Oracle Financial Services Retail Performance Analytics
User Guide

Release 8.0.6.0.0
June 2019

ORACLE

Oracle Financial Services Retail Performance Analytics **User Guide**

Release 8.0.6.0.0
June 2019

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Internet: www.oracle.com/financialservices

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Preface

Intended Audience

Welcome to Release 8.0.6.0.0 of the Oracle Financial Services Retail Performance Analytics User Guide.

This user guide is intended for the users of Oracle Financial Services Retail Performance Analytics application.

See Related Information Sources for more Oracle product information.

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Structure

This user guide has been segregated into the following chapters:

- Chapter 1-Introduction
- Chapter 2-Overview of Process Flow
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- Chapter 5-Customer Dimension Population
- Chapter 6-Account Dimension Population
- Chapter 7-Exchange Rate History Population
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- Chapter 9-Fact Transaction Summary
- Chapter 10-Customer Summary Population
- Chapter 11-Fact Data Population
- Chapter 12-Cube Build Process
- Chapter 13-Predictive Modeling

Related Information Sources

For additional information about the Oracle Financial Services Analytics applications, refer to the following documents:

- Oracle Financial Services Advanced Analytical Applications Infrastructure Installation and Configuration Guide
- Oracle Financial Services Analytical Applications Infrastructure User Guide
- Oracle Financial Services Institutional Performance Analytics (OFSIPA) User Guide
- Oracle Financial Services Retail Customer Analytics (OFSRCA) User Guide

To find additional information about how Oracle Financial Services solves real business problems, see our website at www.oracle.com/financialservices.

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CHAPTER 1 *Introduction*

Overview of Oracle Financial Services Retail Performance Analytics (OFSRPA)

This guide explains the concepts of Oracle Financial Services Retail Performance Analytics, and provides step-by-step instructions for navigating the Retail Performance Analytics user interface. Oracle Financial Services Retail Performance Analytics (OFSRPA) is a complete end-to-end web-based Business Intelligence solution which provides a 360 degree view of the customer relationship for key insights into the customer life-cycle.

OFSRPA provides tools for data integration and includes customizable, pre-built dashboards and reports, a reporting data model, and user friendly functional subject areas for ad-hoc reporting. It also provide you deep insights into customer engagements across target segments and products/Line Of Business (LOB) including lending, credit cards, and so on. It pro-actively manage the growth through strategic insights into the retail business performance. OFSRPA helps you to monitor customer distribution across credit and delinquency bands and related exposures.

The OFSRPA solution is a part of Profitability Pack and is packaged along with AAI and other applications. This OFSRPA is supported for Oracle 11g and 12c.

OFSRPA solution is built using:

- OBIEE for Dashboard and Reports activities
- Essbase for 12c database

This manual deals with essential Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) required for OFSRPA activities, process flow for the data transformation, cube building processes, and functional details about the dash boards and reports. In addition, it includes subject areas which could be used for ad-hoc reporting using OBIEE Answers tool.

CHAPTER 2 Overview of Process Flow

This chapter contains the following topics:

Introduction

Oracle Financial Services Retail Performance Analytics (OFSRPA) utilizes OBIEE technology to:

- Gain deep insight into customer engagements across target segments and products/LOB including lending, credit cards, and so on.
- Perform Wallet share analysis and Customer Profitability.
- Understand the efficiency of investments (like marketing, branch, and channel and so on) over time.
- Monitor customer distribution across credit and delinquency bands and related exposures.
- Perform an enterprise-wide revenue analysis across customer segments, products, and reporting lines including fee income, interest, and interchange.
- Summary performance of the LOBs, overall Profitability, and Portfolio mix.
- Customer trends across performance drivers like Sales, Balances, Deposits, Product subscriptions (revenue services), Credit scores, Delinquency bands, Losses, and so on.
- LOB specific performance reports can be analyzed against key dimensions like customer segments, product family, region, branch, risk scores, and so on.
- Analyze expenses across customer segments, products, and channels to understand ROI.

The Following image explains the product objectives of OFSRPA:

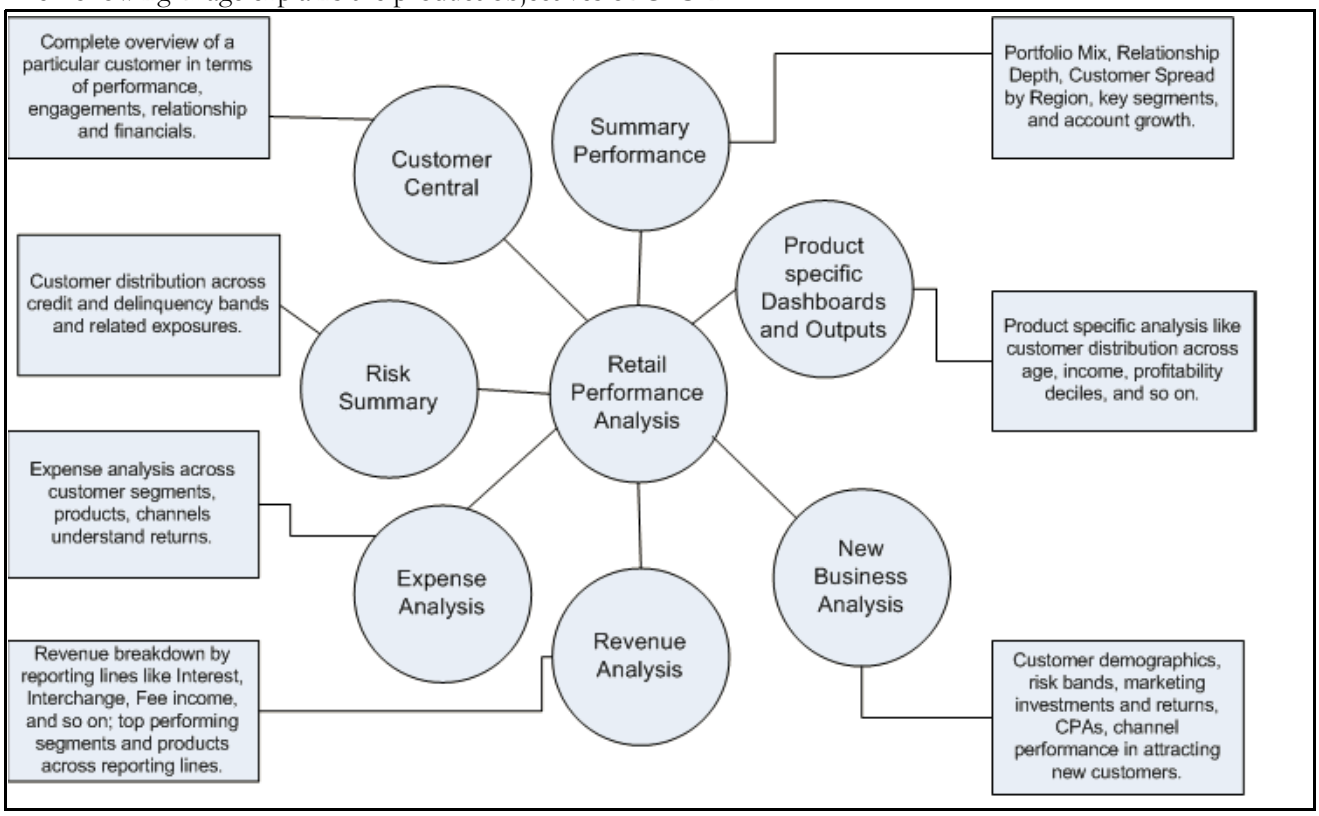


Figure 1. Product Objectives

For details on OFSRPA reports and how OBIEE is being utilized, see *Overview of OFSRPA Reports*

OFSRPA is designed for OBIEE reading data from relational database. The relational database comprises of various dimensions and facts in the BI data model.

OFSRPA can be independently licensed and installed to work on top of the OFSAA Infrastructure.

Data Flow

Retail Performance Analytics data model contains the staging tables from which data is loaded in to the dimensions and fact tables. Staging tables include the master staging tables, detail staging tables, staging product processor tables, etc. The user has to populate data into these staging tables.

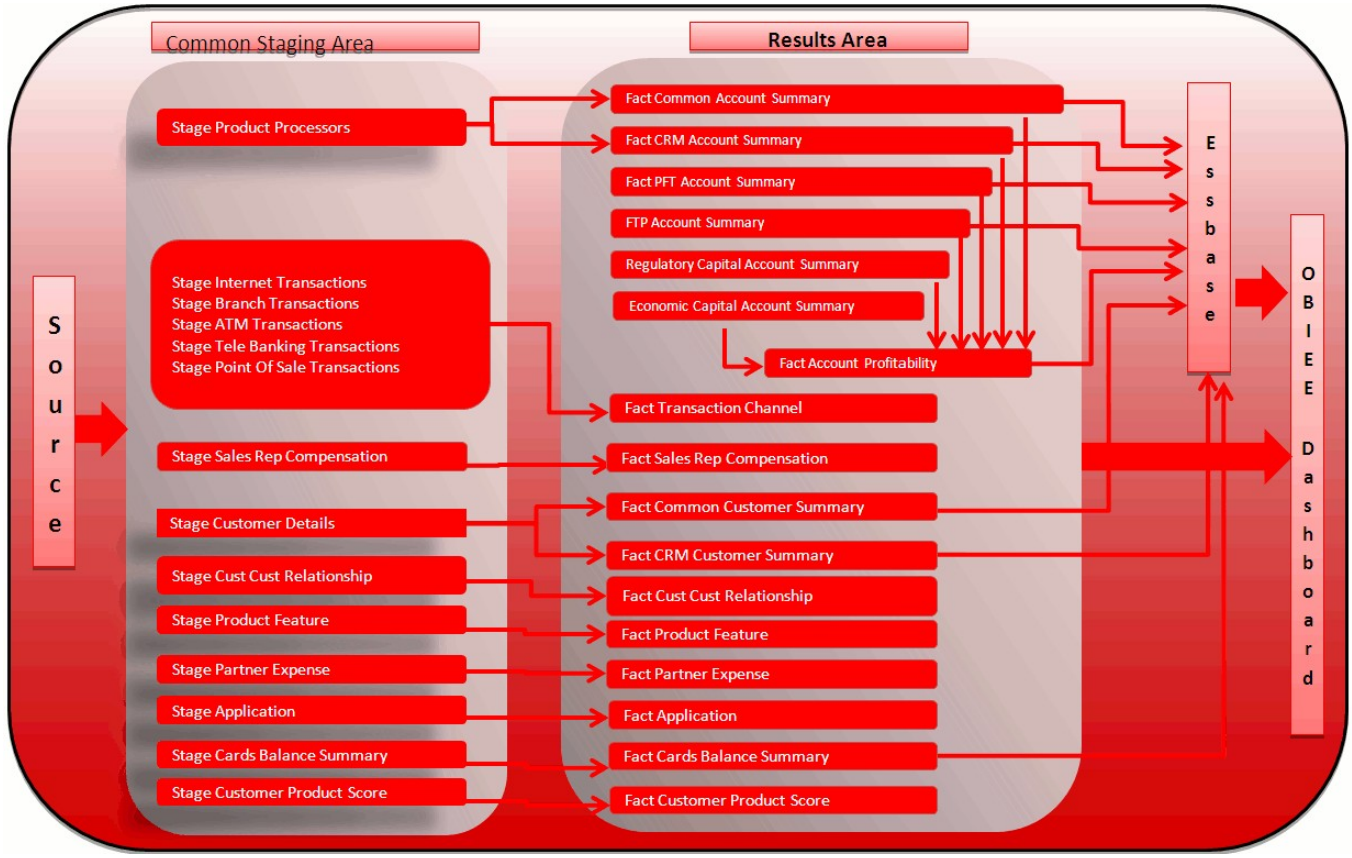


Figure 2. Staging Tables

Dimension Data Flow

Dimension data in OFSRPA application is loaded from staging master tables using the Slowly Changing Dimensions (SCD) process. Data from source systems can be loaded into staging through flat file or source system interfaces. SCD process tracks the changes in the dimensional attributes and loads data into dimension tables. Examples of dimension tables that follow the SCD process are Product, Customer Type, Customer, Campaign, and so on.

Some dimensions are static or maintained internally within the application and are not expected as a download from source system (for example, Reporting Line). These dimensions are maintained through the AMHM (Attribute Member Hierarchy Maintenance) component of OFSAAI or through other framework components like DEFI.

Following are the list of dimensions used in OFSRPA:

Table 1. OFSRPA Dimesions

Dimension Entity Name	Staging Entity Name(s)	Loading/Maintenance Method
Account Status Dimension	Stage Account Status Master	SCD
Application Reject Reasons Dimension	Stage Application Reject Reason Master	SCD
Application Status Dimension	Stage Application Status Master	SCD
Application Type Dimension	Stage Application Type Master	SCD

Table 1. OFSRPA Dimesions

Dimension Entity Name	Staging Entity Name(s)	Loading/Maintenance Method
Attrition Dimension	Stage Attrition Reason Master	SCD
Authorization Decision Reasons Dimension	Stage Auth Decision Reason Master	SCD
Balance Category Dimension	Stage Credit Card Balance Category Master	SCD
Card Type Dimension	Stage Card Type Master	SCD
Channel Transaction Dimension	Stage Transaction Channel Type Master	SCD
Country Dimension	Stage Country Master	SCD
Credit Center Dimension	Stage Credit Center Master	SCD
Credit Officer Dimension	Stage Credit Officer Master	SCD
Customer Dimension	Stage Customer Master	SCD
Customer Type Dimension	Stage Customer Type Master	SCD
Decision Status Dimension	Stage Decision Status Master	SCD
Deviation Reasons Dimension	Stage Deviation Reason Master	SCD
Education Dimension	Stage Customer Education Master	SCD
Geography Dimension	Stage Geography Master	SCD
Home Ownership Dimension	Stage Home Ownership Master	SCD
Household Dimension	Stage Household Master	SCD
Industry Dimension	Stage Industry Master	SCD
LoB Dimension	Stage LOB Master	SCD
Management Dimension	Stage Account Mgmt Master	SCD
Merchant Dimension	Stage Merchant Master	SCD
Merchant Category Dimension	Stage Merchant Category Master	SCD
Migration Reasons Dimension	Stage Migration Reason Master	SCD
Offer Dimension	Stage Offer Master	SCD
Reason Dimension	Stage Opportunity Win Loss Reason Master	SCD
Organization Structure Dimension	Stage Organization Structure Dimension	SCD
Partner Dimension	Stage Partner Master	SCD
Pool Identification Dimension	Stage Pool Identification Master	SCD
Prepayment Reason Dimension	Stage Prepayment Reason Master	SCD
Product Dimension	Stage Product Master	SCD
Loan Product Category Dimension	Stage Product Category Master	SCD
Product Feature Dimension	Stage Product Feature Master	SCD
Product Type Dimension	Stage Product Type Master	SCD
Prospect Dimension	Stage Prospect Master	SCD
Retention Offer Type Dimension	Stage Retention Offer Master	SCD
Sales Representative Dimension	Stage Sales Rep Master	SCD
Sales Stage Dimension	Stage Sales Stage Master	SCD
Terminal Dimension	Stage Terminal Master	SCD

Table 1. OFSRPA Dimesions

Dimension Entity Name	Staging Entity Name(s)	Loading/Maintenance Method
Terminal Type Dimension	Stage Terminal Type Master	SCD
Transaction Dimension	Stage Transaction Master	SCD
Transaction Channel Dimension	Stage TXN Channel Master	SCD
Txn Failure Reason Dimension	Stage Transactions Failure Reason Master	SCD
Transaction Status Dimension	Stage Transactions Status Master	SCD
Vendor Dimension	Stage Vendor Master	SCD
Vintage Dimension	Stage Vintage Master	SCD
Reporting Line Dimension	Reporting Line Dimension Members, Reporting Line Member Translation, Reporting Line Member Attributes, Reporting Line Hierarchies	AMHM/DT
Band Dimension	Band Dimension Members, Band Member Translation, Band Member Attributes	AMHM/SCD
Account Dimension	Stage LC Contracts	SCD
Account Dimension	Stage Commitment Contracts	SCD
Party Dimension	Stage Party	SCD
Account Dimension	Stage Stage OD accounts	SCD
	Stage Stage TD contracts	SCD
	Stage Stage Trusts	SCD
	Stage Stage Loan Contracts	SCD
	Stage Stage Mutual Funds	SCD
	Stage Bills Contracts	SCD
	Stage CASA Accounts	SCD
	Stage Guarantees	SCD
	Stage Stage leases contracts	SCD
	Stage Stage mm contract	SCD
	Stage Annuity Contracts	SCD
	Stage Borrowings	SCD
	Stage Card Account	SCD
	Stage Investments	SCD
Region Dimension		Direct Load
Acquisition Channel Dimension		Direct Load
Instrument Category Dimension		Seeded
Currency Dimension		Seeded
Gender Dimension		Seeded
Marital Status Dimension		Seeded

Table 1. OFSRPA Dimesions

Dimension Entity Name	Staging Entity Name(s)	Loading/Maintenance Method
Calendar Dimension		DT
Account Dimension	Staging Product Processor Tables like: • Stage Annuity Contracts • Stage Bill Contracts • Stage Borrowings • Stage Cards • Stage CASA Accounts • Stage Guarantees • Stage Investments • Stage LC Contracts • Stage Leases Contracts • Stage Loan Contracts • Stage Money Market Contracts • Stage Over Draft Accounts • Stage Term Deposit Contracts • Stage Trusts • Stage Swaps Contracts • Stage Repo Contracts • Stage Option Contracts • Stage Mutual Funds • Stage Futures And Forwards	SCD

Some of the stage data can also come from master data management interfaces. In such cases, data from interface is loaded into staging interface tables and SCD is run on the interface tables. Mapping of dimensional attributes to staging can be obtained by querying SYS_STG_JOIN_MASTER and SYS_TBL_MASTER tables in the atomic schema.

Fact Data Flow

Most of the Fact tables are mapped to staging counterparts through Table to Table (T2T) mappings. Data from source systems can be loaded into staging through flat file or source system interfaces. T2T process then loads data to fact tables. Examples include Fact Common Account Summary, Fact CRM Account Summary, and so on.

Some of the Fact tables are loaded with processed fact information from other fact tables. Examples include Fact CRM Customer Summary, and so on.

Table 2. FACT Table Flow

Fact Entity Name	Source	Source Entities	Method of populating measures
Fact Common Account Summary	Stage	Stage Annuity Contracts Stage Bill Contracts Stage Borrowings Stage Cards Stage CASA Accounts Stage Guarantees Stage Investments Stage LC Contracts Stage Leases Contracts Stage Loan Contracts Stage Money Market Contracts Stage Over Draft Accounts Stage Term Deposit Contracts Stage Trusts	T2T
Fact CRM Account Summary	Stage	Stage Commitment Contracts Stage Mutual Funds Stage Annuity Contracts Stage Bill Contracts Stage Borrowings Stage Cards Stage CASA Accounts Stage Guarantees Stage Investments Stage LC Contracts Stage Leases Contracts Stage Loan Contracts Stage Money Market Contracts Stage Over Draft Accounts	T2T
Fact Common Customer Summary	Stage	Stage Commitment Contracts Stage Mutual Funds Stage Customer Details Stage Party Rating Details Stage Party Financials	T2T
Fact CRM Customer Summary	Stage and Fact	Stage Customer Master Stage Customer Details Fact Common Account Summary Fact Transaction Channel	T2T/DT
Fact Application	Stage	Stage Applications	T2T
Transaction Channel	Stage	Stage Internet Transactions Stage Branch Transactions Stage ATM Transactions Stage TeleBanking Transaction Stage Point Of Sale Transactions	T2T
Fact Cards Balance Summary	Stage	Stage Credit Card Balance Summary	T2T
Fact Account Feature Map	Stage	Stage Account Feature Map	T2T

Table 2. FACT Table Flow

Fact Entity Name	Source	Source Entities	Method of populating measures
Fact Customer to Customer Relationship	Stage	Stage Customer to Customer Relationships	T2T
Fact Account Profitability	Fact	Fact Common Account Summary Fact FTP Account Summary Fact PFT Account Summary	DT
Exchange Rate History	Stage	Stage Exchange Rates	T2T
Fact Account Segment Score	Fact	Fact Common Account Summary	T2T
Fact Account Segment MOB Summary	Fact	Fact Account,Profitability, Fact Common Account Summary, Fact Account Segment Score	DT
Fact Party Account Role Map	Stage	Stage Party Account Role Map	T2T
Fact Party Financials	Stage	Stage Party Financials	T2T

This table will be populated in presence of RCA application with the t2t. In absence of RCA, this table has to be directly loaded if the data is available.

The OFSRPA uses some materialized views registered as "Derived Entity", that has to be refreshed as and when the dependent table has fresh data. The MVs can be refreshed by running the batches crated for the purpose. The list of Derived Entity and the dependent objects can be found in the following table.

Table 3. Derived Entities and Dependant Objects

MATERIALIZED_VIEW	REFERENCED_NAME	REFERENCED_OBJECT_NAME
ACNTSMRM	FCT_COMMON_ACCOUNT_SUMMARY	Table
	FCT_CRM_ACCOUNT_SUM MARY	Table
CUSTDETM	DIM_CUSTOMER	Table
	DIM_CUSTOMER_TYPE	Table
	DIM_GENDER	Table
	FCT_COMMON_CUSTOME R_SUMMARY	Table
FCSTCUSR	VW_ACCT_VAL_FCST_CUS TAGG_RPA	Table
FCSTLTMR	VW_FORECAST_LTV_RPA	Table
FCSTREPR	VW_ACCT_VAL_FCST_REP AGG_RPA	Table
FSIUSRD	FSI_USER_DATA_ACCESS	Table
MGMTPFTM	ACNTSMRM	Table
	CUSTDETM	Table
	FCT_ACCOUNT_MGR_REL	Table
	FCT_ACCOUNT_PROFITABILITY	Table

Table 3. Derived Entities and Dependant Objects

MATERIALIZED_VIEW	REFERENCED_NAME	REFERENCED_OBJECT_NAME
MVRACPRO	A_DIM_REP_CURRENCY	Table
	DIM_ACCOUNT	Table
	DIM_CONSOLIDATION	Table
	DIM_CURRENCY	Table
	DIM_CUSTOMER	Table
	DIM_CUSTOMER_TYPE	Table
	DIM_DATES	Table
	DIM_LOB	Table
	DIM_ORG_UNIT	Table
	DIM_PRODUCT	Table
	DIM_REP_LINE	Table
	DIM_VINTAGE	Table
	FCT_ACCOUNT_PROFITABILITY	Table
	FCT_COMMON_CUSTOMER_SUMMARY	Table
	FCT_CRM_ACCOUNT_SUM MARY	Table
	MVUSRACC	Table
MVRCUSAG	A_DIM_REP_CURRENCY	Table
	DIM_ACCOUNT	Table
	DIM_CONSOLIDATION	Table
	DIM_CURRENCY	Table
	DIM_CUSTOMER	Table
	DIM_CUSTOMER_TYPE	Table
	DIM_DATES	Table
	DIM_LOB	Table
	DIM_ORG_UNIT	Table
	DIM_PRODUCT	Table
	DIM_REP_LINE	Table
	DIM_VINTAGE	Table
	FCT_ACCOUNT_PROFITABILITY	Table
	FCT_COMMON_CUSTOMER_SUMMARY	Table
	FCT_CRM_ACCOUNT_SUMMARY	Table
	MVUSRACC	Table

Table 3. Derived Entities and Dependant Objects

MATERIALIZED_VIEW	REFERENCED_NAME	REFERENCED_OBJECT_NAME
MVRPROAG	A_DIM_REP_CURRENCY	Table
	DIM_ACCOUNT	Table
	DIM_CONSOLIDATION	Table
	DIM_CURRENCY	Table
	DIM_CUSTOMER	Table
	DIM_CUSTOMER_TYPE	Table
	DIM_DATES	Table
	DIM_LOB	Table
	DIM_ORG_UNIT	Table
	DIM_PRODUCT	Table
	DIM_REP_LINE	Table
	DIM_VINTAGE	Table
	FCT_ACCOUNT_PROFITABILITY	Table
	FCT_COMMON_CUSTOMER_SUMMARY	Table
	MVUSRACC	Table
MVUSRACC	DIM_ACCOUNT	Table
	FCT_COMMON_ACCOUNT_SUMMARY	Table
	FSIUSRD	Table
RTHREPMV	WITH_REP_LINE_DIRECT_I ND_RPA	Table
USRMGRMV	FSI_M_USER_MANAGER_M AP	Table

BI Data Model

Following are the subject areas in ERwin data model:

- Fact Account Feature Map

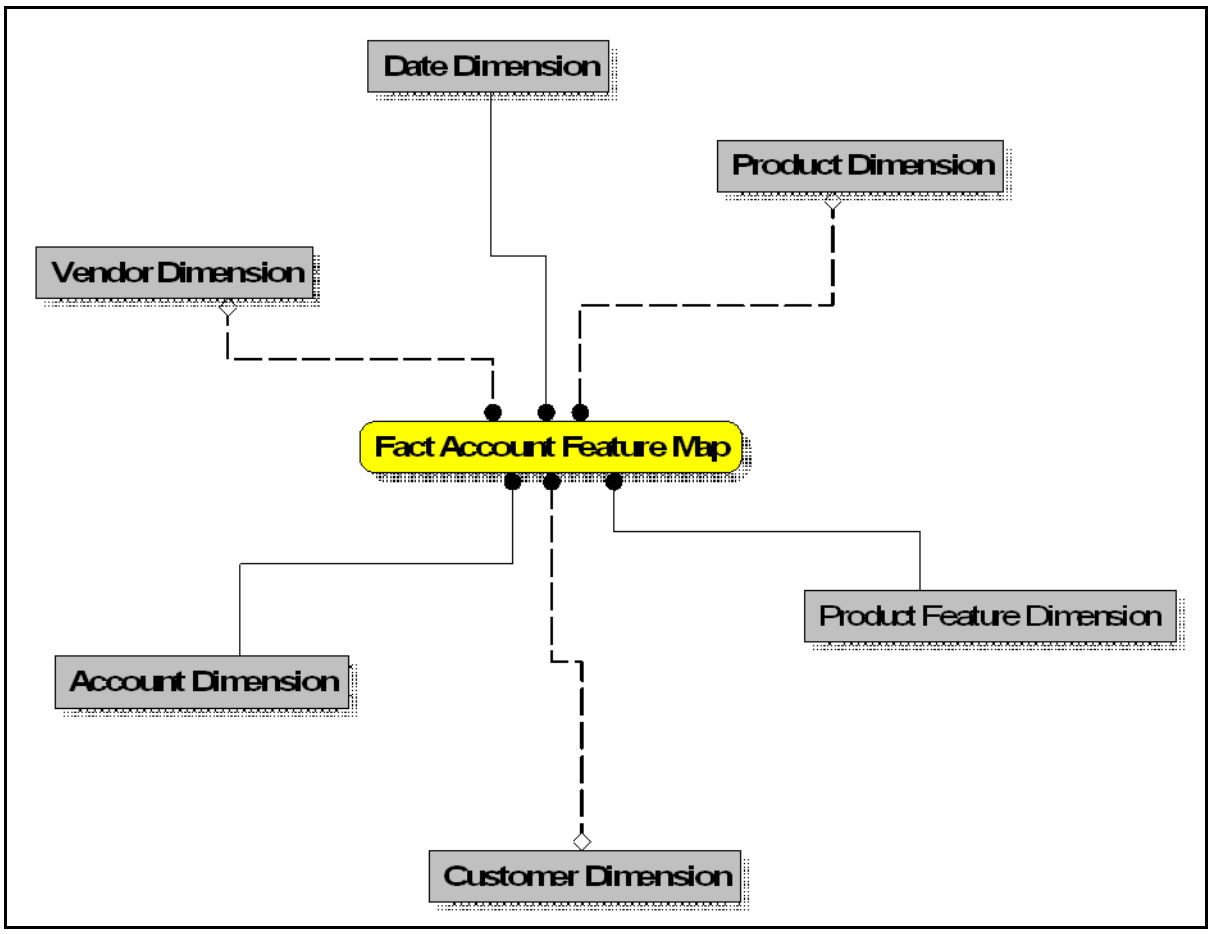


Figure 3. Fact Account Feature Map

- Fact Account Party Role

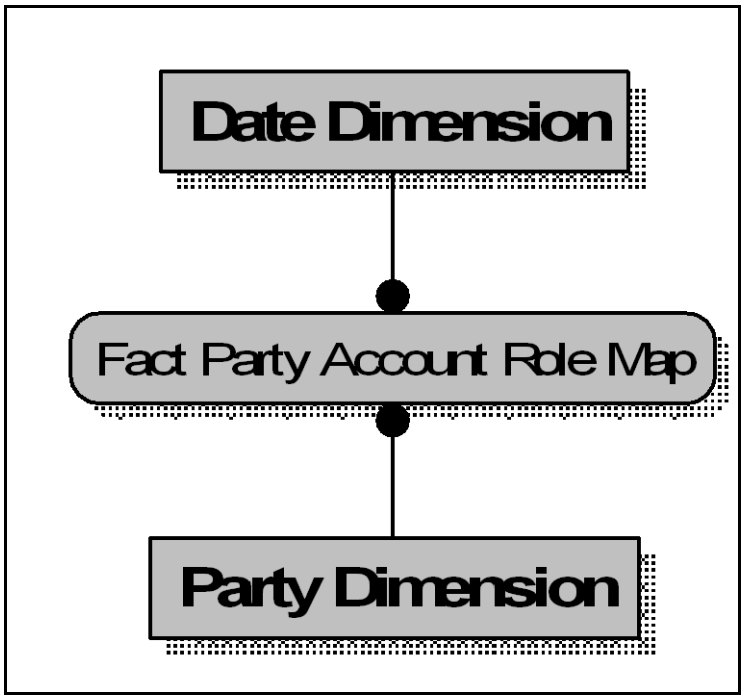


Figure 4. Fact Account Party Role

- Fact Account Profitability

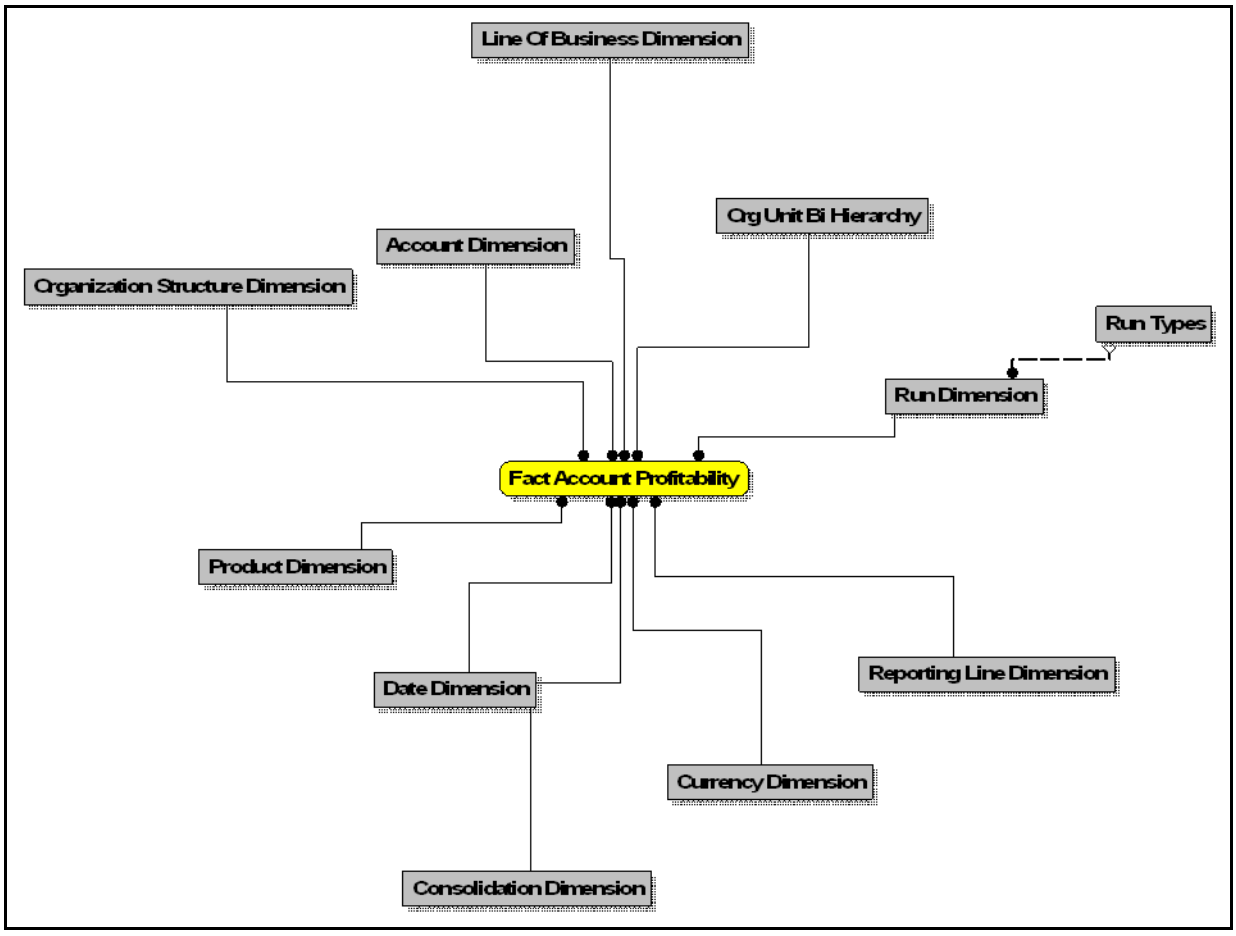


Figure 5. Fact Account Profitability

- Fact Account Segment MOB Summary

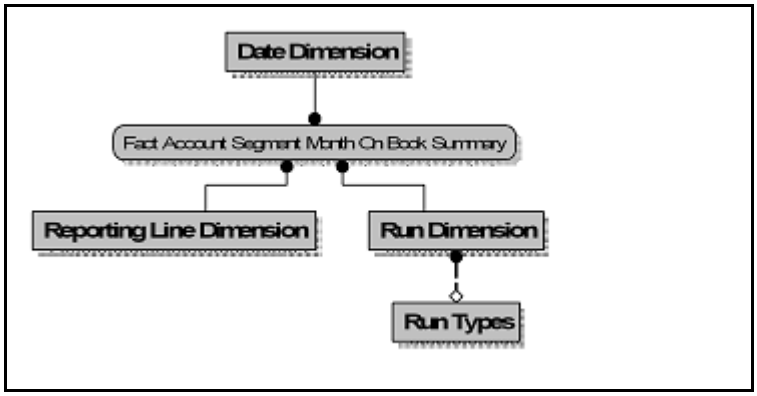


Figure 6. Fact Account Segment MOB Summary

- Fact Account Segment Score

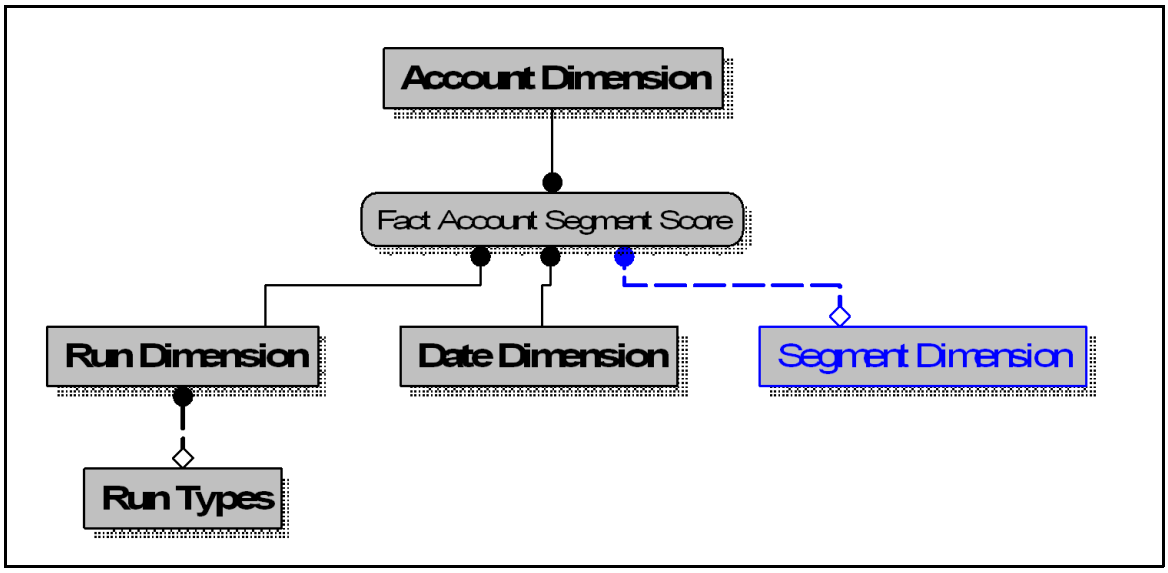


Figure 7. Fact Account Segment Score

- Fact Applications Summary

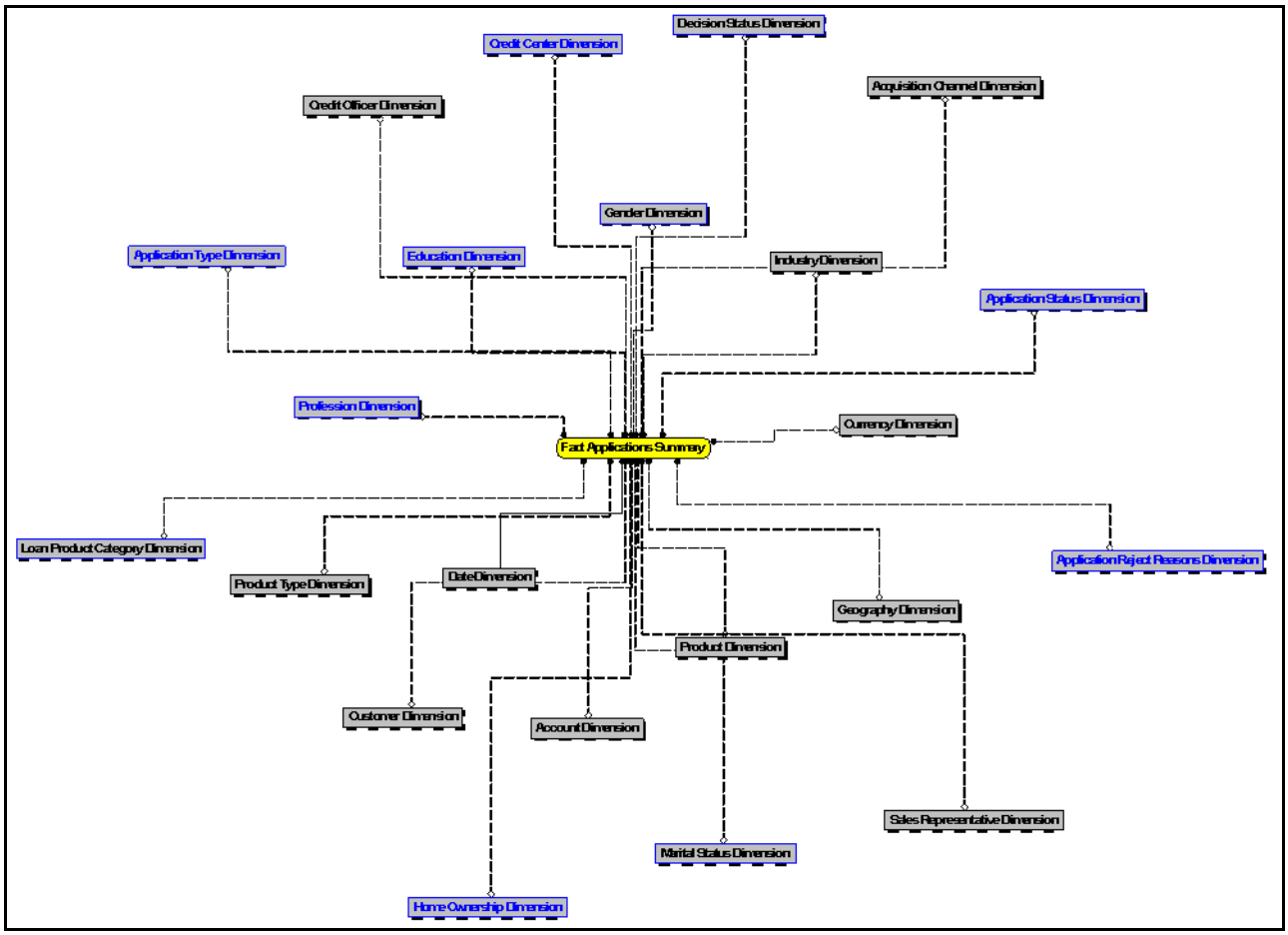


Figure 8. Fact Applications Summary

- Fact Cards Balance Summary

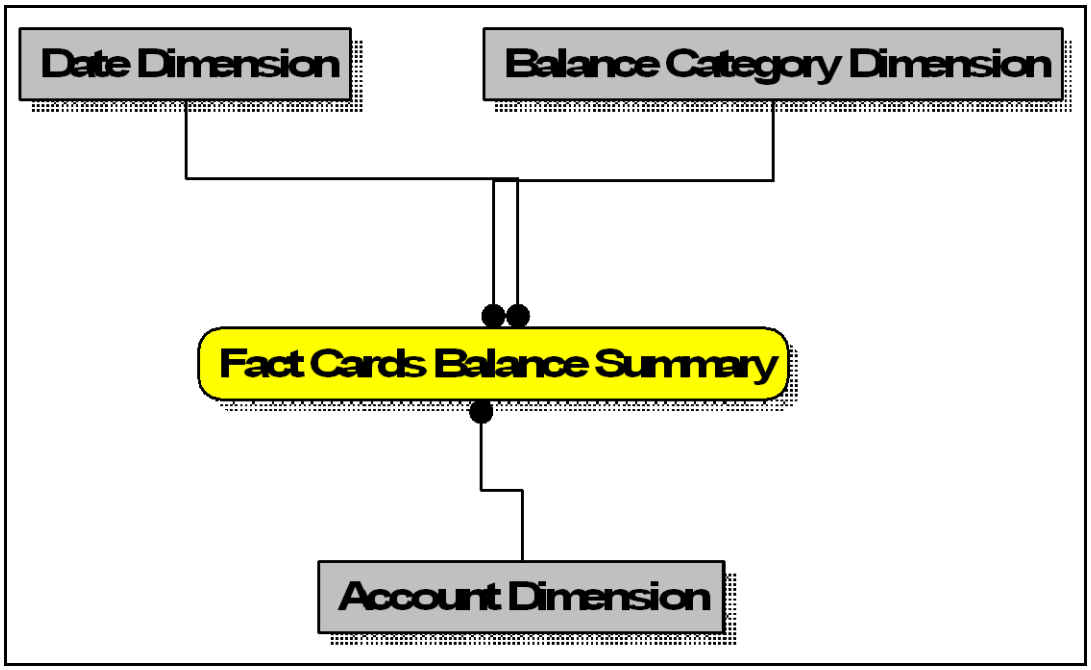


Figure 9. Fact Cards Balance Summary

- Fact Common Account Summary

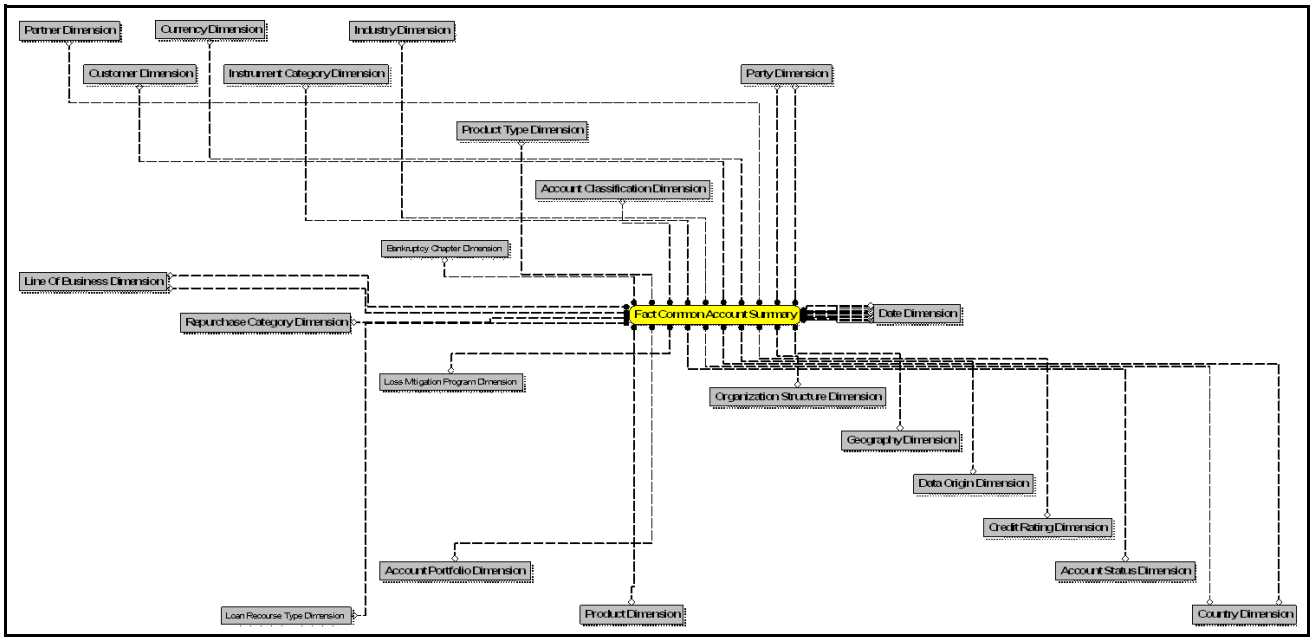


Figure 10. Fact Common Account Summary

- Fact Common Customer Summary

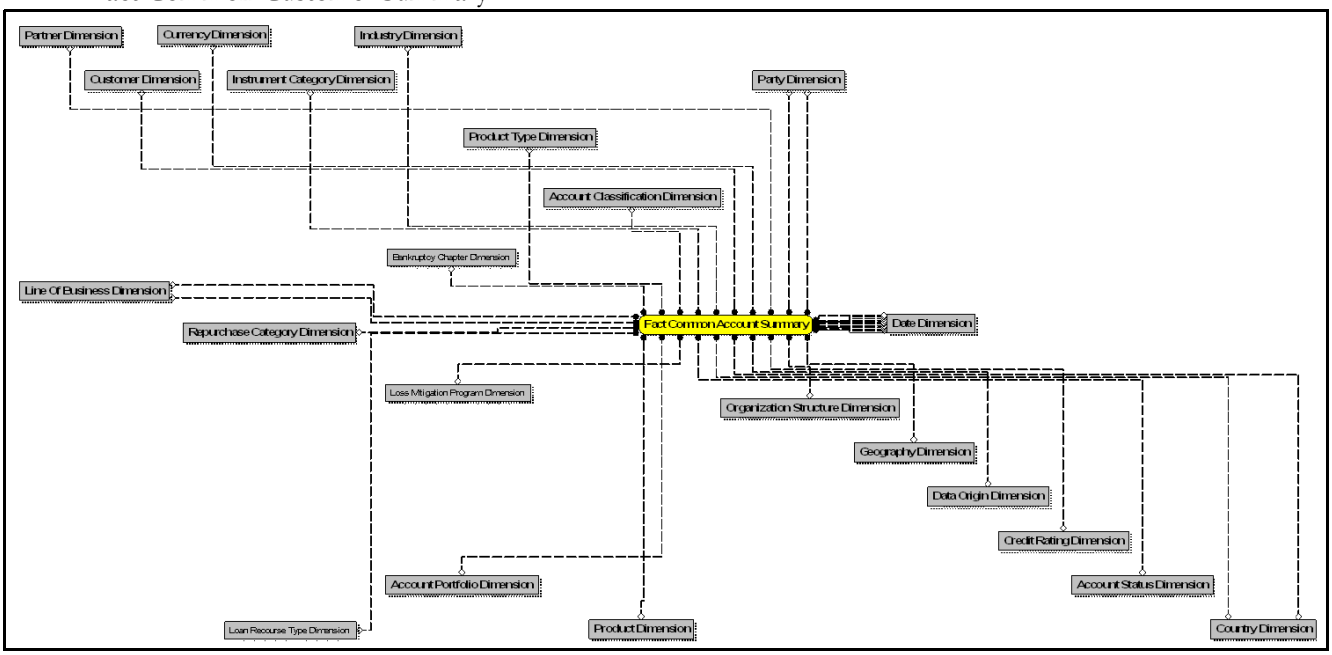


Figure 11. Fact Common Customer Summary

- Fact CRM Account Summary

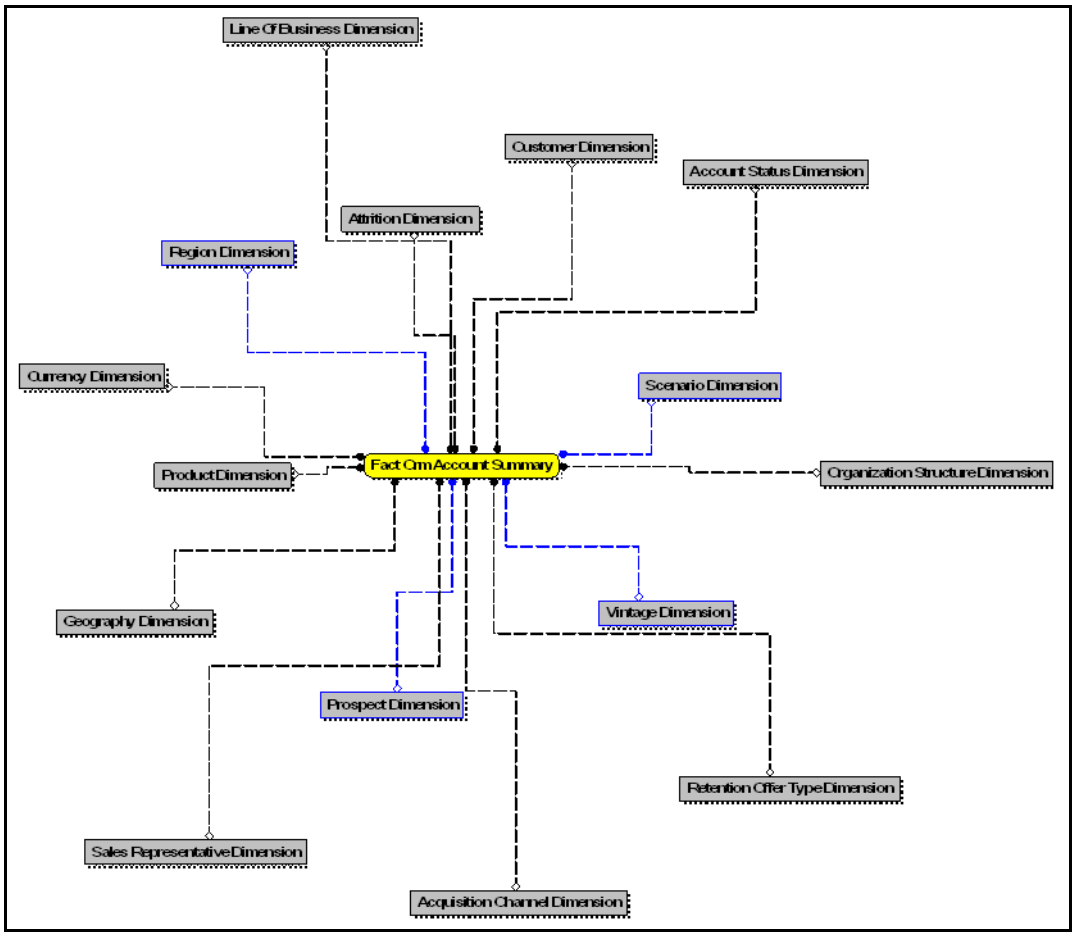


Figure 12. Fact CRM Account Summary

- Fact Cust Cust Relationship

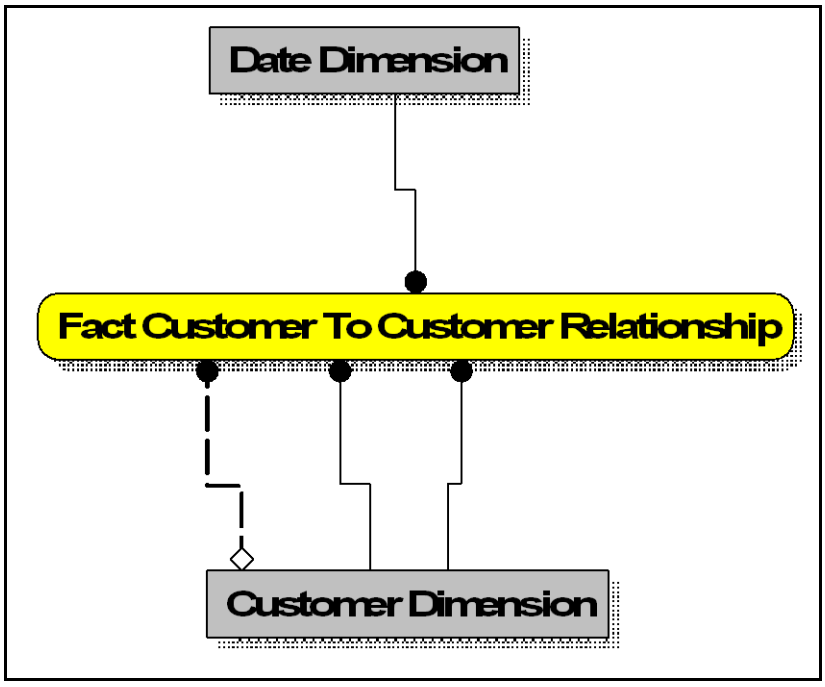


Figure 13. Fact Cust Cust Relationship

- Fact Eco Cap Account Summary

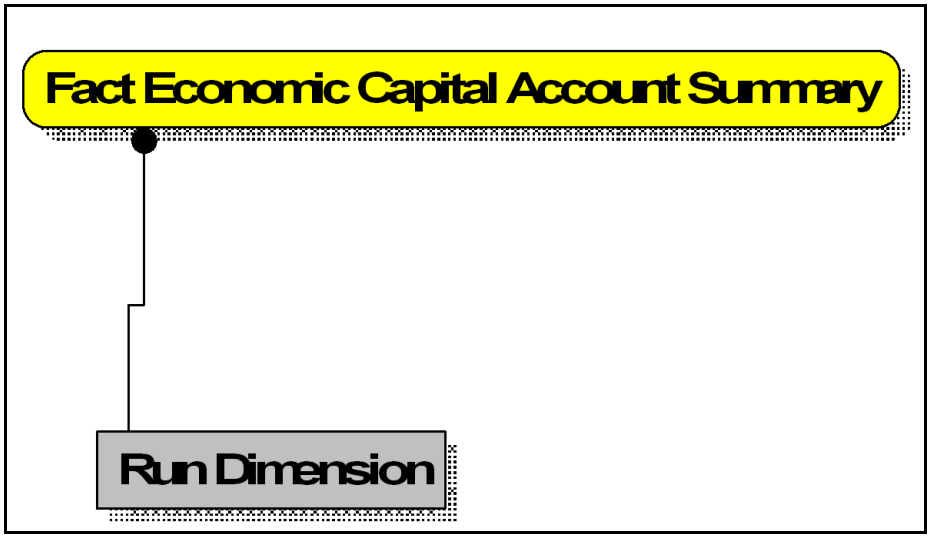


Figure 14. Fact Eco Cap Account Summary

- Fact Partner Expense

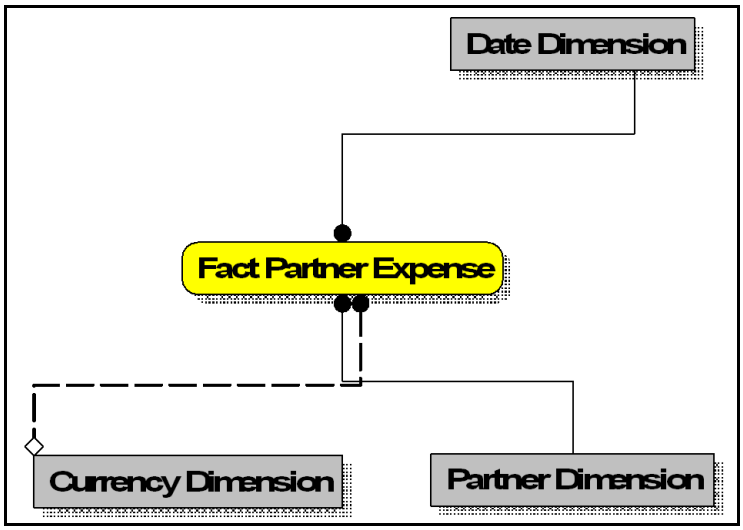


Figure 15. Fact Partner Expense

- Fact Reg Cap Account Summary

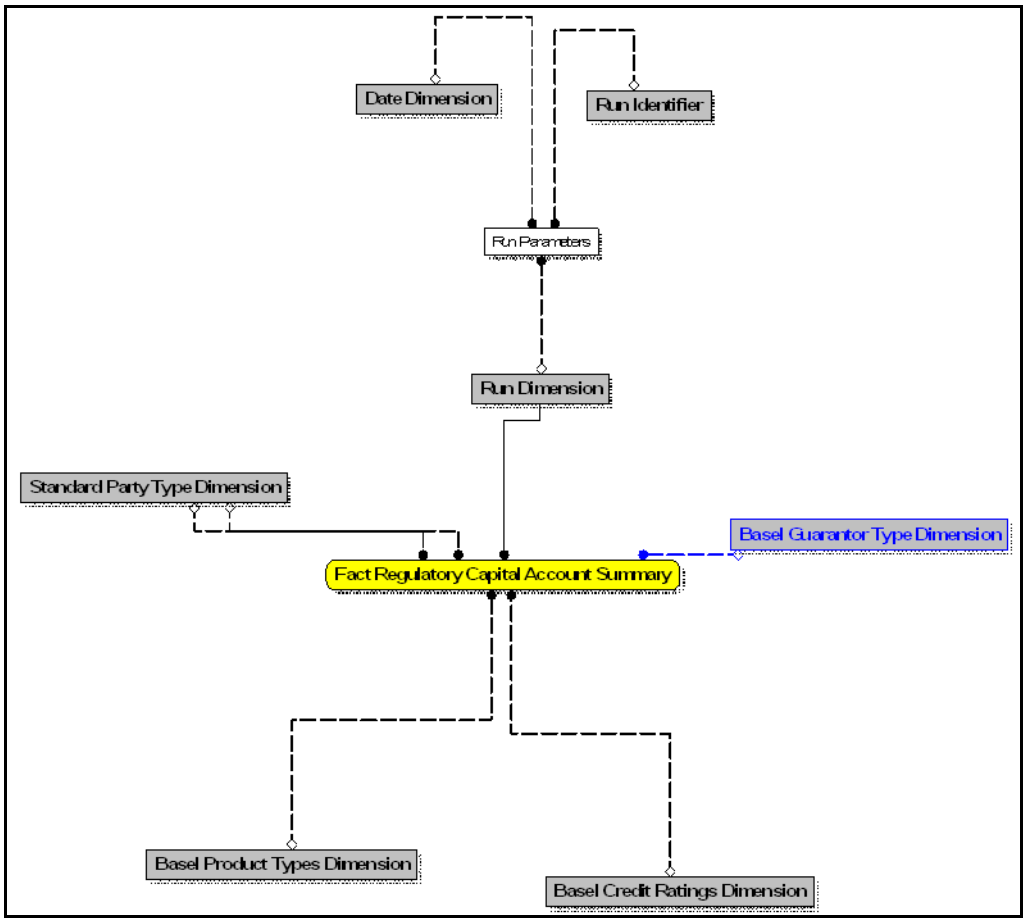


Figure 16. Fact Reg Cap Account Summary

- Fact Sales Representative Compensation

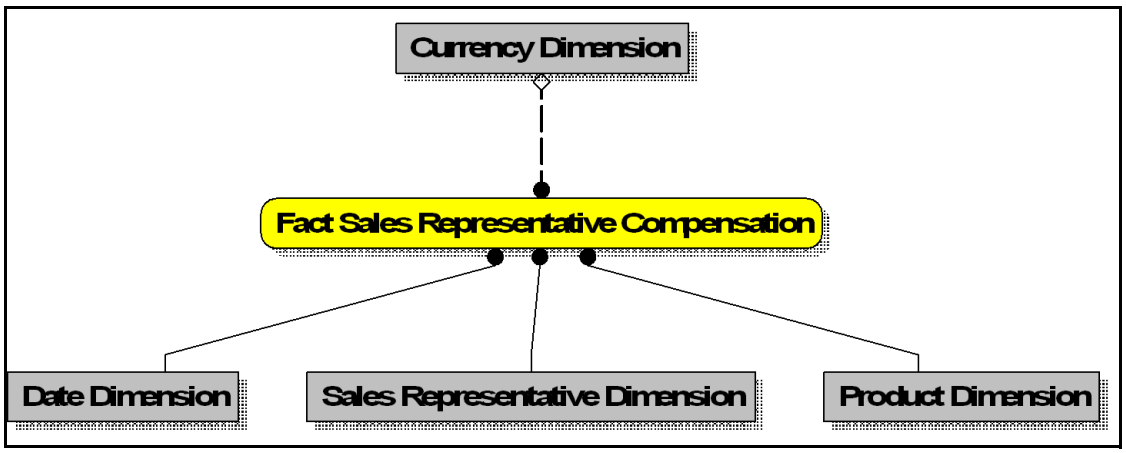


Figure 17. Fact Sales Representative Compensation

- Fact Transaction Channel

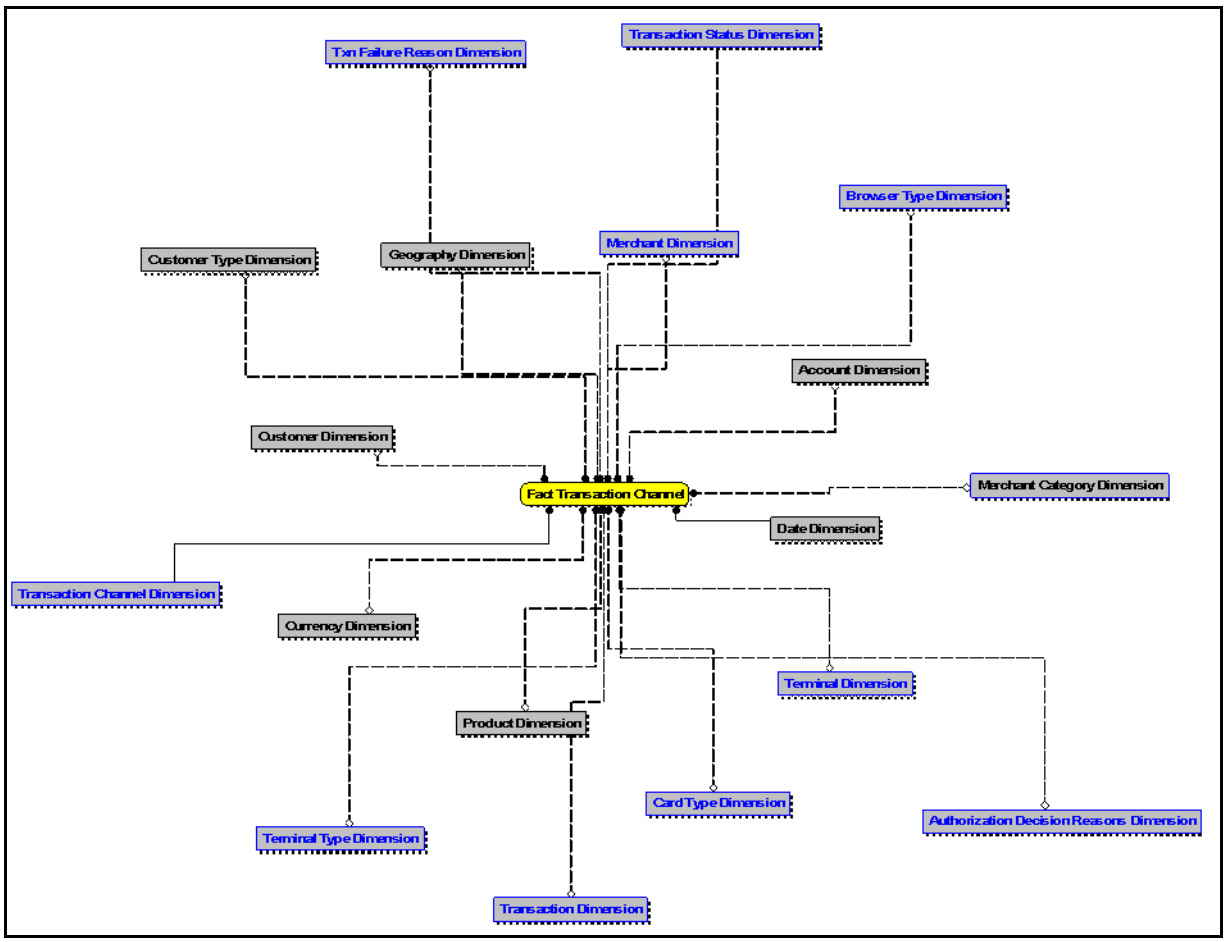


Figure 18. Fact Transaction Channel

- Fact Transaction Summary

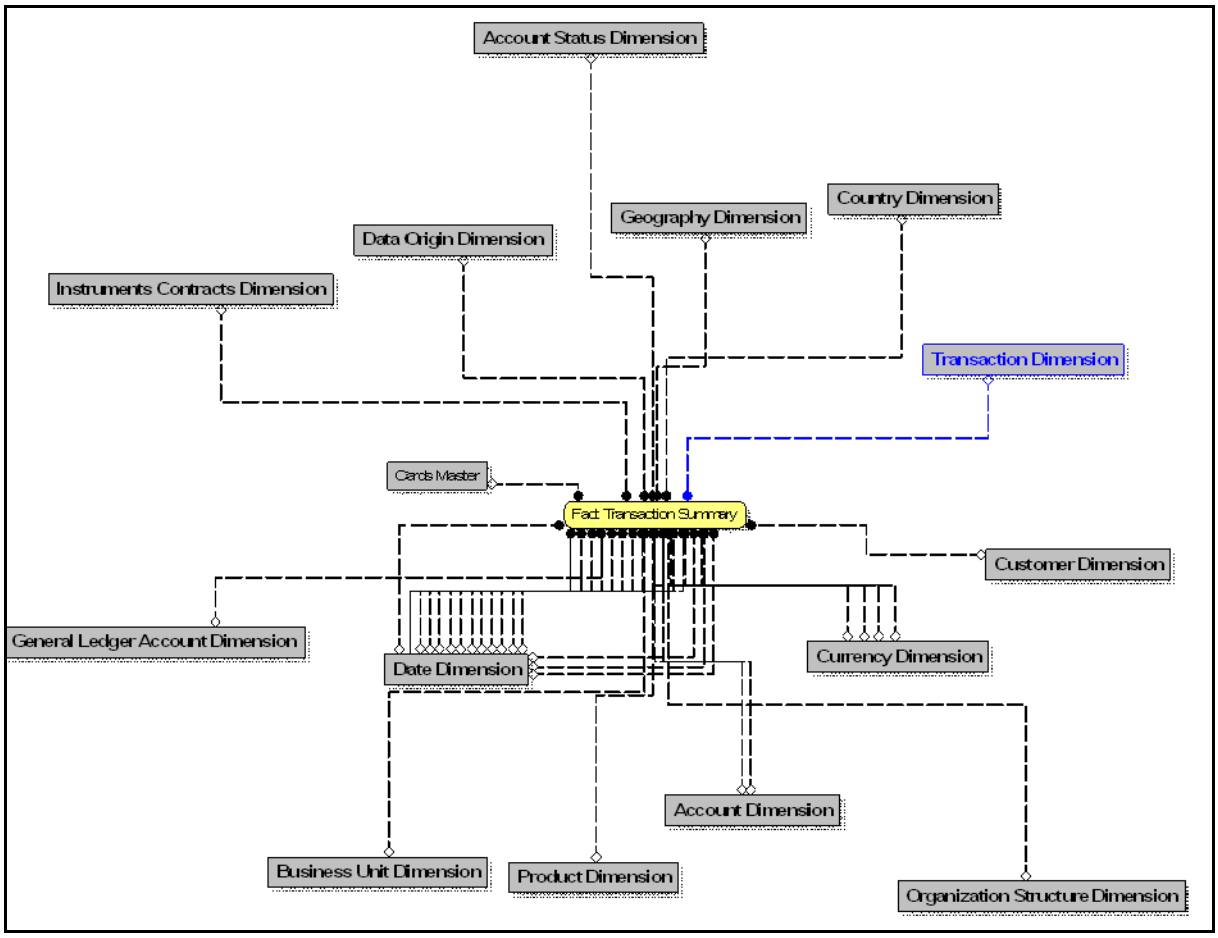


Figure 19. Fact Transaction Summary

- FTP Account Summary

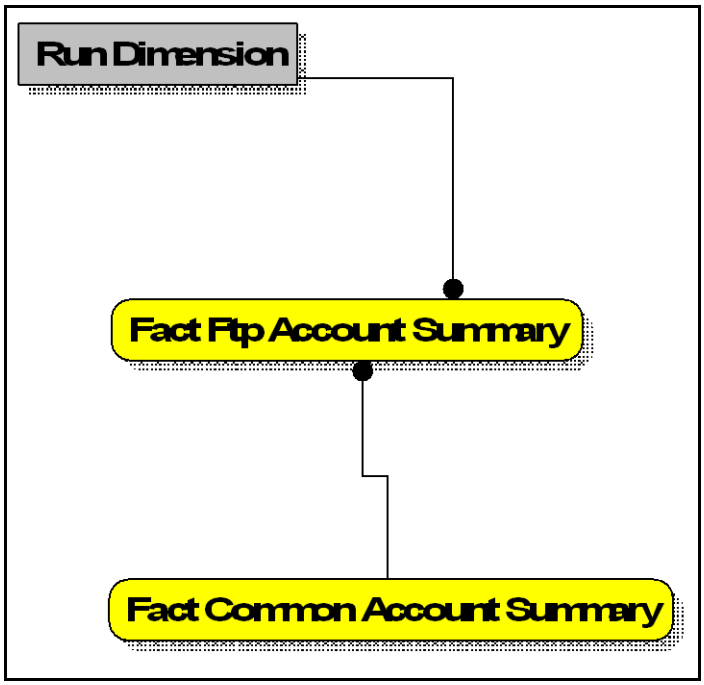


Figure 20. FTP Account Summary

- PFT Account Summary

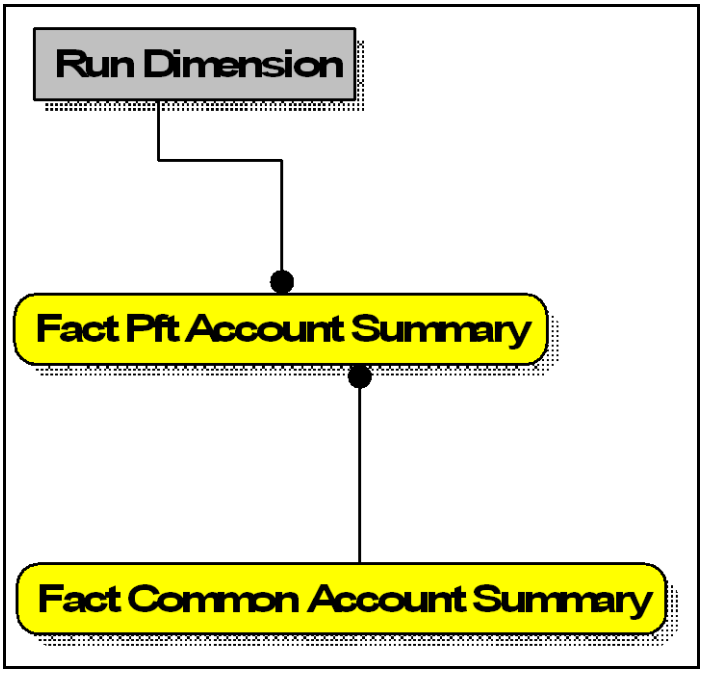


Figure 21. PFT Account Summary

- PFT Customer Summary

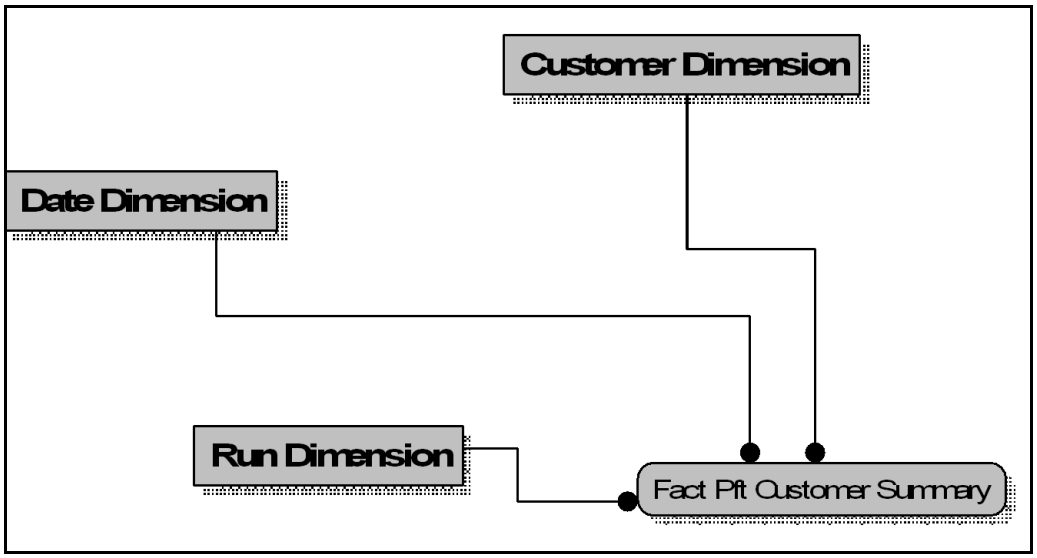


Figure 22. PFT Customer Summary

OFSRPA BI Data Model to Essbase Cubes

Reports of OFSRPA application can be configured to work on Relational database or Hyperion Essbase Multi-dimensional databases, that is cubes. Multi-dimensional databases store aggregated data for better performance and provide mechanisms for performing non-additive rollup within a hierarchy and defining complex derived measures using cross-dimensional operations. OFSAA Infrastructure is used for defining metadata about the cube and for building the Essbase cubes. Essbase cubes can be built out of reporting fact entities to improve performance.

OFSRPA application has the following seeded cube metadata:

Table 4. Seeded Cube Metadata

Cube Code	Cube Name	Fact Entities in dataset
ADCRM002	Retail Analysis	Fact Common Account Summary Fact CRM Account Summary Fact Common Customer Summary Fact CRM Customer Summary Fact FTP Account Summary Fact PFT Account Summary
ADCRM009	Cards Balance Summary	Fact Common Account Summary Fact CRM Account Summary Fact Common Customer Summary Fact CRM Customer Summary Fact Cards Balance Summary
ADCRM010	Account Profitability	Fact Common Account Summary Fact CRM Account Summary Fact Common Customer Summary Fact CRM Customer Summary Fact Account Profitability
ADCRM011	Customer Summary	Fact Common Customer Summary Fact CRM Customer Summary
ADRPARM1	RM PnL Cube for RPA	FCT_ACCOUNT_PROFITAIBILTY FCT_ACCOUNT_MGR_REL

CHAPTER 3 Dimension Loading Process

OFSRPA solution uses the SCD component to handle dimensional data changes.

This chapter discusses the following topics:

- Overview of SCD Process
- Tables Used by the SCD Component
- Executing the SCD Component

Overview of SCD Process

SCDs are dimensions that have data that changes slowly, rather than changing on a time-based, regular schedule.

For more information on SCDs, see:

- *Oracle Data Integrator Best Practices for a Data Warehouse* at http://www.oracle.com/technetwork/middleware/data-integrator/overview/odi-bestpractices-datawarehouse-whi-129686.pdf
- *Oracle® Warehouse Builder Data Modeling, ETL, and Data Quality Guide* at http://docs.oracle.com/cd/E14072_01/owb.112/e10935.pdf

Additional online sources include:

- http://en.wikipedia.org/wiki/Slowly_changing_dimension
- http://www.oracle.com/webfolder/technetwork/tutorials/obe/db/10g/r2/owb/owb10gr2_gs/owb/lesson3/slowlychangingdimensions.htm
- http://www.oraclebidwh.com/2008/11/slowly-changing-dimension-scd/
- http://www.informationweek.com/news/software/bi/showArticle.jhtml?articleID=2 04800027&pgno=1
- http://www.informationweek.com/news/software/bi/showArticle.jhtml?articleID=5 9301280

An excellent published resource that covers SCD in detail is "*The Data Warehouse Toolkit: The Complete Guide to Dimensional Modeling*" by Ralph Kimball and Margy Ross.

The SCD component of the platform is delivered via a C++ executable. The types of SCD handled by the OFSAAI SCD component for OFSPA solution are Type 1 and Type 2.

Prerequisites

- The SCD executable should be present under <installation home>ficdb/bin. The file name is scd.
- The user executing the SCD component should have execute rights on the file mentioned as prerequisite in point 2.
- The setup tables accessed by SCD component are SYS_TBL_MASTER and SYS_STG_JOIN_MASTER.
  - SYS_TBL_MASTER stores the information like which is the source stage table and the target dimension tables. The source sometimes can be the database views which could be simple or a complex view.

- SYS_STG_JOIN_MASTER stores the information like which source column is mapped to which column of a target dimension table. It makes use of data base sequence to populate into surrogate key columns of dimension tables.

Tables Used by the SCD Component

The database tables used by the SCD component are:

- **SYS_TBL_MASTER**: The solution installer will populate one row per dimension for the seeded dimensions in this table.

Table 5. SYS_TBL_MASTER Dimensions

Column Name	Data Type	Column Description
MAP_REF_NUM	NUMBER(3) NOT NULL	The Mapping Reference Number for this unique mapping of a Source to a Dimension Table.
TBL_NM	VARCHAR2(30) NOT NULL	Dimension Table Name
STG_TBL_NM	VARCHAR2(30) NOT NULL	Staging Table Name
SRC_PRTY	NUMBER(2) NULL	Priority of the Source when multiple sources are mapped to the same target.
SRC_PROC_SEQ	NUMBER(2) NOT NULL	The sequence in which the various sources for the DIMENSION will be taken up for processing.
SRC_TYP	VARCHAR2(30) NULL	The type of the Source for a Dimension, that is, Transaction Or Master Source.
DT_OFFSET	NUMBER(2) NULL	The offset for calculating the Start Date based on the Functional Requirements Document (FRD).
SRC_KEY	NUMBER(3) NULL	
Sample Data: This is the row put in by the solution installer for the Line of Business dimension.		
MAP_REF_NUM	6	
TBL_NM	DIM_LOB	
STG_TBL_NM	STG_LOB_MASTER	
SRC_PRTY		
SRC_PROC_SEQ	23	
SRC_TYP	MASTER	
DT_OFFSET	0	
SRC_KEY		

Note: For any new dimension added, a row will have to be inserted to this table manually.

- **SYS_STG_JOIN_MASTER**: The solution installer will populate this table for the seeded dimensions.

Table 6. SYS_STG_JOIN_MASTER Dimensions

Column Name	Data Type	Column Description
MAP_REF_NUM	NUMBER(3) NOT NULL	The Mapping Reference Number for this unique mapping of a Source to a Dimension Table.
COL_NM	VARCHAR2(30) NOT NULL	Name of the column in the Dimension Table.
COL_TYP	VARCHAR2(30) NOT NULL	Type of column. The possible values are given in the following section.
STG_COL_NM	VARCHAR2(60) NULL	Name of the column in the Staging Table.
SCD_TYP_ID	NUMBER(3) NULL	SCD type for the column.
PRTY_LOOKUP_REQD_FLG	CHAR(1) NULL	Column to determine whether Lookup is required for Priority of Source against the Source Key Column or not.
COL_DATATYPE	VARCHAR2(15) NULL	The list of possible values are VARCHAR, DATE, NUMBER based on the underlying column datatype.
COL_FORMAT	VARCHAR2(15) NULL	The possible values for column type (the COL_TYPE column) in SYS_STG_JOIN_MASTER are: ● PK - Primary Dimension Value (may be multiple for a given "Mapping Reference Number") ● SK - Surrogate Key ● DA - Dimensional Attribute (may be multiple for a given "Mapping Reference Number") ● SD - Start Date ● ED - End Date ● LRI - Latest Record Indicator (Current Flag) ● CSK - Current Surrogate Key ● PSK - Previous Surrogate Key ● SS - Source Key ● LUD - Last Updated Date / Time ● LUB - Last Updated By
Sample Data: This is the row put in by the solution installer for the Line of Business dimension.		

Table 6. SYS_STG_JOIN_MASTER Dimensions

Column Name	Data Type	Column Description
MAP_REF_NUM	6	
COL_NM	V_LOB_CODE	
COL_TYP	PK	
STG_COL_NM	V_LOB_CODE	
SCD_TYP_ID		
PRTY_LOOKUP_REQD_FLG	N	
COL_DATATYPE	VARCHAR	
COL_FORMAT	61	

Note: For any new dimension added, the column details will have to be inserted to this table manually.

- **DIM_<dimensionname>_V** :The database view which SCD uses as the source.

  Example:

  `Dim_Bands_V`

  These views come as part of install for the dimensions seeded with the application.

Note: For any new dimension added, a view will have to be created similar to DIM_BANDS_V.

- **DIM_<dimensionname>** : Output table to which SCD writes the dimension data. A sequence should be added for every user-defined dimension.:

  Example

  ```
  create sequence SEQ_DIM_<DIM>minvalue 1 maxvalue 999999999999999999999999999
  increment by 1
  ```

Executing the SCD Component

You can execute the function from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI, as mentioned below:

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section *How to Define a Batch*.

Note: A seeded batch `<Infodom>_SCD_Retail_Perf_Analy_Dim` is provided which has all the required dimensions as different tasks that are part of SCD.

To execute the SCD component from OFSAAI ICC framework create a batch according to the following steps:

Note: For a more comprehensive coverage of configuration and execution of a batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

1. From the Home menu, select **Operations**, then select **Batch Maintenance**.
2. Select the Batch by clicking the check box in the Batch Name container.
3. Click **New Task** ('+' symbol in Task Details container).

4. Enter the Task ID and Description.
5. Select **Run Executable**, from the Component ID list.
6. Click **Parameters**. Select the following from the Dynamic Parameters List and then click **Save**:
   - Datastore Type - Select the appropriate datastore from the list
   - Datastore Name - Select the appropriate name from the list
   - IP address - Select the IP address from the list
   - Executable - scd,<map ref num>
     Example
     `scd, 61` (Refer the following sections for details)
   - Wait - When the file is being executed you have the choice to either wait till the execution is complete or proceed with the next task. Click the list box of the field provided for Wait in the Value field to select 'Yes' or 'No'. Clicking **Yes** confirms that you wish to wait for the execution to be complete. Clicking **No** indicates that you wish to proceed.
   - Batch Parameter - Clicking **Yes** would mean that the batch parameters are also passed to the executable being started; else the batch parameters will not be passed to the executable.
     Important: Always select Y in Batch Parameter.
7. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the *Batch Execution* section of OFSAAI Operations module.

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen. You can access this from the Left Hand Side (LHS) menu as follows:

1. From the Home menu, select **Operations**, then select **Batch Monitor**.

Note: For a more comprehensive coverage, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

The status messages in Batch Monitor are :

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The ICC execution log can be accessed on the application server in the following directory:
`$FIC_DB_HOME/log/ficgen`.

The file name will have the batch execution ID.

Sample:

```
/dbfiles/home/oracle/OFSAAI/ficdb/log/ficgen
```

The detailed SCD component log can be accessed on the application server in the directory $FIC_HOME, go one folder up from there and then accessing the following path /ftpshare/<infodom name>/logs

The file name will have the batch execution ID.

Sample:

```
/dbfiles/home/oracle/ftpshare/OFSAADEMO/logs
```

Check the .profile file in the installation home if you are not able to find the paths mentioned earlier.

CHAPTER 4 Time Dimension Population

Business data commonly represents information as of a point in time (for example, a balance as of a point in time) or as of a particular span of time (for example, income for the month of March). Time dimension makes it possible to report the balances by Year, Quarter or Month using the rollup functionality of cubes. Cubes makes it possible to rollup the monthly balances to a quarter and then to a year level. For example, the monthly data for January, February and March gets rolled up to Quarter 1 and the Quarter 1, 2, 3 and 4 data get rolled up to, say Year 2011. The rollup of a particular balance depending on their nature could be a simple additive rollup wherein the child member balances are added up to arrive at the parent node balance (for example, Ending Balance) or non additive rollups wherein a node formula is used to specify how to rollup the child member balances (for example, 3 month rolling average).

This chapter covers the following topics:

Overview of Time Dimension Population

Time dimension population transformation is used to populate the DIM_DATES table with values between two dates specified by the user as a batch parameter.

The database components, used by the transformations are:

- Database function - FN_DIM_DATES
- Database procedure - PROC_DIM_DATES_POPULATION, which is called by the function FN_DIM_DATES.

Prerequisites

- All the post install steps mentioned in the Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration guide and the solution installation manual of Oracle Financial Services Retail Customer Analytics have to be completed successfully.
- Application User must be mapped to a role that has seeded batch execution function (BATPRO).
- Before executing a batch check if the following services are running on the application server (For more information on how to check if the services are up and on and how to start the services if you find them not running, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*).
  - Iccserver
  - Router
  - AM Server
  - Messageserver

- Batches will have to be created for executing the function. For more details see, *Executing the Time dimension population transformation*, page XX

Tables Used by the Time Dimension Population Transformation

- DIM_DATES - This table stores the date details to be used for building the cubes.

For more details on viewing the structure of earlier tables, refer to *Oracle Financial Services Analytical Applications Data Model Data Dictionary* or the *Erwin Data Model.*

Executing the Time Dimension Population Transformation

You can execute the function from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI, as mentioned below:

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section *How to Define a Batch.*

Note: A seeded batch `<INFODOM>_aCRM_CommonTasks - Task2` is provided so that the user can just modify the parameters and execute the batch.

To execute the function from OFSAAI Information Command Center (ICC) frame work, create a batch by performing the following steps:

Note: For a more comprehensive coverage of configuration and execution of a batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide.*

1. Select the Batch by clicking on the checkbox in the Batch Name container.
2. Click **New Task** ('+' symbol in Task Details container).
3. Enter the Task ID and Description.
4. Select **Transform Data**, from the components list.
5. Select the following from the Dynamic Parameters List and then click **Save**:
   - Datastore Type - Select appropriate datastore from the list
   - Datastore Name - Select appropriate name from the list
   - IP address - Select the IP address from the list
   - Rule Name - Select Dim_Dates_Population from the list of all available transformations. (This is a seeded Data Transformation which is installed as part of the OFSRCA solution installer. If you don't see this in the list, contact Oracle support)
   - Parameter List - Start Date, End Date
     Explanation for the parameter list is:
     - Start Date - This is the date starting from which the Transformation will populate Dim_Dates table. Date should be specified in the format 'YYYYMMDD'.
     - End Date - This is the date up to which the Transformation will populate Dim_Dates table. Date should be specified in the format 'YYYYMMDD'.
       Sample parameter for this task is '20081131','20091231'.

6. Click **Save**. The Task definition is saved for the selected Batch.
7. You can execute a Batch definition from the *Batch Execution* section of OFSAAI Operations module.

   The function can also be executed directly on the database through SQLPLUS. Details are:

   Function Name: FN_DIM_DATES

   Parameters: p_batch_run_id, p_as_of_date, P_ST_DT, P_ED_DT Sample parameter values : 'Batch1','20091231', '20081131','20091231'

Checking the Execution Status

The status of execution can be monitored using the batch monitor screen.

Note: For a more comprehensive coverage of configuration & execution of a batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

The status messages in batch monitor are :

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The Event Log window in Batch Monitor provides logs for execution with the top row being the most recent. If there is any error during execution, it will get listed here. Even if you see Successful as the status in Batch Monitor it is advisable to go through the Event Log and re-check if there are any errors. The execution log can be accessed on the application server by going to the following directory $FIC_DB_HOME/log/date. The file name will have the batch execution ID.

The database level operations log can be accessed by querying the FSI_MESSAGE_LOG table. The batch run ID column can be filtered for identifying the relevant log.

Note: Check the .profile file in the installation home if you are not able to find the paths mentioned earlier.

CHAPTER 5 Customer Dimension Population

In the current setup, Customer Dimension is populated as part of Party Model, where DIM_CUSTOMER derives its attributes from DIM_PARTY based on the Parties that have been assigned the role of a Customer.

This section discusses the following topics:

- Populating Party Dimension
- FSI_MERGE_SETUP_DETAILS
- FSI_MERGE_SETUP_MASTER

Populating Party Dimension

DIM_PARTY table will be populated first from stage table - STG_PARTY_MASTER using SCD. Function FN_PARTY_DENORMALIZE_DT will populate DIM_CUSTOMER from DIM_PARTY. The function is used to populate DIM_CUSTOMER table using a sequence.

The primary key for DIM_PARTY - N_PARTY_SKEY will be the surrogate key generated for the natural key - Party ID, an alphanumeric unique identifier within each staging instrument tables. This information is stored in DIM_CUSTOMER table as N_CUST_SKEY.

FSI_MERGE_SETUP_DETAILS

Customer dimension population makes use of setup table FSI_MERGE_SETUP_DETAILS. It would have seeded entries from the application installation. This table stores the mapping between source and target columns.

Table 7. Columns in FSI_MERGE_SETUP_DETAILS

Column Name	Data Type	Column Description
MERGE_CODE	VARCHAR2 (50 CHAR)	This is the role of the party, that is, customer, issuer, and so on.
SOURCE_TABLE	VARCHAR2 (30 CHAR)	This is the source table for Customer dimension population.
SOURCE_COLUMN	VARCHAR2 (30 CHAR)	This is the source column for Customer dimension population.
TARGET_COLUMN	VARCHAR2 (30 CHAR)	This is the target column for Customer dimension population.
DEFAULT_VALUE	VARCHAR2 (4000 CHAR)	This is the default value for some target columns.
NVL_EXPRESSION	VARCHAR2 (30 CHAR)	This is the nvl expression applied on the source column for Customer dimension population.
AGGREGATE_FUNCTION	VARCHAR2 (30 CHAR)	This is used for aggregating data for some source columns.
Sample Data:		
MERGE_CODE	MI	

Table 7. Columns in FSI_MERGE_SETUP_DETAILS

Column Name	Data Type	Column Description
TABLE SOURCE	DIM_PARTY	
SOURCE_COLUMN	V_PARTY_ID V_MIDDLE_NAME V_LAST_NAME	
TARGET_COLUMN	V_ISSUER_CODE V_D_CUST_MIDDLE _NAME V_D_CUST_LAST_NAME	
DEFAULT_VALUE		
NVL_EXPRESSION		
AGGREGATE_FUNCTION		

FSI_MERGE_SETUP_MASTER

Customer dimension population makes use of setup table FSI_MERGE_SETUP_MASTER as well. It would have seeded entries from the application installation. This table stores the mapping between source and target tables.

Table 8. Columns in FSI_MERGE_SETUP_MASTER

Column Name	Data Type	Column Description
MERGE_CODE	VARCHAR2 (50 CHAR)	This is the role of the party, that is, customer, issuer, and so on.
SOURCE_TABLES	VARCHAR2 (4000 CHAR)	This is the list of source tables for Customer dimension population.
TARGET_TABLE	VARCHAR2 (30 CHAR)	This is the target column for Customer dimension population.
ANSI_JOIN	VARCHAR2 (4000 CHAR)	This is the join condition that results in dataset.
FILTER_CONDITION	VARCHAR2 (4000 CHAR)	This is used for filtering the values in where clause.
Sample Data:		
MERGE_CODE	M1	
SOURCE_TABLES	DIM_PARTY	
TARGET_TABLE	DIM_CUSTOMER	
ANSI_JOIN		
FILTER_CONDITION		

Executing the Customer Dimension Population

To execute the customer dimension population, create a batch by performing the following steps:

1. From the Home menu, select **Operations**, then select **Batch Maintenance**.
2. Click **New Batch** ('+' symbol in Batch Name container) and enter the Batch Name and description.
3. Click **Save**.
4. Select the Batch you have created in the earlier step by clicking on the check box in the Batch Name container.

5. Click **New Task** ('+' symbol in Task Details container).
6. Enter the Task ID and Description.
7. Select **Transform Data** from the components list.
8. Select the following from the Dynamic Parameters List and then click **Save**:
   - Datastore Type - Select appropriate datastore from the list
   - Datastore Name - Select appropriate name from the list. Generally, it is the infodom name.
   - IP address - Select the IP address from the list
   - Rule Name - FN_PARTY_DENORMALIZE_DT

   Parameter List: Surrogate Key Required Flag - Y or N
   Batch run ID and As of Date are passed internally by the ICC to the Data Transformation task.
9. Execute the batch from Batch Execution by choosing the batch created following the steps mentioned in the preceding sections for a required date.

Note: A seeded batch<INFODOM> aCRM_CommonTasks - Task3 is provided so that the user can just modify the parameters and execute the batch.

Checking the Execution Status

The status of execution can be monitored from the Batch Monitor screen of OFSAAI Operations module.

Note: For a more comprehensive coverage of configuration & execution of a batch, refer to *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

The status messages in Batch Monitor are:

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The Event Log window in Batch Monitor provides logs for execution with the top row being the most recent. If there is any error during execution, it will get listed here. Even if you see Successful as the status in Batch Monitor it is advisable to go through the Event Log and re-check if there are any errors. The execution log can be accessed on the application server by going to the directory$FIC_DB_HOME/log/date. The file name will have the Batch Execution ID.

The database level operations log can be accessed by querying the FSI_MESSAGE_LOG table. The batch run id column can be filtered for identifying the relevant log.

Check the .profile file in the installation home if you are not able to find the paths mentioned above.

CHAPTER 6 Account Dimension Population

Data Foundation solutions use the SCD component to handle dimensional data changes.

This chapter discusses the following topics:

- Overview of SCD Process
- Tables Used by the SCD Component
- Executing the SCD Component

Overview of SCD Process

A Slowly Changing Dimension (SCD) is a dimension that stores and manages both current and historical data over time in a data warehouse. SCDs are dimensions that have data that changes slowly, rather than changing on a time-based, regular schedule. It is considered and implemented as one of the most critical ETL tasks in tracking the history of dimension records. There are three types of SCDs and you can use Warehouse Builder to define, deploy, and load all three types of SCDs.

Type 1 SCDs - Overwriting

The Type 1 methodology overwrites old data with new data, and therefore does not track historical data. This is useful for making changes to dimension data.

Table 9. Type 1 SCDs - Overwriting

Name	Description	Value
N_PRODUCT_SKEY	The surrogate key column which is a unique key for each record in the dimension table.	1
V_PRODUCT_ NAME	Product Name	PL
D_START_DATE	Indicates the date from which this product record is valid.	5/31/2010
D_END_DATE	Indicates the date till which this product record is valid.	12/31/9999
F_LATEST_RECORD_INDICATOR	Value 'Y' indicates this is the latest record in the dimension table for this product and 'N' indicates it is not.	N

If the V_PRODUCT_NAME column is set as a Type 1 SCD column and if there is a change in the product name to 'Personal Loan' from 'PL' in the above example, in the next processing period, then when SCD is executed for the new processing period the record in the above example changes to: .

Table 10. Type 1 SCDs - Overwriting1

Name	Description	Value
N_PRODUCT_SKEY	The surrogate key column which is a unique key for each record in the dimension table.	1
V_PRODUCT_ NAME	Product Name	Personal Loan

Table 10. Type 1 SCDs - Overwriting1

Name	Description	Value
D_START_DATE	Indicates the date from which this product record is valid.	6/30/2010
D_END_DATE	Indicates the date till which this product record is valid.	12/31/9999
F_LATEST_RECORD_INDICATOR	Value 'Y' indicates this is the latest record in the dimension table for this product and 'N' indicates it is not.	Y

Type 2 SCDs - Creating another dimension record

The Type 2 method tracks historical data by creating multiple records for a given natural key in the dimensional tables with separate surrogate keys. With Type 2, the historical changes in dimensional data are preserved. In the above example for the change in product name from 'PL' to 'Personal Loan' if history has to be preserved, then the V_PRODUCT_NAME column has to be set as Type 2 when SCD is processed for the processing period and the change inserts a new record as shown in the following example:.

Table 11. Type 2 SCDs - Creating another dimension record

Name	Description	Value
N_PRODUCT_SKEY	The surrogate key column which is a unique key for each record in the dimension table.	1
N_PRODUCT_SKEY	The surrogate key column which is a unique key for each record in the dimension table.	2
V_PRODUCT_ NAME	Product Name	PL
V_PRODUCT_ NAME	Product Name	Personal Loan
D_START_DATE	Indicates the date from which this product record is valid.	5/31/2010
D_START_DATE	Indicates the date from which this product record is valid.	6/30/2010
D_END_DATE	Indicates the date till which this product record is valid.	12/31/9999
D_END_DATE	Indicates the date till which this product record is valid.	12/31/9999
F_LATEST_RECORD_INDICATOR	Value 'Y' indicates this is the latest record in the dimension table for this product and 'N' indicates it is not.	N
F_LATEST_RECORD_INDICATOR	Value 'Y' indicates this is the latest record in the dimension table for this product and 'N' indicates it is not.	Y

A new record is inserted to the product dimension table with the new product name. The latest record indicator for this is set as 'Y', indicating that this is the latest record for the personal loan product. The same flag for the earlier record was set to 'N'.

Type 3 SCDs - Creating a current value field

A Type 3 SCD stores two versions of values for certain selected level attributes. Each record stores the previous value and the current value of the selected attribute.

When the value of any of the selected attributes changes, the current value is stored as the old value and the new value becomes the current value.

For more information on SCDs, see:

- *Oracle Data Integrator Best Practices for a Data Warehouse* at http://www.oracle.com/technetwork/middleware/data-integrator/overview/odi-bestpractices-datawarehouse-whi-129686.pdf
- *Oracle® Warehouse Builder Data Modeling, ETL, and Data Quality Guide* at http://docs.oracle.com/cd/E14072_01/owb.112/e10935.pdf

Additional online sources include:

- http://en.wikipedia.org/wiki/Slowly_changing_dimension
- http://www.oracle.com/webfolder/technetwork/tutorials/obe/db/10g/r2/owb/owb10_gr2_gs/owb/lesson3/slowlychangingdimensions.htm
- http://www.oraclebidwh.com/2008/11/slowly-changing-dimension-scd/
- http://www.informationweek.com/news/software/bi/showArticle.jhtml?articleID=2 04800027&pgno=1
- http://www.informationweek.com/news/software/bi/showArticle.jhtml?articleID=5 9301280

An excellent published resource that covers SCD in detail is "*The Data Warehouse Toolkit: The Complete Guide to Dimensional Modeling*" by Ralph Kimball and Margy Ross.

Prerequisites

- The SCD executable should be present under <installation home>ficdb/bin. The file name is scd.
- The user executing the SCD component should have execute rights on the file mentioned as prerequisite in point 2.
- The setup tables accessed by SCD component are SYS_TBL_MASTER and SYS_STG_JOIN_MASTER.
  - SYS_TBL_MASTER stores the information like which is the source stage table and the target dimension tables. The source sometimes can be the database views which could be simple or a complex view.
  - SYS_STG_JOIN_MASTER stores the information like which source column is mapped to which column of a target dimension table. It makes use of data base sequence to populate into surrogate key columns of dimension tables.

The SCD component of the platform is delivered via a C++ executable. The types of SCD handled by the OFSAAI SCD component for OFSPA solution are Type 1 and Type 2.

Prerequisites

- The SCD executable should be present under <installation home>ficdb/bin. The file name is scd.
- The user executing the SCD component should have execute rights on the file mentioned as prerequisite in point 2.
- The setup tables accessed by SCD component are SYS_TBL_MASTER and SYS_STG_JOIN_MASTER.
  - SYS_TBL_MASTER stores the information like which is the source stage table and the target dimension tables. The source sometimes can be the database views which could be simple or a complex view.
  - SYS_STG_JOIN_MASTER stores the information like which source column is mapped to which column of a target dimension table. It makes use of data base sequence to populate into surrogate key columns of dimension tables.

Tables Used by the SCD Component

The database tables used by the SCD component are:

- **SYS_TBL_MASTER**: The solution installer will populate one row per dimension for the seeded dimensions in this table.

Table 12. SYS_TBL_MASTER Dimensions

Column Name	Data Type	Column Description
MAP_REF_NUM	NUMBER(3) NOT NULL	The Mapping Reference Number for this unique mapping of a Source to a Dimension Table.
TBL_NM	VARCHAR2(30) NOT NULL	Dimension Table Name
STG_TBL_NM	VARCHAR2(30) NOT NULL	Staging Table Name
SRC_PRTY	NUMBER(2) NULL	Priority of the Source when multiple sources are mapped to the same target.
SRC_PROC_SEQ	NUMBER(2) NOT NULL	The sequence in which the various sources for the DIMENSION will be taken up for processing.
SRC_TYP	VARCHAR2(30) NULL	The type of the Source for a Dimension, that is, Transaction Or Master Source.
DT_OFFSET	NUMBER(2) NULL	The offset for calculating the Start Date based on the Functional Requirements Document (FRD).
SRC_KEY	NUMBER(3) NULL	
Sample Data: This is the row put in by the solution installer for the Line of Business dimension.		
MAP_REF_NUM	6	
TBL_NM	DIM_LOB	
STG_TBL_NM	STG_LOB_MASTER	
SRC_PRTY		
SRC_PROC_SEQ	23	
SRC_TYP	MASTER	

Table 12. SYS_TBL_MASTER Dimensions

Column Name	Data Type	Column Description
DT_OFFSET	0	
SRC_KEY		

Note: For any new dimension added, a row will have to be inserted to this table manually.

- **SYS_STG_JOIN_MASTER**: The solution installer will populate this table for the seeded dimensions.

Table 13. SYS_STG_JOIN_MASTER Dimensions

Column Name	Data Type	Column Description
MAP_REF_NUM	NUMBER(3) NOT NULL	The Mapping Reference Number for this unique mapping of a Source to a Dimension Table.
COL_NM	VARCHAR2(30) NOT NULL	Name of the column in the Dimension Table.
COL_TYP	VARCHAR2(30) NOT NULL	Type of column. The possible values are given in the following section.
STG_COL_NM	VARCHAR2(60) NULL	Name of the column in the Staging Table.
SCD_TYP_ID	NUMBER(3) NULL	SCD type for the column.
PRTY_LOOKUP_REQD_FLG	CHAR(1) NULL	Column to determine whether Lookup is required for Priority of Source against the Source Key Column or not.
COL_DATATYPE	VARCHAR2(15) NULL	The list of possible values are VARCHAR, DATE, NUMBER based on the underlying column datatype.

Table 13. SYS_STG_JOIN_MASTER Dimensions

Column Name	Data Type	Column Description
COL_FORMAT	VARCHAR2(15) NULL	The possible values for column type (the COL_TYPE column) in SYS_STG_JOIN_MASTER are: ● PK - Primary Dimension Value (may be multiple for a given "Mapping Reference Number") ● SK - Surrogate Key ● DA - Dimensional Attribute (may be multiple for a given "Mapping Reference Number") ● SD - Start Date ● ED - End Date ● LRI - Latest Record Indicator (Current Flag) ● CSK - Current Surrogate Key ● PSK - Previous Surrogate Key ● SS - Source Key ● LUD - Last Updated Date / Time ● LUB - Last Updated By
Sample Data: This is the row put in by the solution installer for the Line of Business dimension.		
MAP_REF_NUM	6	
COL_NM	V_LOB_CODE	
COL_TYP	PK	
STG_COL_NM	V_LOB_CODE	
SCD_TYP_ID		
PRTY_LOOKUP_REQD_FLG	N	
COL_DATATYPE	VARCHAR	
COL_FORMAT	61	

Note: For any new dimension added, the column details will have to be inserted to this table manually.

- **DIM_<dimensionname>_V** :The database view which SCD uses as the source.

  Example:

  `Dim_Bands_V`

  These views come as part of install for the dimensions seeded with the application.

Note: For any new dimension added, a view will have to be created similar to DIM_BANDS_V.

- **DIM_<dimensionname>** : Output table to which SCD writes the dimension data. A sequence should be added for every user-defined dimension.:

  Example

  ```
  create sequence SEQ_DIM_<DIM>minvalue 1 maxvalue 999999999999999999999999999
  increment by 1
  ```

Executing the SCD Component

You can execute the function from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI, as mentioned below:

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section *How to Define a Batch*.

Note: A seeded batch `<Infodom>_SCD_Retail_Perf_Analy_Dim` is provided which has all the required dimensions as different tasks that are part of SCD.

To execute the SCD component from OFSAAI ICC framework create a batch according to the following steps:

Note: For a more comprehensive coverage of configuration and execution of a batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

1. From the Home menu, select **Operations**, then select **Batch Maintenance**.
2. Select the Batch by clicking the check box in the Batch Name container.
3. Click **New Task** ('+' symbol in Task Details container).
4. Enter the Task ID and Description.
5. Select **Run Executable**, from the Component ID list.
6. Click **Parameters**. Select the following from the Dynamic Parameters List and then click **Save**:
   - Datastore Type - Select the appropriate datastore from the list
   - Datastore Name - Select the appropriate name from the list
   - IP address - Select the IP address from the list
   - Executable - scd,<map ref num>
     Example
     `scd, 61` (Refer the following sections for details)
   - Wait - When the file is being executed you have the choice to either wait till the execution is complete or proceed with the next task. Click the list box of the field provided for Wait in the Value field to select 'Yes' or 'No'. Clicking **Yes** confirms that you wish to wait for the execution to be complete. Clicking **No** indicates that you wish to proceed.
   - Batch Parameter - Clicking **Yes** would mean that the batch parameters are also passed to the executable being started; else the batch parameters will not be passed to the executable.
     Important: Always select Y in Batch Parameter.
7. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the *Batch Execution* section of OFSAAI Operations module.

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen. You can access this from the Left Hand Side (LHS) menu as follows:

1. From the Home menu, select **Operations**, then select **Batch Monitor**.

Note: For a more comprehensive coverage, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

The status messages in Batch Monitor are:

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The ICC execution log can be accessed on the application server in the following directory: `$FIC_DB_HOME/log/ficgen`.

The file name will have the batch execution ID.

Sample:

```
/dbfiles/home/oracle/OFSAAI/ficdb/log/ficgen
```

The detailed SCD component log can be accessed on the application server in the directory $FIC_HOME, go one folder up from there and then accessing the following path /ftpshare/<infodom name>/logs

The file name will have the batch execution ID.

Sample:

```
/dbfiles/home/oracle/ftpshare/OFSAADEMO/logs
```

Check the .profile file in the installation home if you are not able to find the paths mentioned earlier.

Load DIM_ACCOUNT through SCD

The SCD population in DIM_ACCOUNT table generates individual numeric SKEYs for every account number with an additional leg skey. Following are the columns that will be loaded during SCD population:

- V_ACCOUNT_NUMBER
- N_ACCT_SKEY
- N_RCV_LEG_ACCT_SKEY
- FIC_MIS_DATE

This approach replaces the function load in which the table DIM_ACCOUNT is getting loaded through the function, FN_POPDIMACCOUNT. This loads the following columns into DIM_ACCOUNT table:

- V_ACCOUNT_NUMBER
- N_ACCT_SKEY
- N_RCV_LEG_ACCT_SKEY
- FIC_MIS_DATE

Where, the sources are the different product processor tables present in the solution, which are configured in FSI_DIM_ACCOUNT_SETUP_DETAILS table.

DIM_ACCOUNT SCD

Batch <INFODOM>DIM_ACCOUNT_SCD has been introduced with 33 tasks under it. These 33 tasks represent the 33 SCD processes where different product processors would be the source and DIM_ACCOUNT would be the target. MAP_REF_NUMs 188 to 217 have been introduced into SYS_TBL_MASTER table, and subsequently into SYS_STG_JOIN_MASTER.

DIM_ACCOUNT_SCD has been introduced with 33 tasks under it. These 33 tasks represent the 33 SCD processes where different product processors would be the source and DIM_ACCOUNT would be the target. MAP_REF_NUMs 188 to 217 have been introduced into SYS_TBL_MASTER table, and subsequently into SYS_STG_JOIN_MASTER.

Depending on the requirement by an application, a task can be excluded or included from the batch execution.

LOAD DIM TABLES THROUGH SCD

Batch <INFODOM>_SCD has been introduced with 129 tasks under it. These 129 tasks represent the 129 SCD processes where different staging tables would be the source and Dimension Tables would be the targets. The required SCDs have been introduced into SYS_TBL_MASTER table, and subsequently into SYS_STG_JOIN_MASTER.

Depending on the requirement by an application, a task can be excluded or included from the batch execution.

Improve SCD Performance

SCD performance can be improved by providing hints and session alter statements. This requires the presence of the following four columns in SYS_TBL_MASTER:

- merge_hint
- select_hint
- session_enable_statement
- session_disable_statement

Note:

- For improving performance, hints for the MERGE query which is generated internally by the SCD can be provided under MERGE_HINT. Session alters could be mentioned under SESSION_ENABLE_STATEMENT and SESSION_DISABLE_STATEMENT columns.
- SESSION_ENABLE_STATEMENTs will be executed before the MERGE in the SCD and SESSION_DISABLE_STATEMENTs will be executed after the SCD MERGE.
- Since all the tasks under the SCD batch for DIM_ACCOUNT works on the same target, the SESSION_DISABLE_STATEMENTs in SYS_TBL_MASTER cannot be provided when tasks are executed. In this case, there can be a separate SQL file to contain all the SESSION_DISABLE_STATEMENTs to be executed once after all the tasks in the SCD are done. The SESSION_DISABLE_STATEMENT will hold a null in SYS_TBL_MASTER table.
- SESSION_ENABLE_STATEMENTs are required to be mentioned only for the first task in the batch. Here the target is the same for all the tasks under a batch. In case any of the tasks are to be executed separately, then the SESSION_ENABLE_STATEMENTs should be mentioned for any one of the tasks which is included in the batch for the execution.

Table 14. MERGE_HINT and SESSION_ENABLE_STATEMENT in SYS_TBL_MASTER

Table Name	Stage Table Name	Merge Hint	Session Enable Statement
DIM_ACCOUNT	STG_LOAN_CONTRACTS_V	/*+ parallel (DIM_ACCOUNT,10) */	"alter session enable parallel dml query", "alter table DIM_ACCOUNT nologging parallel 10"

- All the tasks can be executed in parallel. This might cause the N_RCV_LEG_ACCT_SKEY to have an incremental value as compared to N_ACCT_SKEY.
- Execute the SQL file with all the SESSION_DISABLE_STATEMENTs, after the successful completion of the SCD batch.
- Once the DIM_ACCOUNT table is populated using this approach, you will not be able to use the initial approach (FN_POPDIMACCOUNT) as this will lead to skey conflict.
- Ensure that you have set the value of the sequence seq_dim_account_scd as max (value of skey in DIM_ACCOUNT) + 1, before moving from old to new approach.

- The F_LATEST_RECORD_INDICATOR for an existing DIM_ACCOUNT data already loaded by the function should be updated to 'Y' before running the SCD, failing which a new skey might get generated for the same account number.
- SCD execution occurs based on the GAAP code which is configured in SETUP_MASTER table. This has been introduced to tackle the scenario of multiple GAAP codes. Whether or not there exist multiple GAAP codes, SETUP_MASTER should be manually configured as follows:

Table 15. SETUP_MASTER Configuration

V_COMPONENT_CO DE	V_COMPONENT_DE SC	V_COMPONENT_VALUE
DEFAULT_GAAP	DEFAULT_GAAP	USGAAP

Where V_COMPONENT_VALUE should be manually populated with the required GAAP code.

Handling Multiple GAAP Codes for the Same Account Number for the Same MIS Date in SCD

When multiple GAAP codes exist for the same account number for the same MIS date, configure the SETUP_MASTER table manually as mentioned in the preceding section:

V_COMPONENT_VALUE will hold the GAAP code for which the SCD is to be executed.

If there are different GAAP codes for two distinct account numbers for the same MIS date, then the SCD has to be executed for each GAAP code by changing the V_COMPONENT_VALUE manually in setup_master table. The SETUP_MASTER table should have only one record WHERE V_COMPONENT_DESC = 'DEFAULT_GAAP'.

CHAPTER 7 Exchange Rate History Population

This chapter discusses the following topics:

Introduction

Exchange Rate History entity stores the exchange rates between the currencies for an effective date from one or multiple sources.

Exchange Rate History population should be executed before any fact table is populated to ensure exchange rates between currencies are available prior. Exchange Rate History entity is loaded by means of T2T Transformation process.

Following is the seeded T2T definition that loads data into Exchange Rate History:

Table 16. T2T Definition Exchange Rate History

T2T Definition Name	Source Table(s)	Destination Table
T2T_EXCHANGE_RATE_HIST	STG_EXCHANGE_RATE_HIST	FSI_EXCHANGE_RATE

Exchange Rate History Population

You can execute the function from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI. A seeded batch, `<INFODOM>_aCRM_CommonTasks - Task4` has to be executed for the required date.

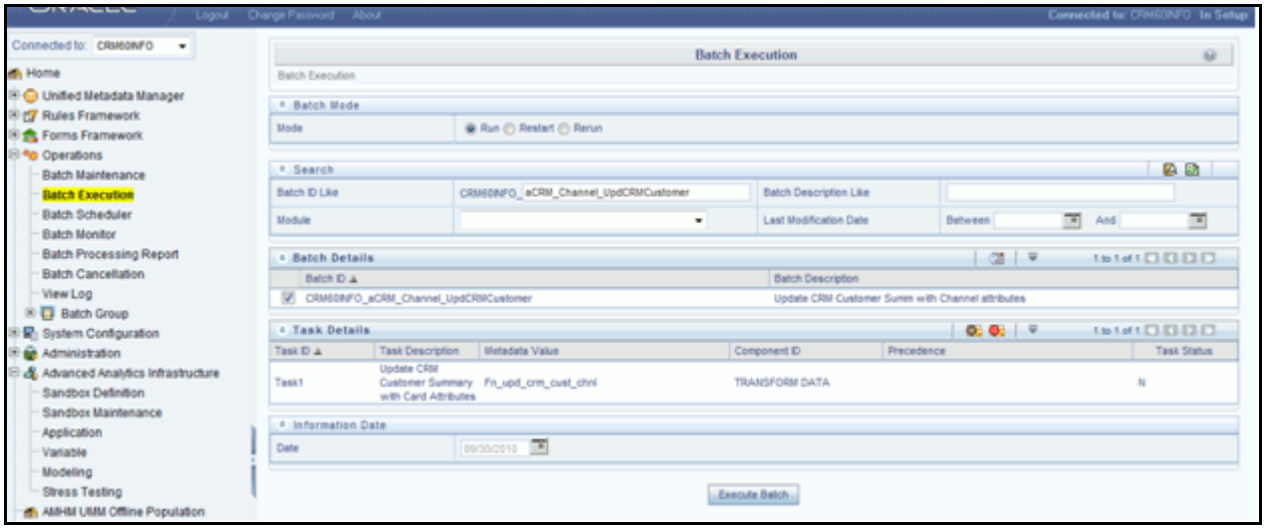


Figure 23. <INFODOM>_aCRM_CommonTasks - Task4

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section *How to Define a Batch*.

To define a new task for a Batch definition:

1. Select the check box adjacent to the newly created Batch Name in the Batch Maintenance window.
2. Click **Add** (+) button from the Task Details grid. The Task Definition window is displayed.
3. Enter the Task ID and Description.
4. Select Load Data component from the drop down list.
5. Select the following from the Dynamic Parameters list:
   - Datastore Type - Select the appropriate datastore type from the drop down list
   - Datastore Name - Select the appropriate datastore name from the drop down list
   - IP address - Select the IP address from the list
   - Load Mode - Select Table to Table from the list.
   - Source Name - Select the T2T Source Name from the list.
   - File Name - Select the T2T transformation T2T_EXCHANGE_RATE_HIST. Data file name remains blank for any Table to Table Load mode.
6. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the Batch Execution section of OFSAAI Operations module.

Check T2T component logs and batch messages to check the status of load. T2T component can fail because of following cases:

- Unique Constraint Error - Target table may already contain the primary keys that are part of the staging tables.
- NOT NULL Constraint Error - This error occurs when the transformation does not have values for NOT NULL columns in the target table.

Checking the Execution Status

The Batch execution status can be monitored through Batch Monitor section of OFSAAI Operations module.

The status messages in Batch Monitor are:

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The execution log can also be accessed on the application server in the directory `$FIC_DB_HOME/log/t2t` , where file name will have the Batch Execution ID.

Execution of Currency Exchange Rates Population T2T

The batch <INFODOM>_POP_EXCHANGE_RATES needs to be executed to populate fsi_exchange_rates as the entries in setup_master are seeded during installation.

Note: FSI_EXCHANGE_RATES table has to be loaded prior loading any of the other Account Summary tables.

- Metadata Browser
- Common Account Summary

Currency Execution Rates - Batch Execution

A seeded batch, <Infodom>_POP_EXCHANGE_RATES has to be executed for the required MIS Date.

Alternatively, following steps will help you create a new batch:

1. From the Home menu, click **Operations** and select **Batch Maintenance**.
2. Click **New Batch** ('+' symbol in Batch Name container). Enter the Batch Name and Description.
3. Click **Save**.
4. Click the check box in the Batch Name container to select the Batch, you created in the earlier step.
5. Enter the Task ID and Description.
6. Select **Load Data** from the Components list.
7. Select the following from the Dynamic Parameters List:
   - Datastore Type - Select the appropriate datastore from the list.
   - Datastore Name - Select the appropriate name from the list.
   - IP address - Select the IP address from the list.
   - Load Mode - Select Table to Table from the list.
   - Source Name - Select the <T2T Source Name> from the list.
   - File Name - Select the T2T name for the source stage channel table you want to process.
8. Click **Save**. Data file name will be blank for any Table to Table Load mode. Default value refers to currency calculation. If there is any need for currency conversion in T2T transactions, Default value has to be provided.
9. Execute the batch created in the preceding steps.

CHAPTER 8 Account Summary Population

Account Summary tables are loaded from the staging product processor tables using the Table to Table (T2T) component of Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) framework.

This chapter covers the following topics:

Overview of Account Summary Tables

Customer account level data from the Oracle Financial Services Analytical Applications (OFSAA) staging product processor tables must be consolidated into a standardized relational Business Intelligence (BI) data model. This consolidation is done to have all the staging product processor table data in a single Fact table.

The Account Summary table data can be used for building cubes which allow rollup of data for a dimension or a combination of dimensions.

This relational BI model consists of the following vertically partitioned Account Summary tables that are organized by application subject area.

- FCT_COMMON_ACCOUNT_SUMMARY - This table is shared by all OFSAA BI applications which contain dimensional values, attributes, and financial measures which are generally applicable to the individual account records. This data is sourced directly from the staging area.
- FCT_CRM_ACCOUNT_SUMMARY - This table has the measures used by all the Customer Insight applications.

Yet, there are few other Account Summary tables which have been designed to store Enterprise Risk Management (ERM) data:

- FCT_PFT_ACCOUNT_SUMMARY - This table has Profitability Management (PFT) specific measures.
- FCT_FTP_ACCOUNT_SUMMARY - This table has Funds Transfer Pricing (FTP) specific measures.
- FCT_REG_CAP_ACCOUNT_SUMMARY - This table has Regulatory Capital specific measures.
- FCT_ECO_CAPITAL_ACCOUNT_SUMMARY - This table has Economic Capital specific measures.

Data Flow

The Below diagram depicts the flow of data into account summary tables:

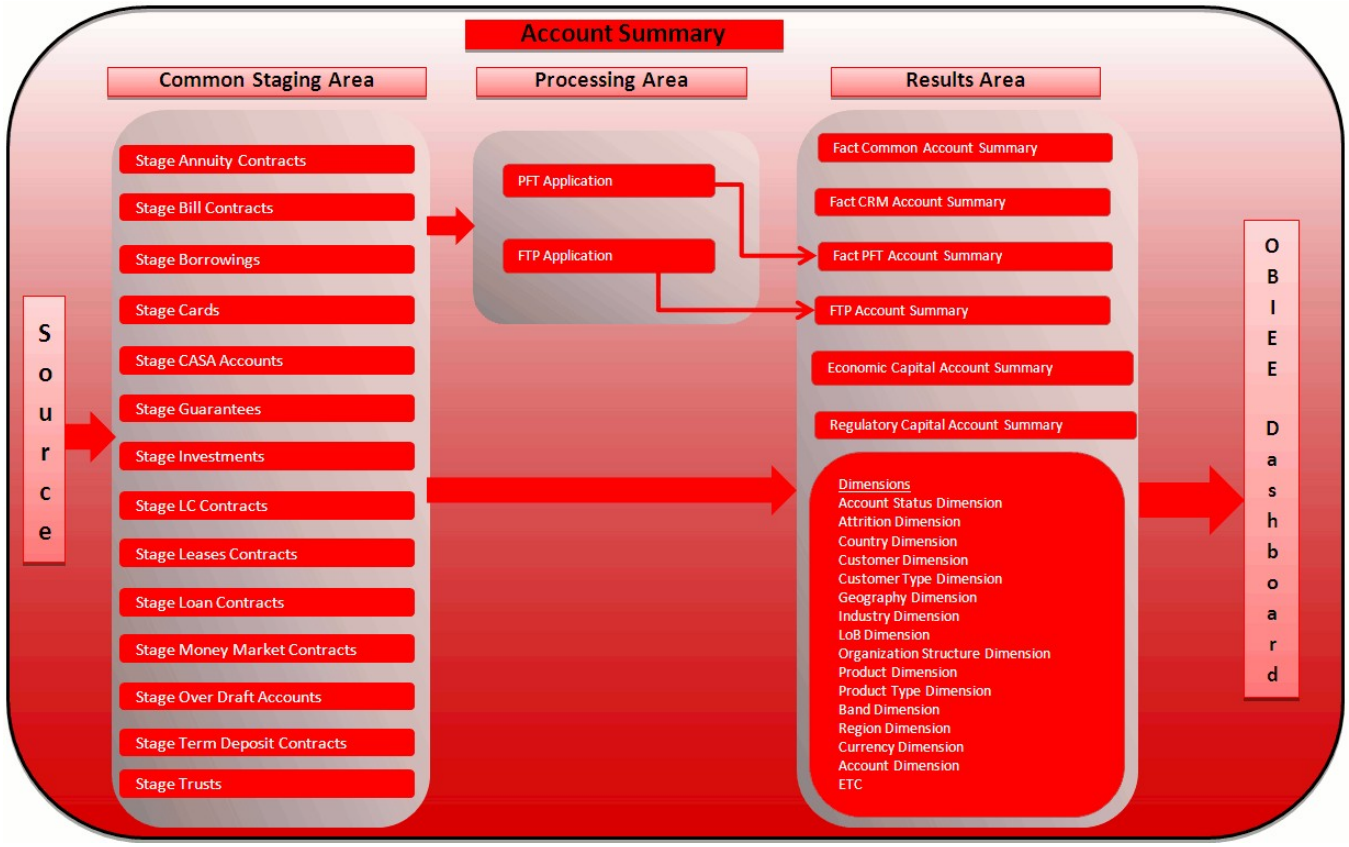


Figure 24. Account Summary Data Flow

Overview of Account Summary Population

Table to Table seeded definitions are provided for loading data into Common Account Summary and CRM Account summary tables.

Following are the lists for the same:

- Common Account Summary

Table 17. Common Account Summary Definitions

SL	Source Table	T2T Definition Name	Destination Table No
1	STG_ANNUITY_CONTRACTS	T2T_STG_ANNUITY_CONTRACTS_CAS	FCT_COMMON_ACCOUNT_SUMMARY
2	STG_BILLS_CONTRACTS	T2T_STG_BILLS_CAS	FCT_COMMON_ACCOUNT_SUMMARY
3	STG_BORROWINGS	T2T_STG_BORROWINGS_CAS	FCT_COMMON_ACCOUNT_SUMMARY
4	STG_CARDS	T2T_STG_CARDS_CAS	FCT_COMMON_ACCOUNT_SUMMARY
5	STG_CASA	T2T_STG_CASA_CAS	FCT_COMMON_ACCOUNT_SUMMARY

Table 17. Common Account Summary Definitions

SL	Source Table	T2T Definition Name	Destination Table No
6	STG_GUARANTEES	T2T_STG_GUARANTEES_CAS	FCT_COMMON_ACCOUNT_SUMMARY
7	STG_INVESTMENTS	T2T_STG_INVESTMENTS_CAS	FCT_COMMON_ACCOUNT_SUMMARY
8	STG_LC_CONTRACTS	T2T_STG_LC_CAS	FCT_COMMON_ACCOUNT_SUMMARY
9	STG_LEASES_CONTRACTS	T2T_STG_LEASES_CONTRACTS_CAS	FCT_COMMON_ACCOUNT_SUMMARY
10	STG_LOAN_CONTRACTS	T2T_STG_LOANS_CAS	FCT_COMMON_ACCOUNT_SUMMARY
11	STG_MM_CONTRACTS	T2T_STG_MM_CAS	FCT_COMMON_ACCOUNT_SUMMARY
12	STG_OD_ACCOUNTS	T2T_STG_OD_CAS	FCT_COMMON_ACCOUNT_SUMMARY
13	STG_TD_CONTRACTS	T2T_STG_TD_CONTRACTS_CAS	FCT_COMMON_ACCOUNT_SUMMARY
14	STG_TRUSTS	T2T_STG_TRUSTS_CAS	FCT_COMMON_ACCOUNT_SUMMARY
15	STG_COMMITMENT_CONTRACTS	T2T_STG_COMMITMENT_CONTRACTS_CAS	FCT_COMMON_ACCOUNT_SUMMARY
16	STG_MUTUAL_FUNDS	T2T_STG_MUTUAL_FUNDS_CAS	FCT_COMMON_ACCOUNT_SUMMARY

- CRM Account Summary

Table 18. CRM Account Summary Definitions

Sl No.	Source Table	T2T Definition Name	Destination Table
1	STG_ANNUITY_CONTRACTS	T2T_STG_CRMAS_ANNUITY_CONTRACTS	FCT_CRM_ACCOUNT_SUMMARY
2	STG_BILLS_CONTR ACTS	T2T_STG_CRMAS_BILLS_CONTRACTS	FCT_CRM_ACCOUNT_SUMMARY
3	STG_BORROWINGS	T2T_STG_CRMAS_BORROWINGS	FCT_CRM_ACCOUNT_SUMMARY
4	STG_CARDS	T2T_STG_CRMAS_CARDS	FCT_CRM_ACCOUNT_SUMMARY
5	STG_CASA	T2T_STG_CRMAS_CASA	FCT_CRM_ACCOUNT_SUMMARY
6	STG_GUARANTEES	T2T_STG_CRMAS_GUARANTEES	FCT_CRM_ACCOUNT_SUMMARY
7	STG_INVESTMENTS	T2T_STG_CRMAS_INVESTMENTS	FCT_CRM_ACCOUNT_SUMMARY
8	STG_LC_CONTRACTS	T2T_STG_CRMAS_LC_CONTRACTS	FCT_CRM_ACCOUNT_SUMMARY

Table 18. CRM Account Summary Definitions

Sl No.	Source Table	T2T Definition Name	Destination Table
9	STG_LEASES_CONTRACTS	T2T_STG_CRMAS_LEASES_CONTRACTS	FCT_CRM_ACCOUNT_SUMMARY
10	STG_LOAN_CONTRACTS	T2T_STG_CRMAS_LOAN_CONTRACTS	CT_CRM_ACCOUNT_SUMMARY
11	STG_MM_CONTRACTS	T2T_STG_CRMAS_MM_CONTRACTS	FCT_CRM_ACCOUNT_SUMMARY
12	STG_OD_ACCOUNTS	T2T_STG_CRMAS_OD_ACCOUNTS	FCT_CRM_ACCOUNT_SUMMARY
13	STG_TD_CONTRACTS	T2T_STG_CRMAS_TD_CONTRACTS	FCT_CRM_ACCOUNT_SUMMARY
14	STG_TRUSTS	T2T_STG_CRMAS_TRUSTS	FCT_CRM_ACCOUNT_SUMMARY
15	STG_COMMITMENT_CONTRACTS	T2T_STG_CRMAS_COMMITMENTS	FCT_CRM_ACCOUNT_SUMMARY
16	STG_MUTUAL_FUNDS	T2T_STG_CRMAS_MUTUAL_FUNDS	FCT_CRM_ACCOUNT_SUMMARY

Note: Currency Exchange Rate History table has to be populated prior loading the Account Summary tables.

Prerequisites

- All the post install steps mentioned in the *Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) Installation and Configuration Guide* and the solution installation manual have to be completed successfully.
- Application User must be mapped to a role that has seeded batch execution function (BATPRO).
- Before executing a batch, check if the following services are running on the application server (For more information on how to check if the services are up and on, and how to start the services if you find them not running, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.)
  - Iccserver
  - Router
  - AM Server
  - Messageserver
- Batches will have to be created for executing. This is explained in *Executing the Account Summary Population T2T* section.
- Dimension Population should have been done before you execute the T2T batch. (See *Dimension Loading Process and Time Dimension Population* chapters)

Fact Common Account Summary

Following are the lists of tables used in the population of Fact Common Account Summary & Fact CRM Account Summary tables.

Below mentioned Dimension tables are required to be loaded prior to executing the T2T:

- DIM_DATES
- DIM_ACCOUNT
- DIM_CUSTOMER
- DIM_PRODUCT
- DIM_CHANNEL
- DIM_BANDS
- DIM_ORG_STRUCTURE

Fact CRM Account Summary

Fact Common Account Summary entity needs to be populated before executing the Fact CRM Account Summary T2Ts.

Following are the list of tables used in the population of Fact CRM Account Summary and these tables are required to be loaded prior to running the T2T:

- DIM_DATES
- DIM_ACCOUNT
- FCT_COMMON_ACCOUNT_SUMMARY
- DIM_ACCT_STATUS
- DIM_BANDS
- DIM_CAMPAIGN
- DIM_CHANNEL
- DIM_CUSTOMER
- DIM_ORG_STRUCTURE
- DIM_LOB
- DIM_OFFER
- DIM_OPPORTUNITY
- DIM_PRODUCT
- DIM_PROSPECT
- DIM_RETENTION_OFFER_TYPE
- DIM_SALES_REPRESENTATIVE
- DIM_TREATMENT
- DIM_VINTAGE

For more information, see *Dimension Tables Population* section under *Dimension Loading Process* chapter for details on populating dimension tables like DIM_CUSTOMER, DIM_BANDS, and so on.

For more information on populating account dimension, see *Account Dimension Populatio*n chapter.

For more information, see *Time Dimension Population* chapter for details on populating DIM_DATES dimension table. See Download Specification for identifying fields required in Stage Customer Master and Stage Customer Details for the purpose of Customer Insight Application(s).

For more information on the dimensions, refer to *ERwin Datamode*l.

Executing the Account Summary Population T2T

Fact Common Account Summary table has to be loaded prior loading any of the other Account Summary tables.

You can execute the function from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI.

Fact Common Account Summary

To execute the T2T component from OFSAA Infrastructure ICC framework (accessed through the application Batch Operations screen)a seeded batch, `<Infodom>_aCRM_Comm_Acc_Summ` has to be executed for the required MIS Date.

The Tasks associated with this batch are the following:

Table 19. Fact Common Account Summary Tasks

Batch Name - Task ID	T2T Name	Result
<INFODOM>_aCRM_Comm_Acc_ Summ - Task1	T2T_STG_ANNUI TY_CONTRACTS_ CAS	Data from Stg_Annuity_Contracts has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task2	T2T_STG_BILLS_CAS	Data from STG_BILLS_CONTRACTS has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task3	T2T_STG_BORRO WINGS_CAS	Data from STG_BORROWINGS has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task4	T2T_STG_CARDS_ CAS	Data from Stg_Cards has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task5	T2T_STG_CASA_CAS	Data from Stg_CASA has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task6	T2T_STG_GUARA NTEES_CAS	Data from Stg_Guarantees has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task7	T2T_STG_INVEST MENTS_CAS	Data from Stg_Investments has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task8	T2T_STG_LC_CAS	Data from STG_LC_CONTRACTS has to be loaded in to Fct_Common_Account_Summary

Table 19. Fact Common Account Summary Tasks

Batch Name - Task ID	T2T Name	Result
<INFODOM>_aCRM_Comm_Acc_ Summ - Task9	T2T_STG_LEASES_CONTRACTS_CAS	Data from STG_LEASES_CONTRACTS has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task10	T2T_STG_LOANS_CAS	Data from STG_LOAN_CONTRACTS has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task11	T2T_STG_MM_CAS	Data from STG_MM_CONTRACTS has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task12	T2T_STG_OD_CAS	Data from STG_OD_ACCOUNTS has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task13	T2T_STG_TD_CO NTRACTS_CAS	Data from STG_TD_CONTRACTS has to be loaded in to Fct_Common_Account_Summary
<INFODOM>_aCRM_Comm_Acc_ Summ - Task14	T2T_STG_TRUSTS_CAS	Data from STG_TRUSTS has to be loaded in to Fct_Common_Account_Summary
##INFODOM##_aCRM_ Comm_Acc_Summ - Task16	T2T_STG_COMMI TMENT_CONTRA CTS_CAS	
##INFODOM##_aCRM_Comm_Acc _Summ - Task17	T2T_STG_MUTUA L_FUNDS_CAS	

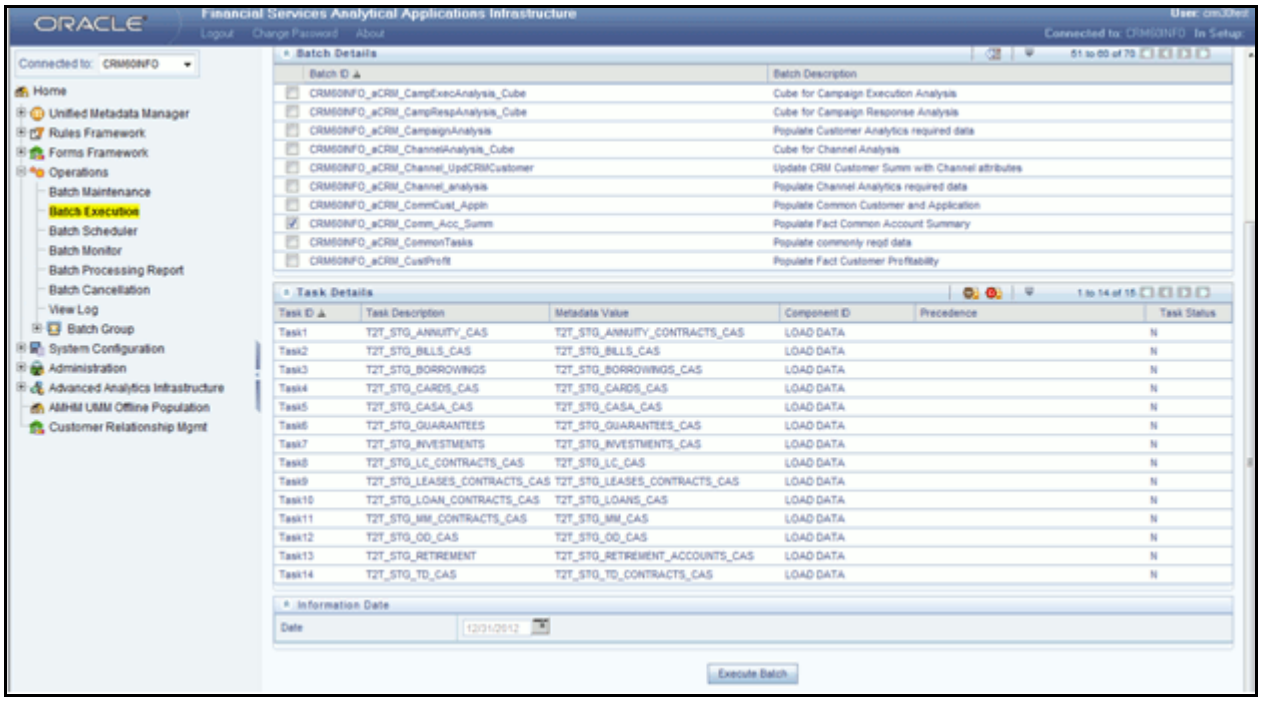


Figure 25. Batch Operations

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section *How to Define a Batch*.

Alternatively, following steps will help you create a new batch:

1. Click the check box in the Batch Name container to select the Batch.
2. Click Add (+) button from the Task Details grid. The Task Definition window is displayed.
3. Enter the Task ID and Description.
4. Select **Load Data** from the Components list.
5. Select the following from the Dynamic Parameters List and click **Save**.
   - Datastore Type - Select the appropriate datastore from the list.
   - Datastore Name - Select the appropriate name from the list.
   - IP address - Select the IP address from the list.
   - Load Mode - Select Table to Table from the list.
   - Source Name - Select <T2T Source Name> from the list.
   - File Name - Select the T2T name for the source stage channel table you want to process.

   Data file name will be blank for any Table to Table Load mode. Default value refers to currency calculation. If there is any need for currency conversion in T2T transactions, Default value has to be provided.
   For example, default value is [DRCY]='USD' Here 'USD' acts as reporting currency parameter to T2T.

6. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the Batch Execution section of OFSAAI Operations module.

For more information, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Fact CRM Account Summary

To execute the T2T component from OFSAA Infrastructure ICC framework (accessed through the application Batch Operations screen)a seeded batch, `<Infodom>_aCRM_CRM_Acc_Summ` has to be executed for the required MIS Date.

The Tasks associated with this Batch are:

Table 20. Fact CRM Account Summary Tasks

Batch Name - Task ID	T2T Name	Result
<INFODOM>_aCRM_CRM_Acc_Summ - Task1	T2T_STG_CRMAS_BILLS_CONTRACTS	Data from STG_BILLS_CONTRACTS has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task2	T2T_STG_CRMAS_BORROWINGS	Data from STG_BORROWINGS has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task3	T2T_STG_CRMAS_CARDS	Data from Stg_Cards has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task4	T2T_STG_CRMAS_CASA	Data from Stg_CASA has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task5	T2T_STG_CRMAS_INVESTMENTS	Data from Stg_Investments has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task6	T2T_STG_CRMAS_LC_CONTRACTS	Data from STG_LC_CONTRACTS has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task7	T2T_STG_CRMAS_LOAN_CONTRACTS	Data from STG_LOAN_CONTRACTS has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task8	T2T_STG_CRMAS_MM_CONTRACTS	Data from STG_MM_CONTRACTS has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY

Table 20. Fact CRM Account Summary Tasks

Batch Name - Task ID	T2T Name	Result
<INFODOM>_aCRM_CRM_Acc_Summ - Task9	T2T_STG_CRMAS_OD_ACCOUNTS	Data from STG_OD_ACCOUNTS has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task10	T2T_STG_CRMAS_TD_CONTRACTS	Data from STG_TD_CONTRACTS has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task11	T2T_STG_CRMAS_ANNUITY_CONTRACTS	Data from Stg_Annuity_Contracts has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task12	T2T_STG_CRMAS_LEASES_CONTRACTS	Data from STG_LEASES_CONTRACTS has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task13	T2T_STG_CRMAS_GUARANTEES	Data from Stg_Guarantees has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
<INFODOM>_aCRM_CRM_Acc_Summ - Task14	T2T_STG_CRMAS_TRUSTS	Data from STG_TRUSTS has to be loaded in to FCT_CRM_ACCOUNT_SUMMARY
##INFODOM##_aCRM_CRM_Acc_Summ - Task15	T2T_STG_CRMAS_TRUSTS	
##INFODOM##_aCRM_CRM_Acc_Summ - Task17	T2T_STG_CRMAS_MUTUAL_FUNDS	

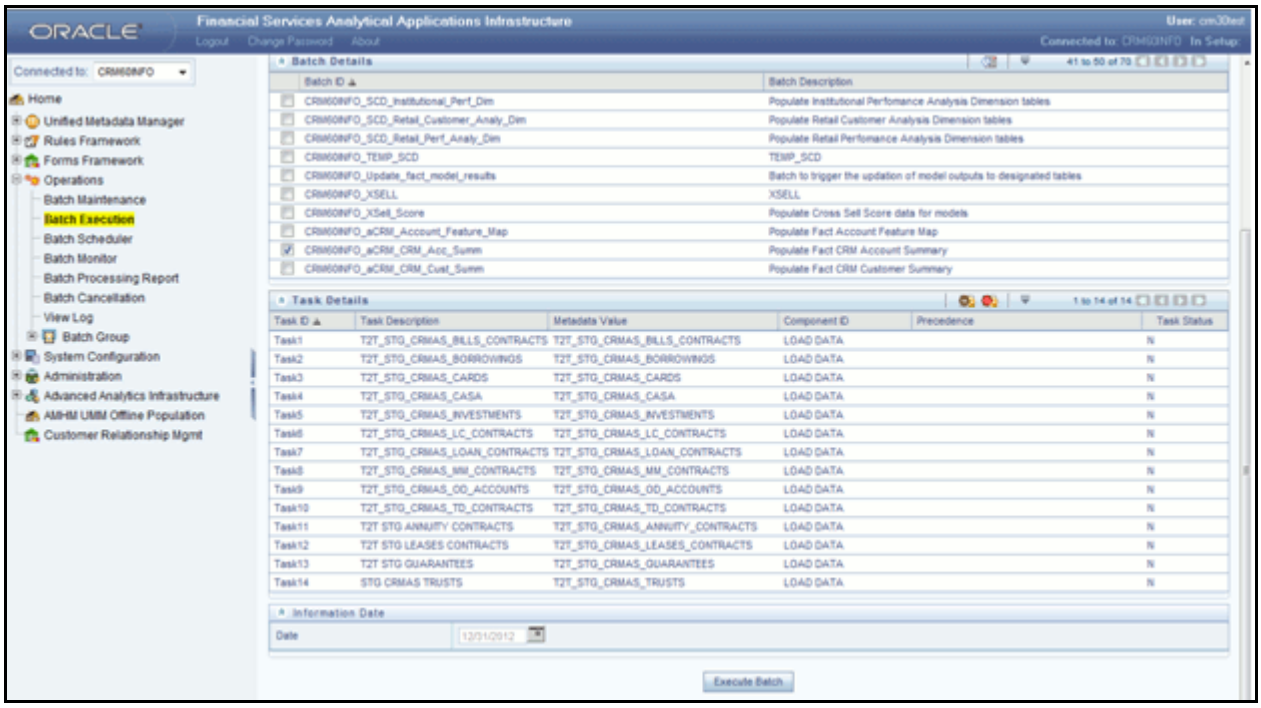


Figure 26. Fact CRM Account Summary

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section *How to Define a Batch*.

To define a new task for a Batch definition:

1. Click the check box in the Batch Name container to select the Batch.
2. Click **Add** (+) button from the Task Details grid. The Task Definition window is displayed.
3. Enter the Task ID and Description.
4. Select **Load Data** from the Components list.
5. Select the following from the Dynamic Parameters List and click **Save**.
   - Datastore Type - Select the appropriate datastore from the list.
   - Datastore Name - Select the appropriate name from the list.
   - IP address - Select the IP address from the list.
   - Load Mode - Select Table to Table from the list.
   - Source Name - Select <T2T Source Name> from the list.
   - File Name - Select the T2T name for the source stage product processor table you want to process.

   Data file name will be blank for any Table to Table Load mode. Default value refers to currency calculation. If there is any need for currency conversion in T2T transactions, Default value has to be provided.
   For example, default value is [DRCY]='USD' Here 'USD' acts as reporting currency parameter to T2T.
6. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the Batch Execution section of OFSAAI Operations module.

For more information, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen.

Note: For a more comprehensive coverage of configuration and execution of a batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

The status messages in Batch Monitor are :

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The execution log can be accessed on the application server in the following directory : `$FIC_DB_HOME/log/t2t`.

The file name will have the batch execution ID. The following tables can be queried for errors:

- FCT_COMMON_ACCOUNT_SUMMARY$
- FCT_CRM_ACCOUNT_SUMMARY$

Account Summary T2Ts

T2T definitions can be retrieved as an excel document for reference from the metadata browser of the Unified Metadata Manager (UMM) component of OFSAAI.

CHAPTER 9 Fact Transaction Summary

The Fact Transaction Summary stores data from the stage transactions table for further operation reporting. The data is moved through a T2T process from stage to fact, which ensures that the stage data is available in a single table in the result area.

This chapter discusses the following topics:

Table to Table

Table to Table seeded definitions are provided for loading data into Common Account Summary.

Table 21. Common Account Summary T2T Definitions

SI No.	Source Table Name	T2T Definition Name	Target Table Name
1	STG_TRUSTS_TXNS	STG_TRUSTS_TXNS_ FTS	FCT_TRANSACTION_SUMMARY
2	STG_ANNUITY_TXNS	STG_ANNUITY_TX N_FTS	FCT_TRANSACTION_SUMMARY
3	STG_BILL_CONTRACTS_ TXNS	STG_BILL_CONTRACTS_TX NS_FTS	FCT_TRANSACTION_SUMMARY
4	STG_BORROWING_COMMITMENT _TXNS	STG_BORROWING_ COMMITMENT_TX NS_FTS	FCT_TRANSACTION_SUMMARY
5	STG_BORROWINGS_TXNS	STG_BORROWINGS_TXNS_ FTS	FCT_TRANSACTIO N_SUMMARY
6	STG_CARDS_PAYMENT_ TXNS	STG_CARDS_PAYMENT_TX NS_FTS	FCT_TRANSACTION_SUMMARY
7	STG_CARDS_SETTLEMENT_TXNS	STG_CARDS_SETTLEM ENT_TXNS_FTS	FCT_TRANSACTION_SUMMARY
8	STG_CASA_TXNS	STG_CASA_TXNS_F TS	FCT_TRANSACTION_SUMMARY
9	STG_COMMITMENT_CONTRACT_ TXNS	STG_COMMITMENT_CONTR ACT_TXNS_FTS	FCT_TRANSACTION_SUMMARY
10	STG_COMMODITIES_TXNS	STG_COMMODITIES_TXNS_ FTS	FCT_TRANSACTION_SUMMARY
11	STG_CORRESPONDENT_ ACCT_TXNS	STG_CORRESPONDENT_AC CT_TXNS_FTS	FCT_TRANSACTION_SUMMARY
12	STG_CREDIT_DERIVATIVES_TXNS	STG_CREDIT_DERIVATIVES _TXNS_FTS	FCT_TRANSACTION_SUMMARY
13	STG_FOREX_TXNS_ FTS	STG_FOREX_TXNS_ FTS	FCT_TRANSACTION_SUMMARY
14	STG_GUARANTEES_TXNS	STG_GUARANTEES_TXNS_ FTS	FCT_TRANSACTION_SUMMARY
15	STG_IJARAH_TXNS	STG_IJARAH_TXNS_ FTS	FCT_TRANSACTION_SUMMARY
16	STG_INTERBANK_TXNS	STG_INTERBANK_TXNS_FT S	FCT_TRANSACTION_SUMMARY

Table 21. Common Account Summary T2T Definitions

Sl No.	Source Table Name	T2T Definition Name	Target Table Name
17	STG_INVESTMENT_ TXNS	STG_INVESTMENT_ TXNS_FTS	FCT_TRANSACTION_SUMMARY
18	STG_ISTISNA_TXNS	STG_ISTISNA_TXNS_FTS	FCT_TRANSACTION_SUMMARY
19	STG_LC_TXNS	STG_LC_TXNS_FTS	FCT_TRANSACTION_SUMMARY
20	STG_LEASES_TXNS	STG_LEASES_TXNS_ FTS	FCT_TRANSACTION_SUMMARY
21	STG_LOAN_CONTRACT_TXNS	STG_LOAN_CONTR ACT_TXNS_FTS	FCT_TRANSACTION_SUMMARY
22	STG_MERCHANT_CARDS_TXNS	STG_MERCHANT_CARDS_T XNS_FTS	FCT_TRANSACTION_SUMMARY
23	STG_MM_TXNS	STG_MM_TXNS_FTS	FCT_TRANSACTION_SUMMARY
24	STG_MURABAHAH_TXNS	STG_MURABAHAH_TXNS_F TS	FCT_TRANSACTION_SUMMARY
25	STG_MUSHARAKA H_TXNS	STG_MUSHARAKA H_TXNS_FTS	FCT_TRANSACTION_SUMMARY
26	STG_OD_ACCOUNT S_TXNS	STG_MUTUAL_FUN DS _TXNS_FTS	FCT_TRANSACTION_SUMMARY
27	STG_OD_ACCOUNT S_TXNS	STG_OD_ACCOUNT S_TXNS_FTS	FCT_TRANSACTION_SUMMARY
28	STG_OPTION_CONTRACTS_TXNS	STG_OPTION_CONTRACTS_ TXNS_FTS	FCT_TRANSACTION_SUMMARY
29	STG_RETIREMENT_ ACCOUNTS_TXNS	STG_RETIREMENT_ ACCOUNTS_TXNS_ FTS	FCT_TRANSACTION_SUMMARY
30	STG_SALAM_TXNS	STG_SALAM_TXNS_ FTS	FCT_TRANSACTION_SUMMARY
31	STG_SUKUK_TXNS	STG_SUKUK_TXNS_ FTS	FCT_TRANSACTION_SUMMARY
32	STG_SWAP_ACCOUNT_TXNS	STG_SWAP_ACCOUNT _TXNS_FTS	FCT_TRANSACTION_SUMMARY
33	STG_TERMDEPOSITS_TXNS	STG_TERMDEPOSITS_TXNS _FTS	FCT_TRANSACTION_SUMMARY
34	STG_TRADING_ACCOUNT_TXNS	STG_TRADING_ACCOUNT_T XNS_FTS	FCT_TRANSACTION_SUMMARY
35	STG_FUTURES_TXNS	STG_FUTURES_TXNS_F TS	FCT_TRANSACTION_SUMMARY
36	STG_MUDARABAH_TXNS	STG_MUDARABAH_TXNS_F TS	FCT_TRANSACTION_SUMMARY

Executing the Fact Transaction Summary

Fact Transaction Summary table has to be loaded prior loading any of the other Account Summary tables. You can execute the T2T component from OFSAA Infrastructure ICC framework (accessed through the application Batch Operations screen).

Fact Common Account Summary - Batch Execution

A seeded batch, `Infodom STG_TO_FTS` has to be executed for the required MIS Date. Alternatively, following steps will help you create a new batch:

1. From the Home menu, click **Operations** and select **Batch Maintenance**.
2. Click **New Batch** ('+' symbol in Batch Name container). Enter the Batch Name and Description.
3. Click **Save**.
4. Click the check box in the Batch Name container to select the Batch, you created in the earlier step.
5. Enter the Task ID and Description.
6. Select **Load Data** from the Components list.
7. Select the following from the Dynamic Parameters List:
   - Data Store Type
   - Datastore Name - Select the appropriate name from the list.
   - IP address - Select the IP address from the list.
   - Load Mode - Select Table to Table from the list.
   - Source Name - Select <T2T Source Name> from the list.
   - File Name - Select the T2T name for the source stage channel table you want to process.
8. Click Save. Data file name will be blank for any Table to Table Load mode.

   Default value refers to currency calculation. If there is any need for currency conversion in T2T transactions, Default value has to be provided.

   For example, default value is [DRCY] = 'USD' Here 'USD' acts as reporting currency parameter to T2T.
9. Repeat steps 4 to 8 for adding the remaining T2Ts within the same batch definition.
10. Execute the batch created in the preceding steps.

CHAPTER 10 Customer Summary Population

This chapter explains the process flow for populating Fact Common Customer Summary table.

This chapter covers the following topics:

Overview of Common Customer Summary Tables

Fact Common Customer Summary table stores attributes pertaining to customer related data on an 'as-is' basis received from the source system. Data is populated into this table using T2T.

Customer balances are derived from account summary. Customer relationship table drives the relationship between accounts and customers. Common customer summary data is populated for all the active customers in customer dimension.

Following data flow diagram explains the process flow for populating Fact Common Customer Summary table:

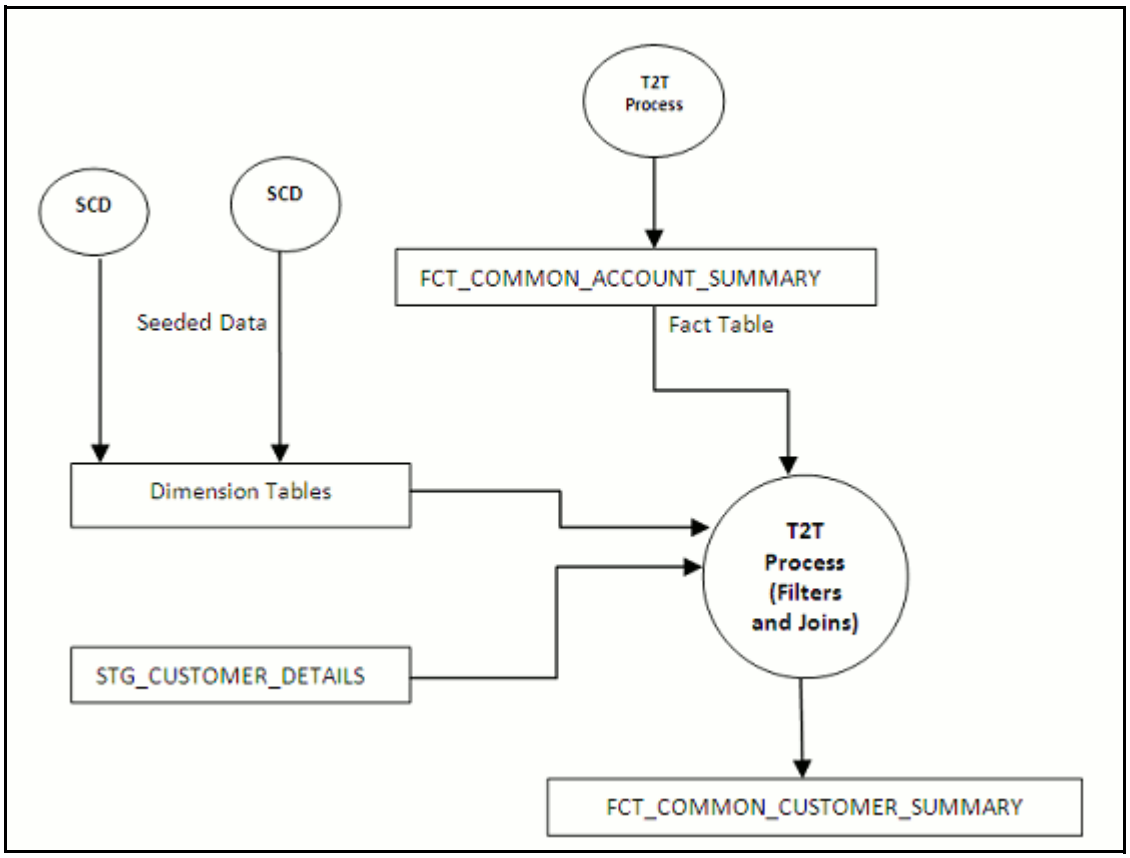


Figure 27. Fact Common Customer Summary data flow

Prerequisites

Following are the lists of tables used in the population of Fact Common Customer Summary and these tables are required to be loaded prior to running the T2T:

- DIM_CUSTOMER
- DIM_BANDS
- DIM_EDUCATION
- DIM_CUSTOMER_TYPE
- DIM_GENDER
- DIM_INDUSTRY
- DIM_CHANNEL
- DIM_GEOGRAPHY
- DIM_MARITAL_STATUS
- DIM_MANAGEMENT
- DIM_PROFESSION

- DIM_CREDIT_RATING
- DIM_VINTAGE
- DIM_MIGRATION_REASONS
- FCT_COMMON_ACCOUNT_SUMMARY
- FCT_LIMITS_SUMMARY
- STG_CUSTOMER_DETAILS
- STG_PARTY_RATING_DETAILS
- STG_PARTY_FINANCIALS

Dimensions tables are loaded through the SCD process. The fact tables such as FCT_COMMON_ACCOUNT_SUMMAY and FCT_LIMITS_SUMMARY are loaded from their respective T2T processes.

For more information on SCDs, refer to Chapter 3, *Dimension Loading Process,*.

Executing the Customer Summary Population T2T

Fact Common Customer Summary T2T can be executed by executing Task 4 - Fact Common Customer Summary present in the seeded batch `<INFODOM>_aCRM_CommCust_Appln`. Following steps will help you to execute the batch:

1. Go to the Batch Execution screen.
2. Select the **Task 4 - Fact Common Customer Summary** of the seeded Batch `<INFODOM>_aCRM_CommCust_Appln` where INFODOM is the information domain where application is installed.
3. Select the AS_OF_DATE for which source customer information is required to be loaded into the table.
4. Click **Execute Batch**.
5. Monitor the status of the batch using Batch Monitor.

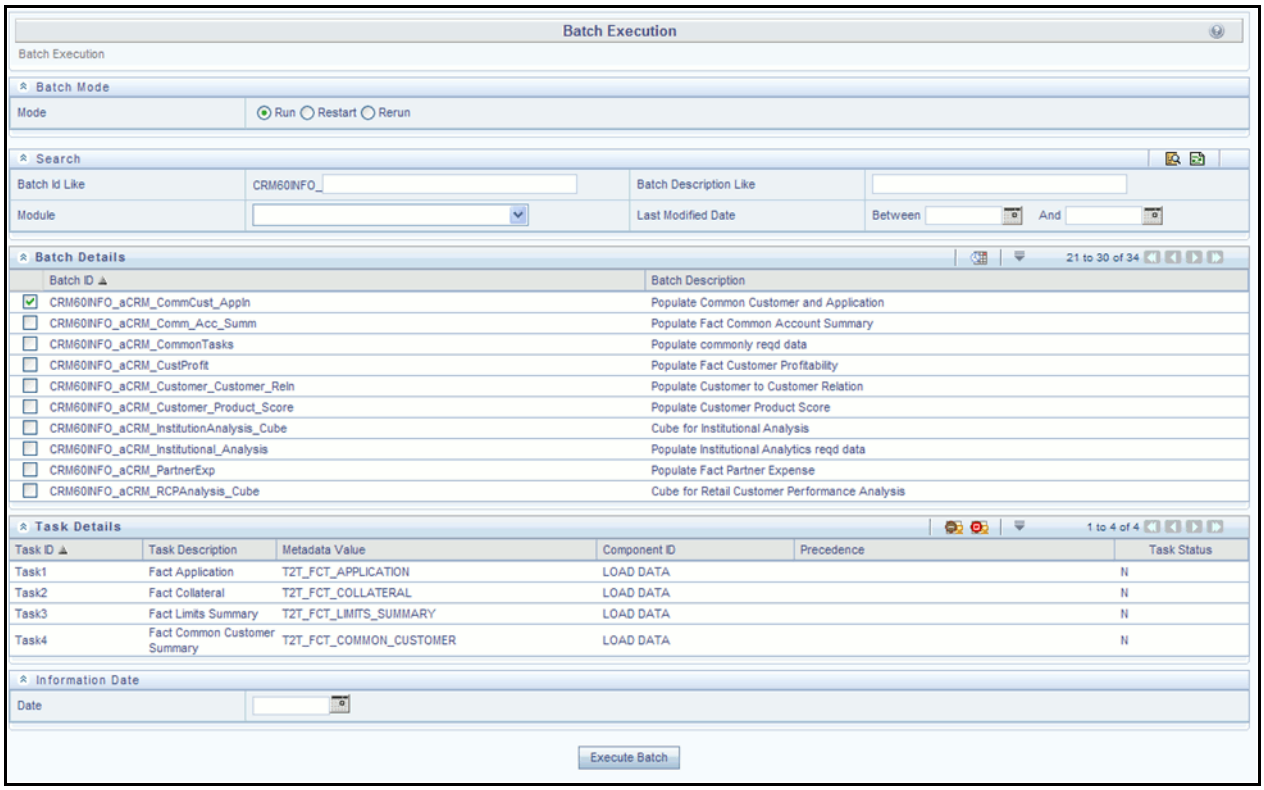


Figure 28. Batch Monitor

Error Messages

Following is the most common error message which will be logged in the T2T log file present in the `$FIC_DB_HOME/logs/t2t` folder:

- **Unique Constraint Violation** : This occurs when attempting re-load or loading existing records for the already executed AS_OF_DATE.

CHAPTER 11 Fact Data Population

This chapter explains all the fact tables which within describe about the seeded T2T Definitions with related Source Table and Destination tables. Prerequisites needed in population of the Fact table and tables required to be loaded prior to running the T2T.

Each fact table contains a section on how to execute the T2T component from OFSAA Infrastructure ICC framework and access the execution log to check the execution status.

This chapter covers the following topics:

Fact CRM Customer Summary

Fact CRM Customer Summary entity captures different derived/computed customer attributes pertaining to Customer Insight. Fact Common Customer Summary stores the generic application-agnostic source/raw customer attributes. Fact CRM Customer Summary is a vertical partitioned entity and has relationship to Fact Common Customer Summary.

Load Data into Fact CRM Customer Summary

Customer balances in the Fact CRM Customer Summary entity are derived from account summary. Customer relationship entity drives the relationship between accounts and customers.

Following is the seeded Table-to-Table definitions that loads data related to Fact CRM Customer Summary:

Table 22. Fact CRM Customer Summary Definitions

T2T Definition Name	Source Table(s)	Destination Table
T2T_FCT_CRM_CUSTOMER_SUMMARY	STG_CUSTOMER_MASTER STG_CUSTOMER_DETAILS FCT_COMMON_ACCOUNT_SUMMARY FCT_CRM_ACCOUNT_SUMMARY	FCT_CRM_CUSTOMER_SUMMARY

Refer to *Oracle Financial Services Analytical Applications Data Model Data Dictionary* or the *Erwin Data Model* to view the detailed structure of the tables.

Prerequisites

Fact Common Customer Summary entity needs to be populated before executing the Fact CRM Customer Summary T2T. Refer to Fact Common Account Summary chapter for details related to Fact Common Customer Summary T2T.

Following tables that are used in the population of Fact CRM Customer Summary need to have relevant data prior to executing the T2T:

- STG_CUSTOMER_MASTER - Mandatory
- STG_CUSTOMER_DETAILS - Mandatory
- DIM_DATES - Mandatory
- DIM_CUSTOMER - Mandatory
- FCT_COMMON_ACCOUNT_SUMMARY - Mandatory
- FCT_CRM_ACCOUNT_SUMMARY - Mandatory
- DIM_BANDS - Optional

For more information, see *Dimension Tables Population* section under *Dimension Loading Process* chapter for details on populating dimension tables like DIM_CUSTOMER, DIM_BANDS, and so on.

For more information, see *Time Dimension Population* chapter for details on populating DIM_DATES dimension table. See *Download Specificatio*n for identifying fields required in Stage Customer Master and Stage Customer Details for the purpose of Customer Insight Application(s).

Also, see *Population of Fact CRM Customer Summary* and *Fact CRM Account Summary* sections for details on populating these fact tables.

Executing the Fact CRM Customer Summary Population T2Ts

You can execute the function from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI. To execute the T2T component from OFSAA Infrastructure ICC framework (accessed through the Operations module of OFSAAI), a seeded batch, `<Infodom>_aCRM_CRM_Cust_Summ` has to be executed for the required MIS Date.

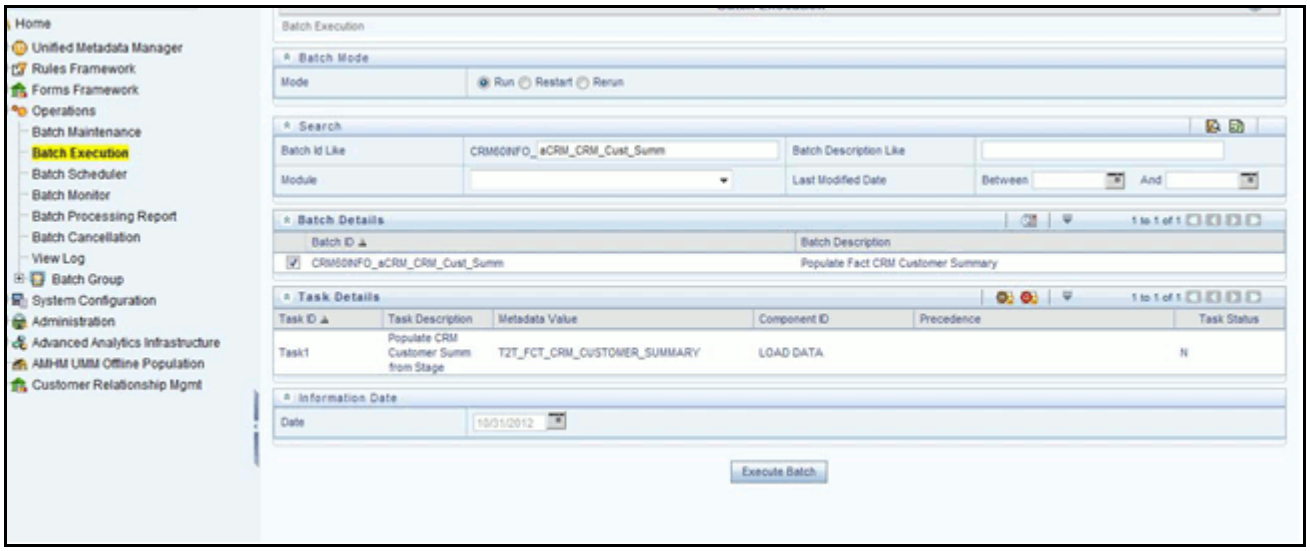


Figure 29. Fact CRM Customer Summary Population

To define a new task for a Batch definition:

1. Click the check box in the Batch Name container to select the Batch.
2. Click **Add** (+) button from the Task Details grid. The Task Definition window is displayed.
3. Enter the Task ID and Description.
4. Select **Load Data** from the Components list.
5. Select the following from the Dynamic Parameters List and click **Save**.
   - Datastore Type - Select the appropriate datastore from the list.
   - Datastore Name - Select the appropriate name from the list.
   - IP address - Select the IP address from the list.
   - Load Mode - Select Table to Table from the list.
   - Source Name - Select <T2T Source Name> from the list.
   - File Name - Select the T2T name "T2T_FCT_CRM_CUSTOMER_SUMMARY" you want to process.

   Data file name will be blank for any Table to Table Load mode.

   Default value refers to any parameter that has to be passed to T2T. It has to be blank.
6. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the Batch Execution section of OFSAAI Operations module.

For more information, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen. The status messages in Batch Monitor are :

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The execution log can be accessed on the application server in the following directory:

$FIC_DB_HOME/log/t2t.

The file name will have the batch execution ID. The following tables can be queried for errors:

FCT_CRM_CUSTOMER_SUMMARY

Note: For more information on configuration and execution of a batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guid*e.

Update Fact CRM Customer Summary with Transaction Attributes

A seeded Data Transformation is provided with the installer which updates the entity Fact CRM Customer Summary with transaction attributes of customer such as ATM usage, Branch usage, net usage, Point of Sale (POS) usage, Number of ATM transactions, transacted amount, and so on.

The following table lists the seeded Post Load Transformation Definition with related Source Table and Destination tables:

Table 23. Post Load Transformation Definition

DT Definition Name	Source Tables	Destination Table
FN_UPD_CRM_CUST_CHNL	FCT_TXN_CHANNEL	FCT_CRM_CUSTOMER_SUMMARY

You can execute the function from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI, as mentioned below:

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section *How to Define a Batch*.

A seeded batch, `<Infodom>_aCRM_Channel_UpdCRMCustomer` has to be executed for the required MIS Date.

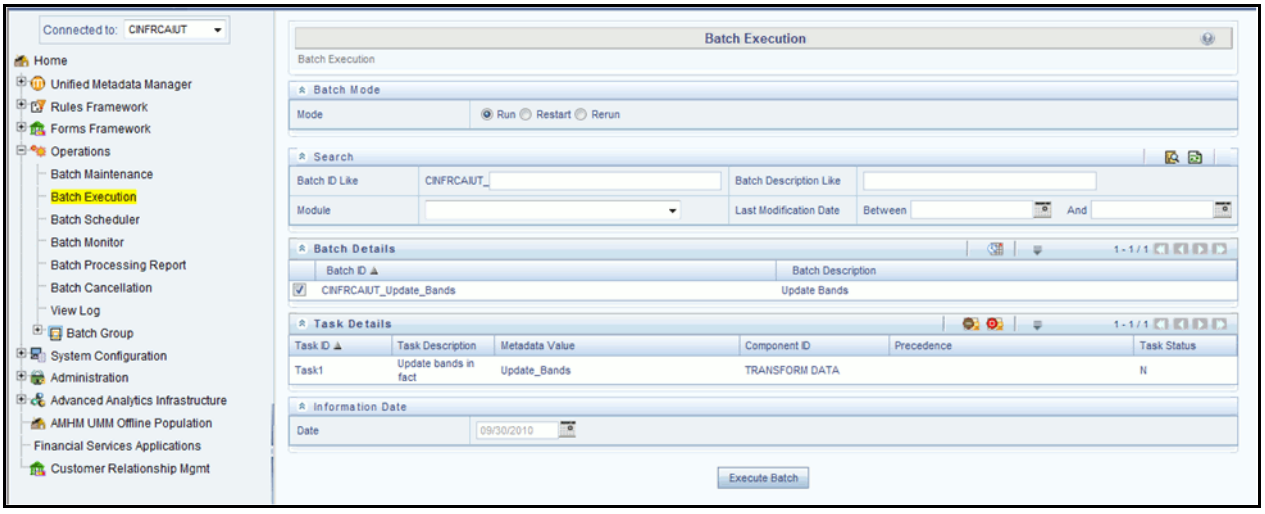


Figure 30. Execute <Infodom>_aCRM_Channel_UpdCRMCustomer

To define a new task for a Batch definition:

1. Click the check box in the Batch Name container to select the Batch.
2. Click **Add** (+) button from the Task Details grid. The Task Definition window is displayed.
3. Enter the Task ID and Description.
4. Select the **TRANSFORM DATA** component from the Components drop down list.
5. In the Dynamic Parameters List, select the appropriate Datastore Type from the drop down list.
6. Select the appropriate Datastore Name from the drop down list. Usually it is the Information Domain name.
7. Select the IP Address from the drop down list.
8. Select the Rule Name **FN_UPD_CRM_CUST_CHNL** from the drop down list.
9. Enter the Parameter List details as mentioned below:
   - Reload Account Profitability table for the given MIS Date flag - can be Y or N within single quotes.
   - Reporting Currency code - This has to be enclosed within single quotes.
     For Example, if reporting currency is in US Dollar, then 'USD' has to be specified.

Note: Batch run ID and As Of Date are passed internally by the batch to the Data Transformation task.

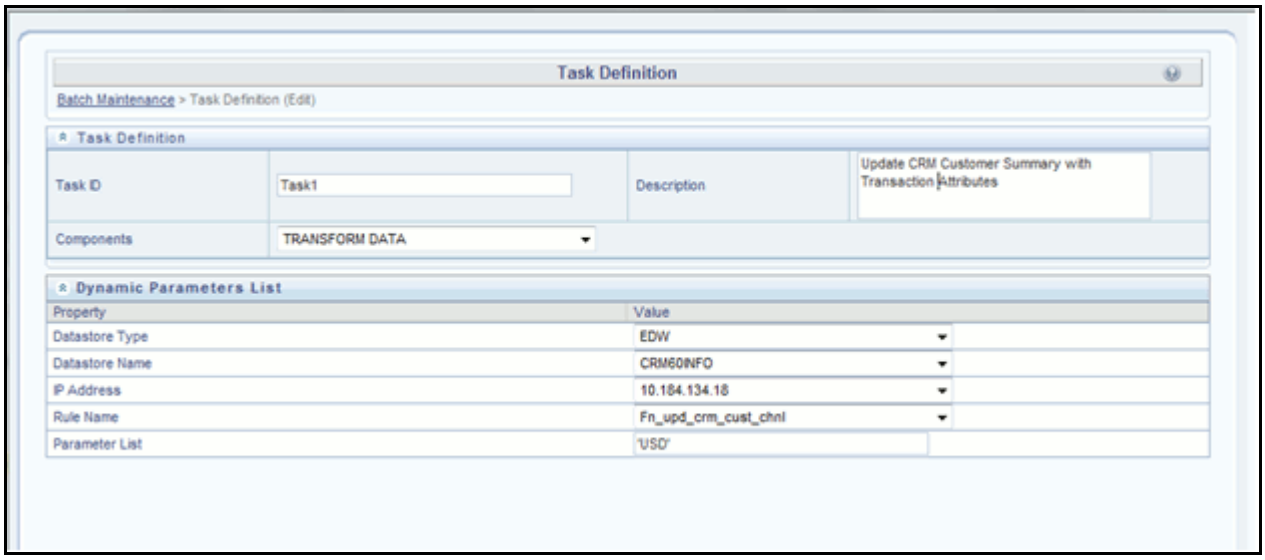


Figure 31. Task Defintion

10. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the Batch Execution section of OFSAAI Operations module.

For more information, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen of OFSAAI. The status messages in Batch Monitor are :

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The execution log can be accessed on the application server in the following directory: $FIC_DB_HOME/log/date.

The file name will have the batch execution ID.

Note: For more information on configuration and execution of a batch, refer to *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Fact Account Feature Map

A product might be facilitated with its own features. Fact Account Feature Map entity stores the mapping between the Account and Product Feature that is the features of the product availed by the customer account. Product processor tables in staging have information related to customer accounts.

Following table lists the seeded T2T Definitions with related Source Table and Destination tables:

Table 24. Fact Account Feature Map T2T Definitions

T2T Definition Name	Source Staging Table	Destination Table
T2T_FCT_ACCOUNT_FEATURE_ MAP	STG_ACCT_FEATURE_ MAP	FCT_ACCOUNT_FEATURE_ MAP

For more information, see *Customer Insight Erwin Data Model* to view the detailed structure of the tables.

Prerequisites

Following are the lists of tables used in the population of Fact Account Feature Map and these tables are required to be loaded prior to executing the T2T:

- DIM_DATES
- DIM_PRODUCT_FEATURE
- DIM_ACCOUNT
- DIM_CUSTOMER
- DIM_PRODUCT
- DIM_VENDOR
- DIM_CAMPAIGN
- DIM_CHANNEL
- STG_ACCT_FEATURE_MAP

For more information, see *Dimension Tables Population* section under *Dimension Loading Process* chapter for details on populating dimension tables like DIM_CUSTOMER, DIM_BANDS, and so on.

For more information on populating account dimension, see *Account Dimension Population* chapter.

For more information, see *Time Dimension Population* chapter for details on populating DIM_DATES dimension table. See *Download Specification* for identifying fields required in Stage Customer Master and Stage Customer Details for the purpose of Customer Insight Application(s).

Executing the Fact Account Feature Map Population T2T

You can execute the function from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI.

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section *How to Define a Batch*.

To execute the T2T component from OFSAA Infrastructure ICC framework (accessed through the application Batch Operations screen), a seeded batch, `<Infodom>_aCRM_Account_Feature_Map`, has to be executed for the required MIS Date.

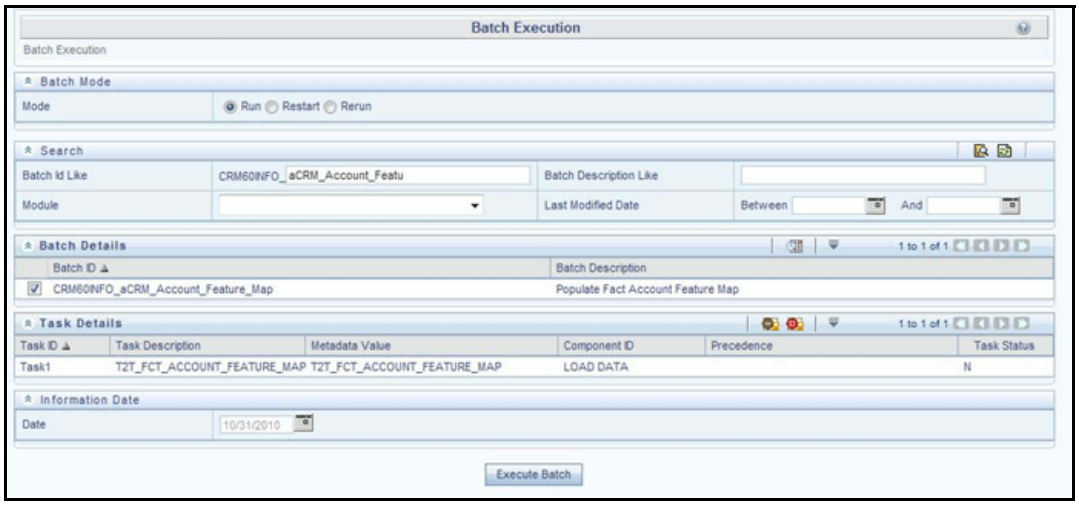


Figure 32. aCRM_Account_Feature_Map

To define a new task for a Batch definition:

1. Click the check box in the Batch Name container to select the Batch.
2. Click **Add** (+) button from the Task Details grid. The Task Definition window is displayed.
3. Enter the Task ID and Description.
4. Select **Load Data** from the Components list.
5. Select the following from the Dynamic Parameters List and click **Save**.
   - Datastore Type - Select the appropriate datastore from the list.
   - Datastore Name - Select the appropriate name from the list.
   - IP address - Select the IP address from the list.
   - Load Mode - Select Table to Table from the list.
   - Source Name - Select <T2T Source Name> from the list.
   - File Name - Select the T2T name "T2T_FCT_ACCOUNT_FEATURE_MAP" you want to process.

   Data file name will be blank for any Table to Table Load mode. Default value refers to any parameter that has to be passed to T2T. This should be blank.
6. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the Batch Execution section of OFSAAI Operations module.

For more information, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen. The status messages in Batch Monitor are:

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The execution log can be accessed on the application server in the following directory: `$FIC_DB_HOME/log/t2t.`

The file name will have the batch execution ID. The following table can be queried for errors:

`FCT_ACCOUNT_FEATURE_MAP$`

For more information on configuration and execution of a batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Fact Cards Balance Summary

Fact Cards Balance Summary entity stores the balance details across various balance categories like Balance, Interest rate, Current payment, and others for each card account.

Following table lists the seeded T2T Definitions with related Source Table and Destination tables::

Table 25. Fact Account Feature Map T2T Definitions

T2T Definition Name	Source Staging Table	Destination Table
T2T_FCT_CARDS_BALANCE_SU MM	STG_CARDS_BALANCE_SU MMARY	FCT_CARDS_BALANCE_SUMM ARY

For more information, see *Erwin Data Model* to view the detailed structure of the tables.

Prerequisites

Following are the lists of tables used in the population of Fact Cards Balance Summary p and these tables are required to be loaded prior to executing the T2T:

- DIM_DATES
- DIM_BALANCE_CATEGORY
- DIM_ACCOUNT
- STG_CARDS_BALANCE_SUMMARY

For more information, see *Dimension Tables Population* section under *Dimension Loading Process* chapter for details on populating dimension tables like DIM_CUSTOMER, DIM_BANDS, and so on.

For more information, see *Time Dimension Population* chapter for details on populating DIM_DATES dimension table. See *Download Specification* for identifying fields required in Stage Customer Master and Stage Customer Details for the purpose of Customer Insight Application(s).

For identifying fields required in Stage Customer Master and Stage Customer Details for the purpose of Customer Insight Application(s), refer to Download Specification.

Executing the Fact Cards Balance Summary Population T2T

You can execute the function from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI.

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section *How to Define a Batch*.

To execute the T2T component from OFSAA Infrastructure ICC framework (accessed through the application Batch Operations screen), a seeded batch, `<Infodom>_aCRM_Retail_Analysis - Task1,` has to be executed for the required MIS Date.

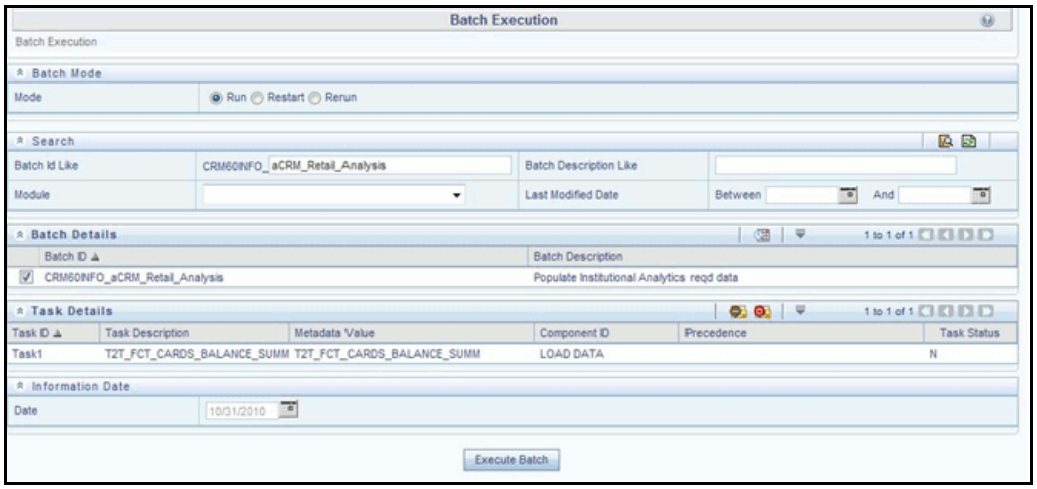


Figure 33. aCRM_Retail_Analysis - Task1

To define a new task for a Batch definition:

1. Click the check box in the Batch Name container to select the Batch.
2. Click **Add** (+) button from the Task Details grid. The Task Definition window is displayed.
3. Enter the Task ID and Description.
4. Select **Load Data** from the Components list.
5. Select the following from the Dynamic Parameters List and click **Save**.
   - Datastore Type - Select the appropriate datastore from the list.
   - Datastore Name - Select the appropriate name from the list.
   - IP address - Select the IP address from the list.
   - Load Mode - Select Table to Table from the list.
   - Source Name - Select <T2T Source Name> from the list.
   - File Name - Select the T2T name "T2T_FCT_CARDS_BALANCE_SUMM" you want to process.

   Data file name will be blank for any Table to Table Load mode. Default value refers to any parameter that has to be passed to T2T. This should be blank.

6. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the Batch Execution section of OFSAAI Operations module.

For more information, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen. The status messages in Batch Monitor are:

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The execution log can be accessed on the application server in the following directory: `$FIC_DB_HOME/log/t2t`.

The file name will have the batch execution ID. The following table can be queried for errors:

`FCT_CARDS_BALANCE_SUMMARY$`

For more information on configuration and execution of a batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Fact Customer to Customer Relationship

Fact Customer to Customer Relationship entity stores the relationship between the customers. Example of relationship amongst customers could be Employer, Employee, Children, Parent, Spouse, and so on.

Following table lists the seeded T2T Definitions with related Source Table and Destination tables:

Table 26. Fact Customer to Customer Relationship T2T Definitions

T2T Definition Name	Source Staging Table	Destination Table
T2T_CUST_CUST_RELATION	STG_CUST_CUST_RELATIONSHIP	FCT_CUST_CUST_RELATIONSHIP

For more information, see *Customer Insight Erwin Data Model* to view the detailed structure of the tables.

Prerequisites

Following are the lists of tables used in the population of Fact Customer to Customer Relationship and these tables are required to be loaded prior to running the T2T:

- DIM_DATES
- DIM_CUSTOMER
- STG_CUST_CUST_RELATIONSHIP

For more information, see *Dimension Tables Population* section under *Dimension Loading Process* chapter for details on populating dimension tables like DIM_CUSTOMER, DIM_BANDS, and so on.

For more information, see *Time Dimension Population* chapter for details on populating DIM_DATES dimension table. See *Download Specification* for identifying fields required in Stage Customer Master and Stage Customer Details for the purpose of Customer Insight Application(s).

Executing the Fact Customer to Customer Relationship Population T2T

You can execute the T2T component from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI.

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section *How to Define a Batch*.

To execute the T2T component from OFSAA Infrastructure ICC framework (accessed through the application Batch Operations screen), a seeded batch, `<Infodom>_aCRM_Customer_Customer_Reln - Task1`, has to be executed for the required MIS Date.

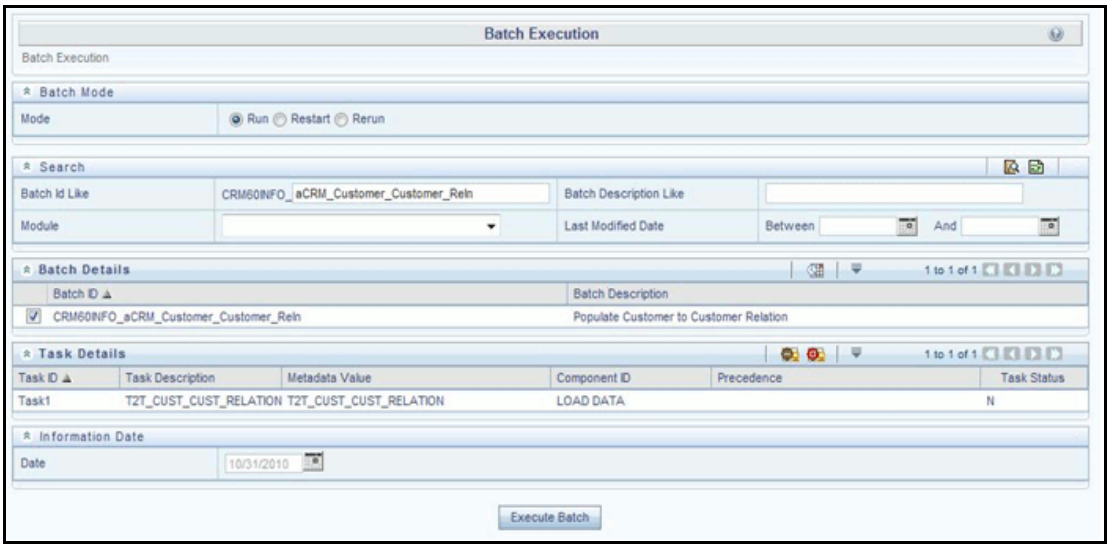


Figure 34. aCRM_Customer_Customer_Reln - Task1

To define a new task for a Batch definition:

1. Click the check box in the Batch Name container to select the Batch.
2. Click **Add** (+) button from the Task Details grid. The Task Definition window is displayed.
3. Enter the Task ID and Description.
4. Select Load Data from the Components list.
5. Select the following from the Dynamic Parameters List and click **Save**.
   - Datastore Type - Select the appropriate datastore from the list.
   - Datastore Name - Select the appropriate name from the list.
   - IP address - Select the IP address from the list.
   - Load Mode - Select Table to Table from the list.

- Source Name - Select <T2T Source Name> from the list.
- File Name - Select the T2T name "T2T_CUST_CUST_RELATION" you want to process.

  Data file name will be blank for any Table to Table Load mode. Default value refers to any parameter that has to be passed to T2T. This should be blank.

6. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the Batch Execution section of OFSAAI Operations module.

For more information, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen. The status messages in Batch Monitor are:

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The execution log can be accessed on the application server in the following directory: `$FIC_DB_HOME/log/t2t`.

The file name will have the batch execution ID. The following tables can be queried for errors:

FCT_CUST_CUST_RELATIONSHIP$

Note: For more information on configuration and execution of a batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Fact Transaction Channel

Fact Transaction Channel entity stores the details of all transactions (successful and failed) done through any of the transaction channels offered by the Financial Institutions. This fact entity is loaded from multiple source staging tables.

The following table lists the seeded T2T Definitions with related Source Table and Destination tables:

Table 27. Fact Transaction Channel T2T Definitions

T2T Definition Name	Source Staging Table	Destination Table
T2T_TEL_FCT_TXN_CHANNEL	STG_SRC_TB_TXNS	FCT_TXN_CHANNEL
T2T_POS_FCT_TXN_CHANNEL	STG_SRC_POS_TXNS	
T2T_NET_FCT_TXN_CHANNEL	STG_SRC_NET_TXNS	
T2T_BRA_FCT_TXN_CHANNEL	STG_SRC_BRANCH_TXNS	
T2T_ATM_FCT_TXN_CHANNEL	STG_SRC_ATM_TXNS	

For more information, see *Customer Insight Erwin Data Model* to view the detailed structure of the earlier tables.

Prerequisites

Following are the lists of tables used in the population of Fact Transaction Channel and these tables are required to be loaded prior to running the T2T:

- DIM_DATES
- DIM_TXN_CHANNEL
- DIM_ACCOUNT
- DIM_AUTH_DECISION_REASONS
- DIM_BANDS
- DIM_BROWSER_TYPE
- DIM_CARD_TYPE
- DIM_CURRENCY
- DIM_CUSTOMER
- DIM_CUSTOMER_TYPE
- DIM_GEOGRAPHY
- DIM_MERCHANT
- DIM_MERCHANT_CATEGORY
- DIM_PRODUCT
- DIM_TERMINAL
- DIM_TERMINAL_TYPE
- DIM_TRANSACTION
- DIM_TXN_FAILURE_REASON
- DIM_TXN_STATUS
- STG_SRC_ATM_TXNS
- STG_SRC_BRANCH_TXNS
- STG_SRC_NET_TXNS
- STG_SRC_POS_TXNS
- STG_SRC_TB_TXNS

For more information, see *Dimension Tables Population* section under *Dimension Loading Process* chapter for details on populating dimension tables like DIM_CUSTOMER, DIM_BANDS, and so on.

For more information on populating account dimension, see *Account Dimension Population* chapter.

For more information, see *Time Dimension Population* chapter for details on populating DIM_DATES dimension table. See *Download Specification* for identifying fields required in Channel Transaction tables in staging for the purpose of Customer Insight Application(s).

Executing the Fact Transaction Channel Population T2Ts

You can execute the the T2T component from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI.

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section *How to Define a Batch*.

To execute the T2T component from OFSAA Infrastructure ICC framework (accessed through the application Batch Operations screen), a seeded batch, `<Infodom>_aCRM_Txn_Channel Task1 to Task5,` has to be executed for the required MIS Date.

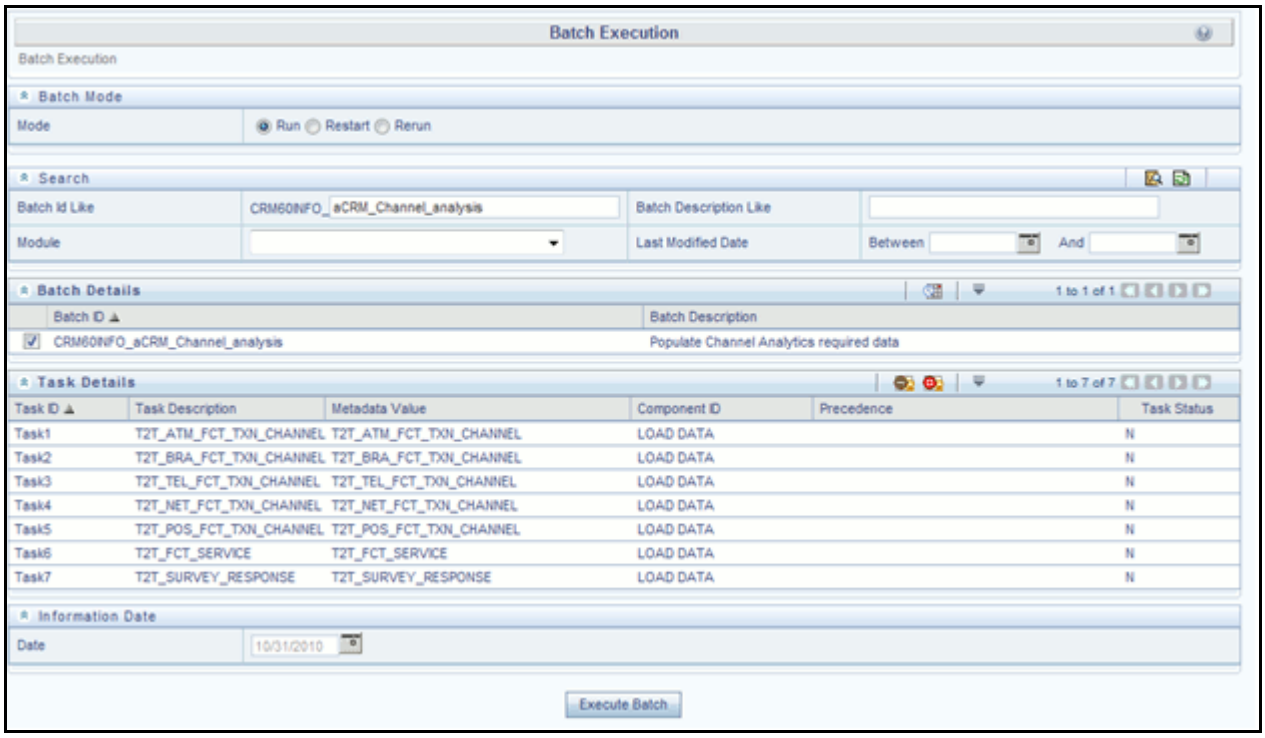


Figure 35. aCRM_Txn_Channel Task1 to Task5

To define a new task for a Batch definition:

1. Click the check box in the Batch Name container to select the Batch.
2. Click **Add** (+) button from the Task Details grid. The Task Definition window is displayed.
3. Enter the Task ID and Description.
4. Select **Load Data** from the Components list.
5. Select the following from the Dynamic Parameters List and click **Save**.
   - Datastore Type - Select the appropriate datastore from the list.
   - Datastore Name - Select the appropriate name from the list.
   - IP address - Select the IP address from the list.
   - Load Mode - Select Table to Table from the list.

- Source Name - Select <T2T Source Name> from the list.
- File Name - Select the T2T name for the source stage channel table you want to process.

  Data file name will be blank for any Table to Table Load mode. Default value refers to currency calculation. If there is any need for currency conversion in T2T transactions, Default value has to be provided. For example, default value is `[DRCY]='USD', [DLCY]='USD'` Here, 'USD' acts as currency parameter to T2T.

6. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the Batch Execution section of OFSAAI Operations module.

For more information, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen. The status messages in Batch Monitor are:

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The execution log can be accessed on the application server in the following directory: `$FIC_DB_HOME/log/t2t`.

The file name will have the batch execution ID. The following tables can be queried for errors:

FCT_TXN_CHANNEL$

Note: For more information on configuration and execution of a batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Fact Application

Fact Application entity stores the fact data of applications like application details, current stage, status, rejection reason, time-taken in each stage, and so on.

The following table lists the seeded T2T Definitions with related Source Table and Destination tables:

Table 28. Fact Application T2T Definition

T2T Definition Name	Source Staging Table	Destination Table
T2T_FCT_APPLICATION	STG_APPLICATION	FCT_APPLICATION

For more information and to view the detailed structure of the earlier tables, see *Erwin Data Model*.

Prerequisites

Following are the lists of tables used in the population of Fact Application. These tables are required to be loaded prior to running the T2T:

- DIM_DATES
- DIM_APPLICATION_TYPE
- DIM_PRODUCT
- DIM_CREDIT_OFFICER
- DIM_CUSTOMER
- DIM_CHANNEL
- DIM_CREDIT_CENTER
- DIM_DECISION_STATUS
- DIM_GEOGRAPHY
- DIM_INDUSTRY
- DIM_PROFESSION
- DIM_HOME_OWNERSHIP
- DIM_EDUCATION
- DIM_MARITAL_STATUS
- DIM_APPLICATION_REJECT_REASONS
- DIM_DEVIATION_REASONS
- DIM_SALES_REPRESENTATIVE
- DIM_CAMPAIGN
- DIM_ACCOUNT
- DIM_PROSPECT
- DIM_BANDS
- STG_APPLICATION

For details on populating dimension tables like DIM_CUSTOMER, DIM_BANDS, and so on, refer to *Dimension Tables Population*, section under *Dimension Loading Process* chapter.

For details on populating DIM_DATES dimension table, refer to *Time Dimension Population* chapter. For identifying fields required in Channel Transaction tables in staging for the purpose of Customer Insight Application(s), refer to *Download Specification.*

Executing the Fact Application Population T2T

You can execute the T2T component from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI.

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section How to Define a Batch.

To execute the T2T component from OFSAA Infrastructure ICC framework (accessed through Operations module), a seeded batch, <Infodom>_aCRM_CommCust_Appln - Task1 has to be executed for the required MIS Date.

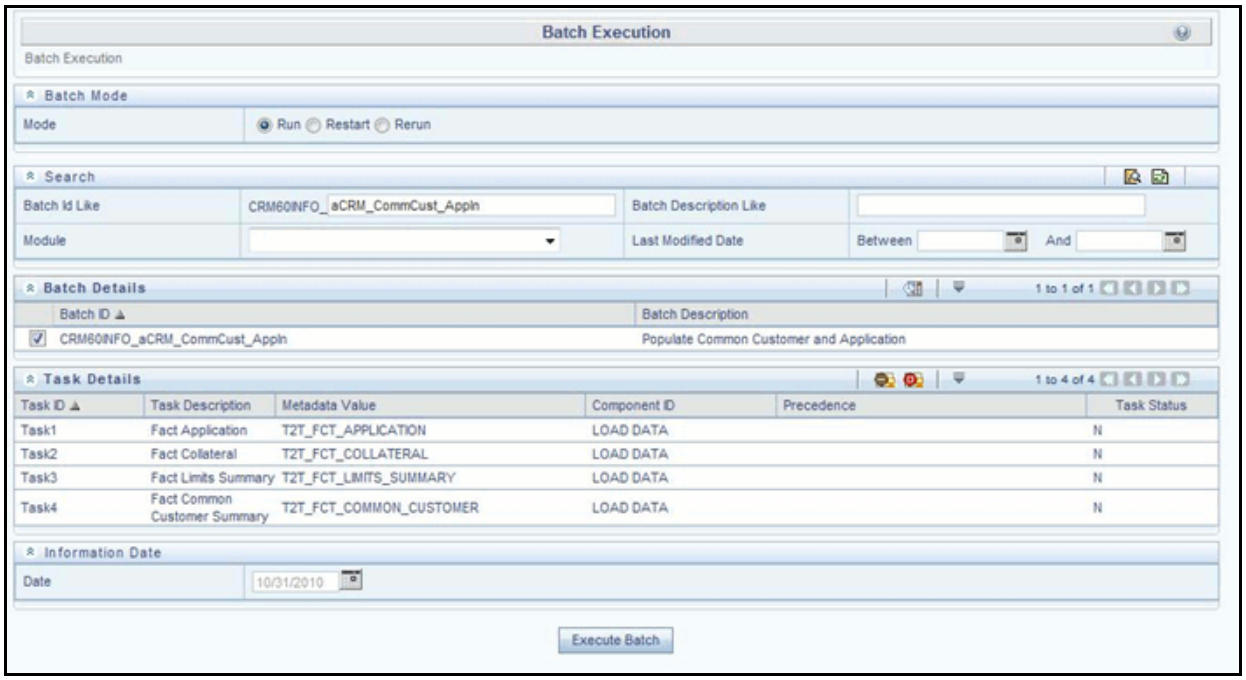


Figure 36. aCRM_CommCust_Appln - Task1

To define a new task for a Batch definition:

1. Click the check box in the Batch Name container to select the Batch.
2. Click **Add** (+) button from the Task Details grid. The Task Definition window is displayed.
3. Enter the Task ID and Description.
4. Select **Load Data** from the Components list.
5. Select the following from the Dynamic Parameters List and click **Save.**
   - Datastore Type - Select the appropriate datastore from the list.
   - Datastore Name - Select the appropriate name from the list.
   - IP address - Select the IP address from the list.
   - Load Mode - Select Table to Table from the list.
   - Source Name - Select <T2T Source Name> from the list.
   - File Name - Select the T2T name 'T2T_FCT_APPLICATION', you want to process.

Data file name will be blank for any Table to Table Load mode. Default value refers to currency calculation. If there is any need for currency conversion in T2T transactions, Default value has to be provided.
For example, default value is `[DRCY]='USD', [DLCY]='USD'` Here, 'USD' acts as currency parameter to T2T.

6. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the Batch Execution section of OFSAAI Operations module.

For more information, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen. The status messages in Batch Monitor are:

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The execution log can be accessed on the application server in the following directory: `$FIC_DB_HOME/log/t2t`.

The file name will have the batch executionID. The following tables can be queried for errors:

FCT_APPLICATION$

Note: For more information on configuration and execution of a batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Fact Account Profitability

Fact Account Profitability entity stores fact data for reporting line items of revenue, costs, and expense related to each customer account. The data into this table is populated from other fact tables like FCT_COMMON_ACCOUNT_SUMMARY, FCT_PFT_ACCOUNT_SUMMARY, FCT_FTP_ACCOUNT_SUMMARY, FCT_REG_CAP_ACCOUNT_SUMMARY, and FCT_ECO_CAP_ACCOUNT_SUMMARY.

The following table lists the seededseeded Post Load Transformation Definition with related Source Table and Destination tables

Table 29. Fact Account ProfitabilityDefinition

T2T Definition Name	Source Staging Table	Destination Table
FN_FCT_ACCOUNT_PFT	FCT_COMMON_ACCOUNT_SUMMARY FCT_PFT_ACCOUNT_SUMMARY FCT_FTP_ACCOUNT_SUMMARY FCT_REG_CAP_ACCOUNT_SUMMARY FCT_ECO_CAP_ACCOUNT_SUMMARY	FCT_ACCOUNT_PROFITABILITY

For more information and to view the detailed structure of the tables, see *Oracle Financial Services Analytical Applications Data Model Data Dictionary* and the *Erwin Data Model*.

Information from account summary fact tables are populated to Fact Account Profitability through a mapping process. Reporting line dimension is mapped to measures present in account summary. A PL/SQL procedure then populates the fact table by reading the mapping definition.

Reporting line dimension is created/maintained from Attribute Member Hierarchy Maintenance (AMHM) component of OFSAAI. A Reporting line item represents a revenue, costs, or expenses. Rollup signage is set as an attribute for a reporting line item. To know more about AMHM, refer to *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

The Account summary tables contain the revenue, costs, or expenses measures pertaining to an Account. Map Maintenance component of OFSAAI is used to map the measures of account summary tables (represented in a measure hierarchy) to reporting line hierarchy. A pre-defined mapping "Reporting Line Mapping" is seeded along with the application installer. Reporting Line Hierarchy and Reporting Line Measure

Hierarchy are the two hierarchies which are used for the mapping. Reporting Line Hierarchy is a parent child hierarchy which is based on Reporting Line Dimension entity.

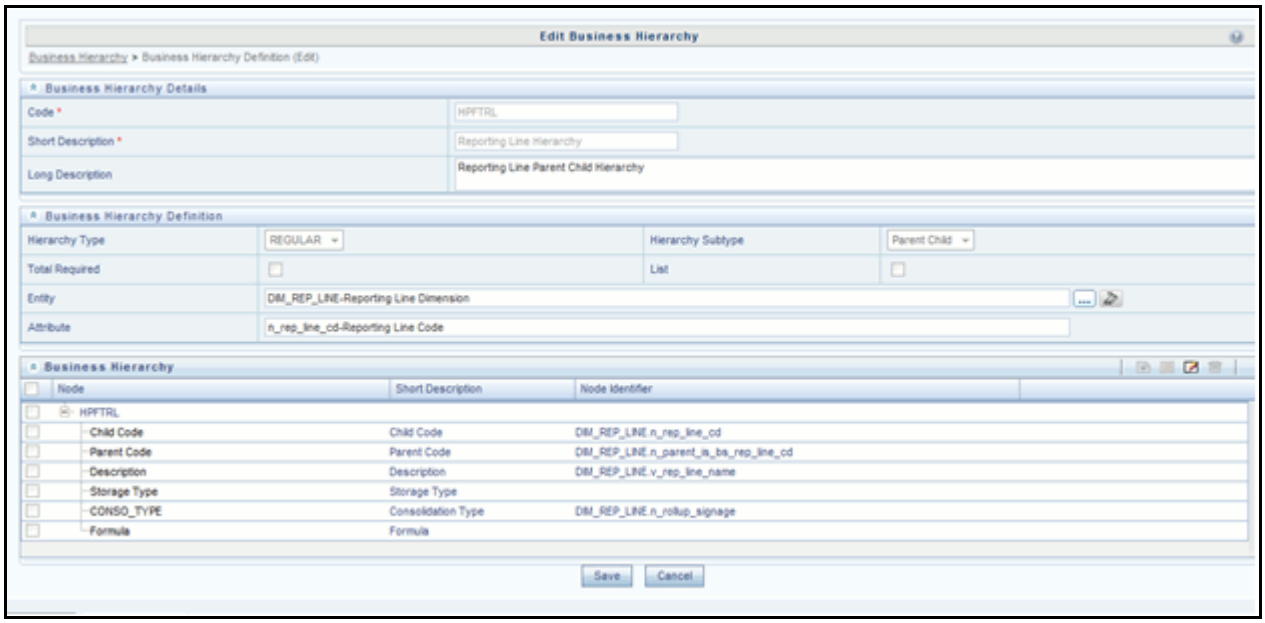


Figure 37. Reporting Line Hierarchy

Reporting Line Measure hierarchy is a Non Business Intelligence Enabled Hierarchy which is based on measures from the Account Summary tables.

Figure 38. Reporting Line Measure hierarchy

A seeded map is configured between the Reporting Line Hierarchy and Reporting Line Measure Hierarchy from Map Maintenance of OFSAAI.

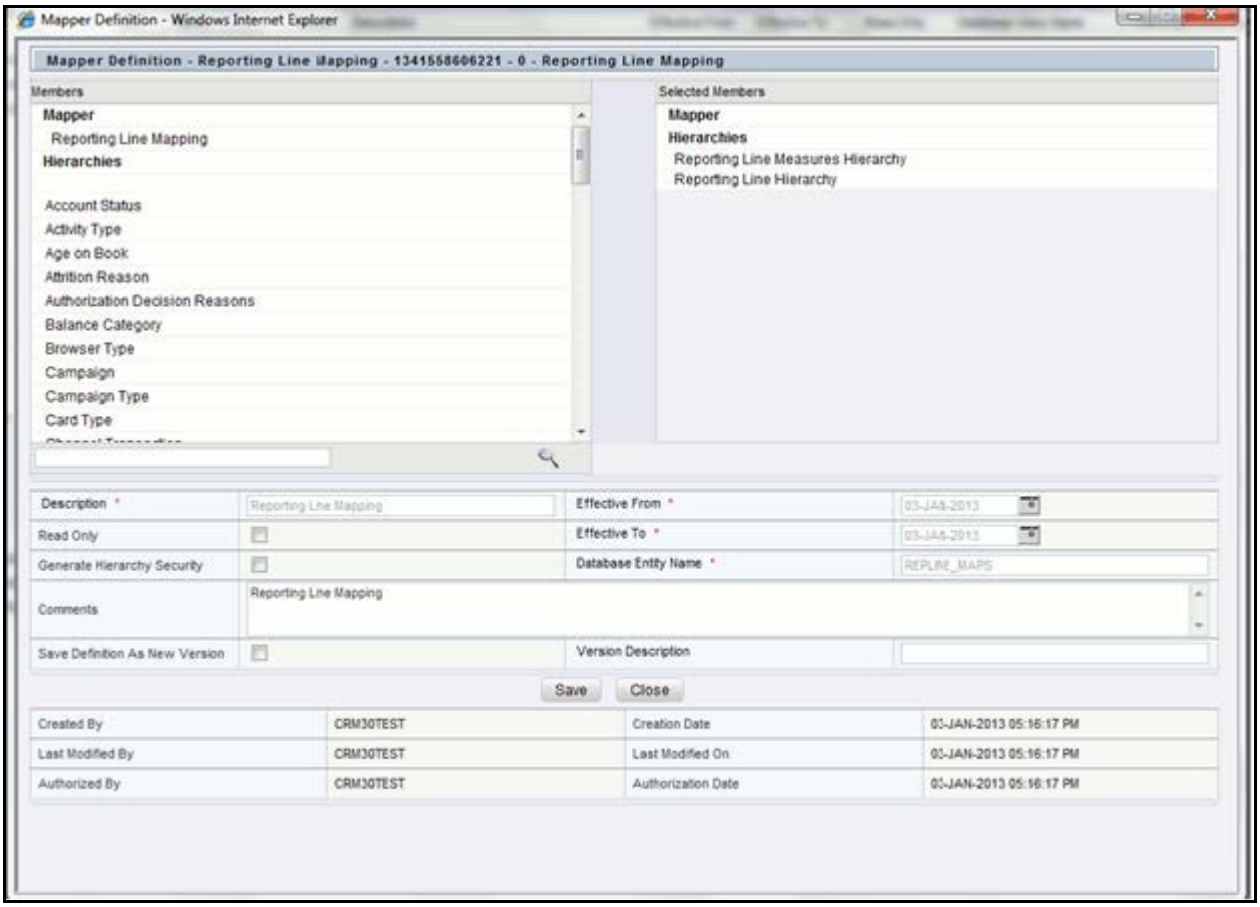


Figure 39. Reporting Line Hierarchy

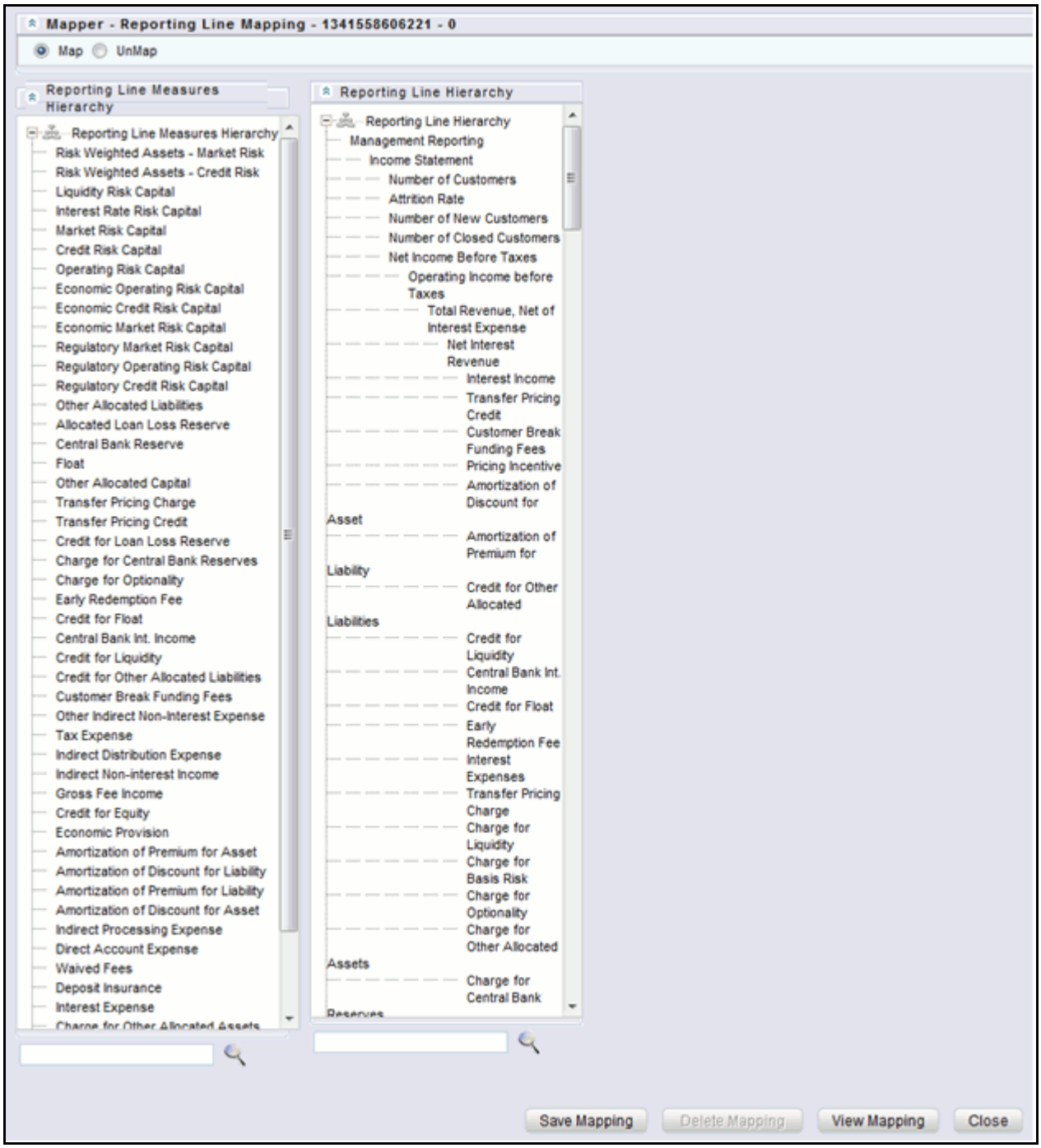


Figure 40. Reporting Line Measure Hierarchy

For more information on defining/maintaining Mapper, refer to Oracle Financial Services Analytical Applications Infrastructure User Guide.

Steps to Define Mapping for Custom Reporting Line Items

Follow the below steps to define mapping for Custom Reporting Line items:

1. Add Custom Reporting Line or Modify existing Reporting Line.
2. Add Custom Reporting Line Hierarchy or modify existing seeded reporting line hierarchy.
3. Execute the seeded Batch <INFODOM>_ Repline_Dimension_Update specifying the Reporting line hierarchy as parameter to Batch.
4. Modify the seeded Business Metadata.
5. Map Maintenance.

The following sections describe these steps.

Add Custom Reporting Line or Modify existing Reporting Line

Custom Reporting Lines can be added or modified from AMHM. Following are the seeded attributes of Reporting Line Dimension:

- Financial Element Code
- GL Account Code
- Rollup Signage

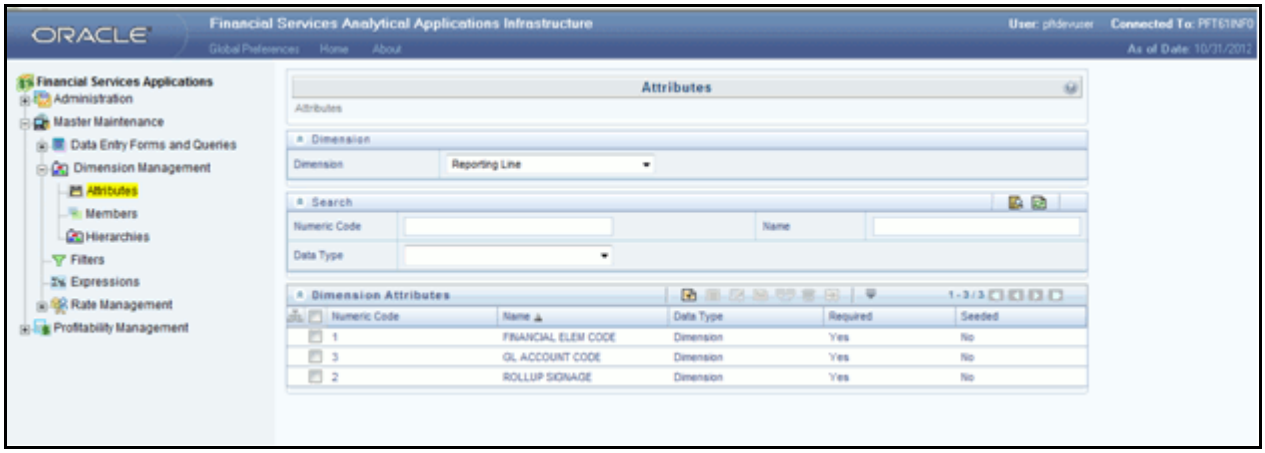


Figure 41. Reporting Line Attributes

A Reporting line can be added or modified from the Members screen as shown below. To modify the existing reporting line, select the member by selecting the adjacent check box and select the **Edit** button on the menu bar.

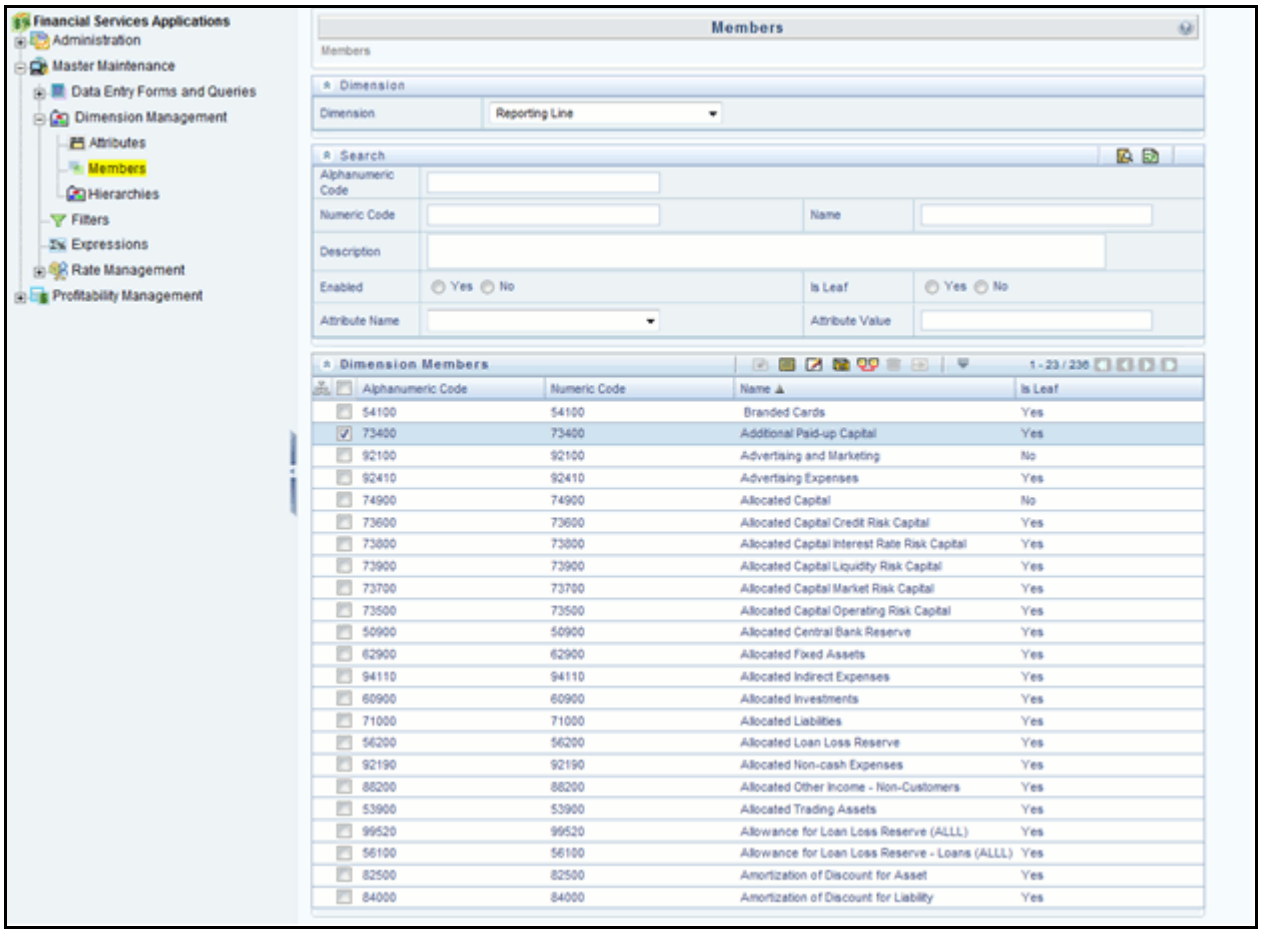


Figure 42. Reporting Line Members

To add a new reporting line:

1. Select **Add** button from the Members screen. The Member Definition (New Mode) screen is displayed.

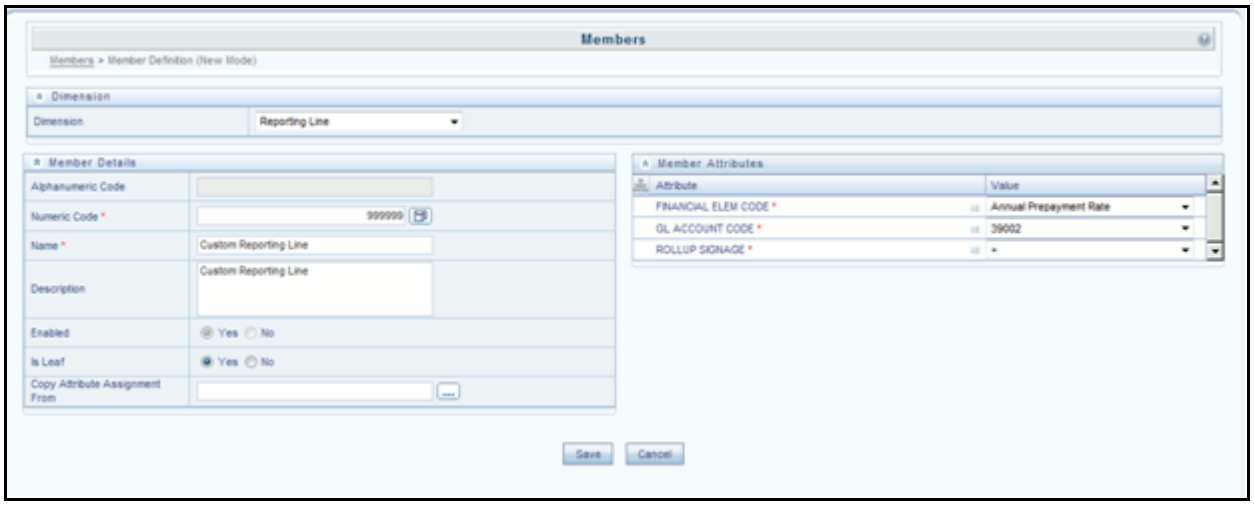


Figure 43. Member Definition (New Mode)

2. In the Member Definition (New Mode) screen:

- Enter Numeric Code.
- Enter the Name of the custom reporting line.
- Enter the Description of the custom reporting line.
- Select **Yes**, if the custom reporting line has to be Enabled or not.
- Select **Yes**, if the custom reporting line Is Leaf or not.
- Select the Attributes for the reporting line member.
- **Save** the Member definition.

To modify a reporting line:

1. Click **Edit** button from the Members screen. The Member Definition (Edit Mode) screen is displayed.

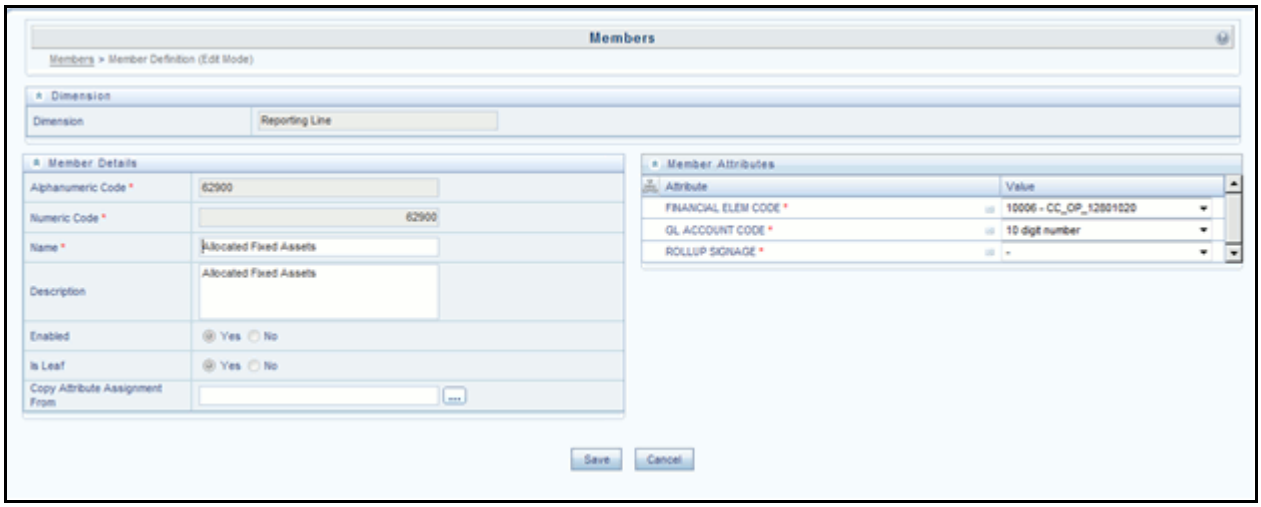


Figure 44. Member Definition (Edit Mode)

2. In the Member Definition (Edit Mode) screen, perform the following as required:

- Modify the Name of the custom reporting line.
- Modify the Description of the custom reporting line.
- Modify the selection of the radio button in the Enabled field.
- Modify the selection of the radio button in the Is Leaf field.
- Modify the Attributes for the reporting line member.
- Save the Member definition.

For more information, refer to *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Add Custom Reporting Line Hierarchy or Modify Existing Seeded Reporting Line Hierarchy

To create a new Reporting Line Hierarchy:

1. Click **Add** button from the menu. The Hierarchy Definition (New Mode) screen is displayed.

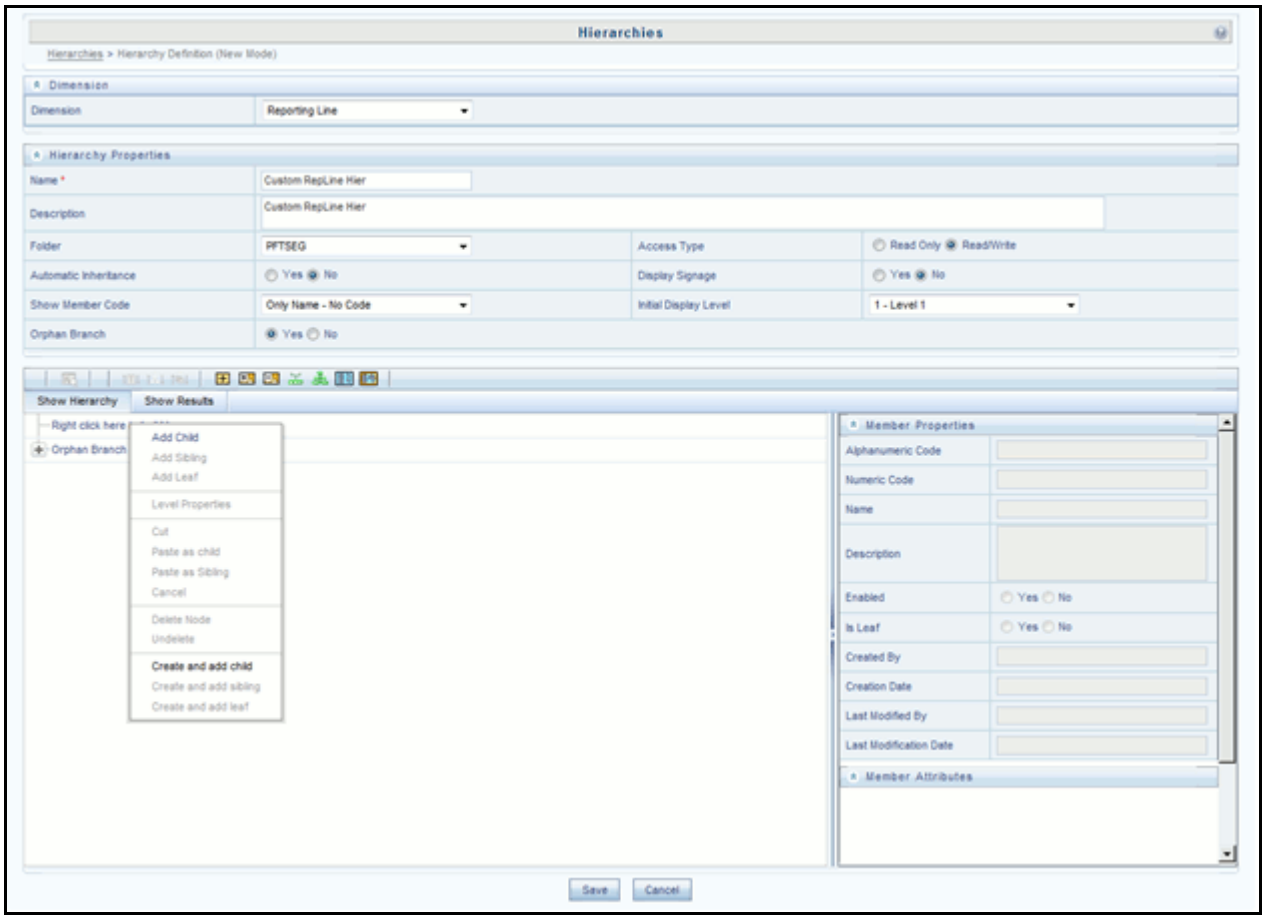


Figure 45. Hierarchy Definition (New Mode)

2. Enter the details in the required fields, and click **Save**.

Note: Alternatively, insert scripts and update scripts can be prepared into tables DIM_REPORTING_LINE_B, DIM_REPORTING_LINE_TL, DIM_REPORTING_LINE_ATTR, and DIM_REPORTING_LINE_HIER for adding any new custom reporting lines or modifying an existing reporting line.

3. Execute the seeded batch `<Infodom>_ Repline_Dimension_Update` specifying the Reporting line hierarchy as parameter to batch.
4. Execute the seeded batch `<Infodom>_ Repline_Dimension_Update` . It populates data into DIM_REP_LINE table.

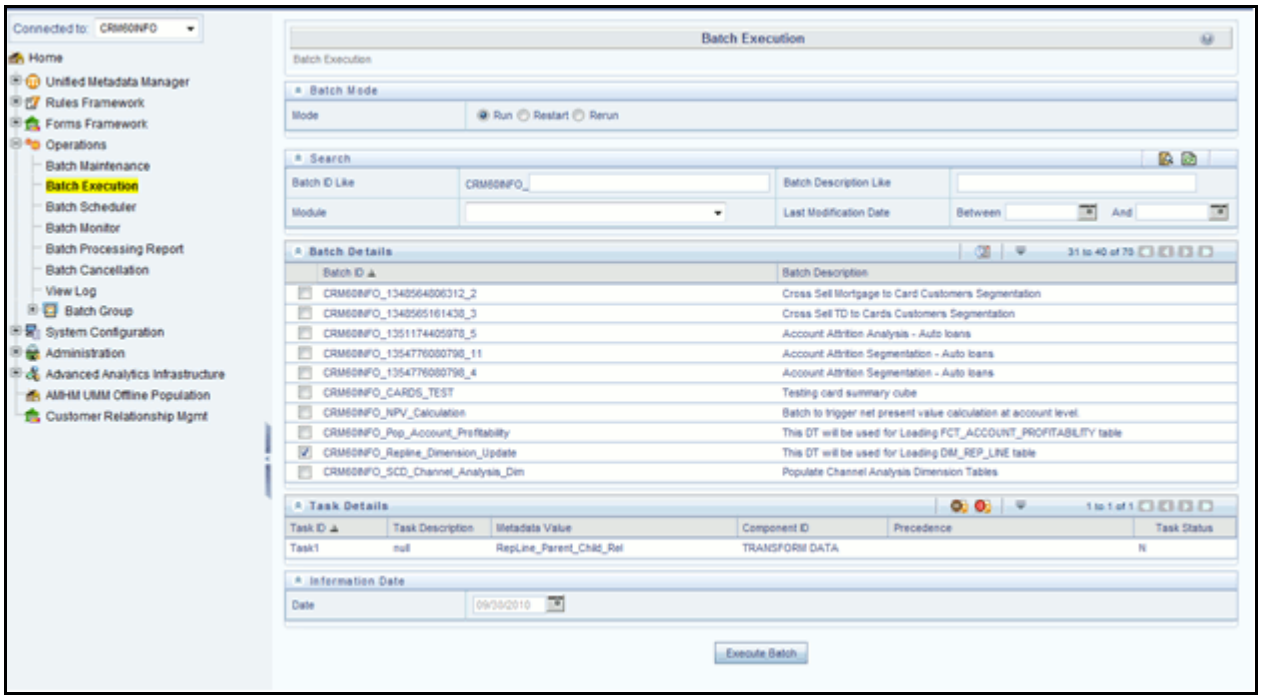


Figure 46. Execute Batch

To modify existing seeded Reporting Line Hierarchy:

1. Select the check box adjacent to the Reporting Line Hierarchy to be modified.
2. Click **Edit** button from the menu.
3. Modify the Hierarchy as required and click **Save.**

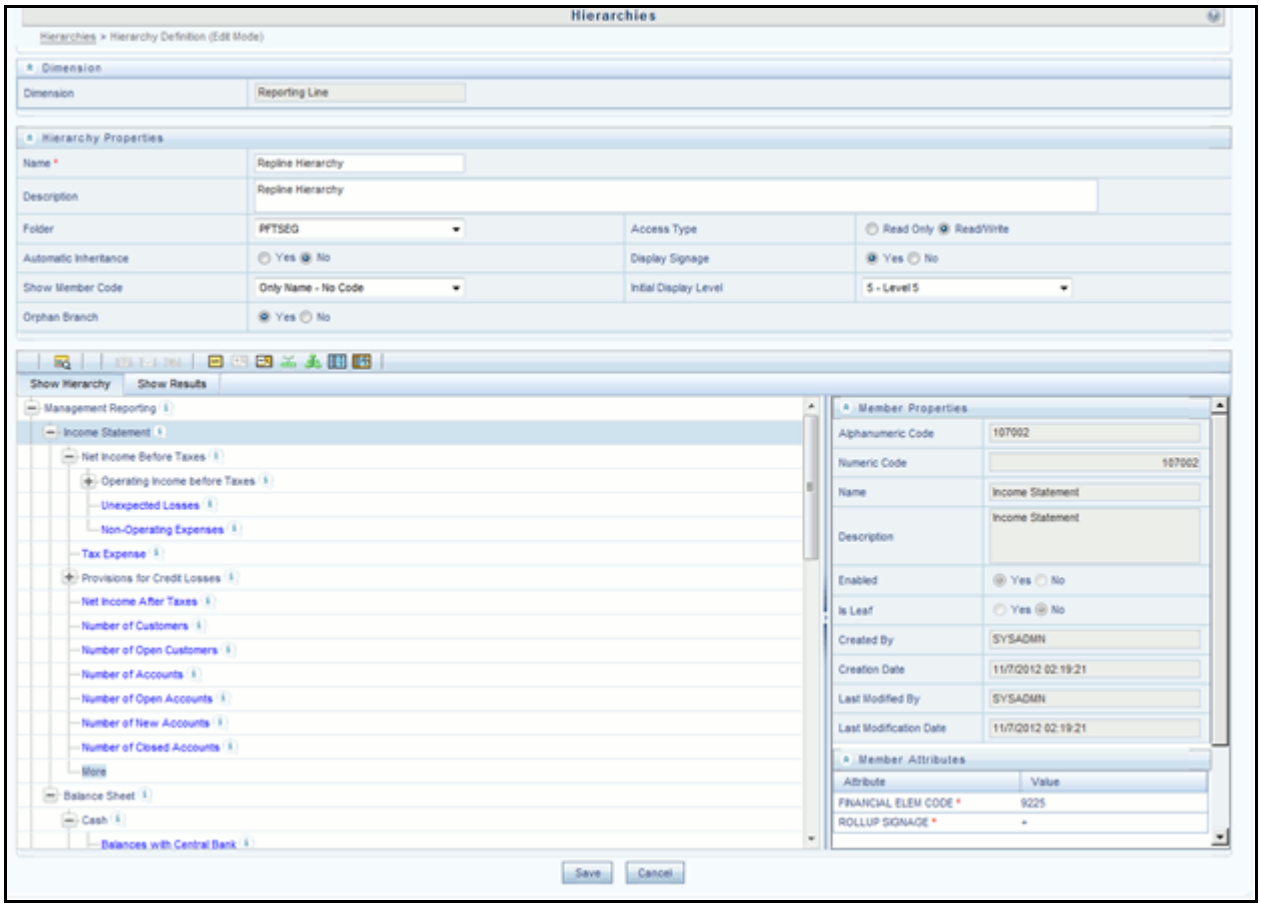


Figure 47. Modified Hierarchy

For more information, refer to *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Modify the Seeded Business Metadata

1. Resave the Seeded Business Metadata parent child hierarchy, "Reporting Line Hierarchy" (HPFTRL), so that the changes done are consolidated in the hierarchy as well.

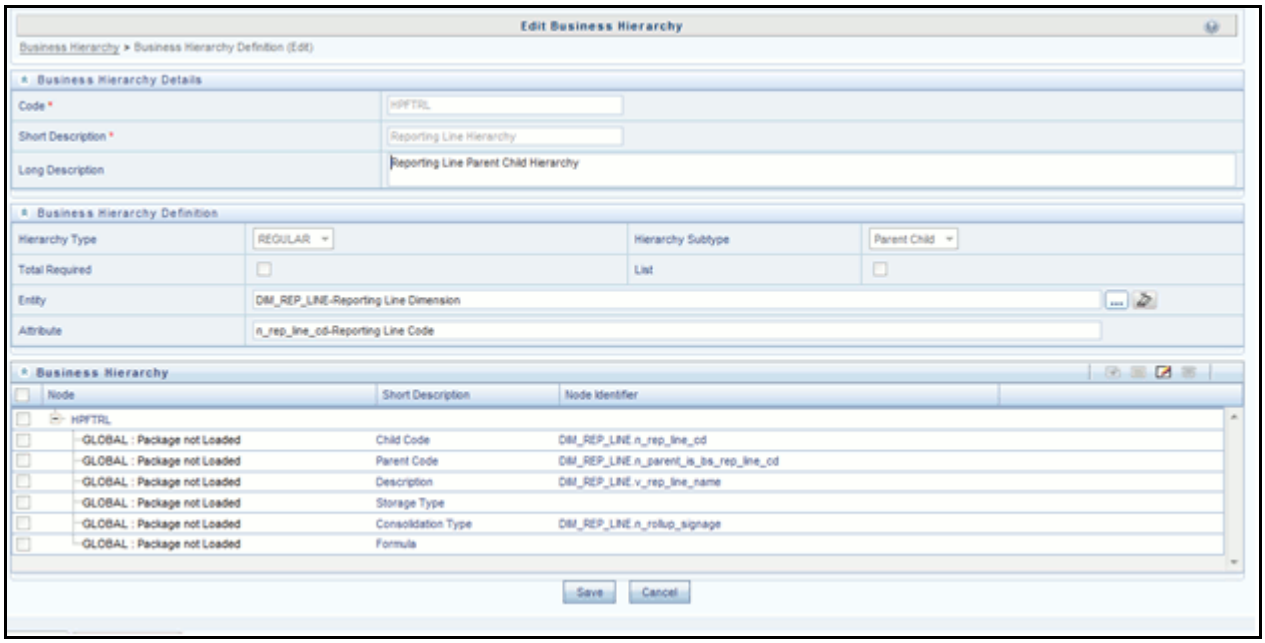


Figure 48. HPFTRL

2. (Optional) Create the Business Measures for the newly added reporting lines.
3. **Attach and Save** the defined Business Measures to the hierarchy "Reporting Line Measures".
4. Save the metadata.

For more information, refer to *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Map Maintenance

Once all the above steps are done, the seeded map configured between the Reporting Line Hierarchy and Reporting Line Measure Hierarchy has to be modified if required from Map Maintenance of OFSAAI.

For more information, refer to *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Note: For the following reporting lines, user should provide default value "V" for the attribute ID 5 (Segmentation Computation Type) after installation.

REPORTING_LINE_ID	REPORTING_LINE_NAME
85200	Fees
85800	Other Income - Customers
94000	Operating Expenses
107440	Average Term Deposit Amount

REPORTING_LINE_ID	REPORTING_LINE_NAME
107450	Average Savings Account Balance
107460	Average Credit Card Utilization
107470	Average Revolve Rate

Rollup Signage and Operational Signage

In the context of Reporting Lines, the significance of Signage is that it indicates whether the Reporting Line Value in question will be an addition or a subtraction to the corresponding Parent Reporting Line. The reporting line values that are loaded to the Fact tables like FCT_ACCOUNT_PROFITABILITY or FCT_MGMT_REPORTING are leaf level reporting lines.

For example, consider the following hierarchy:

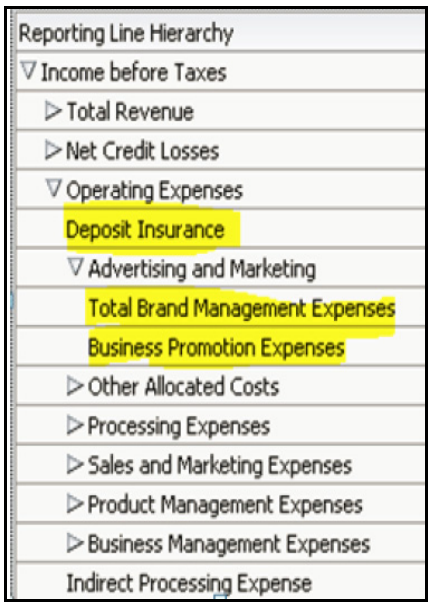


Figure 49. Rollup Signage and Operational Signage

The Fact table will not contain values for Advertising and Marketing as that value is expected to be calculated based on the "rollup" of the underlying leaf level values - Total Brand Management Expenses and Business Promotion Expenses. However, all the underlying values will not be added together. Some values will be expected as positive, and some will be expected as negative. For example:

Reporting Line Hierarchy	Rollup Signage
▽ Income before Taxes	1
▷ Total Revenue	1
▷ Net Credit Losses	-1
▽ Operating Expenses	-1
Deposit Insurance	-1
▽ Advertising and Marketing	1
Total Brand Management Expenses	1
Business Promotion Expenses	1
▷ Other Allocated Costs	1
▷ Processing Expenses	1
▷ Sales and Marketing Expenses	1
▷ Product Management Expenses	1

Figure 50. Reporting Line Hierarchy

Hence, when Deposit Insurance rolls up into Operating Expenses, it is considered a subtraction. This rollup into the immediate parent is called Rollup Signage.

However, when rolling up further, (in this case, Income before Taxes), the signage of Deposit Insurance will be dependent on the rollup signage of Operating Expenses.

Operating Expenses = (-1) x Deposit Insurance

Income before Taxes = (-1) x Operating Expenses

Hence, when the leaf value Deposit Insurance rolls up into Income before Taxes,

Income before Taxes = (-1)x(-1) x Deposit Insurance = (+1) x Deposit Insurance

Hence, Rollup Signage of Deposit Insurance is -1 (or negative).

However, in relation to Income before Taxes, the Operational Signage of Deposit Insurance is +1 (or positive).

The effective signage of the leaf reporting line with respect to a parent reporting line is called Operational Signage.

Operational Signage of a reporting line is defined in relation to a parent reporting line. However, the Rollup Signage is always in relation to the immediate parent reporting line.

Note: Rollup Signage and Operational Signage of Deposit Insurance should be either 1 or -1 and cannot be any other value.

Prerequisites

Following are the lists of tables used in the population of of Fact Account Profitability. These tables are required to be loaded prior to running the DT.

- DIM_DATES - Mandatory
- DIM_REP_LINE - Mandatory
- FCT_COMMON_ACCOUNT_SUMMARY
- FCT_PFT_ACCOUNT_SUMMARY

- FCT_FTP_ACCOUNT_SUMMARY
- FCT_REG_CAP_ACCOUNT_SUMMARY
- FCT_ECO_CAP_ACCOUNT_SUMMARY

For more information on SCD, refer to the *Dimension Loading Process* chapter.

Executing the Fact Account Profitability Population DT

You can execute the the DT component from the Operations (formerly Information Command Center (ICC) framework) module of OFSAAI.

Define a new Batch and an underlying Task definition from the Batch Maintenance window of OFSAAI. For more information on defining a new Batch, refer to the section How to Define a Batch.

To execute the DT component from OFSAA Infrastructure ICC framework (accessed through Operations module), a seeded batch, `<Infodom>_Pop_Account_Profitability` has to be executed for the required MIS Date.

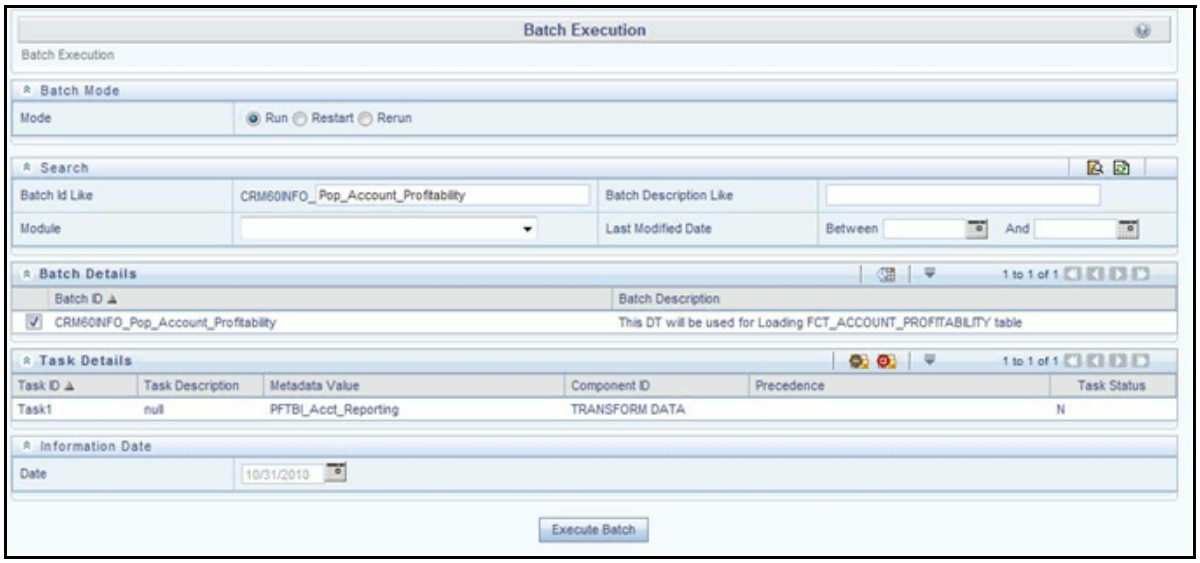


Figure 51. Pop_Account_Profitability

To define a new task for a Batch definition:

1. Click the check box in the Batch Name container to select the Batch.
2. Click **Add** (+) button from the Task Details grid. The Task Definition window is displayed.
3. Enter the Task ID and Description.
4. Select **TRANSFORM DATA** from the Components list.
5. Select the following from the Dynamic Parameters List and click **Save.**
   - Datastore Type - Select the appropriate datastore from the list.
   - Datastore Name - Select the appropriate name from the list.
   - IP address - Select the IP address from the list.

- Rule Name - Select **FN_FCT_ACCOUNT_PFT** from the list.

6. Enter the Parameter List details as mentioned below:
   - Reload Account Profitability table for the given MIS Date flag - can be Y or N within single quotes.
   - Reporting Currency Code - This has to be enclosed within single quotes.
     For Example, if reporting currency is in US Dollar, then 'USD' has to be specified.
     Note: Batch run ID and As Of Date are passed internally by the batch to the Data Transformation task.

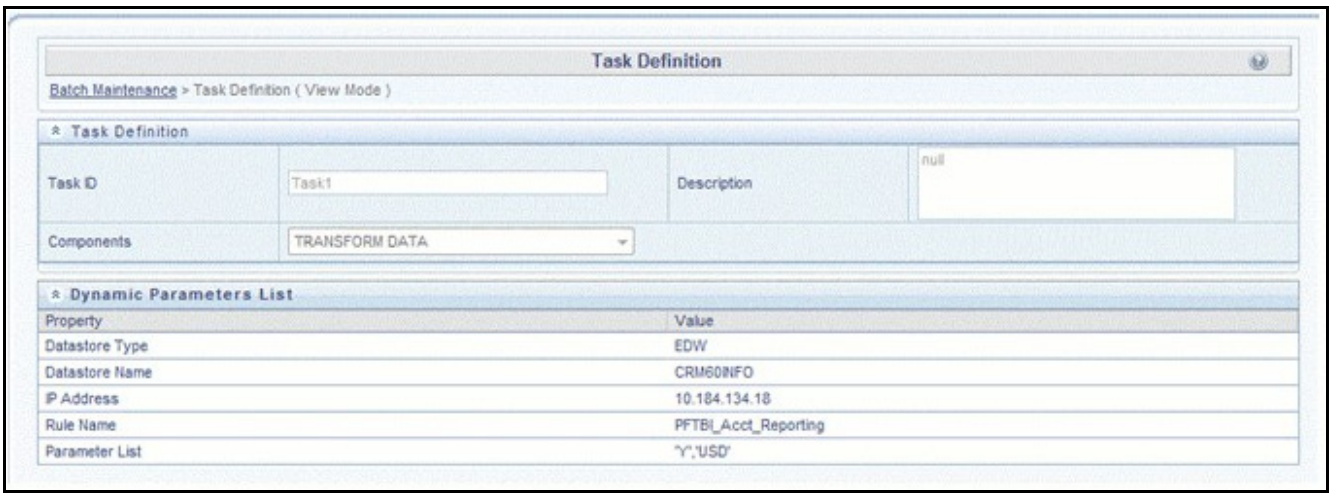


Figure 52. Data Transformation Task

7. Click **Save**. The Task definition is saved for the selected Batch.

You can execute a Batch definition from the Batch Execution section of OFSAAI Operations module.

For more information, see *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen. The status messages in Batch Monitor are:

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The execution log can be accessed on the application server in the following directory: `$FIC_DB_HOME/log/t2t`.

The file name will have the batch executionID. The following tables can be queried for errors:

CHAPTER 12 Cube Build Process

Reports of OFSRPA application can be configured to work on Relational database or Essbase cubes. Source of data for the reports is determined by the priority set for each Logical Table Source (LTS) in OBIEE RPD.
Multi-dimensional databases store aggregated data for better performance and provide mechanisms for performing non-additive rollup within a hierarchy and defining complex derived measures using cross-dimensional operations. OFSAA Infrastructure is used for defining metadata about the cube and for building the cubes. Cubes are optional source of data for Retail Performance application.

The chapter contains the following sections:

Overview of Cubes

OFSRPA application has the following seeded cubes:

- Retail Analysis
  - **Purpose:** The purpose of this cube is to provide analysis of various Account related measures across dimensions like Product, Line of Business, Vintage, and so on.
  - **Dataset**: This cube is based on the FCT_COMMON_ACCOUNT_SUMMARY and FCT_CRM_ACCOUNT_SUMMARY fact tables.
- Customer Summary
  - **Purpose:** The purpose of this cube is to provide analysis of various Customer related measures across customer profile dimensions like Income Band, Age, and so on.
  - **Dataset:** This cube is based on the FCT_COMMON_CUSTOMER_SUMMARY and FCT_CRM_CUSTOMER_SUMMARY fact tables.
- Cards Balance Summary
  - **Purpose:** The purpose of this cube is to provide analysis of various Cards Balance Category related measures across dimensions like Time, Customer Profile by Income, Age, Gender Age on Book, Vintage, and so on.
  - **Dataset:** This cube is based on the FCT_CARDS_BALANCE_SUMMARY fact table.
- Account Profitability
  - **Purpose:** The purpose of this cube is to provide analysis of Financial Reporting Lines related measures across dimensions like Time, Line of Business, Customer Profile by Income, Age, Gender Age on Book, Vintage, and so on.
  - Dataset: This cube is based on the FCT_ACCOUNT_PROFITABILITY, FCT_COMMON_ACCOUNT_SUMMARY, FCT_CRM_ACCOUNT_SUMMARY, FCT_COMMON_CUSTOMER_SUMMARY, and Fct_CRM_Customer_SUMMARY fact tables.

- RM PnL Cube for RPA
  - **Purpose:** The purpose of this cube is to provide details of Profit and Loss statement of a Relationship Manager across dimensions like Line of Business, Product, Organizational Unit, and so on.
  - **Dataset:** This cube is based on the FCT_ACCOUNT_PROFITAIBILTY and FCT_ACCOUNT_MGR_REL fact tables.

If there is an error with the Relationship Manager cube saving or execution for the first time after the installation, the parent child hierarchies must be saved by editing the hierarchies individually and re-saving them after which the cube needs to be saved successfully and re-executed.

Creating Configuration Files

Each cube has a configuration file that contains the details of dimensions and measures which are part of the cube. Essbase outline is created using the configuration file. Configuration files for seeded cubes are available as part of the installer. However, if there are any changes to cube definition then configuration files are recreated during saving of the cube definition.

Follow these steps:

1. On the LHS menu of OFSAAI, go to **Home > Unified Metadata Manager > Business Metadata Management > Cubes**.
2. Click **Search** and check if you can see the cubes in the pop up window that opens.
3. Click on the cube that needs to be built and click **OK** to return to the Cube Definition Screen.
4. Click **Save** to save the cube. A pop up appears saying *Operation Successful*.

Note: Cube definition will be saved only when the UI component detects any change event. In order to trigger the change event, type a blank space in 'Long Description' text-box and remove the same. Or a dimension can be removed from selected list, again the same dimension

Building Of Cubes

The Cube build process in OFSAA Infrastructure contains the following steps:

1. Generating an aggregate DATA file containing the measure values for each dimension leaf that are part of the cube definition. This is performed by the AGGREGATE DATA component task within the batch definition.
2. Creating the cube outline on Essbase server. This is performed by the CREATE CUBE component task within the batch definition.
3. Loading the data to the cube. This is performed by the CREATE CUBE task within the batch definition.

This section covers the following topics:

- Prerequisites
- Tables used by the Cube build component
- Executing the Cube build task

- Checking the execution status

Prerequisites

The following are prerequisites for creating a cube:

- All the post install steps mentioned in the *OFSAA Infrastructure installation guide & Solution installation manual* have been completed successfully.
- Parentage files need to be created for BI hierarchies after dimension data is loaded. 'Resave Metadata' process is used to create the parentage files.
- OFSAAI application user needs to have the required functions mapped to the user for doing Resave Metadata and accessing the Home> Unified Metadata Manager > Business Metadata Management screens and executing a batch from Application batch operations screen.
- Execute Save Metadata by navigating to the following screen on the OFSAAI framework LHS Menu.
  - Go to **Home > Administration > Save Metadata**.
  - Choose all the available metadata under Hierarchy and move it to the right by using the '>>' button.
  - Click **Save** and might take a few minutes for the saving to complete.
  - Click **Show Details** to view the log for the Save operation.
    Refer to *System Configuration & Administration* chapters in *OFSAAI User Manual* for details on the Resave metadata feature. Saving metadata creates all the parentage files required for building cubes.

- Ensure that the following services are running on the application server before doing a cube build:
  - Iccserver
  - Router
  - AM
  - Messageserver
  - Olapdataserver

- Batches need to be created for executing, which is explained in the Executing the Cube build section.
- All the required tables for dataset need to be populated before you execute the cube batches, such as Dimension Population, Time Dimension population, Account Summary Population, and Fact Ledger Population.
- The dataset for the cube should return some rows in the database for the cube build to happen. To check the same, perform the following steps:
  - Navigate to **Home > Unified Metadata Manager > Business Metadata Management > Data Sets**.
  - Click **Search.**
  - Click any dataset in the pop up which opens and click **OK** to return to the data set screen.
  - Click the button on right of ANSI Join text box. Enter the required expression or click the below button to define an expression using the Expression screen.

- Click **OK** to return to the data set screen.
  For more information, refer to *Create Expression* section in *OFSAA Infrastructure User Guide*.
- Perform the same for Join/Filter Condition and Date filter.

- Frame a SQL query like this:

  ```
  SELECT COUNT(1) FROM <ENTER THE PART YOU OBTAINED FROM ANSI JOIN PART
  ABOVE>WHERE<ENTER THE PART YOU OBTAINED FROM JOIN/FILTER CONDITION & DATE
  FILTER PARTS>
  ```

  This query should show record count greater than zero when you fire this from SQL prompt in the database.

- Essbase Reserved Keywords

  Essbase has few reserved keywords and 'Missing' is one of them. So in case of cube building using dim_bands, it fails as it tries to create a cube with the reserved keyword in the table data. None of the reserved keywords should be used while creating data.

  Note: Essbase does not identify/ support newline character, tab character. Ensure that you do not use them.

  For the list of reserved keywords, please see the following link:

  https://docs.oracle.com/cd/E51367_01/financialsop_gs/FASVU/apbs02s02s03.html

Tables Used by the Cube Build Component

Tables that are part of the dataset need to be populated before executing the cube build component. In addition, REV_BIHIER table in atomic database schema stores the hierarchy data for Business Intelligence-enabled hierarchies for cube build. This table gets populated when a hierarchy is saved using Save Metadata screen.

Executing the Cube Build Task

To execute the cube build process from OFSAAI ICC framework (accessed through the application Batch Operations screen), create a new Batch with two tasks - one for performing Data crunching (component is Aggregate Data) operations and another for building cube (component is Build Cube). The above batch needs to be created for each of the cubes.

Aggregate Data Task

1. From OFSAAI Home menu, select **Operations > Batch Maintenance**.
2. Click **New Batch** ('+' symbol in Batch Name container) and enter the Batch Name and Description.
3. Click **Save**.
4. Select the Batch you created in the earlier step by clicking on the check box in the Batch Name container.
5. Click **New Task** ('+' symbol in Task Details container).
6. Enter the Task ID and Description.
7. In the Component drop down, choose **Aggregate Data**.
8. Select the following from the Dynamic Parameters List and then click **Save**:

- Datastore Type - Select the appropriate datastore from the list.
- Datastore Name - Select the appropriate name from the list.

- IP address - Select the IP address from the list.
- Cube Parameter - Choose the cube code to be built from the drop down list.
- Operation - Choose **All** from the drop down list.

Create Cube Task

1. In the batch created in Aggregate Data task above, click **New Task** ('+' symbol in Task Details container).
2. Enter the Task ID and Description.
3. In the Component drop down, choose **Create Cube**.
4. Select the following from the Dynamic Parameters List and then click **Save**:

- Datastore Type - Select the appropriate datastore from the list.
- Datastore Name - Select the appropriate name from the list.
- IP address - Select the IP address from the list.
- Cube Parameter - Choose the cube code to be built from the drop down list.
- Operation - Choose **All** from the drop down list.

5. Execute the batch created in the above step.

Note: A common issue in the Aggregate task is Data Set not having records for which the steps mentioned in the prerequisites have to followed or the SQL query in Data Cruncher log file has to be checked on the database (Location of log file mentioned in the 'Checking the Execution Status' section below). In the Create Cube task one common error is the hierarchy member being the same for two different dimensions which are part of the same cube (Error message: 'Duplicate Alias' in the Create Cube log file). In this case, you can try appending a string to the Hierarchy member code so that it is unique across the cube or changing the hierarchy data to make the node unique across the cube.

Seeded batches are provided along with the RPA application installer. The below described are the OFSRPA seeded batches:

- **Retail Analysis:** Seeded batch `<INFODOM>_aCRM_RetailAnalysis_Cube` is provided with the installer. Execute the batch for the required MIS Date.

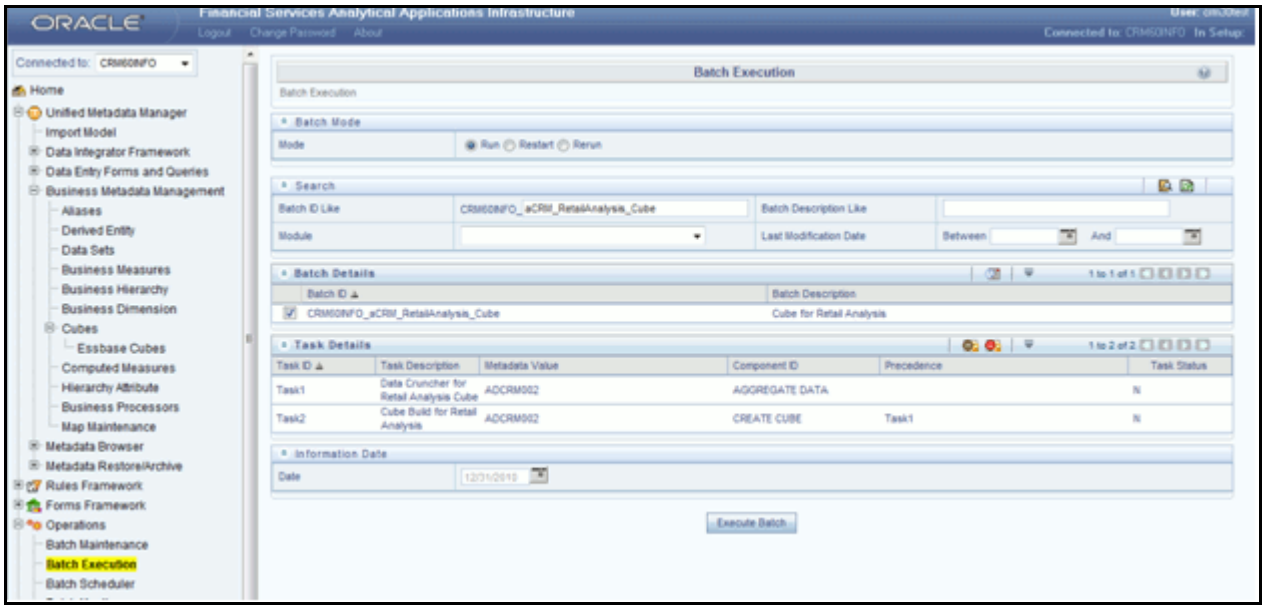


Figure 53. Retail Analysis

- **Customer Summary**: Seeded batch `<INFODOM>_aCRM_Customer_Analy_Cube` is provided with the installer. Execute the batch for the required MIS Date.

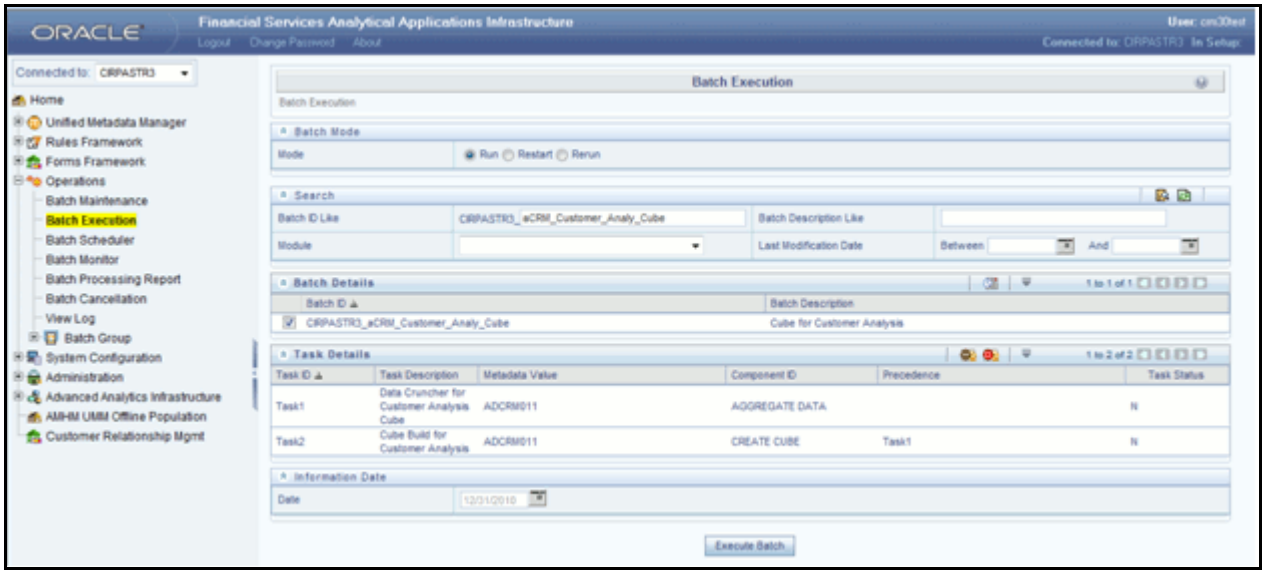


Figure 54. Customer Summary

- **Cards Balance Summary:** Seeded batch `<INFODOM>_aCRM_Cards_Balance_Summ_Cube` is provided with the installer. Execute the batch for the required MIS Date.

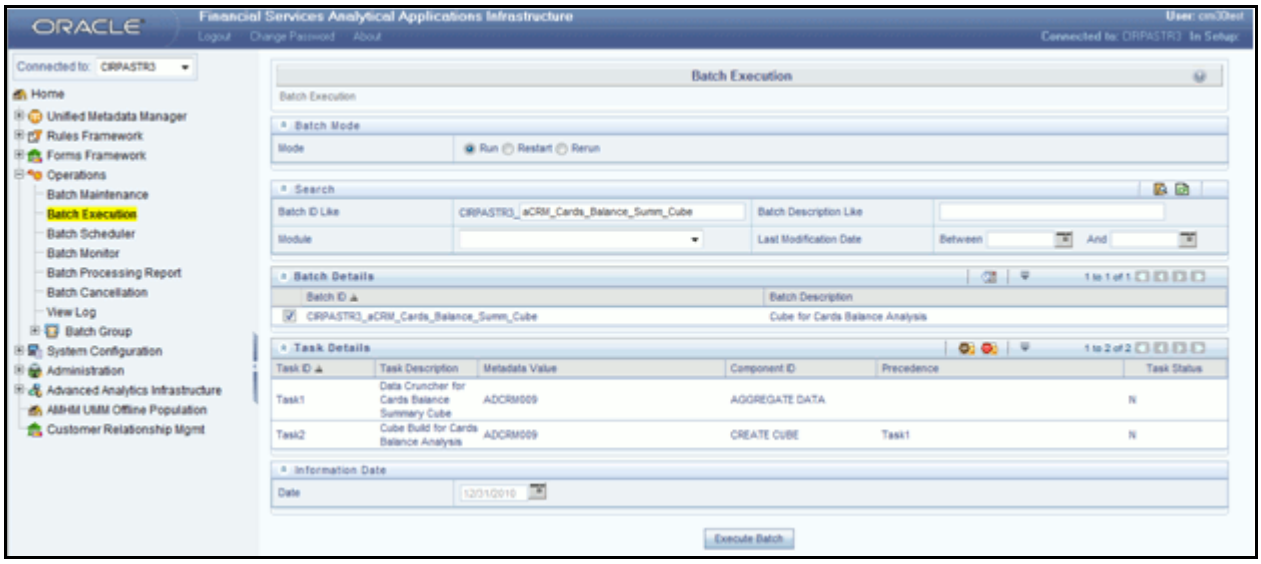


Figure 55. Cards Balance Summary

- **Account Profitability:** Seeded batch `<INFODOM>_aCRM_Account_Proft_Cube` is provided with the installer. Execute the batch for the required MIS Date.

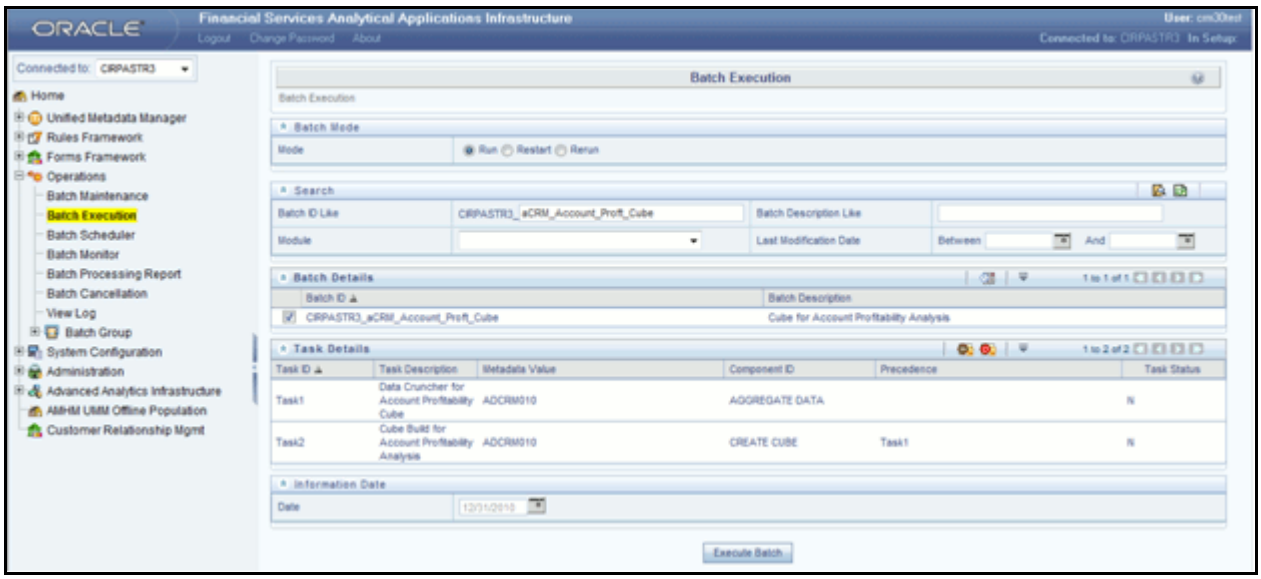


Figure 56. Account Profitability

- **RM PnL Cube for RPA**: Seeded batch `<INFODOM>_RPARMCUBE` is provided with the installer. Execute the batch for the required MIS Date.

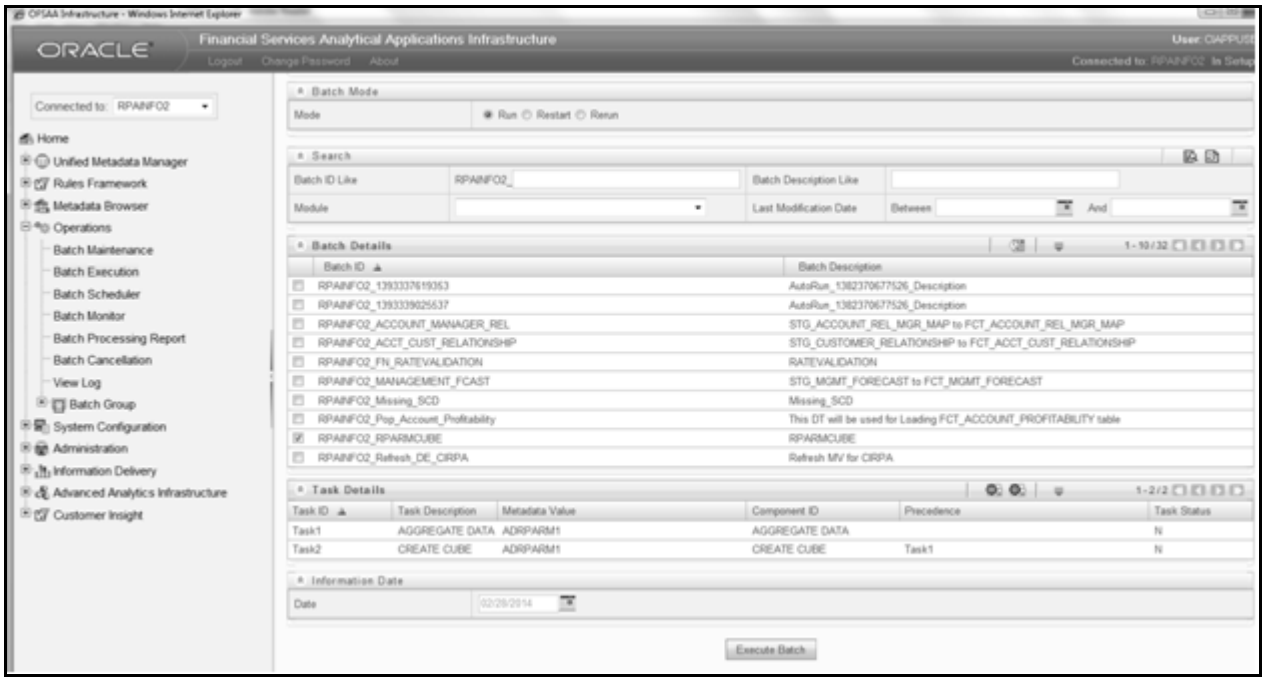


Figure 57. RM PnL Cube for RPA

Checking the Execution Status

The status of execution can be monitored using the Batch Monitor screen. From OFSAAI Home menu, select **Operations > Batch Monitor**.

Note: For a more comprehensive coverage of configuration and execution of a batch, refer to *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

The status messages in Batch Monitor are:

- N - Not Started
- O - On Going
- F - Failure
- S - Success

The execution log can be accessed on the application server in the directory `$FIC_DB_HOME/log/dc` for the Task 1 above (Aggregate Data). The file name will have the Batch Execution ID.

The execution log can be accessed on the application server by going to the following directory `$FIC_DB_HOME/log/olap` for the Task 2 above (Create Cube). The file name will have the Batch Execution ID.

Note: Refer to *Appendix* on how to add a New cube or modifying existing ones. For any new cube added using the OFSAAI framework Cube screen , the tasks for execution are the same as mentioned above.

CHAPTER 13 Predictive Modeling

What-if analysis reports use the reporting line forecast values that are generated using the Arima Algorithm in the R code seeded with the application. R has a base package called "stats" which provides the function called as "arima()". This function enables the usage of ARIMA technique for time series forecasting.

This chapter discusses the following topics:

Guidelines

Following are the guidelines associated with respect to the execution R code:

- Data should be generated for at least one group for more than 12 continuous mis dates. 12 is the parameter n. Consider where we are setting how many records is significant to be considered for prediction.
- Assumption is that the data is chronological for consecutive end of month dates. By default, prediction is done for 60 months starting with the immediate month after the last available MIS Date.
- If the data provided is not for chronological end of month dates, results generated will not be accurate.
- ARIMA is a statistical technique used for time series predictions. It accepts a host of parameters of which the basic parameters are p, q, and d. p is the order of Autoregressive Process, q is the parameter for Moving Average process, and d is the number of differences after which the data can be considered stationary with a desired confidence level. It has more parameters that can be customized.
- Detailed documentation of the technique can be found at: http://www.dms.umontreal.ca/~duchesne/chap7.pdf
- Documentation of implementation of ARIMA in R can be found at: http://stat.ethz.ch/R-manual/R-patched/library/stats/html/arima.html

Logging for the individual groups' arima model summaries happens in a file named "out.log". This log file is generated in $FIC_DB_HOME/bin folder. If a particular group has unstable data and prediction fails, corresponding error is also documented in the out.log file against that particular group.

Files Used

Two files are required for R script execution. Both the files are present at $FIC_DB_HOME/bin folder and need execute permissions. Following are the files used:

- RExec executable
- ARIMA_AVF.r

Errors

Following are the errors:

- Subscript out of bounds usually means that sufficient data has not gone in. Model is trying to apply an algorithm on a dataset that is returning null chunk.
- Error: Error in if ((lv >nr) || (lv == 0L && nr > 0L) || (nr%%lv != 0L)) stop(gettextf("replacement data has %s rows, data has %s",:
  - missing value where TRUE/FALSE needed
  - means an if condition is receiving null and is unable to evaluate true or false

CHAPTER 14 Segmentation

This chapter discusses the following topics:

Introduction

Segmentation is the procedure of grouping together a set of customers based on certain similar features. These customers that are grouped together are known to have similar behavior and hence the future behavior of accounts within a segment can be predicted to follow the similar behavioral patterns as observed for other accounts. Hence, predict the behavior of an account it can be segmented with a set of similar accounts and its future projections can be created. These future projections provide the value of net income that can be expected from an account or customer.
Segmentation is done based on a certain set of dimensions wherein accounts which exhibit a particular combination of dimension members are grouped together. Based on the characteristic around which segmentation is to be created the dimensions used for segmentation can vary.

Following are the several segmentation types that are being supported:

- Demographic Segmentation
- Profitability segmentation
- Risk Based Segmentation
- Behavioral Segmentation
- Channel Usage Segmentation
- Affluence Segmentation

The objective of segmentation is to define a framework that will score accounts at MIS Date and Run level and, correspondingly, create clusters based on the dimensions and dimension members.

These scores and segments will be stored into a new fact table. The inputs for this model will come from the following tables:

- Location
- Credit Rating
- Currency
- Geography
- Industry
- Product
- Age

- Income
- Gender

Average of the measures present in Account Profitability for Account Segments across Reporting Lines and Month on Book for the account are reported into the following table.

Table 30. FCT_ACCOUNT_SEGMENT_SCORE

Column Name	Logical Name
N_ACCT_SKEY	Account Key
D_ACCT_START_DATE	Account Start Date
N_ACCT_SEGMENT	Account Segment
N_ACCT_SEGMENT_SCORE	Account Segment Score
N_RUN_SKEY	Run Key
N_MIS_DATE_SKEY	Date Key

The above table will act as the input for another table that stores facts of Account Profitability (Movement, Average Balance, and so on) at the level of Month on Book, Account Segment, Run, and Reporting Line. Following is the structure of this table.

Table 31. FCT_ACCT_SEGMENT_MOB_SUMMARY

Column Name	Logical Name
N_AVG_BAL_RCY	AccountAverageBalanceReportingCurrency
N_END_BAL	AccountEndingBalance
N_AVG_BAL	AccountAverageBalance
N_END_BAL_RCY	AccountEndingBalanceReportingCurrency
N_MOVEMENT	Movement
N_MOVEMENT_RCY	MovementReportingCurrency
N_REP_LINE_CD	ReportingLineCode
N_RUN_SKEY	Run Key
N_MONTH_ON_BOOK	Month on Book
N_ACCT_SEGMENT	Account Segment

`DIM_SEGMENT_TABLE` populated using SCD Process (Map reference number 267) and source would be a view `DIM_SEGMENT_V` for which data would be from `DIM_SEGMENT_B/TL` and `FSI_SEGMENT_TYPE_CD/MLS` tables. `FSI_SEGMENT_TYPE_CD/MLS` table stores list of Segment Types used in IPA Demographic, Proposition or Affluence, Channel usage, and so on.

The Segment score will not be updated. The rule will update only the n_segment.

Note: The segmentation models within CI are also used to provide an output to OFS Price Creation and Discovery application (OFS PCD). The segments within CI calculate the average values of profitability components which are then used in PCD to analyze the future behavior of an account belonging to that segment and predict its profitability.

Creating a Rule

To define a rule, follow these steps:

1. Click **Rule** and the following rule appears.

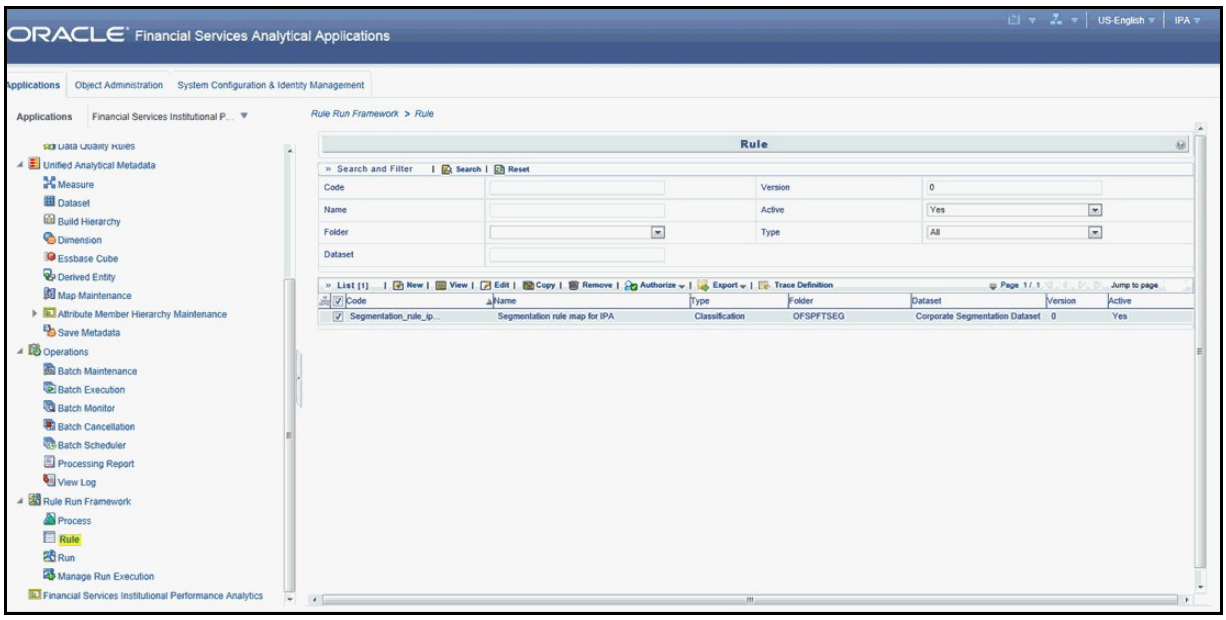


Figure 58. Create Rule

2. Select the rule and click **View**. The following screen appears.

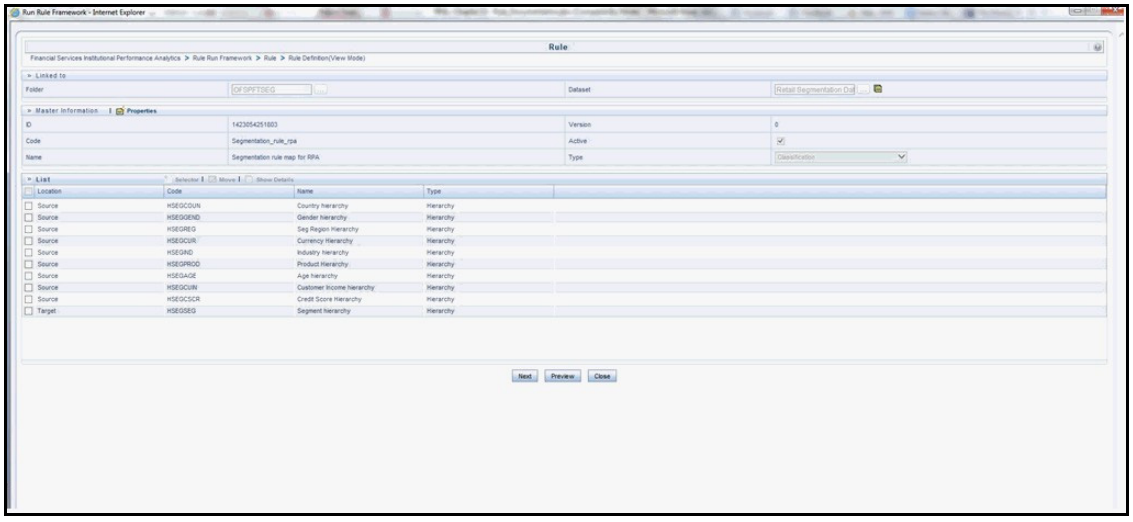


Figure 59. View Rule

3. On clicking **Next**, the rule defined comes up. For the first time when the rule is not defined, only default seeded node rule should appear as shown in the following screen:

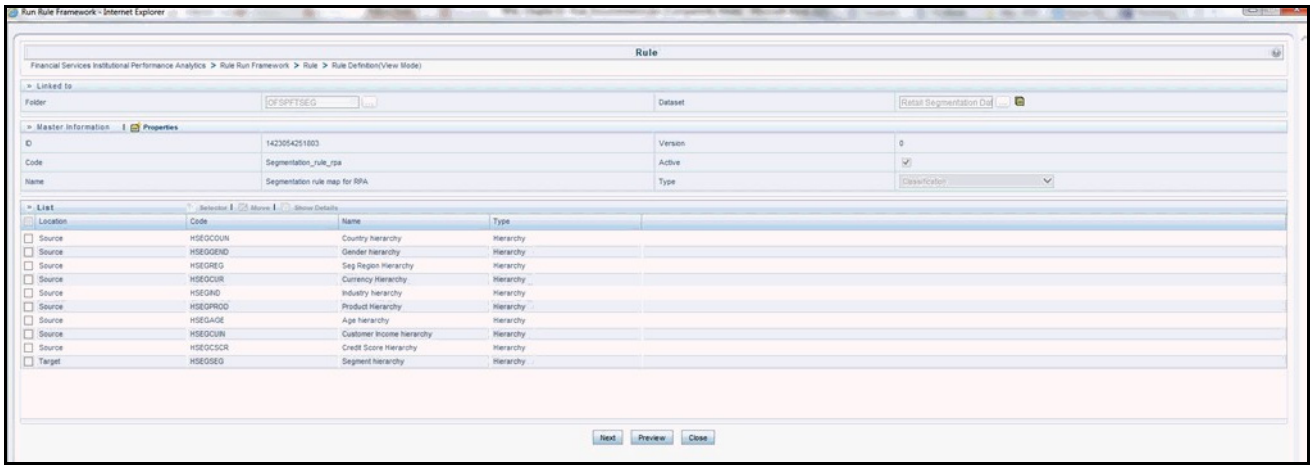


Figure 60. Default Seeded Node Rule

Editing a Rule

To edit a rule, follow these steps:

1. Select the rule and click **Edit**. The following screen appears:

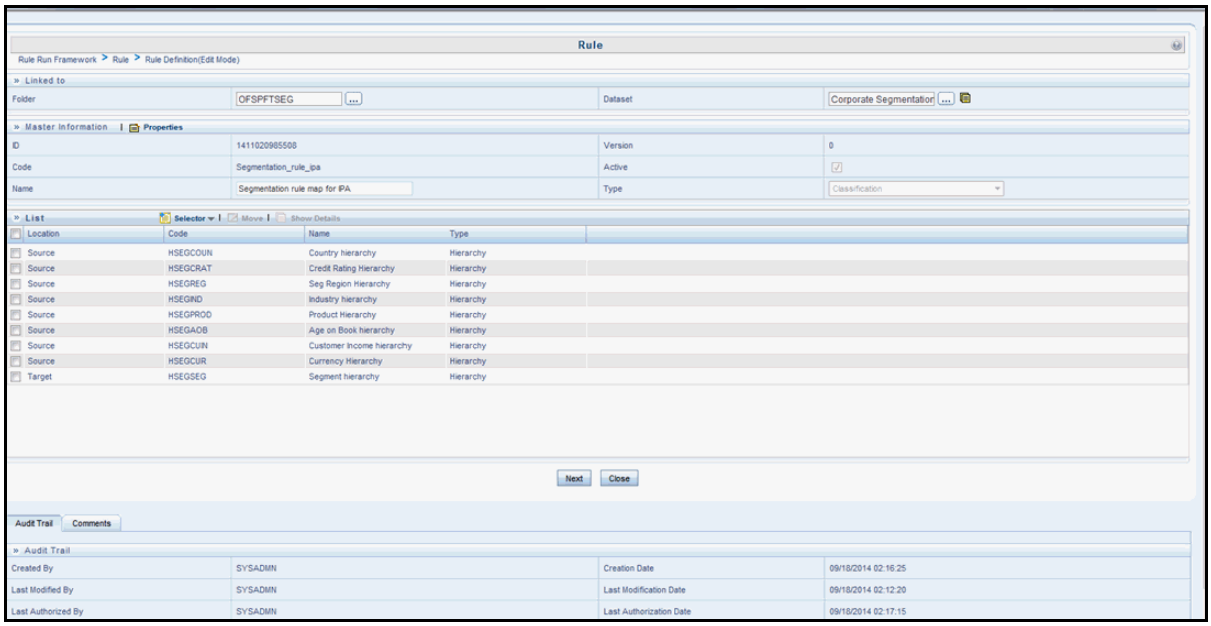


Figure 61. Edit Rule

2. Click **Next**. First time default node defined as rule will show up in the following figure:

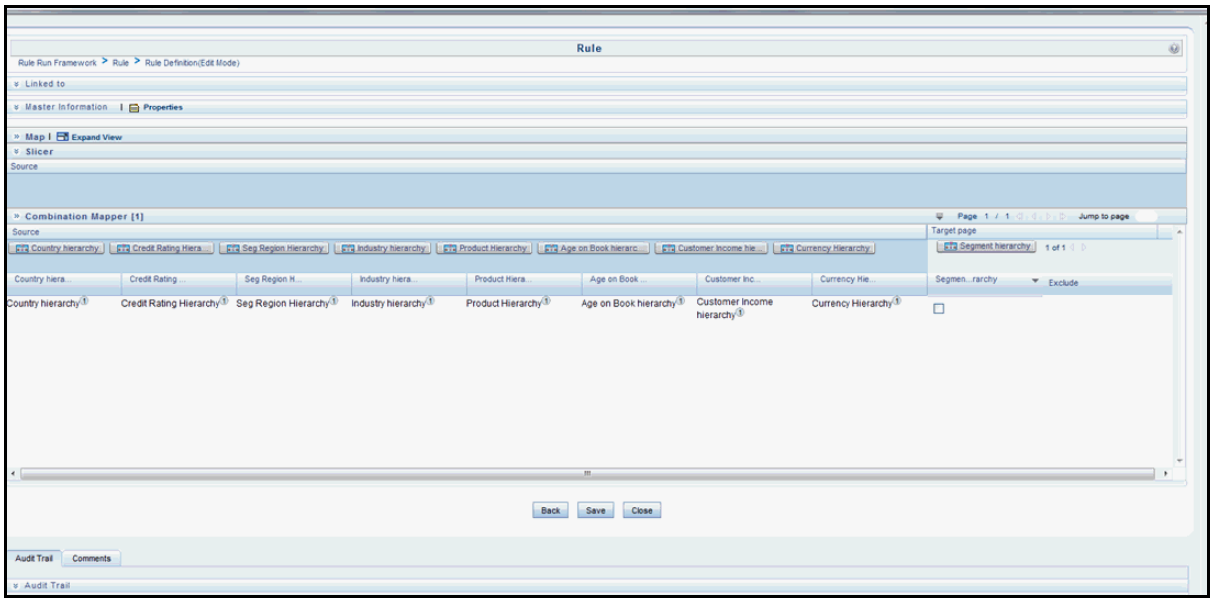


Figure 62. Default Node

3. Click **Hierarchy** as shown in the following figure and the hierarchy screen opens up.

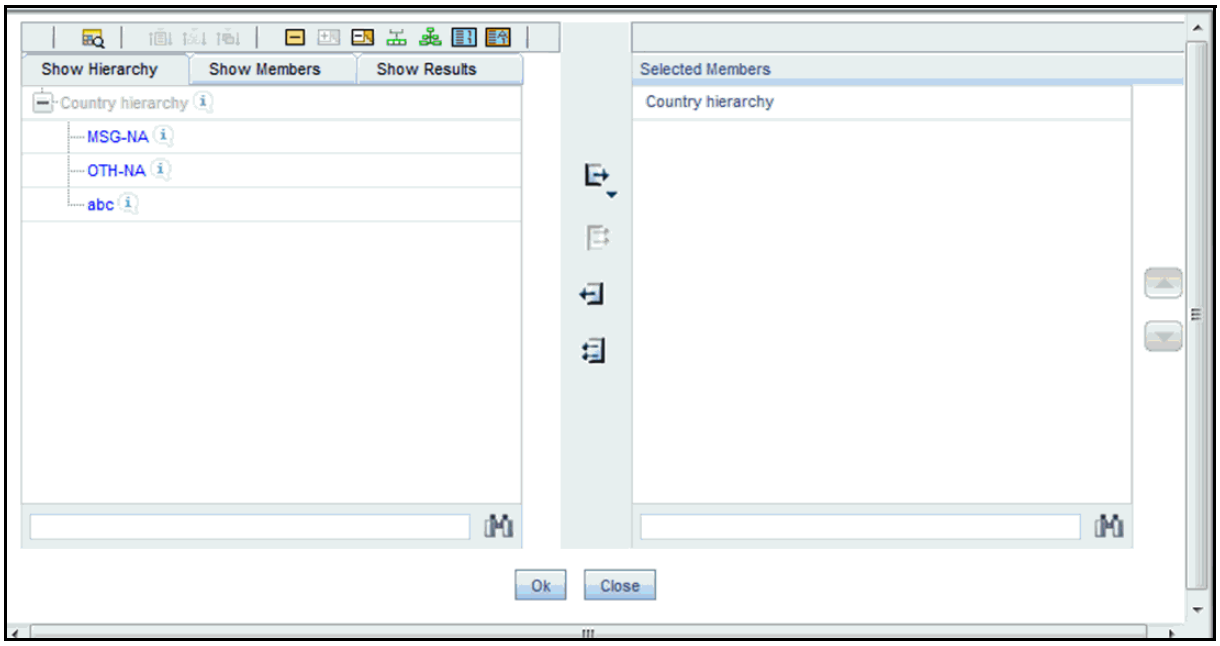


Figure 63. Hierarchy

4. Select the hierarchy and click **OK**. The selected node appears in the rule.
5. Similarly, select all the nodes that need to be considered for the rule and assign it to the target hierarchy. Click **Save**. A confirmation message appears as shown in the following.

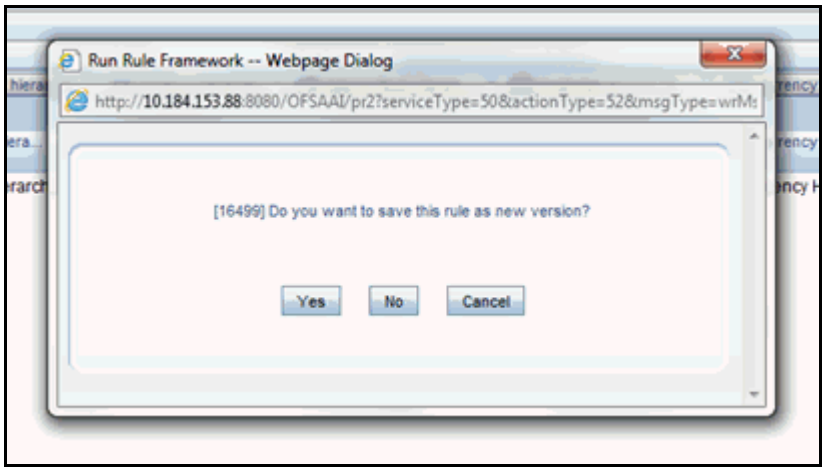


Figure 64. Confirmation Message

6. On clicking **Yes**, the following message appears: S*ave action with authorize was successful on following definitions Segmentation_rule_rpa*.
   Navigate back to the main screen and click the view rule. The rule saved is shown.

CHAPTER 15 Overview of OFSRPA Reports

Oracle Financial Services Retail Performance Analytics (OFSRPA) offers the following dashboards that organize different kinds of reports by subject area.

These reports provide the following:

- Gain deep insight into customer engagements across target segments and products/LOB including lending, credit cards, and so on.
- Perform Wallet share analysis and Customer Profitability.
- Understand the efficiency of investments (like marketing, branch, and channel and so on) over time.
- Monitor customer distribution across credit and delinquency bands and related exposures.
- Perform an enterprise-wide revenue analysis across customer segments, products, and reporting lines including fee income, interest, and interchange.
- Summary performance of the LOBs, overall Profitability, and Portfolio mix.
- Customer trends across performance drivers like Sales, Balances, Deposits, Product subscriptions (revenue services), Credit scores, Delinquency bands, Losses, and so on.
- LOB specific performance reports can be analyzed against key dimensions like customer segments, product family, region, branch, risk scores, and so on.
- Analyze expenses across customer segments, products, and channels to understand ROI.

For all dashboards, there are filters available. You can filter data based on year, region, line of business, and currency type.

Dashboards

OFSRPA has the following tabs present in the Retail Performance dashboard:

- Business Analysis
  - Performance Summary
  - New Business Analysis
  - Revenue Analysis
  - Expense Analysis
  - Credit Loss Summary
  - Margin Reports
  - Customer Summary
  - What-If Analysis
- Customer Central
  - Customer 360
  - Customer Performance
- Product Summary
  - All Product
  - Cards
  - Retail Bank
  - Mortgage
- Relationship Manager Insights

The following sections display the essential nature of the available reports as per each tab.

Business Analysis

Business Analysis Dashboard provides in-depth analysis on enterprise wide performance evaluation based own critical business parameters. The dashboard contains various tabs containing analytical reports on business performance, business acquisition, revenues, expenses, margins, credit loss, customers and sensitivity analysis like what-if analysis.

Performance Summary

Portfolio Mix

This report provides details about customers distributed among various region along with the Line of Business. The report can be analyzed through various business parameters like; number of new and open accounts, revenues, spends etc. This is a zoomable map report.

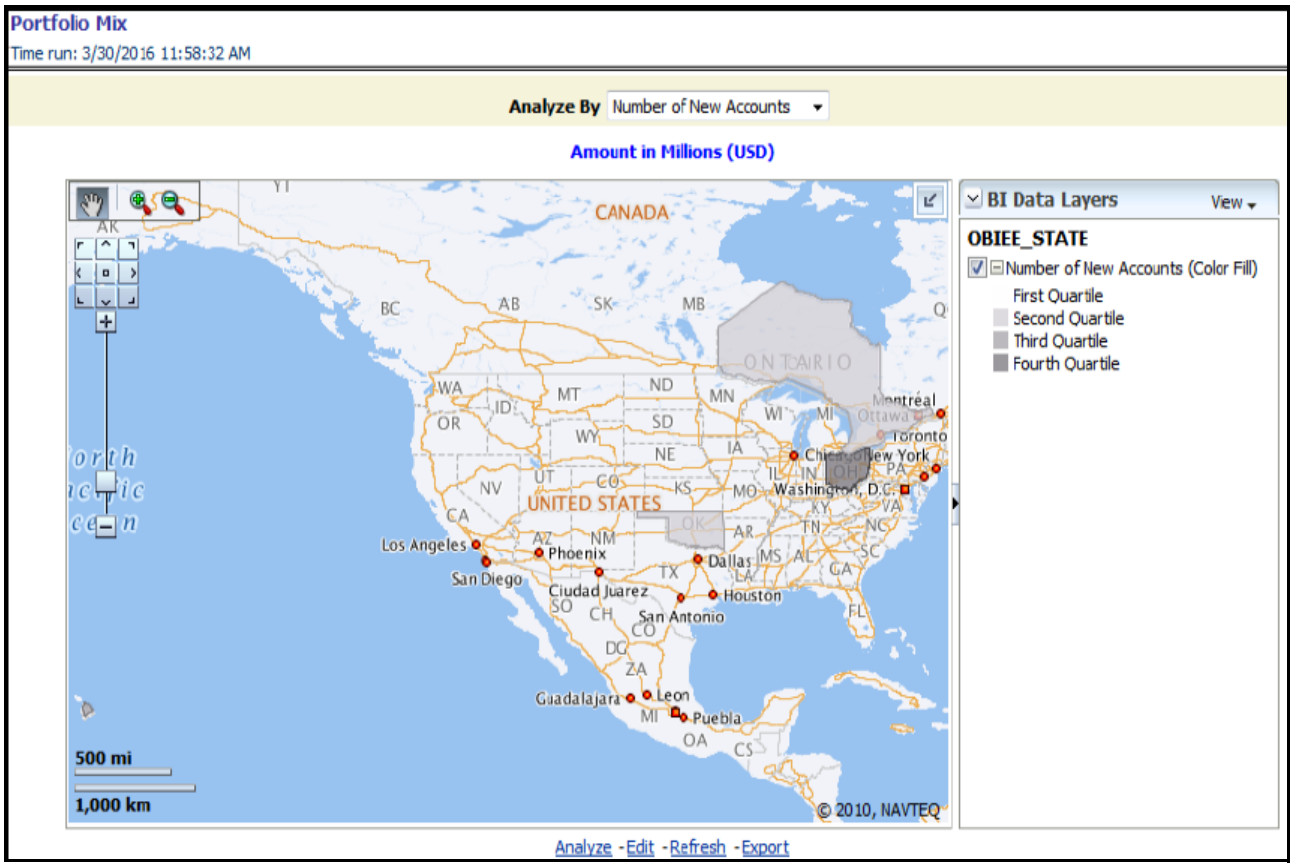


Figure 65. Portfolio Mix - Geography

Note: The map can be zoomed in and out by clicking on zoom scale or zoom in/zoom out button. You can navigate through the map by dragging the map or clicking on  icon.

Portfolio Mix

This report displays growth of key metrices such as No. of New Accounts, End of Period balance, and Sales across various Lines of Businesses within the bank. This is a sunburst report.

On clicking a particular distribution, a consolidated view of that particular distribution is displayed. For example, if you need to get a consolidated view of 2011 distribution, click on 2011. You get a consolidated data of 2011 distribution on open customers, Line of Business, constituent products, and corresponding revenue. Further, you can get consolidated view of open customers, Line of Business, constituent product, and corresponding revenue, by clicking any particular distribution. To view the overall report, click the center of the circular graph.

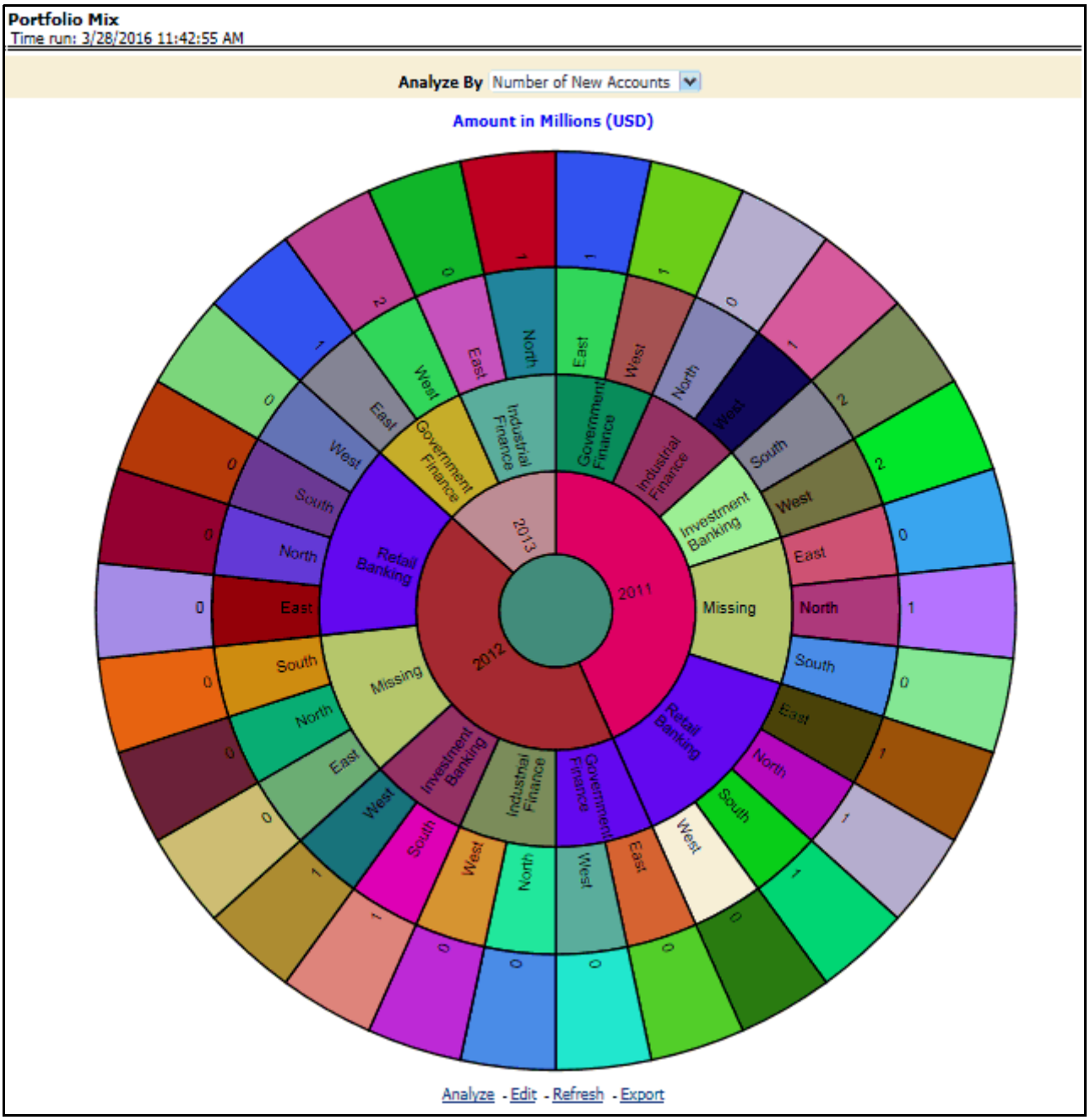


Figure 66. Portfolio Mix

Revenue Distribution

This report provides the Revenue spread across the different Lines of Businesses within the bank.

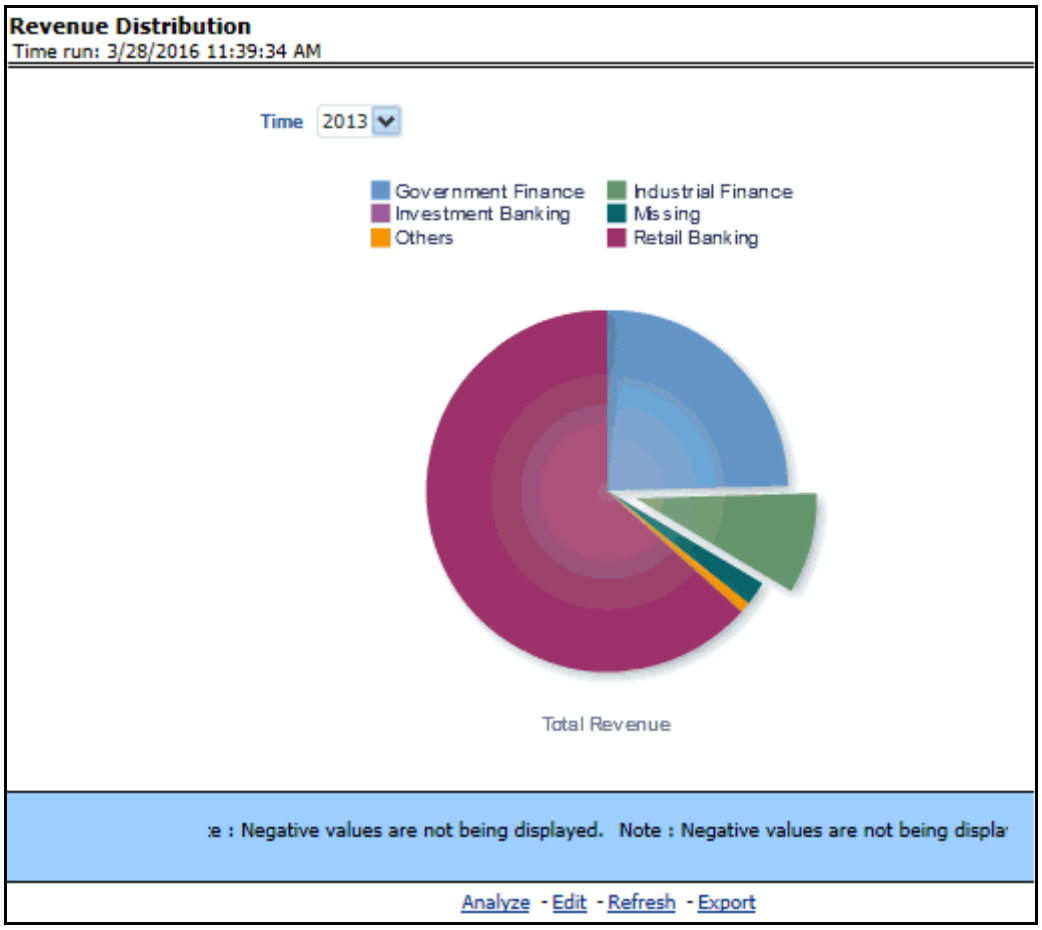
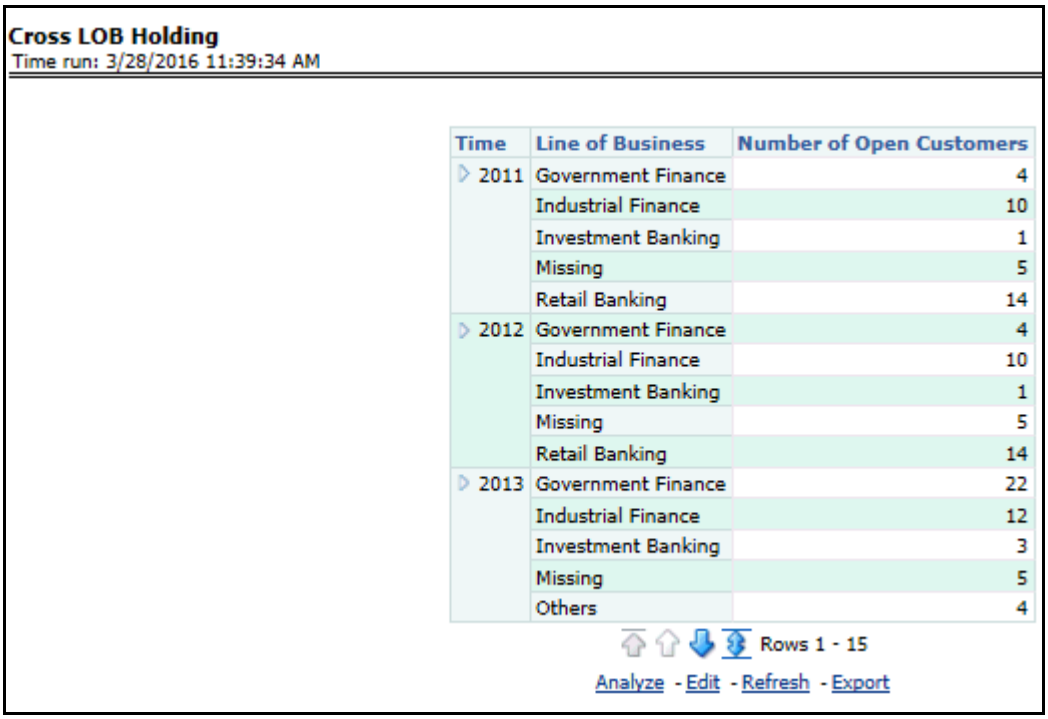


Figure 67. Revenue Distribution

Cross LOB Holding

This report outlines the product holding patterns of bank customers across Lines of Business. It shows the relationships the customer has across the enterprise.



Cross LOB Holding
Time run: 3/28/2016 11:39:34 AM

Time	Line of Business	Number of Open Customers
2011	Government Finance	4
	Industrial Finance	10
	Investment Banking	1
	Missing	5
	Retail Banking	14
2012	Government Finance	4
	Industrial Finance	10
	Investment Banking	1
	Missing	5
	Retail Banking	14
2013	Government Finance	22
	Industrial Finance	12
	Investment Banking	3
	Missing	5
	Others	4

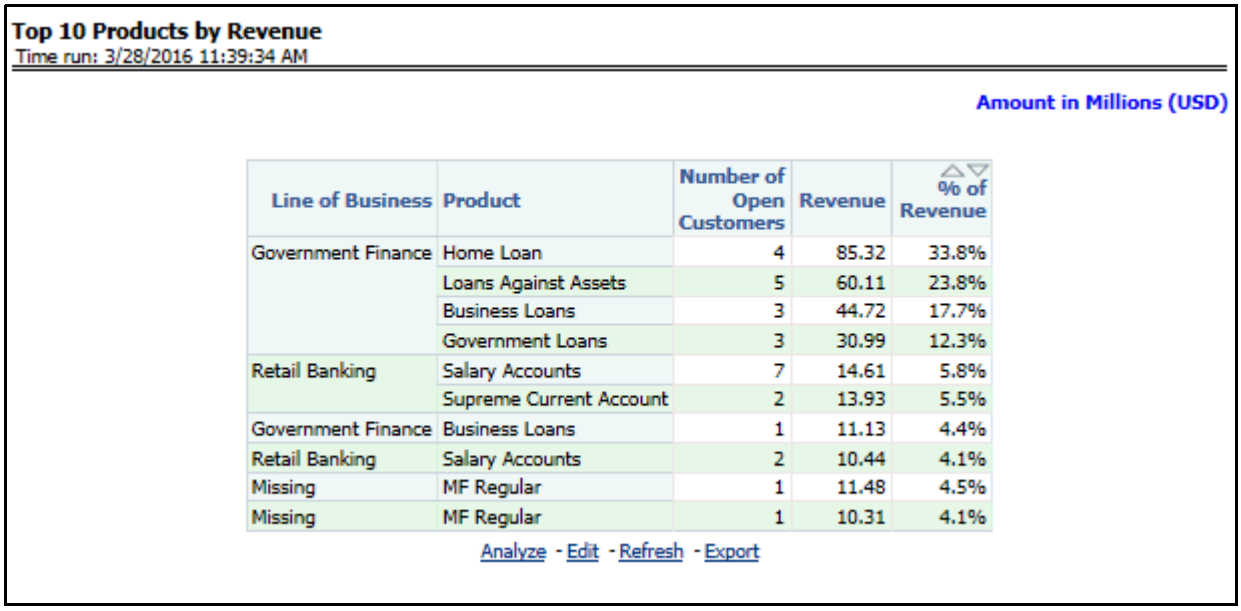
Rows 1 - 15

Analyze - Edit - Refresh - Export

Figure 68. Cross LOB Holding

Top 10 Products by Revenue

This report outlines the top 10 products ranked by Revenue and percentage contribution to total business. This report also list top performing products belonging to the line of businesses and number of customers each product is holding.



Top 10 Products by Revenue
Time run: 3/28/2016 11:39:34 AM

Amount in Millions (USD)

Line of Business	Product	Number of Open Customers	Revenue	% of Revenue
Government Finance	Home Loan	4	85.32	33.8%
	Loans Against Assets	5	60.11	23.8%
	Business Loans	3	44.72	17.7%
	Government Loans	3	30.99	12.3%
Retail Banking	Salary Accounts	7	14.61	5.8%
	Supreme Current Account	2	13.93	5.5%
Government Finance	Business Loans	1	11.13	4.4%
Retail Banking	Salary Accounts	2	10.44	4.1%
Missing	MF Regular	1	11.48	4.5%
Missing	MF Regular	1	10.31	4.1%

Analyze - Edit - Refresh - Export

Figure 69. Top 10 Products by Revenue

No. of Accounts by Region and Product

This report displays the concentration of Accounts across various Regions and Products within the bank.

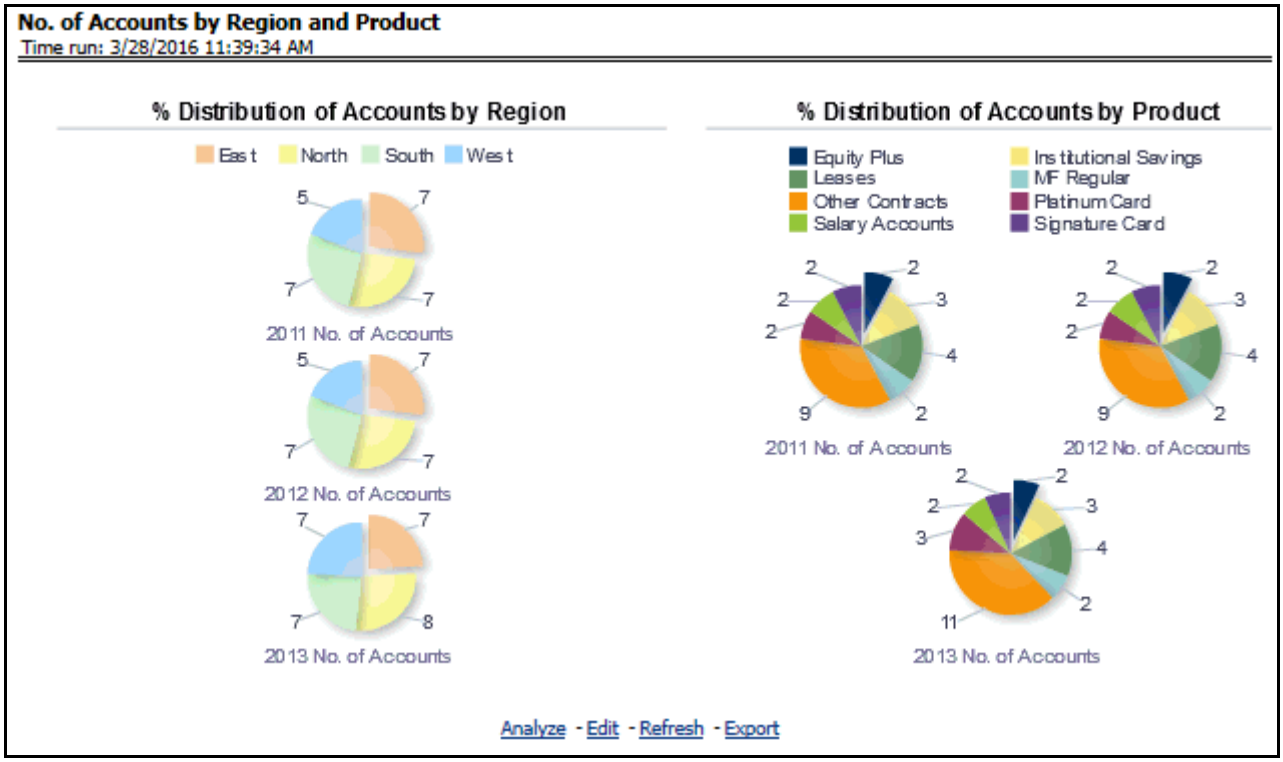


Figure 70. No. of Accounts by Region and Product

Summary of New Customers

This report displays the growth in customer base across the various products over time.

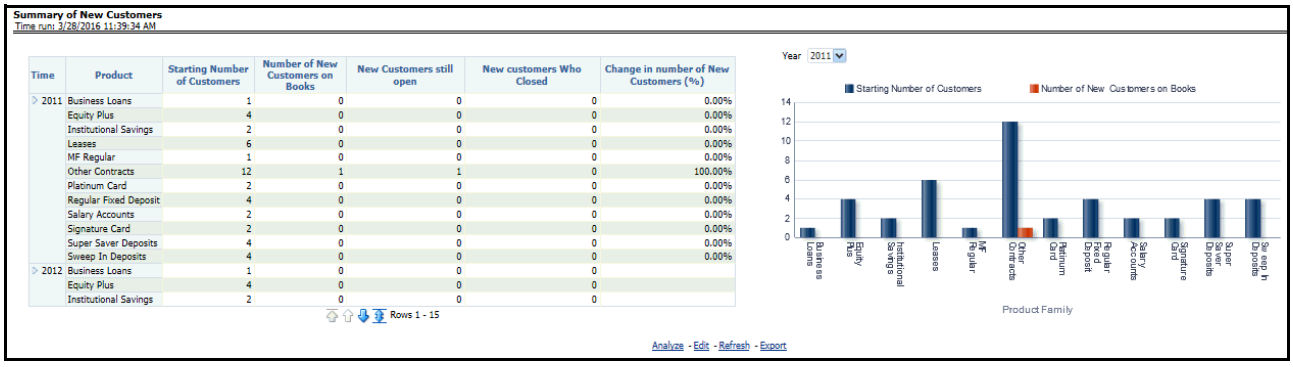
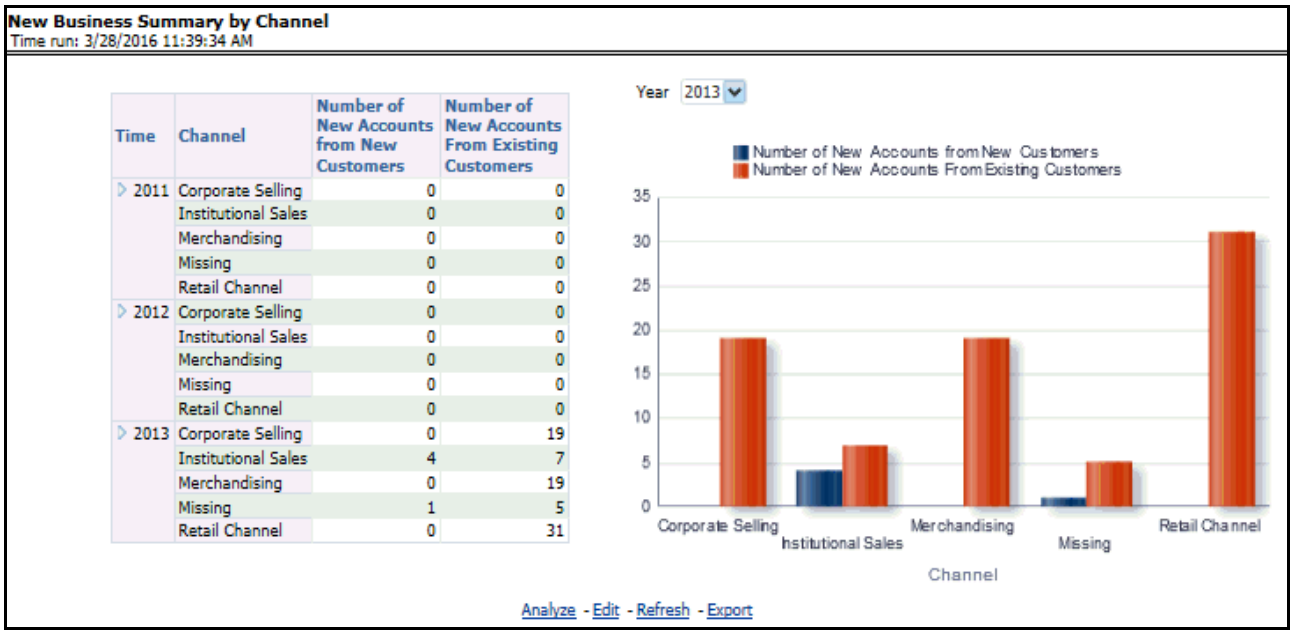


Figure 71. Summary of New Customers

New Business Summary by Channel

This report displays summary of new accounts opened across various bank channels.

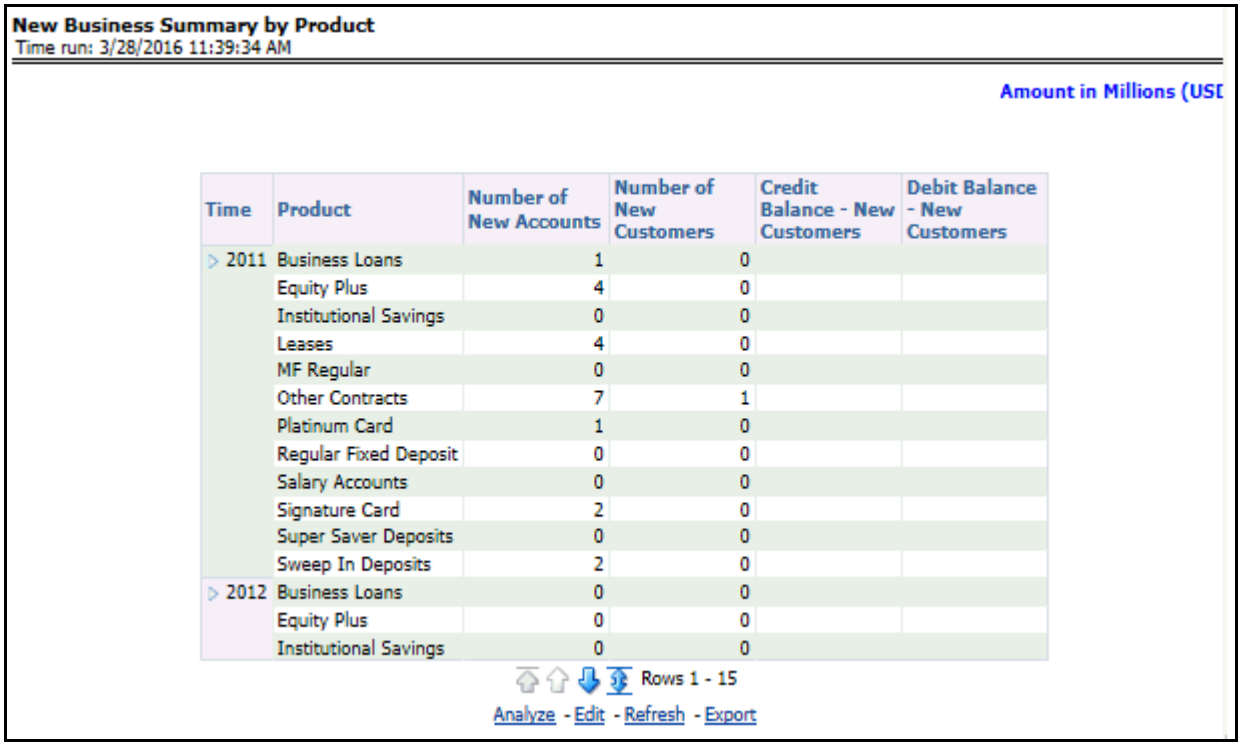


Time	Channel	Number of New Accounts from New Customers	Number of New Accounts From Existing Customers
2011	Corporate Selling	0	0
	Institutional Sales	0	0
	Merchandising	0	0
	Missing	0	0
	Retail Channel	0	0
2012	Corporate Selling	0	0
	Institutional Sales	0	0
	Merchandising	0	0
	Missing	0	0
	Retail Channel	0	0
2013	Corporate Selling	0	19
	Institutional Sales	4	7
	Merchandising	0	19
	Missing	1	5
	Retail Channel	0	31

Figure 72. New Business Summary by Channel

New Business Summary by Product

This report displays summary of new customers on-boarded by product.



Time	Product	Number of New Accounts	Number of New Customers	Credit Balance - New Customers	Debit Balance - New Customers
2011	Business Loans	1	0		
	Equity Plus	4	0		
	Institutional Savings	0	0		
	Leases	4	0		
	MF Regular	0	0		
	Other Contracts	7	1		
	Platinum Card	1	0		
	Regular Fixed Deposit	0	0		
	Salary Accounts	0	0		
	Signature Card	2	0		
	Super Saver Deposits	0	0		
	Sweep In Deposits	2	0		
2012	Business Loans	0	0		
	Equity Plus	0	0		
	Institutional Savings	0	0		

Figure 73. New Business Summary by Product

Summary of Closed Accounts

This report displays number of accounts closed across products and attrition reasons.

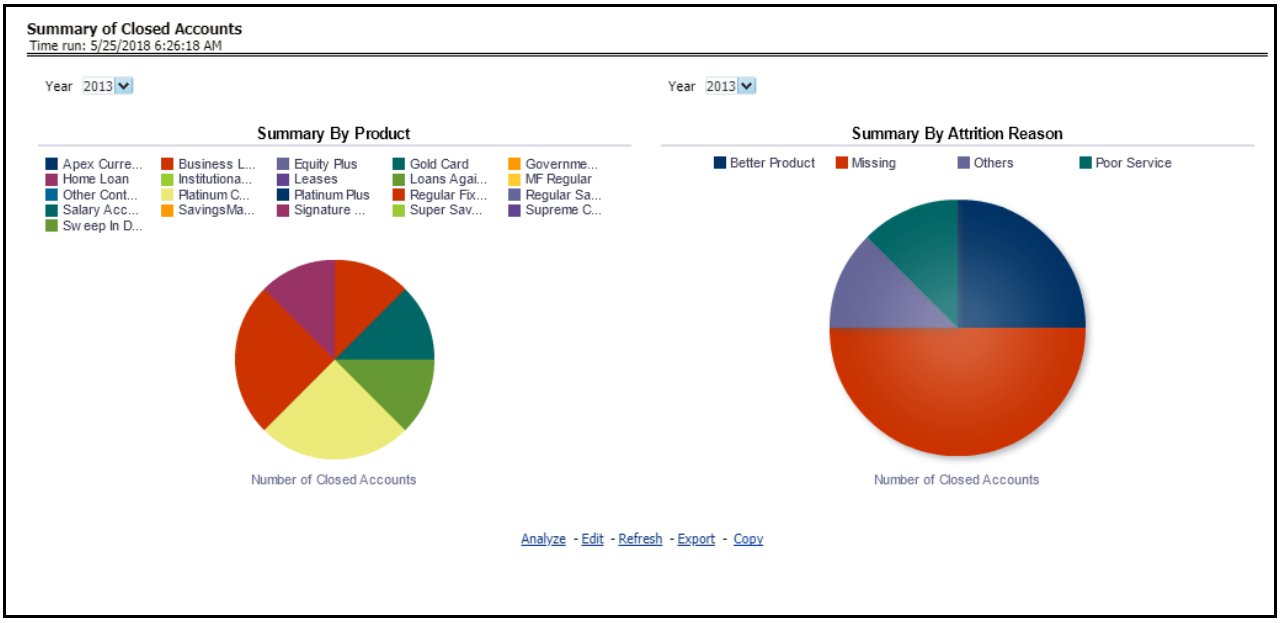


Figure 74. Summary of Closed Accounts

Origination Channel Performance

This report displays Net Income generated by different sales and business acquisition channels.

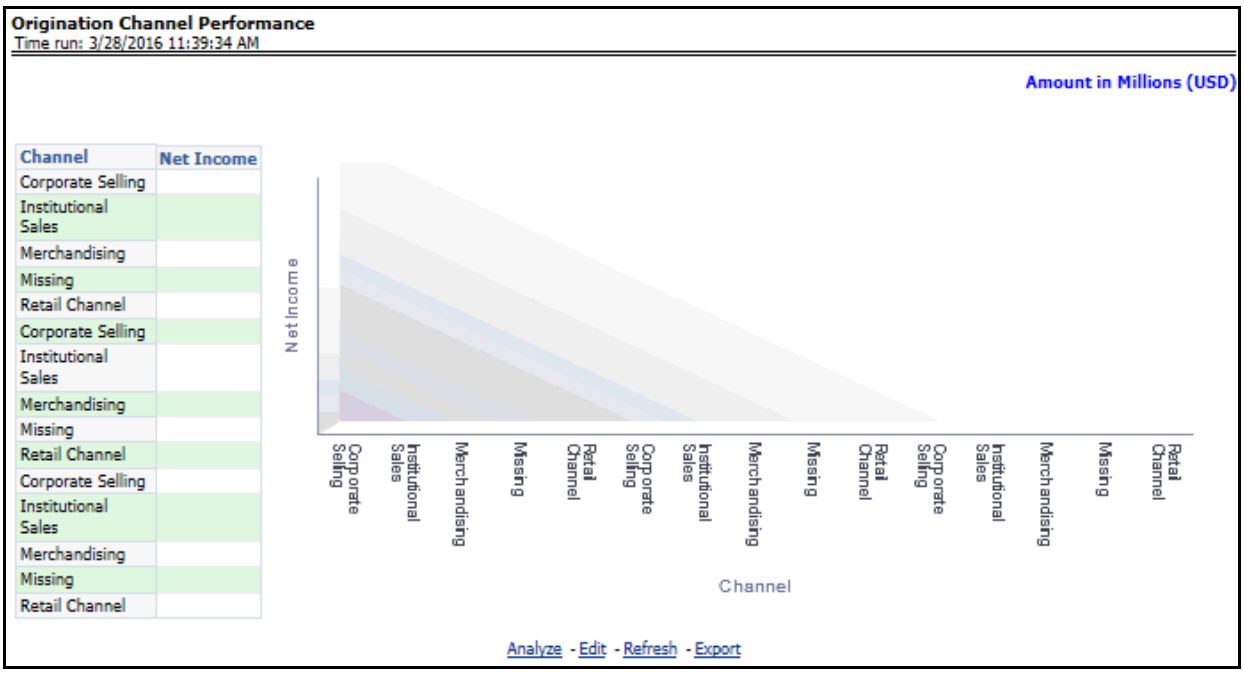


Figure 75. Origination Channel Performance

New Business Analysis

Acquisitions Over last 5 Years

This report displays growth of accounts and customers over a period of time. The dashboard prompts allows the user to narrow this analysis down to a specific LOB, Product Family, or Product.

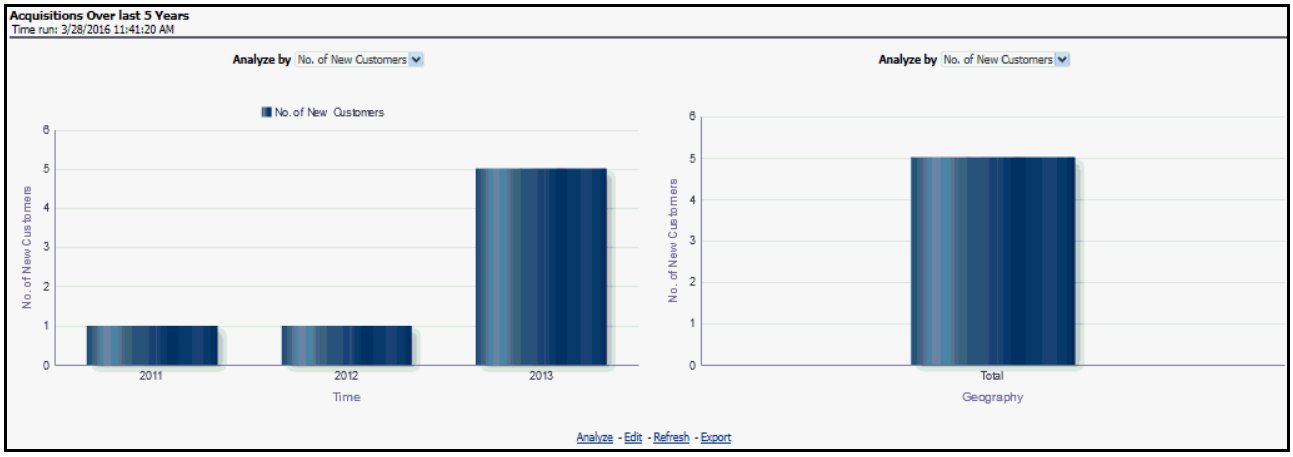


Figure 76. Acquisitions Over last 5 Years

Approval Trends across Channels

This report displays variance in approval rates over time across the various bank channels and enables you to track how these rates have gone up or down in specific channels or compare a rise/fall in one channel vs performance in others. The dashboard prompts allows the user to narrow this analysis down to a specific LOB, Product Family or Product.

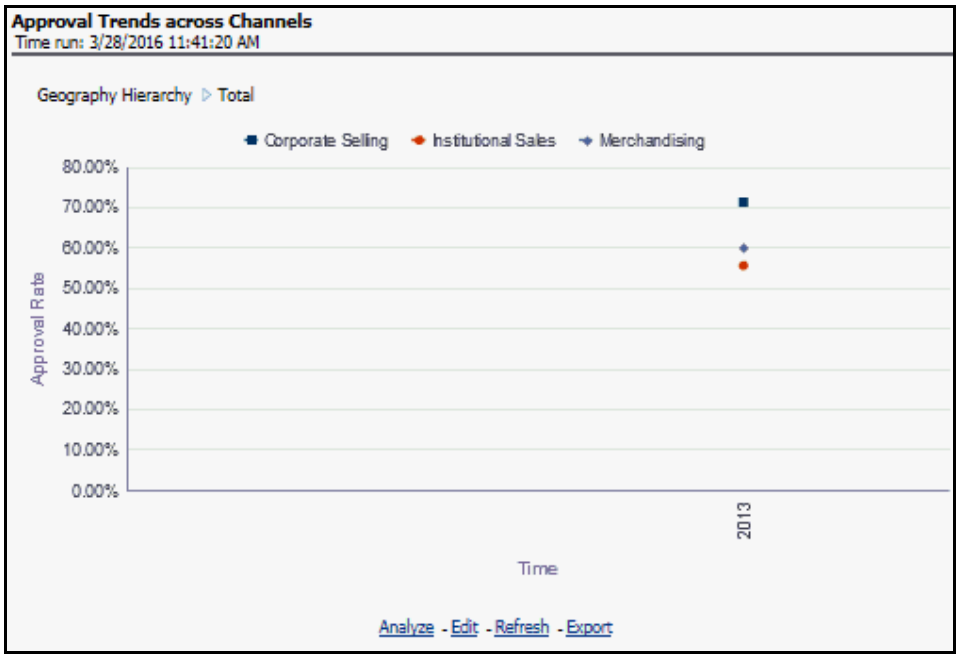


Figure 77. Approval Trends across Channels

Note: Line of Business Filter prompt selection is not applicable for this report.

New Account Distribution by Customer Segment

Provides a composition of the customers across key customer segments like Age, Gender, Income.

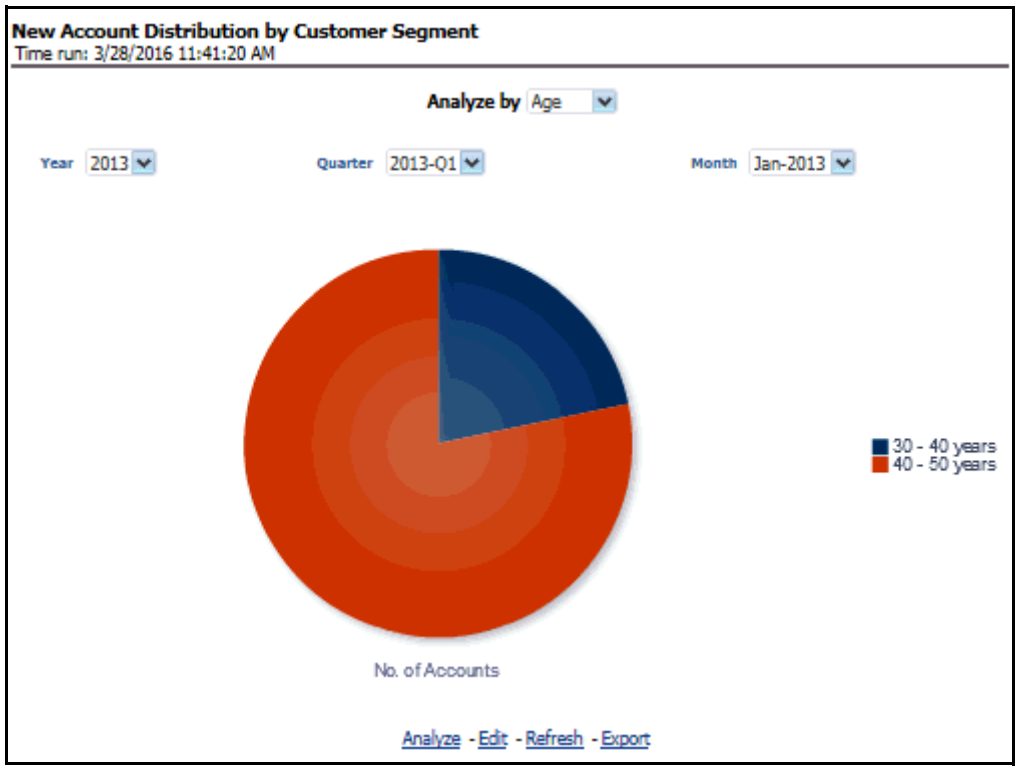


Figure 78. New Account Distribution by Customer Segment

Note: Product filter prompt selection is not applicable on this report.

Acquisition by Channel

This report displays how acquisitions have migrated from one channel to another over a period of time.

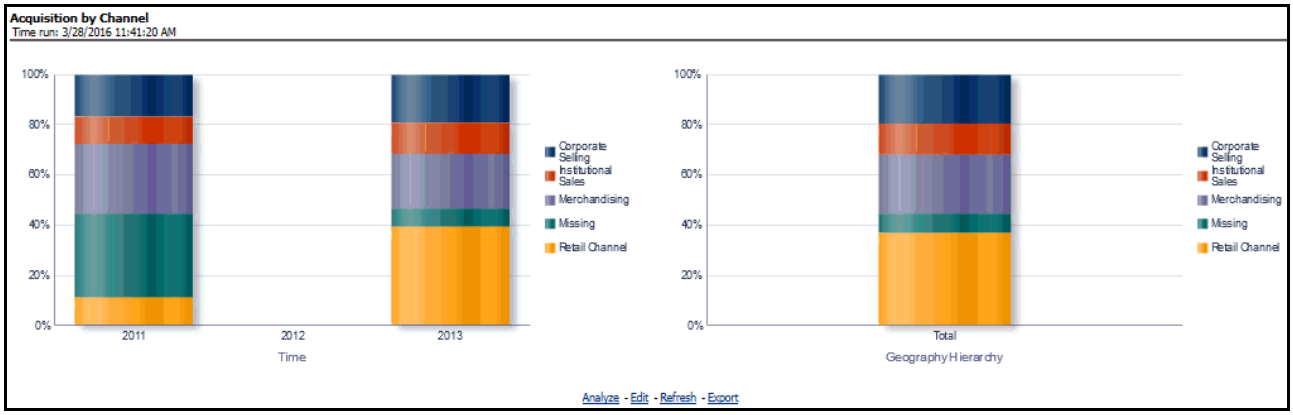


Figure 79. Acquisition by Channel

Overall Attrition Over last 5 Years

This report enables the user to have a view of the outflow (closed customers) or attrition over the last 5 years in order to fully understand how customers are flowing in and out of a certain product or product family or LOB.

Figure 80. Overall Attrition Over last 5 Years

Top 10 Reject Reasons

This report displays variance analysis of the various reasons why an application was rejected. This can also be viewed as a time series to see trends over a period of time.

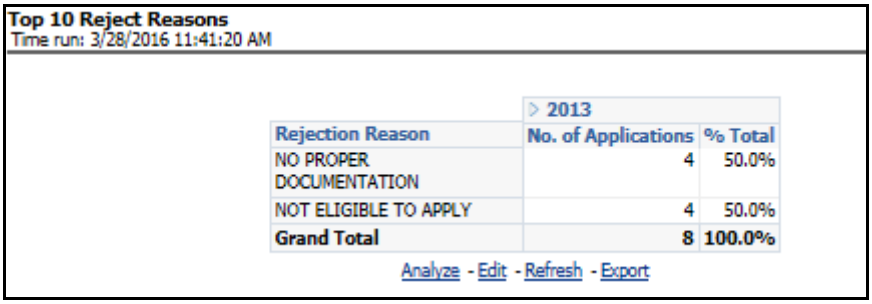


Figure 81. Top 10 Reject Reasons

Note: Line of Business Filter prompt selection is not applicable for this report.

Account Distribution by Credit Band

This report outlines the number of accounts booked across various credit score bands. The credit score corresponds to the customer holding the account.

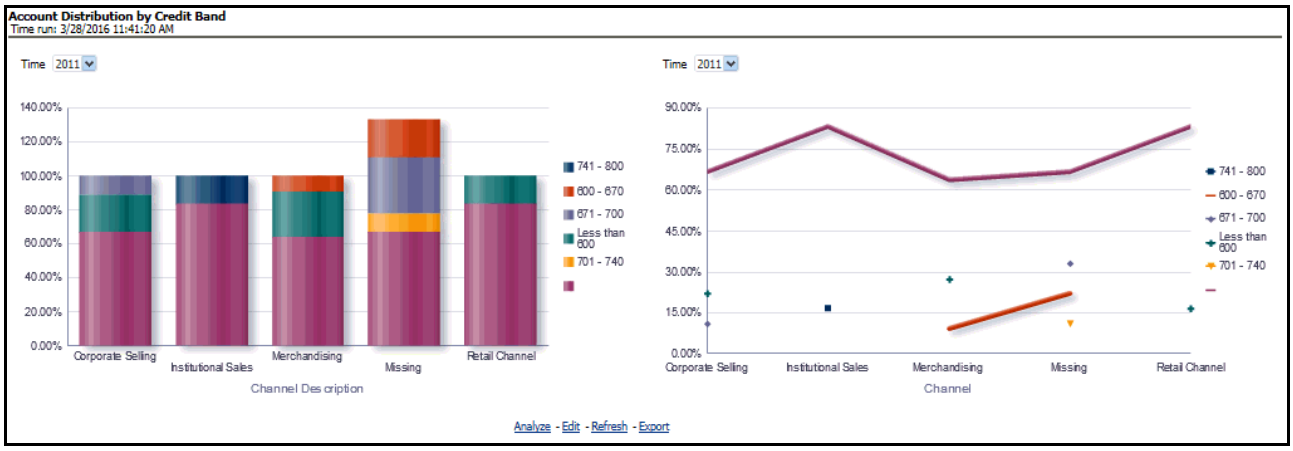
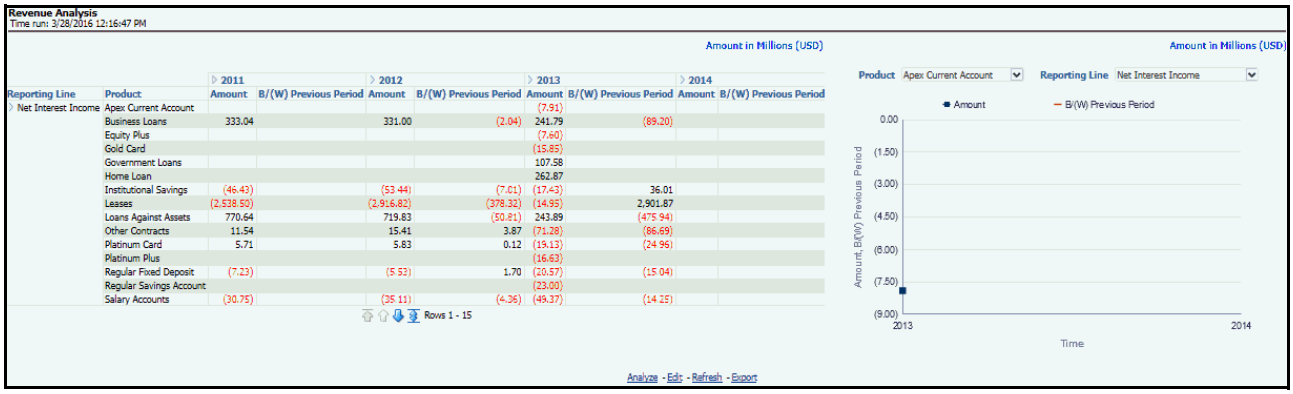


Figure 82. Account Distribution by Credit Band

Revenue Analysis

Revenue Analysis

This report displays variance analysis of the various Revenue components like Fee Income, Net Interest Revenue, and so on by Product with ability to further understand this distribution across key customer segments like Gender, Age, and Income.

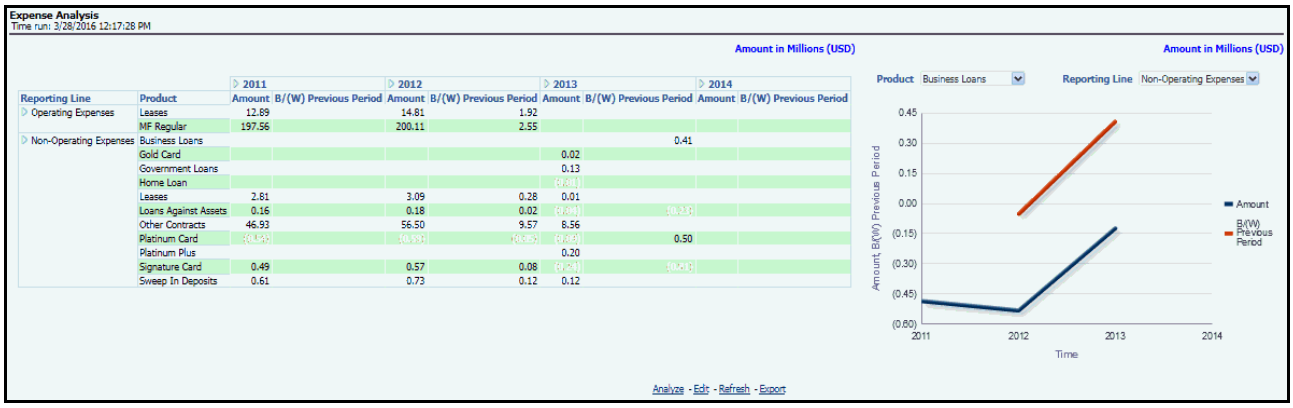


Reporting Line	Product	2011 Amount	2011 B/(W) Previous Period	2012 Amount	2012 B/(W) Previous Period	2013 Amount	2013 B/(W) Previous Period	2014 Amount	2014 B/(W) Previous Period
Net Interest Income	Apex Current Account					(7.91)			
	Business Loans	333.04		331.00	(2.04)	241.79	(89.20)		
	Equity Plus					(7.60)			
	Gold Card					(15.85)			
	Government Loans					107.58			
	Home Loan					262.87			
	Institutional Savings	(46.43)		(53.44)	(7.01)	(17.43)	36.01		
	Leases	(2,538.50)		(2,916.82)	(378.32)	(14.95)	2,901.87		
	Loans Against Assets	770.64		719.83	(50.81)	243.89	(475.94)		
	Other Contracts	11.54		15.41	3.87	(71.28)	(86.69)		
	Platinum Card	5.71		5.83	0.12	(19.13)	(24.96)		
	Platinum Plus					(16.63)			
	Regular Fixed Deposit	(7.23)		(5.53)	1.70	(20.57)	(15.04)		
	Regular Savings Account					(23.00)			
	Salary Accounts	(30.75)		(35.11)	(4.36)	(49.37)	(14.25)		

Figure 83. Revenue Analysis

Expense Analysis

This report displays variance analysis of the various Expense components like Direct Expenses, Operating Expenses, and so on by Product with ability to further understand this distribution across key customer segments like Gender, Age, and Income.



Reporting Line	Product	2011 Amount	2011 B/(W) Previous Period	2012 Amount	2012 B/(W) Previous Period	2013 Amount	2013 B/(W) Previous Period	2014 Amount	2014 B/(W) Previous Period
Operating Expenses	Leases	12.89		14.81	1.92				
	MF Regular	197.56		200.11	2.55				
Non-Operating Expenses	Business Loans							0.41	
	Gold Card					0.02			
	Government Loans					0.13			
	Home Loan								
	Leases	2.81		3.09	0.28	0.01			
	Loans Against Assets	0.16		0.18	0.02				
	Other Contracts	46.93		56.50	9.57	8.56			
	Platinum Card							0.50	
	Platinum Plus					0.20			
	Signature Card	0.49		0.57	0.08				
	Sweep In Deposits	0.61		0.73	0.12	0.12			

Figure 84. Expense Analysis

Credit Loss Summary

Risk Summary

This report gives a snapshot of the number of accounts in each delinquency bucket and the corresponding balance in each of these buckets. This can further be refined to limit this data to a specific LOB or a product within a LOB.

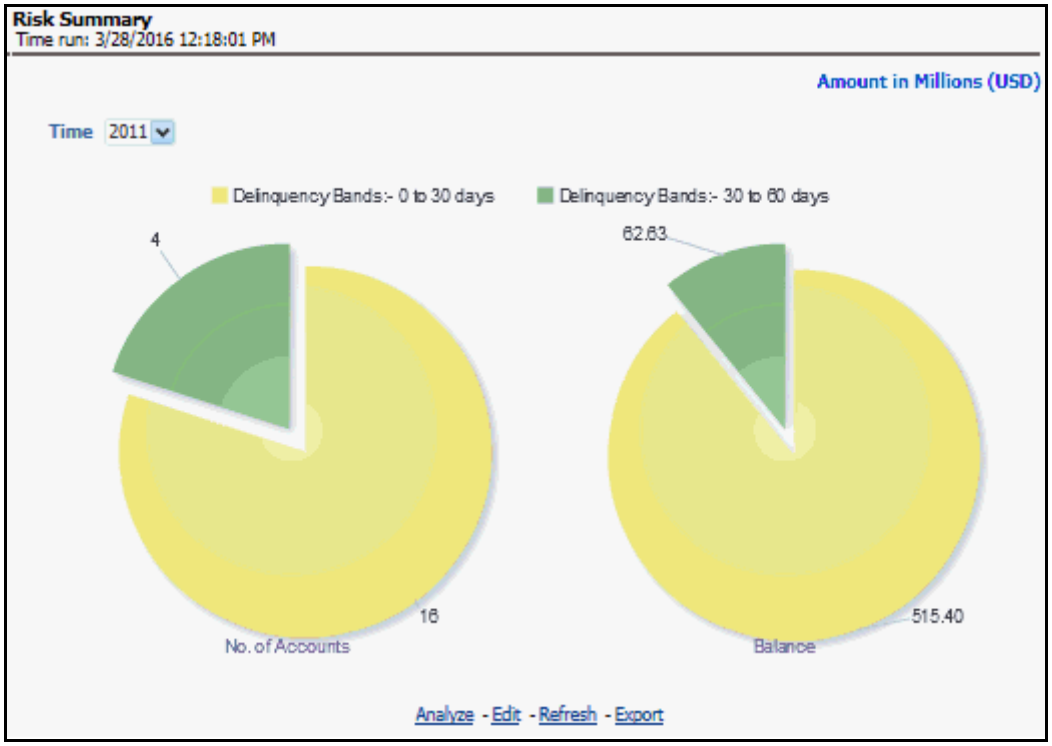


Figure 85. Risk Summary

Credit Loss Statement

This report displays Net Credit Loss (Gross Credit Loss adjusted for any recoveries) booked by the bank.

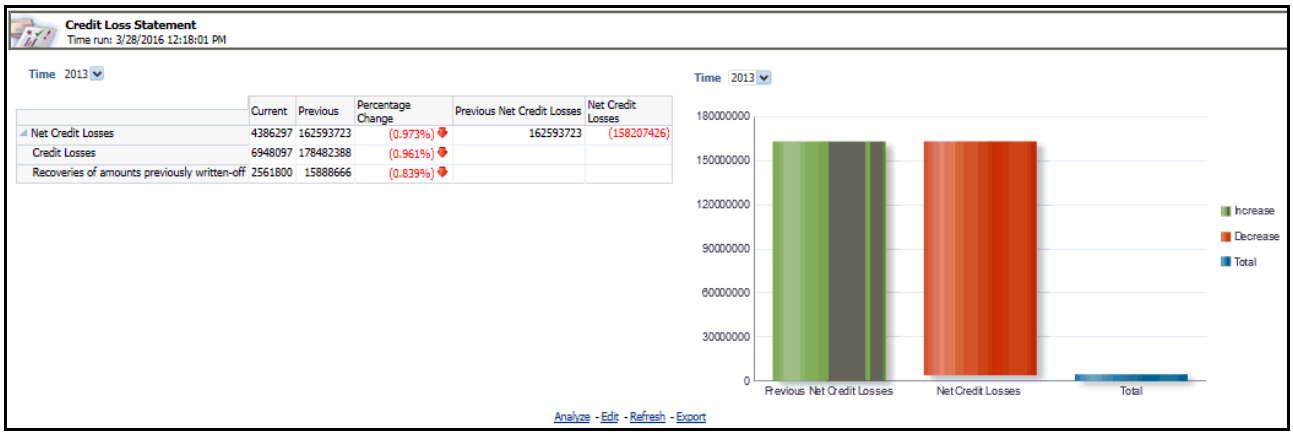


Figure 86. Credit Loss Statement

Margin Reports

This report tracks the margin of profitability that has been achieved by the customer over a period of time.

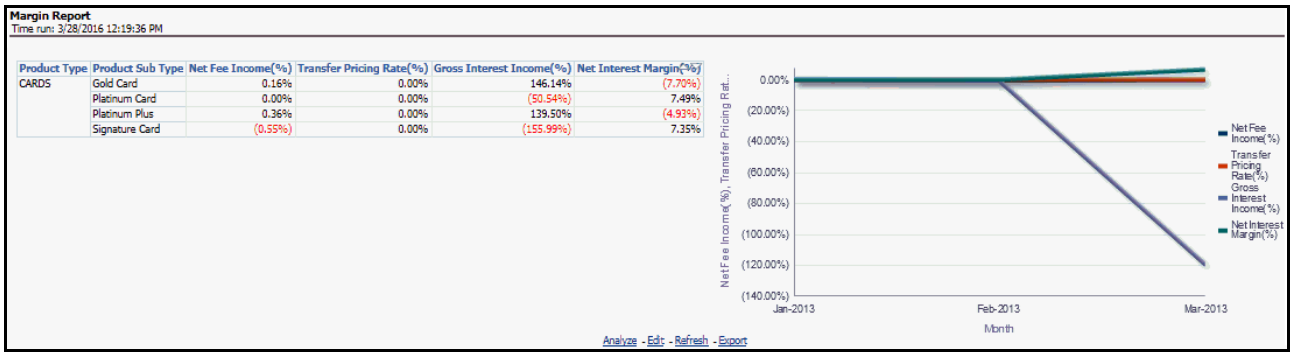


Figure 87. Margin Report

Customer Summary

Customer Distribution by Income

This report displays Distribution of Open Customers and Open Accounts across Income bands.

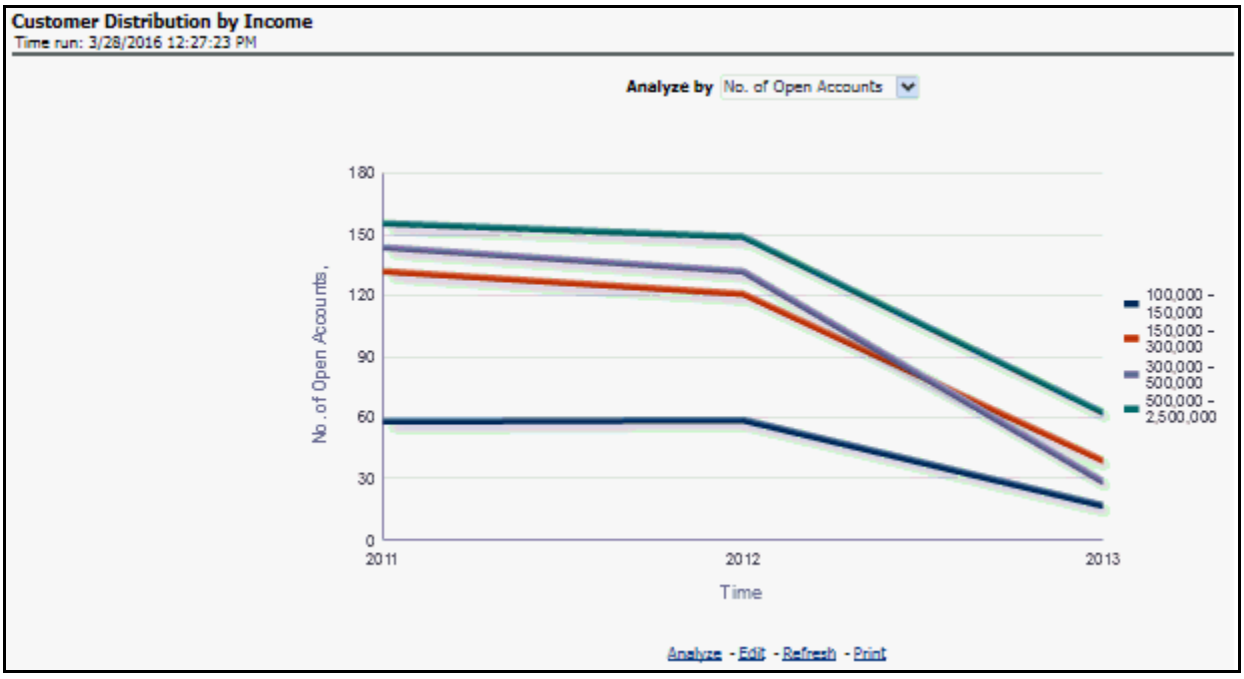


Figure 88. Customer Distribution by Income

Customer Distribution by Age

This report displays Distribution of Open Customers and Open Accounts across Age bands.

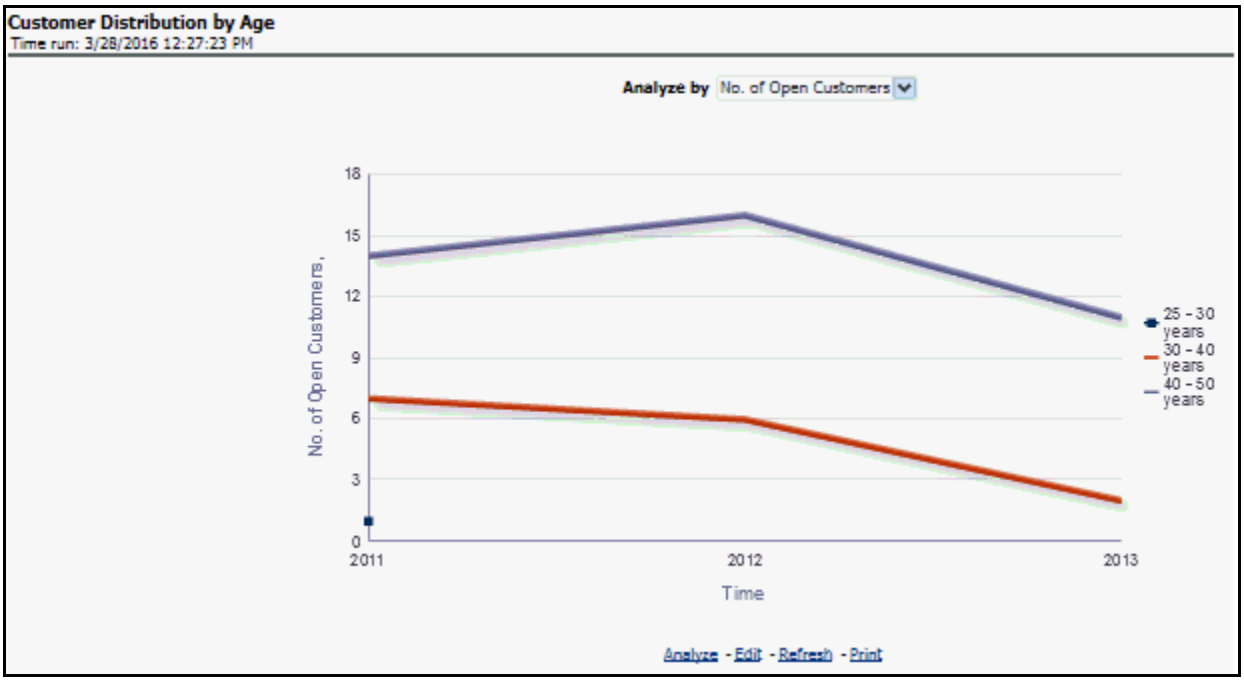


Figure 89. Customer Distribution by Age

Customer Distribution by LoB

This report displays distribution of Open Customers and the corresponding Revenue across each Line of Business, its constituent products, and year. This is a sunburst report.

On clicking a particular distribution, a consolidated view of that particular distribution is displayed. For example, if you need to get a consolidated view of 2011 distribution, click on 2011. You get a consolidated data of 2011 distribution on open customers, Line of Business, constituent products, and corresponding revenue. Further, you can get consolidated view of open customers, Line of Business, constituent product, and corresponding revenue, by clicking any particular distribution. To view the overall report, click the center of the circular graph.

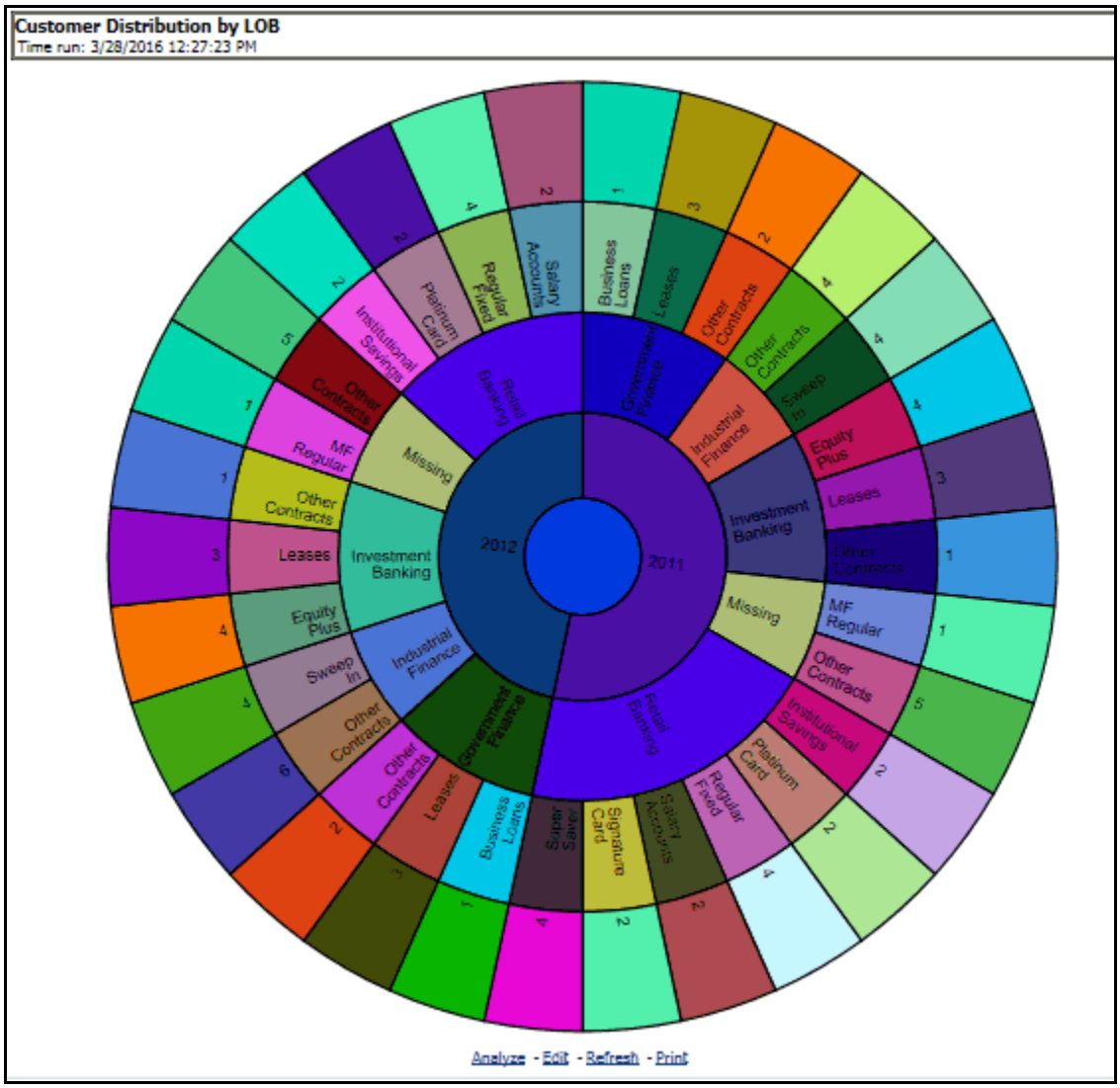


Figure 90. Customer Distribution by LoB

Customer Distribution by Region

This report displays Top 10 Products by Customers and Revenue Distribution of Open Customers and Open Accounts across Regions and Products.

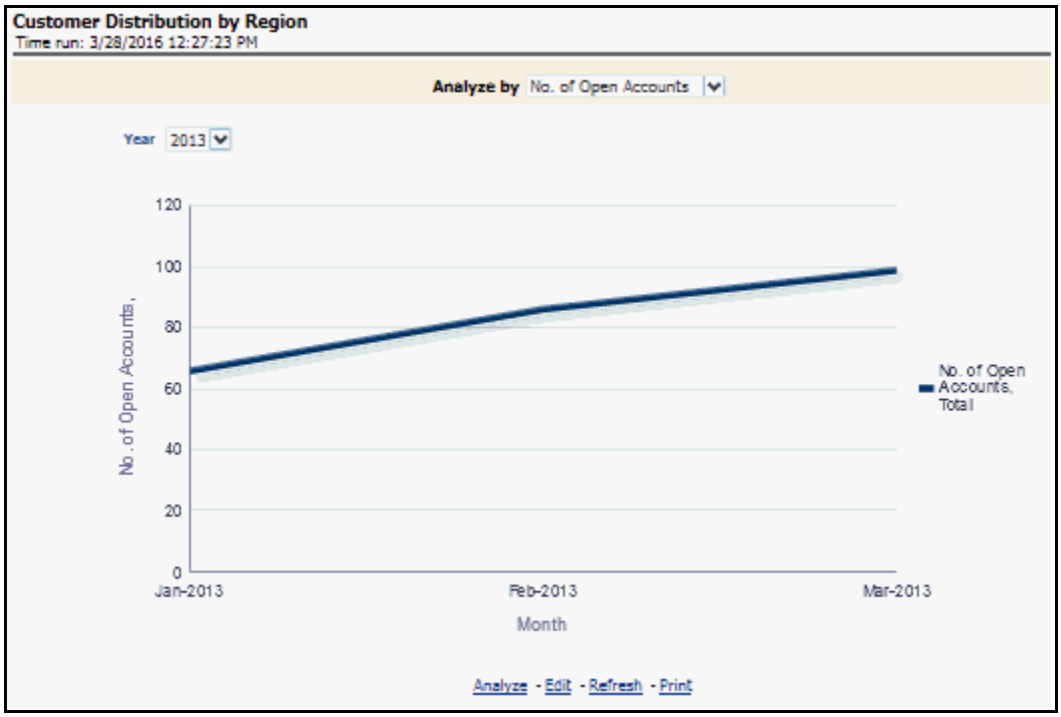


Figure 91. Customer Distribution by Region

Product Penetration Report

This report displays movement/sales of products over period of time.

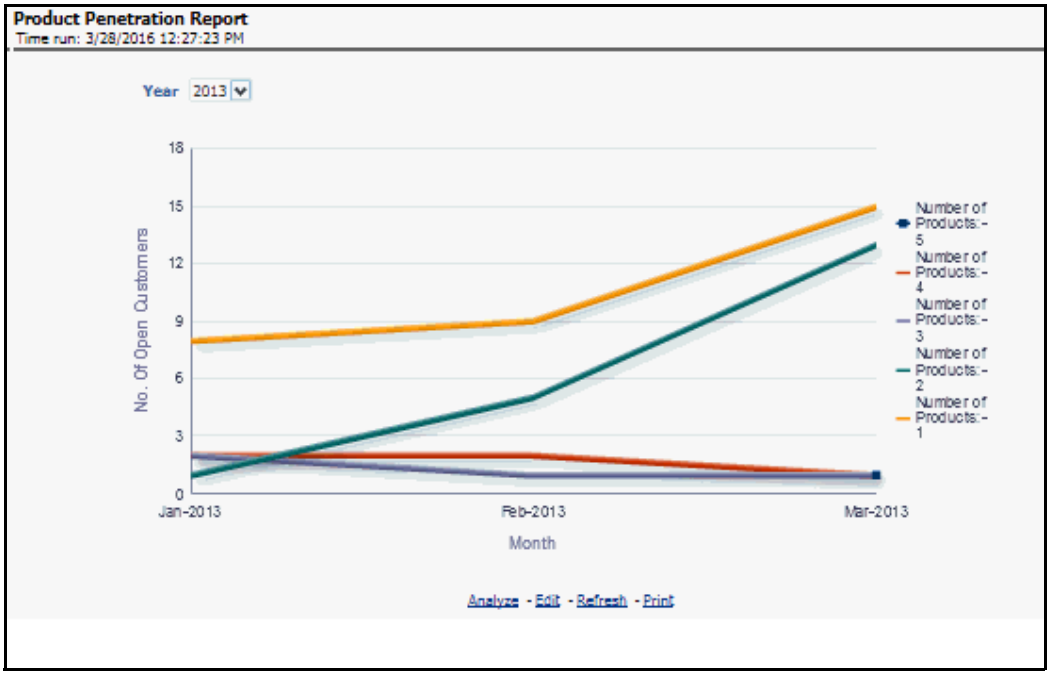
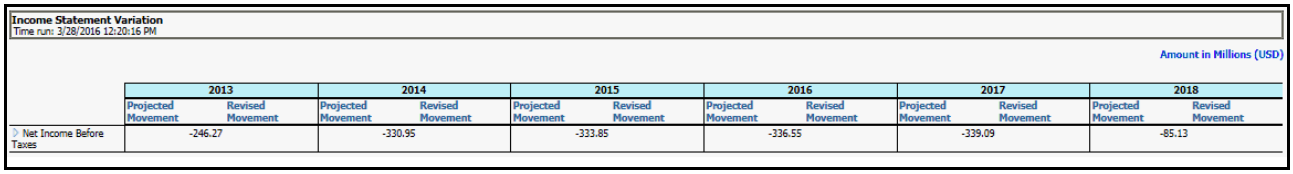


Figure 92. Product Penetration Report

What-If Analysis

This report enables the user to account for the change in profitability owing to any probable changes in the projected components of profitability. This report is displayed through three sections; (i) Income Statement Variation (ii) Comparison Over Applied Variation and (iii) Projected Vs Revised.



Income Statement Variation
Time run: 3/28/2016 12:20:16 PM

Amount in Millions (USD)

	2013		2014		2015		2016		2017		2018	
	Projected Movement	Revised Movement	Projected Movement	Revised Movement	Projected Movement	Revised Movement	Projected Movement	Revised Movement	Projected Movement	Revised Movement	Projected Movement	Revised Movement
Net Income Before Taxes	-246.27		-330.95		-333.85		-336.55		-339.09		-85.13	

Figure 93. Income Statement Variation

Comparison Over Applied Variations

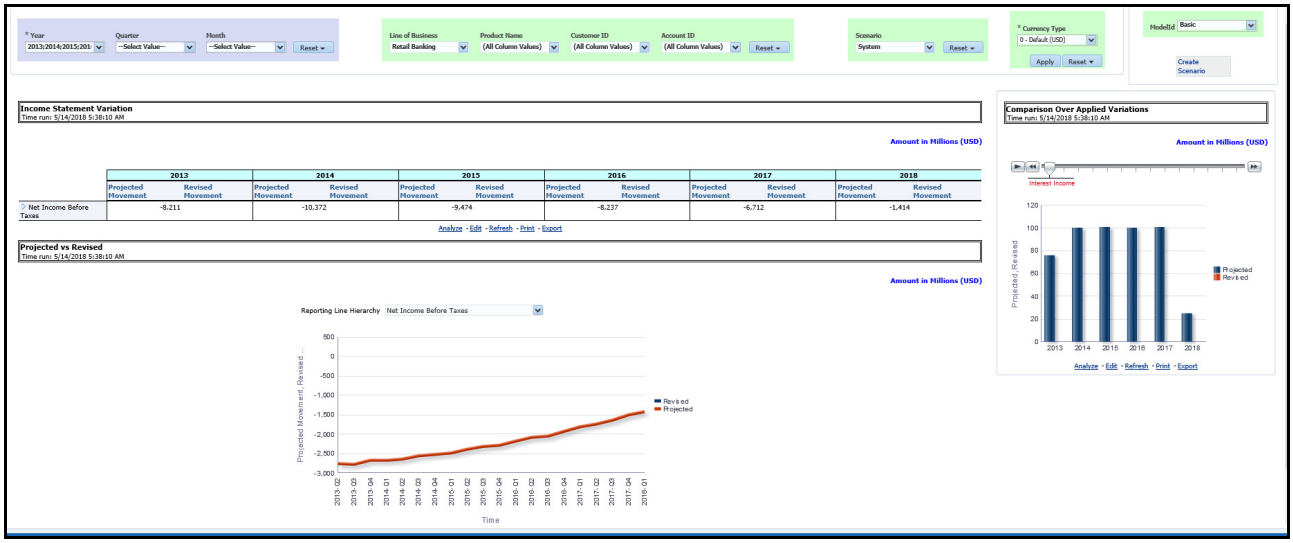


Figure 94. Comparison Over Applied Variations

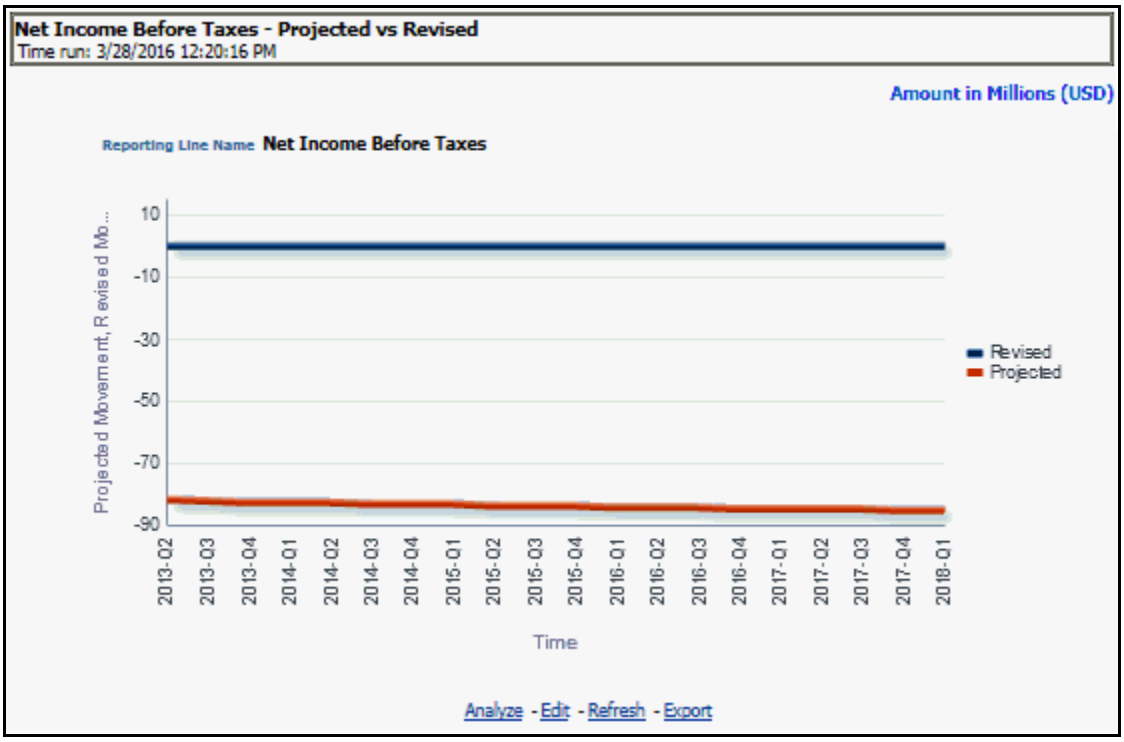


Figure 95. Projected vs. Revised

Customer Central

The purpose of this Dashboard is to provide detailed information about the customer, information related to the accounts of the customer, and other behavioral attributes. It enables the user to analyze a customer in its entirety. The report is specific to a customer and the selection of customer for which the report is to be viewed is done through the dashboard prompt. The search is enabled either by Customer or Account.

This Dashboard provides complete demographic details of the customer as well as the engagements of the customer with the bank. The engagement with the bank is specified in terms of the accounts held by the customer as well as the other services/activities through which the customer interacts with the bank.

All accounts of the customer (current as well as previous) are reported along with their specifics such as the start date, balance, peak balances, net income, relationship manager, and so on. Other reports include the specifics of the subscriptions and enrollments of the customer and the various offers that are provided to the customer and the accounts to which those offers have been provided. It also displays the details of transactions of the customer which can be viewed by classification into monetary or non-monetary transactions. Any predictive modeling scores that have been computed or are available for the customer are also reported.

Based on the profitability of the accounts, the future behavior of accounts is predicted and this predicted value is used to compute Customer Life-Time Value (CLTV). The CLTV can be analyzed for different periods of projections and accordingly the projected data to be considered for reporting CLTV is selected. Various reports available under this tab are discussed in the following sections:

The following Tabs and Reports are present in the Customer Central tab:

Customer 360

Based on the Segment filter prompt selected the reports are generated. The options available under Segment filter prompt are as follows:

- Risk Based
- Demographics
- Behavioral
- Profitability

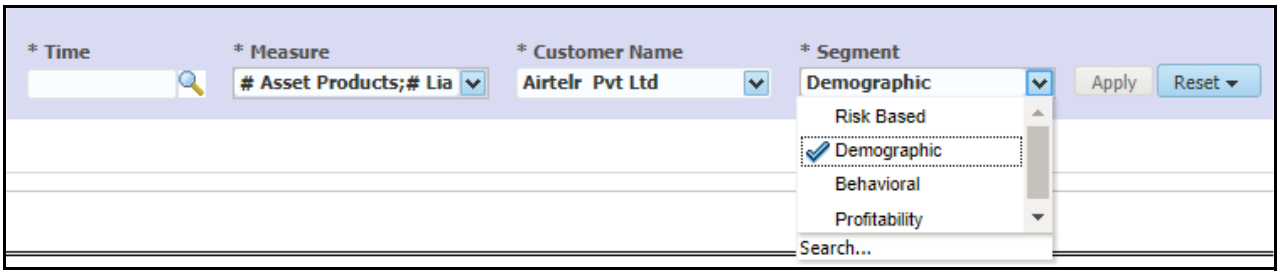


Figure 96. Segment Filter Prompt

Note: Maximum number of measure/dimensions that can be selected are 15. On selecting more than 15 measure/dimension, the first selected dimensions in the hierarchy are deselected.

Retail Profile

This report provides the basic demographics of a particular customer.

Figure 97. Customer Details Report

Customer Central (Sunburst-Wheel): This report displays circular graphical representation that is divided into number of sectors. Each sector represents the value of the dimension or measure, that is, Turnover, Customer Since, Total Assest Balance, Total Liability Balance, No. of Assest Product, No. of Liability Product, No. of Products Held (currently), No. of Products Held (Since inception of customer), Debit Turnout, Mitigant Value, Total Spent, and so on, of the customer that has been selected. This is a sunburst report. On clicking a particular segment, the selected segment rotates and appears on the top part of the circle for better visualization.

The radial axis on the anti-clock side of every sector represents the scale for that sector. The following values are represented in each sector:

- **Customer Value**: This represents the dimensional value of customer across the scale.
- **Segment Average**: This represents the average value of the dimension of the segment that the customer belongs to.

- **Enterprise Average**: This represents customers from all the segments considered to compute the average value of dimension or measure.

Hyperlinks are provided under the Customer, Scores, and Ratings section. On clicking these hyperlink, you are navigated to the respective detail reports.

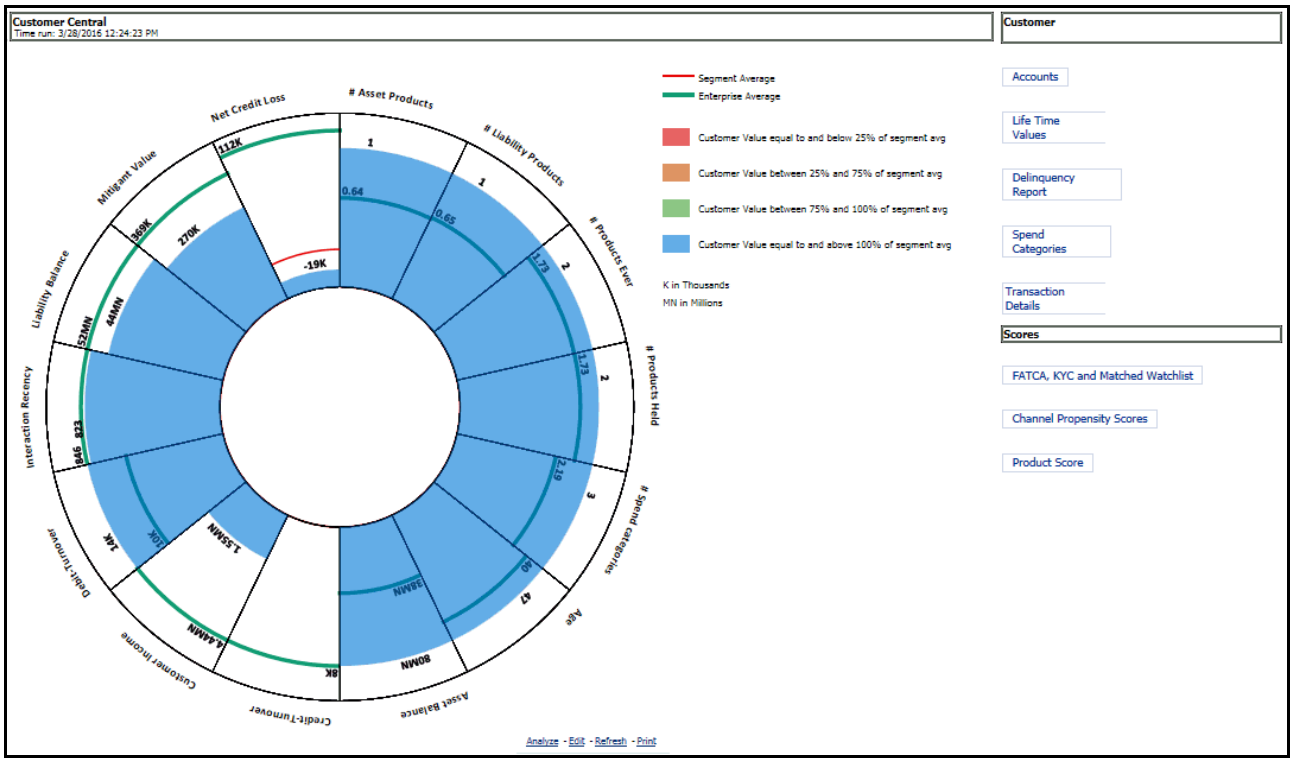


Figure 98. Customer Central

Customer Performance

Risk Adjusted Performance Metrics

This report helps you to determine the ratio of risk-adjusted Net Income against the Economic Capital.

This metric is also called Risk Adjusted Return On Capital (RAROC). It helps in determining the efficiency of Economic Capital corresponding to every customer. This Report shows a snapshot of measures against various reporting lines e.g; Total Revenue, Total Expenses, Net Income, return on Total Asset RAROC-Economic Capital and Return on Equity.

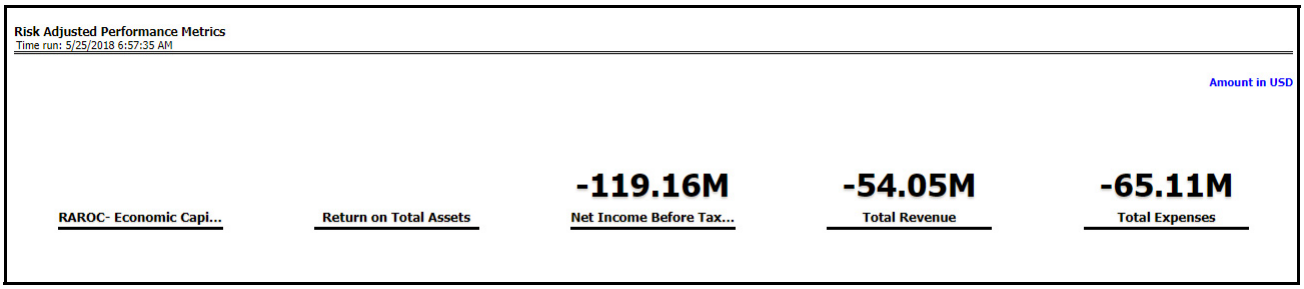
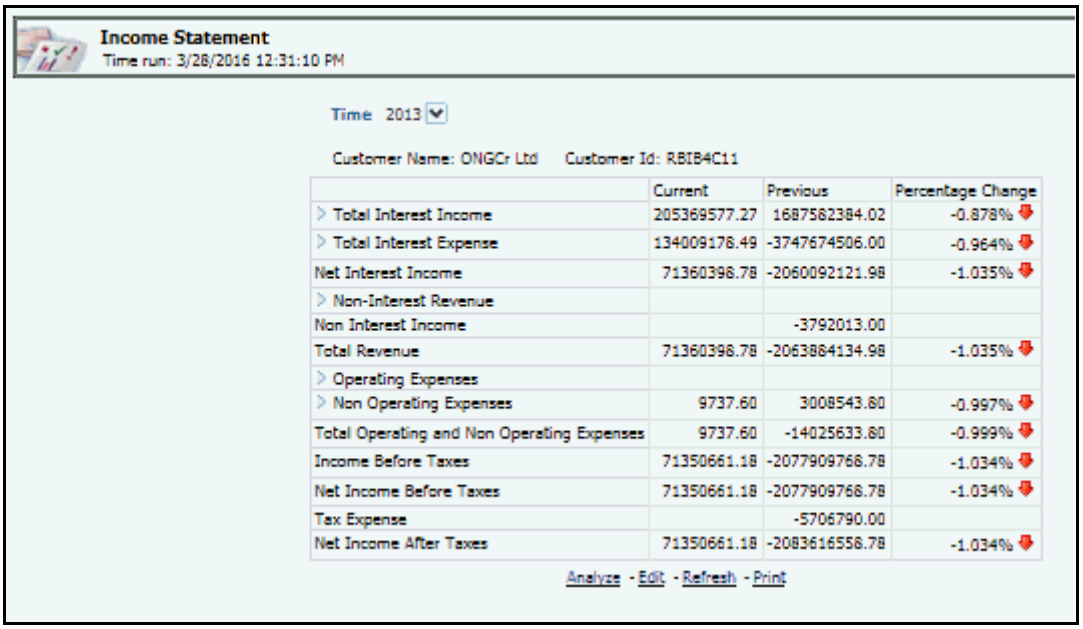


Figure 99. Risk Adjusted Performance Metrics

Income Statement

This report displays Revenues and Expenses under various reporting lines. The numbers are displayed for the current time period selected and in comparison with numbers recorded during pervioud same time period and move in terms f percentage change.



	Current	Previous	Percentage Change
Total Interest Income	205369577.27	1687582384.02	-0.878%
Total Interest Expense	134009178.49	-3747674506.00	-0.964%
Net Interest Income	71360398.78	-2060092121.98	-1.035%
Non-Interest Revenue			
Non Interest Income		-3792013.00	
Total Revenue	71360398.78	-2063884134.98	-1.035%
Operating Expenses			
Non Operating Expenses	9737.60	3008543.80	-0.997%
Total Operating and Non Operating Expenses	9737.60	-14025633.80	-0.999%
Income Before Taxes	71350661.18	-2077909768.78	-1.034%
Net Income Before Taxes	71350661.18	-2077909768.78	-1.034%
Tax Expense		-5706790.00	
Net Income After Taxes	71350661.18	-2083616558.78	-1.034%

Figure 100. Income Statement

Profit and Loss Summary

This report displays Profit and Loss statement for all products which the user can then limit to specific Line of Business (LOB) or slices of the P&L for a specific LOB across individual customer segments like age, gender, and Income.

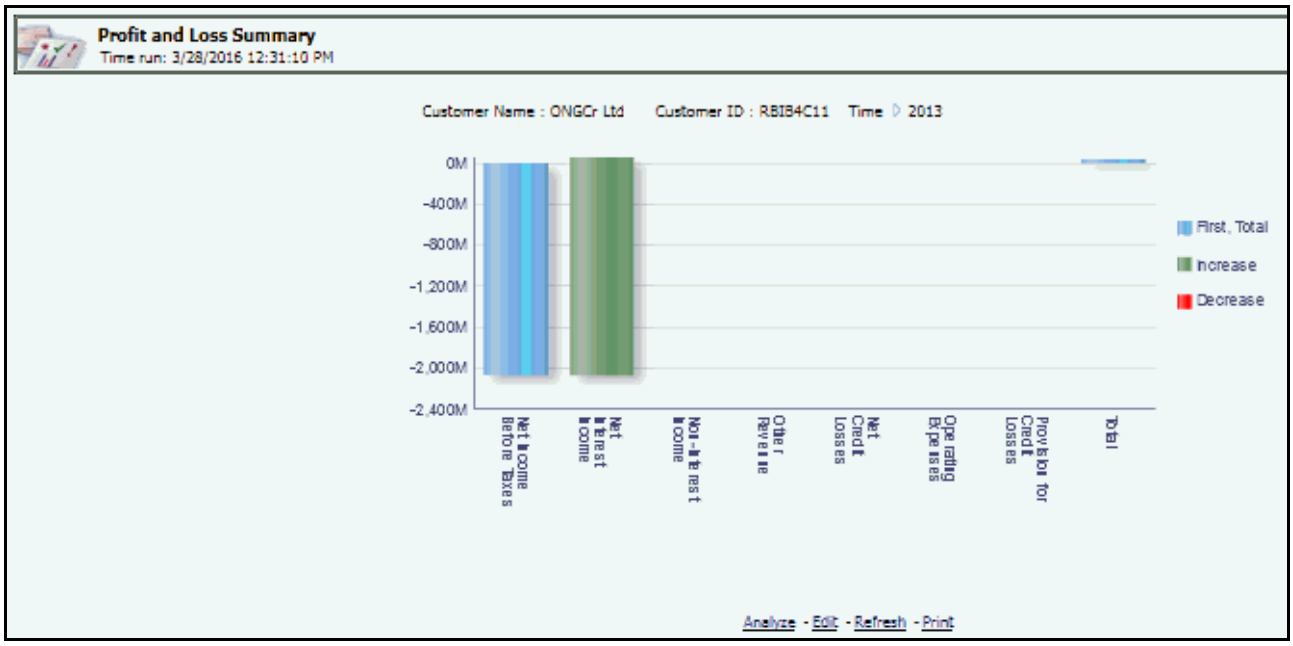


Figure 101. Profit and Loss Summary

Product Summary

All Product

Risk Adjusted Performance Metrics

This report helps you to determine the ratio of risk-adjusted Net Income against the Economic Capital.

This metric is also called Risk Adjusted Return On Capital (RAROC). It helps in determining the efficiency of Economic Capital corresponding to every customer. This Report shows a snapshot of measures against various reporting lines eg; Total Revenue, Total Expenses, Net Income, return on Total Asset RAROC-Economic Capital and Return on Equity.

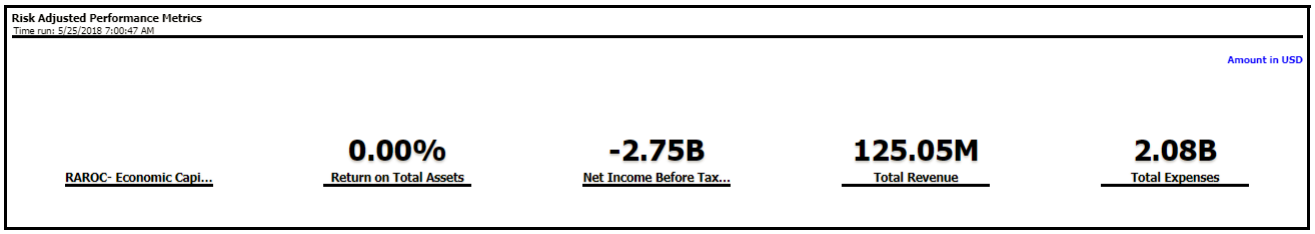
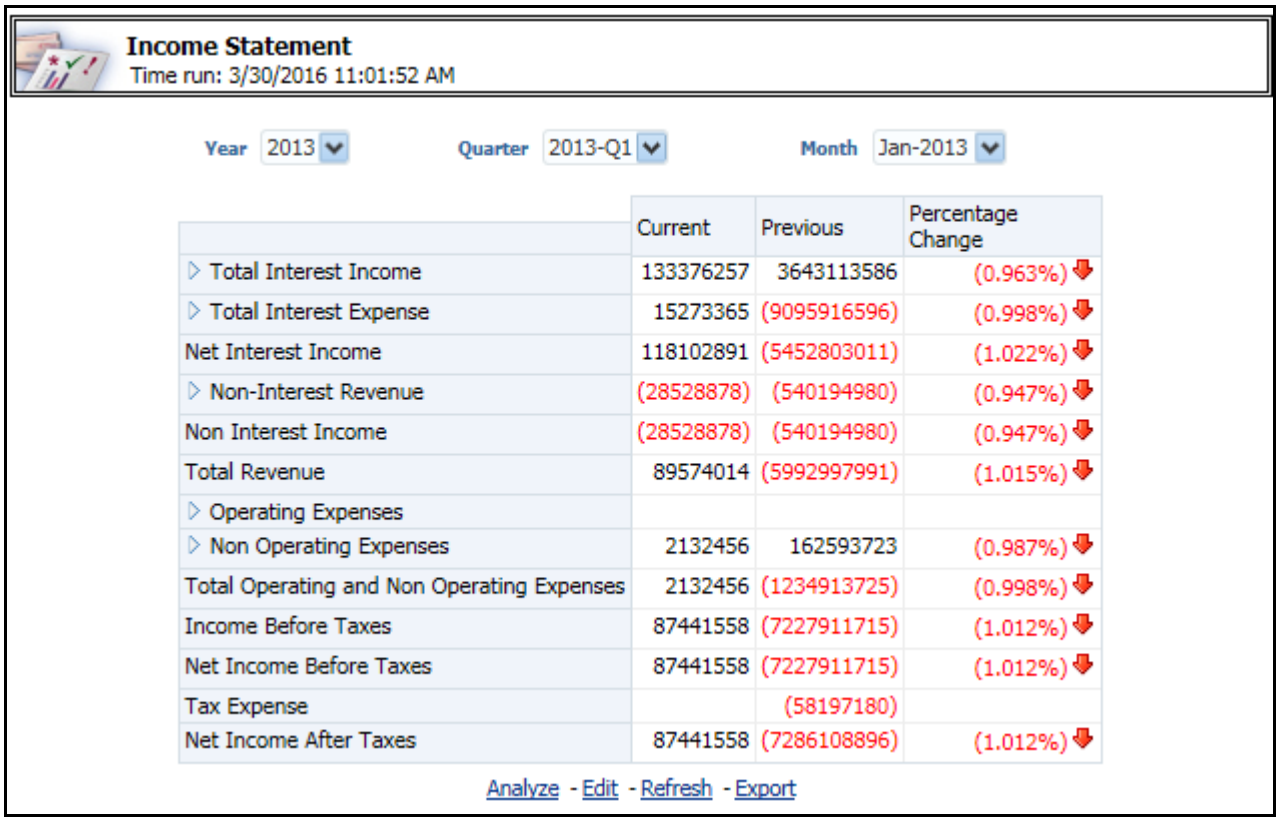


Figure 102. Risk Adjusted Performance Metrics

Income Statement

This report displays Revenues and Expenses under various reporting lines. The numbers are displayed for the current time period selected and in comparison with numbers recorded during previous same time period and move in terms of percentage change.



Income Statement
Time run: 3/30/2016 11:01:52 AM

Year 2013 Quarter 2013-Q1 Month Jan-2013

	Current	Previous	Percentage Change
Total Interest Income	133376257	3643113586	(0.963%)
Total Interest Expense	15273365	(9095916596)	(0.998%)
Net Interest Income	118102891	(5452803011)	(1.022%)
Non-Interest Revenue	(28528878)	(540194980)	(0.947%)
Non Interest Income	(28528878)	(540194980)	(0.947%)
Total Revenue	89574014	(5992997991)	(1.015%)
Operating Expenses			
Non Operating Expenses	2132456	162593723	(0.987%)
Total Operating and Non Operating Expenses	2132456	(1234913725)	(0.998%)
Income Before Taxes	87441558	(7227911715)	(1.012%)
Net Income Before Taxes	87441558	(7227911715)	(1.012%)
Tax Expense		(58197180)	
Net Income After Taxes	87441558	(7286108896)	(1.012%)

Analyze - Edit - Refresh - Export

Figure 103. Income Statement

Profit and Loss Summary

This report displays Profit and Loss statement for all products which the user can then limit to specific Line of Business (LOB) or slices of the Proit and Loss for a specific LOB across individual customer segments like age, gender, and Income.

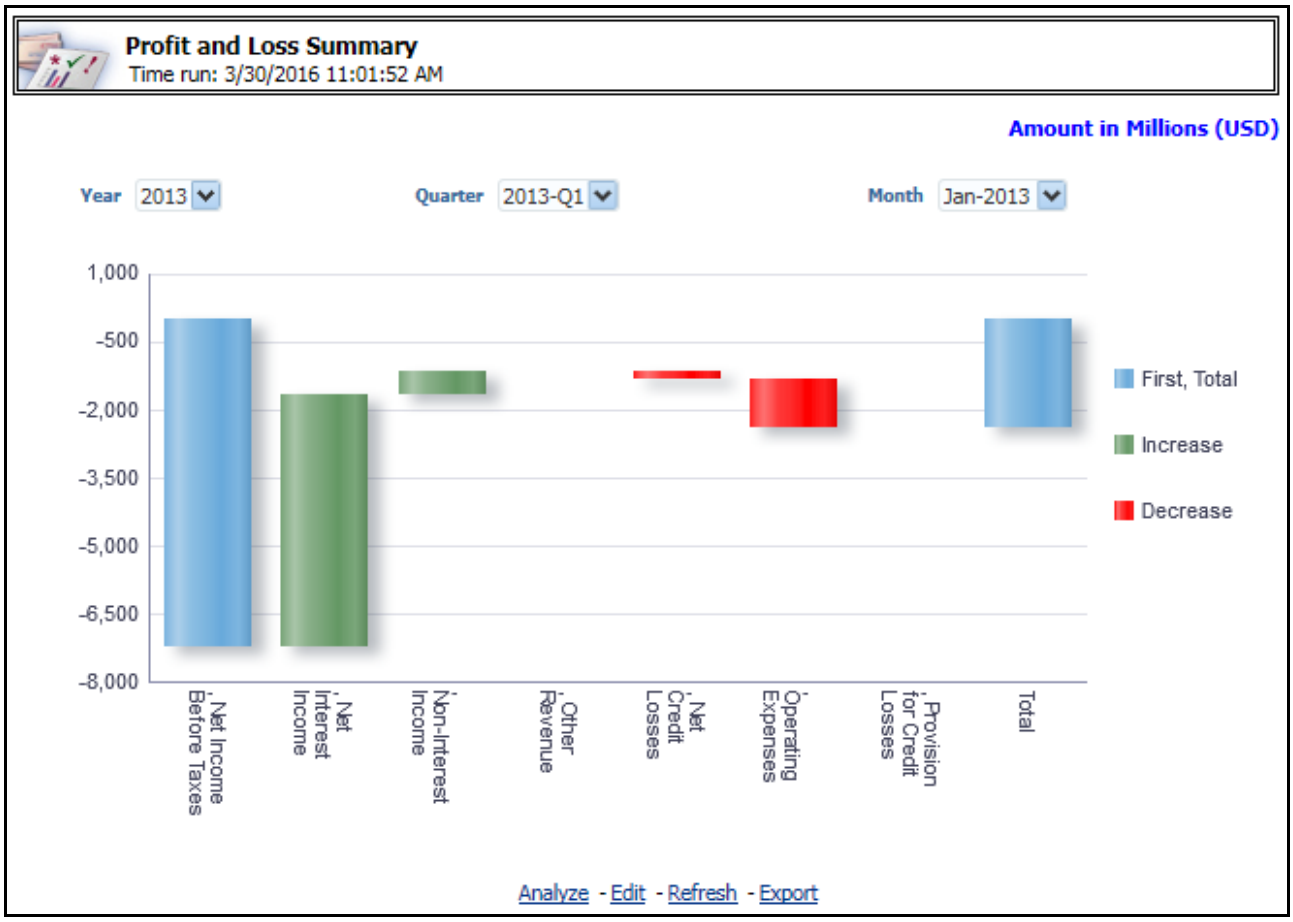
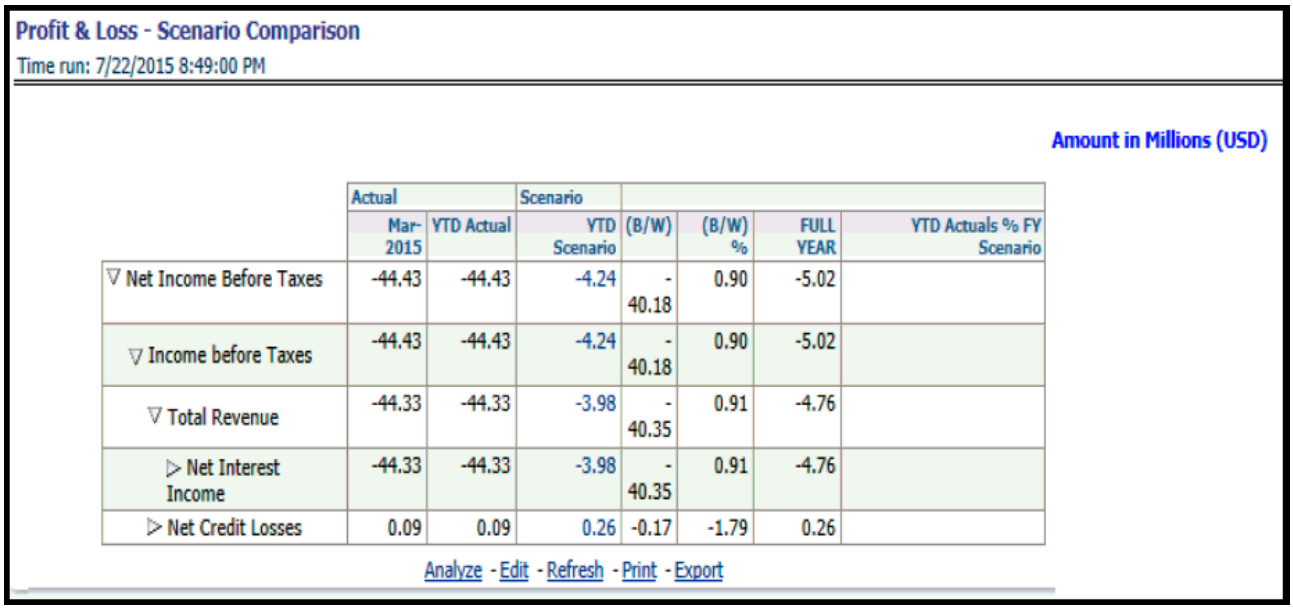


Figure 104. Profit and Loss Summary

Profit and Loss - Scenario Comparison

This report provides the comparison of the details of the income generated to predefine scenarios.



Profit & Loss - Scenario Comparison

Time run: 7/22/2015 8:49:00 PM

Amount in Millions (USD)

	Actual		Scenario				
	Mar-2015	YTD Actual	YTD Scenario	(B/W)	(B/W) %	FULL YEAR	YTD Actuals % FY Scenario
▽ Net Income Before Taxes	-44.43	-44.43	-4.24	-40.18	0.90	-5.02	
▽ Income before Taxes	-44.43	-44.43	-4.24	-40.18	0.90	-5.02	
▽ Total Revenue	-44.33	-44.33	-3.98	-40.35	0.91	-4.76	
▷ Net Interest Income	-44.33	-44.33	-3.98	-40.35	0.91	-4.76	
▷ Net Credit Losses	0.09	0.09	0.26	-0.17	-1.79	0.26	

Analyze - Edit - Refresh - Print - Export

Figure 105. Profit and Loss - Scenario Comparison

Note: Some of the dashboard filters, that is, Vintage, The Age On Book, Customer Gender, Customer Age/Customer Income, Geography Filter prompt selection is not applicable to this report.

Cards

Risk Adjusted Performance Metrics

This report helps you to determine the ratio of risk-adjusted Net Income against the Economic Capital.

This metric is also called Risk Adjusted Return On Capital (RAROC). It helps in determining the efficiency of Economic Capital corresponding to every customer. This Report shows a snapshot of measures against various reporting lines e.g; Total Revenue, Total Expenses, Net Income, return on Total Asset RAROC-Economic Capital and Return on Equity.

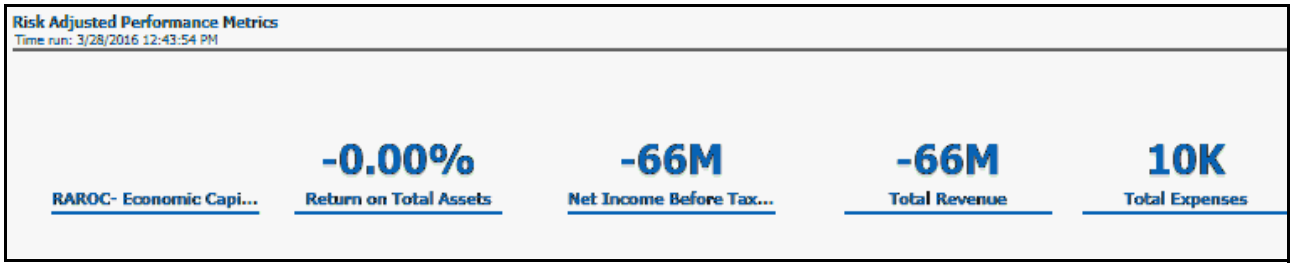


Figure 106. Risk Adjusted Performance Metrics

Income Statement

This report displays Revenues and Expenses under various reporting lines. The numbers are displayed for the current time period selected and in comparison with numbers recorded during previous same time period and move in terms f percentage change.

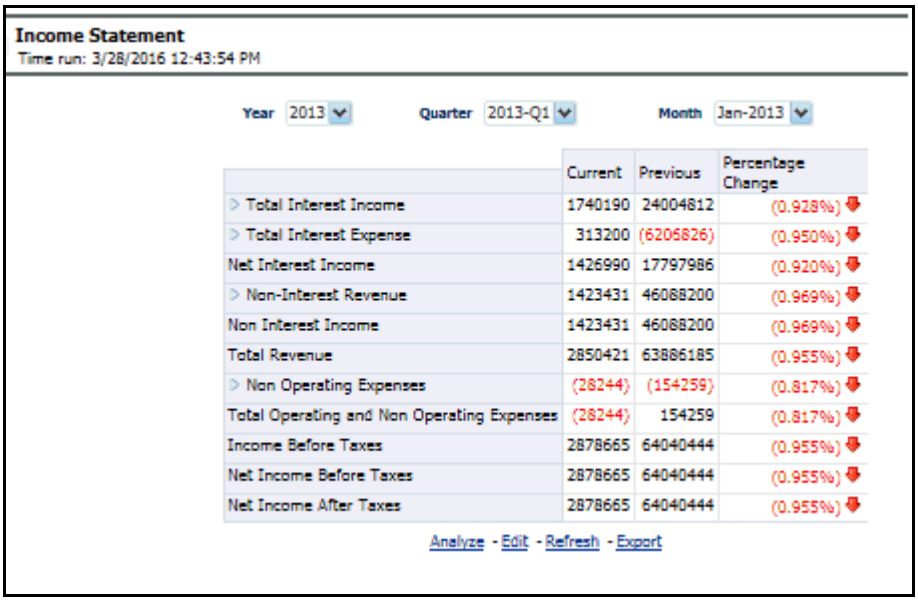


Figure 107. Income Statement

Profit and Loss Summary

This report displays Profit and Loss statement for Cards products that can be viewed as slices of individual customer segments like age, gender and Income.

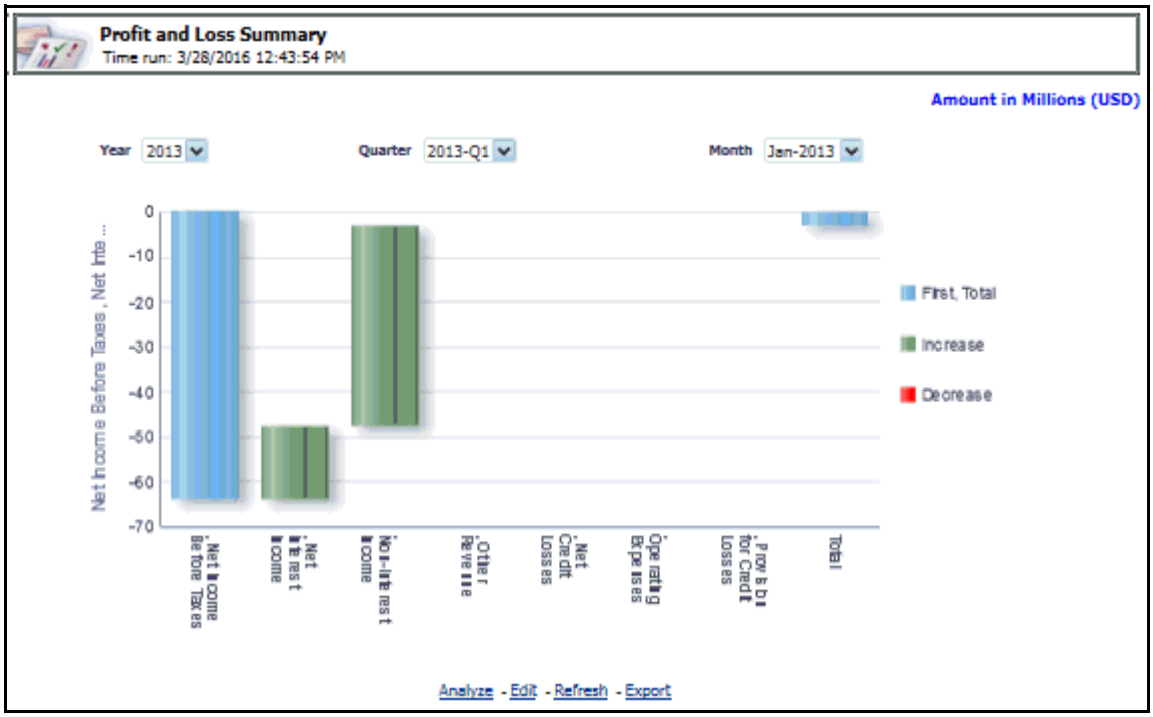
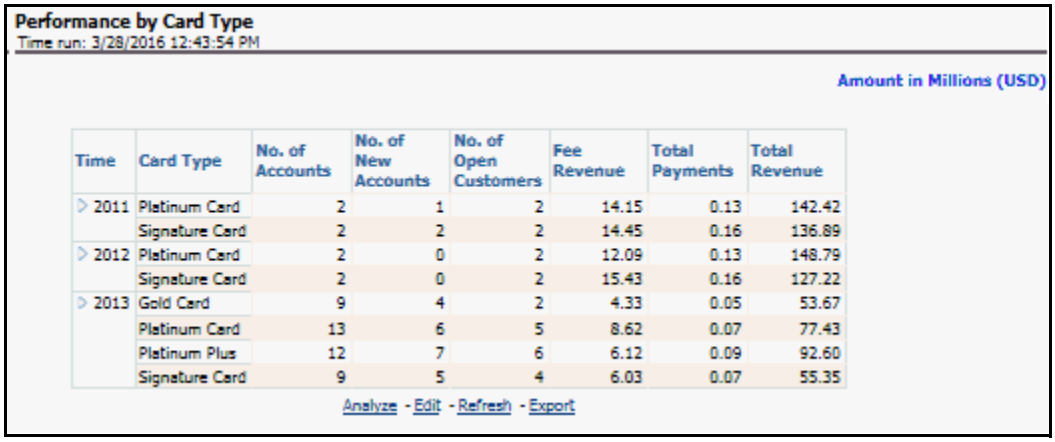


Figure 108. Profit and Loss Summary

Performance by Card Type

This report displays Key Metrics such as Number of New accounts, Number of Open customers and so on reported across various card types demonstrating the mix across the card types.



Time	Card Type	No. of Accounts	No. of New Accounts	No. of Open Customers	Fee Revenue	Total Payments	Total Revenue
2011	Platinum Card	2	1	2	14.15	0.13	142.42
	Signature Card	2	2	2	14.45	0.16	136.89
2012	Platinum Card	2	0	2	12.09	0.13	148.79
	Signature Card	2	0	2	15.43	0.16	127.22
2013	Gold Card	9	4	2	4.33	0.05	53.67
	Platinum Card	13	6	5	8.62	0.07	77.43
	Platinum Plus	12	7	6	6.12	0.09	92.60
	Signature Card	9	5	4	6.03	0.07	55.35

Figure 109. Performance by Card Type

Standard Non-Cash Balance

This report displays growth (or decline) of customer non-cash balance over time.

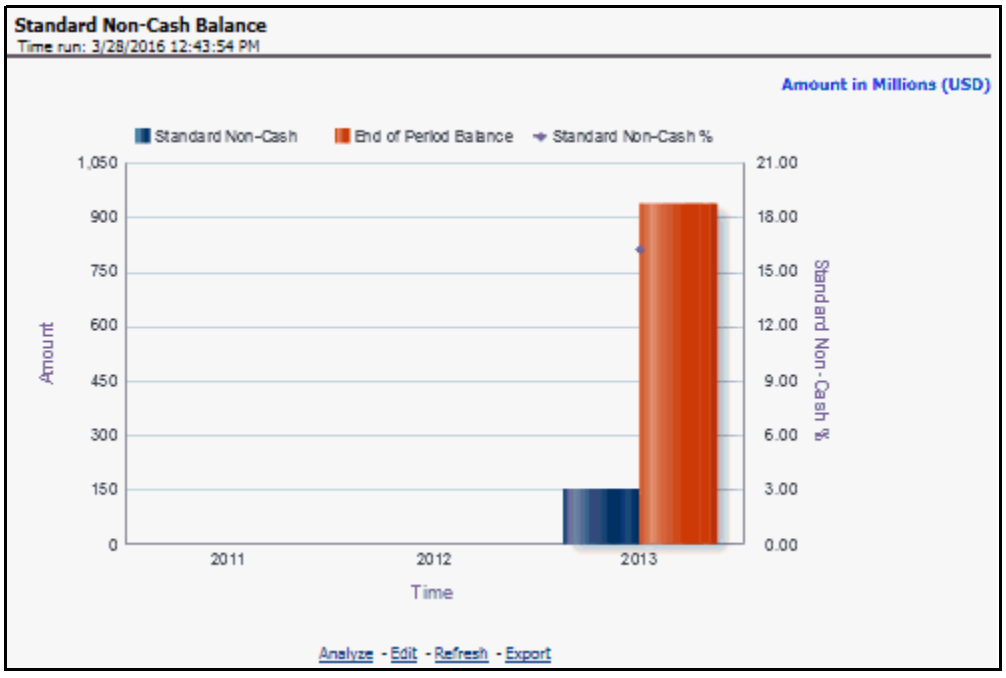


Figure 110. Standard Non-Cash Balance

Balance by Expiry Month

This report displays balance distribution across offer expiry dates gives the user an indication of the balance that is scheduled to flip to a different balance bucket.

Figure 111. Balance by Expiry Month

Active Net Receivables Summary

This report displays the average growth (or decline) of balances per open customer in relation to how the standard non-cash balance is growing (or declining).

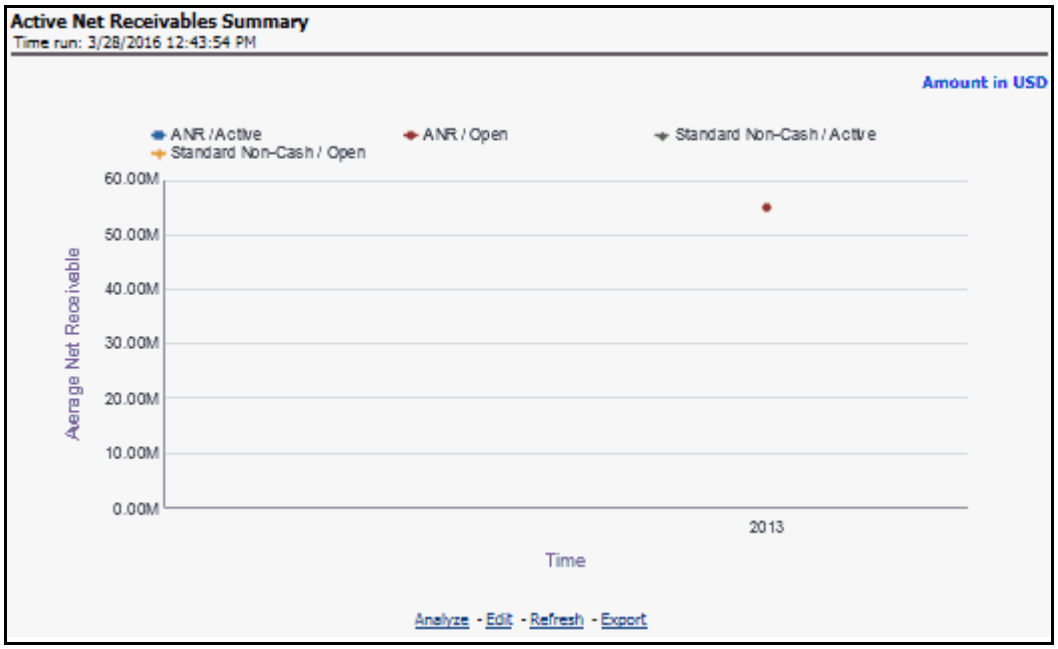


Figure 112. Active Net Receivables Summary

Summary of Balance (Receivables) Breakdown

This report summarizes the Average Net Receivable (ANR) mix across the different balance buckets available within the bank and the effective interest rate across each balance bucket.

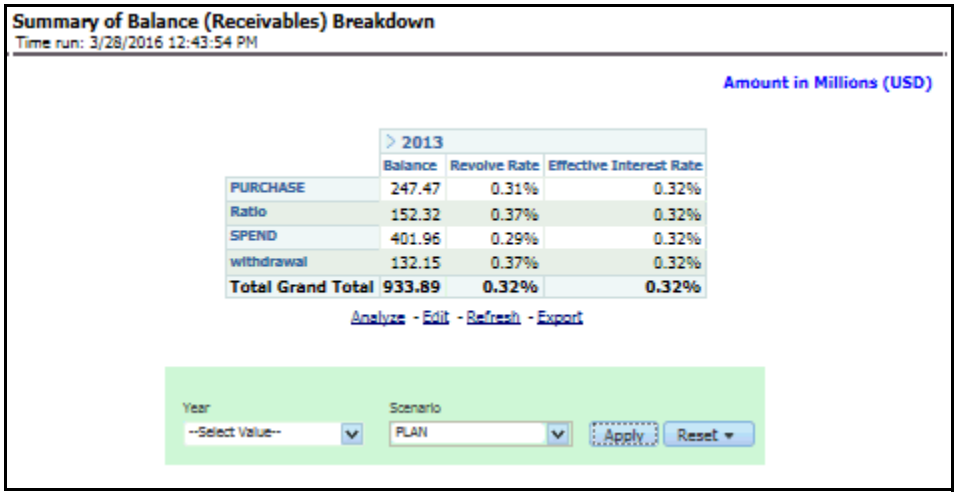


Figure 113. Summary of Balance (Receivables) Breakdown

Profit and Loss - Scenario Comparison

This report provides the comparison of the details of the income generated to predefine scenarios.

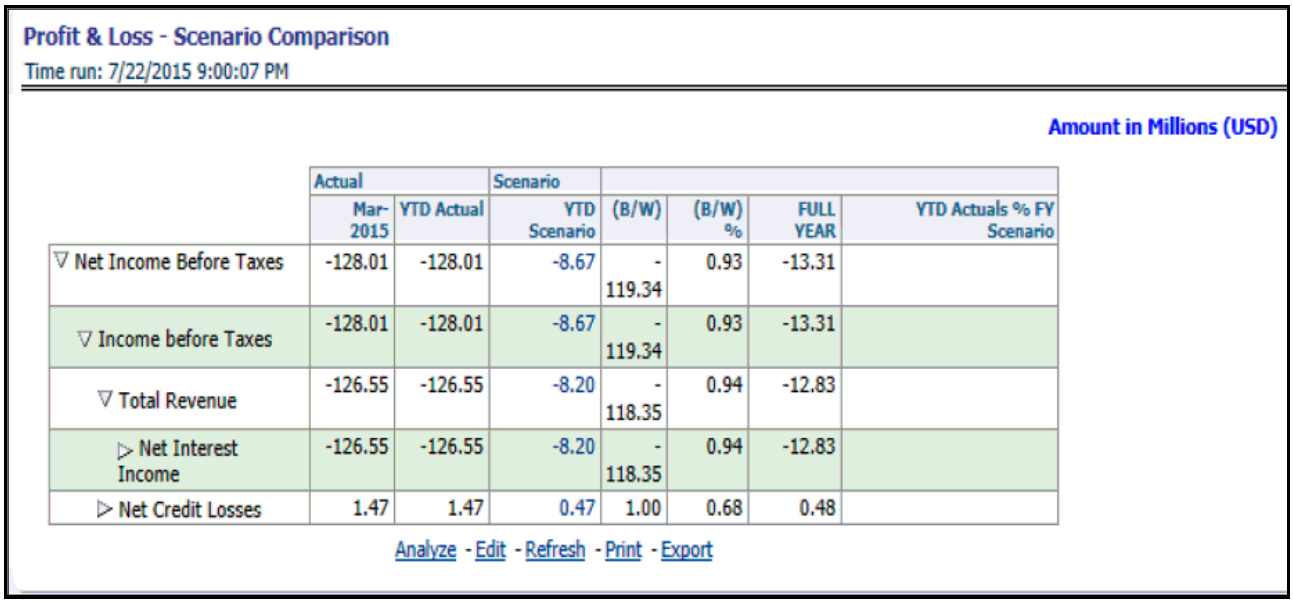


Figure 114. Profit and Loss - Scenario Comparison

Some of the dashboard filters, that is, Vintage, The Age On Book, Customer Gender, Customer Age/Customer Income, Geography Filter prompt selection is not applicable to this report.

Retail Bank

Risk Adjusted Performance Metrics

This report helps you to determine the ratio of risk-adjusted Net Income against the Economic Capital.

This metric is also called Risk Adjusted Return On Capital (RAROC). It helps in determining the efficiency of Economic Capital corresponding to every customer. This Report shows a snapshot of measures against various reporting lines eg; Total Revenue, Total Expenses, Net Income, return on Total Asset RAROC-Economic Capital and Return on Equity.

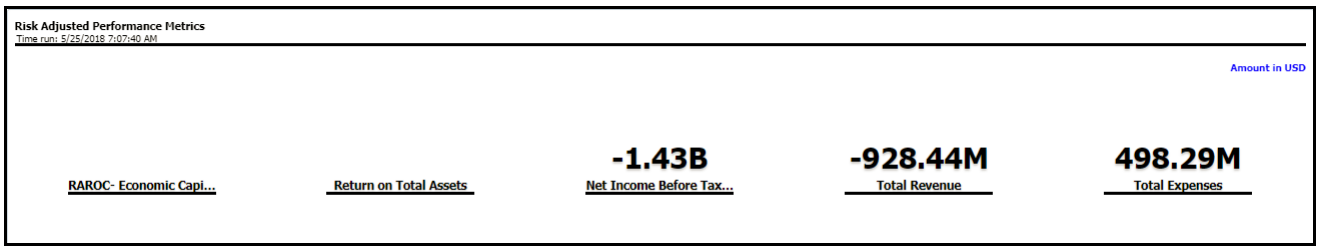
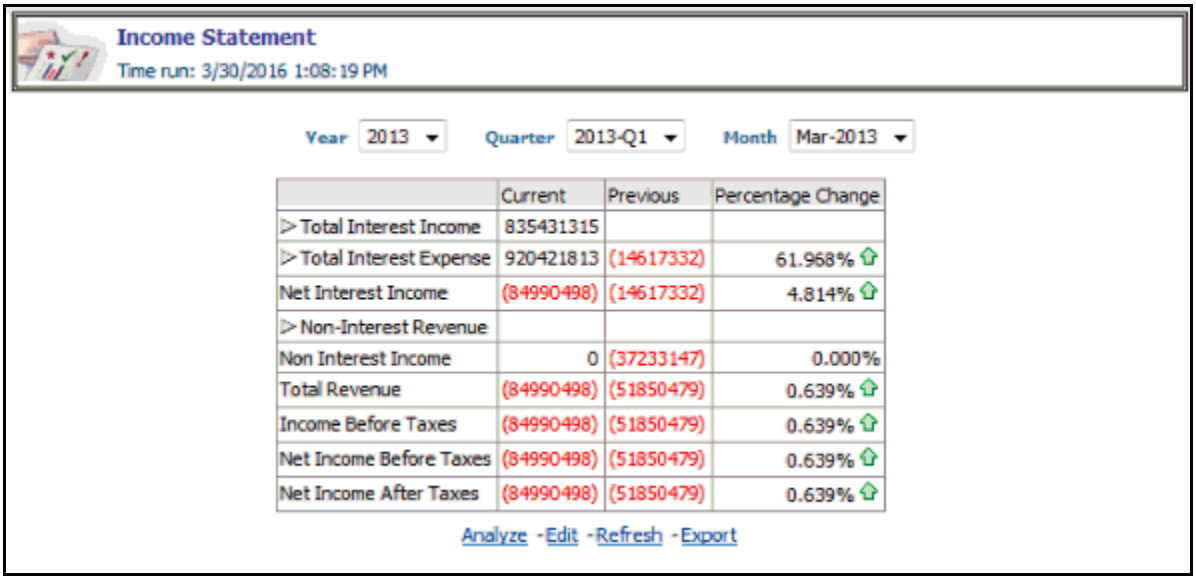


Figure 115. Risk Adjusted Performance Metrics

Income Statement

This report displays Revenues and Expenses under various reporting lines. The numbers are displayed for the current time period selected and in comparison with numbers recorded during previous same time period and move in terms f percentage change.



	Current	Previous	Percentage Change
▷ Total Interest Income	835431315		
▷ Total Interest Expense	920421813	(14617332)	61.968%
Net Interest Income	(84990498)	(14617332)	4.814%
▷ Non-Interest Revenue			
Non Interest Income	0	(37233147)	0.000%
Total Revenue	(84990498)	(51850479)	0.639%
Income Before Taxes	(84990498)	(51850479)	0.639%
Net Income Before Taxes	(84990498)	(51850479)	0.639%
Net Income After Taxes	(84990498)	(51850479)	0.639%

Figure 116. Income Statement

Profit and Loss Summary

This report displays Profit and Loss statement for Cards products that can be viewed as slices of individual customer segments like age, gender and Income.

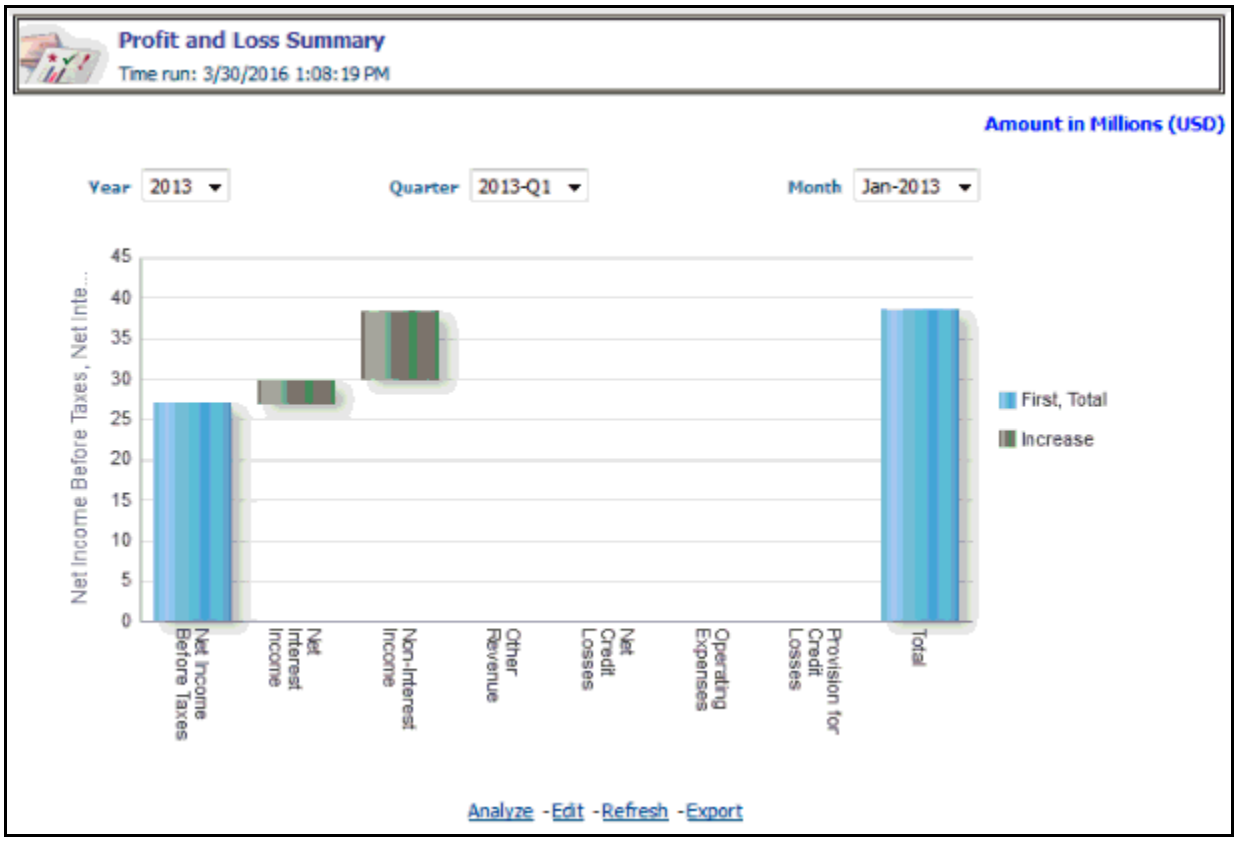


Figure 117. Profit and Loss Summary

Total Deposit Analysis

This report displays the distribution of deposits booked by the bank across various product categories.

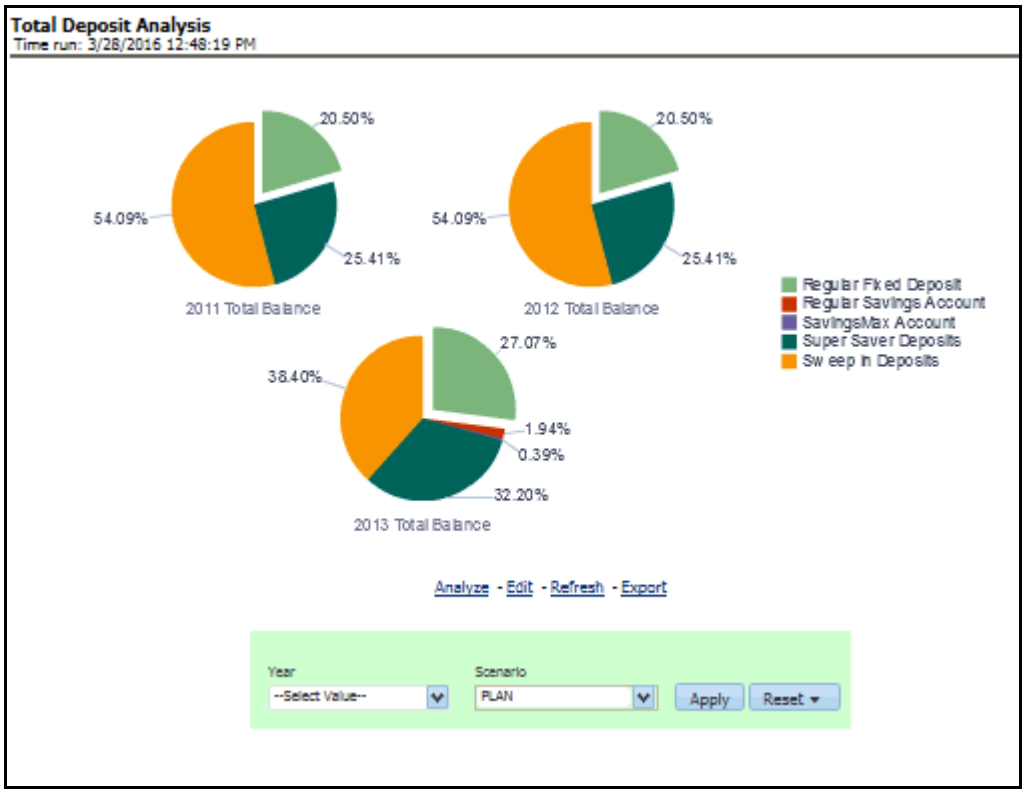
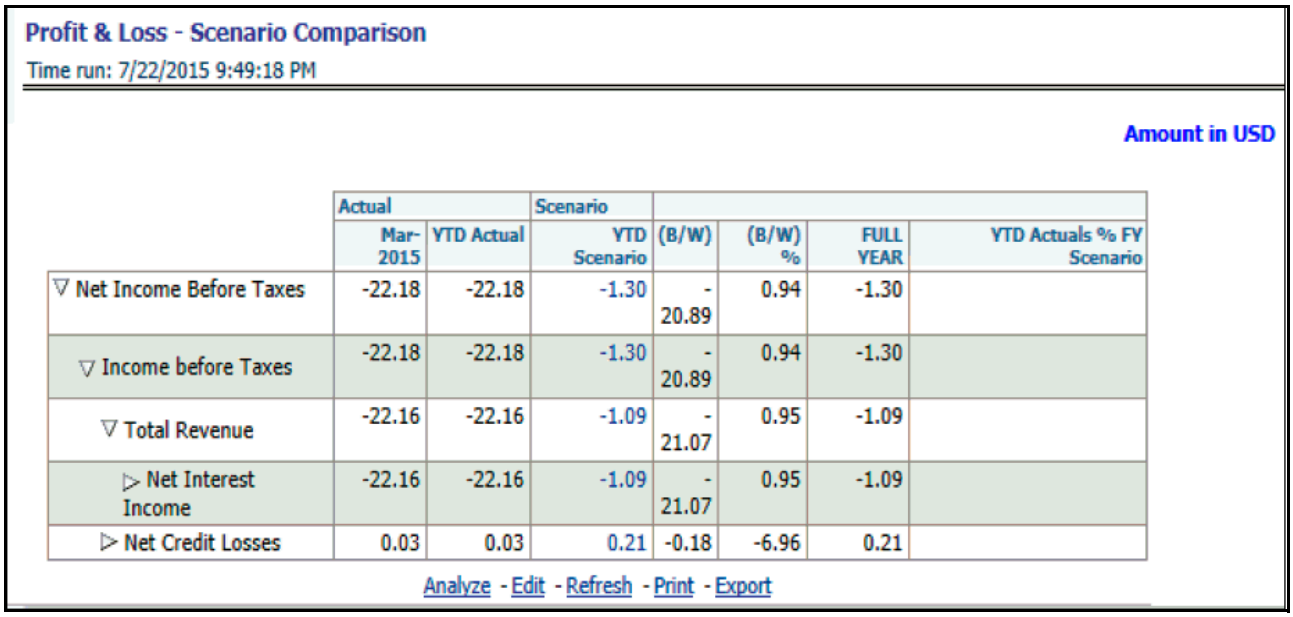


Figure 118. Total Deposit Analysis

Profit and Loss - Scenario Comparison

This report provides the comparison of the details of the income generated to predefine scenarios.



Profit & Loss - Scenario Comparison

Time run: 7/22/2015 9:49:18 PM

Amount in USD

	Actual		Scenario				
	Mar-2015	YTD Actual	YTD Scenario	(B/W)	(B/W) %	FULL YEAR	YTD Actuals % FY Scenario
▽ Net Income Before Taxes	-22.18	-22.18	-1.30	-20.89	0.94	-1.30	
▽ Income before Taxes	-22.18	-22.18	-1.30	-20.89	0.94	-1.30	
▽ Total Revenue	-22.16	-22.16	-1.09	-21.07	0.95	-1.09	
▷ Net Interest Income	-22.16	-22.16	-1.09	-21.07	0.95	-1.09	
▷ Net Credit Losses	0.03	0.03	0.21	-0.18	-6.96	0.21	

Analyze - Edit - Refresh - Print - Export

Figure 119. Profit and Loss - Scenario Comparison

Note: Some of the dashboard filters, that is, Vintage, The Age On Book, Customer Gender, Customer Age/Customer Income, Geography Filter prompt selection is not applicable to this report.

Mortgage

Risk Adjusted Performance Metrics

This report helps you to determine the ratio of risk-adjusted Net Income against the Economic Capital.

This metric is also called Risk Adjusted Return On Capital (RAROC). It helps in determining the efficiency of Economic Capital corresponding to every customer. This Report shows a snapshot of measures against various reporting lines e.g; Total Revenue, Total Expenses, Net Income, return on Total Asset RAROC-Economic Capital and Return on Equity.

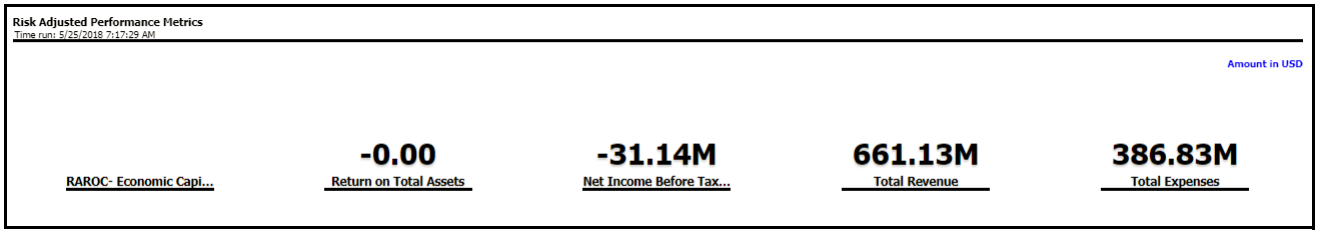


Figure 120. Risk Adjusted Performance Metrics

Income Statement

This report displays Revenues and Expenses under various reporting lines. The numbers are displayed for the current time period selected and in comparison with numbers recorded during previous same time period and move in terms f percentage change.

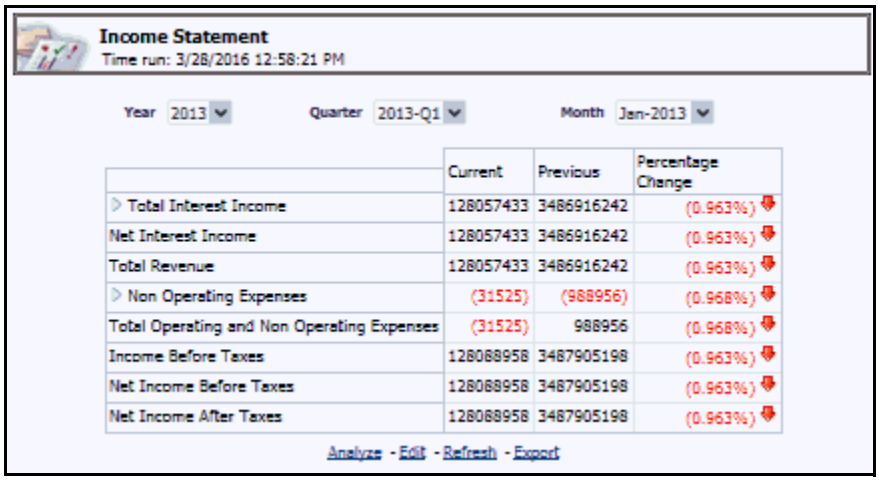


Figure 121. Income Statement

Profit and Loss Summary

This report provides the comparison of the details of the income generated to predefine scenarios

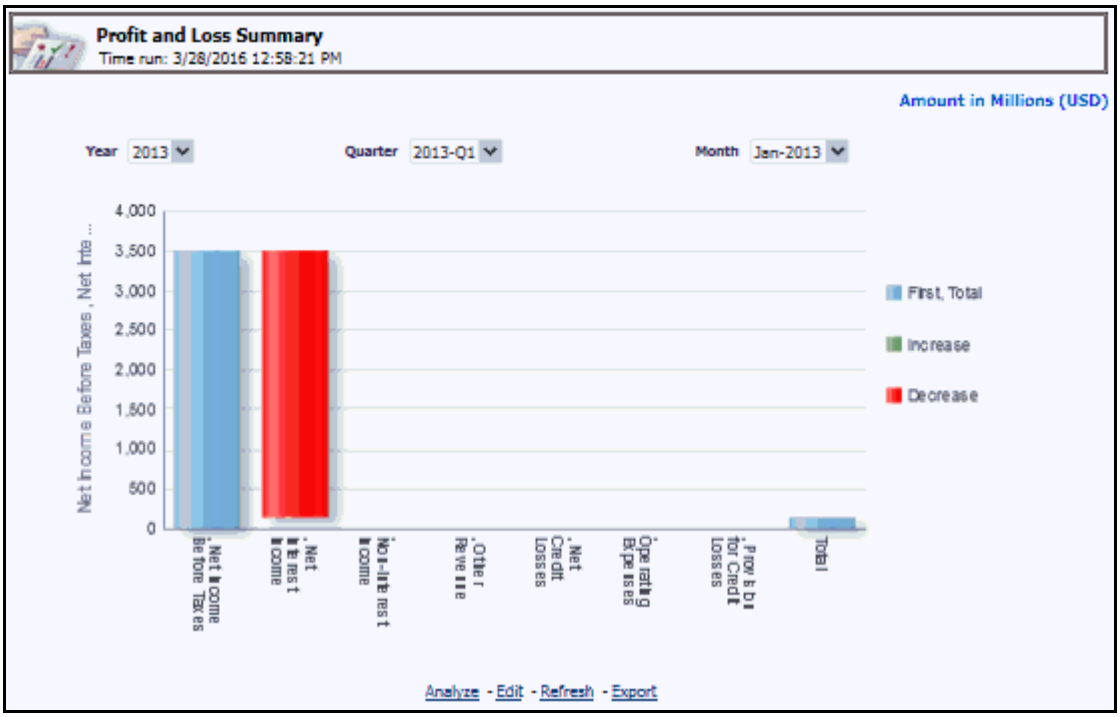
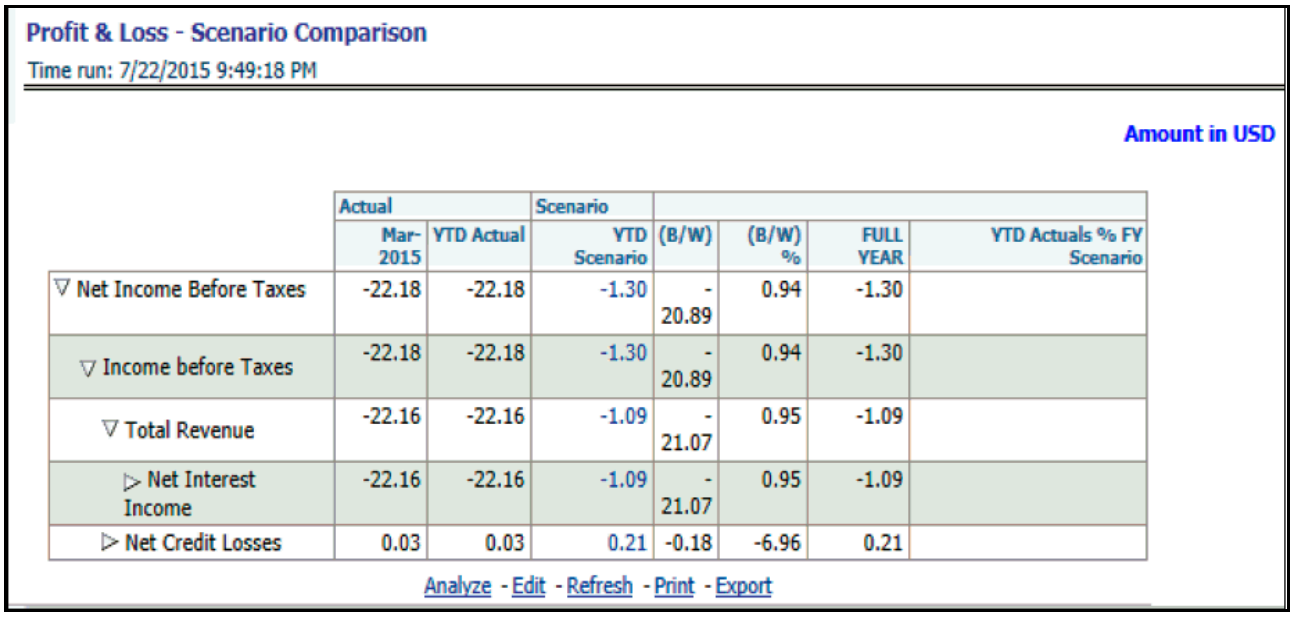


Figure 122. Profit and Loss Summary

Profit and Loss - Scenario Comparison

This report provides the comparison of the details of the income generated to predefine scenarios.



Profit & Loss - Scenario Comparison

Time run: 7/22/2015 9:49:18 PM

Amount in USD

	Actual		Scenario				
	Mar-2015	YTD Actual	YTD Scenario	(B/W)	(B/W) %	FULL YEAR	YTD Actuals % FY Scenario
▽ Net Income Before Taxes	-22.18	-22.18	-1.30	-20.89	0.94	-1.30	
▽ Income before Taxes	-22.18	-22.18	-1.30	-20.89	0.94	-1.30	
▽ Total Revenue	-22.16	-22.16	-1.09	-21.07	0.95	-1.09	
▷ Net Interest Income	-22.16	-22.16	-1.09	-21.07	0.95	-1.09	
▷ Net Credit Losses	0.03	0.03	0.21	-0.18	-6.96	0.21	

Analyze - Edit - Refresh - Print - Export

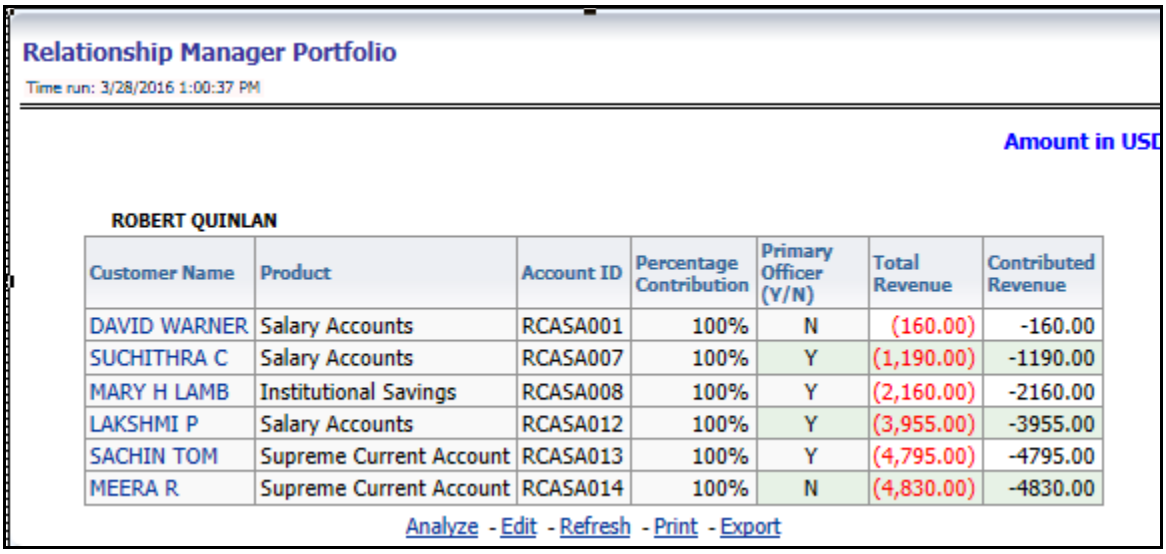
Figure 123. Profit and Loss - Scenario Comparison

Note: Some of the dashboard filters, that is, Customer Gender, Customer Age/Customer Income, Geography Filter prompt selection is not applicable to this report.

Relationship Manager Insights

Relationship Manager Portfolio

This report displays the various assets of a Relationship Manager. This report provides account-wise product portfolio with Revenue of customers held by each RM.



Relationship Manager Portfolio

Time run: 3/28/2016 1:00:37 PM

Amount in USD

ROBERT QUINLAN

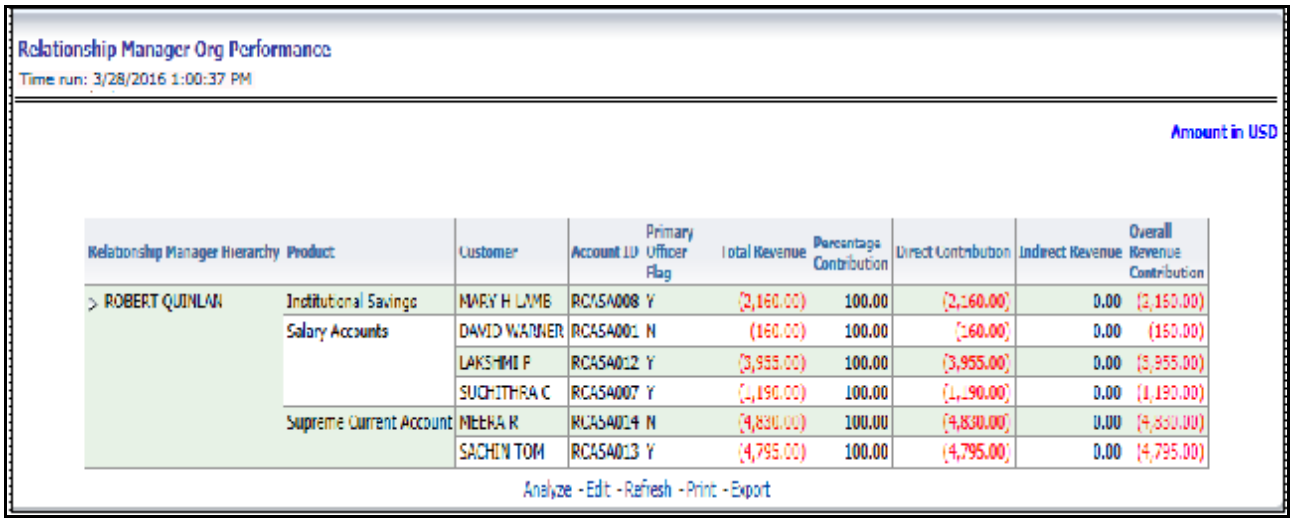
Customer Name	Product	Account ID	Percentage Contribution	Primary Officer (Y/N)	Total Revenue	Contributed Revenue
DAVID WARNER	Salary Accounts	RCASA001	100%	N	(160.00)	-160.00
SUCHITHRA C	Salary Accounts	RCASA007	100%	Y	(1,190.00)	-1190.00
MARY H LAMB	Institutional Savings	RCASA008	100%	Y	(2,160.00)	-2160.00
LAKSHMI P	Salary Accounts	RCASA012	100%	Y	(3,955.00)	-3955.00
SACHIN TOM	Supreme Current Account	RCASA013	100%	Y	(4,795.00)	-4795.00
MEERA R	Supreme Current Account	RCASA014	100%	N	(4,830.00)	-4830.00

Analyze - Edit - Refresh - Print - Export

Figure 124. Relationship Manager Portfolio

Relationship Manager Org Performance

This report provides details of each Relationship Manager's performance at an Account Manager's level with details of customers, holding, total revenue, percent contribution to business and both direct and indirect revenue generation.



Relationship Manager Org Performance

Time run: 3/28/2016 1:00:37 PM

Amount in USD

Relationship Manager Hierarchy	Product	Customer	Account ID	Primary Officer Flag	Total Revenue	Percentage Contribution	Direct Contribution	Indirect Revenue	Overall Revenue Contribution
ROBERT QUINLAN	Institutional Savings	MARY H LAMB	RCASA008	Y	(2,160.00)	100.00	(2,160.00)	0.00	(2,160.00)
	Salary Accounts	DAVID WARNER	RCASA001	N	(160.00)	100.00	(160.00)	0.00	(160.00)
		LAKSHMI P	RCASA012	Y	(3,955.00)	100.00	(3,955.00)	0.00	(3,955.00)
		SUCHITHRA C	RCASA007	Y	(1,190.00)	100.00	(1,190.00)	0.00	(1,190.00)
	Supreme Current Account	MEERA R	RCASA014	N	(4,830.00)	100.00	(4,830.00)	0.00	(4,830.00)
		SACHIN TOM	RCASA013	Y	(4,795.00)	100.00	(4,795.00)	0.00	(4,795.00)

Analyze - Edit - Refresh - Print - Export

Figure 125. Relationship Manager Org Performance

CHAPTER 16 What-If Analysis

This chapter discusses the following topics:

Introduction

This report enables the user to account for the change in profitability owing to any probable changes in the projected components of profitability. The probable change can be defined by the user and is termed as 'Variation'. User could define the parameters to which variation is being applied and the magnitude of variation. The net effect on profitability as a result of these variations can be applied.

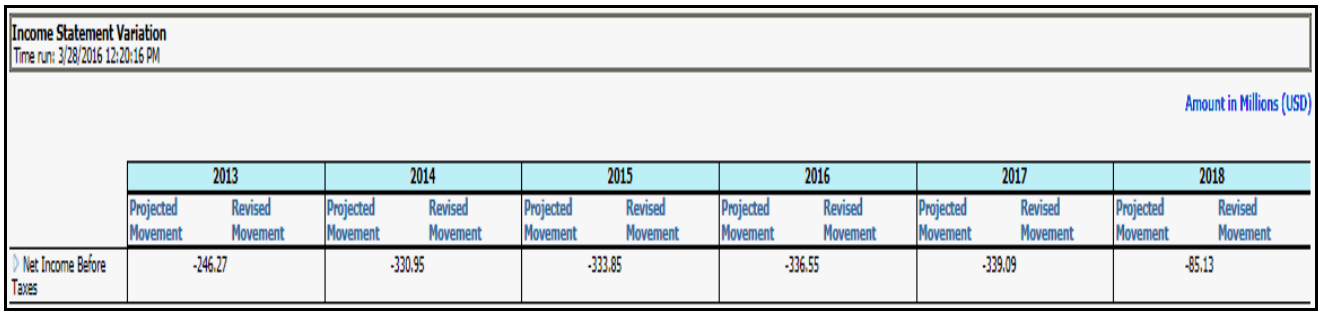
The effect of variations on profitability can be analyzed at differing levels of granularity like enterprise, LOB, Product, Customer, and Account. This selection is enabled to the user through dashboard prompt selections. The projected data of income statement is available at an account level. Aggregations are done based on the desired level of granularity. The projections are created based on historical data of account.

User could define the variations through the UI, which when imposed on the income statement provide the resulting net income. The resulting income statement post applying the variations is called as a 'Scenario'. The projections are by default created for a period of 5 years, but the change in projection may not necessarily be applied for the entire 5 years. The tenure for which the specified variation is applicable can also be defined while specifying the variation. The magnitude of variation being applied can be specified either in 'percentage' or 'absolute'. If the variation is specified as percentage then the value of the component to which variation is being applied changes by the corresponding percentage value for the specified time. Similarly, when variation is applied in absolute terms the value of the component to which variation is being applied changes by the corresponding absolute value for the specified time.

Certain users should have the authority to save a scenario which can later be accessed by other users for reference. The variations once applied can be applied on the income statement by either of the following two methods:

- Basic - The variations that are applied get simply aggregated with the modified values of components to show the resulting net income. The basic version supports variations to be applied to multiple parameters at the same time.
- Advanced - The variations that are applied also affect the other components it is correlated to and the modified values of all such parameters gets aggregated to show the resulting net income. In the Advanced version variation can be applied to only a single component at a time.

The scenarios that are thus created can be used to analyze the outcome on profitability of any probable change in future. Certain users should have the authority to save a scenario which can later be accessed by other users for reference. It is also possible to create a scenario on an existing scenario by applying variations to the components of income statement in the scenario.



Income Statement Variation
Time run: 3/28/2016 12:20:16 PM

Amount in Millions (USD)

	2013		2014		2015		2016		2017		2018	
	Projected Movement	Revised Movement	Projected Movement	Revised Movement	Projected Movement	Revised Movement	Projected Movement	Revised Movement	Projected Movement	Revised Movement	Projected Movement	Revised Movement
Net Income Before Taxes	-246.27		-330.95		-333.85		-336.55		-339.09		-85.13	

The following input parameters are applicable for RPA:

Table 32. What-if Input Parameters

V_PARAMETER_NAME	V_PARAMETER_VALUE
VAR_STRT_DT_RPA	This input parameter indicates the start date for the variance calculation.
VAR_END_DT_RPA	This input parameter indicates the end date for the variance calculation.
TSHLD_FCTR_RPA	This input parameter indicates the threshold factor for replines.
EXCL_LMT_RPA	This input parameter indicates the maximum outlier exclusion percentage.

Note: There is limitation on graph. Default upper limit for the graph will be based on underlying data in fact table. Variations applied above the normal can be applied using the grid. If the user wants to apply variation beyond the upper limit shown in graph, it is not possible through graph and hence, it should be applied through grid. The same applies to Negative Values. The graph does not allow applying negative variations. That is, the graph nodes cannot be dragged below the X Axis. This change needs to be done using the grid mode.

Configuration for What-If Analysis

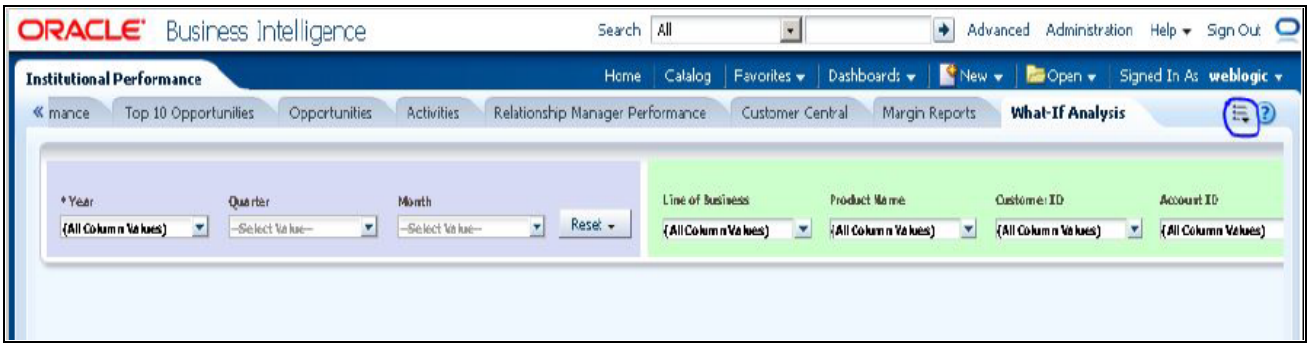
Configure connection to the What-If Variation application page in OFSAAI in the Create Scenario Analysis. OFSAAI is Oracle Financial Services proprietary tool which uses Java to enable users to apply variations on the projected data.

Example: Assume that the ofsaa hostname is 10.184.150.107 and the OBIEE analytics port is 7001. Hence, the OBIEE analytics access url would be:

http://10.184.150.107:8080/PFT801.

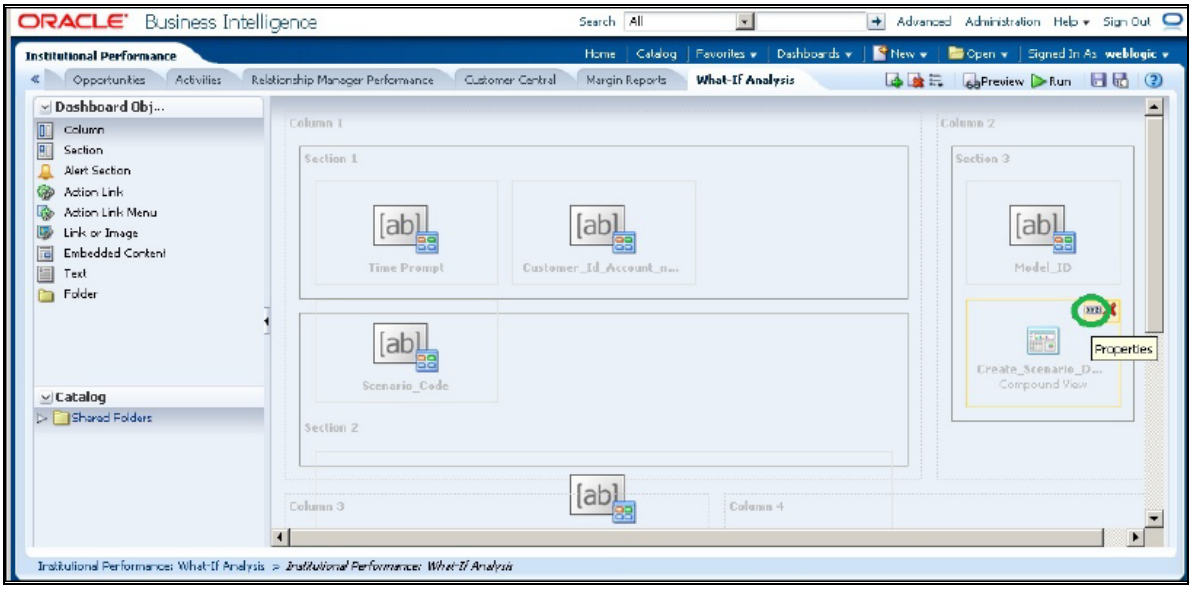
To configure these details to the What-If analysis framework, the user needs to perform the following steps :

1. Navigate to What-If Analysis Dashboard Page and Edit Dashboard Page. This page would be under the Dashboard – Retail Performance for OFSRPA.

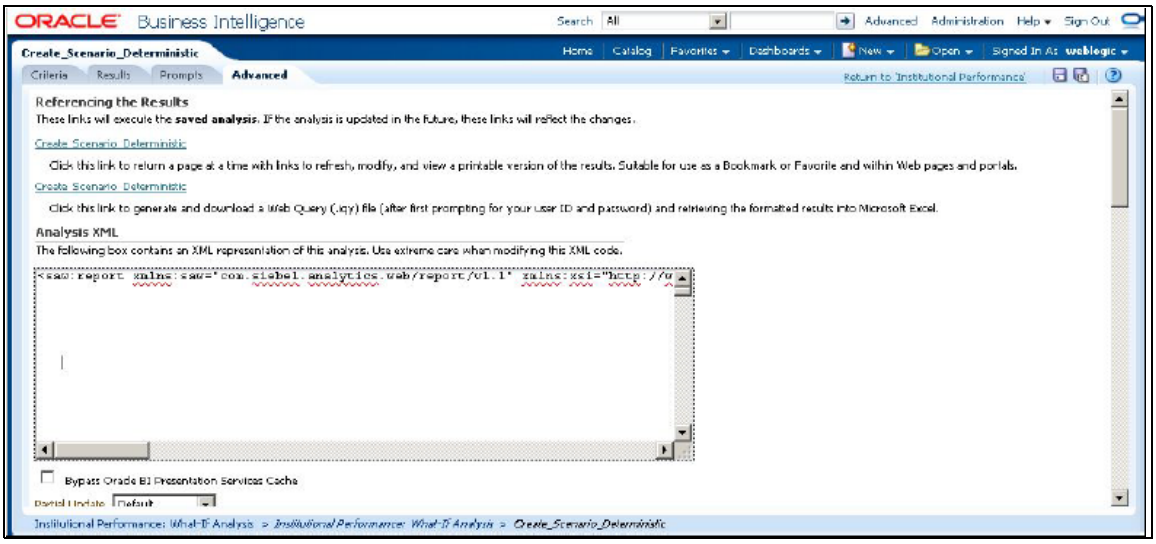


- Edit the analysis Create Scenario.

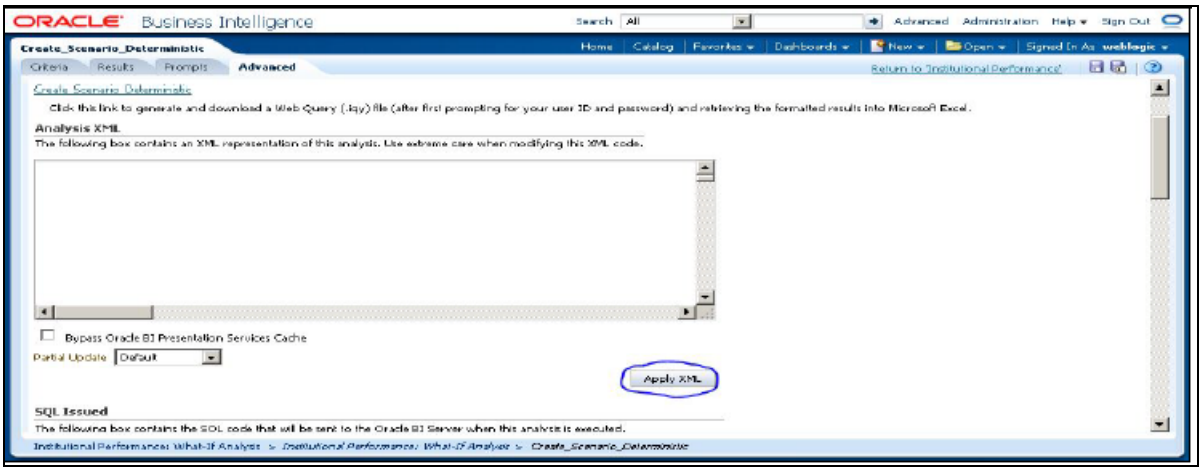
Note: Only users with OBIEE roles higher than BI Author will be able to edit.



- Navigate to the Advanced XML section and edit the contents of the Analysis XML.



- Replace all occurrences of ##ofsaa_hostname## with the OFSAAI user hostname (example : bank_host), ##ofsaa_port## with the OFSAAI servlet port (example : 8080) and the ##ofsaa_context## with the context of the OFSAAI instance (example : PFT801).
- Click **Apply XML** and save the analysis after the occurrences of placeholders have been replaced and the XML contents have been pasted.



2. Configure OBIEE url in the What-If Model Definition setup tables to be able to navigate between the OFSAAI and OBIEE screens.

   Example: Assume that the user hostname is – 10.184.150.107 and the OBIEE analytics port is 7001. Hence, the OBIEE analytics access url would be:

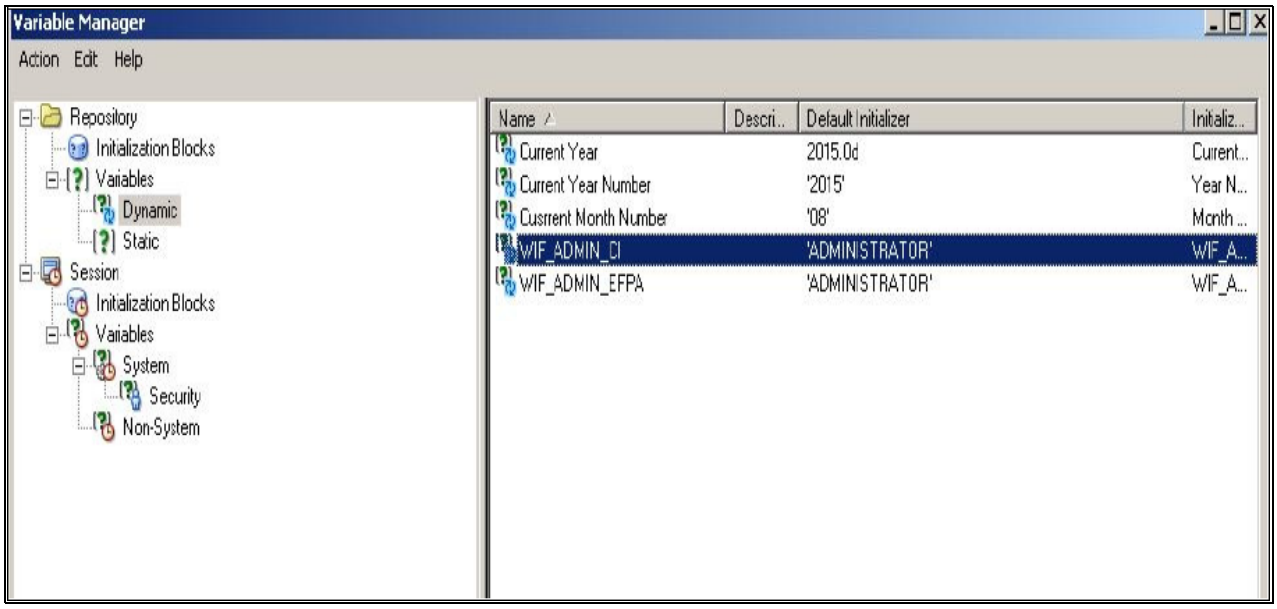
   http://10.184.150.107:7001/analytics.

   To configure these details to the What-If analysis framework, the user needs to execute the following update on the atomic schema:

   ```
   update fsi_m_wif_model_defn set output_page =
   replace(replace(output_page,'##hostname##', '10.184.150.107' ), '##port##','7001')
   /
   ```

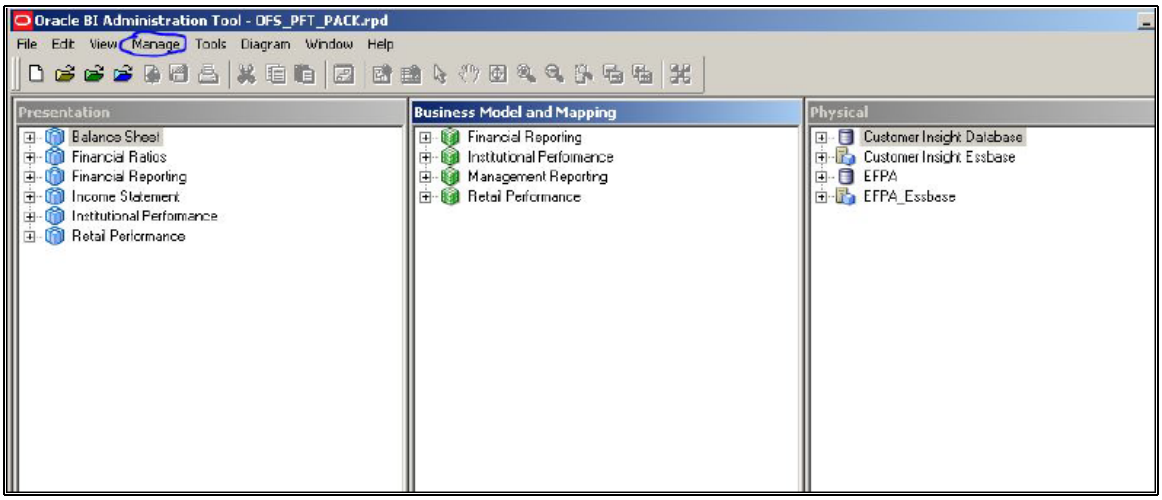
```
Commit
/
```

Where the hostname and port replaced would be the user's corresponding hostname and port instead of the examples mentioned above.

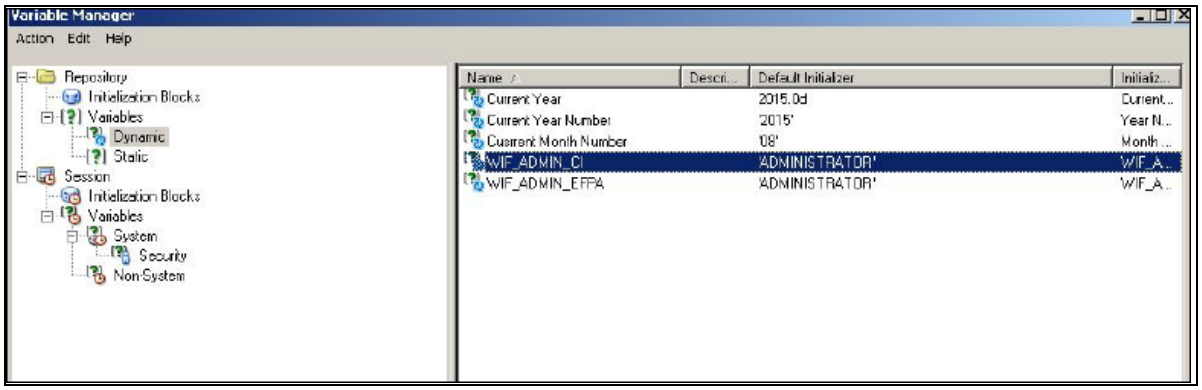


3. Configure What-If Admin Role in RPD to configure security roles to restrict Scenario Creation. If a user is not a What-If administrator, the user will only have access to ¡§Display Results¡¨. The results of this operation will not be persisted beyond one session per user.

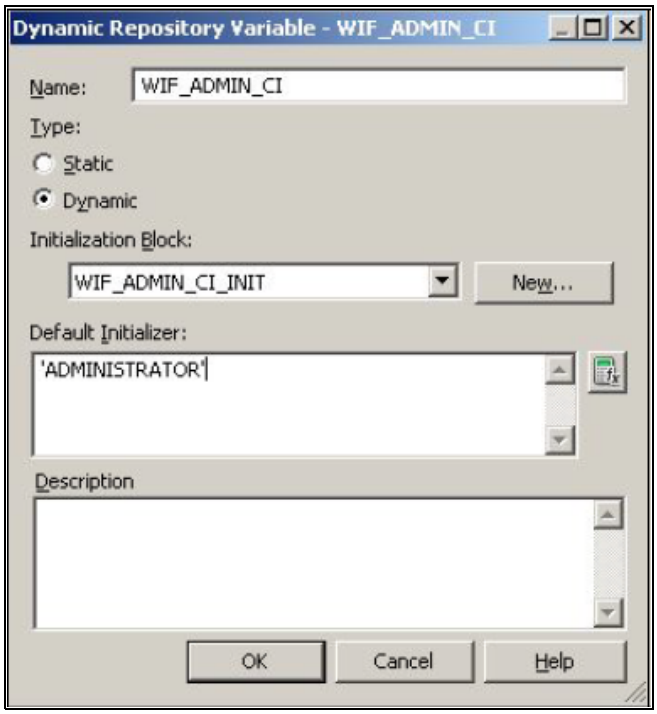
   - Open the `OFS_PFT_PACK RPD` and navigate to the Variable Definition Screen.



   - Modify the `WIF_ADMIN_CI` Repository Dynamic Variable:



- Edit the default initializer to enter the desired What-If Administrator role. The user with this role will have the privilege to create and save a scenario. Users without this privilege will only be able to create a scenario, but not save it.



4. If the web server is Tomcat of version >= 8.0.18, following additional configuration needs to be done to avoid Performance Issues while performing What-If Analysis :

   Add the following tags in the `server.xml` file under `tomcat_folder/conf/`:

   Insert the below tag inside the "Context" tag as the first nested tag :

   ```
   <Loader delegate="true"/>
   ```

   ```
   Insert the following attributes for all the "Resource" tags under the "Context" tag :
   removeAbandonedOnBorrow = "true"
   removeAbandonedOnMaintenance="true"
   ```

Example:

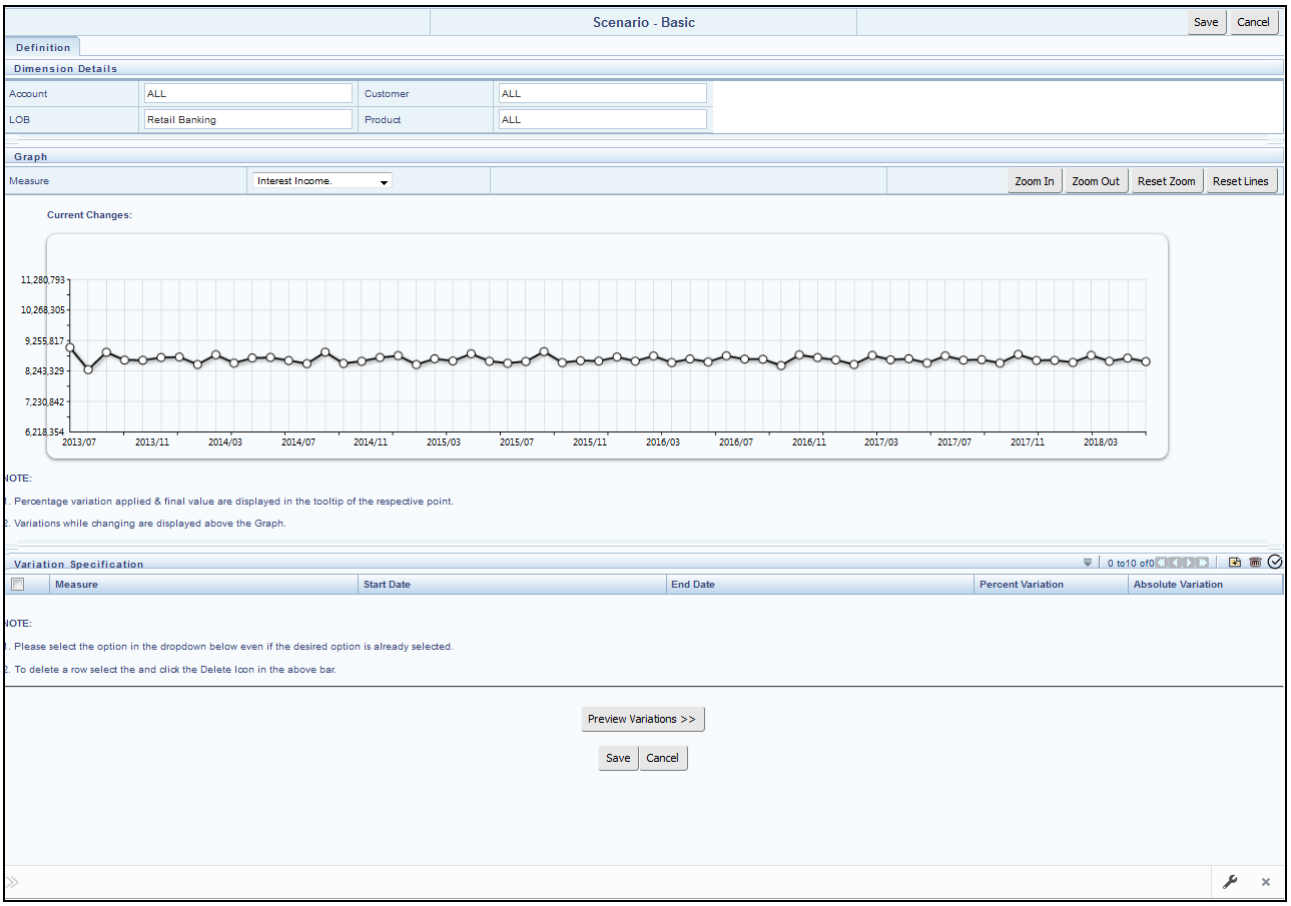
```
<Context path="/PFT" docBase="/scratch/ofsaaapp/tomcat-7.0.19/webapps/PFT" debug="0" reloadable="false" crossContext="true">
        <Loader delegate="true"/>
        <Resource auth="Container"
                  name="jdbc/FICMASTER"
                  type="javax.sql.DataSource"
                  driverClassName="oracle.jdbc.driver.OracleDriver"
                  username="pftconf30"
                  password="ofsaa8x"
                  url="jdbc:oracle:thin:@10.184.153.87:1521:DEV12C"
                  maxActive="1000"
                  maxIdle="30"
                  maxWait="10000" removeAbandoned="true" removeAbandonedTimeout="60" logAbandoned="true"
                  removeAbandonedOnBorrow = "true" removeAbandonedOnMaintenance="true"/>

        <Resource auth="Container"
                  name="jdbc/OFSPFTINFO"
                  type="javax.sql.DataSource"
                  driverClassName="oracle.jdbc.driver.OracleDriver"
                  username="pftatm30"
                  password="ofsaa8x"
                  url="jdbc:oracle:thin:@10.184.153.87:1521:DEV12C"
                  maxActive="1000"
                  maxIdle="30"
                  maxWait="10000" removeAbandoned="true" removeAbandonedTimeout="60" logAbandoned="true"
                  removeAbandonedOnBorrow = "true" removeAbandonedOnMaintenance="true"/>
```

Basic Scenario

The following procedure describes the steps to create a variation:

1. Navigate to the OBIEE Dashboard page of What If Analysis.
2. Click **Create Scenario** after selecting the relevant deminsions to display the **Scenario - Basic** screen.



3. Apply the necessary **Dimension Details** for the following:
   - Account
   - Customer
   - LOB
   - Product
4. Select the relevant repline **Measure** from the drop down list to which you want to apply the variation.
5. Select a point on the graph and drag to apply the desired variations. Percentage variation and applied, final values in the drop down are displayed on the graph and as a tool tip on the point that is being changed.
6. Select the relevant details for the following under **Variation Specification** section of the screen.
   - Measure

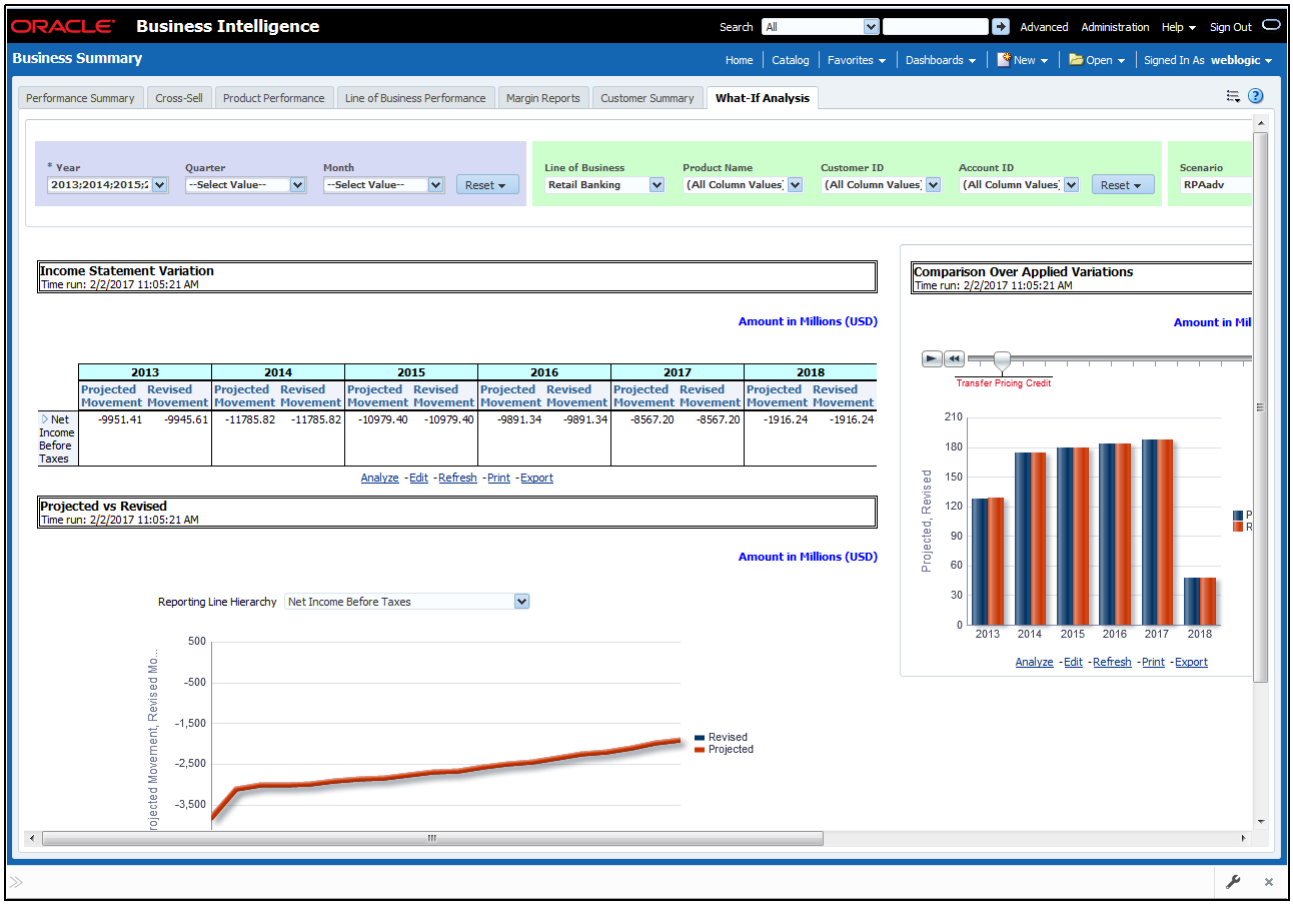
- Start Date
- End Date
- Percent Variation: Enter the % value. If you enter this, you cannot enter the Absolute Variation.
- Absolute Variation: Enter the absolute value. If you enter this, you cannot enter the Percent Variation.

If there is an overlap in dates among various variation specification rows, the same can be overridden to apply the respective change.

Always the most recent changed value is considered for variation and the other value will be cleared.

7. Click **Preview Variations** to see the results.
8. Click **Save** after confirming the variations. After this, you will be redirected to the OBIEE screen where the applied variations can be seen and analyzed further.

   The OBIEE screen is displayed as shown below:



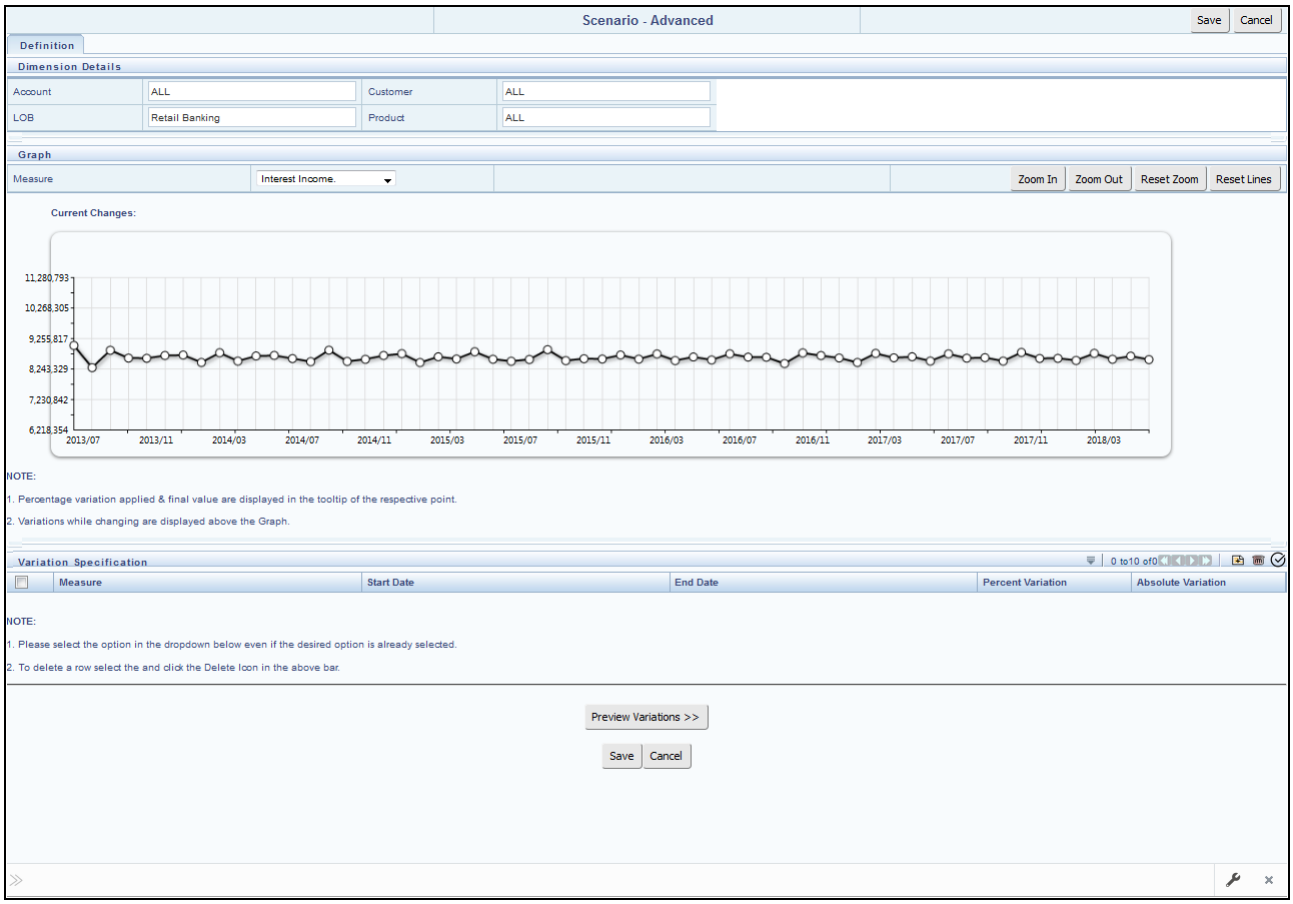
Advanced Scenario

In the advanced scenario, when a change is applied to a repline, then all its corresponding correlated changes affecting other replines are also made. These correlated changes can be preview in the preview results view by clicking on the Preview Variation button at the bottom of the page.

The following procedure describes the steps to create a variation:

1. Navigate to the What If Definition dashboard to display the Scenario - Advanced screen.

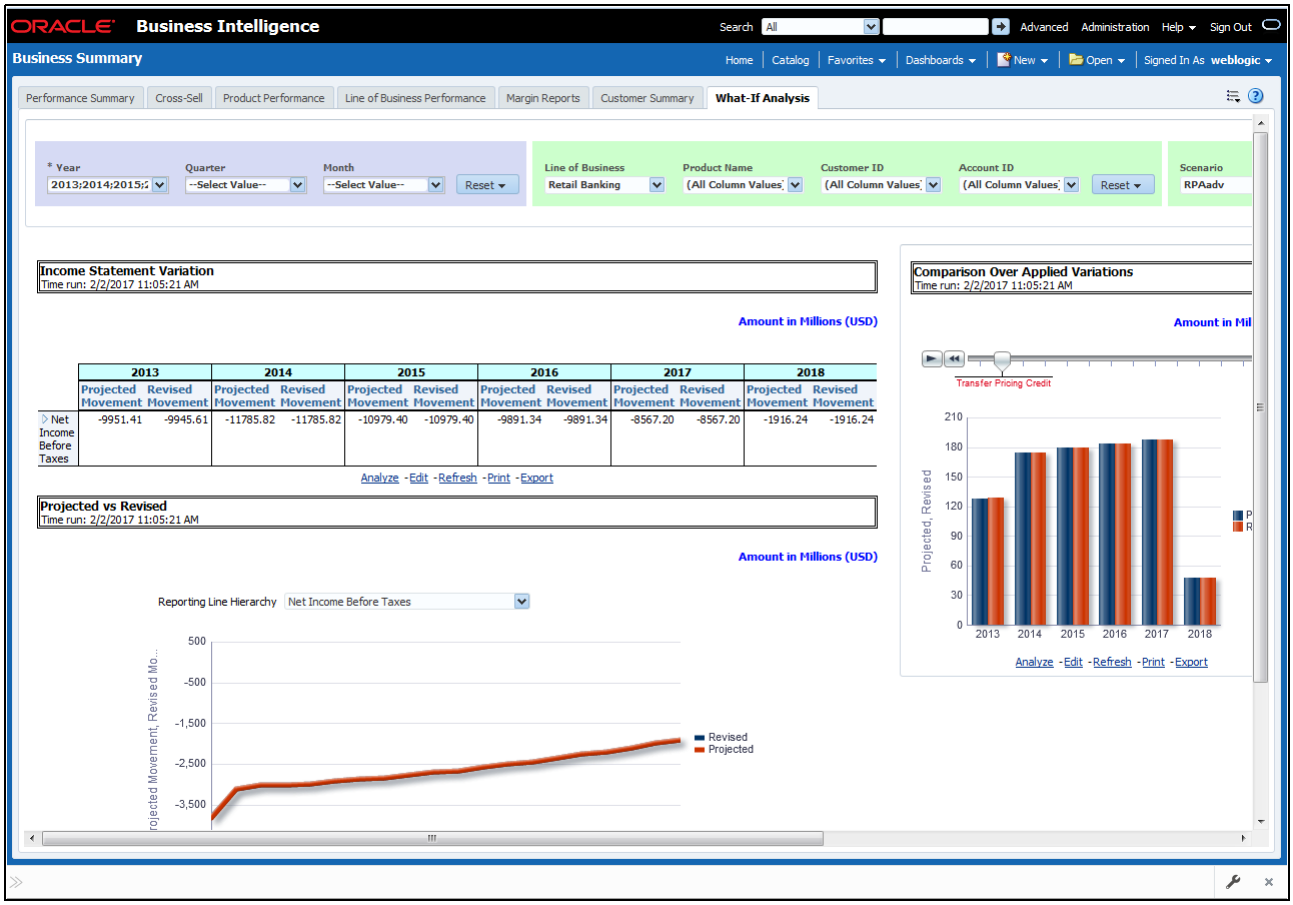
   This screen allows you to zoom in, zoom out and reset the zoom.



2. Apply the necessary **Dimension Details** for the following:
   - Account
   - Customer
   - LOB
   - Product
3. Select the relevant repline **Measure** to which you want to apply the variation.

4. Select a point on the graph and drag to apply the desired variations.
5. Click **Preview Variations** to see the results.
6. Click **Save** after confirming the variations. After this, you will be redirected to the OBIEE screen where the applied variations can be seen and analyzed further.

   The OBIEE screen is displayed as shown below:



RPA Integration with Price Creation and Discovery (PCD)

The input from RPA to PCD has been enhanced from the current setup with projected values for extended future periods based on the available current actual data for each customer account. Output on current and projected values have been determined for each product type through various measures such as EOP Balance, Fee Income, Other Income of Customers, Expenses, Credit utilization ratio, and credit card revolving rate.

Reporting Line Correlation Calculations

For the reporting lines, regression co-efficients are calculated using the R-model based on the threshold values. It is considered that a pairwise relationship exists between independent and Dependant reporting lines.

In what-if analysis, you can make variations to the value of a variable. Variations can be applied only to the below reporting lines in the income statement:

- Interest Income
- Interest Expenses
- Transfer Pricing Charge
- Transfer Pricing Credit
- Non Interest Income
- Operating Expenses
- Net Credit Losses
- Other Revenue

The following parameters are available in the FSI_MODEL_PARAMETERS table:

- Start date of the reference time period
- End date of the reference time period
- Percentage of values that lie within the threshold
- Percentage of outliers that need to be removec

The following steps are used in repline correlation calculation:

1. Excluding Outliers
2. Testing for Stationarity
3. Testing for Cointegration

Excluding Outliers

For each variable, the sigma and mean are calculated within the reference time period as defined in the database. If the value of variable lies out side the threshold provided ,the respective pairs are excluded for all associated variables.

Pairs are excluded based on the Mahalanobis distance,i.e., pairs are excluded in descending order of their absolute distance from the mean.

Testing for Stationarity

After the outliers are excluded, the ADF test is used to check for stationarity on the time replines. The stationary is checked for each repline at two levels: I(0) and I(1). If any time repline is not found to be stationary, do a differencing of data and repeat the test.

Note: adf.test is a function of the R-library. A limitation of the R-library is that the stationary value can be calculated only if the records or data points are more than or equal to 6.

Results are reported and used in the cointegration test.

Testing for Cointegration

After the stationary test is done, the causal relations between regression variables are checked. Then cointegration is done.

The following table shows the action that is performed for pairwise stationarity and pairwise integration based on the stationarity level:

Table 33. Testing for Cointegration

Pairwise Stationarity	Pairwise Cointegration	Action
Both I(1)	Exists	Do regression without any transformation
	Does not exist	Do regression after differencing
Both(0)	NA	Do regression without any transformation
One I(1) other I(0)	NA	Do regression after differencing I(1) series

What-If Analysis Limitation

There is limitation on graph. Default upper limit for the graph will be based on underlying data in fact table. Variations applied above the normal can be applied using the grid. If the user wants to apply variation beyond the upper limit shown in graph, it is not possible through graph and hence, it should be applied through grid.

The same applies to Negative Values. The graph does not allow applying negative variations. That is, the graph nodes cannot be dragged below the X Axis. This change needs to be done using the grid mode.

CHAPTER 17 Service Calls to RPA

Customer insight web service is designed to get consumed by other applications in order to get the profitability details. This web service will work at two different levels: customer level and account level.

To fetch the customer details, set the request level as customer level and the customer id for that particular customer must be part of input. To fetch account details, set the request level as account level and the account number for that particular account must be part of input.

Within one request you can request for either one or multiple customers details by sending the customer id as an input in structured input xml. Similarly, it works for accounts as well. If one customer id is invalid, then the request to fetch data for multiple customers will get completely discarded. This way is similar for account numbers at account level.

This chapter discusses the following topics:

Server Side Settings

In the server side, there is a file CUSTINSconfig.properties which allows server side user to configure web-service. The following attributes can be configured:

- **Infodom:** Currently, CI web service will be enabled for one infodom and one user only at a time for a setup. That information domain has to be provided here.
- **UserId:** Currently, CI web service will be enabled for one infodom and one user only at a time for a setup. The server side user has to provide this information as the web service do not validate user/password.
- **Locale:** Provide 'en_US'
- **runId:** Provide 'VIEW_PROF_WS_RUN' as this is a generic web service which allows any package to be called at run-time.
- **threadWaitTime:** Provide a number here. Unit of the value will be milliseconds. This is a time that a web service call waits for an output to be generated. If an output is ready within that time, it is sent to the user else a system generated Reference ID is sent to the user, using which the user can get the data later as explained in the Input Structure.

Client Side Settings

In the server side, there is a file CUSTINSClientConfig.properties which allows server side user to configure web-service. The following attributes can be configured:

- **wsdlSchemaLocation:** This is the url of wsdl. To generate it, take contextURl, for example, `http://10.241.32.163:9085/OFSAAI73new` and append "`/CustomerProfitabilityService?wsdl`" to it. In this case, the wsdlSchemaLocation will be "`http://10.241.32.163:9085/OFSAAI73new/CustomerProfitabilityService?wsdl`".
- **targetNamespaceURI:** Provide this as `http://webservice.customerinsight.custIns.fsapps.ofs.com/` at all times.
- **serviceName:** Provide this as "CustomerProfitabilityService".

Input Structure

Input for this web service is an xml file. The required information is embedded into suitable xml tags. Input xml structure, that is, request xml will vary based on request level and the type of request. If the request is new, then it will have one input format and for polling the same request the structure will be different.

Examples

1. Input xml for new request to get particular customer's detail

```
<?xml version = "1.0" encoding = "UTF-8" standalone = "yes"?>
<REQUEST>
<REQUEST_TYPE>VIEW_PROFITABILITY</REQUEST_TYPE>
<REFERENCE_NUMBER></REFERENCE_NUMBER>
<REQUEST_LEVEL>CUSTOMER_LEVEL</REQUEST_LEVEL>
<PARTY_ID>OBIB1C47</PARTY_ID>
<REQUEST>
```

Here for a new request, the request type must be VIEW_PROFITABILITY otherwise it throws an error saying invalid request type. Here REFERENCE_NUMBER must be blank as it is new request. As you would like to fetch customer data you must put the request level as CUSTOMER_LEVEL. And the value for the tag PARTY_ID specifies the customer id whose detail you need to fetch.

When you need to fetch data for multiple customers the request xml will be as mentioned below.

```
<?xml version = "1.0" encoding = "UTF-8" standalone = "yes"?>
<REQUEST>
<REQUEST_TYPE>VIEW_PROFITABILITY</REQUEST_TYPE>
<REFERENCE_NUMBER></REFERENCE_NUMBER>
<REQUEST_LEVEL>CUSTOMER_LEVEL</REQUEST_LEVEL>
<PARTY_ID>OBIB1C47</PARTY_ID>
<PARTY_ID>OBIB1C49</PARTY_ID>
<PARTY_ID>OBIB1C49</PARTY_ID>
<PARTY_ID>OBIB1C50</PARTY_ID>
<REQUEST>
```

Each PARTY_ID tag contains the customer ID for one customer. In this way, you can request for multiple customers data.

2. Input xml for polling request to get customer's detail

When you send a new request, sometimes the request takes more processing time. So in that case, the output will be one reference number which you can use for polling for the same request. The input xml structure will remain same irrespective of your request, whether for one customer or multiple customers. It is as follows:

```
<?xml version = "1.0" encoding = "UTF-8" standalone = "yes"?>
<REQUEST>
<REQUEST_TYPE>RE_REQUEST</REQUEST_TYPE>
<REFERENCE_NUMBER>56</REFERENCE_NUMBER>
<REQUEST_LEVEL></REQUEST_LEVEL>
<REQUEST>
```

Here the REQUEST_TYPE tag must have the value RE_REQUEST. Provide the number which you have received as an output initially inside REFERENCE_NUMBER tag.

3. Input xml for new request to get particular account's detail

```
<?xml version = "1.0" encoding = "UTF-8" standalone = "yes"?>
<REQUEST>
<REQUEST_TYPE>VIEW_PROFITABILITY</REQUEST_TYPE>
<REFERENCE_NUMBER></REFERENCE_NUMBER>
<REQUEST_LEVEL>ACCOUNT_LEVEL</REQUEST_LEVEL>
<ACCOUNT_NUMBER>OBIB2C19A1</ACCOUNT_NUMBER>
<REQUEST>
```

Here for a new request, the request type must be VIEW_PROFITABILITY otherwise it throws an error saying invalid request type. Here REFERENCE_NUMBER must be blank as it is a new request. To fetch account data, provide the request level as ACCOUNT_LEVEL. And the value for the tag ACCOUNT_NUMBER specifies the account number whose detail you need to fetch.

When you need to fetch data for multiple accounts data the request xml will be as mentioned as follows:

```
<?xml version = "1.0" encoding = "UTF-8" standalone = "yes"?>
<REQUEST>
<REQUEST_TYPE>VIEW_PROFITABILITY</REQUEST_TYPE>
<REFERENCE_NUMBER></REFERENCE_NUMBER>
<REQUEST_LEVEL>ACCOUNT_LEVEL</REQUEST_LEVEL>
<ACCOUNT_NUMBER>OBIB2C19A1</ACCOUNT_NUMBER>
```

```
<ACCOUNT_NUMBER>OBIB2C19B1</ACCOUNT_NUMBER>
<REQUEST>
```

Each ACCOUNT_NUMBER tag contains the account number for one account. In this way, you can request for multiple accounts data.

4. Input xml for polling request to get account's detail

When you send a new request it may happen that your request may take some more processing time. So in that case the output will be one reference number which you can use for polling for the same request. The input xml structure will remain same irrespective of your request was for one account or multiple accounts.

It is as follows:

```
<?xml version = "1.0" encoding = "UTF-8" standalone = "yes"?>
<REQUEST>
<REQUEST_TYPE>RE_REQUEST</REQUEST_TYPE>
<REFERENCE_NUMBER>56</REFERENCE_NUMBER>
<REQUEST_LEVEL></REQUEST_LEVEL>
<REQUEST>
```

Here the REQUEST_TYPE tag must have the value RE_REQUEST. Provide the number which you have received as an output initially inside REFERENCE_NUMBER tag.

Output Structure

1. Output xml when the request is still processing at both customer and account level

```
<?xml version = "1.0" encoding = "UTF-8"?>
<RESPONSE>
<STATUS>TIMEOUT</STATUS>
<REFERENCE_NUMBER>36</REFERENCE_NUMBER>
<RESPONSE>
```

2. Output xml structure when you send invalid customer id

```
<?xml version = "1.0" encoding = "UTF-8"?>
<RESPONSE>
<STATUS>ERROR</STATUS>
<ERROR_MESSAGE>FAILED TO FETCH CUSTOMER DETAILS</ERROR_MESSAGE>
<RESPONSE>
```

3. Output xml structure when you send invalid account number

```
<?xml version = "1.0" encoding = "UTF-8"?>
<RESPONSE>
<STATUS>ERROR</STATUS>
<ERROR_MESSAGE>FAILED TO FETCH ACCOUNT DETAILS</ERROR_MESSAGE>
<RESPONSE>
```

4. In case of successful response for customer or account level request, the output will be in the form of structured xml document

Output for successful customer level request

Output for successful account level request

Execute Service

To process the customer/account/re-request level request, pass one argument. File name which contains request Input XML.

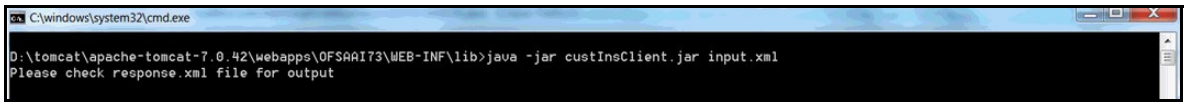


Figure 126. Input XML

CHAPTER 18

Visibility

This chapter discusses the following topics:

Introduction

Visibility is implemented in order to restrict the user's access to the data and the metadata. The user can view based on the role and the privileges assigned to the user.

Visibility has been implemented using two security models:

- OBIEE Security
- Data Security

OBIEE Security

This has been implemented using the Roles and Privileges settings, the dashboard level, Report level, and the object level.

Data Security

This has been implemented with a sequence of tables used for controlling the data access to the user.

The set of tables are:

- FSI_M_USER - This table stores all the users who are not relationship managers and are business users who have access to data at different levels. The user id in this table should match the user's login id of OBIEE.
- FSI_M_USER_MANAER_MAP - This table stores all the users who are relation ship managers. V_User_name should hold the Obiee login Id of the user who is a relationship manager. The Manager Code column should match with the entry in dim_management.
- FCT_ACCT_MANAGER_REL - This table restricts the user who is a relationship manager to certain account of customer/Customers. This defines the user at the lowest granularity.
- DIM_CUSTOMER - This table is to define if the user has access to all the accounts the customer holds. This is again to define the relationship manager visbility. This data will be moved from dim_party . Dim_party will be sourced from stg_party_master.

- FSI_USER_DATA_ACCESS - This is a mapper table enabled on AAI Mapper that provides UI for the user to set the visibility. The visibility of the user can be set at the following levels using the mapper - Product, Branch, Legal Entity, and Line of Business.
- FSI_USR_CTRL_ACCESS - This table contains all the records for each user and the access available to the user for every date. The data is sourced from FSI_M_USER_MANAGER_MAP, FSI_USER_DATA_ACCESS, DIM_MANAGEMENT, FCT_COMMON_ACCOUNT_SUMMARY, FCT_ACCT_MANAGER_REL, and DIM_CUSTOMER. The Parent Child hierarchies (derived entities) need to be refreshed before this table load. The names of the hierarchies are MGRPC and CUSTPC. The User has access to all the child nodes in the manager Hierarchy and all the customer hierarchies the user is managing, and the customer hierarchies managed by the child node managers as well.
- CTRLACC - This is a materialized view on the table FSI_USR_CTRL_ACCESS giving the distinct user access to accounts, customers, products, line of business, and legal entity. This view is used for applying visibility on the rpd. This is created as a derived entity and there is a job to refresh this derived entity.

Note: Users insertion in FSI_M_USER and FSI_M_USER_MANAGER_MAP has to be done directly into the table. For example, in presence of Single Signon System, these tables need to be loaded with data from single signon system directly.

APPENDIX A How to Add a New Dimension

This section explains the steps to be performed by the user for adding a new dimension to the cube.

As a prerequisite, dimension tables should be added in the data model and the fact table needs to have the referential key with the dimension table. These dimension tables will hold dimension members and can be level-based or parent-child.

Level based dimension tables contain columns for each level of the hierarchy, while parent-child dimension tables contain columns for storing the relationship between the parent and child members. These dimension tables can be loaded from external systems or can be maintained within the Dimension Management component of OFSAAI.

If user intends to maintain the dimension within OFSAAI, see *Data Model Utilities Guide* for adding dimension tables under *Object Management* chapter.

Procedures to Add a New Dimension

Step 1 - Add Business Hierarchy

1. To define a new Business Hierarchy, go to Unified Metadata Manager, select **Business Metadata Management** and choose the type of hierarchy.

Hierarchy Types are:

- Regular - For representing non-time and non-measure dimensions in a hierarchical format. For example, this type are Product, Organization Unit, and so on.
- Measure - For representing the measures in the hierarchical format. This corresponds to a ACCOUNT hierarchy within the ESSBASE. An example of this type is Management Reporting Line.
- Time - For representing the calendar or date dimension in a hierarchical format. Time hierarchy corresponds to a TIME hierarchy within Essbase and this can be leveraged to pull data from the relational database. An example of this type is Calendar hierarchy.

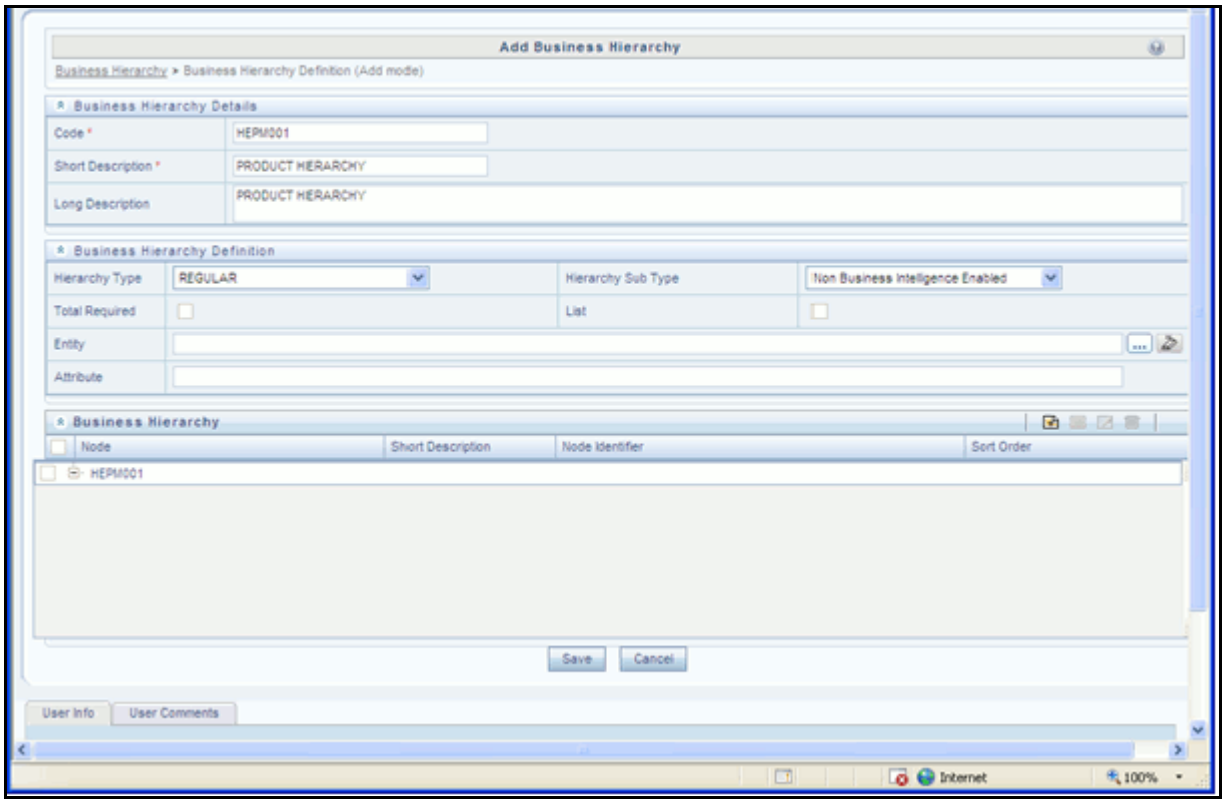


Figure 127. Add Business Hierarchy

2. Choose Hierarchy subtype. Hierarchy SubTypes are:

- Non Business Intelligence Enabled - For representing the hierarchy with underlying data store containing just leaves and nodes are built within the metadata of the hierarchy. This subtype is useful for modelling bucket/range, ragged, and non-additive hierarchies.
- Business Intelligence Enabled - For representing the hierarchy with underlying data store as level-based dimension table. This subtype is useful for modelling balanced hierarchies.
- Parent Child - For representing the hierarchy with underlying data store as a parent-child dimension table. This subtype is useful for modelling ragged hierarchies.

3. Select the **Total Required** property, if a TOTAL is required to be included as the root node of the hierarchy and select the **List** property, if hierarchy is a flat list of members without any levels.
4. Choose the entity and attribute on which the hierarchy is based. The components for hierarchy definition differ for each subtype of the hierarchy.

- If subtype is **Non Business Intelligence Enabled**, then the user can add nodes and order in which the node should appear in the hierarchy (sort-order). Node identifiers are SQL expressions that are specified for leaf members and data is classified based on the node identifiers.
- If sub-type is **Business Intelligence Enabled**, then the user can specify the levels and SQL expression for each level within the hierarchy.
- If sub-type is **Parent Child**, then the user can specify the column that contains the parent member and that contains the child member.

For more details, see *Oracle Financial Services Analytical Applications InfrastructureUser Guide.*

Step 2 - Add Business Dimension

A Business Dimension is a structure of one or more logical grouping (hierarchies) that classifies data. It is the categorization across which measures are viewed. A dimension can have one or more hierarchies. Business Dimension facilitates you to create a logical connection with measures. It gives you various options across which you can view measures.

1. To define a new Business Dimension, go to Unified Metadata Manager, select **Business Metadata Management.**
2. Choose the Dimension Type. Dimension Type is same as Hierarchy Type and helps to filter the hierarchies that will be part of the dimension. A dimension will contain one or many hierarchies. Choose the hierarchies that are part of the dimension.
   The User Info grid at the bottom of the screen displays the metadata information about the Business Dimension created along with the option to add comments.
3. Click **Save** in Add Business Dimension screen to save the details.

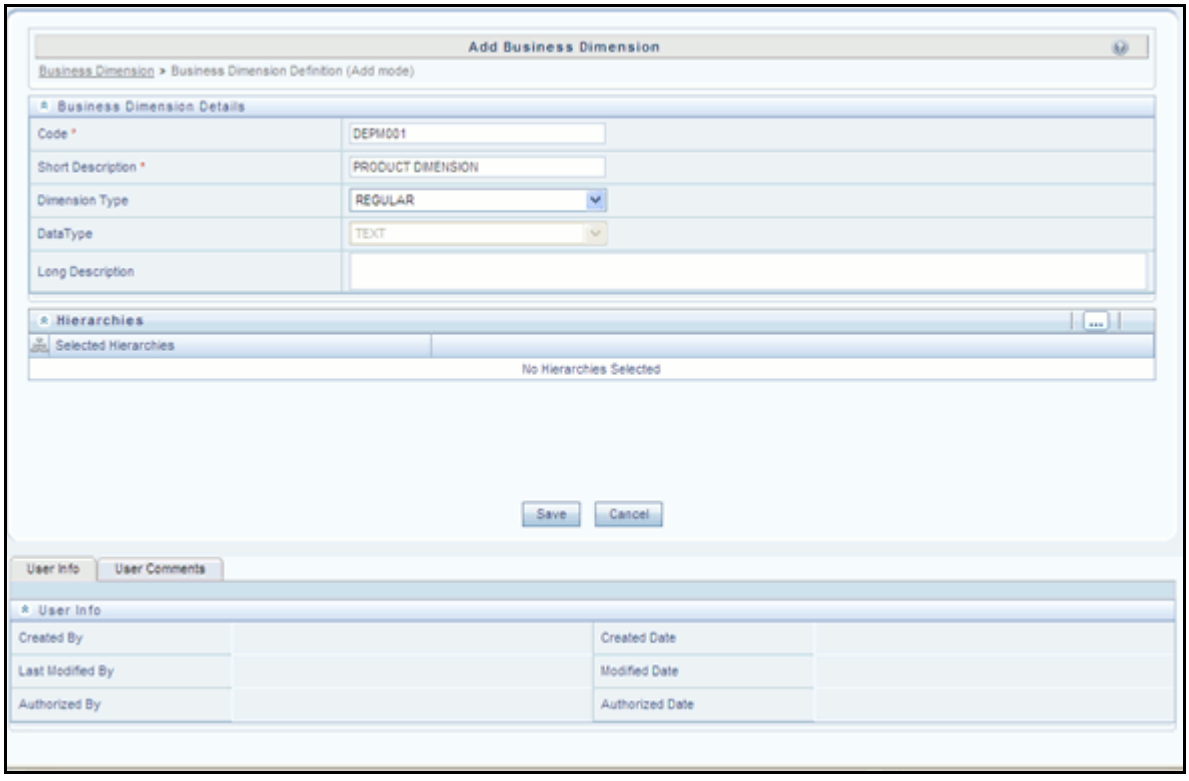


Figure 128. Add Dimension

For more details, see *Oracle Financial Services Analytical Applications Infrastructure User Guide.*

Step 3 - Modify Data Set

To modify Data Sets, go to **Unified Metadata Manager --> Business Metadata Management**.

Identify data sets that are based on the modified fact table. Open the data set definition. Include the new dimension table in the data set. Modify the data set JOIN to include the join clause between the fact table and new dimension table. Save the data set.

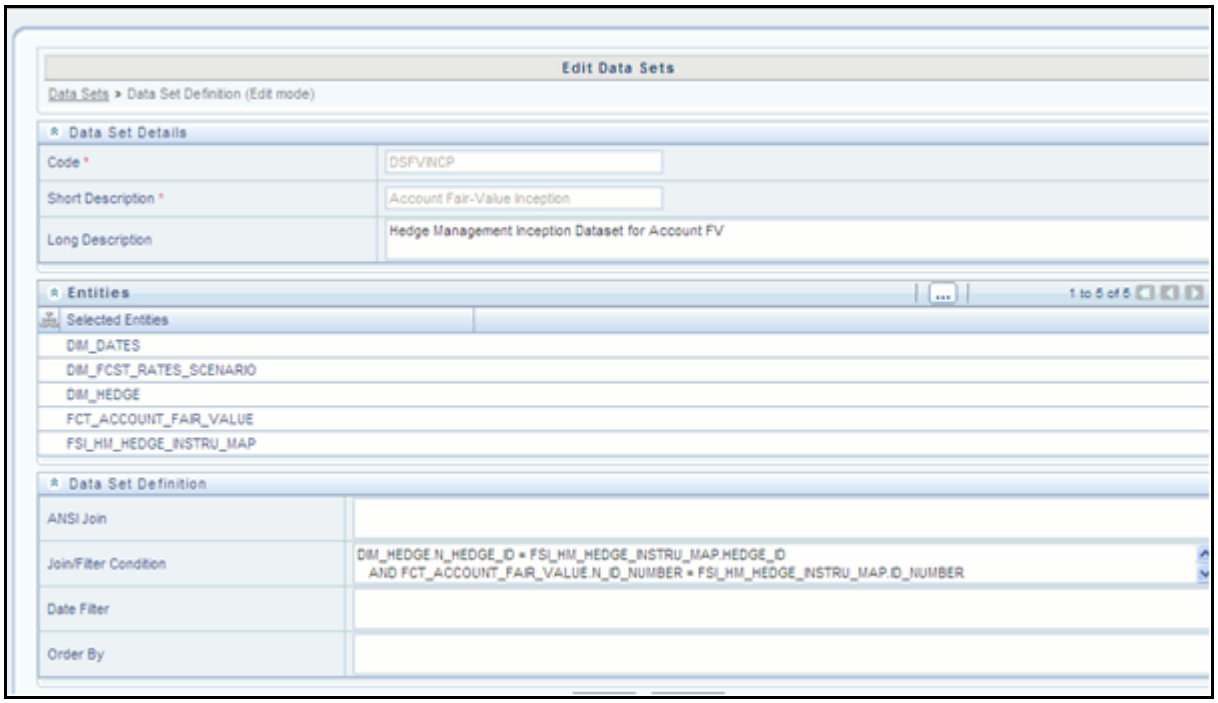


Figure 129. Edit Data Set

For more details, see *Oracle Financial Services Analytical Applications Infrastructure User Guide.*

Step 4 - Modify Cube Definition

Modify "Cubes" in **Unified Metadata Manager -> Business Metadata Management**. Identify the cube that needs to be modified. Open the cube definition. Add the new dimension. Map the measures to the newly added dimension and Save the cube definition.

For more details, see *Oracle Financial Services Analytical Applications Infrastructure User Guide.*

Step 5- Build Cube

Assuming that the dimension table and fact table is loaded with relevant data, cube can be built.

Define batch to execute the CREATE CUBE component that will build the outline and load data in ESSBASE.

For more information on executing the batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide.*

APPENDIX B How to Add a New Measure

This section details the steps to be performed by the user for adding a new measure to the cube. As a prerequisite, the fact table needs to have the column that holds values for the new measure.

Business Measure refers to a uniquely named data element of relevance which can be used to define views within the data warehouse. It typically implies aggregated information as opposed to information at a detailed granular level that is available before adequate transformations. Business Measure facilitates you to create measures based on the area of analysis. While creating a measure, you can choose the aggregation type and apply business exclusion rules based on your query/area of analysis.

Dimension Definition Process

Step 1 - Add Business Measure

1. From Unified Metadata Manager, select **Business Metadata Management**, then select **Business Measures**.
2. From Business Measures, click **Add** to create a Business measure definition. In the Business Measure Definition (Add mode) window, Select **Aggregation Function**. Aggregation Function can be:

- SUM - for summing up the values in the column of the fact table.
- COUNT - for determining the number of records in the fact table.
- MAXIMUM - for identifying the maximum value of a column in the fact table.
- MINIMUM - for identifying the minimum value of a column in the fact table.
- COUNT DISTINCT - for determining the distinct count of records in the fact table.

3. Specify if this measure needs to be rolled up against hierarchies.
4. Select the fact table as part of the Entity.
5. Select the column of the fact table as part of the Attribute. This column will hold the value of the measure.
6. Specify Business Exclusions and Filters, if required.
7. Save the measure.

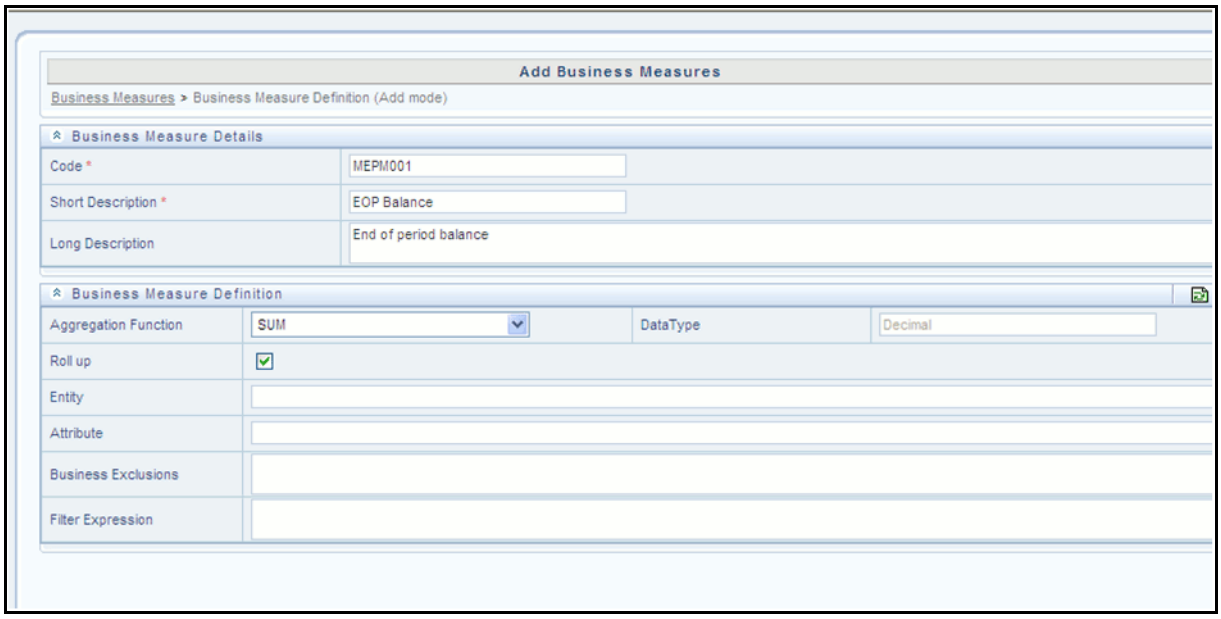


Figure 130. Add Business Measure

For more information on Business Measures, see *Business Measures* under *Unified Metadata Manager* chapter in *Oracle Financial Services Analytical Applications InfrastructureUser Guide.*

Step 2 - Modify Cube Definition

1. From Unified Metadata Manager, select **Business Metadata Management**, then select **Cube.**
2. Identify the cube that needs to be modified.
3. Edit the cube definition.
4. Add the new measure.
5. Map the measures to the required dimensions.
6. Save the cube definition.

Step 3 - Build Cube

Assuming that the dimension table and fact table is loaded with relevant data, cube can be built.

Define batch to execute the CREATE CUBE component that will build the outline and load data in ESSBASE.

For more information on executing the batch, see *Oracle Financial Services Analytical Applications Infrastructure User Guide.*

APPENDIX C How to Develop a New Cube

This section details the steps to be performed by the user for developing a new cube. Make sure that the existing cubes do not provide the required analytics / reporting coverage before deciding to define a new cube. In case user would like to see measures against a new dimension that is not part of the existing seeded metadata, then suggest including the new dimension as part of the existing cubes instead of creating a new cube. As a prerequisite, user should have defined datasets, measures, hierarchies and dimensions before defining a cube.

Procedures to Develop a New Cube

Step 1 - Add Cube

From Unified Metadata Manager, select **Business Metadata Management**, then select **Cube**. Specify the MDB details that will be created in ESSBASE.

Step 2 - Include Dimensions

Include dimensions that are part of the cube definition. Users mandatorily need to include TIME and MEASURE dimensions.

Step 3 - Specify Variations

Specify variations between each of the measures to the respective dimensions. All the measures that are part of the cube need not vary against all of the dimensions. Depending on business needs, variations can be specified to control the rollup of measures against a set of dimensions.

Step 4 - Specify Dataset

Specify dataset corresponding to the selected dimensions and measures. Data set will supply required data to the cube.

Step 5 - Specify Node Level Formula

If node level formula's are required to be specified for the nodes within the hierarchy, then they can be specified in this UI.

Step 6 - Save and Build

Save the cube. Define and execute batch in ICC to build the cubes.

For more information on Cubes, see *Cubes* under *Unified Metadata Manager* chapter in *Oracle Financial Services Analytical Applications Infrastructure User Guide*.

APPENDIX D List of Members

List of Hard-Coded Members

Following are the dimension members that are hard-coded within the application:

Table 34. Hard_Coded Members

Table Name	Column Name	Expected Values
DIM_CUSTOMER_TYPE	V_CUST_CATEGORY	R
	F_LATEST_RECORD_INDICATOR	Y
FCT_CRM_ACCOUNT_SUMMARY	V_SCENARIO_CODE	PLAN BUDGET
DIM_BANDS	V_BAND_TYPE	AGE INCOME AGEONBOOK ACCT_ATTRITION_SCORE CUST_CR_RISK_SCORE NO_OF_ACCOUNTS RESPRATE DELQBAND
FCT_TXN_CHANNEL	V_F_CHNL_TYPE	MONETARY NONMONETARY
	F_F_TXN_DR_CR_IND	C D
DIM_PRODUCT	V_PROD_TYPE	CARDS RB DEPOSITS CASA AUTOLOAN TD MORTGAGE

Table 34. Hard_Coded Members

Table Name	Column Name	Expected Values
FCT_ACCOUNT_PROFITABILITY	N_REP_LINE_CD	74110 74210 74310 74410 74510 (Operating Risk Capital - Economic Credit Risk Capital - Economic Market Risk Capital - Economic Other Allocated Capital - Economic Interest Rate Risk Capital - Economic) 98000 (Net Income Before Taxes) 74120 74220 74320 74420 74520 (Operating Risk Capital - Regulatory Credit Risk Capital -Regulatory Market Risk Capital - Regulatory Other Allocated Capital - Regulatory Interest Rate Risk Capital - Regulatory)
DIM_PRODUCT_TYPE	V_ACCT_PROD_TYPE	CARDS RB DEPOSITS CASA AUTOLOAN TD MORTGAGE

APPENDIX E How to Define a Batch

Batch refers to a set of executable processes based on a specified rule. Batch Maintenance framework within OFSAAI facilitates you to create and maintain the Batch Definitions. You can process the Batch scheduled for execution from Batch Maintenance and also from other modules.

You need to have Data Centre Manager function role mapped to access the Operations framework within OFSAAI. You can access Batch Maintenance by expanding Operations section within the tree structure of LHS menu. The Batch Maintenance window displays a list of Batches scheduled for maintenance with the other details such as Batch ID, Batch Description, and the editable state of the Batch.

Batch Creation

You can create a batch from the Batch Maintenance screen as mentioned below:

1. From the OFSAAI Home menu, navigate to **Operations>Batch Maintenance**.
2. In the Batch Maintenance window, Select **'+'** button from the Batch Name toolbar. The New Batch Definition window is displayed.
3. Enter the Batch details shown in the following table.

Table 35. Batch Details

Field	Description
Batch Name	The Batch Name is auto generated by the system. You can edit to specify a Batch name based on the following conditions: ● The Batch Name should be unique across the Information Domain. ● The Batch Name must be alpha-numeric and should not start with a number. ● The Batch Name should not exceed 41 characters in length. ● The Batch Name should not contain special characters "." and "-".
Batch Description	Enter a description for the Batch based on the Batch Name.
Duplicate Batch	(Optional) Select the checkbox to create a new Batch by duplicating the existing Batch details. On selection, the Batch ID field is enabled.
Batch ID (If duplicate Batch is selected)	It is mandatory to specify the Batch ID if Duplicate Batch option is selected. Select the required Batch ID from the list.
Sequential Batch	Select the check box if the Batch has to be created sequentially based on the task specified. For example, if there are 3 tasks defined in a Batch, task 3 should have precedence as task 2, and task 2 should have precedence as task 1.

4. Click **Save** to save the Batch definition details.
   The new Batch definition details are displayed in the Batch Name section of Batch Maintenance window with the specified Batch ID.

Note: For a more comprehensive coverage of configuration and execution of a batch, refer to the *Operations* Chapter in *Oracle Financial Services Analytical Applications Infrastructure User Guide.*

APPENDIX F *Loading Multiple Load Runs in OFSAA*

This appendix discusses the following topics:

Overview

Multiple load run enables data to be loaded multiple times during the day for staggered processing of data by analytical applications. The degree of complexity of data required by analytical applications vary from one to the other, the load run ensures that the customer can process the data as soon as it is ready for an application to uptake. This reduces the turnaround time to reporting, by avoiding the 'end of day' type of processing of information as part of the original design.

Note: The load run is enabled only in the model and is defaulted to '0' in the model. This would not impact data previously available.

FSDF 8.0.3 staging model provides customers a flexibility to load multiple snapshots of the data in the staging tables (Product Processor's). A column named n_load_run_id was introduced as part of the primary key of the product processor tables to enable this. But the full fledged functionality to load and manage these snapshots will be part of the platform release at a later stage. Customers who would like to leverage this design in 8.1release, the following mentioned changes will need to be done as a workaround to load multiple snapshot of data from staging to results tables such as Fact Common Account Summary.

For Loading Multiple Snapshots of Data for the same FIC_MIS_DATE , the existing T2T's need to be executed via Run Rule Framework and load needs to be filtered accordingly for each load run via the run filter. To enable execution of this run, navigate to $FIC_HOME/ficweb/webroot/conf and dit the file excludeURLList.cfg and add the following entry at the end of the file.

[SQLIA]./pr2

Note: There should not be any blank line in the file.

Features

Following are the features:

- To optimize the end-to-end data flow and the need for intra-day reporting, institutions could load intra-day records into OFSAA. Current application can only handle one set of records per date (incremental loads are not possible).
- Users need to adjust and reload data (either full or partial) for the current date.

- Users need to adjust and reload data (either full or partial) for any of past dates.

Design Details

Loading of data into OFSAA can be done in any of the following ways:

- ETL Tool
- OFSAA F2T
- OFSAA T2T
- OFSAA Excel upload
- OFSAA DIH

OFSAA data model includes load run identifier as part of the primary key for a set of staging tables. This enables data to be stored for multiple load runs for any date. OFSAA data model also has a table to maintain master information about load run and can be used for identifying/filtering load run during run execution within OFSAA. OFSAA data model also another entity that tracks the load run mapped to the functional key of each of the staging table. Since OFSAA processing is on snapshot of data, this entity helps users to identify set of records that are latest to be used in processing. If there is a need to load multiple sets of data within a day, customers can use the below components to manage the same.

If set of data is snapshot

- Register table that got loaded in the load run through a DT (Register_load_run_details)
- Register table that got loaded in the load run through a DT (Register_load_run_details)
- Use the load run identifier to load data into OFSAA staging. You can use the same load run identifier for all the entities loaded in the same batch/group.
- Specify run-filter during OFSAA execution to filter records for the maximum run identifier within the day

If set of data is incremental

- Register load run information in master table through a DT (Register_Load_Run_Master)
- Register table that got loaded in the load run through a DT (Register_load_run_details)
- Register table that got loaded in the load run through a DT (Register_load_run_details)
- Execute another DT (Populate_Load_Run_Map) with different parameters for each entity to maintain the latest load run for each record.
- Modify the T2T's to join with the load run map tables for identifying and filtering on the latest set of records to be used in processing.

There could be some entities that can follow snapshot and some entities incremental load. Decision of snapshot vs incremental depends on the above use-case.

Data Transformations

Function - Register Load Run

Parameters

- Batch ID
- MIS-Date
- Load Run Name
- Load Run Purpose
- Load Run Type

Steps

1. Check if the parameters are valid. Load run type can be:
   - B - Base
   - A - Adjustments
   - P - Backdated adjustments
2. Check uniqueness of load run name. Load run name is a user-specified string for easier retrievals could be MIS-DATE <Sequence> or the starting timestamp of load run.
3. Increment the load run ID for a given MISDATE and insert the rest of the details.
4. Return the load run identifier (if possible, else user will query this table to get the load run ID given a name).
5. Log messages accordingly.
6. Return success/failure.

Execution

Execute this DT before loading any fact for intra-day load. Use the registered load run identifier as a value to map to load run identifier field in staging. When one load run is ongoing (loading data to OFSAA using the load run identifier), do not register any new load runs. Else, make sure load run name is used as a filter instead of max load run identifier when querying the load run master table.

Function - Register Load Run Details

Parameters

- batch id
- mis-date
- load run name
- load run id

- stage table name
- load type

Steps

1. Check if the parameters are valid. Load type can be:
   - S - Snapshot
   - I - Incremental

   Load run name or ID can be provided. If load run name is provided, we can lookup into load run master for retrieving the ID. Check if table name exist.

2. Register the information in load run details table.
3. Log messages accordingly.
4. Return success/failure.

Execution

Execute this DT after registering load run master and before loading any fact for intra-day load. When one load run is ongoing (loading data to OFSAA using the load run identifier), do not register any new load runs.

Function - Populate Load Run Map

Parameters

- batch id
- mis-date
- stage table name

Steps

1. Check if the parameters are valid.
2. Pick the corresponding load run map table from a setup table. Pick the corresponding functional key columns and their mapping to load run map table from a setup table.
3. If record do not exist in load run map table for the functional key in staging, then insert a new record with the functional key and load run identifier.
4. If record exist in load run map table for the functional key in staging, then update latest record indicator for existing rows to 'N' and then insert a new record with the functional key and load run identifier.
5. This operation has to be done in bulk mode.
6. Log messages accordingly.

7. Return success/failure

Execution

Execute this DT after loading any fact for intra-day load in case the table has incremental loads.

APPENDIX G Run Rule Framework

In cases where data is required to be loaded for fact tables in multiple runs, the OFSAAI Rule Run Framework comes in handy. For example, for population of FCT_CRM_ACCOUNT_SUMMARY, the parameters of the batch execution include a parameter $RUNSK = -1.

(Refer to the parameters of the batch `##INFODOM##_aCRM_CRM_Acc_Summ,Task1`).

This batch execution loads the column N_RUN_SKEY in FCT_CRM_ACCOUNT_SUMMARY as -1. This will be a default run from the seeded batch. In order to be able to enter data for multiple runs, the batch tasks can be defined in Rule Run Framework. This will then create a batch internally which will load data for a different run into the fact table.

Executing a Seeded Run

1. Navigate to**Rule Run Framework>Run.**

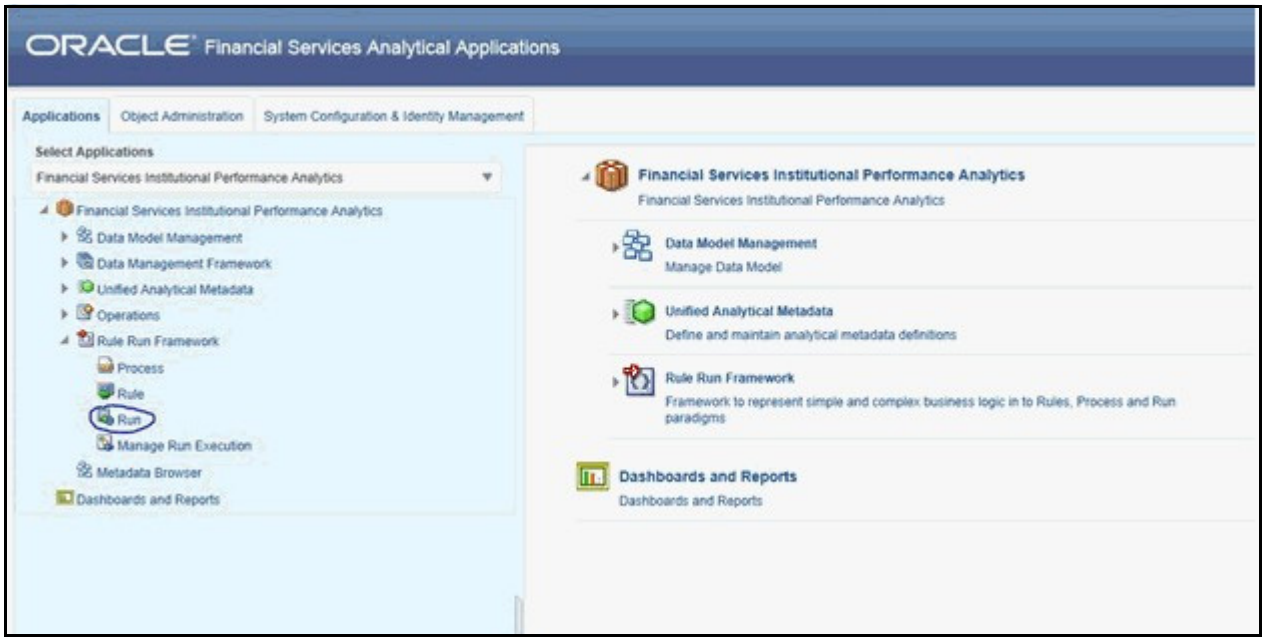


Figure 131. Rule Run Framework

2. Choose a Run by checking the box before it and click **Fire Run**.

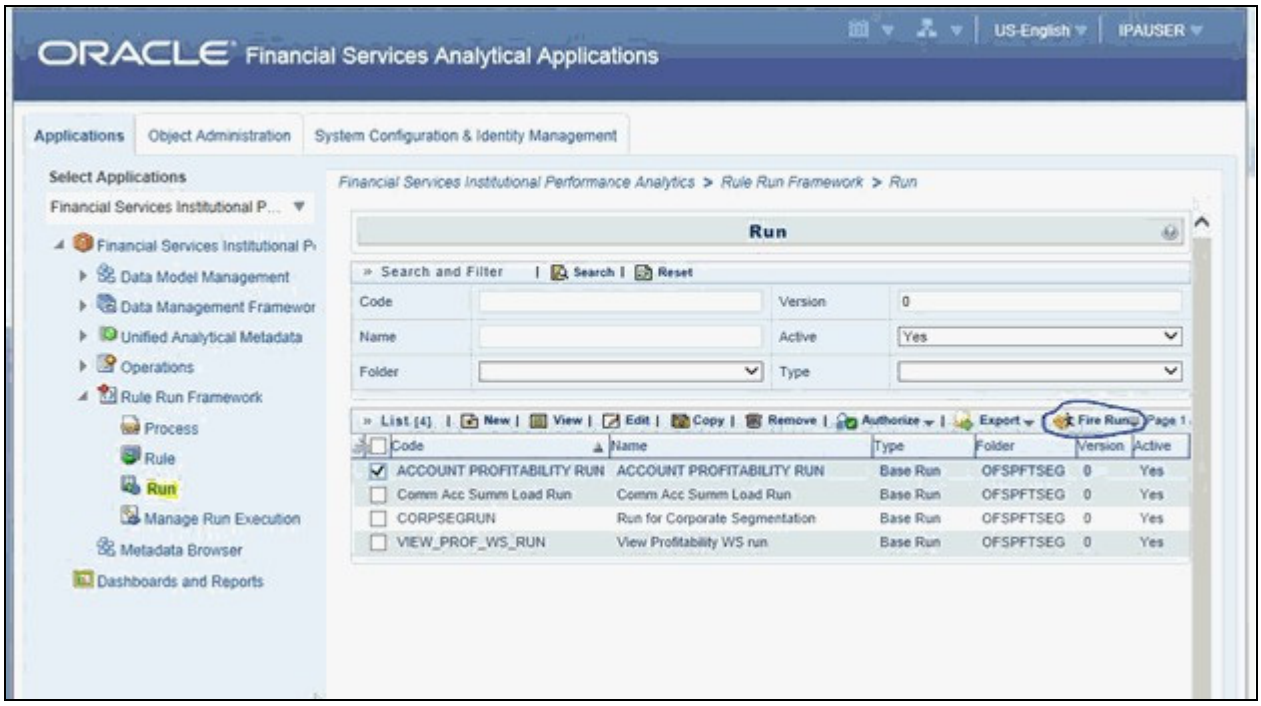


Figure 132. Fire Run

3. Enter the parameters required to execute the run (refer to details of individual runs) and click **OK.**

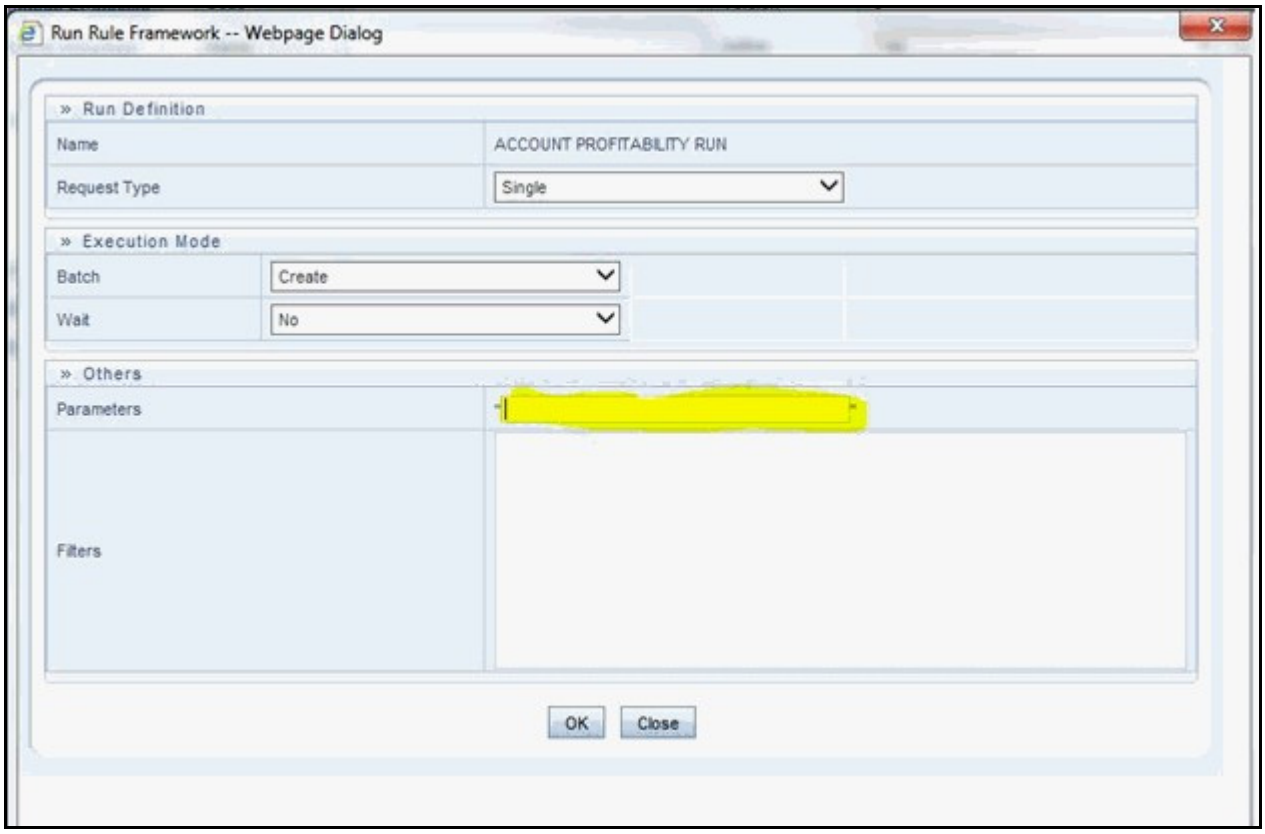


Figure 133. Run Parameters

The following message will be displayed: *Fire run successful*

4. Execute the batch by navigating to **Operations>Batch Execution** and select the latest batch created in the Run Rules Framework module.

Runs Available for RPA

Following are the runs available for RPA:

ACCOUNT PROFITABILITY RUN

Run for loading FCT_CRM_ACCOUNT_SUMMARY and FCT_ACCOUNT_PROFITABILITY

Parameters to be entered as follows:

```
##RCY##", "<INFODOM>", "FCT_ACCOUNT_PROFITABILITY
```

Note: There are no quotes at the beginning and the end of the string. Consider as if the quotes are enclosing the delimiter (comma).

Comm Acc Summ Load Run

Run for loading FCT_COMMON_ACCOUNT_SUMMARY

VIEW_PROF_WS_RUN

Run for executing Web Service

RETSEGRUN

Run for executing Retail Segmentation Rule

APPENDIX H PA Metrics Computation Logic

Projection Logic: We have data up to the last MIS Date based on which projections are done on Replines in FCT_ACCOUNT_VALUE_FORECAST. For each repline, for last MIS Date, there is a projection on every projected date (generally last date of every month)

PA Metrics calculation

Table 36. LIST OF APIs

Web Service	Input	Output	Version
Account Level Metrics (without UDM)	Account Number, Date	ROTA, RAROC, ROE, Total Expenses, Total Income, Net Income	IPA/RPA (8.0.5.0)
Customer Level Metrics (without UDM)	Customer Number, Date	ROTA, RAROC, ROE, Total Expenses, Total Income, Net Income	IPA/RPA (8.0.5.0)
Account Segmentation	Account Number, Date	Account Segment Code	IPA/RPA (8.0.5.0)
Customer Segmentation	Customer Number, Date	Customer Segment Code	IPA/RPA (8.0.5.0)

Note 1: Segment Metrics are done through batch process. The segment metrics considering the life time calculations of all the accounts in that segment.

Note 2: At Present Customer level segment metrics are based on the segment of first account identified (by the system) of the customer. The segment averages as computed against the identified account segment would be reported.

Data Treatment for Months

1. **Data to be considered for end of every month**
   - **Historical Data**: Take data for each month (as of month end date) from FCT_ACCOUNT_PROFITABILITY (aggregated under NIBT hierarchy)
   - **Projected Data**: For Last MIS Date, take data from FCT_ACCOUNT_VALUE_FORECAST for each subsequent Projected Date (aggregated under NIBT hierarchy: for aggregations we will consider all forecasted replines whether leaf or node)
   - Union the above two queries so that we get a data set from first month end date to last month end date. This will be inclusive of both actual + forecasted.
   - Discount each row in this dataset to the account start date; N_Origination_date
   - Sum up all the discounted values
   - Arrive at the value of NIBT

   Note: Discounting: For projection purpose, to arrive at the Net Present Value (NPV) of the future stream of NIBT; a discount factor be applied to arrive at expected value of NIBT.

2. **Treatment of Data of Month End Values and for Missing Months**
   - **Actual Data with Missing Value**: For profitability calculations or reporting the missing value should be considered as 0.
   - **For Forecasting of data**: If there is a missing value in the actual data then, the missing value treatment should be applied only to fill in a value which can be used for forecasting.
3. **Calculation of Profitability Metrics**
   - **Return on Total Assets (ROTA) =**
     - Loan Products- NIBT/ Sanctioned Limit (For Loans);
     - Line of Credit Products - NIBT/ Max of EOP Balance for Line of Credits
   - **Risk-adjusted return on capital (RAROC) = NIBT/ Sum of Unexpected Losses**
     - Unexpected Losses comprise of- Operating Risk Capital - Economic, Credit Risk Capital - Economic, Market Risk Capital - Economic.
   - **Return on Equities (ROE):**
     - Loan Products- NIBT/ Sanctioned Limit (For Loans); [N_SANCTIONED_LIMIT for Loans (first MIS Date), FCAS]
     - Credit Products -
       - NIBT/ Max of EOP Balance for Line of Credits [max(N_EOP_BAL), FCAS for Line of Credit (across all MIS Dates)]
       - Average of EOP Balance for all deposits (including term deposits) [average(N_EOP_BAL), FCAS for all deposits (including term deposits)]
   - **TOTAL REVENUE** = NET INTEREST INCOME + NON-INTEREST INCOME [Non-Interest Revenue' + 'Indirect Non-Interest Income' + 'Other Revenue]
   - **Total Expenses**

     Total Operating and Non-Operating Expenses [Net Credit Losses = Credit Losses- Recoveries of amounts previously written-off)
   - **Net Income**: Net Income Before Tax
   - **Currency**

     Metrics would be reported in reporting Currency.

     Note: As per the current functionality, by default, is there is no requested currency code, the customer would be showing in reporting currency and the Accounts are shown in it's natural currency. In case of any requested currency code, both customer and currency would be shown in requested currency code.
   - **Customer Metrics**:
     - ROTA and RAROC would be aggregated only against asset products.
     - All other metrics would be aggregated against all products.
     - Customer Metrics would be reported in Reporting Currency.

- **Customer Level Metrics Calculation**:
  - ROTA: (Sum of ROTA Numerator over all asset accounts)/(sum of ROTA denominator over all asset accounts)
  - RAROC: (Sum of RAROC Numerator over all asset accounts)/(sum of RAROC denominator over all asset accounts)
  - ROE: (Sum of ROE numerator over all accounts)/(Sum of ROE denominator over all accounts)
  - TOTAL INCOME, TOTAL EXPENSES, NET INCOME: Sum over all accounts
- **Segment Metrics**:
  - Segment Level Metrics will be reported against Segmentation done at Account Level
  - Segment Metrics to be reported in Reporting Currency.

APPENDIX I - *Web Service Usage*

The web service implemented in OFS IPA application uses Rest API. This service has request and response. This web service is used for fetching the following metrics of an account:

- ROTA _Return on Total Assets
- RAROC- Risk Adjusted Return On Capital
- ROE - Return on Equity
- Total Income
- Total Expense
- Net income

When the demographic details of the customer are entered as input, this web service returns the segment in which the customer falls in to.

If there are diverse details that do not match with any of the segment criteria, then this web service does not return any matching segment details and displays "Segment not found" error.

Using the Web Service

The URL for the web service should be appended by the following string:

/rest-api/pa/v1/metric/post

For example:

http://whf00anq:3464/ofsa/rest-api/pa/v1/metric/post

Before running the web service, open the JSON file in a suitable editor and ensure that you enter the following values:

- **Authorization**: Provide the credentials for OFSAA users with IPA BI Analyst role.
- **UserId**: OFSAA User (for example, pftuser)

Note: CUSTOMER_TYPE and SEGMENT_TYPE attributes are mandatory attributes.

REST web service is automatically available after successful installation of the application. The name of the contract is PACS_Request.json and PACS_Response.json. We recommend going through the contract thoroughly before accessing the web service.

Table 37. Web Service Values

Attribute Name	Datatype	Description and Acceptable Values
SERVICE_TYPE	String	`PERFORMANCE_METRICS` (for retrieving metrics for an existing account) Or `SEGMENTATION` (for retrieving segment of an existing account)
OPERATION_TYPE	String	`ACCOUNT` (hard coded for future provision)
ACTION_TYPE	String	`LOOKUP` (hard coded for future provision)
REQUEST_NUMBER	Number	A unique integer number. Should change each time.

PARAMS	String	`"PARAMS": [`
		`{`
		`"PARAM_CODE": "INFODOM",`
		`"PARAM_VALUE": "<VALUE OF INFODOM>"`
		`},`
		`{`
		`"PARAM_CODE": "FOLDER",`
		`"PARAM_VALUE": "<VALUE OF FOLDER>"`
		`}`
		`]`
		
		Note: The values for FOLDER is not currently used. It is recommended to use DEFAULT for this parameter.

PAYLOAD->PARTY->PARTY_ID	String	Customer ID **Note**: When PARTY_ID is not passed, it should be passed as null. Web service will not accept blank value for this parameter.

PAYLOAD -> PARTY -> PARTY_ATTRIBUTES	Repeating array of all attributes when retrieving segmentation. Example is given in the next column.	`{`
		`"ATTRIBUTE_NAME": "GENDER",`
		`"ATTRIBUTE_VALUE": "MALE"`
		`}`
		
		Note: This is not used. Give 'NULL'.

PAYLOAD -> ACCOUNTS -> ACCOUNT_NUMBER	String	Account ID **Note**: When ACCOUNT_NUMBER is not passed, it should be passed as null. Web service will not accept blank value for this parameter.

Table 37. Web Service Values

Attribute Name	Datatype	Description and Acceptable Values

PAYLOAD -> EXEC_PARAMS	String	{
		"PARAM_CODE": "AS_OF_DATE",
		"PARAM_VALUE": "<Provide the date on which you want the metrics in YYYYMMDD format>"
		},
		{
		"PARAM_CODE": "RPT_CCY_CODE",
		"PARAM_VALUE": "<Provide the ISO currency code"
		}

PAYLOAD -> ACCOUNTS -> ACCOUNT_ATTRIBUTES	Repeating array of all attributes when retrieving segmentation. Example is given in the next column	{
		{"ATTRIBUTE_NAME":"CUSTOMER_TYPE","ATTRIBUTE_VALUE":"R"},
		{"ATTRIBUTE_NAME":"SEGMENT_TYPE","ATTRIBUTE_VALUE":"D"}
		
		}
		
		CUSTOMER_TYPE: Acceptable values are:
		• I: Institutional
		• R: Retail
		
		SEGMENT_TYPE: Acceptable values are:
		• D: Demographic
		• P: Profitability
		• B: Behavioral
		• R: Risk
		• C: Corporate

The following attributes are optional attributes:

- V_PROD_CODE
- N_AGE
- V_GENDER
- V_MARITAL_STATUS
- V_INDUSTRY
- V_COUNTRY
- N_INCOME
- N_NIBT
- N_LTV
- N_EOP_BAL
- N_ENHANCED_LTV

- F_UPGRADE_IND
- N_TOTAL_TRANSACTIONS
- N_AVERAGE_TRANSACTION_SIZE
- N_CUSTOMER_MOB
- N_LIMIT_UTILIZATION
- N_CREDIT_SCORE
- N_MITIGANT_VALUE
- N_DELINQUENT_DAYS
- N_LOAN_TO_VALUE
- V_PRIMARY_OR_SECONDARY_CUST
- N_YEAR_OF_INCORPORATION
- N_CUSTOMER_INCOME
- N_TOTAL_ASSETS
- F_CUSTOMER_LISTED_FLG
- N_EMPLOYEES
- N_TOTAL_ACCOUNTS
- N_RAROC
- N_ROTA
- V_CREDIT_RATING_CODE
- N_DEBT_COVERAGE_RATIO
- N_INTEREST_COVERAGE_RATIO
-

The response will be available in the PACS_Response.json file in case of success response Status = 200.

If there are any incorrect inputs, then the response status would be 400 and json will not be returned. If there is a server error response status would be 500 and no response json will be returned.