can view the forecasted Volatility Surface by clicking this button.

- **Flat Method**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Flat.
  2. Click View to see the output table.
- **Global Shock**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Global Shock.
  2. Click View to see the Output Table.
- **Detail Shock**
  1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Detail Shock.
  2. Click View to see the Output Table.
- **Direct Input**

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1. Select Volatility Surface Code using corresponding checkbox and select Forecast Method as Direct Input.
2. Click View to see the Output Table.

6.3.1.1.5 Map Behavior Pattern Rule

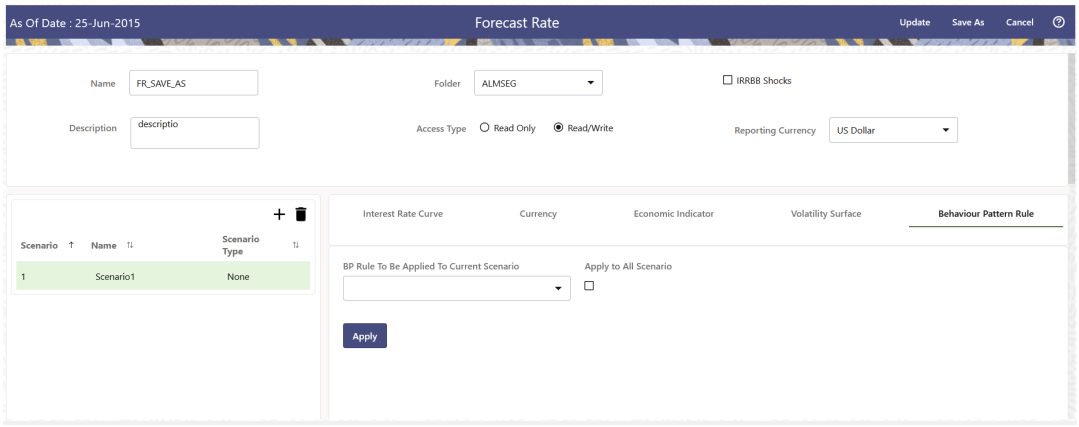
The Behavior Pattern Rule section allows you to map an existing Behavior Pattern Rule to current forecast scenario.

The BP Rule drop-down list shows the list of existing Behavior Pattern Rule. Select any behavior pattern rule to map with the current forecast scenario. To map a Behavior pattern to all the forecast scenarios, use the Apply to All Scenarios check box (applicable only to Asset Liability Management Cloud Service). For more information about the Behavior Pattern Rule, see the Behavior Pattern Rule section.

To map Behavior Pattern Rule with Forecast Scenario, follow these steps:

1. Navigate to **Forecast Rate Summary** Page.
2. Navigate to the Behavior Pattern Rule section.
3. Select Behavior Pattern Rule from **BP Rule To Be Applied To Current Scenario** drop-down list. Enable **Apply to All Scenarios** check box if you want to apply the selected Behavior Pattern Rule to all scenarios.

Figure 6-84 Map Behavior Pattern Rule



4. Click **Apply**.

6.3.2 Behavioral Assumptions

This section covers the following topics:

1. Prepayment Rules: A Prepayment Rule contains methodologies to model the prepayment behavior of various amortizing instruments and quantify the associated Prepayment Risk.
2. Prepayment Models: Prepayment Models can be referenced by a Prepayment Rule to Model Prepayment Behavior of instruments based on a range of instrument level attributes.
3. Behavior Pattern Rules: The Behavior Pattern Rule UI allows you to group Behavior Pattern codes (behavioral assumptions) together in a set at the Product/Currency level which then can be rotated to select a value on a combination.

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4. Time Bucket: The Time Bucket module describes the procedure for working with and managing Time Bucket rules. The Time Bucket Rules allow users to create the time bucket definitions used for computing and outputting aggregated cash flows across time. The Time Bucket Rules determine the granularity of cash flow output and can be set at any frequency through a combination of daily, monthly, and yearly buckets.
5. Discount Methods: This module describes the procedure for working with and managing Discount Method Rules. Discount Method Rules allow users to define the method for discounting projected Cash Flows for market value and duration calculation purposes.
6. Currency Gain/Loss: Currency Gain/Loss occurs when an entity buys/sells goods or services in a foreign currency, and that currency fluctuates relative to their Local currency, this can create differences in value of the monetary Assets and Liabilities.
7. IRRBB Standardized Approach : The IRRBB Standardized Approach UI allows you to view, edit, and delete currencies, shocks, or other parameters currently stored in the IRRBB Standardized Approach shocks table FSI_IRC_STDAPRCH_SHOCKS as well as the Standardized Approach Prepayment/Early Redemption scalars table FSI_IRC_STDAPRCH_CPRER.

6.3.2.1 Prepayment Rules

One of the major business risks faced by financial institutions engaged in the business of lending and borrowing is prepayment and early redemption risk. Prepayment risk is the possibility that borrowers might choose to repay part or all their loan obligations before the scheduled due dates. Prepayments can be made by either accelerating principal payments or refinancing. Prepayments cause the actual cash flows from a loan to a financial institution to be different from the cash flow schedule drawn at the time of loan origination. A prepayment rule contains methodologies to model the prepayment behavior of various amortizing instruments and quantifies the associated prepayment risk.

Search Prepayment Rule

Prerequisites: Predefined Prepayment Rule

To search for a Prepayment Rule:

On the Prepayment Summary, enter your search criteria in the search box and click **Search**. The Prepayment Rules meeting your search criteria are displayed. If you select **Dimension** filter and search for the rules, the search results will be displayed for the selected Dimension. When you try to create any rule, by default the selected Dimension will be displayed instead of the Dimension defined in the Preferences.

Or

An alternative method to search a Prepayment Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Prepayment rule Summary. You can enter the **Code, Name, Description, Dimension, Hierarchy**, and **Folder** of the Prepayment Rule, partially or fully, and click **Search**.

Prepayment Rule Summary

Prepayment Rules allow you to specify methodologies to model the loan prepayment and deposit, early redemption behavior of products in your portfolio, and quantify the associated prepayment risk in monetary terms.

For more information, see Defining Prepayment Methodologies section.

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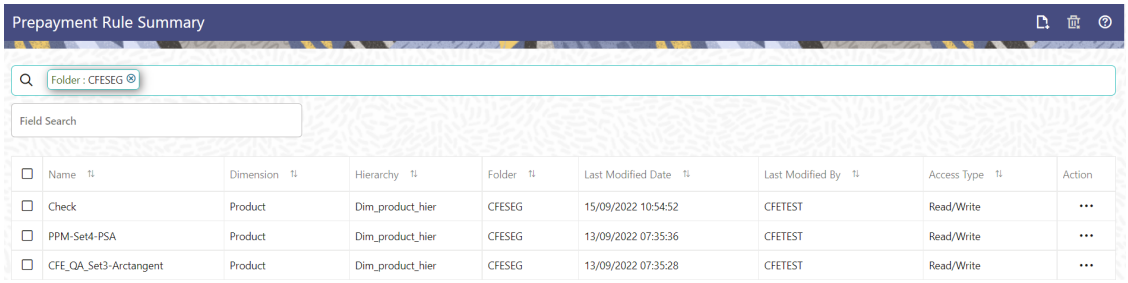
Figure 6-85 Prepayment Rule Summary



The Prepayment Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new prepayment rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Name**: The Prepayment Rule's short name.
- **Dimension**: The Dimension to which the Prepayment Rule belongs.
- **Hierarchy**: Name of the hierarchy that is used to define the prepayment rule.
- Folder: The folder where the prepayment rule is saved.
- **Last Modified By:** The user who last modified the prepayment rule.
- **Last Modified Date:** The Date and Time when the prepayment rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the prepayment rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing prepayment rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a prepayment rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete prepayment rules that you no longer require. Note that only prepayment rule owners and those with Read/Write privileges can delete prepayment rules. A Prepayment Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular prepayment rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting prepayment rules that have dependencies. A report of all rules that utilize the selected prepayment rule is generated.

You can totally or selectively copy product assumptions within a prepayment rule from one currency to another currency or a set of currencies, or from one product to another product or a set of products.

Also See:

- Create Prepayment Rules
- Defining Prepayment Methodologies

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- Defining the Constant Prepayment Method
- Defining the Prepayment Model Method
- Defining the PSA Prepayment Method
- Defining the Arctangent Calculation Method

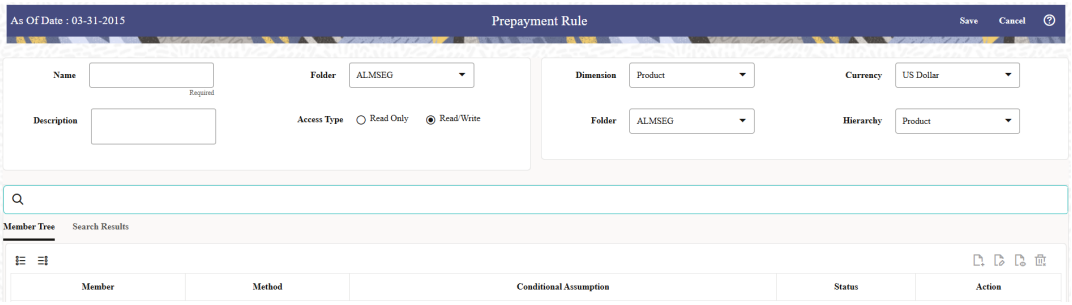
6.3.2.1.1 Create Prepayment Rules

You create a Prepayment Rule to define prepayment assumptions for new products.

To create a new Prepayment Rule, follow these steps:

- Click **Add** icon from the top of the **Prepayment Rule Summary** page.

Figure 6-86 Prepayment Rule



- Enter the following Details.
  - **Name:** Enter the name of the Prepayment Rule.
  - **Description (optional):** Enter the description of the Prepayment Rule.
  - **Folder:** Select the Folder where the Prepayment Rule needs to be saved.
  - **Access Type:** Select the Access Type as Read-Only or Read/Write.
- Select the **Dimension** as Common Chart of Accounts, Product, General Ledger Account, or MDBSS.

> **Note**
>
> MDBSS is enabled only in ALM Cloud Service.
> If any member is a currency in the MDBSS hierarchy (for example, INR) and selected currency is different (for example USD), then the member and its children nodes cannot be defined.
>
> You can search the rule on any of the product dimension, searched dimension will be auto-populated while defining the rule; if you like, you can change the default product dimension.

- Select a **Currency**.
- Select **Folder** and **Hierarchy**.
- Select **Member Node(s)** from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results

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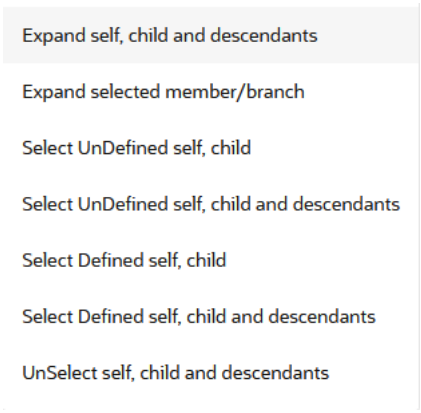
– **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.

Figure 6-87 Member Tree



Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

* **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
* **Expand selected member/branch:** Allows to expand the selected node
* **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
* **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
* **Select Defined self, child:** Allows to select the selected node itself along with its child.
* **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
* **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

* Add
* Edit
* View
* Delete
* Copy

– **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

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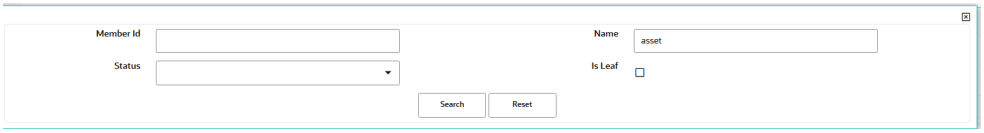
1. Navigate to **Assumption Browser** section of the Rule Definition page.

> **Note**
>
> Before using the Member Search in Assumption Browser, you must execute the batch **Member_Browser_Refresh**. For more information, see note in Create MDBSS section.

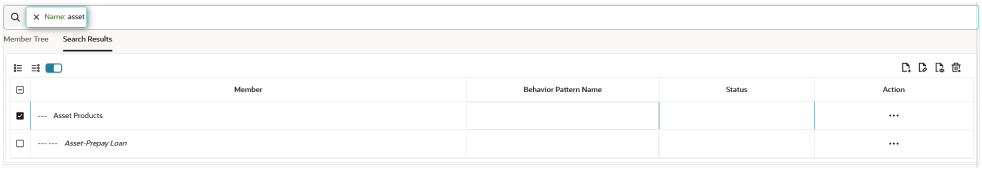
2. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

Figure 6-88 Search Criteria



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

Figure 6-89 Searching Members



.

Here, you can perform the following tasks on the searched node(s):

* Add
* Edit
* View
* Delete
* Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

- Click **Add** from **Assumption Browser** Section. For more information, see the Defining Prepayment Methodologies.
- Click Save.

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6.3.2.1.2 Defining Prepayment Methodologies

The assignment of prepayment assumptions is part of the Create or Edit Prepayment Rule Process where assumptions about loan prepayments or deposit early redemptions are made for product-currency combinations. When you click Save in the Create Prepayment Rules Process, the Rule is saved and the Prepayment Rule Summary Page is displayed. However, prepayment assumptions have not yet been defined for any of your products at this point. Typically, you would start defining your prepayment assumptions for product-currency combinations before clicking Save.

The Prepayment Rule supports the definition of prepayment assumptions for combinations of two dimensions: Product and Currency.

Once you have created a Prepayment Rule, you can assign prepayment methodologies to product-currency combinations using Node Level Assumption. For more information, see Defining Prepayments Using Node Level Assumptions section.

6.3.2.1.2.1 Defining Prepayments Using Node Level Assumptions

Node Level Assumptions allow you to define assumptions at any level of the Product Dimension Hierarchy. The Product Dimension supports a hierarchical representation of your chart of accounts, so you can take advantage of the parent-child relationships defined for the various nodes of your product hierarchies while defining Rules. Children of Parent nodes on a hierarchy automatically inherit the assumptions defined for the Parent nodes. However, assumptions directly defined for a Child take precedence over those at the Parent level.

Prerequisites

Performing basic steps for creating or editing a Prepayment Rule.

Procedure

This table describes key terms used for this procedure.

Table 6-29 Key Terms used for Prepayment Rules

Terms	Description
Calculation Method	The method used to model prepayment behavior of instruments. You can choose from four prepayment calculation methods: Constant, Prepayment Model, PSA, and Arctangent.
Cash Flow Treatment	Allows you to specify one of the following two ways in which prepayments are made. • **Refinance:** This is the most used option. Select refinance to keep payment amounts after prepayment consistent with a portfolio-based assumption. This reduces the scheduled payment amount on each loan and maintains the same maturity term. • **Curtailment:** Select curtailment to change the periodic payment amounts due. The prepayments are treated as accelerated payments, with a payoff earlier than the originally scheduled term.
Prepayment Date	You can select when to calculate prepayment, either on normal payment dates or user-defined tenor.

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Table 6-29 (Cont.) Key Terms used for Prepayment Rules

Terms	Description
Payment Event Type	When prepayment is calculated on payment dates then this option allows you to specify type of event when prepayment occurs. By default, “Principal and Interest” is selected.
Market Rate	The market rate is defined as the sum of the Index (the Yield Curve Rate as described by the Interest Rate Code) and the Spread (the difference between the customer rate and market rate).
Associated Term	Allows you to define the term for the point on the yield curve selected in the Market Rate Definition that will be used in obtaining the market rate. • **Remaining Term:** The number of months remaining until the instrument matures. • **Reprice Frequency:** The frequency with which the instrument reprices. This defaults to the original term for a fixed-rate instrument. • **Original Term:** The number of months that was the originally scheduled life of the instrument.
Prepayment Rate Definition	This table allows you to specify the constant annual prepayment rate, or the associated factors, that you want to apply to the instruments having origination dates in a particular date range.
Seasonality	This table allows you to specify seasonality adjustments. Seasonality refers to changes in prepayments that occur predictably at given times of the year. Seasonality adjustments are based on financial histories and experiences and should be modeled when you expect the amount of prepayments made for certain types of instruments to increase or decrease in certain months. The default value for seasonality factors is 1, which indicates that no seasonality adjustment is made for a month. Changing the seasonality factors is optional. You can change the seasonality factors for none, one, or multiple months. To make seasonality adjustments, you need to enter a value between 0.00 and 99.9999 for the seasonality factors associated with each month. Seasonality factors less than 1 mean that prepayments are decreased for a particular month. Seasonality factors greater than 1 indicate that prepayments are increased for a particular month.

1. Navigate to the Prepayment Assumption Details Page after selecting a Currency and one or more products from the hierarchy.
2. Select a **Cash Flow Treatment type**, **Refinance** or **Curtailment**.
3. Refinance is the most used method.
4. Select a **Calculation Method** as Constant, Prepayment Model, PSA, or Arctangent.

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> **Note**
>
> The default value for the Calculation Method drop-down list is Constant. If you select "Do not calculate" as the calculation method, no prepayment assumptions will be assigned to the particular product-currency combination. This is a particularly useful option when using node-level assumptions because it allows you to exclude a particular Child from inheriting a Parent assumption.

5. Define the parameters and annual prepayment rates for the selected Calculation Method as Constant, Prepayment Model, PSA or Arctangent.

> **Note**
>
> The parameters displayed on the Prepayment Methodology page vary depending on the Calculation Method (Constant, Prepayment Model, PSA, or Arctangent) that you have selected. For more information, see:
>
> - Defining the Constant Prepayment Method
> - Defining the Prepayment Model Method
> - Defining the PSA Prepayment Method
> - Defining the Arctangent Calculation Method

6. Click **Apply**.
   The **Assumption Browser Definition** Page is displayed.

   At this point you can:

   - Continue defining additional methodologies for other product-currency combinations by repeating the above procedure.
   - Complete the process by clicking **Save**.

   When you click Save, the prepayment assumptions are saved and the **Prepayment Rule Summary** Page is displayed.

6.3.2.1.2.1.1 Defining Assumptions with Default Currency

For cases where you have the same assumption (method and IRC) which is applicable to all currencies or multiple currencies, you can define rules for the combination of Product and Default Currency.

To define assumptions for the Default Currency, select a Product from the Hierarchy and Default Currency from the currency list and proceed with the assumption definition as described above. When processing data, the TP engine will first look for an assumption that exactly matches the product or currency of the instrument record. If not found, the engine will then look for the combination of the product and the Default Currency. This is a useful option to utilize during setup when the same product exists across multiple currencies and shares the same TP assumption and Interest Rate Code.

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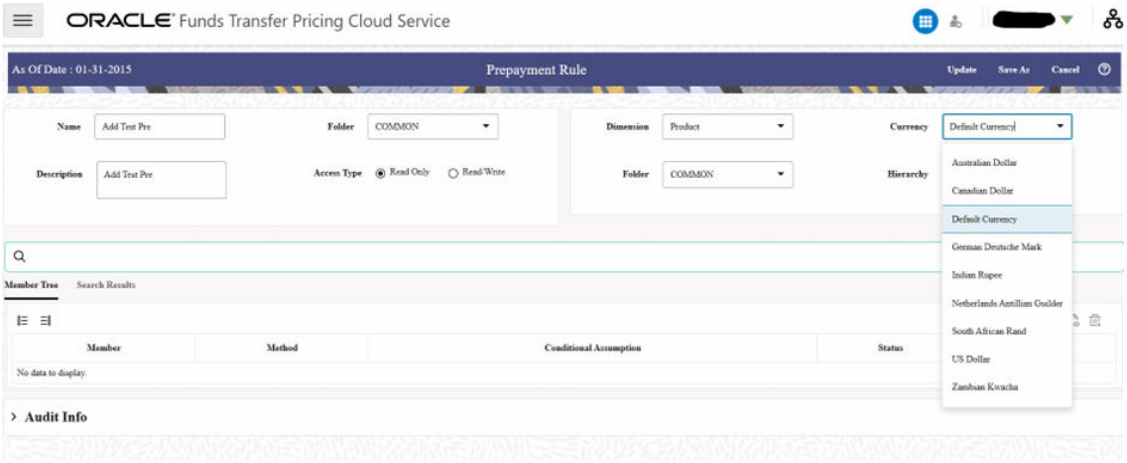
Figure 6-90 Prepayment Rule - Definition



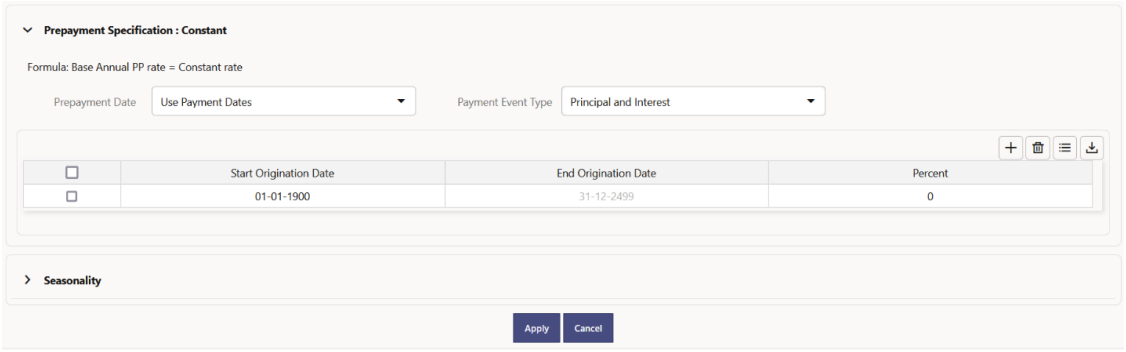
Default Currency setup example: If you have two Instrument Records of the same Product, each with a different currency, for example, 1 is 'USD' and the other is 'AUD', you have two configuration choices. You can either:

- Define the assumptions individually for each product-currency combination using direct input or copy across.
- You can create one assumption for the combination of Product and “Default Currency”. When you use “Default Currency”, the TP Engine will apply this assumption to ALL currencies (unless a direct assumption is available for the product + currency processed). In the case where users have many individual currencies that utilize the same TP Method and reference IRC rates, this is a useful option because you only have to define the assumption 1 time and it applies to many different Product + Currency combinations.

6.3.2.1.2.1.2 Defining Constant Prepayment Method

Use this procedure to define prepayment assumptions using the Constant Prepayment Method. The Constant Prepayment Method calculates the prepayment amount as a flat percentage of the current balance. You can create your own origination date ranges and assign a particular prepayment rate to all the instruments with origination dates within a particular Origination Date range.

Figure 6-91 Constant Prepayment Method



Prerequisites

Performing basic steps for creating or updating a Prepayment Rule.

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Procedure

Users also have two options for determining the timing of the Constant Prepayment assumption. The options include:

- **Use Payment Dates:** This is the default option. If this option is selected, then Constant Prepayment Runoff will occur on scheduled payment dates only.
- **User Defined Prepayment Tenors:** If this option is selected, users can specify any runoff timing. For example, users might choose to define the prepayment to the Runoff on the first day of the forecast.

The above options will be available only for Asset Instrument types.

To define constant prepayment within the Prepayment Rule, follow the steps given in below sections:

- Use Payment Dates
- User Defined Prepayment Tenors

Use Payment Dates

1. Select the **Use Payment Dates** Option.
2. Select the **Payment Event Type** Option.
3. Select the **Start Origination Date** using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
   The first cell in the Start Origination Date Column and all the cells in the End Origination Date Column are read-only. This ensures that all possible origination dates must support reference values when Prepayment assumption lookups occur.

   Each row in the End Origination Date Column is filled in by the system when you click **Add Row** or save the Rule.

   The first Start Origination Date (in row 1) has a default value of January 1, 1900. When you enter a Start Origination Date in the next row, the system inserts a date that is a day before the previous End Origination Date Field.
4. Enter the Annual Prepayment Rate Percent that you want to apply to the instruments having origination dates in a particular Start Origination-End Origination Date range.
5. The **Percent** column represents the actual annualized prepayment percentage that the system uses to generate the principal runoff during the Cash Flow calculations.
6. Click **Add Row** to add additional rows and click the corresponding **Delete** button to delete a row.
7. You can add as many rows as possible in this table using **Add Multiple Row** Option. However, you need to enter relevant parameters for each new row.
8. You can also use the **Download Excel** feature to export the Prepayment rate information that is displayed on screen, modify, and copy-paste it back in the grid.
9. Define Seasonality assumptions if required to model date-specific adjustments to the annual prepayment rate. Inputs act as a multiplier, For Example, an input of 2 will double the prepayment rate in the indicated month.

User Defined Prepayment Tenors

1. Select the **User Defined Prepayment Tenors** Option. This option allows you to specify the term and multiplier to the Prepayment Date for the row. The term is used to derive Prepayment Dates with reference to As of Date.

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2. You can calculate the prepayment rate based on Current/Reducing Balance and Annual/De-annual Prepayment Rate.
3. Select the **Balance Type** as **Current Balance** or **Reducing Balance**.
   - If the Balance Type is selected as Current Balance, then the prepayment amount will be calculated using Principal Balance on As of Date. That is, without reducing the balance by any payment/prepayment that may have occurred between as of the date and prepayment date.
   - If the Balance Type is selected as Reducing Balance, then the prepayment amount will be calculated using balance as on Prepayment Date. That is, after reducing the Principal Balance by any payment/prepayment that may have occurred between as of date and prepayment date.
4. Select the Prepayment Rate Type as Annual Prepayment Rate or De-annual Prepayment Rate.
   When the Annual Prepayment Rate is selected then the prepayment rate entered in the screen is directly used.

   In the other case, the rate entered in the screen is de-annualized before calculating the prepayment amount.
5. Enter the **Start Origination Date** and **End Origination Date** ranges, add additional ranges as required using the Add Row button.
6. Enter the term to Runoff Tenor and Multiplier for each of the date ranges.
7. Enter the **Annual Prepayment Rate Percent** for each of the date ranges.
8. Enter 'Repeat' if you want the same prepayment to occur multiple times. By default, it is set to 1.
9. Click **Add Row** to add additional runoff % rows and click the corresponding **Delete** button to delete a row.
   You can add as many rows as possible in this table using **Add Multiple Row** Option. However, you need to enter relevant parameters for each new row.
10. Define Seasonality assumptions as required to model date specific adjustments to the annual Prepayment Rate. Inputs act as a multiplier, for example, an input of 2 will double the Prepayment Rate in the indicated month.

6.3.2.1.2.1.3 Defining Prepayment Model Method

Use this procedure to define prepayment assumptions using the Prepayment Model Calculation method. The Prepayment Model Method allows you to define more complex prepayment assumptions compared to the other Prepayment Methods. Under this method, prepayment assumptions are assigned using a custom Prepayment Model. You can build a Prepayment model using a combination of up to three Prepayment Drivers and define Prepayment Rates for various values of these drivers. Each driver maps to an attribute of the underlying transaction (age/term or rate) so that the Cash Flow Engine can apply a different Prepayment Rate based on the specific characteristics of the record. Note: All Prepayment Rates should be input as annual rate.

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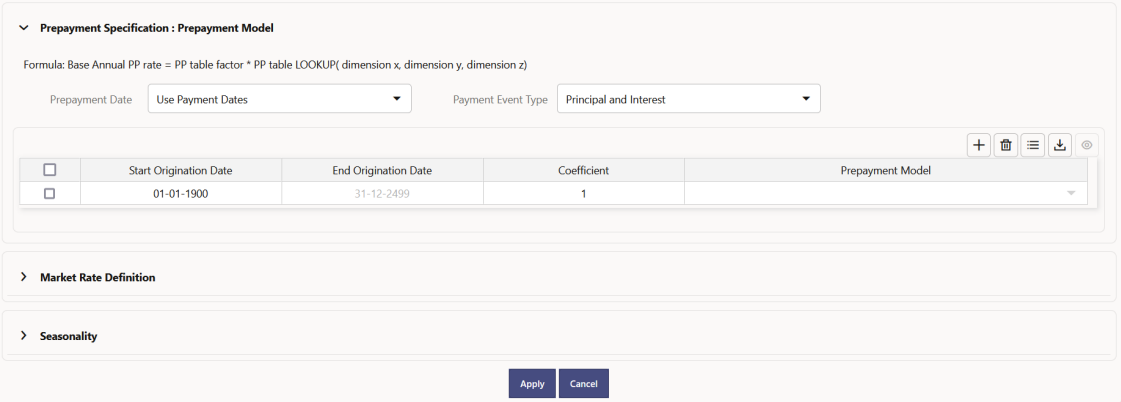
Figure 6-92 Prepayment Model Method



Prerequisites

- Prepayment Model must be created.
- Performing basic steps for creating or updating a Prepayment Rule.

Procedure

Users also have two options for determining the timing of the Prepayment Model assumption. The options include:

- **Use Payment Dates:** This is the default option. If this option is selected, then Prepayment Model Runoff will occur on scheduled payment dates only.
- **User Defined Prepayment Tenors:** If this option is selected, users can specify any runoff timing. For example, users might choose to define the Prepayment to the Runoff on the first day of the forecast.

The above options will be available only for Asset Instrument Types.

To define Prepayment Model within the Prepayment Rule, follow the steps given in below sections:

- Use Payment Dates
- User Defined Prepayment Tenors

Use Payment Dates

1. Select the **Use Payment Dates** Option.
2. Select the **Payment Event Type** Option.
3. Select the **Start Origination Date** using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
   The first cell in the Start Origination Date Column and all the cells in the End Origination Date Column are read-only. This ensures that all possible origination dates must support reference values when Prepayment assumption lookups occur.

   Each row in the End Origination Date Column is filled in by the system when you click Add Row or save the Rule.

   The first Start Origination Date (in row 1) has a default value of January 1, 1900. When you enter a Start Origination Date in the next row, the system inserts a date that is a day before the previous End Origination Date field.

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4. Enter the Coefficient (if needed) by which the Prepayment Rate should be multiplied and select a predefined prepayment model that you want to apply to the instruments having origination dates in a particular Start Origination-End Origination Date range
5. Click **Add Row** to add additional rows and click the corresponding **Delete** Button to delete a row.
6. You can add as many rows as possible in this table using **Add Multiple Row** Option. However, you need to enter relevant parameters for each new row.
7. You can also use the **Download Excel** feature to export the Prepayment rate information that is displayed on screen, modify, and copy-paste it back in the grid.
8. Define Market Rate Definition.
9. Define the source for the Market Rate by Selecting an Index (Interest Rate Code) from the list of values.
10. Enter the Spread. The spread is added to the rate from the underlying interest rate curve to determine the market rate.
11. Select an **Associated Term** as Remaining Term, Reprice Frequency, or Original Term.
12. Define Seasonality assumptions if required to model date-specific adjustments to the annual prepayment rate. Inputs act as a multiplier, For Example, an input of 2 will double the prepayment rate in the indicated month.

User Defined Prepayment Tenors

1. Select the **User Defined Prepayment Tenors** Option. This option allows you to specify the term and multiplier to the prepayment date for the row.
2. You can calculate the Prepayment Rate based on Current/Reducing Balance and Annual/De-annual Prepayment Rate.
3. Select the **Balance Type** as **Current Balance** or **Reducing Balance**.
   - If the Balance Type is selected as Current Balance, then the Prepayment Amount will be calculated using CUR_PAR_BAL on As of Date. That is, without reducing the balance by any payment/prepayment that may have occurred between as of the date and prepayment date.
   - If the Balance Type is selected as Reducing Balance, then the prepayment amount will be calculated using balance as on Prepayment Date. That is, after reducing the CUR_PAR_BAL by any payment/prepayment that may have occurred between As of Date and Prepayment Date.
4. Select the **Prepayment Rate Type** as **Annual Prepayment Rate** or **De-annual Prepayment Rate**.
   When the Annual Prepayment Rate is selected then the prepayment rate entered in the screen is directly used.

   In the other case, the rate entered in the screen is de-annualized before calculating the Prepayment Amount.
5. Specify the Prepayment Model Parameters.
6. Select the Start Origination Date using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
7. Enter the Coefficient (if needed) by which the Prepayment Rate should be multiplied. This multiple is applied to the instruments for which the Origination Date lies in the range defined in the Start Origination Date-End Origination Date fields.
8. Select a predefined prepayment model from the Prepayment model Rule list of values. Click the V**iew Prepayment Model** icon to preview the selected Prepayment Model.

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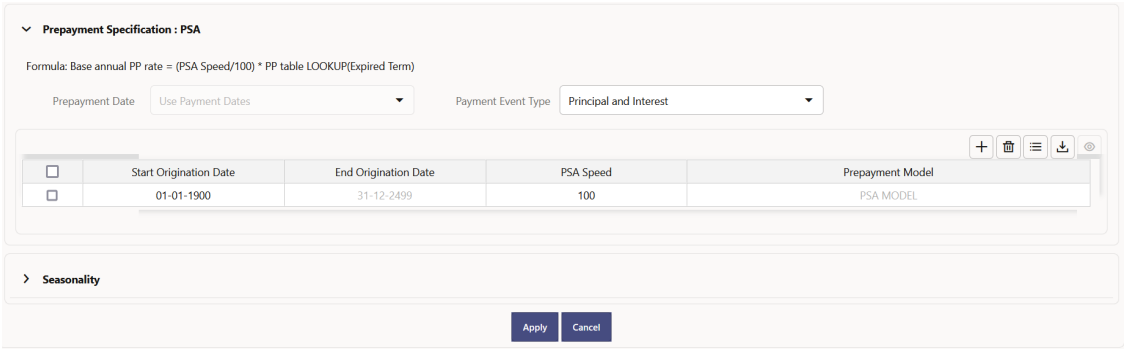
The system uses the Prepayment Model assumptions to calculate the Prepayment Amounts for each period. You need to associate a prepayment model for every Start Origination-End Origination Date range.

9. Click **Add Another Row** to add additional rows and click the corresponding **Delete** button to delete a row.
10. You can add as many rows in this table using **Add Multiple Row** Option. However, you need to enter relevant parameters for each new row.
11. You can also use the **Download Excel** feature to export the Prepayment Rate Information that is displayed on screen, modify, and copy-paste it back in the grid.
12. Enter the term to runoff tenor and multiplier for each of the date ranges.
13. Enter 'Repeat' if you want the same prepayment to occurs multiple times. By default, it is set to 1.
14. Define the source for the Market Rate by Selecting an Index (Interest Rate Code) from the list of values.
15. Enter the Spread. The spread is added to the rate from the underlying Interest Rate Curve to determine the Market Rate.
16. Select an **Associated Term** as Remaining Term, Reprice Frequency, or Original Term.
17. Define Seasonality assumptions as required to model date specific adjustments to the annual Prepayment Rate. Inputs act as a multiplier, for example, an input of 2 will double the Prepayment Rate in the indicated month.

6.3.2.1.2.1.4 Defining PSA Prepayment Method

Use this procedure to define Prepayment Assumptions using the PSA Prepayment Method. The PSA Prepayment method (Public Securities Association Standard Prepayment Model) is a Standardized Prepayment Model that is built on a single dimension, expired term. The PSA Curve is a schedule of prepayments which assumes that prepayments will occur at a rate of 0.2 percent CPR in the first month and will increase an additional 0.2 percent CPR each month until the 30th month and will prepay at a rate of 6 percent CPR thereafter ("100 percent PSA"). PSA Prepayment Speeds are expressed as a multiple of this base scenario. For example, 200 percent PSA assumes Annual Prepayment Rates will be twice as fast in each of these periods - 0.4 percent in the first month, 0.8 percent in the second month, reaching 12 percent in month 30 and remaining at 12 percent after that. A zero percent PSA assumes no prepayments. You can create your own Origination Date ranges and assign a particular PSA Speed to all the instruments with origination dates within a particular Origination Date range. PSA Speed inputs can be between 0 and 1667.

Figure 6-93 PSA Prepayment Method



Prerequisites

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Performing basic steps for creating or updating a Prepayment Rule.

Procedure

Prepayment under this method occurs on Payment Dates only.

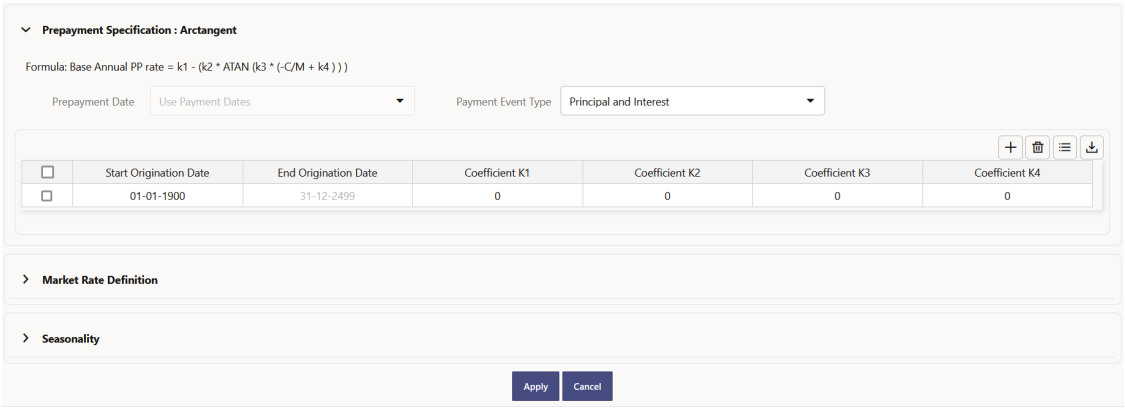
1. Select the **Payment Event Type** option.
2. Select the **Start Origination Date** using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
   The first cell in the **Start Origination Date** Column and all the cells in the **End Origination Date** Column are Read-Only. This ensures that all possible Origination Dates have supporting reference values when Prepayment Assumption Lookups occur. Each row in the End Origination Date Column is filled in by the system when you click Add Row or save the Rule.

   The first Start Origination Date (in row 1) has a default value of January 1, 1900. When you enter a Start Origination Date in the next row, the system inserts a date that is a day before the previous End Origination Date Field.
3. Enter the PSA Speed that you want to apply to the instruments having Origination Dates in a particular Start Origination-End Origination Date range. The PSA Method is based on a standard PSA curve. You can view the seeded model by selecting the View Prepayment Model icon.
   The default value is 100 PSA and inputs can range from 0 to 1667.
4. Click **Add Row** to add additional rows and click the corresponding **Delete** Option to delete a row.
   You can add as many rows as possible in this table using Add Multiple Row Option. However, you need to enter relevant parameters for each new row.
5. You can also use the **Download Excel** Feature to export the Prepayment Rate Information that is displayed on screen, modify, and copy-paste it back in the grid.
6. Define Seasonality Assumptions as required to Model Date specific adjustments to the Annual Prepayment Rate. Inputs act as a multiplier, For example, an input of 2 will double the Prepayment Rate in the indicated month.

6.3.2.1.2.1.5 Defining the Arctangent Calculation Method

The Arctangent Calculation Method uses the Arctangent Mathematical Function to describe the relationship between Prepayment Rates and spreads (coupon rate less Market Rate). Use this procedure to define Prepayment Assumptions using the Arctangent Calculation Method.

Figure 6-94 Arctangent Calculation Method



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Prerequisites

Performing basic steps for creating or updating a Prepayment Rule.

Procedure

Prepayment under this method occurs on Payment Dates only.

1. Select the **Payment Event Type** Option.
2. Select the Start Origination Date using the date picker. Alternatively, you can enter the Start Origination Date in the space provided.
3. Enter the values for the Arctangent Parameters (columns K1 through K4) for each Start Origination Date in the table. The valid range for each parameter is -99.9999 to 99.9999.
4. Click **Add Another Row**.
   You can add as many rows as possible in this table using **Add Multiple Row** Option. However, you need to enter relevant parameters for each new row.
5. You can also use the **Download Excel** Feature to export the Prepayment Rate Information that is displayed on screen, modify, and copy-paste it back in the grid.
6. Define the source for the Market Rate by Selecting an Index (Interest Rate Code) from the list of values.
7. Enter the Spread.
   The spread is added to the rate from the underlying Interest Rate Curve to determine the Market Rate.
8. Select an **Associated Term** as Original Term, Reprice Frequency, or Remaining Term.
9. Define the Seasonality Assumptions as required to model date specific adjustments to the Annual Prepayment Rate. Inputs act as a multiplier, For example, an input of 2 will double the prepayment rate in the indicated month.

6.3.2.1.3 Associating Conditional Assumptions with Prepayment Rules

The Prepayment Rule UI provides the setup and maintenance of assumptions by integrating the conditional logic (optional) into the setup of prepayment methods. You can define prepayment methodologies using IF-THEN-ELSE logic based on the underlying characteristics of your financial instruments, such as dates, rates, balances, and code values.

The conditional logic is defined through use of Data Filters. These existing objects provide the building blocks for defining Conditional logic. For example, each Data Filter can provide the logic for a specific condition. In the example below, the where clause is "Adjustable Type Code = 'Adjustable Rate'". This type of Data Filter can be selected within the Conditional Assumption section.

The logic included in a Conditional Assumption determines the specific Prepayment assumption or Adjustment Rule that the system will assign to each individual instrument record at run time.

The Conditional Assumption section allows users to select explicit conditions (from Data Filters) and apply methods and rule selections to each condition directly. The Filter Conditions are processed by the engine in the order that they appear on the section. As soon as a condition is satisfied, the related assumption is applied.

If an instrument record does not meet any of the conditions, then the rule logic reverts to the standard assumption that is directly assigned to the Product/Currency combination.

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> **Note**
>
> For Cash Flow Engine Cloud Service, this is applicable only for Product/Currency combination.

Conditional Assumptions can be applied only to detailed account records (data stored in the Instrument Tables).

To define conditional assumption, follow these steps:

1. Navigate to Conditional Assumptions section.

Figure 6-95 Conditional Assumption

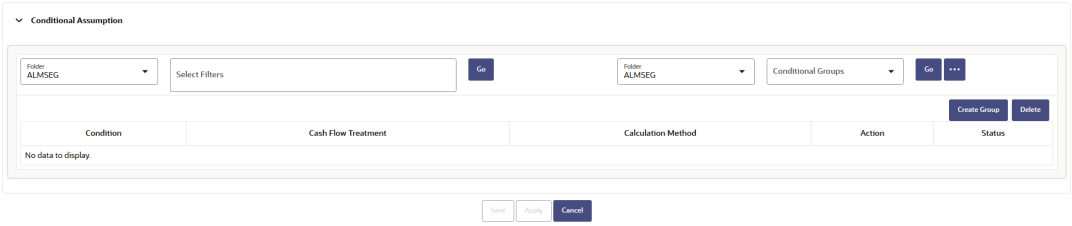
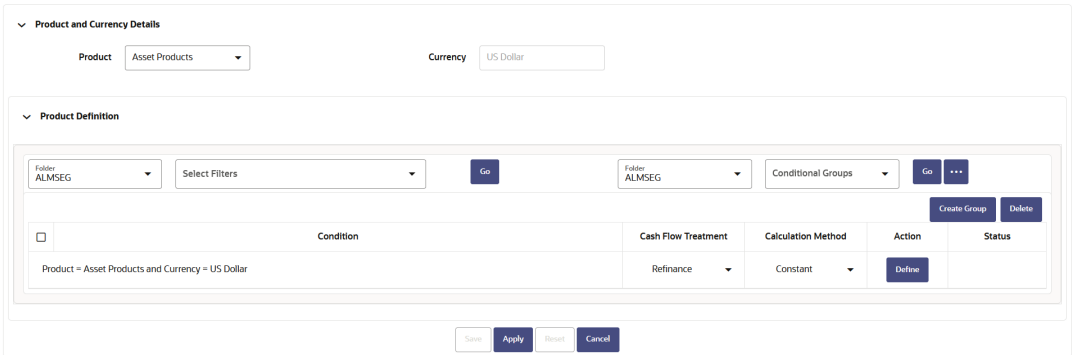


Figure 6-96 Conditional Assumption



2. Select the Filter Folder and Filter, then click **Go**. The condition is displayed based on selected filter.
3. Here, you can select either group of conditions using **Conditional Group** or Individual condition using the filter section.
   - You can select the conditional groups from the **Conditional Group** drop-down. You can create a new condition group using the **Create Group** button. To create a new condition group, follow these steps:
     a. Select filters using the **Filter** drop-down list.

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

     b. Select the conditions (filters) using the corresponding check-boxes.

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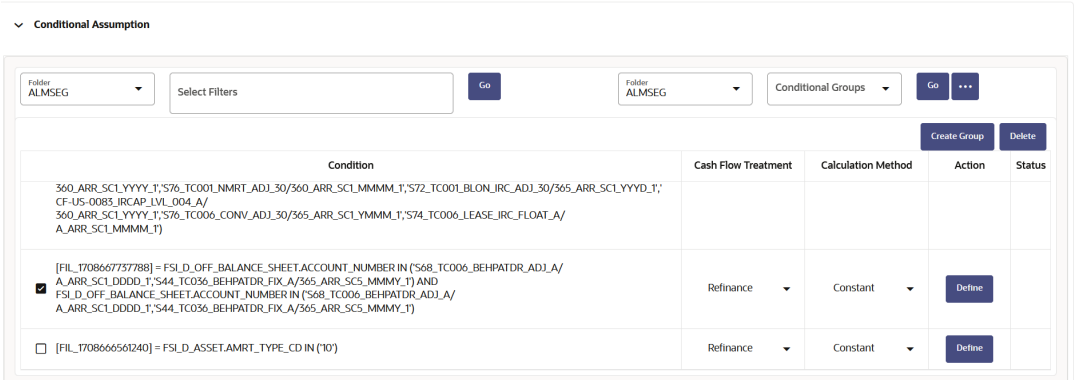
c. Click **Create Group** .

d. The **Save Condition Group** window is displayed. Provide the **Group Name** and select the **Folder** where you want to save the condition group. Click **Save** in **Save Condition Group** window. You can use this saved group from **Condition Group** down-down.

- Else, select Individual condition using the corresponding check-box.

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

Figure 6-97 Conditional Assumption



Use **Delete** button to delete the defined condition(s)

7. Define Prepayment rule and Seasonality, and then click **Apply**. The status of condition assumption is updated as **Defined**.

> **Note**
>
> You can edit the condition using **Edit**.

8. Click **Save**. The status of conditional assumption is also updated in Assumption Browser.

Figure 6-98 Status of Conditional Assumption

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6.3.2.2 Prepayment Models

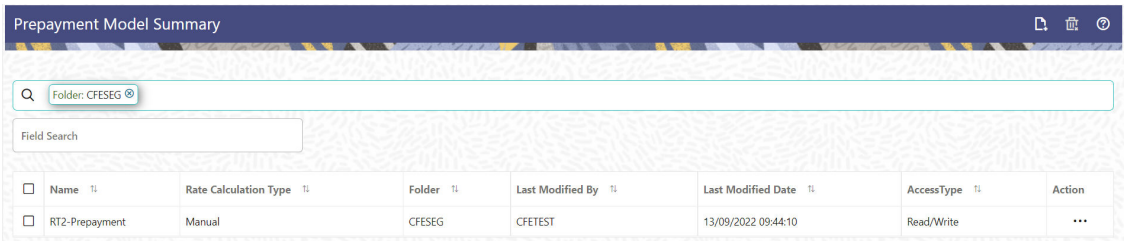
This module describes the procedure to build Prepayment Models. These Prepayment Models can be referenced by a Prepayment Model rule to Model Prepayment Behavior of instruments based on a range of instrument level attributes.

The Prepayment Model consists of the Prepayment Dimensions and the Bucket Values for these Dimensions. To define the Prepayment Model Structure, you can select a maximum of three prepayment dimensions. After the dimensions and the number of buckets (tiers) are defined, you need to assign values to the buckets.

Prepayment Model Rule Summary

This page is the gateway to all Prepayment Model Rules and related functionality. You can navigate to other pages relating to Prepayment Model Rules from this point.

Figure 6-99 Prepayment Model Summary



Search Prepayment Model Rule

Prerequisites: Predefined Prepayment Model Rule

To search for a Prepayment Model Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Prepayment Model Rules that meet the search criteria.

Or

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

The Prepayment Model rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Prepayment Model rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Name:** The Prepayment Model Rule's short name.
- **Rate Calculation Type:** The Prepayment Model type, such as Manual .
- **Folder:** The Folder where the Prepayment Model Rule is saved.
- **Last Modified By:** The user who last modified the Prepayment Model rule.

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- **Last Modified Date:** The Date and Time when the Prepayment Model rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Prepayment Model rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Prepayment Model rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Prepayment Model rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Prepayment Model rules that you no longer require. Note that only Prepayment Model rule owners and those with Read/Write privileges can delete Prepayment Model rules. A Prepayment Model rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular Prepayment Model rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Prepayment Model rules that have dependencies. A report of all rules that utilize the selected Prepayment Model rule is generated.

Also See:

- Create Prepayment Models

6.3.2.2.1 Create Prepayment Models

Creating a Prepayment Model comprises the following sub procedures:

1. Creating Prepayment Models
2. Defining the structure of the Prepayment Model.
3. Assigning Node Values

You can create Prepayment Models with following Rate Calculation options:

- Creating Prepayment Model with Rate Calculation as Manual
- Creating Prepayment Model with Rate Calculation as External Model
- Creating Prepayment Model with Rate Calculation as Integrated Model

6.3.2.2.1.1 Creating Prepayment Model with Rate Calculation as Manual

To create a Prepayment Model Rule, follow these steps:

1. Navigate to the **Prepayment Model Summary** Page.
2. Click **Add**. The **Prepayment Model Details** Page is displayed.

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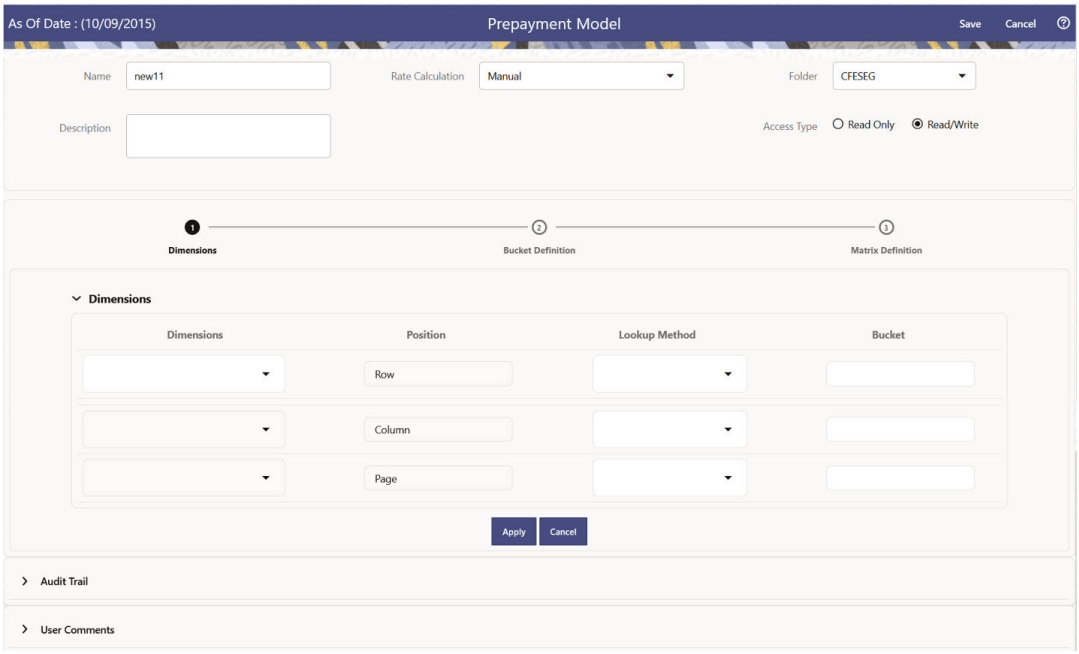
Figure 6-100 Prepayment Model



3. Enter the following details:
   - **Name:** Enter the name and a brief description for the Prepayment Model. The name you assign to the Prepayment Model must be unique. The name can hold a maximum of 30 characters.
   - **Rate Calculation:** Select the Prepayment Model Rate Calculation Method as Manual. Using Manual Method, you can select maximum of three Prepayment Dimension and assign prepayment rates manually to selected dimension.
   - **Folder:** Select the Folder
   - **Description:** Enter the description of Prepayment Model Rule.
   - Select **Access Type**.
4. Follow below steps:
   Defining the Structure of the Prepayment Model Using Dimensions section

   Modifying the Table Structure Using Bucket Definition section

   Prepayment Rates Using Matrix Definition

6.3.2.2.1.1.1 Defining the Structure of the Prepayment Model Using Dimensions section

This page consists of the Prepayment Dimensions and the Bucket Values for these Dimensions which you select on this page. To define the Prepayment Model Structure, you can select a maximum of three Prepayment Dimensions. After the dimensions and the number of buckets (tiers) are defined, you need to assign values to the buckets.

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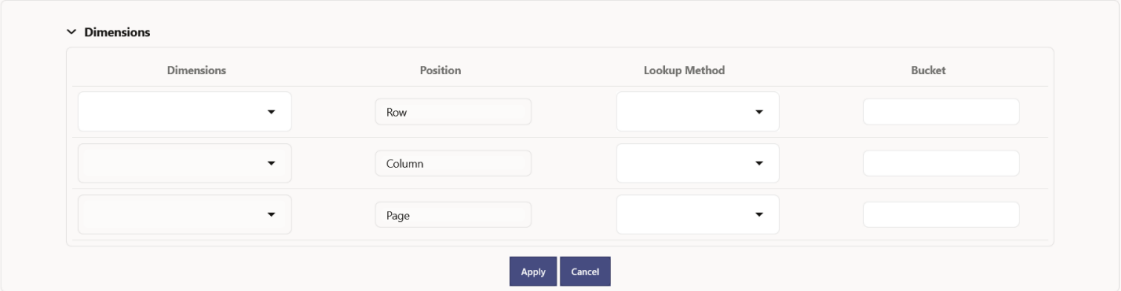
> **Note**
>
> You can use the analogy of a three-dimensional table to understand how to deal with the Prepayment Dimensions. The first dimension you select would resemble the row (X-axis).
>
> The second dimension would act as the column (Y-axis). The final third dimension will be the page (Z-axis).

Figure 6-101 Dimensions section



1. Enter the following details in Dimension section:
   - Dimensions: Select the Dimension, such as Repricing Term, Rate Ratio, and others. The Dimension Section Influences the Prepayment Behavior of an instrument. You can build a Prepayment Model using up to three Prepayment Dimensions. Each dimension maps to an attribute of the underlying transaction (For example, age/term or rate and so on) so the Cash Flow Engine can apply a different Prepayment Rate based on the specific characteristics of the instrument.
   - Position: Shows the position of dimension as Row, Column or Page.
   - Lookup Method: Select the Lookup Method for selected Dimension. It is used to calculate Prepayment Rates for the Prepayment Dimension Values that do not fall exactly on the defined Prepayment Dimension Nodes. Oracle Asset Liability Management offers the following Lookup Methods:
   - Interpolation: Under this method, the Prepayment Rates are determined by calculating an exact value on an axis. This method assumes that Prepayment Speeds change on a straight-line basis between the two nodes and calculates accordingly.
   - Range: Under this method, the prepayment rates are determined by calculating a range of values on an axis. This method assumes that the Prepayment Speed will remain the same for the entire range.
     The following example explains the differences between these two Lookup Methods. The following lists show the age and corresponding Prepayment Rates of instruments.

     Age

     12

     24

     36

     60

     Prepayment Rates

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Under the Interpolation method, the Prepayment Speeds increase gradually. In this example, the Interpolated Prepayment Rate of an instrument aged 30 months is 12.5%.

This is exactly halfway between the 10% and 15% rate. However, the Range Method, the Prepayment Speeds increase in steps. Using the Range method, the Prepayment Rate is 10%, as this rate percentage would apply to the range from 24 months to 35.9999 months.

- Bucket: Enter the number of Buckets for the Dimension. This number may vary from dimension to dimension. Exact points for each dimension where attribute information has been defined.

2. If required, repeat the previous three steps for up to two additional Dimensions.

> **Note**
>
> There are certain restrictions while defining Dimensions:
>
> - You must select the Dimension type for a row and define the values for that dimension.
> - You cannot define the second (row) dimension until you have defined the first (row) dimension. Similarly, the third dimension cannot be defined until you have defined the first two dimensions.
>
> The Define Dimensions Page is refreshed. You can now assign the Bucket Values for each dimension. At this point, you can also modify the structure of the table, if required.

6.3.2.2.1.1.2 Modifying the Table Structure Using Bucket Definition section

The Bucket Definition section is used to perform following tasks:

- To add more buckets to a particular Dimension, update the number of buckets for the Dimension and click **Apply**.
- To delete buckets from a particular Dimension, reduce the number of buckets to the desired value and click **Apply**.

To change the Lookup Method of a particular Dimension, select the required method from the corresponding list of methods from the Dimensions Tab.

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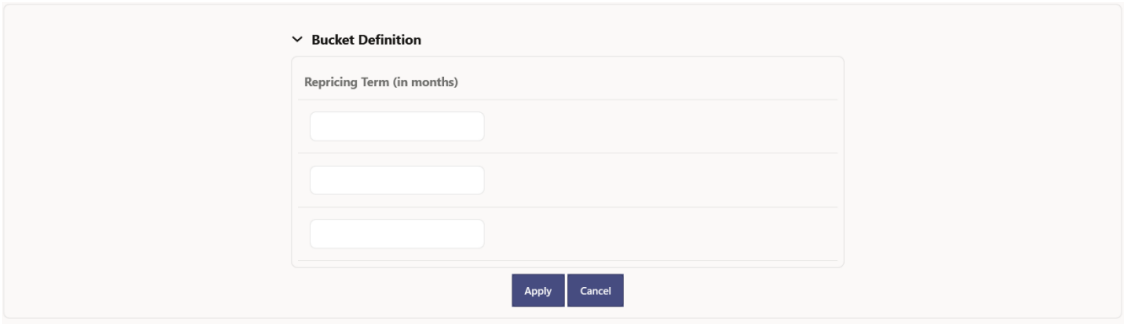
Figure 6-102 Bucket Definition Section



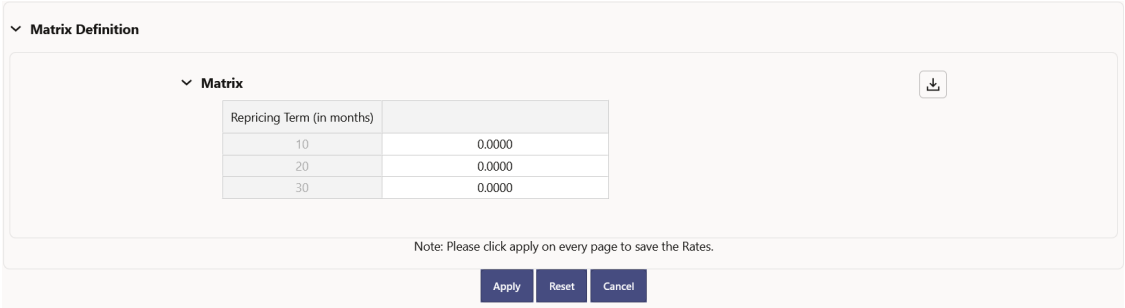
1. Assign values for each of the buckets.
2. Click **Apply**. The Prepayment Model, Prepayment Dimensions, and Buckets are saved.

6.3.2.2.1.1.3 Prepayment Rates Using Matrix Definition

1. Enter the Prepayment Rates in the Prepayment Model.

Bucket Values for the row and column dimensions are displayed as a table, while the bucket values for the page dimensions (if selected) are shown in the drop down list.

Figure 6-103 Matrix Definition Section



6.3.2.2.1.2 Creating Prepayment Model with Rate Calculation as External Model

To create a Prepayment Model Rule, follow these steps:

1. Navigate to the **Prepayment Model Summary** Page.
2. Click **Add**. The **Prepayment Model Details** Page is displayed.

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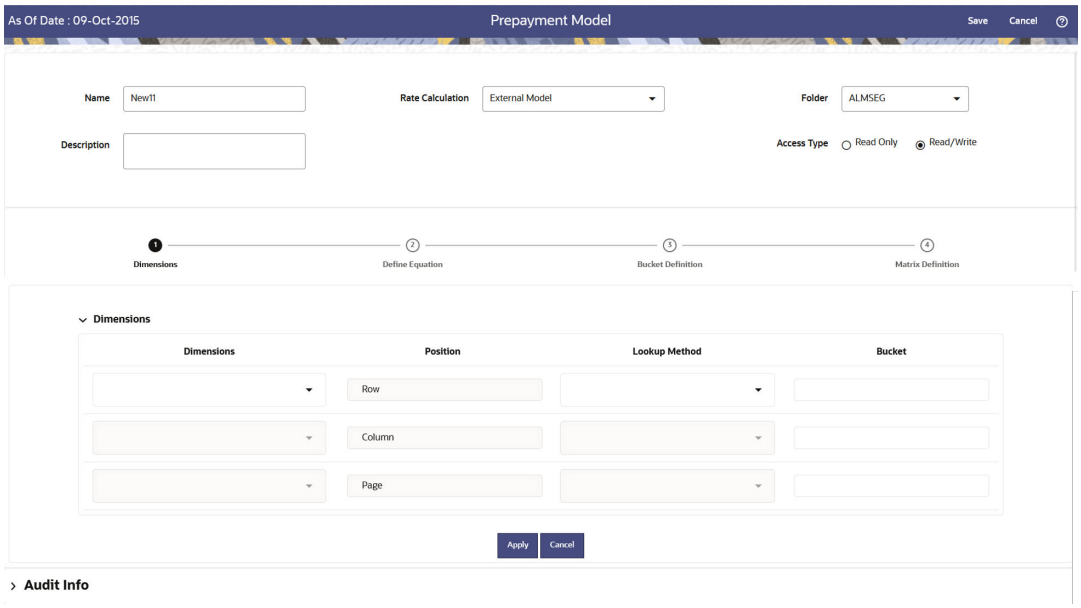
Figure 6-104 Prepayment Model



3. Enter the following details:
   - **Name:** Enter the name and a brief description for the Prepayment Model. The name you assign to the Prepayment Model must be unique. The name can hold a maximum of 30 characters.
   - **Rate Calculation:** Select the Prepayment Model Rate Calculation Method as External Model. When you select External Model, Define Equation button will get activated to use External Prepayment Model. This is useful, when you want to do Prepayment Modeling outside PBSM and use the model equation to calculate Prepayment Rates.
   - **Folder:** Select the Folder
   - **Description:** Enter the description of Prepayment Model Rule.
   - Select **Access Type**.
4. Follow below steps:
   Defining the Structure of the Prepayment Model Using Dimensions section

   Defining Equation using Define Equation section

   Modifying the Table Structure Using Bucket Definition section

   Prepayment Rates Using Matrix Definition

6.3.2.2.1.2.1 Defining the Structure of the Prepayment Model Using Dimensions section

This page consists of the Prepayment Dimensions and the Bucket Values for these Dimensions which you select on this page. To define the Prepayment Model Structure, you can select a maximum of three Prepayment Dimensions. After the dimensions and the number of buckets (tiers) are defined, you need to assign values to the buckets.

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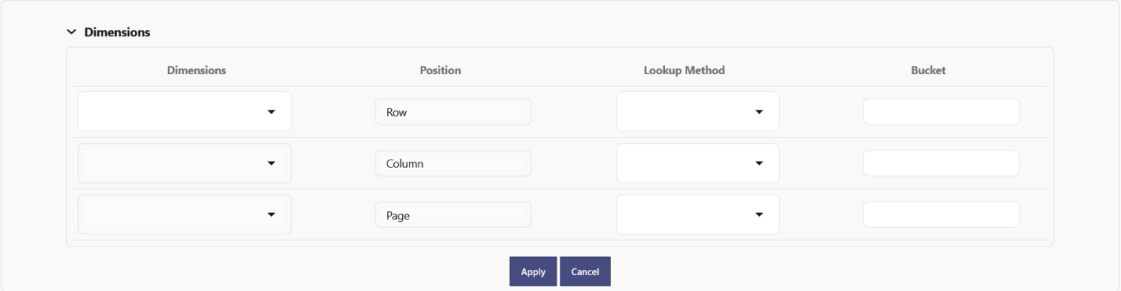
> **Note**
>
> You can use the analogy of a three-dimensional table to understand how to deal with the Prepayment Dimensions. The first dimension you select would resemble the row (X-axis).
>
> The second dimension would act as the column (Y-axis). The final third dimension will be the page (Z-axis).

Figure 6-105 Dimensions section



1. Enter the following details in Dimension section:
   - Dimensions: Select the Dimension, such as Repricing Term, Rate Ratio, and others. The Dimension Section Influences the Prepayment Behavior of an instrument. You can build a Prepayment Model using up to three Prepayment Dimensions. Each dimension maps to an attribute of the underlying transaction (For example, age/term or rate and so on) so the Cash Flow Engine can apply a different Prepayment Rate based on the specific characteristics of the instrument.
   - Position: Shows the position of dimension as Row, Column or Page.
   - Lookup Method: Select the Lookup Method for selected Dimension. It is used to calculate Prepayment Rates for the Prepayment Dimension Values that do not fall exactly on the defined Prepayment Dimension Nodes. Oracle Asset Liability Management offers the following Lookup Methods:
   - Interpolation: Under this method, the Prepayment Rates are determined by calculating an exact value on an axis. This method assumes that Prepayment Speeds change on a straight-line basis between the two nodes and calculates accordingly.
   - Range: Under this method, the prepayment rates are determined by calculating a range of values on an axis. This method assumes that the Prepayment Speed will remain the same for the entire range.
     The following example explains the differences between these two Lookup Methods. The following lists show the age and corresponding Prepayment Rates of instruments.

     Age

     12

     24

     36

     60

     Prepayment Rates

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5

10

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Under the Interpolation method, the Prepayment Speeds increase gradually. In this example, the Interpolated Prepayment Rate of an instrument aged 30 months is 12.5%.

This is exactly halfway between the 10% and 15% rate. However, the Range Method, the Prepayment Speeds increase in steps. Using the Range method, the Prepayment Rate is 10%, as this rate percentage would apply to the range from 24 months to 35.9999 months.

- Bucket: Enter the number of Buckets for the Dimension. This number may vary from dimension to dimension. Exact points for each dimension where attribute information has been defined.

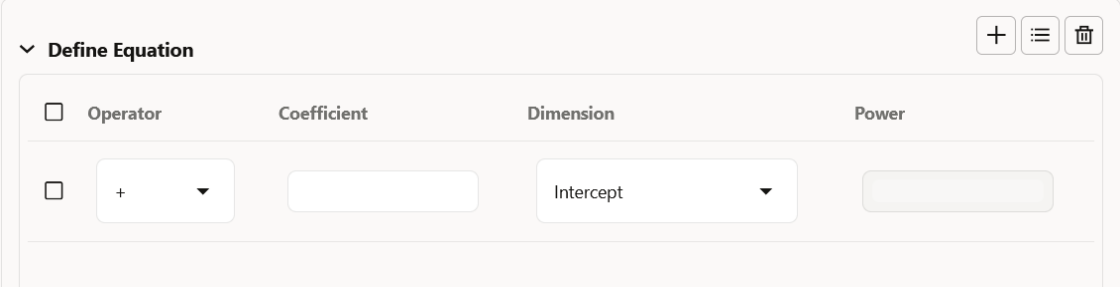
2. If required, repeat the previous three steps for up to two additional Dimensions.

> **Note**
>
> There are certain restrictions while defining Dimensions:
>
> - You must select the Dimension type for a row and define the values for that dimension.
> - You cannot define the second (row) dimension until you have defined the first (row) dimension. Similarly, the third dimension cannot be defined until you have defined the first two dimensions.
>
> The Define Dimensions Page is refreshed. You can now assign the Bucket Values for each dimension. At this point, you can also modify the structure of the table, if required.

6.3.2.2.1.2.2 Defining Equation using Define Equation section

> **Note**
>
> This section is not applicable to Manual Models. This section appears when you select External Model from Rate Calculation drop-down list.

Figure 6-106 Define Equation Section



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To define Equation, perform the following steps:

1. Click **Define Equation**. Enter following details:
   - **Operator:** Select operator as +, -, *, or /
   - **Coefficient:** Enter the value of Coefficient
   - **Dimension:** Select the Dimension
   - **Power:** Enter the power for selected Dimension.
     For Example:

     Equation becomes:

     2 + 1.5 * original Term ^ 2 + 3 * Rate Diff ^ 2

     > **Note**
     >
     > Before defining equation, you must select dimensions and accordingly dimensions drop-down will display values along with Intercept. For example, if you have already chosen Original term and Rate Difference as dimensions, then Dimension drop-down list would displays the following three values:
     >
     > – Intercept
     > – Original Term
     > – Rate Difference

     After defining all coefficients, Power, operators, click Equation to get the model equation.

     A confirmation message is displayed.
2. Click **Ok** to use the same for Prepayment Rate Calculations.
3. You can add new row for each term using **Add Row**. Multiple rows can be added using **Add Multiple Rows**.
4. Click **Apply**.

6.3.2.2.1.2.3 Modifying the Table Structure Using Bucket Definition section

The Bucket Definition section is used to perform following tasks:

- To add more buckets to a particular Dimension, update the number of buckets for the Dimension and click **Apply**.
- To delete buckets from a particular Dimension, reduce the number of buckets to the desired value and click **Apply**.

To change the Lookup Method of a particular Dimension, select the required method from the corresponding list of methods from the Dimensions Tab.

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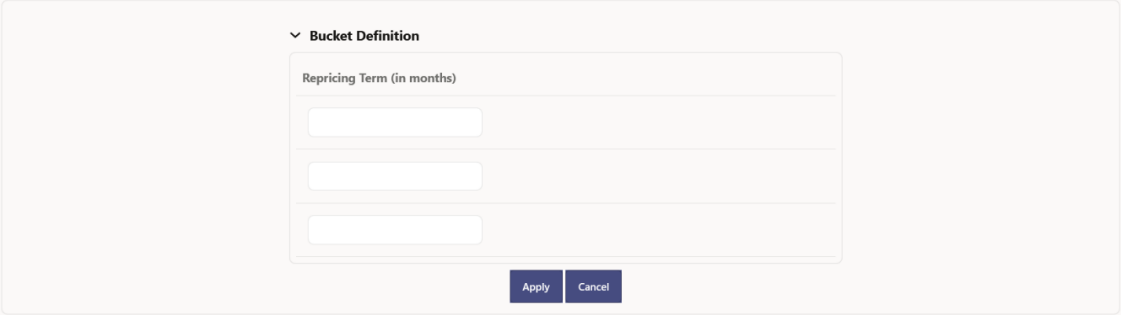
Figure 6-107 Bucket Definition Section



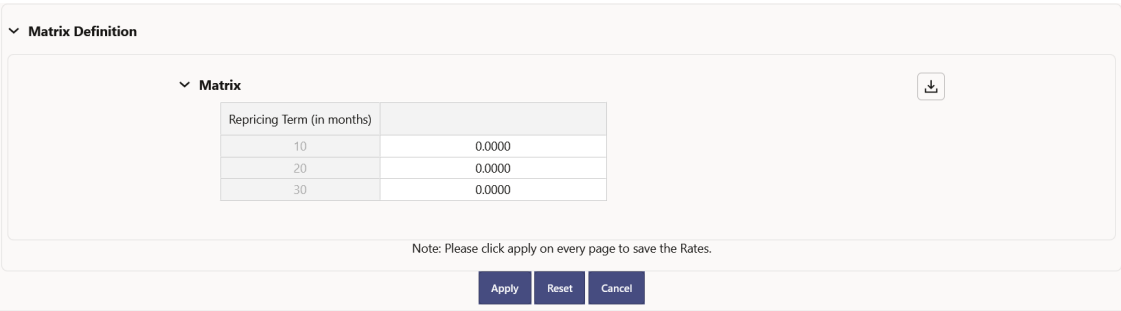
1. Assign values for each of the buckets.
2. Click **Apply**. The Prepayment Model, Prepayment Dimensions, and Buckets are saved.

6.3.2.2.1.2.4 Prepayment Rates Using Matrix Definition

1. Enter the Prepayment Rates in the Prepayment Model.

Bucket Values for the row and column dimensions are displayed as a table, while the bucket values for the page dimensions (if selected) are shown in the drop down list.

Figure 6-108 Matrix Definition Section



6.3.2.3 Behavior Pattern Rules

The Behavior Pattern (BP) functionality works similarly to amortization types. The Behavior Pattern code is assigned at the detail instrument level, and these designations are evaluated by the cash flow engine (CFE) for calculations. However, Behavior Patterns are portfolio level property rather than instrument level. Generally, a bank processes aggregated data for non-maturing products. In this case, the Behavior Pattern is assigned effectively at the portfolio level. If you are using CFE with any other service, then data is required at the instrument level and BP is also assigned accordingly.

In this case, you must track the changes to Behavior Patterns and assign appropriate codes to affected instruments. Due to this, only one BP can be used by the CFE in the CFE processes for current business. If you want to model multiple types of BP under varying scenarios, then you can use a Behavior Pattern Rule.

The Behavior Pattern Rule UI allows you to group Behavior Pattern codes (behavioral assumptions) together in a set at the Product/Currency level which then can be rotated to select a value on a combination. You can select which behavior assumption pattern to use and the underlying Behavior Pattern in that set will affect the data on processing

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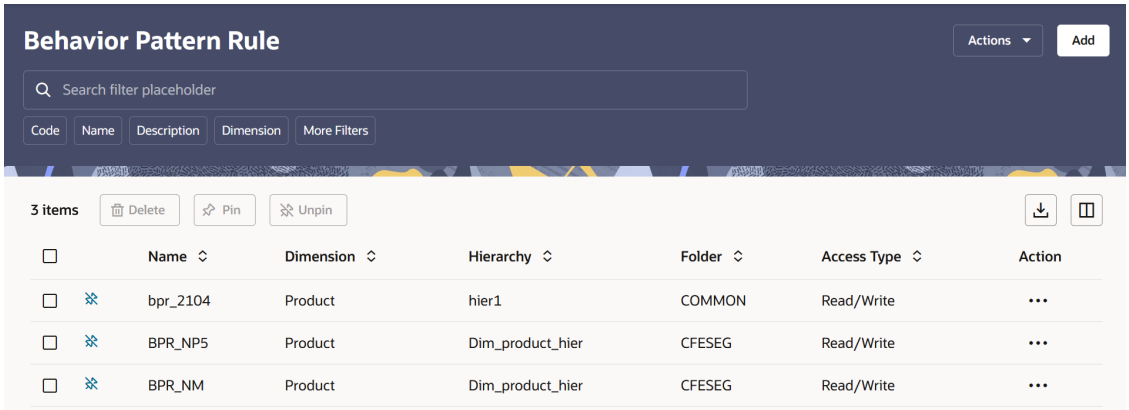
Behavior Pattern Rule Summary

This page is the gateway to all Behavior Pattern Rules and related functionality. You can navigate to other pages relating to Behavior Pattern Rules from this point.

Figure 6-109 Behavior Pattern Rule Summary



Search Behavior Pattern Rule

Prerequisites: Predefined Behavior Pattern Rule

To search for a Behavior Pattern Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Behavior Pattern Rules that meet the search criteria.

Or

An alternative method to search a Behavior Pattern rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Behavior Pattern rule Summary. You can enter the **Code, Name, Description, Dimension, Hierarchy**, and **Folder** of the Behavior Pattern Rule and click **Search**.

The Behavior Pattern rule Summary displays the following information:

Add: Click the Add on the page header to build a new Behavior Pattern rule.

Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected rule.

- **Name:** Displays the Behavior Pattern Rule's short name.
- **Dimension:** Displays the Dimension the Behavior Pattern Rule belongs to.
- **Hierarchy:** Name of Hierarchy that is used to define Behavior Pattern Rule.
- **Folder:** Displays the Folder name where the Behavior Pattern Rule is saved.
- **Last Modified By:** Displays the Name of the user who last modified the Behavior Pattern Rule.
- **Last Modified Date:** Displays the Date and Time when Behavior Pattern Rule was modified last.

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- **Access Type:** Displays the access type of Rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Behavior Pattern rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Behavior Pattern rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Behavior Pattern rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Behavior Pattern rules that you no longer require. Note that only Behavior Pattern rule owners and those with Read/Write privileges can delete Behavior Pattern rules. A Behavior Pattern rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular Behavior Pattern rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Behavior Pattern rules that have dependencies. A report of all rules that utilize the selected Behavior Pattern rule is generated.

Also See:

- Create Behavior Pattern Rule
- Defining Behavior Pattern Rule

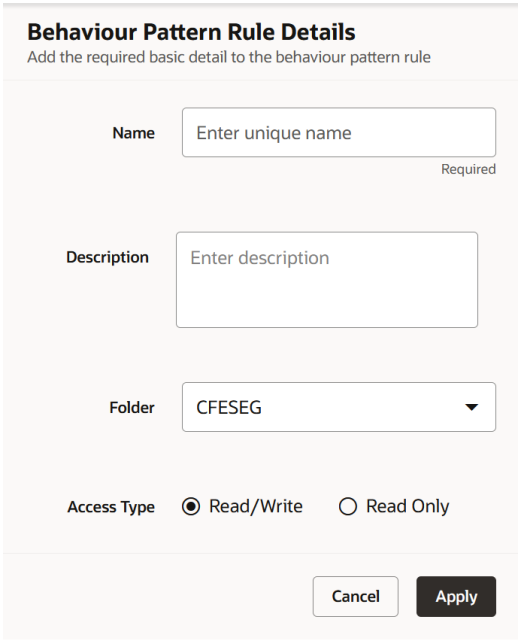
6.3.2.3.1 Create Behavior Pattern Rules

You create behavior pattern rules to capture the principal run-off behavior of product types that do not have contractual maturities.

To create a Behavior Pattern rule, follow these steps:

1. Click **Add** icon from the top of the **Behavior Pattern Rule Summary** page.

Figure 6-110 Create Behavior Pattern Rule page



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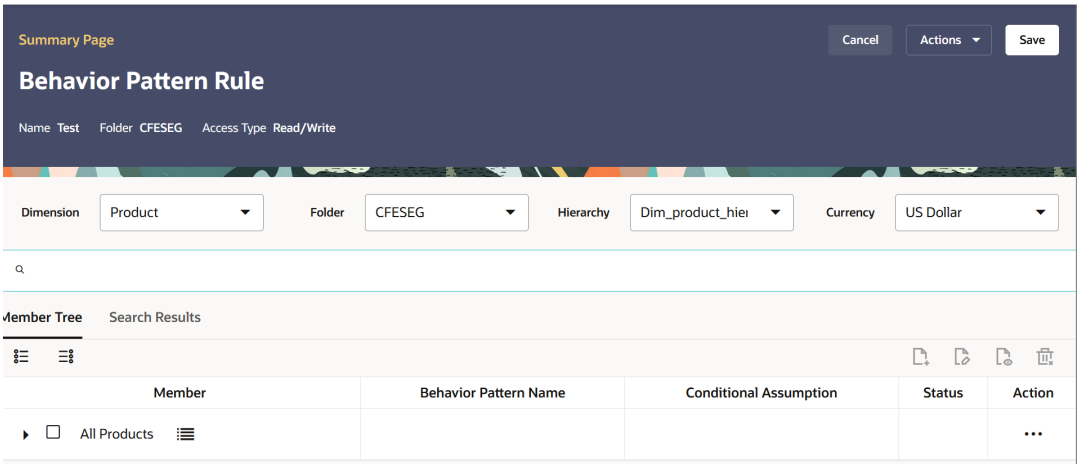
2. Enter the following Details.

Table 6-30 Create Behavior Pattern Rule

Fields	Description
Name	Enter the name of the Behavior Pattern Rule.
Description	Enter the description of the Behavior Pattern Rule. This is an optional field.
Folder	Select the Folder where the Behavior Pattern Rule needs to be saved.
Access Type	Select the Access Type as Read-Only or Read/ Write.

3. Click **Apply**. The Behavior Pattern Rule page is displayed:

Figure 6-111 Behavior Pattern Rule Page



4. Select the **Dimension** as Common Chart of Accounts, Product, General Ledger Account, or MDBSS.

> **Note**
>
> MDBSS is enabled only in ALM Cloud Service.
> If any member is a currency in the MDBSS hierarchy (for example, INR) and selected currency is different (for example USD), then the member and its children nodes cannot be defined.
>
> You can search the rule on any of the product dimension, searched dimension will be auto-populated while defining the rule; if you like, you can change the default product dimension.

5. Select a **Currency**.
6. Select **Folder** and **Hierarchy**.
7. Select **Member Node(s)** from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results

   - **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.

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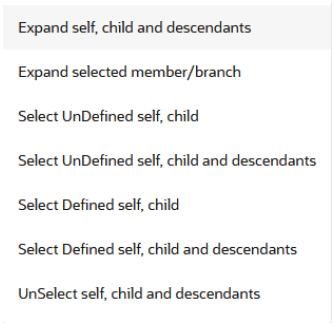
Figure 6-112 Member Tree



Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

- **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
- **Expand selected member/branch:** Allows to expand the selected node
- **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
- **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
- **Select Defined self, child:** Allows to select the selected node itself along with its child.
- **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
- **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

- Add
- Edit
- View
- Delete
- Copy

- **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

  a. Navigate to **Assumption Browser** section of the Rule Definition page.

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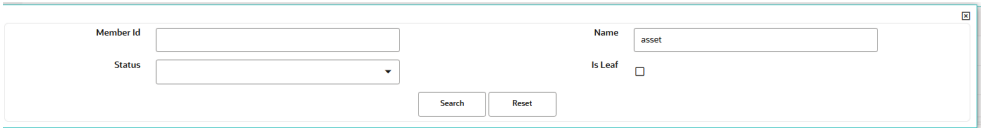
> **Note**
>
> Before using the Member Search in Assumption Browser, you must execute the batch **Member_Browser_Refresh**. For more information, see note in Create MDBSS section.

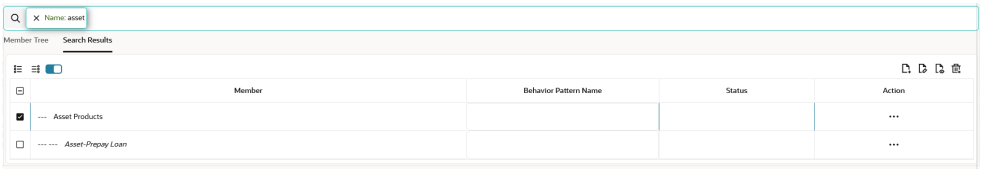
b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

Figure 6-113 Search Criteria



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

Figure 6-114 Searching Members



.

Here, you can perform the following tasks on the searched node(s):

- Add
- Edit
- View
- Delete
- Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

8. Click **Add** from Assumption Browser section.
9. Click **Save**.

6.3.2.3.2 Defining Behavior Pattern Rule

The definition of a Behavior Pattern rule is part of the Create or Edit Behavior Pattern rule process. When you click **Save** in the Create Behavior Pattern Rule process, the rule is saved and the **Behavior Pattern Rule Summary** page is displayed.

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However, Behavior Pattern assumptions have not yet been defined for any of your products at this point. Typically, you would start defining your Behavior Pattern assumptions for product-currency combinations before clicking Save.

6.3.2.3.2.1 Defining Behavior Pattern Rule Using Node Level Assumptions

Node Level Assumptions allow you to define assumptions at any level of the Product dimension Hierarchy. The Product dimension supports a hierarchical representation of your chart of accounts, so you can take advantage of the parent-child relationships defined for the various nodes of your product hierarchies while defining rules. Children of parent nodes on a hierarchy automatically inherit the assumptions defined for the parent nodes. However, assumptions explicitly defined for a child take precedence over those at the parent level.

> **Note**
>
> Using the default currency to setup assumptions can save data input time. At run time, the calculation engine uses assumptions explicitly defined for a product currency combination. If assumptions are not defined for a currency, the engine uses the assumptions defined for the product and the default currency. If the assumptions are the same across some or all currencies for a specific product, you can input assumptions for the default currency. Be careful using this option on screens where an Interest Rate.

Prerequisites

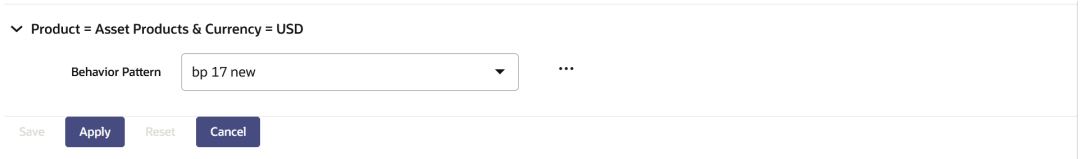
Performing basic steps for creating or editing a Behavior Pattern rule.

Procedure

To define Behavior Pattern Rule using Node Level Assumptions, follow these steps:

1. Navigate to the Behavior Pattern Rule Assumption Details Page.
2. Define the Conditions. For more information see Conditional Assumptions section.
3. After defining the conditions, select the Behavior Pattern from Behavior Pattern drop-down list. Here, the Behavior Pattern drop-down list shows the list of existing Behavior Patterns.

Figure 6-115 Defining Behavior Pattern Rule



Click **Action** icon to Add a new Behavior Pattern Rule, Edit an existing Behavior Pattern Rule, or view the details of Behavior Pattern Rule.

You can select only one Behavior Pattern at a time.

4. Click **Apply**.

When you click Save, the Behavior Pattern Rule assumptions are saved and the Behavior Pattern Rule Summary Page is displayed.

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6.3.2.3.3 Associating Conditional Assumptions with Behavior Pattern Rules

The Behavior Pattern Rule UI provides the setup and maintenance of assumptions by integrating the conditional logic (optional) into the setup of Behavior Pattern Rules. You can define Behavior Pattern Rule logies using IF-THEN-ELSE logic based on the underlying characteristics of your financial instruments, such as dates, rates, balances, and code values.

The conditional logic is defined through use of Data Filters. These existing objects provide the building blocks for defining Conditional logic. This type of Data Filter can be selected within the Conditional Assumption section.

The logic included in a Conditional Assumption determines the specific Behavior Pattern Rule assumption that the system will assign to each individual instrument record at run time.

The Conditional Assumption section allows users to select explicit conditions (from Data Filters) and apply methods and rule selections to each condition directly. The Filter Conditions are processed by the engine in the order that they appear on the section. As soon as a condition is satisfied, the related assumption is applied.

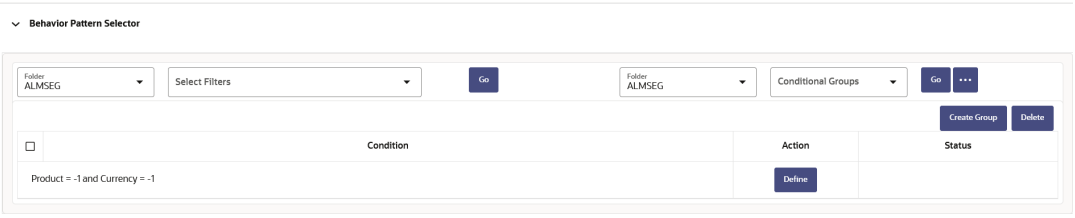
If an instrument record does not meet any of the conditions, then the rule logic reverts to the standard assumption that is directly assigned to the Product/Currency combination.

Conditional Assumptions can be applied only to detailed account records (data stored in the Instrument Tables).

To define conditional assumption, follow these steps:

1. Navigate to **Conditional Assumptions** section.

Figure 6-116 Conditional Assumption



2. Select the Filter Folder and Filter, then click **Go**. The condition is displayed based on selected filter.
3. Here, you can select either group of conditions using **Conditional Group** or Individual condition using the filter section.
   - You can select the conditional groups from the **Conditional Group** drop-down. You can create a new condition group using the **Create Group** button. To create a new condition group, follow these steps:
     a. Select filters using the **Filter** drop-down list.

     > **Note**
     >
     > You must select minimum 2 filters to define a condition group.

     b. Select the conditions (filters) using the corresponding check-boxes.
     c. Click **Create Group** .

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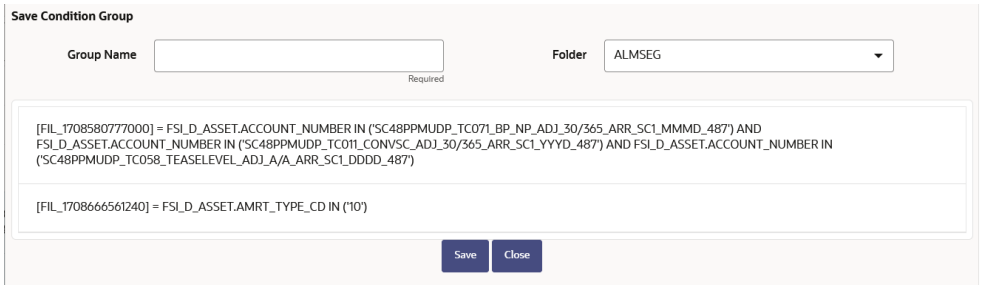
d. The **Save Condition Group** window is displayed. Provide the **Group Name** and select the **Folder** where you want to save the condition group. Click **Save** in **Save Condition Group** window. You can use this saved group from **Condition Group** down-down.

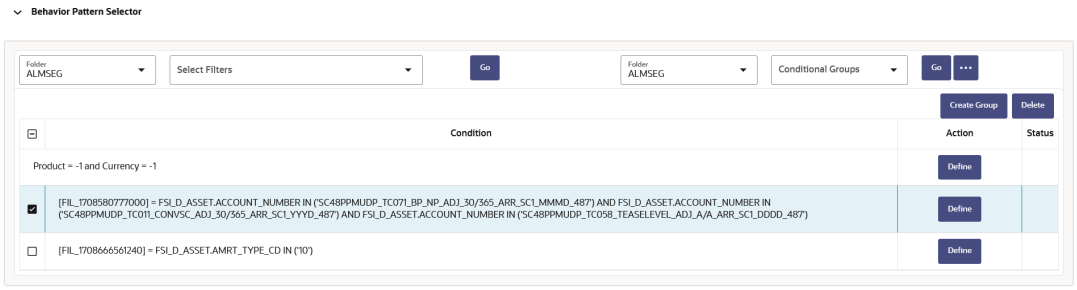
Figure 6-117 Condition Group



- Else, select Individual condition using the corresponding check-box.

4. Click **Define**.

Figure 6-118 Conditional Assumption



Use **Delete** button to delete the defined condition(s)

5. Define Behavior Pattern Rule, and then click **Apply**. The status of condition assumption is updated as **Defined**.

> **Note**
>
> You can edit the condition using **Edit**.

6. Define Behavior Pattern rule. For more information, see the Defining Behavior Pattern Rule Using Node Level Assumptions

7. Click **Save**. The status of conditional assumption is also updated in Assumption Browser.

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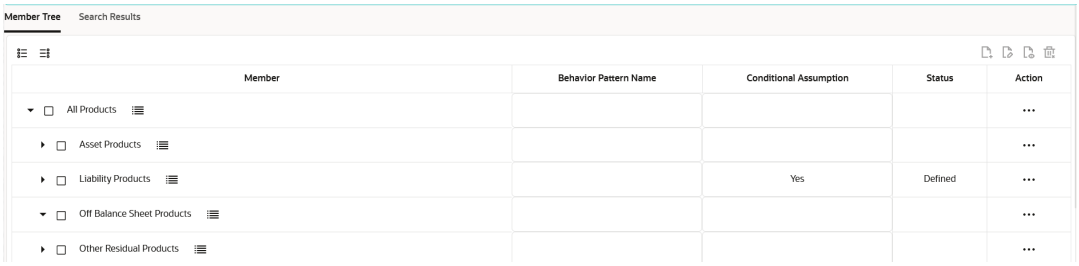
Figure 6-119 Status of Conditional Assumption



6.3.2.4 Time Buckets

The Time Bucket Rules allow users to create the time bucket definitions used for computing and outputting aggregated cash flows across time. The Time Bucket Rules determine the granularity of cash flow output and can be set at any frequency through a combination of daily, monthly, and yearly buckets. Time Buckets can be defined for the following types of ALM output:

- **Income Simulation**
  Income Simulation Buckets allow you to specify the time periods used for storing and reporting results. These bucket definitions set the modeling horizon for date-related business rule assumptions. When you change the number or frequency of the modeling buckets, existing business rules are affected.

  Be cautious when changing Time Bucket definitions when known dependencies exist.

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

  If you want to use different configurations of income simulation buckets, such as all monthly or all quarterly, you should create a separate Time Bucket rule for each and use an appropriate naming convention to identify these characteristics. All date-related assumption rules should be defined and used in the context of a single set of Income Simulation buckets or a single Time Bucket Rule.

  Income Simulation Bucket definitions are referenced by all bucket based forecast business rules, including Forecast Rates, Forecast Balances, Pricing Margins and Maturity Mix Rules, and also by ALM Deterministic Processes during ALM Engine processing.

- **Interest Rate GAP**
  Interest Rate GAP Buckets allow you to define Interest Rate (repricing) GAP buckets including a catch all bucket to move reprice gap output for Non Interest Rate Sensitive products. From this screen, you can also define Dynamic Start Dates (as of date is always the initial start date), which allows you to generate both static and dynamic GAP simulations.

  With this Dynamic Start Date capability, users can also define forward start dates for computing dynamic market valuations. The Dynamic Start Date capability allows you to consider the amortization of existing business and any new business assumptions that are applicable between the current as of date and the future dated – Dynamic Start Date. You must set up Income Simulation Buckets before defining Interest Rate GAP Buckets.

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Only Interest Rate GAP financial elements are impacted by the Interest Rate GAP bucket definitions. The Interest Rate GAP financial elements range from FE660 to FE700.

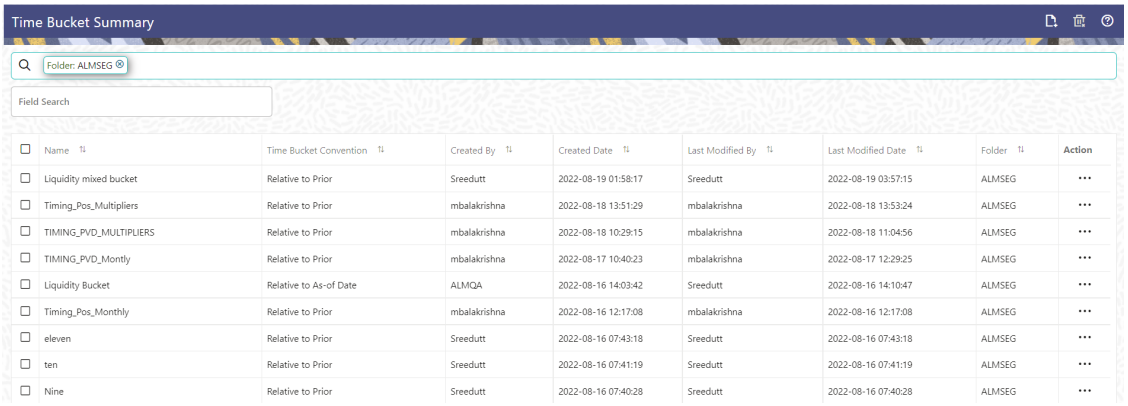
- **Liquidity GAP**
  Liquidity GAP Buckets are similar to Interest Rate GAP Buckets. The only difference is that Liquidity Bucket definitions impact only the Liquidity Runoff financial elements, which range from FE 1660 to 1717.

This module describes the procedure for working with and managing the Time Bucket Rules.

Time Bucket Rule Summary

This page is the gateway to all Time Bucket Rules and related functionality. You can navigate to other pages relating to Time Bucket Rules from this point.

Figure 6-120 Time Bucket Summary



Search Time Bucket Rule

Prerequisites: Predefined Time Bucket Rule

To search for a Time Bucket Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Time Bucket Rules that meet the search criteria.

Or

An alternative method to search a Time Bucket Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Time Bucket Rule Summary. You can enter the **Code, Name, Description,** and **Folder** of the Time Bucket Rule and click **Search**.

The Time Bucket Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Time Bucket Rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Name:** The Time Bucket Rule's short name.
- **Time Bucket Convention:** The Time Bucket Convention.

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- **Created By:** The Name of the user who created the Time Bucket.
- **Created Date:** The Date and Time at which the Time Bucket was created.
- **Last Modified By:** The user who last modified the Time Bucket Rule.
- **Last Modified Date:** The Date and Time when the Time Bucket Rule was last modified.
- **Folder:** The Folder where the Time Bucket Rule is saved.
- **Action:** Click this icon to view a list of actions that you can perform on the Time Bucket Rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Time Bucket Rules. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Time Bucket Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Time Bucket Rules that you no longer require. Note that only Time Bucket Rule owners and those with Read/Write privileges can delete Time Bucket Rules. A Time Bucket Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Dependency Check:** You can perform a dependency check to know where a particular Time Bucket Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Time Bucket Rules that have dependencies. A report of all rules that utilize the selected Time Bucket Rule is generated.

Also See:

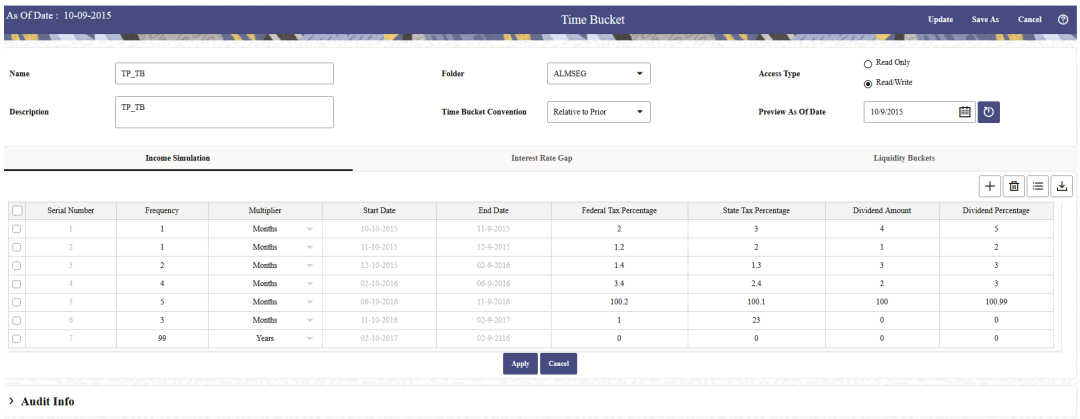
- Create Time Bucket
- Define Time Bucket

6.3.2.4.1 Creating Time Bucket Rules

You create Time Bucket Rules to specify the time periods used for storing and reporting ALM results. To create a new Time Bucket Rule, follow these steps:

1. Navigate to the Time Buckets Summary page.
2. Click **Add** to create a new Time Bucket Rule.

Figure 6-121 Creating Time Bucket Rule



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3. Enter the Name and Description of Time Bucket.
4. Select the Folder and Access Type.
5. Select **Time Bucket Convention** as **Relative to Prior** or **Relative to As-of Date** option.
   - **Relative to Prior:** This convention means that all time bucket points are relative to the period that preceded them, with the first time bucket relative to the currently active as-of date. This convention supports the stub-to feature for time buckets.
   - **Relative to As-of-Date:** This convention means that all time bucket points are relative to the currently active As-of Date. This means that each new time bucket point entered must be greater in time than the one preceding it by at least one day. The stub-to time bucket feature is not available with this convention.
6. You must have an Active Time Bucket Rule at all times. If you wish to Activate a particular Time Bucket Rule, then select **Relative to As-of- Date** option.
7. You can Preview As-of Date by using **Preview As-of Date** option.
8. Define the Time Bucket Rule. For more information, see Defining Time Bucket Rules

6.3.2.4.2 Defining Time Bucket Rules

The definition of a Time Bucket Rule is part of the Create or Edit Time Buckets Rule Process. When you click Save in the Create Time Buckets Rule Process, the rule is saved and the Time Buckets Rule Summary page is displayed. However, Time Bucket assumptions may not have been defined at this point. You must define the Time Bucket assumptions before clicking Save.

In the Time Bucket Details screen, you have three tabs available for creating Time Bucket definitions.

- Income Simulation Buckets (required)
- Interest Rate GAP Buckets, including Non Interest Rate Sensitive Bucket (required only if Repricing Gap is selected during processing). For Non Interest Rate Sensitive Bucket, both Repricing Gap and Include Non Rate Sensitive Bucket are required selections.)
- Liquidity GAP Buckets (required only if Liquidity Gap is selected during processing)

> **Note**
>
> When the number of IR and LR buckets are less than IS, many new cash flows are excluded from aggregation.
>
> For example, if there are 5 buckets in IR and 10 in IS, New business generation and aggregation takes place one bucket at a time. When the 6th IS bucket is reached, IR aggregation has already stopped which understates IR Gap in the 5th bucket.

Prerequisites

Performing basic steps for creating or editing a Time Bucket rule. For more information, see the Creating Time Bucket Rules

To define the Time Bucket Rule, follow these steps:

1. In the **Income Simulation** tab, follow these steps:

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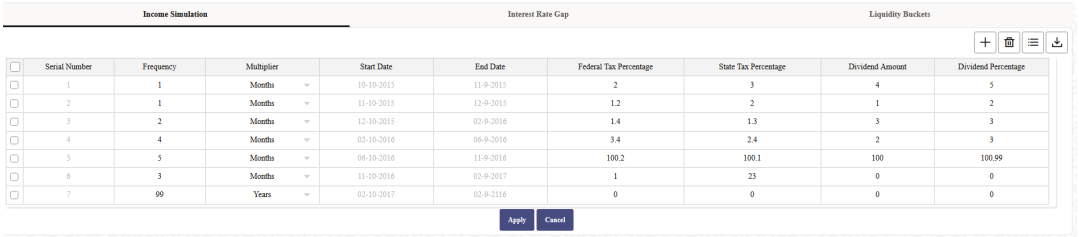
Figure 6-122 Income Simulation Buckets



a. Click **Add Rows** and enter the desired number of rows corresponding to the number of Income Simulation Buckets required to create.
You can select a pre-defined number of rows from the list. For example, 3, 5, 10, or you can enter the exact number of rows required to add. The maximum number of buckets you have under any tab is 240.

b. Under Frequency, enter a numeric value. For example 1. The Frequency column displays the duration of the multiplier. The frequency in conjunction with the multiplier displays the duration of the buckets. The frequency can be any number from 1 to 999.

c. Under Multiplier, select an appropriate value from the list. The Multiplier column includes Daily, Monthly, Yearly, or stub-to (Relative to Prior convention) options.

> **Note**
>
> Limit the definition of Income Simulation buckets to the date range that is relevant to your reporting requirement. It is not necessary to create catch all buckets at the end of the series. When large buckets are created, for instance, 99 Years, this can result in the following error:
>
> INSERT Oracle Error: ORA- 01426: numeric overflow
>
> Driver
>
> Function: drv_oci::Execute()

You may also select a Stub-to time bucket breakpoint in months or years when the time bucket convention is Relative to Prior. When applying a stub-to month or stub-to year it is not necessary to specify a time bucket frequency or multiplier as the application will automatically calculate the amount of time necessary to close the period.

> **Note**
>
> Whenever the currently active as-of date changes this may also automatically change the size of any stub-to time buckets. These changes may impact processing output.

d. Continue adding frequencies and multipliers as needed. After you fill in the frequencies and multipliers, the start and end dates are calculated automatically based on the As-of-Date, defined in your Application Preference settings.

e. After defining time bucket frequencies, move across each row to input the appropriate Federal Tax Percentages and State Tax Percentages.

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

f. Under Dividend Amount, type a value. The values you enter here will be paid out as dividends for all rate scenarios.

g. Under Dividend Percentage, type a value. Dividend percentages are used during Autobalancing calculations. The dividend percentage is defined as a percent of the net income after tax that will be paid out as dividends for the period.
Total Dividends = Dividends Amount + (Dividends Percent x Net Income after Tax)

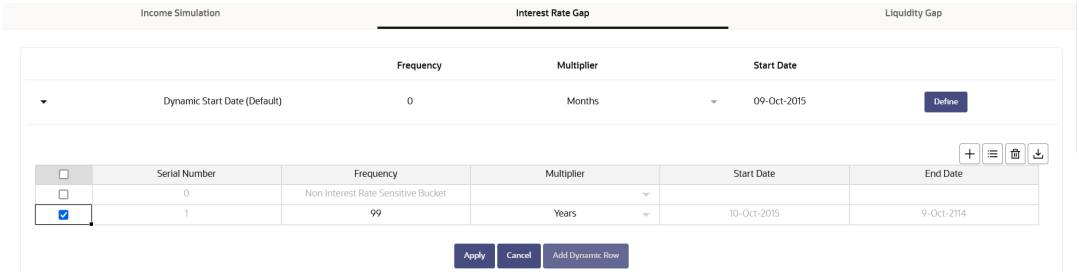
h. Select **Save** if you are finished.

2. Otherwise, navigate to the Interest Rate GAP Buckets tab. After defining Income Simulation buckets, navigate to the **Interest Rate GAP Buckets** tab. This tab provides two important inputs. The first is the ability to define Interest Rate GAP Buckets and optionally add a Non Interest Rate Sensitive Bucket for Non Rate Sensitive products. The second capability allows you to define one or more Dynamic Start Dates. The following steps explain how to complete each of these setup tasks.

> **Note**
>
> The Interest Rate GAP Bucket can be defined from Bucket count 1 till Bucket count 239 in all dynamic start dates. The last time series time bucket in all Dynamic Start Dates will default to 99 years as a catch all bucket. This is used to verify the total runoff for reporting requirements.

In the **Interest Rate GAP Buckets** tab, follow these steps:

Figure 6-123 Interest Rate GAP Buckets



a. Click **Add Rows** corresponding to the Default Dynamic Start Date and enter the desired number of rows for your Interest Rate GAP Buckets.

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> **Note**
>
> The product dimension Attribute Interest Rate Sensitivity Category identifies products as Interest Rate sensitive or Non Interest Rate sensitive. Once a product is mapped as Non Interest Rate sensitive, you must enable Include Non Interest Rate Sensitive Bucket in Process Rules. This moves reprice gap output from Non Interest Rate Sensitive products into Non Interest Rate Sensitive Bucket.

b. Follow steps a— d described above under Income Simulation Buckets, to complete the setup of your Interest Rate GAP Buckets and Non Interest Rate Sensitive Bucket for the default Dynamic Start Date.

c. If you would like to define additional – forward dated, Dynamic Start Dates, Click **Add Dynamic Start Date** to add one or more parent nodes to the bucket hierarchy.

d. For each additional Dynamic Start Date row, enter the Frequency and Multiplier to determine future start date(s).

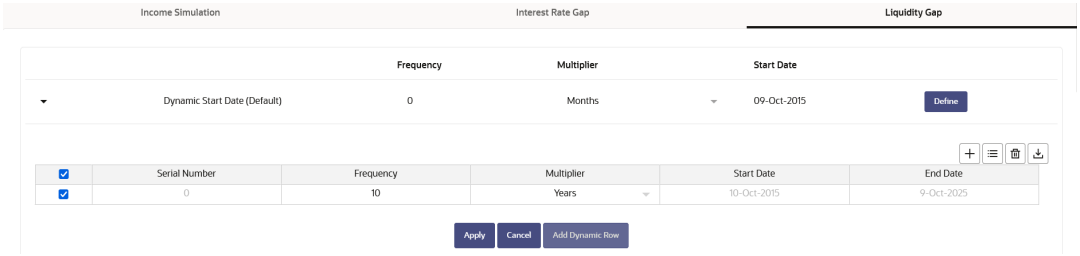
e. Click **Add Rows** corresponding to each new Dynamic Start Date and repeat the Interest Rate GAP Bucket definition steps previously described to complete the setup.

3. After defining Interest Rate GAP Buckets, navigate to the Liquidity Buckets tab. This tab has the same structure as the Interest Rate GAP Buckets tab. It allows you to define the Liquidity GAP Buckets for the Default Dynamic Start Date and also allows you to add one or more additional Dynamic Start Dates. The use of Dynamic Start Dates will allow you to forecast your liquidity position as of some future point in time, considering all relevant assumptions, including amortization, prepayments, early withdrawals, and rollovers.

> **Note**
>
> By default, the last time series time bucket in all Dynamic Start Dates will default to 99 years as a catch all bucket. This is used to verify the total runoff for reporting requirements.

In the **Liquidity Buckets** tab, follow these steps:

Figure 6-124 Liquidity Buckets



a. Click **Add Rows** corresponding to the Default Dynamic Start Date and input the desired number of rows for your Liquidity Buckets.

b. Follow steps b– d described under Income Simulation Buckets, to complete the setup of your Liquidity Buckets for the Default Dynamic Start Date.

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c. If you would like to define additional – forward dated, Dynamic Start Dates, Click **Add Dynamic Start Date** to add one or more parent nodes to the bucket hierarchy.

d. If needed, enter the Frequency and Multiplier for the new Dynamic Start Date to determine the future start date.

e. Click **Add Rows** corresponding to the new Dynamic Start Date and repeat the Liquidity GAP Bucket definition steps previously described.

f. Click **Save** once you have completed the setup for all bucket types.

> **Note**
>
> Each time you change the As of Date in your Application Preferences window, all Time Bucket Rule Buckets Start Date and Bucket End Date updated automatically.

Excel Export functionality is used for adding/editing time bucket information.

6.3.2.5 Discount Methods

This module describes the procedure for working with and managing Discount Method Rules. Discount Method Rules allow users to define the method for discounting projected Cash Flows for market value and duration calculation purposes. For each combination of product and currency, you can choose one of the following discount methods:

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

The following table describes the methods and rate choices:

Table 6-31 List of Discount Methods

Method	Single Rate	Yield Curve
Spot Input	Discounts all cash flows by the Input Rate	Not applicable
Spot Interest Rate Code	Not applicable	Discounts each Cash Flow period by the equivalent term rate on the base Yield Curve chosen (the Yield Curve as of the start date). The term is defined by the remaining term of the cash flow. Refer Note
Forecast (Original Term)	Not applicable	Discounts each Cash Flow period by the Forecasted Value of the point on the yield curve corresponding to each transaction record's original term (fixed rate instrument) or repricing term (variable rate instrument). Refer Note

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Table 6-31 (Cont.) List of Discount Methods

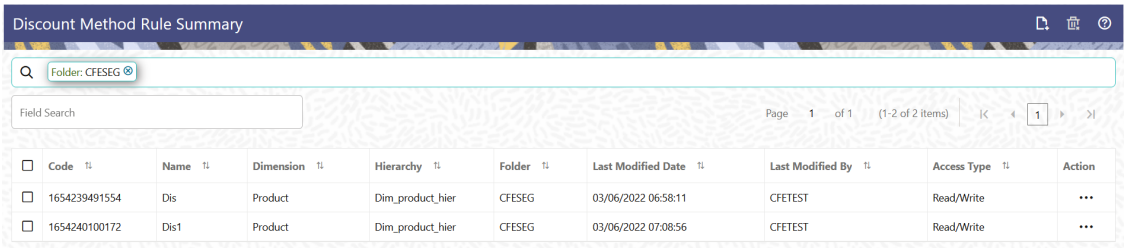
Method	Single Rate	Yield Curve
Forecast (Remaining Term)	Not applicable	Discounts each Cash Flow period by the Forecasted Value of the point on the Yield Curve corresponding to the remaining term until each cash flow. Refer Note
Effective Interest Rate	Effective Interest Rate (EIR) of account is used as discount rate.	Not applicable

> **Note**
>
> In the case of Spot Interest Rate Code, if term point is not available, engine will use linear interpolation to determine the interest rate to discount cashflows.
>
> When Discounting method of Forecast (Original Term) and Forecast (Remaining Term) is used, if term point is not available, engine will use Interpolation method defined for Interest rate code within Forecast Rate Rule. If Interpolation method defined in Forecast rate rule is Linear, engine will use Linear Interpolation. If Interpolation Method is cubic, engine will use Cubic Interpolation to determine interest rate to discount Cash Flows.

Discount Method Rule Summary

This page is the gateway to all Discount Method Rules and related functionality. You can navigate to other pages relating to Discount Method Rules from this point.

Figure 6-125 Discount Method Rule Summary



Search Discount Method Rule

Prerequisites: Predefined Discount Method Rule

To search for a Discount Method Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Discount Method Rules that meet the search criteria.

Or

An alternative method to search a Discount Method rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code,

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name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Discount Method Summary. You can enter the **Code, Name, Description, Dimension, Hierarchy**, and **Folder** of the Discount Method Rule and click **Search** .

The Discount Method rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Discount Method rule.

- **Code:** The Code of Discount Method Rule.
- **Name:** The Discount Method Rule's short name.
- **Dimension:** The Dimension the Discount Method Rule belongs to.
- **Hierarchy:** Name of Hierarchy that is used to define Discount Method Rule.
- **Folder:** The Folder where the Discount Method Rule is saved.
- **Last Modified By:** The user who last modified the Discount Method Rule.
- **Last Modified Date:** The Date and Time when the Discount Method Rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Discount Method rule.
  - Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Discount Method rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Discount Method rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Discount Method rules that you no longer require. Note that only Discount Method rule owners and those with Read/Write privileges can delete Discount Method rules. A Discount Method rule that has a dependency cannot be deleted.
  - Dependency Check: You can perform a dependency check to know where a particular Discount Method rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Discount Method rules that have dependencies. . A report of all rules that utilize the selected Discount Method rule is generated.

> **Note**
>
> This is functionality will intended for a future release.

You can copy, in total or selectively, the product assumptions contained within the Discount Method Rules from one currency to another currency or a set of currencies or from one product to another product or a set of products.

Also See:

- Create Discount Method Rule

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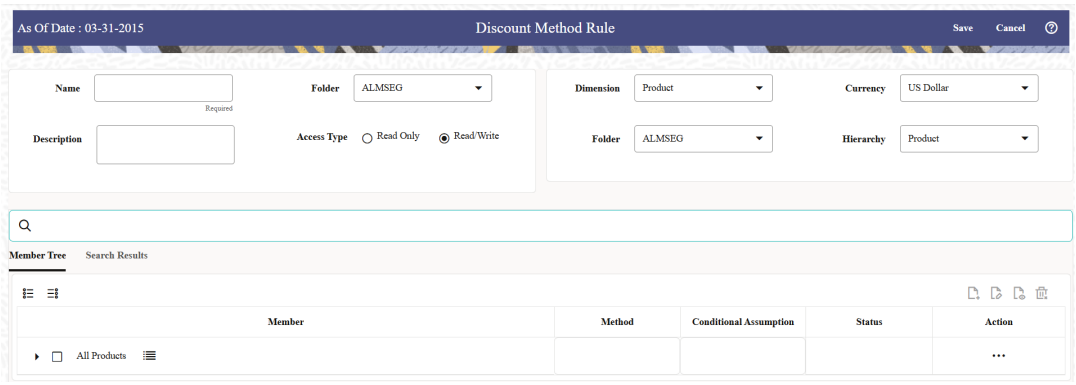
6.3.2.5.1 Create Discount Method Rule

You create a Discount Methods rule to assign Discounting Methods to your products. To create a Discount Method Rule, follow these steps:

1. Navigate to the **Discount Methods Rule** Summary page.

Figure 6-126 Discount Method Rule



2. Click **Add**. The **Discount Method Rule** page is displayed.
3. Enter the following details:

Table 6-32 Discount Method Details

Fields	Description
Name	Enter the name of the Discount Method Rule.
Description	Enter the description of the Discount Method Rule. This is an optional field.
Folder	Select the Folder where the Discount Method Rule needs to be saved.
Access Type	Select the Access Type as Read-Only or Read/ Write.

4. 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. Enter the following details for **Product Hierarchy** selection:

Table 6-33 Product Hierarchy Details section

Fields	Description
Folder	Select the Folder where Product Hierarchy is previously created
Hierarchy	Select the Hierarchy of the product
Currency	Select the Currency.

5. Select the **Dimension** as Common Chart of Accounts, Product, General Ledger Account, or MDBSS.

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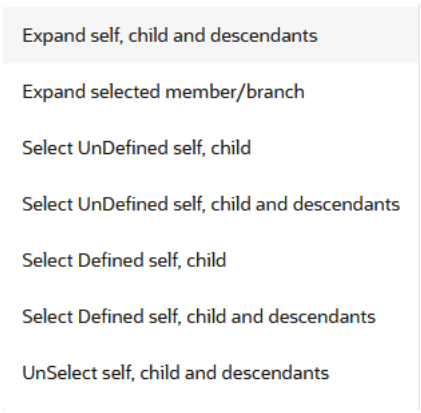
> **Note**
>
> MDBSS is enabled only in ALM Cloud Service.
> If any member is a currency in the MDBSS hierarchy (for example, INR) and selected currency is different (for example USD), then the member and its children nodes cannot be defined.
>
> You can search the rule on any of the product dimension, searched dimension will be auto-populated while defining the rule; if you like, you can change the default product dimension.

6. Select **Member Node(s)** from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results

   - **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.

   Figure 6-127 Member Tree

   Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

   – **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.

   – **Expand selected member/branch:** Allows to expand the selected node

   – **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child

   – **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

   – **Select Defined self, child:** Allows to select the selected node itself along with its child.

   – **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.

   – **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

   Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

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Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

- Add
- Edit
- View
- Delete
- Copy

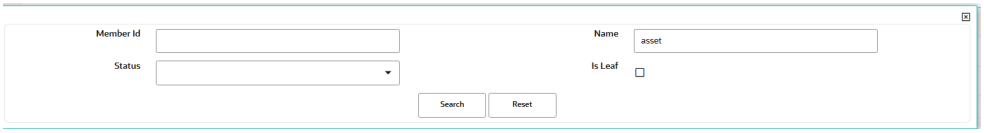
- **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

  a. Navigate to **Assumption Browser** section of the Rule Definition page.

  > **Note**
  >
  > Before using the Member Search in Assumption Browser, you must execute the batch **Member_Browser_Refresh**. For more information, see note in Create MDBSS section.

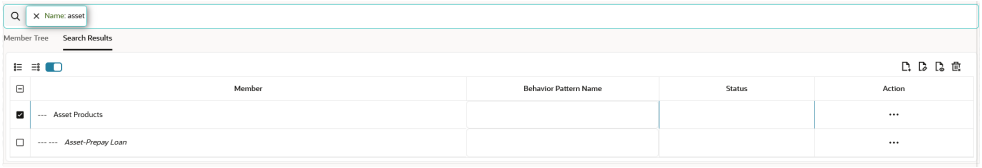
  b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

Figure 6-128 Search Criteria



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

Figure 6-129 Searching Members



.

Here, you can perform the following tasks on the searched node(s):

- Add
- Edit
- View
- Delete
- Copy

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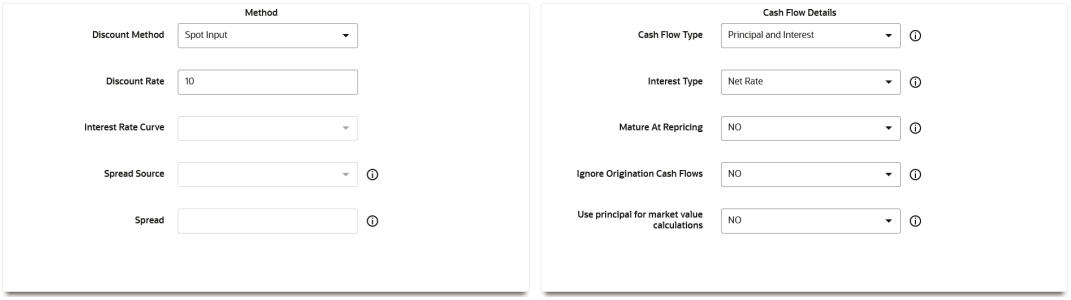
Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

7. Click **Add** from Assumption Browser section.
8. Define Conditions for Product Definitions. For more information see Conditional Assumptions section.
9. After defining the conditions, navigate to **Discount Method** section.

Figure 6-130 Discount Method section



10. Enter the following details:

Table 6-34 Discount Method Section

Fields	Description
Discount Method	Select the Discount Method from Discount Method List.
Discount Rate	Enter Discount Rate if Spot Input Method is selected.
Interest Rate Curve	From Interest Rate Code List, select an appropriate Interest Rate Code. The list of Interest Rate Codes depends on the selected currency. If the selected currency is the default currency, all Interest Rate Codes appear. For other currency selections, the list of interest rate codes includes only interest rate codes whose reference currency is the same as the selected currency.
Spread Source	You can optionally choose to add a spread of margin over the Interest Rate derived from IRC. Spread can be defined in the Discount Method Rule or it can be given along with Instrument record. You can select source of the spread as Discount Rule or Account Data is method is Spot IRC, Forecast (Original Term) and Forecast (Remaining Term).

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Table 6-34 (Cont.) Discount Method Section

Fields	Description
Spread	When Discount Rule is selected as Spread Source then you can specify the amount of spread/margin here. Spread field is enabled when spread Source is given as Account Data. Type the percentage difference (+ or -) between the selected rate index and the value you want to use for the discount rate(s) within market value calculations. Input a Rate Spread, type 1.0000. A spread of 1% returns a discount rate of 1.00% above the reference interest rate. Type a negative number for a spread below the reference interest rate.

> **Note**
>
> You can use negative product IDs when defining the Discount Method Rule.

11. Navigate to **Cash Flow Details** section. The **Cash Flow Definition Details** section is used in unique instances to specify the portion of the Cash Flow that is used to calculate a Market Value.
12. Enter the following details:

Table 6-35 Cash Flow Details Section

Fields	Description
Cash Flow Type	a. **Interest Only** : ignores all principal runoff for market value purposes. Use this option for Off-balance sheet items where principal is equal to Notional Principal and is therefore not a true Cash Flow. b. **Principal & Interest** : calculates principal and interest both for Market Value purposes. c. **Principal Only** : ignores all interest rate Runoff for market value purposes.
Interest Type	The Cash Flow Interest Type determines which interest component is included in the cash flow definition. The Cash Flow Interest Type can be one of three values: • Net Rate • Gross Rate For typical processing, you will use the Net Rate for the interest component of the cash flow. Special processing objectives, such as valuation of the funding center, may require you to use the other cash flow interest types.

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Table 6-35 (Cont.) Cash Flow Details Section

Fields	Description
Mature at Repricing	Calculates a market value and YTM for a given transaction up to the repricing date. For market value and YTM purposes the transaction is assumed to mature on the repricing date. Duration is always calculated to the next reprice date, not to maturity, regardless of the mature at repricing selection.
Ignore Origination Cash Flows for Forward-Starting Instruments	This feature allows the cash flow engine to ignore the origination Principal Cash Flows of any forward-starting instrument. The corresponding market value, duration, convexity and yield calculations will not reflect the Origination Amount. Origination principal Cash Flow will still be reported.
Use Principal in Market Value Calculations (Off-Balance Sheet Only)	This feature allows the Cash Flow Engine to consider principal in the calculation of market value, duration, convexity and yield calculations, even if principal is not actually exchanged.

13. Click **Apply**.
14. Click **Save**.

6.3.2.5.2 Discount Method Examples

The following examples assume the Interest Rate has a format of zero-coupon yield with annual compounding. The instrument used in each example is an annual-pay, 2-year instrument originated on the As_of_Date. See the Oracle Financial Services Cash Flow Engine Reference Guide for details on discount factor derivation used in Cash Flow Calculations.

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

6.3.2.5.2.1 Spot Input

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

Spot Input Rate = 6.00%

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

Market Value = Cash Flow1/ (1 + 0.06) + Cash Flow 2 / ((1 + 0.06)^2)

Cash Flow1 is the cash flow at the end of year 1. Cash Flow2 is the Cash Flow at the end of year 2.

6.3.2.5.2.2 Spot Interest Rate Code

(Required) <Enter a short description here.>

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In the Spot Interest Rate Code Method, the discount factor depends on the term of the Cash Flow, but does not vary with interest rate scenario.

Interest Rate Code = Treasury Yield Curve

The formula for the Market Value of the account, for any rate scenario, is:

Market Value = Cash Flow1/ (1 + 1 Year Treasury) + Cash Flow2/ ((1 + 2 Year Treasury)^2)

Cash Flow1 is the Cash Flow at the end of year 1. Cash Flow2 is the Cash Flow at the end of year 2. The values for 1 Year Treasury and 2 Year Treasury reflect the values from the Historical Interest Rate Data, beginning with the As_of_Date.

6.3.2.5.2.3 Forecast Original Term

The Forecast Original Term Method uses the forecasted Interest Rate Data to determine the discount factor.

Interest Rate Code = Treasury Yield Curve

The formula for the market value of the account is:

Market Value = Cash Flow1/ (1+ 2 Year Treasury Rate at the 1 year point in the forecast) + Cash Flow2/ ((1+ 2 Year Treasury Rate at the 2 year point in the forecast)^2)

Cash Flow1 is the Cash Flow at the end of year 1. Cash Flow2 is the cash flow at the end of year 2. Note that Cash Flow1 is discounted at the 2 year Treasury rate. The 2 Year rate is used with this method, because the Forecast Original Term method always uses the term equivalent to the original term of the instrument.

6.3.2.5.2.4 Forecast Remaining Term

The Forecast Remaining Term Method uses forecasted Interest Rate Data to determine the discount factor.

Interest Rate Code = Treasury Yield Curve

The formula for the market value of this account is:

Market Value = Cash Flow1/ (1+ 1Year Treasury Rate at the 1 year point in the forecast) + Cash Flow2/ ((1+ 2 Year Treasury Rate at the 2 year point in the forecast)^2)

Cash Flow1 is the Cash Flow at the end of year 1. Cash Flow2 is the cash flow at the end of year 2. The values for 1 Year Treasury and 2 Year Treasury reflect the scenario specific values from the forecast rates - interest rate data. Cash Flow1 is discounted at the 1 year Treasury rate, from the 1 year point of the forecast and Cash Flow2 is discounted at the 2 year Treasury rate, from the 2 year point of the forecast.

6.3.2.5.3 Associating Conditional Assumptions with Discount Methods

The Discount Method UI provides the setup and maintenance of assumptions by integrating the conditional logic (optional) into the setup of discount methods. You can define discount methodologies using IF-THEN-ELSE logic based on the underlying characteristics of your financial instruments, such as dates, rates, balances, and code values.

The conditional logic is defined through use of Data Filters. These existing objects provide the building blocks for defining Conditional logic. This type of Data Filter can be selected within the Conditional Assumption section.

The logic included in a Conditional Assumption determines the specific discount method assumption that the system will assign to each individual instrument record at run time.

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The Conditional Assumption section allows users to select explicit conditions (from Data Filters) and apply methods and rule selections to each condition directly. The Filter Conditions are processed by the engine in the order that they appear on the section. As soon as a condition is satisfied, the related assumption is applied.

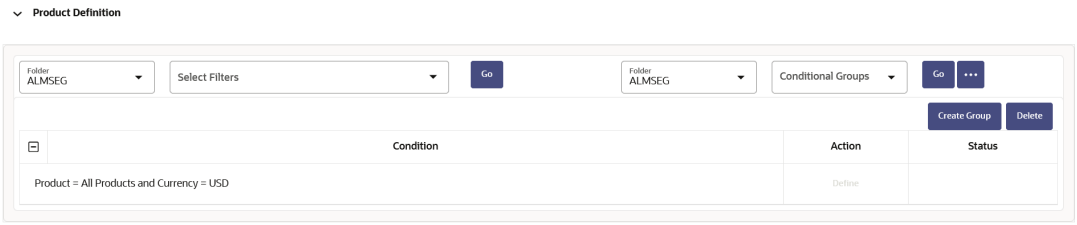
If an instrument record does not meet any of the conditions, then the rule logic reverts to the standard assumption that is directly assigned to the Product/Currency combination.

Conditional Assumptions can be applied only to detailed account records (data stored in the Instrument Tables).

To define conditional assumption, follow these steps:

1. Navigate to Conditional Assumptions section.

Figure 6-131 Conditional Assumption



2. Select the Filter Folder and Filter, then click **Go**. The condition is displayed based on selected filter.
3. Here, you can select either group of conditions using **Conditional Group** or Individual condition using the filter section.
   - You can select the conditional groups from the **Conditional Group** drop-down. You can create a new condition group using the **Create Group** button. To create a new condition group, follow these steps:
     a. Select filters using the **Filter** drop-down list.

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

     b. Select the conditions (filters) using the corresponding check-boxes.
     c. Click **Create Group** .
     d. The **Save Condition Group** window is displayed. Provide the **Group Name** and select the **Folder** where you want to save the condition group. Click **Save** in **Save Condition Group** window. You can use this saved group from **Condition Group** down-down.
   - Else, select Individual condition using the corresponding check-box.
4. Click **Define**.

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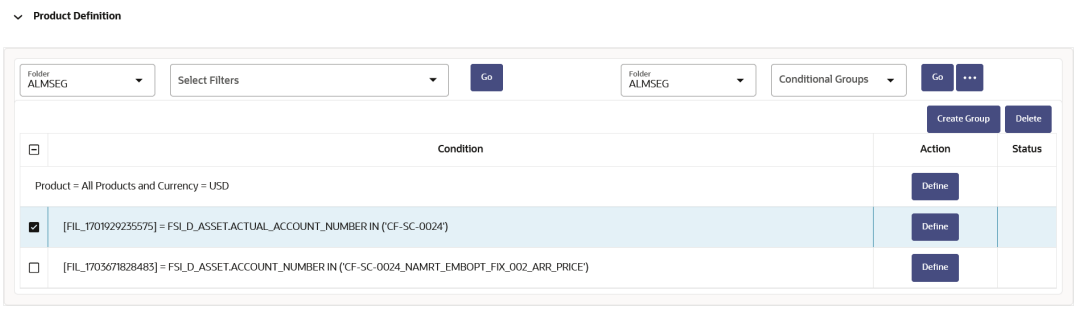
Figure 6-132 Conditional Assumption



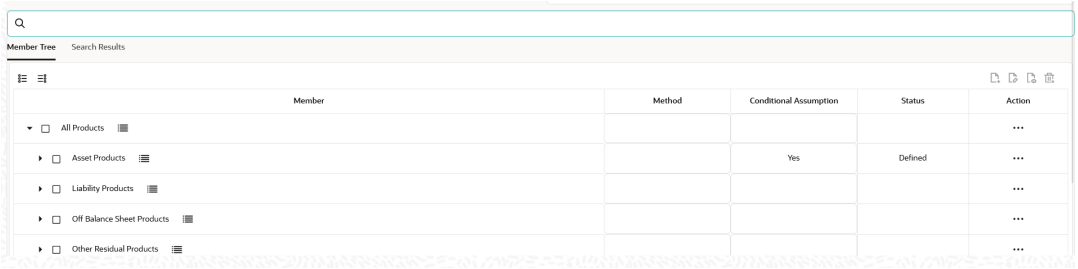
Use **Delete** button to delete the defined condition(s)

5. Define Discount Method, and then click **Apply**. The status of condition assumption is updated as **Defined**.

> **Note**
>
> You can edit the condition using **Edit**.

6. Click **Save**. The status of conditional assumption is also updated in Assumption Browser.

Figure 6-133 Status of Conditional Assumption



6.3.2.6 Currency Gain/Loss

Currency Gain/Loss occurs when an entity buys/sells goods or services in a foreign currency, and that currency fluctuates relative to their Local currency, this can create differences in value of the monetary Assets and Liabilities.

If the value of the home currency increases after the conversion, the seller of the goods will have made a foreign currency gain, however, if the value of the Local currency declines after the conversion, the seller will have incurred a foreign exchange loss. Further these transactions can be accounted as below mentioned.

- **Realized Gains/Losses**
  Realized gains are the price of an asset/investment that is higher than its carrying amount, however realized loss refers to the price that has dropped since the purchase of an asset/ investment.
- **Unrealized Gains/Losses**
  Unrealized gains or losses are the gains or losses that the seller expects to earn when the invoice is settled, but the customer has failed to pay the invoice by the close of the

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accounting period. The seller calculates the gain or loss that would have been sustained if the customer paid the invoice at the end of the accounting period.

Currency Gain or Loss Basis determines how exchange rate fluctuations are reflected in financial element results for each product and currency combination. This provides the flexibility to use any specific exchange rate for Consolidation purposes the choices are:

- Temporal
- Historical Basis
- Current Rate

Consolidation categories allows Financial Elements that can be used as aggregating output drivers within the Currency Gain/Loss methods. The below table shows the relationship between Consolidation output to FE number and Output column base values by default, upon selection there is a drop down facility which enables user to choose drivers based users preference.

Figure 6-134 Currency Gain/Loss Basis

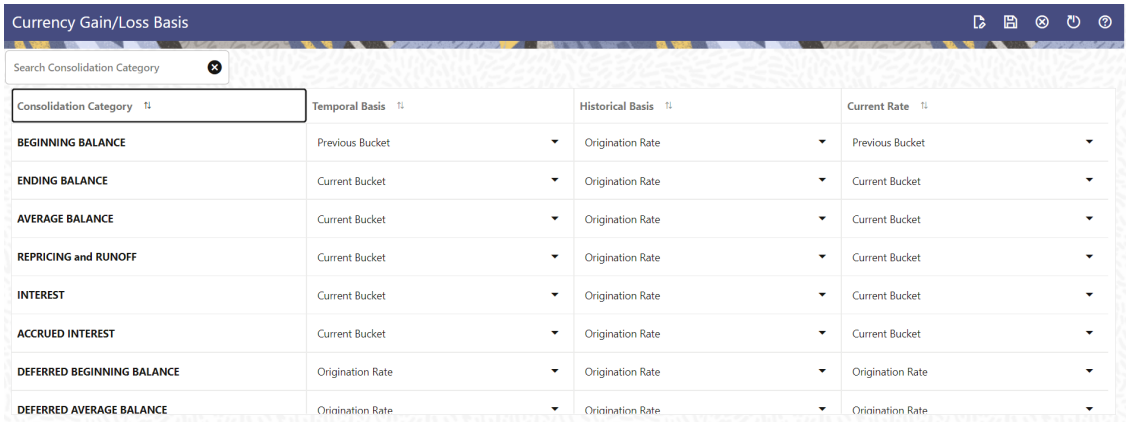

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Table 6-36 Currency Gain/Loss Basis

Icon	Description
Edit	Edit TEMPORAL BASIS using corresponding drop-down list. This field has following values: • Origination Rate • As of Date • Current Bucket • Previous Bucket Edit HISTORICAL BASIS using corresponding drop-down list. This field has following values: • Origination Rate • As of Date • Current Bucket • Previous Bucket Edit CURRENT RATE using corresponding drop-down list. This field has following values: • Origination Rate • As of Date • Current Bucket • Previous Bucket
Save	After modifying values, click **Save** icon.
Cancel	After modifying values, user can click **Cancel** icon to undo the changes before saving.
Reset to Default	The **Reset to Default** icon enables you to bring the configuration back to factory setting at anytime.
Help	Click this to open help file.

Topics:

- List of Consolidation Categories
- Editing of Consolidation Categories

6.3.2.6.1 List of Consolidation Categories

The following is the list of Consolidation Categories:

- Beginning Balance
- Ending Balance
- Average Balance
- Repricing and Runoff
- Interest
- Accrued Interest
- Deferred Beginning Balance
- Deferred Average Balance
- Deferred Ending Balance
- Deferred Runoff
- Non Interest

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- Market Value
- IR Gap
- LR Gap

Table 6-37 Mapping between Consolidation Categories and FEs

FE NAME	TARGET COLUMN	CONSOLIDATION	Remarks
Beginning Balance	BEG_PRINCIPAL_BAL	BEGINNING BALANCE	Balance
Beginning Gross Rate	BEG_GROSS_RATE	BEGINNING BALANCE	Balance
Beginning Net Rate	BEG_NET_RATE	BEGINNING BALANCE	Balance
Ending Balance	END_PRINCIPAL_BAL	ENDING BALANCE	Balance
Ending Gross Rate	END_GROSS_RATE	ENDING BALANCE	Balance
Ending Net Rate	END_NET_RATE	ENDING BALANCE	Balance
Average Bal	AVG_PRINCIPAL_BAL	AVERAGE BALANCE	Balance
Average Gross Rate	AVG_GROSS_RATE	AVERAGE BALANCE	Balance
Average Net Rate	AVG_NET_RATE	AVERAGE BALANCE	Balance
Inflation Adjustment to Principal	INFLATION_ADJ_PRINCIPAL	REPRICING and RUNOFF	Balance
Inflation Adjustment to Interest	INFLATION_ADJ_INTEREST	REPRICING and RUNOFF	Balance
Prepayment Runoff Positive	PREPAYMENT_RUNOFF	REPRICING and RUNOFF	Balance
Timing of Prepay Runoff Positive	TIMING_PREPAY_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Prepayment Runoff Negative	PREPAYMENT_RUNOFF_NEG	REPRICING and RUNOFF	Balance
Timing of Prepay Runoff Negative	TIMING_PREPAY_RUNOFF_NEG	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
MOA Prepay Runoff	MOA_PREPAYMENT_RUNOFF	REPRICING and RUNOFF	Balance
Timing of MOA Prepay Runoff	TIMING_MOA_PREPAY_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Writeoff Positive	WRITE_OFF	REPRICING and RUNOFF	Balance
Timing of Writeoff Positive	TIMING_WRITE_OFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Writeoff Negative	WRITE_OFF_NEG	REPRICING and RUNOFF	Balance
Timing of Writeoff Negative	TIMING_WRITEOFF_NEG	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Payment Runoff Positive	PRINCIPAL_RUNOFF	REPRICING and RUNOFF	Balance
Timing of Payment Runoff Positive	TIMING_PRINCIPAL_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Payment Runoff Negative	PRINCIPAL_RUNOFF_NEG	REPRICING and RUNOFF	Balance

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Table 6-37 (Cont.) Mapping between Consolidation Categories and FEs

Timing of Payment Runoff Negative	TIMING_PRINCIPAL_RUNOFF_NEG	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Index Factor	NOT APPLICABLE	NOT APPLICABLE	NOT OUTPUT IN AGGREGATION
Maturity Runoff Positive	MATURITY_RUNOFF	REPRICING and RUNOFF	Balance
Timing of Maturity Runoff Positive	TIMING_MATURITY_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Maturity Runoff Negative	MATURITY_RUNOFF_NEG	REPRICING and RUNOFF	Balance
Timing of Maturity Runoff Negative	TIMING_MATURITY_RUNOFF_NEG	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Non Maturity - Core Runoff	NON_MAT_CORE_RUNOFF	REPRICING and RUNOFF	Balance
Timing of Non Maturity - Core Runoff	TIMING_NON_MAT_CORE_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Non Maturity - Volatile Runoff	NON_MAT_VOL_RUNOFF	REPRICING and RUNOFF	Balance
Timing of Non Maturity - Volatile Runoff	TIMING_NON_MAT_VOL_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Accumulated Devolvement Amount	ACCUMULATED_DEVOLVEMENT_AMT	REPRICING and RUNOFF	Balance
Devolvement Runoff	DEVOLVEMENT_RUNOFF	REPRICING and RUNOFF	Balance
Timing of Devolvement Runoff	TIMING_DEVOLVEMENT_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Recovery Runoff	RECOVERY_RUNOFF	REPRICING and RUNOFF	Balance
Timing of Recovery Runoff	TIMING_RECOVERY_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Non Performing Asset Runoff	NON_PERF_RUNOFF	REPRICING and RUNOFF	Balance
Timing of Non Performing Asset Runoff	TIMING_NON_PERF_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Total Runoff - Positive	TOTAL_PRINCIPAL_RUNOFF	REPRICING and RUNOFF	Balance
Timing of Total Runoff - Positive	TIMING_TOTAL_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Total Runoff - Negative	TOTAL_PRINCIPAL_RUNOFF_NEG	REPRICING and RUNOFF	Balance
Timing of Total Runoff - Negative	TIMING_TOTAL_RUNOFF_NEG	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT

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Table 6-37 (Cont.) Mapping between Consolidation Categories and FEs

Total Call Runoff Amount	CALL_RUNOFF	REPRICING and RUNOFF	Balance
Timing of Call Runoff Amount	TIMING_CALL_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Total Put Runoff Amount	PUT_RUNOFF	REPRICING and RUNOFF	Balance
Timing of Put Runoff Amount	TIMING_PUT_RUNOFF	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Strike Rate - Rate Based Approach	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT	Balance
Total Runoff Gross Rate	TOTAL_RUNOFF_GROSS_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Prepay Runoff Gross Rate	PREPAY_RUNOFF_GROSS_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Total Runoff Net Rate	TOTAL_RUNOFF_NET_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Prepay Runoff Net Rate	PREPAY_RUNOFF_NET_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Repricing Balance	BEG_REPRICE_BALANCE	REPRICING and RUNOFF	Balance
Repricing Balance At End	END_REPRICE_BALANCE	REPRICING and RUNOFF	Balance
Before Repricing Gross Rate	BEFORE_REPRICE_GROSS_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
After Repricing Gross Rate	AFTER_REPRICE_GROSS_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Before Repricing Net Rate	BEFORE_REPRICE_NET_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
After Repricing Net Rate	AFTER_REPRICE_NET_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Fully Indexed Gross Rate	FULL_INDEX_NET_INTEREST_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Fully Indexed Net Rate	FULL_INDEX_GROSS_INTEREST_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Interest Cash Flow	INTEREST_CASH_FLOW	INTEREST	Balance
Interest Cash Flow Gross	INTEREST_CASH_FLOW_GROSS	INTEREST	Balance
Interest Cash Flow Without Offset	INTEREST_WOUT_OFFSET	INTEREST	Balance
Interest Cash Flow Gross Without Offset	INTEREST_GROSS_WOUT_OFFSET	INTEREST	Balance
Interest Accrued	NET_INTEREST_ACCRUED	ACCRUED INTEREST	Balance
Accrued Interest (Without offset)	ACCRUED_INT_NET_WOUT_OFFSET	ACCRUED INTEREST	Balance
Interest Accrued Gross	GROSS_INTEREST_ACCRUED	ACCRUED INTEREST	Balance
Accrued Interest Gross (Without offset)	ACCRUED_INT_GROSS_WOUT_OFFSET	ACCRUED INTEREST	Balance

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Table 6-37 (Cont.) Mapping between Consolidation Categories and FEs

Accumulated Interest CF Net	ACCUMULATED_NET_INTEREST_AMT	INTEREST	Balance
Accumulated Interest CF Gross	ACCUMULATED_GROSS_INTEREST_AMT	INTEREST	Balance
Non Interest Income	NON_INTEREST_INCOME	NON INTEREST	Balance
Non Interest Expenses	NON_INTEREST_EXPENSE	NON INTEREST	Balance
Option Exercise Market Value	OPTION_EXERCISE_MV	MARKET VALUE	Balance
Option Exercise Rate	OPTION_EXERCISE_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Option Exercise Gain Loss	OPTION_EXERCISE_GAIN_LOSS	REPRICING and RUNOFF	Balance
Interest Credited	INTEREST_CAPITALIZED	INTEREST	Balance
Discount Rate IS	DISCOUNT_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Timing of Cash Flows in Days	TIMING_OF_PRESENT_VALUE_DAYS	NOT APPLICABLE	OUTPUT WOULD BE in WEIGHTED TIME FORMAT
Discount Factor	NOT APPLICABLE	NOT APPLICABLE	NOT OUTPUT IN AGGREGATION
Discount Factor Term Days	NOT APPLICABLE	NOT APPLICABLE	NOT OUTPUT IN AGGREGATION
Rate Lookup Term Days	NOT APPLICABLE	NOT APPLICABLE	NOT OUTPUT IN AGGREGATION
WARM	WARM	NOT APPLICABLE	OUTPUT WOULD BE in WARM FORMAT
Annual Prepayment Rate	ANNUAL_PREPAYMENT_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Balance Before Prepay	BAL_BEFORE_PREPAYMENT	REPRICING and RUNOFF	Balance
Deferred Beg Balance	DEFERRED_BEG_BAL	DEFERRED BEGINNING BALANCE	Balance
Deferred End Balance	DEFERRED_END_BAL	DEFERRED ENDING BALANCE	Balance
Deferred Average Balance	DEFERRED_AVG_BAL	DEFERRED AVERAGE BALANCE	Balance
Deferred Runoff	DEFERRED_RUNOFF	DEFERRED RUNOFF	Balance
Period Cap Balance	PERIOD_CAP_BALANCE	INTEREST	Balance
Period Cap Effect - Rate	PERIOD_CAP_EFFECT_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Period Cap Effect - Amount	PERIOD_CAP_EFFECT_AMT	INTEREST	Balance
Life Cap Balance	LIFE_CAP_BALANCE	INTEREST	Balance
Life Cap Effect - Rate	LIFE_CAP_EFFECT_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Life Cap Effect - Amount	LIFE_CAP_EFFECT_AMT	INTEREST	Balance

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Table 6-37 (Cont.) Mapping between Consolidation Categories and FEs

Tease Balance	TEASE_BALANCE	INTEREST	Balance
Tease Effect - Rate	TEASE_EFFECT_RATE	NOT APPLICABLE	OUTPUT WOULD BE in RATE FORMAT
Tease Effect - Amount	TEASE_EFFECT_AMT	INTEREST	Balance
Neg-Am Balance	NEG_AMRT_BALANCE	INTEREST	Balance
Neg-Am Interest	NEG_AMRT_INTEREST	INTEREST	Balance
Market Value	MARKET_VALUE	MARKET VALUE	Balance
Option Market Value	OPTION_MARKET_VALUE	MARKET VALUE	Balance
Present Value of Principal Cash Flows	MARKET_VALUE_PRINCIPAL	MARKET VALUE	Balance
Present Value of Interest Cash Flows	MARKET_VALUE_INTEREST	MARKET VALUE	Balance
DURATION	DURATION	NOT APPLICABLE	OUTPUT WOULD BE in DURATION FORMAT
DV01	DOLLAR_DURATION	MARKET VALUE	Balance
Modified Duration	MODIFIED_DURATION	NOT APPLICABLE	OUTPUT WOULD BE in MODIFIED DURATION FORMAT

6.3.2.6.2 Editing Consolidation Category

To edit a Consolidation Category, perform the following steps:

1. Navigate to the Maintenance and select Currency Gain/Loss Basis.
2. Click **Edit** icon.
3. Select **Consolidation Category Row**.
4. After updating the category, click **Save** icon.

6.3.2.7 Standardized IRRBB Shocks

This module allows you to view, add, or delete currencies (or related shocks and parameters) to the Standardized Approach shocks table or to the IRRBB Standardized Approach Prepayment/Early Redemption scenario scalars.

The IRRBB Standardized Approach UI allows you to view, edit, and delete currencies, shocks, or other parameters currently stored in the IRRBB Standardized Approach shocks table FSI_IRC_STDAPRCH_SHOCKS as well as the Standardized Approach Prepayment/Early Redemption scalars table FSI_IRC_STDAPRCH_CPRER. This UI allows you to add, edit, or remove a currency along with its required parameters used in the Standardized Approach.

Allow Forecast Rates rules that are enabled for IRRBB forecasting to flag, highlight or otherwise signify that an IRC's currency is or is not presently defined in the above Standardized Approach table if the scenario is defined as a Standardized Approach shock.

6.3.2.7.1 Currency Shocks

The Standardized Approach specifies that yield curves of specific currencies must be shocked in differing manners. There are 14 predefined currencies, however it is expected that these default values may be modified or that new currencies may be added/removed at the client's discretion.

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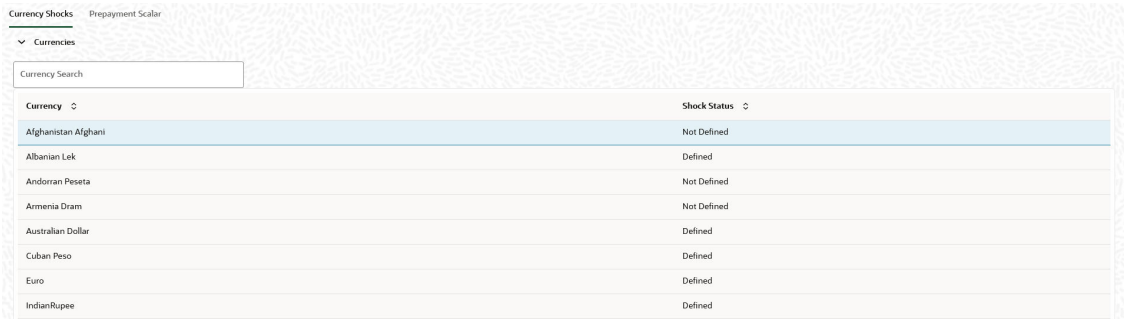
Here, you can search, sort, and filter a Currency. "Defined Status" can only sort capability.

This section is divided into two blocks:

- The top block shows the list of available currencies.
- The bottom block allows you to View/Edit The Standardized Approach settings for this currency.

Figure 6-135 Currency Shocks



The top block lists all active, defined currencies as defined in Rate Management (FSI_CURRENCIES).

The status of Currency Shock is also displayed as Defined or Undefined. If the Currency details are matches to the IRRBB Standardized Approach table (FSI_IRC_STDAPRCH_SHOCKS), then the status of currency is "Defined" . Else, the status of currency is "Undefined".

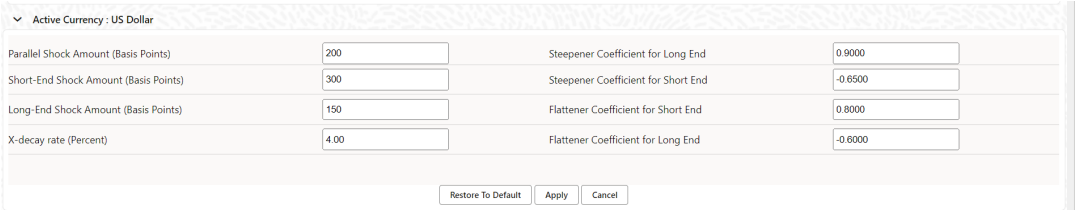
When you click Undefine button, a confirmation message is displayed: "The active currency will be permanently removed from IRRBB Standardized Approach Shocks. Continue?". Once you confirm, the active currency is deleted from the standardized Approach table FSI_IRC_STDAPRCH_SHOCKS and its status becomes "Undefined".

6.3.2.7.1.1 Editing of Currency Shocks

You can edit only one Currency Shock at a time.

1. Select a Currency Shock. The bottom block will display the details of the selected Currency Shock.
2. Edit the details of Active Currency Shock.

Figure 6-136 Editing of Currency Shocks



3. Click **Apply**.

The **Restore To Default** button will restore the currency to the original Basel Committee definition.

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6.3.2.7.2 Prepayment Scalar

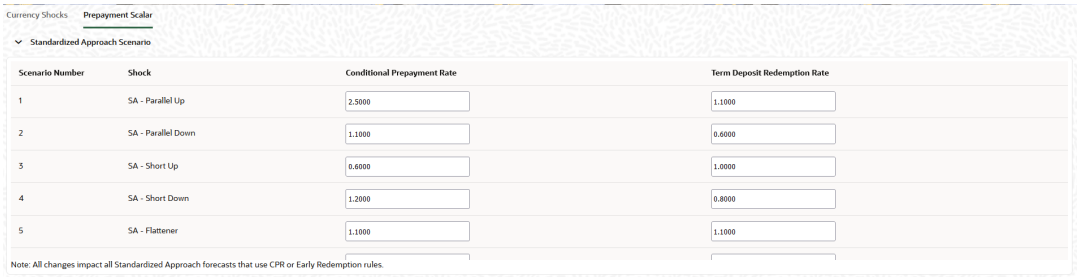
The Prepayment Scalar window allows you to view and edit the Standardized Approach prepayment and deposit early redemption scalars as stored in table FSI_IRC_STDAPRCH_CPRER. These values are Standardized Approach scenario dependent and not dependent on currency. The Conditional Prepayment Rate column holds a scaling value for prepayments for each Standardized Approach scenario. The Term Deposit Redemption Rate or early redemption holds a scaling value for Term Deposit Redemption for each Standardized Approach scenario.

6.3.2.7.2.1 Editing of Scenario Shocks

To edit a Scenario Shock, follow these steps.

1. Select Conditional Prepayment Rate field.
2. Edit the Conditional Prepayment Rate value.

Figure 6-137 Editing of Scenario Shocks



For Scenario Shocks, the input Conditional Prepayment Rate limit for is between 0 to 999.999999.

3. Edit the Term Deposit Redemption Rate value.
   For Scenario Shocks, the input limit for Term Deposit Redemption Rate is between 0 to 999.999999.
4. Click **Apply**.

6.3.3 Forecast Assumptions

This section covers the following topics:

1. Product Characteristic: Product Characteristic Rules are used to define payment, pricing, and repricing characteristics for new business. These Product Characteristics are rules that are placed on MDBSS nodes to be used in Forecasting that instruct the Application on what key new business contractual and behavioral features are to be included, such as amortization, adjustable type, compounding, day count, and other key features.
2. Forecast Balance Rules: The Forecast Balance rules module discusses modeling of new business activity through the Forecast Balance rules. Included are assumption setup and processing. Within a Forecast Balance rule, you specify the amount of new activity generated per modeling bucket on each MDBSS node within each active currency. To create a new business assumption, you select from following available forecasting methods.

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3. Pricing Margin: The Pricing Margin Rules allow users to define pricing margins (or spreads) for your products. Pricing margins are defined period by period based on your active Time Bucket definition, for each product and, potentially, each currency. Pricing margins work together with an underlying base interest rate curve to determine note rate pricing for new business volumes defined through Forecast Balance Rules.
4. Forecast All Business: Forecast All Business is a new and comprehensive forecasting framework intended to be leveraged by your organization's entire planning and forecasting team.
5. Maturity Mix: Maturity Mix rules allow you to define the term distribution of new businesses that are added during each forecast period. Maturity Mix assumptions are set at the product and currency levels.
6. Rate Dependency Pattern: Rate Dependency Patterns allow you to set up relationships between the level of Interest Rates, Economic Indicators, or Rate Spreads and ALM forecast assumption rules.
7. Transaction Strategy Rules: With the Transaction Strategy Rules you can test the impact of various hedging strategies that are integrated with basic scenario modeling assumptions. This functionality supports you to test the alternative strategies and their incremental impact on results.

6.3.3.1 Product Characteristics

Product Characteristic Rules are used to define payment, pricing, and repricing characteristics for new business. These Product Characteristics are rules that are placed on MDBSS nodes to be used in Forecasting that instruct the Application on what key new business contractual and behavioral features are to be included, such as amortization, adjustable type, compounding, day count, and other key features.

The new business assumptions are based on the MDBSS structure and ALMCS key features. **In ALMCS, Product Characteristics is for new business forecasting only and does not include any existing business assumptions.**

As part of creating and editing Product Characteristic Rules, you assign product attribute assumptions to applicable products from the product hierarchy.

> **Note**
>
> Oracle Asset Liability Management Cloud provides the option to copy, in total or selectively, the product assumptions contained within ALM business Rules from one currency to another currency or a set of currencies or from one product to another product or a set of products.

Product Characteristic Rule Summary Page

This page is the gateway to all Product Characteristic Rules and related functionality. You can navigate to other pages relating to Product Characteristic Rules from this point.

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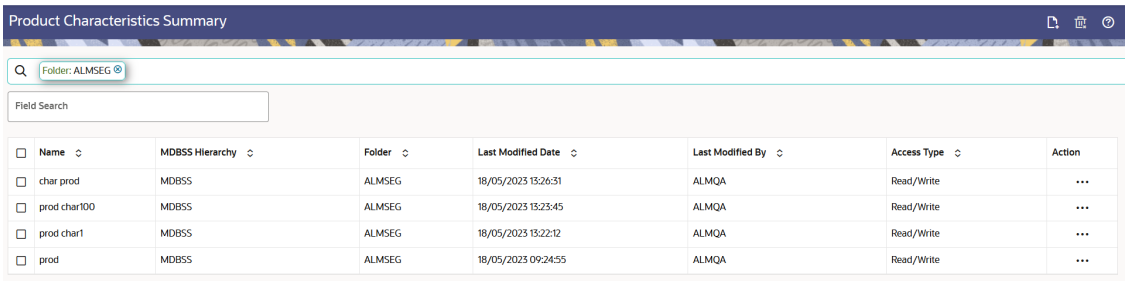
Figure 6-138 Product Characteristics Summary



Search Product Characteristic Rule

Prerequisites: Predefined Product Characteristic Rule

To search for a Product Characteristic Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Product Characteristic Rules that meet the search criteria.

Or

An alternative method to search a Product Characteristic Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Product Characteristic Rule Summary. You can enter the **Code, Name, Description, Hierarchy**, and **Folder** of the Product Characteristic Rule and click **Search** .

The Product Characteristic Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Product Characteristic Rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Name:**The Product Characteristic Rule's short name.
- **MDBSS Hierarchy:** Name of Hierarchy that is used to define Product Characteristic Rule.
- **Folder:** The Folder where the Product Characteristic Rule is saved.
- **Last Modified By:** The user who last modified the Product Characteristic Rule.
- **Last Modified Date:** The Date and Time when the Product Characteristic Rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Product Characteristic Rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Product Characteristic Rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Product Characteristic Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.

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- Delete: You can delete Product Characteristic Rules that you no longer require. Note that only Product Characteristic Rule owners and those with Read/Write privileges can delete Product Characteristic Rules. A Product Characteristic Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
- Dependency Check: You can perform a dependency check to know where a particular Product Characteristic Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Product Characteristic Rules that have dependencies. A report of all rules that utilize the selected Product Characteristic Rule is generated.

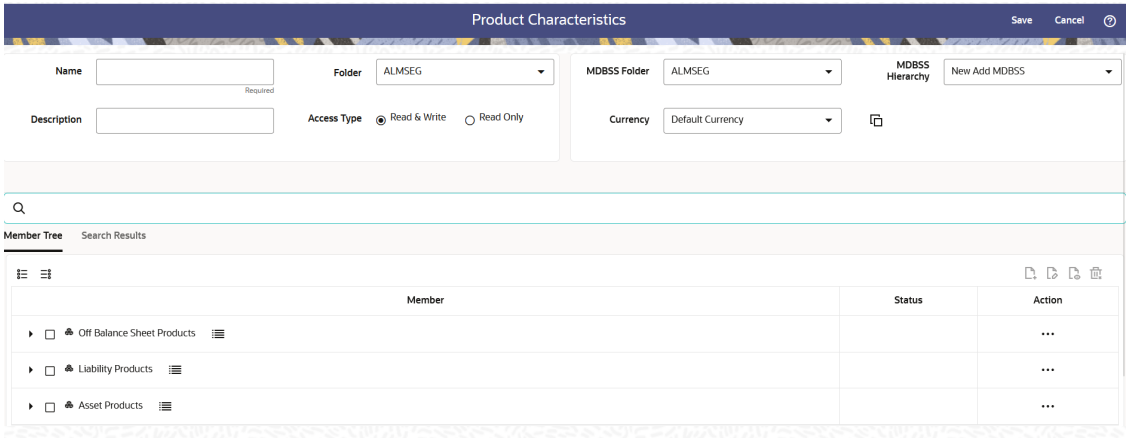
Also See:

- Create a Product Characteristic Rule

6.3.3.1.1 Create Product Characteristic Rules

You create a Product Characteristics Rule to assign attributes to the products.

Figure 6-139 Product Characteristics Page



To create a new Product Characteristics Rule, follow these steps:

1. Click **Add** icon from the top of the **Product Characteristics Summary** Page.
2. Enter the following Details.

Table 6-38 Create Product Characteristics Rule

Fields	Description
Name	Enter the name of the Product Characteristics Rule.
Description	Enter the description of the Product Characteristics Rule. This is an optional field.
Folder	Select the Folder where the Product Characteristics Rule needs to be saved.
Access Type	Select the Access Type as Read-Only or Read/ Write.
MDBSS Folder	Select the MDBSS folder

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Table 6-38 (Cont.) Create Product Characteristics Rule

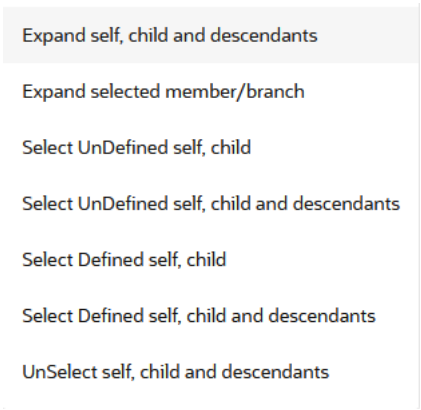
Fields	Description
Currency	Select the currency for Product Characteristics Rule
MDBSS Hierarchy	Select the MDBSS hierarchy

> **Note**
>
> If any member is a currency in the MDBSS hierarchy (for example, INR) and selected currency is different (for example, USD), then the member and its children nodes can not be defined.

3. Select MDBSS node(s) from Member Tree tab of **Assumption Browser**. Assumption Browser has two tabs: Member Tree and Search Results.

- **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.

Figure 6-140 Member Tree Selection



Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

- **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
- **Expand selected member/branch:** Allows to expand the selected node
- **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
- **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
- **Select Defined self, child:** Allows to select the selected node itself along with its child.
- **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.

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– **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

You can perform the following tasks on the selected node(s):

a. Add
b. Edit
c. View
d. Delete
e. Copy

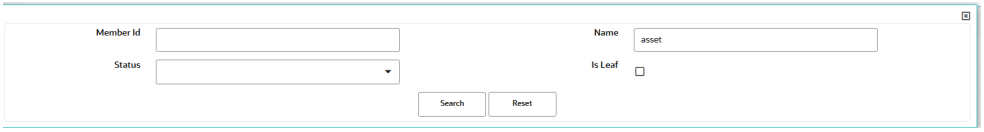
Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

- **Search Results:** You can also search the members based on the filters. This section shows the searched node(s).
To search a member, follow these steps:

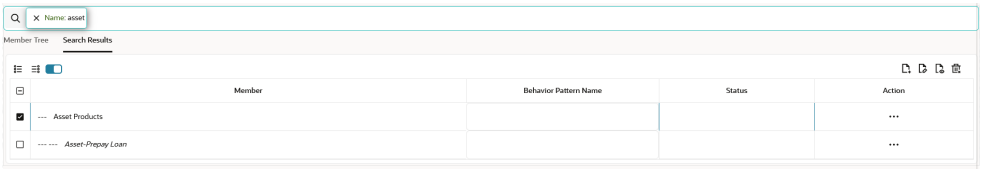
a. Navigate to Search Results tab of **Assumption Browser** section.
b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

Figure 6-141 Searching Member



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

Figure 6-142 Search Results



You can perform the following tasks on the searched node(s):

a. Add
b. Edit
c. View
d. Delete
e. Copy

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

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4. Click **Add** from **Assumption Browser** section.
5. Click Save.

> **Note**
>
> During provisioning in case the PC admin role is missed in the ALM admin group and user not able to save the product characteristics, then follow the below steps to map the role:
>
> 1. Access the admin console from the ALMCS application
> 2. Navigate to **Identity Management**
> 3. Click the **Groups**
> 4. Select ALM Administrator User Group
> 5. Navigate to mapped roles
> 6. Click the **New Mapping**
> 7. Select the PC admin role
> 8. Click **Map**.
> 9. After Mapping authorize the mapping.

6.3.3.1.2 Defining Product Characteristic Rules

The definition of a Product Characteristics Rule is part of the **Create** or **Edit** Product Characteristics Rule process. When you click **Save** in the Create Product Characteristics Rule process, the Rule is saved, and the **Product Characteristics Rule** summary page is displayed. However, Product Characteristic assumptions have not yet been defined in the products at this point. Start defining the Product Characteristic assumptions for MDBSS before clicking **Save**.

Defining Product Characteristics Using Node Level Assumptions

Node Level Assumptions allow you to define assumptions at any level of the MDBSS Hierarchy. The MDBSS supports a hierarchical representation of the chart of accounts to take advantage of the parent-child relationships defined for the various nodes of the MDBSS hierarchies when defining Rules. Children of parent nodes on a hierarchy automatically inherit the assumptions defined for the parent nodes. However, assumptions explicitly defined for a child take precedence over those at the parent level.

Prerequisites

Performing basic steps for creating or editing a Product Characteristics Rule.

To define a Product Characteristic Rule, follow these steps:

1. From the **Assumption Browser** window, select the MDBSS Node (or MDBSS Nodes) to define the Product Characteristics. Click **Add +** icon to launch the **Product Characteristic Details** window.
2. Select the **Currency**.

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> **Note**
>
> To define assumptions for all currencies with the selected product, select **Default Currency**.

> **Note**
>
> Using the default currency to setup assumptions can save data input time. At runtime, the calculation engine uses assumptions explicitly defined for a product currency combination. If assumptions are not defined for a currency, the engine uses the assumptions defined for the product and the default currency. If the assumptions are the same across some or all currencies for a specific product, you can input assumptions for the default currency. Be careful when using this option on UI where an Interest Rate Code is a required input. In most cases, you will want to use a currency-specific interest rate curves for pricing instruments within each specific base currency. The Default Currency option, if used will apply a selected Interest Rate Code across all currencies.

3. The **Product Characteristic Details** window shows the Active Node, Currency, and Product Profile details. You can modify Active Node and Product Profile details. Based on the selected Product Profile, Attribute values are automatically populated in the **ProductCharacteristic Details** window . The **Product Characteristic Details** window has the following input tabs:
   - Core Attributes
   - Payment Attributes
   - Rate Attributes
   - Other Attributes
4. After defining attributes, click Apply.

6.3.3.1.2.1 Core Attributes

This section describes the new business fields used in the **Core Attributes** tab of the Product Characteristics Rule.

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Figure 6-143 Core Attributes Tab to Define the Product Characteristic Rule

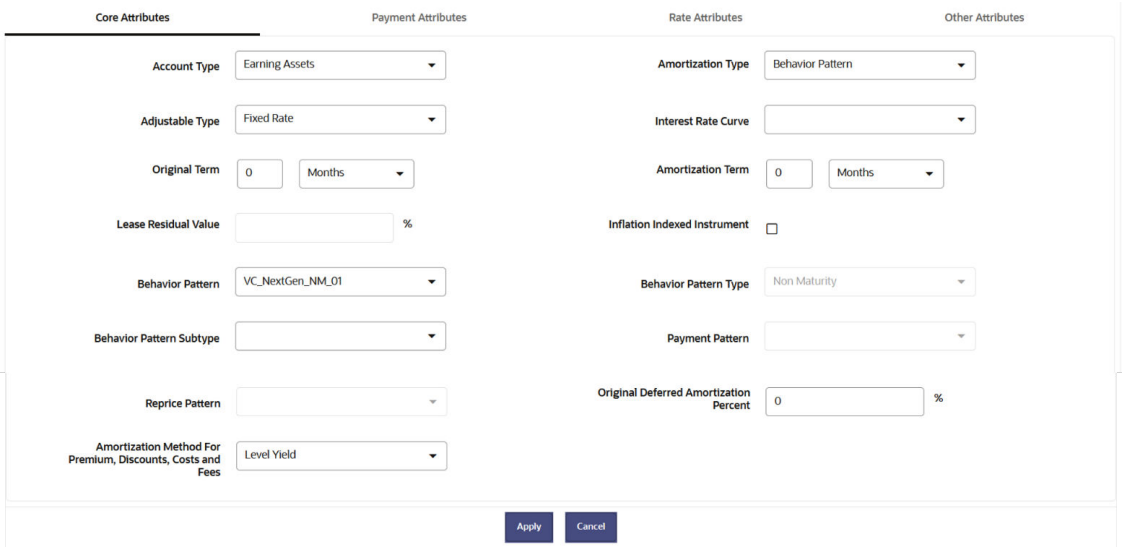

Table 6-39 Fields to add the Core Attributes for Product Characteristic Rule and their Descriptions

Field	Description
Account Type	Select the account type.

Figure 6-144 Account Type

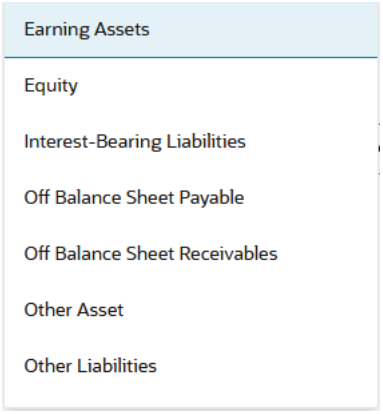

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Table 6-39 (Cont.) Fields to add the Core Attributes for Product Characteristic Rule and their Descriptions

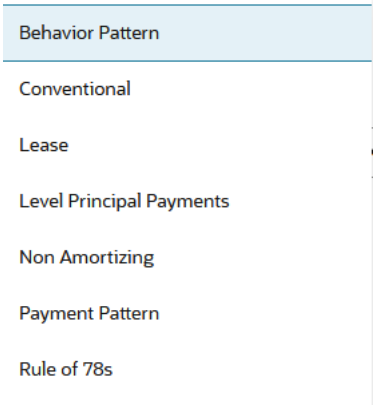
Field	Description
Amortization Type	Method of amortizing principal and interest. The choices consist of all standard OFSAA codes and all additional user-defined codes created through the Payment Pattern and Behavior Pattern interfaces, as follows: **Figure 6-145 Amortization Type** 
Adjustable Type	Determines the repricing characteristics of the new business record. The standard OFSAA codes are as follows: Fixed-Rate Floating Rate Other Adjustable Repricing Pattern
Interest Rate Curve	Defines the pricing index to which the instrument interest rate is contractually tied. The interest rate codes that appear as a selection option depending on the choice of currency. The interest rate code list is restricted to codes that have the selected currency as the Reference Currency. If the default currency is chosen, all interest rate codes are available as a selection.
Original Term	The contractual term at origination date in units (days, months, or years).
Amortization Term	Term upon which amortization is based in units (days, months, years). This field is not editable if the Derivative Type is selected as FX Contract and subtype is selected as Spot or Forward
Lease Residual Value	For Lease instruments, this value specifies the residual amount as a percent of the par balance.
Inflation Indexed Instrument	Select this check box to enable the **Inflation Indexed** tab

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Table 6-39 (Cont.) Fields to add the Core Attributes for Product Characteristic Rule and their Descriptions

Field	Description
Behavior Pattern	Lists all user-defined behavior patterns created through the user interface.
Behavior Pattern Type	Displays the type of selected user-defined behavior pattern.
Behavior Pattern Subtype	Lists the subtype of user-defined behavior patterns created through the user interface.
Payment Pattern	Lists all user-defined payment patterns defined through the user interface.
Repricing Pattern	Lists all user-defined reprice patterns created through the user interface.
Amortization Method for Premiums, Discounts, Costs and Fees	Determines the method used for amortizing premiums, discounts, or fees. The available codes are: Level Yield Straight Line
Original Deferred Amortization Percent	The initial deferred balance expressed as a percent of original par balance.

6.3.3.1.2.2 Payment Attributes

This section describes the new business fields used in the **Payment Attributes** tab of the Product Characteristics Rule.

Figure 6-146 Payment Attributes Tab to Define the Product Characteristic Rule

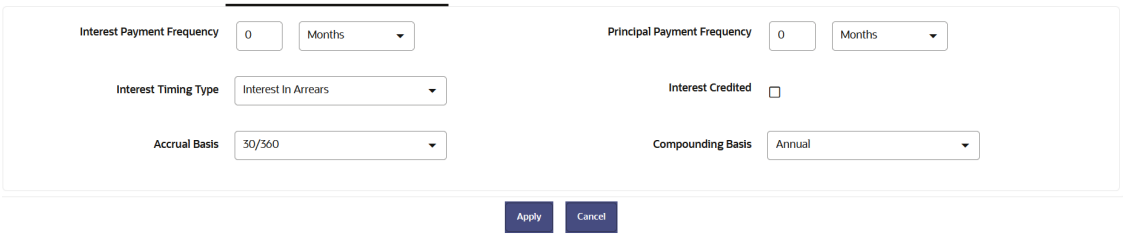

Table 6-40 Fields to add the Payment Attributes for Product Characteristic Rule and their Descriptions

Field	Description
Interest Payment Frequency	Frequency of Interest payment .
Principal Payment Frequency	Frequency of Principal payment.

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Table 6-40 (Cont.) Fields to add the Payment Attributes for Product Characteristic Rule and their Descriptions

Field	Description
Interest Timing Type	Determines whether interest is calculated in arrears or advance or if the rate is set in arrears. There are three interest types: Interest in Arrears Interest in Advance Set in Arrears For conventional amortization products, interest in arrears is the only valid choice.
Interest Credited	This option allows interest payments to be capitalized as principal on simple or non-amortizing instruments.
Accrual Basis	The basis on which the interest accrual on an account is calculated. The choices are as follows: 30/360 30/365 30/Actual Actual/360 Actual/365 Actual/Actual Business/252 *
Compounding Basis	Determines the number of compounding periods per payment period. The choices are as follows: Annual Continuous Daily Monthly Quarterly Semiannual Simple

Note

* A Holiday Calendar selection is required if **Business/252 Accrual Basis** is selected. **Business/252 Accrual Basis** is only applicable to the recalculate option of the Holiday Calendar Rule. If the user selects the shift payment dates, the payment will still be recalculated for the non-holiday or weekend date.

6.3.3.1.2.3 Rate Attributes

This section describes the new business fields used in the **Rate Attributes** secondary tab of the Product Characteristics Rule.

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Figure 6-147 Rate Attributes Tab to define the Product Characteristic Rule

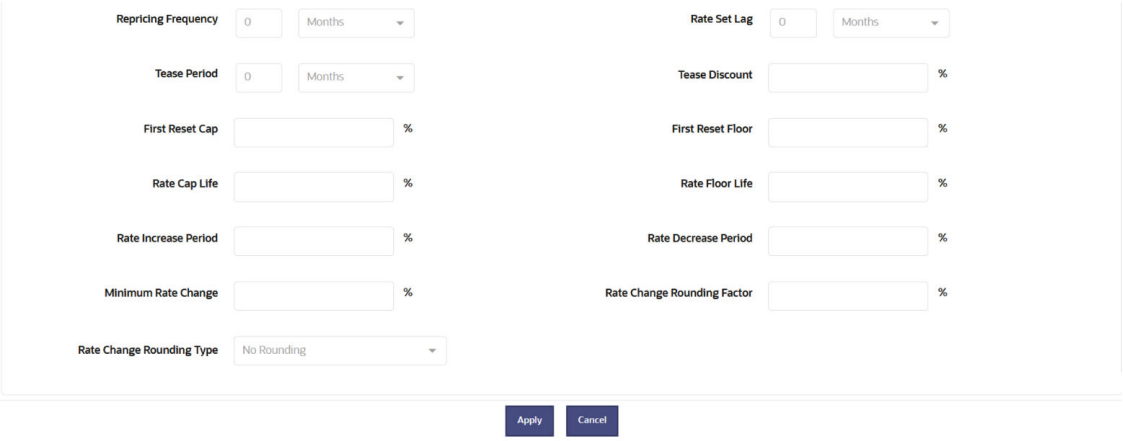

Table 6-41 Fields to add the Rate Attributes for Product Characteristic Rule and their Descriptions

Field	Description
Repricing Frequency	Contractual frequency of rate adjustment.
Rate Set Lag	Period by which the rate lookup lags the repricing event date
Tease Period	The tease period is used to determine the length of the tease period.
Tease Discount	The tease discount is used in conjunction with the original rate to calculate the tease rate. The tease rate is the original rate less than the tease discount.
First Reset Cap	This indicates the maximum delta between the initial rate and the first reset for mortgage instruments that have a tease period. This rate will be applicable at the tease end period, before the first reset. After this, the periodic and lifetime cap value will be applied. The value of this field will be automatically populated from the **Product Profile** window if the product is mapped to Product Profile and value is defined for First Reset Cap. For example: Current Rate = 3.5% (from the instrument record) Margin = 0.3 % First Reset Cap = 0.5% (from the instrument record) First Reset Floor = 0.1% (from the instrument record) Scenario 1: If New Forecasted Rate = 5.1% (Forecast Rates Assumption) The fully indexed rate (after applying minimum rate change, rounding effects) is higher than the (Current Rate + First Reset Cap). So, the new rate assigned will be 3.5% + 0.5% = 4.0%

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Table 6-41 (Cont.) Fields to add the Rate Attributes for Product Characteristic Rule and their Descriptions

Field	Description
First Reset Floor	This is the initial minimum value for mortgage instruments that have a tease period. This floor rate will be applicable at the tease end period, before the first reset. After this, the periodic and lifetime floor value will be applied. The value of this field will be automatically populated from the **Product Profile** window if the product is mapped to Product Profile and value is defined for First Reset Floor.
Rate Cap Life	The maximum rate for the life of the instrument.
Rate Cap Floor	The minimum rate for the life of the instrument.
Rate Increase Period	The maximum interest rate increase allowed during the cycle on an Adjustable Rate instrument.
Rate Decrease Period	The maximum amount rate can decrease during the repricing period of an Adjustable Rate instrument.
Minimum Rate Change	The minimum required change in rate on a repricing date.
Rate Change Rounding Factor	Percent to which the rate change on an adjustable instrument is rounded.
Rate Change Rounding Type	The method used for rounding of interest rate codes. The choices are as follows: • No Rounding • Truncate • Round Up • Round Down • Round Nearest

6.3.3.1.2.4 Other Attributes

The assumptions made on the **Other Attributes** tab apply to both current position data and new business balances.

The common Product Characteristic fields listed on the **Other Attributes** tab are as follows.

Figure 6-148 Other Attributes Tab to Define the Product Characteristic Rule

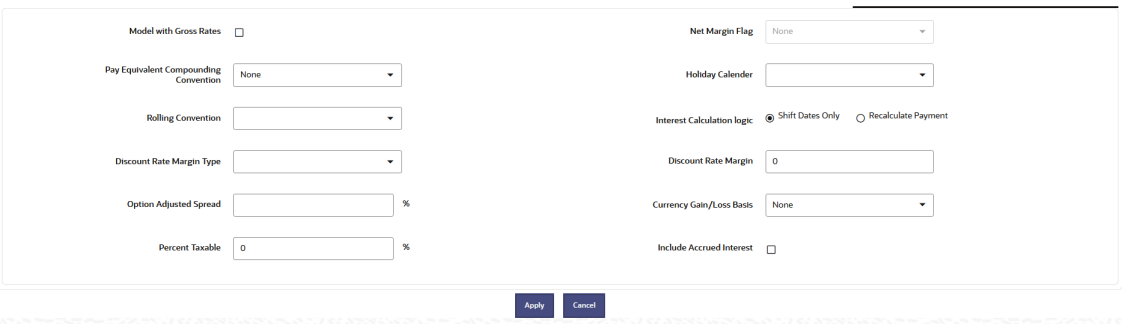

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Table 6-42 Fields to define the attributes for Product Characteristic Rule and their Descriptions

Fields	Behavior
Model with Gross Rates	If the institution has outsourced loan serving rights for some of the assets (most typically mortgages), the rates paid by customers on those assets (gross rates) will be greater than the rates received by the bank (net rates). For these instruments, both a net and gross rate will be calculated within the cash flow engine and both gross and net rate financial elements will be output. The gross rate is used for prepayment and amortization calculations. The net rate is used for income simulation and the calculation of retained earnings in the auto-balancing process.
Net Margin Flag	The setting of the net margin flag affects the calculation of the Net Rate. This drop-down is activated only when Model with Gross Rates check-box is enabled. The settings are: Net Rate is constant Spread to Gross - the net rate reprices in conjunction with the gross rate, at a value net of fees. Net Rate is Fixed - the net rate equals a fixed fee equal to the net margin. None
pay equivalent Compounding Convention	Inmost cases, interest rates are not adjusted for the differences in pay-basis between the quote basis of the pricing index and the payment frequency of the account to which the index is assigned. Some instruments, notably Canadian Mortgages, follow a convention that the interest rates are adjusted. In this case, the Pay- Equivalent Compounding Convention must be set to Semi-Annual Quoting Convention. For other accounts, the convention must be set to Do Not Adjust. • Do Not Adjust • None • Semi-Annual Quoting Convention
Holiday Calendar	The default value is Blank and is Enabled. This drop-down list contains the list of all holiday calendar definitions defined in the **Holiday Calendar** window.

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Table 6-42 (Cont.) Fields to define the attributes for Product Characteristic Rule and their Descriptions

Fields	Behavior
Rolling Convention	The default value is Unadjusted and is Enabled, only when Holiday Calendar is selected in the preceding field. This drop-down list contains the following values: Unadjusted Payment on an actual day, even if it is a non-business day. 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. *Many institutions have month-end accounting procedures that necessitate this.
Interest Calculation Logic	There are two options: Shift Dates Only Recalculate Payment
Discount Rate Margin Type	Rate Spread Price of instrument per 100
Discount Rate Margin	Enter the Discount Rate Margin value; range is 0 to 100.
Option Adjusted Spread	The Option Adjusted Spread is used during stochastic processing only. It is an adjustment to the stochastic discount factor used in calculating market value and value at risk. Valid values for this spread are between -5.000% and 5.000%, but the value of less than 2.00% is recommended for the best results. For more information about the calculation of discount factors, see the Oracle Financial Services Cash Flow Engine ReferenceGuide.

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Table 6-42 (Cont.) Fields to define the attributes for Product Characteristic Rule and their Descriptions

Fields	Behavior
Currency Gain or Loss Basis	Currency Gain or Loss Basis determines how exchange rate fluctuations are reflected in financial element results for each product and currency combination. The choices are: Temporal Historical Basis Current Rate For more information on the cash flow calculations associated with currency gain or loss recognition techniques, see the Oracle Financial Services Cash Flow Engine Reference.
Percent Taxable	Percent Taxable specifies the percent of income or expense that is subject to the tax rates defined in the active Time Bucket Rule. This is used with the Auto-balancing option in the ALM Process Rules. Percent taxable must be set up for each product and reporting currency or product and default currency combination.
Include Accrued Interest	Accrued Interest amount that is available from source system for the time Last Payment Date till As of Date can be used to forecast interest cash flows. If this check-box is selected, any MDBSS node that references this PC rule in a static deterministic process would include accrued interest (existing business only). By default, this check-box is not selected.

> **Note**
>
> The Holiday Calendar attributes can be applied directly to the instrument records for an existing business. If they are not applied to the records, the engine will use the definition from the **Other Attributes** tab to apply **Holiday Calendar** for existing and New Business.

6.3.3.1.2.5 Inflation Adjustment Attributes

Select the **Inflation Indexed Instrument** check box on the **Define Core Product Attributes** secondary tab to enable the Define Inflation Adjustment Attributes secondary tab. .

Note:

To enable the **Define Inflation Adjustment Attributes** secondary tab, select the **Adjustment Type** as **Conventional Adjust, Conventional Fixed, Level principal**, or **Non-Amortizing**.

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Figure 6-149 Inflation Adjustment Attributes tab to define the Product Characteristic Rule

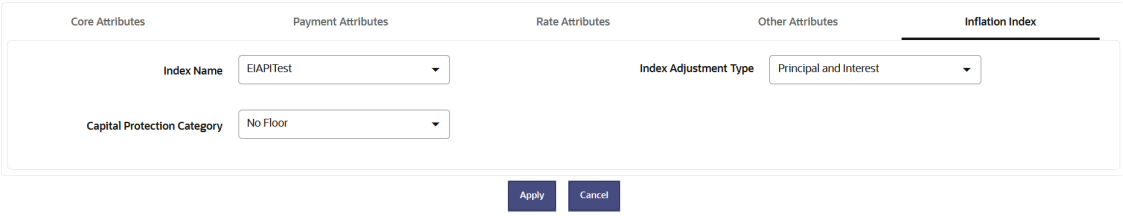

Table 6-43 Fields to add the Index Adjustment attributes for New Businesses and their Descriptions

Field	Behavior
Index Name	Lists all Economic Indicators defined through the user interface.
Index Adjustment Type	Determines the type of Index Adjustment. Available options are: Principal and Interest Principal Only Interest Only
Capital Protection Category	Determines capital protection to be provided to Inflation Indexed Instruments. Available options are: No Floor: Does not provide any downside protection. Floor of 1: Protects the downside movement. Max during Life: Gives maximum advantage using maximum Index factor for calculation.

6.3.3.1.3 Copying Assumptions Across Currencies and Products

This functionality provides the option to copy, in total or selectively, the product assumptions contained within the ALM assumption Rules from one currency to another currency or a set of currencies, or from one product to another product or set of products.

Copy of assumptions enhances the usability of Oracle Asset Liability Management in a multi-currency environment. For example, if you have 10 currencies enabled in the application and you must input only one set of assumptions, 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 must audit inputs for a set of assumptions before executing the copy procedure. The Copy Across Currencies process requires users to select a replacement yield curve for each target currency. These currency-specific IRCs replace the IRC selection made for each product in the source currency selection set. It is possible to edit the target assumptions after the initial copy processes have been completed.

Prerequisite

Define ALM Rule related product assumptions

Overview of Product Characteristic Rules

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Overview of Discount Method Rules

Overview of Prepayment Rules

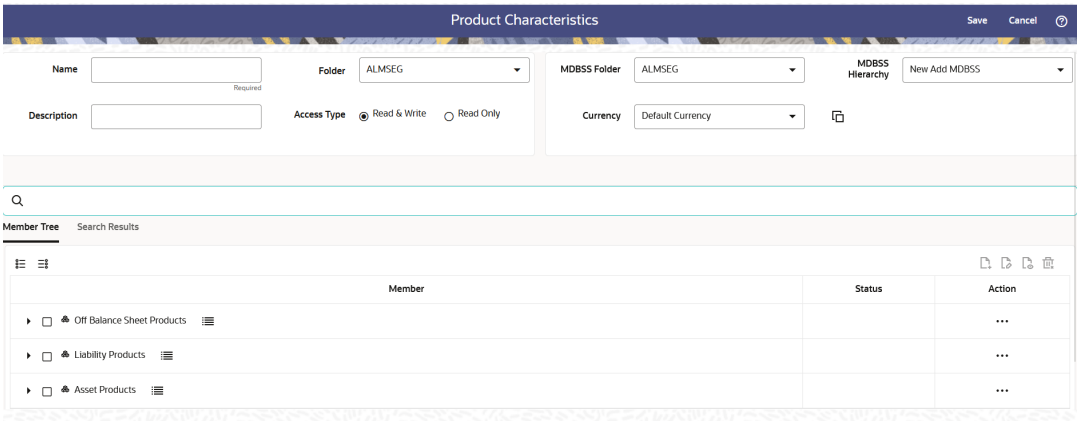
Creating a Forecast Balance Rule

Overview of Pricing Margin Rules

To copy the assumptions across Currencies and Products, follow these steps:

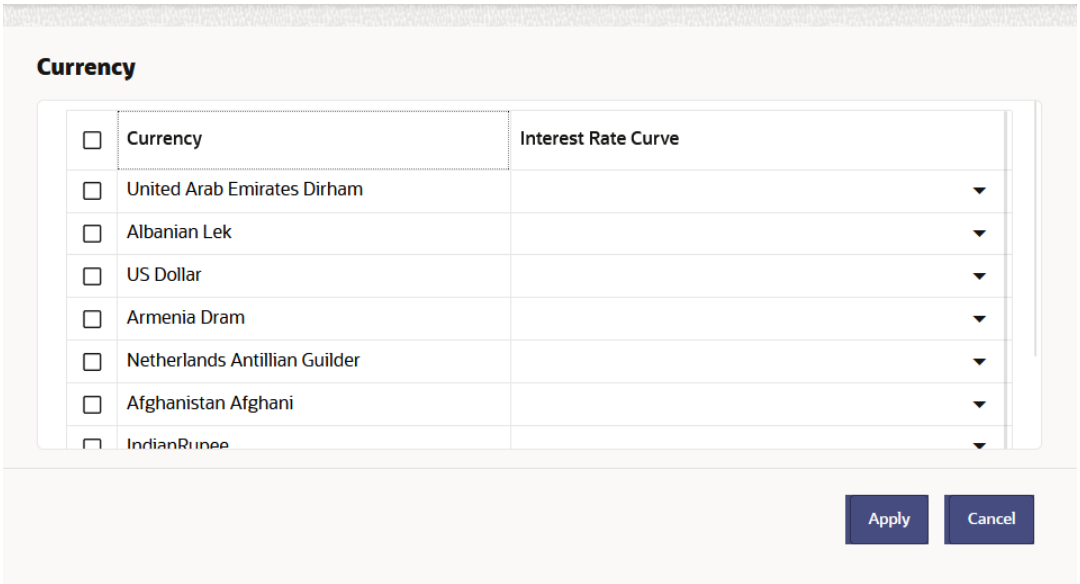
1. Navigate to the appropriate ALM Business Rule **Assumption Browser**.
2. Define assumptions for the source currency product set.
3. **Save** the assumptions.
4. Select the defined product assumptions using the check boxes corresponding to each product (or Node on the hierarchy) that you want to include in the copy process.
5. Select **Copy Definition to another currency** button next to the **Currency** field.

Figure 6-150 Copy Across



6. On the **Currency**page,select the listed currencies either individually, or select all the currencies using **select all**.

Figure 6-151 Currency page



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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.

- While defining a Rule if the Interest Rate Code is required, then **Copy Across (currency)** window will have an option to select the Interest Rate Code. For example, **Product Characteristic, Discount Methods, and Prepayments** windows, the **Copy Across (Currency)** window will have an option for IRC selection.
- While defining a Rule if the Interest Rate Code selection is not required, then **Copy Across (Currency)** window will have the Interest Rate Code selection option disabled. For example, **Forecast Balances** and **Pricing Margin** windows, the **Copy Across (Currency)** window will not have an option for IRC selection.
- If a Rule does not require the Interest Rate Code selection and RDP selection is required (for, **Forecast Balances** and **Pricing Margin**), then **Copy Across (Currency)** will not have an option to select the IRC.

7. Click **Apply** to initiate the copy process and to return to the **Assumption Browser** page.
8. Review the results of the copy process from the **Assumption Browser** window by selecting a different currency and following the usual navigation to view or edit assumptions. The application displays new assumptions for each product included in the source selection. The copy process replaces pre-existing assumptions for any product-currency combination that is included in the target selection.
9. Click **Save** on the **Assumption Browser** window to save the assumptions to the database.

6.3.3.2 Forecast Balance Rules

This module discusses about the modeling of new business activities through the Forecast Balance rules. These rules are included in assumption setup and processing.

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

> **Note**
>
> All forecast rules and dynamic processing in ALMCS use the Multi Dimensional Balance Sheet Structure (MDBSS) instead of a single dimension hierarchy, like Product. Forecast rules that are intended to be processed together must all share a common MDBSS.
>
> For more information on the MDBSS, see Multi Dimensional Balance Sheet Structure

Forecast Balance Rule Summary

This page is the gateway to all Forecast Balance Rules and related functionality. You can navigate to other pages relating to Forecast Balance Rules from this point.

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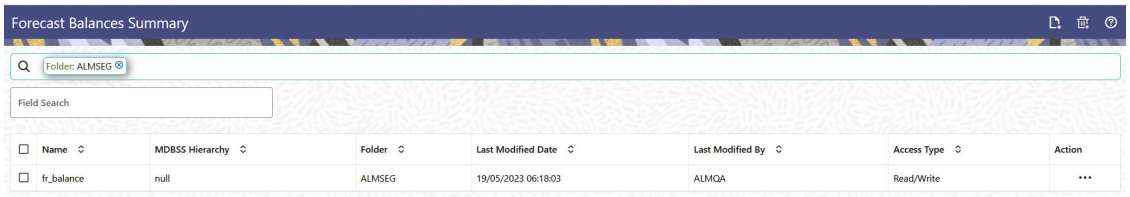
Figure 6-152 Forecast Balance Summary Page



Search Forecast Balance Rule

Prerequisites: Predefined Forecast Balance Rule

To search for a Forecast Balance Rule, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Forecast Balance Rules that meet the search criteria.

Or

The other method to search a Forecast Balance Rule is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Code, Name, Description, MDBSS Hierarchy**, and **Folder** of the Forecast Balance Rule and click **Search** .

The Forecast Balance Rule summary table displays the following columns:

- **Name:** Displays the Forecast Balance Rule's short name.
- **MDBSS Hierarchy:** Name of MDBSS Hierarchy that is used to define Forecast Balance Rule.
- **Folder:** Displays the Folder name where the Forecast Balance Rule is saved.
- **Last Modified By:** Displays the Name of the user who last modified the Forecast Balance Rule.
- **Last Modified Date:** Displays the Date and Time when Forecast Balance Rule was modified last.
- **Access Type:** Displays the access type of Rule. It can be Read-Only or Read/Write.
- **Action:** Displays the following list of actions that can be performed on the selected Forecast Balance Rule.
  - **Add:** Click **Add** icon at the top right of the summary page to build a new Forecast Balance Rule.
  - **Multiple Delete:** Select one or more Rules in the table and then click the **Multiple Delete** icon at the top right of the Summary Page to delete more than one Rule at the same time.
  - **View/Edit:** You can view existing Forecast Balance Rule, and you can edit existing Forecast Balance Rules, provided you have read/write privileges. View/Edit to view or edit the contents of a Forecast Balance Rule in Read/Write format. Depending on user privileges the Rule will open in either View or Edit mode.
  - **Save As:** You can copy Forecast Balance Rules to avoid having to enter data multiple times. This saves time and effort and reduces mistakes. Click on the **Action** icon against the Forecast Balance Rule Name and select **Save As** to create a copy of an existing Forecast Balance Rule.

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- **Delete:** You can delete Forecast Balance Rules that are no longer required. Click on the **Action** icon against the Forecast Balance Rule Name and select **Delete** to delete an existing Forecast Balance Rule.

  > **Note**
  >
  > A Forecast Balance Rule cannot be retrieved after deletion. Restrictions on deleting Forecast Balance Rules are:
  >
  > * You cannot delete Forecast Balance Rules if you have only Read privileges. Only users with Read/Write privileges and Forecast Balance Rule owners can delete Forecast Balance Rules.
  > * You cannot delete a Forecast Balance Rule that has a dependency.

- **Dependency Check:** You can check dependencies for rules to know where a particular Forecast Balance Rule has been used. This also prevents accidental deletion of rules having dependencies. Click on the **Action** icon against the Forecast Balance Rule Name and select Dependency Check to generate a report on all Rules that utilize your selected Forecast Balance Rule.

  > **Note**
  >
  > This is functionality will be released in future.

Also See:

- Forecasting Methods
- Creating a Forecast Balance Rule

6.3.3.2.1 Forecasting Methods

The new business methods within the Forecast Balance rule determine how new business assumptions are applied per MDBSS node within each active currency. They consist of:

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

All forecast methods use the Distributed timing option.

Distributed Timing Option: Solves for the origination date of the new business account to reach an expected average balance, assuming even distribution of new business throughout the modeling bucket. For each modeling bucket, this calculation results in an average balance amount that is midway between the beginning balance and the ending balance.

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

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

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

Forecasting at a Mid-Branch Node

Forecast Methods can be assigned at any node on the MDBSS. When assigning a Forecast Method to a non-terminal MDBSS node it may require the Application to consider the balance effects of all the child nodes. For example, when using Target Growth Percent at a non-terminal node, that target node will consider the balances of its child nodes when calculating the forecast amount. The target node's new business originations will occur on the target node.

Forecast Methods that must consider the balances of any child nodes:

- Target Growth Percent

Because the MDBSS can retain balances on any node at any level, the forecasting at a parent node must account for the consolidated balances of its child nodes. These balances in aggregation will be taken into consideration when computing the amount of new originations needed at the target node. All child balances includes both existing and new business originations.

Child nodes may also use any forecast method supported. If one or more child nodes of the target nodes contains a forecast method then those new originations will be computed first and, working up the branch, will be included when the parent node is reached.

In this hypothetical MDBSS branch, all planning and evaluation starts at node "L4" first, then systematically works its way up the branch to L1 which will be evaluated last. Each node's existing new business originations, if any, are evaluated in this manner.

For all target types there is only one timing option to indicate when new business for a new account should be originated.

- **Distributed:** Solves for the origination date of the new business account to reach an expected average balance, assuming even distribution of new business throughout the modeling bucket. For each modeling bucket, this calculation results in an average balance amount that is midway between the beginning balance and the ending balance.

Forecasting from an MDBSS Currency Node

In the MDBSS one or more nodes may be of the currency dimension. Any currency dimension member and all of its child nodes inherit this identity for all forecasting. For example, if an MDBSS node is currency member "GBP" then all forecast balances placed on this node (or its child nodes, if any) will also be GBP. If the currency of the Forecast Balances page filter is not the same as the MDBSS node currency then that node or its child nodes cannot be modified.

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No New Business

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

Target Growth Percent

Use the Target Growth Percent method to define the expected percentage change in the balance over each modeling bucket, expressed as a percent of the bucket's initial balance. Target Growth can be used to model flat balance sheet by assuming a growth rate of 0%.

This method can be placed on any node of the MDBSS, even if that node has no existing balances for itself. If the method is placed at a node that has one or more child nodes then the balances of those child nodes are taken into account when calculating the amount of new originations. The new business generated will appear on that node and not on its child nodes. If the target node and all of its child nodes have no new or existing balances then the target node will return no new business.

The new origination amount and the timing of origination are determined during processing, as described below:

- **New Origination Amount**
  The new origination amount per bucket depends upon whether the MDBSS node has one or more child nodes.

  MDBSS Node with no child nodes:

  (Beginning Balance * Target Growth Percent + Total Runoff - Transaction Strategy

  MDBSS Node with one or more child nodes:

  (Sum(Beginning Balance * Target Growth Percent) + Sum(Total Runoff) - Sum(Transaction Strategy) - Sum(Current position originations + child New Add balances)
- **New Business Timing**
  For all forecast methods, only the distributed originations is supported

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

New Add Balance

The New Add Balance method defines the absolute amount of new business that is added within a bucket. This forecast method can be placed on any node in the MDBSS. The new origination amount and the timing of origination are determined during processing, as described below:

- **New Origination Amount**
  The new origination amount is equal to the user-input new add balance.
- **New Business Timing**
  For all forecast methods, only the distributed originations is supported.

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

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Target End Balance

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

- **New Origination Amount**
  The new origination amount per bucket is calculated as: Target Ending Balance - Beginning Balance + Total Runoff - Transaction Strategy Originations - Current Position Originations
- **New Business Timing**
  For all forecast methods, only the distributed originations is supported.

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

Target Average Balance

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

- **New Origination Amount**
  The new origination amount per bucket is calculated as:

  2 * (Target Average Balance - Bucket Beginning Balance) + Total Runoff - Transaction Strategies Originations - Current Position Originations

  If MDBSS node has child node:

  2 * (Target Average Balance - sum (Beginning Balance)) + sum (Total Runoff) - sum (Trans Start) - sum (Cur Pos Orig)

  - sum (Foreign node rollover) - sum (Child New Add)
- **New Business Timing**
  The new origination amount is added on the calculated date(s), which allow the average balance to equal the user-input target average. This calculation accounts for the timing of runoff and other originations occurring during the modeling bucket.

> **Note**
>
> Here, Target Average formula is a general statement that helps users understand how Target Average Balance calculations are made and to validate output. Given the complexities of formula inputs, external detail calculation results may vary.
>
> When you are using Target Average, it is recommend that only Target Average Balance is reported as other financial elements may fluctuate widely to achieve average targets from period to period.

Rollover

Use the Rollover method to base the amount of new business on the rollover (reinvestment of principal on a given or like products) of existing business. You can roll any combination of prepayments, maturing balances, and principal runoff from a product into itself or into another

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product. For multiple currency processing, rollover processing occurs within each individual currency. Rollover cannot occur between two currencies. The new origination amount into a particular target leaf member and the timing of that origination are described below.

New Origination Amount

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

- **Total:** Total runoff includes runoff from all three categories of run-off: scheduled principal payments, prepayments, and maturing balances.
- **Prepay:** Prepay includes runoff from prepayments, early repayment of principal balances.
- **Maturity:** Maturity incorporates payment of principal on the maturity date, above that incorporated in the scheduled principal payment. Balloon payments and final principal repayment of non-amortizing instruments are included in this category.
- **Payment:** Payment runoff includes scheduled principal payment on an amortizing instrument.

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

Timing of Rollover

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

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

> **Note**
>
> Rollover of runoff components, prepayment, payment, or maturity requires that those components exist in the output data set. In a Dynamic Deterministic Process rule, you must select those financial elements from the Calculation Elements block. Otherwise, no new business is generated from those runoff components.

Rollover with New Add

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

Rollover with Growth Percent

Use the Rollover with Growth Percent method to apply both rollover assumptions and an overall Growth Percent assumption to a single product within a single currency. It allows new business to be driven by reinvestment of existing accounts plus an expectation around growth percentage. Growth Percent defined in Target Growth, determines overall growth of product, including rollovers.

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Rollover assumption is applied first and is calculated independently on Runoff type selected in rule. To determine Rollover Runoff, see the Rollover. New business via Target Growth is calculated thereafter, and is calculated as

(Beginning Balance * Target Growth Percent + Total runoff - Transaction Strategy Originations - Current Position Originations - Rollover New Business).

For more information on Target Growth, see the Target Growth Percent.

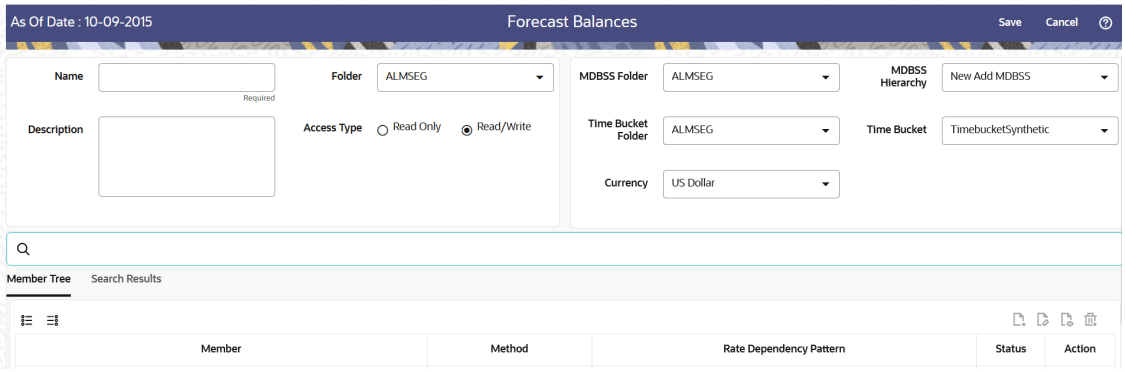
Account Types and New Business

All MDBSS nodes may use all available Forecast Methods regardless of the Account Type attribute.

6.3.3.2.2 Creating a Forecast Balance Rule

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

Figure 6-153 Create Forecast Balance Rule



1. Click the **Add** on the **Forecast Balances** summary page to add a new rule.
2. Enter the following Details.

Table 6-44 Create Forecast Balance Rule

Fields	Description
Name	Enter the name of the Forecast Balance Rule.
Description	Enter the description of the Forecast Balance Rule. This is an optional field.
Folder	Select the Folder where the Forecast Balance Rule needs to be saved.
Access Type	Select the Access Type as Read-Only or Read/ Write.
MDBSS Folder	Select the MDBSS folder
MDBSS Hierarchy	Select the MDBSS hierarchy
Time Bucket Folder	Select the Folder from which you want to apply Time Bucket Rule.

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Table 6-44 (Cont.) Create Forecast Balance Rule

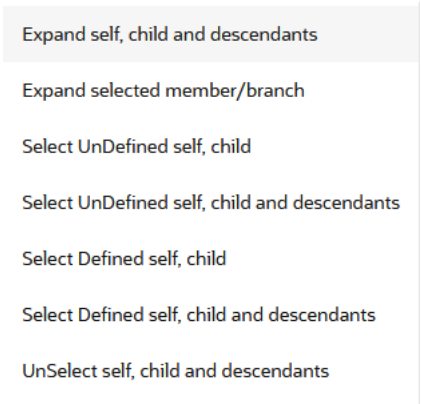
Fields	Description
Time Bucket Rule	Select the time horizon/aggregation for rule. Assumptions that you define when creating a forecast balance are based on a specific modeling horizon, which is defined in the Time Buckets. Example If you define a forecast balance based on a Time Bucket with a monthly modeling horizon, your results are calculated in monthly time periods. If you redefine that same forecast balance, using a different time bucket with a weekly modeling horizon, your results are calculated in weekly time periods. If assumptions in your Forecast Balance are based on a modeling horizon that is different from the horizon defined in the active time bucket, inaccurate data will result. You should verify that date-sensitive rules are consistent with the active Time Bucket.
Currency	Select the currency for Forecast Balance

> **Note**
>
> If any member is a currency in the MDBSS hierarchy (for example, INR) and selected currency is different (for example USD), then the member and its children nodes cannot be defined.

3. Select the MDBSS node(s) from Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results

   - Member Tree: Use the Member Tree tab to view the hierarchical structure and define rules by selecting the node members from the browser. Select Node and click the menu icon next to it to view the available options. Select Node and Click Menu icon next to it to view the available options.

Figure 6-154 Member Tree



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Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

- **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
- **Expand selected member/branch:** Allows to expand the selected node
- **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
- **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
- **Select Defined self, child:** Allows to select the selected node itself along with its child.
- **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
- **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

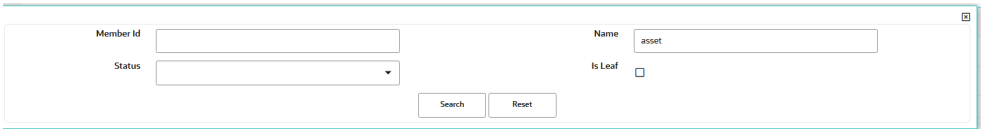
- Add
- Edit
- View
- Delete
- Copy

- Search Results: You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

  a. Navigate to **Assumption Browser** section of the Rule Definition page.

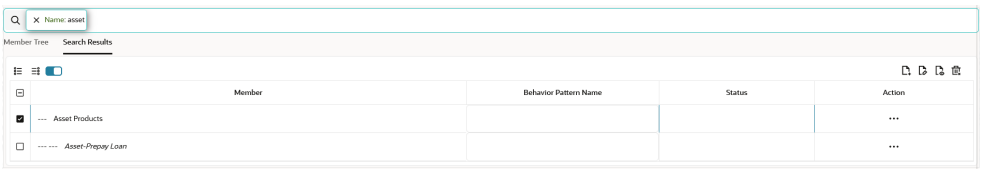
  b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

Figure 6-155 Search Criteria



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

Figure 6-156 Searching Members



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Here, you can perform the following tasks on the searched node(s):

- Add
- Edit
- View
- Delete
- Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

4. Select Forecast Balance Method from **Method** drop-down.
5. Select the predefined Rate Dependency Pattern from **Rate Dependency Pattern** drop-down. Else, click corresponding **Action** button to create new Rate Dependency Pattern, edit Rate Dependency Pattern, or view Rate Dependency Pattern. There are four rate-volume options to choose from:

   - **No Relationship**
     If you want new business amounts to stay constant regardless to the interest rate environments, select this option.
   - **Rate-Level Dependent**
     The Rate-Level dependent relationship allows you to change new business behavior for different values of a single indicator interest rate. The indicator interest rate, referred to as the Base Interest Rate, is defined by an Interest Rate Code, a term selection, and a rate lag.
     - **Interest Rate Code:** The Interest Rate Code identifies the reference yield curve or rate index whose forecasted value determines the new business amount. You can select the Interest Rate Code from all available interest rate codes for the selected currency, as defined within Rate Management. The list of Interest Rate Codes includes only codes with a reference currency equivalent to the currency selected in the Floating Tree Bar.
     - **Term Selection:** If the selected Interest Rate Code is a yield curve, you must also select a term. Your term choices depend on the definition of the Interest Rate Code within Rate Management. Note that the selection automatically defaults to the shortest available term.
     - **Rate Lag:** If you want the base interest rate calculation to perform a look back function, you can input a rate lag. The new business assumption lookup uses the forecasted interest rates as of a date within the current modeling bucket less the rate lag. If the timing of new business is End of Bucket, the lookup function uses the last day of the modeling bucket less the rate lag. For all other cases, the mid-point of the bucket less the rate lag is used.
   - **Rate-Spread Dependent**
     With the Rate-Spread dependent relationship, you can input new business assumptions for different spreads between two indicator interest rates, or a spread between two term points on the same yield curve. You define the first indicator interest rate, the Base Interest Rate, as described previously. The second indicator interest rate, the Alternate Interest Rate, also requires definition of an Interest Rate Code, a term selection, and a rate lag.

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

- **Economic Indicator Dependent**
  With the Economic Indicator Dependent relationship, you can input new business assumptions related to defined economic indices (as defined in Rate Management), where the change in the index will drive a different outcome of new business. For example, you can forecast a higher GDP and tie the new business assumptions to that particular forecast.
  - **Rate Tiers:** The Rate Tiers tab will become available to edit when one of the following three rate volume relationships have been selected (Rate Level, Rate Spread, and Economic Indicator). Once you have selected a rate-volume relationship and defined your base and alternate interest rates, you must define rate tiers. Rate tiers provide the lookup values for which different new business assumptions can be input.
  - **Lookup Method:** The lookup method determines which new business assumption is selected from the input values when the forecasted interest rate falls between two rate tiers. There are two methods to choose from:
    Interpolate: 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.

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

6. Click **Add** from Assumption Browser section.
7. Click **Save**.

6.3.3.2.3 Defining Forecast Balance Rule

When you click Save in the Create Forecast Balance Rules Process, the Rule is saved and the Forecast Balance Rule Summary Page is displayed. However, Forecast Balance assumptions have not yet been defined for any of your MDBSS at this point. Typically, you would start defining your Forecast Balance assumptions for MDBSS before clicking Save.

The Forecast Balance Rule supports the definition of Forecast Balance assumptions for MDBSS.

For more information, see Defining Forecast Balance Using Node Level Assumptions section.

6.3.3.2.3.1 Defining Forecast Balances Using Node Level Assumptions

Node Level Assumptions allow you to define assumptions at any level of the Multi Dimensional Balance Sheet Structure (MDBSS) hierarchy. The MDBSS 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 MDBSS hierarchies while defining rules. Children of parent nodes on an MDBSS automatically inherit the assumptions defined for the parent nodes. However, assumptions directly defined for a child take precedence over those at the parent level.

Prerequisites

Performing basic steps for creating or editing a Forecast Balance Rule.

Procedure

To define Forecast Balance, follow these steps:

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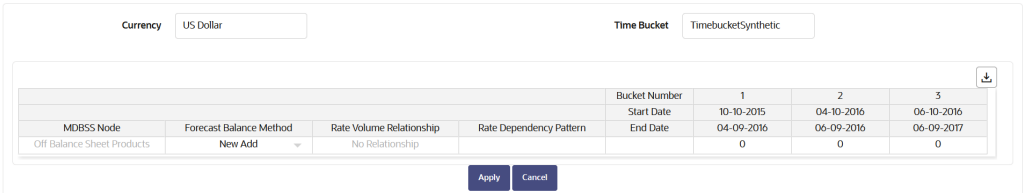
1. Navigate to Forecast Balance page.
2. Select Forecast Balance Method. Based on the selected Method, Forecast Balance page will be displayed.
   - **New Add**

Figure 6-157 Forecast Balance-New Add

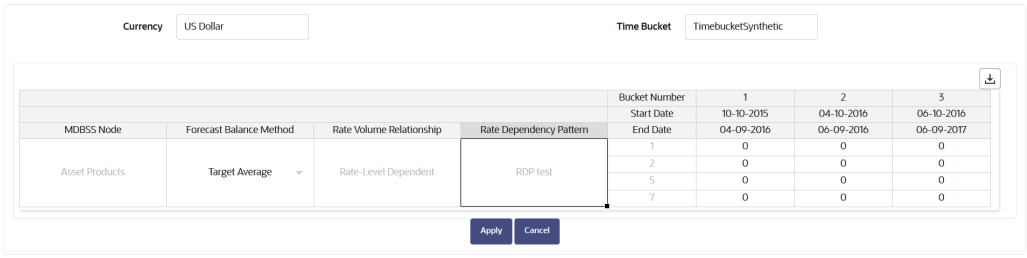


   – Enter Balance values for Buckets.
   – Click **Apply**.

   You can also use the Excel Export feature to download the data in Excel format.

   - **Target Average**

Figure 6-158 Forecast Balance- Average

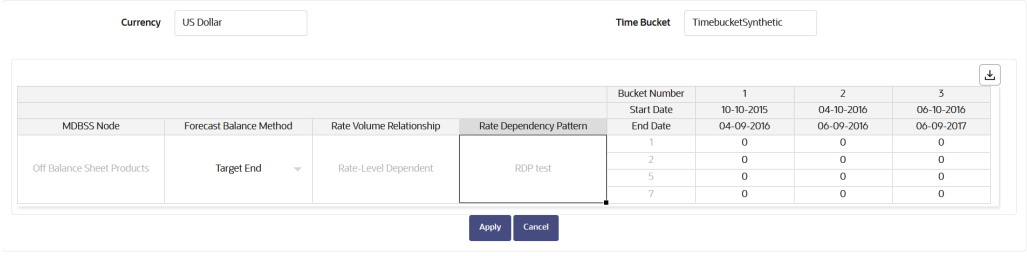


   – Enter Balance values for Buckets.
   – Click **Apply**.

   You can also use the Excel Export feature to download the data in Excel format.

   - **Target End**

Figure 6-159 Forecast Balance-Target End



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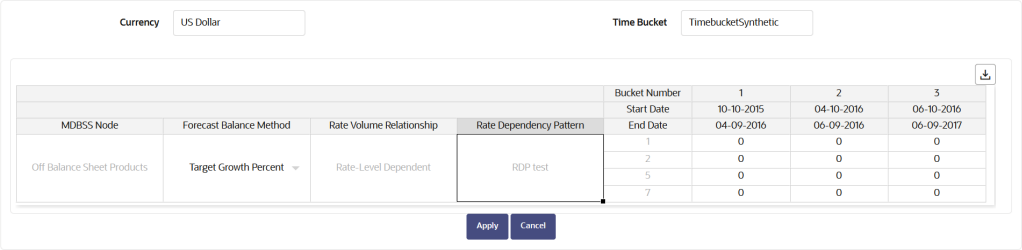
- Enter Balance values for Buckets.
- Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

- **Target Growth Percent**

Figure 6-160 Forecast Balance-Target Growth Percent

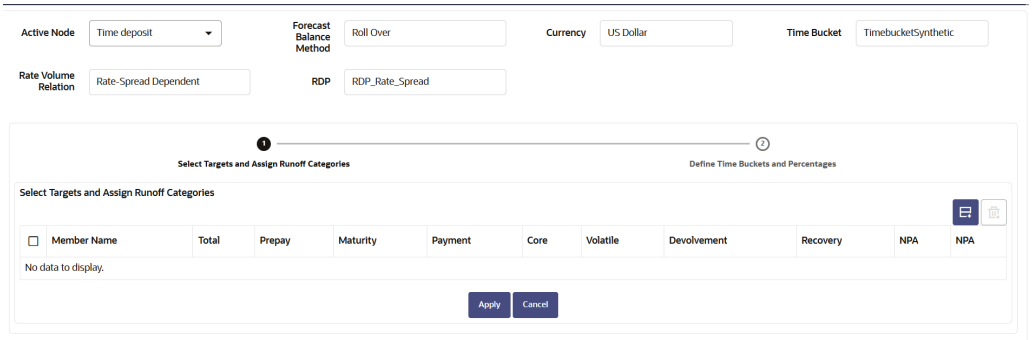


- Enter Balance values for Buckets.
- Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

- **Rollover**

Figure 6-161 Forecast Balance-Rollover



- Click **Create** button to select a Target node. The Hierarchy page will appear.
- Select the MDBSS node for the rollover and click Ok.

> **Note**
>
> You can use Search functionality to search a MDBSS node. The searched node will display in **Search Results** tab.

- The selected MDBSS node(s) will appear in **Select Target and Assign Categories** section.

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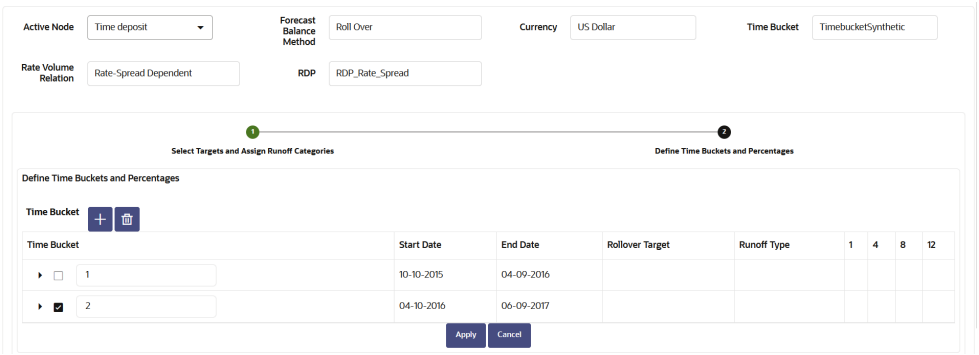
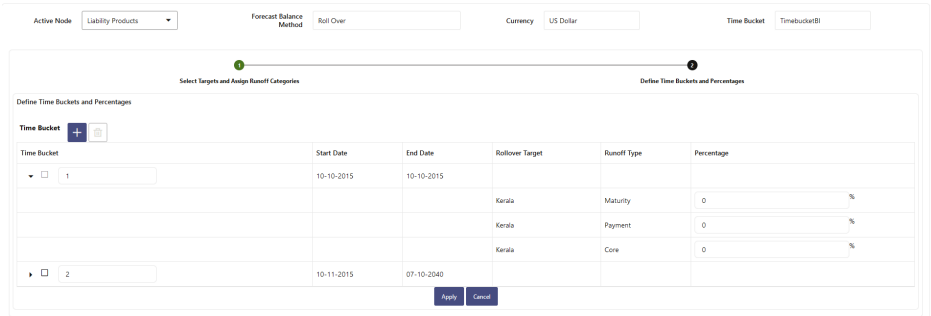
Figure 6-162 Forecast Balance-Rollover



- Select the desired runoff type (Total, Prepay, Maturity, Payment, Core, Volatile, Devolvement, Recovery, or NPA).
- Click **Apply** to navigate to **Define Time Buckets and Percentages** section.
- Define the input bucket ranges. You only need to define multiple bucket ranges if you want to vary rollover assumptions by modeling buckets. The bucket ranges defined here only apply to rollover occurring from the source leaf to the target leaf. You must have at least one bucket range defined. Typically, you define a bucket range from the first modeling bucket to the last modeling bucket, covering the entire modeling horizon. To define a bucket range, perform below steps:
  - Add Time Bucket using Add icon. Default bucket is 1 and you cannot delete this.
  - Select a Time Bucket. Based on selected Time Bucket, start bucket date and end bucket date will display.

Figure 6-163 Forecast Balance-Rollover



  - Continue adding time buckets until all desired ranges have been defined. Expand the Time Bucket to add percentage.
- In Enter the percentage rollover for the given Target.
- Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

- **Rollover with New Add**

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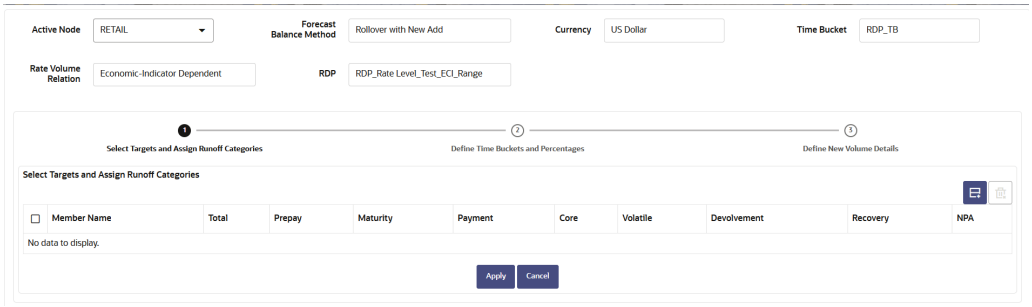
Figure 6-164 Forecast Balance-Rollover with New Add

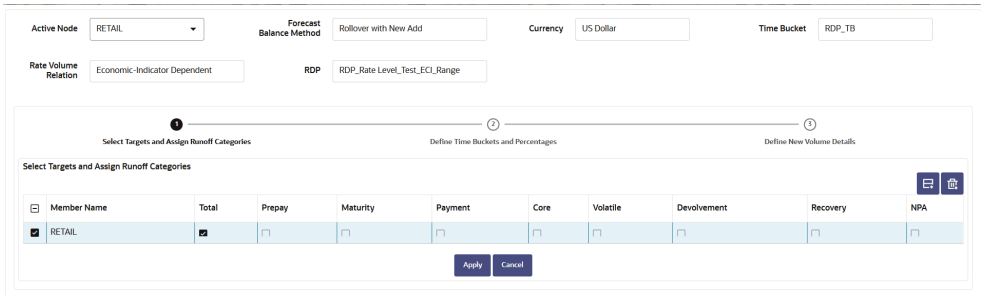


- Click **Create** button to select a Target node. The Hierarchy page will appear.
- Select the MDBSS node for the rollover with New Add and click Ok.

> **Note**
>
> You can use Search functionality to search a MDBSS node. The searched node will display in **Search Results** tab.

- The selected MDBSS node(s) will appear in **Select Target and Assign Runoff Categories** section.

Figure 6-165 Forecast Balance-Rollover with New Add



- Select the desired runoff type (Total, Prepay, Maturity, Payment, Core, Volatile, Devolvement, Recovery, or NPA).
- Click **Apply** to navigate to **Define Time Buckets and Percentages** section.
- Define the input bucket ranges. You only need to define multiple bucket ranges if you want to vary rollover assumptions by modeling buckets. The bucket ranges defined here only apply to rollover occurring from the source leaf to the target leaf. You must have at least one bucket range defined. Typically, you define a bucket range from the first modeling bucket to the last modeling bucket, covering the entire modeling horizon. The default Bucket Range includes all modeling buckets. To forecast new business in a subset of the modeling horizon, reduce the bucket range by increasing the bucket start date or decreasing the bucket end date. As you change the bucket start and/or the bucket end, the view adjusts accordingly to display only buckets within the selected range. To define a bucket range, perform below steps:
  - Add Time Bucket using Add icon. Default bucket is 1 and you cannot delete this.

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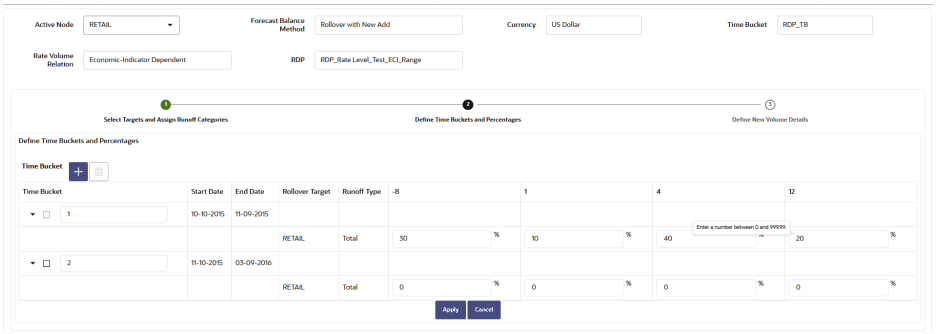
* Select a Time Bucket. Based on selected Time Bucket, start bucket date and end bucket date will display.

Figure 6-166 Forecast Balance-Rollover with New Add

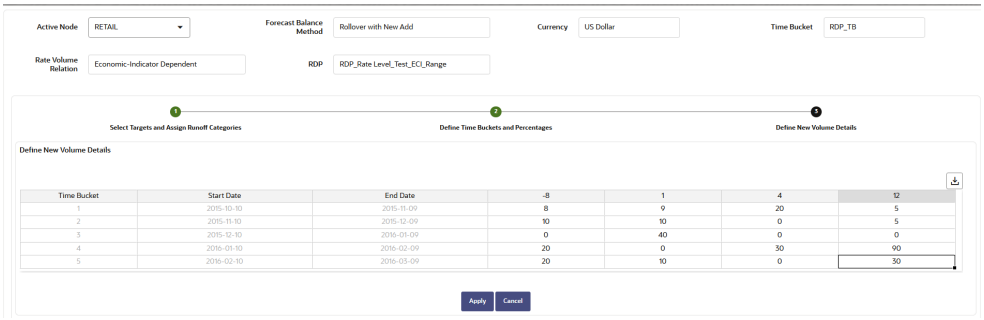


* Continue adding time buckets until all desired ranges have been defined. Expand the Time Bucket to add percentage.

– Enter the percentage rollover for the given Target.

– Click **Apply** to navigate to **Define New Volume Details** section.

Figure 6-167 Forecast Balance-Rollover with New Add



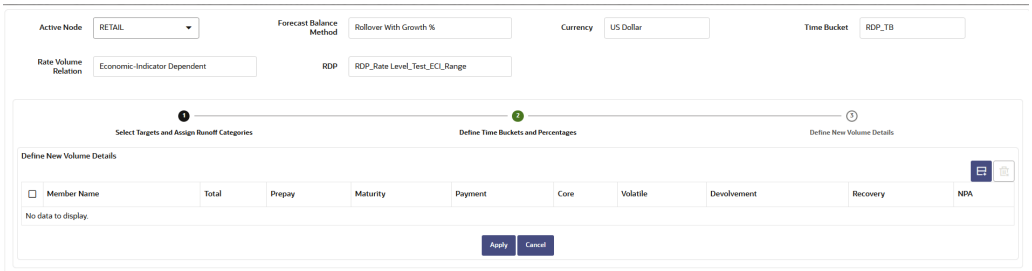
– The **New Volume Detail** section is used to input new volume assumptions. In this section, you can select the range of modeling buckets and input balance or percentage assumptions for each modeling bucket within this bucket range. Enter the targeted value.

– Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

- **Rollover with Growth%**

Figure 6-168 Forecast Balance-Rollover with Growth%



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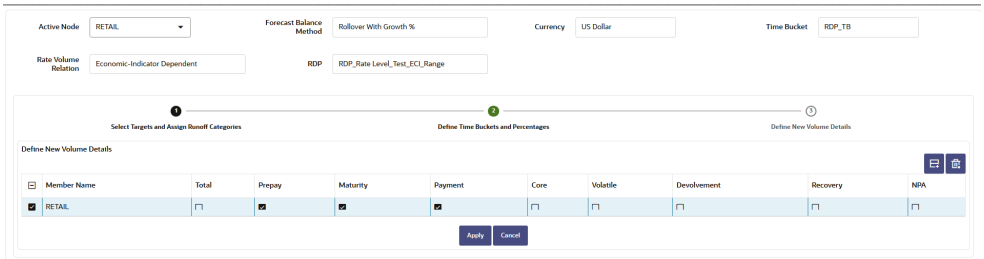
- Click **Create** button to select a Target node. The Hierarchy page will appear.
- Select the MDBSS node for the rollover with New Add and click Ok.

> **Note**
>
> You can use Search functionality to search a MDBSS node. The searched node will display in **Search Results** tab.

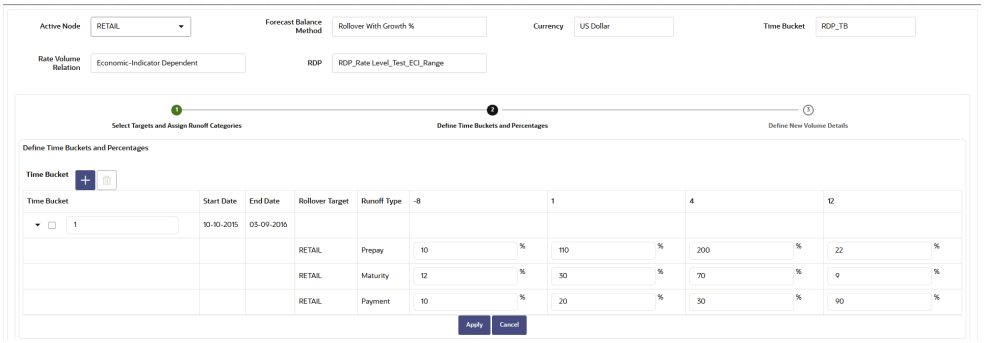
- The selected MDBSS node(s) will appear in **Select Target and Assign Runoff Categories** section.

Figure 6-169 Forecast Balance-Rollover with Growth%



- Select the desired runoff type (Total, Prepay, Maturity, Payment, Core, Volatile, Devolvement, Recovery, or NPA).
- Click **Apply** to navigate to **Define Time Buckets and Percentages** section.

Figure 6-170 Forecast Balance-Rollover with Growth%



- Define the bucket ranges. You only need to define multiple bucket ranges if you want to vary rollover assumptions by modeling buckets. The bucket ranges defined here only apply to rollover occurring from the source leaf to the target leaf. You must have at least one bucket range defined. Typically, you define a bucket range from the first modeling bucket to the last modeling bucket, covering the entire modeling horizon. The default Bucket Range includes all modeling buckets. To forecast new business in a subset of the modeling horizon, reduce the bucket range by increasing the bucket start date or decreasing the bucket end date. As you change the bucket start and/or the bucket end, the view adjusts accordingly to display only buckets within the selected range. To define a bucket range, perform below steps:

  * Add Time Bucket using Add icon. Default bucket is 1 and you cannot delete this.

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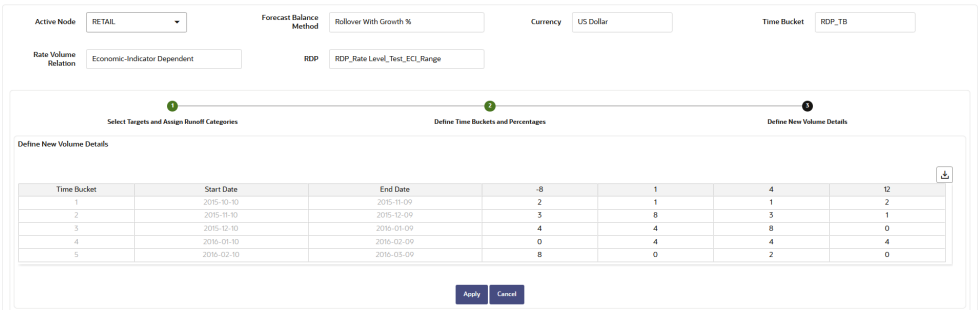
* Select a Time Bucket. Based on selected Time Bucket, start bucket date and end bucket date will display.
* Continue adding time buckets until all desired ranges have been defined. Expand the Time Bucket to add percentage.

– Enter the percentage rollover for the given Target.
– Click **Apply** to navigate to **Define New Volume Details** section.

Figure 6-171 Forecast Balance-Rollover with Growth%



– The **New Volume Detail** section is used to input new volume assumptions. In this section, you can select the range of modeling buckets and input balance or percentage assumptions for each modeling bucket within this bucket range. Select corresponding row to the first modeling bucket. If rate-volume relationships are used, this cell also corresponds to the first rate tier. Enter the targeted value.
– Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

6.3.3.3 Pricing Margin

The Pricing Margin Rules allow you to define pricing margins (or spreads) for your new business originations. As with all forecasting rules, Pricing Margins are based on the Multi Dimensional Balance Sheet Structure (MDBSS). Pricing margins are defined period by period using your selected Time Bucket definition for each MDBSS node and, potentially, each currency. Pricing margins work together with an underlying base Interest Rate Curve (specified in Product Characteristics) to determine note rate pricing for new business volumes. New business assumptions are defined based on the combined inputs from the following forecast related business Rules:

- Product Characteristics
- Pricing Margins
- Forecast Balance

All forecast Rules use the MDBSS. Rules intended to be processed together must share a common MDBSS.

When you require more complex definitions of pricing margins to model unique account pricing details, user-defined repricing patterns can be used.

Pricing Margin Rule Summary

This page is the gateway to all Pricing Margin Rules and related functionality. You can navigate to other pages relating to Pricing Margin Rules from this point.

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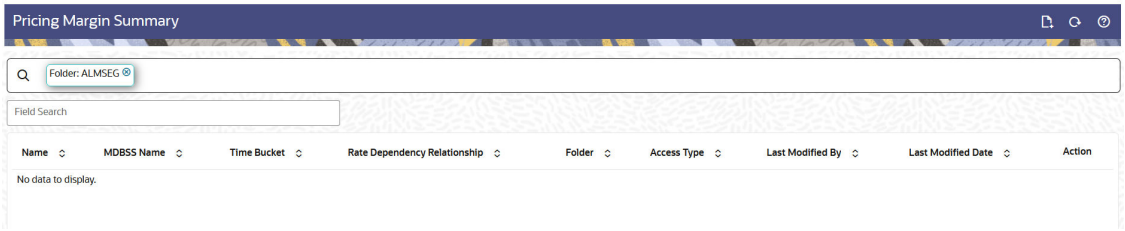
Figure 6-172 Pricing Margin Summary



Search Pricing Margin Rule

Prerequisites: Predefined Pricing Margin Rule

To search for a Pricing Margin Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Pricing Margin Rules that meet the search criteria.

Or

An alternative method to search a Pricing Margin Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Pricing Margin Rule Summary. You can enter the **Name, MDBSS Name,** , and **Folder** of the Pricing Margin Rule and click **Search**.

The Pricing Margin Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Pricing Margin Rule.

- **Name:** The Pricing Margin Rule's short name.
- **MDBSS Name:** The instrument table selection for processing of data.
- **Time Bucket:** The Time Bucket of Pricing Margin Rule.
- **Rate Dependency Relationship:** The Rate Dependency Relationship of Pricing Margin Rule.
- **Folder:** The Folder where the Pricing Margin Rule is saved.
- **Last Modified By:** The user who last modified the Pricing Margin Rule.
- **Last Modified Date:** The Date and Time when the Pricing Margin Rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Pricing Margin Rule.
  - Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Pricing Margin Rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Pricing Margin Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Pricing Margin Rules that you no longer require. Note that only Pricing Margin Rule owners and those with Read/Write privileges can delete Pricing

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Margin Rules. A Pricing Margin Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.

– Dependency Check: You can perform a dependency check to know where a particular Pricing Margin Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Pricing Margin Rules that have dependencies. A report of all rules that utilize the selected Pricing Margin Rule is generated.

Also See:

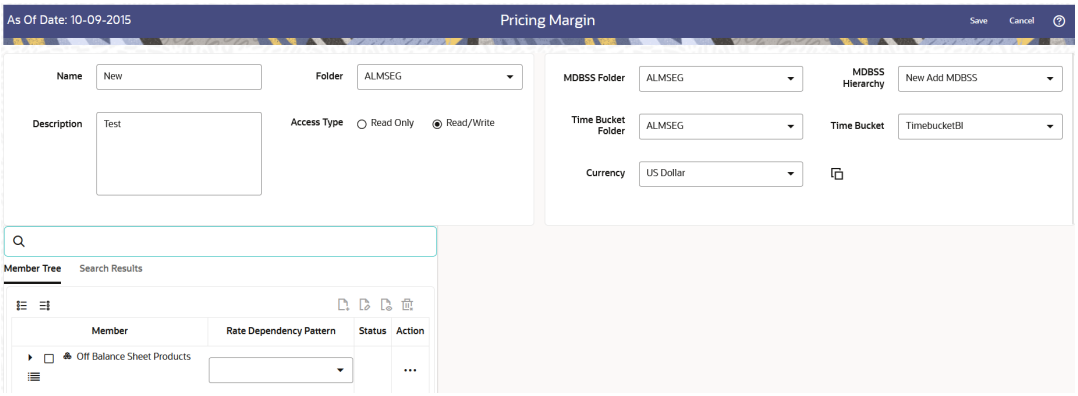
- Create Pricing Margin Rule
- Define Pricing Margin Rule

6.3.3.3.1 Create Pricing Margin

To create the Pricing Margin, do the following:

1. Navigate to the **Pricing Margin** summary page.
2. Click **Add** icon. The **Add** Pricing Margin page is displayed.

Figure 6-173 Pricing Margin Page



3. Enter the following Details.

Table 6-45 Create Pricing Margin Rule

Fields	Description
Name	Enter the name of the Pricing Margin Rule.
Description	Enter the description of the Pricing Margin Rule. This is an optional field.
Folder	Select the Folder where the Pricing Margin Rule needs to be saved.
Access Type	Select the Access Type as Read-Only or Read/ Write.
MDBSS Folder	Select the MDBSS folder
MDBSS Hierarchy	Select the MDBSS hierarchy
Time Bucket Folder	Select the Folder from which you want to apply Time Bucket Rule.
Time Bucket Rule	Select the time horizon/aggregation for rule.

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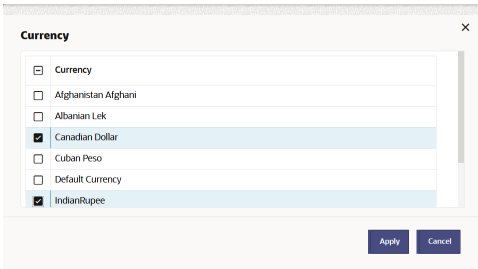
Table 6-45 (Cont.) Create Pricing Margin Rule

Fields	Description
Currency	Select the currency for Pricing Margin.
Copy Definition to another Currency	This functionality provides the option to copy, in total or selectively, the product assumptions contained within the PBSM assumption Rules from one currency to another currency or a set of currencies, or from one product to another product or set of products. Copy of assumptions enhances the usability of PBSM Cloud in a multi-currency environment. For example, if you have 10 currencies enabled in the application and you must input only one set of assumptions, 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 must audit inputs for a set of assumptions before executing the copy procedure. This process requires you to select a replacement yield curve for each target currency. These currency-specific IRCs replace the IRC selection made for each product in the source currency selection set. It is possible to edit the target assumptions after the initial copy processes have been completed. To use this functionality, follow these steps: a. Click **Copy Definition to another Currency** icon next to Currency field. The Currency window is displayed. **Figure 6-174 Copy Definition to another Currency**  b. Select Currency(ies) and click **Apply**.

4. Select the MDBSS node(s) from Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results
   - Member Tree: Use the Member Tree tab to view the hierarchical structure and define rules by selecting the node members from the browser. Select Node and click the menu icon next to it to view the available options. Select Node and Click Menu icon next to it to view the available options.

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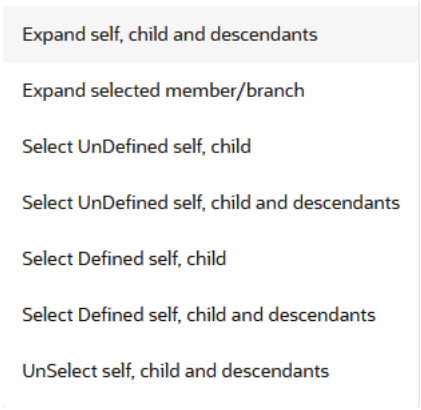
Figure 6-175 Member Tree



Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

- **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
- **Expand selected member/branch:** Allows to expand the selected node
- **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
- **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
- **Select Defined self, child:** Allows to select the selected node itself along with its child.
- **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
- **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

- Add
- Edit
- View
- Delete
- Copy

- Search Results: You can also search the members based on the filters. This section shows the searched node(s). To search a member , follow these steps:

  a. Navigate to **Assumption Browser** section of the Rule Definition page.

  b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

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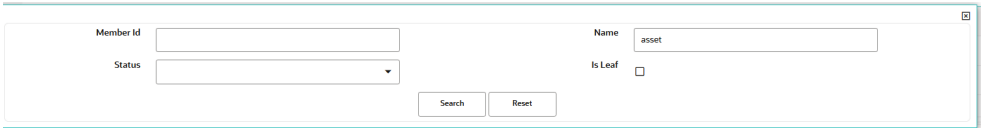
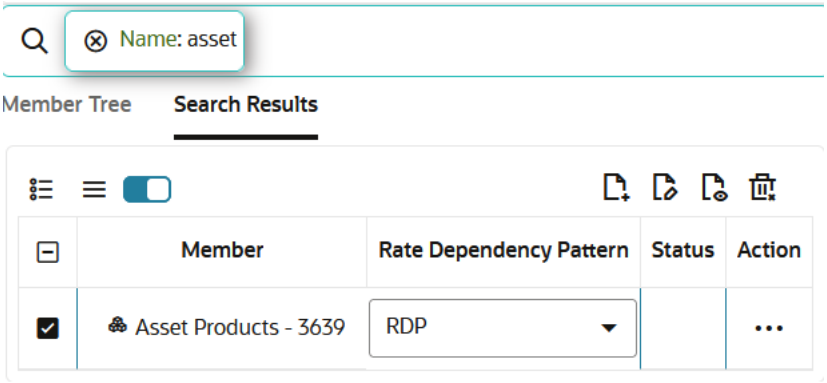
Figure 6-176 Search Criteria



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

Figure 6-177 Searching Members



Here, you can perform the following tasks on the searched node(s):

- Add
- Edit
- View
- Delete
- Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

5. Select Rate Dependency Pattern from corresponding **Rate Dependency Pattern** drop-down. This drop-down lists all the predefined Rate Dependency Patterns. For more information, see Rate Dependency Pattern.
6. Click **Add** from **Assumption Browser** section.
7. Click Save

6.3.3.3.2 Defining Pricing Margin Rule

When you click Save in the Create Pricing Margin Rules Process, the Rule is saved and the Pricing Margin Rule Summary Page is displayed. However, Pricing Margin assumptions have not yet been defined for any of your products at this point. Typically, you would start defining your Forecast Balance assumptions for MDBSS before clicking Save.

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The Pricing Margin Rule supports the definition of Forecast Balance assumptions for MDBSS.

Once you have created a Pricing Margin Rule, you can assign Pricing Margin to MDBSS using Node Level Assumption. For more information, see Defining Pricing Margin Using Node Level Assumptions section.

6.3.3.3.2.1 Defining Pricing Margins Using Node Level Assumptions

Node Level Assumptions allow you to define assumptions at any level of the Multi Dimensional Balance Sheet Structure (MDBSS) hierarchy. The MDBSS 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 MDBSS hierarchies while defining rules. Children of parent nodes on an MDBSS automatically inherit the assumptions defined for the parent nodes. However, assumptions directly defined for a child take precedence over those at the parent level. In an income simulation scenario, you may want to price new business for an account at a margin above or below a market interest rate code. For example, you can model a premium paid on CDs in relation to a market yield curve by adding a pricing margin to the interest rate code assigned to the product in the Product Characteristics rule. If you want a rate that is 25 bps above the market yield curve, you will type "0.25" as the pricing margin for the appropriate modeling period. The Pricing Margin rule uses the modeling period defined in the "active" Time Bucket rule. You should always verify that your modeling horizon and related assumptions are consistent with the As of Date and active Time Bucket rule before processing.

Prerequisites

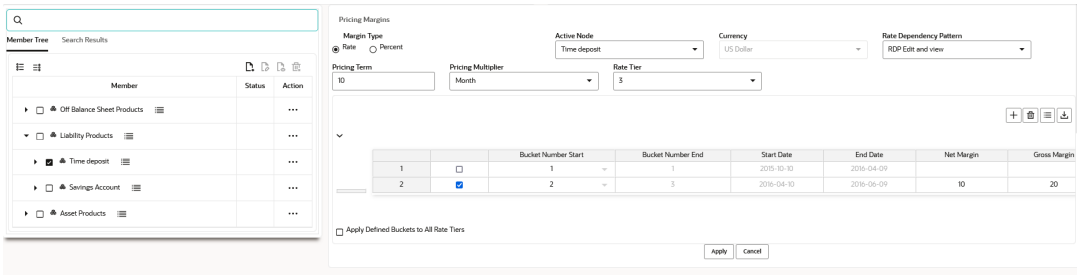
Performing basic steps for creating or editing a Pricing Margin Rule.

Procedure

To define Pricing Margin Rule, follow these steps:

1. Navigate to Pricing Margin Rule page.

Figure 6-178 Pricing Margin Rule section



2. Enter following details:

Table 6-46 Pricing Margin

Fields	Description
Margin Type	Select Margin Type as Rate or Percent.
Active Node	Shows the name of the selected Active Node
Rate Dependency Pattern	Rate Dependency Patterns allow you to establish relationships between the level of interest rates, economic indicators or rate spreads and ALM forecast assumption rules. Select the pre-defined Rate Dependency Pattern.

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Table 6-46 (Cont.) Pricing Margin

Fields	Description
Pricing Term	Enter Pricing Term. In conjunction with the Multiplier, this field allows you to specify the value for the Term that is used to lookup IRC to derive interest rate of new business. Lookup term for fixed rate is: • If Pricing Term is defined in Pricing Margin, then Pricing Term. • If Pricing Term is not defined, then Maturity Term in Maturity Mix. • If both Pricing Term and Maturity Mix are not defined, then Original Term from Product Characteristics. Lookup term for floating rate is: • If Pricing Term is not defined in Pricing Margin, then Repricing Frequency from Product Characteristics, else Pricing Term.
Pricing Multiplier	The unit of time applied to the Term. The choices are: Days, Months, Years.
Rate Tier	Select the Rate Tier. Rate Tiers reflect the Rate Dependency Pattern details from the selected Rate Dependency Pattern. Define Pricing Margin assumptions for each rate tier. The application will automatically determine which set of assumptions to apply for a given scenario based on the relationship between the Rate Tier and the related Forecast Rate assumption value.
Bucket Number Start and Bucket Number End	The bucket number input allows you to select a range of buckets over which the pricing margin assumption will apply. Start Date and End Date values are updated automatically based on the Bucket Number input for each row.
Start Date and End Date	When the Pricing Margins detail page opens, the Start Date (min value) and End Date (max value) columns are automatically populated and are read-only values. The date ranges represent the Income Simulation Date buckets as defined in the "active" Time Bucket rule. Any new business originated within these dates is modeled using the pricing margins defined in the Pricing Margin rule. New business added for each date bucket will have the same net and gross margin for its life. The margins for a particular instrument will not change as the instrument ages.
Net Margin	The Net Rate is affected by setting the Net Margin Flag in the Product Characteristics rule. If Net Margin Flag is set to Floating Net Rate, then Net Rate is equal to the Interest Rate Code plus the Net Margin specified here. If the Net Margin Flag is set to Fixed Net Rate, then Net Rate is equal to Net Margin.
Gross Margin	The Gross Margin you define is added to the Interest Rate Code specified in the Product Characteristics rule to define the gross rate on new business.

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3. You can add more Rows using the **Add Row** icon. You can add multiple rows at a time using the **Add Multiple Row** icon.
4. You can also use **Apply Defined Buckets to all Rate Tiers** option. This option allows you to copy the bucket setup from one page to all other Rate Tiers when using Rate Dependent assumptions.
5. Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

6.3.3.4 Forecast All Business

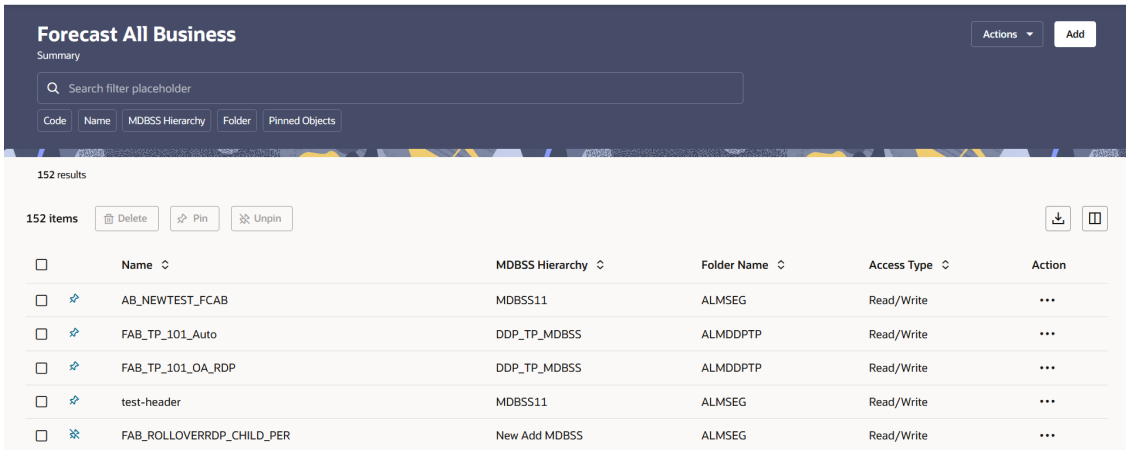
Forecast All Business is a new and comprehensive forecasting framework intended to be leveraged by your organization's entire planning and forecasting team. There are several new key improvements that will enhance both the accuracy and speed of forecasting. Forecast All Business combines the two most frequently updated rules–Forecast Balances and Pricing Margins–into a single concept that can be viewed and modified together. Forecasted balances with their associated pricing margins are now entered together in an intuitive, horizontal layout based on a period-by-period basis of your choosing. The Forecast All Business also has a feature-rich Excel template that can easily be exported, shared, modified, and imported–all organized on the Multi Dimensional Balance Sheet Structure. From the template users can change target types and values, pricing inputs, and more. Users across the organization can now collaboratively view and modify forecasting values without also having to be Application users.

Forecast All Business has all the existing functionality present in Forecast Balances and Pricing Margins as well as new features. In Forecast All Business either the balances or the pricing are now *optional* inputs. If balances are not entered the Application assumes no new business (unless allocated by rollover from another MDBSS node) and if no pricing is inputted the Application assumes new business (if any) is priced directly from the associated pricing Interest Rate Curve (as specified in the Product Characteristics).

Forecast All Business Summary

This page is the gateway to all Forecast All Business rules and related functionality. You can navigate to other pages relating to Forecast All Business rules from this point.

Figure 6-179 Forecast All Business Rule Summary



Search Forecast All Business Rule

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Prerequisites: Predefined Forecast All Business Rule

To search for a Forecast All Business Rule:

On the Forecast All Business Summary, enter your search criteria in the search box and click **Search**. The Forecast All Business Rules meeting your search criteria are displayed.

Or

An alternative method to search a Forecast All Business Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Forecast All Business Rule Summary. You can enter the **Code, Name, MDBSS Hierarchy**, and **Folder** of the Forecast All Business Rule, partially or fully, and click **Search**.

The Forecast All Business summary displays the following information:

Add: Click **Add** icon at the top right of the summary page to build a new Forecast All Business rule.

Actions: Enables you to perform following tasks.

- **Refresh:** Retains the selected filters and refreshes the summary page with latest status.
- **Reset:**Clears the selected filters and refreshes the summary page.
- **Help:**Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected rule.

Export: Enables you to download the summary page details in .CSV format.

Columns: Allows you to view the summary page data using a customized list of columns.

The Forecast All Business summary table displays the following columns:

- **Name**: The Forecast All Business Rule's short name.
- **MDBSS Hierarchy**: Name of the hierarchy that is used to define the Forecast All Business Rule.
- **Folder Name:** The folder where the Forecast All Business Rule is saved.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Forecast All Business Rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Forecast All Business Rules. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Forecast All Business Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Forecast All Business Rules that you no longer require. Note that only Forecast All Business Rule owners and those with Read/Write privileges can delete Forecast All Business Rules. A Forecast All Business Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Dependency Check:** You can perform a dependency check to know where a particular Forecast All Business Rule has been used. Before deleting a rule, it is

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always a good practice to do a dependency check to ensure you are not deleting Forecast All Business Rules that have dependencies. A report of all rules that utilize the selected Forecast All Business Rule is generated.

Also See:

- Create Forecast All Business Rules

6.3.3.4.1 Forecast All Business - Forecast Methods

This module discusses modeling of new business activity through the Forecast All Business rule. Included are assumption setup and processing. Within a Forecast All Business rule, you specify the amount of new activity generated per modeling bucket on each MDBSS node within each active currency. To create a new business assumption, you select from eight available forecasting methods. You can further tailor the new business assumptions to meet your expectations of future originations, including the effect of interest rates on new business amounts.

Forecasting Methods

The new business methods within the Forecast All Business rule determine how new business assumptions are applied per MDBSS node within each active currency. They consist of:

- No New Business
- New Add
- Target Average
- Target End
- Target Growth
- Rollover
- Rollover with New Add
- Rollover with Growth %

All forecast methods use the Distributed timing option.

Distributed Option: Solves for the origination date of the new business account to reach an expected average balance, assuming even distribution of new business throughout the modeling bucket. For each modeling bucket, this calculation results in an average balance amount that is midway between the beginning balance and the ending balance.

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

NOTE:

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

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

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Forecasting at a Mid-Branch Node

Forecast Methods can be assigned at any node on the MDBSS. When assigning a Forecast Method to a non-terminal MDBSS node it may require the Application to consider the balance effects of all the child nodes. For example, when using Target Growth Percent at a non-terminal node, that target node will consider the balances of its child nodes when calculating the forecast amount. The target node's new business originations will occur on the target node.

> **Note**
>
> The Forecast Methods that must consider their child node balances are: Target Average, Target End, Target Growth Percent, Target Growth Percent – Allocated.

Forecast Methods that must consider the balances of any child nodes:

- Target Growth Percent

Because the MDBSS can retain balances on any node at any level, then forecasting at a parent node must account for the consolidated balances of its child nodes. These balances in aggregation will be taken into consideration when computing the amount of new originations needed at the target node. All child balances includes both existing and new business originations.

Child nodes may also use any forecast method supported. If one or more child nodes of the target nodes contains a forecast method then those new originations will be computed first and, working up the branch, will be included when the parent node is reached.

For all target types there is only one timing option to indicate when new business for a new account should be originated.

Distributed: Solves for the origination date of the new business account to reach an expected average balance, assuming even distribution of new business throughout the modeling bucket. For each modeling bucket, this calculation results in an average balance amount that is midway between the beginning balance and the ending balance.

Forecasting from an MDBSS Currency Node

In the MDBSS one or more nodes may be of the currency dimension. Any currency dimension member and all of its child nodes inherit this identity for all forecasting. For example, if an MDBSS node is currency member "GBP" then all forecasted balances placed on this node (or its child nodes, if any) will also be GBP. If the currency of the Forecast All Business page filter is not the same as the MDBSS node currency then that node or its child nodes cannot be modified.

No New Business

No New Business (forecasting zero changes in balances) is the default method for the Forecast All Business rule. This method allows runoff without replacement of the paid-down balances. When this Forecast Method is selected users may still enter pricing parameters for the node (in the event of foreign node rollover allocation, for example).

New Add Balance

The New Add Balance method defines the absolute amount of new business that is added within a bucket. This forecast method can be placed on any node in the MDBSS. The new origination amount and the timing of origination are determined during processing, as described below:

New Origination Amount

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

New Business Timing

As will all forecast methods only the distributed originations is supported.

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

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

New Origination Amount

The new origination amount per bucket is calculated as:

MDBSS Node with no child nodes:

2*(Target Average Balance - Bucket Beginning Balance) + Total Runoff - Transaction Strategies Originations - Current Position Originations

MDBSS Node with one or more child nodes:

2*(Target Average Balance - sum(Bucket Beginning Balance)) + sum(Total Runoff) - sum(Transaction Strategies Originations) - sum(Current Position Originations) - sum(Foreign node allocated rollover)

There are seven categories of rollover. You can choose from: Total, Prepay, Maturity, Payment, Core, Volatile, Devolvement, Recovery, and NPA

New Business Timing

As will all forecast methods only the distributed originations is supported.

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

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

New Origination Amount

MDBSS Node with no child nodes:

Target Ending Balance - Beginning Balance + Total Runoff - Transaction Strategy Originations - Current Position Originations

MDBSS Node with one or more child nodes:

Target Ending Balance - Sum(Beginning Balance) + Sum(Total Runoff) - Sum(Transaction Strategy Originations) - Sum(Current Position Originations) - Sum(Child New Add)

New Business Timing

As will all forecast methods only the distributed originations is supported

Distributed: The new origination amount is added on the calculated date(s) which allow the average balance to equal the beginning balance plus the ending balance divided by two. This

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calculation accounts for timing of runoff and other originations occurring during the modeling bucket.

Target Growth Percent
Use the Target Growth Percent method to define the expected percentage change in the balance over each modeling bucket, expressed as a percent of the bucket's initial balance. Target Growth can be used to model flat balance sheet by assuming a growth rate of 0%.

This method can be placed on any node of the MDBSS, even if that node has no existing balances for itself. If the method is placed at a node that has one or more child nodes then the balances of those child nodes are taken into account when calculating the amount of new originations. The new business generated will appear on that node and not on its child nodes. If the target node and all of its child nodes have no new or existing balances then the target node will return no new business.

The new origination amount and the timing of origination are determined during processing, as described below:

New Origination Amount

The new origination amount per bucket depends upon whether the MDBSS node has one or more child nodes.

MDBSS Node with no child nodes:

(Beginning Balance * Target Growth Percent + Total Runoff - Transaction Strategy

MDBSS Node with one or more child nodes:

(Sum(Beginning Balance * Target Growth Percent) + Sum(Total Runoff) - Sum(Transaction Strategy) - Sum(Current position originations + child New Add balances)

New Business Timing

As will all forecast methods only the distributed originations is supported

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

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

New Origination Amount

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

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

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

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

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

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

New Business Timing

As will all forecast methods only the distributed originations is supported

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

Rollover with New Add
Use the Rollover with New Add method to apply both rollover assumptions and new add assumptions to a single MDBSS node within a single currency. It allows new business to be driven by reinvestment of existing accounts plus an expectation of new business amounts. The New Add method and the rollover method are applied independently, with the New Add applied first.

Rollover with Growth %
Use the Rollover with Growth Percent method to apply both rollover assumptions and an overall Growth Percent assumption to a single MDBSS node within a single currency. It allows new business to be driven by reinvestment of existing accounts plus an expectation around growth percentage. Growth Percent defined in Target Growth, determines overall growth of product, including rollovers.

Rollover assumption is applied first and is calculated independently on Runoff type selected in rule. To determine Rollover Runoff, see the Rollover. New business via Target Growth is calculated thereafter, and is calculated as

(Beginning Balance * Target Growth Percent + Total runoff - Transaction Strategy Originations - Current Position Originations - Rollover New Business).

For more information on Target Growth, see the Target Growth Percent.

Account Types and New Business

Depending upon the account type attribute associated with an MDBSS node (or its direct descendants) may affect the availability of forecasting new business on that node. MDBSS nodes that are configured to be off balance sheet will not be eligible to have new business assigned to them. For example, on balance sheet MDBSS nodes cannot allocate rollover to off balance sheet MDBSS nodes, and vice versa.

Rate-Volume Modeling

Customer demand for new products often depends on interest rates (either the absolute level of interest rates or the spread between two rate indices) or other variables such as macro-economic drivers. You can model this behavior by selecting a rate-volume assumption. Once you have selected the rate-volume assumption, you must incorporate additional parameters through selection of a Rate Dependency Pattern, which control how interest rates or economic variables affect new business levels.

Rate-Volume Assumptions

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There are four rate-volume options to choose from:

No Relationship

If you want new business amounts to stay constant regardless to the interest rate

environments, select this option.

Rate-Level Dependent

The Rate-Level dependent relationship allows you to change new business behavior for different values of a single indicator interest rate. The indicator interest rate, referred to as the Base Interest Rate, is defined by an Interest Rate Code, a term selection, and a rate lag. Interest Rate Code: The Interest Rate Code identifies the reference yield curve or rate index whose forecasted value determines the new business amount. You can select the Interest Rate Code from all available interest rate codes for the selected currency, as defined within Rate Management. The list of Interest Rate Codes includes only codes with a reference currency equivalent to the currency selected in the Floating Tree Bar. Term Selection: If the selected Interest Rate Code is a yield curve, you must also select a term. Your term choices depend on the definition of the Interest Rate Code within Rate Management. Note that the selection automatically defaults to the shortest available term.

Rate Lag: If you want the base interest rate calculation to perform a look back function, you can input a rate lag. The new business assumption lookup uses the forecasted interest rates as of a date within the current modeling bucket less the rate lag. If the timing of new business is End of Bucket, the lookup function uses the last day of the modeling bucket less the rate lag. For all other cases, the mid-point of the bucket less the rate lag is used.

Rate-Spread Dependent

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

Economic Indicator Dependent

With the Economic Indicator Dependent relationship, you can input new business assumptions related to defined economic indices (as defined in Rate Management), where the change in the index will drive a different outcome of new business. For example, you can forecast a higher GDP and tie the new business assumptions to that particular forecast.

Rate Tiers

The Rate Tiers tab will become available to edit when one of the following three rate volume relationships have been selected (Rate Level, Rate Spread, and Economic Indicator). Once you have selected a rate-volume relationship and defined your base and alternate interest rates, you must define rate tiers. Rate tiers provide the lookup values for which different new business assumptions can be input.

Lookup Method

The lookup method determines which new business assumption is selected from the input values when the forecasted interest rate falls between two rate tiers. There are two methods to choose from:

Interpolate: If you select Interpolate, Oracle ALM uses a straight line interpolation method to find a value between the two given points.

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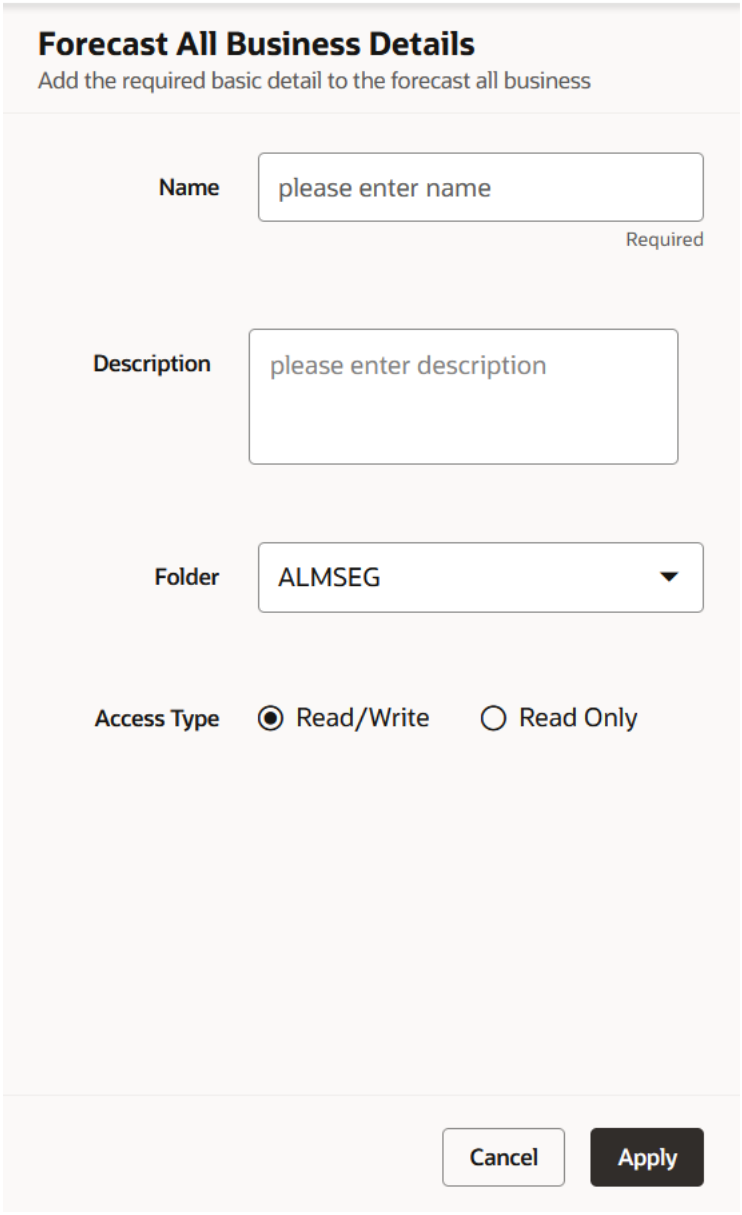
Range: If you select Range, Oracle ALM selects the new business assumption as the closest assumption associated with the rate tier which is less than or equal to the forecasted interest rate.

6.3.3.4.2 Create Forecast All Business Rule

To create a new Forecast All Business Rule, follow these steps:

1. Click **Add** icon from the top of the **Forecast All Business Rule Summary** page. The **Forecast All Business Details** page is displayed.

Figure 6-180 Forecast All Business Details Page



2. Enter the following details and click **Apply**.

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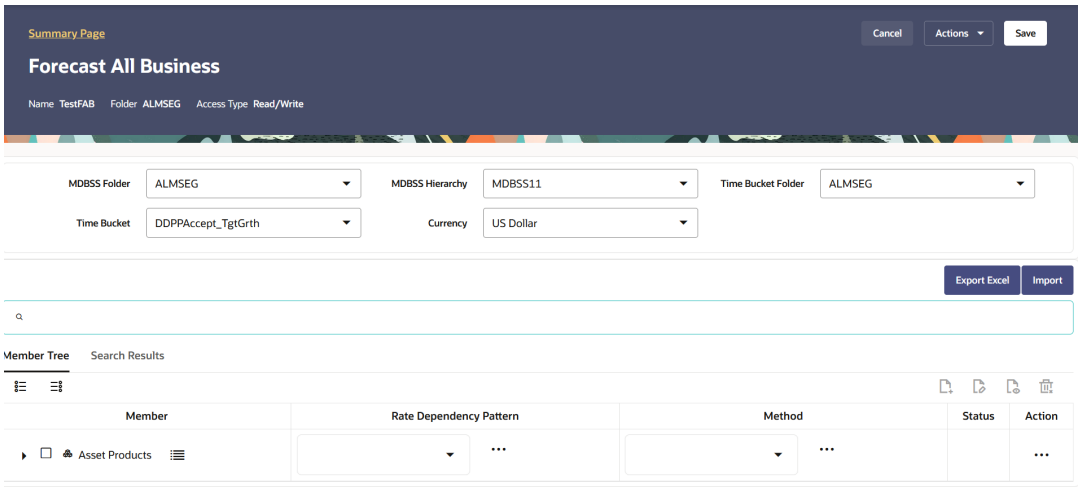
Table 6-47 Create Forecast All Business Rule

Fields	Description
Name	Enter the name of the Forecast All Business Rule.
Description	Enter the description of the Forecast All Business Rule. This is an optional field.
Folder	Select the Folder where the Forecast All Business Rule needs to be saved.
Access Type	Select the Access Type as Read-Only or Read/ Write.

3. The **Forecast All Balance Rule** page is displayed.

Figure 6-181 Forecast All Balance Rule page



Enter the following details:

Table 6-48 Create Forecast All Business Rule

Fields	Description
MDBSS Folder and MDBSS Hierarchy	Select the MDBSS folder and MDBSS hierarchy
Time Bucket Folder and Time Bucket	Select the Time Bucket folder and Time Bucket
Currency	Select the currency for Forecast All Business Rule

> **Note**
>
> If any member is a currency in the MDBSS hierarchy (for example, INR) and selected currency is different (for example, USD), then the member and its children nodes can not be defined.

4. Select MDBSS node(s) from Member Tree tab of **Assumption Browser**. Assumption Browser has two tabs: Member Tree and Search Results.

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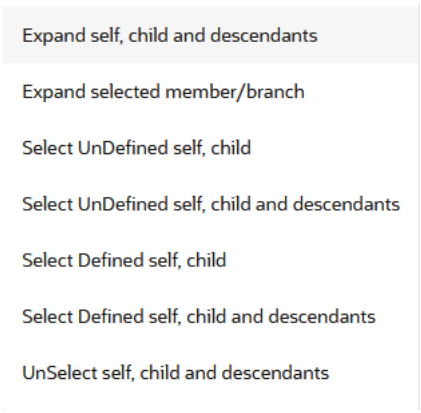
- **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.

Figure 6-182 Member Tree Selection



Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

- **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
- **Expand selected member/branch:** Allows to expand the selected node
- **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
- **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
- **Select Defined self, child:** Allows to select the selected node itself along with its child.
- **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
- **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

You can perform the following tasks on the selected node(s):

a. Add
b. Edit
c. View
d. Delete
e. Copy

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

- **Search Results:** You can also search the members based on the filters. This section shows the searched node(s).

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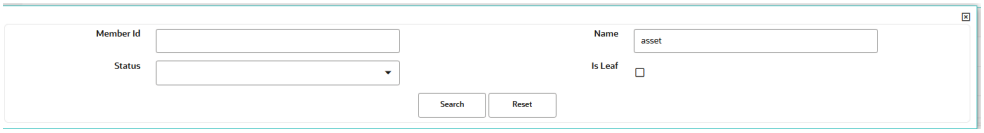
To search a member, follow these steps:

a. Navigate to Search Results tab of **Assumption Browser** section.

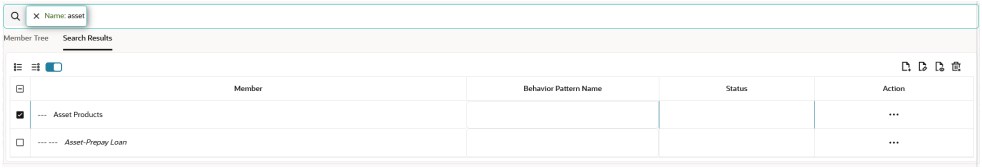
b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

Figure 6-183 Searching Member



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

Figure 6-184 Search Results



You can perform the following tasks on the searched node(s):

a. Add

b. Edit

c. View

d. Delete

e. Copy

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

5. Select the predefined Rate Dependency Pattern from **Rate Dependency Pattern** drop-down. Else, click corresponding **Action** button to create new Rate Dependency Pattern, edit Rate Dependency Pattern, or view Rate Dependency Pattern. There are four rate-volume options to choose from:

- **No Relationship**
  If you want new business amounts to stay constant regardless to the interest rate environments, select this option.
- **Rate-Level Dependent**
  The Rate-Level dependent relationship allows you to change new business behavior for different values of a single indicator interest rate. The indicator interest rate, referred to as the Base Interest Rate, is defined by an Interest Rate Code, a term selection, and a rate lag.
  – **Interest Rate Code:** The Interest Rate Code identifies the reference yield curve or rate index whose forecasted value determines the new business amount. You can select the Interest Rate Code from all available interest rate codes for the selected currency, as defined within Rate Management. The list of Interest Rate Codes

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

- **Term Selection:** If the selected Interest Rate Code is a yield curve, you must also select a term. Your term choices depend on the definition of the Interest Rate Code within Rate Management. Note that the selection automatically defaults to the shortest available term.
- **Rate Lag:** If you want the base interest rate calculation to perform a look back function, you can input a rate lag. The new business assumption lookup uses the forecasted interest rates as of a date within the current modeling bucket less the rate lag. If the timing of new business is End of Bucket, the lookup function uses the last day of the modeling bucket less the rate lag. For all other cases, the mid-point of the bucket less the rate lag is used.

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

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

- **Economic Indicator Dependent**
  With the Economic Indicator Dependent relationship, you can input new business assumptions related to defined economic indices (as defined in Rate Management), where the change in the index will drive a different outcome of new business. For example, you can forecast a higher GDP and tie the new business assumptions to that particular forecast.

  - **Rate Tiers:** The Rate Tiers tab will become available to edit when one of the following three rate volume relationships have been selected (Rate Level, Rate Spread, and Economic Indicator). Once you have selected a rate-volume relationship and defined your base and alternate interest rates, you must define rate tiers. Rate tiers provide the lookup values for which different new business assumptions can be input.
  - **Lookup Method:** The lookup method determines which new business assumption is selected from the input values when the forecasted interest rate falls between two rate tiers. There are two methods to choose from:
    Interpolate: 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.

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

6. Select **Forecast Balance** method from **Method** drop-down.
7. Click **Add** from **Assumption Browser** section.
8. Click **Save**.

Export Excel

Export Excel functionality allows you to download the members. This is an optional step. To export the data, follow these steps:

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1. Select the member(s).
2. Click **Export Excel** button.
3. The **Select Currency** window is displayed. Select the currency.

The member data will be exported in **.xlsx** format.

Import Excel

Import Excel functionality allows you to import the member list from your local system. This is an optional step. To import the data, follow these steps:

1. Click **Import** button.
2. The **Import Excel** window is displayed. Click **Drag and Drop**, and select the excel file (.xlsx) to upload.

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

3. Click **Validate** to verify the template.

> **Note**
>
> The Downloaded Forecast rules and assumptions can be viewed, added, removed, or modified, then re-uploaded back into the Application.

4. Click **Import**.

The excel file is uploaded and a confirmation box is displayed

6.3.3.4.3 Defining Forecast All Business Rules

The definition of a Forecast All Business Rule is part of the **Create** or **Edit** Forecast All Business Rule process. When you click **Save** in the Create Forecast All Business Rule process, the Rule is saved, and the **Forecast All Business Rule** summary page is displayed. However, Product Characteristic assumptions have not yet been defined in the products at this point. Start defining the Product Characteristic assumptions for MDBSS before clicking **Save**.

Defining Forecast All Business Using Node Level Assumptions

Node Level Assumptions allow you to define assumptions at any level of the Multi Dimensional Balance Sheet Structure (MDBSS) hierarchy. The MDBSS 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 MDBSS hierarchies while defining rules. Children of parent nodes on an MDBSS automatically inherit the assumptions defined for the parent nodes. However, assumptions directly defined for a child take precedence over those at the parent level.

Prerequisites

Performing basic steps for creating or editing a Forecast All Business Rule.

To define a Forecast All Business Rule, follow these steps:

1. Navigate to Forecast Balance page.
2. Based on the selected Method, Forecast Balance page will be displayed.

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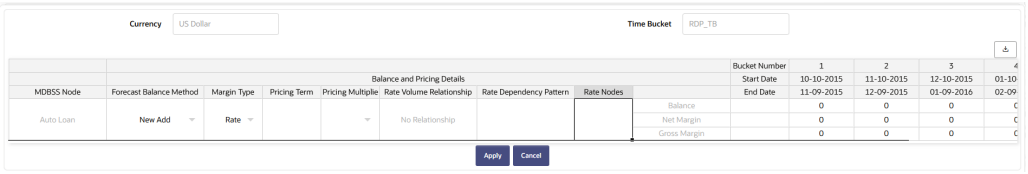
- **New Add**

Figure 6-185 Forecast All Business-New Add



– Select Margin Type as **Rate** or **Percent**.
If Margin Type is selected as **Rate**, the provided Margin is used as a fixed spread. If Margin Type is selected as **Percent**, the Margin must be provided as the Percentage of forecast rate. If the margin is 10% of the forecast rate, 10 must be provided.

– Enter Pricing Term.

– Select Pricing Multiplier as Month, Day or Year.

> **Note**
>
> Pricing Term and Pricing Multiplier are optional fields. By default, the pricing based on the instrument's next reprice (or maturity) tenor.

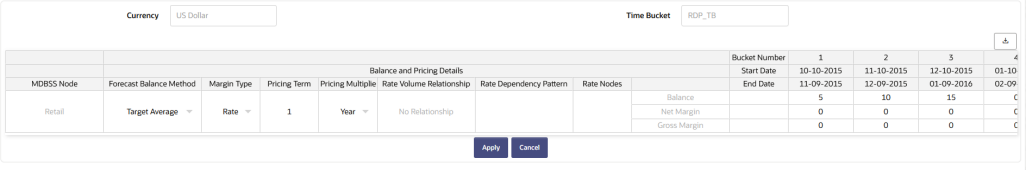
– Enter values for Balance, Net Margin, and Gross Margin values for Buckets.
The contractual margin over the interest rate code used in computing net rate. Gross margin minus any fees. Contractual spread over interest rate code used in the calculation of the gross rate.

– Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

- **Target Average**

Figure 6-186 Forecast All Business- Average



– Select Margin Type as **Rate** or **Percent**.
If Margin Type is selected as **Rate**, the provided Margin is used as a fixed spread. If Margin Type is selected as **Percent**, the Margin must be provided as the Percentage of forecast rate. If the margin is 10% of the forecast rate, 10 must be provided.

– Enter Pricing Term.

– Select Pricing Multiplier as Month, Day or Year.

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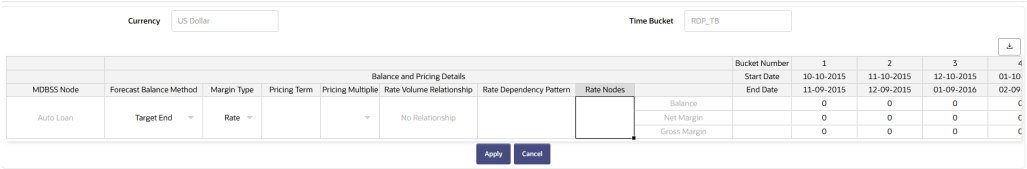
> **Note**
>
> Pricing Term and Pricing Multiplier are optional fields. By default, the pricing based on the instrument's next reprice (or maturity) tenor.

- Enter values for Balance, Net Margin, and Gross Margin values for Buckets. The contractual margin over the interest rate code used in computing net rate. Gross margin minus any fees. Contractual spread over interest rate code used in the calculation of the gross rate.
- Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

- **Target End**

Figure 6-187 Forecast All Business-Target End



- Select Margin Type as **Rate** or **Percent**.
  If Margin Type is selected as **Rate**, the provided Margin is used as a fixed spread.
  If Margin Type is selected as **Percent**, the Margin must be provided as the Percentage of forecast rate. If the margin is 10% of the forecast rate, 10 must be provided.
- Enter Pricing Term.
- Select Pricing Multiplier as Month, Day or Year.

> **Note**
>
> Pricing Term and Pricing Multiplier are optional fields. By default, the pricing based on the instrument's next reprice (or maturity) tenor.

- Enter values for Balance, Net Margin, and Gross Margin values for Buckets. The contractual margin over the interest rate code used in computing net rate. Gross margin minus any fees. Contractual spread over interest rate code used in the calculation of the gross rate.
- Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

- **Target Growth Percent**

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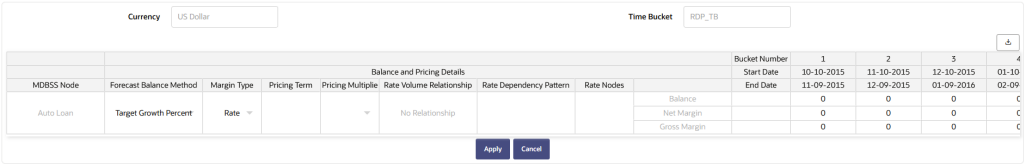
Figure 6-188 Forecast All Business-Target Growth Percent



– Select Margin Type as **Rate** or **Percent**.
If Margin Type is selected as **Rate**, the provided Margin is used as a fixed spread. If Margin Type is selected as **Percent**, the Margin must be provided as the Percentage of forecast rate. If the margin is 10% of the forecast rate, 10 must be provided.

– Enter Pricing Term.

– Select Pricing Multiplier as Month, Day or Year.

> **Note**
>
> Pricing Term and Pricing Multiplier are optional fields. By default, the pricing based on the instrument's next reprice (or maturity) tenor.

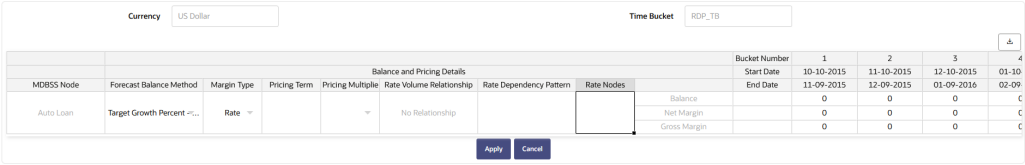
– Enter values for Balance, Net Margin, and Gross Margin values for Buckets.
The contractual margin over the interest rate code used in computing net rate. Gross margin minus any fees. Contractual spread over interest rate code used in the calculation of the gross rate.

– Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

- **Target Growth Percent- Allocated**

Figure 6-189 Forecast All Business - Target Growth Percent- Allocated



– Select Margin Type as **Rate** or **Percent**.
If Margin Type is selected as **Rate**, the provided Margin is used as a fixed spread. If Margin Type is selected as **Percent**, the Margin must be provided as the Percentage of forecast rate. If the margin is 10% of the forecast rate, 10 must be provided.

– Enter Pricing Term.

– Select Pricing Multiplier as Month, Day or Year.

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> **Note**
>
> Pricing Term and Pricing Multiplier are optional fields. By default, the pricing based on the instrument's next reprice (or maturity) tenor.

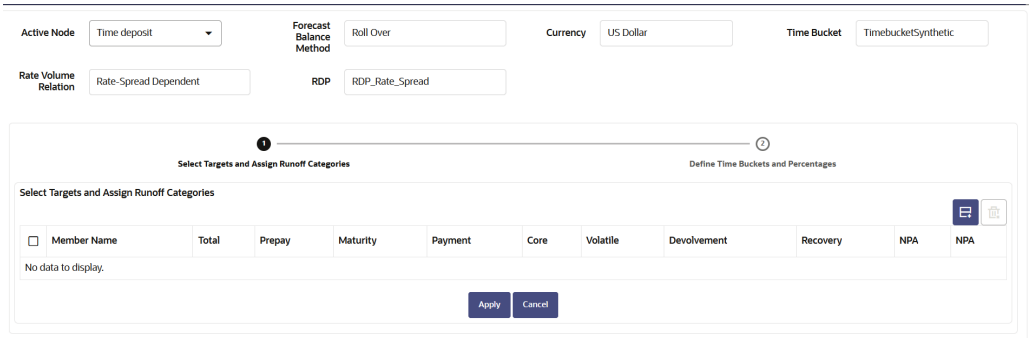
– Enter values for Balance, Net Margin, and Gross Margin values for Buckets. The contractual margin over the interest rate code used in computing net rate. Gross margin minus any fees. Contractual spread over interest rate code used in the calculation of the gross rate.

– Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

- **Rollover**

Figure 6-190 Forecast Balance-Rollover



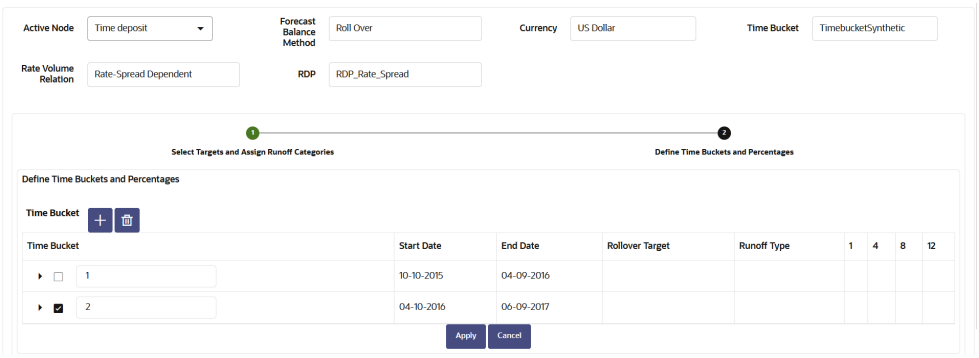
– Click **Create** button to select a Target node. The Hierarchy page will appear.

– Select the MDBSS node for the rollover and click Ok.

> **Note**
>
> You can use Search functionality to search a MDBSS node. The searched node will display in **Search Results** tab.

– The selected MDBSS node(s) will appear in **Select Target and Assign Categories** section.

Figure 6-191 Forecast Balance-Rollover



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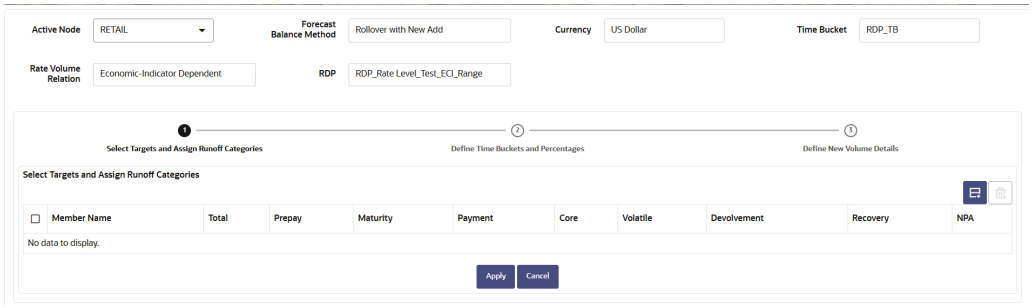
- Select the desired runoff type (Total, Prepay, Maturity, Payment, Core, Volatile, Devolvement, Recovery, or NPA).
- Click **Apply** to navigate to **Define Time Buckets and Percentages** section.
- Define the input bucket ranges. You only need to define multiple bucket ranges if you want to vary rollover assumptions by modeling buckets. The bucket ranges defined here only apply to rollover occurring from the source leaf to the target leaf. You must have at least one bucket range defined. Typically, you define a bucket range from the first modeling bucket to the last modeling bucket, covering the entire modeling horizon. To define a bucket range, perform below steps:
  * Add Time Bucket using Add icon. Default bucket is 1 and you cannot delete this.
  * Select a Time Bucket. Based on selected Time Bucket, start bucket date and end bucket date will display.
  * Continue adding time buckets until all desired ranges have been defined. Expand the Time Bucket to add percentage.
- In Enter the percentage rollover for the given Target.
- Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

- **Rollover with New Add**

Figure 6-192 Forecast Balance-Rollover with New Add



- Click **Create** button to select a Target node. The Hierarchy page will appear.
- Select the MDBSS node for the rollover with New Add and click Ok.

> **Note**
>
> You can use Search functionality to search a MDBSS node. The searched node will display in **Search Results** tab.

- The selected MDBSS node(s) will appear in **Select Target and Assign Runoff Categories** section.

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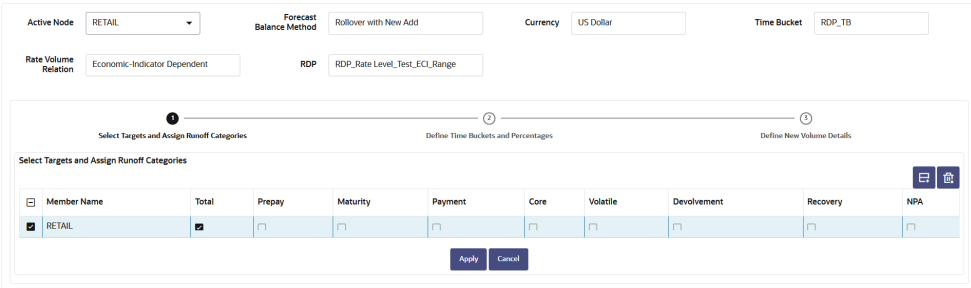
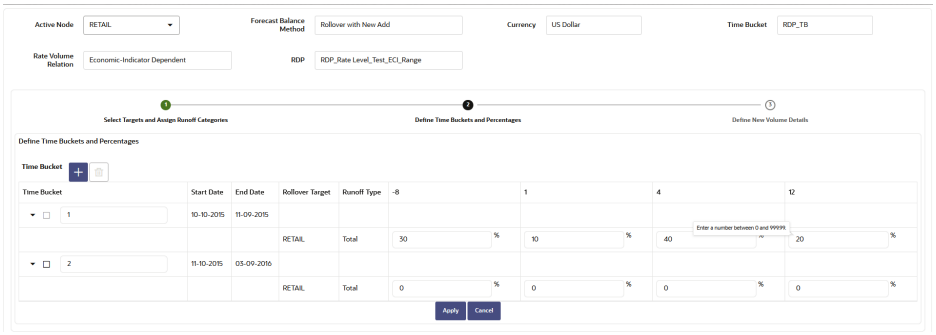
Figure 6-193 Forecast Balance-Rollover with New Add



– Select the desired runoff type (Total, Prepay, Maturity, Payment, Core, Volatile, Devolvement, Recovery, or NPA).
– Click **Apply** to navigate to **Define Time Buckets and Percentages** section.
– Define the input bucket ranges. You only need to define multiple bucket ranges if you want to vary rollover assumptions by modeling buckets. The bucket ranges defined here only apply to rollover occurring from the source leaf to the target leaf. You must have at least one bucket range defined. Typically, you define a bucket range from the first modeling bucket to the last modeling bucket, covering the entire modeling horizon. The default Bucket Range includes all modeling buckets. To forecast new business in a subset of the modeling horizon, reduce the bucket range by increasing the bucket start date or decreasing the bucket end date. As you change the bucket start and/or the bucket end, the view adjusts accordingly to display only buckets within the selected range. To define a bucket range, perform below steps:
  * Add Time Bucket using Add icon. Default bucket is 1 and you cannot delete this.
  * Select a Time Bucket. Based on selected Time Bucket, start bucket date and end bucket date will display.

Figure 6-194 Forecast Balance-Rollover with New Add



  * Continue adding time buckets until all desired ranges have been defined. Expand the Time Bucket to add percentage.
– Enter the percentage rollover for the given Target.
– Click **Apply** to navigate to **Define New Volume Details** section.

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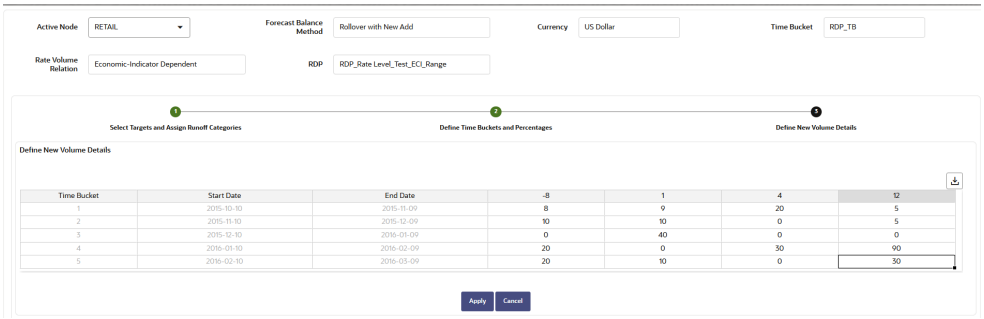
Figure 6-195 Forecast Balance-Rollover with New Add



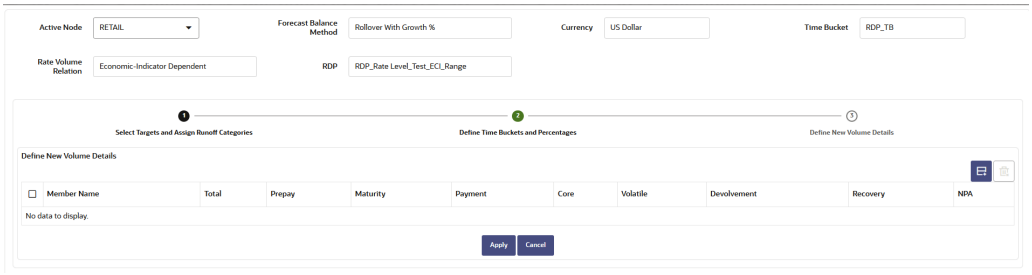
– The **New Volume Detail** section is used to input new volume assumptions. In this section, you can select the range of modeling buckets and input balance or percentage assumptions for each modeling bucket within this bucket range. Enter the targeted value.

– Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

- **Rollover with Growth%**

Figure 6-196 Forecast Balance-Rollover with Growth%



– Click **Create** button to select a Target node. The Hierarchy page will appear.

– Select the MDBSS node for the rollover with New Add and click Ok.

> **Note**
>
> You can use Search functionality to search a MDBSS node. The searched node will display in **Search Results** tab.

– The selected MDBSS node(s) will appear in **Select Target and Assign Runoff Categories** section.

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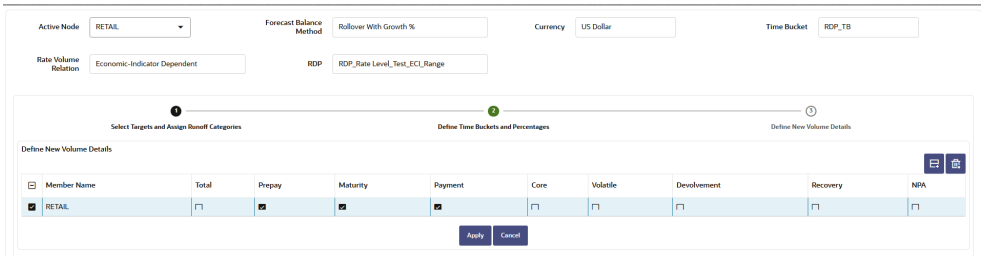
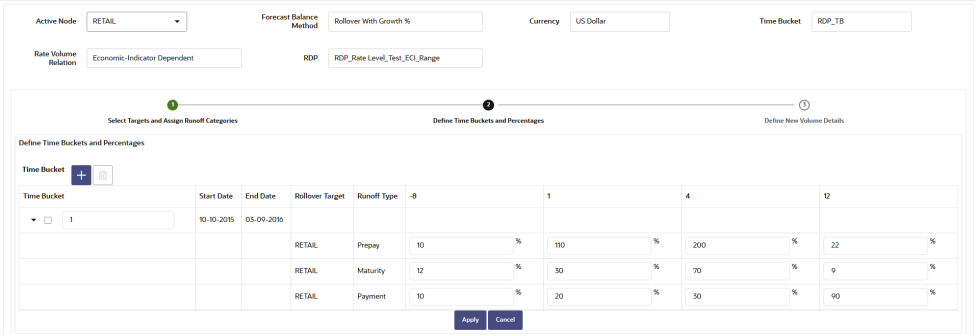
Figure 6-197 Forecast Balance-Rollover with Growth%



– Select the desired runoff type (Total, Prepay, Maturity, Payment, Core, Volatile, Devolvement, Recovery, or NPA).
– Click **Apply** to navigate to **Define Time Buckets and Percentages** section.

Figure 6-198 Forecast Balance-Rollover with Growth%



– Define the bucket ranges. You only need to define multiple bucket ranges if you want to vary rollover assumptions by modeling buckets. The bucket ranges defined here only apply to rollover occurring from the source leaf to the target leaf. You must have at least one bucket range defined. Typically, you define a bucket range from the first modeling bucket to the last modeling bucket, covering the entire modeling horizon. The default Bucket Range includes all modeling buckets. To forecast new business in a subset of the modeling horizon, reduce the bucket range by increasing the bucket start date or decreasing the bucket end date. As you change the bucket start and/or the bucket end, the view adjusts accordingly to display only buckets within the selected range. To define a bucket range, perform below steps:
  * Add Time Bucket using Add icon. Default bucket is 1 and you cannot delete this.
  * Select a Time Bucket. Based on selected Time Bucket, start bucket date and end bucket date will display.
  * Continue adding time buckets until all desired ranges have been defined. Expand the Time Bucket to add percentage.
– Enter the percentage rollover for the given Target.
– Click **Apply** to navigate to **Define New Volume Details** section.

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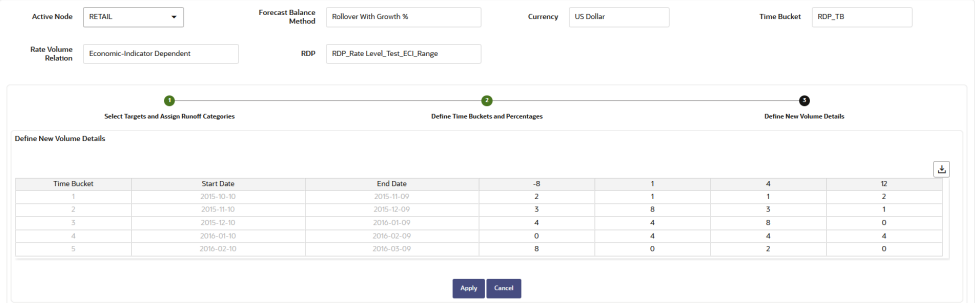
Figure 6-199 Forecast Balance-Rollover with Growth%



– The **New Volume Detail** section is used to input new volume assumptions. In this section, you can select the range of modeling buckets and input balance or percentage assumptions for each modeling bucket within this bucket range. Select corresponding row to the first modeling bucket. If rate-volume relationships are used, this cell also corresponds to the first rate tier. Enter the targeted value.

– Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

6.3.3.5 Maturity Mix

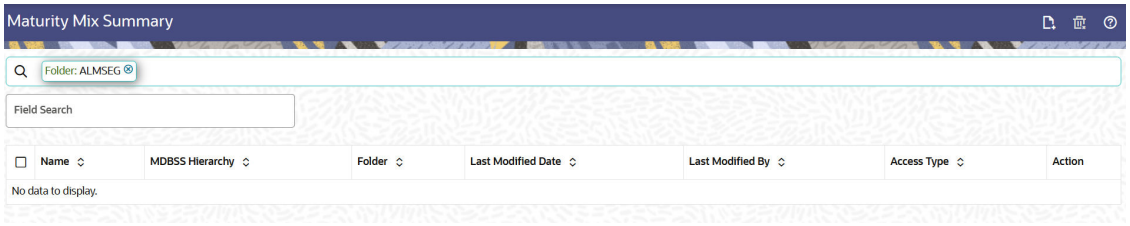
Maturity Mix rules allow you to define the term distribution of new businesses that are added during each forecast period. Maturity Mix assumptions are set at the product and currency levels. For new volumes generated during a simulation run, you will define the maturity and amortization terms applied to the balances originated in each period, as well as specify a maturity distribution for the volumes originated. For example, mortgage originations may be divided into 25% - 5 Year Term or 30 Year Amortization, 25% - 7 Year Term or 30 Year Amortization, and 50% - 30 Year Term or 30 Year Amortization. You attach the set of maturity assumptions to apply to all new volumes within a Dynamic ALM Process by selecting the appropriate Maturity Mix Rule. New business assumptions are defined based on the combined inputs from the following four forecast related Business Rules:

- Product Characteristics
- Forecast Balance rules
- Pricing Margins
- Maturity Mix

Maturity Mix Rule Summary Page

This page is the gateway to all Maturity Mix rules and related functionality. You can navigate to other pages relating to Maturity Mix rules from this point.

Figure 6-200 Maturity Mix Summary



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Search Maturity Mix Rule

Prerequisites: Predefined Maturity Mix rule

To search for a Maturity Mix rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Maturity Mix rules that meet the search criteria.

Or

Alternatively, search for a Maturity Mix rule through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Maturity Mix Summary. You can enter the **Code, Name, Description, MDBSS Hierarchy**, and **Folder** of the Maturity Mix rule and then click **Search**.

The Maturity Mix Summary page displays the following information:

Add: Click the **Add** icon on the page header to build a new Maturity Mix rule.

Multiple Delete: This enables you to select and delete one or multiple rules in the table simultaneously.

- **Name:**The Maturity Mix rule's short name.
- **MDBSS Hierarchy:** Name of Hierarchy that is used to define Maturity Mix rule.
- **Folder:** The Folder in which the Maturity Mix rule is saved.
- **Last Modified By:** The user who last modified the Maturity Mix rule.
- **Last Modified Date:** The Date and Time when the Maturity Mix rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Maturity Mix rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Maturity Mix rules. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Maturity Mix rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Maturity Mix rules that you no longer require. Note that only Maturity Mix rule owners and those with Read/Write privileges can delete Maturity Mix rules. A Maturity Mix rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Dependency Check:** You can perform a dependency check to know where a particular Maturity Mix rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure that you are not deleting Maturity Mix rules that have dependencies. A report of all rules that utilize the selected Maturity Mix rule is generated.

Also See:

- Create a Maturity Mix Rule

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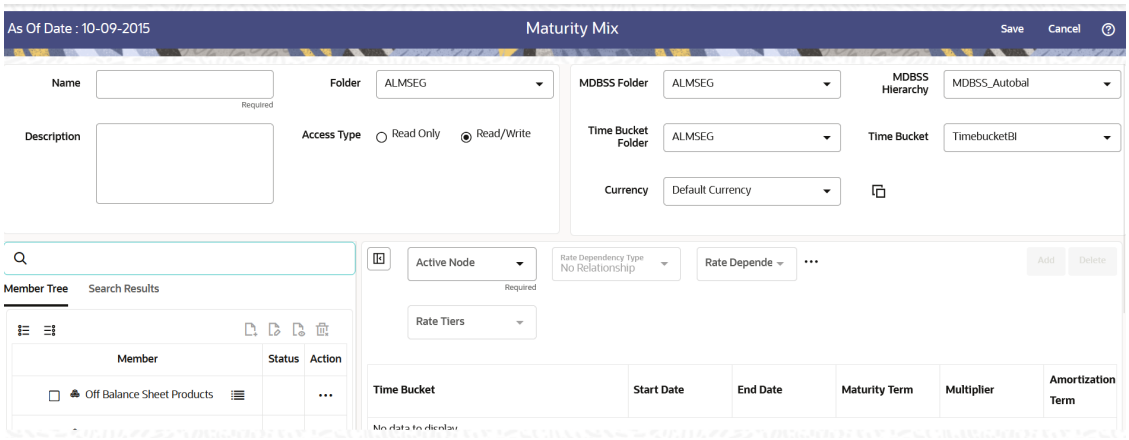
6.3.3.5.1 Creating Maturity Mix Rules

You create Maturity Mix Rules to define the maturity and amortization term for new business volumes. Maturity Mix Rules use the modeling period defined in the **Active** Time Bucket Rule to set up the date range over which these assumptions can be defined.

> **Note**
>
> Maturity Mix is an optional rule and the default maturity is given in the node's Product Characteristics.

To create a new Maturity Mix Rule, follow these steps:

Figure 6-201 Maturity Mix Page



To create a new Maturity Mix Rule, follow these steps:

1. Click the **Add** icon from the top of the **Maturity Mix Summary** Page.
2. Enter the following Details.

Table 6-49 Create Maturity Mix Rule

Fields	Description
Name	Enter the name of the Maturity Mix rule.
Description	Enter the description of the Maturity Mix rule. This is an optional field.
Folder	Select the Folder where the Maturity Mix rule needs to be saved.
Access Type	Select the Access Type as Read-Only or Read/ Write.
MDBSS Folder	Select the MDBSS folder
MDBSS Hierarchy	Select the MDBSS hierarchy
Time Bucket Folder	Select the Folder from which you want to apply Time Bucket rule.

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Table 6-49 (Cont.) Create Maturity Mix Rule

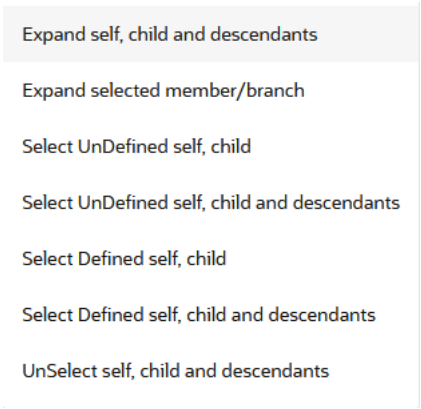
Fields	Description
Time Bucket	Select the time horizon/aggregation for process
Currency	Select the currency for the Maturity Mix rule

> **Note**
>
> If any member is a currency in the MDBSS hierarchy (for example, INR) and selected currency is different (for example, USD), then the member and its children nodes can not be defined.

3. Select MDBSS node(s) from **Member Tree** tab of the **Assumption Browser**. Assumption Browser has two tabs: **Member Tree** and **Search Results**.

- **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click **Menu** icon next to it to view the available options.

Figure 6-202 Member Tree Selection



The status of the node is also displayed in the **Member Tree** section, for example Selected, and so on. To select member hierarchy, following options are available:

- **Expand self, child and descendants:** This allows you to expand the selected node itself along with its child and descendants.
- **Expand selected member/branch:** This allows you to expand the selected node
- **Select UnSelect self, child:** This allows you to unselect the selected node itself along with its child
- **Select UnSelect self, child and descendants:** This allows you to unselect the selected node itself along with its child and descendants.
- **Select Defined self, child:** This allows you to select the selected node itself along with its child.
- **Select Defined self, child and descendants:** This allows you to select the selected node itself along with its child and descendants.

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– **UnSelect self, child and descendants:** This allows you to unselect the selected node itself along with its child and descendants.

You can perform the following tasks on the selected node(s):

a. Add

b. Edit

c. View

d. Delete

e. Copy

Use the **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

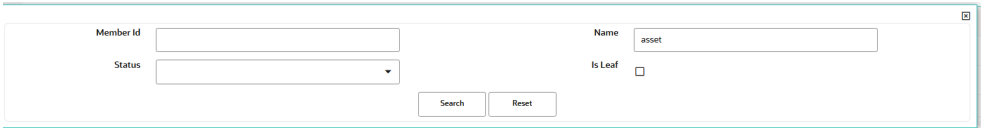
Use the **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

- **Search Results:** You can also search the members based on the filters. This section shows the searched node(s).
To search for a member, follow these steps:

a. Navigate to the **Search Results** tab of **Assumption Browser** section.

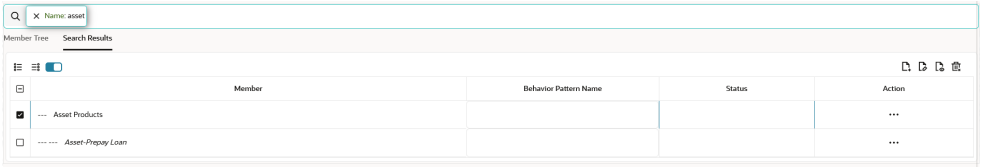
b. Enter the Member ID, Name, Status, or Is Leaf in the Search Criteria.

Figure 6-203 Searching Member



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

Figure 6-204 Search Results



You can perform the following tasks on the searched node(s):

a. Add

b. Edit

c. View

d. Delete

e. Copy

Use the **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use the **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

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4. Click **Add** from **Assumption Browser** section.
5. Click **Save**.

6.3.3.5.2 Defining Maturity Mix Rule

When you click Save in the Create Maturity Mix Rules Process, the Rule is saved and the Maturity Mix Rule Summary Page is displayed. However, Maturity Mix assumptions have not yet been defined for any of your products at this point. Typically, you would start defining your Forecast Balance assumptions for MDBSS before clicking Save.

The Maturity Mix Rule supports the definition of Forecast Balance assumptions for MDBSS.

Once you have created a Maturity Mix Rule, you can assign Maturity Mix to MDBSS using Node Level Assumption. For more information, see Defining Maturity Mix Using Node Level Assumptions section.

6.3.3.5.2.1 Defining Maturity Mix Using Node Level Assumptions

Node Level Assumptions allow you to define assumptions at any level of the Multi Dimensional Balance Sheet Structure (MDBSS) hierarchy. The MDBSS 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 MDBSS hierarchies while defining rules. Children of parent nodes on an MDBSS automatically inherit the assumptions defined for the parent nodes. However, assumptions directly defined for a child take precedence over those at the parent level. In an income simulation scenario, you may want to price new business for an account at a margin above or below a market interest rate code. For example, you can model a premium paid on CDs in relation to a market yield curve by adding a Maturity Mix to the interest rate code assigned to the product in the Product Characteristics rule. If you want a rate that is 25 bps above the market yield curve, you will type "0.25" as the Maturity Mix for the appropriate modeling period. The Maturity Mix rule uses the modeling period defined in the "active" Time Bucket rule. You should always verify that your modeling horizon and related assumptions are consistent with the As of Date and active Time Bucket rule before processing.

Prerequisites

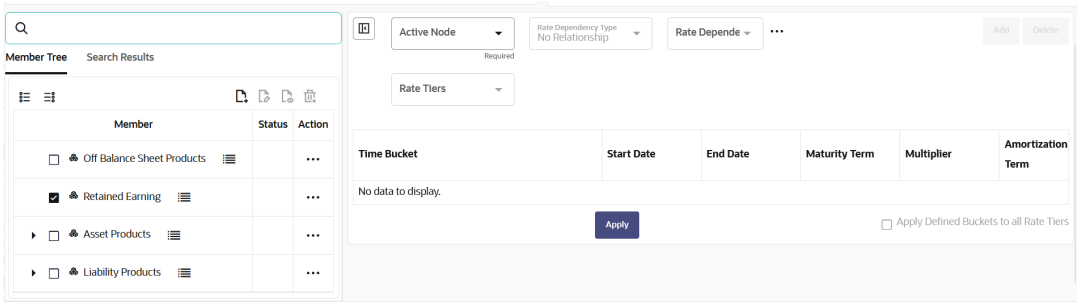
Performing basic steps for creating or editing a Maturity Mix Rule.

Procedure

To define the Maturity Mix rule, follow these steps:

1. Navigate to the Maturity Mix rule page.

Figure 6-205 Maturity Mix Rule section



2. Enter the following details:

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Table 6-50 Maturity Mix

Fields	Description
Active Node	Shows the name of the selected Active Node
Rate Dependency Pattern	Rate Dependency Patterns allow you to establish relationships between the level of interest rates, economic indicators or rate spreads and ALM forecast assumption rules. There are four rate dependency options to choose from: • No Relationship • Rate Level Dependent • Rate Spread Dependent • Economic Indicator Dependent The following options are available when you click **Action** button next to Rate Dependency Pattern: View Edit New
Rate Tiers	You must define rate tiers. Select **Rate Tier** from drop-down to add the number of Rate Tiers to include in your pattern. Input the appropriate Rate Level for each Rate Tier.
Bucket Number Start and Bucket Number End	The bucket number input allows you to select a range of buckets over which the Maturity Mix assumption will apply. Start Date and End Date values are updated automatically based on the Bucket Number input for each row.
Start Date and End Date	When the Maturity Mix detail page opens, the Start Date (min value) and End Date (max value) columns are automatically populated and are read-only values. The date ranges represent the Income Simulation Date buckets as defined in the "active" Time Bucket rule. Any new business originated within these dates is modeled using the Maturity Mix defined in the Maturity Mix rule. The new business added for each date bucket will have the same net and gross margin for its life. The margins for a particular instrument will not change as the instrument ages.
Maturity Term	In conjunction with the Multiplier, this field allows you to specify the value for the Term, for a given lookup tier.
Multiplier	The unit of time applied to the Maturity Term. The options are: Days, Months, and Years.
Amortization Term	Enter the Amortization Term. Term upon which amortization is based in units (days, months, years).
Multiplier	The unit of time applied to the Amortization Term. The options are: Days, Months, and Years.

3. You can add more Rows using the **Add Row** icon. You can add multiple rows at a time using the **Add Multiple Row** icon.
4. Click **Apply**.

You can also use the Excel Export feature to download the data in Excel format.

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6.3.3.5.3 Copying Assumptions Across Currencies

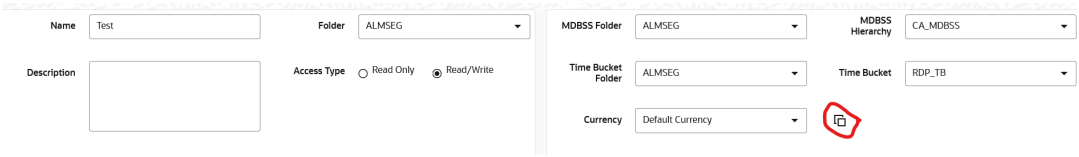
This functionality provides the option to copy, in total or selectively, the assumptions contained within the ALM assumption Rules from one currency to another currency or a set of currencies, or from one product to another product or set of products.

Copy of assumptions enhances the usability of Oracle Asset Liability Management in a multi-currency environment. For example, if you have 10 currencies enabled in the application and you must input only one set of assumptions, then copy those assumptions across all enabled currencies, instead of having to input 10 full sets, thereby saving a significant amount of input time.

To copy the assumptions across Currencies, follow these steps:

1. Navigate to the Create Maturity Mix page.
2. Define assumptions for the source currency product set.
3. **Save** the assumptions.
4. Select the defined product assumptions using the check boxes corresponding to each product (or Node on the hierarchy) that you want to include in the copy process.
5. Select **Copy Definition to another currency** button next to the **Currency** field.

Figure 6-206 Copy Across Currency



6. On the **Currency**page,select the listed currencies either individually, or select all the currencies using **select all**.

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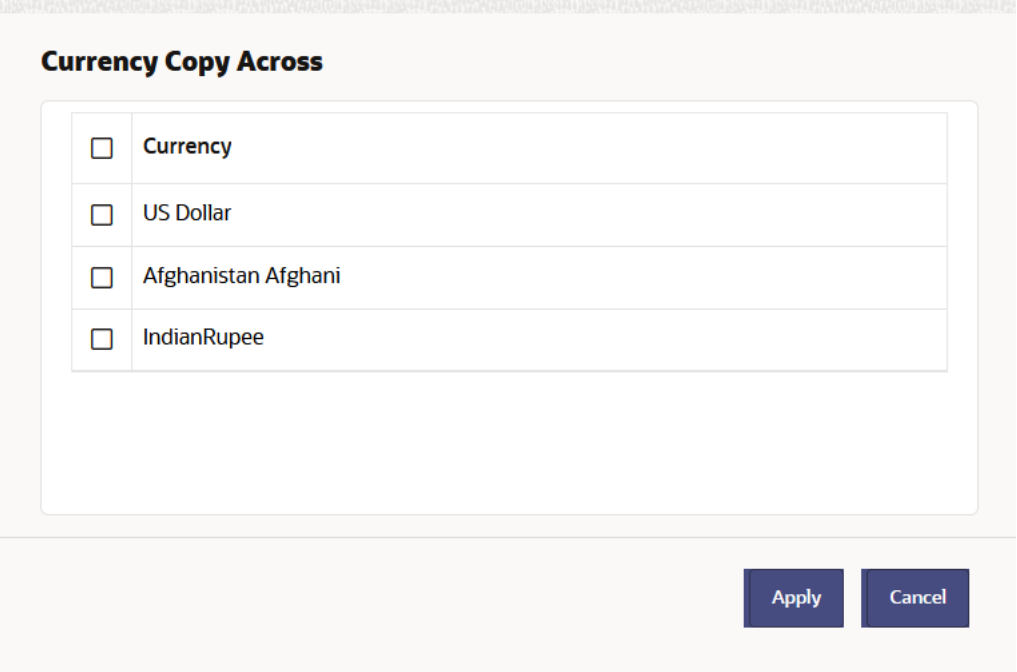
Figure 6-207 Currency page



7. Click **Apply** to initiate the copy process and to return to the **Assumption Browser** page.
8. Review the results of the copy process from the **Assumption Browser** window by selecting a different currency and following the usual navigation to view or edit assumptions. The application displays new assumptions for each product included in the source selection. The copy process replaces pre-existing assumptions for any product-currency combination that is included in the target selection.
9. Click **Save** on the **Assumption Browser** window to save the assumptions to the database.

6.3.3.6 Rate Dependency Patterns

Rate Dependency Patterns allow you to set up relationships between the level of Interest Rates, Economic Indicators, or Rate Spreads and ALM forecast assumption rules. After defining Rate Dependency Patterns, you can attach these patterns to ALM forecast business rules. ALM assumption rules with Rate Dependency Patterns, work together with your Forecast Rate scenarios to determine assumptions applicable to each specific scenario within your simulation. The following rule types support Rate Dependent assumptions:

- Forecast Balances
- Maturity Mix
- Pricing Margins
- Transaction Strategies

When Rate Dependency Patterns are attached to an ALM business rule, you will be able to input multiple versions of each assumption type within a single assumption rule. The ALM engine dynamically retrieves the assumptions which apply to the scenario being processed.

Rate Dependency Pattern Summary Page

This page is the gateway to all Rate Dependency Pattern rules and related functionality. You can navigate to other pages relating to Rate Dependency Pattern rules from this point.

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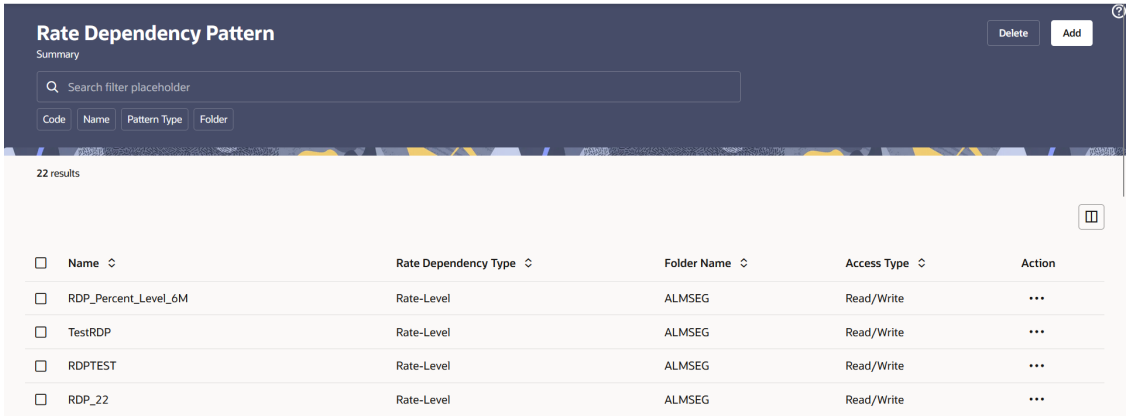
Figure 6-208 Rate Dependency Pattern Summary



Search Rate Dependency Pattern Rule

Prerequisites: Predefined Rate Dependency Pattern rule

To search for a Rate Dependency Pattern rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Rate Dependency Pattern Rules that meet the search criteria.

Or

An alternative method to search a Rate Dependency Pattern rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Rate Dependency Pattern Summary. You can enter the **Code, Name, Pattern Type**, and **Folder** of the Rate Dependency Pattern rule and click **Search**.

The Rate Dependency Pattern Summary page displays the following information:

Add: Click the **Add** icon on the page header to build a new Rate Dependency Pattern rule.

Multiple Delete: This enables you to select and delete one or multiple rules in the table simultaneously.

- **Name:**The Rate Dependency Pattern Rule's short name.
- **Rate Dependency Type:** Type of the Rate Dependency Pattern rule.
- **Folder Name:** The Folder where the Rate Dependency Pattern rule is saved.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the Rate Dependency Pattern rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Rate Dependency Patterns. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Rate Dependency Pattern by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Rate Dependency Pattern rules that you no longer require. Note that only Rate Dependency Pattern owners and those with Read/Write privileges

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can delete Rate Dependency Patterns. A Rate Dependency Pattern rule that has a dependency cannot be deleted. A Rate Dependency Pattern cannot be retrieved after deletion.

- **Dependency Check:** You can perform a dependency check to know where a particular Rate Dependency Pattern has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Rate Dependency Pattern Rules that have dependencies. A report of all rules that utilize the selected Rate Dependency Pattern Rule is generated.

Also See:

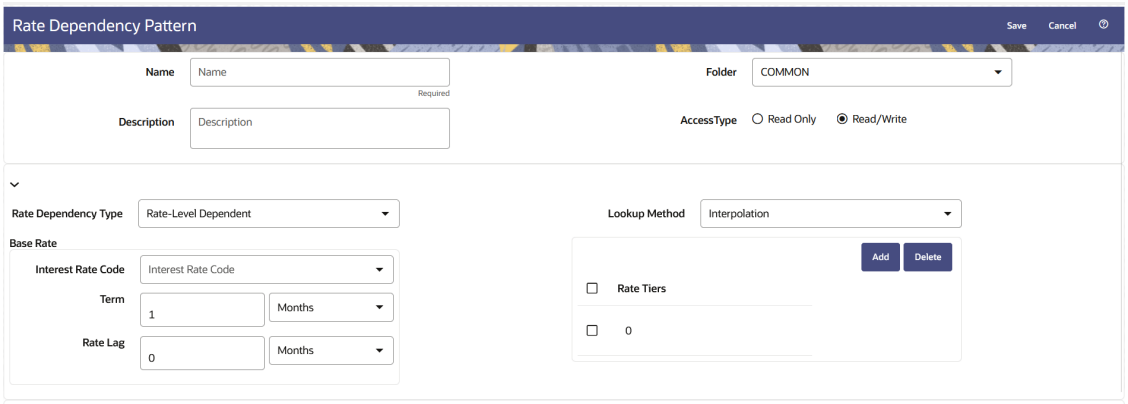
- Create a Rate Dependency Pattern Rule

6.3.3.6.1 Creating Rate Dependency Patterns

You can create Rate Dependency Patterns to attach to forecast business rules. Follow these steps:

1. Navigate to the **Rate Dependency Pattern Summary** page.
2. Enter a **Name** and a brief description of the pattern.
   Select the **Folder** and **Access Type**.
3. Select the Rate Dependency Pattern Type from Rate Dependency Pattern Type drop-down: **Rate-Level Dependent, Rate-Spread Dependent,** or **Economic Indicator Dependent.**
4. Select the Lookup Method.

Figure 6-209 Rate Dependency Pattern Page to Create a New Rate Dependency Pattern Rule



The selection of the Rate Dependency Pattern type determines the information you must provide to successfully define that pattern type. See:

- Defining Rate-Level Dependent Rate Dependency Patterns
- Defining Rate-Spread Dependent Rate Dependency Patterns
- Defining Economic Indicator Dependent Rate Dependency Patterns

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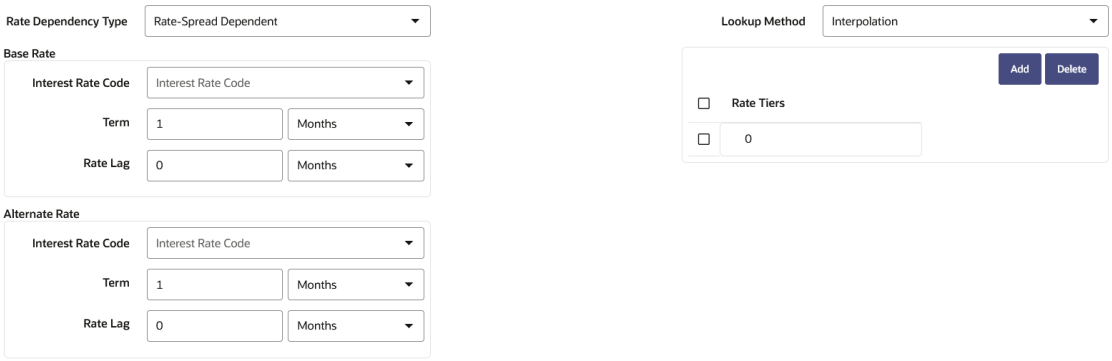
6.3.3.6.1.1 Defining Rate-Spread Dependent Rate Dependency Patterns

With the **Rate-Spread Dependent Relationship**, you can input assumptions for different spreads between two indicator interest rates. You define the first indicator interest rate, the Base Interest Rate, as described previously. The second indicator **Interest Rate**, the **Alternate Interest Rate**, also requires the selection of an **Interest Rate Code**, a **Term Selection**, and a **Rate Lag**.

Figure 6-210 Rate Dependency Pattern Rule after selecting Rate-Spread Dependent option



The rate spread equals to Alternate Interest Rate - Base Interest Rate

1. Enter the following details:

Table 6-51 Form Fields to Create a New Rate-Level Dependent Rate Dependency Pattern Rule

Fields	Description
Interest Rate Code	The **Interest Rate Code** identifies the reference yield curve or rate index whose forecasted value determines the assumptions to reference. You can select the **Interest Rate Code** from all available interest rate codes, as defined within **Rate Management**.
Term Selection	If the selected **Interest Rate Code** is a yield curve, you must also select a term. Your term choices depend on the definition of the **Interest Rate Code** within **Rate Management**. Note that the selection automatically defaults to the shortest available term.
Rate Lag	If you want the base interest rate calculation to perform a look back function, you can input a rate lag. The new business assumption lookup uses the forecasted interest rates as of a date within the current modeling bucket less the rate lag. If the timing of the new business is End of Bucket, the **Lookup** function uses the last day of the bucket less the rate lag. For all other cases, the mid-point of the bucket less the rate lag is used.

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Table 6-51 (Cont.) Form Fields to Create a New Rate-Level Dependent Rate Dependency Pattern Rule

Fields	Description
Lookup Method	The lookup method determines which new business assumption is selected from the input values when the forecasted interest rate falls between two rate tiers. There are two methods to choose from: **Interpolate:** If you select **Interpolate,** the assumption is an interpolated value, using straight line interpolation, calculated from the assumptions associated with the two nearest interest rate tiers. The interpolation uses a simple straight-line interpolation formula. **Range:** If you select **Range**, Oracle ALM selects the new business assumption as the closest assumption associated with the rate tier which is less than or equal to the forecasted interest rate. **Note** Range method is always used to interpret maturity mix forecast assumption. **Note** When the lookup method is “range” and the retrieved value is less than the lowest tier, then no rule is applied.
Rate Tiers	You must define rate tiers. **Rate Tiers** provide the lookup values for which different assumptions can be input. Select **Add Rows** to add the number of **Rate Tiers** to include in your pattern. Input the appropriate Rate Level for each Rate Tier. **Note** You must enter minimum 2 tiers. The maximum limit is 10.

2. Define the **Alternate Interest Rate** details. These fields are the same as the **Base Rate** section.
3. Select **Save**.

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6.3.3.6.1.2 Defining Rate-Level Dependent Rate Dependency Patterns

The **Rate-Level Dependent Relationship** allows you to define assumptions for different values of a single indicator interest rate. The indicator interest rate, referred to as the Base Interest Rate, is defined by an Interest Rate Code, a term selection, and a rate lag.

Figure 6-211 Rate Dependency Pattern Rule after selecting Rate-Level Dependent option

1. Enter the following details:

Table 6-52 Form Fields to Create a New Rate-Level Dependent Rate Dependency Pattern Rule

Fields	Description
Interest Rate Code	The **Interest Rate Code** identifies the reference yield curve or rate index whose forecasted value determines the assumptions to reference. You can select the **Interest Rate Code** from all available interest rate codes, as defined within **Rate Management**.
Term Selection	If the selected **Interest Rate Code** is a yield curve, you must also select a term. Your term choices depend on the definition of the **Interest Rate Code** within **Rate Management**. Note that the selection automatically defaults to the shortest available term.
Rate Lag	If you want the base interest rate calculation to perform a look back function, you can input a rate lag. The new business assumption lookup uses the forecasted interest rates as of a date within the current modeling bucket less the rate lag. If the timing of the new business is End of Bucket, the **Lookup** function uses the last day of the bucket less the rate lag. For all other cases, the mid-point of the bucket less the rate lag is used.

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Table 6-52 (Cont.) Form Fields to Create a New Rate-Level Dependent Rate Dependency Pattern Rule

Fields	Description
Lookup Method	The lookup method determines which new business assumption is selected from the input values when the forecasted interest rate falls between two rate tiers. There are two methods to choose from: **Interpolate:** If you select **Interpolate,** the assumption is an interpolated value, using straight line interpolation, calculated from the assumptions associated with the two nearest interest rate tiers. The interpolation uses a simple straight-line interpolation formula. **Range:** If you select **Range**, Oracle ALM selects the new business assumption as the closest assumption associated with the rate tier which is less than or equal to the forecasted interest rate. **Note** Range method is always used to interpret maturity mix forecast assumption. **Note** When the lookup method is “range” and the retrieved value is less than the lowest tier, then no rule is applied.
Rate Tiers	You must define rate tiers. **Rate Tiers** provide the lookup values for which different assumptions can be input. Select **Add Rows** to add the number of **Rate Tiers** to include in your pattern. Input the appropriate Rate Level for each Rate Tier. **Note** You must enter minimum 2 tiers. The maximum limit is 10.

2. Select **Save** to complete the definition.

6.3.3.6.1.3 Defining Economic Indicator Dependent Rate Dependency Patterns

With the **Economic Indicator Dependent Relationship**, you can input assumptions for different levels of a selected **Economic Indicator.** The only required selection for this method

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is the type of **Economic Indicator**. You can select the **Economic Indicator** from all available **Economic Indicators** for the selected **Currency,** as defined.

Figure 6-212 Rate Dependency Pattern Rule after selecting Economic Indicator option

1. Enter the following details:

Table 6-53 Form Fields to Create a New Rate-Level Dependent Rate Dependency Pattern Rule

Fields	Description
Economic Endicator	Select the **Economic Indicator**.
Lookup Method	The lookup method determines which new business assumption is selected from the input values when the forecasted interest rate falls between two rate tiers. There are two methods to choose from: **Interpolate:** If you select **Interpolate,** the assumption is an interpolated value, using straight line interpolation, calculated from the assumptions associated with the two nearest interest rate tiers. The interpolation uses a simple straight-line interpolation formula. **Range:** If you select **Range**, Oracle ALM selects the new business assumption as the closest assumption associated with the rate tier which is less than or equal to the forecasted interest rate. **Note** Range method is always used to interpret maturity mix forecast assumption. **Note** When the lookup method is “range” and the retrieved value is less than the lowest tier, then no rule is applied.

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Table 6-53 (Cont.) Form Fields to Create a New Rate-Level Dependent Rate Dependency Pattern Rule

Fields	Description
Rate Tiers	You must define rate tiers. **Rate Tiers** provide the lookup values for which different assumptions can be input. Select **Add Rows** to add the number of **Rate Tiers** to include in your pattern. Input the appropriate Rate Level for each Rate Tier. **Note** You must enter minimum 2 tiers. The maximum limit is 10.

2. Select **Save** to complete the definition.

6.3.3.7 Transaction Strategy Rules

With the Transaction Strategy Rules you can test the impact of various hedging strategies that are integrated with basic scenario modeling assumptions. This functionality supports you to test the alternative strategies and their incremental impact on results. The testing is facilitated by the separation of transaction strategies from basic scenario assumptions allows you to easily view the results with and without the incremental transaction(s). Use this Rule to add specific instrument records to a processing run without changing the actual instrument data. A transaction is either positive or negative and can be defined for any product leaf member. A Transaction Strategy Rule is made up of any number of individual transactions.

Search Transaction Strategies Rule

Prerequisites: Predefined Transaction Strategies Rule

To search for a Transaction Strategies Rule:

On the Transaction Strategies Summary, enter your search criteria in the search box and click **Search**. The Transaction Strategies Rules meeting your search criteria are displayed.

Or

An alternative method to search a Transaction Strategies Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Transaction Strategies Rule Summary. You can enter the **Code, Name, Description, Hierarchy**, and **Folder** of the Transaction Strategies Rule, partially or fully, and click **Search**.

Transaction Strategies Rule Summary

This page is the gateway to all Transaction Strategies Rules and related functionality. You can navigate to other pages relating to Transaction Strategies Rules from this point.

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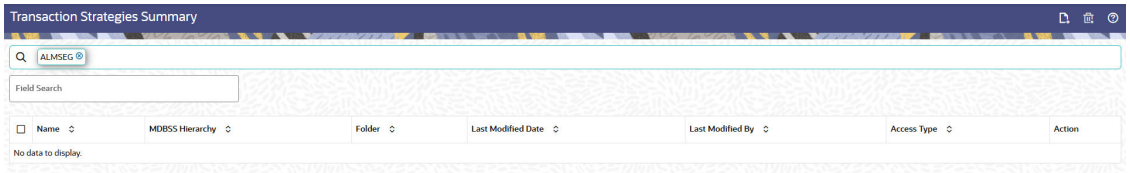
Figure 6-213 Transaction Strategies Rule Summary



The Transaction Strategies Rule Summary displays the following information:

Add: Click the Add icon on the page header to build a new Transaction Strategies Rule.

Multiple Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

- **Name**: The Transaction Strategies Rule's short name.
- **Hierarchy**: Name of the hierarchy that is used to define the Transaction Strategies Rule.
- **Folder:** The folder where the Transaction Strategies Rule is saved.
- **Last Modified By:** The user who last modified the Transaction Strategies Rule.
- **Last Modified Date:** The Date and Time when the Transaction Strategies Rule was last modified.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Action:** Click this icon to view a list of actions that you can perform on the selected Transaction Strategies Rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Transaction Strategies Rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Transaction Strategies Rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Transaction Strategies Rules that you no longer require. Note that only Transaction Strategies Rule owners and those with Read/Write privileges can delete Transaction Strategies Rules. A Transaction Strategies Rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - Dependency Check: You can perform a dependency check to know where a particular Transaction Strategies Rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Transaction Strategies Rules that have dependencies. A report of all rules that utilize the selected Transaction Strategies Rule is generated.

Also See:

- Create Transaction Strategies Rules

6.3.3.7.1 Create Transaction Strategy Rules

You create a Transaction Strategy Rule to define Transaction Strategy assumptions.

To create a new Transaction Strategy Rule, follow these steps:

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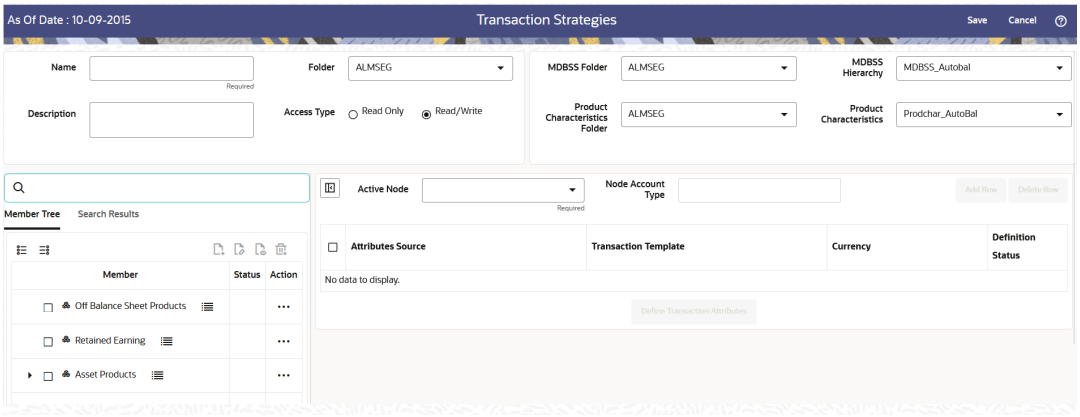
- Click **Add** icon from the top of the **Transaction Strategy Rule Summary** page. The Transaction Strategies window is displayed:

Figure 6-214 Transaction Strategy Rule



- Enter the following Details.
  - Name: Enter the name of the Transaction Strategy Rule.
  - Description (optional): Enter the description of the Transaction Strategy Rule.
  - Folder: Select the Folder where the Transaction Strategy Rule needs to be saved.
  - Access Type: Select the Access Type as Read-Only or Read/Write.
- Select a **MDBSS Folder** and **MDBSS**.
- Select **Product Characteristics Folder** and **Product Characteristics**.
- Select **MDBSS Node(s**) from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results.

> **Note**
>
> MDBSS is enabled only in ALM Cloud Service.
> If any member is a currency in the MDBSS hierarchy (for example, INR) and selected currency is different (for example USD), then the member and its children nodes cannot be defined.

  - Member Tree: Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.

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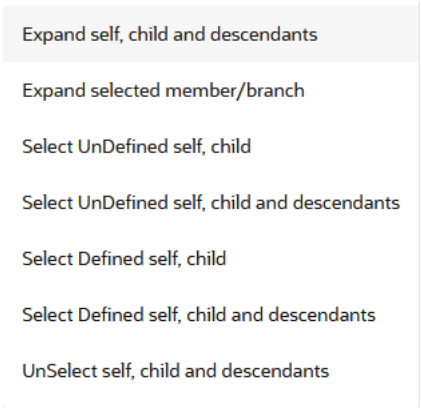
Figure 6-215 Member Tree



Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

* **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
* **Expand selected member/branch:** Allows to expand the selected node
* **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
* **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
* **Select Defined self, child:** Allows to select the selected node itself along with its child.
* **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
* **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

* Add
* Edit
* View
* Delete
* Copy

– **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

1. Navigate to **Assumption Browser** section of the Rule Definition page.
2. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

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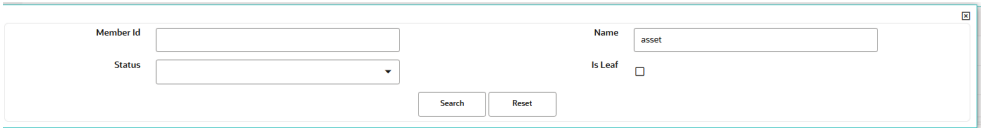
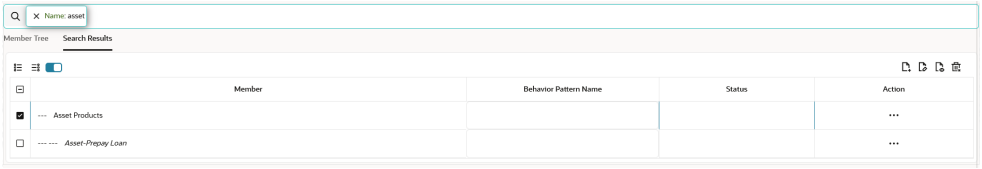
Figure 6-216 Search Criteria



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

Figure 6-217 Searching Members



.

Here, you can perform the following tasks on the searched node(s):

* Add
* Edit
* View
* Delete
* Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

- Click **Add** from **Assumption Browser** Section. For more information, see the Defining Transaction Strategy Methodologies.
- Click **Save**.

6.3.3.7.2 Defining Transaction Strategy Rule

The definition of a Transaction Strategy rule is part of the Create or Edit Transaction Strategy rule process. When you click **Save** in the Create Transaction Strategy Rule process, the rule is saved and the **Transaction Strategy Rule Summary** page is displayed.

However, Transaction Strategy assumptions have not yet been defined for any of your products at this point. Typically, you would start defining your Transaction Strategy assumptions for product-currency combinations before clicking Save.

Defining Transaction Strategy Rule Using Node Level Assumptions

Node Level Assumptions allow you to define assumptions at any level of the Product dimension Hierarchy. The Product dimension supports a hierarchical representation of your chart of accounts, so you can take advantage of the parent-child relationships defined for the

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various nodes of your product hierarchies while defining rules. Children of parent nodes on a hierarchy automatically inherit the assumptions defined for the parent nodes. However, assumptions explicitly defined for a child take precedence over those at the parent level.

> **Note**
>
> Using the default currency to setup assumptions can save data input time. At run time, the calculation engine uses assumptions explicitly defined for a product currency combination. If assumptions are not defined for a currency, the engine uses the assumptions defined for the product and the default currency. If the assumptions are the same across some or all currencies for a specific product, you can input assumptions for the default currency. Be careful using this option on screens where an Interest Rate.

Prerequisites

Performing basic steps for creating or editing a Transaction Strategy rule.

Procedure

To define Transaction Strategy Rule using Node Level Assumptions, follow these steps:

1. Click **Add Row** button on Create Transaction Strategy page. This section also displays the selected **Active Node** and **Node Account Type**.
2. Select Attribute Source as Product Characteristics or Detail Data Record. Based on selected Attribute Source, Transaction Template drop-down gets updated.
   - If you select **Attribute Source** as **Product Characteristics**, then select the Product Characteristics definition from Transaction Template and click **Define Transaction Attribute**. You can change currency also if required.
   - If you select **Attribute Source** as **Detail Data Record**, then search Data Record using **Search** button and click **Define Transaction Attribute**. You can change currency also if required.
3. After selecting Transaction Template and clicking **Define Transaction Attribute**, the Define Transaction Attribute window is displayed. The **Define Transaction Attribute** window has following sections:
   - Core Attribute
   - Behavior Specifications
   - Pricing Attributes
   - Payment Attributes
   - Rate Attribute
   - Inflation Indexed Instrument Attributes*
   - Embedded Option Attributes**

> **Note**
>
> * This section is activated when you select **Inflation Indexed Instrument Attributes** check-box from **Core Attribute** section. ** This section is activated when you select **Embedded Option Flag** check-box from **Core Attribute** section.

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6.3.3.7.2.1 Attribute Source As Detail Data Record

Prerequisites

Performing basic steps for creating or editing a Transaction Strategy rule.

Procedure

To define Transaction Strategy Rule, follow these steps:

1. Follow the steps mentioned in Defining Transaction Strategy rule section.
2. After selecting Transaction Template and clicking **Define Transaction Attribute**, the Define Transaction Attribute window is displayed. The **Define Transaction Attribute** window has following sections:
   - Core Attribute
   - Behavior Specifications
   - Pricing Attributes
   - Payment Attributes
   - Rate Attribute
   - Inflation Indexed Instrument Attributes*
   - Embedded Option Attributes**

> **Note**
>
> * This section is activated when you select **Inflation Indexed Instrument Attributes** check-box from **Core Attribute** section. ** This section is activated when you select **Embedded Option Flag** check-box from **Core Attribute** section.

Core Attributes

This section describes the new business fields used in the **Core Attributes** section of the Transaction Strategy Rule.

Figure 6-218 Core Attributes

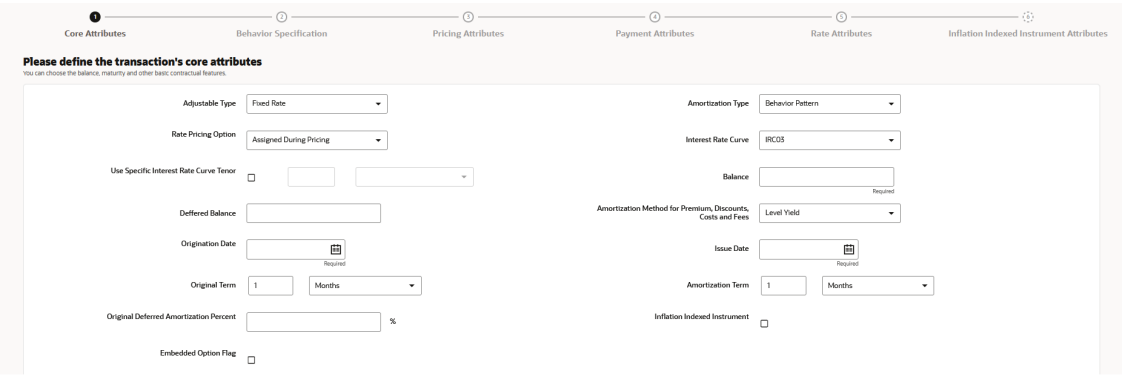

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Table 6-54 Fields to add the Core Attributes for Transaction Strategy Rule and their Descriptions

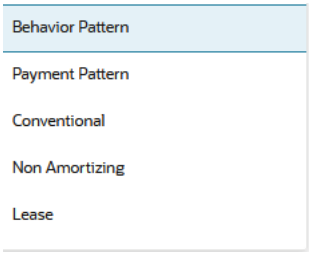
Field	Description
Adjustable Type	Determines the repricing characteristics of the new business record. The standard OFSAA codes are as follows: Fixed-Rate Floating Rate Other Adjustable Repricing Pattern Tired Balance Interest Rate
Amortization Type	Method of amortizing principal and interest. The choices consist of all standard OFSAA codes and all additional user-defined codes created through the Payment Pattern and Behavior Pattern interfaces, as follows: **Figure 6-219 Amortization Type** 
Rate Pricing Option	This drop-down list has following two Rate Pricing options: **Direct Input:** This option allows you to input rates for new business in the Transaction Strategy. **Assign During Processing:** This option uses the Origination Date and Interest Rate Code (IRC) specified in the Transaction Strategy and pulls the corresponding rate from the Forecast Rates Assumption, that is, it is priced dynamically during the simulation
Interest Rate Curve	Defines the pricing index to which the instrument interest rate is contractually tied. The interest rate codes that appear as a selection option depending on the choice of currency. The interest rate code list is restricted to codes that have the selected currency as the Reference Currency. If the default currency is chosen, all interest rate codes are available as a selection.
Use Specific Interest Rate Curve Tenor	Allows you to select a specific Interest Rate Curve Tenor
Balance	Enter the Balance Amount.

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Table 6-54 (Cont.) Fields to add the Core Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Deferred Balance	Current Unamortized Deferred Balance associated with Instrument (such as, Premium, Discount, Fees, and so on.)
Amortization Method for Premiums, Discounts, Costs and Fees	Determines the method used for amortizing premiums, discounts, or fees. The available codes are: Level Yield Straight Line
Origination Date	The date of the origination for the transaction account. This day can be in the future or the past
Issue Date	The Issue date for the transaction account.
Original Term	The contractual term at origination date in units (days, months, or years).
Amortization Term	Term upon which amortization is based in units (days, months, years). This field is not editable if the Derivative Type is selected as FX Contract and subtype is selected as Spot or Forward
Original Deferred Amortization Percent	The initial deferred balance expressed as a percent of original par balance.
Inflation Indexed Instrument	Select this check box to enable the **Inflation Indexed** tab

Behavior Specification

This section describes the new business fields used in the **Behavior Specification** section of the Transaction Strategy Rule.

Figure 6-220 Behavior Specification

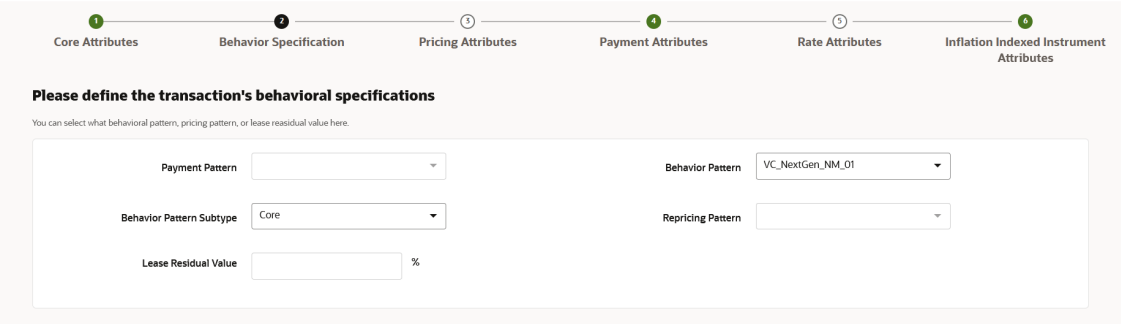

Table 6-55 Fields to add the Behavior Specification and their Descriptions

Field	Description
Payment Pattern	Lists all user-defined payment patterns defined through the user interface.

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Table 6-55 (Cont.) Fields to add the Behavior Specification and their Descriptions

Field	Description
Behavior Pattern	Lists all user-defined behavior patterns created through the user interface.
Behavior Pattern Subtype	Lists the subtype of user-defined behavior patterns created through the user interface.
Repricing Pattern	Lists all user-defined reprice patterns created through the user interface.
Lease Residual Value	The residual value of a lease in the percentage of the original balance.

Pricing Attributes

This section describes the new business fields used in the **Pricing Attributes** section of the Transaction Strategy Rule.

Figure 6-221 Pricing Attributes

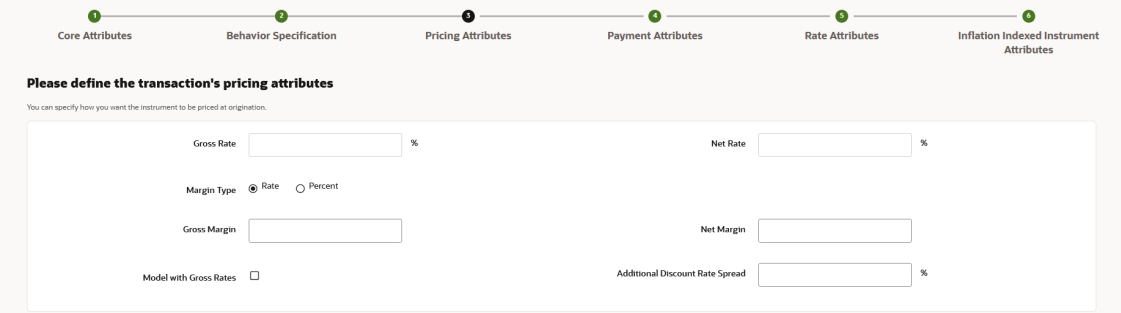

Table 6-56 Fields to add the Pricing Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Gross Rate	Gross rate on the instrument (such as, paid by the customer).
Net Rate	The nominal interest rate on instrument owed to or paid by, the financial institution.
Margin Type	The Margin Type can be selected as Rate or Percentage. Rate- By default, Rate is selected. This is a fixed spread. Percent- Margin is calculated using the provided margin (as percent) and forecast rate. For example, if the forecast rate is 5% and the margin is 10%, then the margin calculated will be 10% of the forecasted rate.
Gross Margin	Contractual spread over interest rate code used in the calculation of the gross rate

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Table 6-56 (Cont.) Fields to add the Pricing Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Net Margin	The contractual margin over the interest rate code used in computing net rate. Gross margin minus any fees.
Model with Gross Rates	If the institution has outsourced loan serving rights for some of the assets (most typically mortgages), the rates paid by customers on those assets (gross rates) will be greater than the rates received by the bank (net rates). For these instruments, both a net and gross rate will be calculated within the cash flow engine and both gross and net rate financial elements will be output. The gross rate is used for prepayment and amortization calculations. The net rate is used for income simulation and the calculation of retained earnings in the auto-balancing process
Additional Discount Rate Spread	Enter Additional Discount Rate Spread in percentage.

Payment Attributes

This section describes the new business fields used in the **Payment Attributes** section of the Transaction Strategy Rule.

Figure 6-222 Payment Attributes section to Define the Transaction Strategy Rule

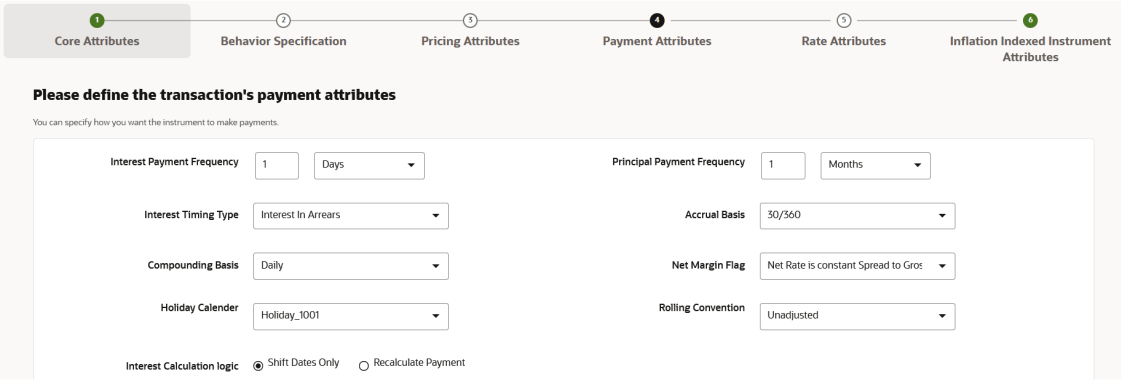

Table 6-57 Fields to add the Payment Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Interest Payment Frequency	Frequency of Interest payment.
Principal Payment Frequency	Frequency of Principal payment.

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Table 6-57 (Cont.) Fields to add the Payment Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Interest Timing Type	Determines whether interest is calculated in arrears or advance or if the rate is set in arrears. There are three interest types: Interest in Arrears Interest in Advance Set in Arrears For conventional amortization products, interest in arrears is the only valid choice.
Accrual Basis	The basis on which the interest accrual on an account is calculated. The choices are as follows: 30/360 30/365 30/Actual Actual/360 Actual/365 Actual/Actual Business/252 *
Compounding Basis	Determines the number of compounding periods per payment period. The choices are as follows: Annual Continuous Daily Monthly Quarterly Semiannual Simple
Net Margin Flag	The setting of the net margin flag affects the calculation of the Net Rate. This drop-down is activated only when Model with Gross Rates check-box is enabled. The settings are: Net Rate is constant Spread to Gross - the net rate reprices in conjunction with the gross rate, at a value net of fees. Net Rate is Fixed - the net rate equals a fixed fee equal to the net margin.
Holiday Calender	The default value is Blank and is Enabled. This drop-down list contains the list of all holiday calendar definitions defined in the Holiday Calendar window.

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Table 6-57 (Cont.) Fields to add the Payment Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Rolling Convention	The default value is Unadjusted and is Enabled, only when Holiday Calendar is selected in the preceding field. This drop-down list contains the following values: Unadjusted Payment on an actual day, even if it is a non-business day. 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. *Many institutions have month-end accounting procedures that necessitate this.
Interest Calculation Logic	There are two options: Shift Dates Only Recalculate Payment

Rate Attributes

This section describes the new business fields used in the **Rate Attributes** section of the Transaction Strategy Rule.

Figure 6-223 Rate Attributes section

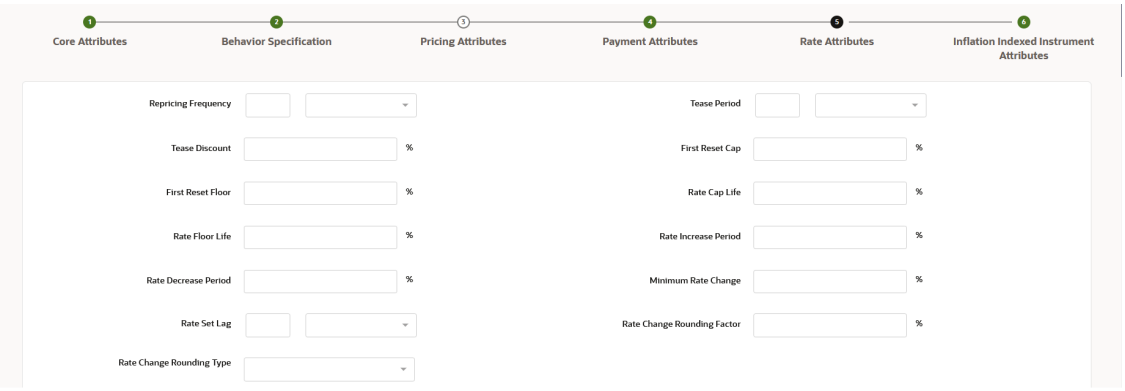

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Table 6-58 Fields to add the Rate Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Repricing Frequency	Contractual frequency of rate adjustment.
Tease Period	The tease period is used to determine the length of the tease period.
Tease Discount	The tease discount is used in conjunction with the original rate to calculate the tease rate. The tease rate is the original rate less than the tease discount.
First Reset Cap	This indicates the maximum delta between the initial rate and the first reset for mortgage instruments that have a tease period. This rate will be applicable at the tease end period, before the first reset. After this, the periodic and lifetime cap value will be applied. The value of this field will be automatically populated from the **Product Profile** window if the product is mapped to Product Profile and value is defined for First Reset Cap. For example: Current Rate = 3.5% (from the instrument record) Margin = 0.3 % First Reset Cap = 0.5% (from the instrument record) First Reset Floor = 0.1% (from the instrument record) Scenario 1: If New Forecasted Rate = 5.1% (Forecast Rates Assumption) The fully indexed rate (after applying minimum rate change, rounding effects) is higher than the (Current Rate + First Reset Cap). So, the new rate assigned will be 3.5% + 0.5% = 4.0%
First Reset Floor	This is the initial minimum value for mortgage instruments that have a tease period. This floor rate will be applicable at the tease end period, before the first reset. After this, the periodic and lifetime floor value will be applied. The value of this field will be automatically populated from the **Product Profile** window if the product is mapped to Product Profile and value is defined for First Reset Floor.
Rate Cap Life	The maximum rate for the life of the instrument.
Rate Floor Life	The minimum rate for the life of the instrument.
Rate Increase Period	The maximum interest rate increase allowed during the cycle on an Adjustable Rate instrument.
Rate Decrease Period	The maximum amount rate can decrease during the repricing period of an Adjustable Rate instrument.
Minimum Rate Change	The minimum required change in rate on a repricing date.
Rate Set Lag	Period by which the rate lookup lags the repricing event date

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Table 6-58 (Cont.) Fields to add the Rate Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Rate Change Rounding Factor	Percent to which the rate change on an adjustable instrument is rounded.
Rate Change Rounding Type	The method used for rounding of interest rate codes. The choices are as follows: • No Rounding • Truncate • Round Up • Round Down • Round Nearest

Inflation Adjustment Attributes

Select the **Inflation Indexed Instrument** check box on the **Core Attributes** section to enable the Inflation Adjustment Attributes section.

Figure 6-224 Inflation Adjustment Attributes section

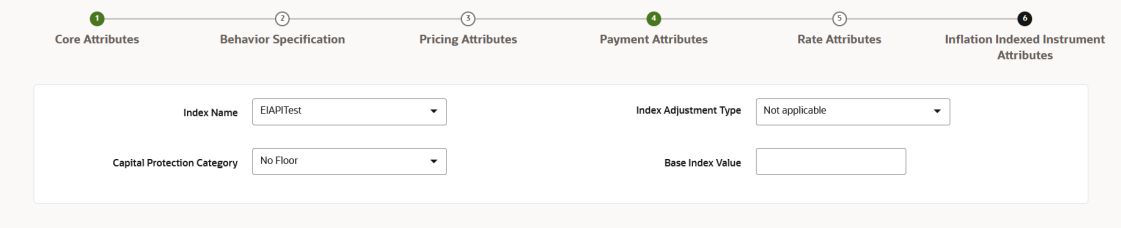

Table 6-59 Fields to add the Index Adjustment attributes and their Descriptions

Field	Behavior
Index Name	Lists all Economic Indicators defined through the user interface.
Index Adjustment Type	Determines the type of Index Adjustment. Available options are: Principal and Interest Principal Only Interest Only
Capital Protection Category	Determines capital protection to be provided to Inflation Indexed Instruments. Available options are: No Floor: Does not provide any downside protection. Floor of 1: Protects the downside movement. Max during Life: Gives maximum advantage using maximum Index factor for calculation.

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Table 6-59 (Cont.) Fields to add the Index Adjustment attributes and their Descriptions

Field	Behavior
Base Index Value	Base Index Value can either be entered into field Base Index Value or left blank. If it is blank, the engine will obtain Base Index Value from the forecasted Economic Indicator for defined Transaction Strategy Origination Date. This date is looked up into the forecasted Time Bucket, and the respective index data of that Time Bucket is obtained. If the Base Index Value is entered, the engine will consider it for calculation.

Embedded Option Attributes

An option is a contract between a buyer and a seller in which the buyer has the right, but not the obligation, to purchase (in the case of a call option) or sell (in the case of a put option) a specified underlying asset at a specified price during or at the end of a specified period. The option seller, or writer, grants this right in return for the option price, or premium. The option buyer is long the contract; the seller is short.

Select the **Embedded Option Flag** check box on the **Core Attributes** section to enable the Embedded Option Attributes section.

Figure 6-225 Embedded Option Attributes

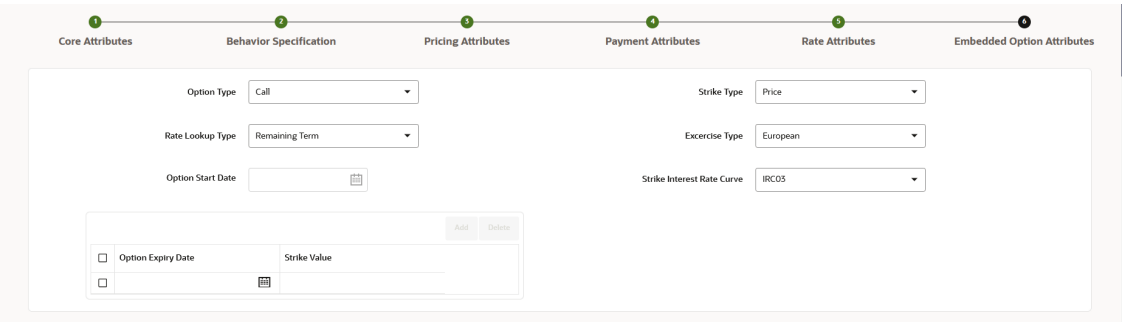

Table 6-60 Fields to add the Embedded Option attributes and their Descriptions

Field	Behavior
Option Type	This attribute stores the option type of the embedded option. The list of valid values is 1 (Call) and 2 (Put).
Strike Type	This attribute stores the strike type code of the embedded option. A strike type of price assumes that the price of the instrument is used as the strike. A strike type of rate assumes that the interest rate of the instrument is used as the strike. The list of valid values is 1 (Price) and 2 (Rate).

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Table 6-60 (Cont.) Fields to add the Embedded Option attributes and their Descriptions

Field	Behavior
Rate Lookup Type	This attribute stores the rate lookup code. Depending upon the rate lookup, the rate of the appropriate term is compared against the strike rate. For instance, if the rate lookup code is Payment Frequency, the Strike IRC term point of payment frequency is compared against the strike rate. List of valid values is 1 (Remaining Term), 2 (Original Term), 3 (Payment Frequency), and 4 (Reprice Frequency).
Execerise Type	This attribute stores the exercise type code or option style of the embedded option. The list of valid values is 1 (American), 2 (Bermudan), 3 (European).
Option Start Date	This attribute stores the options start date and is valid for the American style of options.
Strike Interest Rate Curve	This attribute stores the coded value of the interest rate curve which is linked to the strike.
Option Expiry Date	This attribute stores the expiry date of the option.
Strike Value	This attribute stores the strike rate (for example, entering “3.56” equals 3.56%) or price (for example, 102.15) depending on the strike type of the option.

6.3.3.7.2.2 Attribute Source As Product Characteristics

Prerequisites

Performing basic steps for creating or editing a Transaction Strategy rule.

Procedure

To define Transaction Strategy Rule, follow these steps:

1. Follow the steps mentioned in Defining Transaction Strategy rule section.
2. After selecting Transaction Template and clicking **Define Transaction Attribute**, the Define Transaction Attribute window is displayed. The **Define Transaction Attribute** window has following sections:
   a. Derivative Type
   b. Core Attribute
   c. Receive Leg/IR Cap
   d. Pay Leg/IR Floor

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Derivative Type

Figure 6-226 Derivative Type

1. In the Derivatives section, select the followings:

Table 6-61 Derivative Type

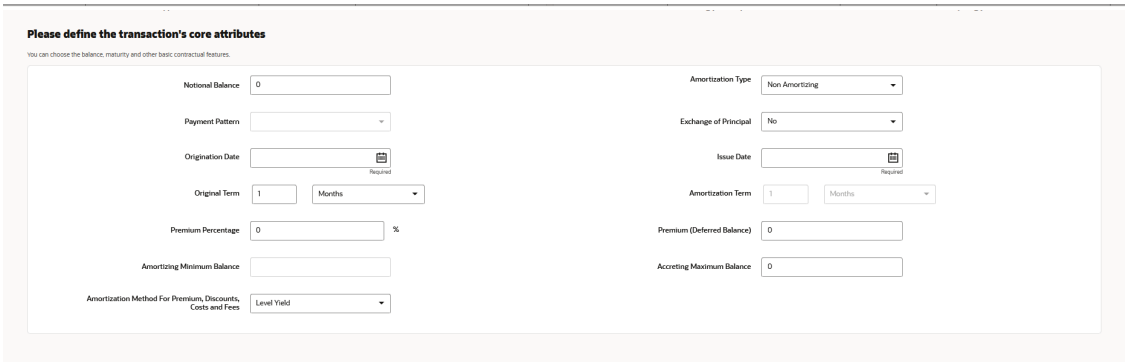
Field	Description
Derivative Type	The following derivative types are available in Derivative Types drop-down list: • Swap • Option • FX Contracts
Derivative Subtype	The following derivative subtypes are available: • If the Derivative Type is **Swap**, select one of the seven swap types: Vanilla, Basis, Set in Arrears, Forward, Asset, Amortizing, or Cross Currency. • If the Derivative Type is **Option**, select one of the three types: Interest Rate Cap, Interest Rate Floor, and Interest Rate Collar. • If the Derivative Type is **FX Contracts**, select subtype Spot or Forward.

2. Click Next.

Core Attributes

This section describes the fields used in the **Core Attributes** section of the Transaction Strategy Rule.

Figure 6-227 Core Attributes



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1. Enter details in the following details in Core Attributes tab.

Table 6-62 Core Attributes

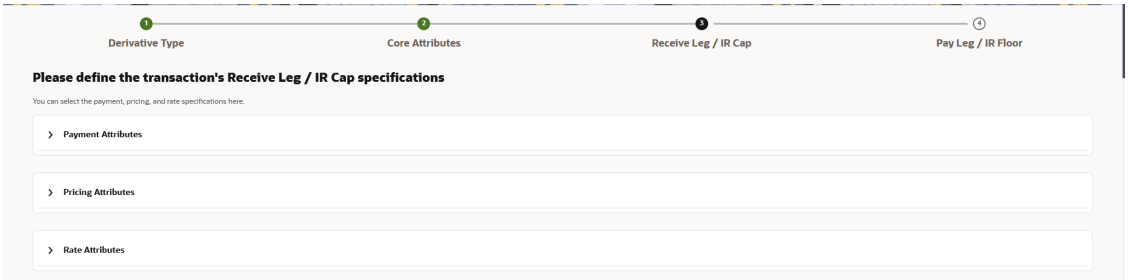
Field	Description
Notional Balance	Enter the balance amount.
Amortization Type	Method of amortizing principal and interest. The choices consist of all standard OFSAA codes and all additional user-defined codes created through the Payment Pattern and Behavior Pattern interfaces.
Payment Pattern	Lists all user-defined payment patterns defined through the user interface.
Exchange of Principal	Select Exchange of Principal as Yes or No.
Origination Date	The date of the origination for the transaction account. This day can be in the future or the past
Issue Date	The Issue date for the transaction account.
Origination Term	The contractual term at origination date in units (days, months, or years).
Amortization Term	Term upon which amortization is based in units (days, months, years). This field is not editable if the Derivative Type is selected as FX Contract and subtype is selected as Spot or Forward.
Premium Percentage	Enter premium percentage.
Premium(Deferred Balance)	Current Unamortized Deferred Balance associated with Instrument (such as, Premium, Discount, Fees, and so on.)
Amortizing Minimum Balance	Enter Amortizing Minimum Balance.
Accreting Maximum Balance	Enter Accreting Maximum Balance.
Amortization Method for Premiums, Discounts, Costs and Fees	Determines the method used for amortizing premiums, discounts, or fees. The available codes are: Level Yield Straight Line

2. Click Next.

Receive Leg/IR Cap

Use this section to define the Receiving Leg or the Cap Characteristics. The fields are editable based on the relationship triggers of the Derivative Type and Derivative Subtype. For FX Contracts Derivative type, Receive Principal, pay Principal, Receive Currency, and Pay Currency are mandatory fields

Figure 6-228 Receive Leg/IR Cap



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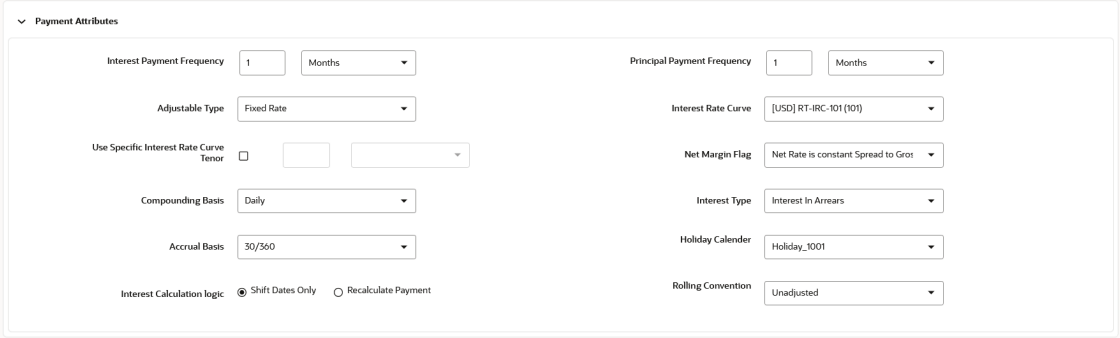
This tab has following sections:

Payment Attribute

This section describes the new business fields used in the **Payment Attributes** section of the Transaction Strategy Rule.

Figure 6-229 Payment Attribute



1. Enter the following details:

Table 6-63 Fields to add the Payment Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Interest Payment Frequency	Frequency of Interest payment.
Principal Payment Frequency	Frequency of Principal payment.
Adjustable Type	Determines the repricing characteristics of the new business record. The standard OFSAA codes are as follows: • Fixed-Rate • Floating Rate • Other Adjustable • Repricing Pattern
Interest Rate Curve	Defines the pricing index to which the instrument interest rate is contractually tied. The interest rate codes that appear as a selection option depending on the choice of currency. The interest rate code list is restricted to codes that have the selected currency as the Reference Currency. If the default currency is chosen, all interest rate codes are available as a selection
Use Specific Interest Rate Curve Tenor	Allows you to select a specific Interest Rate Curve Tenor

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Table 6-63 (Cont.) Fields to add the Payment Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Net Margin Flag	The setting of the net margin flag affects the calculation of the Net Rate. This drop-down is activated only when Model with Gross Rates check-box is enabled. The settings are: • Net Rate is constant Spread to Gross - the net rate reprices in conjunction with the gross rate, at a value net of fees. • Net Rate is Fixed - the net rate equals a fixed fee equal to the net margin. • None
Compounding Basis	Determines the number of compounding periods per payment period. The choices are as follows: • Annual • Continuous • Daily • Monthly • Quarterly • Semiannual • Simple
Interest Type	The Cash Flow Interest Type determines which interest component is included in the cash flow definition. The Cash Flow Interest Type can be one of three values: • Net Rate • Gross Rate For typical processing, you will use the Net Rate for the interest component of the cash flow. Special processing objectives, such as valuation of the funding center, may require you to use the other cash flow interest types.
Accrual Basis	The basis on which the interest accrual on an account is calculated. The choices are as follows: • 30/360 • 30/365 • 30/Actual • Actual/360 • Actual/365 • Actual/Actual • Business/252 *
Holiday Calender	The default value is Blank and is Enabled. This drop-down list contains the list of all holiday calendar definitions defined in the Holiday Calendar window.
Interest Calculation Logic	There are two options: Shift Dates Only Recalculate Payment

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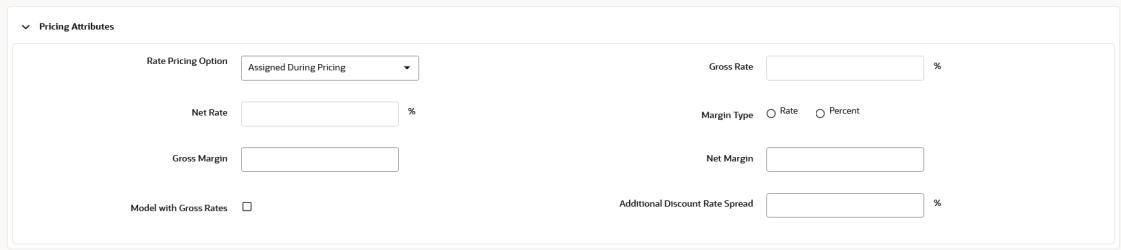
Table 6-63 (Cont.) Fields to add the Payment Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Rolling Convention	The default value is Unadjusted and is Enabled, only when Holiday Calendar is selected in the preceding field. This drop-down list contains the following values: Unadjusted Payment on an actual day, even if it is a non-business day. 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. *Many institutions have month-end accounting procedures that necessitate this.

Pricing Attributes Section

This section describes the new business fields used in the **Pricing Attributes** section of the Transaction Strategy Rule.

Figure 6-230 Pricing Attributes



1. Enter the following details:

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Table 6-64 Fields to add the Pricing Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Rate Pricing Option	This drop-down list has following two Rate Pricing options: • Direct Input: This option allows you to input rates for new business in the Transaction Strategy. • Assign During Processing: This option uses the Origination Date and Interest Rate Code (IRC) specified in the Transaction Strategy and pulls the corresponding rate from the Forecast Rates Assumption, that is, it is priced dynamically during the simulation
Gross Rate	Gross rate on the instrument (such as, paid by the customer).
Net Rate	The nominal interest rate on instrument owed to or paid by, the financial institution.
Margin Type	The Margin Type can be selected as Rate or Percentage. Rate- By default, Rate is selected. This is a fixed spread. Percent- Margin is calculated using the provided margin (as percent) and forecast rate. For example, if the forecast rate is 5% and the margin is 10%, then the margin calculated will be 10% of the forecasted rate.
Gross Margin	Contractual spread over interest rate code used in the calculation of the gross rate
Net Margin	The contractual margin over the interest rate code used in computing net rate. Gross margin minus any fees.
Model with Gross Rates	If the institution has outsourced loan serving rights for some of the assets (most typically mortgages), the rates paid by customers on those assets (gross rates) will be greater than the rates received by the bank (net rates). For these instruments, both a net and gross rate will be calculated within the cash flow engine and both gross and net rate financial elements will be output. The gross rate is used for prepayment and amortization calculations. The net rate is used for income simulation and the calculation of retained earnings in the auto-balancing process
Additional Discount Rate Spread	Enter Additional Discount Rate Spread in percentage.

Rate Attributes Section

This section describes the new business fields used in the **Rate Attributes** section of the Transaction Strategy Rule.

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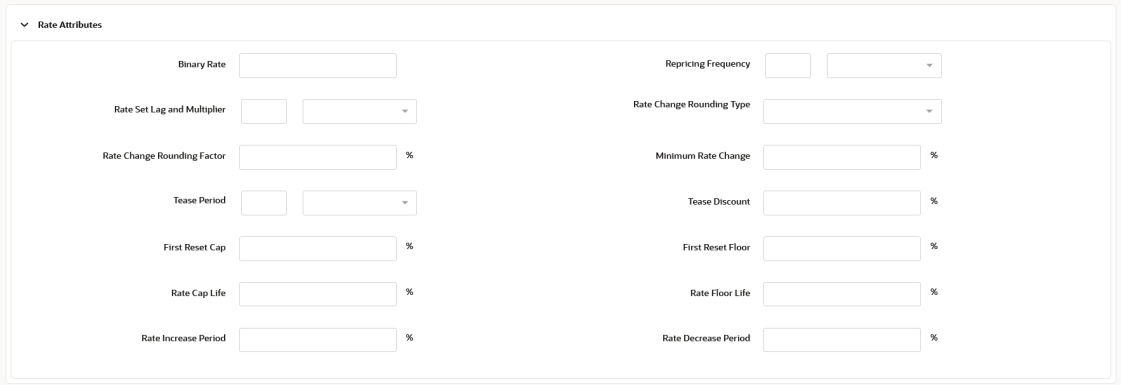
Figure 6-231 Rate Attributes Section



1. Enter the following details:

Table 6-65 Fields to add the Rate Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Binary Rate	
Repricing Frequency	Contractual frequency of rate adjustment.
Rate Set Lag and Multipler	Period by which the rate lookup lags the repricing event date
Rate Change Rounding Type	The method used for rounding of interest rate codes. The choices are as follows: • No Rounding • Truncate • Round Up • Round Down • Round Nearest
Rate Change Rounding Factor	Percent to which the rate change on an adjustable instrument is rounded.
Minimum Rate Change	The minimum required change in rate on a repricing date.
Tease Period	The tease period is used to determine the length of the tease period.
Tease Discount	The tease discount is used in conjunction with the original rate to calculate the tease rate. The tease rate is the original rate less than the tease discount.

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Table 6-65 (Cont.) Fields to add the Rate Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
First Reset Cap	This indicates the maximum delta between the initial rate and the first reset for mortgage instruments that have a tease period. This rate will be applicable at the tease end period, before the first reset. After this, the periodic and lifetime cap value will be applied. The value of this field will be automatically populated from the **Product Profile** window if the product is mapped to Product Profile and value is defined for First Reset Cap. For example: Current Rate = 3.5% (from the instrument record) Margin = 0.3 % First Reset Cap = 0.5% (from the instrument record) First Reset Floor = 0.1% (from the instrument record) Scenario 1: If New Forecasted Rate = 5.1% (Forecast Rates Assumption) The fully indexed rate (after applying minimum rate change, rounding effects) is higher than the (Current Rate + First Reset Cap). So, the new rate assigned will be 3.5% + 0.5% = 4.0%
First Reset Floor	This is the initial minimum value for mortgage instruments that have a tease period. This floor rate will be applicable at the tease end period, before the first reset. After this, the periodic and lifetime floor value will be applied. The value of this field will be automatically populated from the **Product Profile** window if the product is mapped to Product Profile and value is defined for First Reset Floor.
Rate Cap Life	The maximum rate for the life of the instrument.
Rate Floor Life	The minimum rate for the life of the instrument.
Rate Increase Period	The maximum interest rate increase allowed during the cycle on an Adjustable Rate instrument.
Rate Decrease Period	The maximum amount rate can decrease during the repricing period of an Adjustable Rate instrument.

Pay Leg/IR Floor

Use this section to define the pay side, or the interest rate floor. The fields are editable based on the relationship triggers of the Derivative Type and Derivative Subtype

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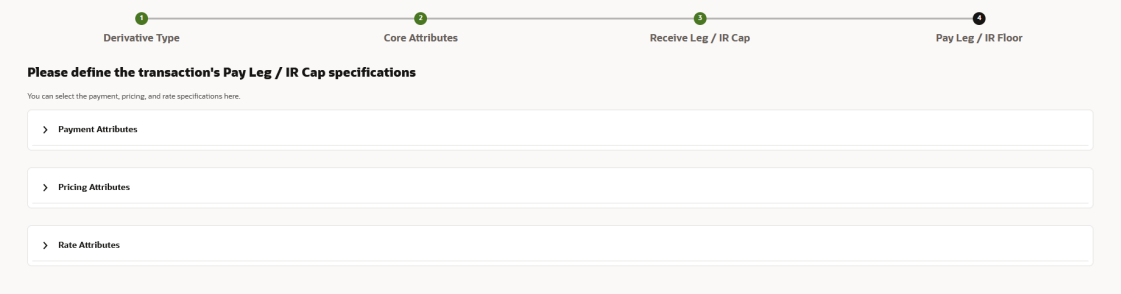
Figure 6-232 Pay Leg/IR Floor



Payment Attributes Section

This section describes the new business fields used in the **Payment Attributes** section of the Transaction Strategy Rule.

Figure 6-233 Payment Attributes

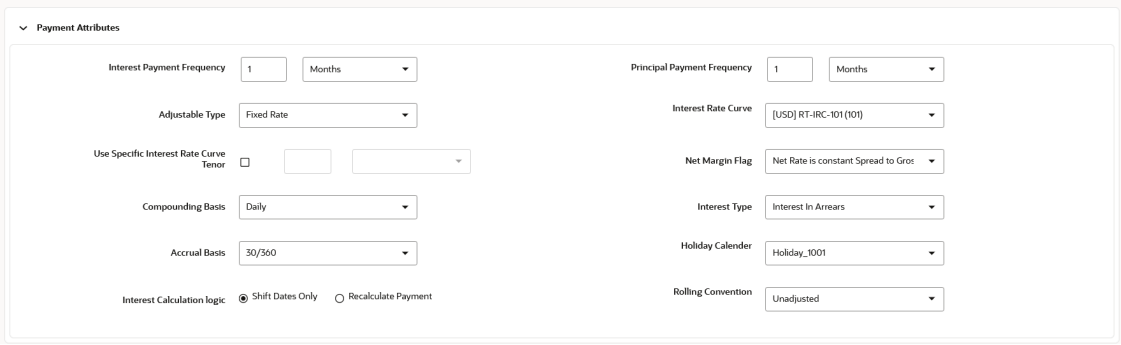


Table 6-66 Fields to add the Payment Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Interest Payment Frequency	Frequency of Interest payment.
Principal Payment Frequency	Frequency of Principal payment.
Adjustable Type	Determines the repricing characteristics of the new business record. The standard OFSAA codes are as follows: • Fixed-Rate • Floating Rate • Other Adjustable • Repricing Pattern
Interest Rate Curve	Defines the pricing index to which the instrument interest rate is contractually tied. The interest rate codes that appear as a selection option depending on the choice of currency. The interest rate code list is restricted to codes that have the selected currency as the Reference Currency. If the default currency is chosen, all interest rate codes are available as a selection

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Table 6-66 (Cont.) Fields to add the Payment Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Use Specific Interest Rate Curve Tenor	Allows you to select a specific Interest Rate Curve Tenor
Net Margin Flag	The setting of the net margin flag affects the calculation of the Net Rate. This drop-down is activated only when Model with Gross Rates check-box is enabled. The settings are: Net Rate is constant Spread to Gross - the net rate reprices in conjunction with the gross rate, at a value net of fees. Net Rate is Fixed - the net rate equals a fixed fee equal to the net margin. None
Compounding Basis	Determines the number of compounding periods per payment period. The choices are as follows: • Annual • Continuous • Daily • Monthly • Quarterly • Semiannual • Simple
Interest Type	The Cash Flow Interest Type determines which interest component is included in the cash flow definition. The Cash Flow Interest Type can be one of three values: • Net Rate • Gross Rate For typical processing, you will use the Net Rate for the interest component of the cash flow. Special processing objectives, such as valuation of the funding center, may require you to use the other cash flow interest types.
Accrual Basis	The basis on which the interest accrual on an account is calculated. The choices are as follows: • 30/360 • 30/365 • 30/Actual • Actual/360 • Actual/365 • Actual/Actual • Business/252 *
Holiday Calender	The default value is Blank and is Enabled. This drop-down list contains the list of all holiday calendar definitions defined in the Holiday Calendar window.
Interest Calculation Logic	There are two options: Shift Dates Only Recalculate Payment

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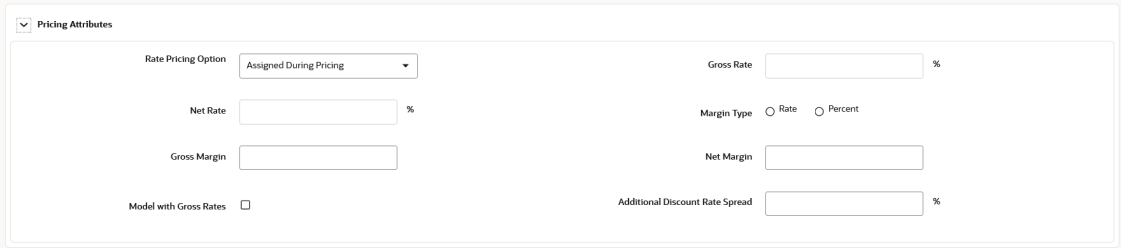
Table 6-66 (Cont.) Fields to add the Payment Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Rolling Convention	The default value is Unadjusted and is Enabled, only when Holiday Calendar is selected in the preceding field. This drop-down list contains the following values: Unadjusted Payment on an actual day, even if it is a non-business day. 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. *Many institutions have month-end accounting procedures that necessitate this.

Pricing Attributes Section

This section describes the new business fields used in the **Pricing Attributes** section of the Transaction Strategy Rule.

Figure 6-234 Pricing Attributes



1. Enter the following details:

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Table 6-67 Fields to add the Pricing Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Rate Pricing Option	This drop-down list has following two Rate Pricing options: • Direct Input: This option allows you to input rates for new business in the Transaction Strategy. • Assign During Processing: This option uses the Origination Date and Interest Rate Code (IRC) specified in the Transaction Strategy and pulls the corresponding rate from the Forecast Rates Assumption, that is, it is priced dynamically during the simulation
Gross Rate	Gross rate on the instrument (such as, paid by the customer).
Net Rate	The nominal interest rate on instrument owed to or paid by, the financial institution.
Margin Type	The Margin Type can be selected as Rate or Percentage. • Rate: By default, Rate is selected. This is a fixed spread. • Percent: Margin is calculated using the provided margin (as percent) and forecast rate. For example, if the forecast rate is 5% and the margin is 10%, then the margin calculated will be 10% of the forecasted rate.
Gross Margin	Contractual spread over interest rate code used in the calculation of the gross rate
Net Margin	The contractual margin over the interest rate code used in computing net rate. Gross margin minus any fees.
Model with Gross Rates	If the institution has outsourced loan serving rights for some of the assets (most typically mortgages), the rates paid by customers on those assets (gross rates) will be greater than the rates received by the bank (net rates). For these instruments, both a net and gross rate will be calculated within the cash flow engine and both gross and net rate financial elements will be output. The gross rate is used for prepayment and amortization calculations. The net rate is used for income simulation and the calculation of retained earnings in the auto-balancing process
Additional Discount Rate Spread	Enter Additional Discount Rate Spread in percentage.

Rate Attributes Section

This section describes the new business fields used in the **Rate Attributes** section of the Transaction Strategy Rule.

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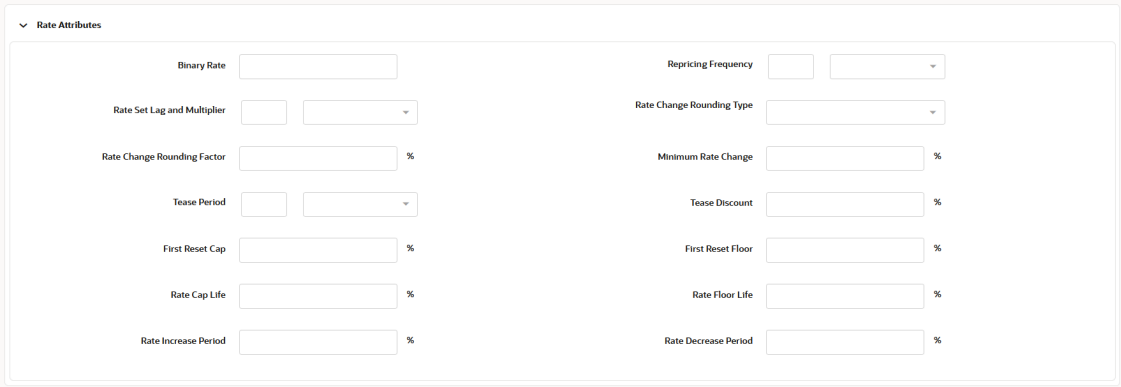
Figure 6-235 Rate Attributes



1. Enter the following details:

Table 6-68 Fields to add the Rate Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
Binary Rate	
Repricing Frequency	Contractual frequency of rate adjustment.
Rate Set Lag and Multipler	Period by which the rate lookup lags the repricing event date
Rate Change Rounding Type	The method used for rounding of interest rate codes. The choices are as follows: • No Rounding • Truncate • Round Up • Round Down • Round Nearest
Rate Change Rounding Factor	Percent to which the rate change on an adjustable instrument is rounded.
Minimum Rate Change	The minimum required change in rate on a repricing date.
Tease Period	The tease period is used to determine the length of the tease period.
Tease Discount	The tease discount is used in conjunction with the original rate to calculate the tease rate. The tease rate is the original rate less than the tease discount.

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Table 6-68 (Cont.) Fields to add the Rate Attributes for Transaction Strategy Rule and their Descriptions

Field	Description
First Reset Cap	This indicates the maximum delta between the initial rate and the first reset for mortgage instruments that have a tease period. This rate will be applicable at the tease end period, before the first reset. After this, the periodic and lifetime cap value will be applied. The value of this field will be automatically populated from the **Product Profile** window if the product is mapped to Product Profile and value is defined for First Reset Cap. For example: Current Rate = 3.5% (from the instrument record) Margin = 0.3 % First Reset Cap = 0.5% (from the instrument record) First Reset Floor = 0.1% (from the instrument record) Scenario 1: If New Forecasted Rate = 5.1% (Forecast Rates Assumption) The fully indexed rate (after applying minimum rate change, rounding effects) is higher than the (Current Rate + First Reset Cap). So, the new rate assigned will be 3.5% + 0.5% = 4.0%
First Reset Floor	This is the initial minimum value for mortgage instruments that have a tease period. This floor rate will be applicable at the tease end period, before the first reset. After this, the periodic and lifetime floor value will be applied. The value of this field will be automatically populated from the **Product Profile** window if the product is mapped to Product Profile and value is defined for First Reset Floor.
Rate Cap Life	The maximum rate for the life of the instrument.
Rate Floor Life	The minimum rate for the life of the instrument.
Rate Increase Period	The maximum interest rate increase allowed during the cycle on an Adjustable Rate instrument.
Rate Decrease Period	The maximum amount rate can decrease during the repricing period of an Adjustable Rate instrument.

6.3.4 Transfer Pricing Rules

Transfer Pricing Rules allow you to specify methodologies for Transfer Pricing your Product Portfolio. A Transfer Pricing Rule may contain a Transfer Pricing Methodology defined for a particular product or a set of methodologies defined for all products (Dimension Members) in a particular Product Hierarchy.

The Transfer Pricing Rule is a key component of the Transfer Pricing Process. The Transfer Pricing Process uses the Transfer Pricing Methodologies contained in the Transfer Pricing Rules to generate Transfer Rates. Consequently, before processing information for a new

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period, you need to review and validate the assumptions contained in your Transfer Pricing Rules.

> **Note**
>
> If Transfer Pricing Assumptions are managed at the Parent/Node level, new Product Dimension Members will automatically inherit TP Method assignments.

If new members are added to the applicable Product Dimension, you need to update your Transfer Pricing Rules by defining appropriate methodologies for the new products.

6.3.4.1 Overview of Transfer Pricing Methodologies and Rules

The Transfer Pricing Methodologies supported by Oracle Funds Transfer Pricing Cloud Service can be grouped into the following categories:

Cash Flow Transfer Pricing Methods: Cash Flow Transfer Pricing Methods are used to Transfer Price Instruments that amortize over time. They generate transfer rates based on the Cash Flow characteristics of the instruments.

To generate Cash Flows, the system requires a detailed set of transaction-level data attributes, such as, Origination Date, Outstanding Balance, Contracted Rate, and Maturity Date, which resides only in the Instrument Tables. Consequently, Cash Flow Methods apply only if the Data Source is Account Tables. Data stored in the Management Ledger Table reflects only accounting entry positions at a particular point in time and does not have the required financial details to generate Cash Flows, therefore, preventing you from applying Cash Flow Methodologies to this data.

The Cash Flow Methods are also unique in that Prepayment Rules are used only with these methods. You can select the required Prepayment Rule when defining a Transfer Pricing Process.

Oracle Funds Transfer Pricing Cloud Service supports the following Cash Flow Transfer Pricing Methods:

- Cash Flow: Average Life
- Cash Flow: Duration
- Cash Flow: Weighted Term
- Cash Flow: Zero Discount Factors

Non-Cash Flow Transfer Pricing Methods: These methods do not require the calculation of Cash Flows. While some of the non-Cash Flow Methods are available only with the Account Tables Data Source, some are available with both the Account and Ledger Table Data Sources.

Oracle Funds Transfer Pricing Cloud Service supports the following Non-Cash Flow Transfer Pricing Methods:

- Moving Averages
- Straight Term
- Spread from Interest Rate Code
- Spread from Note Rate
- Redemption Curve

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- Tractor Method
- Caterpillar
- Weighted Average Perpetual
- Unpriced Account

> **Note**
>
> Asset Liability Management Cloud Service supports only the Straight Term transfer pricing method. The other methods will be supported in future versions.

Oracle Funds Transfer Pricing Cloud Service also allows Mid-period Repricing. This option allows you to take into account the impact of high market rate volatility while generating transfer prices for your products. However, the mid-period Repricing option applies only to Adjustable Instruments and is available only for following Non-Cash Flow Transfer Pricing Methods:.

- Straight Term
- Spread from IRC
- Spread from Note Rate
- Redemption Curve

> **Note**
>
> Interest Rate Code given in the Account Data is used for Mid-Period Repricing calculations for spread from Note Rate.

Note on Bulk Updates versus Row by Row Processing: Any Transfer Pricing Method that does not refer to individual account characteristics utilizes a bulk update to assign a single transfer rate to a group of instrument records. Any TP Method that needs to refer to individual account characteristics to process will execute on a row-by-row basis. In general, Bulk updates are faster than row-by-row processing.

The following Transfer Pricing Methods, when not defined through a conditional assumption and not utilizing Mid-Period Repricing, use Bulk Updates:

- Redemption Curve (Assignment Date = As-of-Date only)
- Moving Average
- Spread from Note Rate
- Spread from IRC (Assignment Date = As-of-Date only)

All other Transfer Pricing Methods like Tractor, Caterpillar, and Weighted Average Perpetual are processed row-by-row. When Conditional Assumptions or Mid Period Repricing are used, processing will always be row-by-row, regardless of the Transfer Pricing Method Selection.

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> **Note**
>
> Oracle Funds Transfer Pricing Cloud Service also supports rate lookup from a future date if there is no history available for selected IRC, and it only starts from a future rate with respect to As of Date.

6.3.4.1.1 Cash Flow: Average Life

The Average Life Method determines the average life of the instrument by calculating the Effective Term required to repay half of the principal or nominal amount of the instrument. The Transfer Pricing Rate is equivalent to the rate on the associated Interest Rate Curve corresponding to the calculated term.

Figure 6-236 Cash Flow: Average Life

Figure 6-237 Cash Flow: Average Life Formula

$$\text{Average Life} = \sum_{i=1}^{n} \frac{P_i}{P} t_i$$

Where:

P is the principal

P_i is the principal repayment in coupon i, hence

$\frac{P_i}{P}$ is the fraction of the principal repaid in coupon i, and

t_i is the time from the start of coupon i

Oracle Funds Transfer Pricing Cloud Service derives the Average Life based on the Cash Flows of an instrument as determined by the characteristics specified in the Instrument Table and using your specified Prepayment Rate, if applicable. The average life formula calculates a single term, that is, a point on the yield curve used to transfer the price of the instrument being analyzed. The Average Life Calculation does not differentiate between fixed-rate and

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adjustable-rate instruments. It applies the same calculation logic to both. It computes the Average Life of the Loan (to maturity).

> **Note**
>
> The Average Life Transfer Pricing Method provides the option to Output the result of the calculation to the Instrument Record (TP_AVERAGE_LIFE). This can be a useful option if you would like to refer to the Average Life as a reference term within an Adjustment Rule.

Users also have the choice to populate the TP_AVERAGE_LIFE column directly with a value computed outside of Oracle Funds Transfer Pricing Cloud Service. If this value is populated, the Funds Transfer Pricing Cloud Service Engine reads the TP_AVERAGE_LIFE and will look up the Funds Transfer Pricing Rate for the given term. In this case, the Transfer Pricing Engine does not generate Cash Flows and will not re-compute the Average Life. It simply uses the value that is provided and lookup the appropriate Funds Transfer Pricing Rate from the specified TP Interest Rate Curve.

6.3.4.1.2 Cash Flow: Duration

The Duration Method uses the Macaulay Duration Formula:

Figure 6-238 Cash Flow: Duration Formula

$$\text{Duration} = \frac{\sum_{n=1}^{N}\left[\frac{CF_n}{(1+r)^m} \times t_n\right]}{\sum_{n=1}^{N}\left[\frac{CF_n}{(1+r)^m}\right]}$$

In this formula:

- N: Total number of payments from Start Date until the earlier of repricing or maturity
- CFn: Cash Flow (such as Regular Principal, Prepayments, and Interest) in period n
- r: Periodic Rate (Current Rate/Payments per year)
- m: Remaining term to Cash Flow/Active Payment Frequency
- tn: Remaining term to Cash Flow n, expressed in years

Oracle Funds Transfer Pricing Cloud Service derives the Macaulay duration based on the Cash Flows of an instrument as determined by the characteristics specified in the Instrument Table and using your specified Prepayment Rate, if applicable. The Duration Formula calculates a single term, that is, a point on the yield curve used to transfer price the instrument.

- Within the Duration Calculation, the discount rate or current rate, r, is defined in one of three ways, based on how the methodology is set up by the user:

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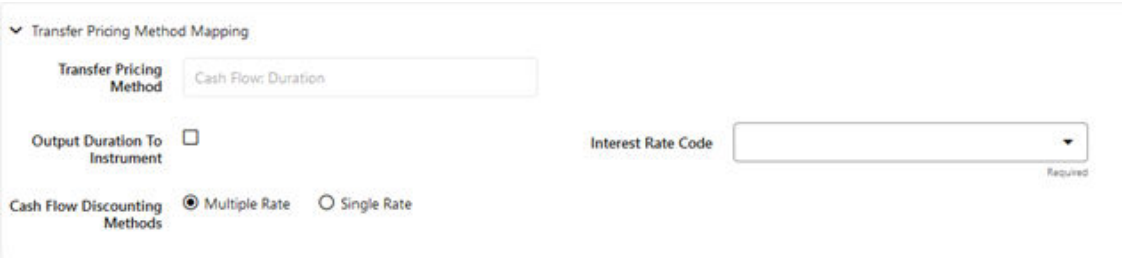
- The current rate is defined as the Current Net Rate if the processing option, "Model with Gross Rates" is not selected and the Current Gross Rate if the option is selected. The current rate is used as a constant discount rate for each cash flow.
- The user may directly input while defining the TP Rule, a constant rate to use for discounts. If specified, this rate is used as a constant discount rate for each flow.
- The user can select to discount the Cash Flows using spot rates from a selected Interest Rate Curve. With this approach, a discount rate is read from the selected interest rate curve corresponding to the term of each cash flow.

> **Note**

NOTE: The Duration Transfer Pricing Method provides the option to Output the result of the calculation to the instrument record (TP_DURATION). This can be a useful option if you would like to refer to the duration as a reference term within an Adjustment Rule.

Figure 6-239 Cash Flow: Duration



Users also have the choice to populate the TP_DURATION column directly with a value computed outside of Oracle Funds Transfer Pricing Cloud Service. If this value is populated, the FTP engine reads the TP_DURATION and will look up the FTP Rate for the given term. In this case, the TP Engine does not generate Cash Flows and will not re-compute the DURATION. It simply uses the value that has been provided and look up the appropriate FTP Rate from the specified TP Interest Rate Curve.

6.3.4.1.3 Cash Flow: Weighted Term

The Weighted Term method builds on the theoretical concepts of duration. You can use the Cash flow Duration TP Method approach to the Cash Flow Weighted Term Method. Based on that, the following Cash Flow Discounting Methods are used:

- Multiple Rate
- Single Rate

For more information, see the Working with Transfer Pricing Rules Section.

As shown earlier, duration calculates a weighted-average term by weighting each period, n, with the present value of the Cash Flow (discounted by the rate on the instrument) in that period.

Since the goal of the Weighted Term Method is to calculate a Weighted Average Transfer Rate, it weights the transfer rate in each period, yn, by the present value for the Cash Flow of that period. Furthermore, the transfer rates are weighted by an additional component, time, to account for the length of time over which a transfer rate is applicable. The time component

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accounts for the relative significance of each strip Cash Flow to the total transfer pricing interest income/expense. The total transfer pricing interest income/expense on any cash flow is a product of that Cash Flow, the transfer rate, and the term. Long-term Cash Flows have a relatively larger impact on the average transfer rate. The Weighted Term method, with Discounted Cash Flow option selected, can be summarized by the following formula:

Figure 6-240 Cash Flow: Weighted Term Formula

$$\text{Weighted-Average} = \bar{y} = \frac{\sum_{n=1}^{N}\left[y_n \times \frac{CF_n}{(1+r)^m} \times t_n\right]}{\sum_{n=1}^{N}\left[\frac{CF_n}{(1+r)^m} \times t_n\right]}$$

In this formula:

- N: Total number of payments from Start Date until the earlier of repricing or maturity
- CFn: Cash Flow (such as Regular Principal, Prepayments, and Interest) in period n
- r: Periodic Rate (Current Rate/Payments per year)
- m: Remaining term to Cash Flow n/active payment frequency
- tn: Remaining term to Cash Flow n, expressed in years
- yn: Transfer Rate in period n

Within the Cash Flow Weighted Term method definition screen, users can select the Cash Flow type as either Principal + Interest (the default selection) or Principal Only. This selection impacts the CFn in the above formula.

Additionally, users can choose whether or not to discount the cash flows as described above. If the "Cash Flow" option is selected rather than "Discounted Cash Flow", the following simplified formula is applied:

Figure 6-241 Cash Flow: Weighted Term Formula without Discounted Cash Flow

$$\text{Weighted Average} - y - \left(\frac{\Sigma_{n=1}^{N}\left[y_n \times CF \times t_n\right]}{\Sigma_{n-1}^{N}\left[CF \times t_n\right]}\right)$$

For this method, the following options are also provided:

- Cash Flow Weighted Rate
- Cash Flow and Terms Weighted Rate (by default, this will remain selected for all existing definitions)

If Transfer Rate needs to be weighed only by Cash Flow rather than both Cash Flow and term, then Cash Flow Weighted Rate can be selected, and the system will not consider terms (tn) for calculations.

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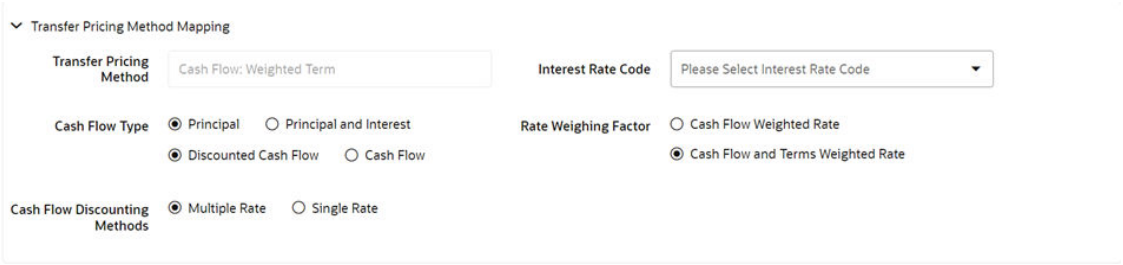
If Cash Flow and Terms Weighted Rate is selected, then both terms, as well as Cash Flow will be used for Weighing Transfer Rate as per calculations shown above.

The discount rate or current rate, r, is defined in one of three ways, based on how the methodology is set up by the user:

- The current rate is defined as the current net rate from the instrument record unless the processing option, "Model with Gross Rates" is selected, in which case, the current gross rate is used. The current rate is used as a constant discount rate for each cash flow.
- The user may directly input while defining the Transfer Pricing Rule, a single constant rate to use for discounts. If specified, this rate is used as a constant discount rate for each cash flow.
- The user can select to discount the cash flows using spot rates from a selected Interest Rate Curve. With this approach, a discount rate is read from the selected Interest Rate Curve corresponding to the term of each Cash Flow.

> **Note**
>
> When validating the Cash Flow Weighted Term Transfer Rate, FE 492 (Discount Factor) from detail Cash Flow output is useful. FE 490 (Discount Rate) however, may be incorrect in the detailed Cash Flow output if the Current Net Rate is specified as the discount rate. This condition does not affect the accuracy of the calculated discount factor, only the Audit Table Rate Output for FE 490. If multiple rate discounting (based on IRC) or a single custom rate is specified, then FE 490 will be correct.

Figure 6-242 Cash Flow: Weighted Term



6.3.4.1.4 Cash Flow: Zero Discount Factors

The Zero Discount Factors (ZDF) Method takes into account common market practices in valuing fixed-rate amortizing instruments. For example, all Treasury Strips are quoted as discount factors. A discount factor represents the amount paid today to receive $1 at maturity date with no intervening Cash Flows (that is, zero-coupons).

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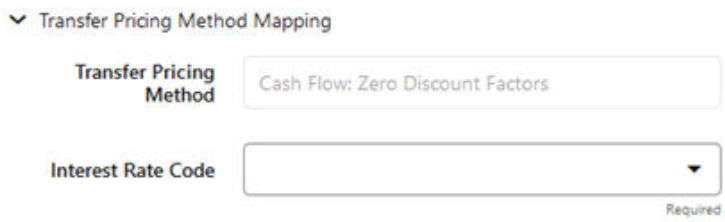
Figure 6-243 Cash Flow: Zero Discount Factors



The Treasury Discount Factor for any maturity (as well as all other rates quoted in the market) is always a function of the discount factors with shorter maturities. This ensures that no risk-free arbitrage exists in the market. Based on this concept, one can conclude that the rate quoted for fixed-rate amortizing instruments is also a combination of some set of market discount factors. Discounting the monthly Cash Flows for that instrument (calculated based on the constant instrument rate) by the market discount factors generates the par value of that instrument (otherwise there is arbitrage).

ZDF starts with the assertion that an institution tries to find a funding source that has the same principal repayment factor as the instrument being funded. In essence, the institution strip funds each principal flow using its funding curve (that is, the Transfer Pricing Yield Curve). The difference between the interest flows from the instrument and its funding source is the net income from that instrument.

Next, ZDF tries to ensure consistency between the original balance of the instrument and the amount of funding required at origination. Based on the Transfer Pricing Yield used to fund the instrument, the ZDF solves for a Single Transfer Rate that would amortize the funding in two ways:

- Its principal flows match those of the instrument.
- The Present Value (PV) of the funding cash flows (that is, the original balance) matches the original balance of the instrument.

ZDF uses zero-coupon factors (derived from the original transfer rates, see the example below) because they are the appropriate vehicles in strip funding (that is, there are no intermediate Cash Flows between the origination date and the date the particular Cash Flow is received). The zero-coupon yield curve can be universally applied to all kinds of instruments.

This approach yields the following formula to solve for a weighted average transfer rate based on the payment dates derived from the instrument's payment data.

Figure 6-244 Zero Discount Factors = y =

$$100 \times \left[\frac{B_0 - \sum_{n=1}^{N}(B_{n-1} \times DTP_n) + \sum_{n=1}^{N}(B_n \times DTP_n)}{\sum_{n=1}^{N}(B_{n-1} \times DTP_n)} \right] \times \mathrm{p}$$

In this formula:

- B0: Beginning balance at the time, 0
- Bn-1: Ending balance in the previous period

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- Bn: Ending balance in the current period
- DTPn: Discount factor in period n based on the TP yield curve
- N: Total number of payments from Start Date until the earlier of repricing or maturity
- p: Payments per year based on the payment frequency; (for example, monthly payments gives p=12)

This table illustrates how to derive Zero Coupon Discount factors from monthly pay Transfer Pricing Rates.

Table 6-69 Deriving Zero-Coupon Discount Factors: An Example

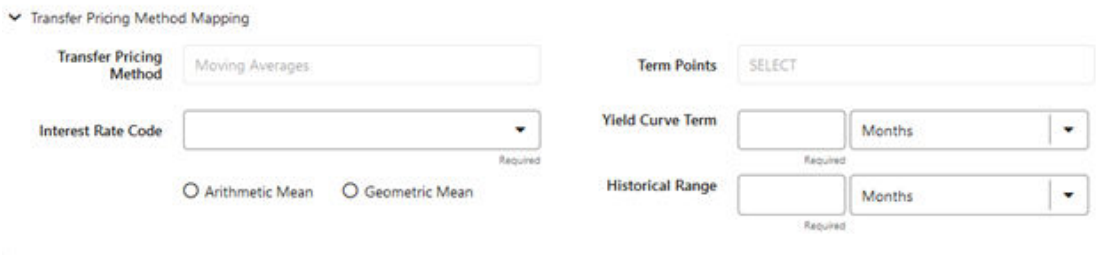
Term in Months	(a) Monthly Pay Transfer Rates	(b) Monthly Transfer Rate: (a)/12	(c) Numerator (Monthly Factor): 1+ (b)	(d) PV of Interest Payments: (b)*Sum((f)/100 to current row	(e) Denominator (1 - PV of Int Pmt): 1 - (d)	(f) Zero-Coupon Factor: [(e)/(c) * 100
1	3.400%	0.283%	1.002833	0.000000	1.000000	99.7175
2	3.500%	0.292%	1.002917	0.002908	0.997092	99.4192
3	3.600%	0.300%	1.003000	0.005974	0.994026	99.1053

> **Note**
>
> For the ZDF method, the discount factor used for discounting cash flows is output as FE 490, after multiplied by 100.

6.3.4.1.5 Moving Averages

Under this method, a user-definable moving average of any point on the Transfer Pricing Yield Curve can be applied to a transaction record to generate the transfer prices. For example, you can use a 12-month moving average of the 12-month rate to transfer price of a particular product.

Figure 6-245 Moving Averages



The following options become available on the UI along with Arithmetic and Geometric mean, with this method:

- **Interest Rate Code**: Select the Interest Rate Code to be used as the Yield Curve to generate transfer rates.

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- **Assignment Date**: The Assignment Date allows you to choose the date from which the Moving Average will be calculated. Choices available are the As of Date, Last Repricing Date, Origination Date, Commitment Start Date, TP Effective Date, or Adj Effective Date. If the selected date is null or 01-Jan-1900, then As of Date will be used as fallback logic.
- **Yield Curve Term**: The Yield Curve Term defines the point on the Interest Rate Code that is used.
- **Historical Range**: The Historical Term defines the period over which the average is calculated.

The following table illustrates the difference between the Yield Curve and Historical Terms.

Table 6-70 Yield and Historical Terms: An Example

Moving Average	Yield Curve Term	Historical Range
Six-month moving average of the 1-year rate	1 year (or 12 months)	6 months
Three-month moving average of the 6-month rate	6 months	3 months

The range of dates is based on the As-of-Date minus the Historical Term plus one, because the Historical Term includes the As-of-Date.

Table 6-71 Assignment Date and Transfer Rate Calculation

Icons	Description
As Of Date	If the As-of-Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms. As-of-Date is available only if the selected source is Ledger Table.
Last Repricing Date	If the Last Repricing Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms.
Origination Date	If the Origination Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms.
Commitment Start Date	If the Commitment Start Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms.
TP Effective Date	If the TP Effective Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms.

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Table 6-71 (Cont.) Assignment Date and Transfer Rate Calculation

Icons	Description
Adjustment Effective Date	If the Adjustment Effective Date is Nov 21, the Yield Curve Term selected is Daily, and the Historical Term selected is 3 Days, then, the system calculates the three-day moving average based on the rates for Nov 19, 20, and 21. The same logic applies to monthly or annual yield terms.

> **Note**
>
> If any of the above date values are 01-Jan-1900 or blank or null, then the Oracle Funds Transfer Pricing Cloud Service engine considers the As-of-Date for Transfer Rate calculation.

After you select the date, Oracle Funds Transfer Pricing Cloud Service computes the Historical Rate using the selected date. Oracle Funds Transfer Pricing Cloud Service takes the values of the yield curve points that fall within that range and does a straight average.

> **Note**
>
> The Moving Averages method applies to either data source: Management Ledger Table or Account Tables.

6.3.4.1.6 Straight Term

When you select the Straight Term method and Standard Term Approach, the Oracle Funds Transfer Pricing Cloud Service derives the Transfer Rate using the last Repricing Date and the next Repricing Date for adjustable-rate instruments, and the Origination Date and the Maturity Date for fixed-rate instruments.

- Standard Calculation Mode:
  - For Fixed Rate Products (Repricing Frequency = 0), use Yield Curve Date = Origination Date, Yield Curve Term = Maturity Date-Origination Date.
  - For Adjustable Rate Products (Repricing Frequency > 0)
  - For loans still in the tease period (tease end date > As-of-Date, and Tease End Date > Origination Date), use Origination Date and Tease End Date - Origination Date.
  - For loans not in the tease period, use the Last Repricing Date and Repricing Frequency.

> **Note**
>
> For loans in the Tease period, the Next Reprice Date should reflect the end of the Tease Period and the Reprice Frequency should reflect the expected Reprice Frequency after the tease period ends.

- Remaining Term Calculation Mode:

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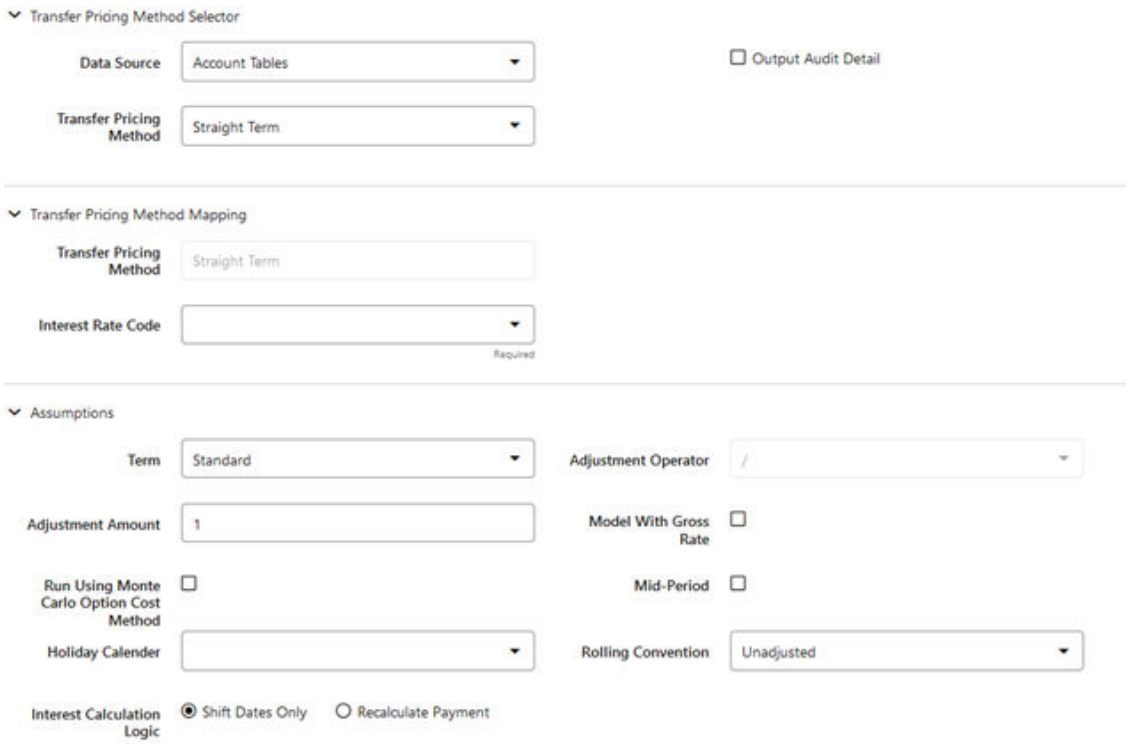
- For Fixed Rate Products, use As-of-Date and Maturity - As-of-Date.
- For Adjustable Rate Products, use As-of-Date and Next Repricing Date - As-of-Date.

Figure 6-246 Straight Term



In addition to the standard logic used for determining the appropriate “Term”, users also have the option to select either Original Term or Repricing Frequency and also have the option to modify these terms using simple mathematical operators. These options can be useful in cases where the straight term method should be applied to the same record under different circumstances. For example, for calculating the base rate on an adjustable-rate instrument, the standard approach should be used. For the same instrument, users may further want to use the entire Original Term for applying a liquidity premium or other add-on rate. To support the second case, we give the option to directly specify the term to be used, and we further provide the option to modify the term using simple operators, such as +, -, *, /.

The following options become available in the application with this method:

- **Term**: Select from Standard, Original Term, or Reprice Frequency. Standard is the default selection and the resulting Term will follow the above logic. The Original Term and Reprice Frequency options allow users to override the standard logic and specify which term to use.
- **Adjustment Operator**: When either Original Term or Reprice Frequency is selected as the Term, the Adjustment Operator becomes active. The term Adjustment is optional and gives users the ability to modify the term
- **Adjustment Amount**: This input works together with the Adjustment Operator to indicate how the term should be modified.
- **Interest Rate Code**: Select the Interest Rate Code to be used for Transfer Pricing the account.

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- **Mid-Period Repricing Option**: Select the check box beside this option to invoke the Mid-Period Repricing option.
- **Holiday Calendar**: Select whether a Holiday Calendar is applicable for calculating the charges/credits or for calculating Economic Value.
- **Rolling Convention**: Select the appropriate Business Day Rolling Convention if a Holiday Calendar is selected.
- **Interest Calculation Logic**: Select the appropriate option to indicate how the interest payment should be adjusted when a Holiday Date is encountered.

> **Note**
>
> The Straight Term method applies only to accounts that use Account Tables as the Data Source.

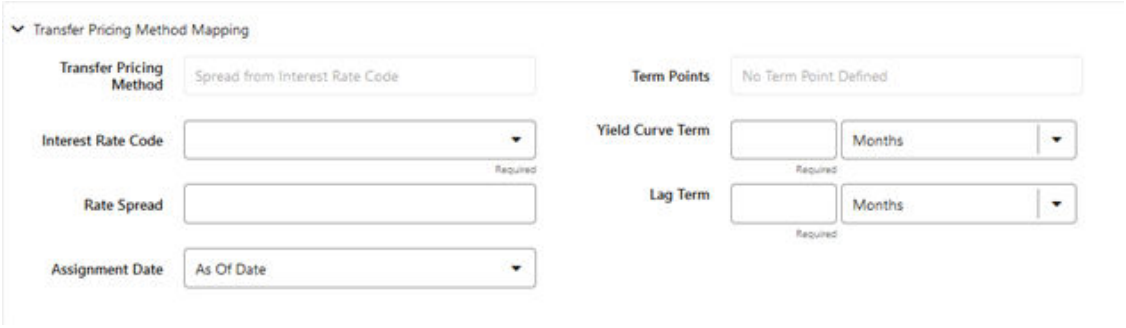
> **Note**
>
> In case of fixed account records, **tp_effective_date** will be used for rate lookup if valid date value is populated in the tp_effective_date column when the selected term in the Straight Term method definition is **Standard**.

For more information, see the Working with Transfer Pricing Rules section.

6.3.4.1.7 Spread from Interest Rate Code

Under this method, the Transfer Rate is determined as a fixed spread from any point on an Interest Rate Code.

Figure 6-247 Spread from Interest Rate Code



The following options become available on the application with this method:

- **Interest Rate Code**: Select the Interest Rate Code for transfer pricing the account.
- **Yield Curve Term**: The Yield Curve Term defines the point on the Interest Rate Code that will be used to transfer price. If the Interest Rate Code is a single rate, the Yield Curve Term is irrelevant. Select Days, Months, or Years from the drop-down list, and enter the number.

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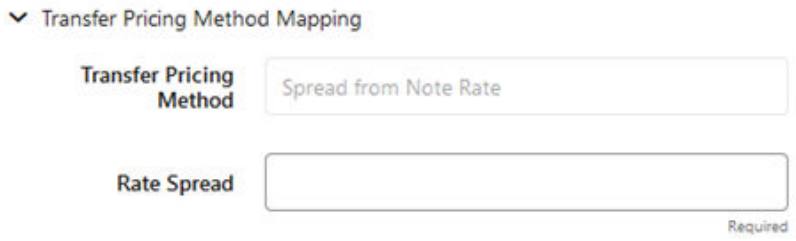
- **Lag Term**: While using a Yield Curve from an earlier date than the Assignment Date, you need to assign the Lag Term to specify a length of time before the Assignment Date.
- **Rate Spread**: The transfer rate is a fixed spread from the rate on the Transfer Rate Yield Curve. The Rate Spread field allows you to specify this spread.
- **Assignment Date**: The Assignment Date allows you to choose the date for which the Yield Curve values are to be picked up. Choices available are the As-of-Date, Last Repricing Date, Origination Date, Adjustment Effective Date, or TP Effective Date.
- **Mid-Period Repricing Option**: Select the check box beside this option to invoke the Mid-Period Repricing option.

> **Note**
>
> The Spread From Interest Rate Code Method applies to either data source: Ledger Table or Account Tables.

6.3.4.1.8 Spread from Note Rate

To generate transfer prices using this method, you need to provide just one parameter: a Rate Spread. This spread is added or subtracted from the Coupon Rate of the underlying transaction to generate the final transfer rate for that record.

Figure 6-248 Spread from Note Rate



While entering the Rate Spread, ensure to input it with the appropriately positive or negative sign, as illustrated in the following table. The first row describes a situation where you are transfer pricing an asset and want to have a positive matched spread for it (the difference between the contractual rate of the transaction and the transfer rate is positive). Here, you should enter a negative rate spread.

Table 6-72 Example of Rate Spread

Account Type	Matched Spread	Sign of Rate Spread
Asset	Negative	Positive (Profitable)
Asset	Positive	Negative (Unprofitable)
Liability or Equity	Positive	Positive (Profitable)
Liability of Equity	Negative	Negative (Unprofitable)

The following option becomes available in the application when you select this method:

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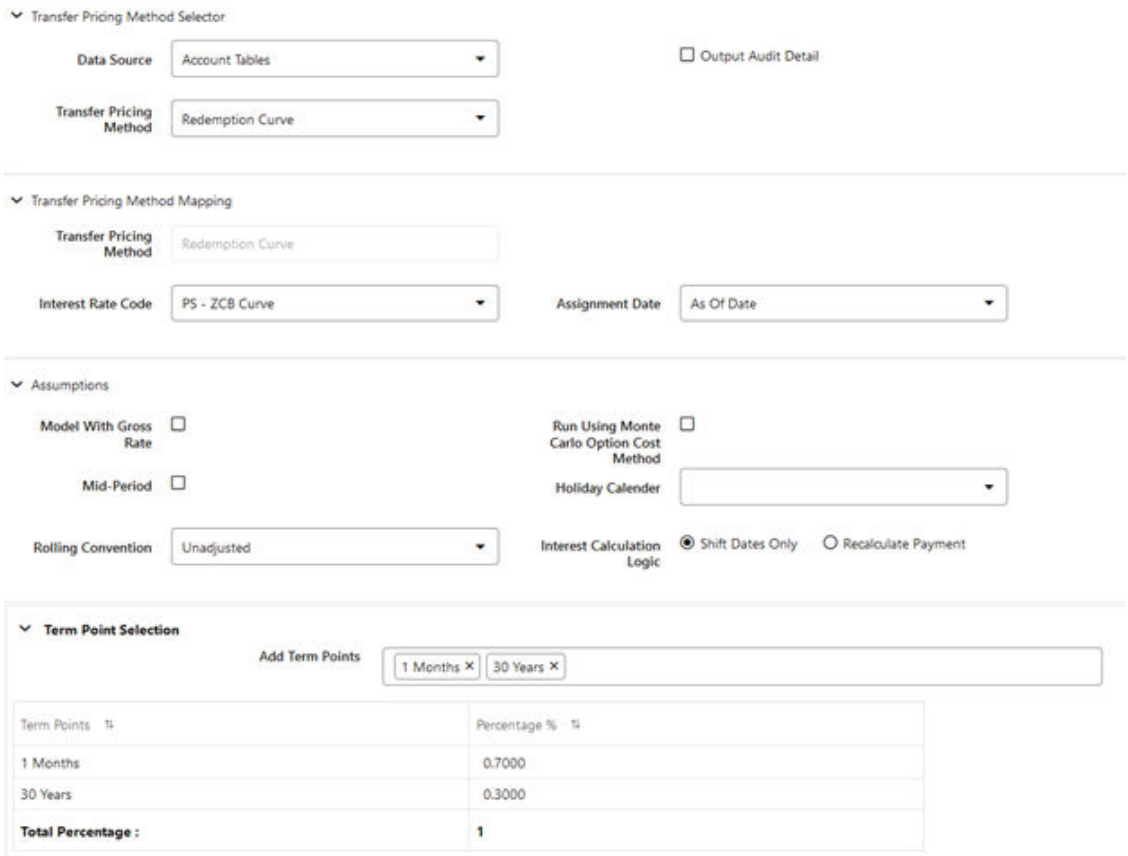
- **Mid-Period Repricing Option**: Select the check-box beside this option to invoke the Mid-Period Repricing option.

> **Note**
>
> The Spread From Note Rate Method applies only to accounts that use Account Tables as their data source.

6.3.4.1.9 Redemption Curve

This method allows you to select Multiple-Term Points from your Transfer Pricing Yield Curve and calculate an average transfer rate based on the weights you assign to each Term Point.

Figure 6-249 Redemption Curve



The following options become available in the application with this method:

- **Interest Rate Code**: Select the Interest Rate Code, which you want to use as the Transfer Pricing Yield Curve.
- **Assignment Date**: The Assignment Date allows you to choose the date for which the Yield Curve values will be picked up. Choices available are the As-of-Date, Last Repricing Date, Origination Date, Adjustment Effective Date, or TP Effective Date.
- **Percentages or Term Points**: See Redemption Curve.

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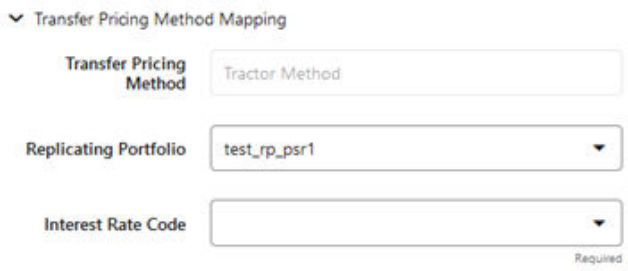
- **Mid-Period Repricing Option**: Select the check-box beside this option to invoke the Mid-Period Repricing option.

> **Note**
>
> The Redemption Curve method applies to either data source: Ledger Table or Account Tables.

6.3.4.1.10 Tractor Method

The Tractor Method extends the concept of Strip Funding to instruments that do not have contractual Cash Flows. These products are known as perpetual or non-maturity products and hence do not generate contractual Cash Flows. The process of determining transfer rates requires adopting the strip funding approach by splitting these products into Core and Volatile portions based on statistically established Behavioral Profiles. With this method, the volatile portion is considered to have an overnight maturity and the core portion is assigned a longer maturity (through Replicating Portfolio) which is comprised of a series of balance strips corresponding to the maximum tenor of the portfolio (on the origination of the portfolio, original strips will have shorter maturities). Each strip is assigned a transfer rate corresponding to its Origination Date and corresponding Term. The historical, active strips are retained for the portfolio and the Portfolio Transfer Rate is determined based on the Weighted Average Transfer Rate of the strips comprising the portfolio. The Weighted Average Rate from the strip portfolio is written back to all instrument records that are mapped to this portfolio through the Transfer Pricing Rule.

Figure 6-250 Tractor Method



The characteristics of the replicating portfolio used by the Tractor Method are defined through Replicating Portfolio Module. The following example illustrates the behavior of a small 3-day portfolio rolling across 4 days.

Table 5:

Table 6-73 Replicating Portfolio

31-Jan-11						
Strip	**Start**	**Maturity**	**Balance**	**TP Rate**	**Date Rolled**	**Comment**
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	
0B	31-Jan-11	2-Feb-11	100	5.10%	3-Feb-11	

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Table 6-73 (Cont.) Replicating Portfolio

31-Jan-11						
Strip	**Start**	**Maturity**	**Balance**	**TP Rate**	**Date Rolled**	**Comment**
0C	31-Jan-11	3-Feb-11	100	5.20%	3-Feb-11	Matures and rolls to 3A
1A	1-Feb-11	4-Feb-11	100	5.30%		
2A	2-Feb-11	7-Feb-11	100	5.40%		
3A	3-Feb-11	8-Feb-11	100	5.50%		Rollover strip, TP's by the engine
Day 1						
1-Feb-11	Daily Rollover					
Strip	Start	Maturity	Balance	Rate	Date Rolled	Comment
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	Matures and rolls to 1A
0B	31-Jan-11	2-Feb-11	100	5.10%		
0C	31-Jan-11	3-Feb-11	100	5.20%		
1A	1-Feb-11	4-Feb-11	100	5.30%		Rollover strip, TP's by the engine
	Day 1 Maturity Profile					
	Total	Day 1	Day 2	Day 3		
		2-Feb-11	3-Feb-11	4-Feb-11		Tractor TP Rate
	300	100	100	100		5.20%
Day 2						
2-Feb-11	Daily Rollover					
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	
0B	31-Jan-11	2-Feb-11	100	5.10%	2-Feb-11	Matures and rolls to 2A
0C	31-Jan-11	3-Feb-11	100	5.20%		
1A	1-Feb-11	4-Feb-11	100	5.30%		
2A	2-Feb-11	7-Feb-11	100	5.40%		Rollover strip, Transfer Priced by the engine
	Day 2 Maturity Profile					
	Total	Day 1	Day 2	Day 3		
		3-Feb-11	4-Feb-11	7-Feb-11		Tractor TP Rate
	300	100	100	100		5.30%
Day 3						

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Table 6-73 (Cont.) Replicating Portfolio

31-Jan-11						
Strip	**Start**	**Maturity**	**Balance**	**TP Rate**	**Date Rolled**	**Comment**
3-Feb-11	Daily rollover, and new business (reduction of 530)					
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	
0B	31-Jan-11	2-Feb-11	100	5.10%	3-Feb-11	
0C	31-Jan-11	3-Feb-11	100	5.20%	3-Feb-11	Matures and rolls to 3A
1A	1-Feb-11	4-Feb-11	100	5.30%		
2A	2-Feb-11	7-Feb-11	100	5.40%		
3A	3-Feb-11	8-Feb-11	100	5.50%		Rollover strip, Transfer Priced by the engine
3B	3-Feb-11	4-Feb-11	10	5.50%		New Business strip, Transfer Priced by the engine
3C	3-Feb-11	7-Feb-11	10	5.50%		New Business strip, Transfer Priced by the engine
3D	3-Feb-11	8-Feb-11	10	5.50%		New Business strip, Transfer Priced by the engine
	Day 3 Maturity Profile					
	Total	Day 1	Day 2	Day 3		
		4-Feb-11	7-Feb-11	8-Feb-11		Tractor TP Rate
	270	90	90	90		5.39%
Day 4						
4-Feb-11	Daily rollover					
0A	31-Jan-11	1-Feb-11	100	5.00%	1-Feb-11	
0B	31-Jan-11	2-Feb-11	100	5.10%	2-Feb-11	
0C	31-Jan-11	3-Feb-11	100	5.20%	3.-Feb-11	
1A	1-Feb-11	4-Feb-11	100	5.30%	4-Feb-11	Matures and rolls to 4A
2A	2-Feb-11	7-Feb-11	100	5.40%		
3A	3-Feb-11	8-Feb-11	100	5.50%		
3B	3-Feb-11	4-Feb-11	-10	5.50%	4-Feb-11	Matures and rolls to 4A

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Table 6-73 (Cont.) Replicating Portfolio

31-Jan-11						
Strip	**Start**	**Maturity**	**Balance**	**TP Rate**	**Date Rolled**	**Comment**
3C	3-Feb-11	7-Feb-11	-10	5.50%		
3D	3-Feb-11	8-Feb-11	-10	5.50%		
4A	4-Feb-11	9-Feb-11	90	5.60%		Rollover strip, Transfer Priced by the engine
	Day 4 Maturity Profile					
	Total	Day 1	Day 2	Day 3		
		7-Feb-11	8-Feb-11	9-Feb-11		Tractor TP Rate
	270	90	90	90		5.50%

This example assumes a business day calendar is enabled with the following business days defined:

- Business Day
- Calendar
- 31-Jan-11
- 1-Feb-11
- 2-Feb-11
- 3-Feb-11
- 4-Feb-11
- 7-Feb-11
- 8-Feb-11
- 9-Feb-11
- 10-Feb-11
- 11-Feb-11

6.3.4.1.11 Caterpillar

The Caterpillar Method extends the concept of Strip Funding to instruments that do not have contractual Cash Flows. These products are known as Perpetual or Non-Maturity Products and therefore do not generate contractual Cash Flows. The process of determining Transfer Rates requires adopting the 'Strip Funding Approach' by splitting these products into 'Core' and 'Volatile' portions based on statistically established Behavioral Profiles. With this approach, the volatile portion may be considered as an overnight funding strip and the core portion can be dealt with by an assumed maturity structure defined through a Behavior Pattern. For example, statistical analysis may imply that the Savings Account portfolio behaves 20% as volatile and 80% as the core of which the maturity is likely to be 3 months. Therefore, the Funding Strips that would get created are 20% 1 month, and 80% 3 months.

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Figure 6-251 Caterpiller

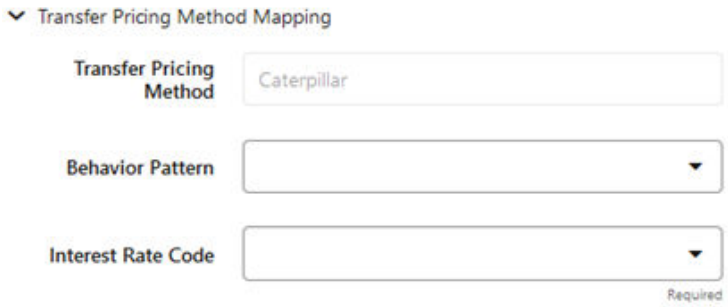

Table 6-74 BEHAVIORAL PATTERN: 20% 1 Month; 80% 3 Months

		Production			IRC			
Period	**EOP Balance**	**1M**	**2M**	**3M**	**1M**	**2M**	**3M**	**TP Rate**
Month 1	4000	800		3200	4.00%	4.25%	4.50%	4.40%
Month 2	7000	760	3200	3040	4.50%	4.75%	5.00%	4.72%
Month 3	8500	3652	3040	1808	5.00%	5.25%	5.50%	4.92%
Month 4	9000	3870	1808	3322	5.50%	5.75%	6.00%	5.52%
Month 5	8000	2382	3322	2296	6.00%	6.25%	6.50%	6.03%

In the example, we assume that once a funding strip is assigned a certain Transfer Rate based on its original term, the rate remains constant until the strip matures. Each strip is funded for the original term based on the yield curve in effect at the start of the strip. In month 4, when the balance is 9000, the strips still outstanding from earlier months are 3040 as a 3-month term strip, created in month 2 at 5% having a remaining term 1-month; (3870-3040) 1-month term strip created in month 4, 1808 3-month term strip created in month 3 with the 2-month remaining term, and 3322 3-month term strip created in month 4. The weighted average rate of these strips comes to 5.52% as the example shows.

In summary:

Month 4 Transfer Rate = (3040*5% + (3870-3040)*5.5% + 1808*5.5% + 3322*6%) / 9000 = 5.52%

> **Note**
>
> The Caterpillar Method must not be run more than once for a given date as this may corrupt the historical data. The strip data for this method is stored in the database in the CATERPILLAR_INTER_NEXTGEN table.

6.3.4.1.12 Weighted Average Perpetual

This method calculates the simple Weighted Average of the applicable balance based on maturity bands defined through a Behavior Pattern. In the following example, the end-of-period

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balance as of Jan 31 is split into Core and Volatile strips, and the relevant rates are applied to arrive at the Weighted Average Transfer Rate.

Figure 6-252 Weighted Average Perpetual

Table 7:

Table 6-75 BEHAVIORAL PATTERN: 20% 1 Month; 80% 3 Months

Run Date	EOP Balance	1M Strip	3M Strip	1M Rate	3M Rate	TP Rate
Jan 31	100000	20000	80000	3.10%	3.50%	3.42%
Feb 28	200000	40000	160000	3.25%	3.60%	3.53%
Mar 31	300000	60000	240000	3.20%	3.55%	3.48%

Transfer Rate = (20000*3.10% + 80000*3.50%) / 100000 = 3.42%

- **Behavior Pattern**: Select the Behavior Pattern that is associated with the Product/ Currency combination being defined.
- **Interest Rate Code**: Select the Interest Rate Code, which you want to use as the Transfer Pricing Yield Curve.

> **Note**
>
> The Weighted Average Perpetual method applies to both Instrument Balances and Ledger Balances.

6.3.4.1.13 Unpriced Account

Under the Unpriced Account Method, the transfer rate for the account is defined as the Weighted Average of the Product Dimension Members.

While using the unpriced account methodology, you can specify whether the Weighted Average of transfer rates has to be taken across all organizational units or for accounts only within that organizational unit.

The following options become available in the application with this method:

- **Add Dimension Values**: This allows you to select the Product dimension members whose weighted average transfer rate will be calculated based on other selected product dimension members.

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> **Note**
>
> You should not base calculations for a product dimension member which is subseuqntly using unpriced account on another product dimension member; else it will create a dead lock situation.

- **Across all Organization Units**: This allows you to specify whether the weighted average of transfer rates should be taken across all organizational units. If this option is not selected, the weighted average rate will be calculated individually within particular organization unit.

6.3.4.1.13.1 Transfer Pricing Unpriced Accounts

Accounts using the Unpriced Account method are a special case of direct transfer pricing in instrument tables based on already calculated transfer rate of other product dimension members. The Unpriced Account transfer pricing methodology uses the WATR from other accounts to derive a WATR for the Unpriced account. This is accomplished by averaging the WATR for the component accounts, weighted by their relative Balances.

If Unpriced method is being applied on Product 04 as WATR of Product 01, 02 and 03, then following calculations will takes place:

WATR for Product 04 = (LSBal01_x_TfrRate01 + LSBal02_x_TfrRate02 + LSBal03_x_TfrRate04)/(LSBal01 + LSBal02 + LSBal03)

Rate Weighting Balance: From a UI dropdown, user can select the balance on which Transfer rate weighting will be done, Possible Values are:

- Average Book Balance (Avg Book Bal)
- Ending Book Balance (Cur Book Bal)
- Activated Placeholder Balance Columns

6.3.4.1.13.2 Defining the Unpriced Account Methodology

When defining an Unpriced Account Methodology, you need to select the Product dimension members (products) whose weighted average transfer rate will be assigned to the product or currency combination being defined. The prerequisite for defining the Unpriced Account Methodology is performing basic steps for creating or upgrading a Transfer Pricing Rule.

To add the dimension values:

1. Click the **Dimensional Values** icon to display the Hierarchical Add Members page.
2. Search and select the required dimension members. Specify whether the weighted average of Transfer Rates has to be taken across all organizational units or for accounts only within that organizational unit.

   > **Note**
   >
   > You must also select the Organization Unit dimension along with any other applicable dimensions under Migration Dimensions on the Migration tab of the TP Process when using this method.

3. Click **Apply**.
   The Transfer Pricing Assumption Browser page is displayed.

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6.3.4.1.14 Risk Free Reference Rates

Risk Free Reference rates (RFR) could be used for following two methodologies, based on what is selected in UI:

- Cumulative Compounded Rate
- Non-Cumulative Compounded Rate

Step 1: Unannualized/ Effective RFR:

$K_i = \frac{r_i \times n_i}{N}$

N = It will be as per accrual Basis on the record. E.g. if 1 - Then 360 days in an year. ri is the RFR rate for that day and ni - is number of days in interest period.

Step 2: Compounding Factor:

$L_i = \prod_{i=1}^{d_b}\left(1+\frac{r_i \times n_i}{N}\right)$

= (1+ K_i) * (L_i-1BD) - Daily Compounding Factor, if user is directly loading compounding factor, then Step 1 and 2 are skipped.

Step 3: Annualized Cumulative Compounded RFRi (ACRi):

$ACR_i = \left[\prod_{i=1}^{d_b}\left(1+\frac{r_i \times n_i}{N}\right)-1\right]\times\frac{N}{tn_i}$ = N is days in an Year on Accrual Basis CD. tn_i = Cumulative days till nth daily interest period. Here, system performs rounding, based on selected decimal Points in UI. In UI, decimal points are given in % format.

Step 4: Unannualized Cumulative Compounded RFRi:

$UCR_i = ACR_i \times \frac{tn_i}{N}$

Step 5: Non-Cumulative Compounded RFRi:

$(UCR_i - UCR_{i-1BD}) \times \frac{N}{n_i}$

n_i is the Number of days in each respective interest period.

N - Number of Days in a year as per the account's accrual Basis CD.

Lag/Lookback will be from - RATE_SET_LAG and RATE_SET_LAG_MULT.

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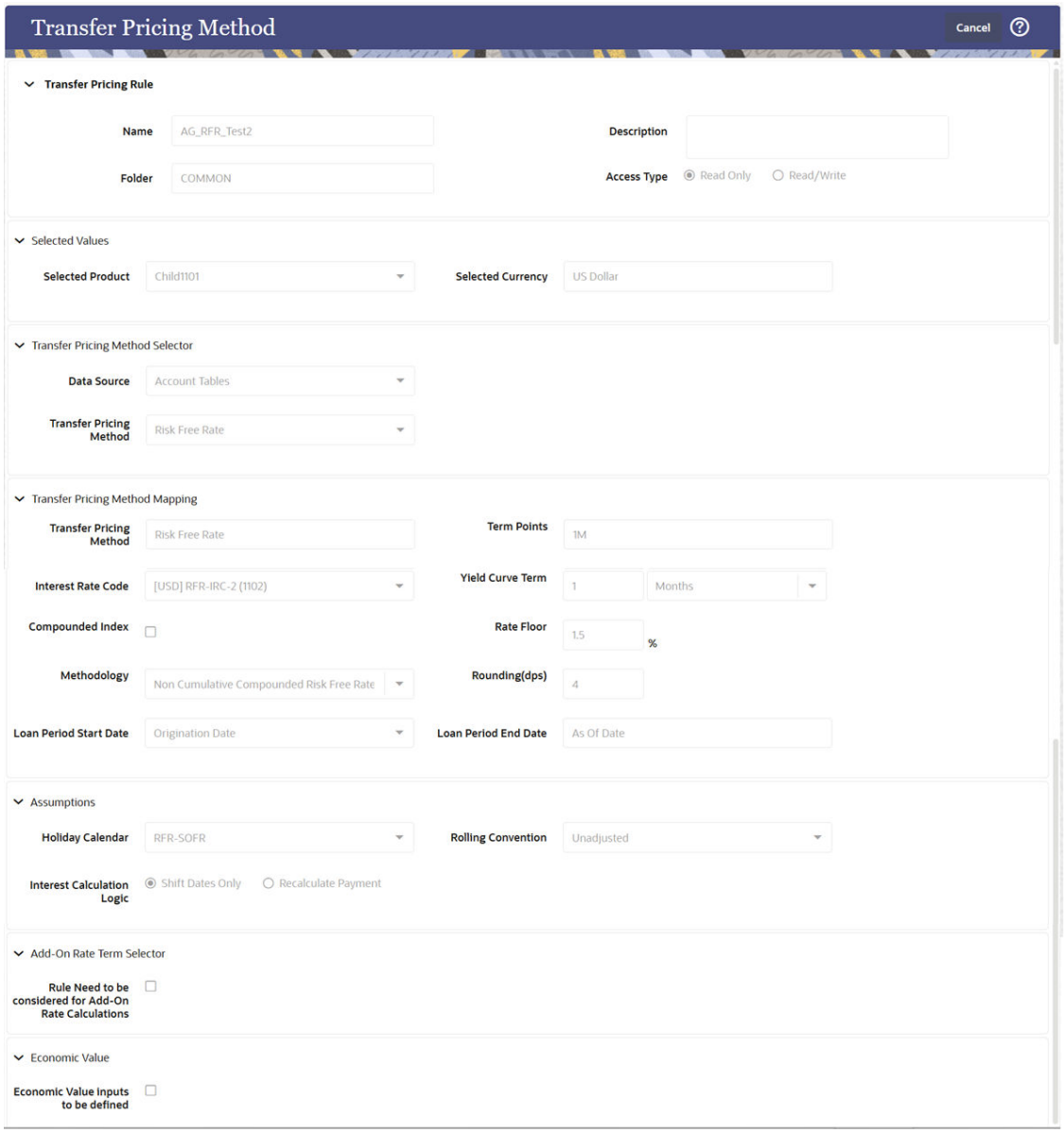
Figure 6-253 Transfer Pricing Method



Period Start Date: Any of following:

- Last Payment Date (Default)
- Origination Date
- Last Reprice Date
- TP Effective Date
- Add-On Effective Date

Period End Date: As of Date (Maturity Date if it is before As of Date)

If the user selects Cumulative Compounded RFR, then Step 3 will be the output in percentage format and stops.

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If the user selects Non-Cumulative Compounded RFR, Step 5 will be the output in percentage format.

Rate Floor (in Percentage): It accepts only integers, between -99.99% to + 99.99%. If RFR is below this rate for any day, the RFR will be used as floor for that date.

To form the Loan/Interest Period, select a holiday from a record. If the holiday is not mentioned in the record, then the system uses whichever day defined in the UI. If nothing is defined, the system considers each day as working day.

Interest Rate Code: A list of all the available IRC for selected CCY or for all CCY curves is displayed and all the yield curve term points for the selected curve are displayed in display only mode.

Yield Curve Term: Enter any integer and multiplier. If user selects term point that is not available on the curve, then system will do the regular interpolation/extrapolation.

If the system searches for particular effective date in IRC and does not find the same, it checks for most recent past available effective date for same curve. If a most recent past effective date for the curve is not found, then system uses the most recent future available effective date for same curve.

Rounding Dps: (Decimal Point for (Annualized Cumulative Compounded Rate) = Integer Inputs. Enter the value in percentage (%).

6.3.4.1.15 Reference Period Compound Rate

When you load the compounded rate index as per the selected period, the application picks compounded index for the reference period start date which is configured by the user. For example, last payment date, TP effective Date, and so on and As-of-Date as reference period end date to do the calculation.

In this method configuration, along with selection of IRC, a term point selection is also possible which will by default set at minimum available term point.

Reference Period Start Date: It could be any of the following dates:

- Last Payment Date (Default)
- Origination Date
- Last Reprice Date
- TP Effective Date
- Adjustment Effective Date

Reference Period End Date will always be As-of-Date.

In case rates are not available for either reference period start or end date, IRC fallback logic will be used. For example, if you are looking for 12-Dec-2020, and compounded index is not available for this, then the application picks the most recent available date and considers that 'Rate' for 12-Dec-2020.

To annualize the rate, number of days in an year is required, which will be as per account’s accrual type cd.

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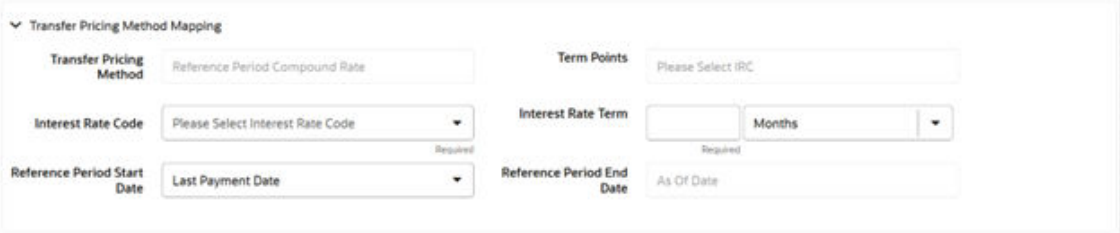
Figure 6-254 Transfer Price Method Mapping



6.3.4.1.16 Mid-Period Repricing Option

The Mid-Period Repricing option allows you to take into account the impact of high market rate volatility while generating transfer rates for your products. However, the Mid-Period Repricing option applies only to adjustable-rate instruments and is available only for the following non-Cash Flow Transfer Pricing Methods:

- Straight Term
- Spread from Interest Rate Code
- Spread from Note Rate
- Redemption Curve

The rationale behind Mid-Period Repricing is as follows. If you do not select the Mid-Period Repricing option, Oracle Funds Transfer Pricing Cloud Service computes the transfer rate for an adjustable-rate instrument based upon its last Repricing Date. The assumption behind this method of calculation is that the input transfer rate for a month should be the daily average transfer rate for that entire month. Consequently, all instruments repricing in that month derive their transfer rates from the same (average) Transfer Pricing Yield Curve. However, this approach misstates the transfer rate, in periods when the interest rate level has moved substantially since the last repricing.

Take the example of a one-year adjustable-rate loan, which reprices on the 15th of the month, and that transfer rates have moved up 200 basis points since the last reprice. In this case, the theoretically pure transfer rate for the first half of the month should be 200 basis points lower than the transfer rate for the second half of the month. To apply such theoretical accuracy to your transfer pricing results, you should select the Mid-Period Repricing option.

6.3.4.1.17 Defining Transfer Pricing Methodologies Using Node Level Assumptions

In Oracle Funds Transfer Pricing Cloud Service, your product portfolio is represented using the Product Dimension specified in your FTP Application Preferences. Node Level Assumptions allow you to define Transfer Pricing, Prepayment, and Adjustment Assumptions at any level of the Product Dimension Hierarchy. The Product Dimension supports a Hierarchical Representation of your Chart Of Accounts, therefore, you can take advantage of the Parent-Child relationships defined for the various nodes of your Product Hierarchies while defining Transfer Pricing, Prepayment, and Adjustment Assumptions. Child nodes for which no assumptions are specified automatically inherit the methodology of their closest Parent node. Conversely, explicit definitions made at a Child level will take precedence over any higher-level Parent node assumption.

Node level Assumptions simplify the process of applying rules in the user interface and significantly reduce the effort required to maintain Business Rules over time as new products are added to the product mix. It is also not required for all rules to assign assumptions to the same nodes. Users may assign assumptions at different levels throughout the Hierarchy.

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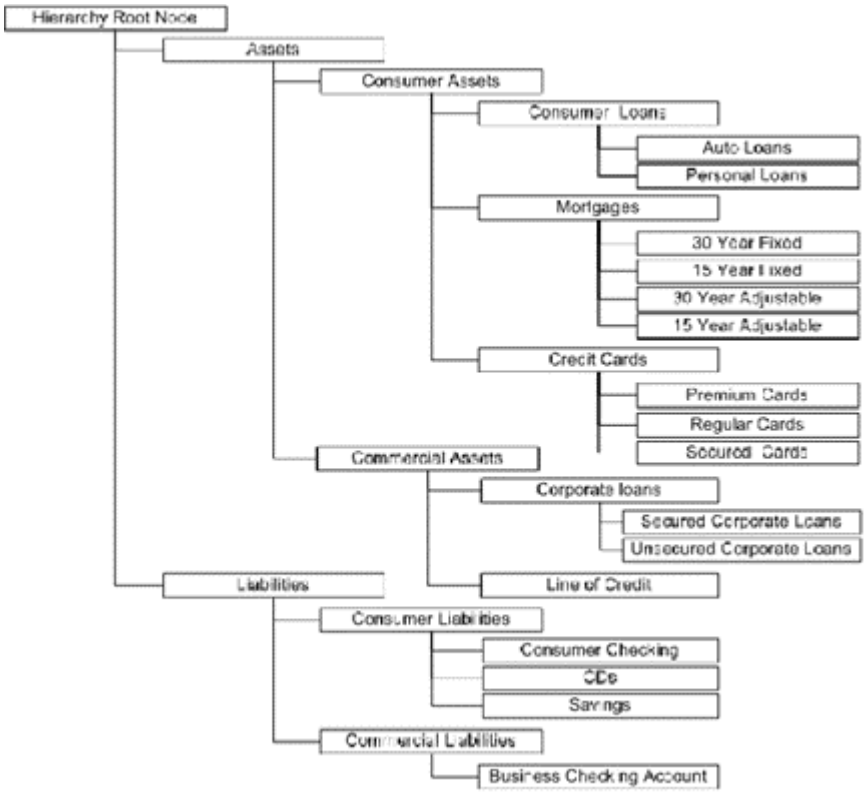
> **Note**
>
> While creating a new rule, if you perform any activities (such as Conditional Assumption Creation, Defining Products, Search, Copy Across, and so on) in the Assumption window and click the Cancel button, the Rule will be saved with basic Rule definition and displayed in Rule Summary Page.

The Behavior of Node Level Assumptions: The following graphic displays a Sample Product Hierarchy:

Figure 6-255 Sample Product Hierarchy



For example, if you want to transfer price this Product Hierarchy using the Spread from Interest Rate Code Transfer Pricing Method except for the following products:

- **Mortgages**: You want to transfer price these using the Zero Discount Factors Cash Flow based method.
- **Credit Cards**: You want to transfer price all but secured credit cards using the Spread from Note Rate Method.

To transfer price in this manner, you need to attach Transfer-Pricing Methods to the nodes of the Product Hierarchy as follows:

- **Hierarchy Root Node**: Spread from Interest Rate Code
- **Mortgages**: Zero Discount Factors Cash Flow
- **Credit Cards**: Spread from Note Rate

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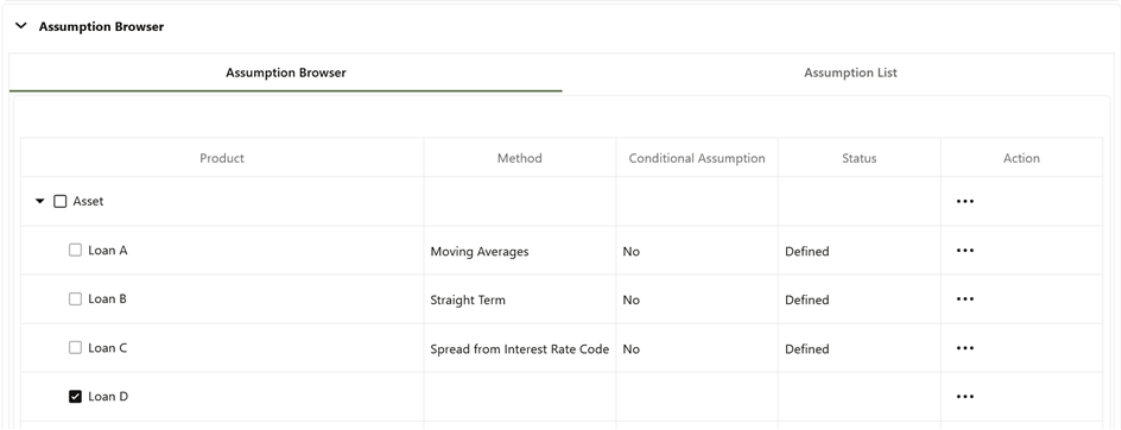
- **Secured Credit Cards**: Spread from Interest Rate Code

Figure 6-256 Assumption Browser



The Transfer Pricing Method for a particular product is determined by searching up the nodes in the hierarchy. Consider the Secured Credit Cards in the previous example. Since the Spread from IRC is specified at the leaf level, the system does not need to search any further to calculate the transfer rates for the Secured Credit Cards. However, for a Premium Credit Card, the system searches up the Hierarchical Nodes for the first node that specifies a method. The first node that specifies a method for the Premium Credit Card is the Credit Card node and it is associated with the Spread from Note Rate method.

> **Note**
>
> Not specifying assumptions for a node is not the same as selecting the "Do Not Calculate" method. Child nodes for which no assumptions are specified automatically inherit the methodology of their closest parent node. Therefore, if neither a child node nor its immediate parent has a method assigned, then the Oracle Funds Transfer Pricing Cloud Service searches up the nodes in the hierarchy until it finds a parent node with a method assigned, and uses that method for the child node. If there are no parent nodes with a method assigned then the application triggers a processing error stating that no assumptions are assigned for the particular product/currency combination. However, if the parent node has the "Do Not Calculate" method assigned to it then the child node inherits "Do Not Calculate", preventing the need for calculation and a processing error.

All parameters that are attached to a particular methodology (such as Interest Rate Code) are specified at the same level as the method. If multiple Interest Rate Codes are to be used, depending on the type of the product, the method would need to be specified at a lower level. For instance, if you want to use IRC 211178 for Consumer Products and IRC 3114 for Commercial Products, then the Transfer Pricing Methodologies for these two products need to be specified at the Commercial Products and Consumer Products nodes.

You need not specify Prepayment Assumptions at the same nodes as Transfer Pricing Methods. For example, each Mortgage category can have a different prepayment method while the entire Mortgage node uses the Zero Discount Factors Cash Flow Method for transfer pricing.

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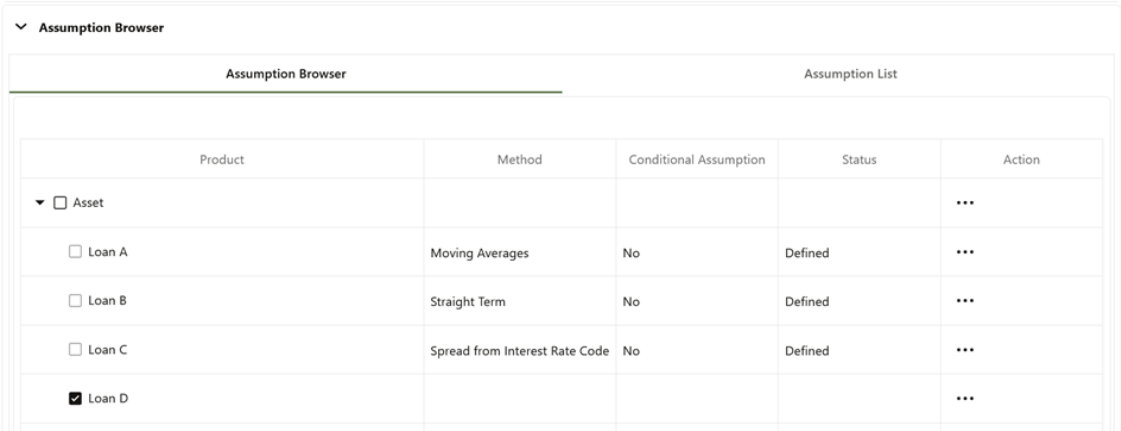
6.3.4.1.18 Defining Transfer Pricing Methodologies using Conditional Assumptions

Oracle Funds Transfer Pricing Cloud Service extends the setup and maintenance of assumptions by allowing users to integrate conditional logic (optional) into the setup of Transfer Pricing, Prepayment, and Transfer Pricing Adjustment methods. The Caterpillar Method under Transfer Pricing Rules will not be available for selection under Conditional Assumptions.

The Conditional Assumption UI is accessed from the Assumption Browser by selecting the Conditional Assumption icon.

Figure 6-257 Assumption Browser



The conditional logic is defined using Data Filters and/or Maps. These existing objects provide the building blocks for defining Conditional logic. For example, each Data Filter can provide the logic for a specific condition. In the following example, the Where clause is “Adjustable Type Code = 'Adjustable Rate'”. This type of Data Filter can be selected within the Conditional Assumption UI.

For more information on working with Filter, see the Filters document.

For example, you can use the Org Unit column to drive the assignment of Transfer Pricing Methods for all members of a particular Organization. You can create one Conditional Assumption to convey the entire Transfer Pricing Methodology logic and attach it to the top-level node of the Org Unit hierarchy. All nodes below the top-level node inherits the same Transfer Pricing assumption.

The logic included in a Conditional Assumption determines the specific Transfer Pricing method, Prepayment assumption, or Adjustment Rule that the system assigns to each instrument record at Run time.

The Conditional Assumption screen allows users to select explicit conditions (from Data Filters and/or Hierarchy Filters), apply methods, and rule selections to each condition directly. The Filter Conditions are processed by the engine in the order that they appear on the screen. After a condition is satisfied, the related assumption is applied. The following figure displays a representative Conditional Assumption using a Data Filter:

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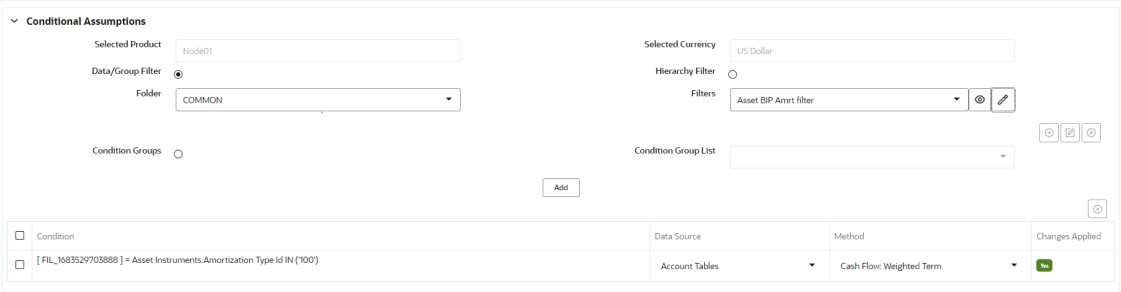
Figure 6-258 Conditional Assumptions



The Filters field displays the View and Edit buttons. You can verify the existing Filters by clicking the **View** button. Click the **Edit** button if you want to modify the Filter condition.

> **Note**
>
> If an instrument record does not meet any of the conditions, then the rule logic reverts to the standard assumption that is directly assigned to the Product / Currency combination.

Conditional Assumptions can be applied only to detailed account records (data stored in the Instrument Tables).

6.3.4.2 Working with Transfer Pricing Rules

The procedure for working with and managing the Transfer Pricing Rule is similar to that of other Oracle Funds Transfer Pricing Cloud Service assumption rules. It includes the following steps:

- Searching for Transfer Pricing Rules
- Creating Transfer Pricing Rules
- Viewing and Editing Transfer Pricing Rules
- Copying Transfer Pricing Rules
- Deleting Transfer Pricing Rules

As part of creating and editing Transfer Pricing Rules, you can also define Transfer Pricing Methodologies. See:

- Defining Transfer Pricing Methodologies
- Defining the Redemption Curve Methodology
- Defining the Unpriced Account Methodology

Oracle Funds Transfer Pricing Cloud Service provides you with the option to copy, in total or selectively, the product assumptions contained within the Transfer Pricing, Prepayment, and Adjustments Rules from one currency to another currency or a set of currencies.

6.3.4.3 Creating Transfer Pricing Rules

You create a Transfer Pricing Rule to map Transfer Pricing Methodologies for your products.

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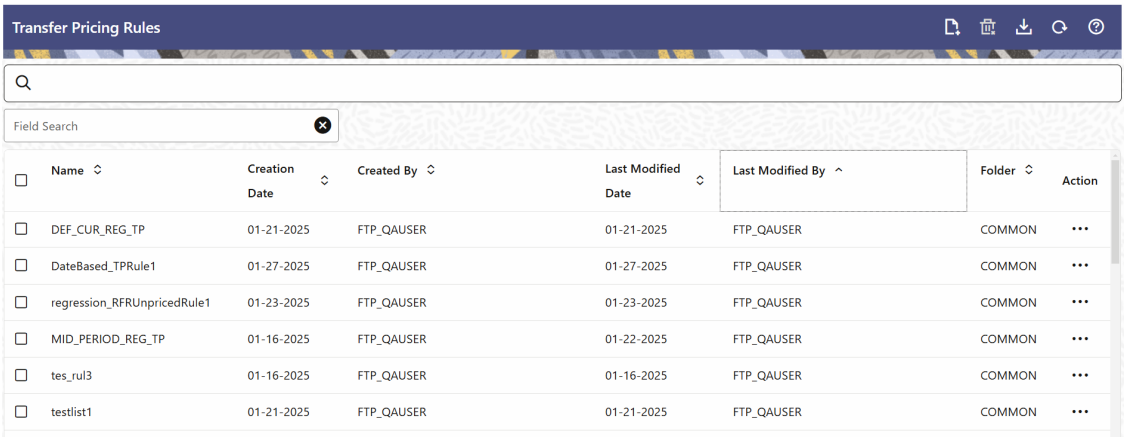
To create a Transfer Pricing Rule, from the LHS menu, select **Assumption Specification**, and then select **Transfer Pricing Rules**.

The Transfer pricing Rules summary screen is displayed showing a set of Transfer Pricing Rules. Using search criteria, you can control the set of rules that are displayed. When you Add, Edit, or View a rule, a detailed screen is displayed.

Figure 6-259 Transfer Pricing Rules summary

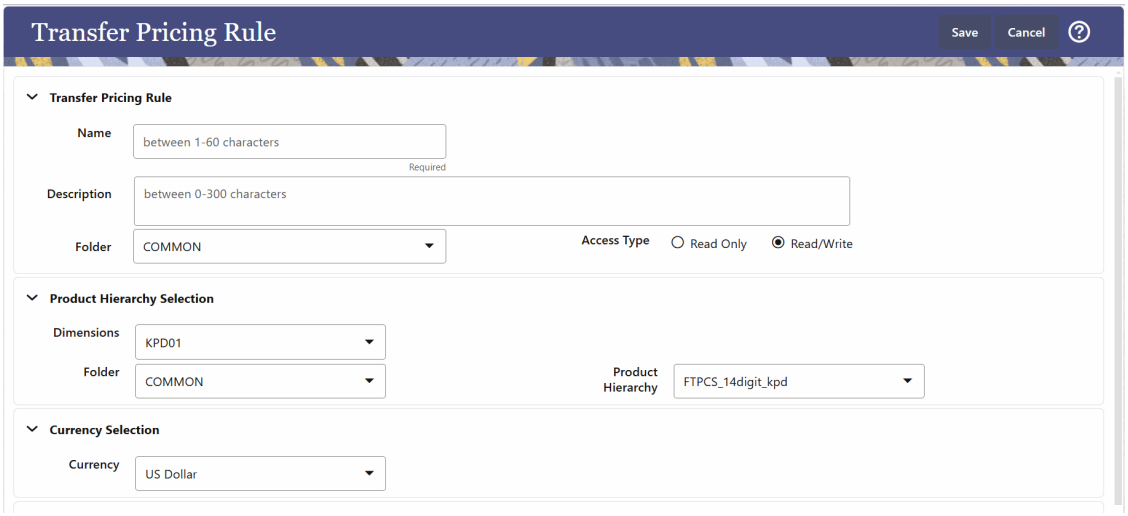


Adding a New Transfer Pricing Rule

To create a new rule, click the **Add** button.

The Transfer Pricing Rule definition screen is displayed.

Figure 6-260 Transfer Pricing Rule definition screen



You can search the rule on any of the product dimension, searched dimension will be auto-populated while defining the rule; if you like, you can change the default product dimension.

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6.3.4.4 Navigating in the Summary Screen

When you first navigate to the Transfer Pricing Rules summary screen, the rules stored within your current default Folder are presented in a summary table. The Transfer Pricing Rules summary screen has the following panes: Search and Transfer Pricing Rule.

The title bar of the summary page provides several actions for the user. They are:

- **Add**: Click Add icon to build a new Transfer Pricing Rule.
- **Multiple Delete**: Select one or more rules in the table and then click the (-) icon at the top right of the summary page to delete more than one rule at the same time.
- **Refresh**: Click Refresh to refresh the Summary Page.
- **Help**: Click the Help icon to view the Transfer Pricing Rule Help Page.

Search a Transfer Pricing Rule

On the Transfer Pricing Rules summary, enter your search criteria in the search box and click **Search**. The Transfer Pricing Rules meeting your search criteria are displayed. If you select **Dimension** filter and search for the rules, the search results will be displayed for the selected Dimension. When you try to create any rule, by default the selected Dimension will be displayed instead of the Dimension defined in the Preferences.

or

An alternative method to search a Transfer Pricing Rule is using the **Field Search** option. The Field Search is an inline wildcard search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary Table.

Transfer Pricing Rule Pane

The Transfer Pricing Rule Pane presents a table containing all Transfer Pricing Rule that meet your search criteria.

The Transfer Pricing Rule Summary page displays the following columns.

- **Name**: Displays the short name of the rule.
- **Creation Date**: Displays the date and time when user created the rule.
- **Created By**: Displays the Name of the user who created the rule.
- **Access Type**: Displays the access type of the rule - Read/Write or Read Only property of a Static Table Driver rule. Only the creator of a rule may change its Access Type.
- **Folder**: Displays the folder name where the rule is stored.
- **Action**: Displays the following actions that can be performed on the rule.
  - **View**: Click View in the Action column and select View to view the contents of a Transfer Pricing Rule in read/write format.
  - **Edit**: Click Edit in the Action column and select Edit to edit the contents of a Transfer Pricing Rule in read/write format.
  - **Delete**: Click Delete in the Action column and select Delete to delete an existing Transfer Pricing Rule.

You may select or deselect all the Transfer Pricing Rule rules in the summary table by clicking the check-box in the upper left-hand corner of the summary table directly to the left of the Name column header.

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6.3.4.5 Defining Transfer Pricing Methodologies

The assignment of Transfer Pricing Methodologies is part of the Create or Edit Transfer Pricing Rules process where assumptions about Transfer Pricing Methodologies are made for product-currency combinations. When you click Save in the Create Transfer Pricing Rules Process, the rule is saved and the Transfer Pricing Rule Summary Page is displayed. However, the Transfer Pricing Methodology has not yet been defined for any of your products at this point. You start defining your methodologies for the product-currency combinations before clicking Save.

The Transfer Pricing Rule supports the definition of Assumptions for combinations of two dimensions: Product and Currency.

You can define Transfer Pricing Methodologies for your entire product portfolio one currency at a time. For example, your portfolio is comprised of products denominated in two currencies (US Dollar and Japanese Yen) and that you want to specify different Transfer Pricing Assumptions and/or different Transfer Pricing Yield Curves, for each product group. Using the Currency selection drop-down list, you can first define Assumptions for the products denominated in US Dollars and then proceed with defining Assumptions for the Yen-based products.

After you have created a Transfer Pricing Rule, you can assign Transfer Pricing Methodologies to product-currency combinations in either of the following two ways:

- By creating a conditional assumption using conditional logic. For more information, see Associating Conditional Assumptions with Assumption Rules.
- Directly on the Transfer Pricing Methodology Page, as described here.

6.3.4.5.1 Defining Assumptions with the Default Currency

For cases where you have the same assumption (Method and IRC) which is applicable to all currencies or multiple currencies, you can define rules for the combination of Product and Default Currency. To define assumptions for the Default Currency, select a Product from the Hierarchy and Default Currency from the currency list and proceed with the assumption definition. When processing data, the TP engine will first look for an assumption that exactly matches the product or currency of the instrument record. If not found, the engine will then look for the combination of the product and the Default Currency. This is a useful option to utilize during setup when the same product exists across multiple currencies and shares the same TP Assumption and Interest Rate Code.

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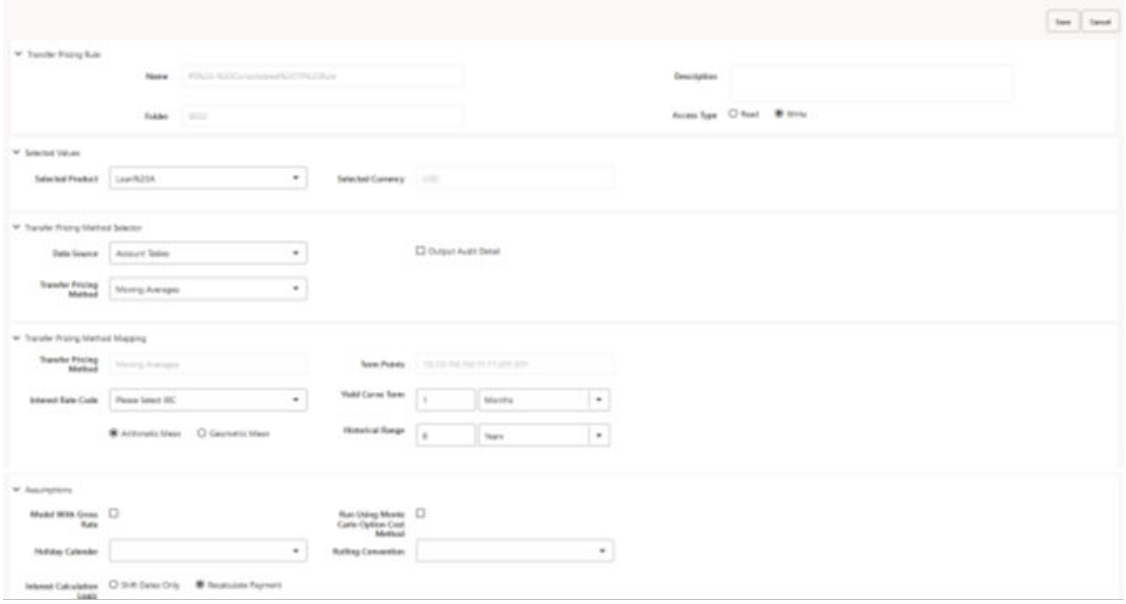
Figure 6-261 Transfer Pricing Rule Definition (Edit Mode)



Default Currency setup example: If you have two instrument records of the same product, each with a different currency, for example, 1 is 'USD' and the other is 'AUD', you have two configuration choices. You can either:

- Define the assumptions individually for each product-currency combination using direct input or copy across.
- You can create one assumption for the combination of Product and Default Currency. When you use Default Currency, the TP Engine will apply this assumption to ALL currencies (unless a direct assumption is available for the product + currency processed). In the case where users have many individual currencies that utilize the same TP Method and reference IRC rates, this is a useful option because you only have to define the assumption 1 time and it applies to many different Product + Currency combinations.

For defining assumptions with Default Currency, you must perform the basic steps for creating or updating Transfer Pricing Rules.

Procedure:

The following table describes the key terms used for this procedure.

Table 6-76 Fields in the Transfer Pricing Rule Definition Screen

Term	Description
Yield Curve Term	Defines the point on the yield curve that the system references to calculate Transfer Rates.
Historical Term	Specifies the period over which the average is to be taken for the Moving Averages Method.
Lag Term	Specifies a yield curve from a date earlier than the Assignment Date for the Spread from Interest Rate Code Method.

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Table 6-76 (Cont.) Fields in the Transfer Pricing Rule Definition Screen

Term	Description
Rate Spread	The fixed positive or negative spread from an Interest Rate Code or Note Rate is used to generate transfer rates in the Spread from Interest Rate and Spread from Note Rate Methods.
Model with Gross Rates	This option becomes available when you select Account tables as the data source and allows you to specify whether modeling should be done using the net or gross interest rate on the instrument. This option is only applicable when the Net Margin Code is also set to one, for example, Fixed. Gross rates are selected while modeling the effect of serviced portfolios where the underlying assets are sold but the organization continues to earn servicing revenue based on the original portfolio.
Mid Period	This option applies to Adjustable-Rate instruments only. It dictates whether the transfer rate is based on the Last Repricing Date, Current Repricing Period, Prior Repricing Date, or some combination thereof.
Audit Trail	Select to generate Audit Trail Output for specific product/ currency combination.
Assignment Date	This is the effective date of the yield curve.
Percentage/Term Points	The term points that the system uses to compute the Redemption Curve Method results. A percentage determines the weight assigned to each term point when generating results.
Add Dimension Values	Allows you to select the products that you want to use as source values when you transfer price using the Unpriced Account Method.
Across All Organization Units	When this option is enabled, the Transfer Price is calculated as a weighted average across all organization units for the matching product value and currency, and any optional migration dimensions selected in the Transfer Pricing Process Rule. Otherwise, the Transfer Price is calculated from accounts only within a particular Organizational Unit.
Holiday Calendar	Holiday Calendars are defined in the Holiday Calendars UI. In the Holiday Calendar, you can specify weekend days and Holiday Dates as applicable.
Rolling Convention	Rolling Conventions allow you to specify how dates falling on specified weekends or holidays should be handled.
Interest Calculation Logic	The Interest Calculation Logic Assumption allows you to specify whether to simply the date of the computed Cash Flow or to shift the date and recalculate the interest payment amount.

To define the assumptions with the default currency:

1. Navigate to the Assumption Browser page.

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2. Select a **Product Hierarchy**.
3. Select a **Currency**.
4. The list of currencies available for selection is managed with Currency module and reflects the list of Active currencies.
5. Expand the hierarchy and select one or more members (leaf values and/or node values) from the product hierarchy.
6. Click the **Add** icon to begin mapping Transfer Pricing Methods to the list of selected product dimension members. The system displays a list of all the products (for which you can define assumptions) or currencies (that are active in the system).
7. From the Transfer Pricing Method Selector Page, select the appropriate data source: **Account Tables** or **Ledger Table**.
8. Select the Transfer Pricing Method for the selected product member.

> **Tip**
>
> The Transfer Pricing Methodologies are available depend on the selected data source. See: Transfer Pricing Combinations.

Depending on the Transfer Pricing Method selected, certain required and optional parameter fields are displayed. You can update these fields as required. See Required Parameters for a Transfer Pricing Methodology. See also:

- Defining the Redemption Curve Methodology
- Defining the Unpriced Account Methodology

9. Select **Output Audit Trail** to output the audit data at the time of processing.
10. Select the Holiday Calendar. The screen displays the Holiday Calendar inputs only for Cash Flow TP Methods – Duration, Average Life, Weighted Term, and Zero Discount Factors. The default assumption is None, meaning the Holiday Calendar adjustments are turned off. If a Holiday Calendar is selected, Holiday Calendar adjustments will be enabled and the following two additional inputs will be required:
    - Rolling Convention
        - Following Business Day: The Payment Date is rolled to the next business day.
        - Modified following Business Day: The Payment Date is rolled to the next business day unless doing so would cause the payment to be in the next calendar month, in which case the payment date is rolled to the previous business day.
        - Previous Business Day: The Payment Date is rolled to the previous business day.
        - Modified previous Business Day: The Payment Date is rolled to the previous business day unless doing so would cause the payment to be in the previous calendar month, in which case the payment date is rolled to the next business day.
    - Interest Calculation Logic
        - Shift Dates Only: If a future Payment Date (as computed by the Cash Flow Engine (CFE)) falls on a designated holiday (including weekends), the CFE will shift the Payment Date from the holiday as per the rolling convention. No changes will be made to the payment amount or accrual amount; this is simply shifting the date on which the Cash Flow will post. The subsequent Payment Dates resume according to the original schedule.

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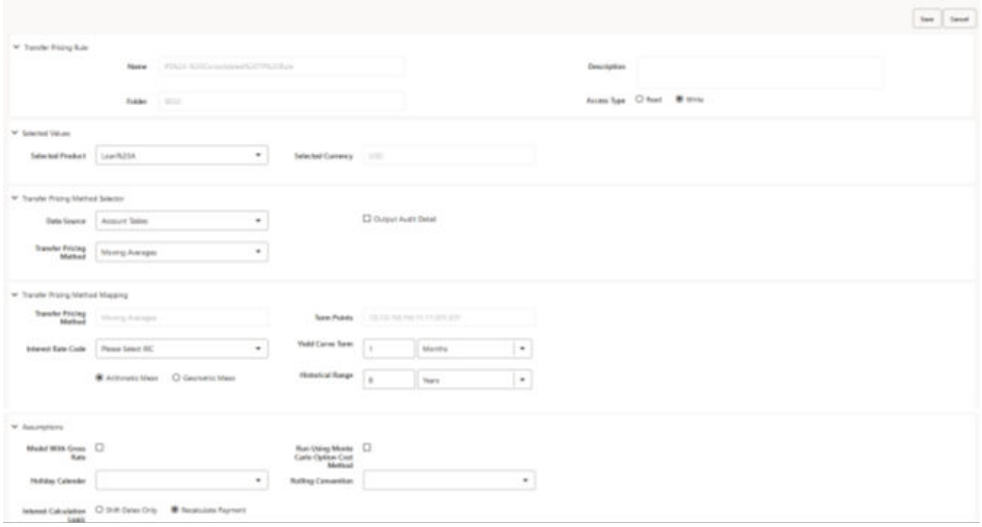
– Recalculate Payment: This option includes the same Holiday Calendar definition as in the Shift Dates Only option, but it also takes one additional step to recalculate the interest payment amount (and interest accruals) based on the actual number of days in the (adjusted) payment period. The instrument records use the payment frequency (term and multiplier) and the Re-Price frequency (term and multiplier) in association with the Next/Last Payment Date and Next/Last Re-Pricing Date to determine when the cash flow will post. The CFE logic is enhanced to acknowledge Holiday Dates and re-compute the payment/interest amount given the change in days. In addition, the engine gets back on the scheduled track of payment events after a holiday event occurs in one (or many sequential) events.

> **Note**
>
> Holiday Calendar adjustments can also be applied to the Tractor TP Method. For this method, the Holiday Calendar assumptions are defined within the Behavior Pattern > Replicating Portfolio UI.

Figure 6-262 Transfer Pricing Rule Definition (Edit Mode)



11. Click **Apply**.
    At this point, you can:
    - Continue defining additional methodologies for other product-currency combinations contained in your selection set, by repeating the above procedure.
    - Complete the process by clicking Cancel or by answering NO to the confirmation alert after applying the assumptions for each Product or Currency combination in your selected set.
12. From the Assumption Browser page, click **Save**.
    The new assumptions are saved and the Transfer Pricing Rule Selector page is displayed.

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> **Note**
>
> Oracle Funds Transfer Pricing Cloud Service provides you with the option to copy, in total or selectively, the product assumptions contained within the Transfer Pricing, Prepayment, and Adjustment Rules from one currency to another currency or a set of currencies. For more information, see Copying Assumptions across Currencies.

6.3.4.5.1.1 Availability of Transfer Pricing Methodologies

The availability of Transfer Pricing Methodologies depends on the data source that you select: Account Table or Ledger Table.

The following table describes the Transfer Pricing Methodologies available for each of these data sources and displays whether that methodology requires the selection of a Transfer Pricing Interest Rate Code.

> **Note**
>
> The Interest Rate Code LOV is filtered by the selected Currency.

Table 6-77 Transfer Pricing Combinations

Transfer Pricing Methodology	Data Source: Account Table	Interest Rate Code	Behavior Pattern	Holiday Calendar
Do Not Calculate	Yes			
Cash Flow: Average Life	Yes	Yes		Yes
Cash Flow: Duration	Yes	Yes		Yes
Cash Flow: Weighted Term	Yes	Yes		Yes
Cash Flow: Zero Discount Factors	Yes	Yes		Yes
Moving Averages	Yes	Yes		
Straight Term	Yes	Yes		
Spread from Interest Rate Code	Yes	Yes		
Spread from Note Rate	Yes			
Redemption Curve	Yes	Yes		
Tractor Method	Yes	Yes	Yes	Yes
Caterpillar	Yes	Yes	Yes	
Weighted Average Perpetual	Yes	Yes	Yes	
Unpriced Account				

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> **Note**
>
> Not specifying assumptions for a node is not the same as selecting the Do Not Calculate Methodology. Child nodes for which no assumptions are specified automatically inherit the methodology of their closest Parent node. Therefore, if neither a Child node nor its immediate Parent has a method assigned, the application searches up the nodes in the hierarchy until it finds a Parent node with a method assigned, and uses that method for the Child node. However, if no Parent node has a method assigned then the application triggers a processing error stating that no assumptions are assigned for the particular product/currency combination. However, if the Parent node has the method Do Not Calculate assigned to it then the Child node inherits Do Not Calculate, obviating the need for calculation and for a processing error.

6.3.4.5.1.2 Required Parameters

You cannot define a Transfer Pricing Methodology successfully unless you specify the required parameters. The following table displays the parameters associated with each Transfer Pricing Method and specifies whether they are required or optional. The optional parameter fields display default values. However, you may decide to change the values for the optional Parameters Methodologies, such as the Redemption Curve or the Unpriced Account Methods.

Table 6-78 Required Parameters for a Transfer Pricing Methodology

Transfer Price Method	Yield Curve Term	Historical Range	Lag Term	Rate Spread	Assignment Date	Mid Period	Term Points	Dimension Values
Cash Flow: Average Life								
Cash Flow: Weighted Term								
Cash Flow: Duration								
Cash Flow: Zero Discount Factors								
Moving Averages	Required	Required						
Straight Term						Optional		
Tractor Method								
Spread from IRC	Required		Required	Required	Required	Optional		
Spread from Note Rate				Required		Optional		

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Table 6-78 (Cont.) Required Parameters for a Transfer Pricing Methodology

Transfer Price Method	Yield Curve Term	Historical Range	Lag Term	Rate Spread	Assignment Date	Mid Period	Term Points	Dimension Values
Redemption Curve					Required	Optional	Required	
Caterpillar								
Do not Calculate								
Weighted Average Perpetual								
Unpriced Account								Required
Tractor Method								

6.3.4.5.2 Defining Terms for Add-On Rate Calculations

To define the terms for Add-On Rate calculations:

Add-On Rate Term Selector: Select the check-box against **Rule Need to be considered for Add-On Rate Calculations**. This selection enables to select Standard or Original terms for the Term to calculate the Add-On Rate Term.

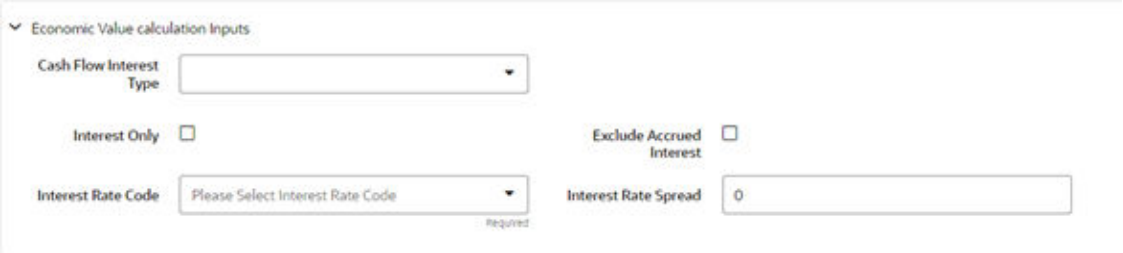
- **Standard Term**: The cash flows will be generated as the normal case. That is , original term for fixed rate records and from last re-price date to next re-price date for adjustable rate instruments.
- **Original Term**: All the cash flows generated to calculate TP rate will be from origination date to maturity date. That is treating all the instruments as fixed rate instruments.

6.3.4.5.3 Configuring Economic Value Calculations

To configure the Economic Value calculations:

Select the check-box againt **Economic Value inputs to be defined**. This section displays the inputs required for calculating Economic Value. These assumptions are optional and the section appears only when the “Economic Value inputs to be defined” check-box is selected.

Figure 6-263 Economic Value Calculation Inputs



The following inputs are required for calculating Economic Value:

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- **Cash Flow Interest Type**: Select the interest rate to use for calculating the Interest Cash Flow. This Interest Amount, together with the Principal Amount will be discounted and used to arrive at the Economic Value of the instrument Record.
- **Interest Only**: Select this option if you want to exclude the Principal Cash Flow from the Economic Value Calculation.
- **Exclude Accrued Interest**: Select this option if you want to exclude accrued interest, (interest computed from last payment date to As-of-Date) from the Economic Value Calculation. This will provide you with a clean price.
- **Interest Rate Code**: Select the Interest Rate Code to be used for discounting the Cash Flows.
- **Interest Rate Spread**: Input any applicable spread to be added on top of the IRC Rate.

6.3.4.6 Defining the Redemption Curve Methodology

As part of the process for defining the Redemption Curve Methodology, you must select as many Term Points from your selected Transfer Pricing Yield Curve as are needed and allocate the percentage weighting for each of those points. The prerequisite for defining the Redemption Curve Methodology is performing basic steps for creating or updating a Transfer Pricing Rule.

To add the term steps:

1. Click **Add New Term Points** to display the Add New Term Points page.
2. Select the **Transfer Pricing Yield Curve Points** as required.
   The Term Point Selection section is displayed.
3. Update the Percentage Value for each Term Point.

> **Note**
>
> The sum of all the percentages for all Term Points must add up to 100.

4. To remove a Yield Curve Point from the Percentages/Term Points table, select the term point(s) and click the **Delete** icon.

Defining Tractor Methodology

The prerequisites for defining a Tractor Methodology are:

- Creating a Replicating Portfolio.
- Generating (and maintaining) the Portfolio. Volatile and Core Instrument strips will be created in the FSI_M_REP_PORTFOLIO_STRIPS table.

To define and use a Tractor TP Method:

1. Define the Transfer Pricing Rule and select the Tractor Method from the list of available TP Methods for relevant Product Dimension Members.
2. Select the appropriate Replicating Portfolio.
3. Select the Transfer Pricing Interest Rate Code.
4. Define a Transfer Pricing Process and Run using the TP Rule.
   - TP Process Transfers Price the non-zero portfolio strips using a Straight Term Method.

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- TP Process computes a weighted average TP Rate for the portfolio and will update all instruments mapped through the TP Rule to this method.

Defining Unpriced Account Methodology

When defining an Unpriced Account Methodology, you need to select the Product Dimension Members (products) whose weighted average transfer rate will be assigned to the product or currency combination being defined. The prerequisite for defining the Unpriced Account Methodology is performing basic steps for creating or upgrading a Transfer Pricing Rule.

To add the Dimension Values:

1. Click the **Dimensional Values** icon to display the Hierarchical Add Members page.
2. Search and select the required Dimension Members. Specify whether the weighted average of Transfer Rates has to be taken across all Organizational Units or for accounts only within that Organizational Unit.

> **Note**
>
> You must also select the Organization Unit Dimension along with any other applicable dimensions under Migration Dimensions on the Migration tab of the TP Process when using this method.

3. Click **Apply**.
   The Transfer Pricing Assumption Browser page is displayed.

6.3.4.7 Copying Assumptions across Currencies

This functionality provides you with the option to copy, in total or selectively, the product assumptions contained within the Transfer Pricing, Prepayment, and Add-On Rate Rules from one currency to another currency or a set of currencies.

Copy of assumptions across currencies enhances the usability of Oracle Funds Transfer Pricing Cloud Service in a multi-currency environment. For example, if you have 10 currencies enabled in the application, you need to input only one set of assumptions and then copy those assumptions across all enabled currencies, instead of having to input 10 full sets, thereby saving a significant amount of input time.

This functionality also reduces the risk associated with data input errors, as you need to audit inputs for a single set of assumptions before executing the copy procedure. The copy across the currencies process requires users to select a replacement Transfer Pricing Yield Curve for each target currency. These currency-specific IRC's replace the IRC selection made for each product in the Source Currency Selection Set.

You must define Transfer Pricing, Prepayment, and (or) Add-On Rate Rules related to product assumptions.

To copy the assumptions across currencies:

1. Navigate to the appropriate (Transfer Pricing, Prepayment, Prepayment, or Add-On Rate Rule) Assumption Browser.
2. Select **Source currency**.
3. Select defined product assumptions individually using the check-boxes corresponding to each product (or Node on the hierarchy).
4. Click the **Copy Across** icon.

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5. On the Copy Across Currencies page, select the listed currencies either individually using the corresponding check boxes or in total using **Select All**.
6. Specify an Interest Rate Code for each selected currency. This is necessary because each Interest Rate Code is specific to a single currency. When copying product assumptions across currencies, you must define the interest rate code for each target currency to replace the interest rate code used for the source currency assumptions. For Transfer Pricing Rules that use the Redemption Curve Method, users should pay careful attention to the structure of the Interest Rate Codes selected for the Target Currencies to ensure they contain all of the Term Points used in the definition of the source assumptions. If the selected target Interest Rate Code structures are missing required Term Points, the UI displays a notification regarding the missing Term Points, and assumptions cannot be copied until the user takes corrective action.
7. Click **Apply** to initiate the copy process and to return to the Assumption Browser page.

> **Note**
>
> You can review the results of the copy process from the Assumption Browser by selecting a different currency and following the usual navigation to view or edit assumptions. The application displays new assumptions for each product that was included in the original source selection. The copy process replaces pre-existing assumptions for any product-currency combination that is included in the target selection.

8. Click **Save** on the Assumption Browser page to store the assumptions in the database.

6.3.4.8 Copying Assumptions across Products

This functionality provides you with the option to copy a single product assumptions, the product assumptions contained within the Transfer Pricing and Add-On Rate Rules from one product node or leaf to the selected leaf.

This functionality also reduces the risk associated with data input errors, as you need to audit inputs for a single set of assumptions before executing the copy procedure.

You must define Transfer Pricing and (or) Add-On Rate Rules related to product assumptions.

To copy the assumptions across product:

1. Navigate to the appropriate (Transfer Pricing or Add-On Rate Rule) Assumption Browser.
2. Select **Source Product** node.
3. Select defined product assumptions individually using the check-boxes corresponding to each product (or Node on the hierarchy).
4. Click the **Copy Across** icon.
5. On the Copy Across dialog, select the **Product** tab. Select the relevant leaf from the Hierarchy browser.

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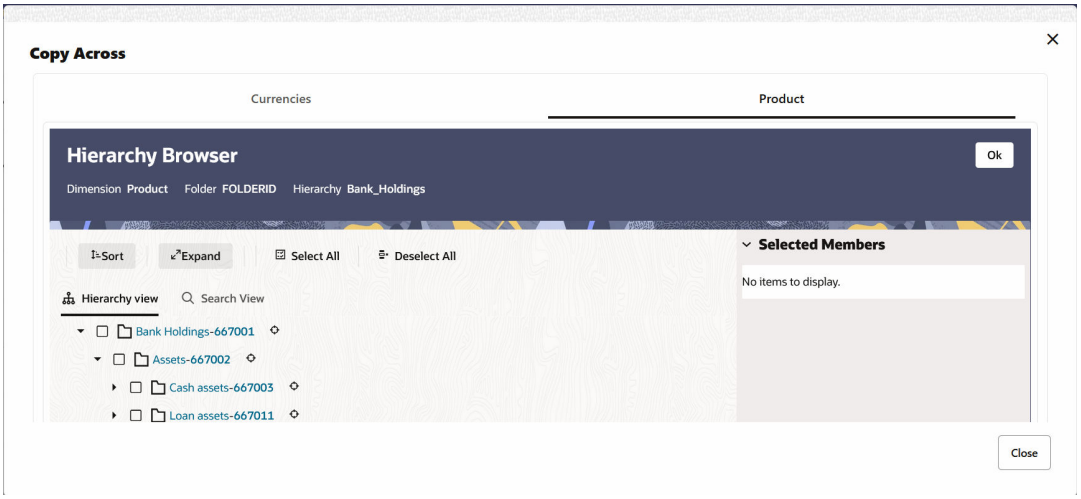
Figure 6-264 Product Hierarchy



6. Click **Ok** to initiate the copy process and to return to the Assumption Browser page.

> **Note**
>
> You can copy the product node or leaf to only the leaf.

7. Click **Save** on the Assumption Browser page to store the assumptions in the database.

6.3.5 Add-on Rate Rules

Add-on Rate Rules allow you to specify Methodologies to calculate Add-on Rates and Breakage Charges for the relevant products in your portfolio.

Add-on Rate Rules allow users to define Add-on Rates that are assigned incrementally on top of base Funds Transfer Pricing Rate to Account for a variety of miscellaneous risks such as Liquidity Risk or Basis Risk, or to supplement Strategic Decision-Making with Pricing Incentives, Breakage Charges, or other types of Add-On Rates.

Within the Standard Transfer Pricing Process, users can select an appropriate Add-on Rate Rule to calculate Add-on Rates or Breakage Charges.

Add-on Rates can be a Fixed Rate, a Fixed Amount, or a Formula Based Rate. Breakage Charges can be a Fixed Percentage, a Fixed Amount or can also be calculated on an Economic Loss Basis. The Add-On Rates are calculated and output separately from the base Funds Transfer Pricing Rate, so they can be easily identified and reported. Additionally, Add-on Rate Rules allow you to apply event-based logic with Conditional Assumptions that are applied or varied only if a specific condition is satisfied.

The Standard Transfer Pricing Process references the Methodologies contained in the Add-on Rate Rule.

Navigating the Summary Screen

When you first navigate to the Add-on Rate Rules summary, the rules stored within your current default folder are presented in a summary table. The Add-on Rate Rules summary displays the Search pane and Add-on Rate Rule summary table.

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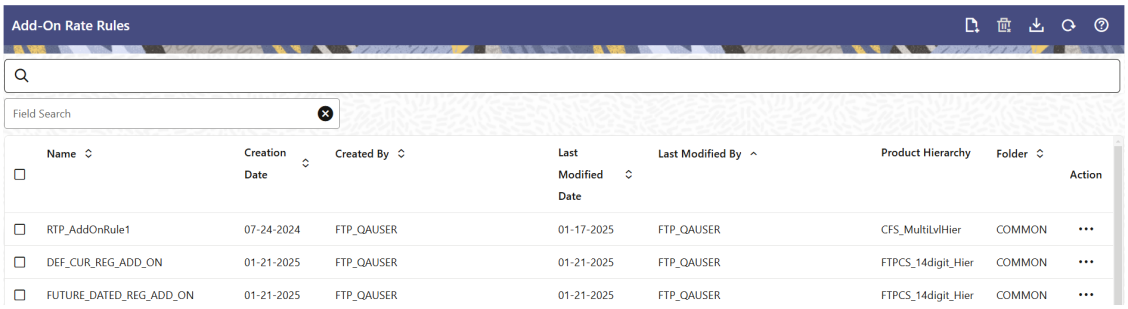
Figure 6-265 Add-On Rates summary page



The title bar of the summary page provides several actions for the user. They are:

- **Add**: Click **Add** icon to create a new Add-on Rate Rule.
- **Multiple Delete**: Enables you to select and delete one or multiple rules in the table simultaneously.
- **Refresh**: Click Refresh to reload the summary page.
- **Help**: Click the Help icon to view the Add-on Rate Rules help page.

Search Add-On Rate Rule

On the Add-On Rate Rule summary, enter your search criteria in the search box and click **Search**. The Add-On Rate Rules meeting your search criteria are displayed. If you select **Dimension** filter and search for the rules, the search results will be displayed for the selected Dimension. When you try to create any rule, by default the selected Dimension will be displayed instead of the Dimension defined in the Preferences.

or

An alternative method to search a Add-On Rate Rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as name, code, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Add-On Rate Rules summary. You can enter the Code, Name, Creation Date, Created By, Modified Date, and Modified By of the Add-On Rate Rule, partially or fully, and click **Search**.

Add-on Rate Rules Summary

The Add-on Rate Rules Pane presents a table containing all Add-on Rate Rules that meet your search criteria.

The Add-on Rate Rules Summary Page displays the following columns.

- **Name**: Displays name of the rule.
- **Creation Date**: Displays the date and time when user created the rule.
- **Created By**: Displays the Name of the user who created the rule.
- **Last Modification Date**: Displays the Date and Time at which an Add-on Rate Rule was last modified.
- **Last Modified By**: Displays the name of the user who last modified an Add-on Rate Rule.
- **Access Type**: Displays the access type of the rule - Read/Write or Read Only property of an Add-on Rate Rules. Only the creator of a Rule may change its Access Type.

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- **Folder**: Displays the folder name where the Rule is stored.
- **Action**: Click this icon to view a list of actions that you can perform on the rule.
  - **View**: Click **View** in the Action column and select View to view the contents of an Add-on Rate Rules in Read/Write format.
  - **Edit**: Click **Edit** in the Action column to edit the contents of an Add-on Rate Rules.
  - **Delete**: Click **Delete** in the Action column to delete an existing Add-on Rate Rule.

  You may select or deselect all the Add-on Rate Rules in the summary table by clicking the check-box in the upper left-hand corner of the summary table directly to the left of the Name Column header.

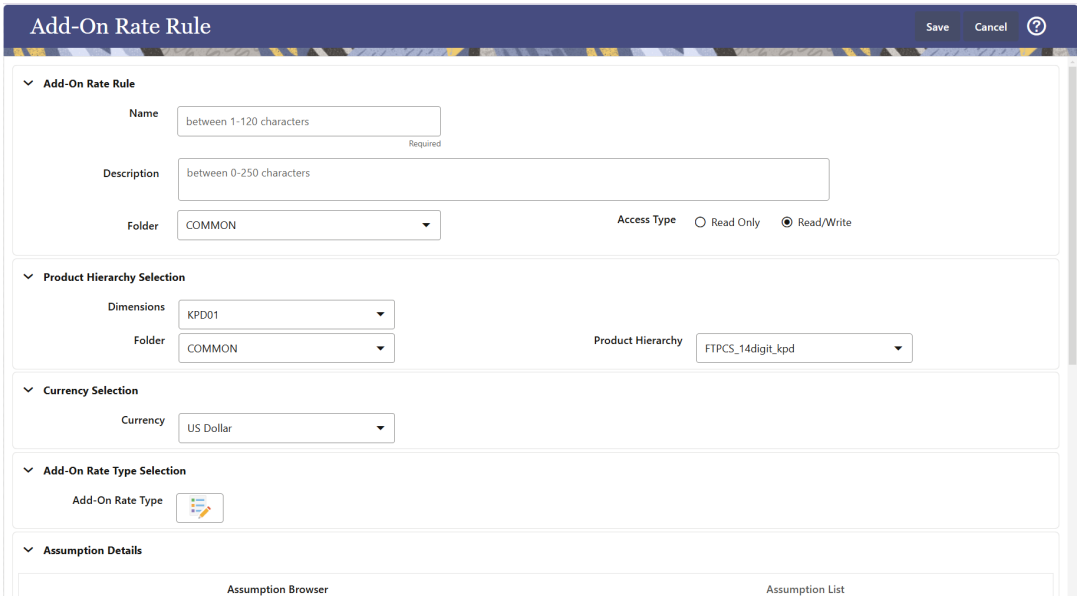
6.3.5.1 Create Add-on Rate Rule

You create an Add-on Rate Rule to define Add-on Rate Methodologies for your products.

To create the Add-on Rate Rule:

1. From the LHS menu, select **Assumption Specification**, and then select **Add-on Rate Rule**.

Figure 6-266 Add-On Rate Rule - Definition Mode



You can search the rule on any of the product dimension, searched dimension will be auto-populated while defining the rule; if you like, you can change the default product dimension.

2. Select the Add-on Rate Type from the Add-on Rate Type Selection section.

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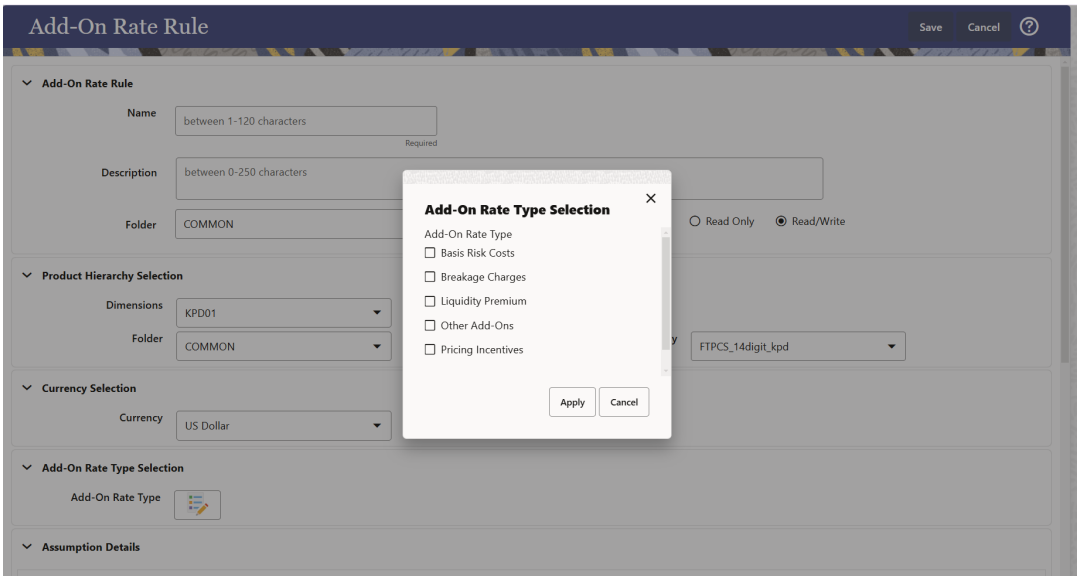
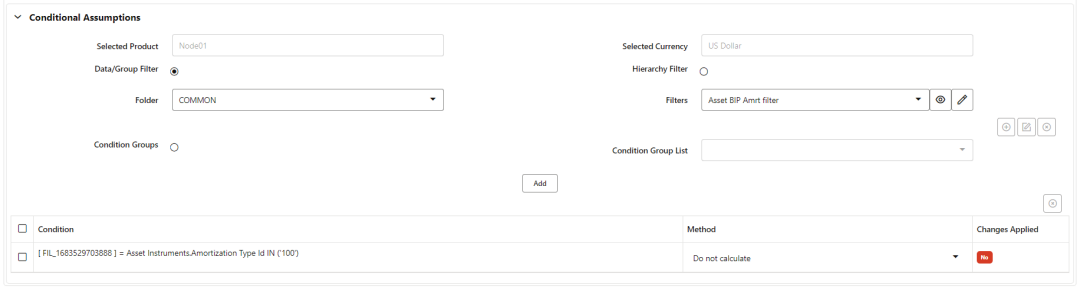
Figure 6-267 Add-On Rate Type Selection



3. Conditional Assumptions - The Conditional Assumption feature allows you to segregate your product portfolio based on common characteristics, such as Term to Maturity, Origination Date, and Repricing Frequency, and assign specific Add-on Rate Methodologies to each of the groupings.

Figure 6-268 Conditional Assumption



The Filters field displays the View and Edit buttons. You can verify the existing Filters by clicking the **View** button. Click the **Edit** button if you want to modify the Filter condition.

> **Note**
>
> If an instrument record does not meet any of the conditions, then the rule logic reverts to the Standard Assumption that is directly assigned to the Product/ Currency combination.

6.3.5.2 Defining Add-on Rate Methods

The definition of Add-on Rate Methods is part of the Create or Edit Add-on Rate Rule.

When you click **Save** in the Create Add-on Rule Process, the rule is saved, and the Add-on Rate Rule Summary page is displayed. However, Add-on Rate Assumptions have not yet been

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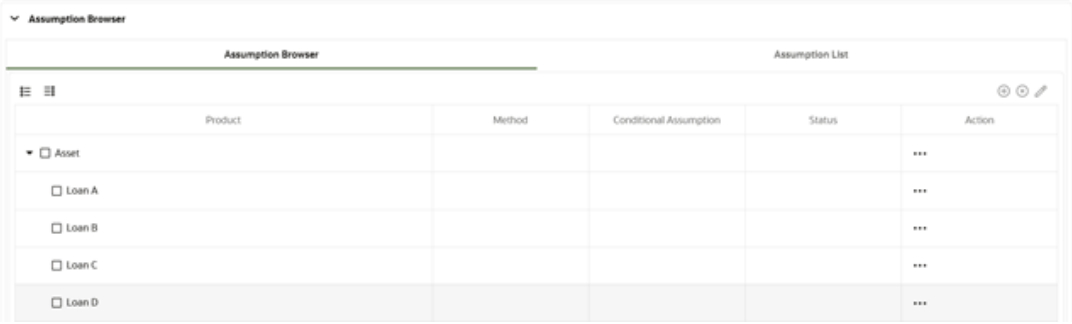
defined for any of your products at this point. You would start defining your Add-on Assumptions for Product-Currency combinations before clicking **Save**.

To define an Add-on Method:

1. Navigate to the Add-On rate Assumption Browser page.

Figure 6-269 Add-on Rate Rule Assumption Browser



2. Select an appropriate Add-On Rate Type: Liquidity Rate, Basis Risk Costs, Pricing Incentives, Other Add-On Rates, or Breakage Charge by opening the Add-On Rate Type Selector Window. You can enable one or more Add-on Rate Types within a single Add-on Rate Rule and apply more than one Add-on Rate to a single product.

> **Note**
>
> The Product Hierarchy refreshes when you change your Add-on Rate Type selection, but note that all selections made within the Rule are saved. For example, when Liquidity Rate is selected, the Hierarchy displays the status of Liquidity Rate mappings within the Hierarchy. If you change your Add-on Rate Type selection to Basis Risk Cost, the Hierarchy will refresh and you will see the status of all Basis Risk Cost mappings, and so on.

3. Select a **Product Hierarchy**. Based on the selected Hierarchy, the application displays a list of all the products (for which you can define Assumptions).
4. Specify a **Currency** from list of active currencies.
5. Select the check-box for one or more products for which you want to define Add-on Rate Method details.
6. Select an Add-on Rate Method and enter the appropriate parameters.

> **Note**
>
> The Add-on Rate Methods available depends on the Selected Add-on Rate Type. Depending on the Add-on Rate Type and Add-on Rate Method combinations selected, certain required and optional parameter fields are displayed. You can update these fields as required.

7. Click **Apply**. If only one product was selected, the Assumption Browser Page is displayed. If more than one product was selected on the Assumption Browser Page, then each subsequent product in the select list will appear in the Selected Product drop-down list and each item should be defined appropriately. After completing the Assumption Details for each selected product, the Assumption Browser Page is displayed. At this point you can:

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a. Continue defining Assumptions for additional Product-Currency combinations for the selected Add-on Rate Type, by repeating the above procedure.

b. Select a new Add-on Rate Type and continue defining Assumption Details for the required set of products.

c. Complete the process by clicking Save. The new assumptions are saved, and the Add-on Rate Rule Summary page is displayed.

Oracle Funds Transfer Pricing Cloud Service provides you with the option to copy, in total or selectively, the Product Assumptions contained within the Add-on Rates Rule, Transfer Pricing, and Prepayment Rules from one currency to another currency or a set of currencies or from one product to another product or set of products.

Table 6-79 Fields and Descriptions for Add-on Rate Method Specification Screen

Term	Definition
Reference Term	The associated term is used for the Add-on Rate assignment. You can select one of the following types of reference terms: • Original Term (the contractual term to the maturity of the account) • Repricing Frequency (the frequency at which the account reprices) • Remaining Term (the number of months until the account matures).
Interest Rate Code	Used for the Rate Lookup for the Formula Based Rate, and in the Breakage Charge - Economic Loss Method when discounting Cash Flows.
Assignment Date	Allows you to choose the date for which the Yield Curve values are to be sourced. Choices available are: • As-of-Date • Last Repricing Date • TP Effective Date • Origination Date • Commitment Start Date • Adjustment Effective Date
Lookup Method	The method used to derive an Add-on Rate for different reference Term Values. • Specify **Range** as the Lookup Method if you want the application to apply the rates defined in the Add-on Rate Rule to a range of Reference Term values, using the terms defined in the Rule to specify the lower end of the range. Note that for values less than the lowest term point, the application uses the value associated with the lowest point. • Specify **Interpolation** as the Lookup Method if you want the application to interpolate Add-on Rate Values for applicable Reference Terms falling between node points specified in the Add-on Rate Rule, using straight-line interpolation between the term points. Deals that are outside of range or ranges will not be populated with any values.

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Table 6-79 (Cont.) Fields and Descriptions for Add-on Rate Method Specification Screen

Term	Definition
Term	In conjunction with the Multiplier, this field allows you to specify the value for the Reference Term for a given Lookup Tier.
Multiplier	The unit of time applied to the Term. The choices are: • Days • Months • Years
Rate	The Add-on Rate to be applied to instruments where the Reference Term is the product of the Term and Multiplier defined for the row. The rate should be in percentage form, for example, 1.25 percent should be input as 1.25.
Amount	The Add-on Amount to be applied to instruments where Reference Term is the product of Term and Multiplier defined for the row.
Formula	The mathematical formula used in the Formula Based Rate Method to determine the Add-on Rate: (Term Point Rate * Coefficient) + Rate Spread.
Rate Floor and Rate Cap	The minimum and maximum rate. If the calculated value is less than the Floor or more than the Cap, then these rates will be applied. These boundaries are applicable only to Formula Based Method and Use the TP Method from TP Rule add-on rate Method types. These are optional inputs. Ensure that the Rate Floor value is always less than or equal to the Rate Cap Value.
Term Point	In conjunction with the Multiplier (Day, Month, or Year), it is used in the Formula Based Rate Method when looking up the rate for the designated Interest Rate Code.
Coefficient	Coefficient by which the Term Point Rate should be multiplied.
Rate Spread	The spread added to the Interest Rate read from the selected Interest Rate Code. Rate Spread is used in the Formula Based Rate and Breakage Charge - Economic Loss Add-on Rate Methods. For the Formula Based Rate Method, the spread is added to the result of the Term Point Rate * Coefficient. Enter the Rate Spread in percentage form, for example, 1.25 percent should be input as 1.25.
Minimum Charge	Used in the Fixed Percentage and Economic Loss Add-on Rate Methods for Breakage Charges. If the calculated Break Funding Amount is less than the Minimum Charge, then the Minimum Charge overrides the calculated amount and is written to the Break Funding Amount column.
Original Term	Select to apply Original Term to both Fixed and Adjustable Rate Instruments.

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Table 6-79 (Cont.) Fields and Descriptions for Add-on Rate Method Specification Screen

Term	Definition
Standard Term	Standard Term is the traditional approach used in Funds Transfer Pricing, which is the Original Term for Fixed-Rate Instruments and Repricing Terms for Adjustable-Rate Instruments.
Repricing Frequency	Repricing Frequency is the frequency of rate change of a product.
Remaining Term	Remaining Term is the number of months remaining until the instrument matures.

6.3.5.2.1 Availability of Add-on Rate Methods

The list of Add-on Methods depends on the Add-on Rate type that you select: Add-on Rate Types are (Liquidity Add-on, Basis Risk Costs, Pricing Incentives, and Other Add-on), or Breakage Charges. The following table describes the Add-on Methods available for each of the Add-on Types.

Add-on Method	Add-on Type: Add-On Rates (Liquidity Add-on, Basis Risk Costs, Pricing Incentives, and Other Add-on)	Add-on Type: Breakage Charges
Do Not Calculate	Yes	Yes
Fixed-Rate	Yes	
Fixed Amount	Yes	Yes
Formula Based Rate	Yes	
Use TP Method from Selected TP Rule	Yes	
Economic Loss		Yes
Fixed Percentage		Yes

> **Note**
>
> If you select **Do Not Calculate** as the calculation method, no Add-on Assumptions will be assigned to the particular Product-Currency combination. This is a particularly useful option when using Node-Level Assumptions because it allows you to exclude a particular Child from inheriting a Parent's assumption.

6.3.5.2.1.1 Add-on Rate Method Parameters

To define an Add-on Calculation Method, you must specify one or more parameters, depending on the method. The parameter fields may display a default value, which you can override.

The following tables describes the parameters associated with the Add-on Methods for different Add-on Types.

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Table 6-80 Parameters Applicable to the Add-on Rate Methods for the Add-on Rate Types

Add-on Rate Method	Reference Term	Lookup Method	Term	Multiplier	Rate	Amount	Assignment Date	Interest Rate Code	Formula
Do Not Calculate									
Fixed-Rate	Yes	Yes	Yes	Yes	Yes				
Fixed Amount	Yes	Yes	Yes	Yes		Yes			
Formula Based Rate	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Use TP Method from Selected TP Rule			Yes						

Note

The Add-on Rate Types include Liquidity rate, Basis Risk Costs, Pricing Incentives, Other Add-on rate and Breakage Charge.

Table 6-81 Parameters Applicable to the Add-on Rate Methods for the Breakage Charge Calculations

Add-on Rate Method	Break Funding Amount	Break Funding Rate	Interest Rate Code	Rate Spread	Minimum Charge
Do Not Calculate					
Fixed Amount	Yes				
Economic Loss			Yes	Yes	Yes
Fixed Percentage		Yes			Yes

6.3.5.3 Defining Assumptions with the Default Currency

For cases where you have the same Assumption (Method and IRC) which is applicable to all currencies or multiple currencies, you can define Rules for the combination of Product and "Default Currency".

To define Assumptions for the Default Currency, select a Product from the hierarchy and “Default Currency” from the Currency list and proceed with the Assumption Definition as described above. When processing data, the Transfer Pricing engine will first look for an

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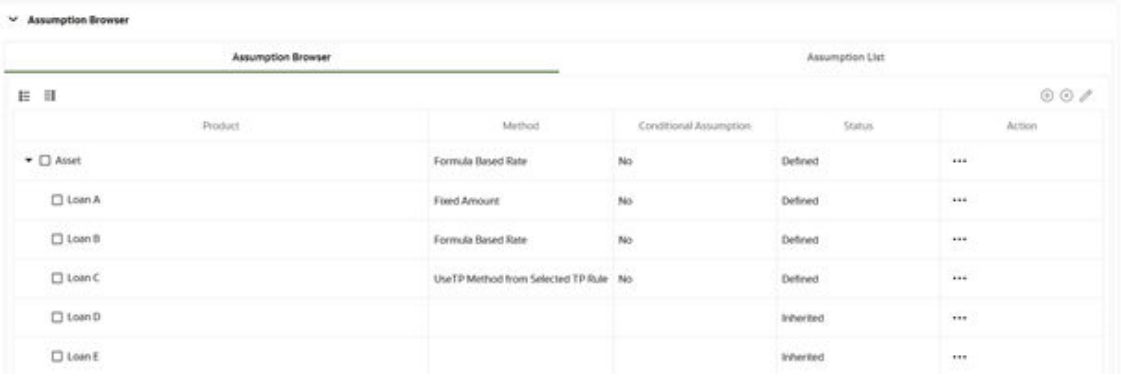
Assumption that exactly matches the Product/Currency of the Instrument Record. If not found, the engine will then look for the combination of the Product and the Default Currency. This is a useful option to utilize during setup when the same product exists across multiple currencies and shares the same Add-on Rate Assumption and Interest Rate Code.

Figure 6-270 Add-on Rule Definition with Default Currency



Default Currency setup example: If you have two instrument records of the same Product, each with a different currency, for example, 1 is 'USD' and the other is 'AUD', you have two configuration choices. You can either:

- Define the Assumptions individually for each Product-Currency combination using direct input or copy across.
- You can create one Assumption for the combination of Product and Default Currency. When you use “Default Currency”, the Transfer Pricing Engine applies this assumption to all currencies (unless a direct assumption is available for the product + currency being processed). In the case where users have many individual currencies that utilize the same Add-on Rate Method and reference IRC Rates, this is a useful option because you only have to define the Assumption each time and it applies to many different Product-Currency combinations.

6.3.5.3.1 Add-on Rate Calculation Methods

You can use any of the following methods in an Add-on Rule when the selected Add-on Rate Type is Liquidity Premium, Basis Risk Cost, Pricing Incentive, or Other Add-on Rate:

- Add-on Rate Rule - Fixed-Rate
- Add-on Rate Rule - Fixed Amount
- Add-on Rate Rule - Formula Based Rate
- Add-on Rate Rule - Use TP Method from selected TP Rule

Alternatively, you can use any of the following methods in an Add-on Rate Rule when the selected Add-on Rate Type is Breakage Charge:

- Economic Loss
- Fixed Amount
- Fixed Percentage

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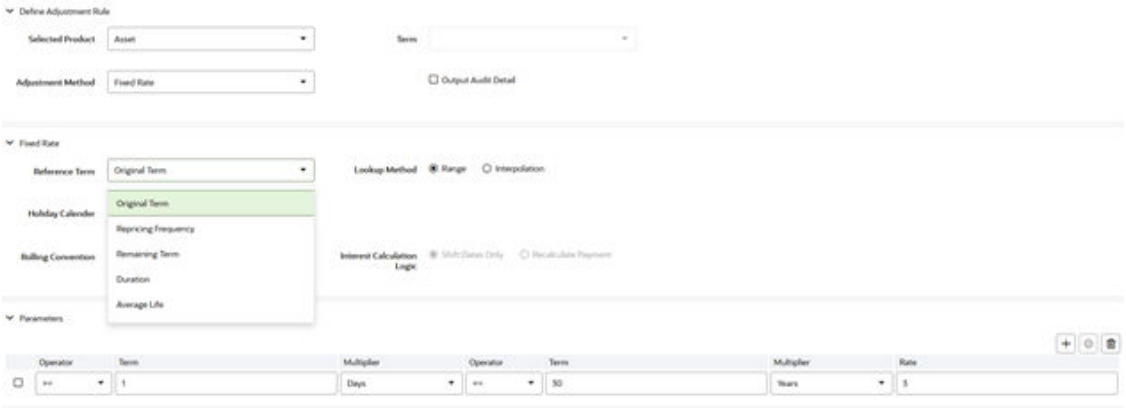
6.3.5.3.1.1 Add-on Rate Rule - Fixed Rate

Figure 6-271 Add-on Rate Rule Details



The Fixed Rate Method allows the user to associate a rate with specific terms or term ranges. Reference Term selections include the following:

- **Repricing Frequency**: The fixed rate is matched to the specified Reprice Frequency of the instrument. If the instrument is a Fixed Rate and, therefore, does not have a Reprice Frequency, the fixed rate lookup happens based on the Original Term of the instrument.
- **Original Term**: The calculation assigns the fixed rate based on the Original Term on the instrument.
- **Remaining Term**: The calculation assigns the Fixed Rate based on the Remaining Term of the instrument.

The Remaining Term value represents the Remaining Term of the contract and is expressed in Days.

Remaining Term = Maturity Date – As-of-Date

- **Duration (read from the TP_DURATION column)**: The calculation assigns the Fixed Rate based on the Duration of the instrument, specified in the TP_DURATION column.
- **Average Life (read from the TP_AVERAGE_LIFE column)**: The calculation assigns the Fixed Rate based on the Average Life of the instrument, specified in the TP_AVG_LIFE column.

You can create your Reference Term ranges and assign a particular Add-on Rate to all instruments with a Reference Term falling within the specified range.

- **Holiday Calendar**: Select if a Holiday Calendar is applicable for calculating the charges/ credits.
- **Rolling Convention**: Select the appropriate Business Day Rolling Convention if a Holiday Calendar is selected.
- **Interest Calculation logic**: Select the appropriate option to indicate how the Interest Payment should be adjusted when a Holiday Date is encountered.

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> **Note**
>
> All Add-on Rates should be input as Annual Rates.

6.3.5.3.1.2 Add-on Rate Rule - Fixed Amount

The Fixed Amount Add-on Rate Method allows the user to associate an amount with specific terms or term ranges. Reference term selections include the following:

- **Repricing Frequency**: The calculation retrieves the amount for the term point equaling the Reprice Frequency of the instrument. If the instrument is a Fixed Rate and, therefore, does not have a Reprice Frequency, the calculation retrieves the amount associated with the Term Point equaling the Original Term on the instrument.
- **Original Term**: The calculation retrieves the amount for the Term Point equaling the Original Term on the instrument.
- **Remaining Term**: The calculation retrieves the amount for the Term Point corresponding to the Remaining Term of the instrument. The Remaining Term value represents the Remaining Term of the contract and is expressed in days. Remaining Term = Maturity Date – As-of-Date.
- **Duration (read from the TP_DURATION column)**: The calculation retrieves the amount for the Term Point corresponding to the Duration of the instrument, specified in the TP_DURATION column.
- **Average Life (read from the TP_AVERAGE_LIFE column)**: The calculation retrieves the amount for the Term Point corresponding to the Average Life of the instrument, specified in the TP_AVG_LIFE column.

You can create your Reference Term ranges and assign a particular Add-on Amount to all instruments with a Reference Term falling within the specified range.

- Holiday Calendar: Select if a Holiday Calendar is applicable for calculating the charges/ credits.
- Rolling Convention: Select the appropriate Business Day Rolling Convention if a Holiday Calendar is selected.
- Interest Calculation logic: Select the appropriate option to indicate how the Interest Payment should be adjusted when a Holiday Date is encountered.

6.3.5.3.1.3 Add-on Rate Rule - Formula Based Rate

The Formula Based Rate Add-on Rate Method allows the user to determine the add-on rate based on a lookup from the selected Yield Curve, plus a spread amount, and then the resulting rate can be associated with specific Terms or Term Ranges. Reference term selections include:

- **Repricing Frequency**: The calculation retrieves the rate based on defined formula for the term point equaling the reprice frequency of the instrument. If the instrument is a fixed rate and, therefore, does not have a reprice frequency, the calculation retrieves the rate based on defined formula, associated with the term point equaling the original term on the instrument.
- **Original Term**: The calculation retrieves the rate based on defined formula for the term point equaling the original term on the instrument.

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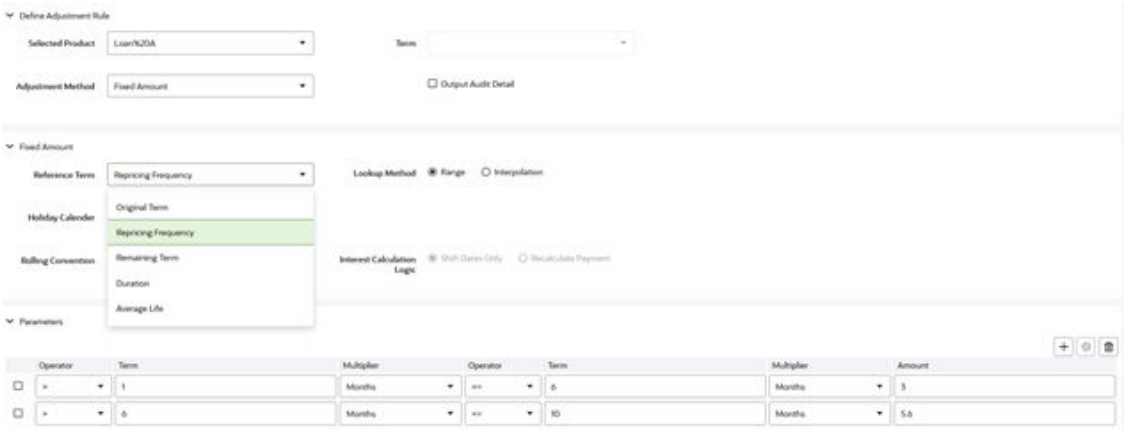
Figure 6-272 Add-on Rule Details - Formula Based Rate (Reference Term)



- **Remaining Term**: The calculation retrieves the rate based on defined formula for the term point corresponding to the remaining term of the instrument. The remaining term value represents the remaining term of the contract and is expressed in days.
  Remaining Term = Maturity Date – As-of-Date
- **Duration (read from the TP_DURATION column)**: The calculation retrieves the rate based on defined formula for the term point corresponding to the Duration of the instrument, specified in the TP_DURATION column.
- **Average Life (read from the TP_AVERAGE_LIFE column)**: The calculation retrieves the rate based on defined formula for the term point corresponding to the Average Life of the instrument, specified in the TP_AVG_LIFE column.

You can create your Reference Term ranges and assign a particular Formula Based Rate to all instruments with a Reference Term falling within the specified range.

With this method, you also specify the Interest Rate Code and define an Assignment Date for the Rate Lookup. The Interest Rate Code can be any IRC defined within Rate Management, but will commonly be a Hybrid IRC defined as a Spread Curve (for example, Curve A – Curve B).

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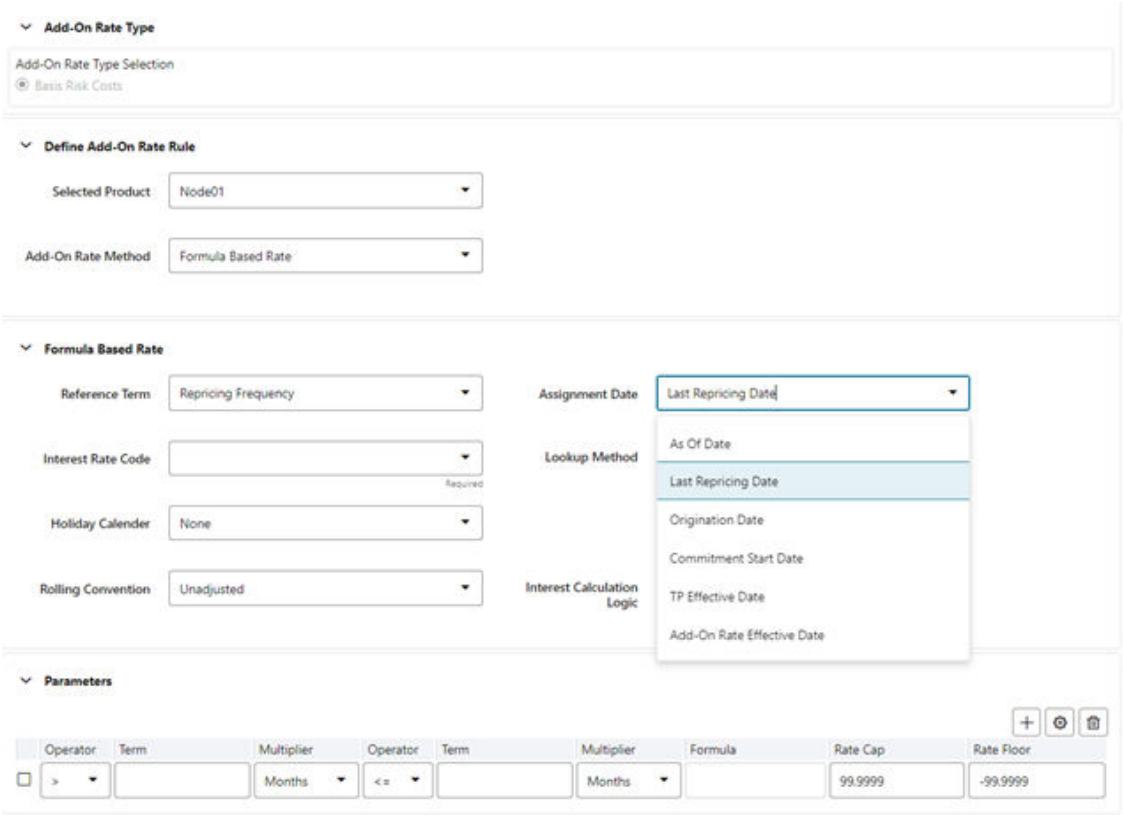
Figure 6-273 Add-on Rule Details - Formula Based Rate (Assignment Date)



Assignment Date selections include:

- As-of-Date
- Last Repricing Date
- Origination Date
- TP Effective Date
- Adjustment Effective Date
- Commitment Start Date

Each term range additionally allows users to input a Rate Cap and a Rate Floor. These boundaries will only apply to the 'Formula Based Method' and 'Use TP Method from TP Rule' based add-On Rates. These are optional inputs. This input limits the Max or Min rate regardless of the rate passed by the Formula/TP Rule. Sometimes, there may be major external events that cause a short-term spike in rates and certain accounts may be negatively impacted as a result. Applying a rate cap (or floor) allows business users to limit these spikes. Ensure that the rate floor value is always less than or equal to the rate cap value.

> **Note**
>
> Term range considers one month equal to 30.416667 days and 1 year = 365 days, therefore, 12 Months would marginally be more than one year by 0.000004 days.

The formula definition is comprised of the following components.

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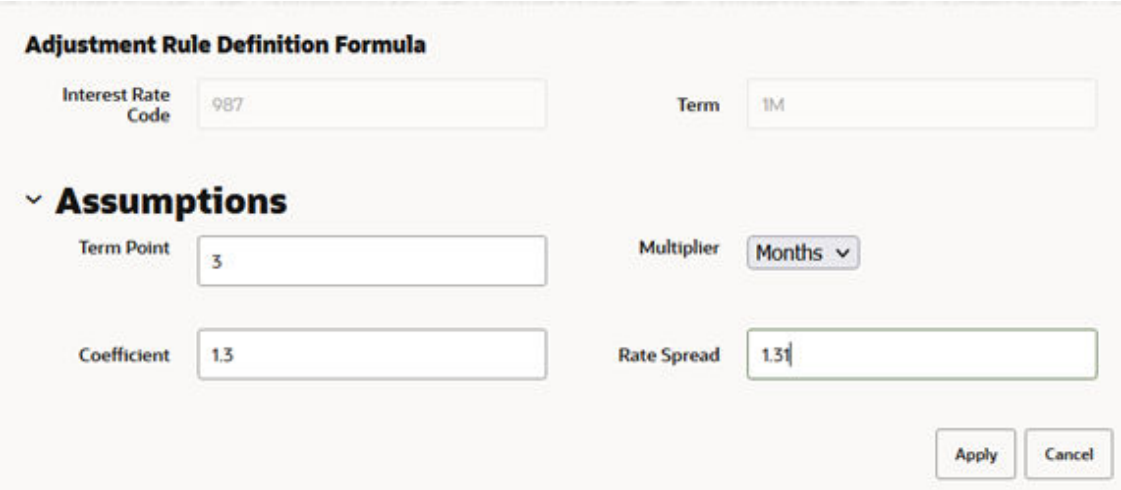
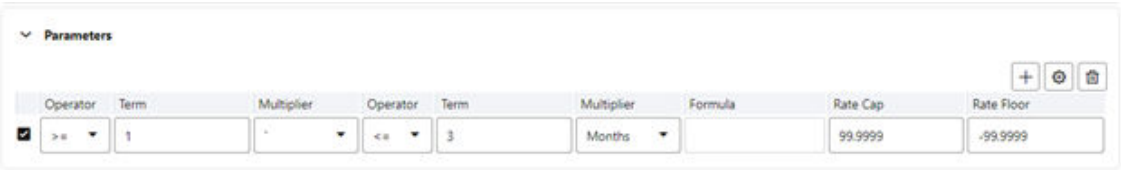
- **Term Point**: This allows you to associate a specific term point from the IRC to each Term Range.
- **Coefficient**: This allows you to define a multiplier that is applied to the selected rate.
- **Rate Spread**: This allows you to define an incremental rate spread to be included on top of the IRC Rate.

Figure 6-274 Add-On rate Rule Definition Formula



The resulting formula for add-on rate: (Term Point Rate * Coefficient) + Spread

Figure 6-275 Formula Rate Parameters



> **Note**
>
> For increased precision, you can reduce the Term Ranges to smaller term increments allowing you to associate specific IRC rate tenors with specific terms.

- **Holiday Calendar**: Select if a Holiday Calendar is applicable for calculating the charges/ credits.
- **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.

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6.3.5.3.1.4 Add-On Rate Rule - Use TP Method from Selected TP Rule

The Use TP Method from Selected TP Rule selection allows the user to calculate the Add-On Rate based on any TP Method available in the selected Transfer Pricing Rule.

Figure 6-276 Add-On Rate Rule – Use TP Method (Transfer Pricing Rule Selection)

Users can attach any Transfer Pricing Rule on the Add-On Rate Rule Summary Page separately for each type of Add-On Rate. The TP Methods mapped to product hierarchy members in the TP Rule will be read during the Add-On Rate calculation process and applied during the calculation of the Add-on Rate(s). Outputs will be written to the respective Add-on Rate column, for example, Basis Risk Cost Rate, Liquidity Premium Rate, Pricing Incentive Rate, or Other Add-on Rate.

- Term: The following Term Types are available:
  - **Standard Term**: Add-on rate would be calculated as per the repricing period for adjustable-rate instruments and use the original term (maturity date - origination date) for fixed-rate instruments.
  - **Original Term**: Add-on Rates would be calculated as per the original term like a fixed-rate instrument.

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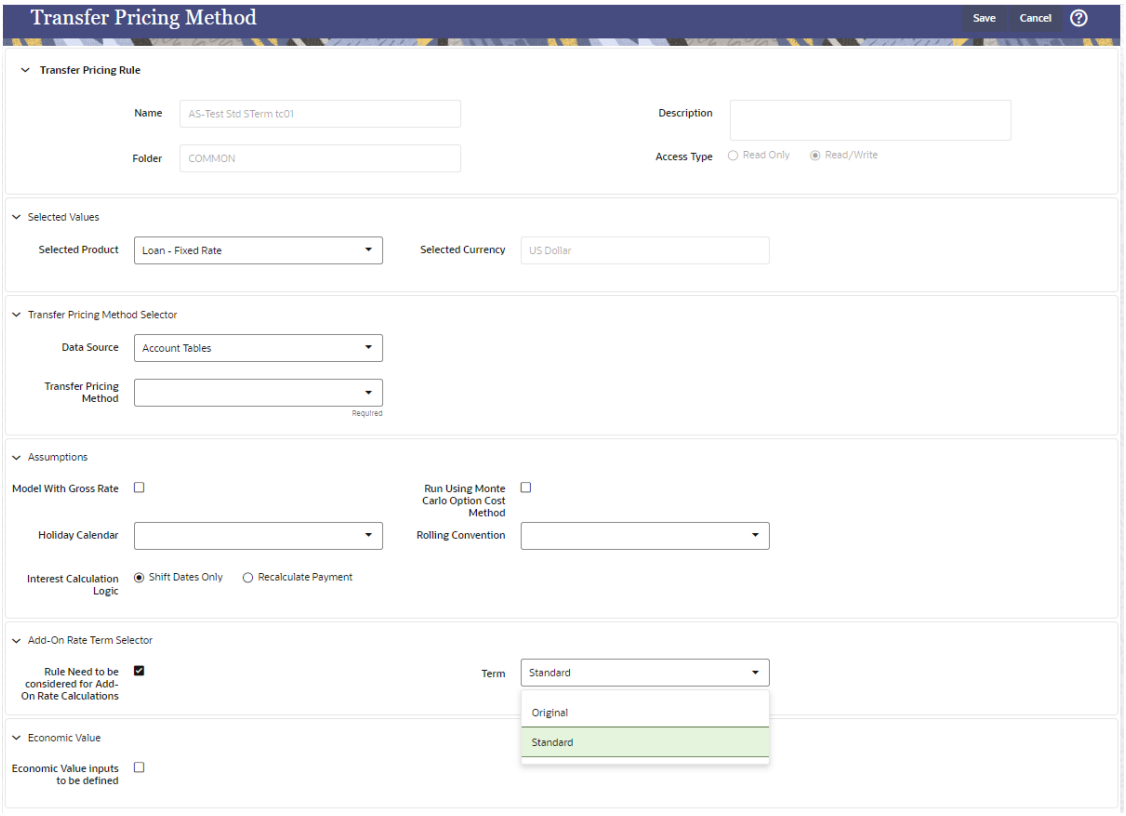
Figure 6-277 Add-On rate Method – Use TP Method (Term Selection)



6.3.5.4 Define the Breakage Charge Economic Loss Method

The Breakage Charge option has the following methods:

- **Do Not Calculate**: No Add-on Assumptions will be assigned to the particular product-currency combination.
- **Fixed Amount**: Allows users to directly input the amount of the breakage charge.
- **Economic Loss**: Used to compute the cost to the organization (economic loss) incurred after terminating the account (asset/funding liability).
- **Fixed Percentage**: Allows you to input a percentage that is multiplied by the Breakage Amount to determine the Breakage Charge.

Defining the Economic Loss Breakage Charge Assumption requires the following additional steps:

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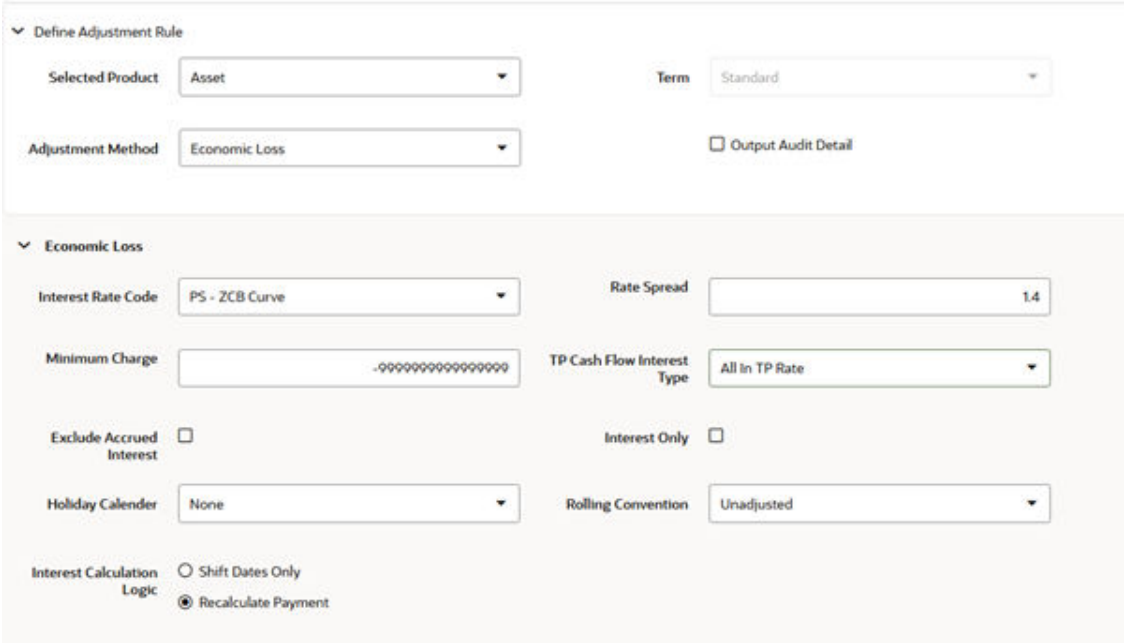
Figure 6-278 Add-on Rule Definition Mode – Breakage Charge (Economic Loss) Calculations



1. Select the **Interest Rate Code** and **Rate Spread** to use for discounting the remaining term Cash Flows.
2. Select the minimum charge amount. Default to -99999 if you want to calculate both gains and losses.
3. Select the **TP Cash Flow Interest Type**. This interest rate will be used to generate Interest Cash Flows.

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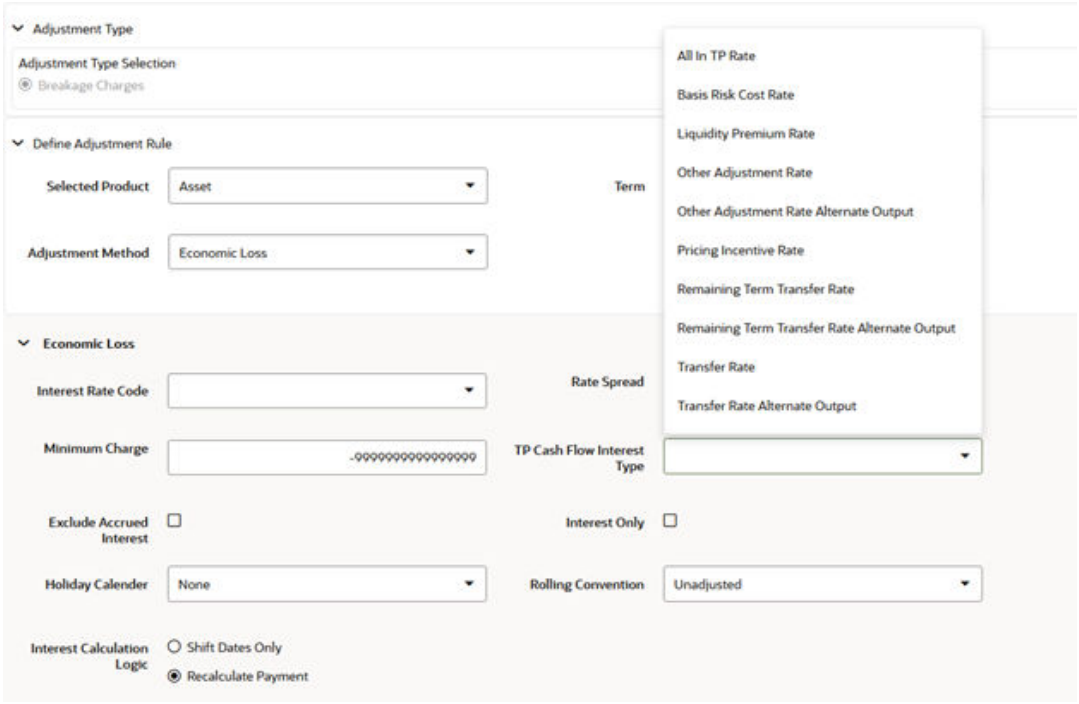
Figure 6-279 Add-on Rule Definition Mode – TP Cash Flow Interest Type



4. Select the option to **Exclude Accrued Interest** if applicable.
5. Select the **Interest Only** option to discount only the Interest Cash Flows.
6. Select a Holiday Calendar if you want to adjust Cash Flows for Holidays and Weekends. The default selection for Holiday Calendar is None. If this option is selected, then Holiday Calendar will not be applied to cash flow dates. If you wish to apply Holiday Calendar Add-on, then select the appropriate Calendar.
7. Select the appropriate Rolling Convention. When Holiday Calendar has been selected in the preceding field, this drop-down list becomes active and contains 4 values:
   - Following Business Day
   - Modified following Business Day
   - Previous Business Day
   - Modified previous Business Day
8. Select the appropriate Interest Calculation Logic from the following:
   - Shift Dates Only
   - Recalculate Payment
9. Select **Apply**.

6.3.5.4.1 Breakage Charges

A Breakage Charge represents the cost of breaking a contractual obligation. In Bank Finance this means the early prepayment of a loan by a customer or the early withdrawal of deposit funds by a customer. “Early” in this sense means before the contractual maturity date.

The gain or loss to the Bank from such early prepayments and withdrawals is the opportunity cost of not being able to replace the spread earned on the asset or deposit being lost. For example, the early withdrawal of funds from a 2-year Term Deposit exposes the bank to the

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risk of replacing that funding in a higher rate environment and thereby reducing the Net Interest Margin earned before the withdrawal. With Matched-Term Transfer Pricing, this risk is split between the Line Unit and Treasury. The Line Unit holds the risk of deteriorating credit spread, but Treasury holds the funding risk (the risk that the funding spread between the Bank's assets and liabilities will narrow).

The following Breakage Charge methods are available including:

- Economic Loss
- Fixed Amount
- Fixed Percentage

6.3.5.4.1.1 Prerequisites for calculating Breakage Charges

The following prerequisites to be met for calculating breakage charges:

1. Break Event Records should be populated in the FSI_D_BREAK_FUNDING_CHARGES table using an FTP Break Identification Process.
2. An Add-on rate Rule should be defined with Breakage Charge assumptions created for all the relevant Product / Currency combinations.
3. A Standard TP Process should be defined with the following: (see Standard Transfer Pricing Process Documentation).
    - The Break Funding Charges Table selected on the Product Selection Block.
    - Add-on rate calculations must be selected on the Calculation Elements Block.
    - An add-on rate Rule containing the required Breakage Charge Assumptions must be selected.

6.3.5.4.1.2 Breakage Charge – Economic Loss

The Economic Loss Breakage Charge Method sets out to compute the cost to the organization (economic loss) incurred for terminating the funding liability (also known as the shadow liability). The calculation assumes the funding liability has the exact attributes of the funded/ terminated instrument.

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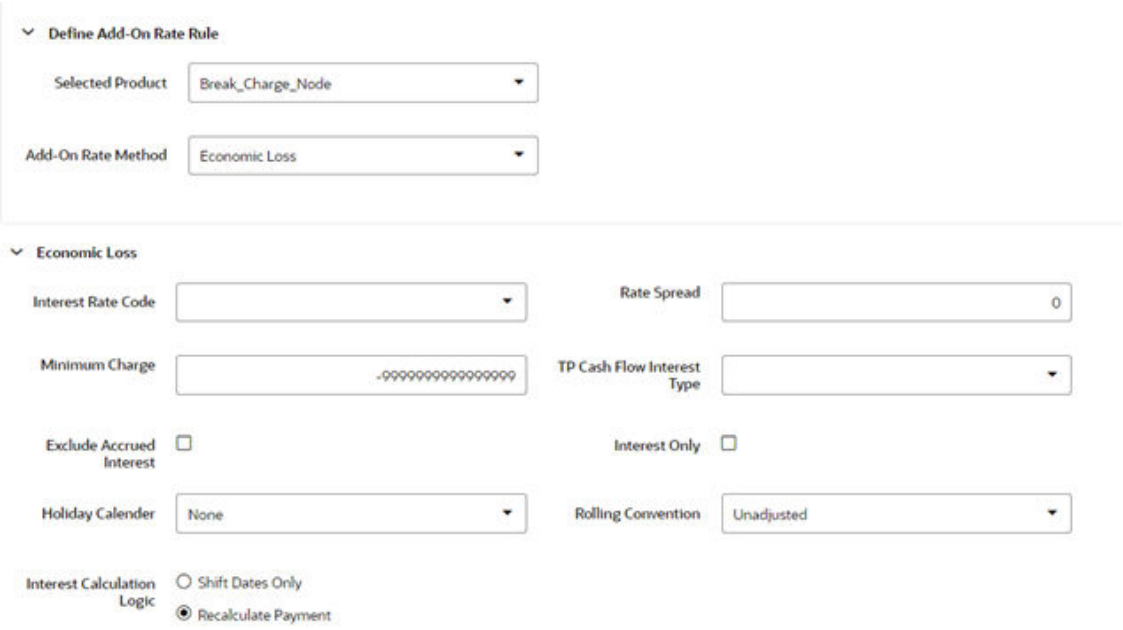
Figure 6-280 Breakage Charge - Economic Loss



The rate of the funding liability is equal to the Transfer Rate. Economic Loss is computed as follows:

For Assets:

Economic Loss =BV - MV

For Liabilities:

Economic Loss = MV– BV

Where:

MV: Market Value of the funding Liability

BV: Book Value of the broken instrument

The following is a simplified example of the Economic Loss calculation for a standard Term Deposit:

Book Value: $1,000.00

Original Term: 24 Months

Break after: 12 Months

Original TP Rate: 2.40% (based on straight term method)

Table 5: Reference Rates

Effective Date	1 M	12 M	24 M
At Origination	2.00	2.40	1.75
At Month 12	2.00	2.40	1.75

Table 6: Cash Flows of remaining Funding after Break Event

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Month	Principal	Original TP COF @ 2.40%	Total CF Orig TP
13		$ 2.00	$2.00
14		$2.00	$2.00
15		$2.00	$2.00
16		$2.00	$2.00
17		$2.00	$2.00
18		$2.00	$2.00
19		$2.00	$2.00
20		$2.00	$2.00
21		$2.00	$2.00
22		$2.00	$2.00
23		$2.00	$2.00
24	$1,000.00	$2.00	$1,002.00
Market Value at Month 12		1,003.957	
Book value		-1,000.00	
Breakage charge		3.957	

Note

If you are calculating Breakage Charges, using the Economic Loss method, you must select the "Remaining Term" option in your Transfer Pricing Process, to generate the correct Cash Flows for the funding liability.
Both Current and Prior Period Cash Flows will be logged which are used for Break Charge Calculations in FSI_O_CFE_OUTPUT_HIST table using the Record Sequence (n,n+1) for Prior/Current Period Record, respectively. Record sequence is concatenated with Account Number, so you can identify Cash Flows belonging to prior/current period record.

6.3.5.4.1.3 Breakage Charge – Fixed Amount

The Fixed Amount method allows users to directly input the amount of the Breakage Charge.

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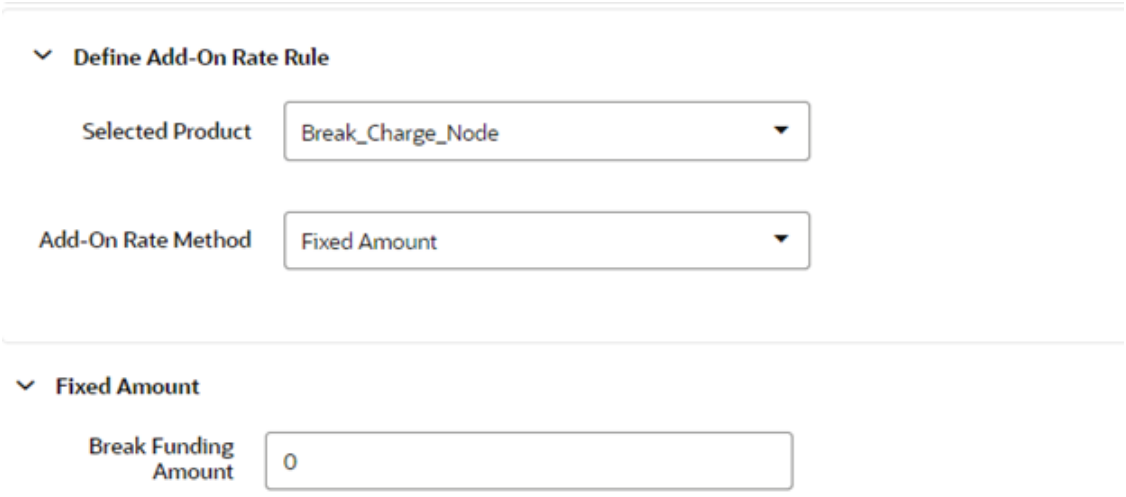
Figure 6-281 Add-On Rate Rule Details – Add-On Rate Method as Fixed Amount



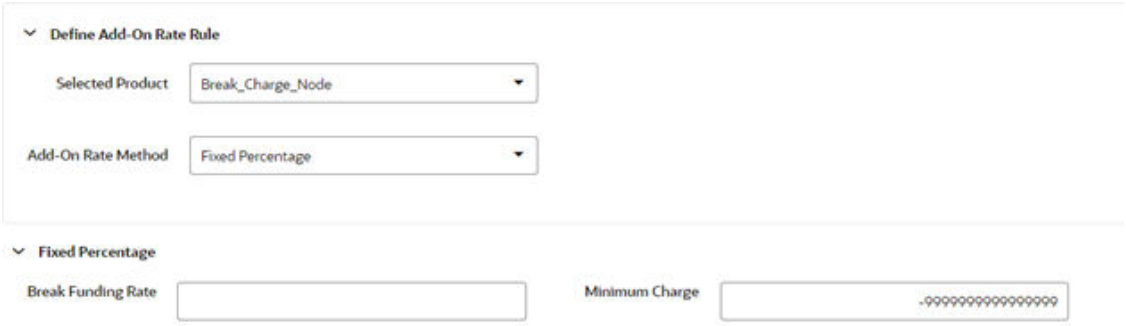
This method would be used in cases where the Cash Flows and the Economic Loss Method are not appropriate for determining the Breakage Cost.

The only input required for this method is the Breakage Charge Amount.

6.3.5.4.1.4 Breakage Charge - Fixed Percentage

An alternative to the Fixed Amount Method, the Fixed Percentage approach allows you to input a percentage that is multiplied by the breakage amount to determine the Breakage Charge.

Figure 6-282 Add-on rate Rule Details – Add-On Rate Method as Fixed Percentage



Calculation:

Breakage Charge = Break Amount x (Charge % / 100)

If the resulting amount is greater than the specified minimum charge, the calculated amount is output. Otherwise, the minimum charge will be output.

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6.3.5.5 Copying Assumptions across Currencies

This functionality provides you with the option to copy, in total or selectively, the product assumptions contained within the Transfer Pricing, Prepayment, and Add-On Rate Rules from one currency to another currency or a set of currencies.

Copy of assumptions across currencies enhances the usability of Oracle Funds Transfer Pricing Cloud Service in a multi-currency environment. For example, if you have 10 currencies enabled in the application, you need to input only one set of assumptions and then copy those assumptions across all enabled currencies, instead of having to input 10 full sets, thereby saving a significant amount of input time.

This functionality also reduces the risk associated with data input errors, as you need to audit inputs for a single set of assumptions before executing the copy procedure. The copy across the currencies process requires users to select a replacement Transfer Pricing Yield Curve for each target currency. These currency-specific IRC's replace the IRC selection made for each product in the Source Currency Selection Set.

You must define Transfer Pricing, Prepayment, and (or) Add-On Rate Rules related to product assumptions.

To copy the assumptions across currencies:

1. Navigate to the appropriate (Transfer Pricing, Prepayment, Prepayment, or Add-On Rate Rule) Assumption Browser.
2. Select **Source currency**.
3. Select defined product assumptions individually using the check-boxes corresponding to each product (or Node on the hierarchy).
4. Click the **Copy Across** icon.
5. On the Copy Across Currencies page, select the listed currencies either individually using the corresponding check boxes or in total using **Select All**.
6. Specify an Interest Rate Code for each selected currency. This is necessary because each Interest Rate Code is specific to a single currency. When copying product assumptions across currencies, you must define the interest rate code for each target currency to replace the interest rate code used for the source currency assumptions. For Transfer Pricing Rules that use the Redemption Curve Method, users should pay careful attention to the structure of the Interest Rate Codes selected for the Target Currencies to ensure they contain all of the Term Points used in the definition of the source assumptions. If the selected target Interest Rate Code structures are missing required Term Points, the UI displays a notification regarding the missing Term Points, and assumptions cannot be copied until the user takes corrective action.
7. Click **Apply** to initiate the copy process and to return to the Assumption Browser page.

> **Note**
>
> You can review the results of the copy process from the Assumption Browser by selecting a different currency and following the usual navigation to view or edit assumptions. The application displays new assumptions for each product that was included in the original source selection. The copy process replaces pre-existing assumptions for any product-currency combination that is included in the target selection.

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8. Click **Save** on the Assumption Browser page to store the assumptions in the database.

6.3.5.6 Copying Assumptions across Products

This functionality provides you with the option to copy a single product assumptions, the product assumptions contained within the Transfer Pricing and Add-On Rate Rules from one product node or leaf to the selected leaf.

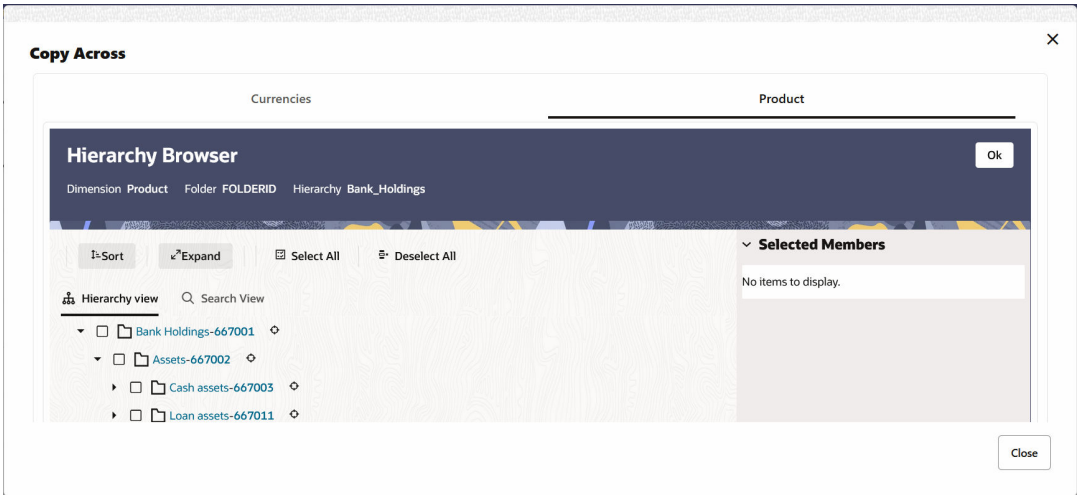
This functionality also reduces the risk associated with data input errors, as you need to audit inputs for a single set of assumptions before executing the copy procedure.

You must define Transfer Pricing and (or) Add-On Rate Rules related to product assumptions.

To copy the assumptions across product:

1. Navigate to the appropriate (Transfer Pricing or Add-On Rate Rule) Assumption Browser.
2. Select **Source Product** node.
3. Select defined product assumptions individually using the check-boxes corresponding to each product (or Node on the hierarchy).
4. Click the **Copy Across** icon.
5. On the Copy Across dialog, select the **Product** tab. Select the relevant leaf from the Hierarchy browser.

Figure 6-283 Product Hierarchy



6. Click **Ok** to initiate the copy process and to return to the Assumption Browser page.

> **Note**
>
> You can copy the product node or leaf to only the leaf.

7. Click **Save** on the Assumption Browser page to store the assumptions in the database.

6.3.6 Processes

This section covers the following topics:

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1. Static Deterministic Process: This module discusses the procedure for creating and executing a Static Deterministic Process (existing business only). When all the required assumptions are defined, The processing performs the Static Cashflow Calculations and generates an aggregated result set.
2. Dynamic Deterministic Process: Dynamic Deterministic processing generates output based on a set of user-defined forecast rate scenarios and includes new business assumption rules in the process flow.

6.3.6.1 Static Deterministic Process

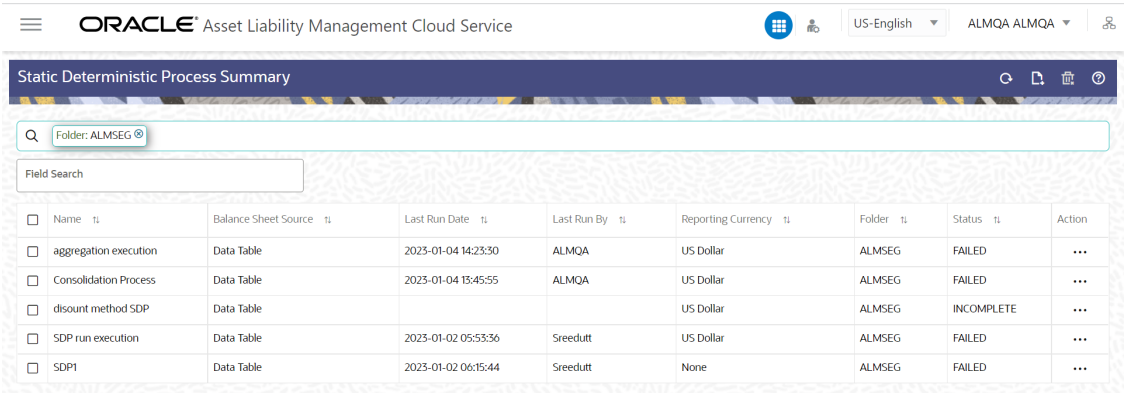
This module discusses the procedure for creating and executing a Static Deterministic Process (existing business only). When all the required assumptions are defined, the processing performs the Static Cashflow Calculations and generates an aggregated result set. This process allows you to perform the following tasks:

- Determine the source data that you want to process and the modeling horizon
- Specify the calculation elements; Valuation, Income Simulation, Interest Rate and Liquidity Gaps
- Include the market rate forecast and behavioral assumptions
- Define your output dimensions for aggregation, and/or output raw cashflows
- Execute the Cash Flow Process and generate results.

Static Deterministic Process Summary

This page is the gateway to all Static Deterministic Process Rules and related functionality. You can navigate to other pages relating to Static Deterministic Process Rules from this point.

Figure 6-284 Static Deterministic Process Summary



Search Static Deterministic Process

Prerequisites: Predefined Static Deterministic Process

To search for a Static Deterministic Process, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Static Deterministic Process Rules that meet the search criteria.

Or

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The other method to search a Static Deterministic Process is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Name, Folder, Description**, and **Reporting Currency** of the Static Deterministic Process and click **Search**.

Add: Click **Add** icon at the top right of the summary page to build a new Static Deterministic Process.

Multiple Delete: Select one or more Rules in the table and then click the **Multiple Delete** icon at the top right of the Summary Page to delete more than one Rule at the same time.

The Static Deterministic Process summary table displays the following columns:

- **Name:** Displays the Static Deterministic Process's short name.
- **Balance Sheet Source:** Displays the instrument table selection for processing of data.
- **Last Run Date:** Displays the Date and Time when Static Deterministic Process was run last.
- **Last Run By:** Displays the Name of the user who last runs the Static Deterministic Process.
- **Reporting Currency:** Displays the currency for consolidated results to be aggregated.
- **Folder:** Displays the Folder name where the Static Deterministic Process is saved.
- **Status:** Displays the status of the Static Deterministic Process.
- **Access Type:** Displays the access type of Rule. It can be Read-Only or Read/Write.
- **Action:** Displays the following list of actions that can be performed on the selected Static Deterministic Process.
  - **View/Edit:** You can view existing Static Deterministic Process, and you can edit existing Static Deterministic Process Rules, provided you have read/write privileges. View/Edit to view or edit the contents of a Static Deterministic Process in Read/Write format. Depending on user privileges the Rule will open in either View or Edit mode.
  - **Save As:** You can copy Static Deterministic Process Rules to avoid having to enter data multiple times. This saves time and effort and reduces mistakes. Click on the **Action** icon against the Static Deterministic Process Name and select **Save As** to create a copy of an existing Static Deterministic Process.
  - **Delete:** You can delete Static Deterministic Process Rules that are no longer required. Click on the **Action** icon against the Static Deterministic Process Name and select **Delete** to delete an existing Static Deterministic Process.

> **Note**
>
> A Static Deterministic Process cannot be retrieved after deletion. Restrictions on deleting Static Deterministic Process Rules are:
>
> * You cannot delete Static Deterministic Process Rules if you have only Read privileges. Only users with Read/Write privileges and Static Deterministic Process owners can delete Static Deterministic Process Rules.
> * You cannot delete a Static Deterministic Process that has a dependency.
> * A rule cannot be retrieved after deletion.

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- **Dependency Check:** You can check dependencies for rules to know where a particular Static Deterministic Process has been used. This also prevents accidental deletion of rules having dependencies. Click on the **Action** icon against the Static Deterministic Process Name and select Dependency Check to generate a report on all Rules that utilize your selected Static Deterministic Process.
- **Run:** Select Run to execute an existing Static Deterministic Process. After clicking Run, the Run Parameter Execution window is displayed. Select As of Date (Execution Date) and Legal Entity, and then click Ok. For more information, see Executing Static Deterministic Process section.
- **Execution Details:** Select Execution Details to view execution details of the Static Deterministic Process.

Also See:

- Create Static Deterministic Process
- Execute Static Deterministic Process

6.3.6.1.1 Create Static Deterministic Process

To create a new Static Deterministic Process, perform the following steps:

1. Navigate to the **Static Deterministic Process** Summary page.
2. Click Add . The **Create Static Deterministic Process** page is displayed.
3. Enter the details in the **Process Details** section.

Figure 6-285 Static Deterministic Process

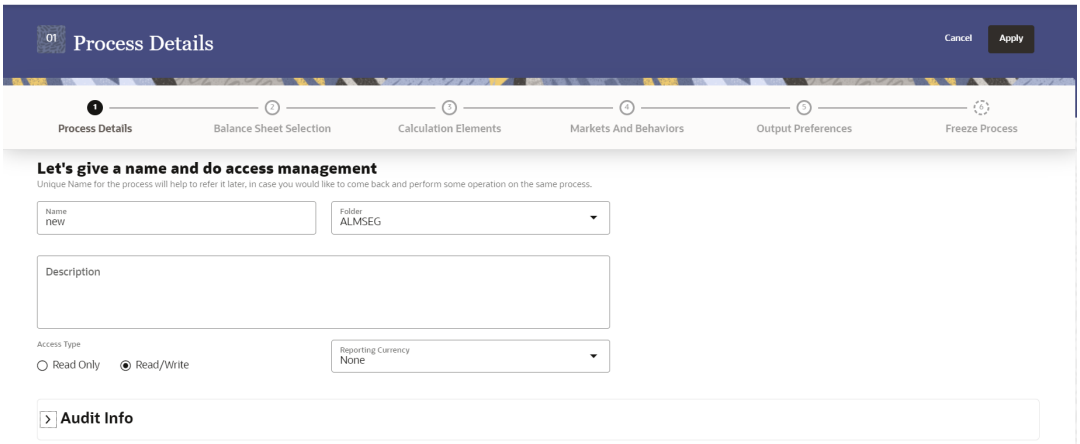

Table 6-82 List of process details used for Creating Static Deterministic Process

Parameter	Description
Name	Enter the name of the Static Deterministic Process.
Folder	Select the Folder where the Static Deterministic Process needs to be saved.
Description	Enter the description of the Static Deterministic Process.

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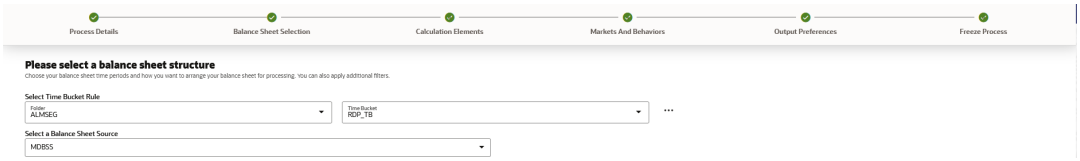
Table 6-82 (Cont.) List of process details used for Creating Static Deterministic Process

Parameter	Description
Access Type	Select the Access Type as Read-Only or Read/ Write.
Reporting Currency	Select the currency for consolidation of results
Currency Provider	This field will be active once you select Reporting Currency. This is used to pick up the exchange rates for consolidation. In SaaS, multiple exchange rate for same currency pair can be stored, sourced from different rate providers. By default, member name “Missing” is displayed here. Values can be added to dimension ‘Rate Data Source’ and used in Currency Rates UI. The defined data will appear in the ALM Process UI and one of them can be selected.

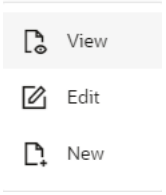
4. Click **Apply** to navigate to the **Balance Sheet Selection** section.

Figure 6-286 Balance Sheet Selection



5. Enter the Balance Sheet Structure details as shown in the following table:

Table 6-83 List of Balance Sheet Structure details used for Creating Static Deterministic Process

Parameter	Description
Time Bucket Rule Folder	Select the Folder from which you want to apply Time Bucket Rule.
Time Bucket Rule	Select the time horizon/aggregation for process. Also, following options are available when you click Action button next to Time Bucket field. **Figure 6-287 Time Bucket** 
Balance Sheet Source	Select the Balance Sheet Source as MDBSS, Hierarchy or Data Table from Balance Sheet Source drop-down list.

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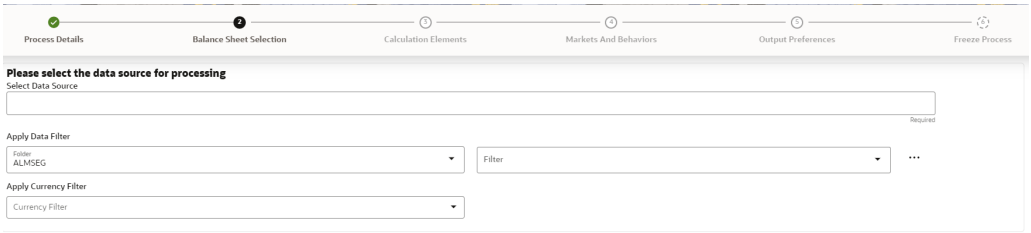
After selecting the Balance Sheet Source, Source details block is activated.

- If Balance Sheet Source is selected as **Data Table**, then following fields are available:

Figure 6-288 Data Source details of Balance Sheet Selection



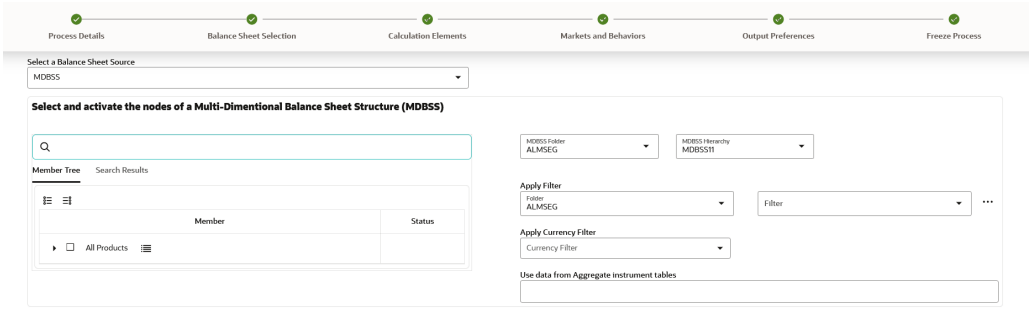
Enter the Data Source details of Balance Sheet.

Table 6-84 Data Source details used for Creating Static Deterministic Process

Parameter	Description
Data Source	This field allows you to select the Instrument tables that must be included in a Static Deterministic Process. For example, Asset, Derivative, and so on.
Data Filter Folder	Select the Folder from which you want to apply Data Filter.
Data Filter	This field allows you to select a subset of data for processing by selecting a filter. You can select a filter that was previously created, or define a new filter on the fly.
Currency Filter	Optionally apply a currency filter on the selected data.

- If Balance Sheet Source is selected as **MDBSS**, then following fields are available:

Figure 6-289 MDBSS details



Enter the MDBSS details.

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Table 6-85 MDBSS Details

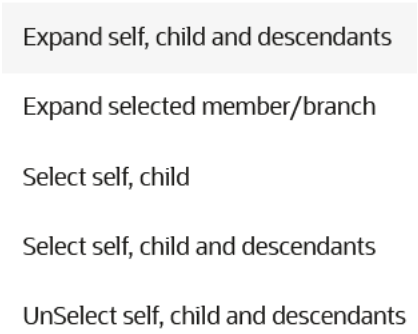
Parameter	Description
Member Tree	This shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options. **Figure 6-290 Member Tree Selection**  Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available: – **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants. – **Expand selected member/branch:** Allows to expand the selected node – **Select self, child:** Allows to select the selected node itself along with its child. – **Select self, child and descendants:** Allows to select the selected node itself along with its child and descendants. – **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants. Here,you can perform the following tasks on the searched node(s): – Add – Edit – View – Delete – Copy You can also search the members based on the filters. To search a member , follow these steps: **a.** Navigate to **Assumption Browser** section of the Rule Definition page. **b.** Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

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Table 6-85 (Cont.) MDBSS Details

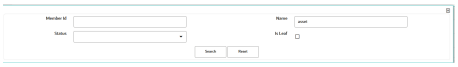
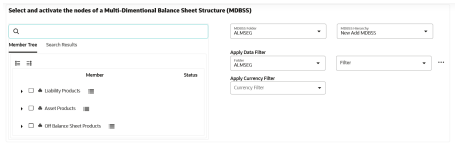
Parameter	Description
	Figure 6-291 Search Criteria  c. Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser** . **Figure 6-292 Searching Members**  Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node. Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name. Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name. Here, you can perform the following tasks on the searched node(s): – Add – Edit – View – Delete – Copy
Assumption Browser	Select the MDBSS Node from Assumption Browser and click **Add** under Action option.
MDBSS Folder	Select the MDBSS folder
MDBSS Hierarchy	Select the MDBSS hierarchy
Data Filter Folder	Select the Folder from which you want to apply Data Filter.

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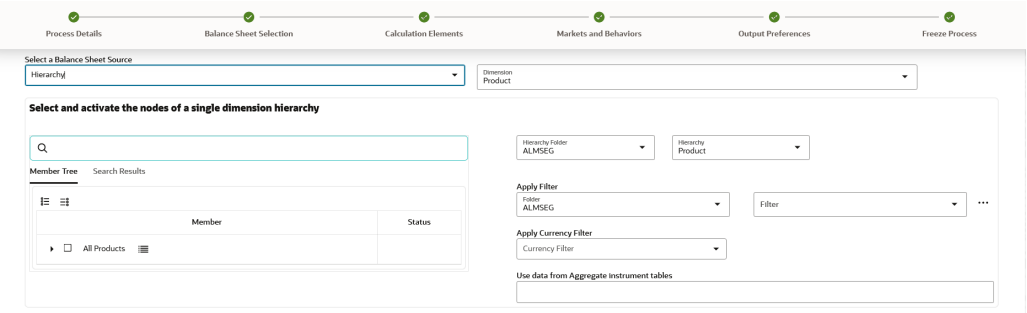
Table 6-85 (Cont.) MDBSS Details

Parameter	Description
Data Filter	This field allows you to select a subset of data for processing by selecting a filter. You can select a filter that was previously created, or define a new filter on the fly. **Note** Data filter defined on PORTFOLIO table only can be used in Balance Sheet selection.
Currency Filter	Optionally apply a currency filter on the selected data.
Use data from Aggregate Instrument Tables	Select **Asset Aggregate** or **Liability Aggregate** table type which needs to be included in process. You can use selected aggregate table(s) to construct instrument data view for processing. If this field is blank, then process will use standard tables.

- If Balance Sheet Source is selected as **Hierarchy**, then following fields are available:

Figure 6-293 Product Hierarchy details



Enter the Product details of Balance Sheet.

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Table 6-86 Product Details

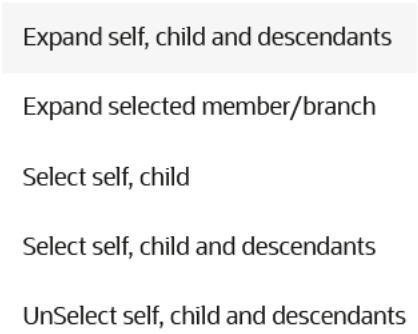
Parameter	Description
Member Tree	This shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options. **Figure 6-294 Member Tree Selection**  Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available: – **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants. – **Expand selected member/branch:** Allows to expand the selected node – **Select self, child:** Allows to select the selected node itself along with its child. – **Select self, child and descendants:** Allows to select the selected node itself along with its child and descendants. – **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants. Here,you can perform the following tasks on the searched node(s): – Add – Edit – View – Delete – Copy You can also search the members based on the filters. To search a member , follow these steps: **a.** Navigate to **Assumption Browser** section of the Rule Definition page. **b.** Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

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Table 6-86 (Cont.) Product Details

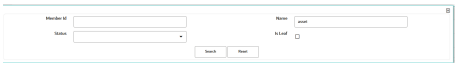
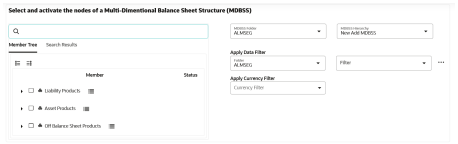
Parameter	Description
	Figure 6-295 Search Criteria  c. Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser** . **Figure 6-296 Searching Members**  Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node. Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name. Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name. Here, you can perform the following tasks on the searched node(s): – Add – Edit – View – Delete – Copy
Assumption Browser	Select the Product from Assumption Browser and click **Add** under Action option.
Folder	Select the folder
Hierarchy	Select the hierarchy
Data Filter Folder	Select the Folder from which you want to apply Data Filter.

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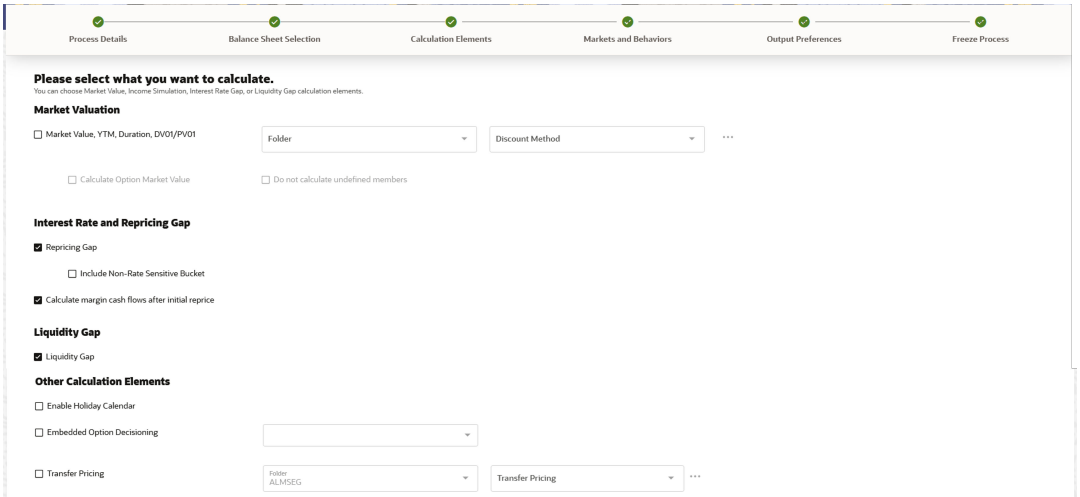
Table 6-86 (Cont.) Product Details

Parameter	Description
Data Filter	This field allows you to select a subset of data for processing by selecting a filter. You can select a filter that was previously created, or define a new filter on the fly. **Note** Data filter defined on PORTFOLIO table only can be used in Balance Sheet selection.
Currency Filter	Optionally apply a currency filter on the selected data.
Use data from Aggregate Instrument Tables	Select **Asset Aggregate** or **Liability Aggregate** table type which needs to be included in process. You can use selected aggregate table(s) to construct instrument data view for processing. If this field is blank, then process will use standard tables.

6. Click **Apply** to navigate to the **Calculation Elements** section.

Figure 6-297 Calculation Elements



7. Enter the **Calculation Elements** details as shown in the following table:

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Table 6-87 List of Calculation Elements details used for Creating Static Deterministic Process

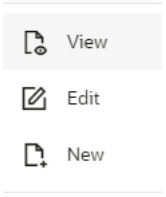
Parameter	Description
Market Valuation	Select the Market Value, YTM, Duration, DV01/ PV01 option if you want to perform present value (MV) calculations. Discount method is required. You can select from predefined rules, or create one on the fly.
Discount Method Folder	Select the folder from where discount rules are saved.
Discount Method	Select Discount Method you want to be applied to the process. refer to Discount Method section to set up Discount Method Rules. Also, following options are available when you click Action button next to Discount Method. **Figure 6-298 Discount Method** 
Calculate Option Market Value	The Calculate Option Market Value option is used to calculate the Market Valuation (MV) for certain embedded and stand-alone (bare) options. Supported embedded options are Calls, Puts, Caps (caplets) and Floors (floorlets). This option will be enabled only if Market Value, YTM, Duration, DV01/PV01 option is also selected. For example, When Calculate Option Market Value check-box is selected and RATE_CAP_LIFE has data filled (that is, holds a non-null value greater than 0), then Embedded CAP Option MV will be calculated. When Calculate Option Market Value check box is selected and RATE_FLOOR_LIFE has data filled (that is, it is non-null value greater than 0 or it is less than RATE_CAP_LIFE and RATE_CAP_LIFE is greater than 0), then Embedded FLOOR Option MV will be calculated.
Do not Calculate undefined members	Enable this option, if undefined members are not required in calculation.
Repricing Gap	Select Repricing Gap check-box if you want to include Interest Rate gap risk measures. Note, this requires a time bucket with IR Gap buckets defined.

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Table 6-87 (Cont.) List of Calculation Elements details used for Creating Static Deterministic Process

Parameter	Description
Include Non- Rate Sensitive Bucket	Include Non Rate Sensitive Bucket check-box gets enabled when ‘Repricing Gap’ is selected. The Attribute of product dimension ‘Interest Rate Sensitivity Category’ identifies products as Interest Rate sensitive or Non Interest Rate sensitive. Once ‘Include Non Rate Sensitive Bucket’ is enabled, reprice gap output of Products which are mapped as Non Interest Rate sensitive, would move into Non Interest Rate Sensitive bucket. For more information on Non Interest Rate Sensitive Bucket, see Time Buckets. If ‘Include Non Rate Sensitive Bucket’ is not enabled, engine will ignore ‘Interest Rate Sensitivity Category’ product attribute, and would treat all products as Interest Rate Sensitive. Reprice Gap output would move into respective Reprice Gap buckets.
Calculate Margin Cash Flow After Initial Reprice	If 'Calculate Margin cashflows as After Initial Reprice' is enabled, the engine will use the margin of adjustable rate instruments to continue generating interest cash flows after a gap repricing event up until total runoff occurs.
Liquidity Gap	Select the Liquidity Gap if you want to include liquidity gap risk measures. Note, this requires a time bucket with LR gap buckets defined.
Enable Holiday Calendar	If you enable Holiday Calendar cash flow dates falling on a holiday, it gets adjusted as per defined conventions. Holiday calendar criteria is defined on the instruments.

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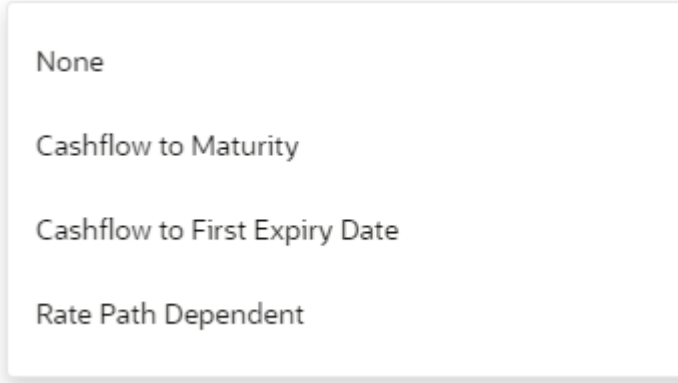
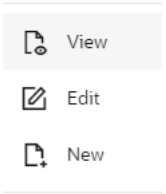
Table 6-87 (Cont.) List of Calculation Elements details used for Creating Static Deterministic Process

Parameter	Description
Embedded Option Decisioning	If your processed data contains fixed rate bonds with embedded options, you can select the behavior of the option to force it to maturity of the instrument, force it to first option expiry date, or let it be rate path dependent. This drop-down has following options: **Figure 6-299 Embedded Option Decisioning** 
Transfer Pricing Folder	Select the Folder from which you want to apply Transfer Pricing rule.
Transfer Pricing	Select the Transfer Pricing rule for process. Also, following options are available when you click **Action** button next to Transfer Pricing field. **Figure 6-300 Transfer Pricing** 

8. Click **Apply** to navigate to the **Markets and Behaviors** section.

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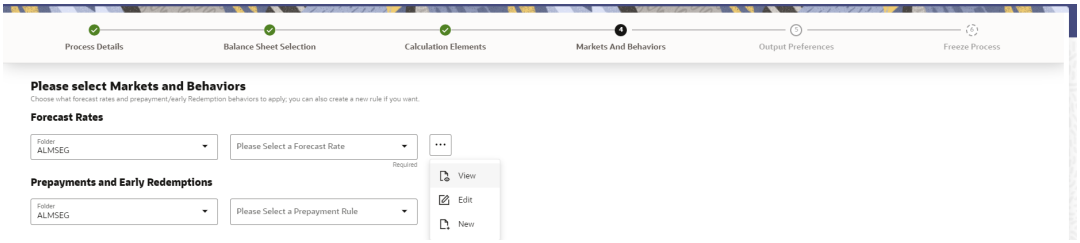
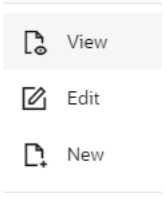
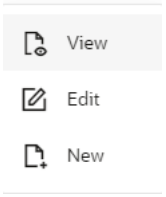
Figure 6-301 Markets and Behaviors



9. Enter the **Calculation Elements** details as shown in the following table:

Table 6-88 List of Market and Behavior details used for Creating Static Deterministic Process

Parameter	Description
Forecast Rates	Select the Folder and Forecast Rates Rule you want to be applied to the process. See Forecast Rate Scenarios to define rate scenarios. **Figure 6-302 Forecast Rates** 
Prepayment Rules and Early Redemptions	Select the Folder and Prepayment Rule you want to be applied during cash flow calculation. See Prepayment, to set up Prepayment Methods. This is an optional step. **Figure 6-303 Prepayment Rules** 

10. Enter the following details in **Other Behavioral Characteristics** sub-section of **Market and Behaviors** section.

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Figure 6-304 Other Behavioral Characteristics

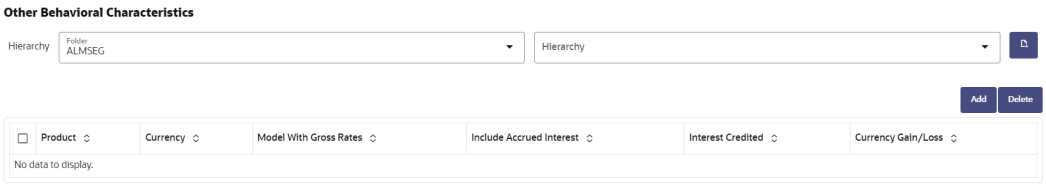

Table 6-89 Product Characteristics details used for Creating Static Deterministic Process

Parameter	Description
Product Hierarchy Folder	You can specify additional processing parameters at a product-currency level. Select the Folder from the **Product Hierarchy** Folder list.
Product Hierarchy	Select the Product Hierarchy on which you want to specify parameters. To add a Product Hierarchy, follow these steps: **a.** Click **Open Hierarchy Browser** button next to the **Hierarchy** field. **b.** Select one or more products using the corresponding check-box and click Done.

11. After clicking **Add**, the list of product is displayed with the following details:

Table 6-90 Product details used for Creating Static Deterministic Process

Parameter	Description
Product	Shows the selected product details.
Currency	Shows the currency of the selected product.
Interest Credited	Yes or No status of Interest Credited. This option shows the interest payments to be capitalized as principal on simple or non-amortizing instruments.
Model With Gross Rates	If the institution has outsourced loan serving rights for some of the assets (most typically mortgages), the rates paid by customers on those assets (gross rates) are greater than the rates received by the bank (net rates). For these instruments, both a net and gross rate is calculated within the cash flow engine and both gross and net rate financial elements are the output. The gross rate is used for prepayment and amortization calculations. The net rate is used for income simulation and the calculation of retained earnings in the auto-balancing process.
Include Accrued Interest	Shows the details if MDBSS node has reference of accrued interest (existing business only).

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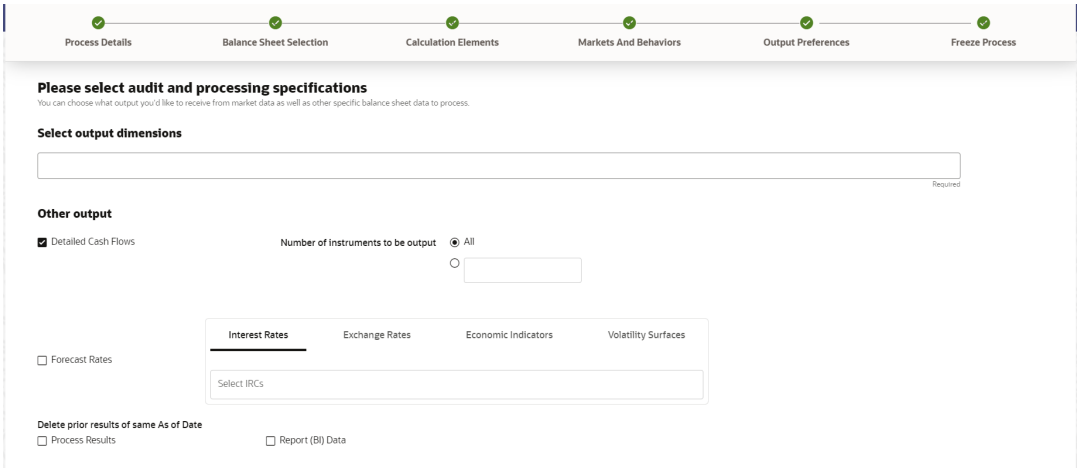
Table 6-90 (Cont.) Product details used for Creating Static Deterministic Process

Parameter	Description
Currency Gain/Loss	If you are consolidating to a reporting currency, select one of the following methods. • Historical • Temporal • Currency Rate See Currency Gain Loss Basis for more details.

12. Click **Apply** to navigate to the **Output Preferences** section.

Figure 6-305 Output Preferences



13. Enter the **Output Preferences** details shown in the following table.

Table 6-91 List of Output Preferences details used for Creating Static Deterministic Process

Parameter	Description
Output Dimensions	Shows the list of dimensions. You can select up to 10 dimensions for aggregation. Currency and Account Type are part of output by default. **Note** It is applicable when **Balance Sheet Source** is selected as Data Table or Hierarchy.

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Table 6-91 (Cont.) List of Output Preferences details used for Creating Static Deterministic Process

Parameter	Description
Detailed Cash Flow	Check the box to record the instrument detail cash flows occurring for the desired number of records processed. For each record, daily cashflow and market value results are written to the `FSI_ALM_CASHFLOW_OUTPUT_HIST` and `FSI_ALM_CASHFLOW_DYN_MV_OUTPUT_HIST` tables. Select the desired number of Records in the dialog box or select all records to be output. **Note** The number of records output directly impact processing time. It is recommend to use this as an audit function only, with few records chosen.
Forecast Interest Rates	Select the Interest Rate Curves for which you want the engine to write forecasted interest rates in the database table.
Forecast Exchange Rate	Select the Exchange Rates for which you want the engine to write forecasted exchange rates in the database table.
Forecast Economic Indicators	Select the Economic Indicators for which you want the engine to write forecasted interest rates in the database table.
Volatility Surface	Select the Volatility Surfaces for which you want the engine to write forecasted Volatility Surface in the database table.
Delete prior results of same As of Date	• **Process Results:** If this check-box is selected, then engine removes the results of previous process execution ID and As of Date. Engine fetches all the details of the same Process ID and As Of Date from the tables. Process history tables keep track of execution id's whose data has been deleted. • **Report (BI) Data:** If this check-box is selected, then engine moves the results of previous process to BI report before removing the results of previous process execution ID and As of Date.

Note

Currency and Account Type are part of output by default. Dimensions like product, Org unit, etc can be selected to aggregate results.
The consolidation is done by default if the reporting currency is selected in Process Details.

14. Click **Apply** to navigate to the **Freeze Process** section.

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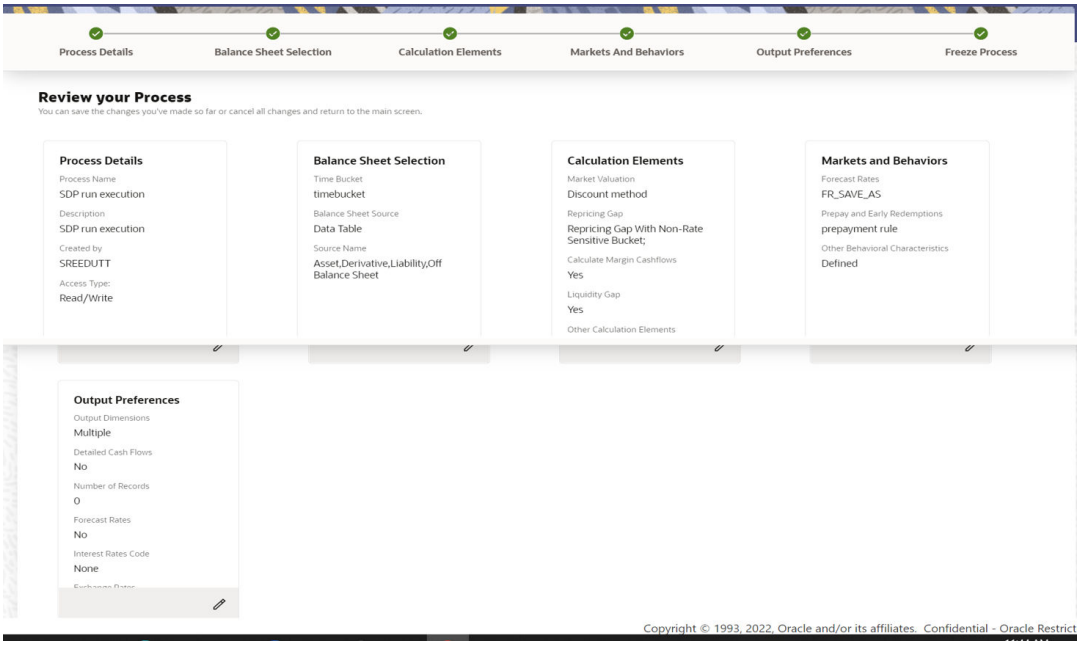
Figure 6-306 Freeze Process



15. Verify the changes and click **Save**.

6.3.6.1.2 Executing Static Deterministic Process

You can execute the Static Deterministic process using the following methods:

- Static Deterministic Process UI
- Scheduler Service

6.3.6.1.2.1 Using Scheduler Service

To execute the Static Deterministic Process, follow these steps:

1. Navigate to **Operations and Processes** menu, and select **Scheduler**.
2. Define a new batch.
3. Enter the Batch Name and Description, and then Save the batch.
4. To add a task, navigate to **Define Task**.
5. Select the Batch from Batch drop-down list on Define Task window.
6. Click the **Add** button.
7. Define the task with below details:
   - **Task Code:** This can be same as the Process ID of ALM Static Deterministic Process or something else.
   - **Task Name:** This can be same as name of the ALM Static Deterministic Process or something else.
   - **Task Description:** This can be same a name of the ALM Static Deterministic Process or something else.
   - **Task Type:** REST
   - **Component:** ALM Static Deterministic Process

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- **Process Name:** Select one value from the list.
- **Legal Entity Hierarchy:** Select one value from the list.
- **Legal Entity:** Select one value from the list.

8. Save and Execute the batch with Batch ID and MIS Date.

For more information, see the Scheduler Service.

6.3.6.1.2.2 Using Static Deterministic Process UI

To execute the Static Deterministic process, follow these steps:

1. Navigate to the Static Deterministic Process Summary page.
2. Search for a Static Deterministic Process.
3. Click on the **Action** icon against the Process Name and select Run to execute an existing Static Deterministic Process. The Run Parameter Execution window is displayed.
4. Select the **As of Date** (Execution Date) and **Legal Entity**, and then click **Ok**.

> **Note**
>
> You can select multiple Legal Entities in list view of hierarchy browser at a time for execution. In hierarchy mode you can select one Legal Entity at leaf or parent level. When parent Legal Entity is selected then data of selected entity along with its child and descendants are processed.

5. The Static Deterministic Run Confirmation page is displayed. The status of the process is displayed in the Status column. After completion of the process, you can navigate to the Execution Details page by selecting the **Execution Details** option under the **Action** column.

6.3.6.1.3 View Static Deterministic Process Log

To view the execution details of the Static Deterministic Process, follow these steps:

1. Navigate to the Static Deterministic Process Summary page.
2. Search for a Static Deterministic Process.
3. Click on the Action icon against the Process Name and select Execution Details. The **Execution Details** window is displayed.
4. Click any **Execution ID** to view the log details. The **Log Viewer** window shows the complete details of process along with Batch Run ID information.

6.3.6.2 Dynamic Deterministic Process

This module discusses the procedure for creating and executing a Dynamic Deterministic Process.

Dynamic Deterministic process generates output based on a set of user-defined forecast rate scenarios and includes new business assumption rules in the process flow.

This process allows you to perform the following tasks:

- Determine the source data that you want to process, and the modeling horizon

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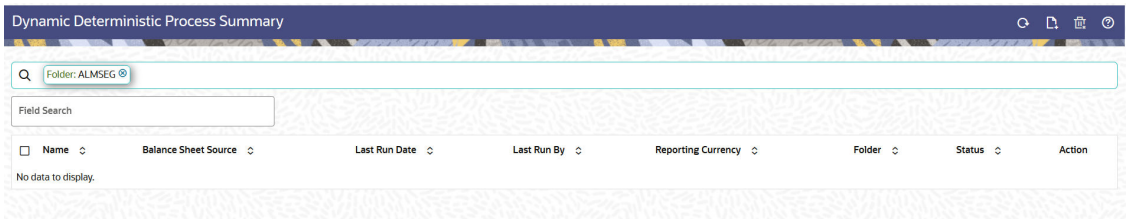
- Specify the calculation elements; Valuation, Income Simulation, Interest Rate and Liquidity Gaps
- Include the market rate forecast and behavioral assumptions
- Define your output dimensions for aggregation, and/or output raw cashflows
- Execute the Cash Flow Process and generate results.

Dynamic Deterministic Process Summary

This page is the gateway to all Dynamic Deterministic Process Rules and related functionality. You can navigate to other pages relating to Dynamic Deterministic Process Rules from this point.

Figure 6-307 Dynamic Deterministic Process Summary



Search Dynamic Deterministic Process

Prerequisites: Predefined Dynamic Deterministic Process

To search for a Dynamic Deterministic Process, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Dynamic Deterministic Process Rules that meet the search criteria.

Or

The other method to search a Dynamic Deterministic Process is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Name, Folder, Description**, and **Reporting Currency** of the Dynamic Deterministic Process and click **Search** .

The Dynamic Deterministic Process summary table displays the following columns:

- **Name:** Displays the Dynamic Deterministic Process's short name.
- **Balance Sheet Source:** Displays the instrument table selection for processing of data.
- **Last Run Date:** Displays the Date and Time when Dynamic Deterministic Process was run last.
- **Last Run By:** Displays the Name of the user who last runs the Dynamic Deterministic Process.
- **Reporting Currency:** Displays the currency for consolidated results to be aggregated.
- **Folder:** Displays the Folder name where the Dynamic Deterministic Process is saved.
- **Status:** Displays the status of the Dynamic Deterministic Process.
- **Access Type:** Displays the access type of Rule. It can be Read-Only or Read/Write.

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- **Action:** Displays the following list of actions that can be performed on the selected Dynamic Deterministic Process.
  - **Add:** Click **Add** icon at the top right of the summary page to build a new Dynamic Deterministic Process.
  - **Multiple Delete:** Select one or more Rules in the table and then click the **Multiple Delete** icon at the top right of the Summary Page to delete more than one Rule at the same time.
  - **View/Edit:** You can view existing Dynamic Deterministic Process, and you can edit existing Dynamic Deterministic Process Rules, provided you have read/write privileges. View/Edit to view or edit the contents of a Dynamic Deterministic Process in Read/Write format. Depending on user privileges the Rule will open in either View or Edit mode.
  - **Save As:** You can copy Dynamic Deterministic Process Rules to avoid having to enter data multiple times. This saves time and effort and reduces mistakes. Click on the **Action** icon against the Dynamic Deterministic Process Name and select **Save As** to create a copy of an existing Dynamic Deterministic Process.
  - **Delete:** You can delete Dynamic Deterministic Process Rules that are no longer required. Click on the **Action** icon against the Dynamic Deterministic Process Name and select **Delete** to delete an existing Dynamic Deterministic Process.

    > **Note**
    >
    > A Dynamic Deterministic Process cannot be retrieved after deletion. Restrictions on deleting Dynamic Deterministic Process Rules are:
    >
    > * You cannot delete Dynamic Deterministic Process Rules if you have only Read privileges. Only users with Read/Write privileges and Dynamic Deterministic Process owners can delete Dynamic Deterministic Process Rules.
    > * You cannot delete a Dynamic Deterministic Process that has a dependency.

  - **Dependency Check:** You can check dependencies for rules to know where a particular Dynamic Deterministic Process has been used. This also prevents accidental deletion of rules having dependencies. Click on the **Action** icon against the Dynamic Deterministic Process Name and select Dependency Check to generate a report on all Rules that utilize your selected Dynamic Deterministic Process.

    > **Note**
    >
    > This is functionality will be released in future.

  - **Run:** Select Run to execute an existing Dynamic Deterministic Process. After clicking Run, the Run Parameter Execution window is displayed. Select As of Date (Execution Date) and Legal Entity, and then click Ok. For more information, see Executing Dynamic Deterministic Process section.
  - **Execution Details:** Select Execution Details to view execution details of the Dynamic Deterministic Process.

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Also See:

- Create Dynamic Deterministic Process
- Execute Dynamic Deterministic Process

6.3.6.2.1 Create Dynamic Deterministic Process

To create a new Dynamic Deterministic Process, perform the following steps:

1. Navigate to the **Dynamic Deterministic Process** Summary page.
2. Click **Add** . The **Create Dynamic Deterministic Process** page is displayed.
3. Enter the details in the **Process Details** section.

Figure 6-308 Dynamic Deterministic Process

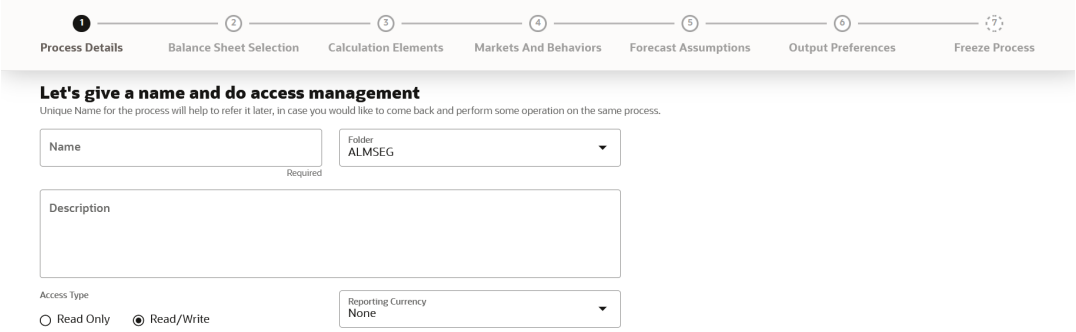

Table 6-92 List of process details used for Creating Dynamic Deterministic Process

Parameter	Description
Name	Enter the name of the Dynamic Deterministic Process.
Folder	Select the Folder where the Dynamic Deterministic Process needs to be saved.
Description	Enter the description of the Dynamic Deterministic Process.
Access Type	Select the Access Type as Read Only or Read/ Write.
Reporting Currency	Select the currency for consolidation of results
Currency Provider	This field will be active once you select Reporting Currency. Select the Currency Provider as Default.

4. Click **Apply** to navigate to the **Balance Sheet Selection** section.

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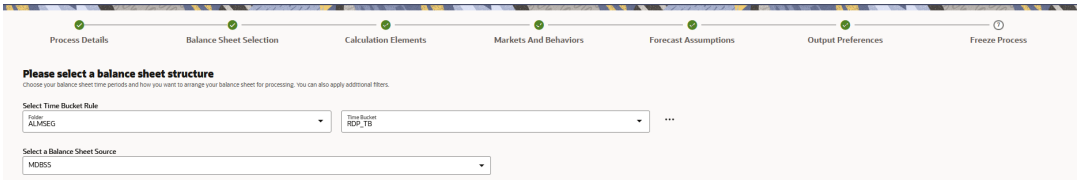
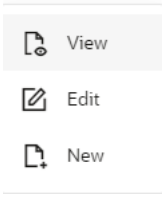
Figure 6-309 Balance Sheet Selection



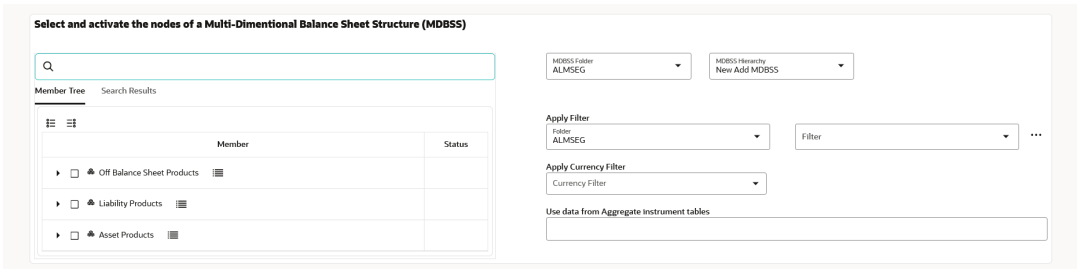
5. Enter the Balance Sheet Structure details as shown in the following table:

Table 6-93 List of Balance Sheet Structure details used for Creating Dynamic Deterministic Process

Parameter	Description
Time Bucket Rule Folder	Select the Folder from which you want to apply Time Bucket Rule.
Time Bucket Rule	Select the time horizon/aggregation for process. Also, following options are available when you click **Action** button next to Time Bucket field. **Figure 6-310 Time Bucket** 
Balance Sheet Source	Select the Balance Sheet Source from Balance Sheet Source drop-down list.

After selecting the Balance Sheet Source, Multi-Dimentional Balance Sheet Structure (MDBSS) details block is activated.

Figure 6-311 MDBSS Details



Enter the Data Source details of Balance Sheet.

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Table 6-94 Data Source details used for Creating Dynamic Deterministic Process

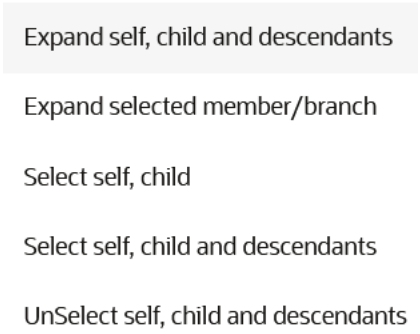
Parameter	Description
Member Tree	This shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options. **Figure 6-312 Member Tree Selection**  Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available: • **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants. • **Expand selected member/branch:** Allows to expand the selected node • **Select self, child:** Allows to select the selected node itself along with its child. • **Select self, child and descendants:** Allows to select the selected node itself along with its child and descendants. • **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants. Here,you can perform the following tasks on the searched node(s): • Add • Edit • View • Delete • Copy You can also search the members based on the filters. To search a member , follow these steps: a. Navigate to **Assumption Browser** section of the Rule Definition page.

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Table 6-94 (Cont.) Data Source details used for Creating Dynamic Deterministic Process

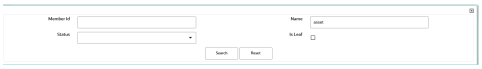
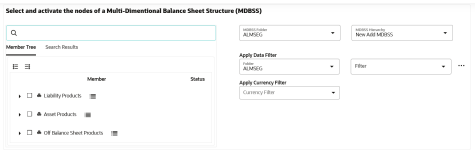
Parameter	Description
	b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria. **Figure 6-313 Search Criteria**  **c.** Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser** . **Figure 6-314 Searching Members**  Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node. Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name. Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name. Here, you can perform the following tasks on the searched node(s): • Add • Edit • View • Delete • Copy
Assumption Browser	Select the Product from Assumption Browser and click **Add** under Action option.
MDBSS Folder	Select the MDBSS folder
MDBSS Hierarchy	Select the MDBSS hierarchy
Data Filter Folder	Select the Folder from which you want to apply Data Filter.

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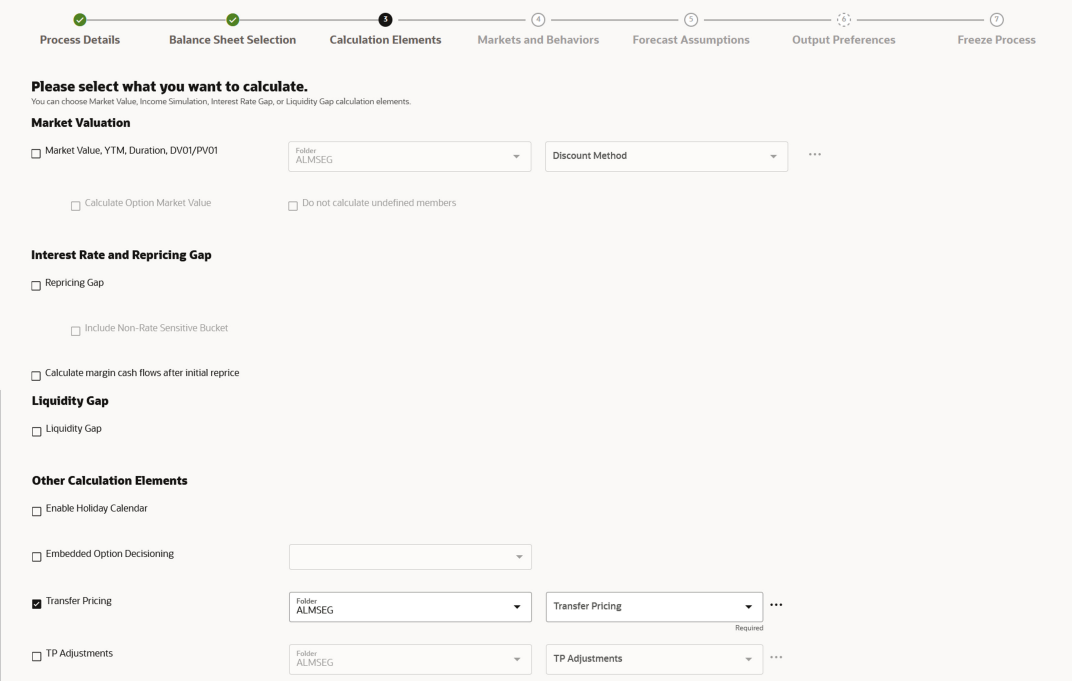
Table 6-94 (Cont.) Data Source details used for Creating Dynamic Deterministic Process

Parameter	Description
Data Filter	This field allows you to select a subset of data for processing by selecting a filter. You can select a filter that was previously created, or define a new filter on the fly. **Note** Data filter defined on PORTFOLIO table only can be used in Balance Sheet selection.
Currency Filter	Optionally, apply a currency filter on the selected data.
Use data from Aggregate Instrument Tables	Select **Asset Aggregate** or **Liability Aggregate** table type which needs to be included in process. You can use selected aggregate table(s) to construct instrument data view for processing. If this field is blank, then process will use standard tables.

6. Click **Apply** to navigate to the **Calculation Elements** section.

Figure 6-315 Calculation Elements



7. Enter the **Calculation Elements** details as shown in the following table:

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Table 6-95 List of Calculation Elements details used for Creating Dynamic Deterministic Process

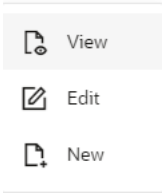
Parameter	Description
Market Valuation	Select the Market Value, YTM, Duration, DV01/ PV01 option if you want to perform present value (MV) calculations. Discount method is required. You can select from predefined rules, or create one on the fly.
Discount Method Folder	Select the folder from where discount rules are saved.
Discount Method	Select Discount Method you want to be applied to the process. See Discount Method section to set up the Discount Method Rules. Also, following options are available when you click Action button next to Discount Method field. **Figure 6-316 Discount Method** 
Calculate Option Market Value	The Calculate Option Market Value option is used to calculate the Market Valuation (MV) for certain embedded and stand-alone (bare) options. Supported embedded options are Calls, Puts, Caps (caplets) and Floors (floorlets). This option will be enabled only if Market Value, YTM, Duration, DV01/PV01 option is also selected. For example, When Calculate Option Market Value check-box is selected and RATE_CAP_LIFE has data filled (that is, holds a non-null value greater than 0), then Embedded CAP Option MV will be calculated. When Calculate Option Market Value check box is selected and RATE_FLOOR_LIFE has data filled (that is, it is non-null value greater than 0 or it is less than RATE_CAP_LIFE and RATE_CAP_LIFE is greater than 0), then Embedded FLOOR Option MV will be calculated.
Do not Calculate undefined members	Enable this option, if undefined members are not required in calculation.
Repricing Gap	Select Repricing Gap check-box if you want to include Interest Rate gap risk measures. Note, this requires a time bucket with IR Gap buckets defined.

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Table 6-95 (Cont.) List of Calculation Elements details used for Creating Dynamic Deterministic Process

Parameter	Description
Include Non- Rate Sensitive Bucket	Include Non Rate Sensitive Bucket check-box gets enabled when ‘Repricing Gap’ is selected. The Attribute of product dimension ‘Interest Rate Sensitivity Category’ identifies products as Interest Rate sensitive or Non Interest Rate sensitive. Once ‘Include Non Rate Sensitive Bucket’ is enabled, reprice gap output of Products which are mapped as Non Interest Rate sensitive, would move into Non Interest Rate Sensitive bucket. For more information on Non Interest Rate Sensitive Bucket, see Time Buckets. If ‘Include Non Rate Sensitive Bucket’ is not enabled, engine will ignore ‘Interest Rate Sensitivity Category’ product attribute, and would treat all products as Interest Rate Sensitive. Reprice Gap output would move into respective Reprice Gap buckets.
Calculate Margin Cash Flow After Initial Reprice	If 'Calculate Margin cashflows as After Initial Reprice' check-box is enabled, the engine will use the margin of adjustable rate instruments to continue generating interest cash flows after a gap repricing event up until total runoff occurs.
Liquidity Gap	Select the Liquidity Gap if you want to include liquidity gap risk measures. Note, this requires a time bucket with LR gap buckets defined.
Enable Holiday Calendar	Enable the Holiday Calendar cash flow dates falling on a holiday to adjust as per defined conventions. Holiday calendar criteria is defined on the instruments.

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Table 6-95 (Cont.) List of Calculation Elements details used for Creating Dynamic Deterministic Process

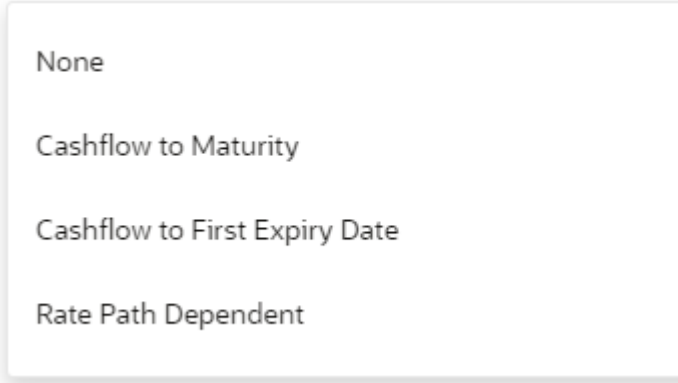
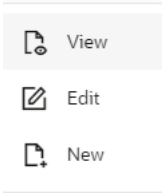
Parameter	Description
Embedded Option Decisioning	If your processed data contains fixed rate bonds with embedded options, you can select the behavior of the option to force it to maturity of the instrument, force it to first option expiry date, or let it be rate path dependent. This drop-down has following options: **Figure 6-317 Embedded Option Decisioning** 
Transfer Pricing Folder	Select the Folder from which you want to apply Transfer Pricing rule.
Transfer Pricing	Select the Transfer Pricing rule for process. Also, following options are available when you click **Action** button next to Transfer Pricing field. **Figure 6-318 Transfer Pricing** 
TP Adjustment Folder	Select the Folder from which you want to apply TP Adjustment rule.

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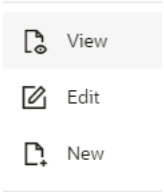
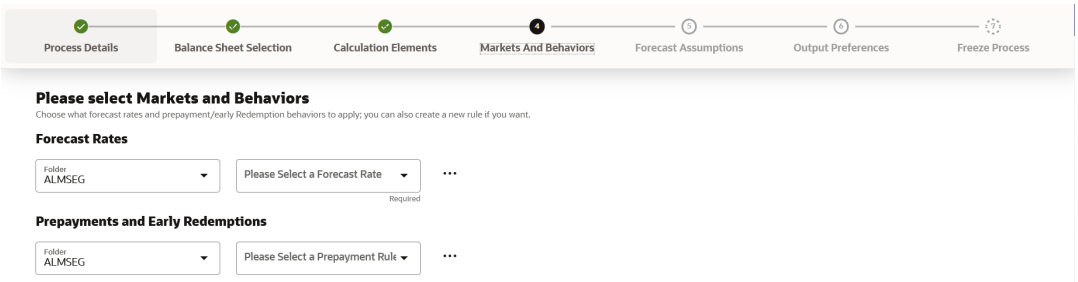
Table 6-95 (Cont.) List of Calculation Elements details used for Creating Dynamic Deterministic Process

Parameter	Description
TP Adjustment	Select the TP Adjustment rule for process. Also, following options are available when you click **Action** button next to TP Adjustment field. **Figure 6-319 TP Adjustment** 

8. Click **Apply** to navigate to the **Markets and Behaviors** section.

Figure 6-320 Markets and Behaviors



9. Enter the **Markets and Behaviors** details as shown in the following table:

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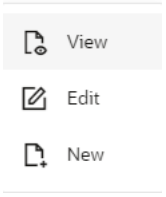
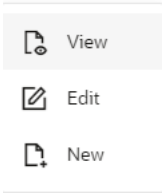
Table 6-96 List of Market and Behavior details used for Creating Dynamic Deterministic Process

Parameter	Description
Forecast Rates	Select the Folder and Forecast Rates Rule you want to be applied to the process. See Forecast Rates to define rate scenarios. You can select a Forecast Rates Rule that was previously created, or define a new rule on the fly. **Figure 6-321 Forecast Rates** 
Prepayment Rules and Early Redemptions	Select the Folder and Prepayment Rule you want to be applied during cash flow calculation. See Prepayment Methods to set up Prepayment Methods. This is an optional step. You can select a Prepayment Rule that was previously created, or define a new rule on the fly. **Figure 6-322 Prepayment Rules** 

10. Enter the following details in **Other Behavioral Characteristics** sub-section of **Market and Behaviors** section.

Figure 6-323 Other Behavioral Characteristics

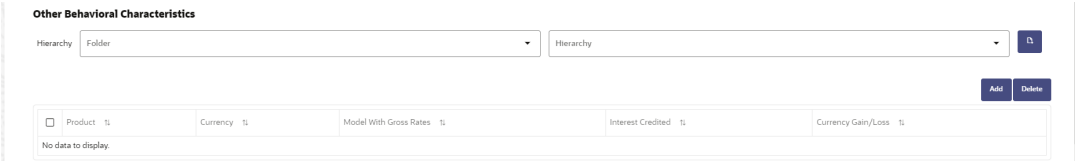


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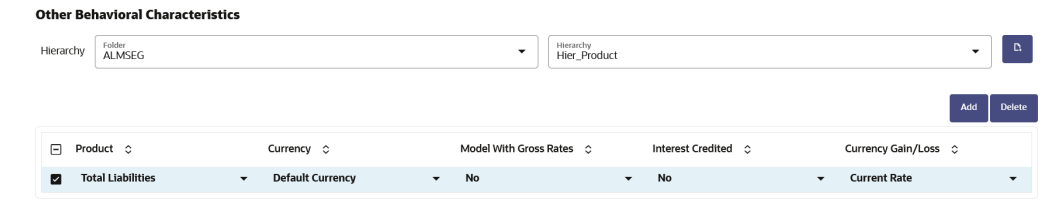
Table 6-97 Product Characteristics details used for Creating Dynamic Deterministic Process

Parameter	Description
Product Hierarchy Folder	You can specify additional processing parameters at a product-currency level. Select the Folder from the **Product Hierarchy Folder** list.
Product Hierarchy	Select the Product Hierarchy on which you want to specify the parameters. To add a Product Hierarchy, follow these steps: a. Click **Open Hierarchy Browser** button next to the **Hierarchy** field. b. Select one or more products using the corresponding check-box and click **Done**.

Figure 6-324 Product details



11. After clicking **Add**, the list of products is displayed with the following details:

Table 6-98 Product details used for Creating Dynamic Deterministic Process

Parameter	Description
Product	Shows the selected product details.
Currency	Shows the currency of the selected product.
Interest Credited	Yes or No status of Interest Credited. This option shows the interest payments to be capitalized as principal on simple or non-amortizing instruments.
Model With Gross Rates	If the institution has outsourced loan serving rights for some of the assets (most typically mortgages), the rates paid by customers on those assets (gross rates) are greater than the rates received by the bank (net rates). For these instruments, both a net and gross rate is calculated within the cash flow engine and both gross and net rate financial elements are the output. The gross rate is used for prepayment and amortization calculations. The net rate is used for income simulation and the calculation of retained earnings in the auto-balancing process.

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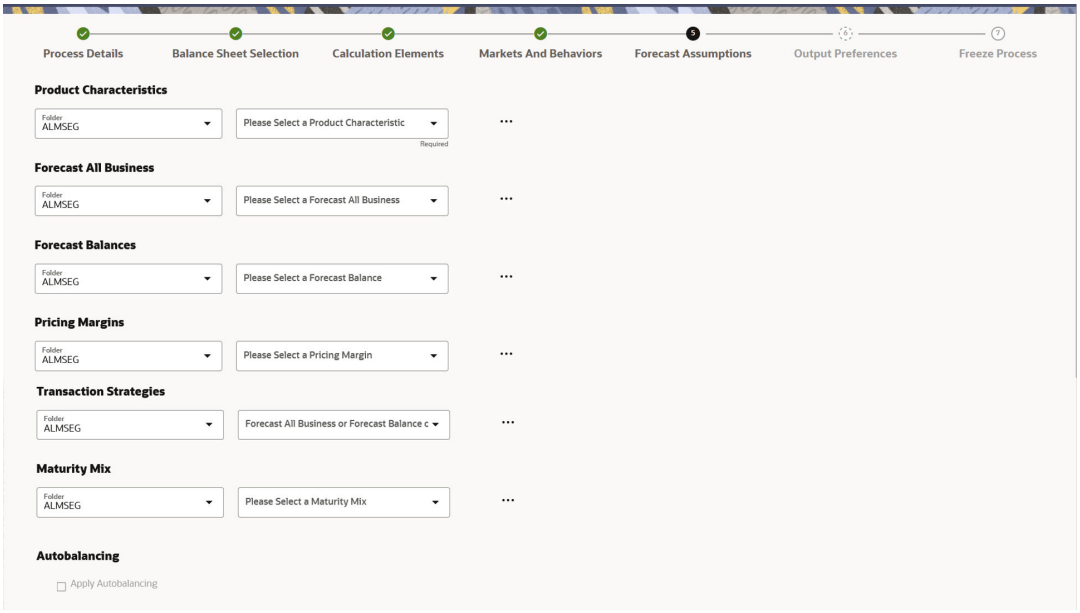
Table 6-98 (Cont.) Product details used for Creating Dynamic Deterministic Process

Parameter	Description
Currency Gain/Loss	If you are consolidating to a reporting currency, select one of the following methods • Historical • Temporal • Currency Rate See Currency Gain Loss Basis for more details.

12. Click **Apply** to navigate to the **Forecast Assumptions** section.

Figure 6-325 Forecast Assumptions



13. Enter the **Forecast Assumptions** details as shown in the following table:

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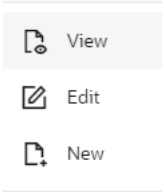
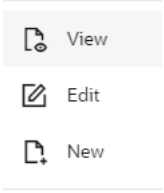
Table 6-99 List of Forecast Assumptions details used for Creating Dynamic Deterministic Process

Parameter	Description
Product Characteristics	Select the Folder and Product Characteristics Rule you want to be applied to the process. See Product Characteristics to define the Product Characteristics rules. **Figure 6-326 Product Characteristics** 
Forecast All Business	Select the Folder and Forecast All Business Rule you want to be applied to the process. See Forecast All Business to define the Forecast All Business rules. **Figure 6-327 Forecast All Business** 

> **Note**
>
> If the **Forecast All Business** rule is selected, then **Forecast Balances** and **Pricing Margins** rules cannot be selected. The **Forecast All Business** rule is mutually exclusive with the **Forecast Balances** and **Pricing Margins** rules.

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Table 6-99 (Cont.) List of Forecast Assumptions details used for Creating Dynamic Deterministic Process

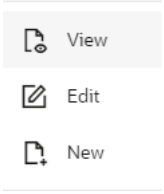
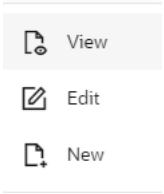
Parameter	Description
Forecast Balances	Select the Folder and Forecast Balance Rule you want to be applied to the process. See Forecast Balances to define the Forecast Balance rules. **Figure 6-328 Forecast Balances**  **Note** If the **Forecast All Business** rule is selected, the **Forecast Balances** rule cannot be selected. The **Forecast All Business** rule is mutually exclusive with the **Forecast Balances** and **Pricing Margins** rules.
Pricing Margins	Select the Folder and Pricing Margin Rule you want to be applied to the process. See Pricing Margins to define the Pricing Margin rules. **Figure 6-329 Pricing Margins**  **Note** If the **Forecast All Business** rule is selected, then **Pricing Margin** rule cannot be selected. The **Forecast All Business** rule is mutually exclusive with the **Forecast Balances** and **Pricing Margins** rules.

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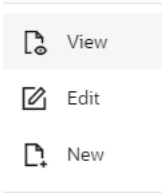
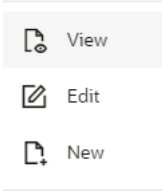
Table 6-99 (Cont.) List of Forecast Assumptions details used for Creating Dynamic Deterministic Process

Parameter	Description
Transaction Strategies	Select the Folder and Transaction Strategy Rule you want to be applied to the process. See Transaction Strategies to define the Transaction Strategy rules. **Figure 6-330 Transaction Strategies** 
Maturity Mix	Select the Folder and Maturity Mix Rule you want to be applied to the process. See Maturity Mix to define the Maturity Mix rules. **Figure 6-331 Maturity Mix** 
Autobalancing	Select Apply Autobalancing check-box to enable the Autobalancing. Use autobalancing to maintain a balanced balance sheet, and generate retained earnings. Product leaf members used during the autobalancing process must be defined within your Application Preferences, including: Assets Liabilities Retained . If you do not completely define the required autobalancing leaves in Application Preferences, an error message is generated during processing.

14. Click **Apply** to navigate to the **Output Preferences** section.

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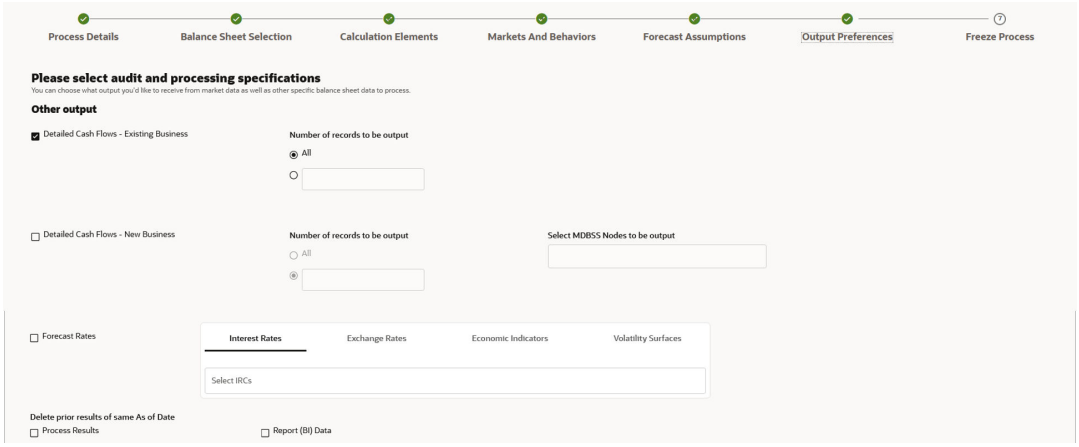
Figure 6-332 Output Preferences



.

15. Enter the **Output Preferences** details shown in the following table.

Table 6-100 List of Output Preferences details used for Creating Dynamic Deterministic Process

Parameter	Description
Detailed Cash Flow - Existing Business	Check the box to record the instrument detail cash flows occurring for the desired number of records processed. For each record, daily cashflow and market value results are written to the `FSI_ALM_CASHFLOW_OUTPUT_HIST` and `FSI_ALM_CASHFLOW_DYN_MV_OUTPUT_HIST` tables. Enter desired number of Records in the box or select all records to be output. **Note** The number of records output directly impact processing time. It is recommended to use this as an Audit function only, with few records chosen.

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Table 6-100 (Cont.) List of Output Preferences details used for Creating Dynamic Deterministic Process

Parameter	Description
Detailed Cash Flow - New Business	Check the box to record the instrument detail cash flows occurring for the desired number of records processed. For each record, daily cashflow and market value results are written to the `FSI_ALM_CASHFLOW_OUTPUT_HIST` and `FSI_ALM_CASHFLOW_DYN_MV_OUTPUT_HIST` tables. Enter the desired number of Records in the box or select all records to be output. **Note** The number of records output directly impact processing time. It is recommended to use this as an audit function only, with few records chosen. **Note** Youcan also select the specific MDBSS node to record the instrument detail cash flows occurring for the desired number of records processed from the **Select MDBSS Nodes to be output** list. The number of new business records created depends on new business definition and can range from few to many for a specific MDBSS node. For example, forecast balance method of Rollover with multiple Maturity Mix Terms, defined for many modeling time buckets, can createmany number of new business records, whereas for forecast balance method of New Add with single Maturity Mix Term, defined for few modeling time bucket, will create few business records.
Forecast Interest Rates	Select the Interest Rate Curves for which you want the engine to write forecasted interest rates in the database table.
Forecast Exchange Rate	Select the Exchange Rates for which you want the engine to write forecasted exchange rates in the database table.
Forecast Economic Indicators	Select the Economic Indicators for which you want the engine to write forecasted interest rates in the database table.
Volatility Surface	Select the Volatility Surfaces for which you want the engine to write forecasted Volatility Surface in the database table.

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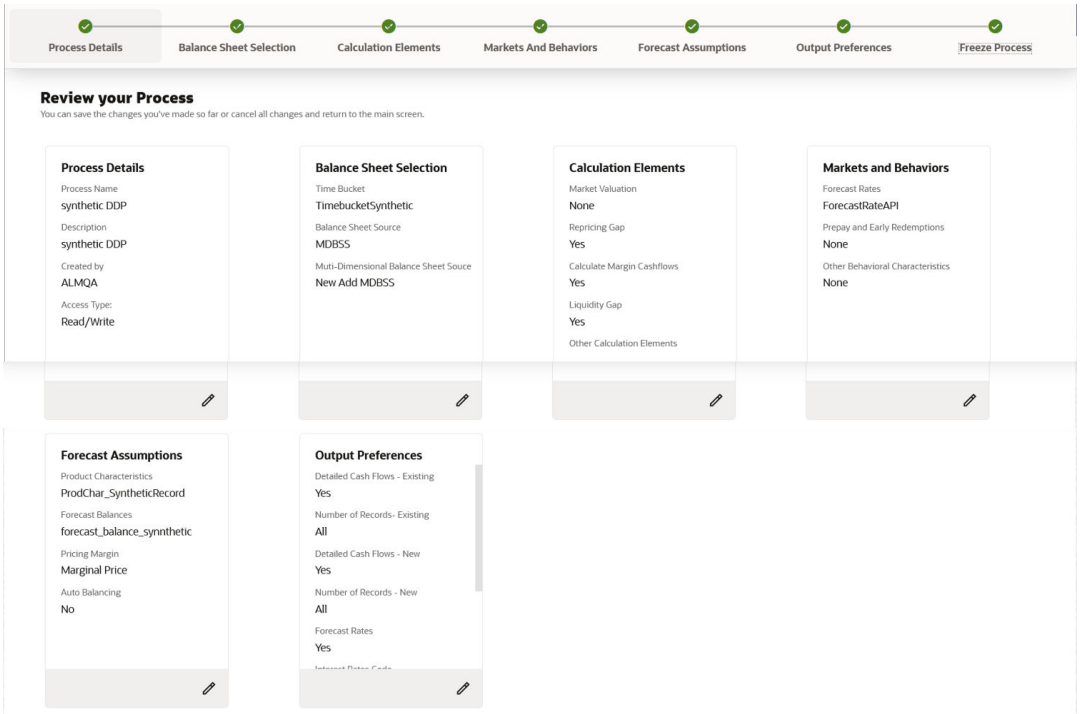
Table 6-100 (Cont.) List of Output Preferences details used for Creating Dynamic Deterministic Process

Parameter	Description
Delete prior results of same As of Date	• **Process Results:** If this check-box is selected, then engine removes the results of previous process execution ID and As of Date. Engine fetches all the details of the same Process ID and As Of Date from the tables. Process history tables keep track of execution id's whose data has been deleted. • **Report (BI) Data:** If this check-box is selected, then engine moves the results of previous process to BI report before removing the results of previous process execution ID and As of Date.

16. Click **Apply** to navigate to the **Freeze Process** section.

Figure 6-333 Freeze Process



17. Verify the changes and click **Save**.

6.3.6.2.2 Executing Dynamic Deterministic process

You can execute the Dynamic Deterministic Process using the following methods:

- Dynamic Deterministic Process AI
- Scheduler Service

6.3.6.2.2.1 Using Dynamic Deterministic Process UI

To execute the Dynamic Deterministic process, follow these steps:

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1. Navigate to the Dynamic Deterministic process Summary page.
2. Search for a Dynamic Deterministic Process.
3. Click on the **Action** icon against the Process Name and select **Run** to execute an existing Dynamic Deterministic process. The **Run Parameter Execution** window is displayed.
4. Select the **As of Date** (Execution Date) and **Legal Entity**, and then click **Ok**.

> **Note**
>
> You can select multiple Legal Entities in list view of hierarchy browser at a time for execution. In hierarchy mode you can select one Legal Entity at leaf or parent level. When parent Legal Entity is selected then data of selected entity along with its child and descendants are processed.

5. The Dynamic Deterministic Run Confirmation page is displayed. The status of the process is displayed in the **Status** column. After completion of the process, you can navigate to the **Execution Details** page by selecting the **Execution Details** option under the **Action** column.

6.3.6.2.2.2 Using Scheduler Service

To execute the Dynamic Deterministic process, follow these steps:

1. Navigate to **Operations and Processes** menu, and select **Scheduler**.
2. To define a new batch, navigate to **Define Batch**.
3. Enter the Batch Name and Description, and then save the batch.
4. To add a task, navigate to **Define Task**.
5. Select the Batch from Batch drop-down list on **Define Task** window.
6. Click the **Add** button.
7. Define the task with below details:
   - **Task Code:** This can be same as the Process ID of ALM Dynamic Deterministic process or something else.
   - **Task Name:** This can be same as name of the ALM Dynamic Deterministic process or something else.
   - **Task Description:** This can be same a name of the ALM Dynamic Deterministic process or something else.
   - **Task Type:** REST
   - **Component:** ALM Dynamic Deterministic process
   - **Process Name:** Select one value from the list.
   - **Legal Entity Hierarchy:** Select one value from the list.
   - **Legal Entity:** Select one value from the list.
8. Save and Execute the batch with Batch ID and MIS Date.

For more information, see the Scheduler Service.

6.3.6.2.3 View Dynamic Deterministic process Log

To view the execution details of the Dynamic Deterministic process, follow these steps:

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1. Navigate to the Dynamic Deterministic process Summary page.
2. Search for a Dynamic Deterministic process.
3. Click on the Action icon against the Process Name and select Execution Details. The **Execution Details** window is displayed.
4. Click any **Execution ID** to view the log details. The **Log Viewer** window shows the complete details of process along with Batch Run ID information.

6.4 Modelling

This section explains about the Modelling specific modules. This section covers the following topics:

1. Non Maturity Products Model Analysis: Non-Maturity Products Modeling helps you to understand the relation between market and bank rate, how much is core out of total available balance for the portfolio, and how long core will remain with the bank based on Decay Rate Profile.
2. Non-Maturity Products Data Creation Process: Non-Maturity Modeling is comprised of three type of models: Core/Volatile Balance segregation, Decay Rate and corresponding weighted average life Calculation, and Beta Factor or Pass-through Rate Calculations

6.4.1 Prepayment

This section covers the following topics:

1. Prepayment Data Creation Process: This module discusses on defining the product for which prepayments behavior need to be learn.
2. Prepayment Model Analysis: This module allows you to develop a model for prepayment rate calculations as per the chosen risk factors.

6.4.1.1 Prepayment Data Creation Process

The Prepayment Rate Calculation Process helps you to create data for the subsequent step prepayment modelling by performing following tasks:

Define the product for which prepayments behavior need to be learnt (Product Selection block).

Specify the parameters to calculate various risk factors which can influence prepayments. E.g. as of dates reference term, threshold prepaid amount, Market rate calculation parameters.

Execute or run the Prepayment Rate Calculation process and generate results through Prepayment Rate Calculation Process Summary Page.

Prepayment Model Data Creation Process Summary

This page is the gateway to all Data Creation processes and related functionality. You can navigate to other pages relating to Data Creation processes from this point.

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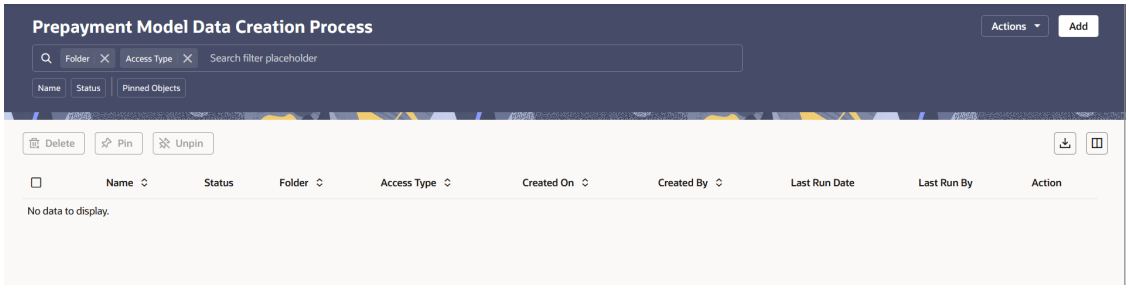
Figure 6-334 Prepayment Model Data Creation Process Summary



Search Data Creation Process

Prerequisites: Predefined Prepayment Model Data Creation Process

To search for a Prepayment Model Data Creation Process, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Prepayment Model Data Creation Processes that meet the search criteria.

Or

The other method to search a Prepayment Model Data Creation Process is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Name, Status, Folder,** or **Access Type** status of the Prepayment Model Data Creation Process and click **Search**.

The Prepayment Model Data Creation Process summary page has following information:

Add: Click the **Add** icon on the page header to build a new Prepayment Model Data Creation process.

Actions: Enables you to perform following tasks.

- **Refresh:** Retains the selected filters and refreshes the summary page with latest status.
- **Reset:**Clears the selected filters and refreshes the summary page.
- **Help:**Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected rule.

Export: Enables you to download the summary page details in .CSV format.

Columns: Allows you to view the summary page data using a customized list of columns.

The Prepayment Model Data Creation Process summary table displays the following columns:

- **Prepayment Model Data Creation Process Name:** Name of the Prepayment Model Data Creation Process's short name.
- **Status:** Status of the Prepayment Model Data Creation Process.
- **Folder:** The folder where the Prepayment Model Data Creation process is saved.
- **Access Type:** The access type of the process. It can be Read-Only or Read/Write.
- **Created On:** The Date and Time when the Prepayment Model Data Creation process was created.

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- **Created By:** The user who created the Prepayment Model Data Creation process.
- **Last Run By:** The user who last run the Prepayment Model Data Creation process.
- **Last Run Date:** The Date and Time when the Prepayment Model Data Creation process was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Prepayment Model Data Creation process.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Prepayment Model Data Creation processes. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Prepayment Model Data Creation process by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Prepayment Model Data Creation processes that you no longer require. Note that only Prepayment Model Data Creation process owners and those with Read/Write privileges can delete Data Creation processes. A Prepayment Model Data Creation process that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Execute:** Select Execute to execute an existing Prepayment Model Data Creation process. After clicking Execute, the **Execute window** is displayed. Select **As of Date (Execution Date)**, and then click **Submit**.
  - **View Execute Details:** Select Execute Details to view execution details of the Prepayment Model Data Creation process. Click **Execution ID** link to view detailed information of process execution.

Also See:

- Creating Prepayment Model Data Creation process
- Executing Prepayment Model Data Creation process

6.4.1.1.1 Creating a Prepayment Data Creation Process

To create a new Prepayment Model Data Creation Process, perform the following steps:

1. Navigate to the Prepayment Model Data Creation Process Summary page.
2. Click **Add**. The **Create Data Creation Process** page is displayed.
3. Follow the steps mentioned in below sections:
   a. Process Details
   b. Portfolio Selection
   c. Market Rate and Process Parameter Definition
   d. Review and Submit
4. Click **Submit/Save** after entering all details in above sections.

Step 1: Process Details

1. From **Prepayment Model Data Creation Process** tab, click **Start**. The **Process Details** page is displayed.

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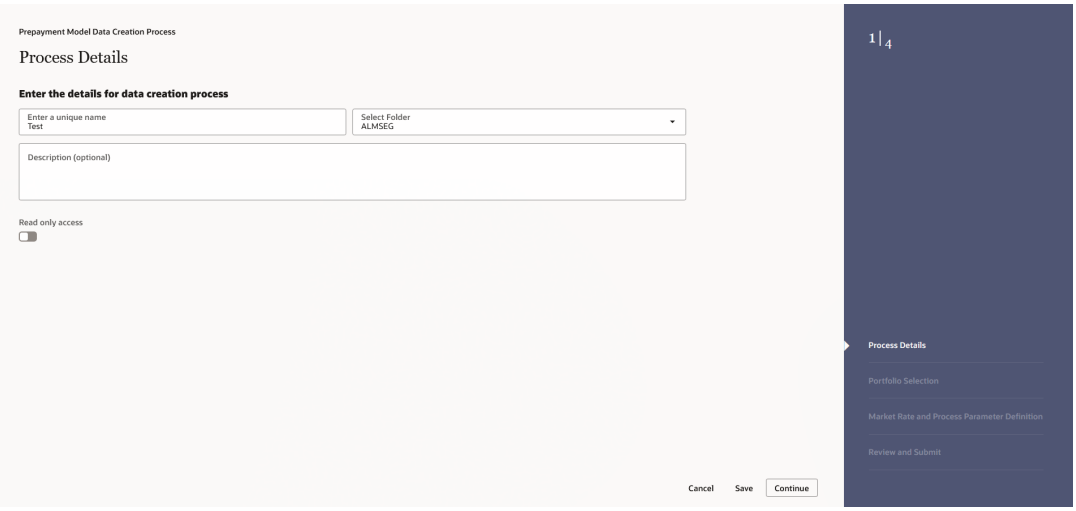
Figure 6-335 Process Details

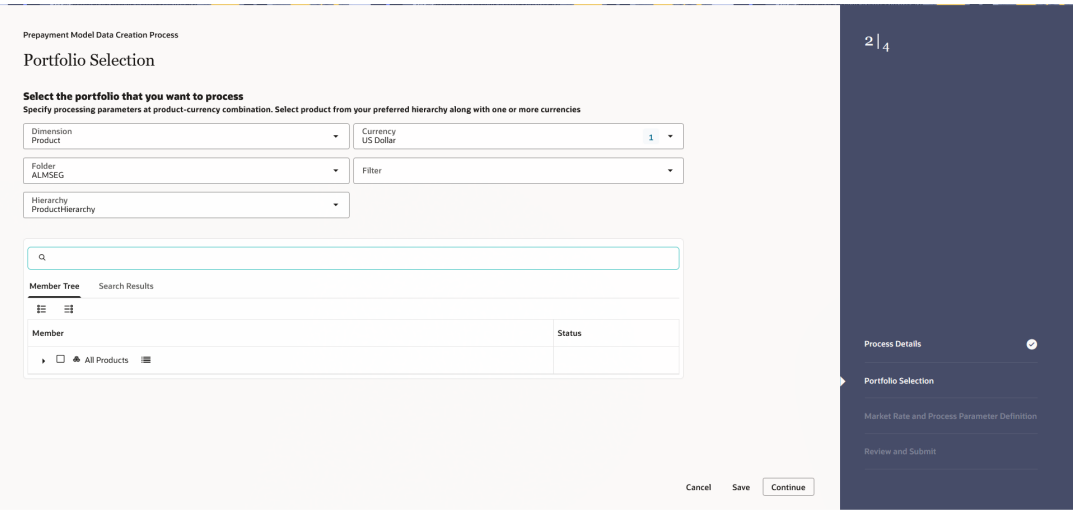


2. Enter the following details:
   - **Process Name:** Name of Process. The Data Creation Process Name should be unique. Any special characters are not applicable.
   - **Folder:** Folder Name where you want to save the process.
   - **Description:** Description of Process. The maximum limit of this field is 300 characters. You can enter special characters in this field.
   - **Read only Access:** Select this option, if you want to make the process Readonly.
3. Click **Continue**.

Step 2: Portfolio Selection

1. Navigate to the **Portfolio Selection** section. The **Portfolio Selection** window is displayed to set Portfolio.

Figure 6-336 Portfolio Selection



2. Enter the following details:

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- **Dimension:**Select the Dimension.
- **Currency:** Select the Currency. The Currency drop-down displays the list of active currencies.
- **Folder:** Select the Folder from which you want to pick the Hierarchy.
- **Filter:** Select the Filter.
- **Hierarchy:** You can specify some processing parameters at product-currency combination. Hierarchies in selected Folder will be listed and you can select one from the available list of hierarchies.
- Select **Product(s)** from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results
  - **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.
    Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:
    * **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
    * **Expand selected member/branch:** Allows to expand the selected node
    * **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
    * **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
    * **Select Defined self, child:** Allows to select the selected node itself along with its child.
    * **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
    * **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

    Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

    Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

    Here, you can perform the following tasks on the selected node(s):
    * Add
    * Edit
    * View
    * Delete
    * Copy
  - **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:
    a. Navigate to **Assumption Browser** section of the Rule Definition page.
    b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.
    c. Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser** .

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Here, you can perform the following tasks on the searched node(s):

* Add
* Edit
* View
* Delete
* Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

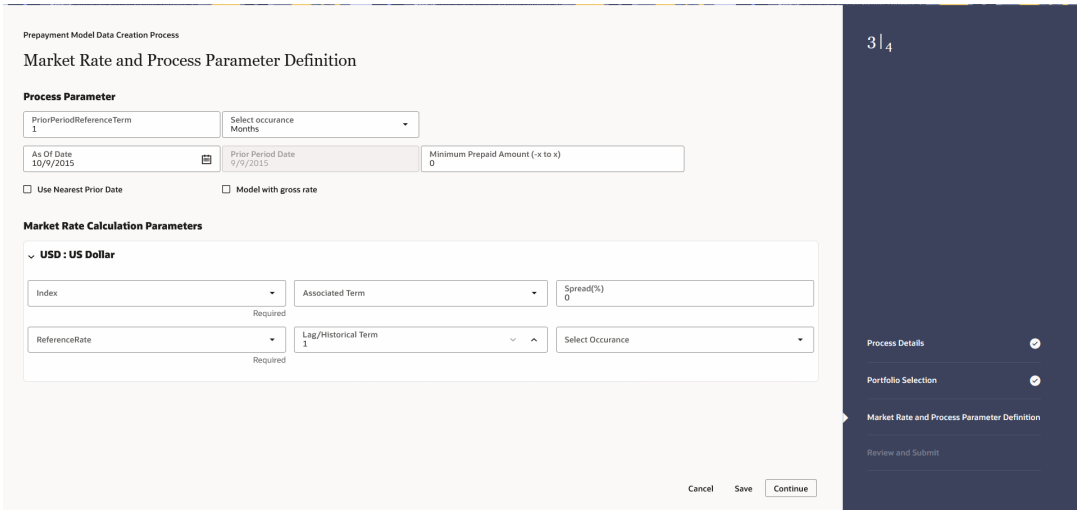
Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Step 3: Market Rate and Process Parameter Definition

1. Navigate to the **Market Rate and Process Parameter Definition** section. The **Market Rate and Process Parameter Definition** window is displayed to define Market Rates and Process Parameter.

Figure 6-337 Market Rate and Process Parameter Definition



2. Enter the following details:
   - **Prior Period Reference Term:**Enter Prior Period Reference Term and based on the current As-of-Date set in application preferences, the Prior Period Date will be calculated,
   - **Select Occurrance:**Select the occurrence of Prior Period Reference Terms day, month, or year.
   - **As of Date:** Enter the As of Date
   - **Prior Period Date:** The value of this field is calculated based on Prior Period Reference Term and As of Date. This field is not editable.
   - **Minimum Prepaid Amount (-x to x):**Enter the Minimum Prepaid Amount as a positive value. The engine applies the absolute value of the amount input ranging from - input amount to + input amount. For example, if the input is 100, then prepaid amounts

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between -100 and +100 is excluded. This input allows you to filter very small / insignificant prepaid amounts, reducing the amount of data copied into risk factor table for further modelling process.

- **Use Nearest Prior Date**: If you select the **Use Nearest Prior Date** option, then the engine looks back at the historical data to determine the nearest prior As-of-Date and uses this as Prior Period Date.
- **Model with gross rate:** If **Model with Gross Rate** check-box is selected, then CUR_GROSS_RATE is picked from the instrument record.
- **Index:**Select the per-defined IRC. The selected IRC (Index in Parameter screen) provides the base value for the market rate.
- **Associated Term:**Specify the associated term you want to use for IRCs that are yield curves.
  - **Original Term:** The calculation retrieves the interest rate from the term point equaling the original term on the instrument.
  - **Reprice Frequency:** The calculation retrieves the interest rate from the term point equaling the reprice frequency of the instrument. If the instrument is fixed rate and, therefore, does not have a reprice frequency, the calculation retrieves the interest rate associated with the term point equaling the original term on the instrument.
  - **Remaining Term:** The calculation retrieves the interest rate from the term point equaling the remaining term of the instrument.
- **Spread%:** Spread can be positive as well as negative values and both are to be added to base market rate. Therefore, if the base market rate is 5 and spread given is 1.2, the final rate is be 5+(1.2) = 6.2. Similarly, if spread is -1.2, then final market rate is 5+(-1.2) = 3.8
- **Reference Rate:** Select the Reference Date. Following options are available:
  - **Rate on Prior As of Date:** Select the reference rate as per the given curve for prior As-of-Date
  - **Rate on Prior As of Date-Lag Term:** Select the market rate with some lag say 15 days, 30 days. Lag Term can be defined with a drop-down containing days, months and years.
  - **Rate on Prior As of Date-Historical Term:** The market rate can be defined as arithmetic average over historical range of 1 month, 6 months starting prior As-of-Date. Historical term is also given with a drop-down containing days, months and years.
- **Lag/Historical Term:**This option is available if the Reference Rate is selected as **Rate on Prior As of Date-Lag Term** or **Rate on Prior As of Date-Historical Term** .
- **Select Occurrence:** Select the occurrence of Lag or Historical Term.

Step 4: Review and Submit

1. Navigate to **Preview and Submit** section. Review the process details.
2. Click **Submit** to create the Data Creation process. The created process will be displayed on **Prepayment Model Data Creation Process Summary** page.

6.4.1.1.2 Executing Prepayment Data Creation Process

You can execute the Prepayment Data Creation Process using the following methods:

- Prepayment Data Creation Process UI

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- Scheduler Service

6.4.1.1.2.1 Using Scheduler Service

To execute the Prepayment Data Creation Process, follow these steps:

1. Navigate to **Operations and Processes** menu, and select **Scheduler**.
2. To define a new batch, navigate to **Define Batch**.
3. Enter the Batch Name and Description, and then save the batch.
4. To add a task, navigate to **Define Task**.
5. Select the Batch from Batch drop-down list on **Define Task** window.
6. Click the **Add** button.
7. Define the task with below details:
   - **Task Code:** This can be same as the Process ID of Prepayment Data Creation Process or something else.
   - **Task Name:** This can be same as name of the Prepayment Data Creation Process or something else.
   - **Task Description:** This can be same a name of the Prepayment Data Creation Process or something else.
   - **Task Type:** REST
   - **Component:** Prepayment Data Creation Process
   - **Process Name:** Select one value from the list.
   - **Legal Entity Hierarchy:** Select one value from the list.
   - **Legal Entity:** Select one value from the list.
8. Save and Execute the batch with Batch ID and MIS Date.

For more information, see the Scheduler Service.

6.4.1.1.2.2 Using Prepayment Data Creation Process UI

To execute the Prepayment Data Creation Process, follow these steps:

1. Navigate to the Prepayment Data Creation Process Summary page.
2. Search for a Prepayment Data Creation Process.
3. Click on the **Action** icon against the Process Name and select **Run** to execute an existing Prepayment Data Creation process. The **Run Parameter Execution** window is displayed.
4. Select the **As of Date** (Execution Date) and **Legal Entity**, and then click **Ok**.

> **Note**
>
> You can select multiple Legal Entities in list view of hierarchy browser at a time for execution. In hierarchy mode you can select one Legal Entity at leaf or parent level. When parent Legal Entity is selected then data of selected entity along with its child and descendants are processed.

5. The Prepayment Data Creation Run Confirmation page is displayed. The status of the process is displayed in the **Status** column. After completion of the process, you can

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navigate to the **Execution Details** page by selecting the **Execution Details** option under the **Action** column.

6.4.1.2 Prepayment Model Analysis

The Prepayment Model Analysis module allows you to develop a model for prepayment rate calculations as per the chosen risk factors. Model building could be a time consuming process given huge data sets and limited IT infrastructure.

User Roles and Privileges

Purpose	Role Code	Role Name	Function Code	Function Name
Prepayment Data Generation	RLPPMTADMIN	Prepayment Model Data Generation Admin Role	PPMTDATAADD	Add Prepayment Model Data Creation Process
			PPMTDATARUN	Run Prepayment Model Data Creation Process
			PPMTDATADEL	Delete Prepayment Model Data Creation Process
			PPMTDATAEDIT	Edit Prepayment Model Data Creation Process
			PPMTDATACOPY	Copy Prepayment Model Data Creation Process
			PPMTDATAVIEW	View Prepayment Model Data Creation Process
	RLPPMTANALYST	Prepayment Model Data Generation Analyst Role	PPMTDATAADD	Add Prepayment Model Data Creation Process
			PPMTDATARUN	Run Prepayment Model Data Creation Process

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Purpose	Role Code	Role Name	Function Code	Function Name
			PPMTDATADEL	Delete Prepayment Model Data Creation Process
			PPMTDATAEDIT	Edit Prepayment Model Data Creation Process
			PPMTDATACOPY	Copy Prepayment Model Data Creation Process
			PPMTDATAVIEW	View Prepayment Model Data Creation Process
	RLPPMTAUDIT	Prepayment Model Data Generation Auditor Role	PPMTDATAVIEW	View Prepayment Model Data Creation Process
Prepayment Model Analysis	RL_PPMT_ANALYSIS_ADMIN	Prepayment Model Analysis Admin Role	PPMT_ANALYSIS_ADD	Add Prepayment Model Analysis
			PPMT_ANALYSIS_DEL	Delete Prepayment Model Analysis
			PPMT_ANALYSIS_EDIT	Edit Prepayment Model Analysis
			PPMT_ANALYSIS_COPY	Copy Prepayment Model Analysis
			PPMT_ANALYSIS_VIEW	View Prepayment Model Analysis
	RL_PPMT_ANALYSIS_ANALYST	Prepayment Model Analysis Analyst Role	PPMT_ANALYSIS_ADD	Add Prepayment Model Analysis
			PPMT_ANALYSIS_DEL	Delete Prepayment Model Analysis

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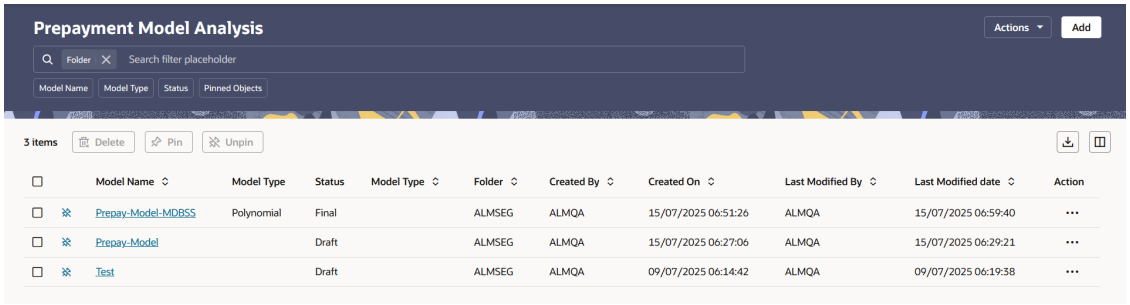
Purpose	Role Code	Role Name	Function Code	Function Name
			PPMT_ANALYSIS_EDIT	Edit Prepayment Model Analysis
			PPMT_ANALYSIS_COPY	Copy Prepayment Model Analysis
			PPMT_ANALYSIS_VIEW	View Prepayment Model Analysis
	RL_PPMT_ANALYSIS_AUDIT	Prepayment Model Analysis Auditor Role	PPMT_ANALYSIS_VIEW	View Prepayment Model Analysis

Prepayment Model Analysis Rule Summary

This page is the gateway to all Prepayment Model Analysis Rules and related functionality. You can navigate to other pages relating to Prepayment Model Analysis Rules from this point.

Figure 6-338 Prepayment Model Analysis Rule Summary



Search Prepayment Model Analysis Rule

Prerequisites: Predefined Prepayment Model Analysis Rule

To search for a Prepayment Model Analysis Rule:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Prepayment Model Analysis Rules that meet the search criteria.

Or

An alternative method to search a Prepayment Model Analysis rule is through the **Field Search** option. This is an inline wildcard UI search that allows you to enter a search value (such as code, name, etc.) partially or fully. Rows that contain the string you are searching for are fetched and displayed in the Prepayment Model Analysis Summary. You can enter the **Code, Name, Description, Dimension, Hierarchy**, and **Folder** of the Prepayment Model Analysis Rule and click **Search** .

The Prepayment Model Analysis rule Summary displays the following information:

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Add: Click the Add icon on the page header to build a new Prepayment Model Analysis rule.

Actions: Enables you to perform following tasks.

- **Refresh:** Refreshes the summary page with latest model status.
- **Reset:**Clears all fields back to default.
- **Help:**Redirects you to latest documentation.

Delete: Enables you to select and delete one or multiple rules in the table simultaneously.

Pin/Unpin: Enables you to pin/unpin the selected rule.

Export: Enables you to download the summary page details in .CSV format.

Columns: Allows you to view the summary page data using a customized list of columns.

The Prepayment Model Analysis summary table displays the following columns:

- **Model Name:** The Prepayment Model Analysis Rule's short name.
- **Model Type:** Shows the type of Prepayment Model Analysis rule as Linear or Polynomial
- **Status:** Displays the status as Draft or Completed.
- **Folder:** The Folder where the Prepayment Model Analysis Rule is saved.
- **Created By:** The user who created the Prepayment Model Analysis Rule.
- **Created On:** The Date and Time when the Prepayment Model Analysis Rule was created first.
- **Last Modified By:** The user who last modified the Prepayment Model Analysis Rule.
- **Last Modified Date:** The Date and Time when the Prepayment Model Analysis Rule was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Prepayment Model Analysis rule.
  - View/Edit: Based on the user privilege assigned, you can either only view or edit existing Prepayment Model Analysis rules. To edit a rule, you must have Read/Write privilege.
  - Save As: You can reuse a Prepayment Model Analysis rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - Delete: You can delete Prepayment Model Analysis rules that you no longer require. Note that only Prepayment Model Analysis rule owners and those with Read/Write privileges can delete Prepayment Model Analysis rules. A Prepayment Model Analysis rule that has a dependency cannot be deleted.
  - Dependency Check: You can perform a dependency check to know where a particular Prepayment Model Analysis rule has been used. Before deleting a rule, it is always a good practice to do a dependency check to ensure you are not deleting Prepayment Model Analysis rules that have dependencies. . A report of all rules that utilize the selected Prepayment Model Analysis rule is generated.

Also See:

- Creating a Model

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6.4.1.2.1 Creating a Model

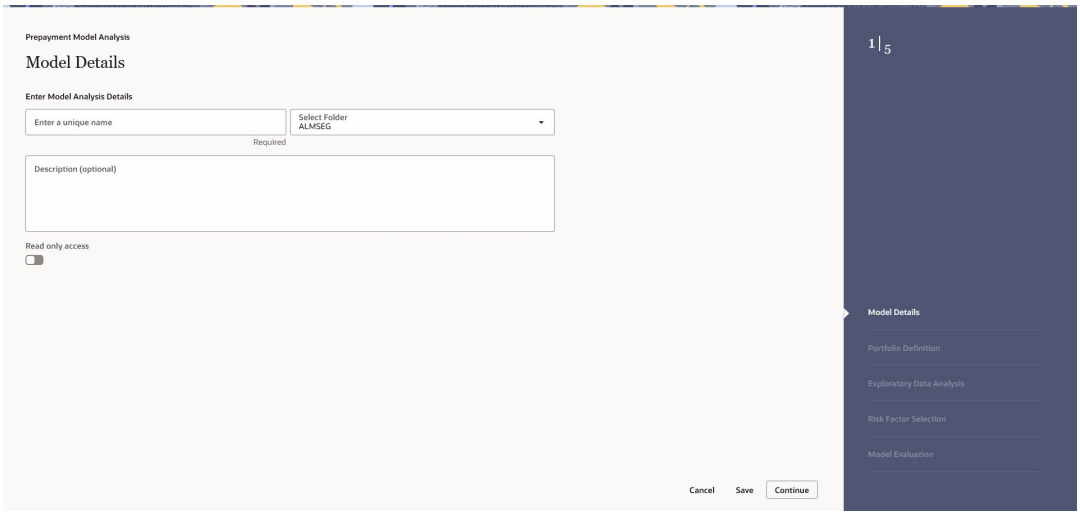
To create a model, follow these steps:

1. Navigate to the Prepayment Model Data Analysis Summary page.
2. Click **Add**. The **Create Prepayment Model Analysis** page is displayed.
3. Follow the steps mentioned in below sections:
   a. Model Details
   b. Portfolio Definition
   c. Exploratory Data Analysis
   d. Risk Factor Selection
   e. Model Evaluation
4. Click **Submit/Save** after entering all details in above sections.

Step 1: Model Details

1. From **Prepayment Model Analysis** tab, click **Start**. The **Model Details** page is displayed.

Figure 6-339 Model Details



2. Enter the following details:
   - **Model Name:** Name of Process. The Data Creation Process Name should be unique. Any special characters are not applicable.
   - **Folder:** Folder Name where you want to save the process.
   - **Description:** Description of Process. The maximum limit of this field is 300 characters. You can enter special characters in this field.
   - **Read only Access:** Select this option, if you want to make the process Readonly.
3. Click **Continue**.

Step 2: Portfolio Definition

1. Navigate to the **Portfolio Definition** section. The **Portfolio Definition** window is displayed to set Portfolio.

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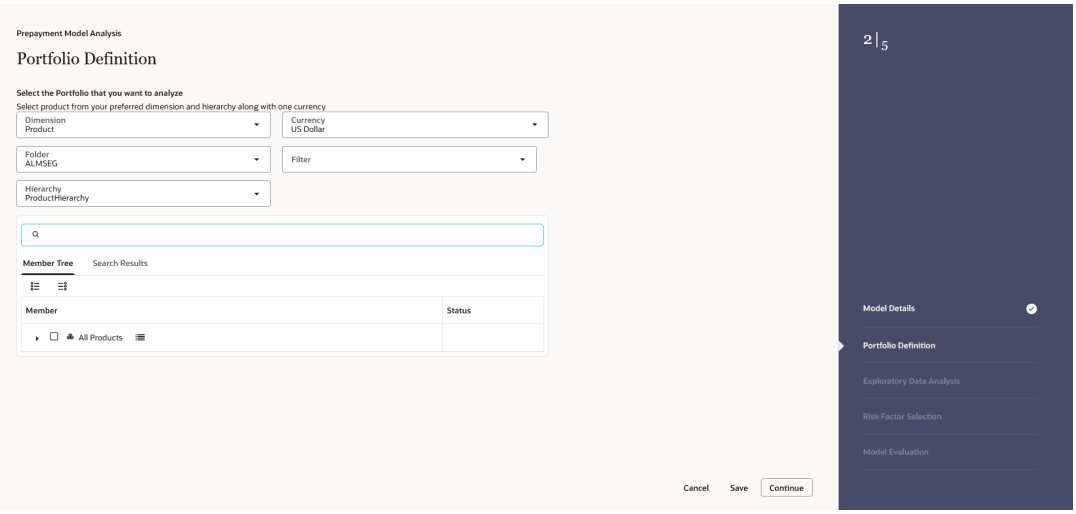
Figure 6-340 Portfolio Definition



2. Enter the following details:
   - **Dimension:**Select the Dimension.
   - **Currency:** Select the Currency. The Currency drop-down displays the list of active currencies.
   - **Folder:** Select the Folder from which you want to pick the Hierarchy.
   - **Filter:** Select the Filter.
   - **Hierarchy:** You can specify some processing parameters at product-currency combination. Hierarchies in selected Folder will be listed and you can select one from the available list of hierarchies.
   - Select **Product(s)** from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results
     - **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.
       Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:
       * **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
       * **Expand selected member/branch:** Allows to expand the selected node
       * **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
       * **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
       * **Select Defined self, child:** Allows to select the selected node itself along with its child.
       * **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
       * **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

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Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

* Add
* Edit
* View
* Delete
* Copy

– **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

a. Navigate to **Assumption Browser** section of the Rule Definition page.

b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

c. Click **Search**. The searched member(s) will be displayed in **Search Results** section of **Assumption Browser** .
Here, you can perform the following tasks on the searched node(s):

* Add
* Edit
* View
* Delete
* Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Step 3: Exploratory Data Analysis

1. Navigate to the **Exploratory Data Analysis** section. The **Exploratory Data Analysis** window is displayed to define Exploratory Data Analysis Parameter. This window is used to perform EDA calculations.

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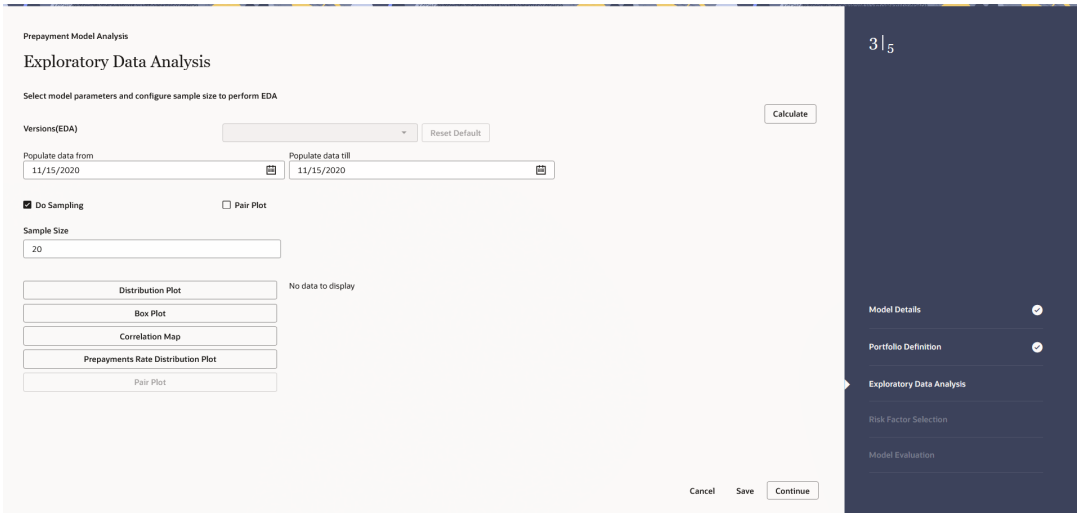
Figure 6-341 Exploratory Data Analysis



2. Enter the following details:

   - **Sample Size Model Population (As of Date Range):**Sample size of dataset for EDA You can define a date range within which one wants to use data for model creation as model population. By Default, Date range would be populated as below: End Date: Max (As of Date) available in Model input Table Start Date: Max [min (As of Date), End Date – 10 Years]
   - **Do Sampling Sample Size (Multiplier) :**Select this option to create model based on a data Sample rather than the whole population. By default, Do Sampling is enabled. This would enhance performance due to lesser number of records considered for modelling, without degrading model quality. After selecting sample size for EDA, you can select multiplier value. This indicates sample size required for model creation. For example, if 1000, records are selected as sample size for EDA, and multiplier is 6, then a minimum of 1000*6 = 6000 records would be required for model creation. Note: This checkbox is enabled only if Do Sampling checkbox is selected.
     This window gives complete information about all the risk factors along with prepayment rates. It helps you do decide what all factors could influence the customer's prepayment behavior and would be best for model building. You can hover over any graph and zoom in to enhance the visibility of the graph. OFS ALM User Guide | 345 Click Model Summary to navigate back to the Model Summary window after saving all inputs/EDA graphs defined/generated till this point. Click Re-Calculate if you want to change the sample size and redo the EDA again. change the sample size and click Re-Calculate. If you have performed EDA multiple times (for example, three versions V1, V2, V3.), then use Versions (EDA) to view them. For example, when you are on the EDA screen and performing the EDA 3rd time, but still want to go with the 2nd EDA version, then select that version and subsequent processing would be based on V2. If you have run the EDA only once, then this drop-down will not be available. When you hover over Sample size for EDA, it displays Default value (callout) as Default Value is 5000.

     Click Pair Plot to generate Pair Plot/Grid along with other EDA graphs. Pair Plot/Grid is a detailed graph, that can further slow down the processing. So you can explicitly select the pair plot checkbox and click on calculate to perform the EDA.

3. Click **Continue**.

Step 4: Risk Factor Selection

1. Navigate to **Risk Factor Selection** section. By default, all the risk factors will be disabled.

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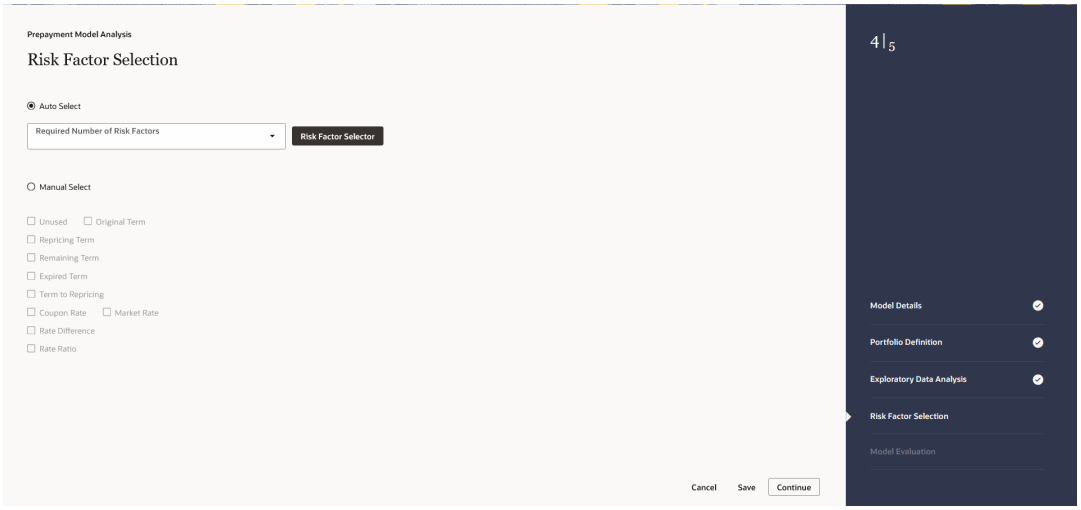
Figure 6-342 Risk Factor Selection

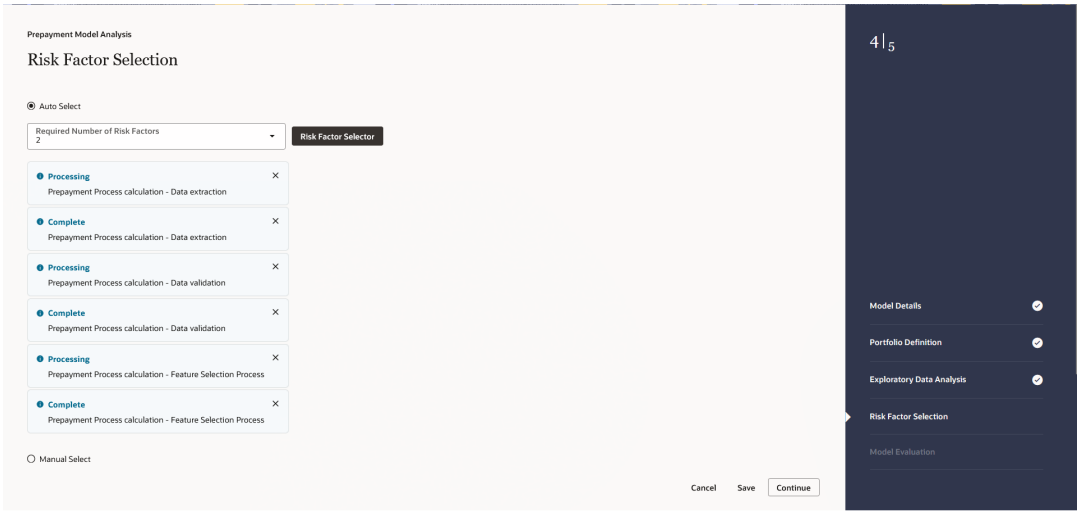


2. Select the Risk Factor as **Manual** or **Auto**.
Manual Select: When you change the risk factor selection mode to ‘Manual Select’, then all the risk factors would be available for selection; maximum 3 factors can be selected after that all the risk factors would be disabled again.

Auto Select: When you are in 'Auto Select' mode, System would perform required calculations, corelation/collinearity analysis in the backend based on the required number of risk factors (Maximum 3), System would auto-select the best representative set of risk factors as per the input data.

Click **Risk Factor Selector** button.

Figure 6-343 Risk Factor Selector



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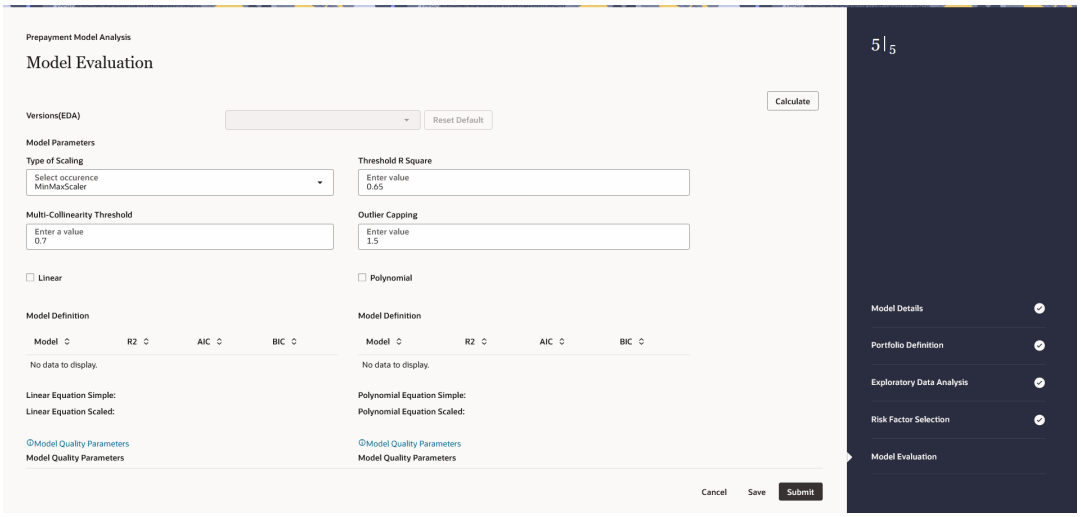
> **Note**
>
> If you want to change sample size and re-calculate EDA again, click **Exploratory Data Analysis** step and perform EDA with updated sample size. Again, the process starts from that step onwards, and updated EDA plots/graphs would be saved for the model.

3. Click **Continue**.

Step 5: Model Evaluation Section

1. Navigate to **Model Evaluation** section.

Figure 6-344 Model Evaluation Section



Click **Calculate** to view all the evaluation parameters and quality plots.

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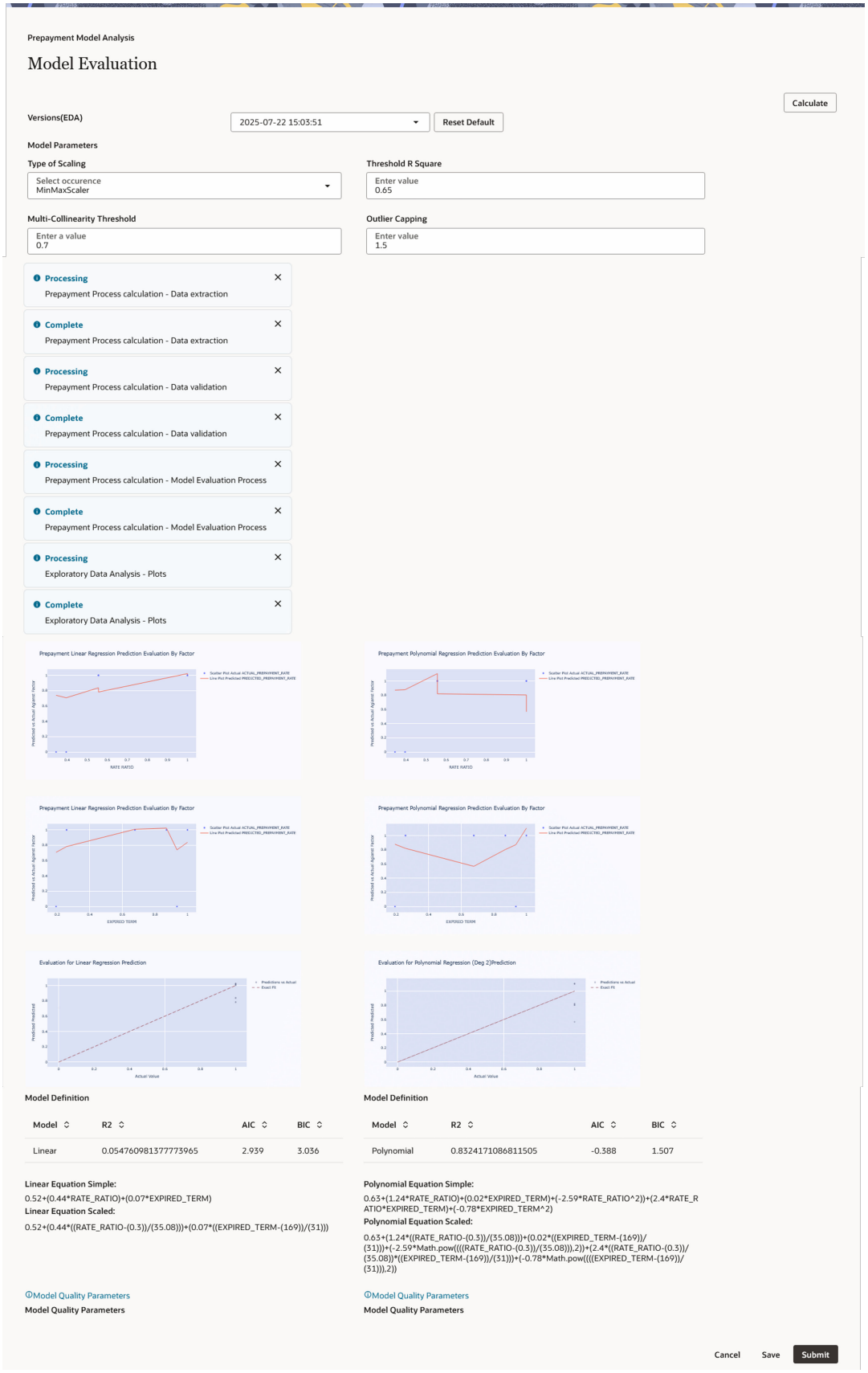
Figure 6-345 Calculating Model Evaluation



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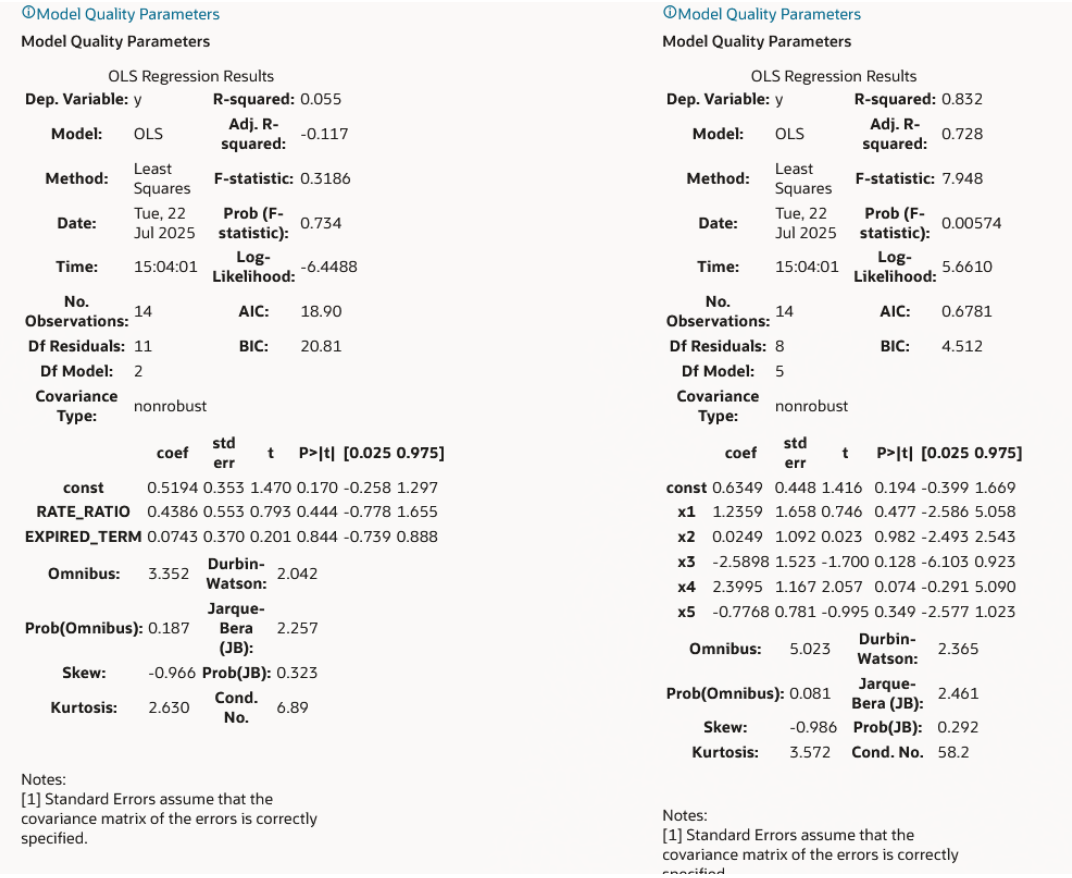
Click **Calculate** again if you are not satisfied with the model quality to change the model parameters and revise the model definition. You can zoom the graph to enhance visibility. If you are changing parameters and generating different versions of the model, then you can see all the versions, generated with different set of model parameters in the **Versions (EDA)** drop-down. If you have run “model evaluation’ only once, then this drop-down would not be available. As per the selected version, the model details window is also updated. The Model Details window helps you to evaluate the model fit. It has the following comparisons: Predicted Values Vs Risk Factor 1,2,3, as per the number of risk factors considered for model building. This will dynamically adjust as per the number of risk factors selected. Predicted Values Vs Test Sample. Sample prepayment matrix as per both the models (Linear and Polynomial).

Click **Model Quality Parameter** link to view Model Summary window, after saving all details. To verify the model quality, all the model statistics are given on a different screen, which would be available with **Model Quality Parameter** link like R2, F value, P – Value, and so on.

Figure 6-346 Model Quality Parameter



Add row using Add +. You can add multiple rows or delete multiple rows using buttons in panel 1. Default sample matrix is10*10, but once you re-define sample, matrix can be truncated to any dimensions. The redefined matrix will be saved along with model. Model summary parameters like R2 , AIC and BIC. Both (Linear/Polynomial) models are produced when the system compares model generated R2 against the R2 threshold defined by the user. The final option is given to you to choose any one of these models. Based on infrastructure availability and model complexity, you can choose any one of linear/polynomial model.

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Click Save Model to save the model. Same model could be referred to populate prepayment rate matrix. Click **Calculate** again to re-evaluate model based on changed model parameters.

> **Note**
>
> If you want to change sample size and re-calculate EDA again, click **Exploratory Data Analysis** step and perform EDA with updated sample size. Again, process would start from that step onwards and updated EDA plots/graphs would be saved for the model. If you want to update selected risk factors, click **Risk Factor Selection** step and change risk factors. Again, process would start from that step onwards and updated risk factors would be saved for the model.

The **Reset Default** button on every step would help to delete all the calculations done in subsequent steps. That is, if you have done EDA and selected particular EDA version to do further calculations like 'Risk factor Selection' or 'Model Evaluation'. In case you are not satisfied with model, you can go back to EDA, click **Reset Default** to clear out the details/ calculations performed in subsequent stages and do recalculate with a different set of parameters. Following are the default values/usage of Parameters:

Table 6-101 Parameter Details

Parameter Details	Default Value
EDA Sample Size	This would allow you to define a sample size for exploratory data analysis. A bigger sample would increase CPU and memory usage, but it would better represent the model population. You have the option not to use sampling by setting Do_Sampling parameter to false. Procedure for the same is given in next section.
Type of scaling	Many a times, risk factors are not in consistent range, e.g. one of the risk factor's values could be in 1-500 range but another risk factor could be just in 2-3 range. So, risk factor 1 would influence the model more and you would get a biased model. So, to make all the risk factors consistent, scaling is used. There are two types of scaling: Min-Max Scaling = (X – min)/(max – min) Standard = (X – Mean)/Std. Deviations
Threshold R2	R-squared values range from 0 to 1 and are commonly stated as percentages from 0% to 100%. An Rsquared of 100% means that all movements of prepayment rate (dependent variable) are completely explained by movements in the chosen risk factors (independent variable(s).
Multi collinearity Threshold	For model creation if two risk factors/variables are highly correlated or correlation > 0.7, they would make model unstable. So based on this value, if variables are highly correlated or above defined threshold, one of them would be dropped while model creation.

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Table 6-101 (Cont.) Parameter Details

Parameter Details	Default Value
Outlier Capping	This would allow user to reject values beyond certain percentile. Sometimes, input data has few extreme values which could distort the model. So you could reject those values and get a stable model.

Exploratory Data Analysis:

Sample Size (EDA) - 5000

Model Population Range - It would be auto-populated based on the data in risk factor table. Maximum would be 10 years older from latest available date. In case you think, older data is not relevant, as of date range can be updated.

Model Evaluation:

Type of scaling – min Max Scaler Threshold R2 – 0.65 Outlier capping – 1.5 Percentile Multi-collinearity Threshold – 0.7

2. Click **Submit** to create the Data Creation process. The created process will be displayed on **Prepayment Model Data Creation Process Summary** page.

6.4.2 Non Maturity

This section covers the following topics:

1. Non Maturity Data Creation Process: Non-Maturity Modeling is comprised of three type of models.
2. Non Maturity Model Analysis: Non-Maturity Products Modeling helps you to understand the relation between market and bank rate, how much is core out of total available balance for the portfolio, and how long core will remain with the bank based on Decay Rate Profile.

6.4.2.1 Non-Maturity Products Data Creation Process

Non-Maturity Modeling is comprised of three type of models:

- Core/Volatile Balance segregation
- Decay Rate and corresponding weighted average life Calculation
- Beta Factor or Pass-through Rate Calculations

For these calculations, the following portfolio Level Attributes are required:

- Instruments in Scope are: CASA, Credit Cards, or any other product for which contractual Maturity is not defined.
- Account Origination Date (To Calculate Vintage/account age)
- Deposit Rate or Bank Rate – CUR_NET_RATE
- Underlying Index (Market Rate) or Reference Rate
- Number of Accounts per Origination Date Bucket
- Portfolio Balance snapped at regular intervals for a given historical period. (CUR_PAR_BAL from each account)

The Data Creation Process allows you to perform the following tasks:

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- Defining the portfolio and corresponding historical period over which data needs to be generated. Select any number of products from the selected hierarchy and one or multiple currencies to define a portfolio.
- Hierarchy can be defined on any of the product dimensions like Chart of Account, General Ledger accounts or Product IDs. System is built in such a way that it can display hierarchies based on selected product dimension in Application Preferences
- Process Train is given at each page, so you can keep track of how many stages are defined and how many are yet to be defined.
- Specify the Market Rate Definition and other Process Parameters Like yield curve term and interest rate curve effective date
- Review the entered details and all the process parameters.
- Execute the Data Creation process and generate results.
  - Data Generated by Batch UI using following tables:
    `FSI_AUDIT_NM_LOAD_BATCH`

    `FSI_O_HIST_NM_MODEL_DETAILS`

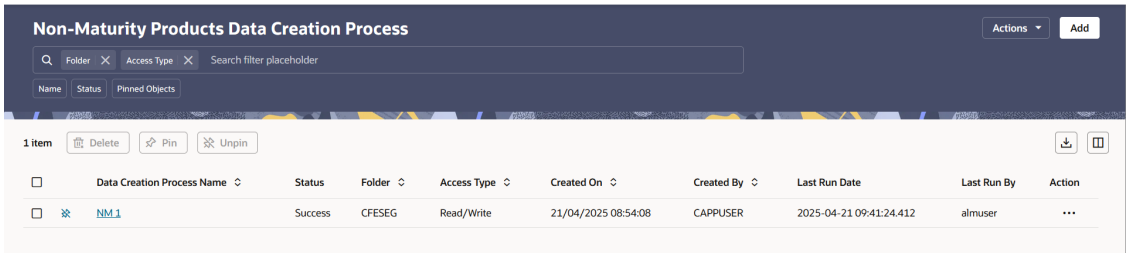
    `FSI_O_IRC_RATE_NM_MODEL`
  - Metadata tables used for NMD Model UI
    `FSI_M_NM_BATCH_LOAD_DEF`

    `FSI_M_NM_BATCH_PROCESS_PARAM`

Data Creation Process Summary

This page is the gateway to all Data Creation processes and related functionality. You can navigate to other pages relating to Data Creation processes from this point.

Figure 6-347 Data Creation Process Summary Page



Search Data Creation Process

Prerequisites: Predefined Data Creation Process

To search for a Data Creation Process, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Data Creation Processes that meet the search criteria.

Or

The other method to search a Data Creation Process is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Name, Status, Folder,** or **Access Type** status of the Data Creation Process and click **Search**.

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- **Add:** Click the Add on the page header to build a new Data Creation process.
- **Actions:** Click Actions to refresh page or see help.
- **Delete:** Enables you to select and delete one or multiple rules in the table simultaneously.
- **Pin/Unpin**: Enables you to pin or unpin the selected rule
- **Export**: Allows you to download the summary page details in .cs format.
- **Columns**: Enables you to customize the list of columns.

The Data Creation Process summary table displays the following columns:

- **Data Creation Process Name:** Name of the Data Creation Process's short name.
- **Status:** Status of the Data Creation Process.
- **Folder:** The folder where the Data Creation process is saved.
- **Access Type:** The access type of the rule. It can be Read-Only or Read/Write.
- **Created On:** The Date and Time when the Data Creation process was created.
- **Created By:** The user who created the Data Creation process.
- **Last Run By:** The user who last run the Data Creation process.
- **Last Run Date:** The Date and Time when the Data Creation process was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Data Creation process.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Data Creation processes. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Data Creation process by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Data Creation processes that you no longer require. Note that only Data Creation process owners and those with Read/Write privileges can delete Data Creation processes. A Data Creation process that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.
  - **Execute:** Select Execute to execute an existing Data Creation process. After clicking Execute, the **Execute window** is displayed. Select **As of Date (Execution Date)**, and then click **Submit**.
  - **View Execute Details:** Select Execute Details to view execution details of the Data Creation process. Click **Execution ID** link to view detailed information of process execution.

Also See:

- Create Data Creation process
- Execute Data Creation process

6.4.2.1.1 Creating Data Creation Process

To create a new Data Creation process, perform the following steps:

1. Navigate to the Data Creation Process Summary page.
2. Click **Add**. The **Create Data Creation Process** page is displayed.

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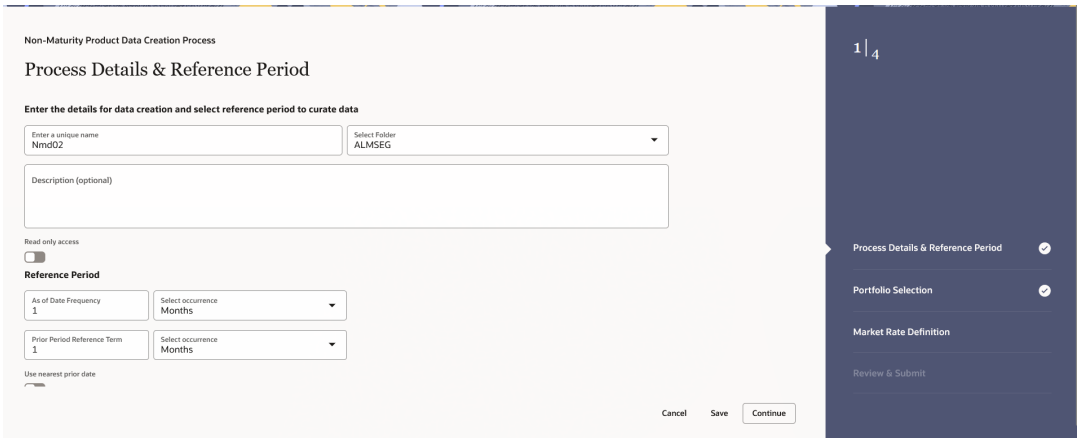
Figure 6-348 Create Data Creation Process

3. Follow the steps mentioned in below sections:
   a. Process Details and Reference Period
   b. Portfolio Selection
   c. Market Rate Definition
   d. Review and Submit
4. Click **Submit/Save** after entering all details in above sections.

Step 1: Process Details and Reference Period

1. From **Non Maturity Data Creation Process** tab, click **Start**. The **Process Details and Reference Period** page is displayed.

Figure 6-349 Process Details and Reference Period



2. Enter the following details:
   - **Name:** Name of Process. The Data Creation Process Name should be unique. Any special characters are not applicable.
   - **Folder:** Folder Name where you want to save the process.
   - **Description:** Description of Process. The maximum limit of this field is 300 characters. You can enter special characters in this field.

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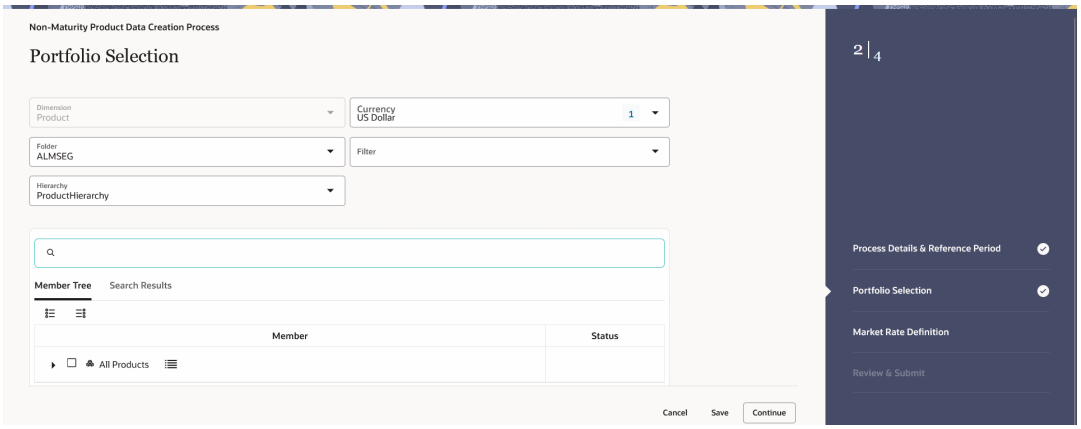
- **As of Date Frequency:** The Default value of this field is 1 month. **As of Date Frequency** is provided to select any value in days, months, or years. Starting from Prior Period date, the data snaps will be taken at defined snap frequency till As of Date. For each date, EOD balance (CUR_PAR_BAL) for the account on Data Snap Date, Account Origination Date (which will be required to calculate account age/ vintage at each Data Snap Date), and Deposit Rate (CUR_NET_RATE) will be captured, along with market rate as per the index selected.
- **Prior Period Reference Term:** The Default value of this field is 1 year. As per the prior period reference term, the prior period date is auto calculated.

3. Click **Continue**.

Step 2: Portfolio Selection

1. Navigate to the **Portfolio Selection** section. The **Portfolio Selection** window is displayed to set Portfolio.

Figure 6-350 Portfolio Selection



2. Enter the following details:
   - **Dimension:**Select the Dimension.
   - **Currency:** Select the Currency. The Currency drop-down displays the list of active currencies.
   - **Folder:** Select the Folder from which you want to pick the Hierarchy.
   - **Filter:** Select the Filter.
   - **Hierarchy:** You can specify some processing parameters at product-currency combination. Hierarchies in selected Folder will be listed and you can select one from the available list of hierarchies.
   - Select **Product(s)** from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results
     - **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.

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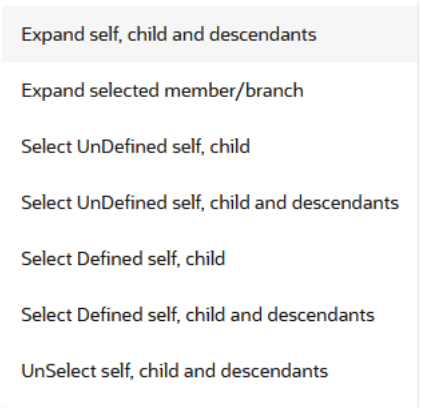
Figure 6-351 Member Tree



Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

* **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
* **Expand selected member/branch:** Allows to expand the selected node
* **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
* **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
* **Select Defined self, child:** Allows to select the selected node itself along with its child.
* **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
* **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

* Add
* Edit
* View
* Delete
* Copy

– **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

a. Navigate to **Assumption Browser** section of the Rule Definition page.

b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

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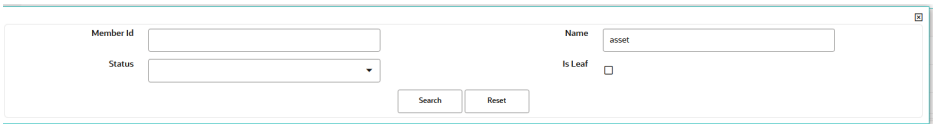
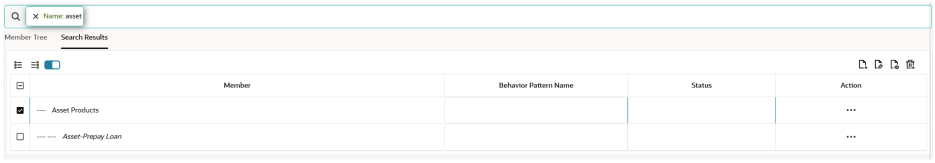
Figure 6-352 Search Criteria



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

Figure 6-353 Searching Members



.

Here, you can perform the following tasks on the searched node(s):

* Add
* Edit
* View
* Delete
* Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Step 3: Market Rate Definition

1. Navigate to the **Market Rate Definition** section. The **Market Rate Definition** window is displayed to define Market Rates.

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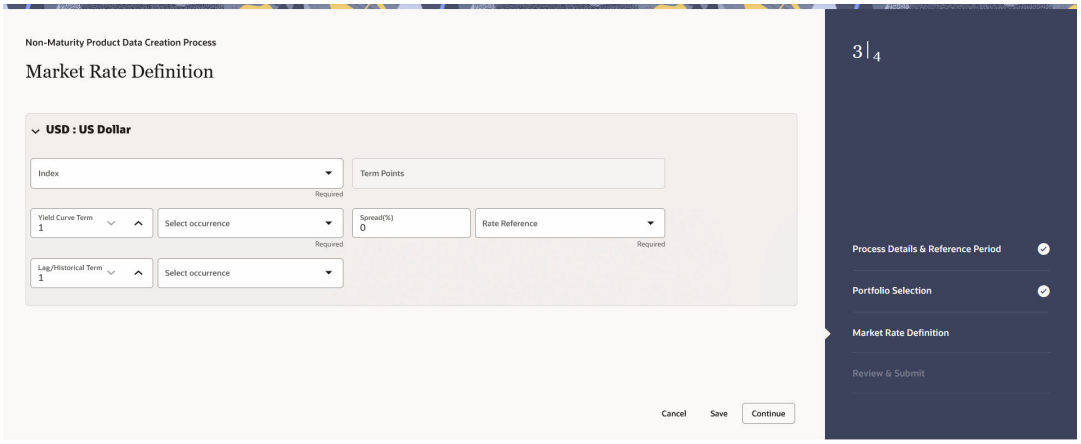
Figure 6-354 Market Rate Definition



2. Enter the following details:
   - **Index:** As per the selected currency from the drop-down, all the interest rate curves defined will be given for selection.
   - **Term Points:** Shows the term points.
   - **Yield Curve Term:** As per the selected interest rate curve, you can select one term point. Rate corresponding to the selected term point will be picked. For intermediate term points, interpolation is done.
   - **Spread:** Default value is 0. This field accepts all positive, negative integers/decimals (in the range of -100% to +100%). You can enter the spread in percentage format. Enter the spread in percentage on top of rate picked from selected IRC and term point.
   - **Rate Reference**: Rates will be picked based on the following options:
     - **As of Date:** Effective Date is same as As of Date
     - **As of Date with Lag:** Effective date is As of Date minus some lag. If you select Rate on (As of Date- Lag), then Lag Term field will be enabled to enter term and tenor.
     - **Average of Historical Term :** The effective date is not a single date but a period starting from the As of Date, during which an arithmetic average is calculated to smooth out any interest rate fluctuations. If you select **Average of Historical Term** (As of Date), the Historical Term field will be enabled for you to input the term and tenor.
   - **Lag/Historical Term:** Refers to the period used for calculating averages or trends in data.

Step 4: Review and Submit

1. Navigate to **Preview and Submit** section. Review the process details.
2. Click **Submit** to create the Data Creation process. The created process will be displayed on **Non Maturity Data Creation Process Summary** page.

6.4.2.1.2 Executing Data Creation Process

The **Execute** option allows you to run the Data Creation Request and create data as for the selected portfolio.

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Prerequisites

Predefined Data Creation Process

Procedure

Following two approaches are available to execute the process:

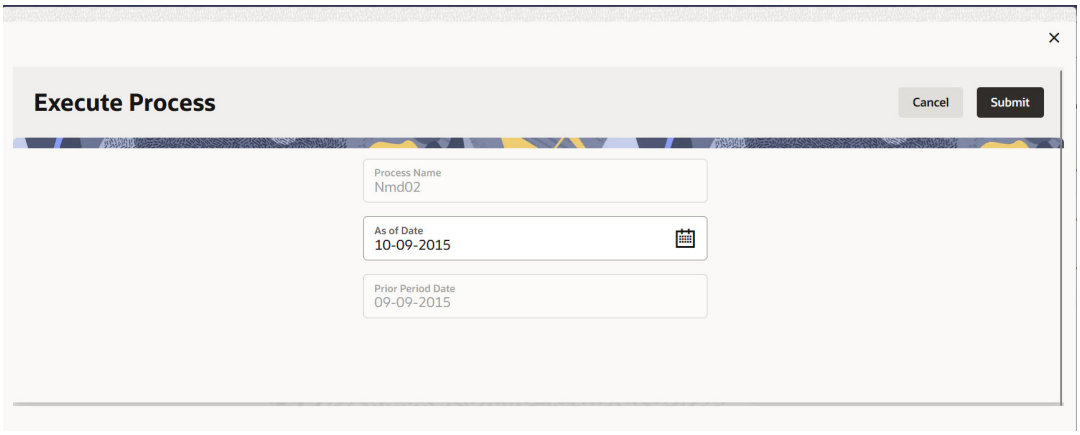
- UI Based Procedure
- Batch Based Procedure

6.4.2.1.2.1 UI Based Procedure

To execute the Data Creation Process, follow these steps:

1. Navigate to the **Data Creation Process** Summary Page.
2. Search for a Data Creation process Rule.
3. Click the **Action** column and select **Execute** to execute an existing Data Creation Process.

Figure 6-355 Execute Data Creation Process



4. Select **As of Date** and click **Submit**.
5. The Data Creation Process Run Confirmation Page is displayed. The status of the process is displayed in the Status column.
   After completion of the process, you can navigate to the **Execution Details** Page by selecting the view log option. From the Execution Details, you can access a report that provides details of any processing errors that were encountered while running the data creation process.

6.4.2.1.2.2 Batch Based Procedure

To execute the batch with Scheduler, follow these steps:

1. From the LHS menu, select **Operations and Processes**, select **Scheduler**, and then select **Define Batch**.
2. Define a new batch.
3. Enter the Batch Name and Description, and then save the batch.
4. To add a task, navigate to **Define Task**.

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5. Select the Batch from **Batch** drop-down list on **Define Task** window.
6. Click the **Add** button.
7. Define the task with below details:
   - **Components:** Non Maturity Model Data
   - **Process Name:** Select the Data Creation Process Name from drop-down.
8. Save the rule and **Execute**.

For more information, see the Scheduler Service.

6.4.2.2 Non Maturity Products Model Analysis

Non-Maturity Products Modeling helps you to understand the relation between market and bank rate, how much is core out of total available balance for the portfolio, and how long core will remain with the bank based on Decay Rate Profile.

Table 6-102 User Role and Privileges

Purpose	Role Code	Role Name	Function Code	Function Name
NMP Data Generation	RLNMDADMIN	Non Maturity Model Data Generation Admin Role	NMDATAADD	Add Non Maturity Model Data Creation Process
			NMDATARUN	Run Non Maturity Model Data Creation Process
			NMDATADEL	Delete Non Maturity Model Data Creation Process
			NMDATAEDIT	Edit Non Maturity Model Data Creation Process
			NMDATACOPY	Copy Non Maturity Model Data Creation Process
			NMDATAVIEW	View Non Maturity Model Data Creation Process
	RLNMDANALYST	Non Maturity Model Data Generation Analyst Role	NMDATAADD	Add Non Maturity Model Data Creation Process
			NMDATARUN	Run Non Maturity Model Data Creation Process
			NMDATADEL	Delete Non Maturity Model Data Creation Process
			NMDATAEDIT	Edit Non Maturity Model Data Creation Process
			NMDATACOPY	Copy Non Maturity Model Data Creation Process

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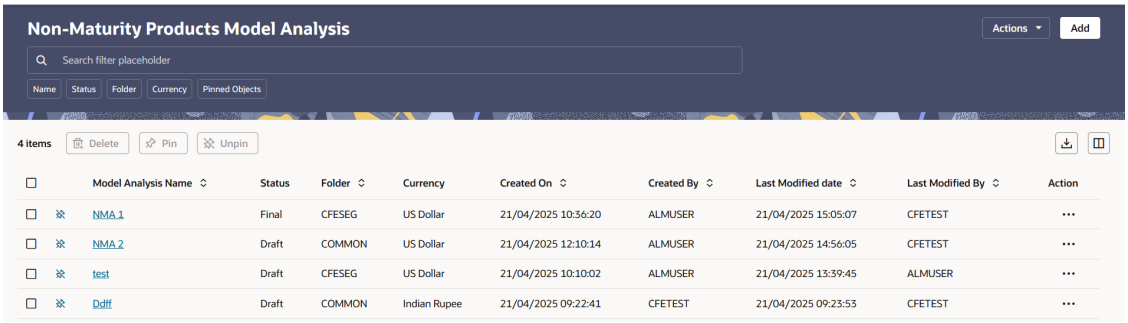
Table 6-102 (Cont.) User Role and Privileges

			NMDATAVIEW	View Non Maturity Model Data Creation Process
	RLNMDAUDIT	Non Maturity Model Data Generation Auditor Role	NMDATAVIEW	View Non Maturity Model Data Creation Process
NMP Model Analysis	RLNMDLADMIN	Non Maturity Model Analysis Admin Role	NMMODELADD	Add Non Maturity Model Analysis
			NMMODELDELETE	Delete Non Maturity Model Analysis
			NMMODELEDIT	Edit Non Maturity Model Analysis
			NMMODELCOPY	Copy Non Maturity Model Analysis
			NMMODELVIEW	View Non Maturity Model Analysis
	RLNMDLANALYST	Non Maturity Model Analysis Analyst Role	NMMODELADD	Add Non Maturity Model Analysis
			NMMODELDELETE	Delete Non Maturity Model Analysis
			NMMODELEDIT	Edit Non Maturity Model Analysis
			NMMODELCOPY	Copy Non Maturity Model Analysis
			NMMODELVIEW	View Non Maturity Model Analysis
	RLNMDLAUDIT	Non Maturity Model Analysis Auditor Role	NMMODELVIEW	View Non Maturity Model Analysis

Non-Maturity Products Model Analysis Summary

This page is the gateway to all Non-Maturity Products Model Analysis rules and related functionality. You can navigate to other pages relating to Non-Maturity Products Model Analysis rules from this point.

Figure 6-356 Non-Maturity Products Model Analysis Summary Page



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Search Non-Maturity Products Model Analysis Rule

Prerequisites: Predefined Non-Maturity Products Model Analysis rule

To search for a Non-Maturity Products Model Analysis rule, follow these steps:

Click **Search** after entering the search criteria. The search results are displayed in a table containing all the Non-Maturity Products Model Analysis rules that meet the search criteria.

Or

The other method to search a Non-Maturity Products Model Analysis rule is using the **Field Search** option. The Field Search is an inline wildcard UI search that allows you to enter value partially or fully and the rows that match the entered string in any of its column is fetched in the Summary table. Enter the **Name, Status, Folder,** or **Access Type** status of the Non-Maturity Products Model Analysis rule and click **Search**.

- **Add:** Click the **Add** icon on the page header to build a new Non-Maturity Products Model Analysis rule.
- **Actions:** Click **Actions** to refresh page or see help.
- **Delete:** Enables you to select and delete one or multiple rules in the table simultaneously.
- **Pin/Unpin**: Enables you to pin or unpin the selected rule
- **Export**: Allows you to download the summary page details in .cs format.
- **Columns**: Enables you to customize the list of columns.

The Non-Maturity Products Model Analysis summary table displays the following columns:

- **Model Analysis Name:** Name of the Non-Maturity Products Model Analysis rule's short name. Click **Model Analysis Name** link to view the details of Non-Maturity Products Model Analysis rule.
- **Status:** Status of the Non-Maturity Products Model Analysis rule.
- **Folder:** The folder where the Non-Maturity Products Model Analysis rule is saved.
- **Currency:** Displays the Currency for which Non-Maturity Products Model Analysis Rule is defined. One rule can be created only on one particular currency.
- **Created On:** The Date and Time when the Non-Maturity Products Model Analysis rule was created.
- **Created By:** The user who created the Non-Maturity Products Model Analysis rule.
- **Last Modified By:** The user who modified run the Non-Maturity Products Model Analysis rule.
- **Last Modified Date:** The Date and Time when the Non-Maturity Products Model Analysis rule was last modified.
- **Action:** Click this icon to view a list of actions that you can perform on the Non-Maturity Products Model Analysis rule.
  - **View/Edit:** Based on the user privilege assigned, you can either only view or edit existing Non-Maturity Products Model Analysis rules. To edit a rule, you must have Read/Write privilege.
  - **Save As:** You can reuse a Non-Maturity Products Model Analysis rule by saving it under a new name thus saving time and effort in entering data multiple times; it also leads to reduced data entry errors.
  - **Delete:** You can delete Non-Maturity Products Model Analysis rules that you no longer require. Note that only Non-Maturity Products Model Analysis rule owners and those

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with Read/Write privileges can delete Non-Maturity Products Model Analysis rules. A Non-Maturity Products Model Analysis rule that has a dependency cannot be deleted. A rule cannot be retrieved after deletion.

Also See:

- Create Non-Maturity Products Model Analysis

6.4.2.2.1 Creating Non-Maturity Products Model

To create a new Non-Maturity Products Model Analysis Rule, perform the following steps:

1. Navigate to the Non-Maturity Products Model Analysis page.
2. Click **Add**. The **Create Non-Maturity Products Model Analysis** page is displayed.

Figure 6-357 Create Non-Maturity Products Model Analysis

3. Follow the steps mentioned in below sections:
   a. Model Details
   b. Portfolio Definition
   c. Exploratory Data Analysis
   d. Pass-Through Rate
   e. Stable Balance
   f. Decay Rate
   g. Review and Submit
4. Click **Submit/Save** after entering all details in above sections.

Step 1: Model Details

1. From **Non-Maturity Products Model Analysis** , click **Start**. The **Model Details** page is displayed.

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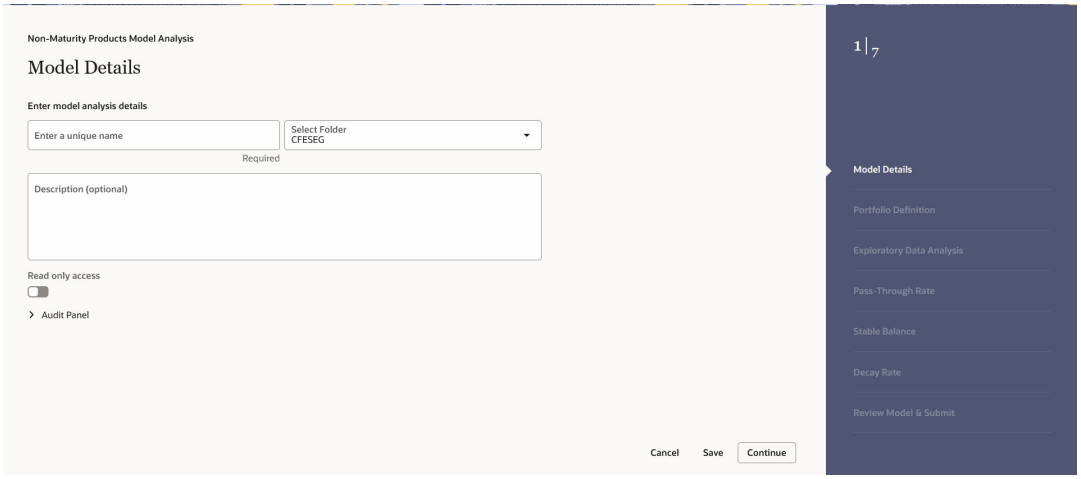
Figure 6-358 Model Details

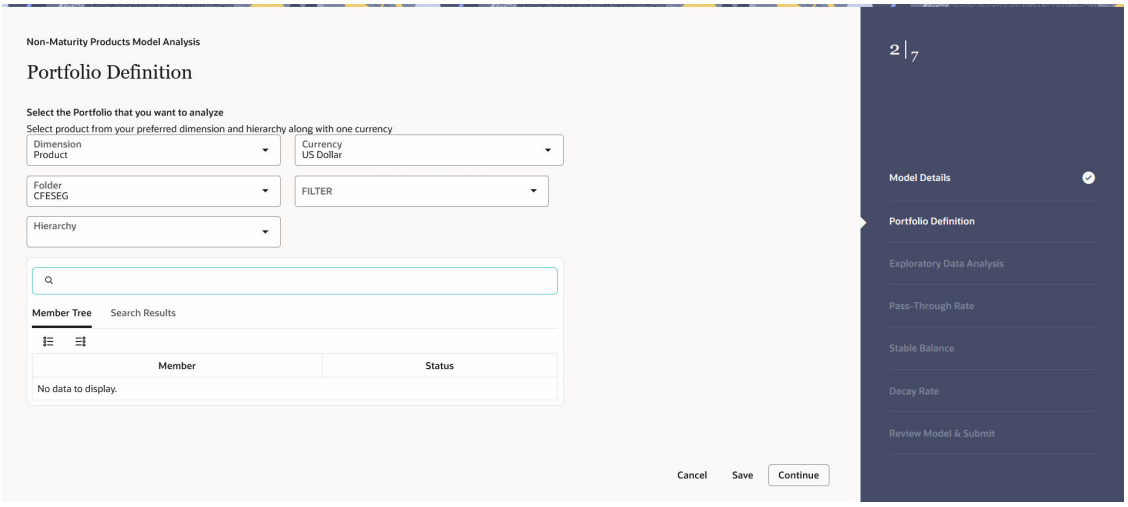


2. Enter the following details:
   - **Name:** Name of model. The Non-Maturity Products Model name should be unique. Any special characters (*, &, new line, and double quotes) are not allowed. You can enter maximum 120 characters.
   - **Folder:** Folder Name where you want to save the model.
   - **Description:** Description of model. The maximum limit of this field is 300 characters. Any special characters (*, &, new line, and double quotes) are not allowed. You can enter maximum 255 characters.
3. Click **Continue**.

Step 2: Portfolio Selection

The **Portfolio Selection** window is displayed to set Portfolio.

Figure 6-359 Portfolio Selection



1. Enter the following details in Portfolio Selection section:

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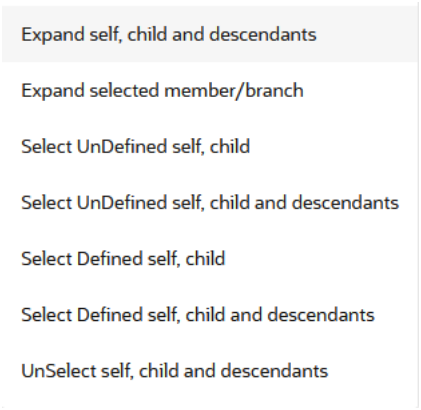
- **Dimension:** Select the dimension.
- **Currency:** Select the currency. The **Currency** drop-down displays the list of active currencies.
- **Folder:** Select the folder from which you want to pick the Hierarchy.
- **Hierarchy:** You can specify some parameters at product-currency combination. Hierarchies of selected folder will be listed and you can select one from the available list of hierarchies.
- **Filter:** Select the filter.
- Select **Product(s)** from Member Tree of Assumption Browser. The Assumption Browser has following two tabs: Member Tree and Search Results
  - **Member Tree:** Member Tree tab shows the hierarchical structure and allows you to define rules by selecting the node members from the browser. Select Node and Click Menu icon next to it to view the available options.

Figure 6-360 Member Tree



Status of node is also displayed in Member Tree section, for example Selected, and so on. To select member hierarchy, following options are available:

* **Expand self, child and descendants:** Allows to expand the selected node itself along with its child and descendants.
* **Expand selected member/branch:** Allows to expand the selected node
* **Select UnSelect self, child:** Allows to unselect the selected node itself along with its child
* **Select UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.
* **Select Defined self, child:** Allows to select the selected node itself along with its child.
* **Select Defined self, child and descendants:** Allows to select the selected node itself along with its child and descendants.
* **UnSelect self, child and descendants:** Allows to unselect the selected node itself along with its child and descendants.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

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Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

Here, you can perform the following tasks on the selected node(s):

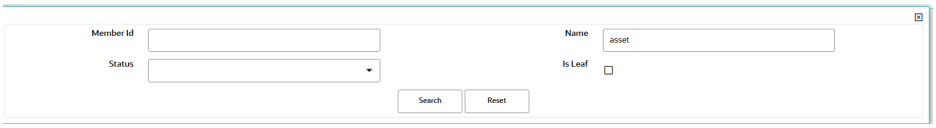
* Add
* Edit
* View
* Delete
* Copy

– **Search Results:** You can also search the members based on the filters. This section shows the searched node(s). To search a member, follow these steps:

a. Navigate to **Assumption Browser** section of the Rule Definition page.

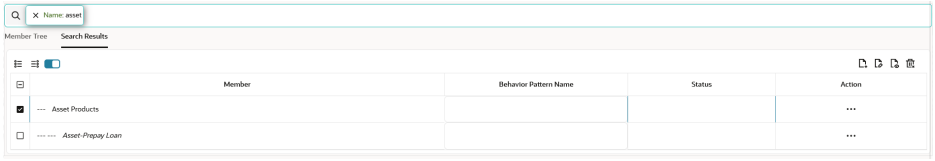
b. Enter the Member ID, Name, Status, or Is Leaf in Search Criteria.

Figure 6-361 Search Criteria



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

Figure 6-362 Searching Members



Here, you can perform the following tasks on the searched node(s):

* Add
* Edit
* View
* Delete
* Copy

Click **Show Parentage icon** to view the Parent-child Node level hierarchy details of selected Node.

Use **Show Numeric Code Values (Left)** icon to view the code value left to the Node name.

Use **Show Numeric Code Values (Right)** icon to view the code value right to the Node name.

2. Click **Continue** to navigate to **Exploratory Data Analysis** section.

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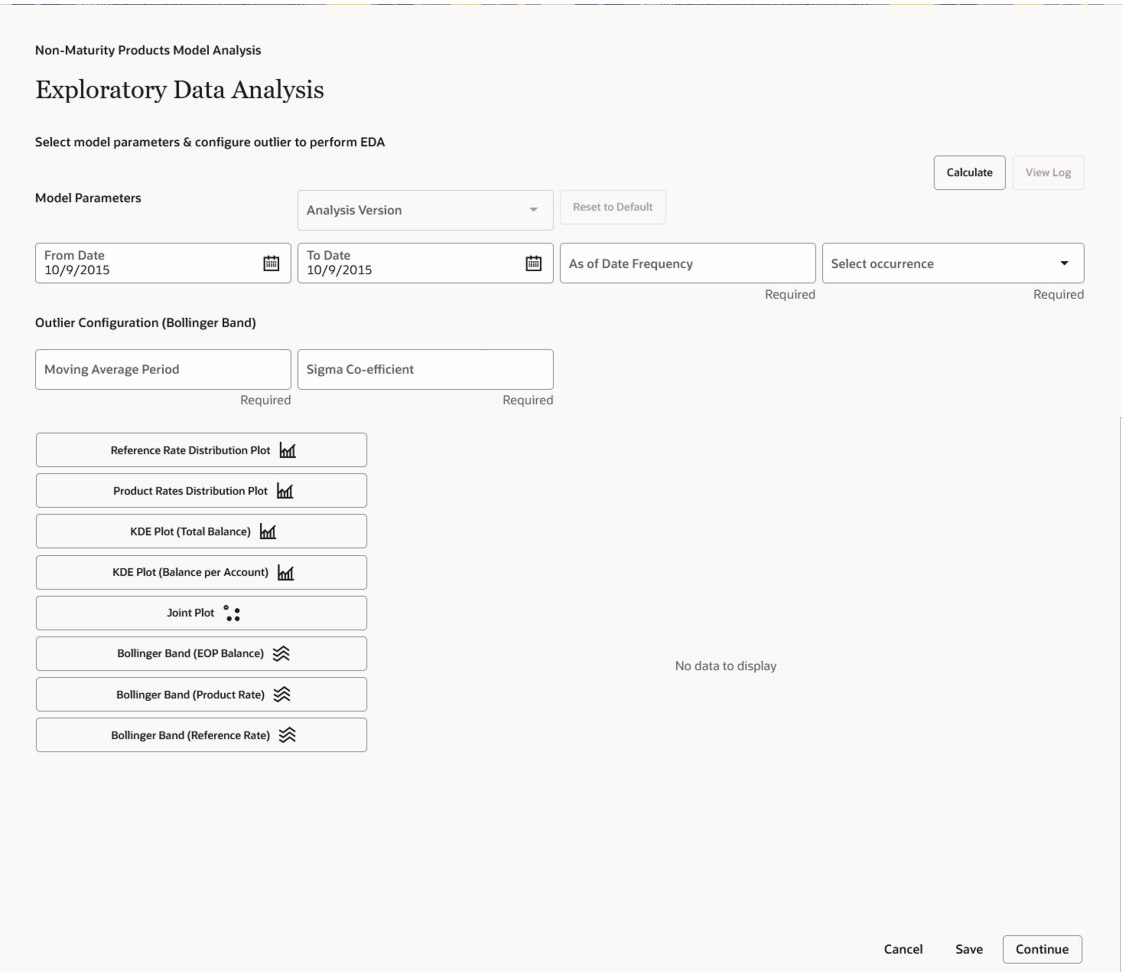
Step 3: Exploratory Data Analysis

The **Exploratory Data Analysis** window is displayed to define Market Rates. This window will help you to perform EDA calculations and get a glimpse of data being used for modelling.

Figure 6-363 Exploratory Data Analysis



1. Enter the following details in the Exploratory Data Analysis section:
   - **Model Parameters (As of Date Range):**
     - **Analysis Versions:** Shows the analysis version.
     - **Model Parameters (As of Date Range):** You can select a date range which will define the historical period within which data needs to be picked for Model creation. By default, the Date range is populated as below:
       * From Date: Max (As of Date) available in Model input Table.
       * To Date: Max [min (As of Date), From Date – 10 Years].

       Default values are populated from `FSI_AUDIT_NM_LOAD_BATCH` table.
     - **As of Date Frequency:** The default value of this field is one month. The **As of Date Frequency** defines on what regular intervals, data needs to be picked from the input table. For example, you can have historical period as last three years, in

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those three years at what regular interval data needs to be picked up from history table that would be defined by **As of Date Frequency**.

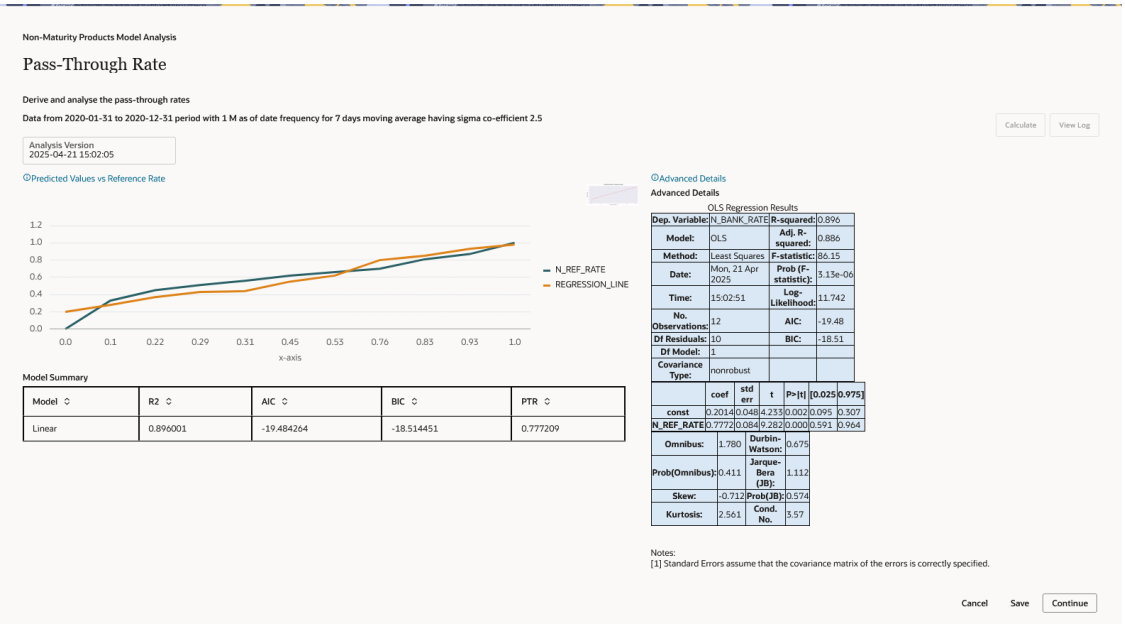
- **Outlier Configuration (Bollinger Band):**
  - **Moving average period:** The default value of this field is one month. The Moving Average period defines the historical term over which the moving average needs to be calculated for Bollinger band formation. This defines the period over which moving average gets calculated to create bollinger band.
  - **Sigma Co-efficient:** The default value of this field is 1. Sigma Co-efficient defines the outliers, any number which is (sigma coefficient * standard deviation) away from the mean, will not be considered for calculations. This field accepts Integer and Decimal values in the range 0 – 10. Sigma Co-efficients helps you to define the lower and upper bands for bollinger band graphs.

2. Click **Calculate** to perform Exploratory Data Analysis and get EDA plots. You can refresh the window using the **Reset to Default** button to check if the EDA is completed. When you open EDA window first time for a particular model, Version(EDA) field would not appear as there is no previous version to display. Subsequently, when first version is created and you go for second version, version (EDA) tab will start appearing with previous EDA versions. When EDA version is submitted, a message will appear with version number. A message is displayed in case last run version was failed. If run was successful and you again check this, the latest version would appear on the UI. The **Reset to Default** button resets the entered values to their default values.
3. Click **Continue** to navigate to **Pass-Through Rate** section.

Step 4: Pass-Through Rate

Pass Through Rate is based on linear regression between market and offered rate. For current accounts, the offered rate can be zero. In such cases, the pass-through rate will also be zero, as changes in the market rate do not affect the offered rate.

Figure 6-364 Pass-Through Rate



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1. Click **Calculate** to view all the evaluation parameters and quality plots. Pass Through Rate calculations are submitted, a message is displayed with version number. This window shows all the model quality parameters and graphs. At this stage, Pass through rate or beta between market rate and deposit rate is calculated. You can zoom the graph to enhance visibility.
   The **Advanced Details** section helps you to evaluate the model fit.

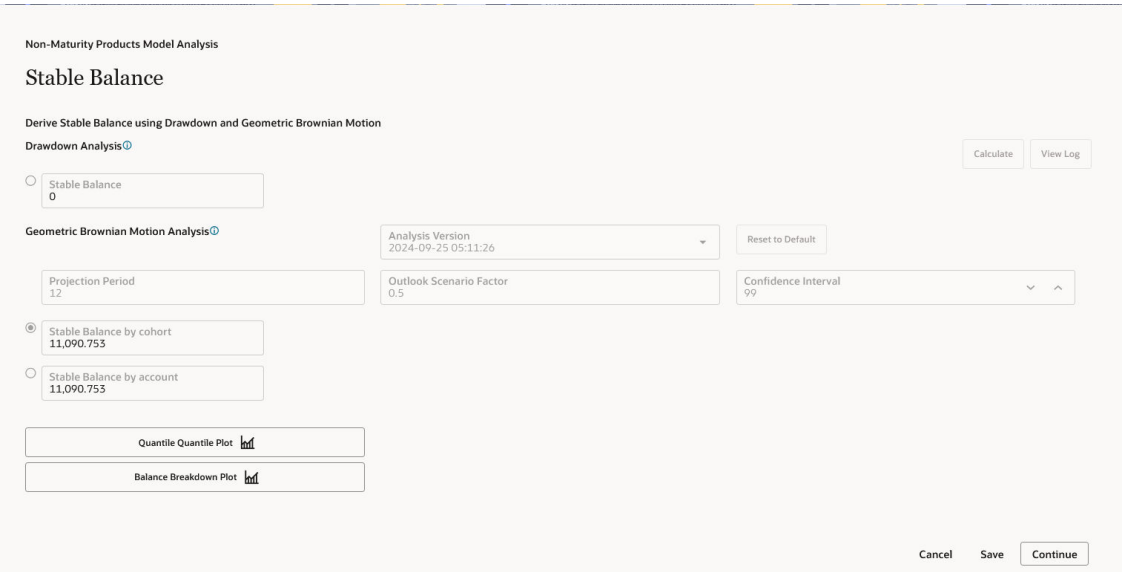
   The **Model Summary** section shows the details of Model parameters like R2, AIC, BIC and regression co-efficient. That is, how much change in market rate is passed on to the deposit rate.

   At any stage, if you want to come out of the model analysis module, click **Cancel** or **Save** button to go back to Non-Maturity products model summary screen.
2. Click **Continue** to navigate to **Stable Balance** section.

Step 5: Stable Balance

The Stable Balance section shows the Projection period.

Figure 6-365 Stable Balance



1. You can set the stable balance as required. Projection period can be only be positive integers which will act as multiplier to **As of Date Frequency**, for example, As of Date. To calculate Stable Balance, you can use following methods:

   - **DrawdownAnalysis:** TheDraw Down Analysis calculates each period's Run-offs in the historical period and subtracts the maximum Run-off from the most recent total balance to arrive at stable balance. This model performs calculations based on maximum Drawdown between two data points for given period.
     For example, analysis is done over past 5 years and monthly data points are given. If Balance is available for each data point, then system calculates balance reduction for each data point from previous data point. Finally, whatever will be the maximum balance reduction in two adjacent data points that is subtracted from point in time balance (Balance on latest As of Date) and remaining balance is the stable balance.
   - **Geometric Brownian Motion:** This approach will first calculate the past Run-offs volatility and assuming normal distribution of Run-offs, accept confidence interval as

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user input, projection period for time adjustment, and outlook scenario factor (volatility multiplier) as input from the user.
This model works based on historical volatility and confidence interval selected in the UI. It assumes that the underlying data follows a normal distribution, and based on the confidence interval, X% of the balance lies within the specified range. This allows the system to determine the stable balance.

95% Confidence Interval – (-1.96 to +1.96)

90% Confidence Interval – (-1.645 to +1.645)

80% Confidence Interval – (-1.282 to +1.282)

Here, you can select the outlook scenario factor, which will be multiplied with historical volatility and subsequently used for **Geometric Brownian Motion** based stable balance calculations.

Geometric Brownian Motion outcome is based on both portfolio level balance volatility and account level balance volatility. You can select any of the stable balances, which are more suitable as per the given context.

The confidence interval slider field has a range of 0 – 100% and by default value as 95% and Outlook scenario factor (Volatility Multiplier) is set at 1 (Default Value). The range of outlook scenario factor is 0.01 to 1.99.

You can change any of the inputs and generate multiple versions.

2. After clicking **Calculate**, the stable balance would be shown at cohort/account level using both cohort level and account level volatility and saved against version.
Stable balance can be calculated with multiple methods, so before proceeding to next step, you must select **Stable Balance by Cohot** or **Stable Balance by account** method to confirm one stable balance on which rest of the subsequent processing will take place.

   When this section is displayed first time, after clicking the **Calculate**, the stable balance is calculated for both methods, **Drawdown analysis** and **Geometric Brownian Motion**.

   In subsequent runs, if any of projection period, confidence interval or Scenario factor is changed, then new version will be generated only for **Geometric Brownian Motion**. When you click **Calculate** button, then a message is displayed: *GBM version xyz is submitted*. If version is failed, a message is displayed: *GBM version xx is failed* and UI will revert back to last successful version.

3. Click **Continue** to navigate to **Decay Rate** section.

Step 6: Decay Rate

For Decay rate calculations, you can select any one of following three approaches:

- Vintage Analysis
- SARIMAX
- Geometric Brownian Motion

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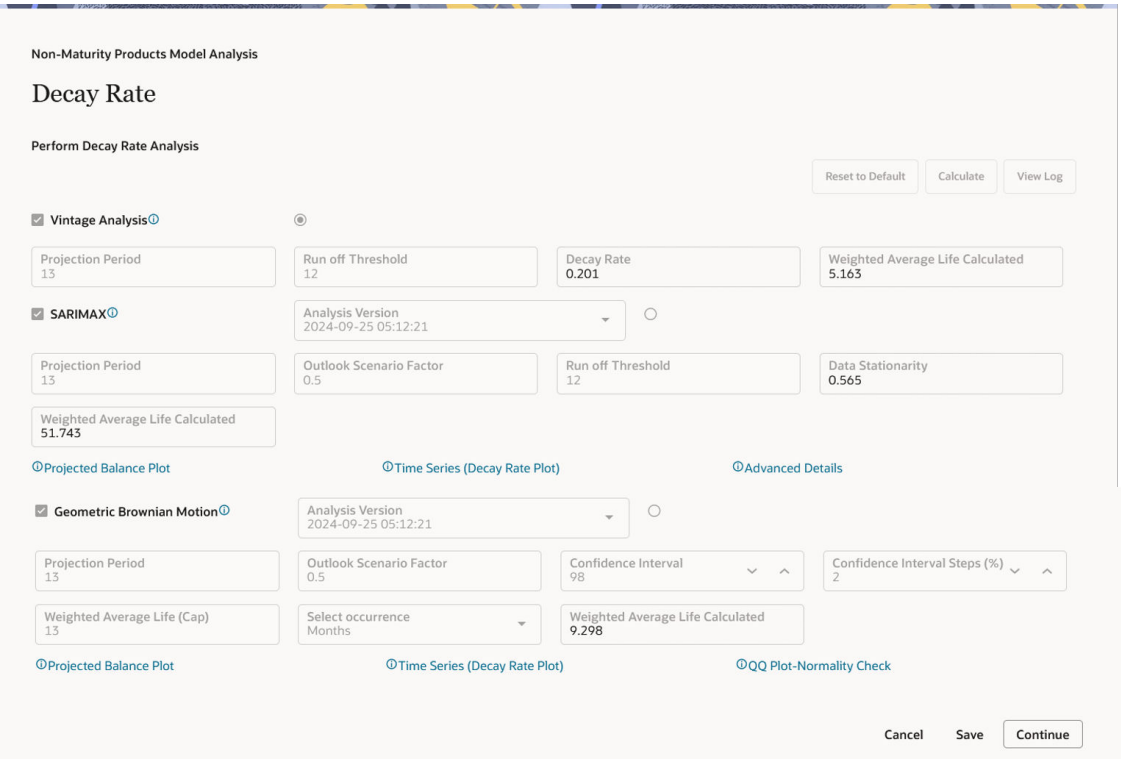
Figure 6-366 Decay Rate



1. Select the Decay Rate method:

   - **Vintage Analysis:** This method calculates one decay rate value as per the various vintages and regular intervals over which data is being picked for the defined portfolio. The same decay rate is applicable to the whole projection period.
     The vintage run-off model aims to categorize deposit balances based on historical tranches, referred to as vintages. A vintage comprises all individual accounts for a non-maturing deposit account type that were opened within a specific time bucket, such as a month or week. Behavioral characteristics are applied to each vintage by calculating the monthly decay within each vintage. Run-off calculations are performed across data points and account origination buckets, with the final decay rate being the average of both dimensions for the selected portfolio.

     Select the **Vintage Analysis** check-box if you want to include it in the calculation, or leave it unchecked to exclude it. Vintage analysis requires account-level data for the entire historical period, which may not be available initially, so you can opt to bypass this method. Other methods use portfolio or cohort-level data, which is generally easier to obtain. By default, the check-box is unchecked, indicating that this model is not part of the processing. You can set the projection period according to your needs.

   - **SARIMAX:** This method creates a future balance profile based on historical balances, along with Run-off volatility multiplied by the Outlook scenario factor (default 1). Based on balance Run-offs, a decay profile is created.
     Among the various approaches, the SARIMAX model (Seasonal Autoregressive Integrated Moving Average with exogenous variables) is a powerful tool for modeling and forecasting trends and seasonal variations in time series data. It also incorporates external variables to enhance prediction accuracy. This model is part of the ARIMA family and is built on three key components: autoregression (AR), moving average (MA), and integration (I).

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- **Autoregression (AR)** uses past values of the time series to predict the current value.
- **Moving average (MA)** accounts for past prediction errors, applying a linear regression on the last "q" error values to forecast the present.
- **Integration (I)** makes the data stationary by accounting for differences between consecutive observations.

For data with seasonal variations, the SARIMA model is used, adding the "Seasonal" component to ARIMA, which captures patterns that repeat at regular intervals. Based on the decay rate in each period, the weighted average life is calculated by multiplying the run-off matrix with the time series.

- **Geometric Brownian Motion:** Based on balance Run-off volatility and your inputs like confidence interval and outlook scenario factor, the Decay Rates are calculated for each subsequent period in projection period and decay profile is created. Based on the Decay Rate Profile, Run-offs would be calculated and finally, a balance profile will be created which will in turn help to calculate WAL.
  Based on the Decay Rates profile, the model will do Weighted Average Life (WAL) calculations. If the WAL exceeds the specified regulatory cap, you can set a confidence interval range and steps (defaulting to 5%) for adjusting the confidence interval in each calculation. For example, if the range is 80-95%, the system will generate a Decay Rate Profile at 80%, 85%, 90%, and 95% intervals. Through an iterative process, it will attempt to calculate a Decay Rate Profile that brings the WAL within the regulatory cap set by the user.

  If in a given confidence interval range, WAL is still more than regulatory WAL (Cap), a simple linear Decay Rate Profile is created.

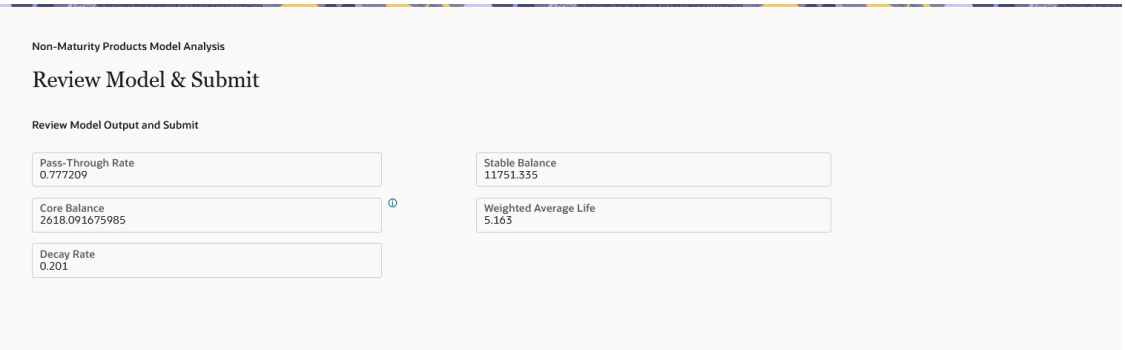
  The run-off threshold is a user-defined input that sets the minimum balance at which WAL calculations will stop, assuming the balance has reached zero at that point.

> **Note**
>
> When this section is launched first time and you click **Calculate**, Decay Rate is calculated for all three methods, Vintage Analysis, SARIMAX, and Geometric Brownian Motion.

2. Click **Continue** to navigate to **Review and Submit** section.

Step 7: Review and Submit

Figure 6-367 Review and Submit Model



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1. Navigate to **Preview and Submit** section. This section shows the Model details before confirming the model. Here, you cannot edit any details. If you want to update any details, click Model Summary to go back. When model is saved, it is always be in **Draft** status.
2. Click **Submit** to create the Non Maturity Products Model. The created process will be displayed on **Non Maturity Products Model Summary** page.

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7
Operations

This chapter covers the following topics:

1. Scheduler Services: The Scheduler Service is a service that automates behind-the-scenes work that is necessary to sustain various enterprise applications and functionalities. This automation helps the applications to control unattended background jobs program execution.
2. Object Migration: Object Migration is the process of defining, exporting and importing objects across environments (prod and non-prod)/instances. This feature also facilitates to migrate within the same setup or different setups.

7.1 Scheduler Services

Scheduler Services automates behind-the-scenes work that is necessary to sustain various enterprise applications and their operations. Using Scheduler Services, applications can control unattended background jobs program execution.

> **Note**
>
> The Scheduler Service shows the job relevant to the given workspace. For the Production workspace, the scheduler also includes jobs from the other Oracle Financial Crime and Compliance Management Cloud Services.

Scheduler Service operations:

- **Define Batch** - A Batch contains a group of background tasks that are executed together, on a specific date and time during which the resources are available for batch processing.
- **Define Task** - A batch job is a piece of a program meant to meet specific and business-critical functions. The program is a REST API used in a batch.
- **Schedule Batch** - Schedule batch jobs, to automate tasks that are processed on a regular basis but do not need to occur during the day or require human intervention. Jobs that happen on a regular basis are incorporated into batch schedules. You can also edit pre-conditions for batch group execution and pause scheduled executions.
- **Monitor Batch** - Track and access the real-time feedback on the status of the current encoding job and lists the jobs pending in the batch. You can also **Cancel** or **Restart** the service when required.
- **Scheduler Service Dashboard** - The Scheduler Service Dashboard gives the complete status of the Executed Runs, Successful Runs, Failed Runs, Ongoing Runs, Interrupted Runs, and the Upcoming Runs.

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7.1.1 Accessing Scheduler Services

Using the Scheduler Services, you can create and execute batches and schedules to run various tasks and also monitor them.

To access Scheduler Services:

- Log in to the Service Console and from the left navigation pane in the Service console, click **Operations and Processes > Scheduler**.

7.1.2 User Roles and Functions

You require specific user roles and functions, to use Scheduler Services, and to create and manage batches and tasks.

The user roles and user privileges for Scheduler Service are available in the Users and User Privileges Guide.

For more information, see the User Group and Roles Mapping for Scheduler Service.

Table 7-1 User Role Codes and Function Codes

Role Codes	Function Codes
BATCH_READ	BATCH_ADD
BATCH_WRITE	BATCH_DEL
BATCH_ADV	BATCH_MOD
BATCH_AUTH	BATCH_VIEW
BATCH_OPER	BATCH_SCH
BATCH_MAINT	BATCH_SUMM
	BATCH_AUTH
	BATCH_PURGE
	BATCH_MON
	BATCH_EXEC
	BATCH_COPY
	LOGVIEW

7.1.3 Scheduler Service Dashboard

View the task executions based on the execution status in the Scheduler Service Dashboard.

To access the **Scheduler Service Dashboard** page, from the left Navigation pane in the Service console, click **Operations and Processes** > **Scheduler** > **Dashboard**.

To access the **Scheduler Service Dashboard** page, from the left Navigation pane in the Service console, click **Batch Administration** > **Scheduler**.

On the Workspace Summary, click **Orchestration** and select **Scheduler Dashboard**. The Scheduler Service Dashboard page is displayed.

You can access the following details related to batch/batch group execution from the Dashboard:

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- The batches/batch groups are categorized based on their execution status - **Executed Runs**, **Successful Runs**, **Failed Runs**, **Ongoing Runs**, **Interrupted Runs**, and **Upcoming Runs** tabs. Click the respective tab to view the details of the batches/batch groups based on their execution status. For example, click **Ongoing Runs** to view the details of the batches that are currently running.
- The run time, schedule name and the MISDATE associated with each batch/batch group.
- The batch execution summary for all the batches executed in the last 7, 30 and 120 days. The summary is displayed in the form of a color-coded bar graph with legend for the various execution statuses.
- To view the list of all task executions associated with a specific batch/batch group, select the required execution status tab, select Batch/Batch Group and select the required batch/batch group.
- To view the task executions within a specific date range, select the required execution status tab, select Batch/Batch Group and select the required batch/batch group. Specify both the start and end dates.

7.1.4 Define Batch

You can use batch and batch groups to group a set of background tasks to be executed together.

A Batch contains a group of background tasks that are executed together, on a specific date and time during which the resources are available for batch processing.

Batch Groups consist of batches that need to be executed together. Batch groups help to process date and time-based background tasks based on a defined period when resources are available for batch processing.

Click **Define Batch** from the Header panel to access the Define Batch page.

To access the **Scheduler Service Summary (Define Batch)** page, from the left Navigation pane in the application console, click **Operations and Processes Batch Administration**> **Scheduler** > **Define Batch**.

To access the list of existing batches and batch groups click **Batch** or **Batch Group** tab respectively. You can also view following details related to each batch/batch group.

- **Batch ID** - The unique alphanumeric code assigned to a specific batch/batch group.
- **Name** - The unique batch/batch group name.
- **Description** - The brief description of the batch/batch group.
- **Last Modified** - The last modified By user, date and time details.

To search for a specific batch/batch group, enter the keywords in the **Search** field and click **Search**. You can search based on **Name**, **Code**, and **Description**. You can also sort the batch/batch group list based on **Code**, **Name**, **Created Date**, **Last Modified Date**, and **Pinned**.

Perform one of the following operations, to manage batch/batch group, from the **Scheduler Service (Define Batch)** page.

- Create New Batch/Batch Group
- Edit a Batch/Batch Group
- Copy a Batch/Batch Group
- Delete a Batch/Batch Group

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- Pin/Unpin a Batch/Batch Group
- Create/edit tasks

7.1.4.1 Creating a Batch/Batch Group

Create a batch/batch group, to execute a group of background tasks together, on a specific date and time, when the resources are available for batch processing.

To create a batch/batch group from the **Scheduler Service (Define Batch)**:

1. In the **Create Batch** page, enter the following **Batch Details**:
   - **Code** - Enter a unique alphanumeric code for the new batch/batch group.
     The code must start with alphabets, should not contain any spaces, and must not exceed 60 characters. Special characters are not allowed except **underscore (_)**.
   - **Name** - Enter a unique name for the new batch/batch group.
     The name should start with alphabets, should not contain any spaces, and must not exceed 60 characters. Special characters are not allowed except **underscore (_)**.
   - **Description** - The description/details for the batch/batch group.
     The description should start with an alphabet and must not exceed 250 characters.
   - Select **Batch** to create a new batch or **Batch Group** to create a new batch group.
   - For new batch groups,select the **Batches** to be added to the batch group.
   - Select the **Service URL name** from the drop-down list, if it is available.
     To add a new service URL, enter a name to identify the new Service URL Name and enter the proper Service URL. You can give partial URL here and the complete URL in the Task Service URL.
   - Enter the complete **Cleanup URL** and enable the check box, to activate the cleanup URL, before you initiate a batch/batch group restart.
     The complete Cleanup URL : `http://fccm-utility-service:8080//fccm-utility-service/cleanupExecutionWatcher`
   - **Pin Batch/Pin Batch Group**: Use this option to pin the batch or batch group to keep it at the top of the list for quick access.
     For information, see Pinning/Unpinning a Batch/Batch Group.
   - Select one of the following options, to get an email notification, based on the selected batch execution status.
     Based on the selected option, an email is sent to the email ID of the logged in user, mentioned in the IAM console.
     - **Every Time** : An e-mail is triggered irrespective of the batch execution status.
     - **Never** : No e-mail will be triggered.
     - **On Error only** : (Default). An e-mail is triggered only when the batch execution has failed.
     - **On Interrupt only** : An e-mail is triggered if the batch execution is successfully interrupted.
     - The system automatically sends an email to all users mapped to the BATCH_NOTIFY_FUNT function and BATCH_NOTIFY_ROLE role. If a batch is mapped to a user (and their email ID), the batch email notifications will be sent only to that configured batch user. If no batch user is configured, the system follows the default email notification process.

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> **Note**
>
> Ensure you have the BATCH_ADMIN function code to use this option. You can configure a maximum of five user mappings per batch or batch group.

2. For new batches, after entering the Batch Details, provide the following batch parameters.

   From the **Batch Parameters** pane, click **Add** to add a new batch parameter, in the following format.

   - **Parameter Name** - A valid parameter name for the new Batch parameter.
   - **Parameter Value** - A valid parameter value required for Batch execution.

   > **Note**
   >
   > Enclose the parameter Value for a Run time with $ symbol. For example, `$paramName$`.

   By default, **$FICMISDATE$** and **$BATCHRUNID$** are added as batch Parameters.

   By default, **$BATCHDATE$**, **$BATCHRUNID$** and **$RUNSKEY$** are added as batch Parameters.

   > **Note**
   >
   > **$RUNSKEY$** parameter is added only if you are creating a new batch or copying from an existing batch. It is not supported for existing batches.

   To delete a batch parameter, click **Delete** next to that parameter details.

3. Enter the following **Header Parameter** details:

   - **Parameter Name** - A valid parameter name for the new header parameter.
   - **Parameter Value** - A valid parameter value required for batch execution.

4. Click **Save**. The new batch/batch group is created and displayed in the **Scheduler Services (Define Batch)** page.

   To view the dependent tasks and their components, click the **Dependency Check** icon. Upon clicking this icon, the **Object Dependency** window appears and displays the following:

   - Higher Order Dependencies – Components/batch group that the selected batch depends on. Example: Batch in a batch group will have Batch group as the higher order dependency.
   - Lower Order Dependencies – Any task which is created under a batch and the dependency is established will be shown under this tab.

7.1.4.2 Editing a Batch/Batch Group

Edit the batch/batch group details such as **Description** and also add new **Batch Parameters** to a batch,along with adding new **batches** to the batch group.

Seeded batches cannot be edited.

To modify a batch/batch group:

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1. In the **Scheduler Services (Define Batch)** page, click the three-dot menu corresponding to the batch/batch group you want to modify and select **Edit Batch/Edit Batch Group**.
2. Modify the required details, in the **Edit Batch** page.
3. Click **Save** to save the edited batch/batch group.

   The edited batch will be updated in the **Scheduler Services (Define Batch)** page.

You can pin a particular batch/batch group by selecting the **Pin** option from the three-dot menu of each batch/batch group. For information, see Pinning/Unpinning a Batch/Batch Group.
To unpin a batch/batch group, click the three-dot menu corresponding to the pinned batch/batch group and select **Unpin Batch/Unpin Batch Group**.

7.1.4.3 Copying a Batch/Batch Group

Copy a batch/batch group that you want to clone to create a new batch/batch group.

To copy a batch/batch group:

1. In the **Scheduler Services (Define Batch)** page, click the three-dot menu corresponding to the batch/batch group that you want to copy and select **Copy Batch/Copy Batch Group** .
2. In the **Copy Batch** page, modify the required Batch details to create a new batch/batch group.
3. Click **Save** to add the copied batch to the **Scheduler Services (Define Batch)** page.

7.1.4.4 Deleting a Batch/Batch Group

Delete a batch/batch group that is no longer required in the system from the Define Batch page.

> **Note**
>
> You cannot delete seeded batches.

To delete a batch/batch group:

1. From the **Scheduler Services (Define Batch)** page, click the three-dot menu corresponding to the batch/batch group you want to delete and select **Delete Batch/Delete Batch Group** .
2. Click **OK** to confirm deletion.

> **Note**
>
> After confirmation, any active schedules associated with the batch will also be deleted.

7.1.4.5 Pinning/Unpinning a Batch/Batch Group

Use the pinning option to pin a batch/batch group to keep it at the top of the list for quick access, on the **Scheduler Services (Define Batch)** page.

By default, the Batch and Batch Group drop-down lists are sorted such that:

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- Pinned objects specific to the logged-in user appear first. Objects pinned by the logged in user appear at the top.
- These are followed by non-pinned objects.
- Within each group (pinned and non-pinned), objects are sorted in ascending alphabetic order.

To pin a batch/batch group:

1. To pin a record: In the **Scheduler Services (Define Batch)** page, click the three-dot menu corresponding to the batch/batch group you want to pin and select **Pin Batch**/**Pin Batch Group**.
2. To unpin a pinned record: In the **Scheduler Services (Define Batch)** page, click the three-dot menu corresponding to the batch/batch group you want to unpin and select **Unpin Batch**/**Unpin Batch Group**.

7.1.5 Define Tasks

The Define Tasks page lists tasks associated with a specific Batch Definition. You can create new tasks, and edit or delete existing tasks.

To access the **Define Task** page:

1. Click **Define Task** from the Header panel to access the Define Task page.
2. From the left menu, click **Operations and ProcessesBatch Administration** > **Scheduler** and select **Define Task**.
3. Select Batch/Batch Group from the drop-down list and select the particular batch/batch group to access the list of tasks associated with it.

   You can view the following details related to each task:

   - **Task ID** - The unique identifier for the task.
   - **Name** - The name of the task..
   - **Parent Task** - The parent task associated with the task.
   - **Component** - The seeded/custom component associated with the task.
   - **Created Date** - The task creation date.
   - **Last Modified** - The last modification date.

   To search for a specific task, enter the keywords in the **Search** field and click **Search**. You can search based on the **Task Name**, **Code** and **Description**. You can also sort the Task list based on **Code**, **Name**, **Precedence**, **Component**, **Created Date**, and **Last Modified Date**.

Using the **Preview** option, you can view the complete task execution sequence for a specific batch/batch group.
Perform the following operations to manage a Task, from the **Scheduler Service (Define Task)** page.

- Add a task
- Modify a task
- Define a task precedence
- Delete a task

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7.1.5.1 Adding a Task

Add new tasks to a selected Batch Definition.

To add new task:

1. In the **Scheduler Service (Define Task)**, select the Batch for which you want to add a new task from the drop-down list.
2. Click **Actions** on the page and then click **Add** to access the **Add Task** page.
3. Click **Add** to access the **Add Task** page.
4. Enter the following details:
   - **Task Code** - Enter a unique alphanumeric code for the new task.
     The code must begin with letters, should not include spaces, and has a maximum limit of 60 characters. Special characters except **underscore (_)** are not allowed.
   - **Task Name** - Enter a unique name for the new task.
     The name should start with letters, not contain spaces, and have a maximum limit of 60 characters. Special characters except **underscore (_)** are not allowed.
   - **Task Description** - The description/details for the task.
     The description should begin with a letter and not exceed 250 characters. Avoid using phrases like "Select From" or "Delete From" in the description.
   - **Task Type** - Select the task type from the drop-down list.
   - **Component** - Select the custom or the seeded component associated with the task.

     > **Note**
     >
     > Refer to the respective component guide for information related to the component specific parameters.

   - **Batch Service URL** - Select the required Batch Service URL from the drop-down list. Batch Service URL is not required, if you provide the complete Task Service URL.
   - **Task Service URL** - Enter task service URL if it is different from Batch Service url.
5. By default, all Batch Level Parameters are added and enabled as task parameters in the **Task Parameters** pane.

   > **Note**
   >
   > You can edit the parameters only for custom components.

   a. Enter the Parameter name in the **Param Name** field.
   b. Enter the Parameter value in the **Param Value** field.

   To delete a parameter, click on **Delete** next to the respective parameter.
6. Click **Save** to add the new task to task summary in the **Define Task** page.

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> **Note**
>
> Sync task will remain active if execution time is more than 15 minutes at target service and till acknowledge status is generated from target API after the execution.

7.1.5.2 Modifying a Task

Modify details such as Task Description and Task Type in existing tasks.

You can also add a new task parameter and enable or disable existing task parameters.

To modify a task:

1. From the **Define Task** page, select the Batch to modify the task details from the drop-down list.
2. Click **Edit** corresponding to the Task you want to modify.
3. Modify the required Task Details, in the **Edit Task** page.
4. Click **Save** to update the changes.

   The modified task is added to the **Define Task** page.

7.1.5.3 Define Task Precedence

Task Precedence indicates the execution-flow of a batch. Task Precedence Value helps to determine the order in which the specific tasks of a batch are executed.

For example, consider a Batch consisting of four tasks. The first three tasks lack define precedence and hence will be executed simultaneously during batch execution. However, Task 4 has a precedence value as Task 1, indicating that Task 4 is executed only after the successful completion of Task 1.

You can set Task Precedence between Tasks or define to run a Task after a set of other tasks. While, multiple tasks can be executed simultaneously, cyclical execution is not permitted. Tasks without defined precedence execute immediately upon Batch Execution.

> **Note**
>
> The **Task Precedence** option is disabled if a batch has only one associated task.

To define task precedence:

1. Click **Add or Remove Precedence** corresponding to the task requiring precedence, to access the **Precedence Mapping** list.
   a. Select a batch to execute before the current task, from the **Available Tasks** pane and click **Move Selected**.

      To move all the batches, click **Move All**.

   b. To remove a batch from the task precedence sequence, select the task from the **Selected Tasks** pane and click **Remove**.

      To remove all the selected batches, click **Remove All**.
2. Click **Save** to update Task Precedence in the batches.

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3. Click **Preview** to view the precedence information.

7.1.5.4 Deleting a Task

Remove any tasks that that are no longer required in the system, from a Batch Definition.

To delete a task:

1. From the **Define Task** page, select the Batch from the drop-down list.
2. Click **Delete** corresponding to the Task you want to delete.
3. Click **OK** in the confirmation dialog to confirm deletion.

7.1.6 Schedule Batch

Schedule Batch enables users to manage batch/batch group executions.

To monitor a batch/batch group, click **Monitor Batch** from the Header panel.

To access **Schedule Batch** page, from the left menu, click **Operations and ProcessesOperations and Processes** and then select **Schedule Batch**.

All the batch/batch group schedules are listed. You can sort this list based on code, name, Pinned, Task Precedence, Components, and dates, to access a specific schedule.

From the **Schedule Batch** page, you can perform the following operations related to the execution and scheduling of batches/batch groups

- Execute batch/batch groups instantaneously
- Edit dynamic parameters
- Automate batch/batch group executions using the various scheduling options
- Re-run a batch/batch group execution
- Re-start a batch/batch group execution

7.1.6.1 Execute Batch/Batch Group

Use the Execute Batch to run a batch/batch group instantaneously.

To execute a Batch/Batch Group:

1. In the **Schedule Batch** page, select **Batch** or **Batch Group** to execute from the drop-down list.
2. Select the **Batch /Batch Group** for execution.
3. Click **Execute** to access the **Execution Schedule** page.
4. Click **Exclude Tasks** to add/remove tasks from the execution list.
5. Click **Hold Tasks** to pause/release tasks during execution.
6. Click **Edit Dynamic Parameters** to modify the dynamic parameters.
7. Click **Execute**.

   The Batch is executed, and the associated unique Run ID is displayed in the format `<BATCH_CODE>_<MIS_DATE>_<ITERATION-COUNT>`.
   You can always click preview to view the PMF process sequence used to execute the selected batch/batchgroup.

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7.1.6.2 Adding Pre-Conditions For Batch Group Execution

Pre-conditions help to execute batches associated with a batch group, on specific days, based on the set frequency and selected days.

You can set pre-conditions for a batch group, to execute specific batches on selected days based on the set frequency interval. This enables to wisely use the available resources for execution.

To set pre-conditions for batch group execution:

1. Click **Schedule** from the Header panel.
2. In the **Schedule Batch** page, select **Batch Group** and the **Batch Group Name**.
3. Click **Pre-Conditions** to set the pre-conditions for task execution.
4. Select the **Batch** to set the pre-condition.
5. Set the execution frequency to Weekly, Monthly, or specific interval and set one of the following conditions:
   - **Weekly** - Select the weekdays to execute the batch. You can select multiple days.
   - **Monthly** - Select the days of the month to execute the batch. You can select multiple days.
   - **Interval** - Select the recurrence frequency to execute the batch.
6. Click **Add** to add another pre-condition.
7. After adding all the required pre-conditions, Click **Save**.

   The pre-conditions are saved and the batch group will be executed based on the set pre-conditions.

> **Note**
>
> The batch group is always get executed based on the pre-condition and any schedule associated with the batch group will not be considered for processing.

7.1.6.3 Edit Dynamic Parameters

Modify the dynamic parameters set for a batch/batch group.

You can modify the batch parameters, batch header parameters, task parameters, and the task header parameters associated with a batch/batch group.

To edit the dynamic parameters from the **Schedule Batch** page:

1. Select **Batch/Batch group** and then select the specific batch/batch group.
2. Click **Edit Parameters** to access the **Edit Dynamic Params** page.

   You can also edit the dynamic parameters while configuring the scheduling options.
3. Click the batch/batch group name to access all the parameters.
4. Set the **$BatchDate$** to set the batch execution date: :
   - Set the batch date to SYSDATE (system date). The batch execution date is set to SYSDATE by default.
   - Toggle and select **MISDATE** to select a particular batch execution date.

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5. Enter **$BATCHRUNID$** to set the batch run ID in the format: `<BATCH_CODE>_<MIS_DATE>_<ITERATION-COUNT>`.
6. Edit the batch header parameters and the task parameters.
7. Click **Save** to update the batch/batch group parameter values.
8. After updating the changes, execute the batch/batch group or configure the scheduling settings.

7.1.6.4 Scheduling and Automating Batch/Batch Group Execution

Automate batch/batch group execution.

Using the various scheduling options, you can automate batch/batch group execution to run based on the specified scheduling parameters.

To automate batch/batch execution:

1. Click **Schedule** from the Header panel.
2. In the **Schedule Batch** page, select from the following options:
   - **Once** - Run only once.
   - **Daily** - Run daily.
   - **Weekly** - Run weekly on selected days and time.
   - **Monthly** - Run monthly on selected days and time.
   - **Quarter** -Run every quarter on selected days and time.
   - **Cron Expression** - A Cron Expression is a string comprising of six or seven fields separated by white space. Fields can contain any of the allowed values, along with various combinations of the allowed special characters for that field.
     To execute a batch/batch group using a Cron expression, enter the Cron Expression for your schedule. For more information about the Cron Expression, click **Information** next to the Cron Expression field.
3. Enter the following generic information and the parameters:
   - **Batch/Batch Group** - Batch/batch group for execution.
   - **Batch/Batch Group Name** - The specific batch/batch group to be executed.
   - **Schedule Name** - The unique schedule name.
4. Provide the following scheduling parameters based on the selected schedule option.

   For Cron Expression based scheduling, enter the required Cron expression.

Table 7-2 Scheduling Options

Details	Once	Daily	Weekly	Monthly	Quarter
Start Date to begin execution.	Yes	Yes	Yes	Yes	Yes
End Date to stop the execution	No	Yes	Yes	Yes	Yes
Run Time to execute the batch/ batch group	Yes	Yes	Yes	Yes	Yes
Days of the week you want to execute the batch/batch group. You can select multiple days.			Yes	Yes	Yes

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Table 7-2 (Cont.) Scheduling Options

Details	Once	Daily	Weekly	Monthly	Quarter
Months of the Year you want to execute the batch/batch group. You can select multiple months.				Yes	Yes
Day of the Month to execute batch/batch group				Yes	Yes
First Months of the Year to calculate the year beginning and each quarter beginning.					Yes
Select Quarters to execute batch/batch group You can select multiple quarters.					Yes
Days of Quarter - Select the days to execute the batch/batch group. You can select first day, mid day, last day, First N days, or last N days					Yes
No. of Days - If you select first N days or last N days, select the number of days to execute the batch/batch group at the beginning or end of the selected quarter					Yes

5. **Exclude Tasks** to add/remove tasks from the execution list.
6. **Hold Tasks** to pause/release tasks during execution.
7. Click **Edit Dynamic Parameters** to modify the dynamic parameters.
8. Use the following filters to dynamically export only the relevant records:
   - Additional Filter
   - Placeholder Filter

   Set the filters in the following format:

   DATA_TABLE.AS_OF_DATE = $FICMISDATE$ AND DATA_TABLE.EXECUTION_ID = $BATCHRUNID$

   Where:

   - DATA_TABLE: Data table from which to export relevant record
   - AS_OF_DATE: MIS Date
   - EXECUTION_ID: Execution ID

   Example: FSI_ALM_CASHFLOW_OUTPUT_HIST.AS_OF_DATE = $FICMISDATE$ AND FSI_ALM_CASHFLOW_OUTPUT_HIST.EXECUTION_ID = $BATCHRUNID$
9. Click **Schedule** to add the new schedule for execution.

   You can set pre-conditions to process batch groups. When a batch group has an associated pre-condition, the execution schedule will not be considered for processing.
10. To manage schedules associated with a specific batch:
    a. In the **Select Batch** page, select **Batch** and select the **Batch Name** to view the associated schedules.
    b. Click **View Schedule** to access the list of all the schedules associated with the batch.

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You can perform the following tasks:

- Click **Edit** to modify the schedule.
- Click **Pause** and enter the **Start Date** and **End Date** to pause the schedule from execution. Click **Add** to apply the pause.
  To remove the pause, click **Delete** next to the specific pause.

7.1.6.5 Re-run Batch/Batch Group

Re-running a batch/batch group facilitates you to run the batch/batch group irrespective of the previous execution state.

When you re-run a batch/batch group that has been previously executed, a new Run ID is generated, and the batch/batch group is executed as if it were a new run.

To re-run a batch::

1. Click **Schedule Batch** from the Header panel.
2. In the **Schedule Batch** page, select the **Re-run** tab.
3. Select **Batch/Batch Group**.
4. Select the **Batch or Batch group Name** you want to re-run.
5. Select the **Batch Run ID**.
6. Click **Re-run**.

7.1.6.6 Re-start Batch/Batch Group

Re-start a batch/batch group that has not executed successfully or has been explicitly interrupted, canceled, or put on hold during the execution process.

Restarting a batch/batch group enables you to continue execution directly from the point of interruption or failure, allowing you to complete executing the remaining tasks.

> **Note**
>
> Before restarting a batch/batch group, ensure to provide the complete cleanup URL and also to enable invoking the cleanup URL before restarting the execution.

To re-start a batch/batch group:

1. Click **Schedule Batch** from the Header panel.
2. From the **Schedule Batch** page, select the **Re-start** tab.
3. Select **Batch/Batch Group**.
4. Select the **Batch or Batch group** you want to schedule daily from the drop-down list.
5. Select the **Batch Run ID**.
6. Click **Re-start**.

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7.1.7 Monitor Batch/Batch Group

Using Monitor Batch/Batch Group, you can view the status of executed batches/batch groups, along with the tasks details.

Monitoring enables users to track and identify issues at regular intervals, ensuring smoother batch execution. Both a visual representation and a tabular view of the status of each task in the batch are available.

To monitor a batch/batch group:

1. Click **Monitor Batch** from the Header panel.
2. Select the **Batch/Batch Group** and the **Batch/Batch Group Name** to monitor the execution.
3. **Set Refresh Frequency Time Interval and duration** in seconds.

   By default, the refresh interval is set to **5 seconds** and duration is set to **5 minutes**. This indicates that the monitor progress will be refreshed every 5 seconds for the next 5 minutes.

   The refresh interval ranges between 5 to 60 seconds and the duration ranges between 5 to 180 seconds.
4. Select the **MISDATE** to view the list of Batch Run IDs executed on a specific date.
5. Select the **Batch Run ID** you want to monitor.
6. Click **Start Monitor** to view the results in **Visualization** and **List View** tabs.

   The **Visualization** tab displays execution status graphically, while the **List View** tab provides the details in a tabular form, including:

   - **Status**: Task execution status - **Not-Started**, **On-going**, **Aborted**, **Successful**, **Failed**, **Interrupted**, **Excluded** and **Undefined**.

     > **Note**
     >
     > When the task execution status is **Aborted**, the batch execution will still be **On-going**. The task status will be set to **Ongoing**, when it is triggered again.

   - **Start Time**: Task execution start time.
   - **End Time**: Task execution end time.
   - **Task Details**: Mouse-over the task to display its status and details.
7. At any point, select **Stop Monitor**, to stop monitoring.

   You can download the task execution summary in PDF or Excel, with or without the task logs, from the **Monitor Task** page.

   > **Note**
   >
   > You can download the task execution summary only if the **BATCH_OPER** role is mapped to the **LOGVIEW** function.

8. (Optional). To rerun, restart, or interrupt execution, click **Actions** and select the required option.

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You can also reset the search criteria using **Actions**.

9. (Optional). Click **View Execution Parameters** adjacent to a batch/batch group, to access the list of tasks and task parameters such as **Runskey ID**, **Misdate**, associated with that batch/batch group.

7.1.8 Scheduler Configuration

Scheduler Configuration UI allows you to manage the scheduler service configuration parameters.It also allows you to map specific user to batch and batchgroups for email notifications.

To access the Scheduler Configuration UI in the Scheduler Service page, follow these steps:

1. Go to the Home page of the application.
2. Navigate to **Batch Administration** in the left Navigation pane.
3. Under **Batch Administration**, click on **Scheduler Configuration**.

> **Note**
>
> Ensure you have the BATCH_ADMIN function code to access the Scheduler Configuration page.

7.1.8.1 Batch to User Configuration

Batch to User Configuration menu allows you to map users to specific batch/batch group processes.This assignment ensures that emails are sent only to the specific users associated with each batch.

To access the Batch to User Configuration page, select **Batch to User Configuration** in the Scheduler Configuration UI.

> **Note**
>
> Click the **eye** icon on the **Batch to User Configuration** tile to view the page.

To search for a specific batch/batch group, enter the keywords in the Search field and click **Search**. You can search based on Batch Name, Batch Code, and Batch type.

> **Note**
>
> The system automatically sends an email to all users mapped to the BATCH_NOTIFY_FUNT function and BATCH_NOTIFY_ROLE role. If a batch/batch group is mapped to a user (and their email ID), the batch email notifications will be sent only to that configured batch user. If no batch-to-user configuration is provided or updated, email notifications will be sent to users with the above function and role.

Perform the following steps to add specific user(s) to the batch/batch group:

1. In Batch to User Configuration menu, click **Add** to add new batch/batch groups.

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2. Select the batch type from the dropdown menu.
3. Select the required batch/batch group from the dropdown menu.
4. Select the required users from the dropdown menu.
5. Click **Create**, the *Batch User mapping is created successfully* message is displayed.

Action menu

Batch to user mapping configuration page lists all the batch/batch groups which are mapped to specific user(s).

1. Select the desired batch/batch group from the Batch to user mapping configuration page. Click **Action Menu** to view, modify, or delete batch/batch groups.
   a. **View**
   Clicking **View** allows users to see detailed information on the batch/batch group user mapping.
   b. **Edit**
   Edit the batch/batch group to user mapping configuration.You can either update the user details or remove the user.
   c. **Delete**
   The **Delete** option allows you to remove the user to batch/batch group mapping from the system.

7.1.8.2 General Configuration

The **General Configuration menu** allows you to configure the parameters related to a scheduler service.

1. Under **Scheduler Configuration** menu, select **General Configuration**.

> **Note**
>
> Click the **eye** icon on the **General Configuration** tile to view the page.

2. In Scheduler Service General Configuration Screen, click **Edit** to modify the configuration settings.
3. Modify the required details, refer to the **General configuration parameters** table below.

Table 7-3 General configuration parameters

Parameter	Description	Default Value
Enable/disable general email notification	Enable/disable general email notifications to automatically alert users when a batch job is successful, failed, or is interrupted.	Enable
Enable/disable in-app notification	Enable/disable in-app notifications to alert users within the application when a batch job is successful, failed, or is interrupted.	Enable

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Table 7-3 (Cont.) General configuration parameters

Parameter	Description	Default Value
Enable/disable notification for threshold email	Enable/disable email notifications triggered when a batch execution exceeds its expected execution time threshold. For example, if a batch typically completes in 1 hour but now takes longer, an email is sent as its taking longer than expected time to complete.	Enable
Threshold email time notification percentage criteria	Defines the additional execution time (in percentage) allowed beyond the last successful batch completion time before sending a threshold notification email. For example: If a batch previously completed successfully in 1 hour and the threshold is set to 20%, a threshold notification will be triggered if the batch exceeds 1 hour and 12 minutes (i.e., 60 minutes + 20%). If multiple notifications are allowed (as per the Threshold email Notify Limit), the time for subsequent notifications will be calculated from the last notification time, adding the same threshold percentage again. For instance, the next notification would be triggered after 20% of 72 minutes (i.e., 86.4 minutes), and so on.	20
Threshold email Notify Limit	Defines the maximum number of email notifications that can be sent when a batch exceeds its execution time threshold during a single run. **Note** If general email notification is disabled and only if the threshold email notification is enabled, scheduler sends only the threshold email.	5

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Table 7-3 (Cont.) General configuration parameters

Parameter	Description	Default Value
Batch to User mapping upper limit	Specifies the maximum number of users that can be mapped to a batch/batch group.You can configure a maximum of five user mappings per batch or batch group.	10

4. Click **Save** to save the modified configurations.
OR

   Click **Cancel** to discard the changes and revert to the previous settings.

7.2 Object Migration

Object Migration is the process to define, export and import objects across environments (prod and non-prod)/instances. This feature also facilitates to migrate within the same setup or different setups.

Objects refer to the various metadata definitions defined for various domains. You may want to migrate objects for several reasons such as manage global deployments on multiple environments or to create multiple environments so that you can separate the development, testing, and production processes.

For example, you can use the object migration feature to define PMF process object such as balance computation on your testing environment. After successful testing, you can use this feature to export the object to production/non-production environment.

You can migrate the following object types:

- **Schedule** - Schedule provides the instruction to schedule the execution of defined processes. When a schedule is migrated, the associated batch is also migrated.
- **Batch** - Batch is a group of jobs. When a batch is migrated, the batch and the associated pipeline information are also migrated. Note that the dependent objects used in the batch are not exported. All the objects used in the batch must be present in the target environment before the batch definition is imported.
- **Batch_Group** - A set of individual batches are consolidated to form a single Batch_Group. When we migrate a Batch_Group all the batches, tasks and pipeline information associated with that Batch_Group are also migrated.
- **Pipeline** - A pipeline is an embedded data processing engine that runs inside the application to filter, transform, and migrate data on-the-fly. Pipelines are a set of data processing elements called widgets connected in series, where the output of one widget is the input to the next element.
- **Threshold** - The threshold limit associated with set variables values for scenarios in FCCM Cloud Service. These threshold values are set when scenarios are created or installed and can be changed, if required.
- **Job** - Jobs provide set of instructions to execute Workflow Pipelines, based on the set threshold values.
- **Roles** - Roles are used to map functions to a defined set of groups to ensure user access system security.
- **Groups** - Groups are used to map Roles. Specific User Groups can perform only set of functions associated with that group.

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- **CM_ADMIN** - The CM_ADMIN object type refers to all the case management related admin screens. Under this object type, you can export case management related admin metadata and settings for Business Domain, Case Actions/Statuses, Case Priority, Case Rules, Case System Parameters, Case Types, Jurisdictions and Security Mapping.

> **Note**
>
> System can successfully import any object if both Code/Name do not exist in the target. If either code or name of the object being migrated is already available in target, import will fail.
> Even if overwrite option is selected, object will only be overwritten in target if both object code/name matches in target environment.
>
> For example, if an interest rate curve is being migrated, and either code or name is already available in target environment, import will fail.

7.2.1 Migration Object Types

You can create Object Export and Import definitions for the following object types using Object Export/Import feature.

The Migration object types are categorized as follows:

Asset Liability Management

- Standardized_IRRBB_Shock
- Static_deterministic_process
- Time_bucket
- Dynamic_deterministic_process
- Forecast_balances
- Multi_dimensional_balance_sheet
- Pricing_margin
- Product_characteristics
- Behaviour_pattern_rule
- Discount_methods
- Forecast_rates
- Prepayment_model
- Prepayment_rules
- Transferring_Price_Rules

Cash Flow Edits

- Cash_flow_edits_rule
- Cash_flow_edits

Cash Flow Engine

- Cashflow_Process

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Common Objects

- Batch

> **Note**
>
> Ensure to have BATCH_SUMM, BATCH_VIEW and BATCH_ADD riles to view, export and import batches.

- Batch_group

> **Note**
>
> Ensure to have BATCH_SUMM, BATCH_VIEW and BATCH_ADD riles to view, export and import batches.

- Currency
- Datamodel_extension_dimension
- Data_file_specification
- Dimensions

> **Note**
>
> Dimension definitions should be migrated before migrating the dependent object definitions. The source and the target dimension of the dependent objects should be the same.

- Expressions
- Filters
- Folder
- Hierarchy

> **Note**
>
> Dimension definitions should be migrated before migrating the Hierarchy associated with it. The Dimension should be the same in both source and target environments.

- Holiday_calendar
- Job
- Pipeline
- Schedule

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> **Note**
>
> Ensure to have BATCH_SUMM, BATCH_VIEW and BATCH_ADD riles to view, export and import batches.

- Slowly Changing Dimensions

Data Maintenance Interface (DMI)

- Excel Upload
- Data Entry
- Data Exporter

> **Note**
>
> Ensure that the definitions are in **Approved** status before migrating.

Funds Transfer Pricing

- Add-on Rate Rule
- Alternate_Rate_Output_Mapping
- Replicating Portfolio
- Standard_Process

Identity Management

- **Groups** - For more information, refer to Groups Summary in Admin Console.
- **Roles** - For more information, refer to Roles Summary in Admin Console

Patterns

- Behaviour_pattern
- Payment_pattern
- Reprice_pattern

Profitability Management

- Allocation Model
- Lookup Table
- Allocation Specification
- Static_Table

Profitability Analytics

- Financial Element Mapping
- Segmentation Mapping
- Line Item Display Order
- Geography Mapping

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Rate Management

- Interest Rates
- Economic_indicator
- Volatility_surface

7.2.2 Accessing Object Export and Object Import Features

Using the Object Export and Import features, you can create Export and Import Object definitions.

Business Objects - To access Object Export and Import feature for Business Objects: From the left navigation pane in the PBSM applications console, click **Operations and Processes > Object Administration** and:

- To access Object Export feature, click **Export Object**.
- To access Object Import feature, click **Import Object**.

Identity Management Objects - To access Object Export and Import feature for Identity Management Objects: From the Admin Console, click **Identity Management** and

- To access Object Export feature, click **Object Migration (Export)** tile.
- To access Object Import feature, click **Object Migration (Import)** tile.

7.2.3 Export Object

Object Export Definition is a collection of objects that can be exported across environments.

You can view the list of object export definitions that are already created in the **Object Export Summary**. You can also view the following details about each object definition.

- **Name** - The unique name assigned to the collection when the export definition was created.
- **Object Migration Status** - The export status of a specific object definition.
  - **Success** - Indicates that the export is completed successfully.
  - **Failed** - Indicates that the export was not successful. You can reintiate the migration of the specific object definition.
  - **Saved** - Indicates that the object definition is created successfully and is yet to be exported.
  - **In Progress** -Indicates that the export is in progress. Once the export is complete, the status will change to Success/Failed.
- **Last Modified By** - The ID of the Last Modified by user who has modified the definition. On mouse over, the Last Modified Time and Date are displayed.

To filter the list and view specific Object Definition, use one of the following search options:

- To search for a specific Export Object Definition, type the first few letters of the export definition that you want to search in the Search Box and click **Search**. The search results display the names that consist of your search string in the list of available definitions.
- Enter the number of records to be viewed in a single page, in the **Records** box, at the bottom of the page. You can increase or decrease the number of entries that are displayed using the up and down arrows.

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- You can navigate between pages in the **View** bar, use the navigation buttons present at the bottom of the page.

7.2.3.1 Creating Export Definitions

You can create export Meta data objects using the System Configuration tab in Admin Console.

For more information about the supported object types, refer to Migration Object Types. Refer to the following steps, to create a migration export object.

1. Click **Add** in the **Object Export Summary** Page to view the **Migration Definition** page.
2. Enter the following details, in the **Migration Definition** page.
   - **Migration Name**: Enter the code of the export of objects to be migrated definition. This is a unique identifier.
   - **File Name**: The system auto-creates the file name of the objects that can be used to export the definition in the following format:
     - **For Business Objects**: Migration Name_BO_Time Stamp_Tenant_Release Version (time stamp format: MMDDYYY HHMMSS)
       Example: EXP_DQRULE_BO_07312025_162240_zqvzly-prd_25_09_01.DMP
     - **For Identity Objects:** Migration Name_IDM_Time Stamp_Tenant_Release Version (time stamp format: MMDDYYY HHMMSS)
       Example: EXP_DQRULE_IDM_07312025_162240_zqvzly-prd_25_09_01.DMP
3. Click **Apply** to save the details and view the **Object Selection** Page.
4. Click **Add** to include Migration objects to the definition.
5. select the required **Object Type** from the Object Types drop-down list.
6. Select the objects to be added to the Migrate Definition and click **Save**, to create a new migration object.

   A confirmation message is displayed, when the definition is saved successfully. The new migration definition is listed in the Object Export Summary Page and the status is set to **Saved**.

   You can also click **Export**, to export the object.

7.2.3.2 Editing Export Object Definitions

You can edit the Export Object definitions that are not exported and their status is **Saved** or **Failed**.

If the definitions is already exported and the status is set to **Success**, you cannot edit that definition.

To edit an Export Object definition, follow these steps.

1. In the Object Export Summary page, highlight the definition and click **Menu**, and select **Edit**.

   The **Object Selection** page is displayed.
2. Modify the following details, if required, and click **Save** to changes.
   - Select the required **Object Type** from the Object Types drop-down list.
   - Select the objects to be added to/deleted from the definition.

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3. After adding/deleting all the required objects, click **Save**.

   The Export definition is saved successfully and a confirmation message is displayed. The new definition is listed in the Object Export Summary page and the status is set to **Saved**.

4. If you want to Save and Export the Definition, click **Export**.

7.2.3.3 Exporting Object Definition

After creating the object definitions, you can export them for migrating between environments, using Object Migration (Export) feature.

You can export object definitions in **Saved** or **Failed** state from the object Summary page.Refer to the following steps, to export definitions.

1. In the Object Summary Page, highlight the migration definition and click **Menu**.
2. Select **Export** from the menu.

   After you export, the following Export status types are displayed:

   - **Success** - Indicates that the definition is exported successfully.
   - **Failed** - Indicates that the definition was not exported. Right-click and select **Export**, to reintiate the export process.
   - **In Progress** -Indicates that the export is in progress. Once the export is completed, the status will change to Success/Failed.

7.2.3.4 Viewing Export Object Details

Using the **View** option, you can view the list of objects and the dependancies added to an Object definition. You can also view the object details.

1. Highlight the Export definition and click **Menu**.
2. Select **View**. The object types, list of objects and the dependent objects added to the export definition are listed in the left pane.
3. Double-click an object to view the object attribute details.

7.2.3.5 View Object Definition Export Log Details

View log facilitates you to view the export log information of the object definition with the migration status.

> **Note**
>
> The View Log page for an object definition with status **Saved** will be empty.

To view the log details of object with migration status **Success** or **Failed**, follow these steps.

1. In the Object Export Summary page, mouseover the object definition and click **Menu**.
2. Select **View Log** from the drop-down menu, to access the **View Log** page.

   The migration status of the objects with following details is displayed.

   - **Object Migration ID** - The migration ID associated with the definition.
   - **Object Type** - The object type of the definition.

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- **Object Code** - The object code associated with the definition.
- **Creation Date** - The date of creation of the definition.
- **Created By** - The User Id of the User who created the definition.
- **Status** - The migration status of the definition.
  - **Success** - Indicates that the export migration was completed successfully.
  - **Failed** - Indicates that the export migration did not complete.
  - **Export Status Message** - The complete export status message.

> **Note**
>
> Export status message currently not supported for GL reconcilation.

3. Click **OK** to close the page, after viewing the log details.

7.2.3.6 Downloading Dump File

You can download the export dump file for exported definitions to a local directory, using Download Dump file option.

The downloaded export dump file can be used to upload objects to a different environment.

> **Note**
>
> This option is enabled, only if the definition is exported successfully and the **Migration Status** is set to **Success**.

To download a export dump file, refer to the following procedure.

1. Mouseover a migrated object and select **Menu**.
2. Select **Download Dump File** from the drop-down menu, to download the associated dump file and store it to the local directory.

7.2.3.7 Deleting Export Object Definition

You can delete only definitions that are set to **Saved** or **Failed** status.

To delete a export object definition, follow these steps.

1. In the Object Export Summary page, mouseover the definition to be deleted and click **Delete** .
2. Click **Yes** to confirm and proceed with the deletion.

7.2.4 Import Object

Object Import Definitions is a collection of objects that can be imported across environments. .

You can view the list of Object Import Definitions that are already created in the **Object Import Summary**. You can also view the following details about each Object definition.

- **Name** - The unique name assigned to the collection when the Import definition was created.

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- **Object Migration Status** - The import status of a specific Object definition.
  - **Success** - Indicates that the import is completed successfully.
  - **Failed** - Indicates that the import was not successful. You can reintiate the migration of theSpecific Object Definition.
  - **Saved** - Indicates that the Object Definition is created successfully and is yet to be imported.
  - **In Progress** -Indicates that the import is in progress. Once the import is complete, the status will change to Success/Failed.
- **Last Modified By** - The ID of the Last Modified by user who has modified the definition. On mouse over, the Last Modified Time and Date are displayed.

To filter the list and view Specific Object Definition, use one of the following search options.

- To search for a Specific Import Object definition, type the first few letters of the Import definition that you want to search in the Search box and click **Search**. The search results display the names that consist of your search string in the list of available definitions.
- Enter the number of records to be viewed in a single page, in the **Records** box, at the bottom of the page. You can increase or decrease the number of entries that are displayed using the up and down arrows.
- You can navigate between pages in the **View** bar, use the navigation buttons present at the bottom of the page.

7.2.4.1 Creating Object Import Definitions

You can create Import definitions and add Import Objects using the Object Migration (Import) feature.

1. Click **Add** in the **Object Import Summary** page to view the **Migration Definition** page.
2. Enter the following details, in the **Migration Definition** page.
   - **ID** - The Unique Name for the New Import Object definition.
     The migration ID should not contain any space and exceed 30 characters. Underscore (_) and hyphen (-) are allowed.
   - **Dump File** -Select the .DMP file to be uploaded for creating the Import definition.

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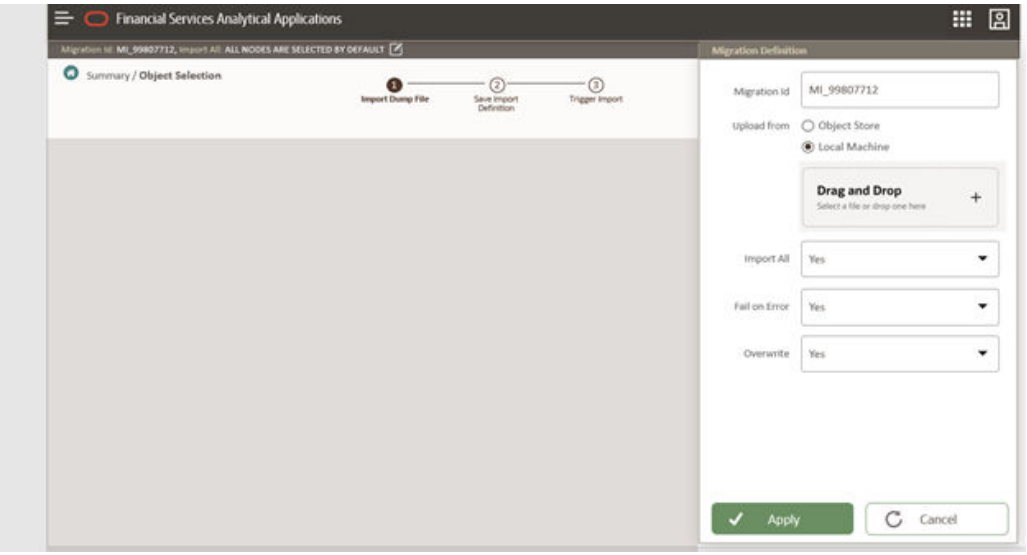
Figure 7-1 Importing Dump File



You can select the dump file using one of the following options:

- Select the option **Object Store**, to select the dump file (.DMP file) from the list of dump files available in the same environment.
- Select the option **Local Machine** and click **Drag and Drop**, to add a .DMP file, from the local directory. You can only Add Dump file that are downloaded using Download Dump file option.

> **Note**
>
> - Uploading a dmp file either created or edited locally will generate an error.
> - You can rename the .DMP file, if required. Ensure to follow the naming convention. For more information, refer toFile Naming Conventions for Migrate Objects.

- **Import All** - Select an option to import the objects that are associated with the selected object type. You can edit this option if required, in the **Object Selection** page.
  - **Yes** - Imports all the objects that are included in the dump file.
  - **No** - Imports only those objects that you can select in the **Object Selection** page.
- **Fail on Error** - Select an option to proceed with the definition creation in case of an error. You can edit this option if required, in the **Object Selection** page.
  - **Yes** - Stops the creation process, if error is generated.
  - **No** - Creates the import definition even when error is generated. The object with the error is not included in the object creation.
- **Overwrite** - Select an option to overwrite the existing definition. You can edit this option if required, in the **Object Selection** page.
  - **Yes** - Replaces the existing Import definition.
  - **No** - Creates a new Import definition.

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3. Click **Apply** to save the details.

   The Import definition is created and **Object Selection** page is displayed. You can add objects to this import definition.

4. Click **Add** to include objects to the definition.
5. Select the required **Object Type** from the Object Types drop-down list.

   Objects that are defined in the environment with respect to the selected object type are are listed. For example, if Schedule is selected as the Object Type, all the Objects defined with respect to Schedule, in the environment are only listed.

   You can also enter the first few letters of the object name in the Search Field, to narrow down the search.

6. Click the check box adjacent to each object, to include the objects associated with a specific object type, to the import definition.
7. Repeat steps 4, 5 and 6, to include objects associated with various object types.
8. After adding all the required objects, click **Save**.

   The Import definition is saved successfully and a confirmation message is displayed. The new definition is listed in the Object Import Summary page and the status is set to **Saved**.

9. If you want to Save and Export the Definition, click **Import**.

7.2.4.2 Editing Import Definitions

You can edit the Import definitions that are not imported and their status is **Saved** or **Failed**.

If the definitions is already imported and the status is set to **Success**, you cannot edit that definition.

To edit an Import definition, follow these steps.

1. In the Object Import Summary page, highlight the definition and click **Menu**, and select **Edit**.

   The **Object Selection** page is displayed.

2. Edit the following details, if required, and click **Save** to changes.
   - Select the required **Object Type** from the Object Types drop-down list.
   - Select the objects to be added to/deleted from the definition.
3. After adding/deleting all the required objects, click **Save**.

   The import definition is saved successfully and a confirmation message is displayed. The new definition is listed in the Object Import Summary page and the status is set to **Saved**.

4. Click **Save** to update the changes.
5. If you want to Save and import the Definition, click **Import**.

7.2.4.3 Importing Object Definitions

After creating the object definitions, you can export them for migrating between environments, using Object Migration (Import) feature.

You can import object definitions in **Edited** state from the object Summary page. Refer to the following steps to import Object definitions.

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> **Note**
>
> Comments and Documents attached to an Issue/Action will not be migrated.

1. In the Object Summary Page, mouse-over the definition and click **Menu**.
2. Select **Import** from the drop-down menu.

   After you import, the following Import status types are displayed:

   - **Success** - Indicates that the definition is imported successfully.
   - **Failed** - Indicates that the definition was not imported. Right-click and select **Import**, to restart the import process.

     > **Note**
     >
     > If the Process code is not unique and if the **Overwrite** flag is set as **No** while importing the object definition, the migration request fails and when you view the logs, the following error is displayed "**Process code is not unique, Migration Request Failed**"

   - **In Progress** -Indicates that the import is in progress. Once the import is completed, the status will change to Success/Failed.

   In case the migration fails, refer to Troubleshooting Object Migration.

   > **Note**
   >
   > - If a Change Request import fails, then it is recommended not to use the action created for it in the target (if any), otherwise subsequent re-import requests might fail.
   > - Approve the Change Request and publish, after it is imported successfully.
   > - After the import of segment extension
   >   - Creates an Issue with same name as Export Name (Issue name – “Issue – Exportname”) captured with current start and target date with 30 days ahead.
   >   - Creates an Action with same name as Export Name (Action name- “Action – Exportname”) captured with current start and target date with 30 days ahead.
   >   - Select all Dimensions exported. And action will be in submitted status.
   >   - After Import, Issue and action owner has to be reassigned accordingly for Approval process.

7.2.4.4 Viewing Import Object Details

Using the **View** option, you can view the list of objects and the dependancies added to an Object definition. You can also view the object details.

1. Mouseover the migration definition and click **Menu**.

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2. Select **View**. The object types, list of objects and the dependent objects added to the export definition are listed in the left pane.
3. Double-click an object to view the object attribute details.

7.2.4.5 Viewing Object Import Log Details

View log facilitates you to view the log information of the object definition with the migration status.

> **Note**
>
> The View Log page for a definition with migration status **Saved** will be empty.

To view the log details of definition with migration status **Success** or **Failed**, follow these steps.

1. In the Object Import Summary window, mouseover the migration definition and click **Menu**.
2. Select **View Log** from the drop-down menu, to access the **View Log** page.

   The migration status with following details is displayed.

   - **Object Migration ID** - The migration ID associated with the import object.
   - **Object Type** - The object type of the import object.
   - **Object Code** - The object code associated with the import object.
   - **Creation Date** - The date of creation of the import object.
   - **Created By** - The User Id of the User who created the import object.
   - **Status** - The import status of the specific object.
     - **Success** - Indicates that the specific object was imported successfully.
     - **Failed** - Indicates that the specific object was not imported.
   - **Import Status Message** - The complete import status message.

   > **Note**
   >
   > Import status message currently not supported for GL reconcilation.

3. Click **OK** to close the page, after viewing the log details.

7.2.4.6 Deleting Import Definition

You can delete only definitions that are set to **Saved** or **Failed** status.

To delete an import definition, follow these steps.

1. In the Object Import Summary page, mouseover the definition to be deleted and click **Delete** .
2. Click **Yes** to confirm and proceed with the deletion.

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7.3 Changing Object Ownership

Access Type for most objects can be defined as ‘Read Only’ and ‘Read/Write’. When it is defined as ‘Read Only’ the user who created owns it i.e., another user will be able to only view it. For any reason if the owner of object is not available then no one else will be able to modify it.

This functionality helps you to change the ownership of objects from one user to another user(s).

Changing the ownership of object is generally required when the users of the application move across different teams or leave the organization. In this case, the ownership of the objects created by a particular user remain on that user's name and they need to be transferred to different user to enable them to operate on them.

To change the ownership of objects, you must raise a Service Request with the Oracle Support Team with the following information. Oracle Support Team will coordinate with the Operations team to change the ownership.

- The existing username who created the object.
- The new username to which the ownership must be transferred.

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8
Analytics

This section covers the following topics:

- Asset Liability Management Cloud Reports & Analytics: Oracle Analytics is a scalable and secure Oracle Cloud Service that provides a full set of capabilities to explore and perform collaborative analytics for you, your workgroup, and your enterprise.

8.1 Asset Liability Management Cloud Reports

Asset Liability Management Cloud Service (ALMCS) Analytics User Guide describes the features and functions of ALM's Analytics is intended for the use of Administrators, Analysts, Reporting Analysts, and Administrators.

Asset Liability Management (ALM) Could Service utilizes the power of Oracle Analytics to generate the Business Intelligence Reports.

Oracle Analytics is a scalable and secure Oracle Cloud Service that provides a full set of capabilities to explore and perform collaborative analytics for you, your workgroup, and your enterprise.

With Oracle Analytics Cloud, you also get flexible Service Management capabilities, including fast setup, easy scaling and patching, and automated lifecycle management.

For more information, see the Oracle Analytics Cloud documentation.

8.1.1 Access Business Intelligence (BI) Reports

This section describes the steps to access the Business Intelligence (BI) Reports.

To access the Oracle Financial Services Profitability Management Cloud Service BI Reports, from the LHS Menu, select **Analytics**, and then select **Home Page**.

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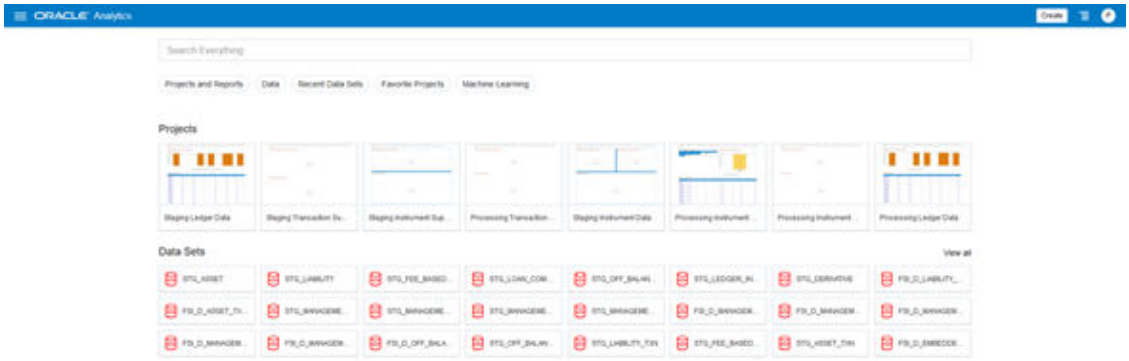
Figure 8-1 Analytics Home Page



8.1.2 Creating Adhoc Reports and Analysis

The Profitability and Balance Sheet Management Ad-hoc Analysis is provided inside a Shared Folder. Users can use this folder for saving any ad-hoc reports which need to be shared across respective teams. When any patch is applied these reports will not be replaced or purged.

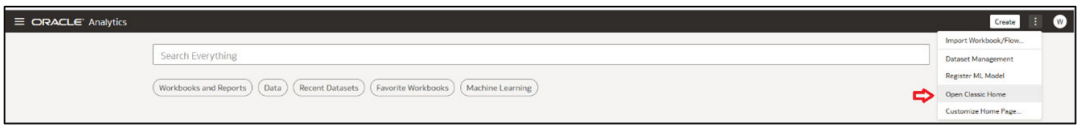
8.1.2.1 Amend Out-of-the-Box Reports

A user with DV Content Author privileges will have access to amend and save the out-of-the-box reports.

To amend and save the reports:

1. To open the ORACLE Analytics page, from the **Home Page**, select **Home Page**, and then from the **Page Menu** on the top-right corner, select **Open Classic Home**.
   A new window will open with Classic Home.

Figure 8-2 Classic Home Page



2. Click **Catalog**.

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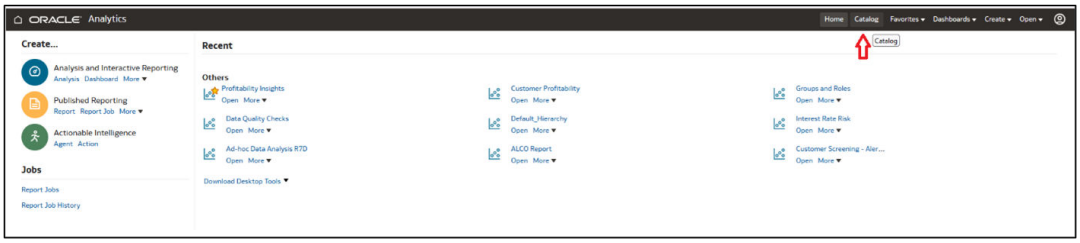
Figure 8-3 Catalog



3. Navigate to **Shared Folders** and select the dashboard and subsequently the report from the available list that you want to edit and right click on your mouse. You will find the Copy option as indicated in the below illustration.

Figure 8-4 Copy Option

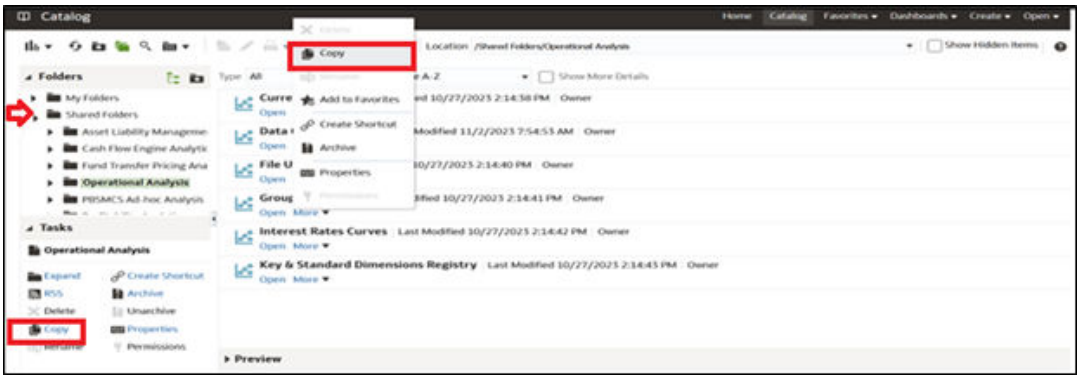
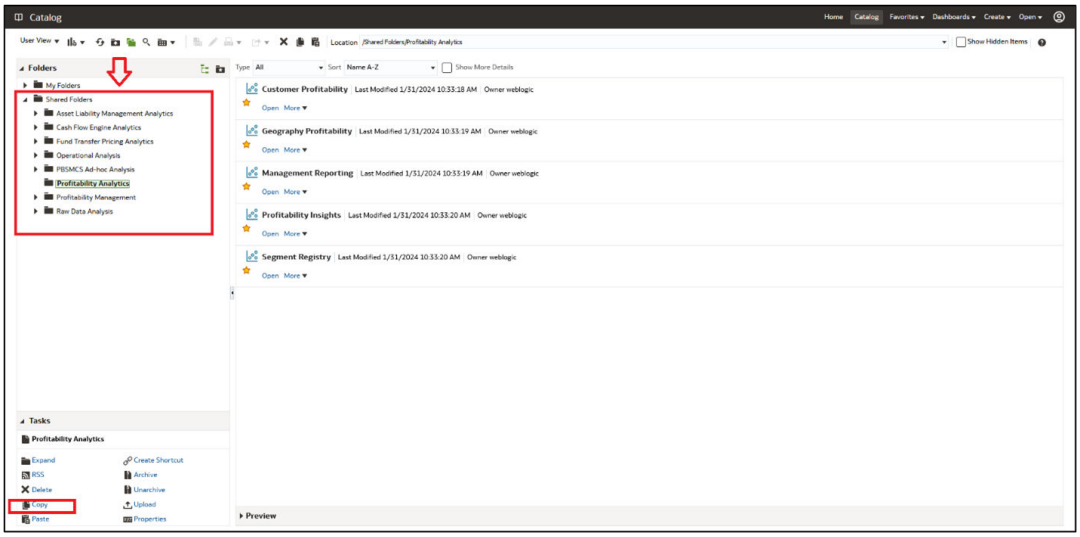


Figure 8-5 Folders



4. Navigate to **My Folders**.

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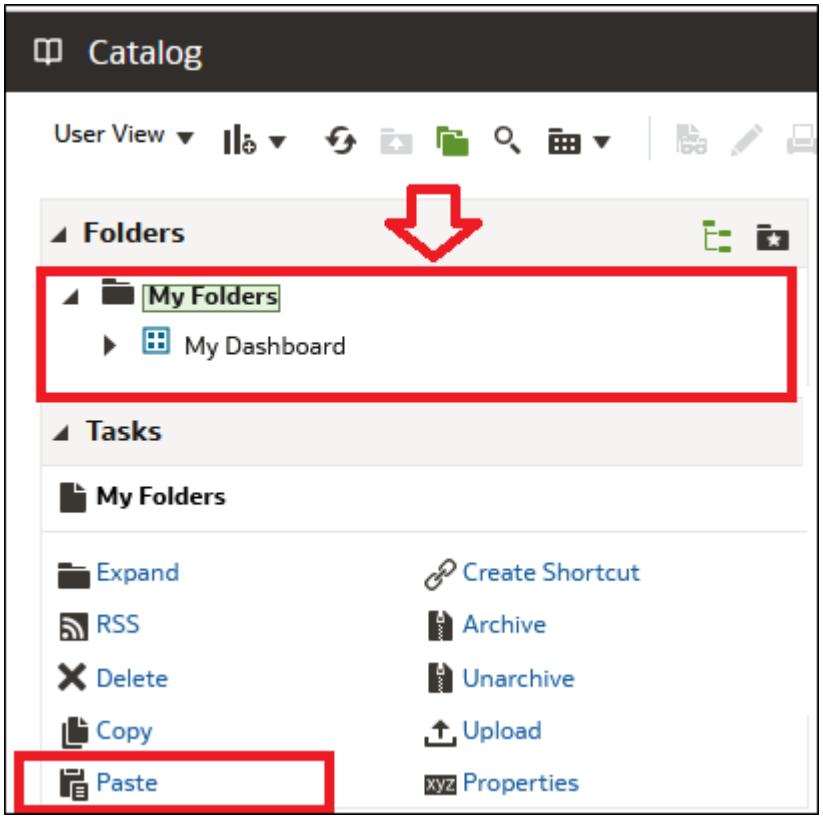
Figure 8-6 My Folders

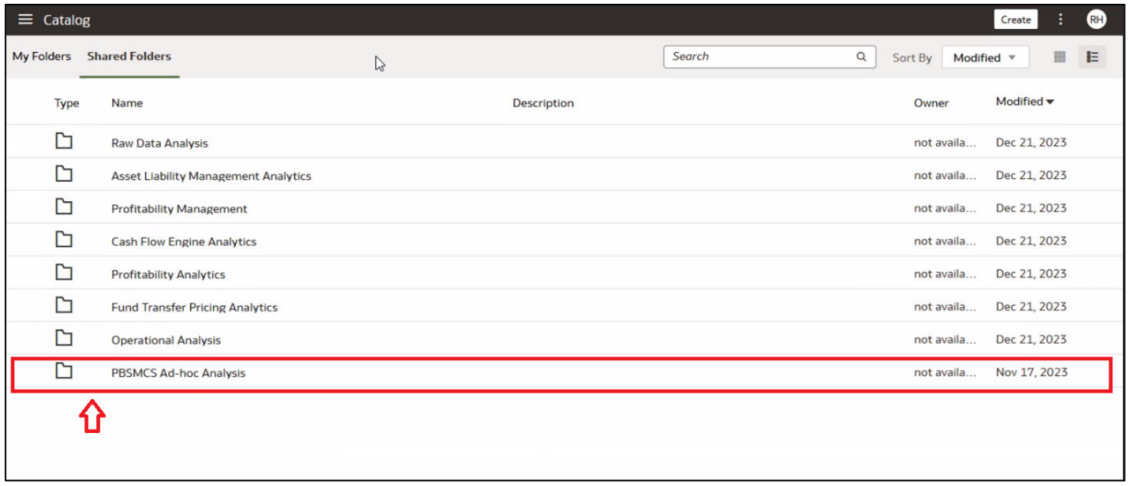


5. Paste the report.
You will be able to edit the Report which is saved inside My Folder.

8.1.2.2 Ad-hoc Analysis Folder

This Folder can be used by the customers to share the reports across the organization.

Figure 8-7 Ad-hoc Analysis folder



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The out-of-the-box reports can be edited and saved inside Adhoc analysis folder. The reports inside these folders will not be updated or refreshed when any provisioning happens.

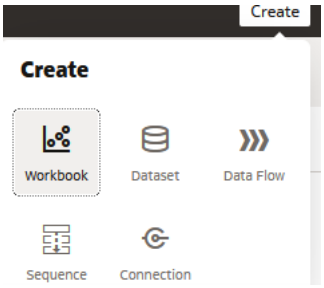
8.1.2.3 Working with Out-of-the-Box Subject Area

A user with DV Content Author credentials will have access to create new reports. The DV Consumer will have Read Only access.

To work with OOTB Subject Area:

1. To open the ORACLE Analytics page, from the **Home Page**, select **Home Page**.
2. Click the **Create** button and select **Workbook** as shown below.

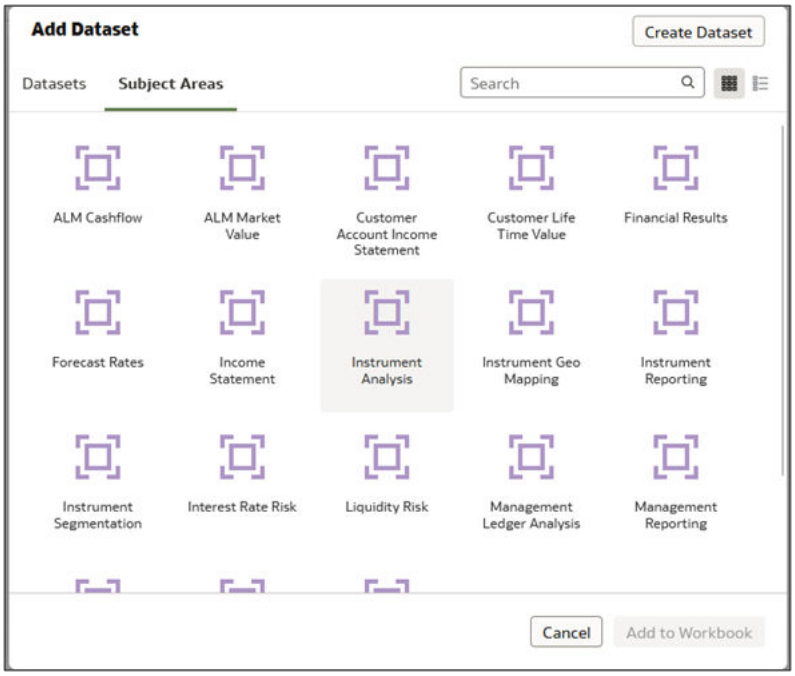
Figure 8-8 Create



This opens the Add Dataset window.

3. Select the **Subject Areas** tab. You will find all the relevant subject areas listed as follows.

Figure 8-9 Subject Areas



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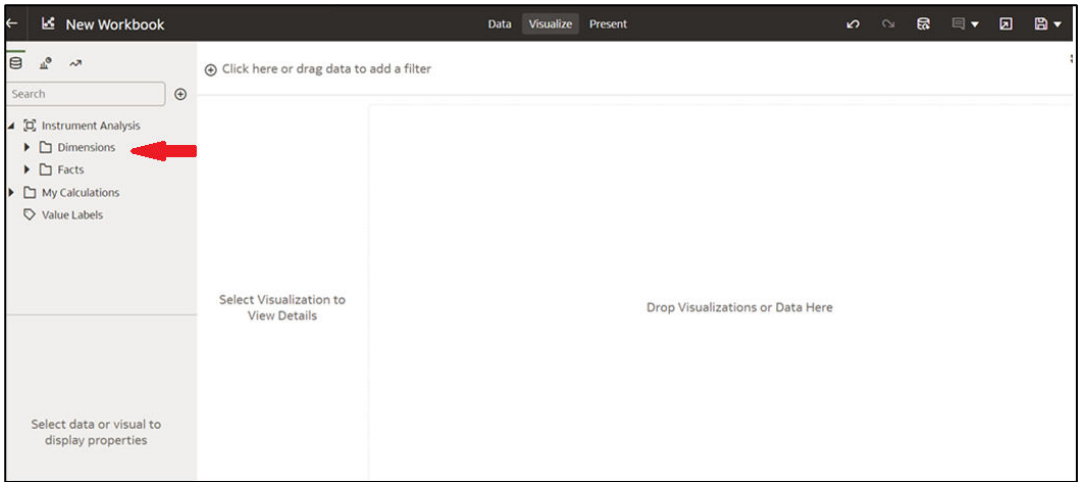
4. You can double click to select a particular Subject Areas and a new canvas will open up with the elements of the selected subject area.

Figure 8-10 New Workbook



5. Expand the **Dimensions** and **Facts** and drop the relevant items on to the canvas. By default the best visualization/ chart type for the given data is displayed.

8.1.3 SQL Query Browser

Data Sets are self-service Data Models that you build specifically for your Data Visualization and Analysis requirements.

A Data Set can be based on one Table, Spreadsheet, or a File. Alternatively, a Data Set can be a self-service Data Model that contains multiple Tables with relationships defined between the Tables.

A Data Set contains Data Source Connection Information, Tables, the Columns you specify, and the Data Enrichments, and Transformations that you apply.

For more information, see Visualizing Data and Building Reports in Oracle Analytics Cloud.

To access the SQL Query Browser and prepare Data, follow these steps:

1. From the LHS Menu, select Analytics, and then select SQL Query Browser.
The SQL Query Browser allows you to use an existing Database Connector named OFSAA Analytics – Public to interact with the underlying available Database Structures.

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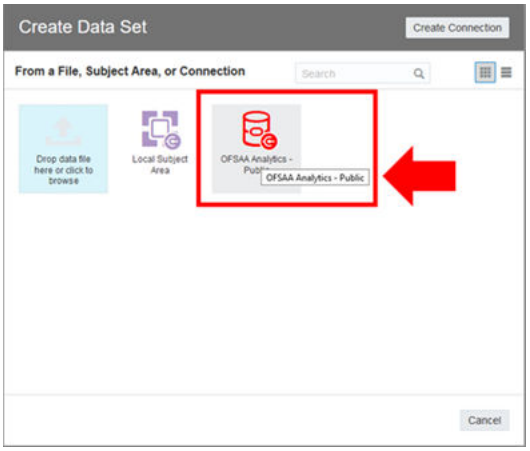
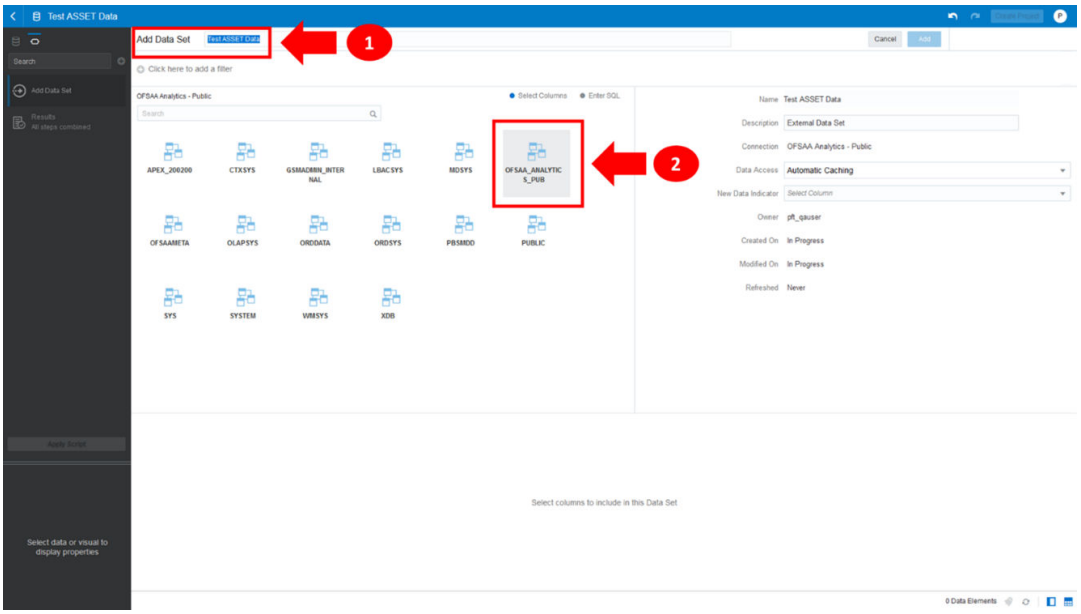
Figure 8-11 Create Data Set Screen



2. After selecting the Database Connector, you must select the Database Schema named OFSAA_ANALYTICS_PUB to proceed to the next step of Database Object Selection.

Figure 8-12 Add Data Set



3. Provide a meaningful name to the Data Set, which will be generated from this process and be used for the SQL Query Analysis.
4. You can search for a Database Object from the available options. You can either scroll down or search the Database Objects displayed in alphabetical order.

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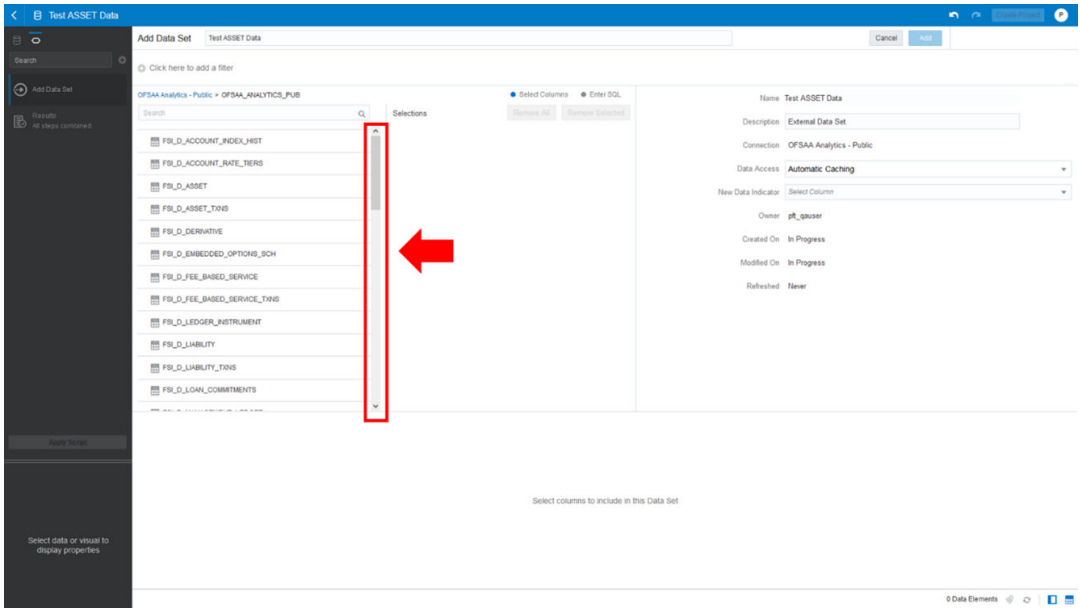
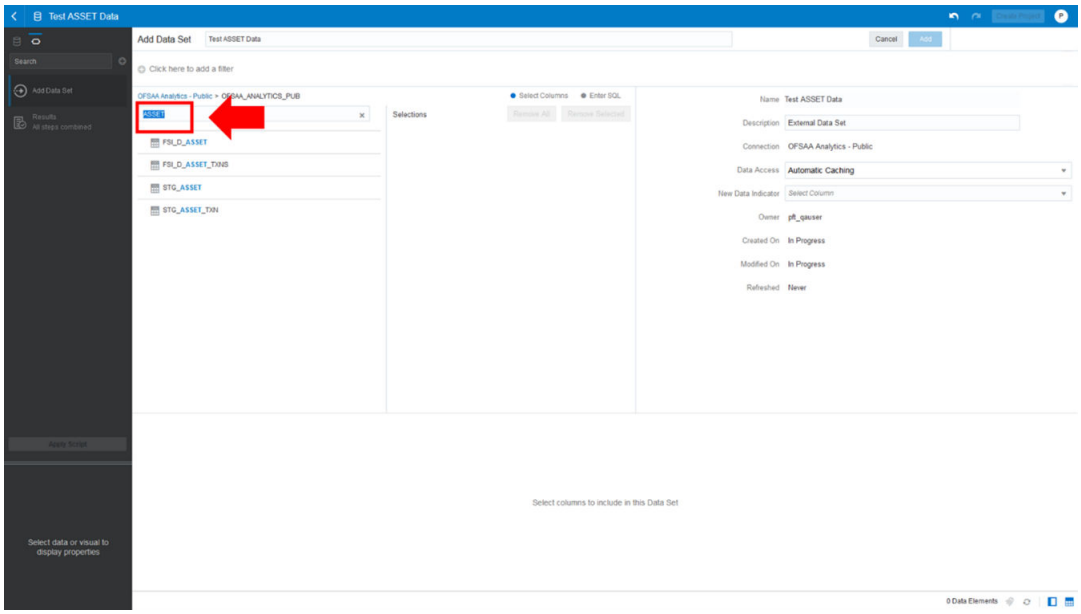
Figure 8-13 Add Data Set – Search from the List



Or

Type the Database Object Name to filter the list with Description.

Figure 8-14 Add Data Set – Search by Name



After you select the Object that want, you can proceed to the next step.

5. You search the Columns that are available for the selected Database Object by scrolling.

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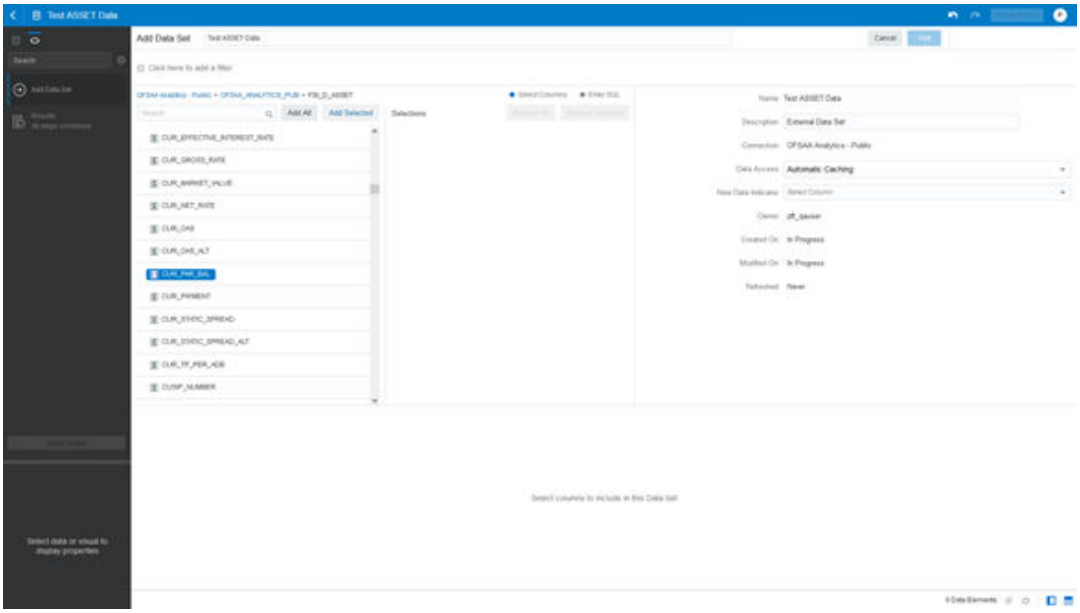
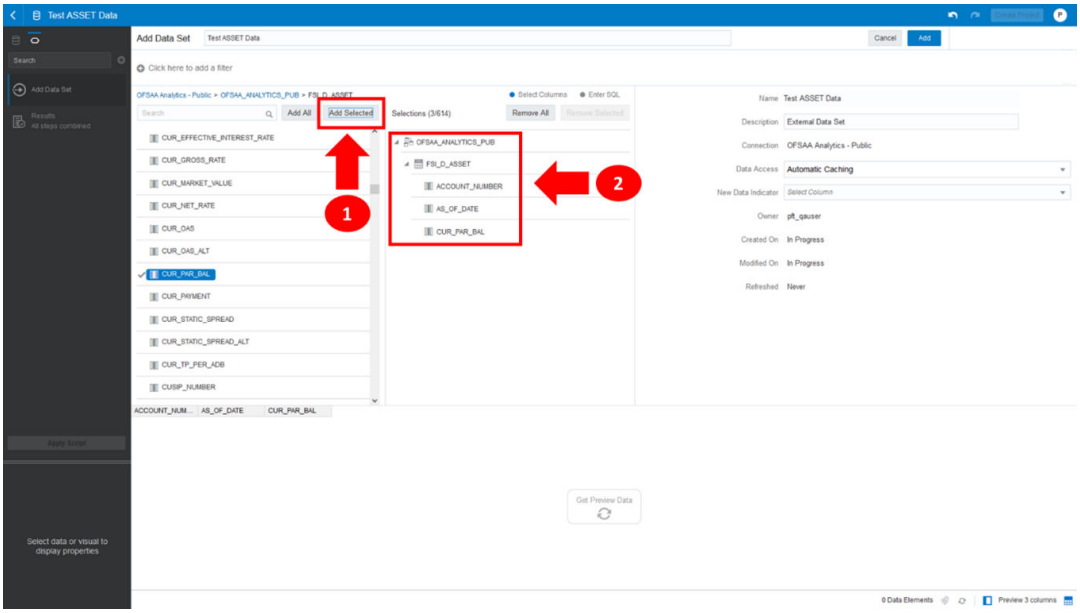
Figure 8-15 Add Data Set – Search Columns



6. Add the Database Object Column as required.

Figure 8-16 Add Data Set – Adding the Database Object Column



7. Click Get Preview Data to display the retrieved Data Results.

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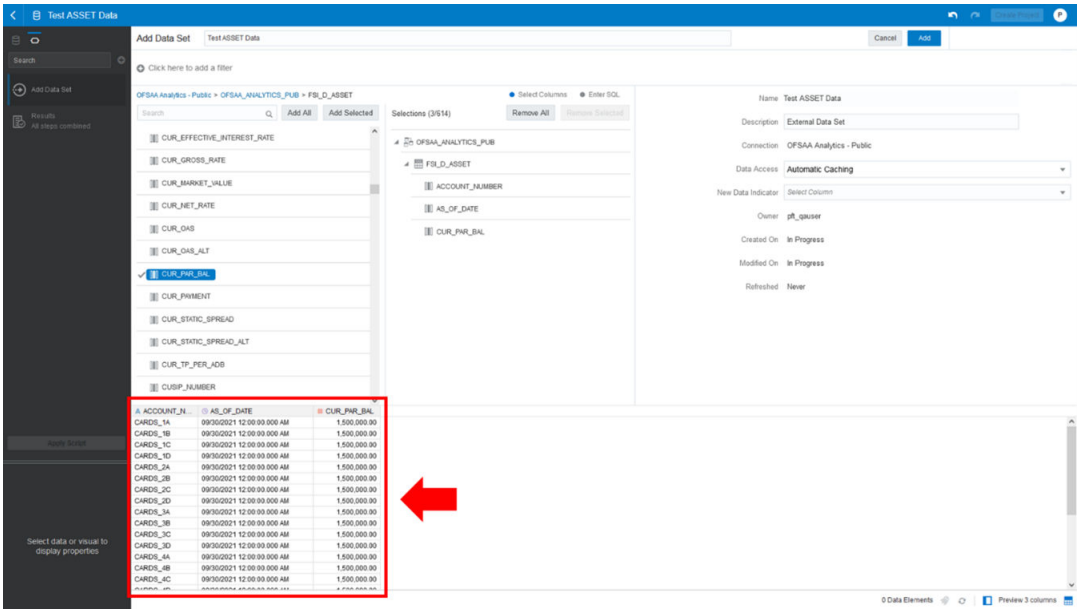
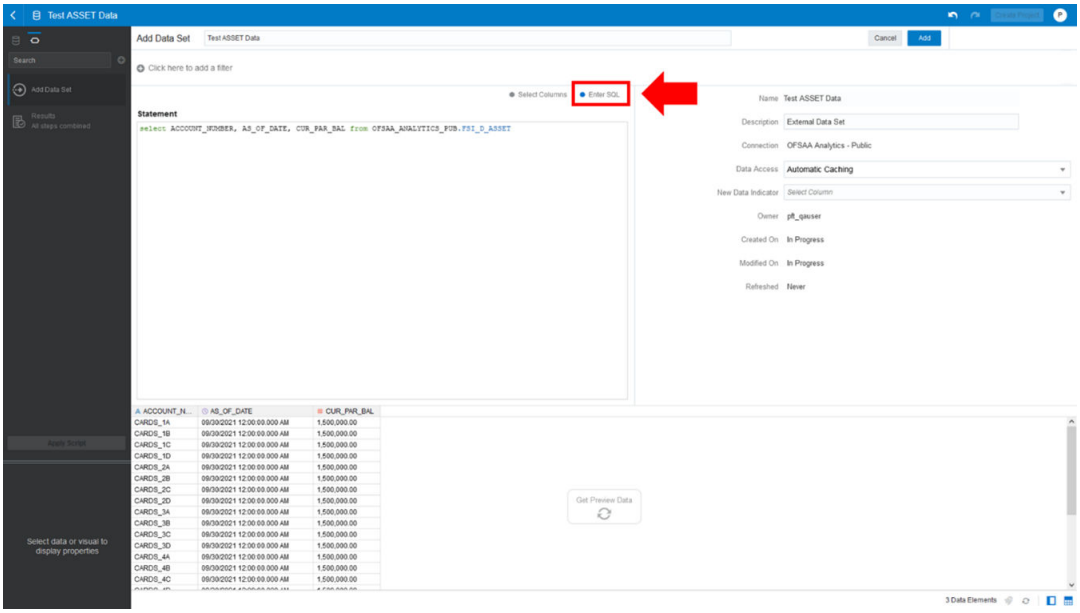
Figure 8-17 Data Results



8. In addition, you can switch to the Enter SQL Pane Editor. You can change the auto-generated SQL Query at any time and click Get Preview Data to retrieve the results based on the modified SQL Query.

Figure 8-18 Data Results based on modified SQL Query



9. Click **Add** to save the SQL Data.
10. Click **Data** on the LHS Menu and click **Data Sets** to display the available Data Sets for usage.
11. Right-click on the Data Set name to display the options as shown:

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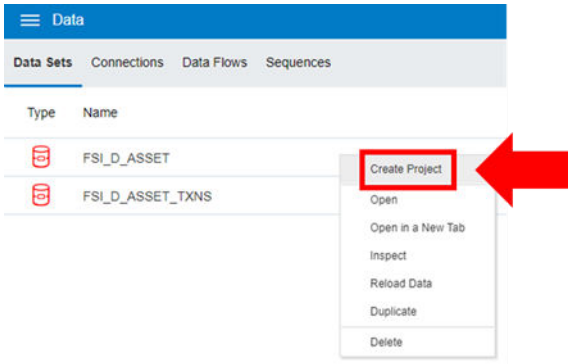
Figure 8-19 Data Set Options



12. In the menu that is displayed, click **Create Project**.

8.1.4 Raw Data Analysis

To access the Raw Data Analysis Screen, from the LHS Menu, select Analytics, and then select Raw Data Analysis.

The following table lists the Raw Data Analysis Reports. You can select any report that you want.

Table 8-1 Raw Data Analysis Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Instrument Data	Instrument	STG Staging	STG_ASSET STG_LIABILITY STG_DERIVATIVE STG_FEE_BASED_SERVICE STG_LOAN_COMMITMENTS STG_OFF_BALANCE_SHEET STG_LEDGER_INSTRUMENT	Stage Asset Instruments Stage Liability Instruments Stage Derivative Contracts Stage Fee Based and Other Services Stage Loan Commitments Stage Off Balance Sheet Contracts Stage Ledger Instrument	Assets Liabilities Derivative Contracts Fee Based Services Loan Commitments Off Balance Sheet Items Ledger - Instruments

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Table 8-1 (Cont.) Raw Data Analysis Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Instrument Supplementary Data	Instrument Supplementary	STG Staging	STG_ACCOUNT_INDEX_HIST STG_ACCOUNT_RATE_TIERS STG_EMBEDDED_OPTIONS_SCH STG_PAYMENT_SCHEDULE	Stage Account Index History Stage Account Rate Tiers Stage Embedded Options Schedule Stage Payment Schedule	Account Index History Account Rate Tiers Embedded Options Schedule Payment Schedule
Staging Ledger Data	Ledger	STG Staging	STG_MANAGEMENT_LEDGER STG_MANAGEMENT_LEDGER_01 STG_MANAGEMENT_LEDGER_02 STG_MANAGEMENT_LEDGER_03 STG_MANAGEMENT_LEDGER_04 STG_MANAGEMENT_LEDGER_05	Stage Management Ledger Stage Placeholder Management Ledger 01 Stage Placeholder Management Ledger 02 Stage Placeholder Management Ledger 03 Stage Placeholder Management Ledger 04 Stage Placeholder Management Ledger 05	Management Ledger Management Ledger 01 Management Ledger 02 Management Ledger 03 Management Ledger 04 Management Ledger 05
Staging Transaction Summary Data	Transaction Summary	STG Staging	STG_ASSET_TXN STG_LIABILITY_TXN STG_FEE_BASED_SERVICE_TXN STG_OFF_BALANCE_SHEET_TXN	Stage Asset Transaction Summary Stage Liability Transaction Summary Stage Fee Based and Other Services Transaction Summary Stage Off Balance Sheet Transaction Summary	Assets Transaction Summary Liabilities Transaction Summary Fee Based Services Transaction Summary Off Balance Sheet Transaction Summary

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Table 8-1 (Cont.) Raw Data Analysis Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Processing Instrument Data	Instrument	FSI Processing	FSI_D_ASSET FSI_D_LIABILITY FSI_D_DERIVATIVE FSI_D_FEE_BASED_SERVICE FSI_D_LOAN_COMMITMENTS FSI_D_OFF_BALANCE_SHEET FSI_D_LEDGER_INSTRUMENT	Asset Instruments Liability Instruments Derivative Contracts Fee Based and Other Services Loan Commitments Off Balance Sheet Contracts Ledger Instrument	Assets Liabilities Derivative Contracts Fee Based Services Loan Commitments Off Balance Sheet Items Ledger Instruments
Processing Instrument Supplementary Data	Instrument Supplementary	FSI Processing	FSI_D_ACCOUNT_INDEX_HIST FSI_D_ACCOUNT_RATE_TIERS FSI_D_EMBEDDED_OPTIONS_SCH FSI_D_PAYMENT_SCHEDULE	Account Index History Account Rate Tiers Embedded Options Schedule Payment Schedule	Account Index History Account Rate Tiers Embedded Options Schedule Payment Schedule
Processing Ledger Data	Ledger	FSI Processing	FSI_D_MANAGEMENT_LEDGER FSI_D_MANAGEMENT_LEDGER_01 FSI_D_MANAGEMENT_LEDGER_02 FSI_D_MANAGEMENT_LEDGER_03 FSI_D_MANAGEMENT_LEDGER_04 FSI_D_MANAGEMENT_LEDGER_05	Management Ledger Placeholder Management Ledger 01 Placeholder Management Ledger 02 Placeholder Management Ledger 03 Placeholder Management Ledger 04 Placeholder Management Ledger 05	Management Ledger Management Ledger 01 Management Ledger 02 Management Ledger 03 Management Ledger 04 Management Ledger 05

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Table 8-1 (Cont.) Raw Data Analysis Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Processing Transaction Summary Data	Transaction Summary	FSI Processing	FSI_D_ASSET_TXNS FSI_D_LIABILITY_TXNS FSI_D_FEE_BASED_SERVICE_TXNS FSI_D_OFF_BALANCE_SHEET_TXNS	Asset Transaction Summary Liability Transaction Summary Fee Based and Other Services Transaction Summary Off Balance Sheet Transaction Summary	Assets Transaction Summary Liabilities Transaction Summary Fee Based Services Transaction Summary Off Balance Sheet Transaction Summary

8.1.4.1 Staging Instrument Data

You can use this report to perform the analysis on the Staging Area Tables related to Instrument Data. The report contains specifically the following Staging Database Objects:

Table 8-2 Staging Instrument Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Instrument Data	Instrument	STG-Staging	STG_ASSET STG_LIABILITY STG_DERIVATIVE STG_FEE_BASED_SERVICE STG_LOAN_COMMITMENTS STG_OFF_BALANCE_SHEET STG_LEDGER_INSTRUMENT	Stage Asset Instruments Stage Liability Instruments Stage Derivative Contracts Stage Fee Based and Other Services Stage Loan Commitments Stage Off Balance Sheet Contracts Stage Ledger Instrument	Assets Liabilities Derivative Contracts Fee Based Services Loan Commitments Off Balance Sheet Items Ledger - Instruments

8.1.4.1.1 Assets

The Assets Report provides the Analysis Capability on the Stage Asset Instrument Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

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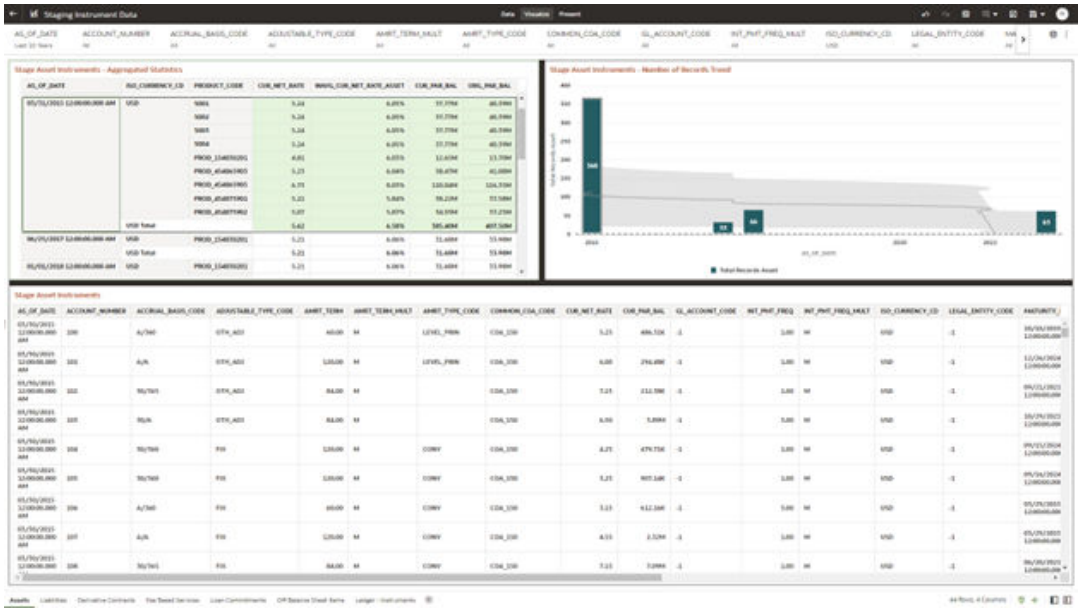
- Stage Asset Instruments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the Additional Balance Weighted Rate, WAVG_CUR_NET_RATE_ASSET, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Asset Instruments - Number of Records Trend
  Total Records Asset aggregated by AS_OF_DATE.
- Stage Asset Instruments
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-20 Staging Instrument Data - Assets



8.1.4.1.2 Liabilities

The Liabilities Report provides the Analysis Capability on the Stage Liability Instrument Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Liability Instruments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LIABILITY, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Liability Instruments - Number of Records Trend
  Total Records Liability aggregated by AS_OF_DATE.
- Stage Liability Instruments
  Granular table records at ACCOUNT_NUMBER level.

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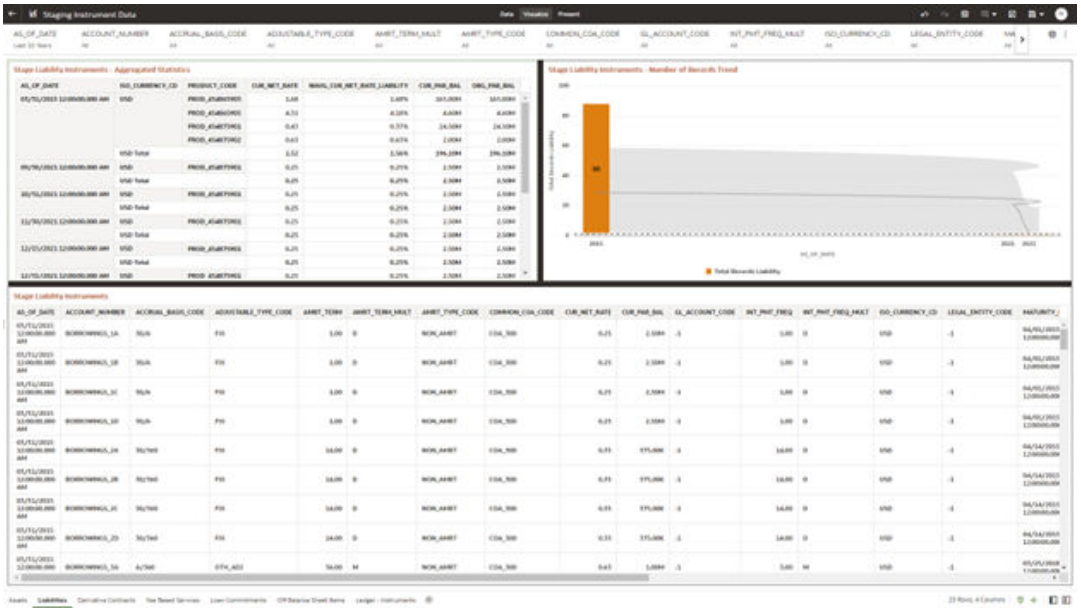
Figure 8-21 Staging Instrument Data - Liabilities



8.1.4.1.3 Derivative Contracts

The Derivative Contracts Report provides the Analysis Capability on the Stage Derivative Contracts Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Derivative Contracts (Payment) - Aggregated Statistics
  Aggregation for CUR_PAR_BAL_PAY (sum), ORG_PAR_BAL_PAY (sum) and CUR_NET_RATE_PAY (avg) by AS_OF_DATE, ISO_CURRENCY_CD_PAY and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_PAY_DERIVATIVE, is calculated as the Weighted AVG by CUR_PAR_BAL_PAY.
- Stage Derivative Contracts (Receive) - Aggregated Statistics
  Aggregation for CUR_PAR_BAL_RCV (sum), ORG_PAR_BAL_RCV (sum) and CUR_NET_RATE_RCV (avg) by AS_OF_DATE, ISO_CURRENCY_CD_RCV and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_RCV_DERIVATIVE, is calculated as the Weighted AVG by CUR_PAR_BAL_RCV.
- Stage Derivative Contracts - Number of Records Trend
  Total Records Derivative Contracts aggregated by AS_OF_DATE.
- Stage Derivative Contracts
  Granular table records at ACCOUNT_NUMBER level.

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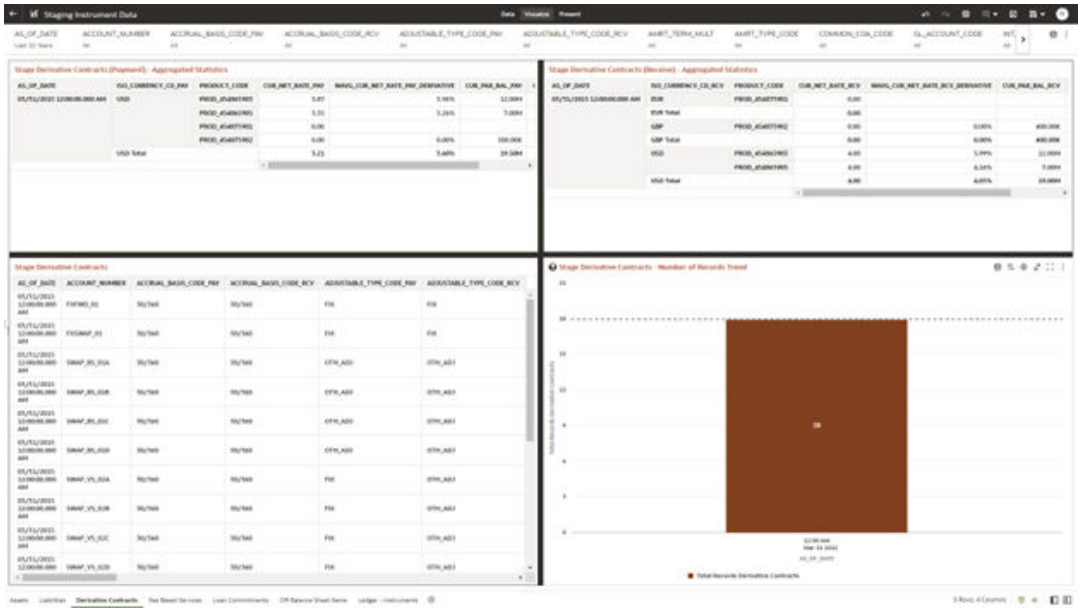
Figure 8-22 Staging Instrument Data – Derivative Contracts



8.1.4.1.4 Fee Based Services

The Fee Based Services Report provides the Analysis Capability on the Stage Fee Based and Other Services Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Fee Based Services - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_FEE_BASED, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Fee Based Services - Number of Records Trend
  Total Records Fee Based aggregated by AS_OF_DATE.
- Stage Fee Based Services
  Granular table records at ACCOUNT_NUMBER level.

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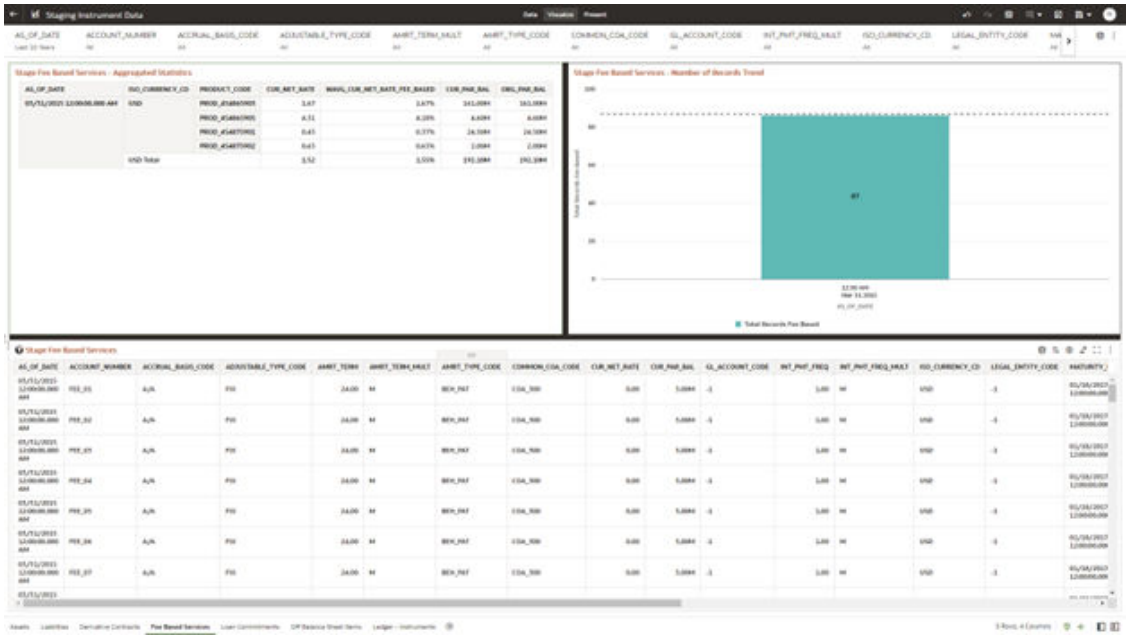
Figure 8-23 Staging Instrument Data – Fee Based Services



8.1.4.1.5 Loan Commitments

The Loan Commitments Report provides the Analysis Capability on the Stage Loan Commitments Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Loan Commitments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LOAN_COMMITMENTS, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Loan Commitments - Number of Records Trend
  Total Records Loan Commitments aggregated by AS_OF_DATE.
- Stage Loan Commitments
  Granular table records at ACCOUNT_NUMBER level.

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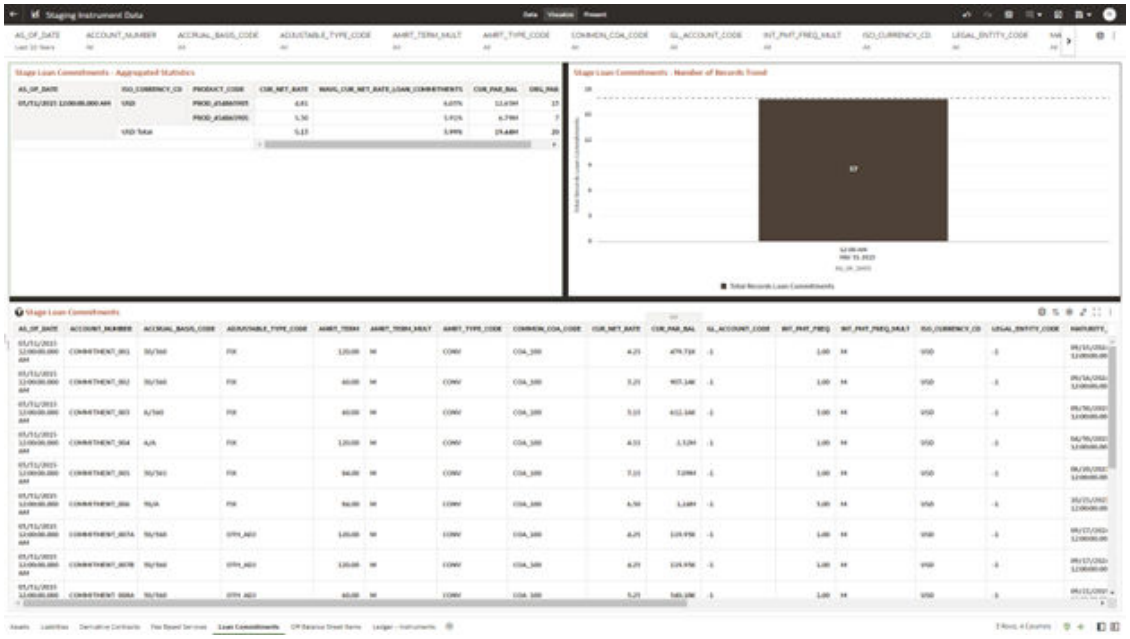
Figure 8-24 Staging Instrument Data – Loan Commitments



8.1.4.1.6 Off Balance Sheet Items

The Off Balance Sheet Items Report provides the analysis capability on the Stage off Balance Sheet Contracts Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Off Balance Sheet Contracts - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_OFF_BALANCE_SHEET, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Off Balance Sheet Contracts - Number of Records Trend
  Total Record off Balance Sheet aggregated by AS_OF_DATE.
- Stage Off Balance Sheet Contracts
  Granular table records at ACCOUNT_NUMBER level.

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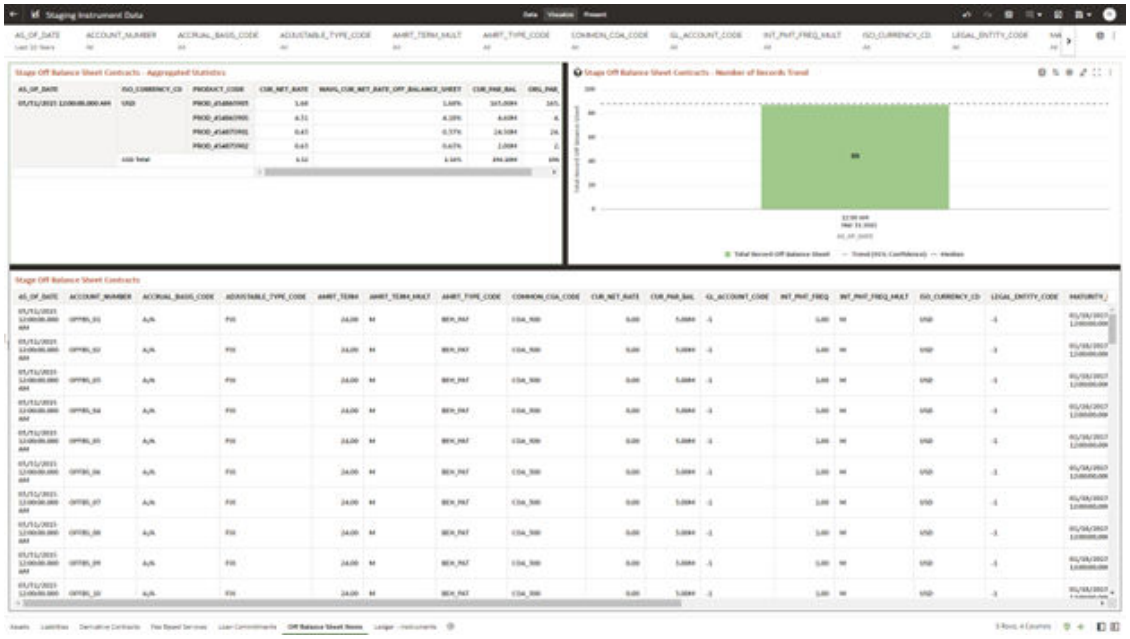
Figure 8-25 Staging Instrument Data – Off Balance Sheet Items



8.1.4.1.7 Ledger - Instruments

The Ledger – Instrument Report provides the analysis capability on the Stage Ledger Instrument Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Ledger Instrument - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_CODE.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LEDGER_INSTRUMENTS, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Stage Ledger Instrument - Number of Records Trend
  Total Records Ledger Instruments aggregated by AS_OF_DATE.
- Stage Ledger Instrument
  Granular table records at ACCOUNT_NUMBER level.

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Figure 8-26 Staging Instrument Data – Ledger - Instruments

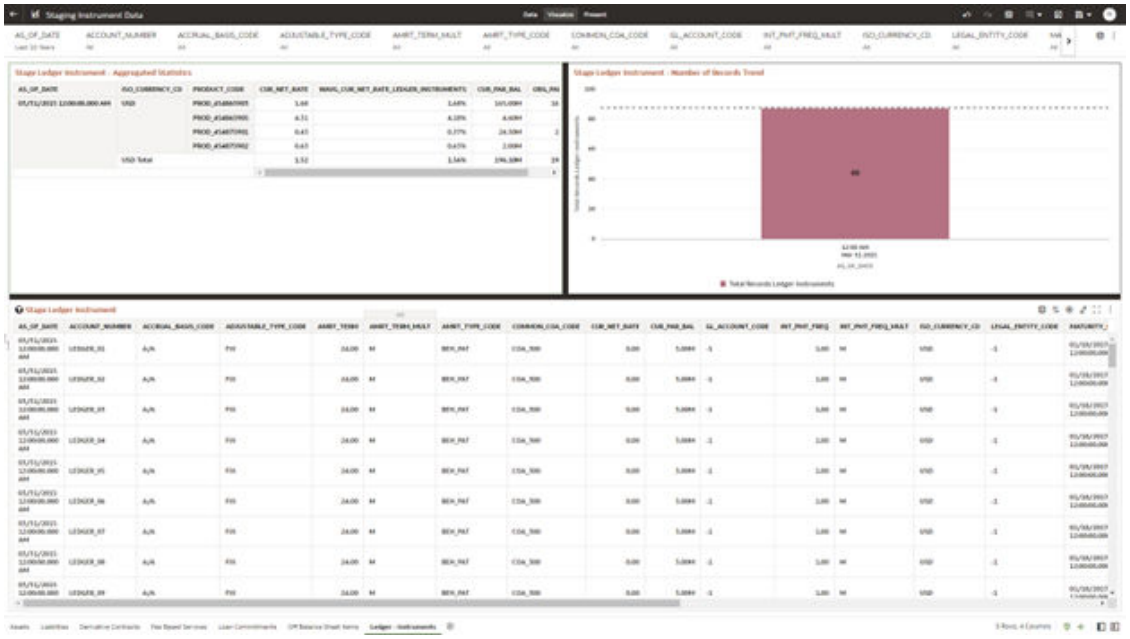
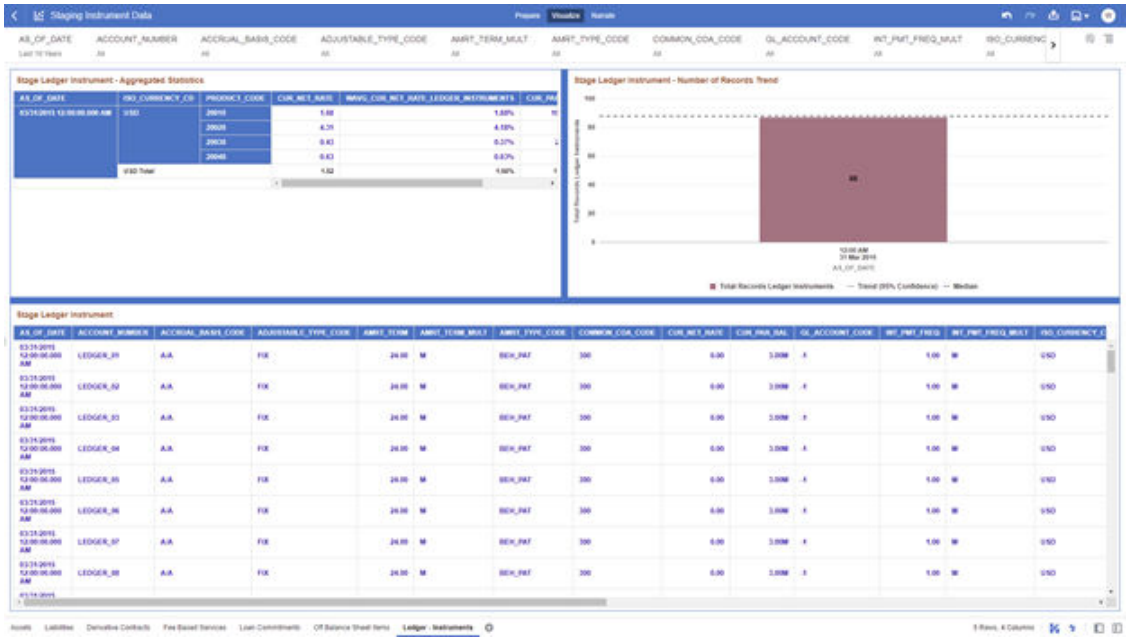


Figure 8-27 Staging Instrument Data – Ledger - Instruments



8.1.4.2 Staging Instrument Supplementary Data

You can use the Staging Instrument Supplementary Data Report to perform the analysis on the Staging Area Tables related to Instrument Supplementary Data. The report contains specifically the following Staging Database Objects:

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Table 8-3 Staging Instrument Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Instrument Supplementary Data	Instrument Supplementary	STG-Staging	STG_ACCOUNT_INDEX_HIST	Stage Account Index History	Account Index History
			STG_ACCOUNT_RATE_TIERS	Stage Account Rate Tiers	Account Rate Tiers
			STG_EMBEDDED_OPTIONS_SCH	Stage Embedded Options Schedule	Embedded Options Schedule
			STG_PAYMENT_SCHEDULE	Stage Payment Schedule	Payment Schedule

8.1.4.2.1 Account Index History

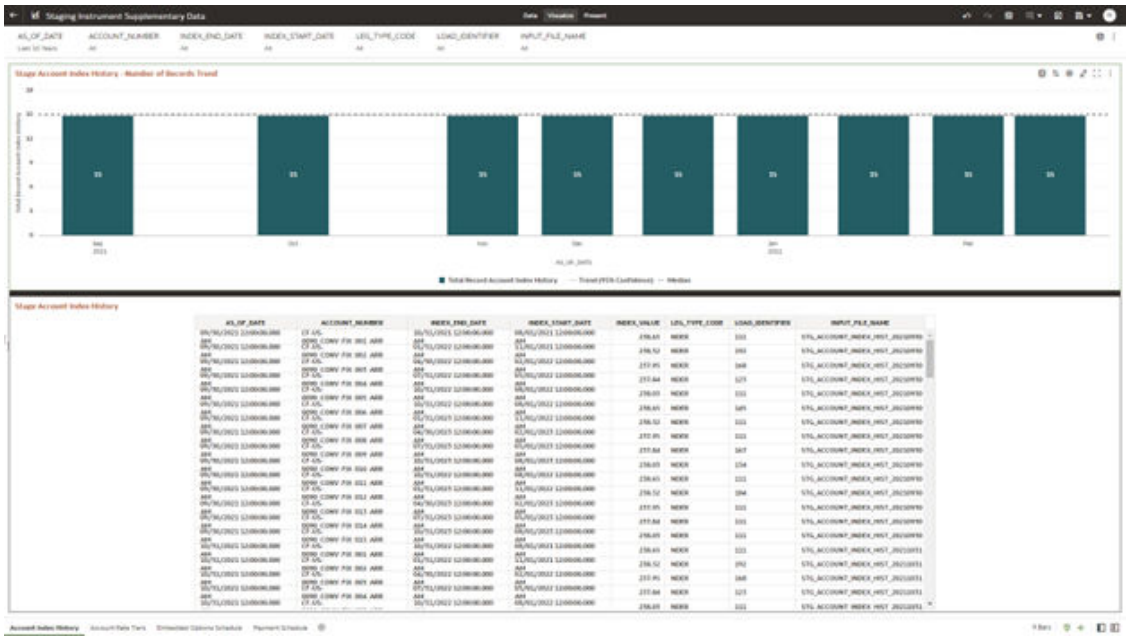
The Account Index History Report provides the analysis capability on the Stage Account Index History Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Account Index History - Number of Records Trend
  Total Records Account Index History aggregated by AS_OF_DATE.
- Stage Account Index History
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-28 Staging Instrument Supplementary Data – Account Index History



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8.1.4.2.2 Account Rate Tiers

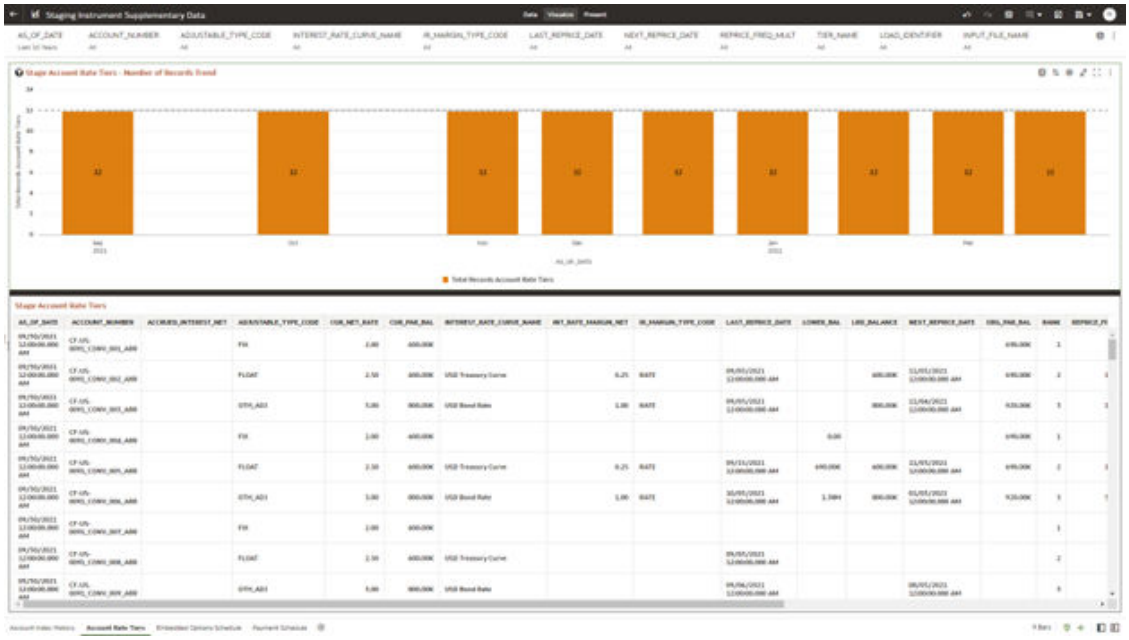
The Account Rate Tiers Report provides the analysis capability on the Stage Account Rate Tiers Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Account Rate Tiers - Number of Records Trend
  Total Records Account Rate Tiers aggregated by AS_OF_DATE.
- Stage Account Rate Tiers
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-29 Staging Instrument Supplementary Data – Account Rate Tiers



8.1.4.2.3 Embedded Options Schedule

The Embedded Options Schedule Report provides the analysis capability on the Stage Embedded Options Schedule Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Embedded Options Schedule - Number of Records Trend
  Total Records Embedded Options Schedule aggregated by AS_OF_DATE.
- Stage Embedded Options Schedule
  Granular table records at ACCOUNT_NUMBER level.

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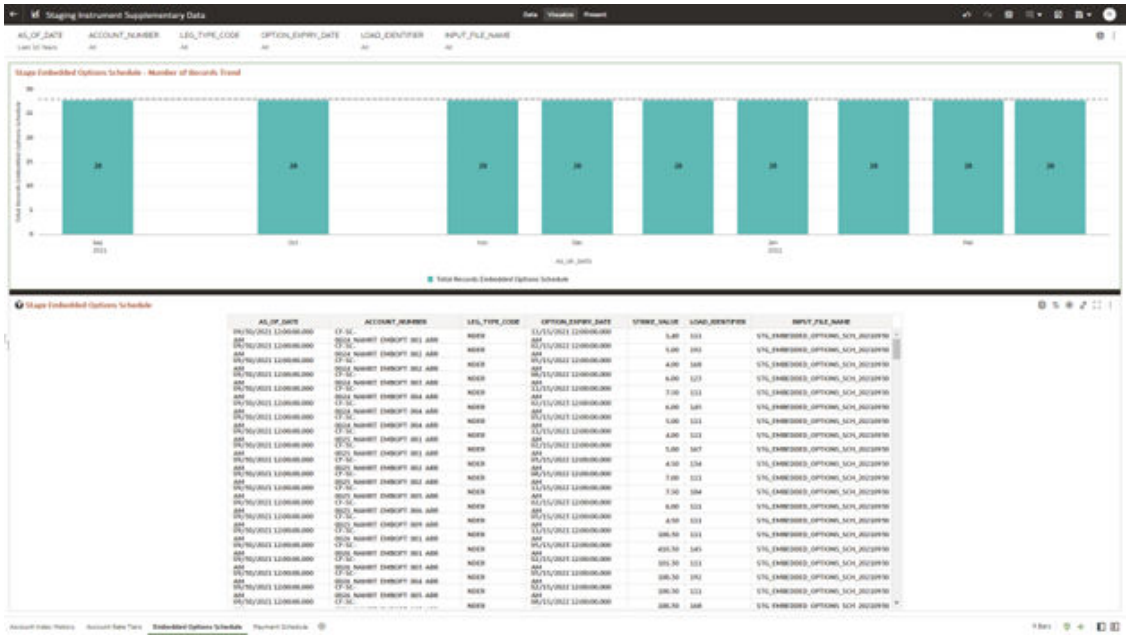
Figure 8-30 Staging Instrument Supplementary Data – Embedded Options Schedule



8.1.4.2.4 Payment Schedule

The Payment Schedule Report provides the analysis capability on the Stage Payment Schedule Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Payment Schedule - Number of Records Trend
  Total Records Payment Schedule aggregated by AS_OF_DATE.
- Stage Payment Schedule
  Granular table records at ACCOUNT_NUMBER level.

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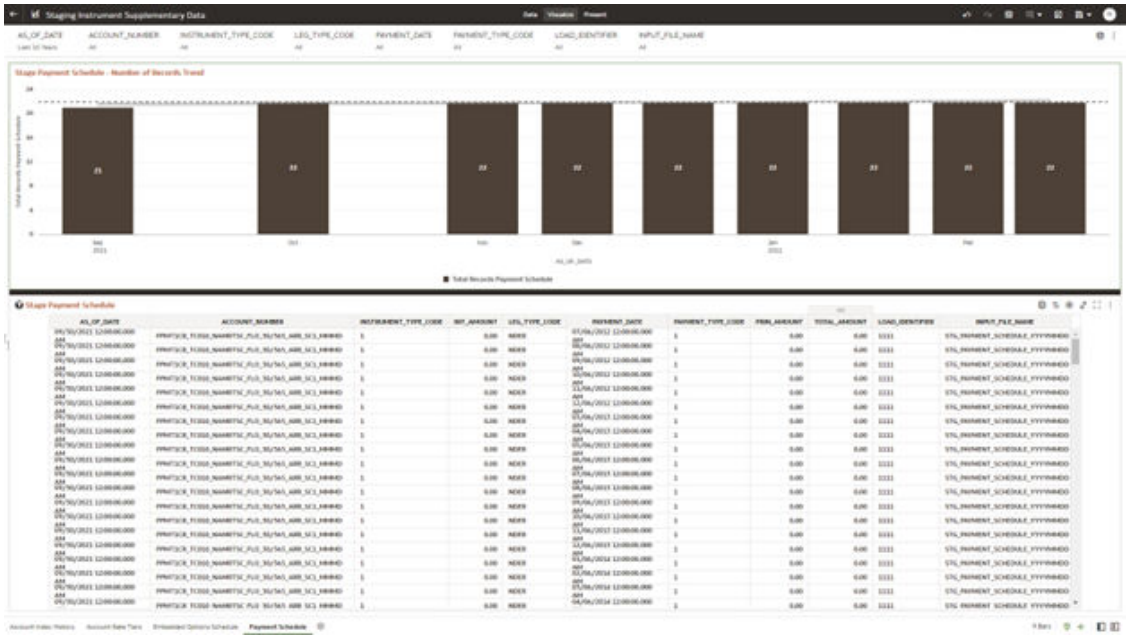
Figure 8-31 Staging Instrument Supplementary Data – Payment Schedule



8.1.4.3 Staging Ledger Data

You can use this report to perform the analysis on the Staging Area Tables related to Ledger Data. The report contains specifically the following Staging Database Objects:

Table 4:

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Table 8-4 Staging Ledger Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Ledger Data	Ledger	STG-Staging	STG_MANAGEMENT_LEDGER STG_MANAGEMENT_LEDGER_01 STG_MANAGEMENT_LEDGER_02 STG_MANAGEMENT_LEDGER_03 STG_MANAGEMENT_LEDGER_04 STG_MANAGEMENT_LEDGER_05	Stage Management Ledger Stage Placeholder Management Ledger 01 Stage Placeholder Management Ledger 02 Stage Placeholder Management Ledger 03 Stage Placeholder Management Ledger 04 Stage Placeholder Management Ledger 05	Management Ledger Management Ledger 01 Management Ledger 02 Management Ledger 03 Management Ledger 04 Management Ledger 05

8.1.4.3.1 Management Ledger

The Management Ledger Report provides the analysis capability on the Stage Management Ledger Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger - Number of Records Trend
  Total Records Management Ledger aggregated by AS_OF_DATE.
- Stage Management Ledger
  Granular table records at FINANCIAL_ELEM_CODE level.

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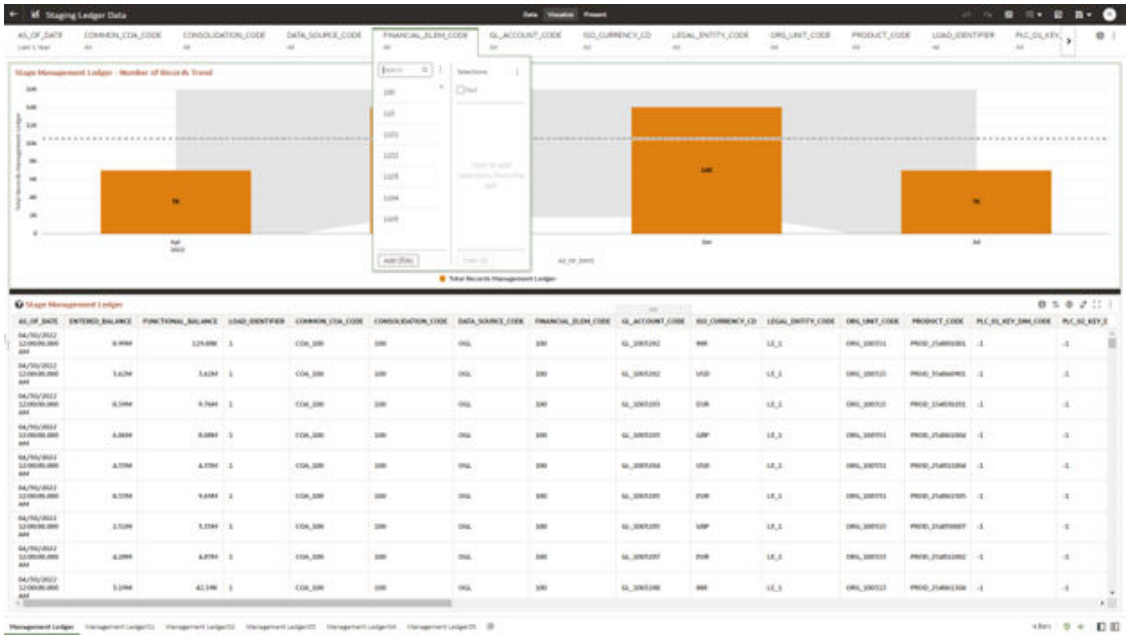
Figure 8-32 Staging Ledger Data – Management Ledger



8.1.4.3.2 Management Ledger01

The Management Ledger01 Report provides the analysis capability on the Stage Placeholder Management Ledger 01 table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger01 - Number of Records Trend
  Total Records Management Ledger01 aggregated by AS_OF_DATE.
- Stage Management Ledger01
  Granular table records at FINANCIAL_ELEM_CODE level.

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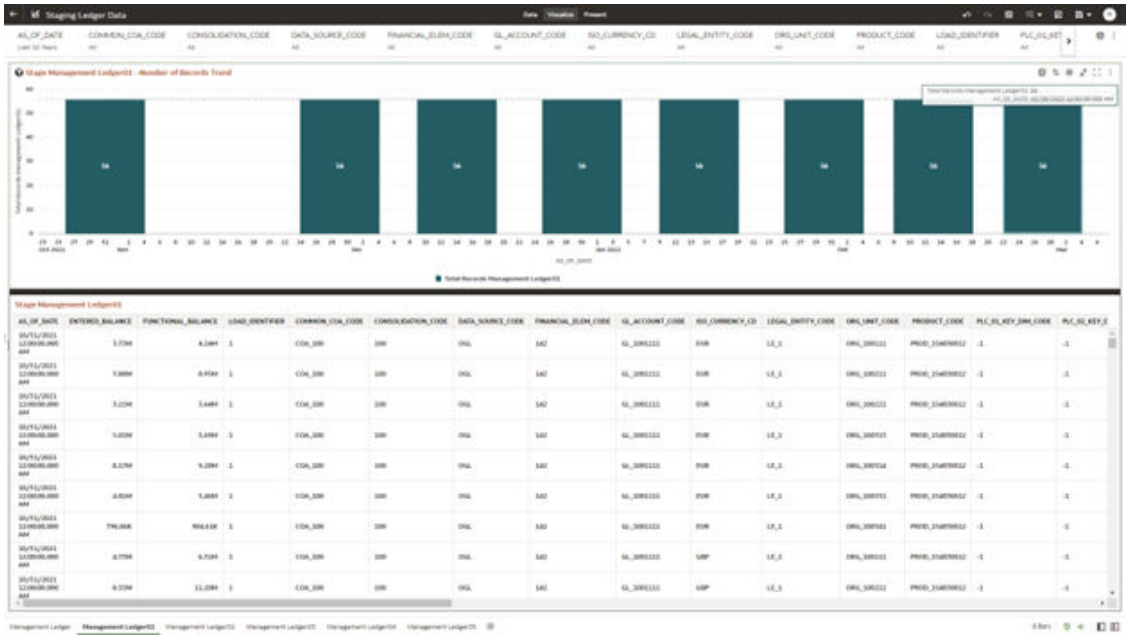
Figure 8-33 Staging Ledger Data – Management Ledger01



8.1.4.3.3 Management Ledger02

The Management Ledger02 Report provides the analysis capability on the Stage Placeholder Management Ledger 02 table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger02 - Number of Records Trend
  Total Records Management Ledger02 aggregated by AS_OF_DATE.
- Stage Management Ledger02
  Granular table records at FINANCIAL_ELEM_CODE level.

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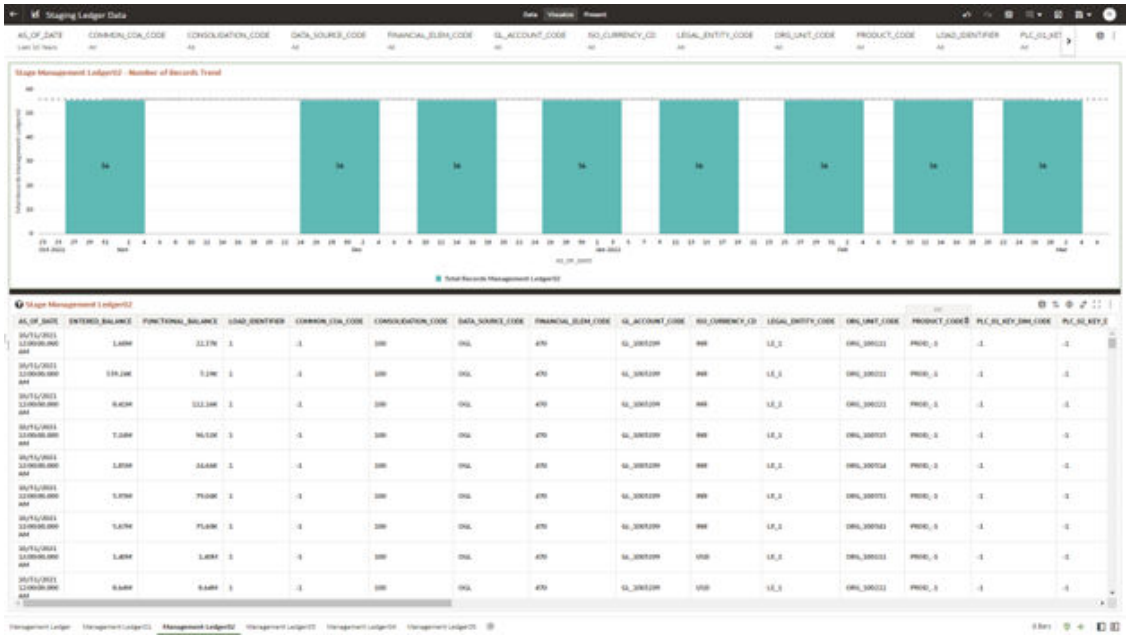
Figure 8-34 Staging Ledger Data – Management Ledger02



8.1.4.3.4 Management Ledger03

The Management Ledger03 Report provides the analysis capability on the Stage Placeholder Management Ledger 03 table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger03 - Number of Records Trend
  Total Records Management Ledger03 aggregated by AS_OF_DATE.
- Stage Management Ledger03
  Granular table records at FINANCIAL_ELEM_CODE level.

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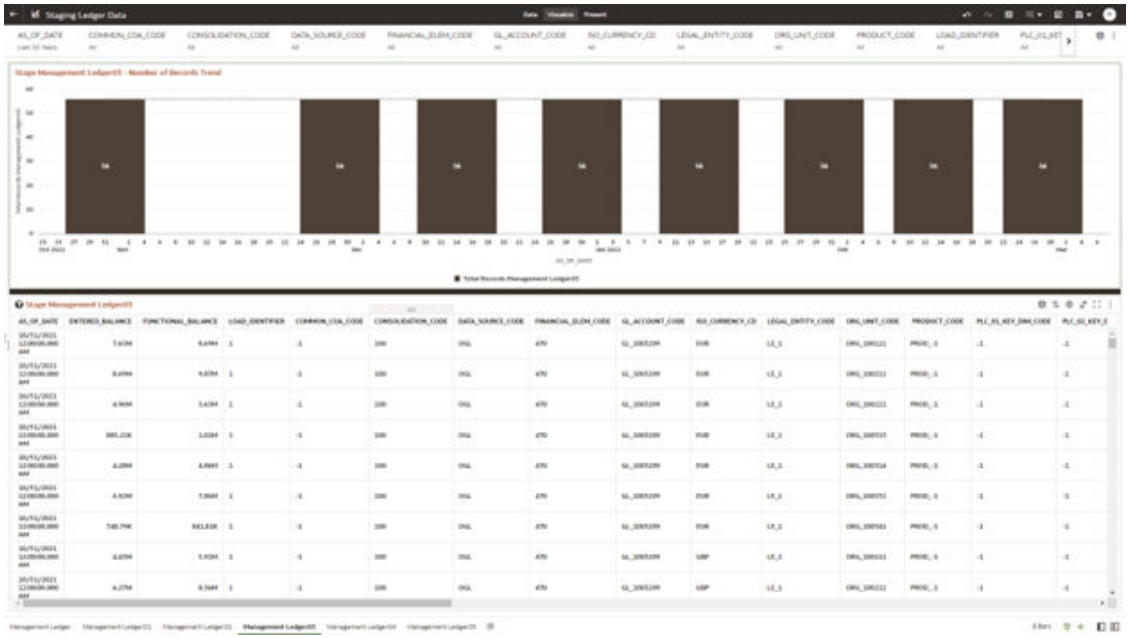
Figure 8-35 Staging Ledger Data – Management Ledger03



8.1.4.3.5 Management Ledger04

The Management Ledger04 Report provides the analysis capability on the Stage Placeholder Management Ledger 04 table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger04 - Number of Records Trend
  Total Records Management Ledger04 aggregated by AS_OF_DATE.
- Stage Management Ledger04
  Granular table records at FINANCIAL_ELEM_CODE level.

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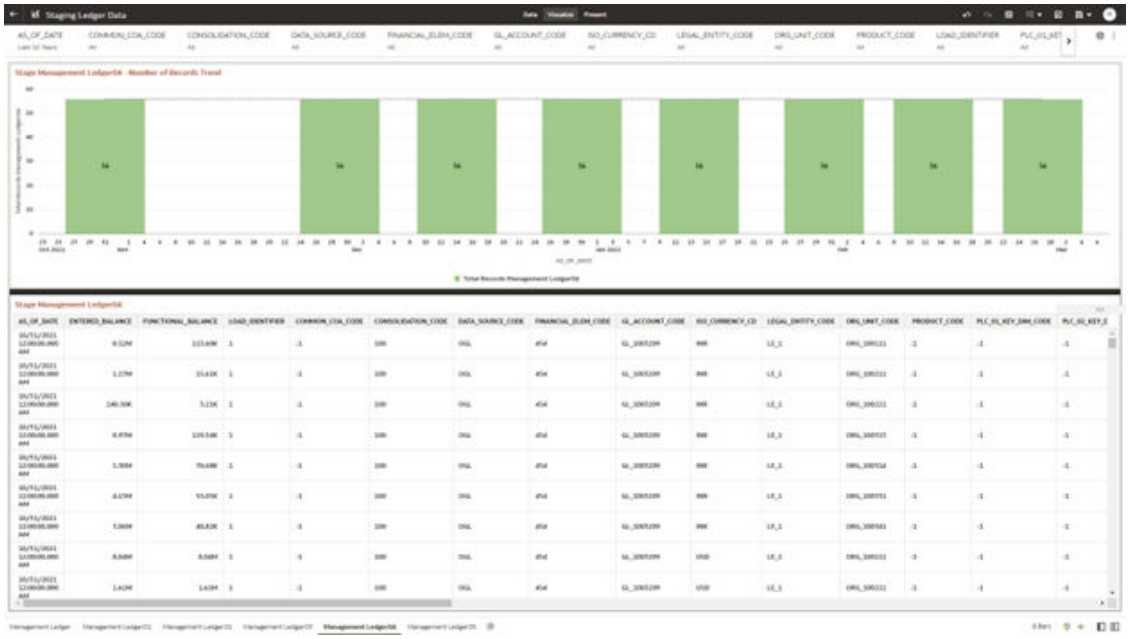
Figure 8-36 Staging Ledger Data – Management Ledger04



8.1.4.3.6 Management Ledger05

The Management Ledger05 Report provides the analysis capability on the Stage Placeholder Management Ledger 05 table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Management Ledger05 - Number of Records Trend
  Total Records Management Ledger05 aggregated by AS_OF_DATE.
- Stage Management Ledger05
  Granular table records at FINANCIAL_ELEM_CODE level.

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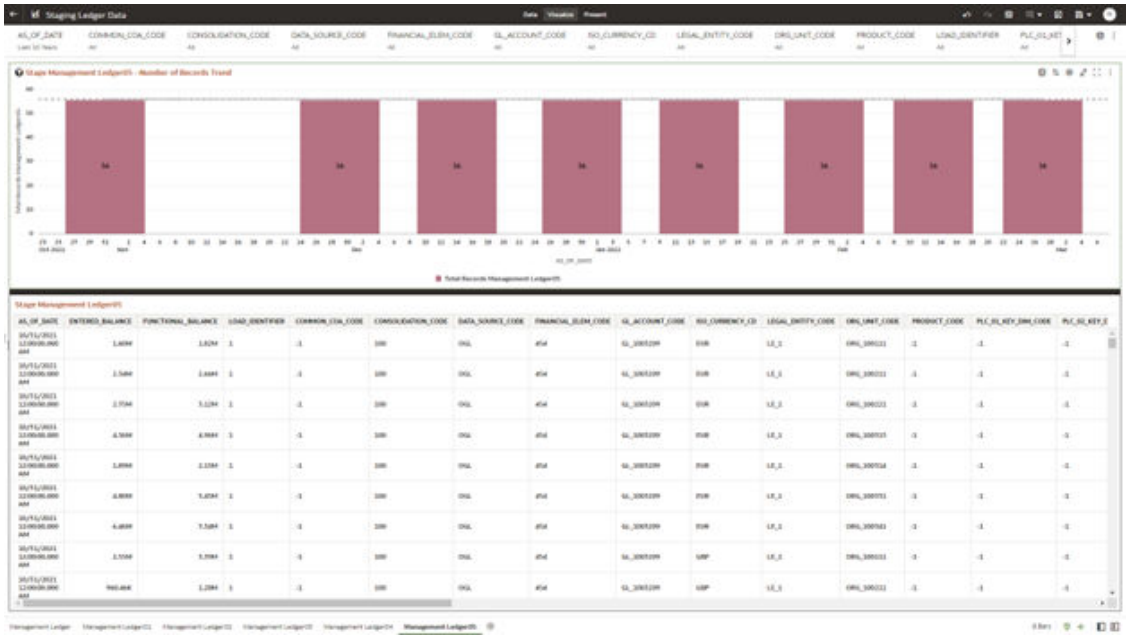
Figure 8-37 Staging Ledger Data – Management Ledger05



8.1.4.4 Staging Transaction Summary Data

You can use this report to perform the analysis on the Staging area tables related to Transaction Summary Data. The report contains specifically the following Staging Database Objects:

Table 8-5 Staging Ledger Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Staging Transaction Summary Data	Transaction Summary	STG–Staging	STG_ASSET_TXN STG_LIABILITY_TXN STG_FEE_BASED_SERVICE_TXN STG_OFF_BALANCE_SHEET_TXN	Stage Asset Transaction Summary Stage Liability Transaction Summary Stage Fee Based and Other Services Transaction Summary Stage Off Balance Sheet Transaction Summary	Assets Transaction Summary Liabilities Transaction Summary Fee Based Services Transaction Summary Off Balance Sheet Transaction Summary

8.1.4.4.1 Asset Transaction Summary

This report provides the analysis capability on the Stage Assets Transaction Summary Table.

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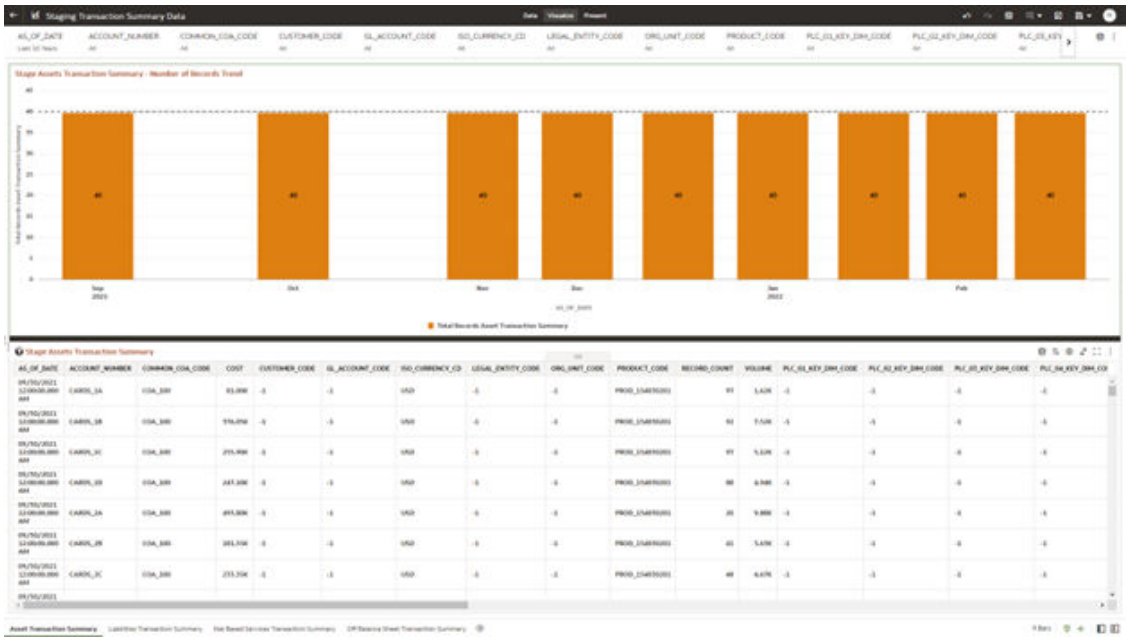
You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Assets Transaction Summary - Number of Records Trend
  Total Records Assets Transaction Summary aggregated by AS_OF_DATE.
- Stage Assets Transaction Summary
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-38 Staging Transaction Summary Data – Asset Transaction Summary



8.1.4.4.2 Liabilities Transaction Summary

The Liabilities Transaction Summary Report provides the analysis capability on the Stage Liability Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Liability Transaction Summary - Number of Records Trend
  Total Records Liability Transaction Summary aggregated by AS_OF_DATE.
- Stage Liability Transaction Summary
  Granular table records at ACCOUNT_NUMBER level.

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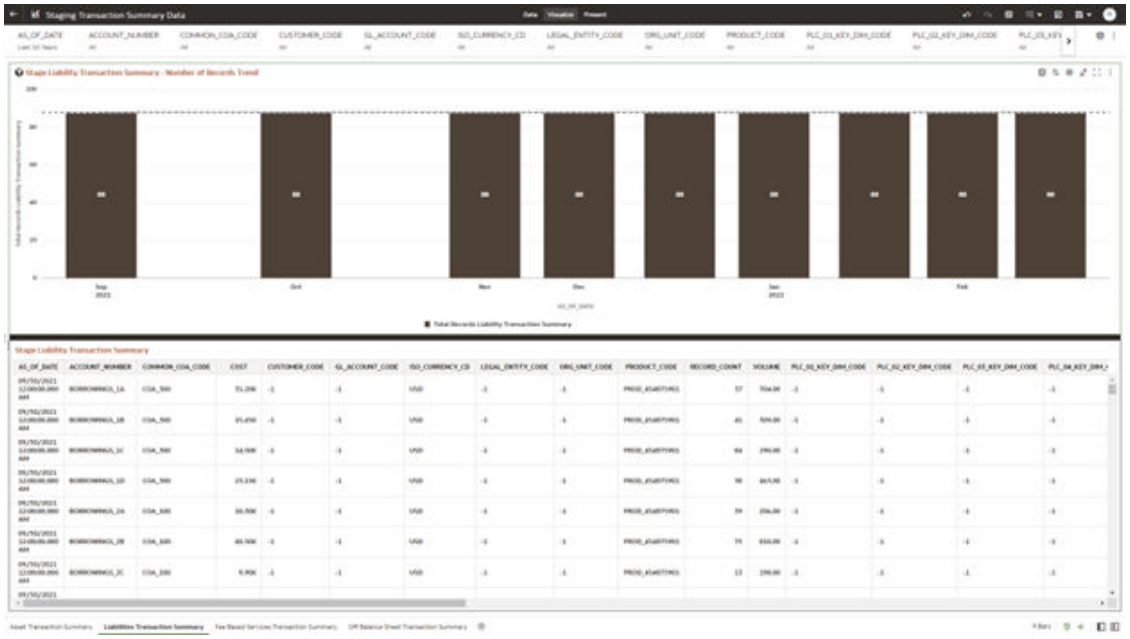
Figure 8-39 Staging Transaction Summary Data – Liabilities Transaction Summary



8.1.4.4.3 Fee Based Services Transaction Summary

The Fee Based Services Transaction Summary Report provides the analysis capability on the Stage Fee Based and Other Services Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Fee Based Services Transaction Summary - Number of Records Trend
  Total Records Fee Based Service Transaction aggregated by AS_OF_DATE.
- Stage Fee Based Services Transaction Summary
  Granular table records at ACCOUNT_NUMBER level.

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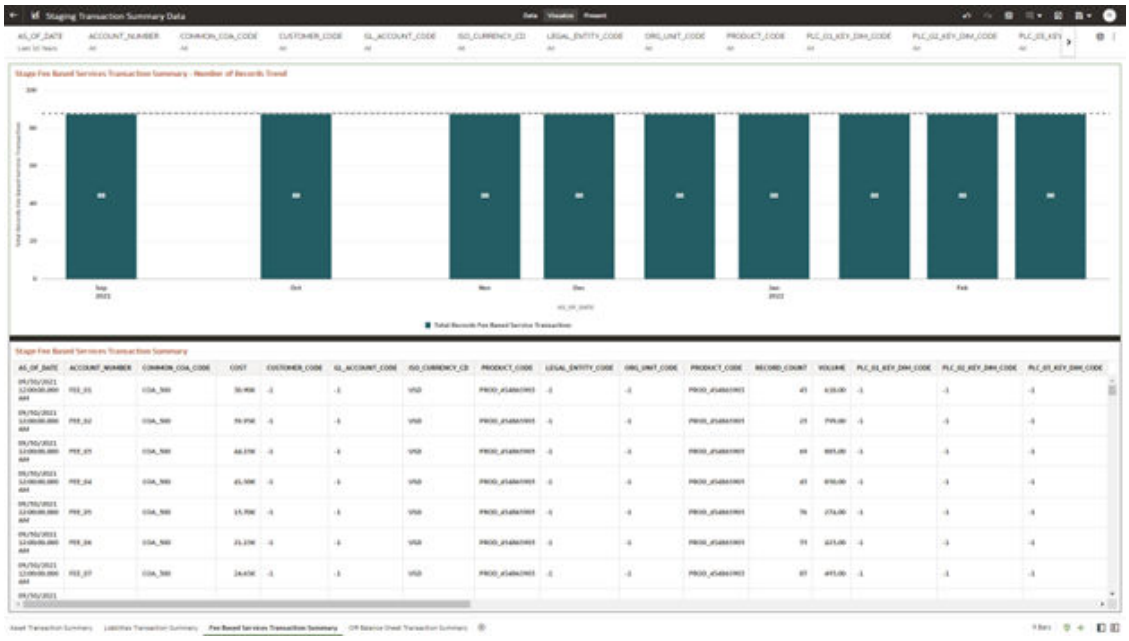
Figure 8-40 Staging Transaction Summary Data – Fee Based Services Transaction Summary



8.1.4.4.4 Off Balance Sheet Transaction Summary

The Off Balance Sheet Transaction Summary Report provides the analysis capability on the Stage Off Balance Sheet Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Stage Off Balance Sheet Transaction Summary - Number of Records Trend
  Total Records Off Balance Sheet Transaction Summary aggregated by AS_OF_DATE.
- Stage Off Balance Sheet Transaction Summary
  Granular table records at ACCOUNT_NUMBER level.

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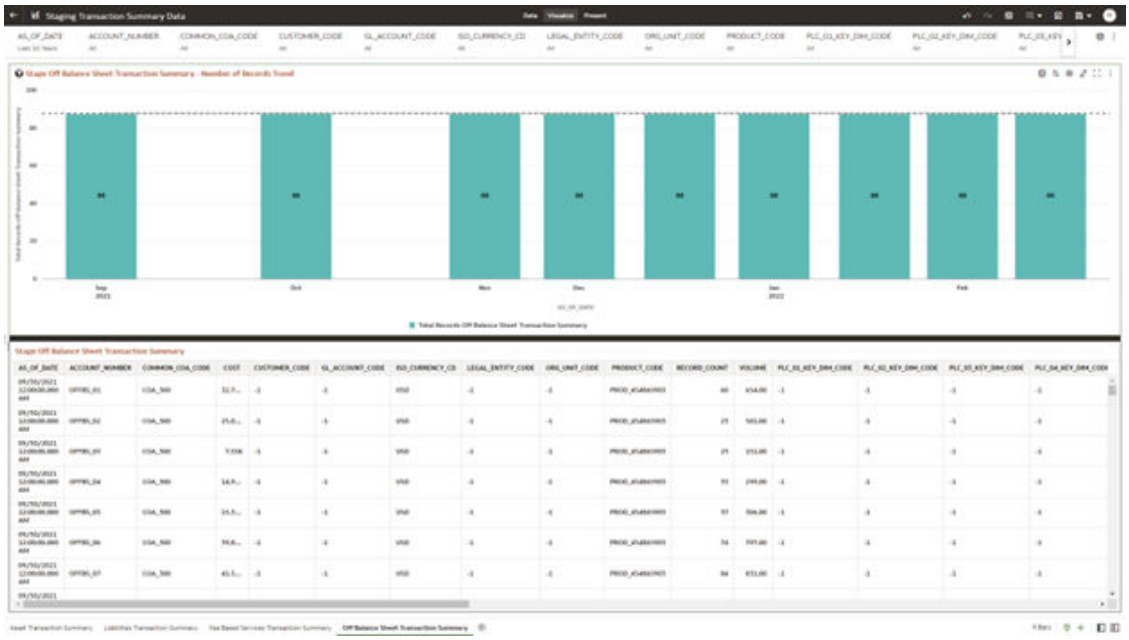
Figure 8-41 Staging Transaction Summary Data – Off Balance Sheet Transaction Summary



8.1.4.5 Processing Instrument Data

You can use this report to perform the analysis on the Processing Area Tables related to Instrument Data. The report contains specifically the following Processing Database Objects:

Table 5:

Table 8-6 Processing Instrument Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Processing Instrument Data	Instrument	FSI-Processing	FSI_D_ASSET FSI_D_LIABILITY FSI_D_DERIVATIVE FSI_D_FEE_BASED_SERVICE FSI_D_LOAN_COMMITMENTS FSI_D_OFF_BALANCE_SHEET FSI_D_LEDGER_INSTRUMENT	Asset Instruments Liability Instruments Derivative Contracts Fee Based and Other Services Loan Commitments Off Balance Sheet Contracts Ledger Instrument	Assets Liabilities Derivative Contracts Fee Based Services Loan Commitments Off Balance Sheet Items Ledger - Instruments

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8.1.4.5.1 Assets

The Assets Report provides the analysis capability on the Asset Instrument Table.

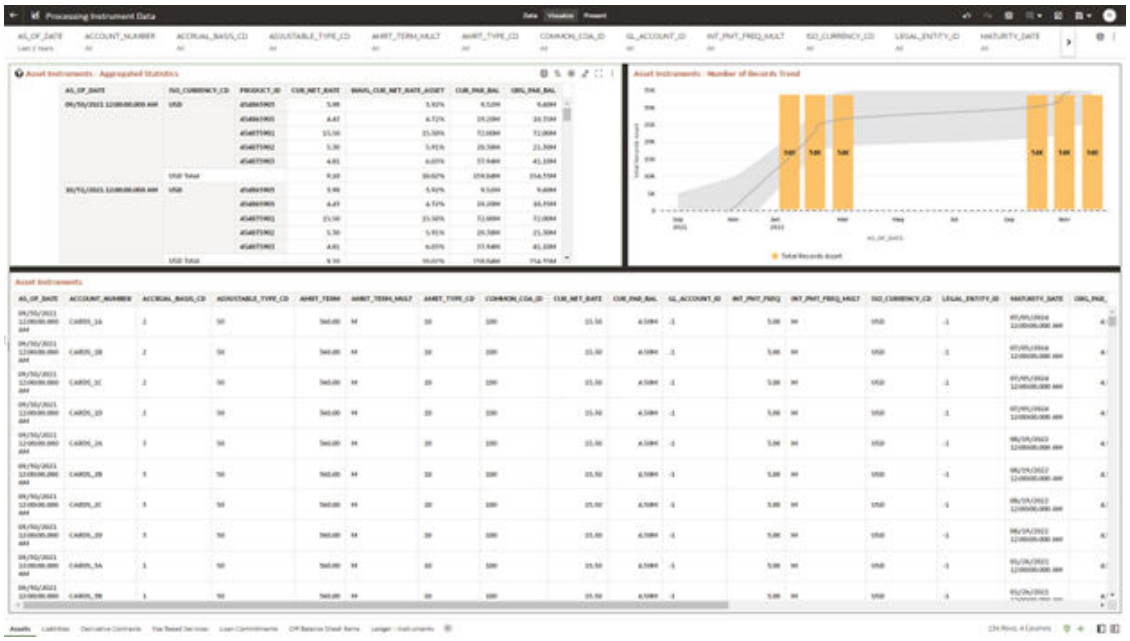
You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Asset Instruments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_ASSET, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Asset Instruments - Number of Records Trend
  Total Records Asset aggregated by AS_OF_DATE.
- Asset Instruments
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-42 Processing Instrument Data - Assets



8.1.4.5.2 Liabilities

The Liabilities Report provides the analysis capability on the Liability Instrument Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Liability Instruments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

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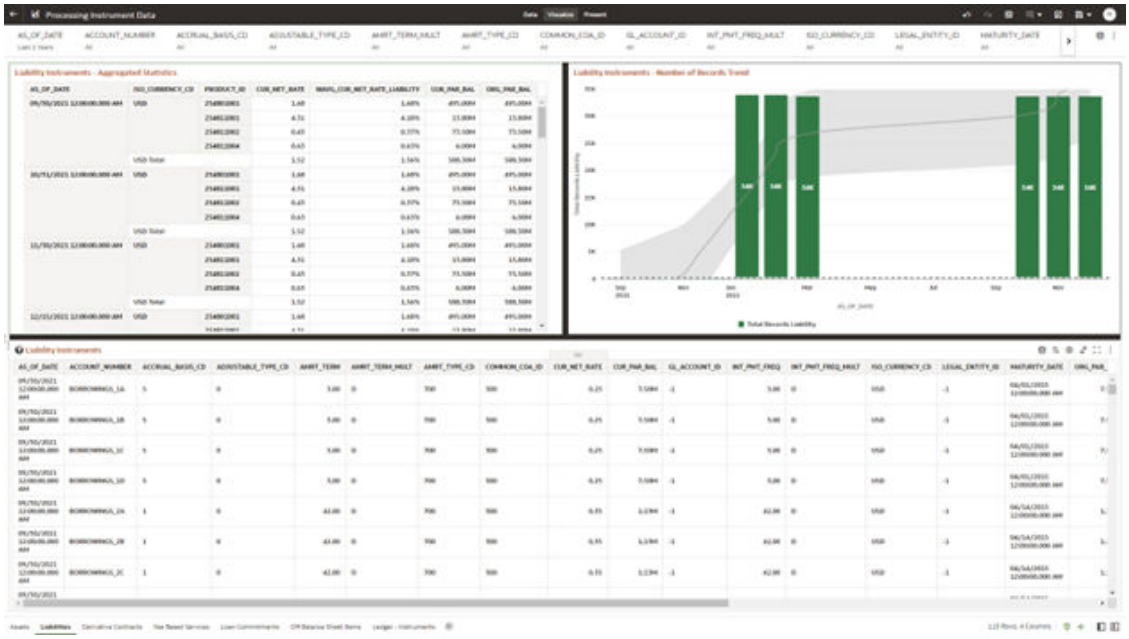
In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LIABILITY, is calculated as the Weighted AVG by CUR_PAR_BAL.

- Liability Instruments - Number of Records Trend
  Total Records Liability aggregated by AS_OF_DATE.
- Liability Instruments
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-43 Processing Instrument Data - Liabilities



8.1.4.5.3 Derivative Contracts

The Derivative Contracts Report provides the analysis capability on the Derivative Contracts Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Derivative Contracts - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LIABILITY, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Derivative Contracts - Number of Records Trend
  Total Records Derivative Contracts aggregated by AS_OF_DATE.
- Derivative Contracts
  Granular table records at ACCOUNT_NUMBER level.

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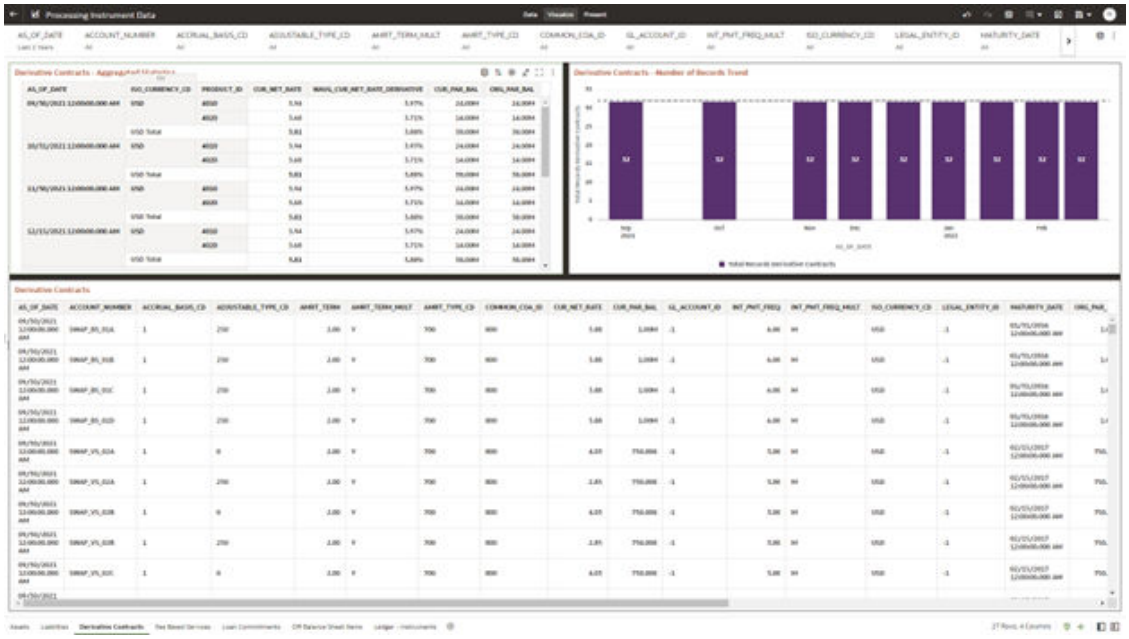
Figure 8-44 Processing Instrument Data – Derivative Contracts



8.1.4.5.4 Fee Based Services

The Fee Based Services Report provides the analysis capability on the Fee Based and Other Services Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Fee Based Services - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_FEE_BASED, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Fee Based Services - Number of Records Trend
  Total Records Fee Based aggregated by AS_OF_DATE.
- Fee Based Services
  Granular table records at ACCOUNT_NUMBER level.

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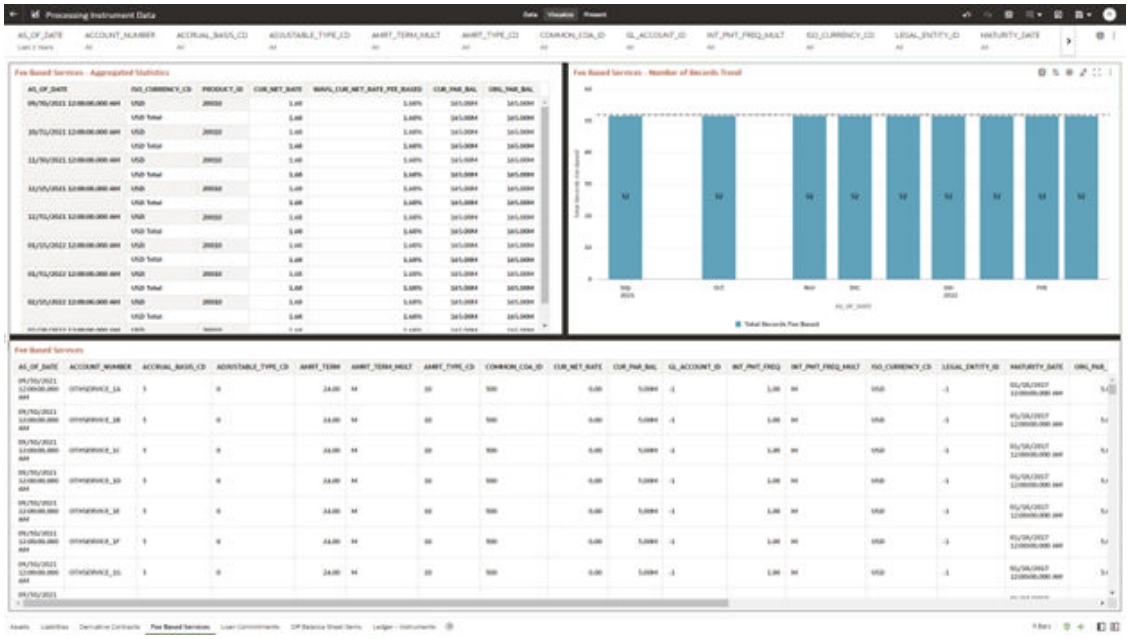
Figure 8-45 Processing Instrument Data – Fee Based Services



8.1.4.5.5 Loan Commitments

The Loan Commitments Report provides the analysis capability on the Loan Commitments Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Loan Commitments - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LOAN_COMMITMENTS, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Loan Commitments - Number of Records Trend
  Total Records Loan Commitments aggregated by AS_OF_DATE.
- Loan Commitments
  Granular table records at ACCOUNT_NUMBER level.

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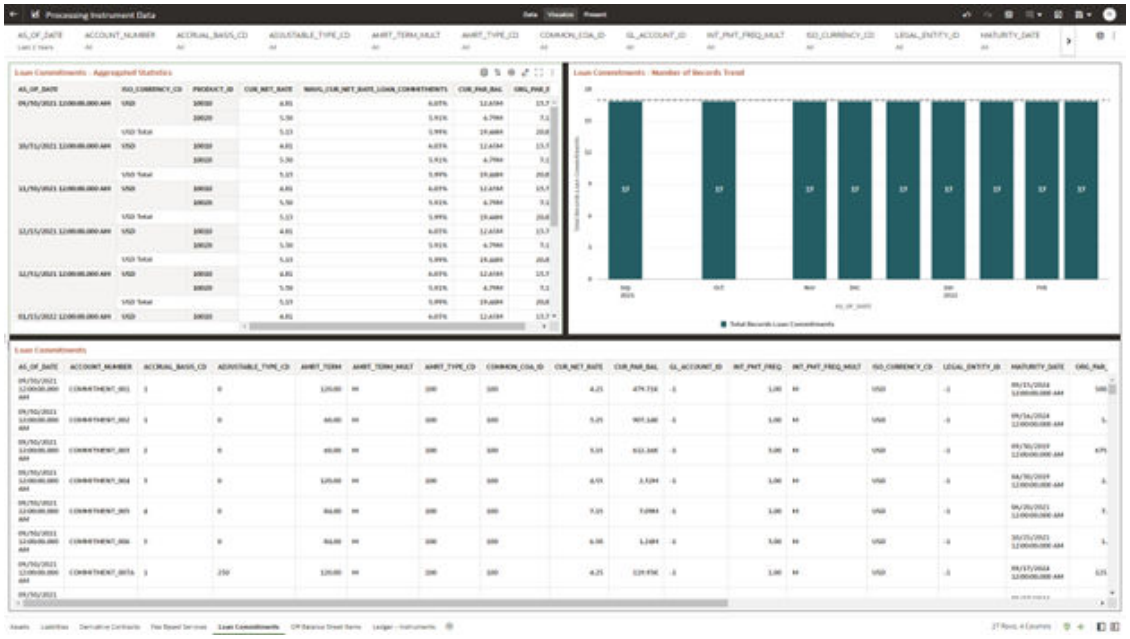
Figure 8-46 Processing Instrument Data – Loan Commitments



8.1.4.5.6 Off Balance Sheet Items

The Off Balance Sheet Items Report provides the analysis capability on the Off Balance Sheet Contracts Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Off Balance Sheet Contracts - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_OFF_BALANCE_SHEET, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Off Balance Sheet Contracts - Number of Records Trend
  Total Record Off Balance Sheet aggregated by AS_OF_DATE.
- Off Balance Sheet Contracts
  Granular table records at ACCOUNT_NUMBER level.

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Figure 8-47 Processing Instrument Data – Off Balance Sheet Items

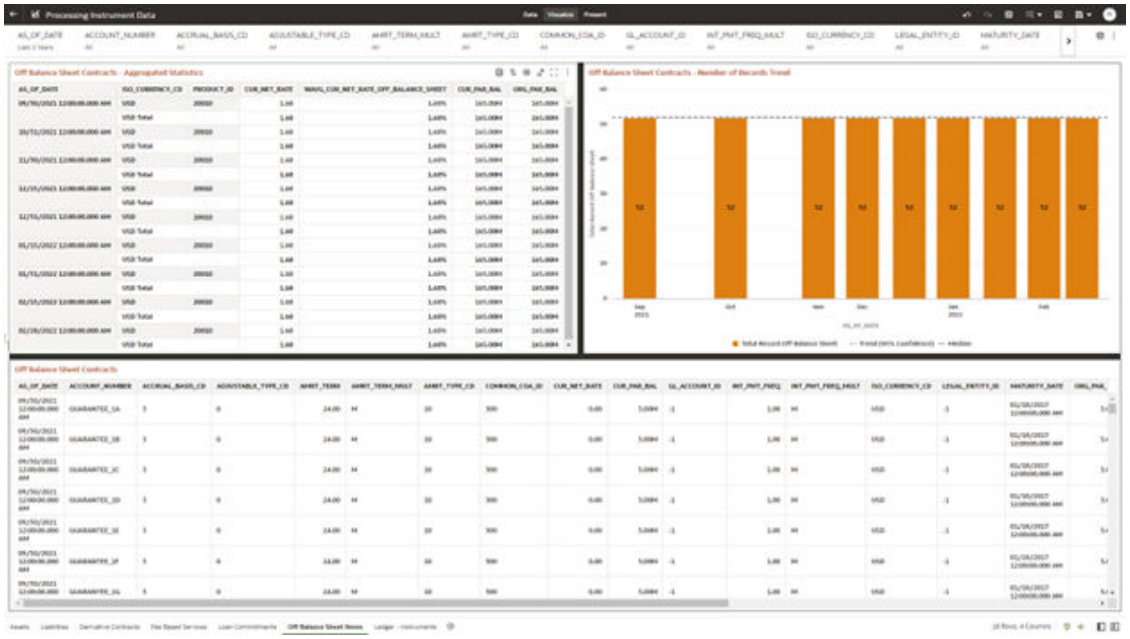
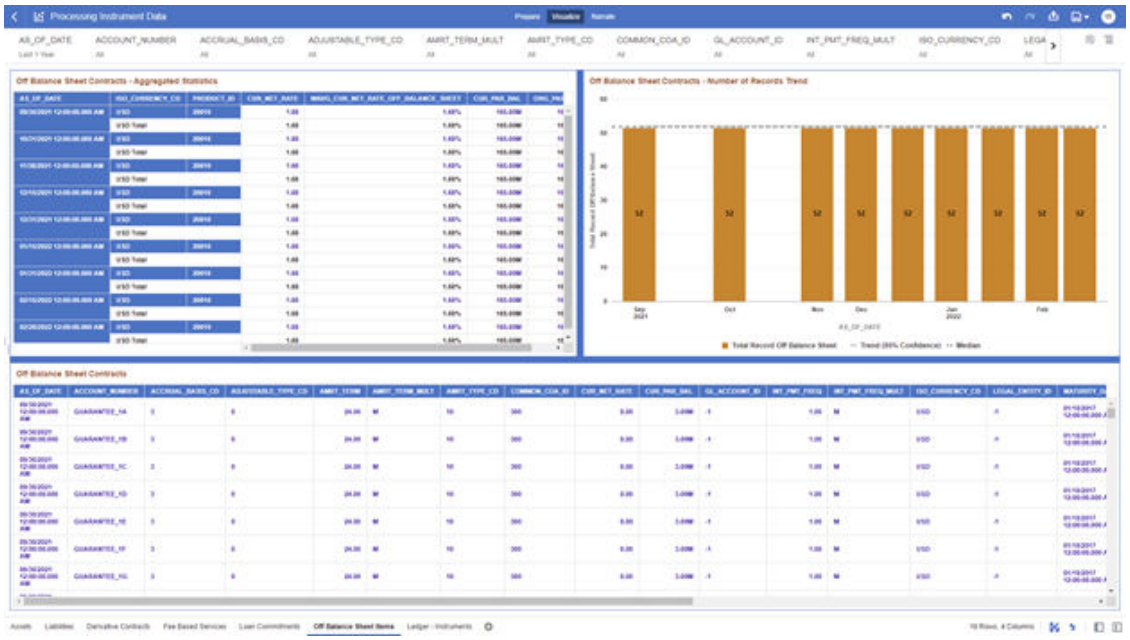


Figure 8-48 Processing Instrument Data – Off Balance Sheet Items



8.1.4.5.7 Ledger - Instruments

The Ledger – Instrument Report provides the analysis capability on the Ledger Instrument Table.

You can use a series of Report Prompts to filter the data according to functional key attributes pertaining to the table columns perimeter.

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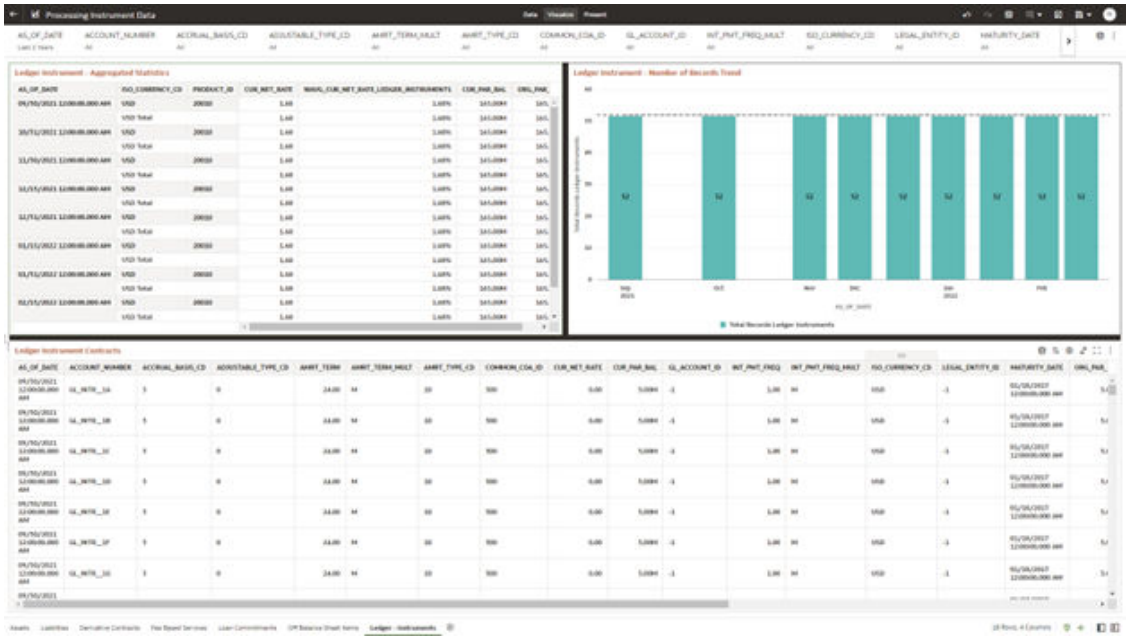
The report displays the underlying data according to the following Charts' logic:

- Ledger Instrument - Aggregated Statistics
  Aggregation for CUR_PAR_BAL (sum), ORG_PAR_BAL (sum) and CUR_NET_RATE (avg) by AS_OF_DATE, ISO_CURRENCY_CD and PRODUCT_ID.

  In addition, for CUR_NET_RATE, the additional Balance Weighted Rate, WAVG_CUR_NET_RATE_LEDGER_INSTRUMENTS, is calculated as the Weighted AVG by CUR_PAR_BAL.
- Ledger Instrument - Number of Records Trend
  Total Records Ledger Instruments aggregated by AS_OF_DATE.
- Ledger Instrument
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-49 Processing Instrument Data – Ledger Instruments



8.1.4.6 Processing Instrument Supplementary Data

You can use this report to perform the analysis on the Processing Area Tables related to Instrument Data. The report contains specifically the below Processing Database Objects:

Table 6: Processing Instrument Supplementary Data

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Table 8-7 Processing Instrument Supplementary Data

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Processing Instrument Supplementary Data	Instrument Supplementary	FSI–Processing	FSI_D_ACCOUNT_INDEX_HIST FSI_D_ACCOUNT_RATE_TIERS FSI_D_EMBEDDED_OPTIONS_SCH FSI_D_PAYMENT_SCHEDULE	Account Index History Account Rate Tiers Embedded Options Schedule Payment Schedule	Account Index History Account Rate Tiers Embedded Options Schedule Payment Schedule

8.1.4.6.1 Account Index History

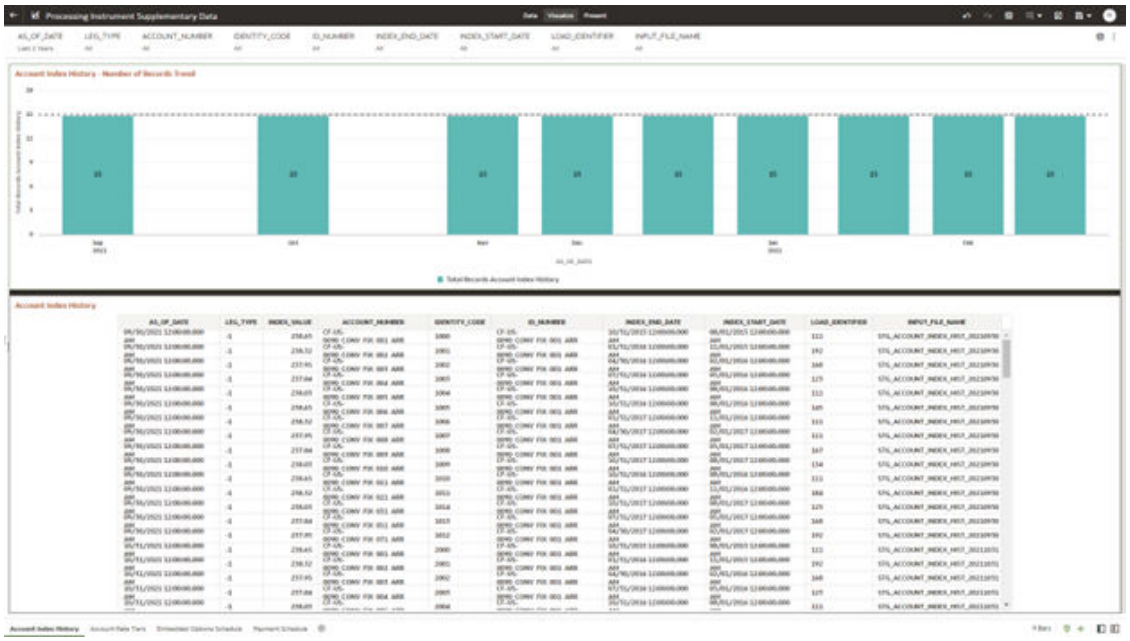
The Account Index History Report provides the analysis capability on the Account Index History Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Account Index History - Number of Records Trend
  Total Records Account Index History aggregated by AS_OF_DATE.
- Account Index History
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-50 Processing Instrument Supplementary Data – Account Index History



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8.1.4.6.2 Account Rate Tiers

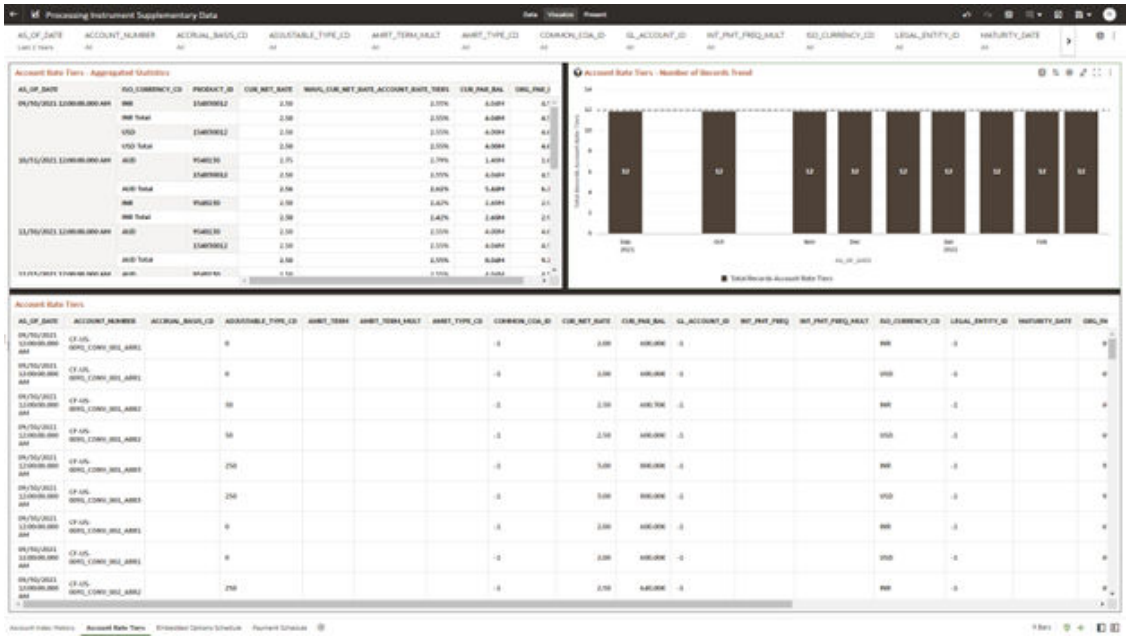
The Account Rate Tiers Report provides the analysis capability on the Account Rate Tiers Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Account Rate Tiers - Number of Records Trend
  Total Records Account Rate Tiers aggregated by AS_OF_DATE.
- Account Rate Tiers
  Granular table records at ACCOUNT_NUMBER level.

Figure 8-51 Processing Instrument Supplementary Data – Account Rate Tiers



8.1.4.6.3 Embedded Options Schedule

The Embedded Options Schedule Report provides the analysis capability on the Embedded Options Schedule Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Embedded Options Schedule - Number of Records Trend
  Total Records Embedded Options Schedule aggregated by AS_OF_DATE.
- Embedded Options Schedule
  Granular table records at ACCOUNT_NUMBER level.

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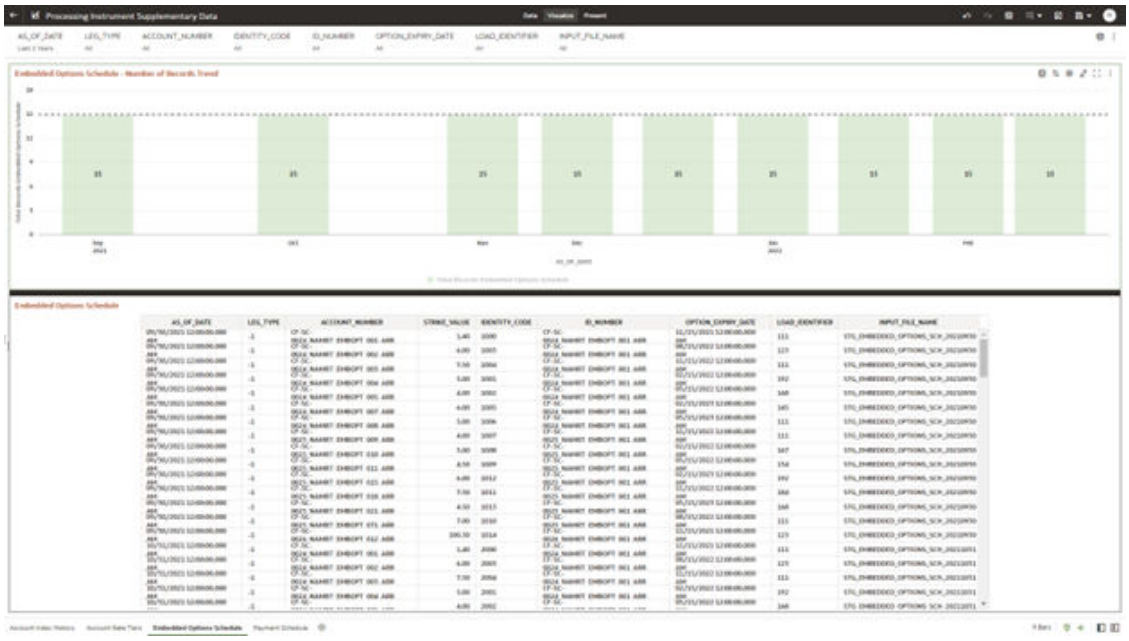
Figure 8-52 Processing Instrument Supplementary Data – Embedded Options Schedule



8.1.4.6.4 Payment Schedule

The Payment Schedule Report provides the analysis capability on the Payment Schedule Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Payment Schedule - Number of Records Trend
  Total Records Payment Schedule aggregated by AS_OF_DATE.
- Payment Schedule
  Granular table records at ACCOUNT_NUMBER level.

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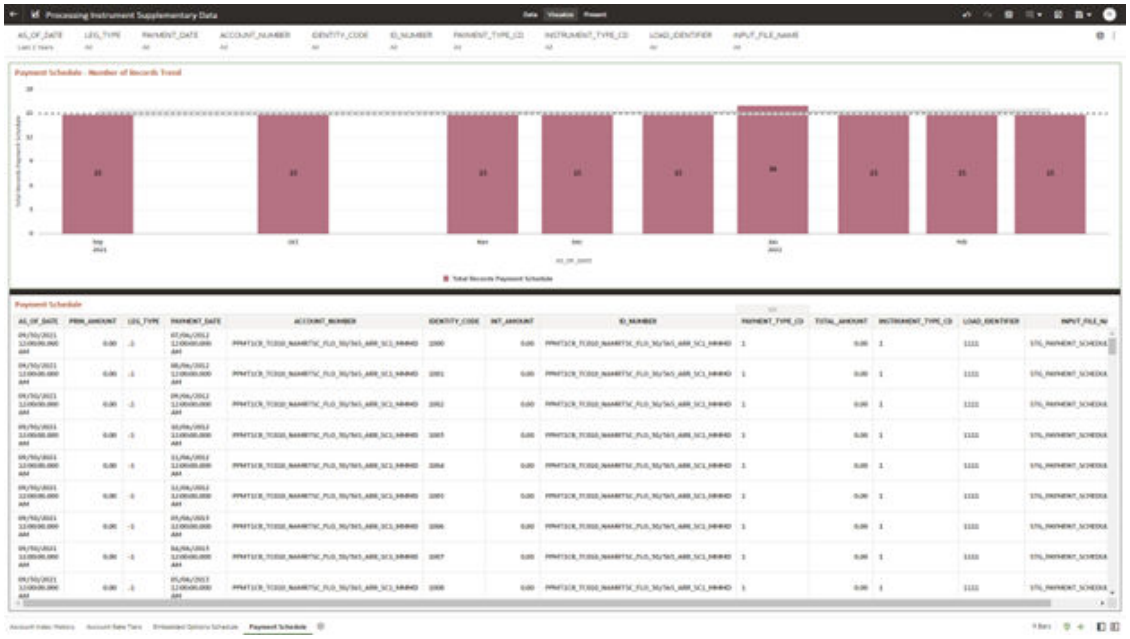
Figure 8-53 Processing Instrument Supplementary Data – Payment Schedule



8.1.4.7 Processing Ledger Data

You can use this report to perform analysis on the Processing Area Tables related to Ledger Data. The report contains specifically the following Staging Database Objects:

Table 7: Staging Ledger Data Reports

Table 8-8 Staging Ledger Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Processing Ledger Data	Ledger	FSI-Processing	FSI_D_MANAGEMENT_LEDGER FSI_D_MANAGEMENT_LEDGER_01 FSI_D_MANAGEMENT_LEDGER_02 FSI_D_MANAGEMENT_LEDGER_03 FSI_D_MANAGEMENT_LEDGER_04 FSI_D_MANAGEMENT_LEDGER_05	Management Ledger Placeholder Management Ledger 01 Placeholder Management Ledger 02 Placeholder Management Ledger 03 Placeholder Management Ledger 04 Placeholder Management Ledger 05	Management Ledger Management Ledger 01 Management Ledger 02 Management Ledger 03 Management Ledger 04 Management Ledger 05

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8.1.4.7.1 Management Ledger

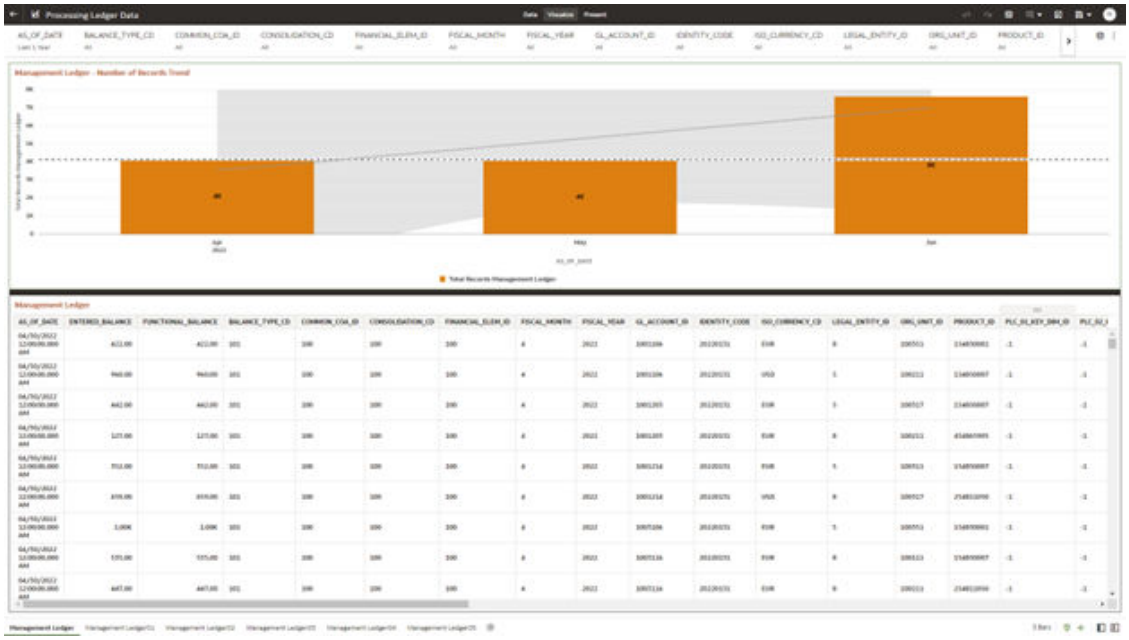
The Management Ledger Report provides the analysis capability on the Management Ledger Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger - Number of Records Trend
  Total Records Management Ledger aggregated by AS_OF_DATE.
- Management Ledger
  Granular table records at FINANCIAL_ELEM_ID level.

Figure 8-54 Processing Ledger Data – Management Ledger



8.1.4.7.2 Management Ledger01

The Management Ledger01 Report provides the analysis capability on the Placeholder Management Ledger 01 Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger01 - Number of Records Trend
  Total Records Management Ledger01 aggregated by AS_OF_DATE.
- Management Ledger01
  Granular table records at FINANCIAL_ELEM_ID level.

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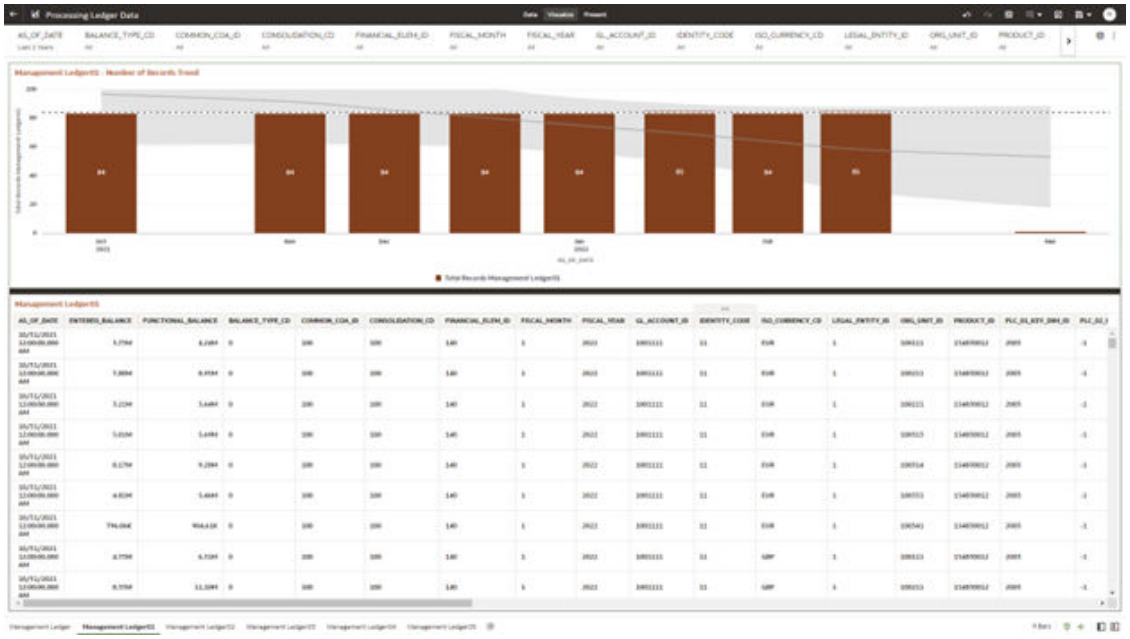
Figure 8-55 Processing Ledger Data – Management Ledger01



8.1.4.7.3 Management Ledger02

The Management Ledger02 Report provides the analysis capability on the Placeholder Management Ledger 02 Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger02 - Number of Records Trend
  Total Records Management Ledger02 aggregated by AS_OF_DATE.
- Management Ledger02
  Granular table records at FINANCIAL_ELEM_ID level.

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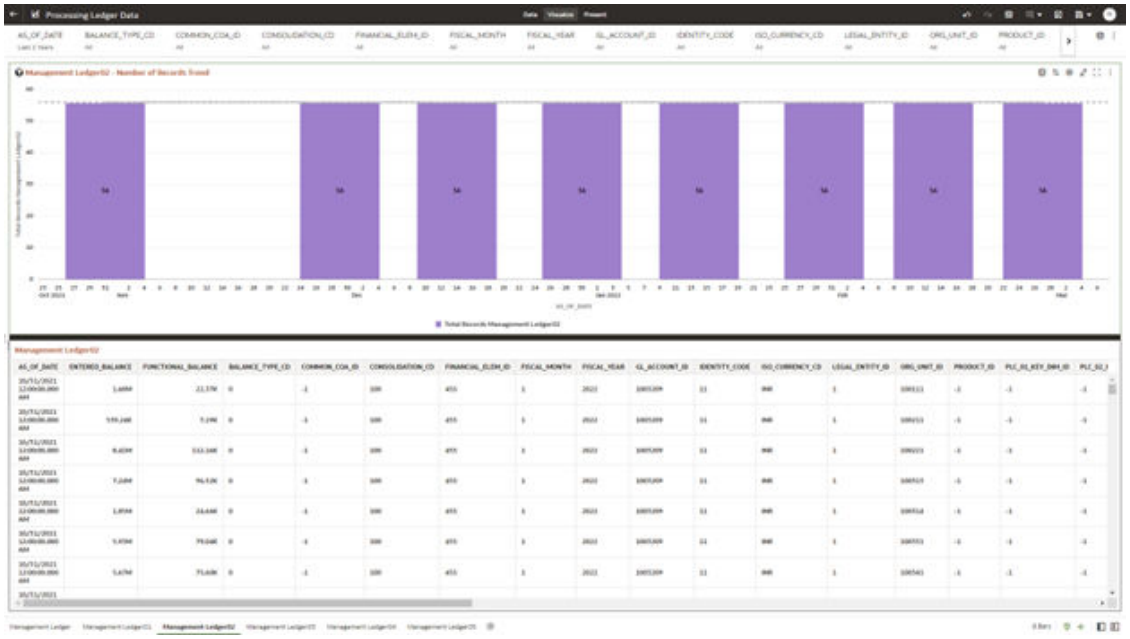
Figure 8-56 Processing Ledger Data – Management Ledger02



8.1.4.7.4 Management Ledger03

The Management Ledger03 Report provides the analysis capability on the Placeholder Management Ledger 03 Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger03 - Number of Records Trend
  Total Records Management Ledger03 aggregated by AS_OF_DATE.
- Management Ledger03
  Granular table records at FINANCIAL_ELEM_ID level.

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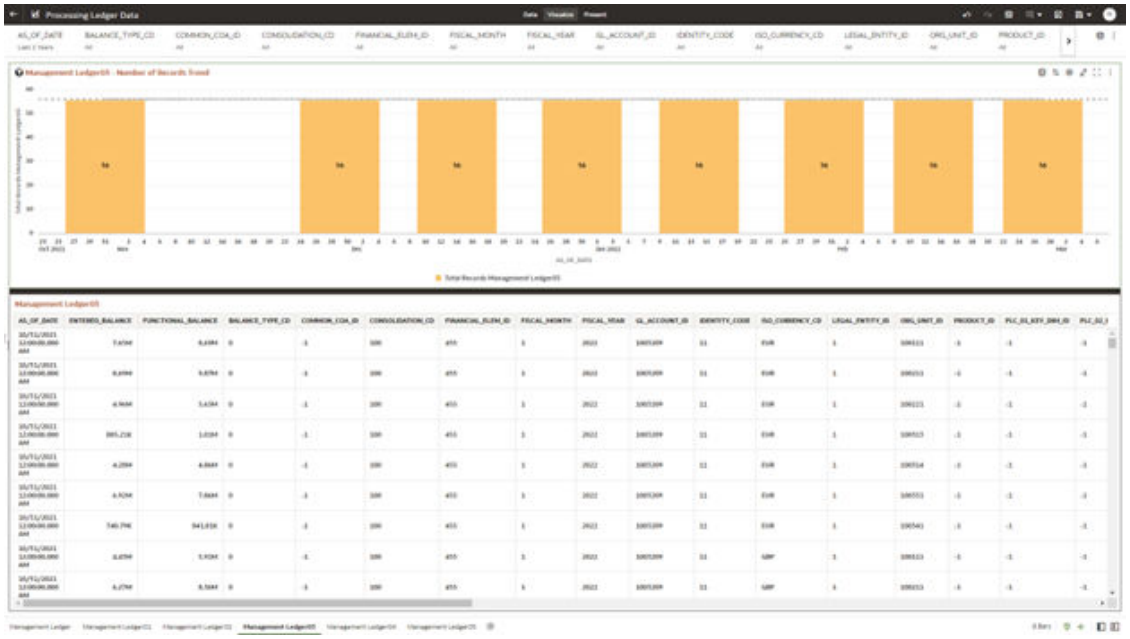
Figure 8-57 Processing Ledger Data – Management Ledger03



8.1.4.7.5 Management Ledger04

The Management Ledger04 Report provides the analysis capability on the Placeholder Management Ledger 04 Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger04 - Number of Records Trend
  Total Records Management Ledger04 aggregated by AS_OF_DATE.
- Management Ledger04
  Granular table records at FINANCIAL_ELEM_ID level.

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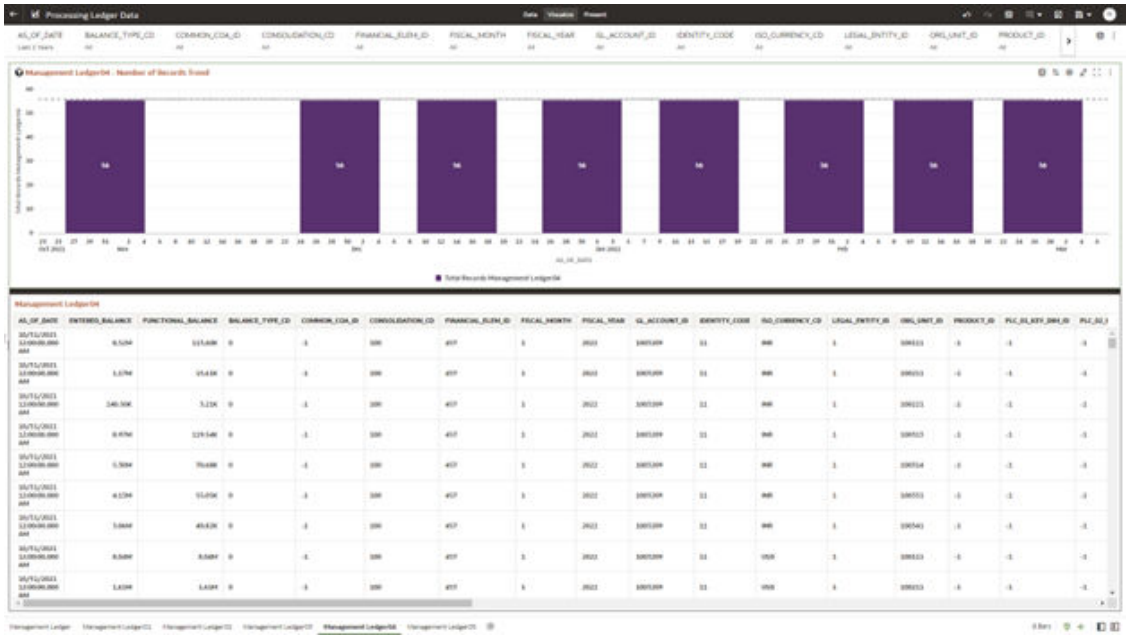
Figure 8-58 Processing Ledger Data – Management Ledger04



8.1.4.7.6 Management Ledger05

The Management Ledger05 Report provides the analysis capability on the Placeholder Management Ledger 05 Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Management Ledger05 - Number of Records Trend
  Total Records Management Ledger05 aggregated by AS_OF_DATE.
- Management Ledger05
  Granular table records at FINANCIAL_ELEM_ID level.

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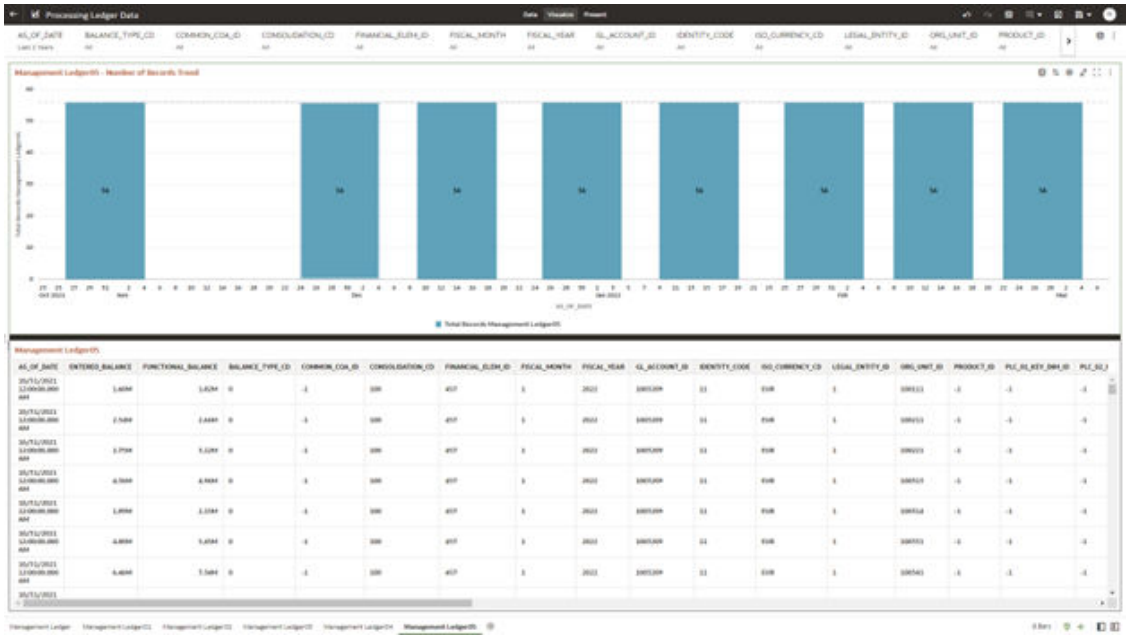
Figure 8-59 Processing Ledger Data – Management Ledger05



8.1.4.8 Processing Transaction Summary Data

You can use this report to perform the analysis on the Processing Area Tables related to Transaction Summary Data.

The report contains specifically the following Staging Database Objects:

Table 8-9 Staging Transaction Summary Data Reports

Report Name	Scope	Table Layer	Physical Table List	Logical Table List	Report Canvas Name
Processing Transaction Summary Data	Transaction Summary	FSI–Processing	FSI_D_ASSET_TXNS FSI_D_LIABILITY_TXNS FSI_D_FEE_BASED_SERVICE_TXNS FSI_D_OFF_BALANCE_SHEET_TXNS	Asset Transaction Summary Liability Transaction Summary Fee Based and Other Services Transaction Summary Off Balance Sheet Transaction Summary	Assets Transaction Summary Liabilities Transaction Summary Fee Based Services Transaction Summary Off Balance Sheet Transaction Summary

8.1.4.8.1 Asset Transaction Summary

The Asset Transaction Summary Report provides the analysis capability on the Assets Transaction Summary Table.

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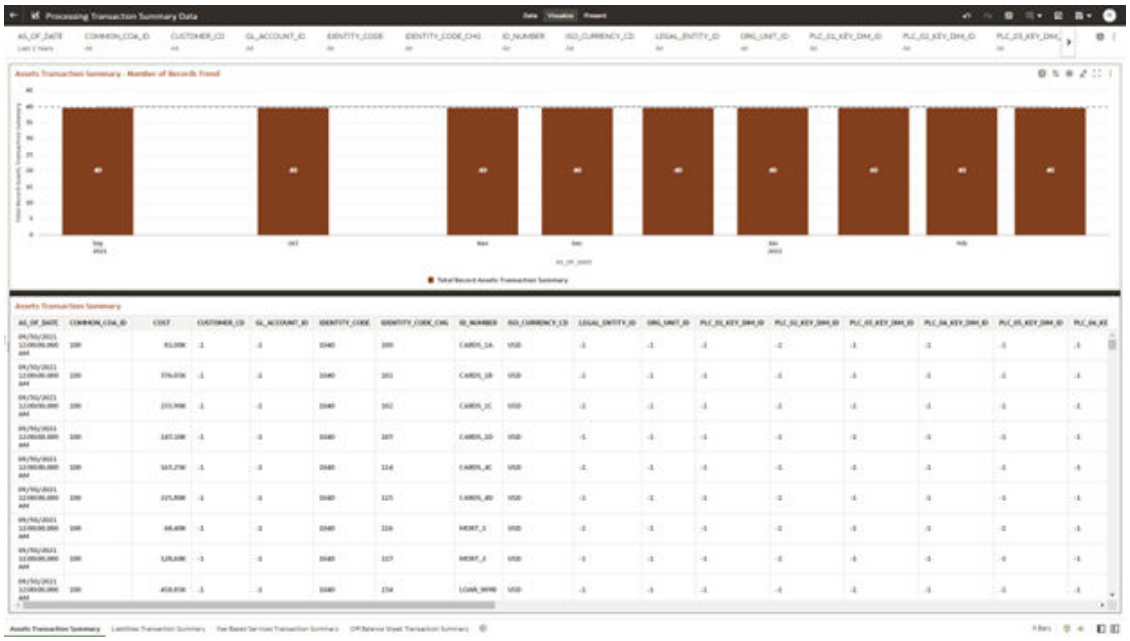
You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Assets Transaction Summary - Number of Records Trend
  Total Record Assets Transaction Summary aggregated by AS_OF_DATE.
- Assets Transaction Summary
  Granular table records at ID_NUMBER level.

Figure 8-60 Processing Transaction Summary Data - Asset Transaction Summary



8.1.4.8.2 Liabilities Transaction Summary

The Liabilities Transaction Summary Report provides the analysis capability on the Liability Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Liabilities Transaction Summary - Number of Records Trend
  Total Record Liability Transaction Summary aggregated by AS_OF_DATE.
- Liabilities Transaction Summary
  Granular table records at ID_NUMBER level.

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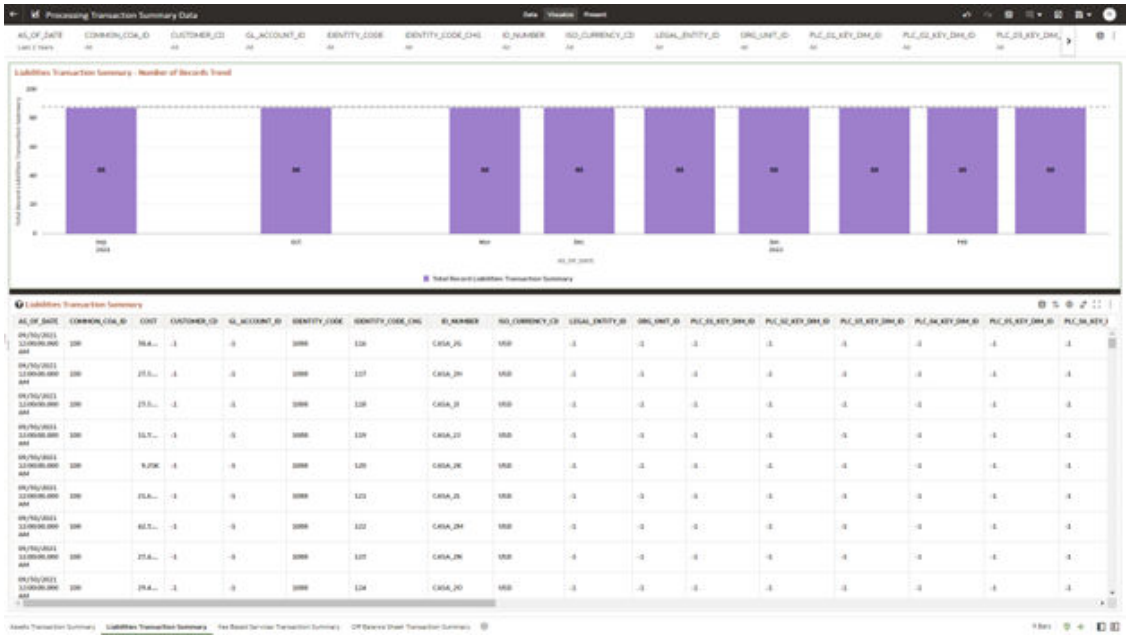
Figure 8-61 Processing Transaction Summary Data – Liabilities Transaction Summary



8.1.4.8.3 Fee Based Services Transaction Summary

The Fee Based Services Transaction Summary Report provides the analysis capability on the Fee Based and Other Services Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Fee Based Services Transaction Summary - Number of Records Trend
  Total Record Fee Based Services Transaction Summary aggregated by AS_OF_DATE.
- Fee Based Services Transaction Summary
  Granular table records at ID_NUMBER level.

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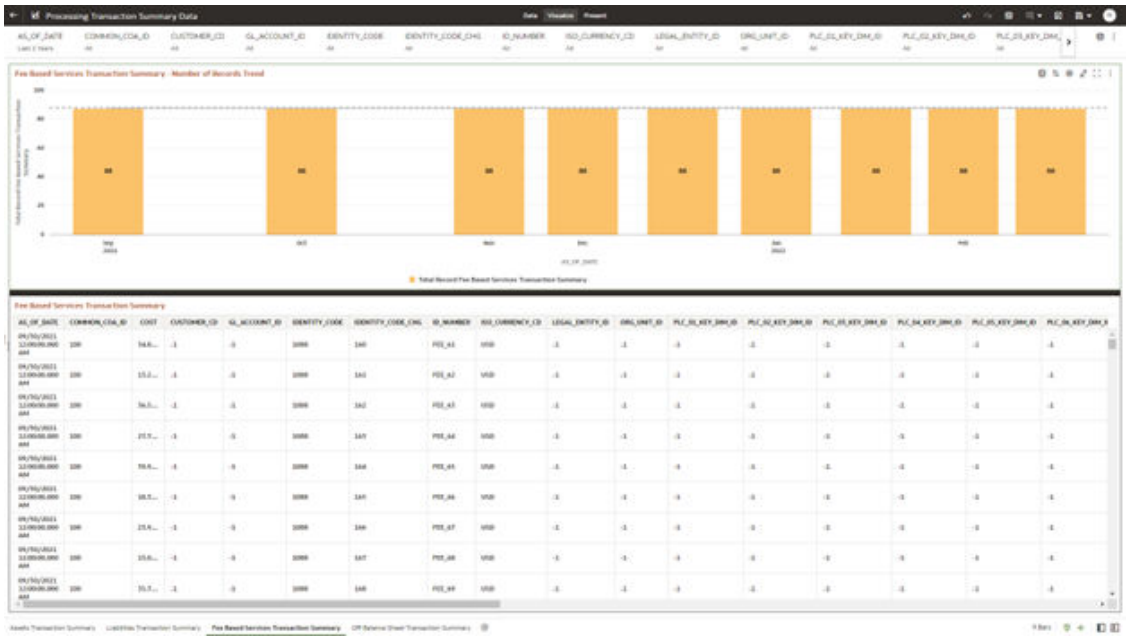
Figure 8-62 Processing Transaction Summary Data – Fee Based Services Transaction Summary



8.1.4.8.4 Off Balance Sheet Transaction Summary

The Off Balance Sheet Transaction Summary Report provides the analysis capability on the Off Balance Sheet Transaction Summary Table.

You can use a series of Report Prompts to filter the data according to Functional Key Attributes pertaining to the Table Columns Perimeter.

The report displays the underlying data according to the following Charts' logic:

- Off Balance Sheet Transaction Summary - Number of Records Trend
  Total Record Off Balance Sheet Transaction Summary aggregated by AS_OF_DATE.
- Off Balance Sheet Transaction Summary
  Granular table records at ID_NUMBER level.

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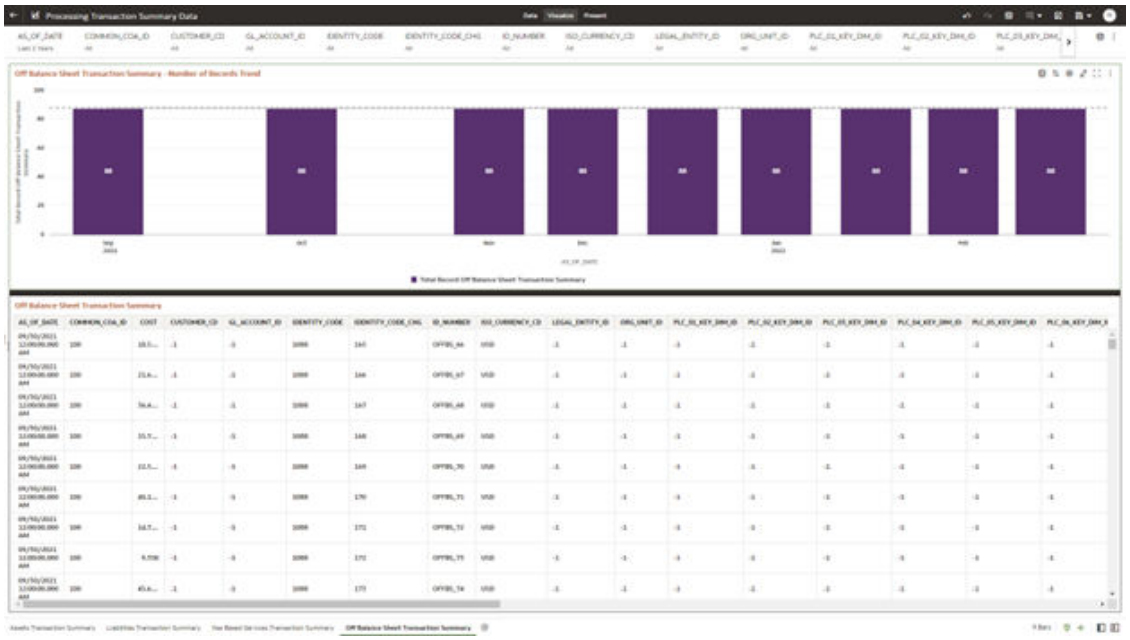
Figure 8-63 Processing Transaction Summary Data – Off Balance Sheet Transaction Summary



8.1.5 Operational Analysis

This topic covers the following reports:

- Dimensions Registry
- Currency Rates
- Interest Rate Curves
- Data Quality Checks
- File Uploads
- Groups and Roles

8.1.5.1 Dimensions Registry

To access the Dimensions Registry report, from the LHS menu, select **Operational Analysis**, and then select **Dimensions Registry**.

This is arranged as a set of reports catering to the analysis of the following categories:

- Financial Element
- Legal Entity
- Common COA
- GL Account
- Org Unit
- Product
- Industry

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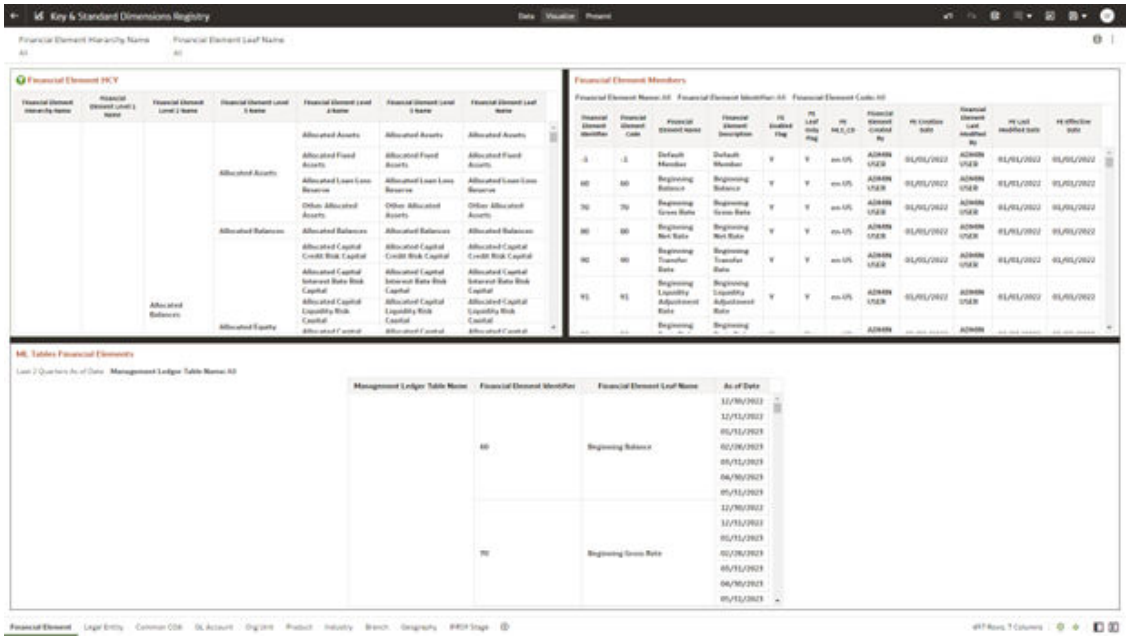
- Branch
- Geography
- IFRS9 Stage

8.1.5.1.1 Financial Element

Figure 8-64 Key & Standard Dimensions Registry



- **HCY Report**: Report displays the names of the hierarchy levels and dimensions from Level 1 to Level 5, as well as the names of the leaf nodes. More Levels can be added by the user as per user convenience.
- **Member Report**: Report displays the information regarding member names, Descriptions, and other member-related information. This Report will help the user in identifying the members of the dimension that are loaded in the application. Instrument Tables Report:- Report displays the Instrument table name and the corresponding Member ID and Member Name along with As of Date. Users can identify a particular dimension present in which instrument tables and the corresponding as-of-date.
- **Management Ledger Tables Report**: Report displays the ML table name and the corresponding Member ID and Member Name along with As of Date. Users can identify a particular dimension is present in which Management Ledger tables and the corresponding as-of-date.

Report Filters

The following Report Filters are available:

- **Financial Element Hierarchy Name**: Note that this is a mandatory filter for the group filtering on Financial Element Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Financial Element Hierarchy Name” must be selected with only a single value simultaneously.

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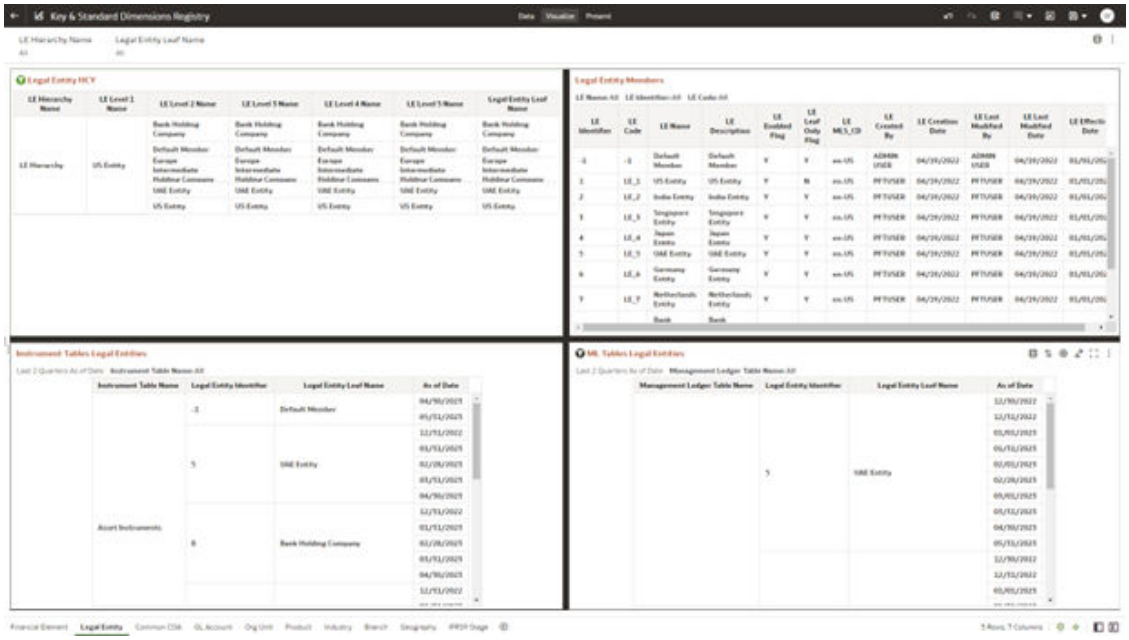
- **Financial Element Leaf Name**: You can use this filter to select the Financial Element Leaf Name that is related to the underlying Management Ledger data.

8.1.5.1.2 Legal Entity

The following Report Filters are available:

- **Legal Entity Hierarchy Name**: Note that this is a mandatory filter for the group filtering on Legal Entity Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “LE Hierarchy Name” must be selected with only a single value simultaneously.
- **Legal Entity Leaf Name**: You can use this filter to select the Legal Entity Leaf Name that is related to the underlying Management Ledger data.

Figure 8-65 Legal Entity-Key & Standard Dimensions Registry



8.1.5.1.3 Common COA

The following Report Filters are available:

- Common COA Hierarchy Name: N.B. This is a mandatory filter for the group filtering on Common COA Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Common COA Hierarchy Name” must be selected with only a single value simultaneously.
- Common COA Leaf Name: You can use this filter to select the Common COA Leaf Name that is related to the underlying management ledger data.

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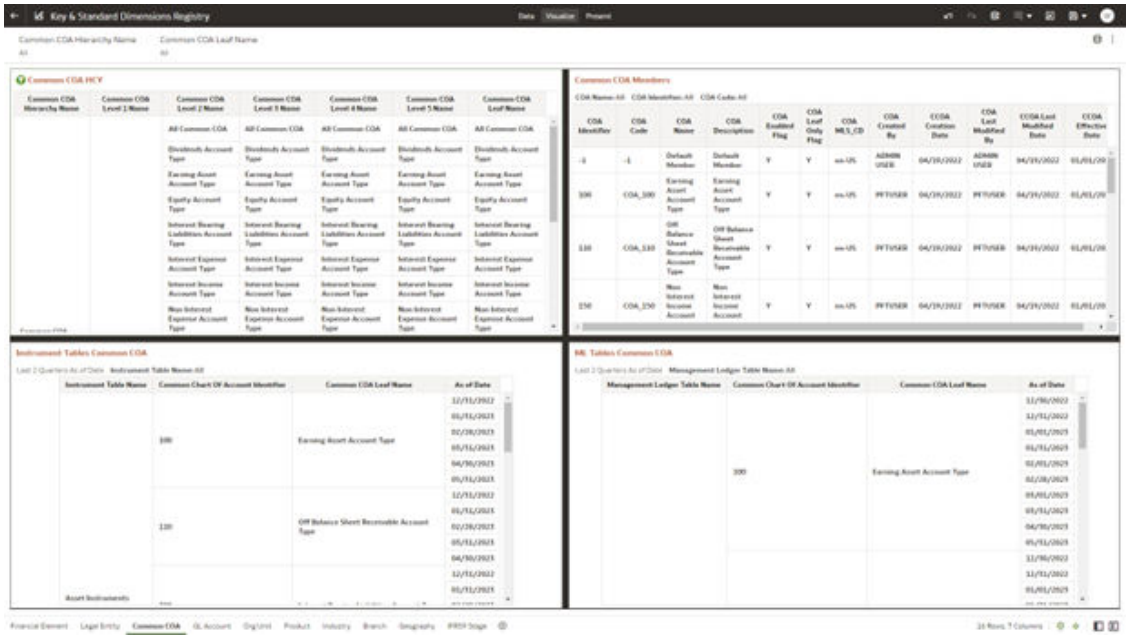
Figure 8-66 Common COA-Key and Standard Dimensions Registry



8.1.5.1.4 GL Account

The following Report Filters are available:

- **GL Account Hierarchy Name**: Note that this is a mandatory filter for the group filtering on GL Account Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “GL Account Hierarchy Name” must be selected with only a single value simultaneously.
- **GL Account Leaf Name**: You can use this filter to select the GL Account Leaf Name that is related to the underlying Management Ledger data.

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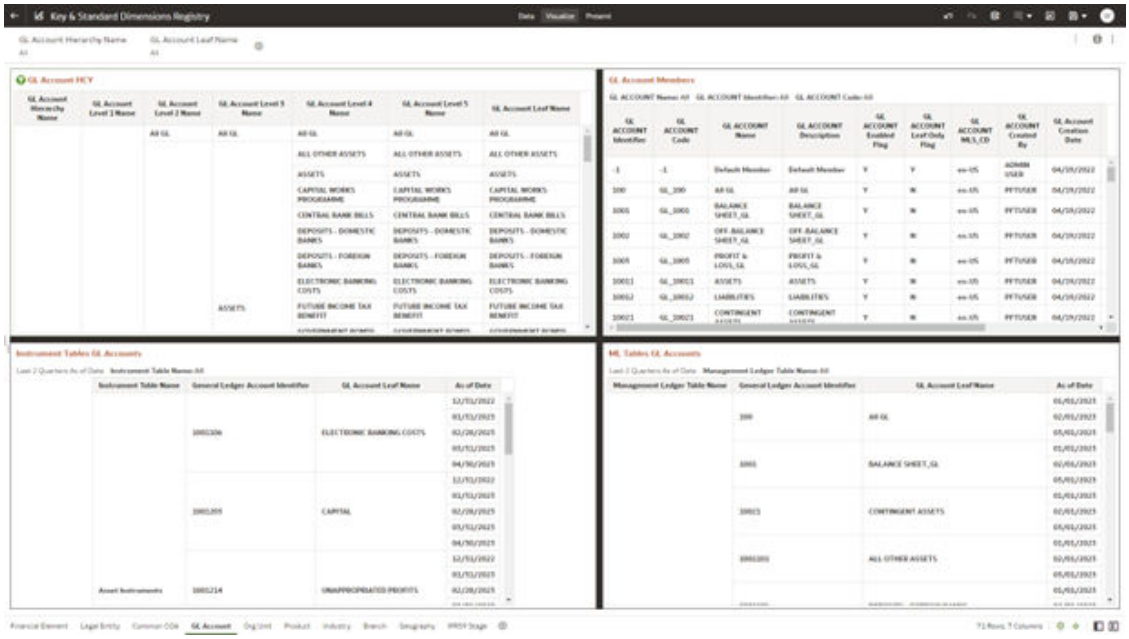
Figure 8-67 GL Account - Key and Standard Dimensions Registry



8.1.5.1.5 Org Unit

The following Report Filters are available:

- **Org Hierarchy Name**: Note that this is a mandatory filter for the group filtering on Org Unit Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Org Hierarchy Name” must be selected with only a single value simultaneously.
- **Org Unit Leaf Name**: You can use this filter to select the Org Unit Leaf Name that is related to the underlying Management Ledger data.

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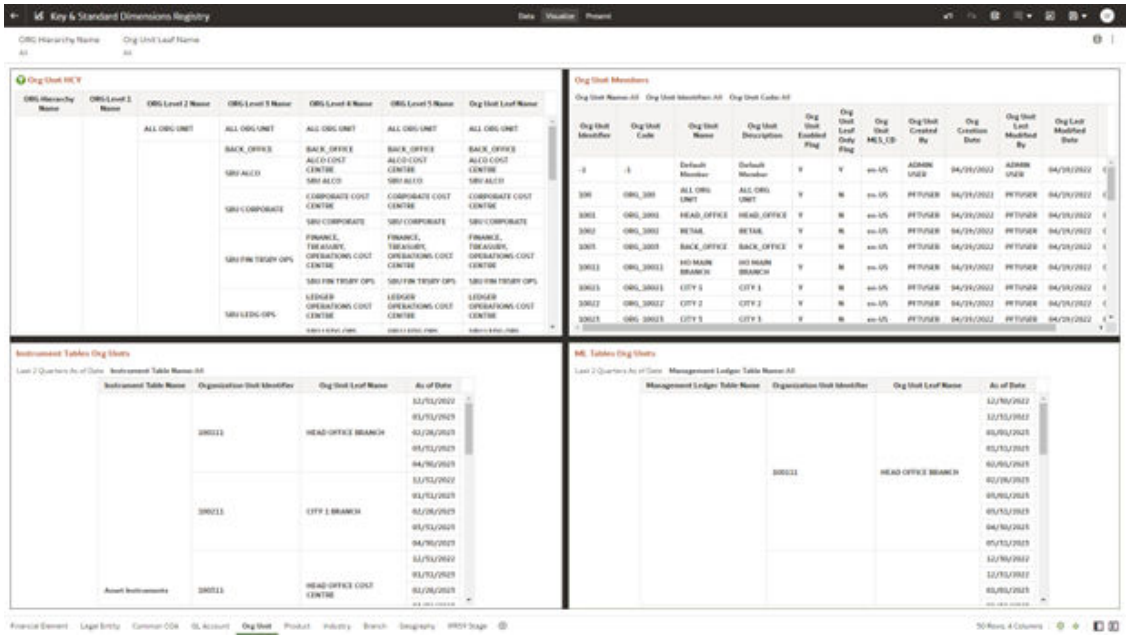
Figure 8-68 Org Unit - Key & Standard Dimensions Registry



8.1.5.1.6 Product

The following Report Filters are available:

- **Product Hierarchy Name**: Note that this is a mandatory filter for the group filtering on Product Key Processing Dimension.
  As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Prod Hierarchy Name” must be selected with only a single value simultaneously.
- **Product Leaf Name**: You can use this filter to select the Prod Leaf Name that is related to the underlying Management Ledger data.

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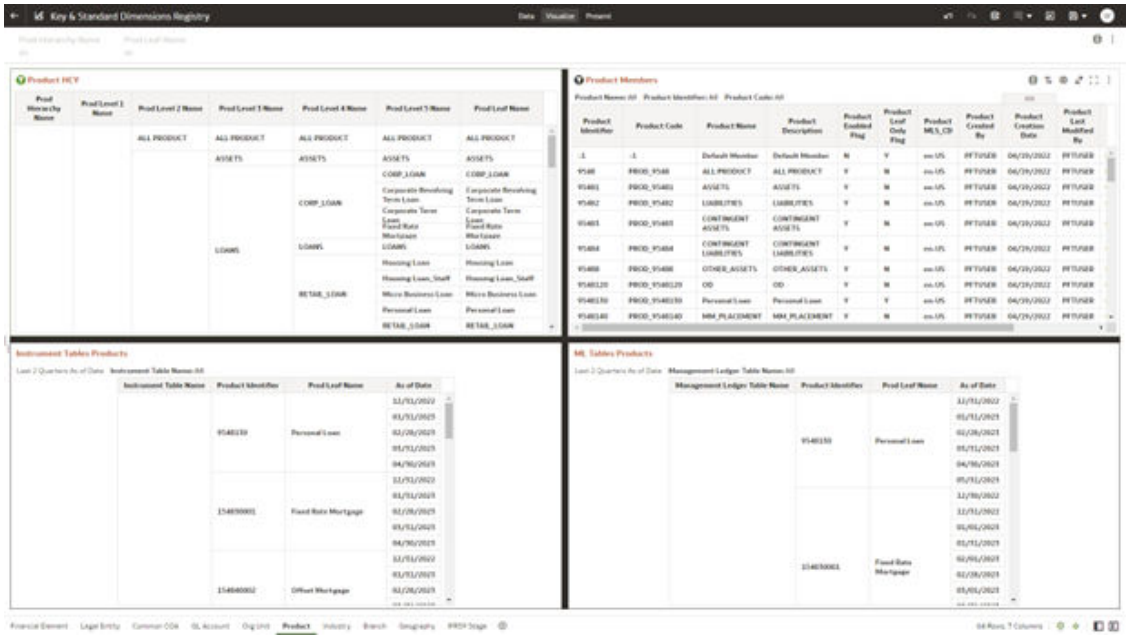
Figure 8-69 Product - Key & Standard Dimensions Registry



8.1.5.1.7 Industry

The following Report Filters are available:

- **Industry Hierarchy Name**: As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Industry Hierarchy Name” must be selected with only a single value simultaneously.
- **Industry Leaf Name**: You can use this filter to select the Industry Leaf Name that is related to the underlying Industry.

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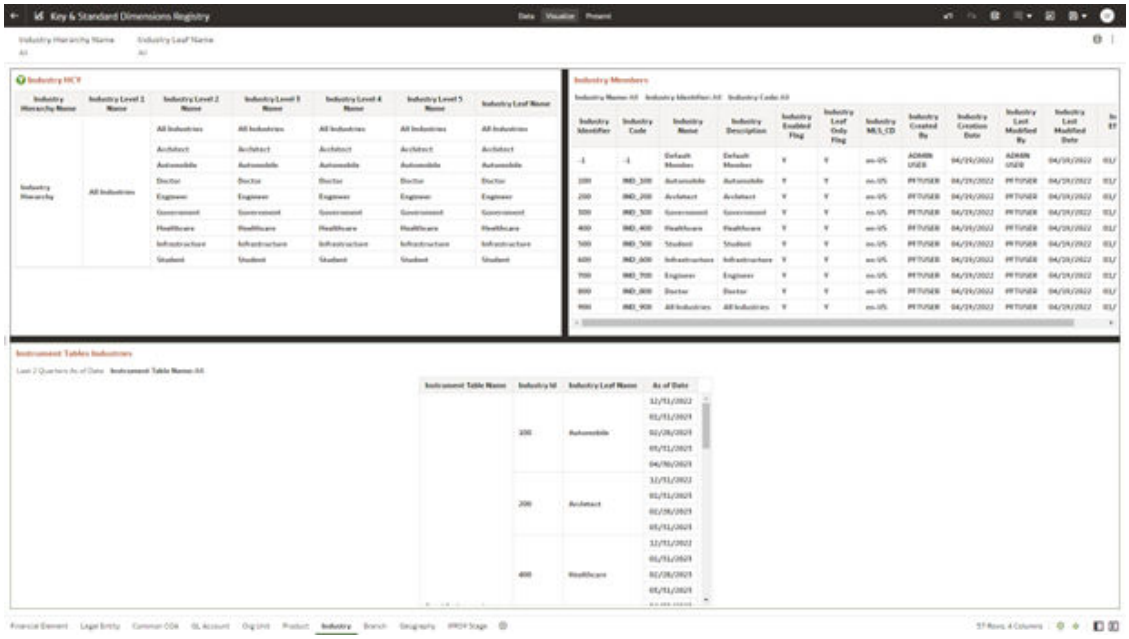
Figure 8-70 Industry - Key & Standard Dimensions Registry



8.1.5.1.8 Branch

The following Report Filters are available:

- **Branch Hierarchy Name**: As the Application supports the creation of multiple hierarchies for the same Dimension of analysis, and to avoid displaying results from multiple Dimension Hierarchies at the same time, a mandatory driver to select “Branch Hierarchy Name” must be selected with only a single value simultaneously.
- **Branch Leaf Name**: You can use this filter to select the Branch Leaf Name that is related to the underlying Branch.

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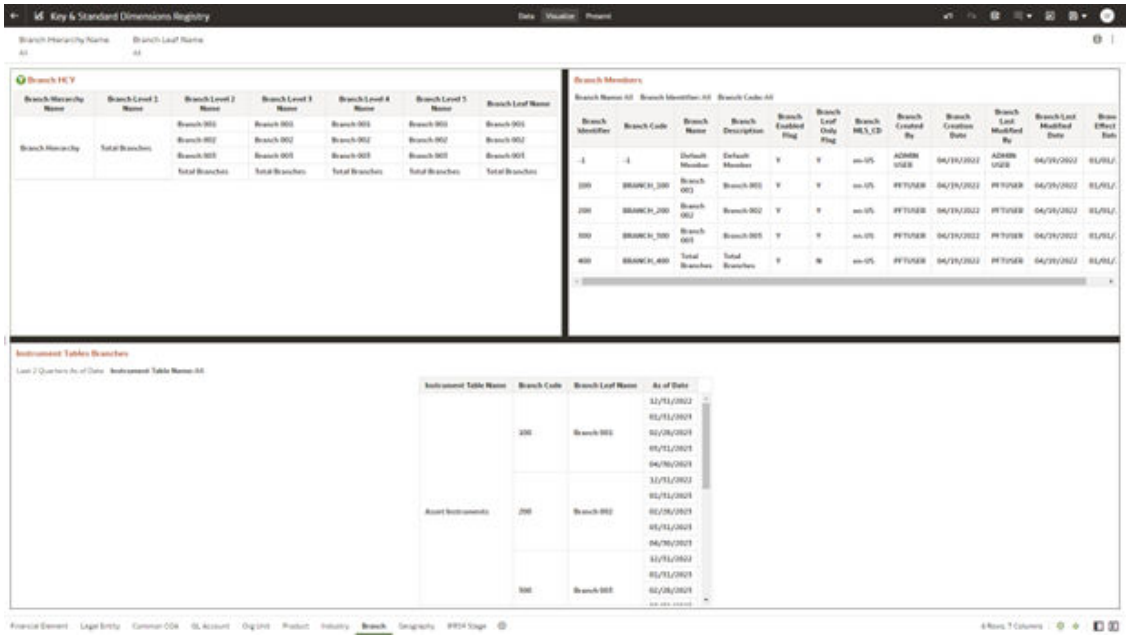
Figure 8-71 Branch - Key and Standard Dimensions Registry



8.1.5.1.9 Geography

The following Report Filters are available:

- **Geography Hierarchy Name**: This is a mandatory filter for the group filtering on the Geography Hierarchy.
  As the application supports the creation of multiple hierarchies for the same dimension of analysis, to avoid displaying results from multiple hierarchies at the same time, a mandatory driver to select "Geography Hierarchy Name" must be selected.
- **Geography Leaf Name**: You can use this filter to select the Geography Leaf Name that is related to the underlying Geography.

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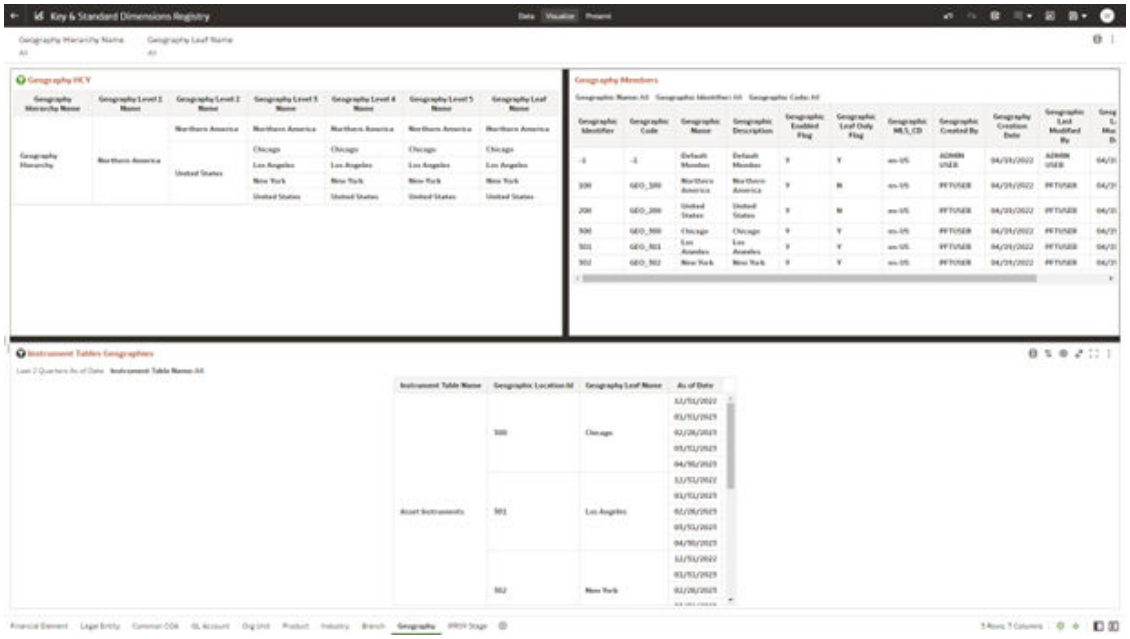
Figure 8-72 Geography - Key & Standard Dimensions Registry

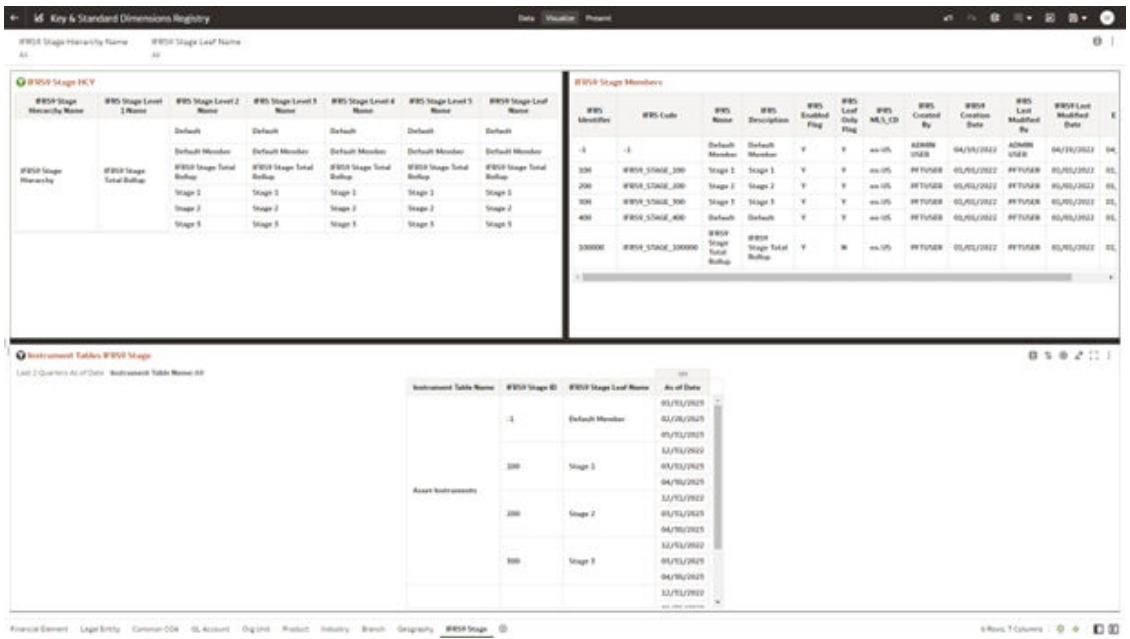


8.1.5.1.10 IFRS9 Stage

The following Report Filters are available:

- **IFRS9 Stage Hierarchy Name**: IFRS 9, financial assets are classified according to the business model for managing them and their characteristics. An individual or collective basis – in three stages under IFRS 9.
- **IFRS9 Stage Leaf Name**: You can use this filter to select the IFRS9 Stage Leaf Name that is related to the underlying IFRS9.

Figure 8-73 IFRS9 State - Key & Standard Dimensions Registry



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8.1.5.2 Currency Rates

To access the Currency Rates report, from the LHS menu, select **Operational Analysis**, and then select **Currency Rates**.

Reporting Currency Rates is the currency in which an entity's financial statements or other financial documents are reported. Choosing one currency for reporting makes it easier to understand the financial documents across the board.

This is arranged as a set of reports catering to the analysis of the following categories:

- Floating Segment Rate
- Fixed Exchange Rate
- Exchange Rate

8.1.5.2.1 Report Filters

The following Report Filters are available:

Figure 8-74 Report Filters

- **From Currency**: You can use this filter to select the Currency Code source corresponding to the hierarchy.
- **From Currency Name**: You can use this filter to select the Currency Name source corresponding to the hierarchy.
- **To Currency**: You can use this filter to select the Currency Code destination corresponding to the hierarchy.
- **To Currency Name**: You can use this filter to select the Currency Name destination corresponding to the hierarchy.
- **Effective Date**: You can use this filter to select a date is the specific date when an agreement outlined in the contract begins and end;
- **Rate Data Source Description**: You can use this filter to select the Rate Data Source Description could be Bloomberg, Calculation, etc
- **Rate Status Description**: You can use this filter to select Rate Data Source description could be valid, invalid, etc

8.1.5.2.2 Floating Segment Rate

In this canvas, the floating segment rate shows rises or falls with the rest of the market, along with a segment and conversion rate.

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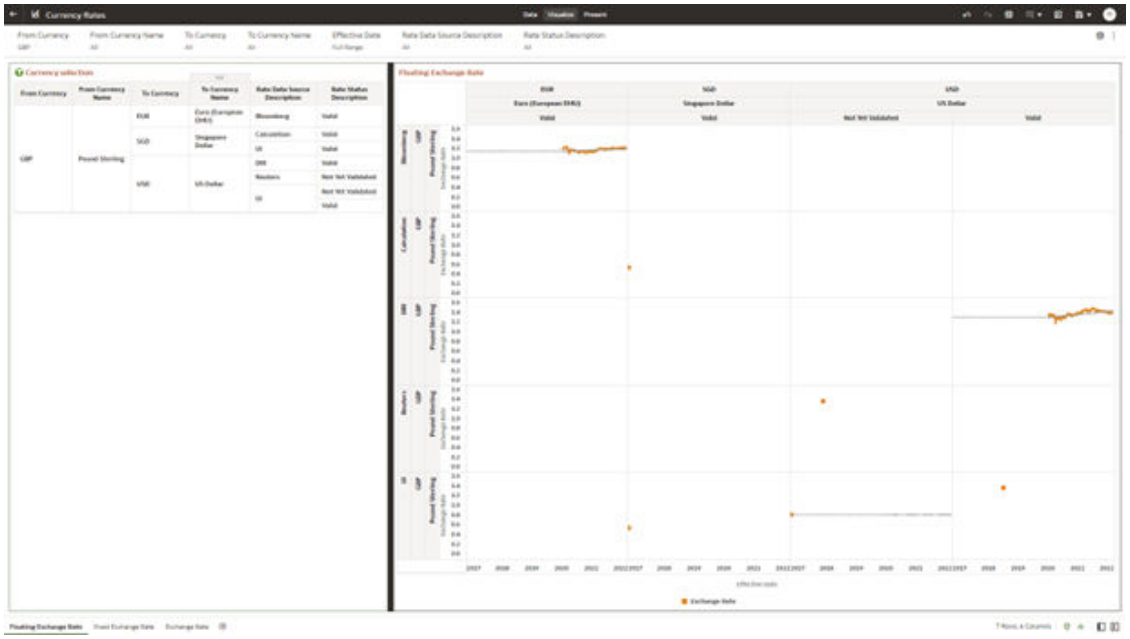
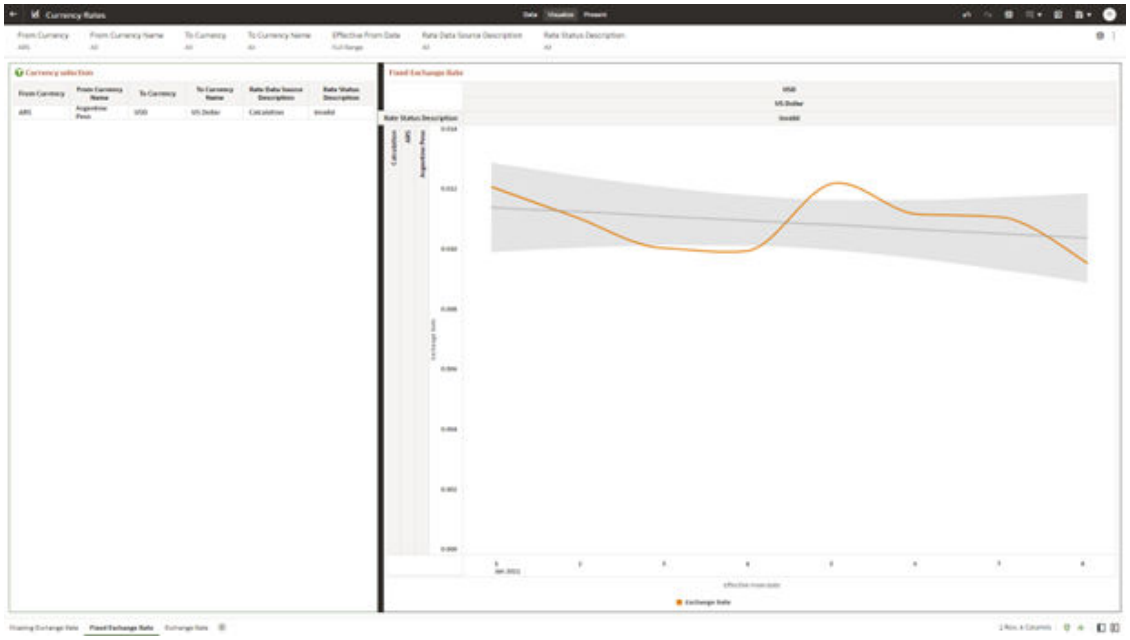
Figure 8-75 Floating Segment Rate



8.1.5.2.3 Fixed Exchange Rate

In this canvas, the fixed exchange rate shows rises or falls with the market.

Figure 8-76 Fixed Exchange Rate



8.1.5.2.4 Report Filters

The following Report Filters are available:

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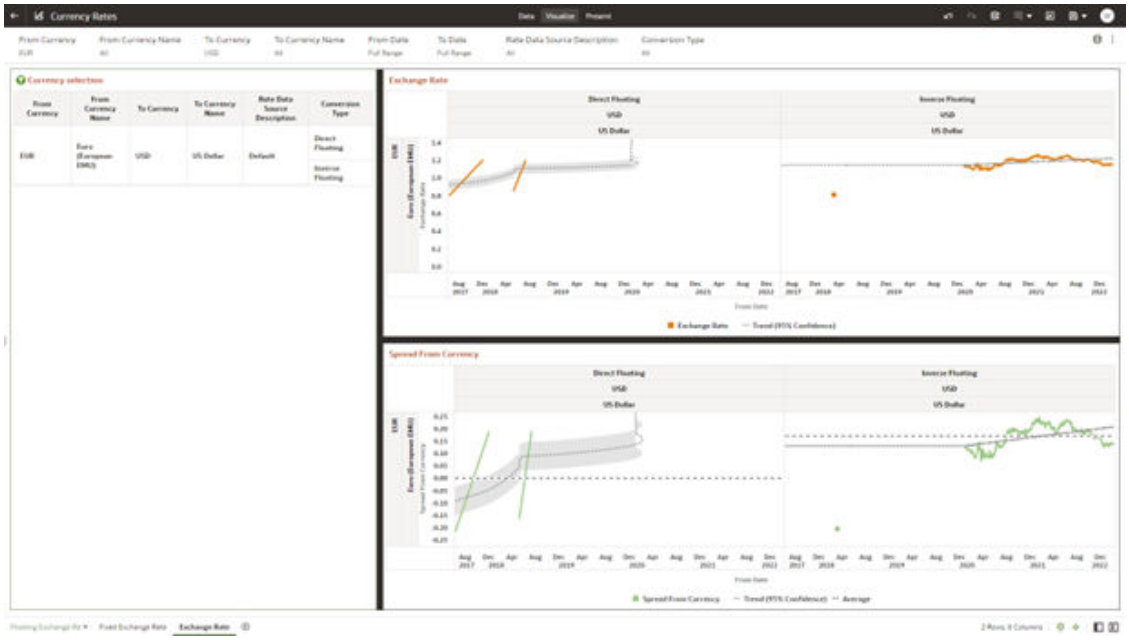
Figure 8-77 Exchange Rate Report Filters

- **From Currency**: You can use this filter to select the Currency Code source corresponding to the hierarchy.
- **From Currency Name**: You can use this filter to select the Currency Name source corresponding to the hierarchy.
- **To Currency**: You can use this filter to select the Currency Code destination corresponding to the hierarchy.
- **To Currency Name**: You can use this filter to select the Currency Name destination corresponding to the hierarchy.
- **From Date**: You can use this filter to select a date as the specific date source to begin.
- **To Date**: You can use this filter to select a date is the specific date destination to end.
- **Rate Data Source Description**: You can use this filter to select the Rate Data Source Description could be Bloomberg, Calculation, etc.
- **Conversion Type**: You can use this filter to select a Conversion Type as Direct Floating, Inverse Fixed, Inverse Floating, or Non-triangulated.

8.1.5.2.5 Exchange Rate

In this canvas, the Exchange rate shows Currency and spread of them.

Figure 8-78 Exchange Rate Canvas



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8.1.5.3 Interest Rate Curves

Interest rate curves are fundamental to Treasury applications. In the context of Funds Transfer Pricing, interest rate curves are referred by all calculations.

The summary screen for interest rate curves displays all the existing interest rate curves with additional details.

Figure 8-79 Interest Rate Curves Summary screen

Report Common Filters

You can use a series of Report Prompts to filter the Data according to Functional Key Attributes as follows:

- **Effective Date (Day)**: You can use this filter to select a specific Day for the underlying Time Dimension.
- **Tenor (Day)**: You can use this filter to select a Maturity Date for the underlying Time Dimension.
- **Currency**: You can use this filter to select a specific Currency to be applied to the underlying dataset.
- **IRC**: You can use the filter Interest Rates Curves to be applied to the underlying dataset.
- **IRC Structure Type**: You can use the filter Interest Rates Curves Structure Type to be applied to the underlying dataset.
- **IRC Format**: You can use the filter Interest Rates Curves Format to be applied to the underlying dataset.
- **Compound Basis**: Indicates the compounding frequency used to calculate interest income.
- **Accrual Basis**: The basis on which the interest accrual is calculated.

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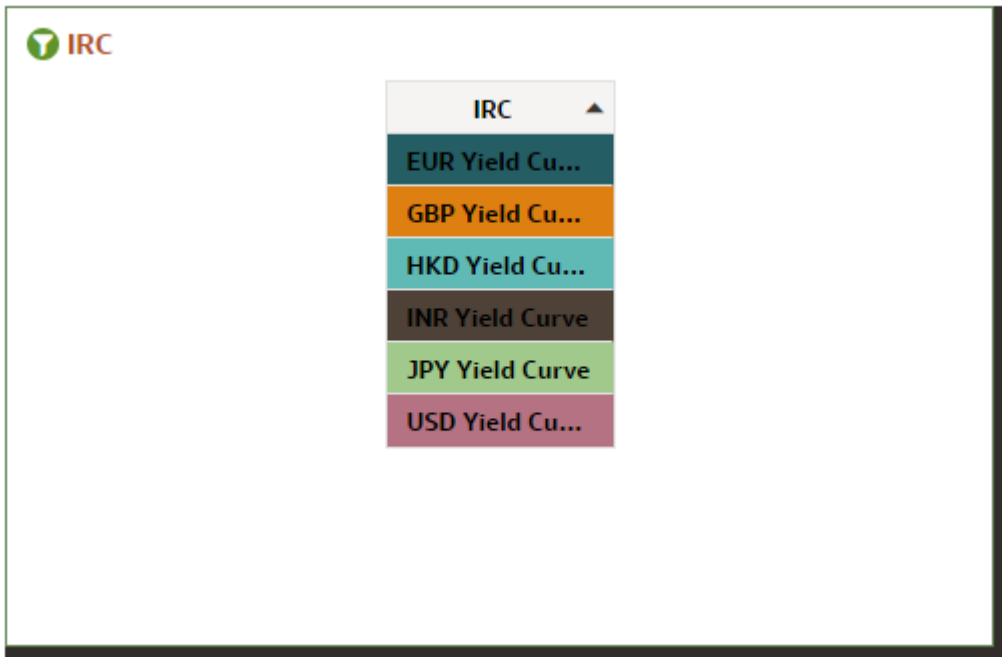
- **Interest Rate Term**: You can use the filter Interest Rates Curves Term to be applied on the dataset filter based on the number of days, months, and/or years.
- **Interest Rate Term Multiplier**: You can use the filter Interest Rates Curves Term Multiplier to be applied to as D (Day), M (Month) and Y (Year).

IRC

The initial report will present a comprehensive list of available IRCs (Individual Report Categories). Users can select one or more IRCs based on their specific reporting needs.

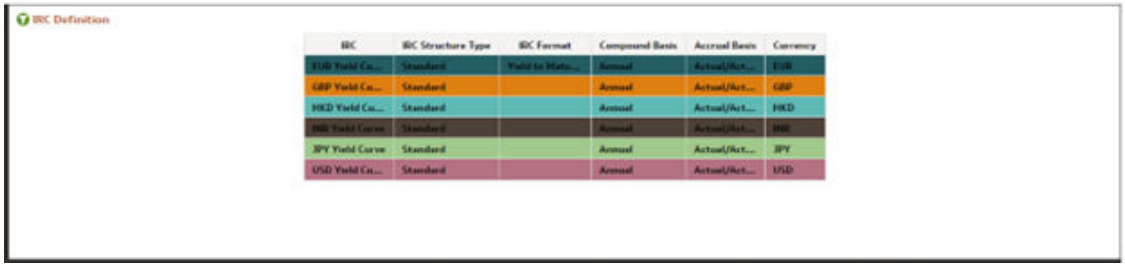
Figure 8-80 IRC Canvas



IRC Definition

The IRC Definition Report showcases essential information such as IRC, IRC structure type, format, compound basis, accrual basis, and currency. This report is also a versatile tool for data filtration to meet specific needs.

Figure 8-81 IRC Definition Canvas



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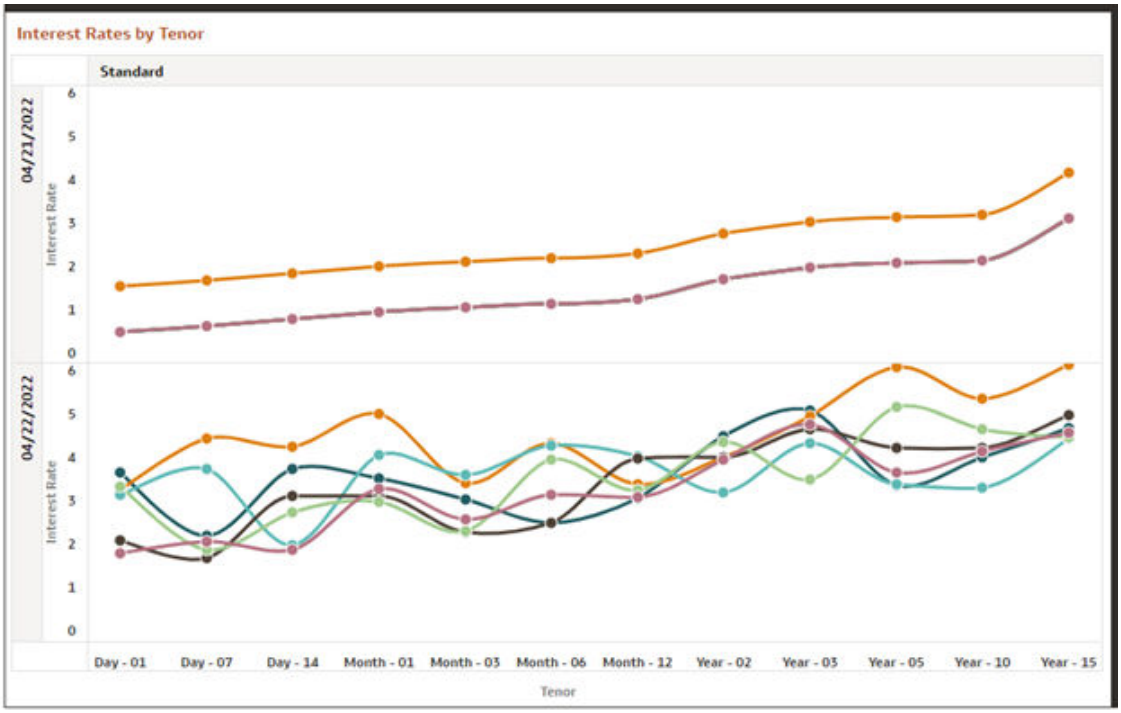
Interest Rates by Tenor

The "Interest Rates by Tenor Report" organizes interest rates based on their effective date and tenor.

Figure 8-82 Canvas IRC by Effective date



The "Interest Rates by Tenor Report" categorizes interest rates based on IRCs according to their respective tenors.

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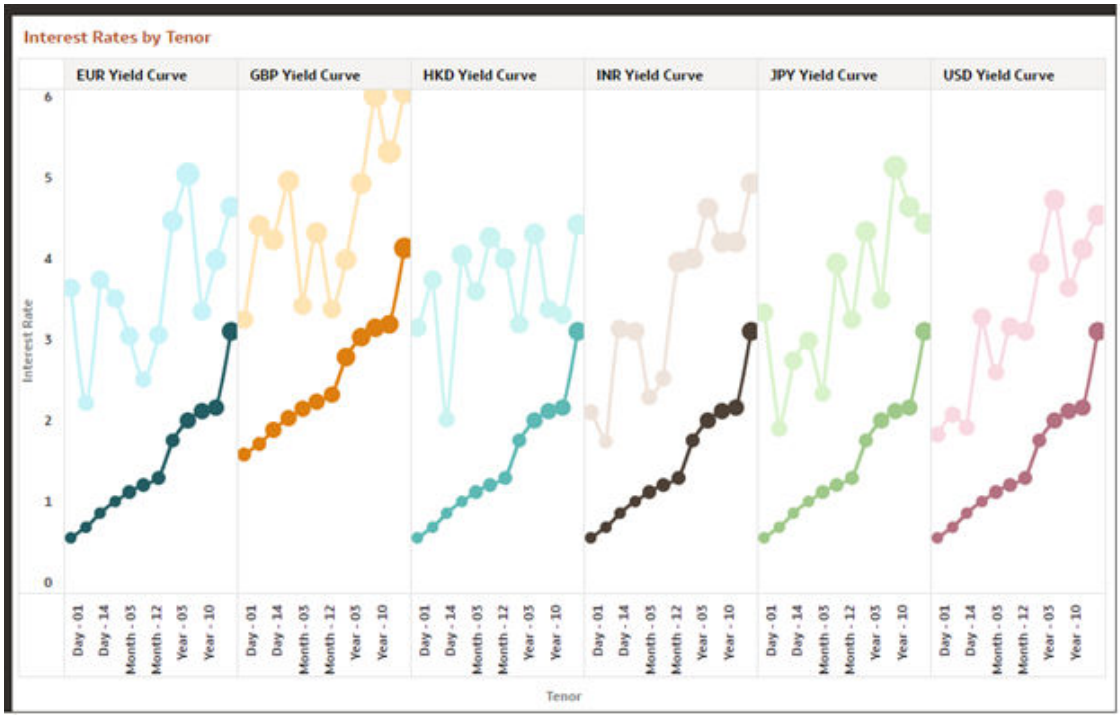
Figure 8-83 Canvas IRC by Period and Currency



8.1.5.4 Data Quality Checks

To access the Data Quality Checks report, from the LHS menu, select **Operational Analysis**, and then select **Data Quality Checks**.

Data Quality Check Reports are divided into four canvases.

- DQ Check Platform Availability
- DQ Batch Executions
- DQ Results
- DQ Detail Results

DQ Check Platform Availability

You can use the following filters:

- **DQ Rule Name**: Rules created in the Application
- **Base Table**: Base tables used in the rules
- **Severity Values**: Error, Warning, Info

Total Checks: Number of Checks created in the OFSAA Application.

Number of Total available checks for each Staging table: Gives the information regarding number of checks based on the various staging tables.

The following reports gives the information regarding the number of various checks created.

- **Range Checks**: Total number of Range checks defined in the system.
- **Data Length Checks**: Total number of Data Length checks defined in the system.

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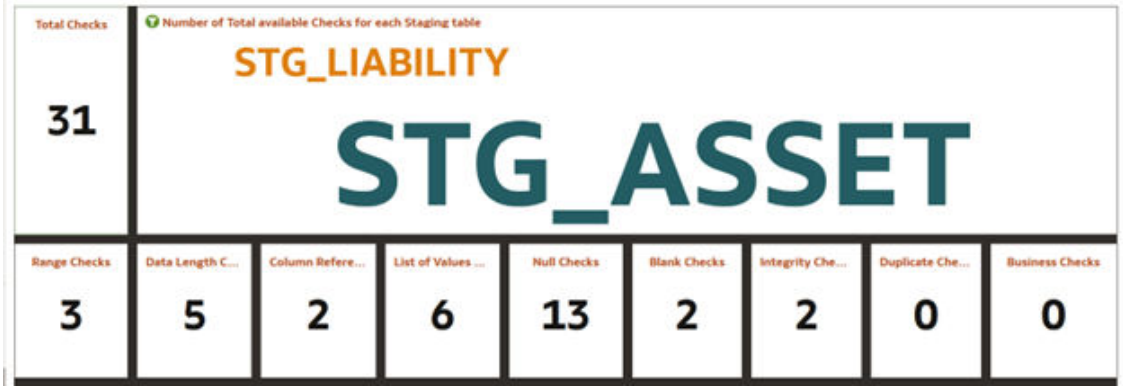
- **Column Reference Checks**: Total number of Column Reference checks defined in the system.
- **List of Values Checks**: Total number of List of values check defined in the system.
- **Null Checks**: Total number of Null checks defined in the system.
- **Blank Checks**: Total number of Blank checks defined in the system.
- **Integrity Checks**: Total number of Integrity checks defined in the system.
- **Duplicate Checks**: Total number of Duplicate checks defined in the system.
- **Business Checks**: Total number of Business checks defined in the system.

Figure 8-84 Number of Total available Checks for each Staging table



Data Quality Checks Distribution gives the distribution of checks based on the base tables.

Detail of Available quality checks in the platform gives the percentage distribution according to severity category defined on different Staging tables.

Figure 8-85 Detail Quality Checks Distribution and Detail of Available Quality Checks in the Platform

DQ Batch Executions Canvas

This canvas gives the information regarding the Batches executed on Data Quality Checks.

You can use the following filters:

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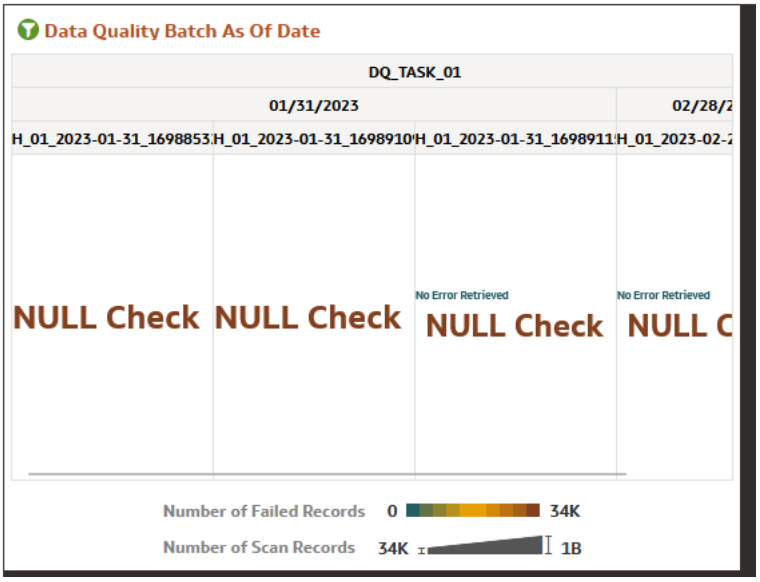
- **Batch Identifier**: Batches executed in the system.
- **Process Identifier**: Process Name for the executed batch in the system.
- **Fic Mis Date**: Batch execution date.
- **DQ Group Identifier**: Data Quality Groups created in the system.
- **DQ Group Description**: Description of Data Quality Groups.
- **DQ Check Identifier**: Data Quality checks created in the system.
- **DQ Check Description**: Description of Data Quality checks.
- **DQ Source Table**: Base table on which Data Quality check is created.
- **DQ Category Name**: Data Quality check category.

Data Quality Batch As Of Date: This report provides details on the executed checks, including the date of execution, Batch name, and the count of scanned records and failed records against each defined check and corresponding to Data Quality Category name.

Figure 8-86 Data Quality Batch As Of Date



Results of Data Quality Batches by Severity and Category: This report provides details on the quantity of failed records across various batches, including the execution date and batch name according to Data Quality Category Name.

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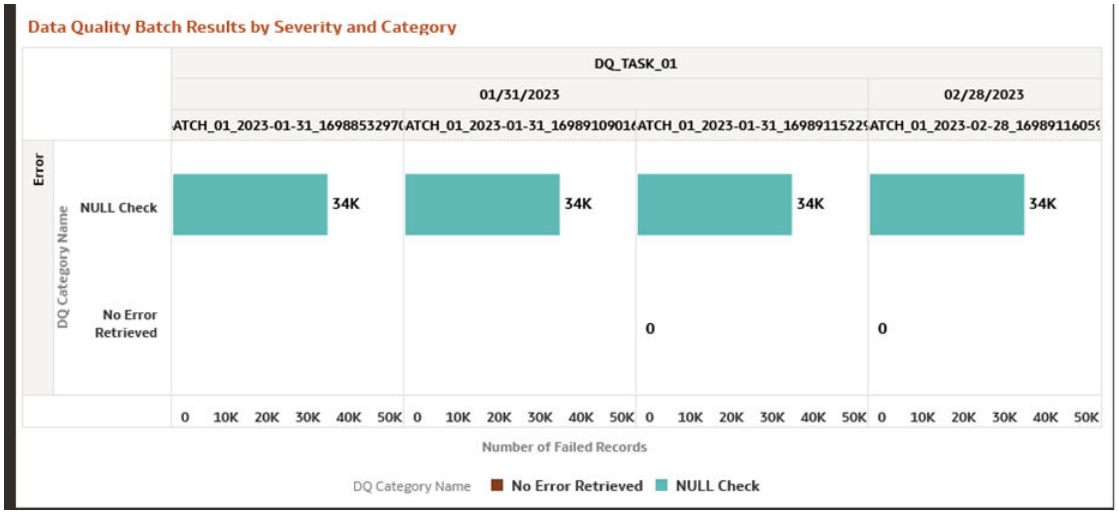
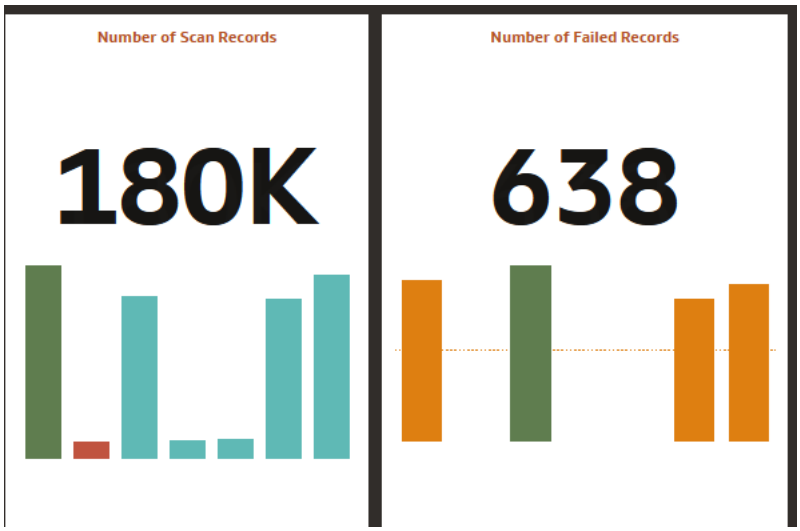
Figure 8-87 Data Quality Batch Results by Severity and Category



These tile reports display information about total number of scanned records and total number of failed records according to the last available Data Quality batch execution.

Figure 8-88 Number of Scan Records and Number of Failed Records



Results of Data Quality Batches for Scanned and Failed Records: This report presents a bar chart illustrating the total number of scanned records and total number of failed records, categorized by batch name and execution date.

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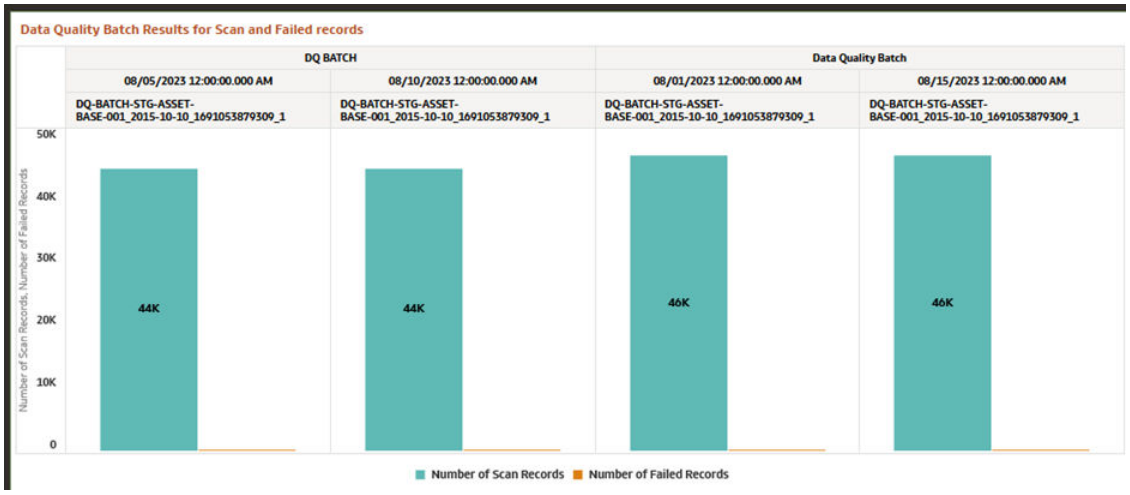
Figure 8-89 Data Quality Batch Results for Scan and Failed Records



DQ Results

You can use the following filters:

- **Batch Identifier**: Batches executed in the system.
- **Process Identifier**: Process Name for the executed batch in the system.
- **Fic Mis Date**: Batch execution date.
- **DQ Group Identifier**: Data Quality Groups created in the system.
- **DQ Group Description**: Description of Data Quality Groups.
- **DQ Check Identifier**: Data Quality checks created in the system.
- **DQ Check Description**: Description of Data Quality checks.
- **DQ Source Table**: Base table on which Data Quality check is created.
- **DQ Category Name**: Data Quality check category.

Number of Records Failed by Data Quality Category Check: This report showcases the number of failed records for each Data quality check by batch names and execution dates according to Data Quality Category Name.

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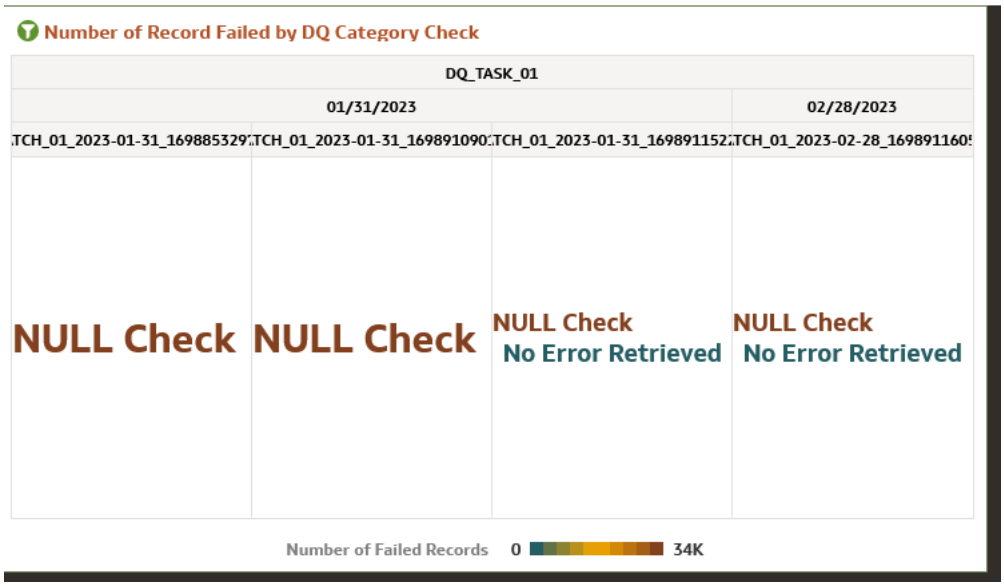
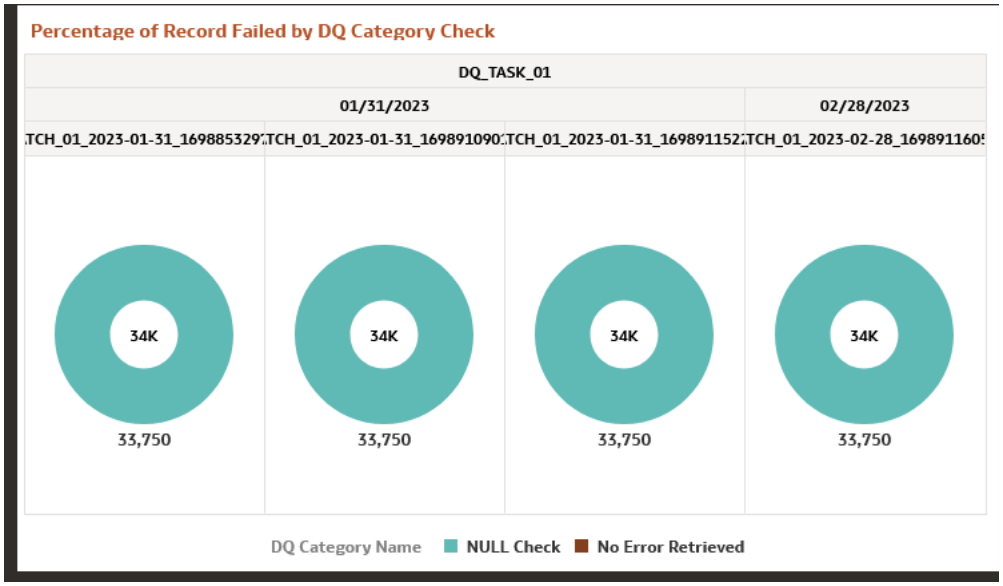
Figure 8-90 Number of Record Failed by DQ Category Check



Percentage of Record Failed by DQ Category Check: This report gives the information regarding Percentage distribution and total number of checks by batch names and execution dates displayed by Data Quality Category Name.

Figure 8-91 Percentage of Record Failed by DQ Category Check



Number of Records Failed by DQ Error Value: This report shows the information regarding number of errors along with the Data Quality Check Description separated by batch names and execution dates.

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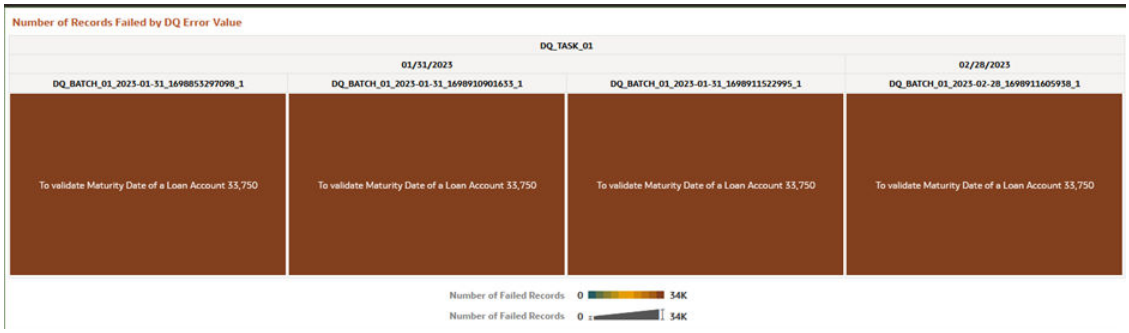
Figure 8-92 Number of Records Failed by DQ Error Value



DQ Detail Results

This canvas gives the detailed information regarding the Data Quality Batch information.

Figure 8-93 DQ Detail Results

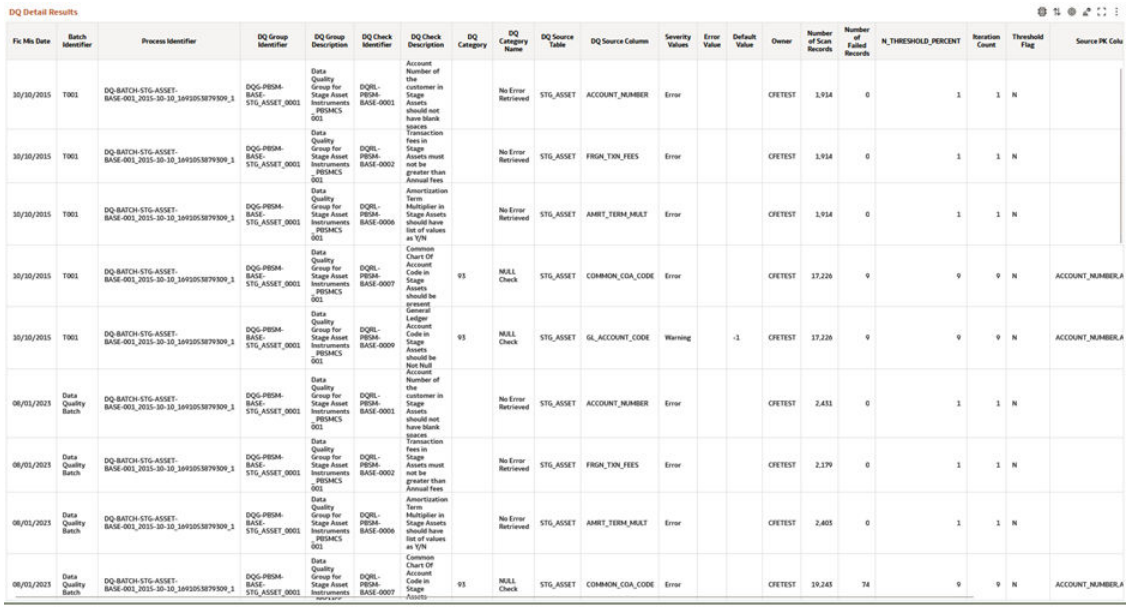
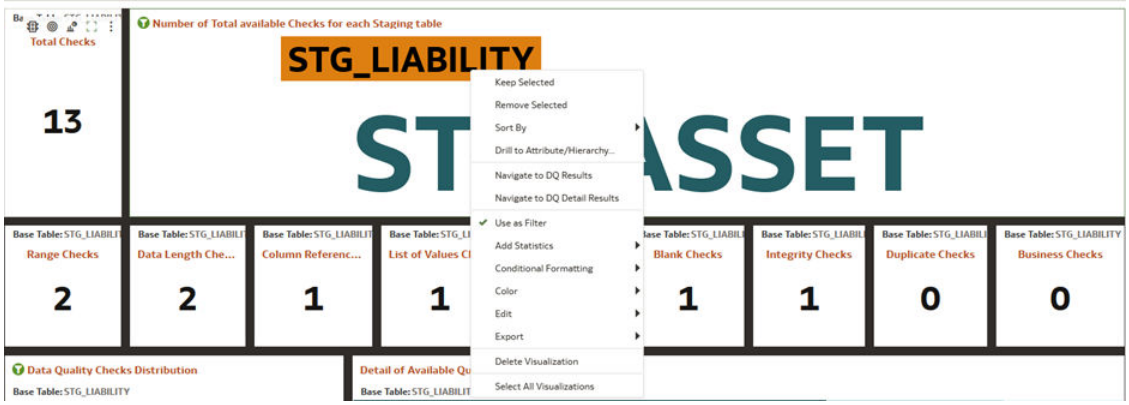


Figure 8-94 Data Action



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Data Action: A Data Action link can pass context values as parameters to other canvas. In Data Quality Reports we have two data actions namely DQ Results and DQ details results.

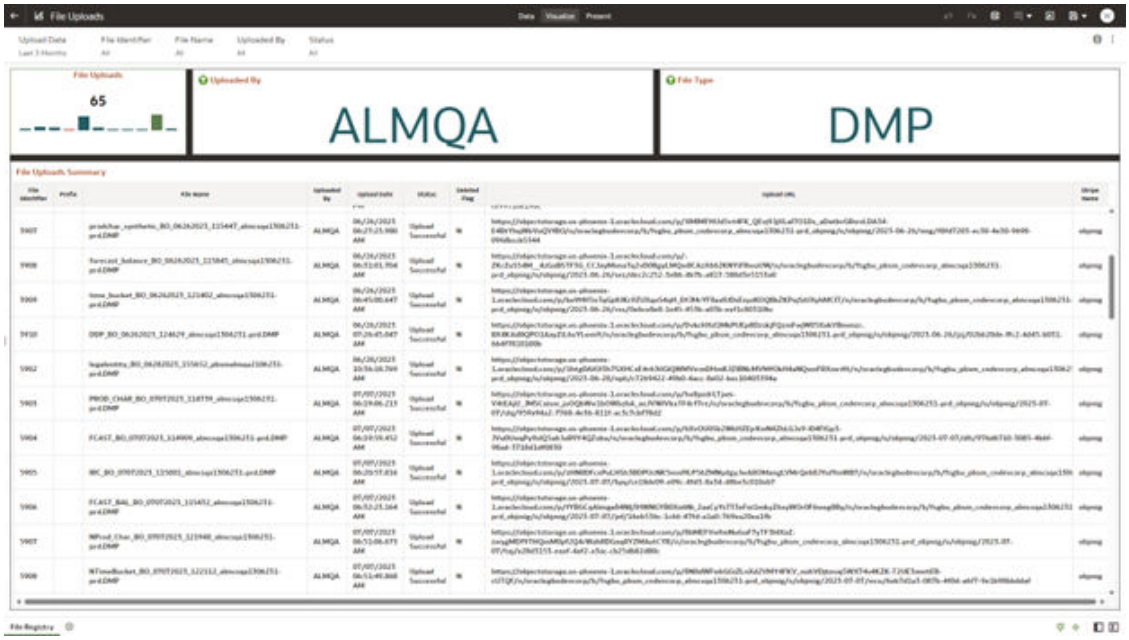
DQ Results: When user right clicks on any element and navigates to DQ Result, the selected object will get passed as a filter and pass this filter in DQ results Canvas.

DQ Result Details: When user right clicks on any element and navigates to DQ Result Details, the selected object will get passed as a filter and pass this filter in DQ Results Details Canvas.

8.1.5.5 File Uploads

To access the File Uploads report, from the LHS menu, select **Operational Analysis**, and then select **File Uploads**.

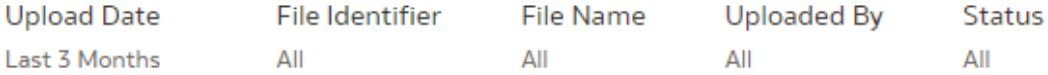
Figure 8-95 File Upload Report



Report Common Filters

You can use a series of canvas level pinned Prompts to filter the data according to Functional Key Attributes as follows:

Figure 8-96 Canvas Prompt Filters



The following filters are available:

- **Update Date**: Use this filter to select the Update Date. The selection default is Last 3 Months.

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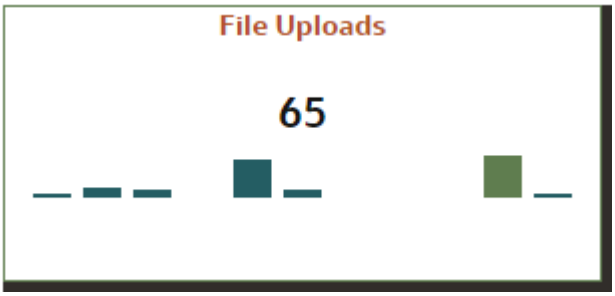
- **File Identifier**: Use this filter to select a specific File Identifier.
- **File Name**: Use this filter to select a specific File Name.
- **Upload By**: Use this filter to select Upload By.

Canvas File Uploads

This chart shows the total number of files uploaded based on a reporting period.

Figure 8-97 Canvas File Uploads



Canvas Uploads by

This filter enables you to view the details of the users who have uploaded the files via the UI or batch process.

Figure 8-98 Canvas Uploads by

Canvas File Type

This filter the data by the file type. In this case, it's DMP, but it can be CSV, TXT, or other formats supported by the UI.

Figure 8-99 Canvas File Type

Canvas Summary

This table gives a clear view of detailed file upload information, that is displayed based on the search filters. Here, you can see the file identifier, prefix, File Name, the user who uploaded the file, Upload Data, status, Deleted Flag – which identifies if the file has been deleted, and the Upload URL.

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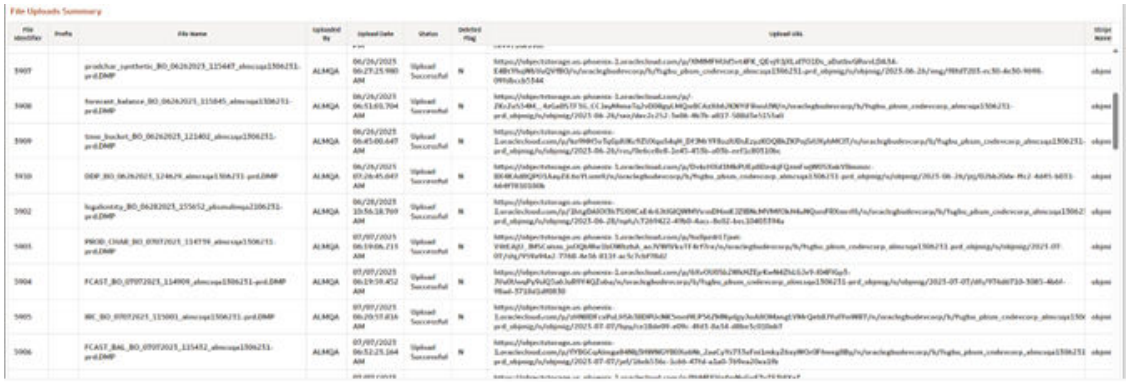
Figure 8-100 Canvas Summary



8.1.5.6 Groups and Roles

To open the Group and Users Report, from the LHS menu, select **Operational Analysis**, and then select **Groups and Roles**.

The Groups and Roles Report Reporting reports section is arranged as a set of canvases, classified into the following:

- Master Registry for Groups - Roles - Functions
- User to Groups Mapping
- Group to Roles Mapping
- Roles to Functions Mapping

Report Common Filters

You can use a series of canvas-level pinned Prompts to filter the data according to Functional Key Attributes as follows:

Figure 8-101 Canvas Prompt Filters for Users, Groups and Roles

The following filters are available:

- **User ID**: To select/search for a specific user ID.
- **Group Code**: To select/search for a specific group code.
- **Group Name**: To select/search for a specific group name.
- **Role Name**: To select/search for a specific role name.
- **Role Code**: To select/search for a specific role code.
- **Function Code**: To select/search for a specific function code.
- **Function Name**: To select/search for a specific function name.

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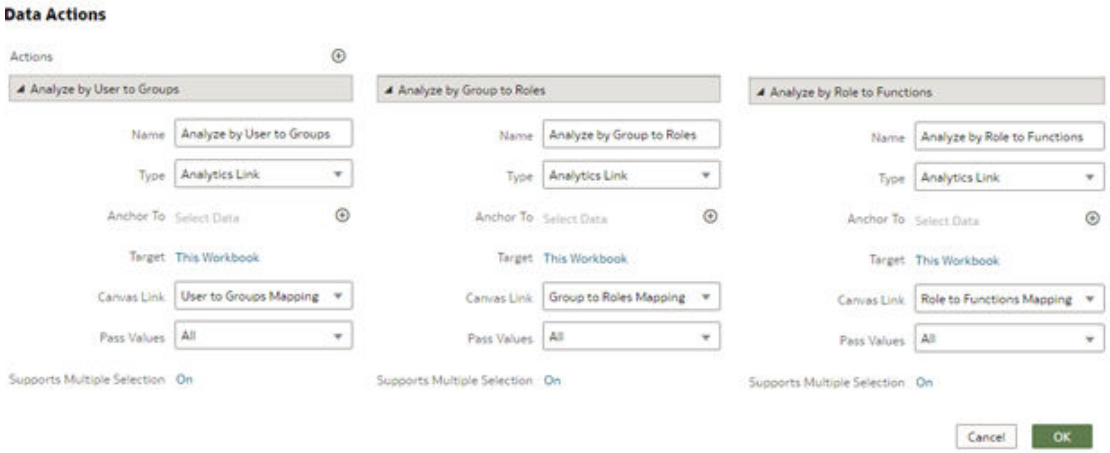
Report Data Action

The reports provide the capability to analyze data across canvases via a Data Action. The following are the Data Action Configuration details:

Figure 8-102 Data Action Configuration



You can analyze by User to Groups, Group to Roles, or Role to Functions.

Report Master Registry For Groups, Rules, Functions

The Master Registry for Groups-Roles-Functions, displays users mapped from the IAM into PBSMCS applications based on the user ID, user group, and related roles and functions, which are assigned to off the shelf groups.

Note that, IAM enables you to set up and manage users and groups, and assigns users to different user groups. You can also use the interactive charts available in the report to analyze the groups, roles, and functions for a given user.

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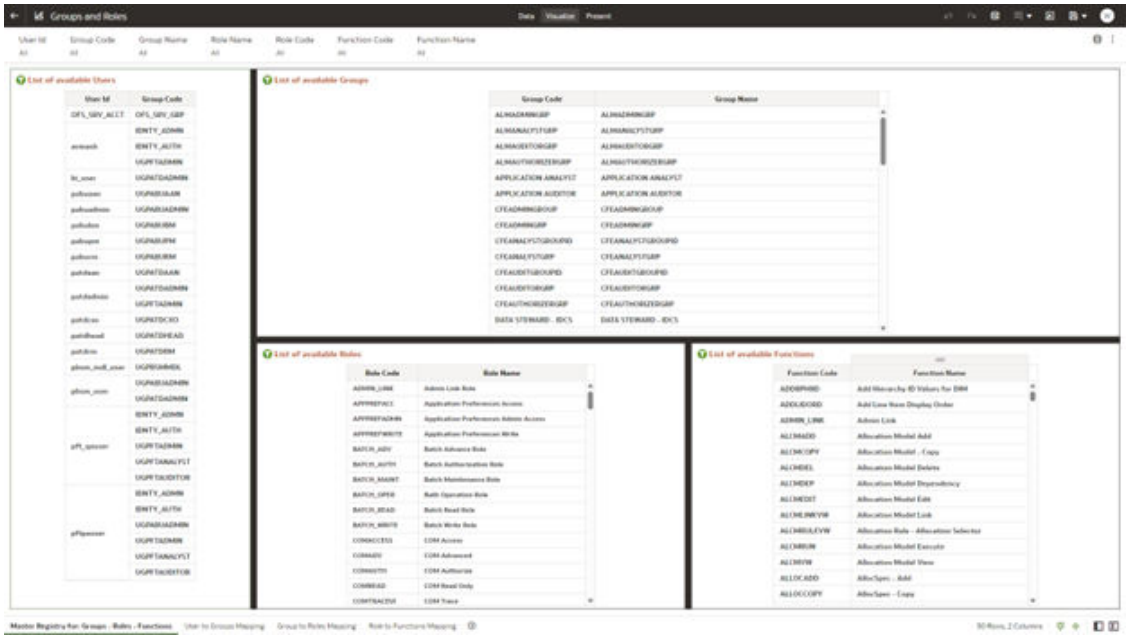
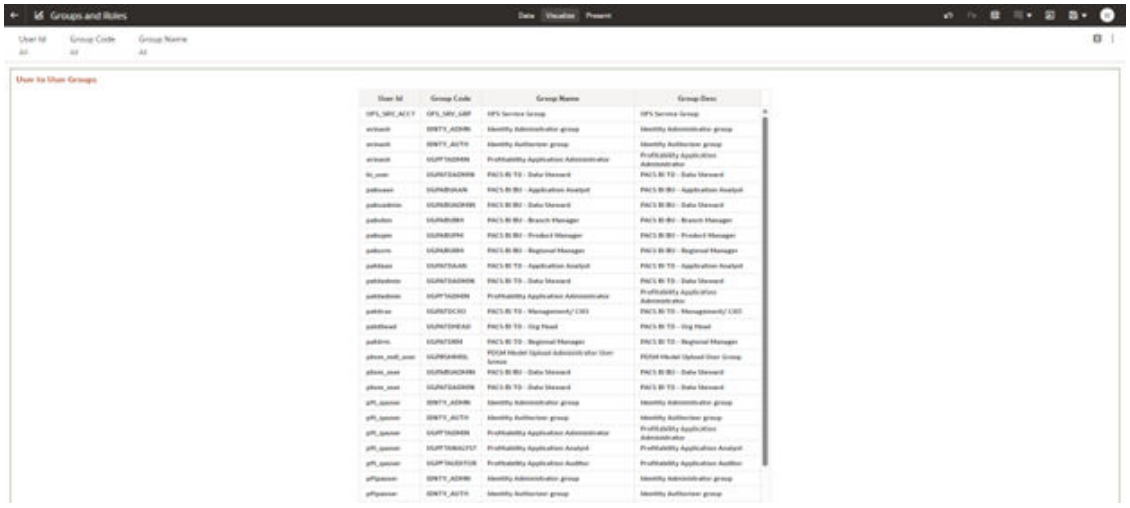
Figure 8-103 Groups and Roles



User Group Mapping

In this canvas, you can view the User ID, Group Code, Group Name, and the Group Description. By using the User ID filter at top to search for a particular user, you can see the corresponding group name and description for the selected user.

Figure 8-104 User Group Mapping



Group to Rules Mapping

In this canvas, you can filter using User ID, Group Code, Group Name, Role Code, and Role Name. For example, you can filter using a particular role name to view the groups assigned to that role.

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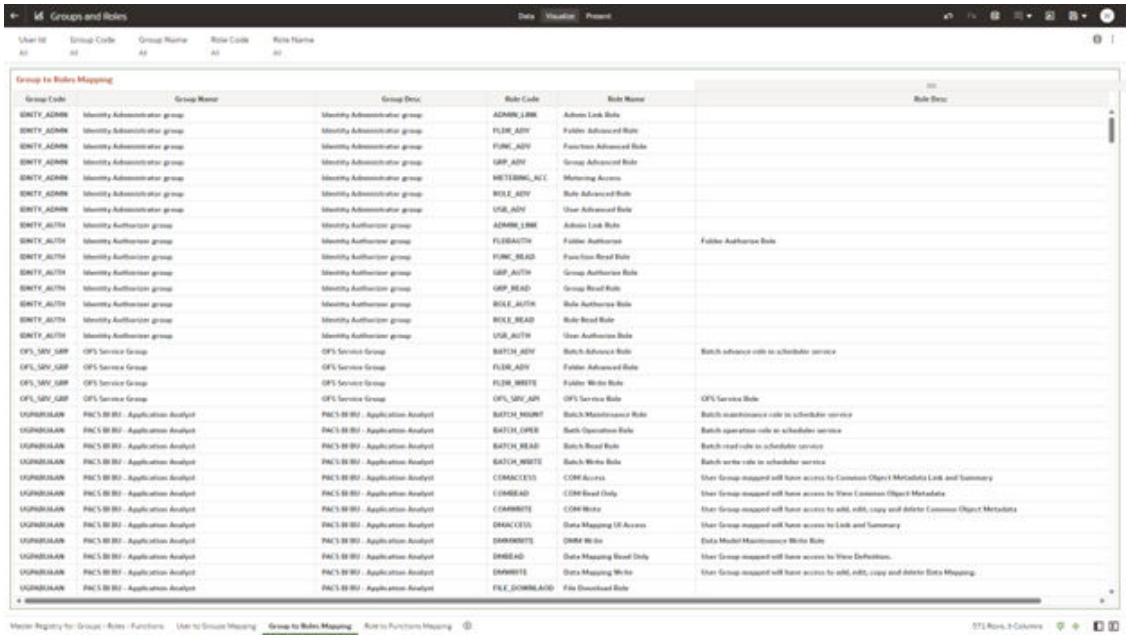
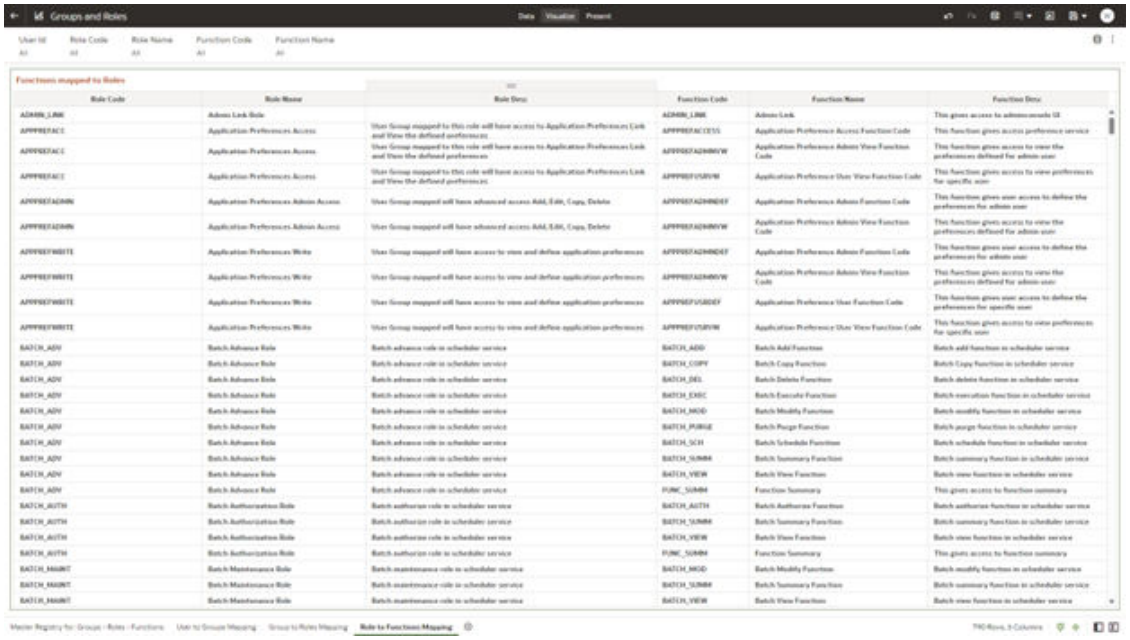
Figure 8-105 Groups to Role Mapping



Rule to Functions Mapping

This canvas displays all the functions mapped to the roles. You can filter based on User ID, Role Code, Role Name, Function Code and Function Name. For example, you can select a particular role, to view the role name, description, and the function assigned to that role.

Figure 8-106 Role to Functions Mapping



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8.1.6 Input Data Analysis

To access the Data Analysis Report, select Analytics from the LHS Menu, and then select Data Analysis.

8.1.6.1 Cash Flow Edits

The Cash Flow Edits Process allows you to verify the accuracy and check the completeness of your Instrument Table Data.

The Cash Flow Edits is arranged as a set of reports catering to analysis of the following categories:

- “Rules”
- “Process Stats”
- “Message Log”

8.1.6.1.1 Common Filters

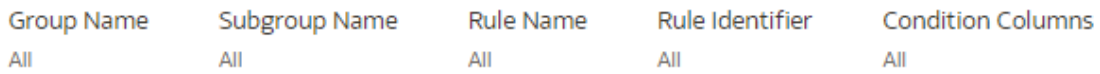
Topics:

- “Rules” Canvas Prompt Filters
- “Process Stats” Canvas Prompt Filters
- “Message Log” Canvas Prompt Filters

8.1.6.1.1.1 “Rules” Canvas Prompt Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

Figure 8-107 Canvas Prompt Filters for key Attributes



- Group Name: You can use this filter to select a specific Group value related to the available granular rules
- Subgroup Name: You can use this filter to select a specific Subgroup value related to the available granular rules
- Rule Name: You can use this filter to select a specific Rule value
- Rule Identifier: You can use this filter to select a specific Rule Identifier value
- Rule Condition Columns: You can use this filter to select a specific Condition value related to the available granular rules

8.1.6.1.1.2 “Process Stats” Canvas Prompt Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

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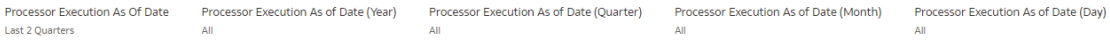
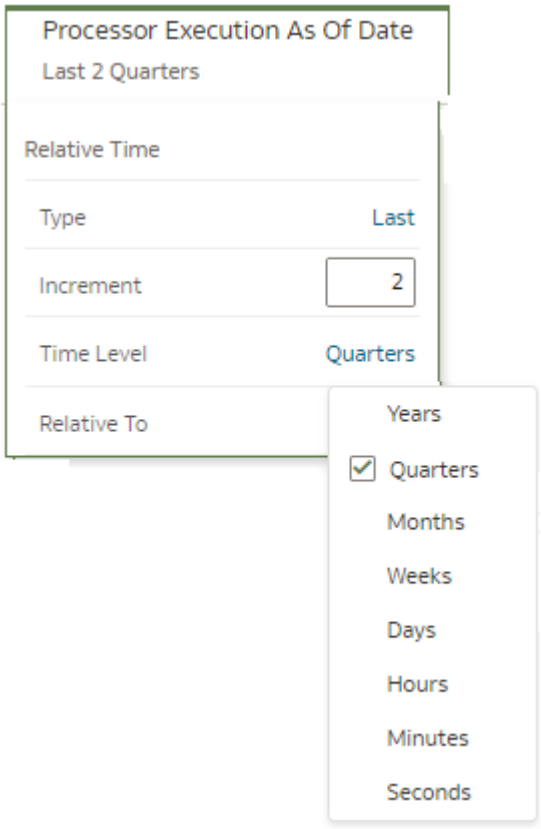
Figure 8-108 Canvas Prompt Filters for Time Dimension



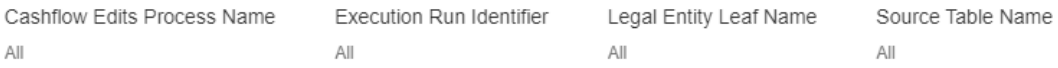
- Processor Execution As of Date: The Execution Period of the Cash Flow Edit process. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

Figure 8-109 As of Processor Execution Date Selection



- Additional Filters for the Time Dimension as follows:
  - Processor Execution As of Date (Year)
  - Processor Execution As of Date (Quarter)
  - Processor Execution As of Date (Month)
  - Processor Execution As of Date (Day)

Figure 8-110 Canvas Prompt Filters for Standard Dimension



- Cashflow Edits Process Name: You can use this filter to select a specific Cashflow Edit Process value

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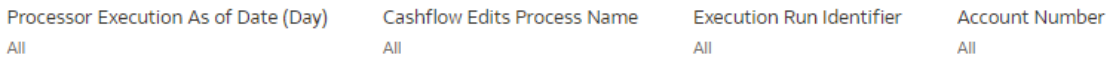
- Execution Run Identifier: You can use this filter to select a specific Execution Run Identifier value at leaf related to the Cashflow Edits Process
- Legal Entity Leaf Name: You can use this filter to select the Legal Entity Leaf Name that is related to the Cashflow Edit Process execution
- Source Table Name: You can use this filter to select a specific Source Table value related to the to the Cashflow Edit Process execution

8.1.6.1.1.3 “Message Log” Canvas Prompt Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

Figure 8-111 Canvas Prompt Filters for Standard Dimension



- Processor Execution As of Date (Day): The Execution Period of the Cash Flow Edit process. You can use this filter to isolate a selected timeframe for the analysis
- Cashflow Edits Process Name: You can use this filter to select a specific Cashflow Edit Process value
- Execution Run Identifier: You can use this filter to select a specific Execution Run Identifier value at leaf related to the Cashflow Edits Process
- Account Number: You can use this filter to select a specific Account Number value related to the to the Cashflow Edit Process execution

8.1.6.1.2 Report Data Action

The Data Actions provide the capability to perform drill down analysis across the downstream report canvases. The drill down is enabled via a data action.

From “Rules” and “Process Stats” report canvases charts, you can select a combination of values, and then perform the navigation to the “message Log” report canvas.

In order to do so, with a right click on the chart selection, the data action options will appear for you to be able to navigate further as described in the following mapping:

- **Navigate to Message Log** – the Data Action will be drilling through the “Message Log” canvas.

The following screenshots show the Data Action list as well as the navigation options that appears once you right click on the desired selection.

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Figure 8-112 Data Action configuration

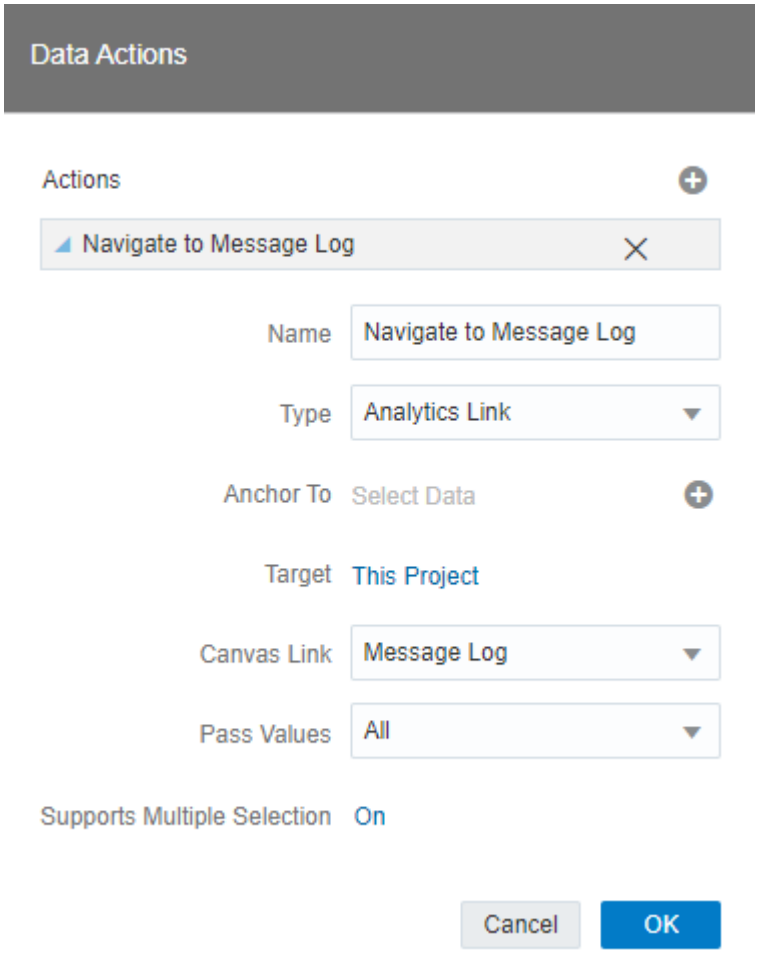

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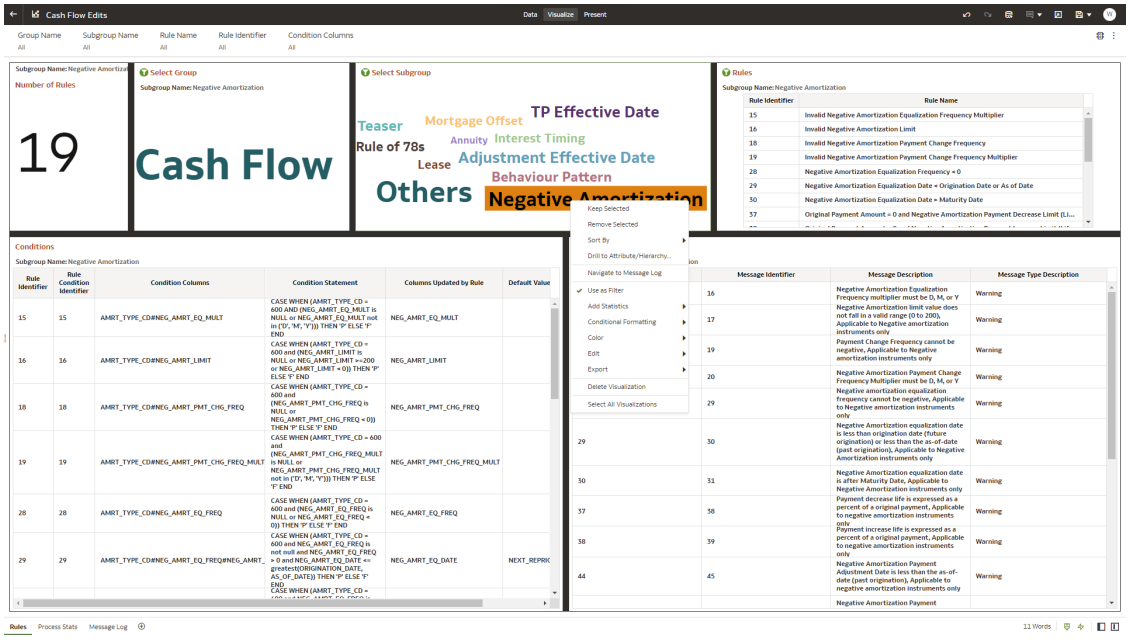
Figure 8-113 Data Action for Drill down with report Canvases



8.1.6.1.3 Rules

The “Rules” Report provides a view of the available Rules to be leveraged by the Cash Flow Edits processes. You can use the report to identify the list of the available rules within the Application as well as to look at their grouping and subgrouping with the granular details for Conditions and Messages.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Cash Flow Edit messages.

The report displays the underlying data according to the following Chart’ logic:

- **Number of Rules**The chart provides you with the total Number of Rules available within the Application
- **Select Group**The chart provides you with a selection capability for the desired Group of rules
- **Select Subgroup**The chart provides you with a selection capability for the desired Subgroup of rules
- **Rules**

  The chart reports the list of rules available within the Application.

  The columns displayed in the chart are the following:

  – Rule Identifier

  – Rule Name
- **Conditions**

  The chart reports the list of conditions defined for each of the rules available within the Application.

  The columns displayed in the chart are the following:

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- Rule Identifier
- Rule Condition Identifier
- Condition Columns
- Condition Statements

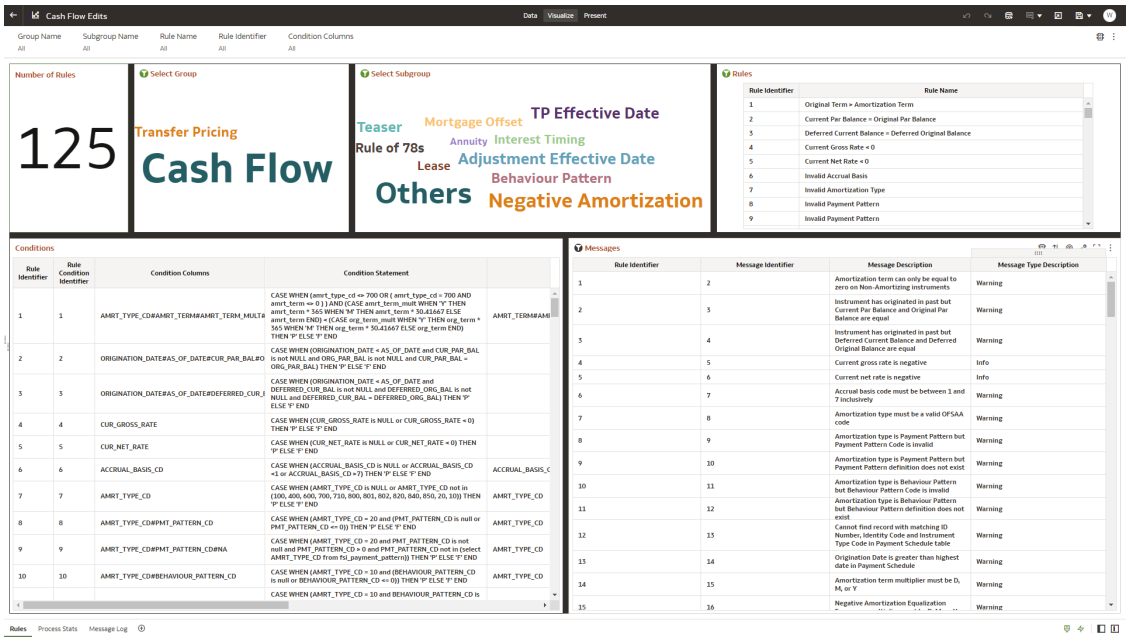
- **Messages**

  The chart reports the list of log messages defined for each of the rules available within the Application.

  The columns displayed in the chart are the following:

  - Rule Identifier
  - Message Identifier
  - Message Description
  - Message Type Description

Figure 8-114 “Rules” Report



8.1.6.1.4 Process Stats

The “Process Stats” Report provides a view of the available statistics related to the execution of the Cash Flow Edits processes. You can use the report to identify the number of errors and the aggregated details for the Cash Flow Edits executed out of the underlying Instrument table account data.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Cash Flow Edit messages.

The report displays the underlying data according to the following Chart’ logic:

- **Cashflow Edits found**

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The chart reports the trend analysis of the Number of Errors for each Cash Flow Edit execution with respect to Processor Execution As of Date and the Message Type received during the executions.

The columns displayed in the chart are the following:

- Processor Execution As of Date (Day)
- Cashflow Edits Process Name
- Execution Run Identifier
- Message Type Description
- Number of Errors

- **Processing Time (in Mins)**
  The chart reports the trend analysis of the Processing Time for each Cash Flow Edit execution with respect to Processor Execution As of Date.

  The columns displayed in the chart are the following:

  - Processor Execution As of Date (Day)
  - Cashflow Edits Process Name
  - Execution Run Identifier
  - Processor Execution Time In Minutes

- **Number of Errors**
  The chart reports the trend analysis of the Number of Errors for each Cash Flow Edit execution with respect to Processor Execution As of Date.

  The columns displayed in the chart are the following:

  - Processor Execution As of Date (Day)
  - Cashflow Edits Process Name
  - Execution Run Identifier
  - Number of Errors

- **Number of Errors by Source Table Name**
  The chart reports the trend analysis of the Number of Errors for each Cash Flow Edit execution with respect to Processor Execution As of Date and the Source Table Name where the errors have been identified.

  The columns displayed in the chart are the following:

  - Processor Execution As of Date (Day)
  - Cashflow Edits Process Name
  - Execution Run Identifier
  - Source Table Name
  - Message Type Description
  - Number of Errors

- **Number of Errors by Rule Groups**
  The chart reports the trend analysis of the Number of Errors for each Cash Flow Edit execution with respect to Processor Execution As of Date and the Rule Group/Subgroup.

  The columns displayed in the chart are the following:

  - Processor Execution As of Date (Day)

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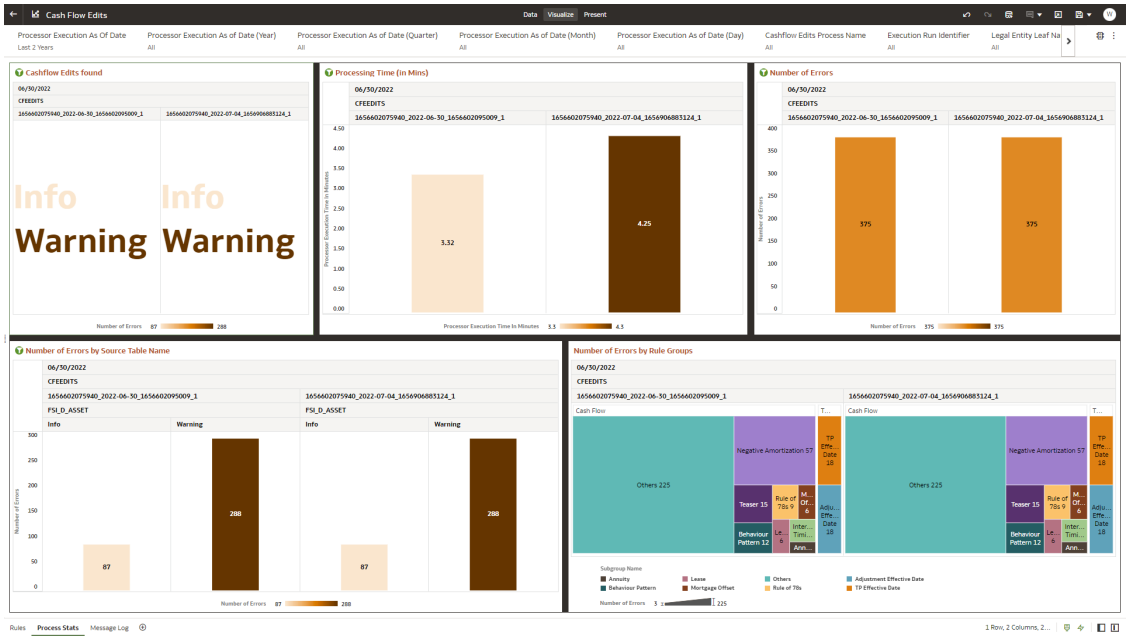
- Cashflow Edits Process Name
- Execution Run Identifier
- Group Name
- Subgroup Name
- Number of Errors

Figure 8-115 “Process Stats” Report



8.1.6.1.5 Message Log

The “Message Log” Report provides a view of the underlying Cash Flow Edits messages retrieved during the Cash Flow Edit Process execution, and the available granularity is at Customer Accounts level.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Cash Flow Edit messages.

The report displays the underlying data according to the following Chart’ logic:

- Message Log

  The tabular report displays all the message details related to the execution of the Cash Flow Edit process, including information related to the Customer Account details.

  Following the granular elements available for this table chart:

  - "Cashflow Edits Process Name", "Processor Execution As of Date (Day)", "Execution Run Identifier", "Account Number", "Source Table Name", "Rule Name" and "Message Description".

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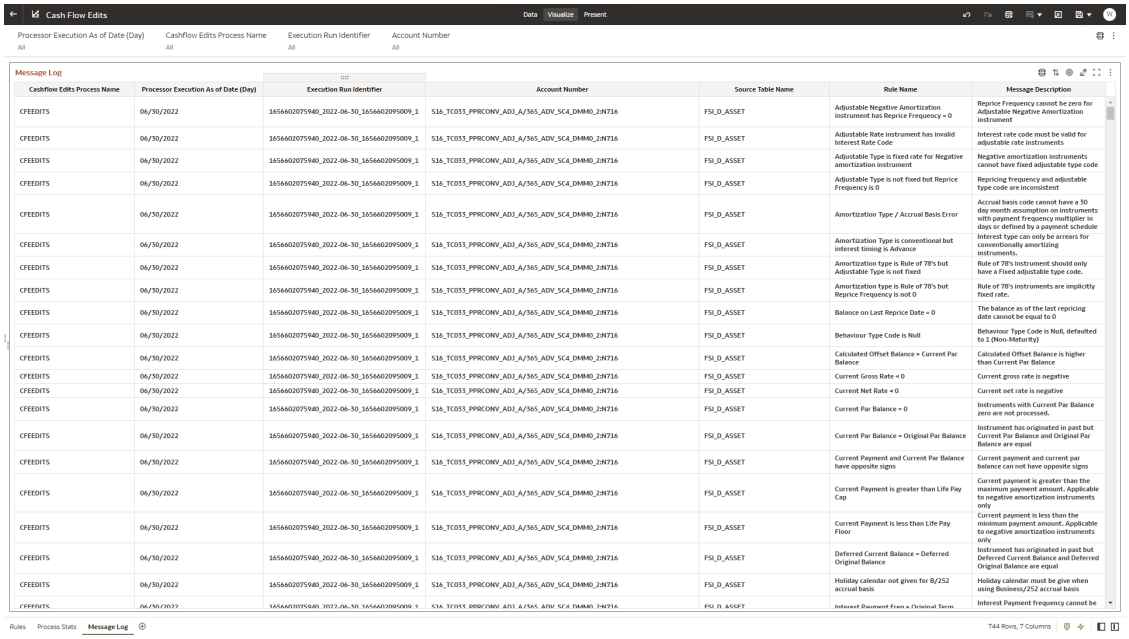
Figure 8-116 “Message Log” Report



8.1.7 Process Results

To access the Processed Data Insights Reports, select **Analytics** from the LHS Menu, and then select **Process Results**.

- Interest Rate Risk
- Liquidity Rate Risk
- Financial Results
- Market Value
- Cash Flow Details

8.1.7.1 Financial Results

The Financial Results dashboard presents the projected income and expense statement.

The Financial Result is arranged as a set of reports catering to analysis of the following categories:

- Financial Risk Runoff
- Financial Risk Rates & Term
- Financial Results MDBSS
- Financial Results MDBSS (Duration)
- Financial Results MDBSS (Coupon & Yield)

8.1.7.1.1 Common Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

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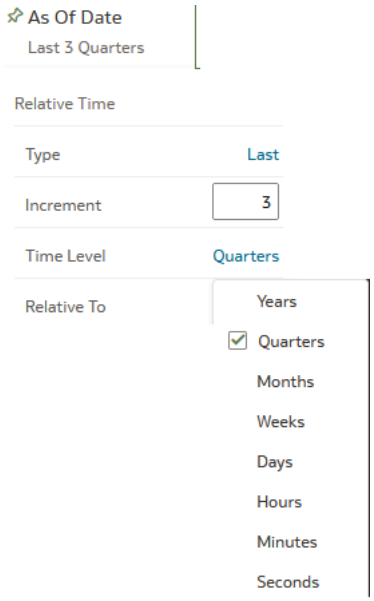
Figure 8-117 Canvas Prompt Filters for Time Dimension

- **As of Date:** The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

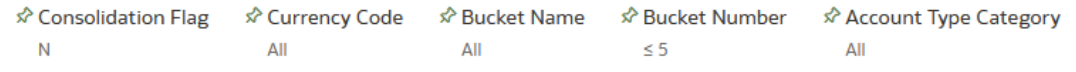
Figure 8-118 As of Date Selection



Additional Filter for the Time Dimension is As of Date (Day).

- **Consolidation Flag:** You can use this filter to select a specific Consolidation Flag Name to be applied to the Financial Risk Process execution data. The Default value of this filter is set to N.

Figure 8-119 Canvas Prompt Filters for Financial Results Output Process execution data



- **Currency Code:** You can use this filter to select a specific Currency Name to be applied to the Financial Risk Process execution data.
- **Bucket Name:** You can use this filter to select a specific Bucket Name to be applied to the Financial Risk Process execution data. Bucket Name is a concatenation of Bucket number along with Bucket Start date and Bucket End date.
- **Bucket Number:** You can use this filter to select a specific Bucket Number to be applied to the Financial Risk Process execution data. Bucket Number is a range filter, the default range for this filter is ≤ 5.

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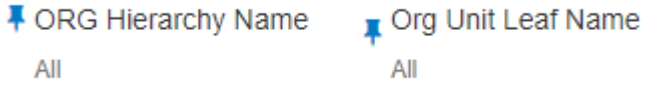
- **Account Type Category:** You can use this filter to select a specific Account Type Category to be applied to the Financial Risk Process execution data.

Figure 8-120 Canvas Prompt Filters for Legal Entity key processing dimension

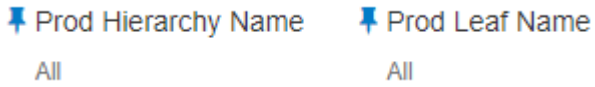
- **LE Hierarchy Name:** Select the Legal Entity hierarchy that you want to use to analyze the reports. The default Legal Entity hierarchy is set to Legal Entity System Hierarchy.
- **Legal Entity Leaf Name:** From the selected Legal Entity hierarchy, you can use this filter to select the Legal Entity Member to view reports.

Figure 8-121 Canvas Prompt Filters for Org Unit key processing dimension



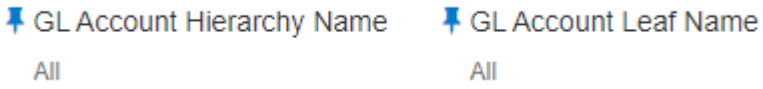
- **Org Hierarchy Name:** Select the Organization Unit hierarchy that you want to use to analyze the reports. The default Organization Unit hierarchy is set to Organization Unit System Hierarchy.
- **Org Unit Leaf Name:** From the selected Organization Unit hierarchy, you can use this filter to select the Organization Unit Member to view reports.

Figure 8-122 Canvas Prompt Filters for Product key processing dimension



- **Prod Hierarchy Name:** Select the Product hierarchy that you want to use to analyze the reports. The default Product hierarchy is set to Products System Hierarchy.
- **Prod Leaf Name:** From the selected Product hierarchy, you can use this filter to select the Product Member to view reports.

Figure 8-123 Canvas Prompt Filters for GL Account key processing dimension



- **GL Account Hierarchy Name:** Select the General Ledger (GL) hierarchy that you want to use to analyze the reports. The default General Ledger hierarchy is set to General Ledger System Hierarchy.
- **GL Account Leaf Name:** From the selected GL hierarchy, you can use this filter to select the GL Member to view reports.

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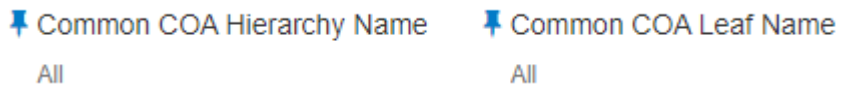
Figure 8-124 Canvas Prompt Filters for Common COA key processing dimension

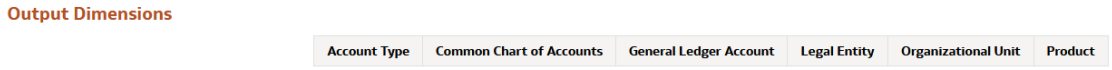


- **Common COA Hierarchy Name:** Select the Common Chart of Accounts (COA) hierarchy that you want to use to analyze the reports. The default Common Chart of Accounts hierarchy is set to Common COA System Hierarchy.
- **Common COA Leaf Name:** From the selected COA hierarchy, you can use this filter to select the Common COA Member to view reports.

8.1.7.1.2 Output Dimensions

This shows the Output Dimension(s) of selected process, such as Account Type, Common Chart of Accounts, General Ledger Account, Legal Entity, Organizational Unit, Product

Figure 8-125 Output Dimensions



8.1.7.1.3 Report Hierarchies

The Report provides you with the roll-up and drill down capability on the Financial Risk Output Process execution data, leveraging the available levels for the following Hierarchies:

- Product Hierarchy
- GL Account Hierarchy
- Org Unit Entity Hierarchy
- Common COA Hierarchy

Following screenshot displays the available selections for the aforementioned hierarchies.

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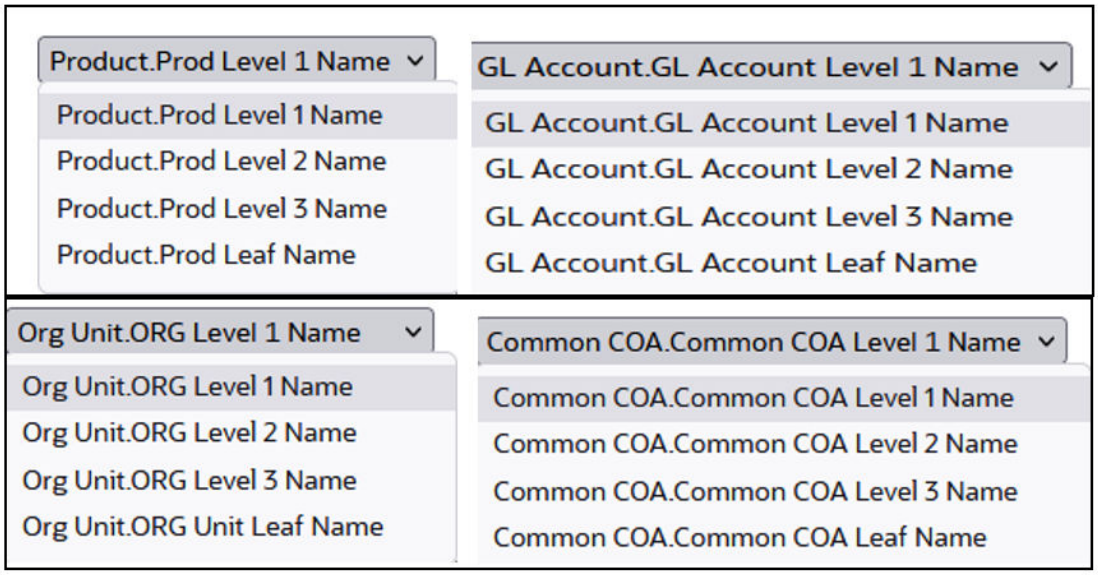
Figure 8-126 Financial Risk Output key processing dimension hierarchies



8.1.7.1.4 In canvas Variable Prompts

- **Select Runoff measurement:** This is the variable prompt to select the desired Runoff measurement to be applied to the “Financial Risk Runoff” Report canvas charts. The following elements are available for selection:
  - "Accrued Interest (Without Offset)","Accrued Interest Net (Without Offset)","Accumulated Devolvement Amount","Accumulated Interest CF Gross","Accumulated Interest CF Net","Accumulated Translation Amount","Deferred Runoff","Devolvement Runoff","Inflation Adjustment to Interest","Inflation Adjustment to Principal","Interest Accrued","Interest Accrued Gross","Interest Cash Flow","Interest Cash Flow (Without Offset)","Interest Cash Flow Gross","Interest Credited","Interest Gross (Without Offset)","Life Cap Balance","Life Cap Effect - Amount","Market Value","Maturity Runoff - Negative","Maturity Runoff - Positive","MOA Prepay Runoff","Neg-Am Balance","Non Interest Expenses","Non Interest Income","Non Maturity - Core Runoff","Non Maturity - Volatile Runoff","Non Performing Asset Runoff","Option Exercise Gain/ Loss","Option Exercise Market Value","Payment Runoff - Negative","Payment Runoff - Positive","Period Cap Balance","Period Cap Effect - Amount","Prepay Runoff - Negative","Prepay Runoff - Positive","Present Value of Interest Cash Flows","Present Value of Principal Cash Flows","Realized Currency Gain/ Loss (Principal)","Realized Currency Gain/Loss (Interest - Gross)","Realized Currency Gain/Loss (Interest - Net)","Recovery Runoff","Tease Balance","Tease Effect - Amount","Total Call Runoff Amount","Total Currency Gain/ Loss (Principal)","Total Put Runoff Amount","Total Runoff - Negative","Total Runoff - Positive","Writeoff Negative","Writeoff Positive".
- **Select Rate & Term measurement:** This is the variable prompt to select the desired Rate measurement to be applied to the “Financial Risk Rates & Term” report canvas charts. The following elements are available for selection:
  - "After Repricing Gross Rate","After Repricing Net Rate","Average Gross Rate","Average Net Rate","Before Repricing Gross Rate","Before Repricing Net Rate","Beginning Gross Rate","Beginning Net Rate","Discount Rate IS","Dollar Duration","Ending Gross Rate","Ending Net Rate","Fully Indexed Gross Rate","Fully

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Indexed Net Rate","Life Cap Effect - Rate","Modified Duration","Option Exercise Rate","Period Cap Effect - Rate","Prepay Runoff Gross Rate","Prepay Runoff Net Rate","Strike Rate - Rate Based Approach","Tease Effect - Rate","Timing of Call Runoff","Timing of Devolvement Runoff","Timing of Maturity Runoff - Negative","Timing of Maturity Runoff - Positive","Timing of MOA Prepay Runoff","Timing of Non Maturity - Core Runoff","Timing of Non Maturity - Volatile Runoff","Timing of Non Performing Asset Runoff","Timing of Payment Runoff - Negative","Timing of Payment Runoff - Positive","Timing of Prepay Runoff - Negative","Timing of Prepay Runoff - Positive","Timing of Put Runoff","Timing of Recovery Runoff","Timing of Total Runoff - Negative","Timing of Total Runoff - Positive","Timing of Writeoff Negative","Timing of Writeoff Positive","Total Runoff Gross Rate","Total Runoff Net Rate","WARM".

8.1.7.1.5 Financial Risk Balance

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Financial Risk Output results.

The report displays the underlying data according to the following Chart' logic:

Select Process Name The List box filter provides you with a selection capability on the desired Process Name utilized by the Financial Risk Output processes.

- **Select Execution Identifier**

The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Financial Risk Output processes. This filter is dependent on the values selected in the Process Name filter.

- **Select Scenario**

The List box filter provides you with a selection capability on the desired Scenario utilized by the Financial Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter.

- **Select Balance Measure**

The chart provides you with a selection capability on the desired Financial Risk Balance measurement.

Select Org Unit Hierarchy The chart provides you with a selection capability for the desired Org Unit Hierarchical level.

Select Product Hierarchy The chart provides you with a selection capability for the desired Product Hierarchical level.

Select GL Account Hierarchy The chart provides you with a selection capability for the desired GL Account Hierarchical level.

Select COA Hierarchy The chart provides you with a selection capability for the desired Common COA Hierarchical level.

Selected Balance Measure by Product

The table and chart reports the generated Interest Rate Risk output Balance Measure by Product for each Financial Risk Output execution with respect to As of Date and Bucket Name.

The columns displayed in the chart are the following:

- Bucket Name
- Account Type Category
- Process Name

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- As of Date (Day)
- Execution Identifier
- Currency Code
- Product Hierarchy
- Balance Measure

Selected Balance Measure by Org Unit

The table and chart reports the generated Financial Risk output Balance Measure by Org Unit for each Financial Risk Output execution with respect to As of Date and Bucket Name.

The columns displayed in the chart are the following:

- Bucket Name
- Account Type Category
- Process Name
- As of Date (Day)
- Execution Identifier
- Currency Code
- Org Unit Hierarchy
- Balance Measure

Selected Balance Measure by GL Account

The table and chart reports the generated Financial Risk output Balance Measure by GL Account for each Financial Risk Output execution with respect to As of Date and Bucket Name.

The columns displayed in the chart are the following:

- Bucket Name
- Account Type Category
- Process Name
- As of Date (Day)
- Execution Run Identifier
- Currency Code
- GL Account Hierarchy
- Balance Measure

Selected Balance Measure by Common COA

The chart reports the generated Financial Risk output Balance Measure by Product for each Financial Risk Output execution with respect to As of Date and Bucket Name.

The columns displayed in the chart are the following:

- Bucket Name
- Account Type Category
- Process Name
- As of Date (Day)
- Execution Run Identifier

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- Currency Code
- Common COA Hierarchy
- Balance Measure

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Figure 8-127 Financial Risk Balance Report

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8.1.7.1.6 Financial Risk Runoff

The “Financial Risk Runoff” Report is used to analyze the balances, runoff amounts, interest and related measures by time bucket.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Financial Risk Output results.

The report displays the underlying data according to the following Chart’ logic:

- **Select Process Name**
  The List box filter provides you with a selection capability on the desired Process Name utilized by the Financial Risk Output processes.
- **Select Execution Run Identifier**
  The List box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Financial Risk Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Financial Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter.
- **Select Dynamic Start Date**
  The List box filter provides you with a selection capability on the desired Dynamic Start Date utilized by the Financial Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter.
- **Select Runoff Measure**
  The chart provides you with a selection capability on the desired Financial Risk Runoff measurement.
- **Select Org Unit Hierarchy**
  The chart provides you with a selection capability for the desired Org Unit Hierarchical level.
- **Select Product Hierarchy**
  The chart provides you with a selection capability for the desired Product Hierarchical level.
- **Select GL Account Hierarchy**
  The chart provides you with a selection capability for the desired GL Account Hierarchical level.
- **Select COA Hierarchy**
  The chart provides you with a selection capability for the desired Common COA Hierarchical level.
- **Selected Runoff Measure by Product**
  The table and chart reports the generated Interest Rate Risk output Runoff Measure by Product for each Financial Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  – Bucket Name
  – Account Type Category
  – Process Name
  – As of Date (Day)

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- Execution Run Identifier
- Currency Code
- Product Hierarchy
- Runoff Measure

- **Selected Runoff Measure by Org Unit**
  The table and chart reports the generated Financial Risk output Runoff Measure by Org Unit for each Financial Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - Org Unit Hierarchy
  - Runoff Measure

- **Selected Runoff Measure by GL Account**

  The table and chart reports the generated Financial Risk output Runoff Measure by GL Account for each Financial Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - GL Account Hierarchy
  - Runoff Measure

- **Selected Runoff Measure by Common COA**

  The chart reports the generated Financial Risk output Runoff Measure by Product for each Financial Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code

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- Common COA Hierarchy
- Runoff Measure

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Figure 8-128 Financial Risk Runoff Report

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8.1.7.1.7 Financial Risk Rates & Term

The “Financial Risk Rates & Term” Report provides an analysis of interest rates and term measure corresponding to each bucket.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Financial Risk Output results.

The report displays the underlying data according to the following Chart’ logic:

- **Select Process Name**
  The List box filter provides you with a selection capability on the desired Process Name utilized by the Financial Risk Output processes.
- **Select Execution Run Identifier**
  The List box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Financial Risk Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Financial Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter.
- **Select Dynamic Start Date**
  The List box filter provides you with a selection capability on the desired Dynamic Start Date utilized by the Financial Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter.
- **Select Rates Measure**
  The chart provides you with a selection capability on the desired Financial Risk Runoff measurement.
- **Select Org Unit Hierarchy**
  The chart provides you with a selection capability for the desired Org Unit Hierarchical level.
- **Select Product Hierarchy**
  The chart provides you with a selection capability for the desired Product Hierarchical level.
- **Select GL Account Hierarchy**
  The chart provides you with a selection capability for the desired GL Account Hierarchical level.
- **Select COA Hierarchy**
  The chart provides you with a selection capability for the desired Common COA Hierarchical level.
- **Selected Rate Measure by Product**
  The table and chart reports the generated Liquidity Rate Risk output Rate Measure by Product for each Financial Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)

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- Execution Run Identifier
- Currency Code
- Product Hierarchy
- Rate Measure

- **Selected Rate Measure by Org Unit**
  The table and chart reports the generated Liquidity Rate Risk output Rate Measure by Org Unit for each Financial Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - Org Unit Hierarchy
  - Rate Measure

- **Selected Rate Measure by GL Account**

  The table and chart reports the generated Liquidity Rate Risk output Rate Measure by GL Account for each Financial Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - GL Account Hierarchy
  - Rate Measure

- **Selected Rate Measure by Common COA**

  The chart reports the generated Liquidity Rate Risk output Rate Measure by Product for each Financial Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code

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- Common COA Hierarchy
- Rate Measure

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Figure 8-129 Financial Risk Rates and Term Report

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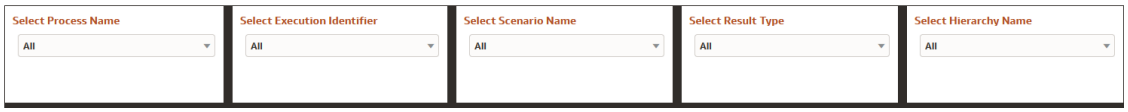
8.1.7.2 Financial Results MDBSS

Financial results report displays the MDBSS members by Process Name, As of date, Execution Identifier, Scenario Name, Currency code, Result Type, Bucket Start Date. These Reports can be drilled down or rolled up for the user convenience. This report is based on the actual value of respective financial element. This displays the percentage difference with the actual value. Percentage Calculation = variance / Actual value of scenario 1

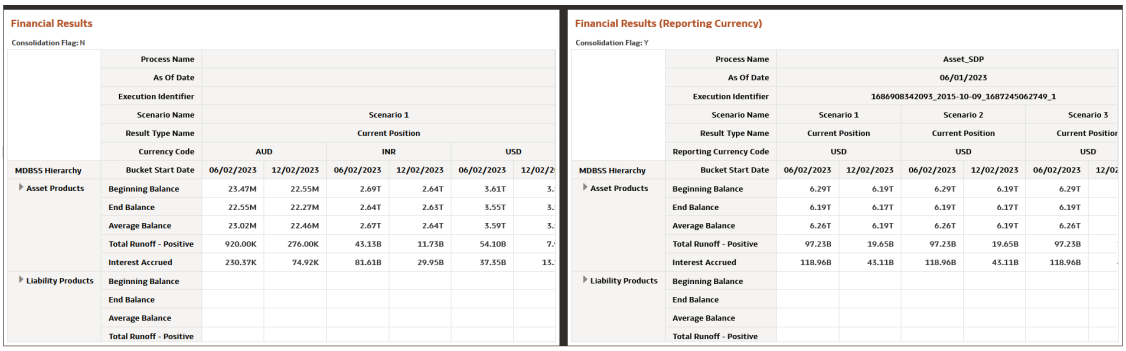
Figure 8-130 Financial Results MDBSS Filters



The list box filters are provided which the User can leverage to filter the Financial Results report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Financial Results Output processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:** The List box filter provides you with a selection capability on the desired Result Type by the Financial Results Output processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

Figure 8-131 Financial Results MDBSS Report



8.1.7.2.1 Common Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

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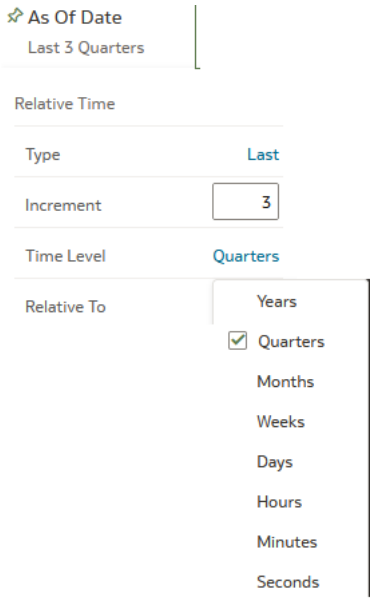
Figure 8-132 Canvas Prompt Filters for Time Dimension

- **As of Date:** The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

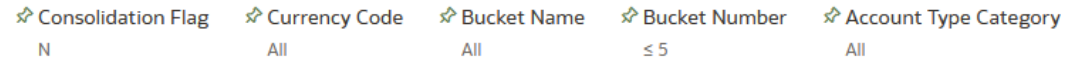
Figure 8-133 As of Date Selection



Additional Filter for the Time Dimension is As of Date (Day).

- **Consolidation Flag:** You can use this filter to select a specific Consolidation Flag Name to be applied to the Financial Risk Process execution data. The Default value of this filter is set to N.

Figure 8-134 Canvas Prompt Filters for Financial Results Output Process execution data



- **Currency Code:** You can use this filter to select a specific Currency Name to be applied to the Financial Risk Process execution data.
- **Bucket Name:** You can use this filter to select a specific Bucket Name to be applied to the Financial Risk Process execution data. Bucket Name is a concatenation of Bucket number along with Bucket Start date and Bucket End date.
- **Bucket Number:** You can use this filter to select a specific Bucket Number to be applied to the Financial Risk Process execution data. Bucket Number is a range filter, the default range for this filter is ≤ 5.

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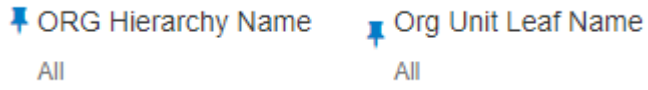
- **Account Type Category:** You can use this filter to select a specific Account Type Category to be applied to the Financial Risk Process execution data.

Figure 8-135 Canvas Prompt Filters for Legal Entity key processing dimension

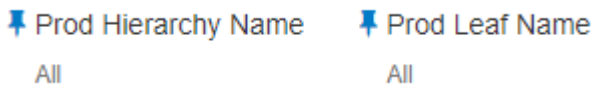
- **LE Hierarchy Name:** Select the Legal Entity hierarchy that you want to use to analyze the reports. The default Legal Entity hierarchy is set to Legal Entity System Hierarchy.
- **Legal Entity Leaf Name:** From the selected Legal Entity hierarchy, you can use this filter to select the Legal Entity Member to view reports.

Figure 8-136 Canvas Prompt Filters for Org Unit key processing dimension



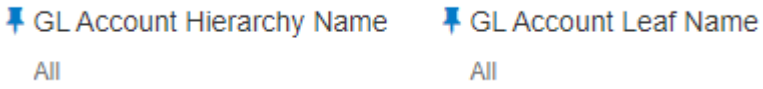
- **Org Hierarchy Name:** Select the Organization Unit hierarchy that you want to use to analyze the reports. The default Organization Unit hierarchy is set to Organization Unit System Hierarchy.
- **Org Unit Leaf Name:** From the selected Organization Unit hierarchy, you can use this filter to select the Organization Unit Member to view reports.

Figure 8-137 Canvas Prompt Filters for Product key processing dimension



- **Prod Hierarchy Name:** Select the Product hierarchy that you want to use to analyze the reports. The default Product hierarchy is set to Products System Hierarchy.
- **Prod Leaf Name:** From the selected Product hierarchy, you can use this filter to select the Product Member to view reports.

Figure 8-138 Canvas Prompt Filters for GL Account key processing dimension



- **GL Account Hierarchy Name:** Select the General Ledger (GL) hierarchy that you want to use to analyze the reports. The default General Ledger hierarchy is set to General Ledger System Hierarchy.
- **GL Account Leaf Name:** From the selected GL hierarchy, you can use this filter to select the GL Member to view reports.

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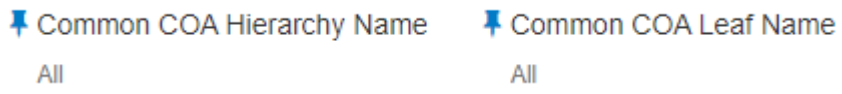
Figure 8-139 Canvas Prompt Filters for Common COA key processing dimension

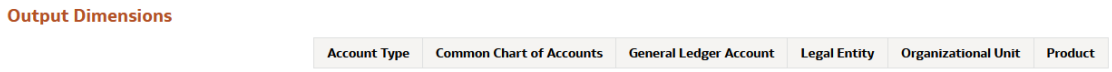


- **Common COA Hierarchy Name:** Select the Common Chart of Accounts (COA) hierarchy that you want to use to analyze the reports. The default Common Chart of Accounts hierarchy is set to Common COA System Hierarchy.
- **Common COA Leaf Name:** From the selected COA hierarchy, you can use this filter to select the Common COA Member to view reports.

8.1.7.2.2 Output Dimensions

This shows the Output Dimension(s) of selected process, such as Account Type, Common Chart of Accounts, General Ledger Account, Legal Entity, Organizational Unit, Product

Figure 8-140 Output Dimensions



8.1.7.2.3 Report Hierarchies

The Report provides you with the roll-up and drill down capability on the Financial Risk Output Process execution data, leveraging the available levels for the following Hierarchies:

- Product Hierarchy
- GL Account Hierarchy
- Org Unit Entity Hierarchy
- Common COA Hierarchy

Following screenshot displays the available selections for the aforementioned hierarchies.

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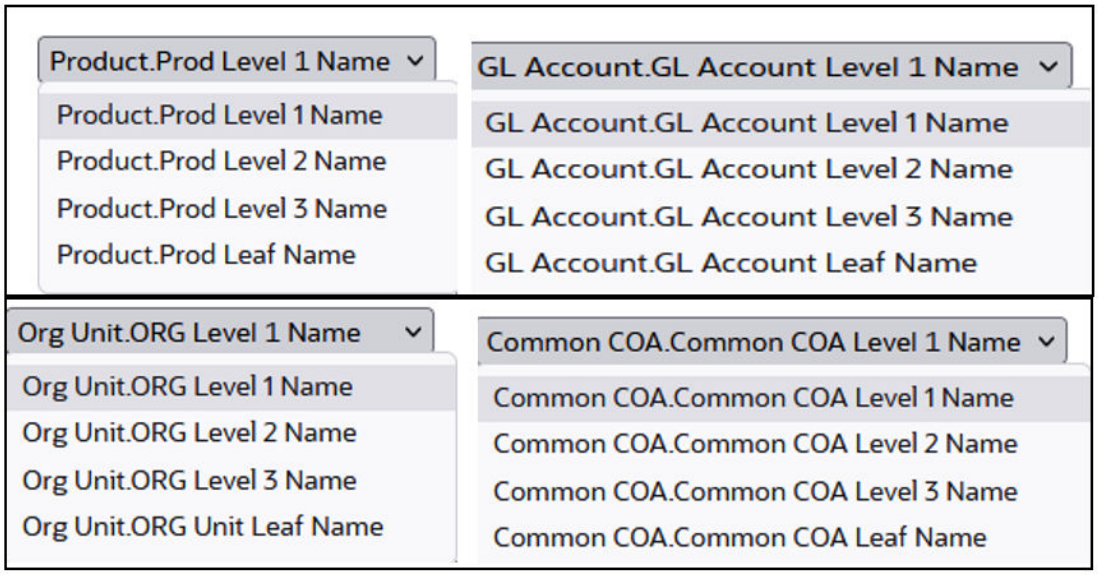
Figure 8-141 Financial Risk Output key processing dimension hierarchies



8.1.7.2.4 In canvas Variable Prompts

- **Select Runoff measurement:** This is the variable prompt to select the desired Runoff measurement to be applied to the “Financial Risk Runoff” Report canvas charts.
  The following elements are available for selection:
  - "Accrued Interest (Without Offset)","Accrued Interest Net (Without Offset)","Accumulated Devolvement Amount","Accumulated Interest CF Gross","Accumulated Interest CF Net","Accumulated Translation Amount","Deferred Runoff","Devolvement Runoff","Inflation Adjustment to Interest","Inflation Adjustment to Principal","Interest Accrued","Interest Accrued Gross","Interest Cash Flow","Interest Cash Flow (Without Offset)","Interest Cash Flow Gross","Interest Credited","Interest Gross (Without Offset)","Life Cap Balance","Life Cap Effect - Amount","Market Value","Maturity Runoff - Negative","Maturity Runoff - Positive","MOA Prepay Runoff","Neg-Am Balance","Non Interest Expenses","Non Interest Income","Non Maturity - Core Runoff","Non Maturity - Volatile Runoff","Non Performing Asset Runoff","Option Exercise Gain/ Loss","Option Exercise Market Value","Payment Runoff - Negative","Payment Runoff - Positive","Period Cap Balance","Period Cap Effect - Amount","Prepay Runoff - Negative","Prepay Runoff - Positive","Present Value of Interest Cash Flows","Present Value of Principal Cash Flows","Realized Currency Gain/ Loss (Principal)","Realized Currency Gain/Loss (Interest - Gross)","Realized Currency Gain/Loss (Interest - Net)","Recovery Runoff","Tease Balance","Tease Effect - Amount","Total Call Runoff Amount","Total Currency Gain/ Loss (Principal)","Total Put Runoff Amount","Total Runoff - Negative","Total Runoff - Positive","Writeoff Negative","Writeoff Positive".
- **Select Rate & Term measurement:** This is the variable prompt to select the desired Rate measurement to be applied to the “Financial Risk Rates & Term” report canvas charts.
  The following elements are available for selection:
  - "After Repricing Gross Rate","After Repricing Net Rate","Average Gross Rate","Average Net Rate","Before Repricing Gross Rate","Before Repricing Net Rate","Beginning Gross Rate","Beginning Net Rate","Discount Rate IS","Dollar Duration","Ending Gross Rate","Ending Net Rate","Fully Indexed Gross Rate","Fully

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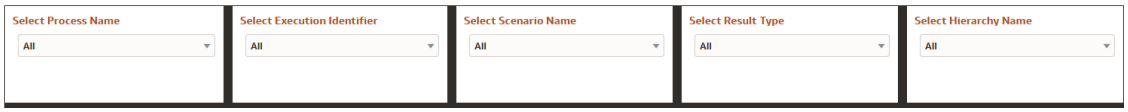
Indexed Net Rate","Life Cap Effect - Rate","Modified Duration","Option Exercise Rate","Period Cap Effect - Rate","Prepay Runoff Gross Rate","Prepay Runoff Net Rate","Strike Rate - Rate Based Approach","Tease Effect - Rate","Timing of Call Runoff","Timing of Devolvement Runoff","Timing of Maturity Runoff - Negative","Timing of Maturity Runoff - Positive","Timing of MOA Prepay Runoff","Timing of Non Maturity - Core Runoff","Timing of Non Maturity - Volatile Runoff","Timing of Non Performing Asset Runoff","Timing of Payment Runoff - Negative","Timing of Payment Runoff - Positive","Timing of Prepay Runoff - Negative","Timing of Prepay Runoff - Positive","Timing of Put Runoff","Timing of Recovery Runoff","Timing of Total Runoff - Negative","Timing of Total Runoff - Positive","Timing of Writeoff Negative","Timing of Writeoff Positive","Total Runoff Gross Rate","Total Runoff Net Rate","WARM".

8.1.7.2.5 Financial Results MDBSS (Coupon & Yield)

Coupon & Yield report displays the MDBSS members by Process Name, As of date, Execution Identifier, Scenario Name, Currency code, Result Type, Bucket Start Date. These Reports can be drilled down or rolled up for the user convenience.

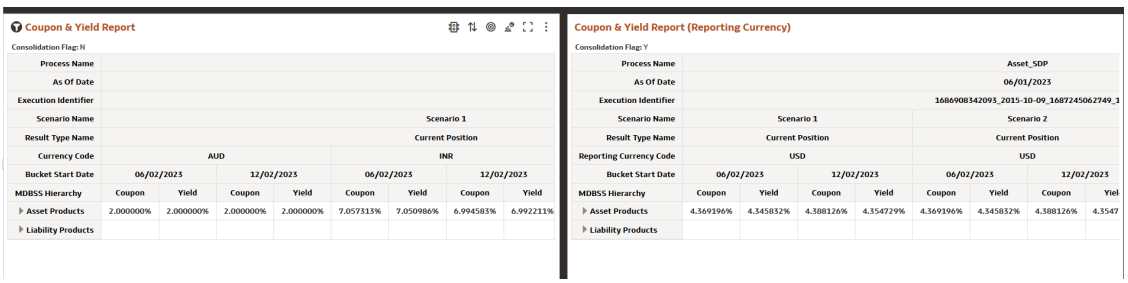
Figure 8-142 Financial Results MDBSS Filters



The list box filters are provided which the User can leverage to filter the Financial Results report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Financial Results Output processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:** The List box filter provides you with a selection capability on the desired Result Type by the Financial Results Output processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

Figure 8-143 Financial Results MDBSS (Coupon & Yield) Report



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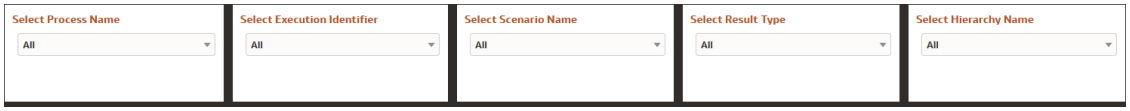
8.1.7.2.6 Financial Results MDBSS (Delta Report)

Delta report displays the comparison between Scenarios based on defined filters. Scenario 1 is used as the base Scenario for comparison. The Delta report shows for Base Currency and Reporting Currency. This report shows data for Financial Elements: Beginning Balance, Ending Balance, Average Balance, Total Runoff- Positive, and Interest Accrued. This shows the MDBSS hierarchies by as of date, Consolidation Flag, Currency code, Bucket Name. These Reports can be drilled down or rolled up for the user convenience. These reports display the actual values as 0 and variation in %. Actual values will display as 0.00000% (5 decimal places). Percentage Calculation = variance / Actual value of scenario 1.

Figure 8-144 Financial Results MDBSS Filters



The list box filters are provided which the User can leverage to filter the Financial Results report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Financial Results Output processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:** The List box filter provides you with a selection capability on the desired Result Type by the Financial Results Output processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

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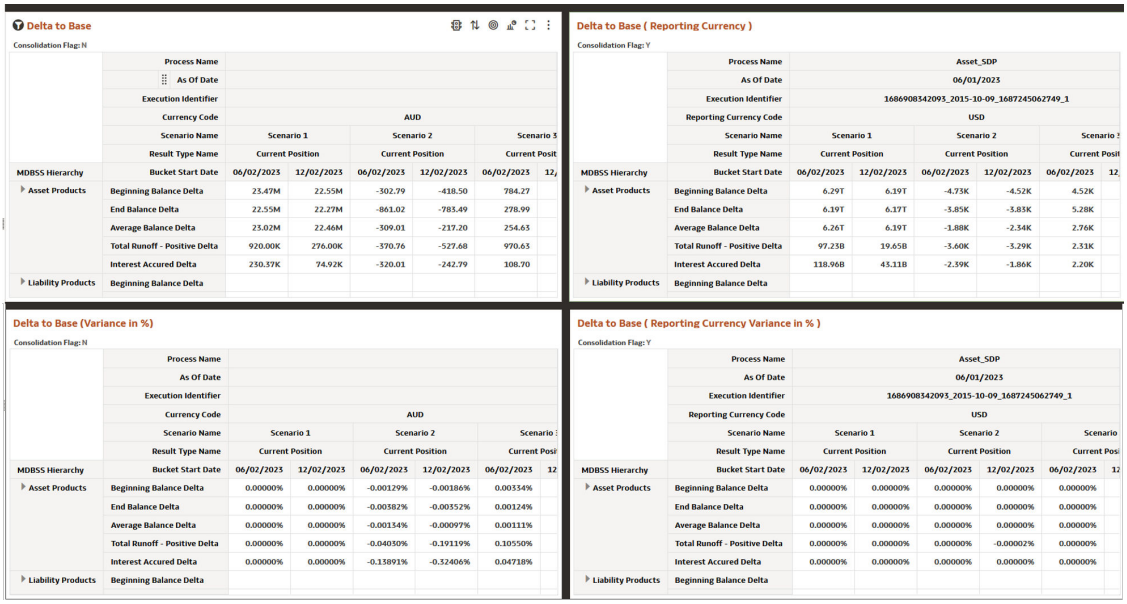
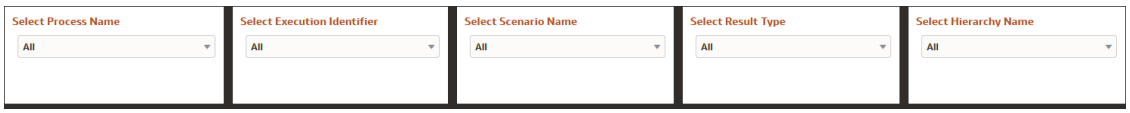
Figure 8-145 Financial Results MDBSS (Delta) Report



8.1.7.2.7 Financial Results MDBSS (Income Expense)

This report displays the Interest Income/Expense, Average Balance & Rate, Balance & Market Value, and NII & NIM details. This shows the MDBSS hierarchies by as of date, Consolidation Flag, Currency code, Bucket Name. These Reports can be drilled down or rolled up for the user convenience.

Figure 8-146 Financial Results MDBSS Filters



The list box filters are provided which the User can leverage to filter the Financial Results report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Financial Results Output processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:** The List box filter provides you with a selection capability on the desired Result Type by the Financial Results Output processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

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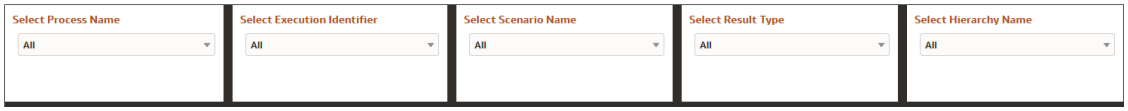
Figure 8-147 Financial Results MDBSS (Income Expense) Report

8.1.7.2.8 Financial Results MDBSS (Duration)

Duration report displays the MDBSS members by Process Name, As of date, Execution Identifier, Scenario Name, Currency code, Result Type, Bucket Start Date. These Reports can be drilled down or rolled up for the user convenience.

Figure 8-148 Financial Results MDBSS Filters



The list box filters are provided which the User can leverage to filter the Financial Results report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Financial Results Output processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:** The List box filter provides you with a selection capability on the desired Result Type by the Financial Results Output processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Financial Results Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

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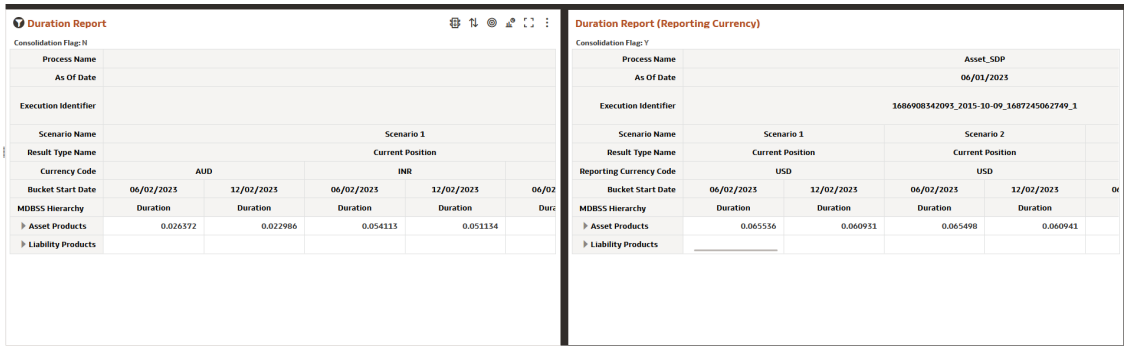
Figure 8-149 Financial Results MDBSS (Duration) Report



8.1.7.3 Interest Rate Risk

Interest Rate Risk is the potential for losses that can be triggered by a move in the interest rates. If interest rates rise, for instance, the value of a bond or other fixed-income investment in the secondary market will decline.

The Interest Rate Risk dashboard is arranged as a set of reports catering to analysis of the following categories:

- Interest Rate Risk Gap
- Interest Rate Risk Runoff
- Interest Rate Rate Risk Rates and Term
- Interest Rate Risk Gap MDBSS

8.1.7.3.1 Common Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

Figure 8-150 Canvas Prompt Filters for Time Dimension

- **As of Date:** The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

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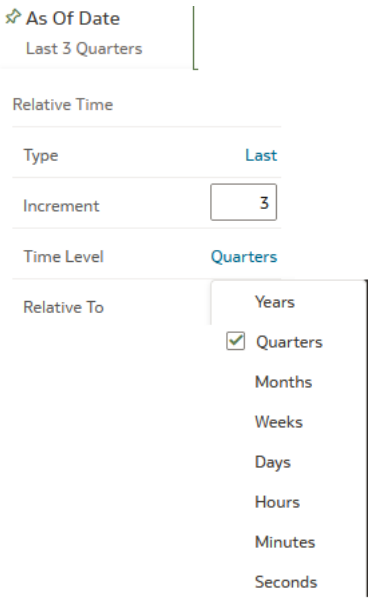
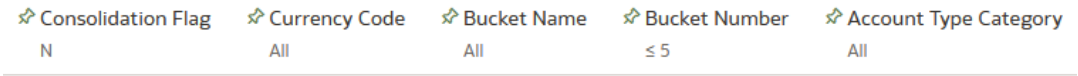
Figure 8-151 As of Date Selection



Additional Filter for the Time Dimension is As of Date (Day).

- Canvas Prompt Filters for Legal Entity key processing dimension
- **Consolidation Flag:** You can use this filter to select a specific Consolidation Flag to be applied to the Interest Rate Risk Process Execution Data. The Default value of this filter is set to N.

Figure 8-152 Canvas Prompt Filters for Interest Rate Risk Output Process execution data



- **Currency Code:** You can use this filter to select a specific Currency Name to be applied to the Interest Rate Risk Process Execution Data.
- **Bucket Name:** You can use this filter to select a specific Bucket Name to be applied to the Interest Rate Risk Process Execution Data. Bucket Name is a concatenation of Bucket number along with Bucket Start date and Bucket End Date.
- **Bucket Number:** You can use this filter to select a specific Bucket Number to be applied to the Interest Rate Risk Process Execution Data. Bucket Number is a range filter, the default range for this filter is ≤ 5.
- **Account Type Category:** You can use this filter to select a specific Account Type Category to be applied to the Interest Rate Risk Process Execution Data.

Figure 8-153 Canvas Prompt Filters for Legal Entity key processing dimension

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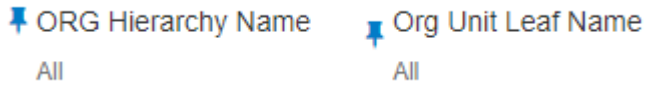
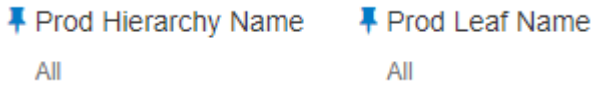
- **LE Hierarchy Name:** Select the Legal Entity hierarchy that you want to use to anayse the reports. The default Legal Entity hierarchy is set to Legal Entity System Hierarchy.
- **Legal Entity Leaf Name:** From the selected Legal Entity hierarchy, you can use this filter to select the Legal Entity Member to view reports.

Figure 8-154 Canvas Prompt Filters for Org Unit key processing dimension



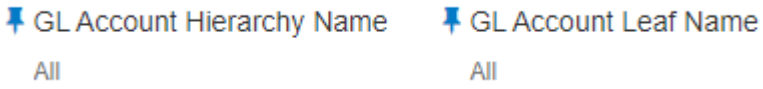
- **Org Hierarchy Name:** Select the Organization Unit hierarchy that you want to use to analyze the reports. The default Organization Unit hierarchy is set to Organization Unit System Hierarchy.
- **Org Unit Leaf Name:** From the selected Organization Unit hierarchy, you can use this filter to select the Organization Unit Member to view reports.

Figure 8-155 Canvas Prompt Filters for Product key processing dimension



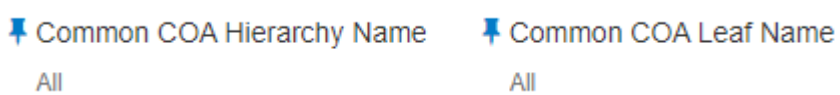
- **Prod Hierarchy Name:** Select the Product hierarchy that you want to use to analyze the reports. The default Product hierarchy is set to Products System Hierarchy.
- **Prod Leaf Name:** From the selected Product hierarchy, you can use this filter to select the Product Member to view reports.

Figure 8-156 Canvas Prompt Filters for GL Account key processing dimension



- **GL Account Hierarchy Name:** Select the General Ledger (GL) hierarchy that you want to use to analyze the reports. The default General Ledger hierarchy is set to General Ledger System Hierarchy.
- **GL Account Leaf Name:** From the selected GL hierarchy, you can use this filter to select the GL Member to view reports.

Figure 8-157 Canvas Prompt Filters for Common COA key processing dimension



- **Common COA Hierarchy Name:** Select the Common Chart of Accounts (COA) hierarchy that you want to use to analyze the reports. The default Common Chart of Accounts hierarchy is set to Common COA System Hierarchy.

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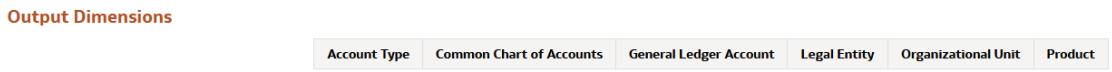
- **Common COA Leaf Name:** From the selected COA hierarchy, you can use this filter to select the Common COA Member to view reports.

8.1.7.3.2 Output Dimensions

This shows the Output Dimension(s) of selected process, such as Account Type, Common Chart of Accounts, General Ledger Account, Legal Entity, Organizational Unit, Product

Figure 8-158 Output Dimensions



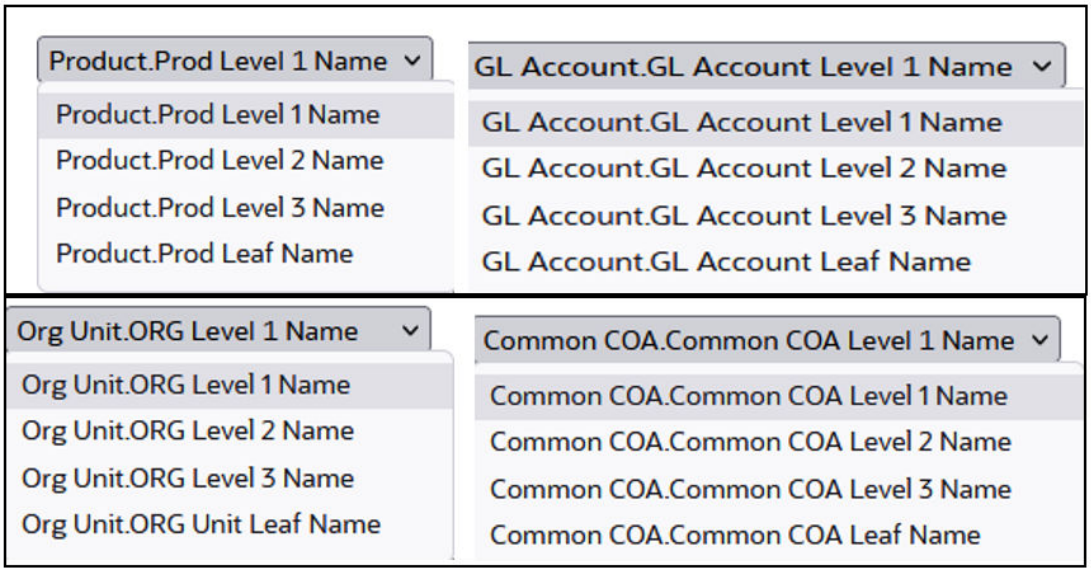
8.1.7.3.3 Report Hierarchies

The Report provides you with the roll-up and drill down capability, leveraging the available levels for the following Hierarchies:

- Product Hierarchy
- GL Account Hierarchy
- Organization Unit Entity Hierarchy
- Common COA Hierarchy

Following screenshot displays the available selections for the aforementioned hierarchies.

Figure 8-159 Cashflow Output key processing dimension hierarchies



8.1.7.3.4 In canvas Variable Prompts

- **Select Runoff Measurement:** This is the variable prompt to select the desired Runoff measurement to be applied to the “Interest Rate Risk Runoff” report canvas charts.

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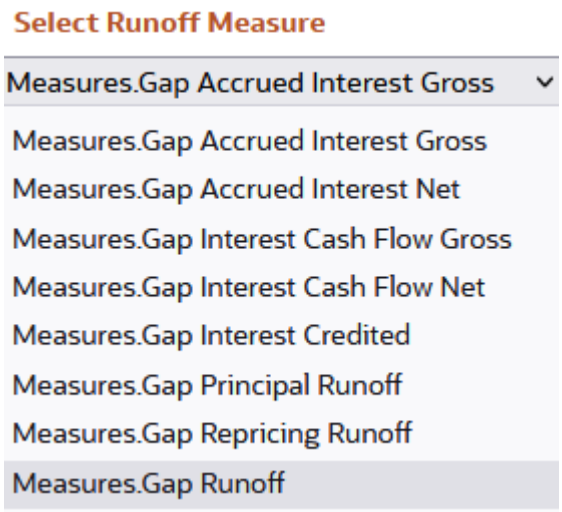
The following elements are available for selection:

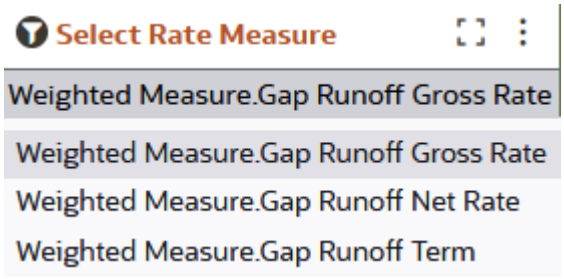
– “Gap Accrued Interest Gross”, ”Gap Accrued Interest Net”, ”Gap Interest Cash Flow Gross”, “Gap Interest Cash Flow Net”, ”Gap Interest Credited”, ”Gap Principal Runoff”, “Gap Repricing Runoff”, “Gap Runoff”.

Figure 8-160 Select Runoff measurement list



- **Select Rate & Term Measurement:** This is the variable prompt to select the desired Rate measurement to be applied to the “Interest Rate Rate Risk Rates & Term” report canvas charts.
  The following elements are available for selection:
  – “Gap Runoff Gross Rate”, “Gap Runoff Net Rate”, “Gap Runoff Term”.

Figure 8-161 Select Rate andTerm measurement list



8.1.7.3.5 Interest Rate Risk Gap

The “Interest Rate Risk Gap” report is a statement of Risk Sensitive Assets, Risk Sensitive Liabilities and difference between the two.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Interest Rate Risk Output results.

The report displays the underlying data according to the following Chart’ logic:

- **Select Process Name**

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The List box filter provides you with a selection capability on the desired Process Name utilized by the Interest Rate Risk Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.

- **Select Execution Run Identifier**
  The List Box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Dynamic Start Date**
  The List box filter provides you with a selection capability on the desired Dynamic Start Date utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Net Gap Runoff**
  The chart reports the analysis of the Net Gap Runoff Value depending on the Account type Category processed for each Bucket with respect to As of Date and Dynamic Start Date.

  The columns displayed in the chart are the following:

  - Currency Code
  - Bucket Name
  - As Of Date (Day)
  - Account Type Category
  - Risk Sensitive Asset
  - Risk Sensitive Liability
  - Net Gap
  - Cumulative Net Gap
- **Net Repricing Gap Runoff**
  The chart reports the analysis of the Net Repricing Gap Runoff Value depending on the Account type Category processed for each Bucket with respect to As of Date and Dynamic Start Date.

  The columns displayed in the chart are the following:

  - Currency Code
  - Bucket Name
  - As Of Date (Day)
  - Account Type Category
  - Repriced Asset
  - Repriced Liability
  - Net Gap Repricing Runoff
  - Cumulative Net Gap Repricing Runoff
- **Net Principal Gap Runoff**

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The chart reports the analysis of the Net Principal Gap Runoff Value depending on the Account type Category processed for each Bucket with respect to As of Date and Dynamic Start Date.

The columns displayed in the chart are the following:

- Currency Code
- Bucket Name
- As Of Date (Day)
- Account Type Category
- Risk Sensitive Asset (Principal)
- Risk Sensitive Liability (Principal)
- Net Gap Principal Runoff
- Cumulative Net Gap Principal Runoff

Figure 8-162 Interest Rate Risk GAP Report

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8.1.7.3.6 Interest Rate Risk Runoff

The “Interest Rate Risk Runoff” Report provides insight into the amount of assets and liability getting repriced in each time bucket. While fixed rate instruments runoff as per contractual maturity, adjustable rate instruments are assumed to runoff on the Next Reprice Date.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Interest Rate Risk Output results.

The report displays the underlying data according to the following Chart’ logic:

- **Select Process Name**
  The List box filter provides you with a selection capability on the desired Process Name utilized by the Interest Rate Risk Output processes.
- **Select Execution Run Identifier**
  The List box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter.
- **Select Dynamic Start Date**
  The List box filter provides you with a selection capability on the desired Dynamic Start Date utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter.
- **Select Runoff Measure**
  The chart provides you with a selection capability on the desired Interest Rate Risk Runoff measurement.
- **Select Org Unit Hierarchy**
  The chart provides you with a selection capability for the desired Org Unit Hierarchical level.
- **Select Product Hierarchy**
  The chart provides you with a selection capability for the desired Product Hierarchical level.
- **Select GL Account Hierarchy**
  The chart provides you with a selection capability for the desired GL Account Hierarchical level.
- **Select COA Hierarchy**
  The chart provides you with a selection capability for the desired Common COA Hierarchical level.
- **Selected Runoff Measure by Product**
  The table and chart reports the generated Interest Rate Risk output Runoff Measure by Product for each Interest Rate Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  – Dynamic Start Date
  – Bucket Name
  – Account Type Category

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- Process Name
- As of Date (Day)
- Execution Run Identifier
- Currency Code
- Product Hierarchy
- Runoff Measure

- **Selected Runoff Measure by Org Unit**
  The table and chart reports the generated Interest Rate Risk output Runoff Measure by Org Unit for each Interest Rate Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - Org Unit Hierarchy
  - Runoff Measure

- **Selected Runoff Measure by GL Account**
  The table and chart reports the generated Interest Rate Risk output Runoff Measure by GL Account for each Interest Rate Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - GL Account Hierarchy
  - Runoff Measure

- **Selected Runoff Measure by Common COA**
  The chart reports the generated Interest Rate Risk Output Runoff Measure by Product for each Interest Rate Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name

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- Account Type Category
- Process Name
- As of Date (Day)
- Execution Run Identifier
- Currency Code
- Common COA Hierarchy
- Runoff Measure

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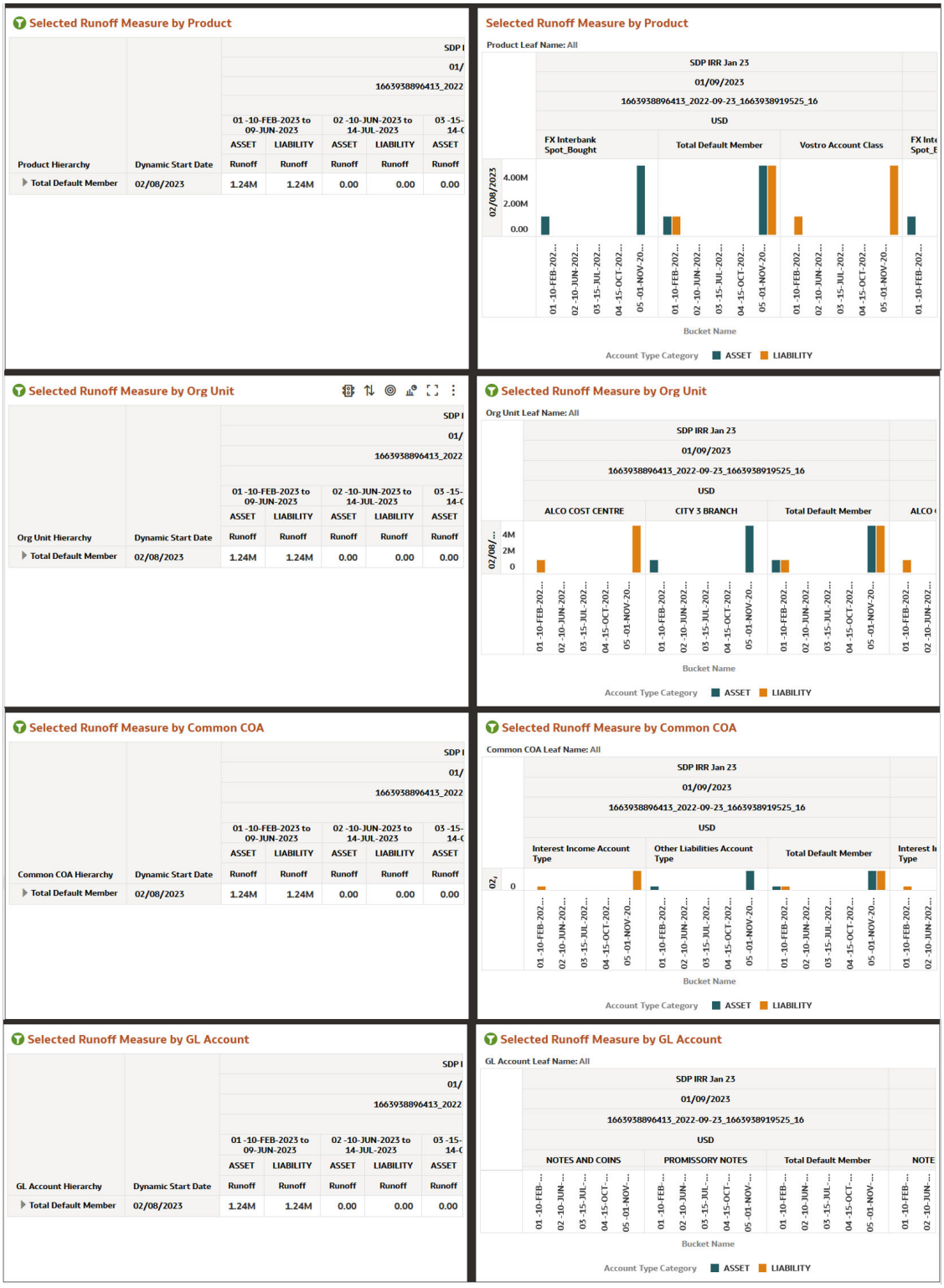
Figure 8-163 Interest Rate Risk Runoff Report



8.1.7.3.7 Interest Rate Risk Rates & Term

The “Interest Rate Risk Runoff” Report shows interest rate and term related measures that get calculated as part of Interest Rate Risk process.

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You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Interest Rate Risk Output results.

The report displays the underlying data according to the following Chart' logic:

- **Select Process Name**
  The List box filter provides you with a selection capability on the desired Process Name utilized by the Interest Rate Risk Output processes.
- **Select Execution Run Identifier**
  The List box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter.
- **Select Dynamic Start Date**
  The List box filter provides you with a selection capability on the desired Dynamic Start Date utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter.
- **Select Runoff Measure**
  The chart provides you with a selection capability on the desired Interest Rate Risk Runoff measurement.
- **Select Org Unit Hierarchy**
  The chart provides you with a selection capability for the desired Org Unit Hierarchical level.
- **Select Product Hierarchy**
  The chart provides you with a selection capability for the desired Product Hierarchical level.
- **Select GL Account Hierarchy**
  The chart provides you with a selection capability for the desired GL Account Hierarchical level.
- **Select COA Hierarchy**
  The chart provides you with a selection capability for the desired Common COA Hierarchical level.
- **Selected Rate Measure by Product**
  The table and chart reports the generated Interest Rate Risk output Rate Measure by Product for each Interest Rate Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - Product Hierarchy

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- Rate Measure

- **Selected Rate Measure by Org Unit**
  The table and chart reports the generated Interest Rate Risk output Rate Measure by Org Unit for each Interest Rate Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - Org Unit Hierarchy
  - Rate Measure

- **Selected Rate Measure by GL Account**
  The table and chart reports the generated Interest Rate Risk output Rate Measure by GL Account for each Interest Rate Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - GL Account Hierarchy
  - Rate Measure

- **Selected Rate Measure by Common COA**
  The chart reports the generated Interest Rate Risk output Rate Measure by Product for each Interest Rate Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code

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- Common COA Hierarchy
- Rate Measure

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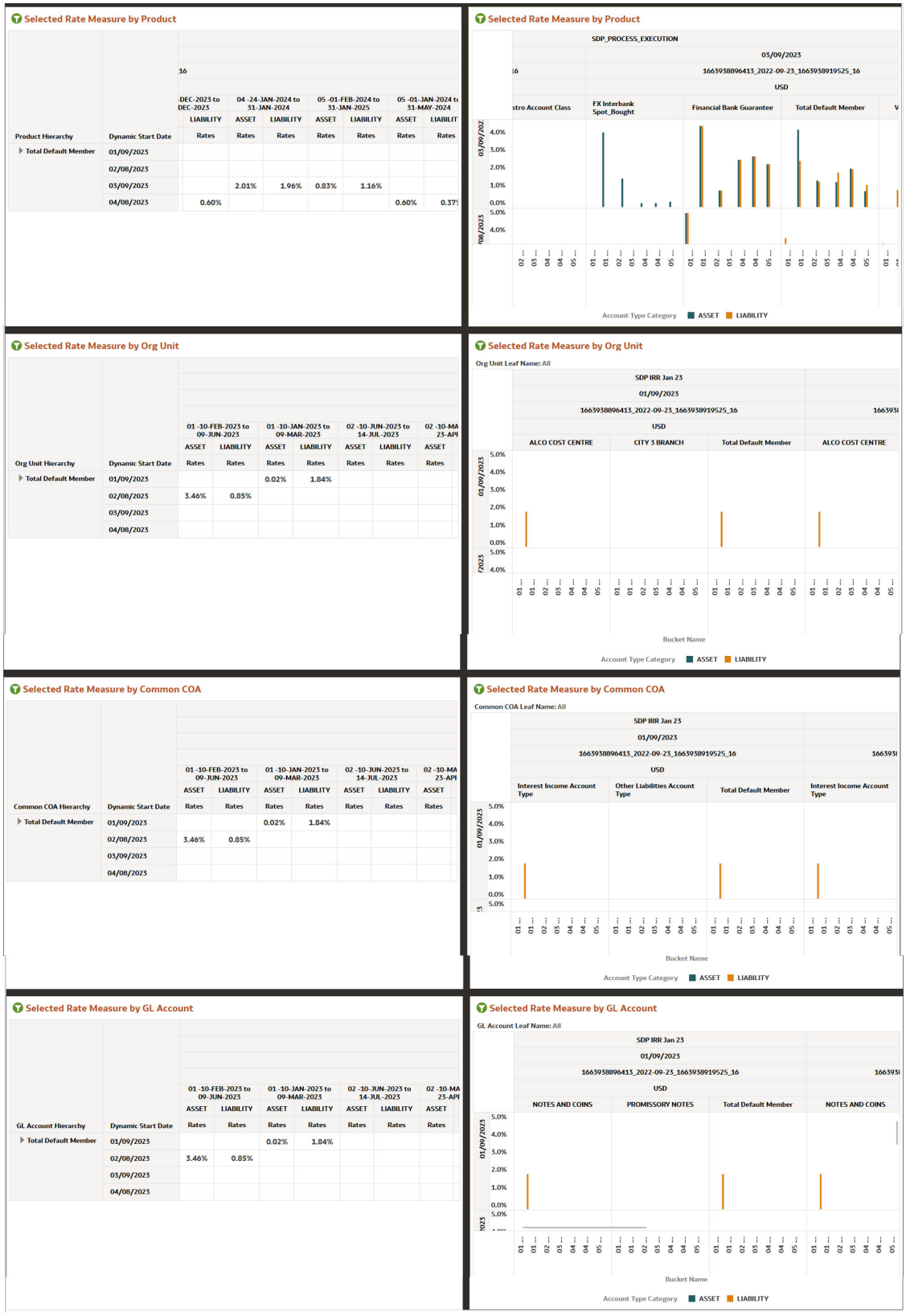
Figure 8-164 Interest Rate Risk Rates and Term Report



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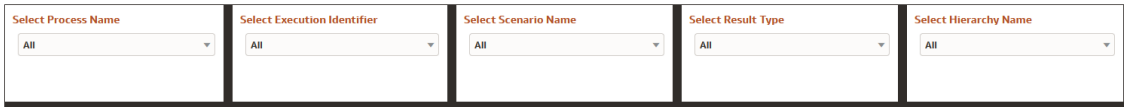
8.1.7.4 Interest Rate Risk MDBSS

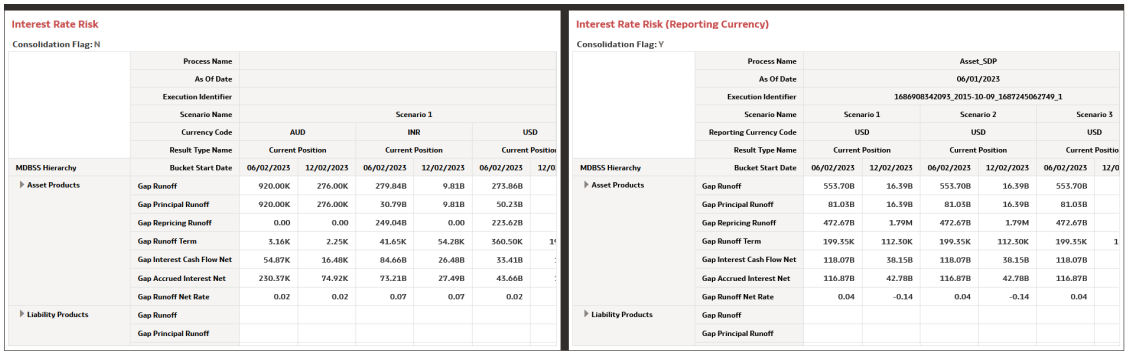
Interest Rate Risk reports displays the MDBSS members by Process Name, As of date, Execution Identifier, Scenario Name, Currency code, Result Type, Bucket Start Date. These Reports can be drilled down or rolled up for the user convenience.

Figure 8-165 Interest Rate Risk MDBSS Filters



- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Interest Rate Risk Output processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:** The List box filter provides you with a selection capability on the desired Result Type by the Financial Results Output processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Interest Rate Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

Figure 8-166 Interest Rate Risk Report



8.1.7.4.1 Common Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

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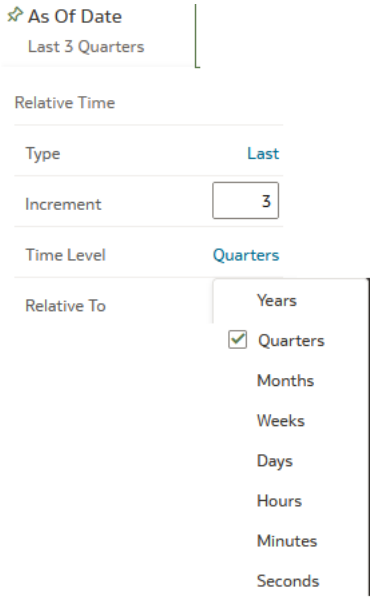
Figure 8-167 Canvas Prompt Filters for Time Dimension

- **As of Date:** The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

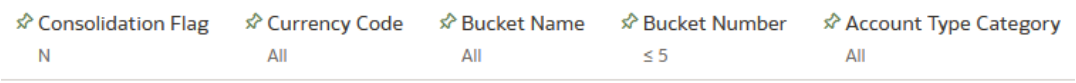
Figure 8-168 As of Date Selection



Additional Filter for the Time Dimension is As of Date (Day).

- Canvas Prompt Filters for Legal Entity key processing dimension
- **Consolidation Flag:** You can use this filter to select a specific Consolidation Flag to be applied to the Interest Rate Risk Process Execution Data. The Default value of this filter is set to N.

Figure 8-169 Canvas Prompt Filters for Interest Rate Risk Output Process execution data



- **Currency Code:** You can use this filter to select a specific Currency Name to be applied to the Interest Rate Risk Process Execution Data.
- **Bucket Name:** You can use this filter to select a specific Bucket Name to be applied to the Interest Rate Risk Process Execution Data. Bucket Name is a concatenation of Bucket number along with Bucket Start date and Bucket End Date.

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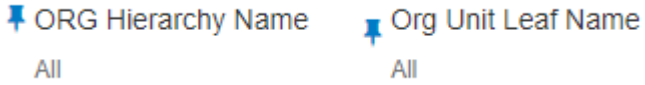
- **Bucket Number:** You can use this filter to select a specific Bucket Number to be applied to the Interest Rate Risk Process Execution Data. Bucket Number is a range filter, the default range for this filter is ≤ 5.
- **Account Type Category:** You can use this filter to select a specific Account Type Category to be applied to the Interest Rate Risk Process Execution Data.

Figure 8-170 Canvas Prompt Filters for Legal Entity key processing dimension

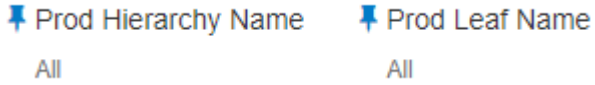
- **LE Hierarchy Name:** Select the Legal Entity hierarchy that you want to use to anayse the reports. The default Legal Entity hierarchy is set to Legal Entity System Hierarchy.
- **Legal Entity Leaf Name:** From the selected Legal Entity hierarchy, you can use this filter to select the Legal Entity Member to view reports.

Figure 8-171 Canvas Prompt Filters for Org Unit key processing dimension



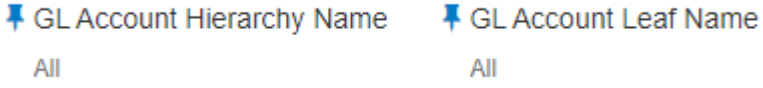
- **Org Hierarchy Name:** Select the Organization Unit hierarchy that you want to use to analyze the reports. The default Organization Unit hierarchy is set to Organization Unit System Hierarchy.
- **Org Unit Leaf Name:** From the selected Organization Unit hierarchy, you can use this filter to select the Organization Unit Member to view reports.

Figure 8-172 Canvas Prompt Filters for Product key processing dimension



- **Prod Hierarchy Name:** Select the Product hierarchy that you want to use to analyze the reports. The default Product hierarchy is set to Products System Hierarchy.
- **Prod Leaf Name:** From the selected Product hierarchy, you can use this filter to select the Product Member to view reports.

Figure 8-173 Canvas Prompt Filters for GL Account key processing dimension



- **GL Account Hierarchy Name:** Select the General Ledger (GL) hierarchy that you want to use to analyze the reports. The default General Ledger hierarchy is set to General Ledger System Hierarchy.

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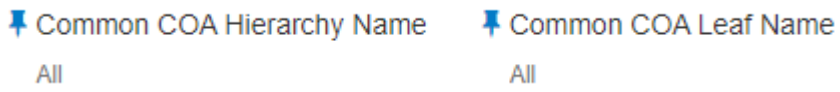
- **GL Account Leaf Name:** From the selected GL hierarchy, you can use this filter to select the GL Member to view reports.

Figure 8-174 Canvas Prompt Filters for Common COA key processing dimension

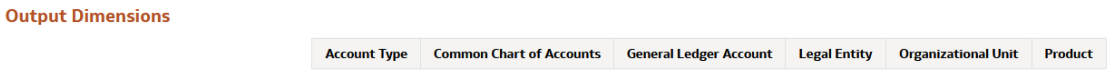


- **Common COA Hierarchy Name:** Select the Common Chart of Accounts (COA) hierarchy that you want to use to analyze the reports. The default Common Chart of Accounts hierarchy is set to Common COA System Hierarchy.
- **Common COA Leaf Name:** From the selected COA hierarchy, you can use this filter to select the Common COA Member to view reports.

8.1.7.4.2 Output Dimensions

This shows the Output Dimension(s) of selected process, such as Account Type, Common Chart of Accounts, General Ledger Account, Legal Entity, Organizational Unit, Product

Figure 8-175 Output Dimensions



8.1.7.4.3 Report Hierarchies

The Report provides you with the roll-up and drill down capability, leveraging the available levels for the following Hierarchies:

- Product Hierarchy
- GL Account Hierarchy
- Organization Unit Entity Hierarchy
- Common COA Hierarchy

Following screenshot displays the available selections for the aforementioned hierarchies.

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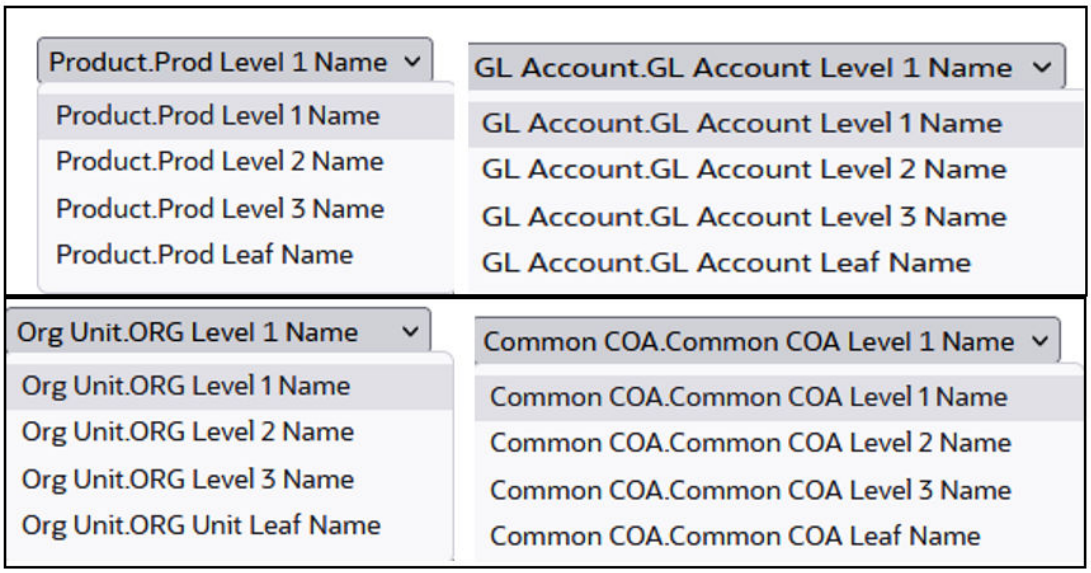
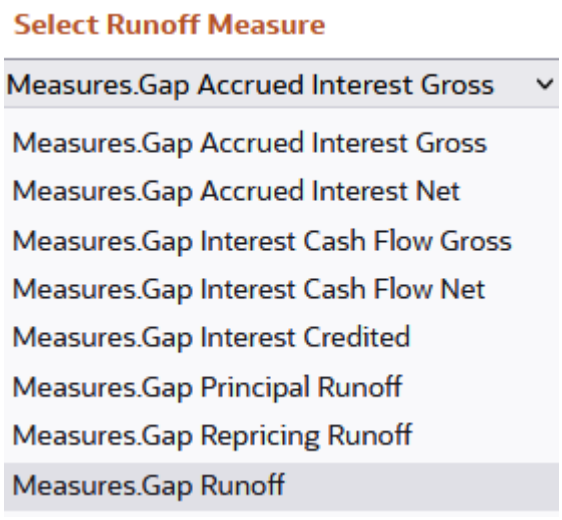
Figure 8-176 Cashflow Output key processing dimension hierarchies



8.1.7.4.4 In canvas Variable Prompts

- **Select Runoff Measurement:** This is the variable prompt to select the desired Runoff measurement to be applied to the “Interest Rate Risk Runoff” report canvas charts.
  The following elements are available for selection:
  - “Gap Accrued Interest Gross”, ”Gap Accrued Interest Net”, ”Gap Interest Cash Flow Gross”, “Gap Interest Cash Flow Net”, ”Gap Interest Credited”, ”Gap Principal Runoff”, “Gap Repricing Runoff”, “Gap Runoff”.

Figure 8-177 Select Runoff measurement list



- **Select Rate & Term Measurement:** This is the variable prompt to select the desired Rate measurement to be applied to the “Interest Rate Rate Risk Rates & Term” report canvas charts.
  The following elements are available for selection:

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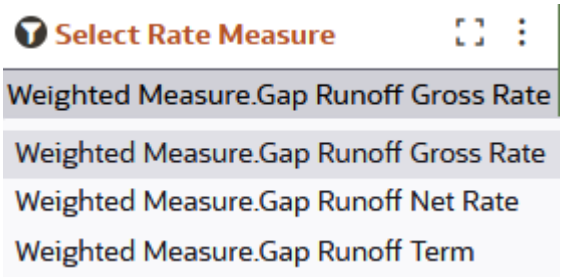
– “Gap Runoff Gross Rate”, “Gap Runoff Net Rate”, “Gap Runoff Term”.

Figure 8-178 Select Rate andTerm measurement list



8.1.7.5 Liquidity Risk

Liquidity risk is defined as the risk of incurring losses resulting from the inability to meet payment obligations in a timely manner when they become due or from being unable to do so at a sustainable cost.

The Liquidity Risk dashboard is arranged as a set of reports catering to analysis of the following categories:

- Liquidity Risk Gap
- Liquidity Risk Runoff
- Liquidity Risk Rates & Term
- Liquidity MDBSS

8.1.7.5.1 Common filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

Figure 8-179 Canvas Prompt Filters for Time Dimension

- **As of Date:** The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

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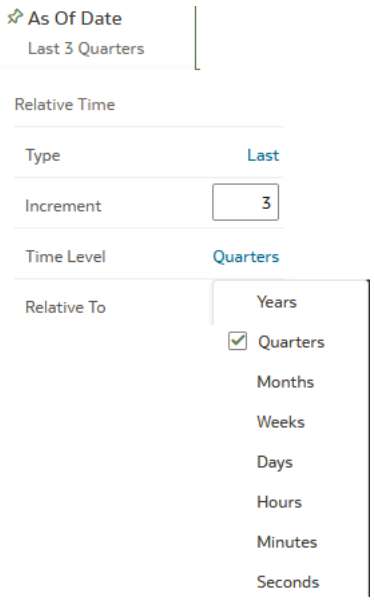
Figure 8-180 As of Date Selection



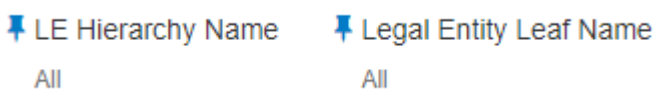
Additional Filter for the Time Dimension is As of Date (Day).

- **Consolidation Flag:** You can use this filter to select a specific Consolidation Flag Name to be applied to the Liquidity Rate Risk Process execution data. The Default value of this filter is set to N.

Figure 8-181 Canvas Prompt Filters for Liquidity Rate Risk Output Process execution data

- **Currency Code:** You can use this filter to select a specific Currency Name to be applied to the Liquidity Rate Risk Process execution data.
- **Bucket Name:** You can use this filter to select a specific Bucket Name to be applied to the Liquidity Rate Risk Process execution data. Bucket Name is a concatenation of Bucket number along with Bucket Start date and Bucket End date.
- **Bucket Number:** You can use this filter to select a specific Bucket Number to be applied to the Liquidity Rate Risk Process execution data. Bucket Number is a range filter, the default range for this filter is ≤ 5.
- **Account Type Category:** You can use this filter to select a specific Account Type Category to be applied to the Liquidity Rate Risk Process execution data.

Figure 8-182 Canvas Prompt Filters for Legal Entity key processing dimension



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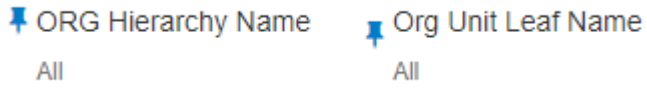
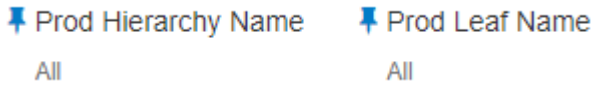
- **LE Hierarchy Name:** Select the Legal Entity hierarchy that you want to use to analyze the reports. The default Legal Entity hierarchy is set to Legal Entity System Hierarchy.
- **Legal Entity Leaf Name:** From the selected Legal Entity hierarchy, you can use this filter to select the Legal Entity Member to view reports.

Figure 8-183 Canvas Prompt Filters for Org Unit key processing dimension



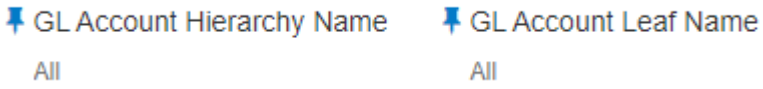
- **Org Hierarchy Name:** Select the Organization Unit hierarchy that you want to use to analyze the reports. The default Organization Unit hierarchy is set to Organization Unit System Hierarchy.
- **Org Unit Leaf Name:** From the selected Organization Unit hierarchy, you can use this filter to select the Organization Unit Member to view reports.

Figure 8-184 Canvas Prompt Filters for Product key processing dimension



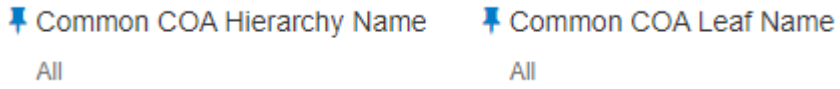
- **Prod Hierarchy Name:** Select the Product hierarchy that you want to use to analyze the reports. The default Product hierarchy is set to Products System Hierarchy.
- **Prod Leaf Name:** From the selected Product hierarchy, you can use this filter to select the Product Member to view reports.

Figure 8-185 Canvas Prompt Filters for GL Account key processing dimension



- **GL Account Hierarchy Name:** Select the General Ledger (GL) hierarchy that you want to use to analyze the reports. The default General Ledger hierarchy is set to General Ledger System Hierarchy.
- **GL Account Leaf Name:** From the selected GL hierarchy, you can use this filter to select the GL Member to view reports.

Figure 8-186 Canvas Prompt Filters for Common COA key processing dimension



- **Common COA Hierarchy Name:** Select the Common Chart of Accounts (COA) hierarchy that you want to use to analyze the reports. The default Common Chart of Accounts hierarchy is set to Common COA System Hierarchy.

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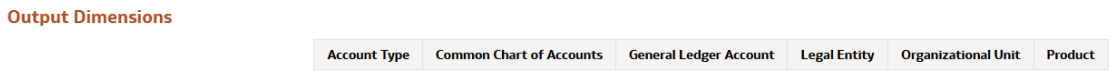
- **Common COA Leaf Name:** From the selected COA hierarchy, you can use this filter to select the Common COA Member to view reports.

8.1.7.5.2 Output Dimensions

This shows the Output Dimension(s) of selected process, such as Account Type, Common Chart of Accounts, General Ledger Account, Legal Entity, Organizational Unit, Product

Figure 8-187 Output Dimensions



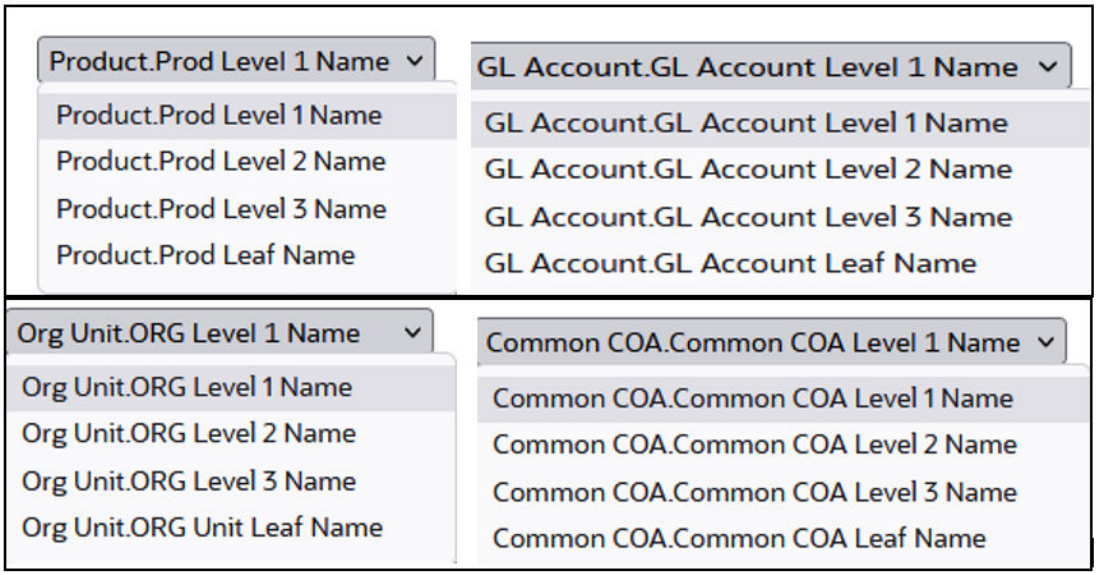
8.1.7.5.3 Report Hierarchies

The Report provides you with the roll-up and drill down capability on the Liquidity Rate Risk Output Process execution data, leveraging the available levels for the following Hierarchies:

- Product Hierarchy
- GL Account Hierarchy
- Org Unit Entity Hierarchy
- Common COA Hierarchy

Following screenshot displays the available selections for the aforementioned hierarchies.

Figure 8-188 Liquidity Rate Risk Output key processing dimension hierarchies



8.1.7.5.4 In canvas Variable Prompts

- **Select Runoff measurement:** This is the variable prompt to select the desired Runoff Measurement to be applied to the “Liquidity Rate Risk Runoff” Report canvas charts.

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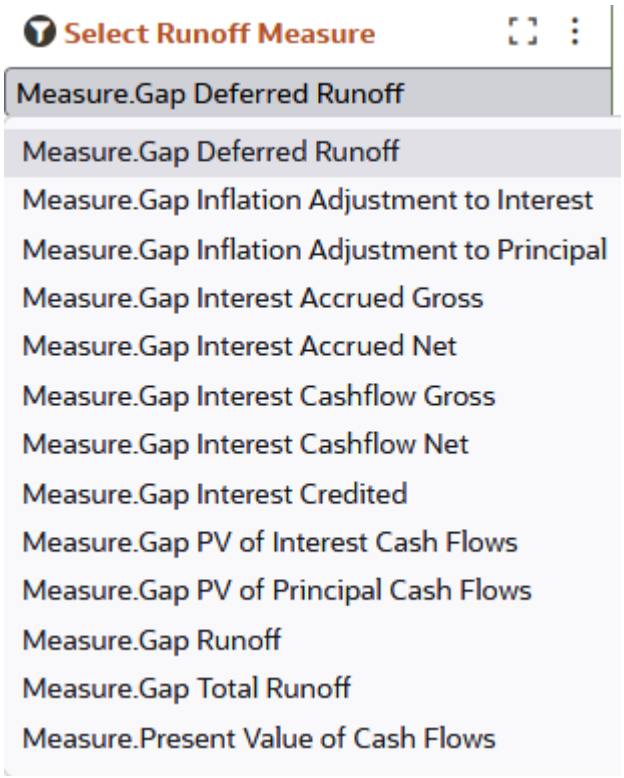
The following elements are available for selection:

– “Gap Deferred Runoff”, “Gap Inflation Adjustment to Interest”, “Gap Inflation Adjustment to Principal”, “Gap Interest Accrued Gross”, “Gap Interest Accrued Net”, “Gap Interest Cashflow Gross”, “Gap Interest Cashflow Net”, “Gap Interest Credited”, “Gap PV of Interest Cash Flows”, “Gap PV of Princiapl Cash Flows”, “Gap Runoff”, “Gap Total Runoff”, “Present Value of Cash Flows”.

Figure 8-189 Select Runoff measurement list



- **Select Rate & Term measurement:** This is the variable prompt to select the desired Rate measurement to be applied to the “Liquidity Rate Risk Rates & Term” Report canvas charts.
  The following elements are available for selection:
  – “Discount Rate”, “Gap Duration”, “Gap Dv01”, “Gap Modified Duration”, “Gap Runoff Gross Rate”, “Gap Runoff Net Rate”, “Gap Runoff Term”, “Timing of Cash Flow”.

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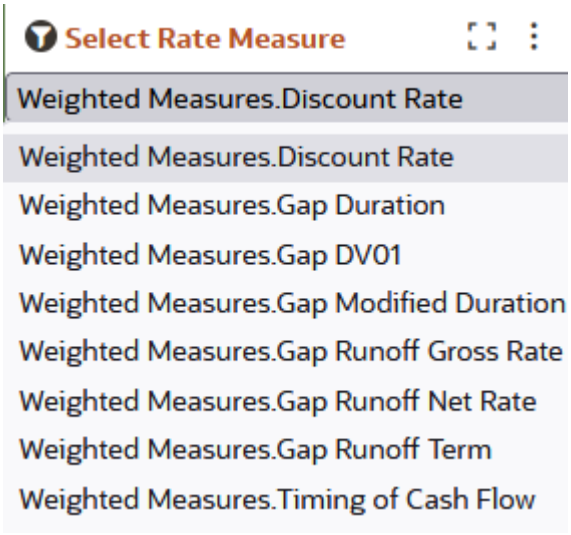
Figure 8-190 Select Rate and Term measurement list



8.1.7.5.5 Liquidity Risk Gap

The “Liquidity Risk Gap” Report is a statement of mismatch between inflows and outflows in each time bucket .

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Liquidity Risk Output results.

The report displays the underlying data according to the following Chart’ logic:

- **Select Process Name**
  The List box filter provides you with a selection capability on the desired Process Name utilized by the Liquidity Risk Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Execution Run Identifier**
  The List box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Dynamic Start Date**
  The List box filter provides you with a selection capability on the desired Dynamic Start Date utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Net Gap Runoff**
  The chart reports the analysis of the Net Gap Runoff Value depending on the Account type Category processed for each Bucket with respect to As of Date and Dynamic Start Date.

  The columns displayed in the chart are the following:

  – Currency Code

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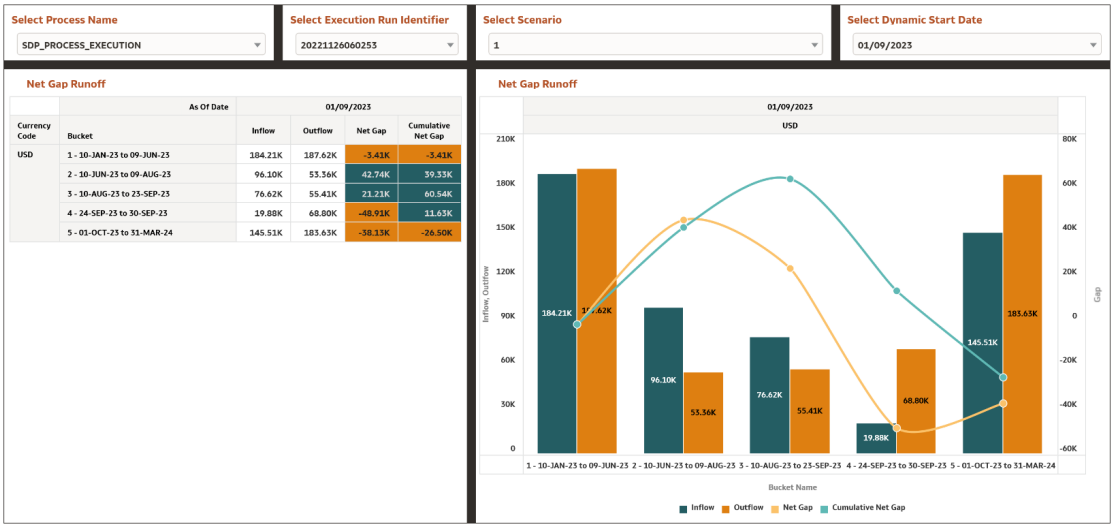
- Bucket Name
- As Of Date (Day)
- Account Type Category
- Inflow
- Outflow
- Net Gap
- Cumulative Net Gap

Figure 8-191 Liquidity Risk GAP Report



Currency Code	As Of Date	01/09/2023			
	Bucket	Inflow	Outflow	Net Gap	Cumulative Net Gap
USD	1 - 10-JAN-23 to 09-JUN-23	184.21K	187.62K	-3.41K	-3.41K
	2 - 10-JUN-23 to 09-AUG-23	96.10K	53.36K	42.74K	39.33K
	3 - 10-AUG-23 to 23-SEP-23	76.62K	55.41K	21.21K	60.54K
	4 - 24-SEP-23 to 30-SEP-23	19.88K	68.80K	-48.91K	11.63K
	5 - 01-OCT-23 to 31-MAR-24	145.51K	183.63K	-38.13K	-26.50K

8.1.7.5.6 Liquidity Risk Runoff

The “Liquidity Risk Runoff” Report provides insight into the various kinds of projected runoff that are expected from the balance sheet.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Liquidity Risk Output results.

The report displays the underlying data according to the following Chart’ logic:

- **Select Process Name**
  The List box filter provides you with a selection capability on the desired Process Name utilized by the Liquidity Risk Output processes.
- **Select Execution Run Identifier**
  The List box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter.
- **Select Dynamic Start Date**

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The List box filter provides you with a selection capability on the desired Dynamic Start Date utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter.

- **Select Runoff Measure**
  The chart provides you with a selection capability on the desired Liquidity Risk Runoff measurement.
- **Select Org Unit Hierarchy**
  The chart provides you with a selection capability for the desired Org Unit Hierarchical level.
- **Select Product Hierarchy**
  The chart provides you with a selection capability for the desired Product Hierarchical level.
- **Select GL Account Hierarchy**
  The chart provides you with a selection capability for the desired GL Account Hierarchical level.
- **Select COA Hierarchy**
  The chart provides you with a selection capability for the desired Common COA Hierarchical level.
- **Selected Runoff Measure by Product**
  The table and chart reports the generated Liquidity Risk output Runoff Measure by Product for each Liquidity Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  – Dynamic Start Date
  – Bucket Name
  – Account Type Category
  – Process Name
  – As of Date (Day)
  – Execution Run Identifier
  – Currency Code
  – Product Hierarchy
  – Runoff Measure
- **Selected Runoff Measure by Org Unit**
  The table and chart reports the generated Liquidity Risk output Runoff Measure by Org Unit for each Liquidity Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  – Dynamic Start Date
  – Bucket Name
  – Account Type Category
  – Process Name
  – As of Date (Day)
  – Execution Run Identifier
  – Currency Code
  – Org Unit Hierarchy

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- Runoff Measure

- **Selected Runoff Measure by GL Account**
  The table and chart reports the generated Liquidity Risk output Runoff Measure by GL Account for each Liquidity Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - GL Account Hierarchy
  - Runoff Measure

- **Selected Runoff Measure by Common COA**
  The chart reports the generated Liquidity Risk output Runoff Measure by Product for each Liquidity Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - Common COA Hierarchy
  - Runoff Measure

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Figure 8-192 Liquidity Risk Runoff Report

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8.1.7.5.7 Liquidity Risk Rates & Term

The “Liquidity Risk Rates & Term” Report shows interest rate and term related measures that get calculated as part of Liquidity Risk process.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Liquidity Risk Output results.

The report displays the underlying data according to the following Chart’ logic:

- **Select Process Name**
  The List box filter provides you with a selection capability on the desired Process Name utilized by the Liquidity Risk Output processes.
- **Select Execution Run Identifier**
  The List box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter.
- **Select Dynamic Start Date**
  The List box filter provides you with a selection capability on the desired Dynamic Start Date utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter.
- **Select Runoff Measure**
  The chart provides you with a selection capability on the desired Liquidity Risk Runoff measurement.
- **Select Org Unit Hierarchy**
  The chart provides you with a selection capability for the desired Org Unit Hierarchical level.
- **Select Product Hierarchy**
  The chart provides you with a selection capability for the desired Product Hierarchical level.
- **Select GL Account Hierarchy**
  The chart provides you with a selection capability for the desired GL Account Hierarchical level.
- **Select COA Hierarchy**
  The chart provides you with a selection capability for the desired Common COA Hierarchical level.
- **Selected Rate Measure by Product**
  The table and chart reports the generated Liquidity Rate Risk output Rate Measure by Product for each Liquidity Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category
  - Process Name

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- As of Date (Day)
- Execution Run Identifier
- Currency Code
- Product Hierarchy
- Rate Measure

- **Selected Rate Measure by Org Unit**
  The table and chart reports the generated Liquidity Rate Risk output Rate Measure by Org Unit for each Liquidity Rate Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - Org Unit Hierarchy
  - Rate Measure

- **Selected Rate Measure by GL Account**
  The table and chart reports the generated Liquidity Rate Risk output Rate Measure by GL Account for each Liquidity Rate Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category
  - Process Name
  - As of Date (Day)
  - Execution Run Identifier
  - Currency Code
  - GL Account Hierarchy
  - Rate Measure

- **Selected Rate Measure by Common COA**
  The chart reports the generated Liquidity Risk output Rate Measure by Product for each Liquidity Rate Risk Output execution with respect to As of Date and Bucket Name.

  The columns displayed in the chart are the following:

  - Dynamic Start Date
  - Bucket Name
  - Account Type Category

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- Process Name
- As of Date (Day)
- Execution Run Identifier
- Currency Code
- Common COA Hierarchy
- Runoff Measure

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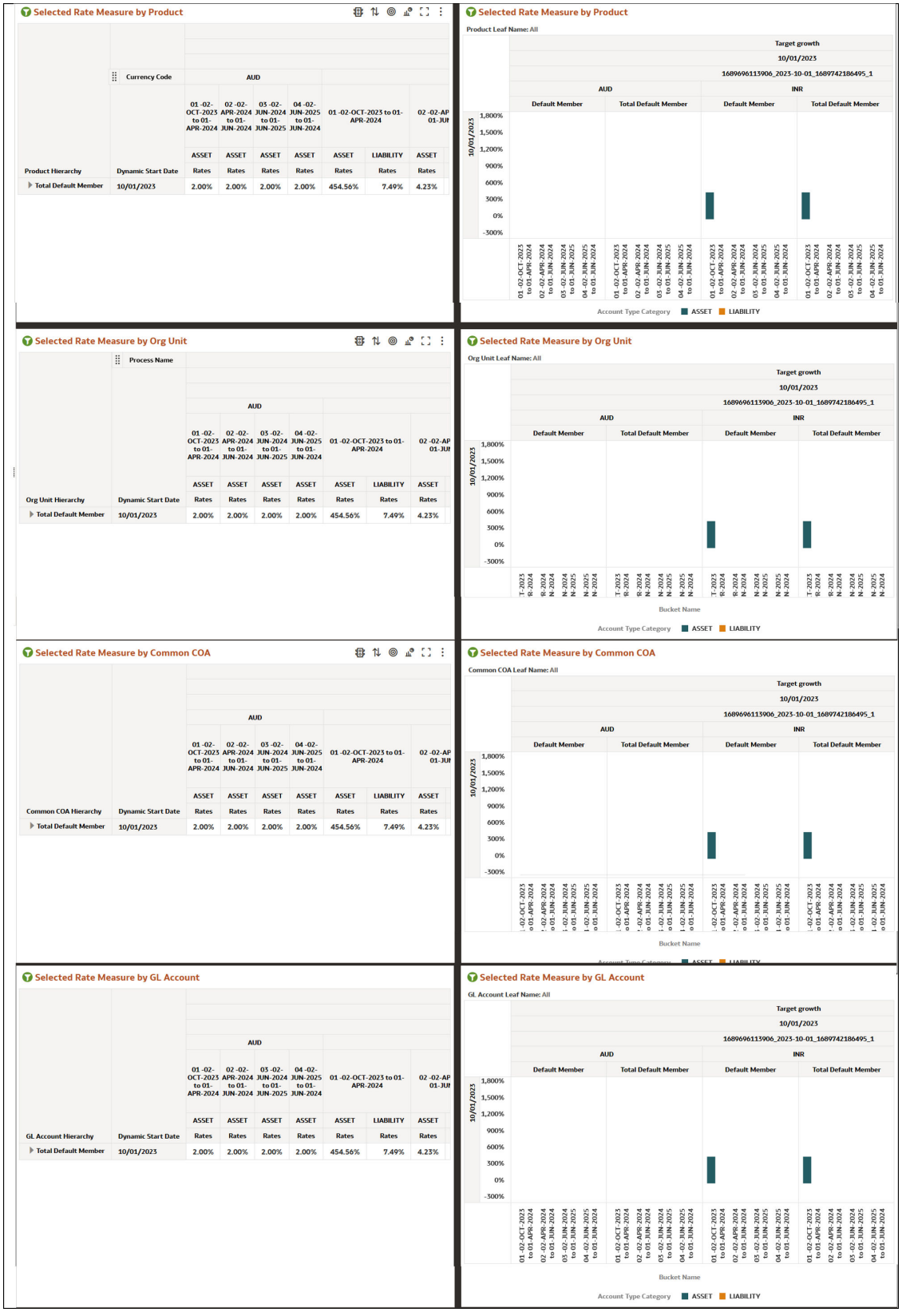
Figure 8-193 Liquidity Risk Rates & Term



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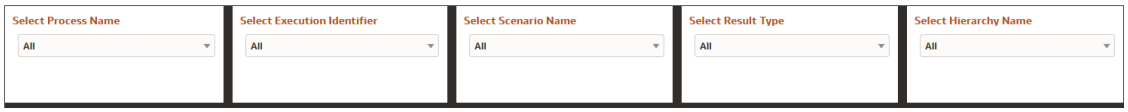
8.1.7.6 Liquidity Risk MDBSS

Liquidity Risk reports displays the MDBSS members by Process Name, As of date, Execution Identifier, Scenario Name, Currency code, Result Type, Bucket Start Date. These Reports can be drilled down or rolled up for the user convenience.

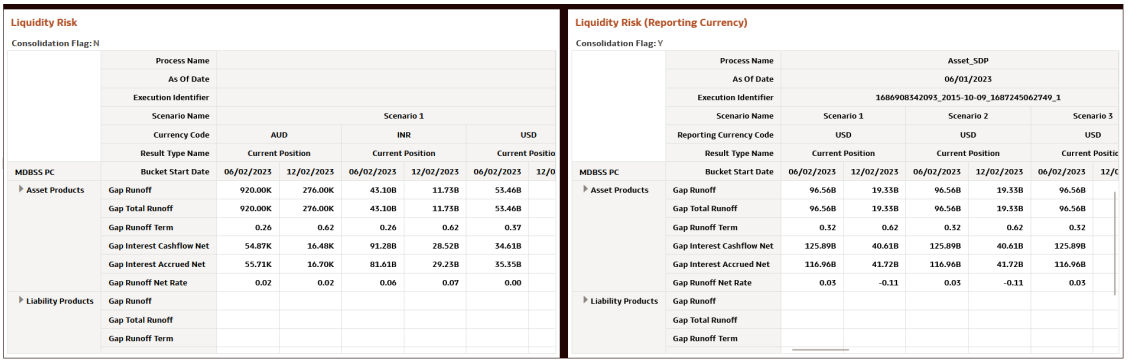
Below are the list box filters which the User can leverage to filter the Liquidity Risk report based on selected values.

Figure 8-194 Liquidity Risk MDBSS Filters



- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Liquidity Risk Output processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:** The List box filter provides you with a selection capability on the desired Result Type by the Financial Results Output processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Liquidity Risk Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

Figure 8-195 Liquidity Risk MDBSS Report



8.1.7.6.1 Common filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

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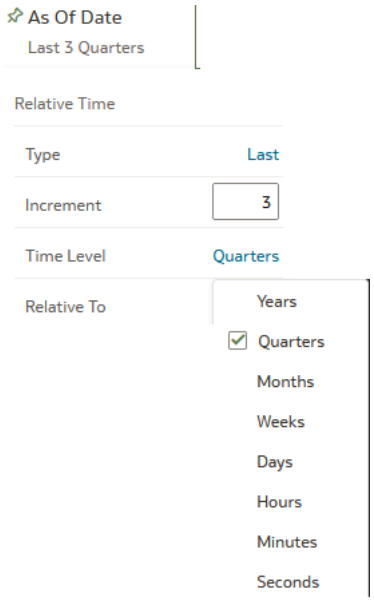
Figure 8-196 Canvas Prompt Filters for Time Dimension

- **As of Date:** The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

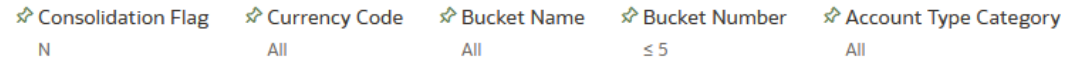
Figure 8-197 As of Date Selection



Additional Filter for the Time Dimension is As of Date (Day).

- **Consolidation Flag:** You can use this filter to select a specific Consolidation Flag Name to be applied to the Liquidity Rate Risk Process execution data. The Default value of this filter is set to N.

Figure 8-198 Canvas Prompt Filters for Liquidity Rate Risk Output Process execution data



- **Currency Code:** You can use this filter to select a specific Currency Name to be applied to the Liquidity Rate Risk Process execution data.
- **Bucket Name:** You can use this filter to select a specific Bucket Name to be applied to the Liquidity Rate Risk Process execution data. Bucket Name is a concatenation of Bucket number along with Bucket Start date and Bucket End date.
- **Bucket Number:** You can use this filter to select a specific Bucket Number to be applied to the Liquidity Rate Risk Process execution data. Bucket Number is a range filter, the default range for this filter is ≤ 5.

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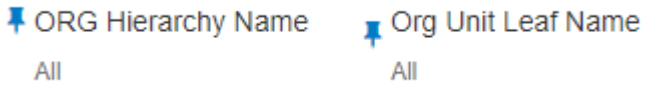
- **Account Type Category:** You can use this filter to select a specific Account Type Category to be applied to the Liquidity Rate Risk Process execution data.

Figure 8-199 Canvas Prompt Filters for Legal Entity key processing dimension

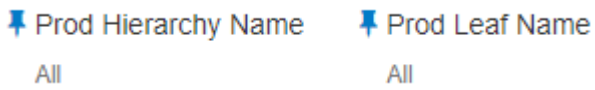
- **LE Hierarchy Name:** Select the Legal Entity hierarchy that you want to use to analyze the reports. The default Legal Entity hierarchy is set to Legal Entity System Hierarchy.
- **Legal Entity Leaf Name:** From the selected Legal Entity hierarchy, you can use this filter to select the Legal Entity Member to view reports.

Figure 8-200 Canvas Prompt Filters for Org Unit key processing dimension



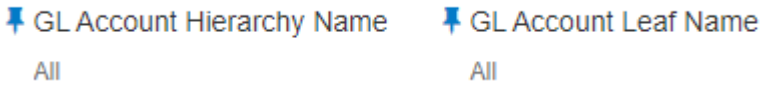
- **Org Hierarchy Name:** Select the Organization Unit hierarchy that you want to use to analyze the reports. The default Organization Unit hierarchy is set to Organization Unit System Hierarchy.
- **Org Unit Leaf Name:** From the selected Organization Unit hierarchy, you can use this filter to select the Organization Unit Member to view reports.

Figure 8-201 Canvas Prompt Filters for Product key processing dimension



- **Prod Hierarchy Name:** Select the Product hierarchy that you want to use to analyze the reports. The default Product hierarchy is set to Products System Hierarchy.
- **Prod Leaf Name:** From the selected Product hierarchy, you can use this filter to select the Product Member to view reports.

Figure 8-202 Canvas Prompt Filters for GL Account key processing dimension



- **GL Account Hierarchy Name:** Select the General Ledger (GL) hierarchy that you want to use to analyze the reports. The default General Ledger hierarchy is set to General Ledger System Hierarchy.
- **GL Account Leaf Name:** From the selected GL hierarchy, you can use this filter to select the GL Member to view reports.

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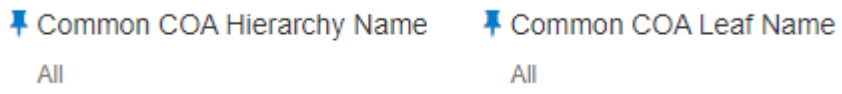
Figure 8-203 Canvas Prompt Filters for Common COA key processing dimension

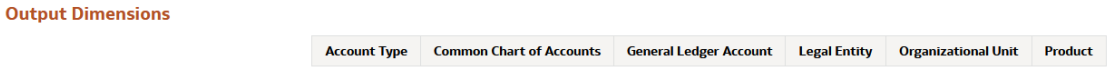


- **Common COA Hierarchy Name:** Select the Common Chart of Accounts (COA) hierarchy that you want to use to analyze the reports. The default Common Chart of Accounts hierarchy is set to Common COA System Hierarchy.
- **Common COA Leaf Name:** From the selected COA hierarchy, you can use this filter to select the Common COA Member to view reports.

8.1.7.6.2 Output Dimensions

This shows the Output Dimension(s) of selected process, such as Account Type, Common Chart of Accounts, General Ledger Account, Legal Entity, Organizational Unit, Product

Figure 8-204 Output Dimensions



8.1.7.6.3 Report Hierarchies

The Report provides you with the roll-up and drill down capability on the Liquidity Rate Risk Output Process execution data, leveraging the available levels for the following Hierarchies:

- Product Hierarchy
- GL Account Hierarchy
- Org Unit Entity Hierarchy
- Common COA Hierarchy

Following screenshot displays the available selections for the aforementioned hierarchies.

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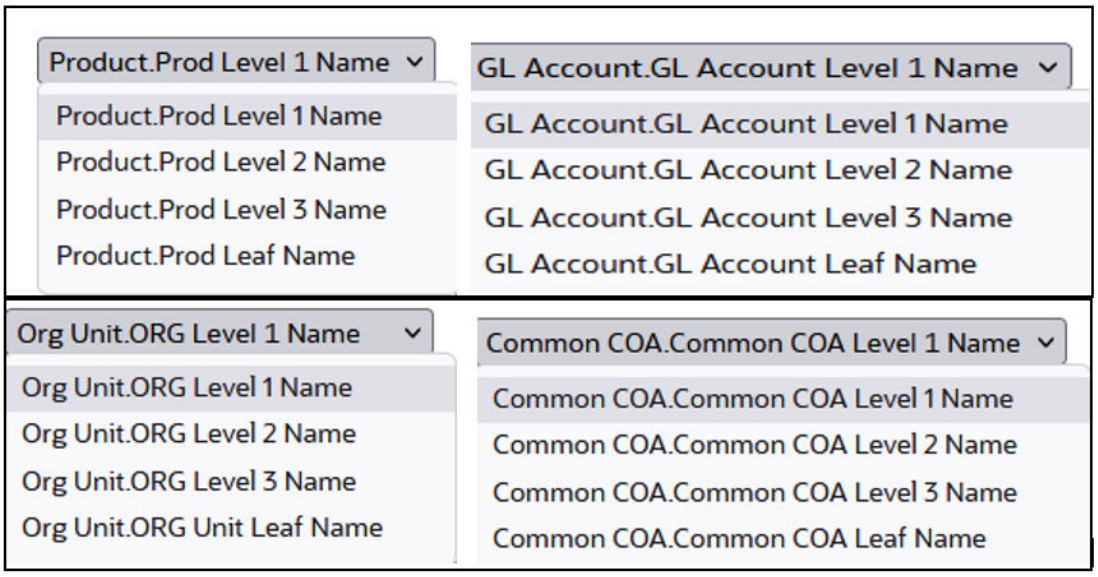
Figure 8-205 Liquidity Rate Risk Output key processing dimension hierarchies



8.1.7.6.4 In canvas Variable Prompts

- **Select Runoff measurement:** This is the variable prompt to select the desired Runoff Measurement to be applied to the “Liquidity Rate Risk Runoff” Report canvas charts. The following elements are available for selection:
  - “Gap Deferred Runoff”, “Gap Inflation Adjustment to Interest”, “Gap Inflation Adjustment to Principal”, “Gap Interest Accrued Gross”, “Gap Interest Accrued Net”, “Gap Interest Cashflow Gross”, “Gap Interest Cashflow Net”, “Gap Interest Credited”, “Gap PV of Interest Cash Flows”, “Gap PV of Princiapl Cash Flows”, “Gap Runoff”, “Gap Total Runoff”, “Present Value of Cash Flows”.

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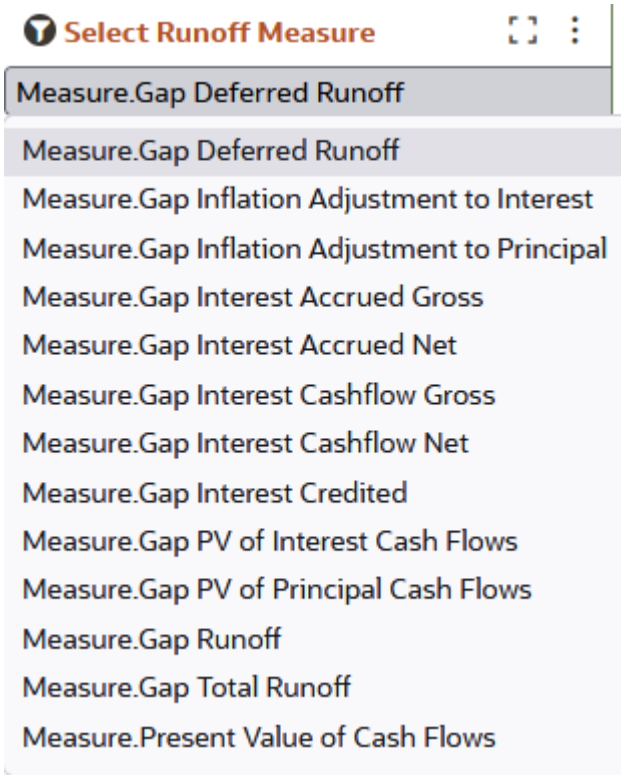
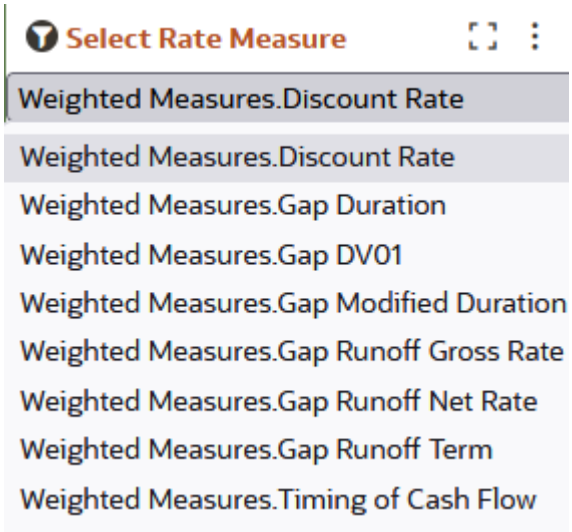
Figure 8-206 Select Runoff measurement list



- **Select Rate & Term measurement:** This is the variable prompt to select the desired Rate measurement to be applied to the “Liquidity Rate Risk Rates & Term” Report canvas charts.
  The following elements are available for selection:
  - “Discount Rate”, “Gap Duration”, “Gap Dv01”, “Gap Modified Duration”, “Gap Runoff Gross Rate”, “Gap Runoff Net Rate”, “Gap Runoff Term”, “Timing of Cash Flow”.

Figure 8-207 Select Rate and Term measurement list



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8.1.7.7 Market Value

The ALM Market Value dashboard is arranged as a set of reports catering to analysis of the following categories:

- Common Business- Balance
- Common Business - Rate
- Account Summary
- Market Value MDBSS
- Market Value MDBSS(Duration)
- Market Value MDBSS(Coupon & Yield)

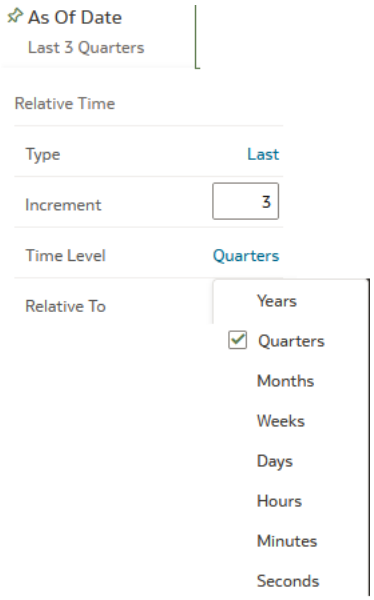
8.1.7.7.1 Common Filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

Figure 8-208 Canvas Prompt Filters for Time Dimension

- **As of Date:** The Execution Period for the output results. You can use this filter to isolate a selected time frame for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

Figure 8-209 As of Date Selection



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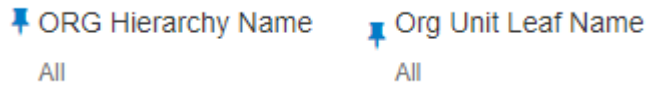
Additional Filter for the Time Dimension is As of Date (Day).

- **Consolidation Flag:** You can use this filter to select a specific Consolidation Flag Name to be applied to the Financial Risk Process execution data. The Default value of this filter is set to N.
- **Currency Code:** You can use this filter to select a specific Currency Name to be applied to the Financial Risk Process execution data.
- **Account Type Category:** You can use this filter to select a specific Account Type Category to be applied to the Financial Risk Process execution data.

Figure 8-210 Canvas Prompt Filters for Legal Entity key processing dimension

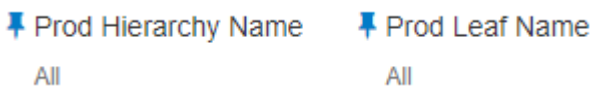
- **LE Hierarchy Name:** Select the Legal Entity hierarchy that you want to use to analyze the reports. The default Legal Entity hierarchy is set to Legal Entity System Hierarchy.
- **Legal Entity Leaf Name:** From the selected Legal Entity hierarchy, you can use this filter to select the Legal Entity Member to view reports.

Figure 8-211 Canvas Prompt Filters for Org Unit key processing dimension



- **Org Hierarchy Name:** Select the Organization Unit hierarchy that you want to use to analyze the reports. The default Organization Unit hierarchy is set to Organization Unit System Hierarchy.
- **Org Unit Leaf Name:** From the selected Organization Unit hierarchy, you can use this filter to select the Organization Unit Member to view reports.

Figure 8-212 Canvas Prompt Filters for Product key processing dimension



- **Prod Hierarchy Name:** Select the Product hierarchy that you want to use to analyze the reports. The default Product hierarchy is set to Products System Hierarchy.
- **Prod Leaf Name:** From the selected product hierarchy, you can use this filter to select the Product Member to view reports.

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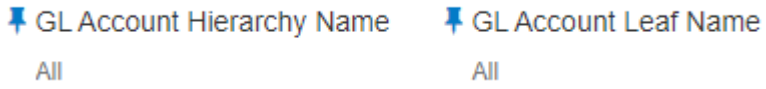
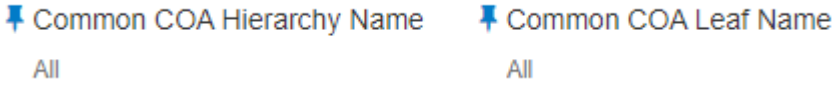
Figure 8-213 Canvas Prompt Filters for GL Account key processing dimension



- **GL Account Hierarchy Name:** Select the General Ledger (GL) hierarchy that you want to use to analyze the reports. The default General Ledger hierarchy is set to General Ledger System Hierarchy.
- **GL Account Leaf Name:** From the selected GL hierarchy, you can use this filter to select the GL Member to view reports.

Figure 8-214 Canvas Prompt Filters for Common COA key processing dimension

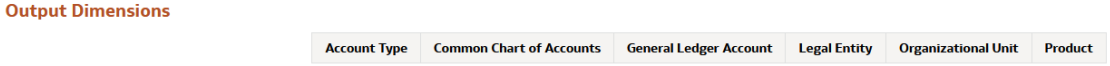


- **Common COA Hierarchy Name:** Select the Common Chart of Accounts (COA) hierarchy that you want to use to analyze the reports. The default Common Chart of Accounts hierarchy is set to Common COA System Hierarchy.
- **Common COA Leaf Name:** From the selected COA hierarchy, you can use this filter to select the Common COA Member to view reports.

8.1.7.7.2 Output Dimensions

This shows the Output Dimension(s) of selected process, such as Account Type, Common Chart of Accounts, General Ledger Account, Legal Entity, Organizational Unit, Product

Figure 8-215 Output Dimensions



8.1.7.7.3 Current Business - Balance

This report displays values related to current business Balances like Beginning balance, ending balance, Average balance etc.

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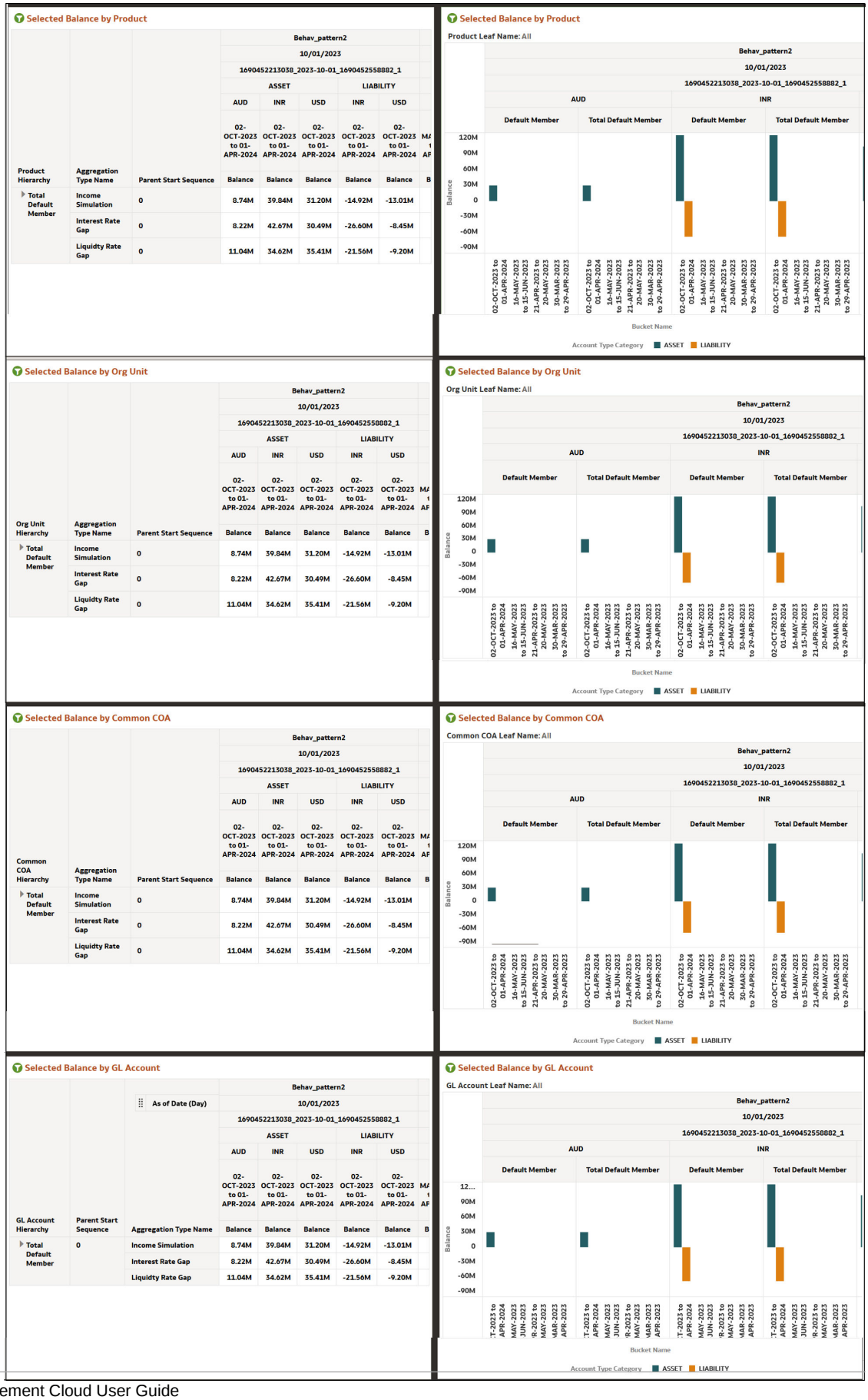
Figure 8-216 Current Business - Balance



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8.1.7.7.4 Current Business – Rates

This report displays rates related to current business like Beginning rate, ending rate, Average rate etc.

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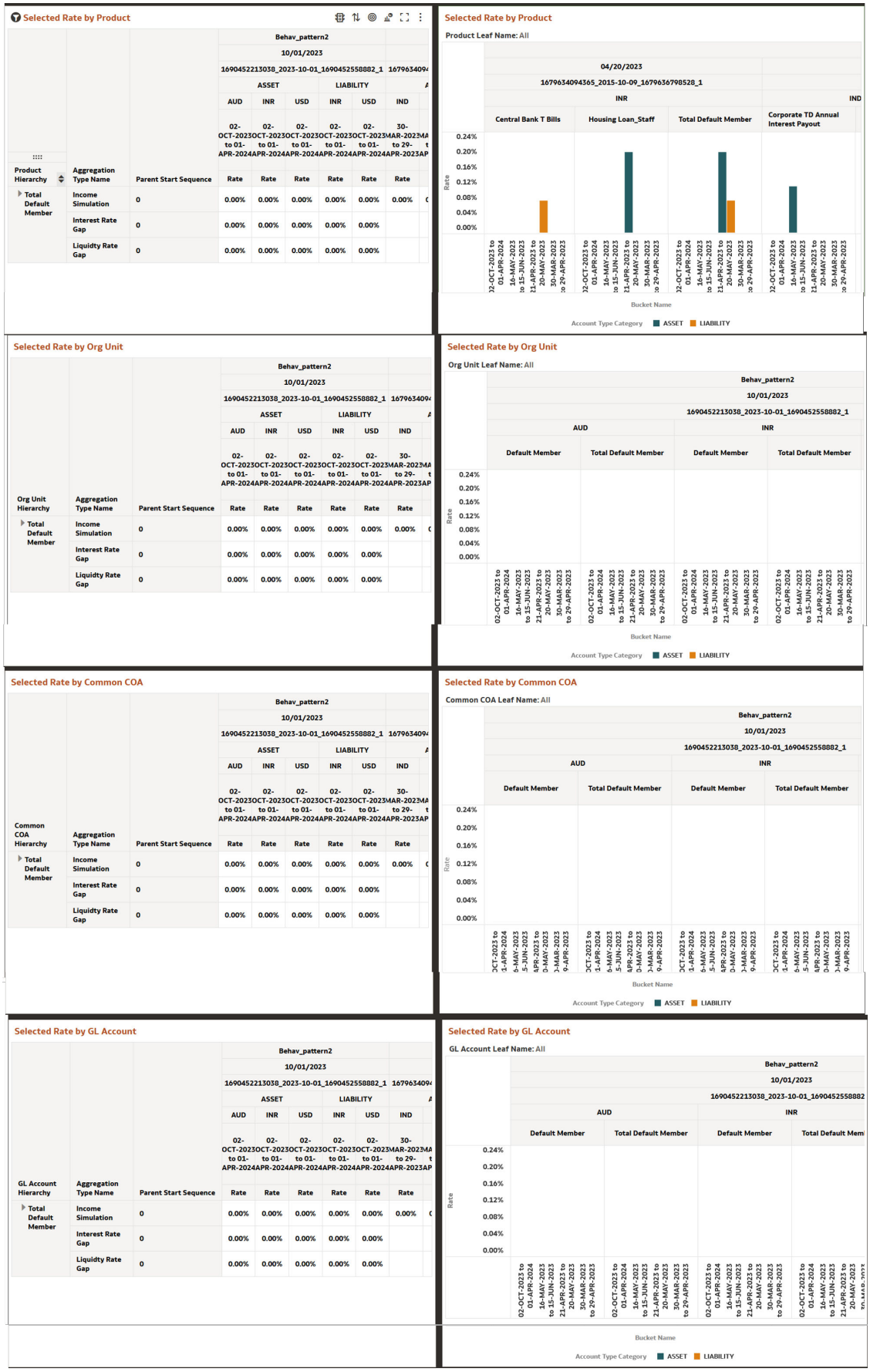
Figure 8-217 Current Business – Rates



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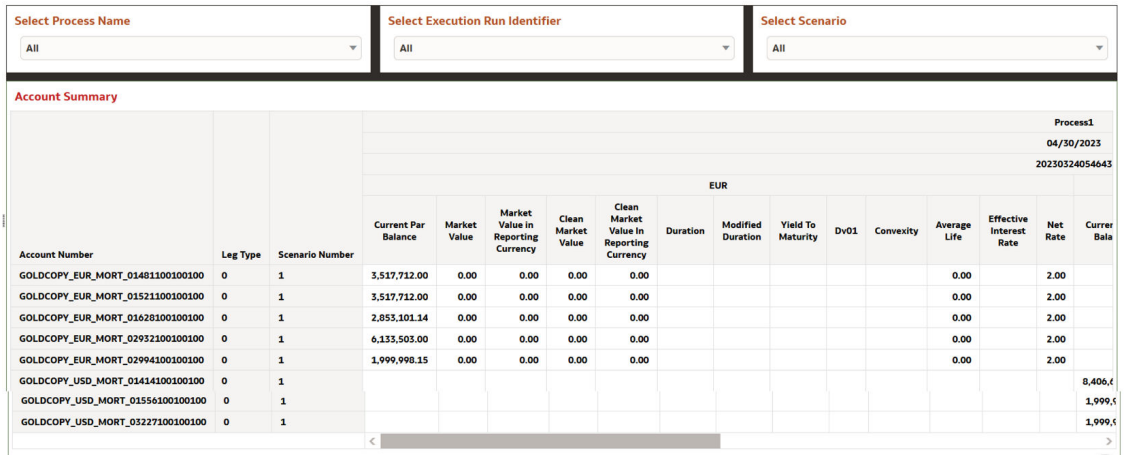
8.1.7.7.5 Account Summary

Within ALM BI, customer account-level data from both the OFSAA Staging Area and Instrument tables and consolidated into the standardized relational ALM BI data model. This consolidation is performed to organize all the relevant account-level data into a single Fact structure to be used for reporting.

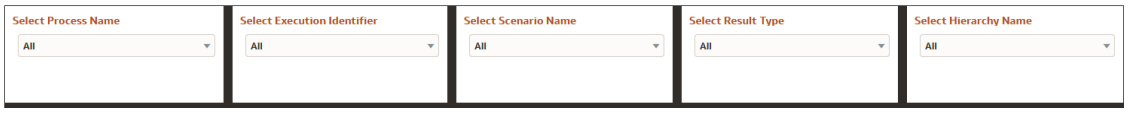
Figure 8-218 Account Summary



8.1.7.8 Market Value MDBSS

Market Value report displays the MDBSS members by Process Name, As of date, Execution Identifier, Scenario Name, Currency code, Result Type, Bucket Start Date. These Reports can be drilled down or rolled up for the user convenience.

Figure 8-219 Market Value MDBSS Filters



The list box filters are provided which the User can leverage to filter the Market Value report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Result Master Output processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:**

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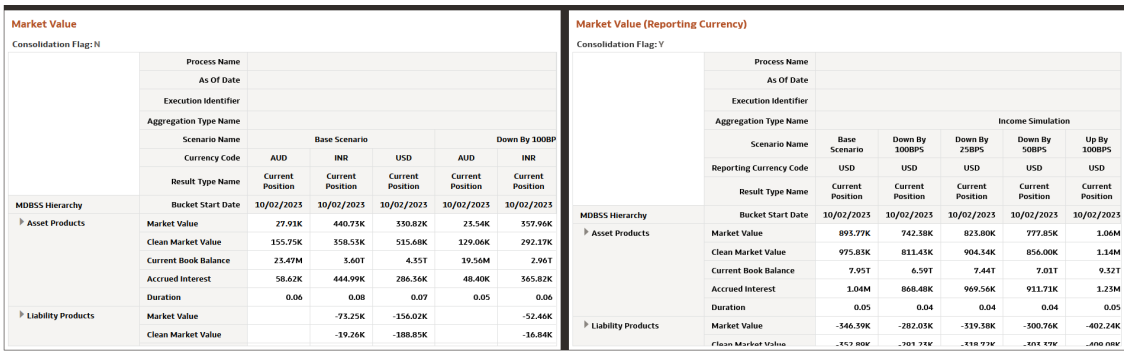
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

Figure 8-220 Market Value MDBSS Report



Market Value

Consolidation Flag: N

	Process Name					
	As Of Date					
	Execution Identifier					
	Aggregation Type Name					
	Scenario Name	Base Scenario			Down By 100BP	
	Currency Code	AUD	INR	USD	AUD	INR
	Result Type Name	Current Position	Current Position	Current Position	Current Position	Current Position
MDBSS Hierarchy	Bucket Start Date	10/02/2023	10/02/2023	10/02/2023	10/02/2023	10/02/2023
Asset Products	Market Value	27.91K	440.75K	330.82K	23.54K	357.96K
	Clean Market Value	155.75K	358.53K	515.68K	129.06K	292.17K
	Current Book Balance	23.47M	3.60T	4.35T	19.56M	2.96T
	Accrued Interest	58.62K	444.99K	286.36K	48.40K	365.82K
	Duration	0.06	0.08	0.07	0.05	0.06
Liability Products	Market Value		-73.25K	-156.02K		-52.46K
	Clean Market Value		-19.26K	-188.85K		-16.84K

Market Value (Reporting Currency)

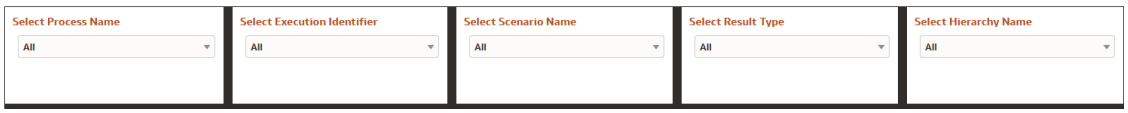
Consolidation Flag: Y

	Process Name					
	As Of Date					
	Execution Identifier					
	Aggregation Type Name	Income Simulation				
	Scenario Name	Base Scenario	Down By 100BPS	Down By 25BPS	Down By 50BPS	Up By 100BPS
	Reporting Currency Code	USD	USD	USD	USD	USD
	Result Type Name	Current Position	Current Position	Current Position	Current Position	Current Position
MDBSS Hierarchy	Bucket Start Date	10/02/2023	10/02/2023	10/02/2023	10/02/2023	10/02/2023
Asset Products	Market Value	893.77K	742.58K	823.80K	777.85K	1.06M
	Clean Market Value	975.83K	811.43K	904.34K	856.00K	1.14M
	Current Book Balance	7.95T	6.59T	7.44T	7.01T	9.32T
	Accrued Interest	1.04M	868.48K	969.56K	911.71K	1.23M
	Duration	0.05	0.04	0.04	0.04	0.05
Liability Products	Market Value	-346.39K	-282.03K	-319.58K	-300.76K	-402.24K
	Clean Market Value	-352.89K	-291.23K	-328.72K	-301.39K	-409.98K

8.1.7.8.1 Market Value MDBSS (Duration)

Duration report displays the MDBSS members by Process Name, As of date, Execution Identifier, Scenario Name, Currency code, Result Type, Bucket Start Date. These Reports can be drilled down or rolled up for the user convenience.

Figure 8-221 Market Value MDBSS Filters



The list box filters are provided which the User can leverage to filter the Market Value report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Result Master Output processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:**
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

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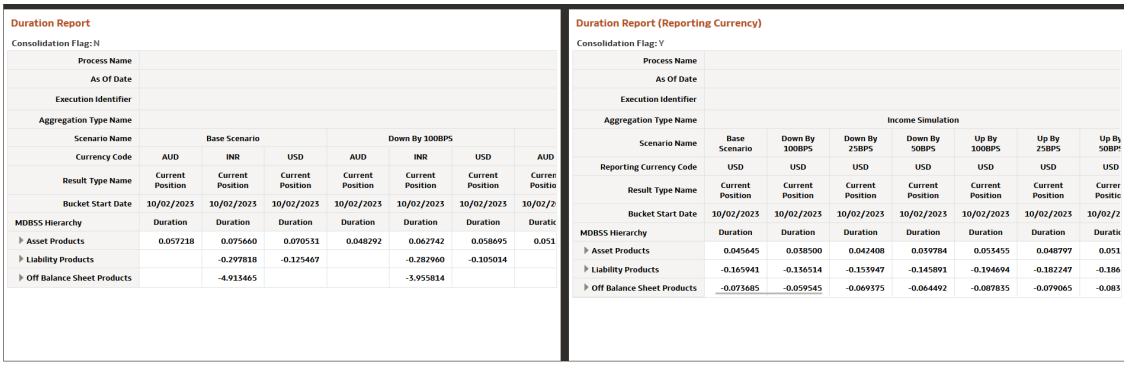
Figure 8-222 Market Value MDBSS (Duration) Report



Duration Report

Consolidation Flag: N

Process Name							
As Of Date							
Execution Identifier							
Aggregation Type Name							
Scenario Name	Base Scenario			Down By 100BPS			
Currency Code	AUD	INR	USD	AUD	INR	USD	AUD
Result Type Name	Current Position	Current Position	Current Position	Current Position	Current Position	Current Position	Current Positio
Bucket Start Date	10/02/2023	10/02/2023	10/02/2023	10/02/2023	10/02/2023	10/02/2023	10/02/2
MDBSS Hierarchy	Duration	Duration	Duration	Duration	Duration	Duration	Duratic
Asset Products	0.057218	0.075660	0.070531	0.048292	0.062742	0.058695	0.051
Liability Products		-0.297818	-0.125467		-0.282960	-0.105014	
Off Balance Sheet Products		-4.913465			-3.955814		

Duration Report (Reporting Currency)

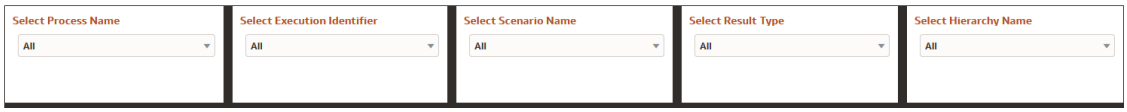
Consolidation Flag: Y

Process Name							
As Of Date							
Execution Identifier							
Aggregation Type Name	Income Simulation						
Scenario Name	Base Scenario	Down By 100BPS	Down By 25BPS	Down By 50BPS	Up By 100BPS	Up By 25BPS	Up By 50BP
Reporting Currency Code	USD	USD	USD	USD	USD	USD	USD
Result Type Name	Current Position	Current Position	Current Position	Current Position	Current Position	Current Position	Currer Positic
Bucket Start Date	10/02/2023	10/02/2023	10/02/2023	10/02/2023	10/02/2023	10/02/2023	10/02/2
MDBSS Hierarchy	Duration	Duration	Duration	Duration	Duration	Duration	Duratic
Asset Products	0.045645	0.038500	0.042408	0.039784	0.053455	0.048797	0.051
Liability Products	-0.165941	-0.136514	-0.153947	-0.145891	-0.194694	-0.182247	-0.186
Off Balance Sheet Products	-0.073685	-0.059545	-0.069375	-0.064492	-0.087835	-0.079065	-0.083

8.1.7.8.2 Market Value MDBSS (Coupon & Yield)

Coupon & Yield report displays the MDBSS members by Process Name, As of date, Execution Identifier, Scenario Name, Currency code, Result Type, Bucket Start Date. These Reports can be drilled down or rolled up for the user convenience.

Figure 8-223 Market Value MDBSS Filters



The list box filters are provided which the User can leverage to filter the Market Value report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Result Master Output processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:**
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

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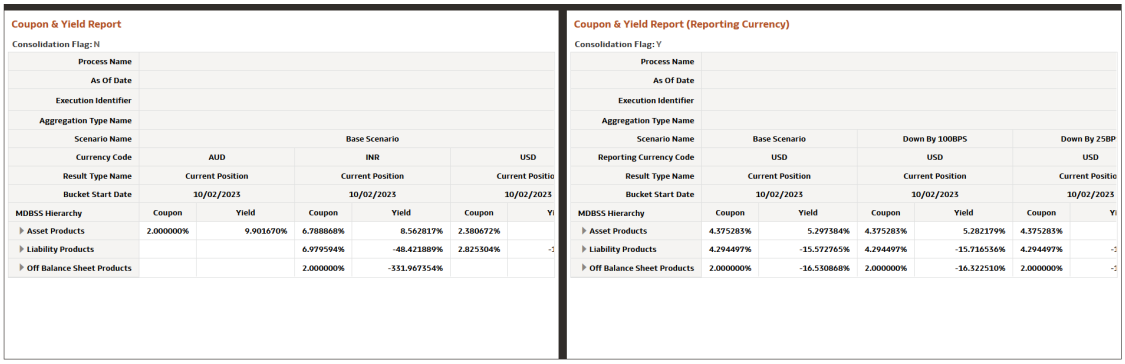
Figure 8-224 Market Value MDBSS (Coupon & Yield) Report



Coupon & Yield Report

Consolidation Flag: N

Process Name						
As Of Date						
Execution Identifier						
Aggregation Type Name						
Scenario Name	Base Scenario					
Currency Code	AUD		INR		USD	
Result Type Name	Current Position		Current Position		Current Positio	
Bucket Start Date	10/02/2023		10/02/2023		10/02/2023	
MDBSS Hierarchy	Coupon	Yield	Coupon	Yield	Coupon	Yi
Asset Products	2.000000%	9.901670%	6.788868%	8.562817%	2.380672%	
Liability Products			6.979594%	-48.421889%	2.825304%	-:
Off Balance Sheet Products			2.000000%	-331.967354%		

Coupon & Yield Report (Reporting Currency)

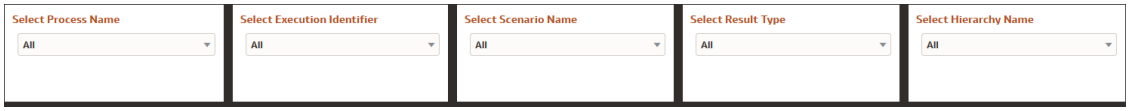
Consolidation Flag: Y

Process Name						
As Of Date						
Execution Identifier						
Aggregation Type Name						
Scenario Name	Base Scenario		Down By 100BPS		Down By 25BP	
Reporting Currency Code	USD		USD		USD	
Result Type Name	Current Position		Current Position		Current Positio	
Bucket Start Date	10/02/2023		10/02/2023		10/02/2023	
MDBSS Hierarchy	Coupon	Yield	Coupon	Yield	Coupon	Yi
Asset Products	4.375283%	5.297384%	4.375283%	5.282179%	4.375283%	
Liability Products	4.294497%	-15.572765%	4.294497%	-15.716536%	4.294497%	-:
Off Balance Sheet Products	2.000000%	-16.530868%	2.000000%	-16.322510%	2.000000%	-:

8.1.7.8.3 Market Value MDBSS (Delta Report)

Delta report displays the comparison between Scenarios for Income Simulation and Interest Rate Gap. Scenario 1 is used as the base Scenario for comparison. The Delta report shows for Base Currency and Reporting Currency. This report shows data for Financial Elements: Market Value, Static Market Value- Clean, Book Balance, Static Accrued Interest Balances, and Duration. This shows the MDBSS hierarchies by as of date,Currency code, Bucket Name, Aggregation Type Name. These Reports can be drilled down or rolled up for the user convenience. These reports display the actual values as 0 and variation in %. Actual values will display as 0.00000% (5 decimal places). Percentage Calculation = variance / Actual value of scenario 1.

Figure 8-225 Market Value MDBSS Filters



The list box filters are provided which the User can leverage to filter the Market Value report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Result Master Output processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type**: The List box filter provides you with a selection capability on the desired Result Type by the Financial Results Output processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter,Result Type.

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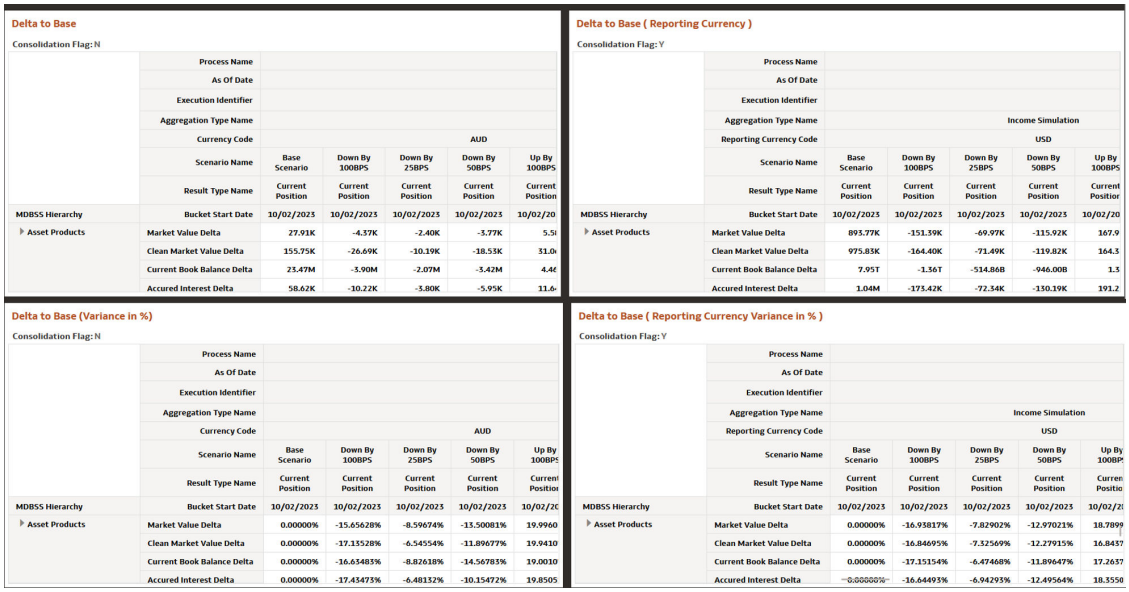
Figure 8-226 Market Value MDBSS (Delta) Report



8.1.7.8.4 Market Value MDBSS (Balance Sheet Report)

This report shows data for Financial Elements: Market Value, Current Par Balance, Current Book Balance, Net Rate, Yield To Maturity, DV01, and Duration. This shows the MDBSS hierarchies by as of date, Currency code, Bucket Name, Aggregation Type Name. These Reports can be drilled down or rolled up for the user convenience.

Figure 8-227 Market Value - Balance Sheet Report Filters

The list box filters are provided which the User can leverage to filter the Market Value report based on selected values.

- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type**: The List box filter provides you with a selection capability on the desired Result Type by the Financial Results Output processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Result Master Output processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter,Result Type.

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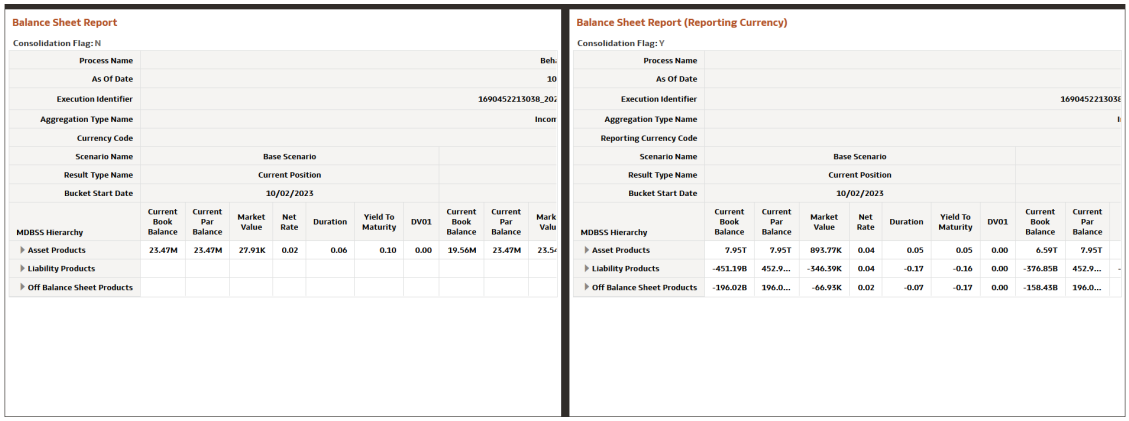
Figure 8-228 Market Value MDBSS (Balance Sheet Report)



Balance Sheet Report

Consolidation Flag: N

Process Name	Beh
As Of Date	10
Execution Identifier	1690452213038_20
Aggregation Type Name	Incon
Currency Code	
Scenario Name	Base Scenario
Result Type Name	Current Position
Bucket Start Date	10/02/2023

MDBSS Hierarchy	Current Book Balance	Current Par Balance	Market Value	Net Rate	Duration	Yield To Maturity	DV01	Current Book Balance	Current Par Balance	Mark Valu
Asset Products	23.47M	23.47M	27.91K	0.02	0.06	0.10	0.00	19.56M	23.47M	23.5
Liability Products										
Off Balance Sheet Products										

Balance Sheet Report (Reporting Currency)

Consolidation Flag: Y

Process Name	
As Of Date	
Execution Identifier	1690452213038
Aggregation Type Name	I
Reporting Currency Code	
Scenario Name	Base Scenario
Result Type Name	Current Position
Bucket Start Date	10/02/2023

MDBSS Hierarchy	Current Book Balance	Current Par Balance	Market Value	Net Rate	Duration	Yield To Maturity	DV01	Current Book Balance	Current Par Balance
Asset Products	7.95T	7.95T	893.77K	0.04	0.05	0.05	0.00	6.59T	7.95T
Liability Products	-451.19B	452.9...	-346.59K	0.04	-0.17	-0.16	0.00	-576.85B	452.9...
Off Balance Sheet Products	-196.02B	196.0...	-66.95K	0.02	-0.07	-0.17	0.00	-158.43B	196.0...

8.1.7.9 Cash flow Detail

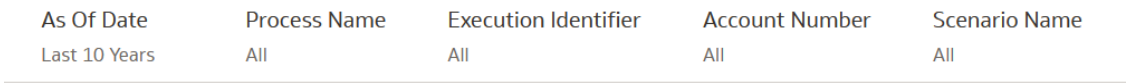
This report displays the results from the detail cash flow - audit table.

- Detailed Cashflow

8.1.7.9.1 Common filters

You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

Figure 8-229 Canvas Prompt Filters for Time Dimension



As Of Date	Process Name	Execution Identifier	Account Number	Scenario Name
Last 10 Years	All	All	All	All

- **As of Date:** The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

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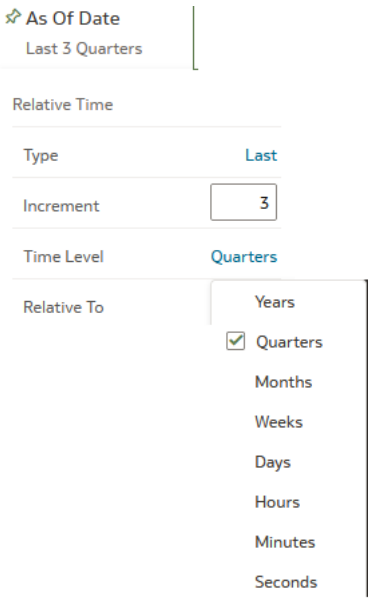
Figure 8-230 As of Date Selection



  - Additional Filters for the Time Dimension as follows:
  - As of Date (Quarter)
  - As of Date (Month)
  - As of Date (Day)
- **Process Name:** You can use this filter to select a specific Process Name to be applied to the Detailed Cashflow Process execution data. The Default value of this filter is set to N.
- **Execution Identifier:** You can use this filter to select a specific Execution Identifier to be applied to the Detailed Cashflow Process execution data.
- **Account Number:** You can use this filter to select a specific Account Number to be applied to the Detailed Cashflow Process execution data.
- **Scenario Name:** You can use this filter to select a specific Scenario Name to be applied to the Detailed Cashflow Process execution data.

8.1.7.9.2 Detailed Cashflow

This report contains account level detailed cash flow information for the number of instrument records selected on the Audit block of the ALM Process. Each instrument record is processed and generates a unique set of cash flows as defined by that instrument record's will be displayed in the below format as output.

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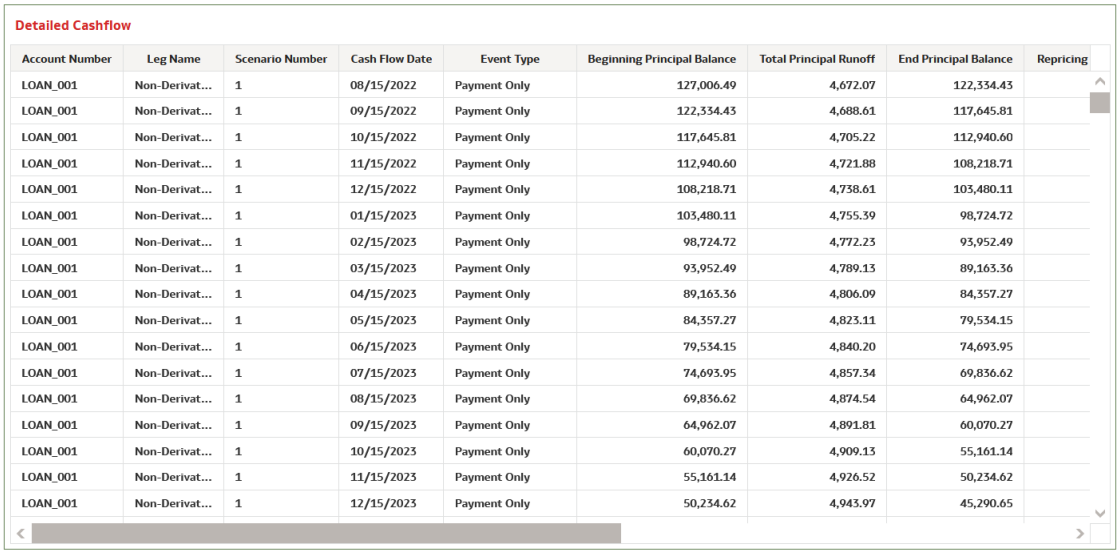
Figure 8-231 Detailed Cashflow



Detailed Cashflow

Account Number	Leg Name	Scenario Number	Cash Flow Date	Event Type	Beginning Principal Balance	Total Principal Runoff	End Principal Balance	Repricing
LOAN_001	Non-Derivat...	1	08/15/2022	Payment Only	127,006.49	4,672.07	122,334.43	
LOAN_001	Non-Derivat...	1	09/15/2022	Payment Only	122,334.43	4,688.61	117,645.81	
LOAN_001	Non-Derivat...	1	10/15/2022	Payment Only	117,645.81	4,705.22	112,940.60	
LOAN_001	Non-Derivat...	1	11/15/2022	Payment Only	112,940.60	4,721.88	108,218.71	
LOAN_001	Non-Derivat...	1	12/15/2022	Payment Only	108,218.71	4,738.61	103,480.11	
LOAN_001	Non-Derivat...	1	01/15/2023	Payment Only	103,480.11	4,755.39	98,724.72	
LOAN_001	Non-Derivat...	1	02/15/2023	Payment Only	98,724.72	4,772.23	93,952.49	
LOAN_001	Non-Derivat...	1	03/15/2023	Payment Only	93,952.49	4,789.13	89,163.36	
LOAN_001	Non-Derivat...	1	04/15/2023	Payment Only	89,163.36	4,806.09	84,357.27	
LOAN_001	Non-Derivat...	1	05/15/2023	Payment Only	84,357.27	4,823.11	79,534.15	
LOAN_001	Non-Derivat...	1	06/15/2023	Payment Only	79,534.15	4,840.20	74,693.95	
LOAN_001	Non-Derivat...	1	07/15/2023	Payment Only	74,693.95	4,857.34	69,836.62	
LOAN_001	Non-Derivat...	1	08/15/2023	Payment Only	69,836.62	4,874.54	64,962.07	
LOAN_001	Non-Derivat...	1	09/15/2023	Payment Only	64,962.07	4,891.81	60,070.27	
LOAN_001	Non-Derivat...	1	10/15/2023	Payment Only	60,070.27	4,909.13	55,161.14	
LOAN_001	Non-Derivat...	1	11/15/2023	Payment Only	55,161.14	4,926.52	50,234.62	
LOAN_001	Non-Derivat...	1	12/15/2023	Payment Only	50,234.62	4,943.97	45,290.65	

8.1.7.10 Balance Sheet

The Balance Sheet dashboard presents the projected balance sheet statement.

The Balance Sheet is arranged as a set of reports catering to analysis of the following categories:

- Balance Sheet Static
- Balance Sheet Variance

8.1.7.10.1 Balance Sheet Static

Balance Sheet Static report displays the MDBSS members by Process Name, As of date, Execution Identifier, Scenario Name, Currency code, Result Type, Bucket Start Date. These Reports can be drilled down or rolled up for the user convenience.

Figure 8-232 Balance Sheet Static Filters

The list box filters are provided which the User can leverage to filter the Balance Sheet Static report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Balance Sheet Static processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Balance Sheet Static processes. This filter is dependent on the values selected in the Process Name filter.

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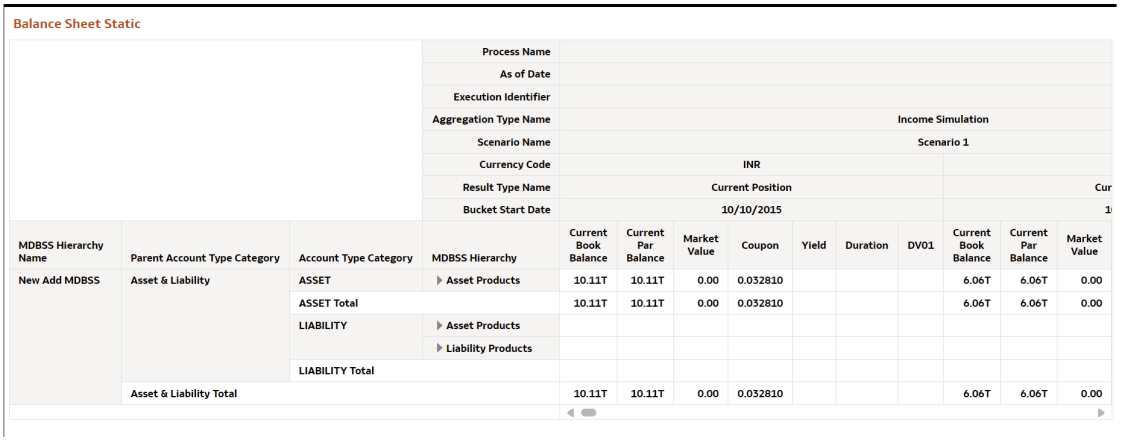
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Balance Sheet Static processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:** The List box filter provides you with a selection capability on the desired Result Type by the Balance Sheet Static processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Balance Sheet Static processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

Figure 8-233 Balance Sheet Static Report



Balance Sheet Static

			Process Name											
			As of Date											
			Execution Identifier											
			Aggregation Type Name	Income Simulation										
			Scenario Name	Scenario 1										
			Currency Code	INR										
			Result Type Name	Current Position							Cur			
			Bucket Start Date	10/10/2015							1			
MDBSS Hierarchy Name	Parent Account Type Category	Account Type Category	MDBSS Hierarchy	Current Book Balance	Current Par Balance	Market Value	Coupon	Yield	Duration	DV01	Current Book Balance	Current Par Balance	Market Value
New Add MDBSS	Asset & Liability	ASSET	Asset Products	10.11T	10.11T	0.00	0.032810				6.06T	6.06T	0.00
		ASSET Total		10.11T	10.11T	0.00	0.032810				6.06T	6.06T	0.00
		LIABILITY	Asset Products										
			Liability Products										
		LIABILITY Total											
	Asset & Liability Total			10.11T	10.11T	0.00	0.032810				6.06T	6.06T	0.00

8.1.7.10.2 Balance Sheet Variance

Balance Sheet Variance report displays the MDBSS members by Process Name, As of date, Execution Identifier, Scenario Name, Currency code, Result Type, Bucket Start Date. These Reports can be drilled down or rolled up for the user convenience.

Figure 8-234 Balance Sheet Variance Filters

The list box filters are provided which the User can leverage to filter the Balance Sheet Variance report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Balance Sheet Variance processes.
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Balance Sheet Variance processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Balance Sheet Variance processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:** The List box filter provides you with a selection capability on the desired Result Type by the Balance Sheet Variance processes.

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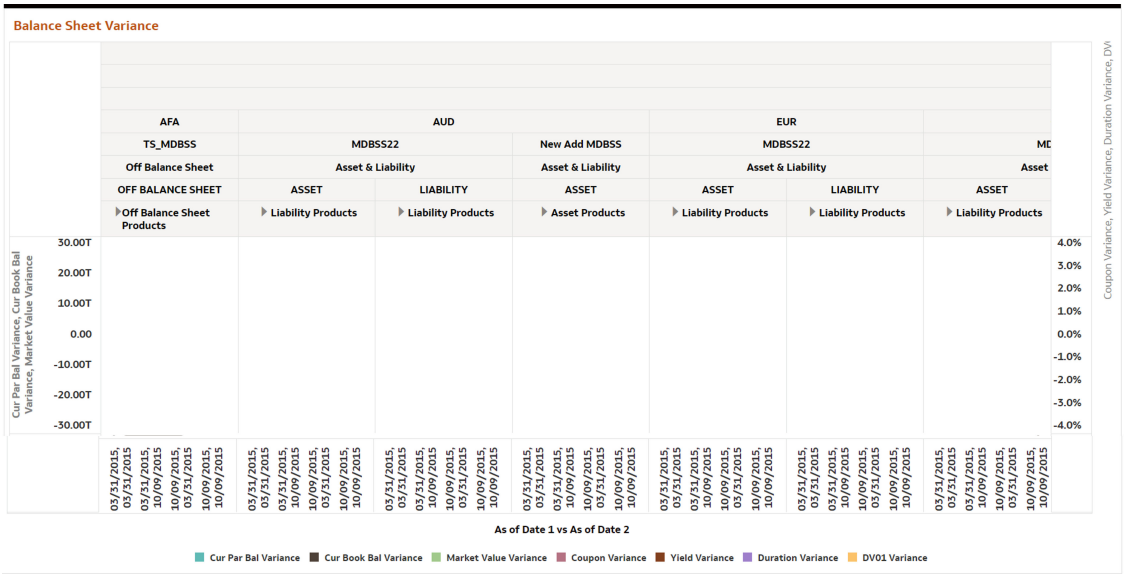
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Balance Sheet Variance processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

Figure 8-235 Balance Sheet Variance Report



8.1.7.11 Income Statement

The Income Statement dashboard presents the projected income and expense statement.

The Income Statement is arranged as a set of reports catering to analysis of the following categories:

- Income Statement Financial Results
- Income Statement Liquidity Risk

8.1.7.11.1 Income Statement Financial Results

This report displays the Interest Income/Expense, Average Balance & Rate, Balance & Market Value, and NII & NIM details. This shows the MDBSS hierarchies by as of date, Consolidation Flag, Currency code, Bucket Name. These Reports can be drilled down or rolled up for the user convenience.

Figure 8-236 Income Statement Financial Results Filters

The list box filters are provided which the User can leverage to filter the Income Statement Financial Results report based on selected values.

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Income Statement Financial Results processes.

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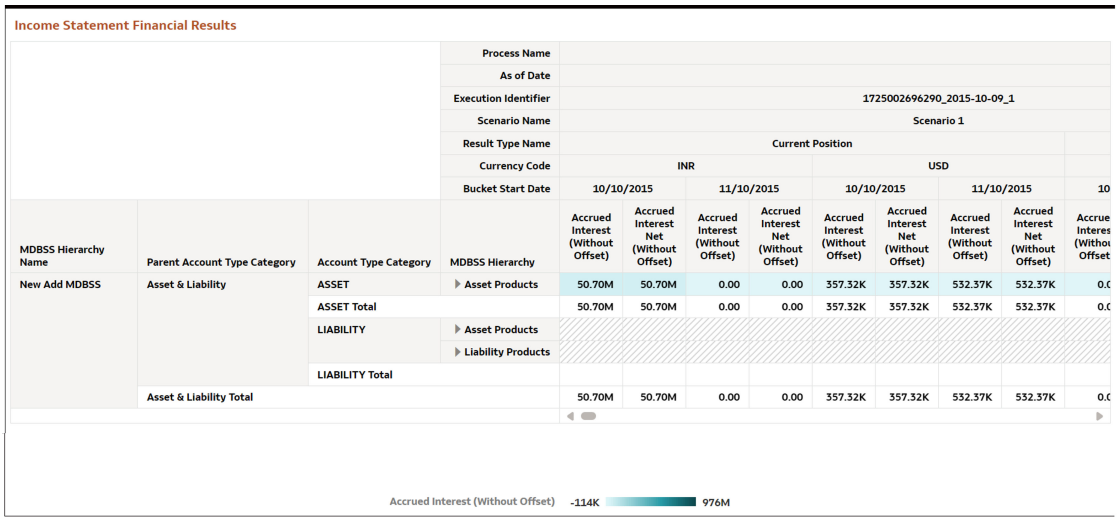
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Income Statement Financial Results processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Income Statement Financial Results processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:** The List box filter provides you with a selection capability on the desired Result Type by the Income Statement Financial Results processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Income Statement Financial Results processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

Figure 8-237 Income Statement Financial Results Report



8.1.7.11.2 Income Statement Liquidity Risk

Income Statement Liquidity Risk reports displays the MDBSS members by Process Name, As of date, Execution Identifier, Scenario Name, Currency code, Result Type, Bucket Start Date. These Reports can be drilled down or rolled up for the user convenience.

Below are the list box filters which the User can leverage to filter the Income Statement Liquidity Risk report based on selected values.

Figure 8-238 Income Statement Liquidity Risk Filters

- **Process Name:** The List box filter provides you with a selection capability on the desired Process Name utilized by the Income Statement Liquidity Risk processes.

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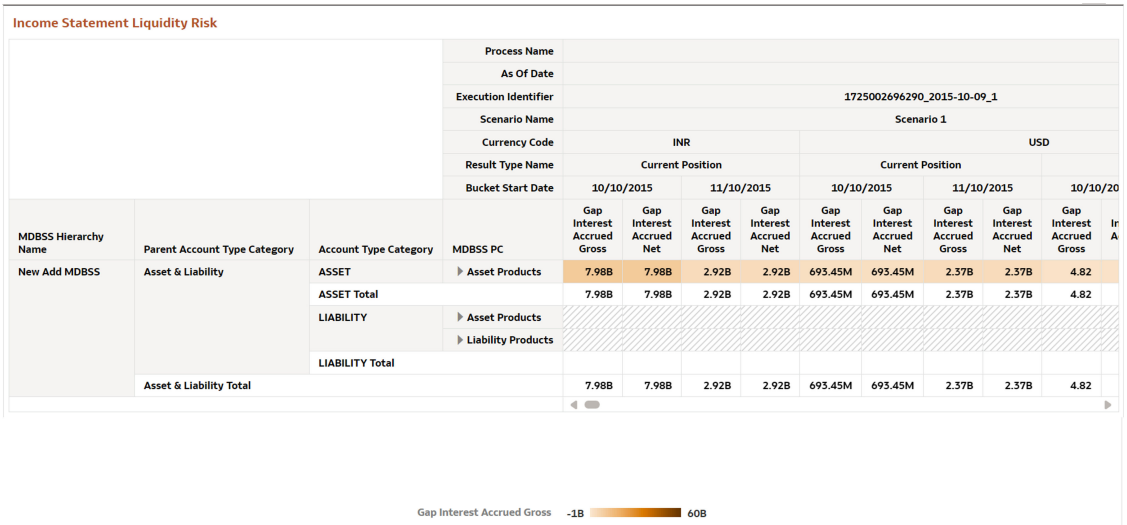
- **Execution Identifier:** The List box filter provides you with a selection capability on the desired Execution Identifier utilized by the Income Statement Liquidity Risk processes. This filter is dependent on the values selected in the Process Name filter.
- **Scenario Name:** The List box filter provides you with a selection capability on the desired Scenario utilized by the Income Statement Liquidity Risk processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter.
- **Result Type:** The List box filter provides you with a selection capability on the desired Result Type by the Income Statement Financial Results processes.
- **Hierarchy Name:** The List box filter provides you with a selection capability on the desired Hierarchy Name utilized by the Income Statement Liquidity Risk processes. This filter is dependent on the values selected in the Process Name, Execution Identifier filter, Result Type.

Figure 8-239 Income Statement Liquidity Risk



8.1.8 Rates and Markets

This report displays the IRC Name, IRC Term Point, Forecast Type, and Minimum Rate.

8.1.8.1 Forecast Interest Rates

Forecasting interest rates allows Banks to predict the movement of interest rates and inform regulatory bodies and investment managers accordingly. By having an informed prediction of the movement of interest rates, markets can preemptively adapt to changing conditions.

The Forecast Interest Rates dashboard is arranged as a set of reports catering to analysis of the following categories:

- “Interest Rates”
- “Implied Forward Coefficient”

8.1.8.1.1 Interest Rates

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Interest Rate Output results.

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The report displays the underlying data according to the following Chart' logic:

- **As of Date:**
  The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.
- **Select Process Name**
  The List box filter provides you with a selection capability on the desired Process Name utilized by the Interest Rate Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Execution Run Identifier**
  The List box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Interest Rate Output processes. This filter is dependent on the values selected in the Process Name filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Interest Rate Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Interest Rate Curve**
  The List box filter provides you with a selection capability on the desired Interest Rate Curve utilized by the Forecast Interest Rate Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Forecast Month**
  The List box filter provides you with a selection capability on the desired Forecast Month utilized by the Forecast Interest Rate Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.

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Figure 8-240 Interest Rates

8.1.8.1.2 Implied Forward Coefficient

Forecast interest rates based implied rate is an interest rate equal to the difference between the spot rate and the forward or futures rate.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Interest Rate Output results.

The report displays the underlying data according to the following Chart' logic:

- **As of Date:**
  The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.
- **Select Process Name**
  The List box filter provides you with a selection capability on the desired Process Name utilized by the Interest Rate Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Execution Run Identifier**
  The List box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Interest Rate Output processes. This filter is dependent on the

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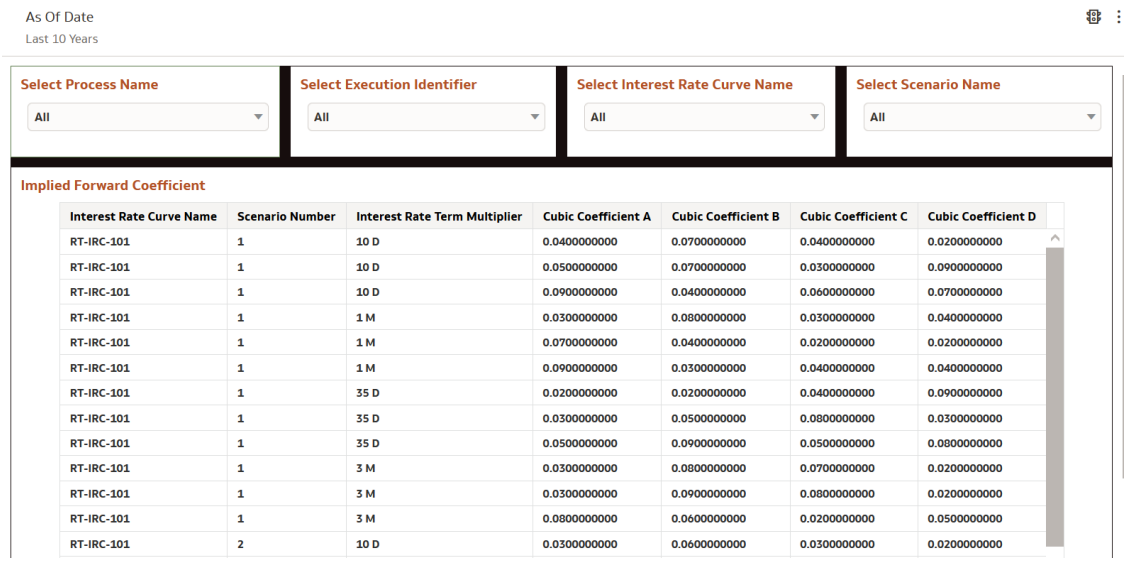
values selected in the Process Name filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.

- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Interest Rate Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.

Figure 8-241 Implied Forward Coefficient



Interest Rate Curve Name	Scenario Number	Interest Rate Term Multiplier	Cubic Coefficient A	Cubic Coefficient B	Cubic Coefficient C	Cubic Coefficient D
RT-IRC-101	1	10 D	0.0400000000	0.0700000000	0.0400000000	0.0200000000
RT-IRC-101	1	10 D	0.0500000000	0.0700000000	0.0300000000	0.0900000000
RT-IRC-101	1	10 D	0.0900000000	0.0400000000	0.0600000000	0.0700000000
RT-IRC-101	1	1 M	0.0300000000	0.0800000000	0.0300000000	0.0400000000
RT-IRC-101	1	1 M	0.0700000000	0.0400000000	0.0200000000	0.0200000000
RT-IRC-101	1	1 M	0.0900000000	0.0300000000	0.0400000000	0.0400000000
RT-IRC-101	1	35 D	0.0200000000	0.0200000000	0.0400000000	0.0900000000
RT-IRC-101	1	35 D	0.0300000000	0.0500000000	0.0800000000	0.0300000000
RT-IRC-101	1	35 D	0.0500000000	0.0900000000	0.0500000000	0.0800000000
RT-IRC-101	1	3 M	0.0300000000	0.0800000000	0.0700000000	0.0200000000
RT-IRC-101	1	3 M	0.0300000000	0.0900000000	0.0800000000	0.0200000000
RT-IRC-101	1	3 M	0.0800000000	0.0600000000	0.0200000000	0.0500000000
RT-IRC-101	2	10 D	0.0300000000	0.0600000000	0.0300000000	0.0200000000

8.1.8.2 Forecast Currency Rates

Liquidity risk is defined as the risk of incurring losses resulting from the inability to meet payment obligations in a timely manner when they become due or from being unable to do so at a sustainable cost.

The Forecast Interest Rates dashboard is arranged as a set of reports catering to analysis of the following categories:

- “Forecast Exchange Rate”
- “Historical Exchange Rate”

8.1.8.2.1 Forecast Exchange Rate

Forecast exchange rate are necessary to evaluate the cash flows involved as part of Forex risk which is one the key ALM pillars. Thus, exchange rate forecasting is very important to evaluate the benefits and risks attached to the international business environment.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Economic Indicator Output results.

The report displays the underlying data according to the following Chart’ logic:

- **As of Date:**

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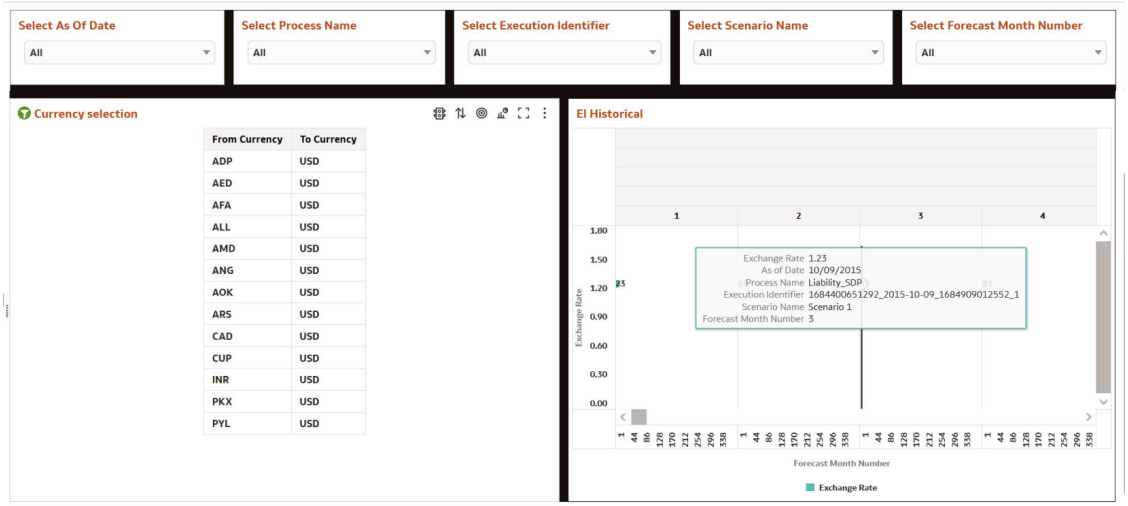
The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

- **Select Process Name**
  The List box filter provides you with a selection capability on the desired Process Name utilized by the Forecast Exchange Rate Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Execution Run Identifier**
  The List box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Forecast Exchange Rate Output processes. This filter is dependent on the values selected in the Process Name filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Forecast Exchange Rate Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Forecast Month**
  The List box filter provides you with a selection capability on the desired Forecast Month utilized by the Forecast Exchange Rate Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.

Figure 8-242 Forecast Exchange Rate



8.1.8.2.2 Historical Exchange Rate

This report compares the Historical Exchange Rate and Forecast Economic Indicators across time buckets.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Economic Indicator Output results.

The report displays the underlying data according to the following Chart' logic:

- **Select From Currency**

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The List box filter provides you with a selection capability on the desired From Currency utilized by the Historical Exchange Rate Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.

- **Select From Currency Name**
  The List box filter provides you with a selection capability on the desired From Currency Name utilized by the Historical Exchange Rate Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select To Currency**
  The List box filter provides you with a selection capability on the desired To Currency utilized by the Historical Exchange Rate Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select To Currency Name**
  The List box filter provides you with a selection capability on the desired To Currency Name utilized by the Historical Exchange Rate Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select From Date**
  The List box filter provides you with a selection capability on the desired From Date utilized by the Historical Exchange Rate Output processes. This filter is dependent on the values selected in the Process Name filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Description**
  The List box filter provides you with a selection capability on the desired Description utilized by the Historical Exchange Rate Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Conversion Type**
  The List box filter provides you with a selection capability on the desired Conversion Type utilized by the Historical Exchange Rate Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.

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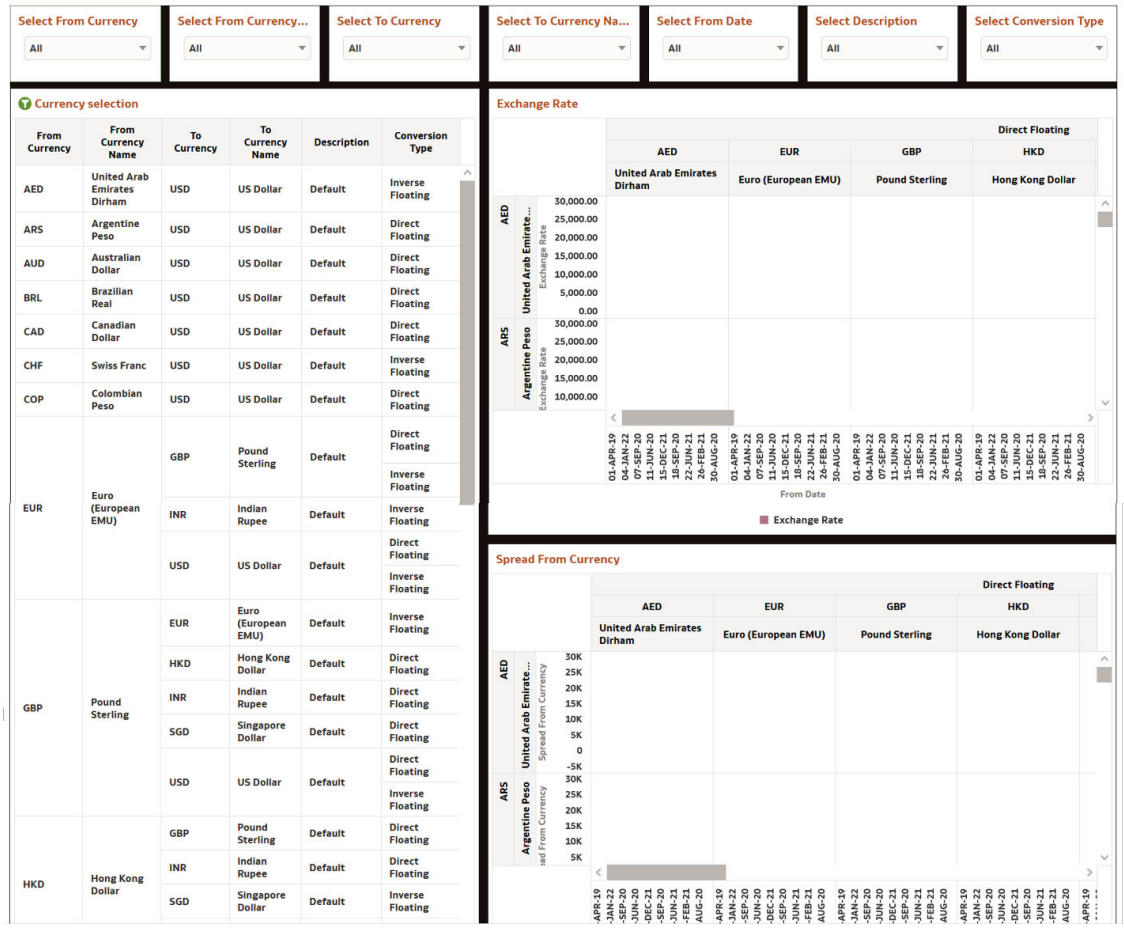
Figure 8-243 Historical Exchange Rate



8.1.8.3 Forecast Economic Indicator

Liquidity risk is defined as the risk of incurring losses resulting from the inability to meet payment obligations in a timely manner when they become due or from being unable to do so at a sustainable cost.

The Forecast Interest Rates dashboard is arranged as a set of reports catering to analysis of the following categories:

- “Historical”
- “Forecast”

8.1.8.3.1 Forecast Economic Indicator

Forecast Economic Indicators are used to predict when changes in the economic cycle may occur and predict other significant shifts in the economy

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Economic Indicator Output results.

The report displays the underlying data according to the following Chart’ logic:

- **As of Date**

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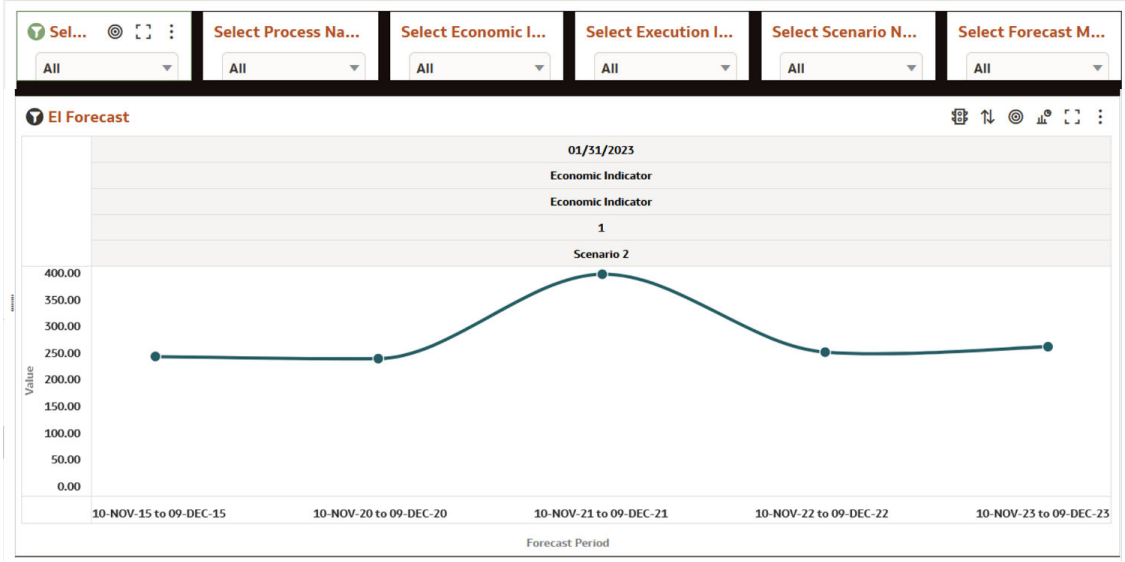
The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

- **Select Process Name**
  The List box filter provides you with a selection capability on the desired Process Name utilized by the Economic Indicator Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Economic Indicator**
  The List box filter provides you with a selection capability on the desired Economic Indicator Name utilized by the Economic Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Execution Run Identifier**
  The List box filter provides you with a selection capability on the desired Execution Run Identifier utilized by the Economic Indicator Output processes. This filter is dependent on the values selected in the Process Name filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Scenario**
  The List box filter provides you with a selection capability on the desired Scenario utilized by the Economic Indicator Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.
- **Select Forecast Month**
  The List box filter provides you with a selection capability on the desired Forecast Month utilized by the Economic Indicator Output processes. This filter is dependent on the values selected in the Process Name, Execution Run Identifier, and Scenario filter. This is a Single select filter, without any selection the reports will not fetch any meaningful results.

Figure 8-244 Forecast Economic Indicators



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8.1.8.3.2 Historical Economic Indicator

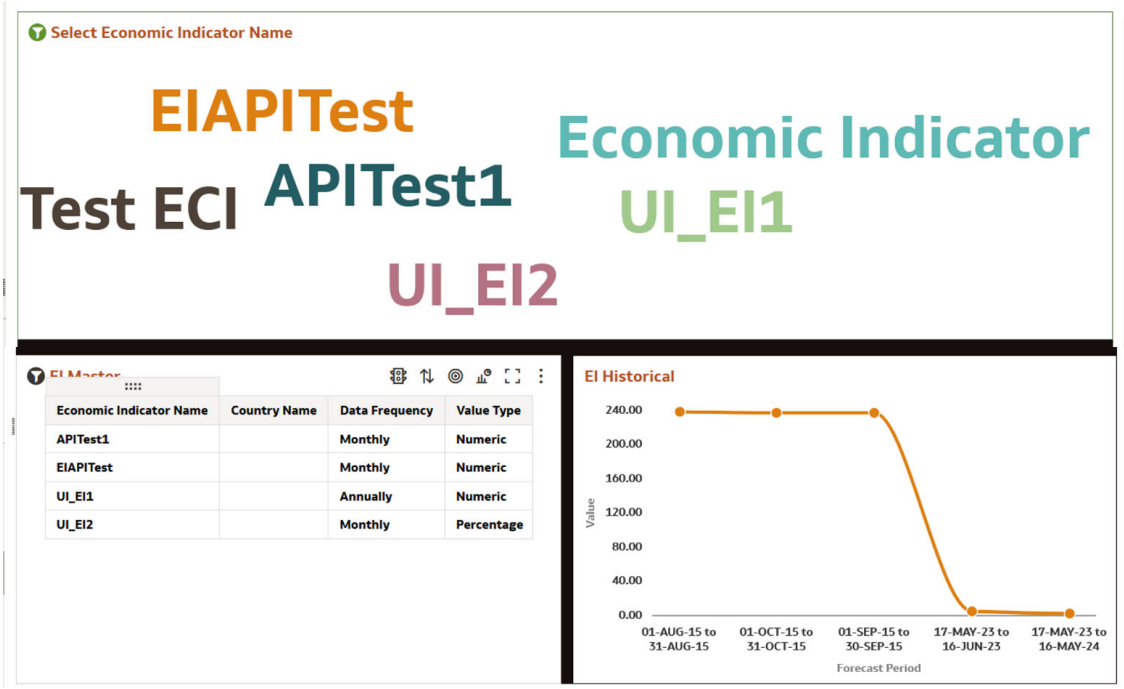
Historical economic indicator report shows macroeconomic to measure current performance and predictions of future performance to understand current and future economic activity and opportunity.

You can use a series of Report Prompts, as previously described, to filter the data according to key attributes pertaining to the underlying Economic Indicator Output results.

The report displays the underlying data according to the following Chart' logic:

Select Economic Indicator The List box filter provides you with a selection capability on the desired Economic Indicator Name utilized by the Economic Output processes. This is a Single select filter, without any selection the reports will not fetch any meaningful results.

Figure 8-245 Historical Economic Indicator



8.1.9 Process Error

This report displays the results from the Process Errors table

8.1.9.1 Process Error Account Details

This report allows users to see the process errors with their impact on account level details.

Figure 8-246 Canvas Prompt Filters for Time Dimension

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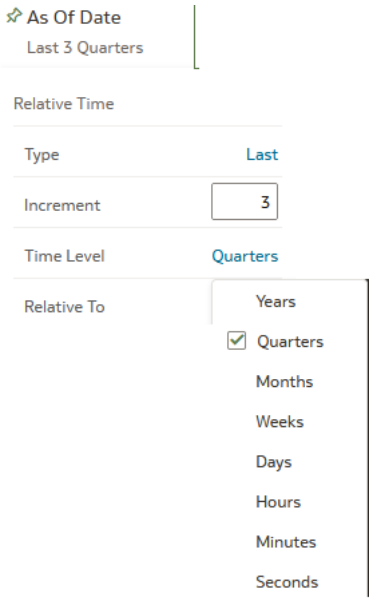
You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

- As of Date: The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

Figure 8-247 As of Date Selection



- Additional Filters for the Time Dimension as follows:
- As of Date (Quarter)
- As of Date (Month)
- As of Date (Day)
- **Leg Type:** You can use this filter to select a specific Leg Type to be applied to the Process Error execution data.
- **Process Name:** You can use this filter to select a specific Process Name to be applied to the Process Error execution data. The Default value of this filter is set to N.
- **Execution Identifier:** You can use this filter to select a specific Execution Identifier to be applied to the Process Error execution data.
- **Scenario Name:** You can use this filter to select a specific Scenario Name to be applied to the Process Error execution data.
- **Account Number:** You can use this filter to select a specific Account Number to be applied to the Process Error execution data

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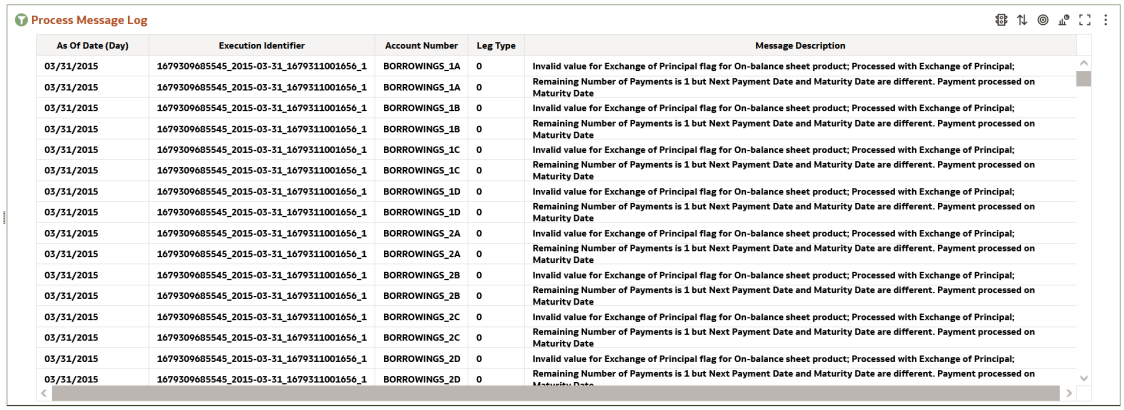
Figure 8-248 Report



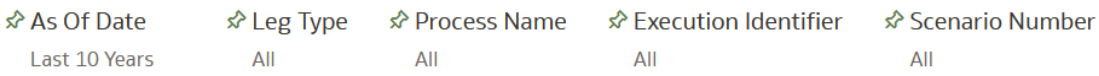
As Of Date (Day)	Execution Identifier	Account Number	Leg Type	Message Description
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_1A	0	Invalid value for Exchange of Principal flag for On-balance sheet product; Processed with Exchange of Principal;
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_1A	0	Remaining Number of Payments is 1 but Next Payment Date and Maturity Date are different. Payment processed on Maturity Date
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_1B	0	Invalid value for Exchange of Principal flag for On-balance sheet product; Processed with Exchange of Principal;
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_1B	0	Remaining Number of Payments is 1 but Next Payment Date and Maturity Date are different. Payment processed on Maturity Date
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_1C	0	Invalid value for Exchange of Principal flag for On-balance sheet product; Processed with Exchange of Principal;
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_1C	0	Remaining Number of Payments is 1 but Next Payment Date and Maturity Date are different. Payment processed on Maturity Date
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_1D	0	Invalid value for Exchange of Principal flag for On-balance sheet product; Processed with Exchange of Principal;
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_1D	0	Remaining Number of Payments is 1 but Next Payment Date and Maturity Date are different. Payment processed on Maturity Date
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_2A	0	Invalid value for Exchange of Principal flag for On-balance sheet product; Processed with Exchange of Principal;
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_2A	0	Remaining Number of Payments is 1 but Next Payment Date and Maturity Date are different. Payment processed on Maturity Date
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_2B	0	Invalid value for Exchange of Principal flag for On-balance sheet product; Processed with Exchange of Principal;
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_2B	0	Remaining Number of Payments is 1 but Next Payment Date and Maturity Date are different. Payment processed on Maturity Date
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_2C	0	Invalid value for Exchange of Principal flag for On-balance sheet product; Processed with Exchange of Principal;
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_2C	0	Remaining Number of Payments is 1 but Next Payment Date and Maturity Date are different. Payment processed on Maturity Date
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_2D	0	Invalid value for Exchange of Principal flag for On-balance sheet product; Processed with Exchange of Principal;
03/31/2015	1679309685545_2015-03-31_1679311001656_1	BORROWINGS_2D	0	Remaining Number of Payments is 1 but Next Payment Date and Maturity Date are different. Payment processed on

8.1.9.2 Process Error Summary

This report displays the summarized results of the Process Errors table.

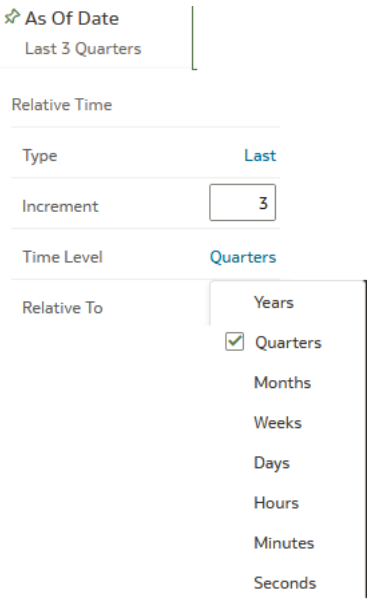
You can use a series of Report Prompts to filter the data according to Functional Key Attributes as described below:

Figure 8-249 Canvas Prompt Filters for Time Dimension



- As of Date: The Execution Period for the output results. You can use this filter to isolate a selected timeframe for the analysis. The following screenshot displays the possible options that this filter provides against the Time Dimension.

Figure 8-250 As of Date Selection



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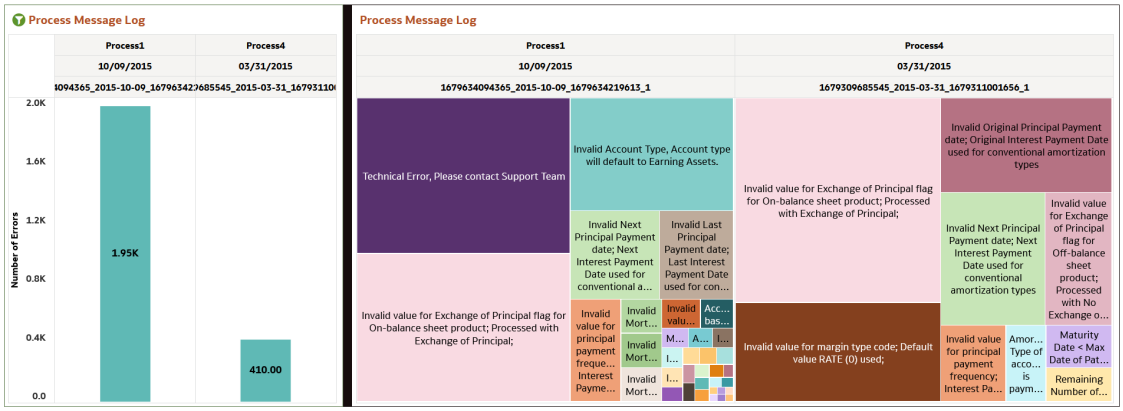
  - Additional Filters for the Time Dimension as follows:
  - As of Date (Quarter)
  - As of Date (Month)
  - As of Date (Day)
- **Leg Type:** You can use this filter to select a specific Leg Type to be applied to the Process Error execution data.
- **Process Name:** You can use this filter to select a specific Process Name to be applied to the Process Error execution data. The Default value of this filter is set to N.
- **Execution Identifier:** You can use this filter to select a specific Execution Identifier to be applied to the Process Error execution data.
- **Scenario Name:** You can use this filter to select a specific Scenario Name to be applied to the Process Error execution data.

Figure 8-251 Report



8.1.10 ALM Assumptions

The ALM Assumption option displays reports related to ALM assumption rules. Below is the list of ALM Assumptions:

- Patterns
- Forecast Rates
- Behavioral Assumptions
- Forcast Assumptions
- Process Definitions

8.1.10.1 Behavioral Assumptions

This section covers the following topics:

1. Prepayment Rules: This section shows the Prepayment reports. A Prepayment Rule contains methodologies to model the prepayment behavior of various amortizing instruments and quantify the associated Prepayment Risk.

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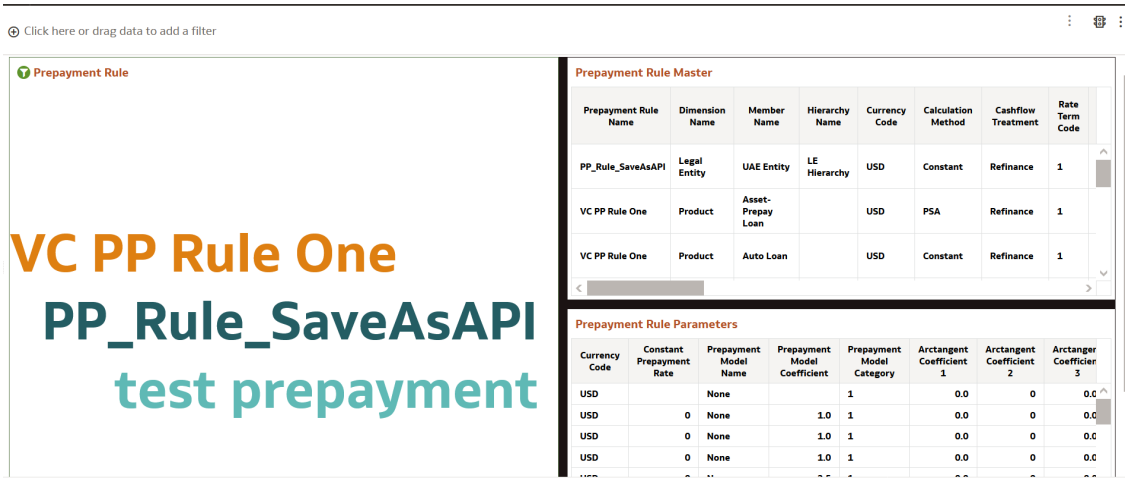
2. Prepayment Models: This section shows the Prepayment Model reports. Prepayment Models can be referenced by a Prepayment Rule to Model Prepayment Behavior of instruments based on a range of instrument level attributes.
3. Discount Methods: This section shows the Discount Method reports. Discount Method Rules allow users to define the method for discounting projected Cash Flows for market value and duration calculation purposes.

8.1.10.1.1 Prepayment Rule

This report displays the Prepayment rule defined as part of assumptions.

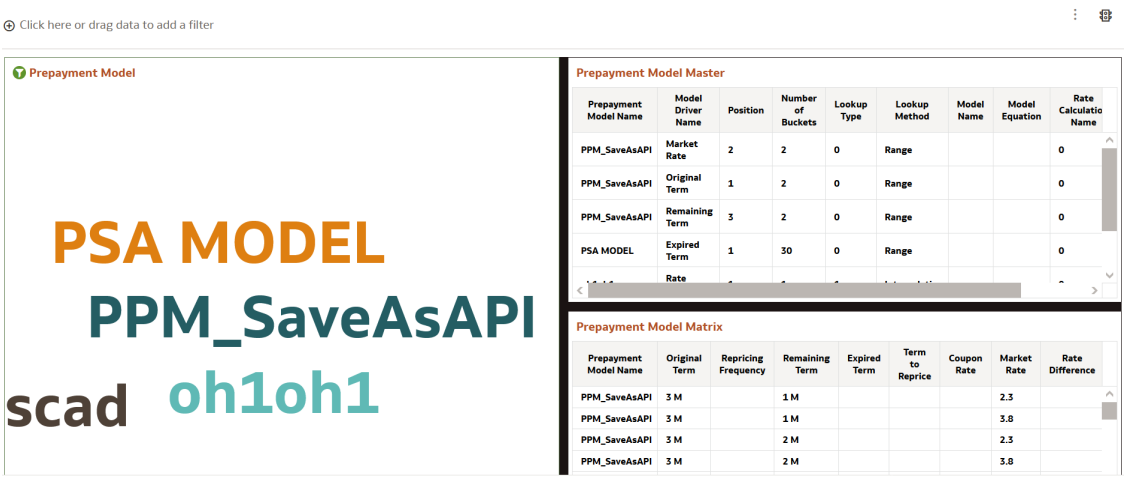
Figure 8-252 Prepayment Rule Report



8.1.10.1.2 Prepayment Model

This report displays the Prepayment Model assumptions.

Figure 8-253 Prepayment Model Report



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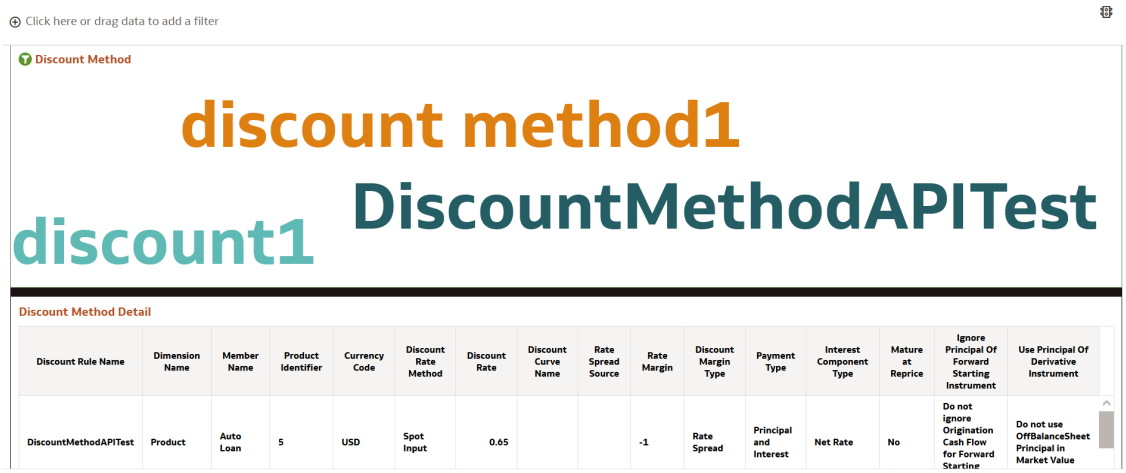
8.1.10.1.3 Discount Methods

Report displays the Discount Method assumptions

Figure 8-254 Discount Methods Report



8.1.10.2 Patterns

This section covers the following topics:

1. Behavior Pattern: User Defined Behavior pattern reports allow you to view Principal Amortization Schedule data for Non-Maturity Products in your portfolio.
2. Repricing Pattern: User Defined Repricing pattern reports show the Instrument Repricing Patterns that are too complex to be accommodated through the use of the Standard Account Table Fields.
3. Payment Pattern: User defined payment pattern reports show the custom repayment patterns for products in your portfolio.
4. Time Bucket: The section shows the Time Bucket reports. The Time Bucket Rules allow users to create the time bucket definitions used for computing and outputting aggregated cash flows across time. The Time Bucket Rules determine the granularity of cash flow output and can be set at any frequency through a combination of daily, monthly, and yearly buckets.

8.1.10.2.1 Behavior Pattern

This report displays the all behavior pattern rules configured in ALM.

- **Behavior Pattern Name:** You can use this filter to select a specific Behavior Pattern Name to be applied to the ALM Assumption data.
- **Behavior Rule Name:** You can use this filter to select a specific Behavior Rule Name to be applied to the ALM Assumption data.

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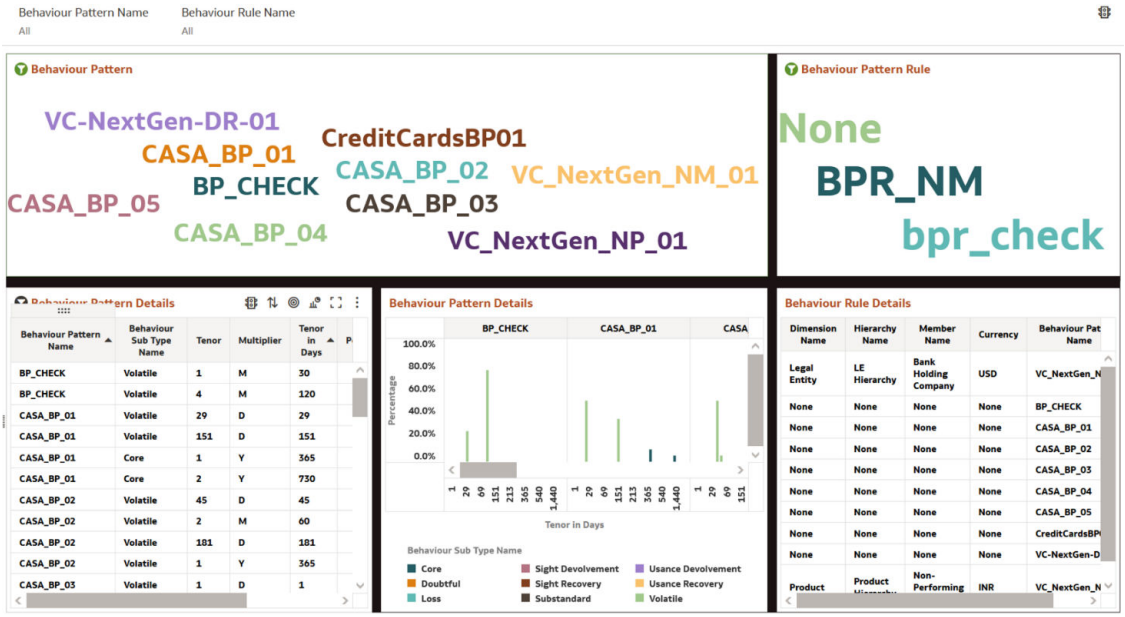
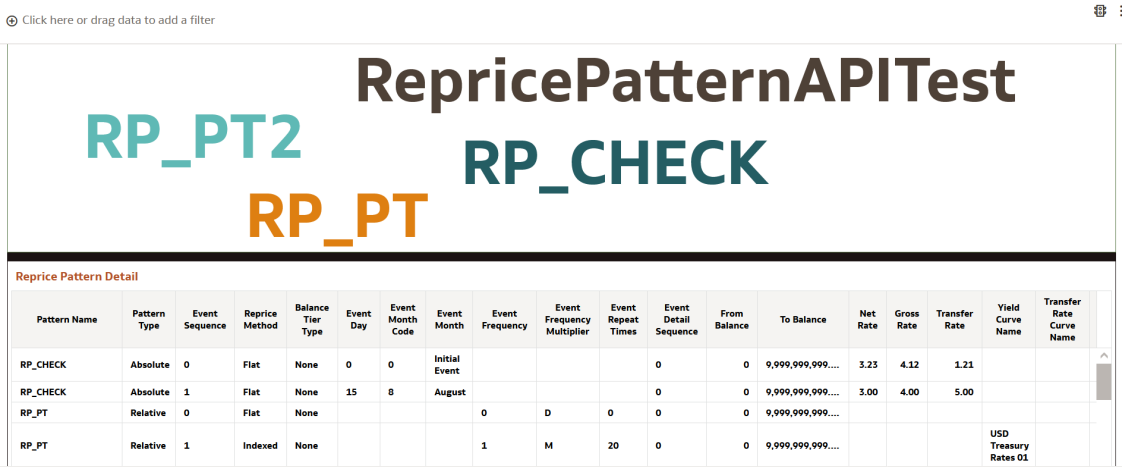
Figure 8-255 Behavior Pattern Report



8.1.10.2.2 Repricing Pattern

This report displays the all Repricing Pattern rules configured in ALM.

Figure 8-256 Repricing Pattern Report



8.1.10.2.3 Payment Pattern

This report displays the all payment pattern rules configured in ALM.

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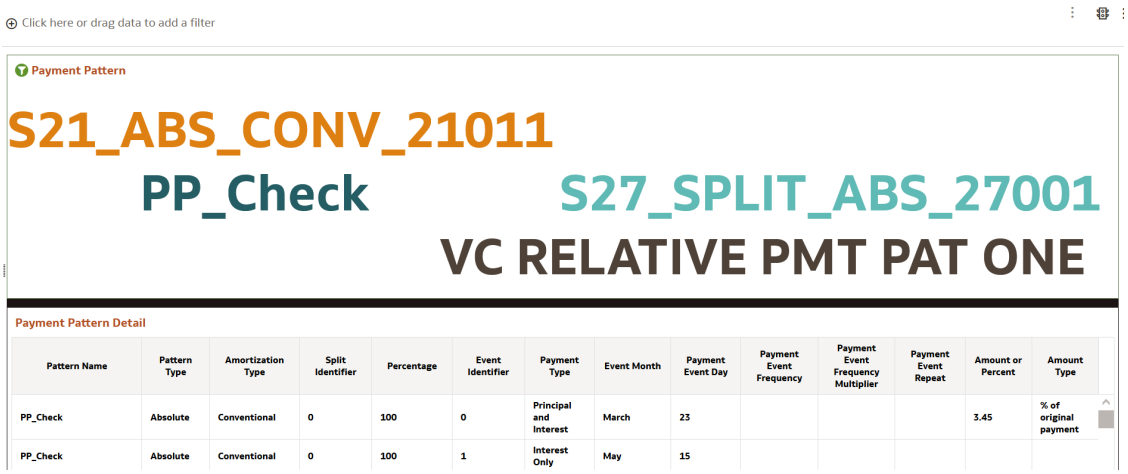
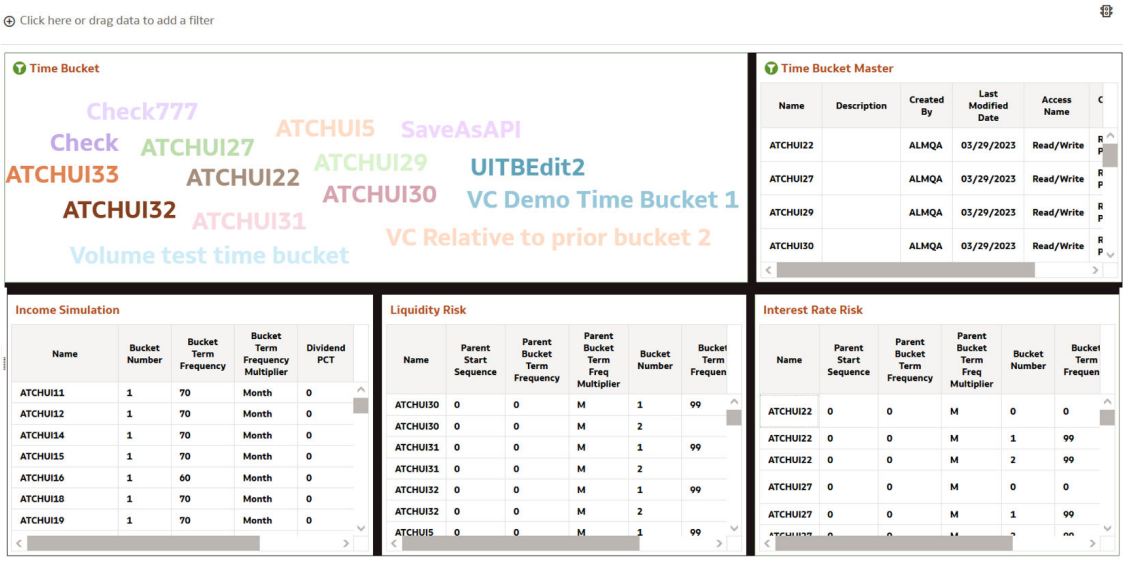
Figure 8-257 Payment Pattern Report



8.1.10.2.4 Time Bucket

This report displays the all Time Bucket definition configured like (Income simulation, LR, Repricing) for Static and Dynamic ALM process.

Figure 8-258 Time Bucket Report



8.1.10.3 Forecast Rates

This section covers the following topics:

1. Forecast Rates: This section allow you to view the reports on future interest rates, future economic indicators, and future currency exchange rates. Use interest rate forecasts to project cash flows, including pricing new business, re-pricing existing business, calculating prepayments, and determining discount methods. Use Economic Indicator forecasts to include in behavioral modeling and scenario/stress analysis. Use currency exchange rate forecasts to account for the effects of currency fluctuations on income.

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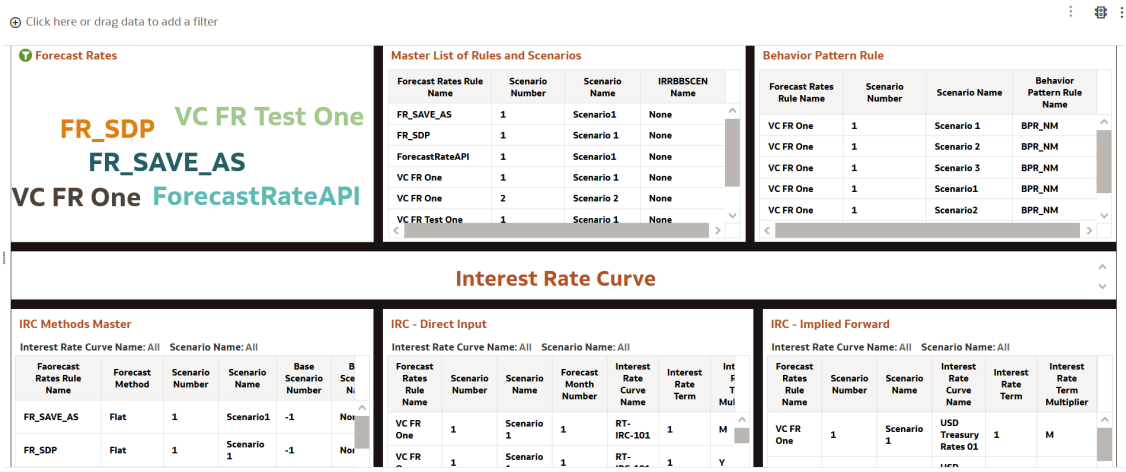
8.1.10.3.1 Forecast Rates

This report displays the IRC Name, IRC Term Point, Forecast Type, and Minimum Rate.

Figure 8-259 Forecast Rates Report



8.1.10.4 Forecast Assumptions

This section covers the following topics:

1. Product Characteristic: This section shows Product Characteristic reports. Product Characteristic Rules are used to define payment, pricing, and repricing characteristics for new business. These Product Characteristics are rules that are placed on MDBSS nodes to be used in Forecasting that instruct the Application on what key new business contractual and behavioral features are to be included, such as amortization, adjustable type, compounding, day count, and other key features.
2. Forecast Balance Rules: This section shows Forecast Balance reports. The Forecast Balance rules module discusses modeling of new business activity through the Forecast Balance rules. Included are assumption setup and processing. Within a Forecast Balance rule, you specify the amount of new activity generated per modeling bucket on each MDBSS node within each active currency. To create a new business assumption, you select from following available forecasting methods.

8.1.10.4.1 Product Characteristics

This canvas shows information related to Product Characteristic rules.

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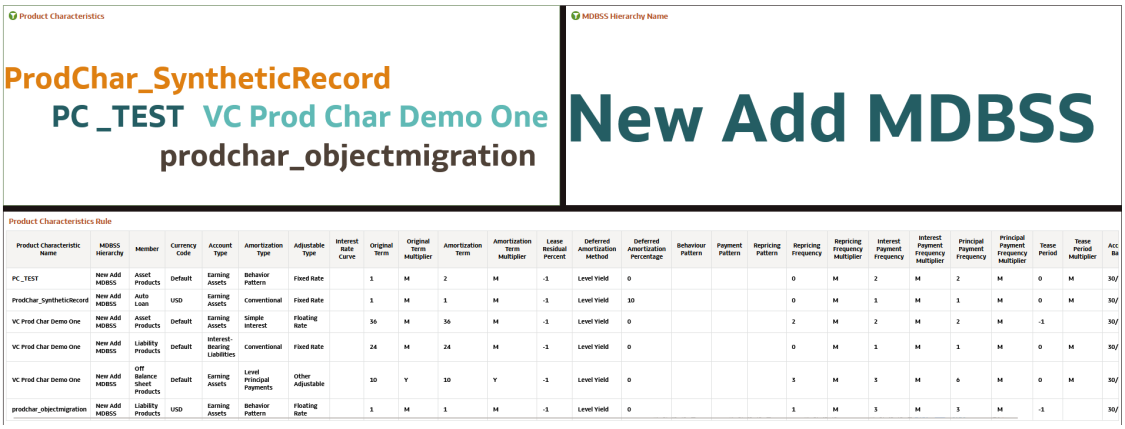
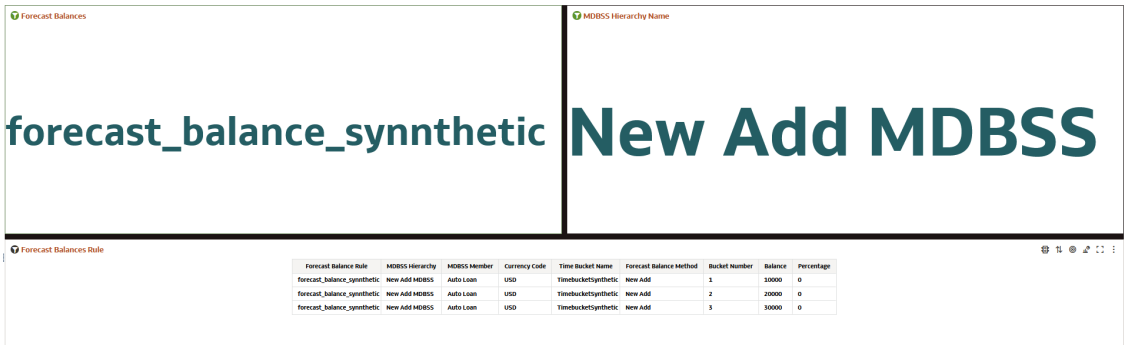
Figure 8-260 Product Characteristics Report



8.1.10.4.2 Forecast Balances

This canvas shows information related to forecast balance rules.

Figure 8-261 Forecast Balances Report



8.1.10.5 Process Definitions

This section covers the following topics:

1. Static Deterministic Process: This section shows the Static Deterministic Process (existing business only) reports. When all the required assumptions are defined, The processing performs the Static Cashflow Calculations and generates an aggregated result set.
2. Dynamic Deterministic Process: This section shows the Dynamic Deterministic Process reports. Dynamic Deterministic processing generates output based on a set of user-defined forecast rate scenarios and includes new business assumption rules in the process flow.

8.1.10.5.1 Static Deterministic Process

Report displays the static deterministic process assumptions defined for the particular process run.

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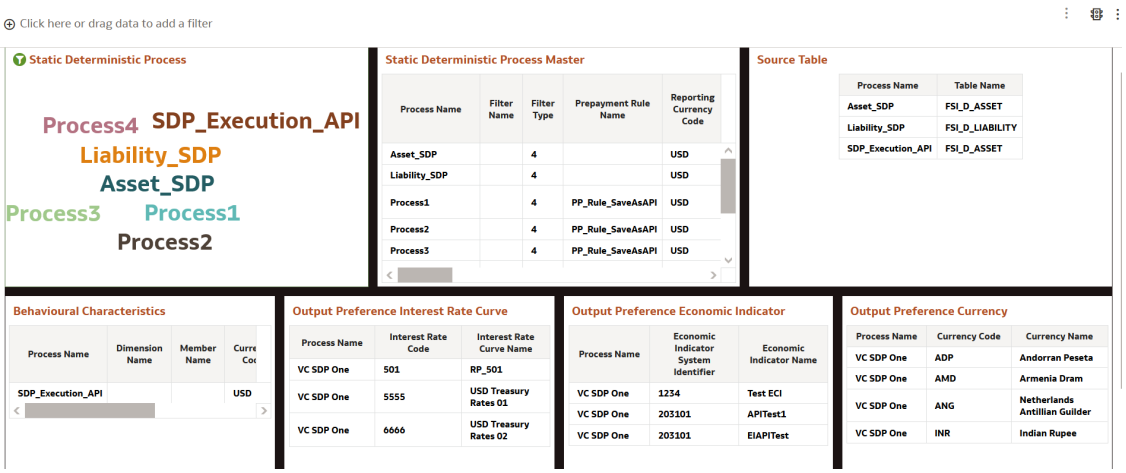
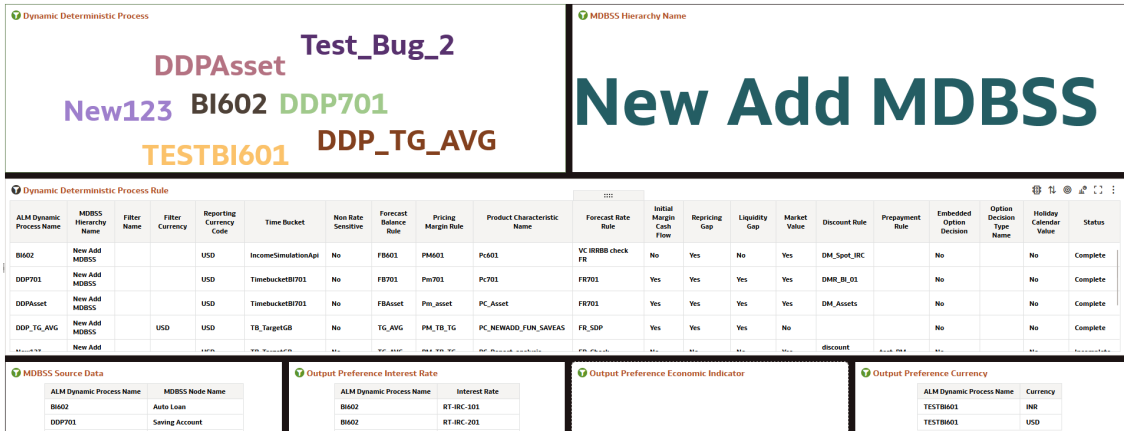
Figure 8-262 Static Deterministic Process Report



8.1.10.5.2 Dynamic Deterministic Process

This canvas gives the information related to Dynamic Deterministic process like process rules, MDBSS source data, output preference interest rate, output preference economic indicator, output preference currency.

Figure 8-263 Dynamic Deterministic Process Report



8.1.11 ALCO

ALCO reports are the consolidated reports of all the below mentioned subject areas:

1. Interest Rate Risk
2. Liquidity Risk
3. Financial Results (Income Simulation)
4. Result Master

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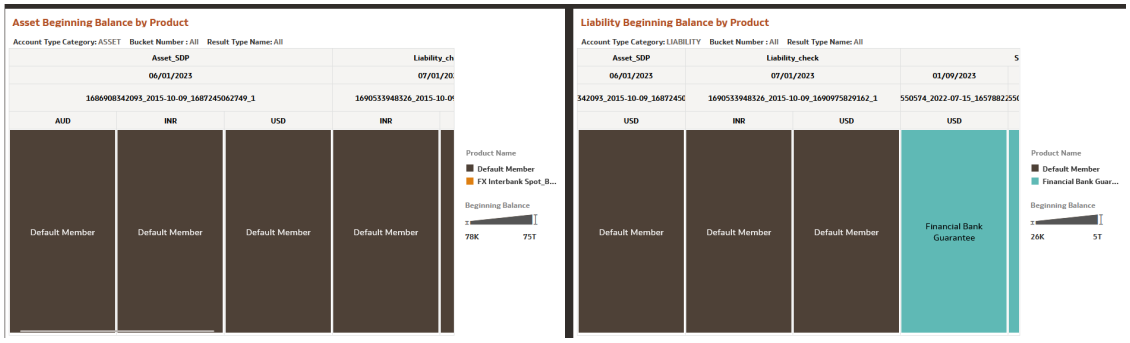
> **Note**
>
> No separate batches are needed to be executed in order to display the ALCO reports.

To access the ALCO reports, navigate to LHS menu, select **Analytics**, and then **ALCO**.

Below are the ALCO reports:

Balance Summary Report

Figure 8-264 Balance Summary Report



Balance Trend Profile Report

Figure 8-265 Balance Trend Profile Report

Balance Sheet Static Report

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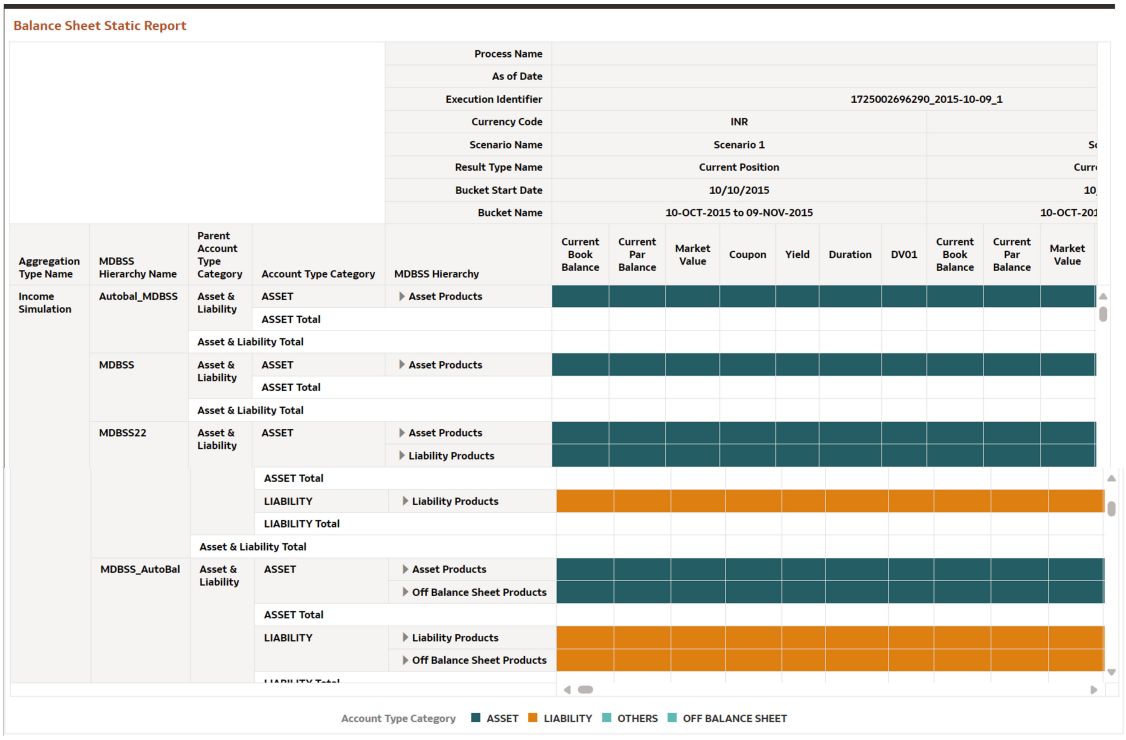
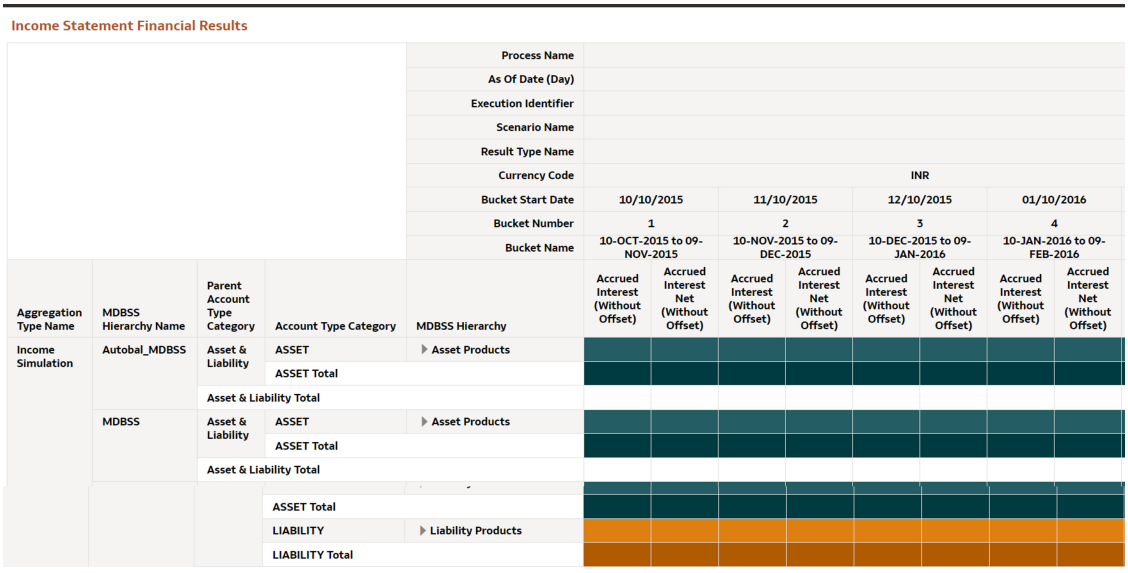
Figure 8-266 Balance Sheet Static Report



Income Statement Financial Results Report

Figure 8-267 Income Statement Financial Results Report



Liquidity Risk Gap Report

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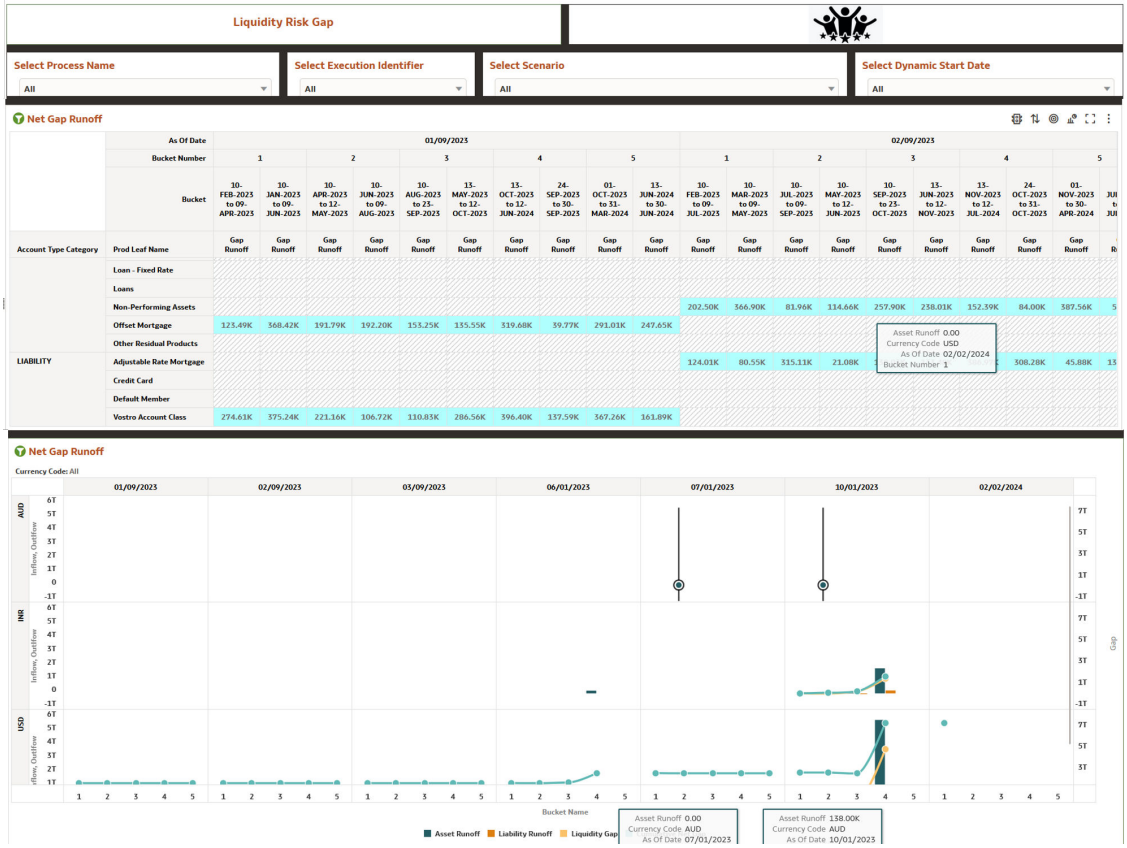
Figure 8-268 Liquidity Risk Gap Report



Liquidity Summary Report

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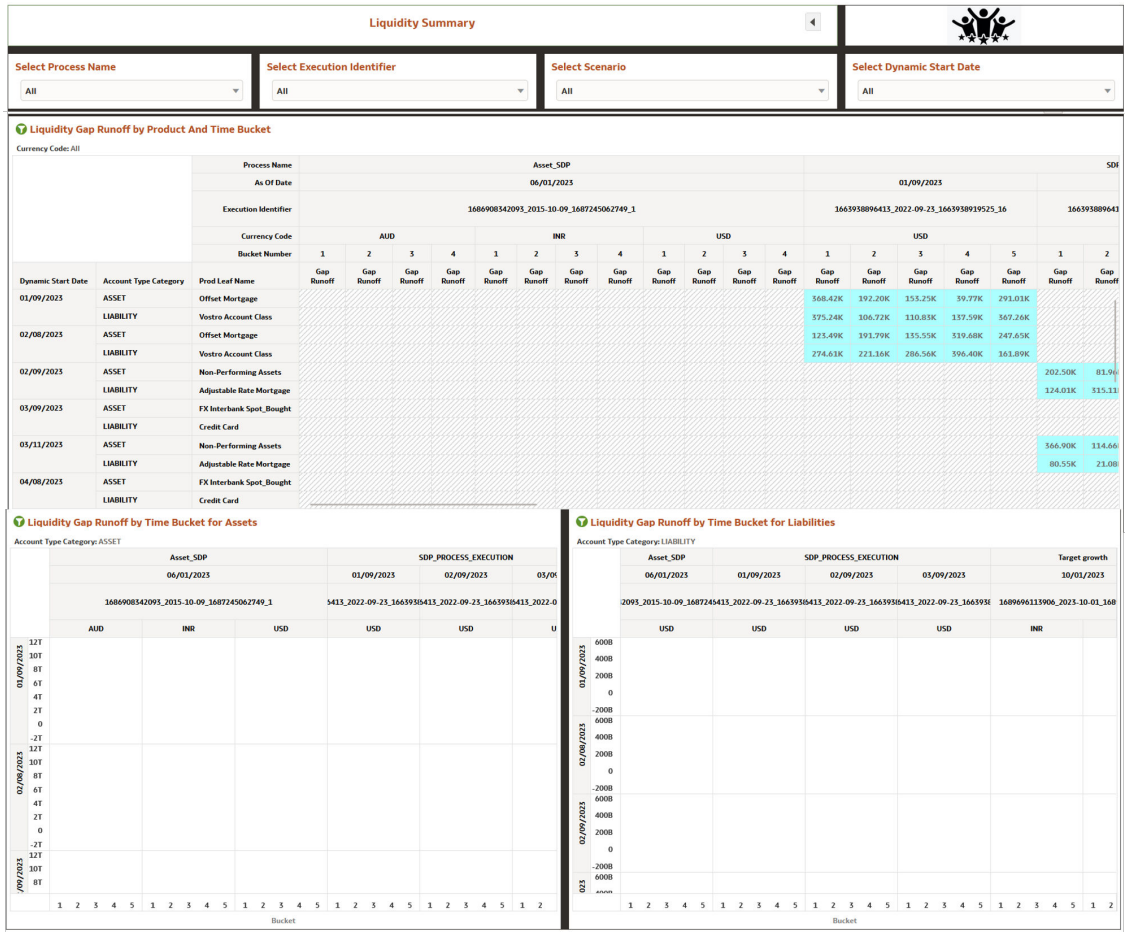
Figure 8-269 Liquidity Summary Report



Interest Rate Risk Gap Report

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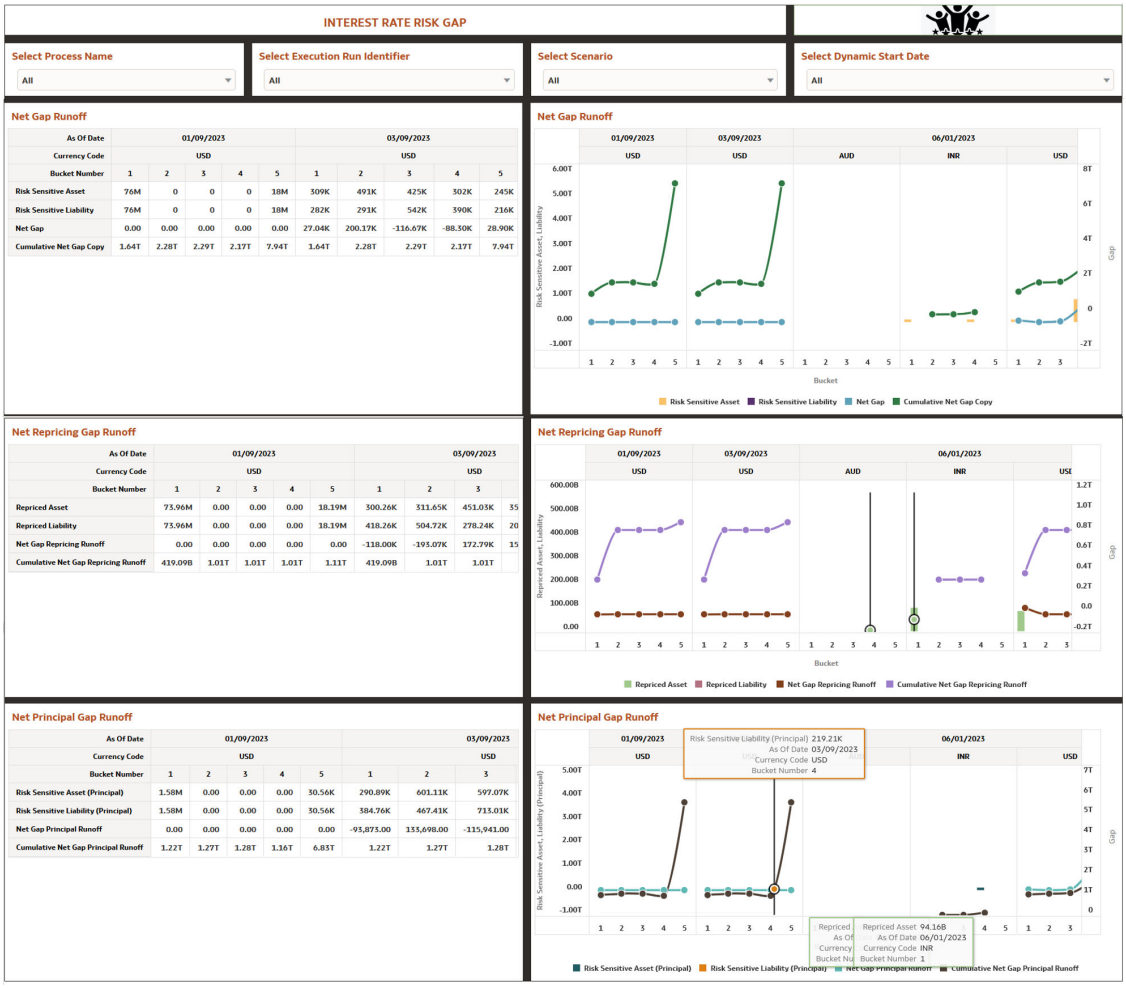
Figure 8-270 Interest Rate Risk Gap Report



Repricing Summary Report

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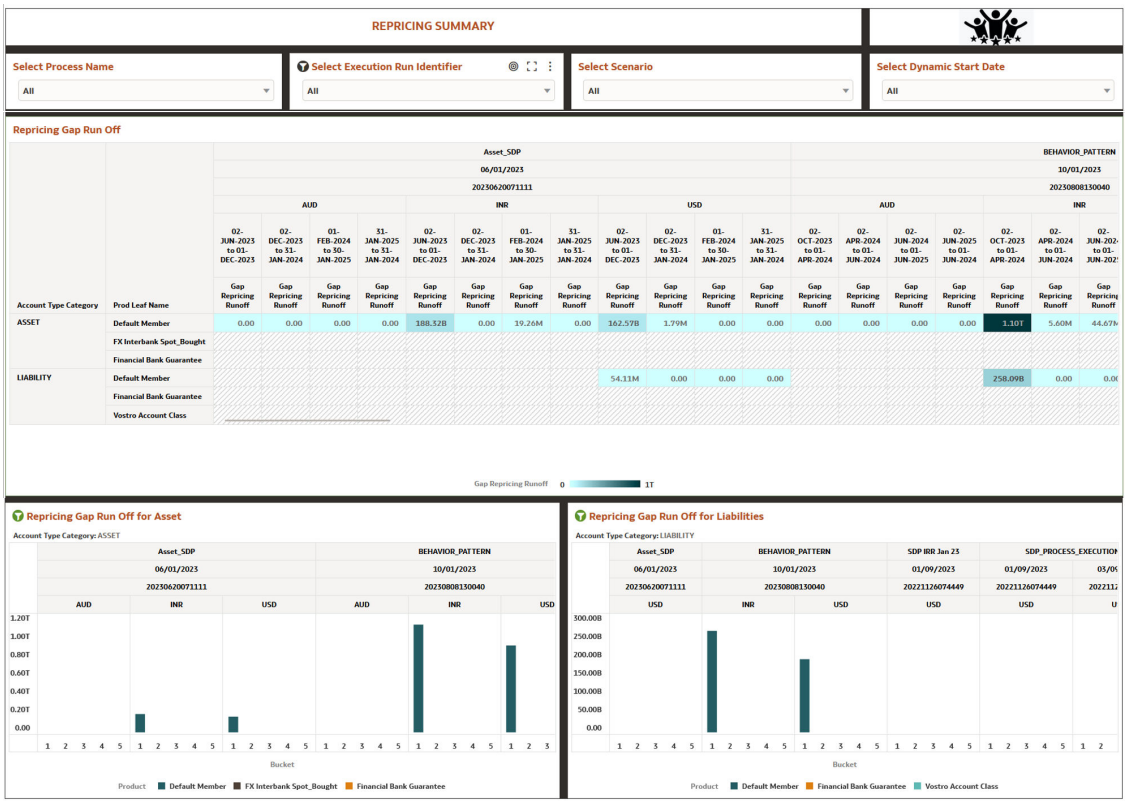
Figure 8-271 Repricing Summary Report



Duration Gap Report

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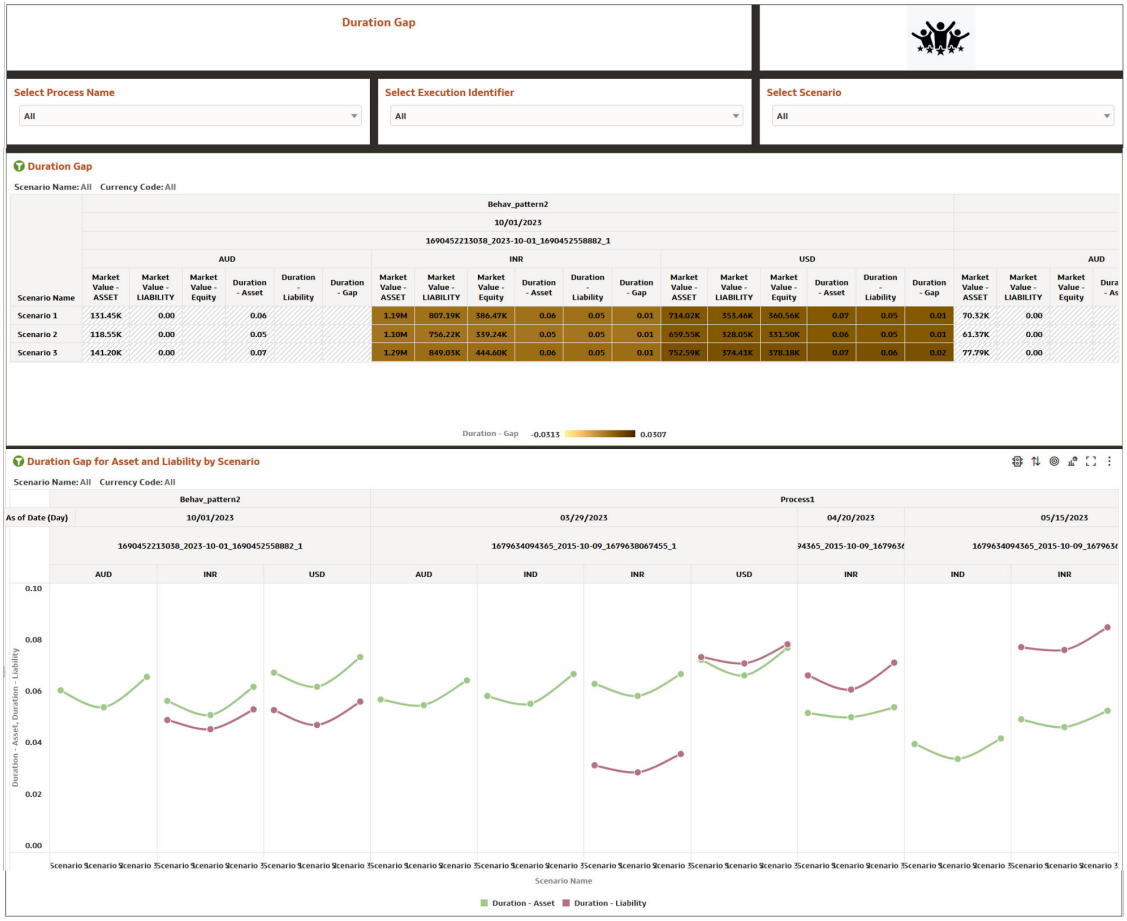
Figure 8-272 Duration Gap Report



Detailed CashFLOW

NII By Scenario Report

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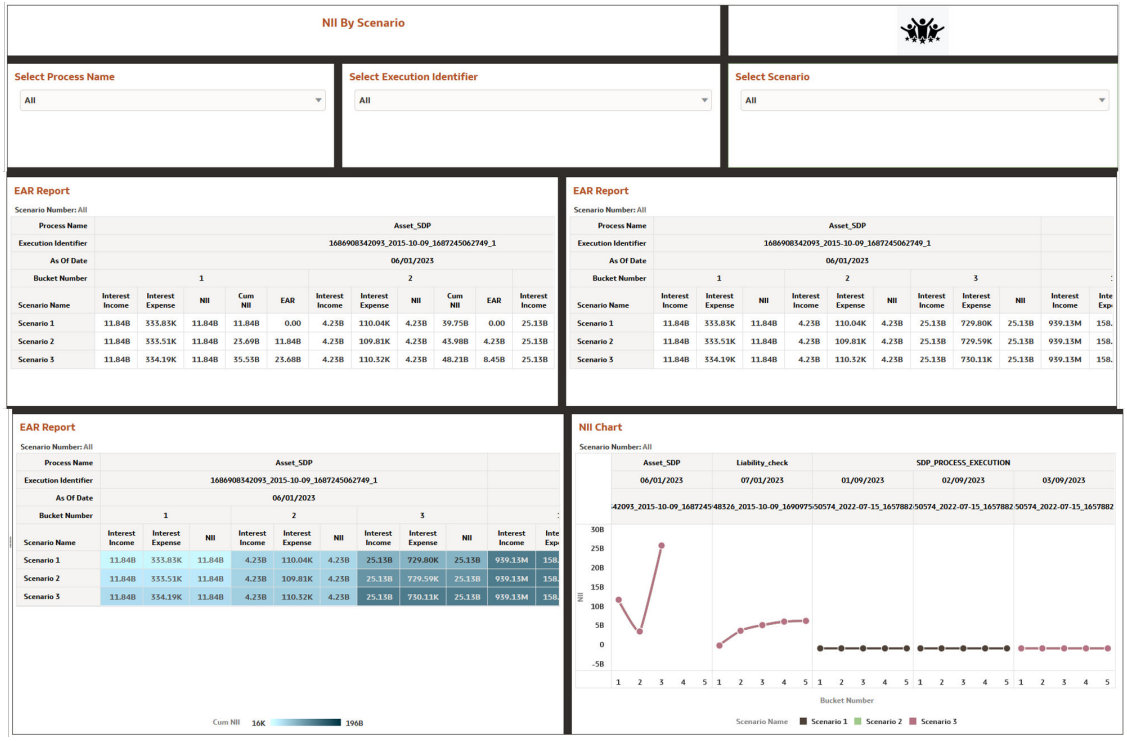
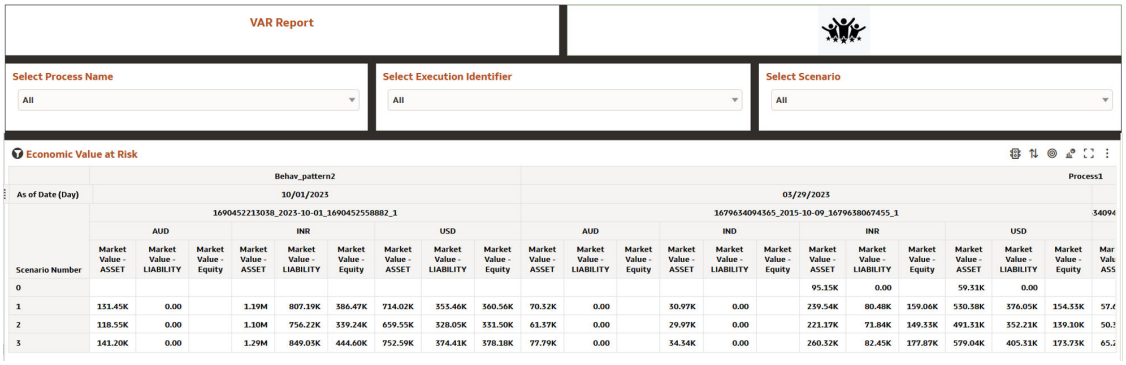
Figure 8-273 NII By Scenario Report



VaR Report

Figure 8-274 VaR Report



Market Value and Sensitivity Report

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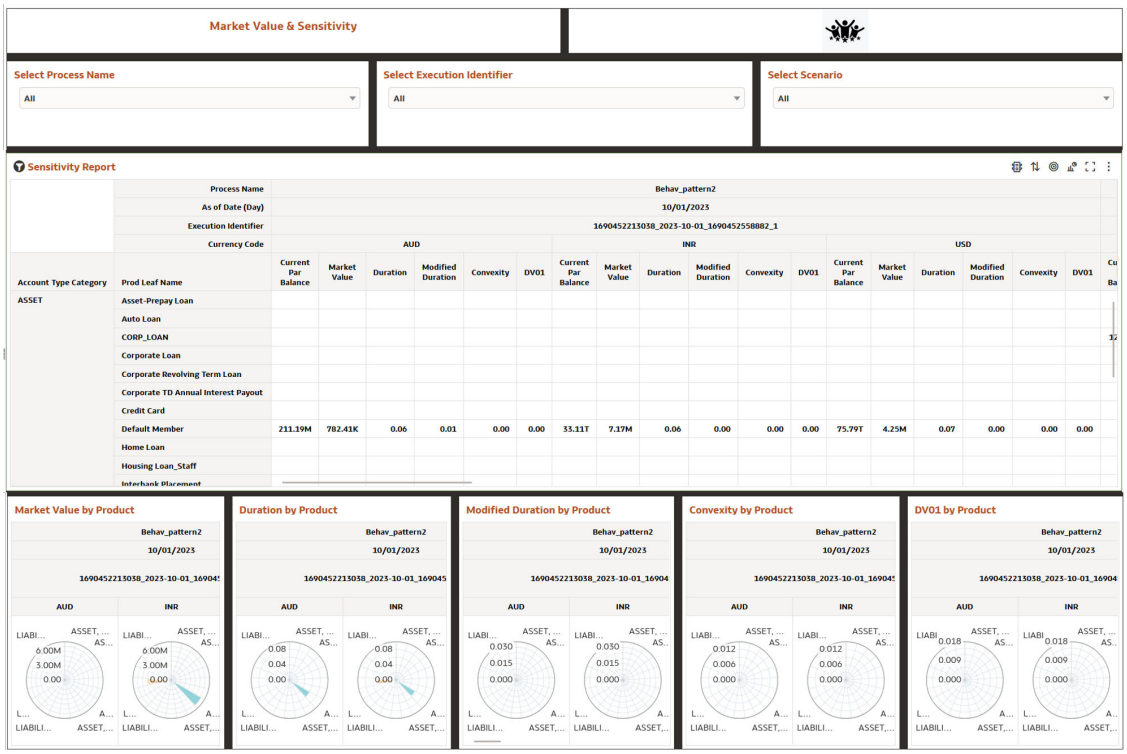
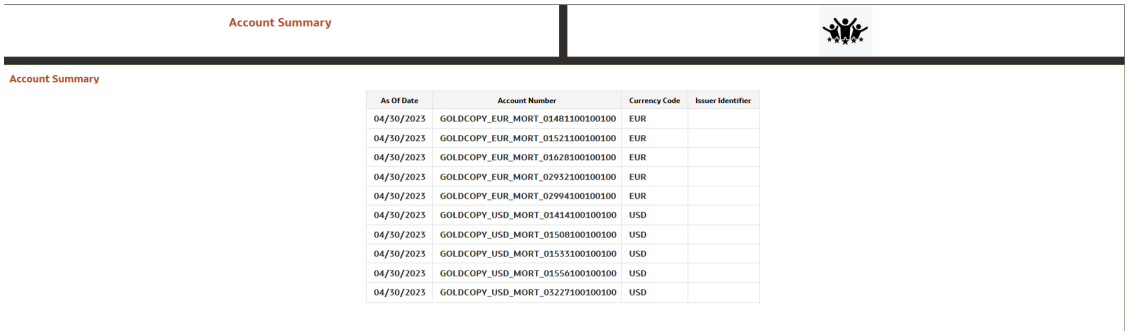
Figure 8-275 Market Value and Sensitivity Report



Account Summary Report

Figure 8-276 Account Summary Report



IRRBB EVE Report

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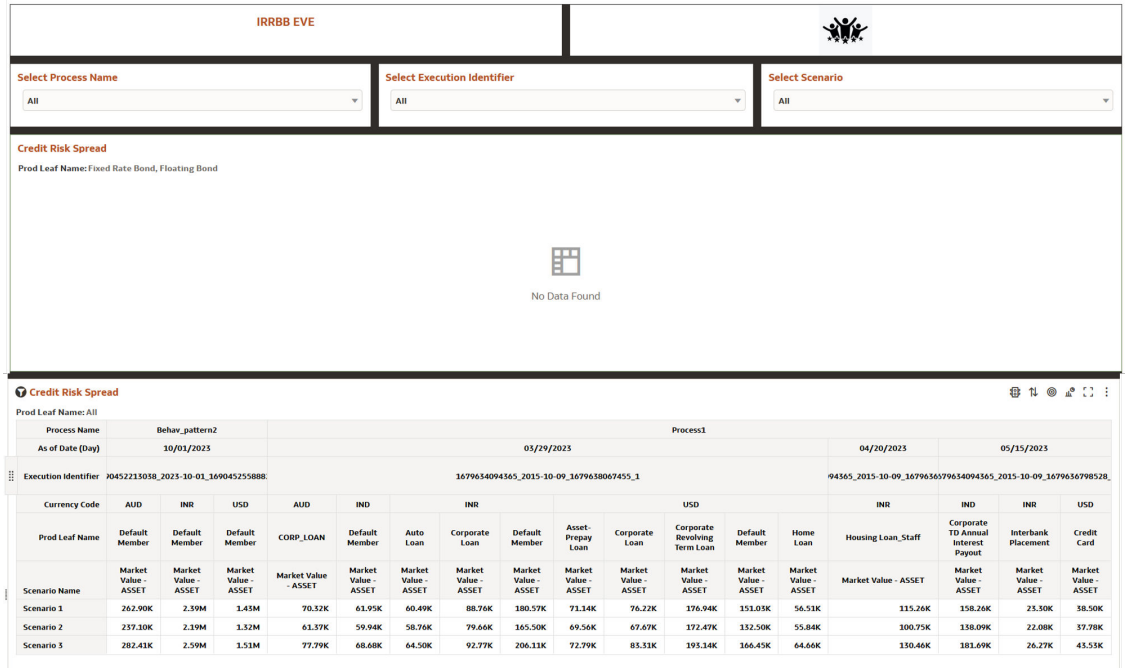
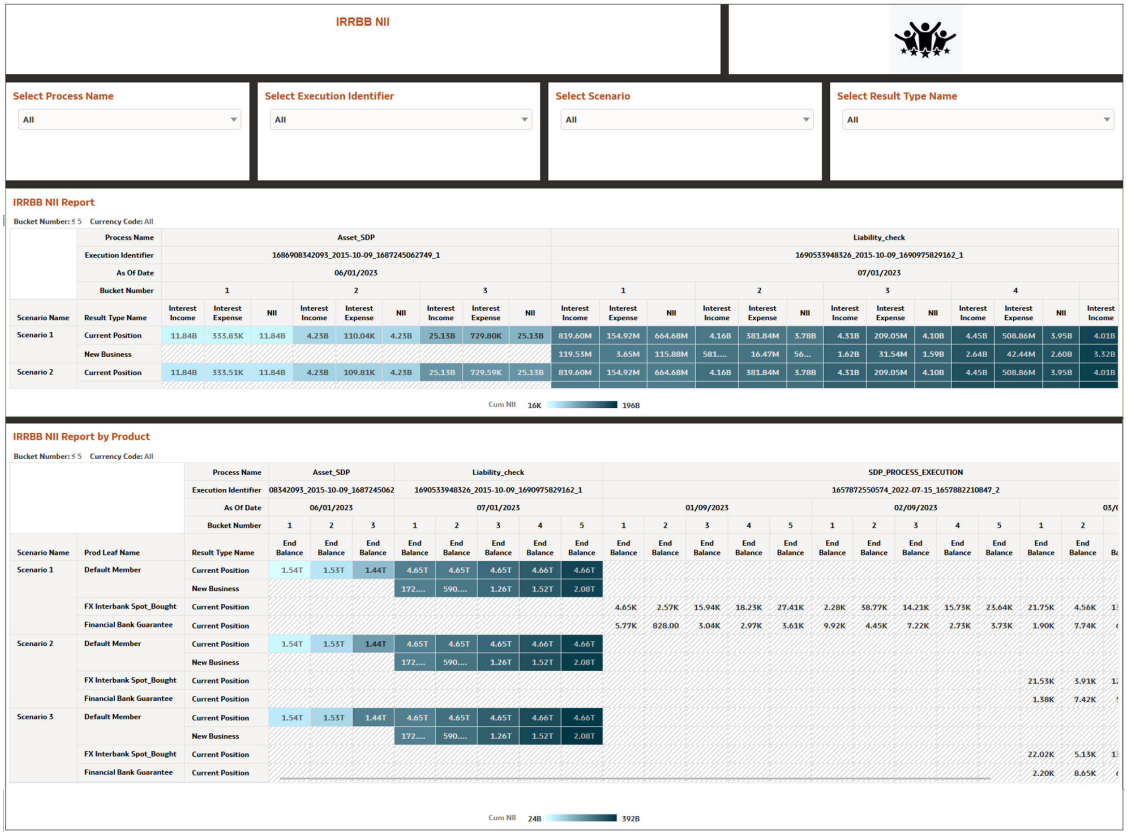
Figure 8-277 IRRBB EVE Report



IRRBB NII Report

Figure 8-278 IRRBB NII Report



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8.1.12 Customization of Report

This section details how to customize a report.

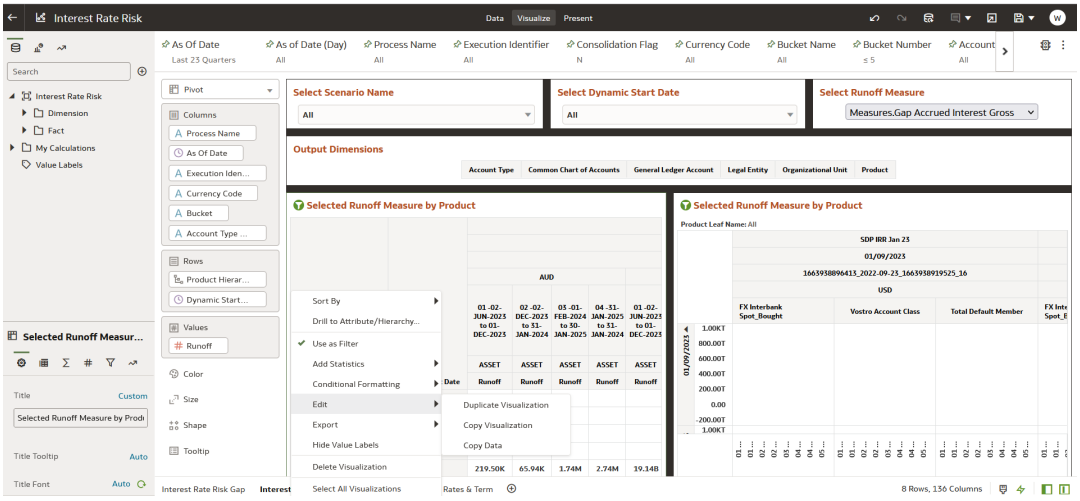
To customize a report, perform the following steps:

1. Navigate to ALMBI dashboard page.
2. Open any report which you want to customize and view.

Example:

1. Navigate to **Interest Rate Risk** report and click **Interest Rate Risk Runoff**.
2. Right click on the dimension and select **Edit**.
3. Select **Duplicate Visualization**.

Figure 8-279 Duplicate Visualization



A copy of the report is created.

4. Click on the **Rows** to view the dimension.
5. Navigate to **Dimensions** under Interest Rate Report
6. Select the dimension type and column name.
7. The report will be displayed based on the selected dimension. The new report is displayed based on selected the dimension.

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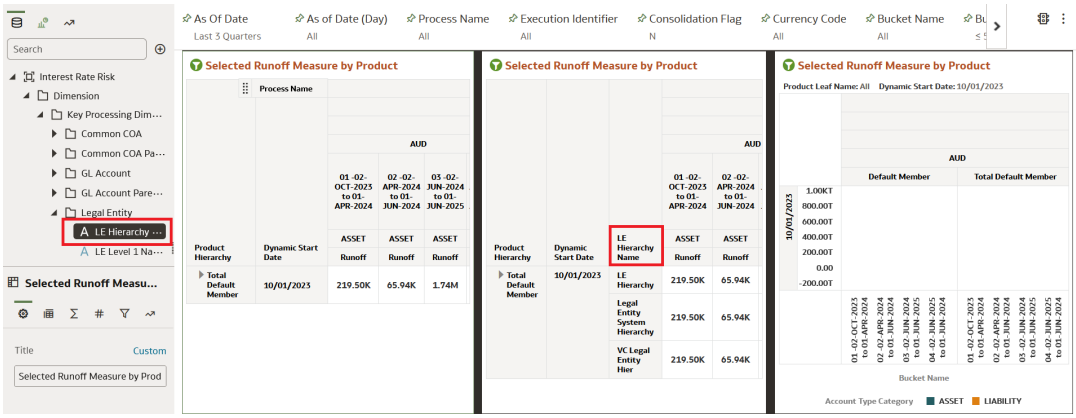
Figure 8-280 Customized Report



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9
Technical Documents

This chapter covers the following topics:

1. Asset Liability Management Cloud Service Data Requirement: This document contains detail of account, ledger, reference, and market data needed to deliver business functionality. They are required at a pre-defined granularity / format and can come from your source systems and external data providers.

Table 9-1 STAGE and INSTRUMENT Tables

STAGE_TABLE_NAME	INSTRUMENT_TABLE_NAME	INSTRUMENT_TYPE_CODE	NAME
STG_ASSET	FSI_D_ASSET	COMMLOANS	Commercial Loans
		CONSLOANS	Consumer Loans
		MORTGAGES	Mortgages
		INVESTMENT	Investments
		ABS	Asset Backed Securities
		CCARDS	Credit Cards
		CREDITLINES	Credit Lines
		LEASES	Leases
		LOANCONTRACTS	Loan Contracts
STG_ASSET, STG_LIABILITY	FSI_D_ASSET,FSI_D_LIABILITY	MMCONTRACTS	Money Market Contracts
STG_LIABILITY	FSI_D_LIABILITY	ANNUITYCONTRACTS	Annuity Contracts
		BORROWINGS	Borrowings
		DEPOSITS	Deposits
		CASA	Checking and Savings
		WHOLESALEFUNDING	Wholesale Funding
		TD	Term Deposits
		RETIREMENTACCOUNTS	Retirement Accounts
STG_LEDGER_INSTRUMENT	FSI_D_LEDGER_INSTRUMENT	LEDGERINSTRUMENTS	Ledger Instruments
STG_FEE_BASED_SERVICE	FSI_D_FEE_BASED_SERVICE	MERCHANTCARDS	Merchant Cards
		MUTUALFUNDS	Mutual Funds
		OTHERSERVICES	Other Services
		TRUSTS	Trusts
STG_DERIVATIVE	FSI_D_DERIVATIVE	FRA	Forward Rate Agreements
		FXCONTRACTS	Foreign Exchange Contracts
		OPTIONS	Caps, Floors, Collars
		SWAPS	Interest Rate Swap

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Table 9-1 (Cont.) STAGE and INSTRUMENT Tables

		FXSWAP	Foreign Exchange Swap
STG_OFF_BALANCE_SHEET	FSI_D_OFF_BALANCE_SHEET	GUARANTEES	Guarantees
STG_LOAN_COMMITMENTS	FSI_D_LOAN_COMMITMENTS	RATELOCK	Rate Lock Commitments

While loading data into Instrument tables, we need to remember:

a. If the user is providing a valid `Instrument_type_code` value in the loaded Instrument data file, the record gets loaded into Stage Instrument table, and also in the Processing Instrument table with the corresponding `Instrument_type_cd` value. The list of valid `Instrument_type_code` values. is specified in table 8-1.

b. If the user is providing an invalid `Instrument_type_code` value in the loaded Instrument data file, the record gets loaded into Stage Instrument table with the invalid `Instrument_type_code`, but the record gets rejected when the data loading happens from Stage table into Processing Instrument table. Thus, users need to take care that they use only valid values for `Instrument_type_code`, as specified in table 8-1. Note: Table 8-1 is a limited set and extension beyond this list is not allowed.

c. If column `Instrument_type_code` is included in Instrument data file but the user is not providing value for it, the concerned records will get rejected as it is a not null column. If column `Instrument_type_code` is not included in Instrument data file, the value of `Instrument_type_code` is defaulted as 'NA' in Stage table. When this record gets loaded into the Processing table, the value for `Instrument_type_cd` will be inserted as -1 (Default).

d. Refer PBSM Data Requirement file to know mandatory and optional entity-attributes for your cloud service. When mandatory attributes like `ISO_CURRENCY_CD` are not given in input data file, the records will get rejected by the respective loader programs while moving from Stage to Processing tables. The records will normally not get rejected during data movement from File to Stage tables.

2. Reference Guide: The Reference Guide emphasizes business analysis and provides definitions, analytical concepts, processes, and calculations used in the Oracle Financial Services Cash Flow Engine (CFE). The information provided includes data requirements, payment and repricing event logic, calculation formulas, and various methodologies used to produce cash flows.

3. Data Dictionary: This guide contains detailed information necessary for correct data population, including field definitions, and recommended default values for the cash flow processing fields.

4. FRC Analytics - Exporting Files from Oracle Analytics: This document helps you to use Oracle Analytics Server (OAS) to aggregate the data to required level and downloading it from Object Storage.

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