

Oracle Financial Services
Analytical Applications
Infrastructure

User Manual

Release 7.3.4.0.0



DOCUMENT CONTROL

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Created by: Gitcy	Reviewed by: Bharath / Deepthi	Approved by: Surag Ramachandran / Subhashini

Executive Summary

All the module contents have been integrated, standardized, and restructured as per 7.3 and 7.3.x enhancements. You can access the [OTN library](#) for the latest copy of this document with all the recent revisions.

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Getting Started

Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) is a general purpose Analytics Applications infrastructure that provides the tooling platform necessary to rapidly configure and develop analytic applications for the financial services domain. It is built with Open-Systems Compliant architecture providing interfaces to support business definitions at various levels of granularity.

Applications are built using OFSAAI by assembling business definitions or business metadata starting from data-model to lower grain objects like Dimensions, Metrics, Security Maps, and User Profile to higher order objects like Rules, Models, and Analytic Query Templates which are assembled using the lower grain ones. In addition to application definition tools, it provides the entire gamut of services required for Application Management including Security Service, Workflow Service, Metadata Management, Operations, Life-cycle Management, public API's and Web Services that are exposed to extend and enrich the tooling capabilities within the applications.

OFSAAI provides the framework for building, running, and managing applications along with out of the box support for various Deployment Models, Compliance to Technology standards, and supporting a host of OS, Middleware, Database, and Integration with enterprise standard infrastructure.

The information contained in this document is intended to give you an exposure and an understanding of the features in Oracle Financial Services Analytical Applications Infrastructure.

About this Manual

This manual explains the functionality of Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) in a procedural approach. OFSAAI is integrated with multiple modules which cover areas like data extraction and transformation, definition and execution of rules and processes for molding a set of data, and application of different techniques on raw data for model design purpose.

It also encompasses of modules which are inevitable to make the Infrastructure Application flexible according to the user requirements. These modules perform administration, definition of servers, database, and Information Domain along with the other configuration processes such as segment and metadata mapping, hierarchy security, and designing of the Infrastructure Menu functions. The last section of this document consists of references and feedback information pertaining to any issues noticed within the document.

Audience

This guide is intended for:

- Business Analysts who are instrumental in solution designing and creation of statistical models using historical data.
- System Administrators (SA) who are instrumental in maintaining and executing batches, making the Infrastructure Application secure and operational, and configuring the users and security of Infrastructure.

Recommended Skills

- System Administrators should be aware of the database concepts and underlying the database structure of the Infrastructure Application from an operational perspective. System Administrators also need to be technically sound in configuring the databases for data extraction procedures.
- Business analysts must have an in-depth knowledge of the underlying data sources that stores organizations data, the ETL concept of data warehousing and associated terminologies along with the statistical techniques for model designing and execution.

Recommended Environment

Infrastructure application has been tested with Microsoft Internet Explorer™ browser. For best viewing of Infrastructure pages, set the screen resolution to a minimum resolution of 1024 x 768 pixels.

Prerequisites

- Successful installation of Infrastructure and related software's.
- Good understanding of business needs and administration responsibilities.
- In-depth working knowledge of business statistics.

Conventions and Acronyms

Conventions	Description
Screen Names are <i>italicized</i> .	
Screen actions are indicated in Bold	
ALM	Asset Liability Management
AMHM	Attributes Members Hierarchies Module
ANSI	American National Standards Institute

Conventions	Description
API	Application Programming Interface
ARIMA	Auto Regressive Integrated Moving Average
ASCII	American Standard Code for Information Interchange
AW	Analytical Workspace
BA	Business Analysts
BI	Business Intelligence
BMM	Business Metadata Management
BP	Business Processor
CF	Cash Flow
CSV	Comma Separated Values
DBA	Database Administrator
DEFQ	Data Entry Forms and Queries
DMP	Screen or Memory Dump
DQ	Data Quality
DSN	Data Source Name
ELT	Extract Load Transform
EPM	Enterprise Performance Management
ES	External Scheduler
ESIC	External Scheduler Interface Component
ETL	Extract Transform Load
EWMA	Exponentially Weighted Moving Average
FTP	File Transfer Protocol
GARCH	Generalized Auto Regressive Conditional Heteroskedasticity
GMV	General Market Variable
HTML	Hyper Text Markup Language
HTTP	Hypertext Transfer Protocol
Infodom	Information Domain

Conventions	Description
IP	Internet Protocol
JDBC	Java Database Connectivity
JSON	JavaScript Object Notation
JVM	Java Virtual Machine
LDAP	Lightweight Directory Access Protocol
LHS menu	Left hand side menu
MDB	Microsoft Access Database
MOLAP	Multidimensional Online Analytical Processing
NE	Non Editable
OBIEE	Oracle Business Intelligence Enterprise Edition
ODBC	Open Database Connectivity
OFSAAI	Oracle Financial Services Analytical Applications Infrastructure
OLAP	Online Analytical Processing
PDF	Portable Data Format
PFT	Profitability Management
PR2	Process Run Rule framework
RAC	Real Application Cluster
RDBMS	Relational Database Management System
RHS	Right Hand Side
RRF	Run Rule Framework
SA	System Administrator
SFTP	Secret File Transfer Protocol
SID	System ID
SMS	Security Management System
SQL	Structured Query Language
T2T	Table to Table
TBD	To be Deleted

Conventions	Description
TFM	Technical File Maintenance
TNS Name	Transparent Network Substrate Name
TP	Transfer Pricing
UMM	Unified Metadata Manager
URL	Uniform Resource Locator
VaR	Value at Risk
XML	Extensible Markup Language

Common Buttons

Button	Description
	To create a function.
	To view the details of a function.
	To edit the details of a function.
	To clear the fields and reset to default values.
	To select a new member.
	To select a filter / run condition/ define sub process.
	To select a source / component / job.
	To select a hierarchies / measures / job condition.
	To set precedence for members.
	To execute a Run definition.
	To select hierarchical members
	To delete a function.
	To select the entities.
	To validate grid data.
	To save the details.
 /  / 	To view the properties.
	To Refresh the grid details.

Button	Description
	To erase a specific value.
	To define an expression.
	To generate source model.
	To add attributes / add Source Configuration / Authorize a function.
	To generate Source Models.
	To generate a logic and view the SQL query / check syntax of the stored procedure.
	To add the source database configuration details.
	To view the dependencies of the selected Object.
	To Export data.
	To trace a definition details.
	To receive instant on-screen help.
	To view the log.
	To view the
	To specify a date using calendar.
	To View Dependencies.
	To run the object migration rule.
	To interrupt the object migration rule.
	To add and view the source database configuration details
	To authorize or reject a function / definition.
	To map / un-map source tables to columns.
	To view the time dependencies.
	To view the pagination option.
	To view SQL statement.
	To view and enter the details in the <i>Expression</i> screen.

Button	Description
	To create a Rule function.
	To open and view the rule details.
	To save a Rule function.
	To search / find a member.
	To Save with customized details.
	To view the rule properties.
	To map between hierarchies.
	To select a member.
	To deselect a member.
	To sort in ascending order.
	To sort in descending order.
	To access the documentation resources.

OFSAAI Support Details

If you have any queries, contact Oracle Support at <https://support.oracle.com>.

OFSAAI - An Overview

Oracle Financial Services Analytical Applications Infrastructure is the complete end-to-end Business Intelligence solution that is easily accessible via your desktop. A single interface lets you tap your company's vast store of operational data to track and respond to business trends. It also facilitates analysis of the processed data. Using OFSAAI you can query and analyze data that is complete, correct, and consistently stored at a single place. It has the prowess to filter data that you are viewing and using for analysis.

It allows you to personalize information access to the users based on their role within the organization. It also provides a complete view of your enterprise along with the following benefits:

- Track enterprise performance across information data store.
- Use one interface to access all enterprise databases.
- Create consistent business dimensions and measures across business applications.
- Automate the creation of coordinated data marts.
- Use your own business language to get fast and accurate answers from all your databases.
- Deploy an open XML and web- based solution against all major relational or multi-dimensional databases on Microsoft Windows and UNIX servers.

This chapter provides an overview of Infrastructure, its components, and explains how these components are organized in the Splash screen with the user login process.

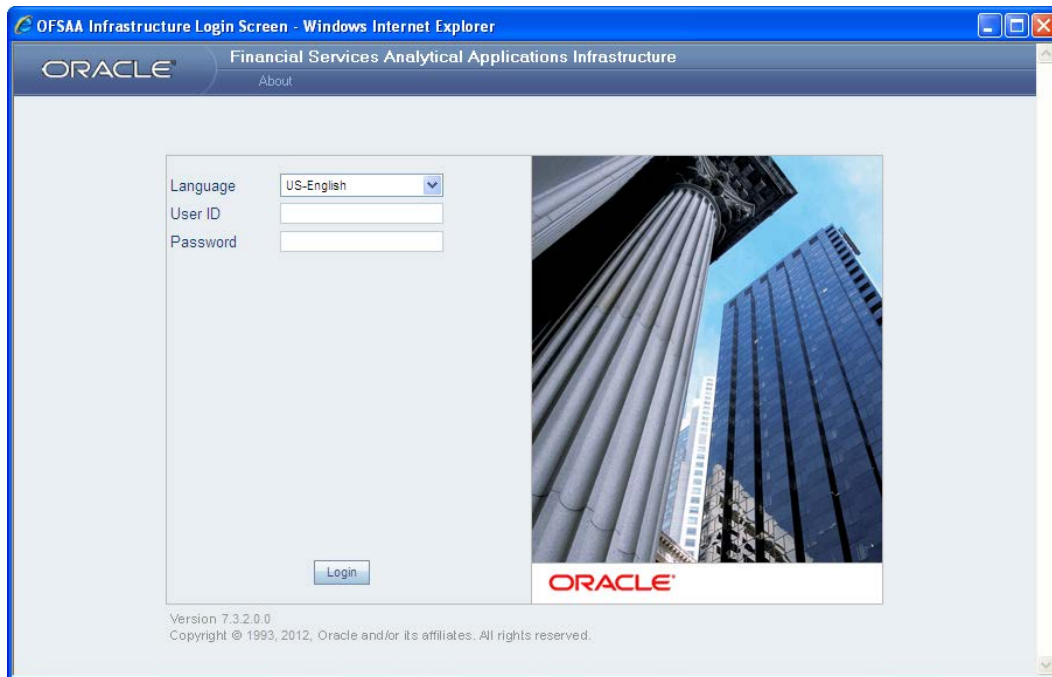
Components of OFSAAI

The OFSAA Infrastructure consists of below components / Modules that are used to deploy an analytical solution.

- Unified Metadata Manager
- Operations
- System Configuration
- Administration
- Data Management Tools
- Rules framework
- Advanced Analytics Infrastructure
- Forms Framework
- AMHM (Dimension Management, Filters, and Expressions)

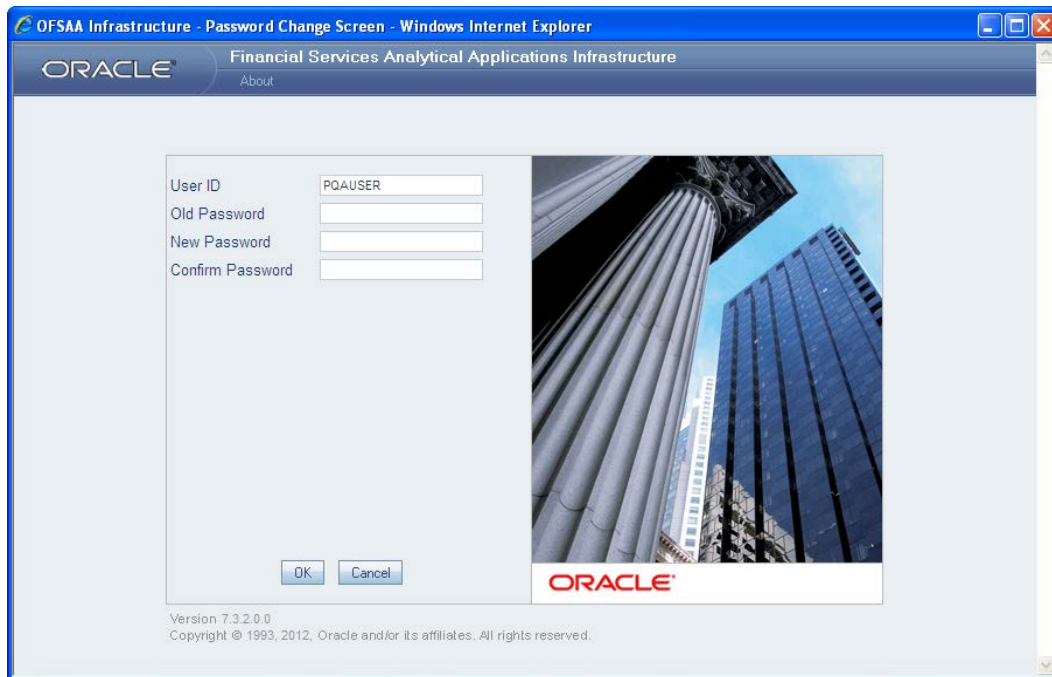
OFSAAI Infrastructure Login

While accessing Oracle Financial Services Analytical Applications Infrastructure, the Splash screen is as displayed:



You can select the required language from the **Language** drop-down list. The language options displayed in the drop-down list are based on the licenses. Based on the selection of Language, the appropriate language login screen is displayed.

Enter the **User ID** and **Password** provided by the System Administrator and click **Login**. You will be prompted to change your password on your first login. Alternatively, you can also choose to change your password any time.



In the *Change Password* screen, enter a new password, confirm it and click **OK** to view the Splash screen. Refer to the following guidelines for Password Creation:

- Passwords are displayed as asterisks (stars) while you enter. This is to ensure that the password is not revealed to other users.
- Ensure that the entered password is at least six characters long.
- The password must be alphanumeric with a combination of numbers and characters.
- The password should not contain spaces.
- Passwords are case sensitive and ensure that the Caps Lock is not turned ON.
- By default, the currently used password is checked for validity if password history is not set.
- New password should be different from previously used passwords based on the password history, which can be configured. For more information, refer [Configuration](#) section in System Configuration chapter.

If you encounter any of the following problems, contact the System Administrator:

- Your user ID and password are not recognized.
- Your user ID is locked after three consecutive unsuccessful attempts.
- Your user ID has been disabled.
- Guest user cannot change the password.

Login as System Administrator

Post installation, the first login into Infrastructure is possible only for a System Administrator through user id “**sysadm**n”. This ID is created at the time of installation with the password provided during installation. Enter login id “**sysadm**n” and password that was provided during installation. Click **Login**.

Login as System Authorizer

System Authorizer ID and Password is also created at time of installation. This ID is required to authorize the users created by the system administrator.

Enter login id as “**sysauth**” and password that was provided during installation. Click **Login**.

Login as Business User

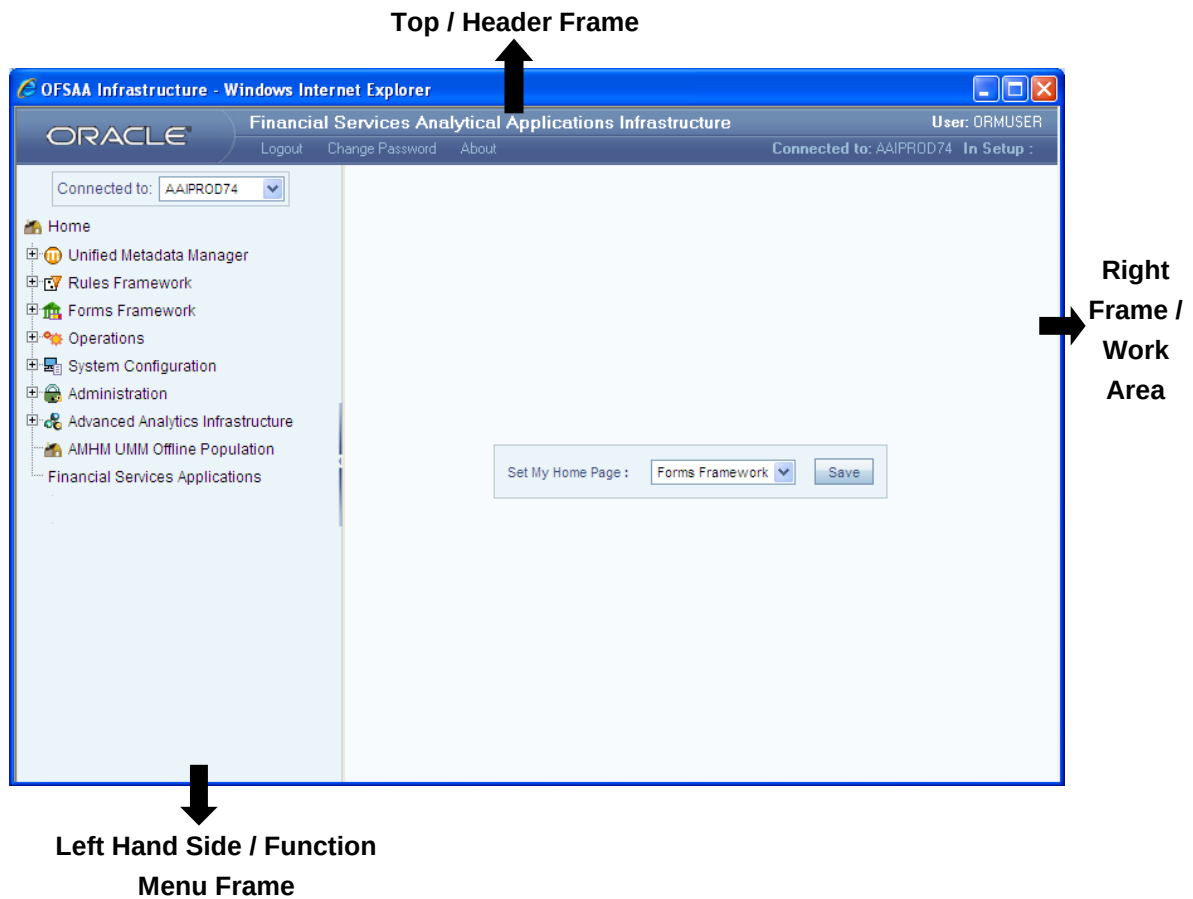
The Business users will be created by System Administrator and will be authorized by the System Authorizer. The built-in security system of Infrastructure ensures every user is permitted access to screens based on the user's role.

Enter User ID and Password provided by the System Administrator and click **Login**.

OFSAAI Splash Screen

On successful login, the Infrastructure splash screen is displayed. The splash screen is divided into three frames:

- The Top or Header frame
- The Left or Function Menu frame
- The Right frame or Work Area



The **Header** frame displays the user details along with the Information Domain selected in the right hand corner in top frame of the screen. To exit Oracle Financial Services Analytical Applications Infrastructure, click **Logout**. The built-in security system of Infrastructure ensures restricted access to the respective screens based on the user's role. This is based on the functions that you as a user are required to perform.

The **Function** Menu frame displays the Information Domain to which you are connected. The main functions of Oracle Financial Services Analytical Applications Infrastructure, which appear as expandable folders contains submenus with different options. Click **+** to expand the function menu folder. The function menu displays the list of submenus/options. Click the required menu option to open the respective screen.

The nine main functions listed under the Function Menu frame in the OFSAAI splash screen are below. These links will be enabled based on the applications deployed on Infrastructure:

- **Unified Metadata Manager** is intended for the Information and Business Analysts who are instrumental in supporting and affecting analytical decisions. **UMM** includes sections like Import Model, Data Management Tools Framework (*consisting of Data Ingestion, Post Load Changes, and Data Quality Framework*), Data Entry Forms and Queries (*consisting of*

Forms Designer, Data Entry, and Excel Upload), Business Metadata Management (consisting of *Aliases, Derived Entity, Data Sets, Business Measures, Business Hierarchy, Business Dimension, Essbase Cubes, Oracle Cubes, Filters, Business Processors, Map Maintenance, and Cube Migration*) and Metadata Restore/Archive sections.

- **Rules Framework** is re-designed to accommodate new RRF (Run Rule Framework) module with enhanced features and functionalities. However, the existing PR2 (Process Run Rule) framework also exists. You can to define and execute a set of rules, reporting objects, and processes that are required to transform data in a warehouse.
- **Metadata Browser** module provides extensive browsing capabilities of metadata, helps in tracking the impact of changes to metadata, and trace through to the source of originating data. It includes sections like Metadata Browser (Object View), Metadata Browser (Object and Application View) and Utilities (*Metadata Map*).
- **Forms Framework** has a designer screen which facilitates you to configure and upload xml based interactive forms which can be deployed as an open XML and web- based solution against all major relational or multi-dimensional databases.
- **Operations** module facilitates you in administration and processing of business data to create the highest level of efficiency within the system and to derive results based on a specified rule. It includes sections like Batch Maintenance, Batch Execution, Batch Scheduler, Batch Monitor, Batch Processing Report, Batch Cancellation, and View Log.
- **System Configuration** facilitates System Administrators to provide security and operational frame work required for Infrastructure. It includes sections like Server Details, Database Details, OLAP Details, Information Domain, Configuration, Segment/Metadata Mapping, Segment Map Security, and Rules Setup Configuration.
- **Administration** facilitates Administration System Administrators to define the security framework with the capacity to restrict access to the data and metadata in the warehouse, based on a flexible, fine-grained access control mechanism. These activities are mainly done at the initial stage and then on need basis. It includes sections like Security Management (*consisting of User Administrator, System Administrator, Audit Trail Report, User Activity Report, and User Profile Report*), Metadata Authorization, Save Metadata, and Utilities (*consisting of Enable User, Write-Protected Batch, UserGroup-Batch Execution Map, User Attribute Upload, Locale Desc Upload, Metadata Difference, and Object Migration*).
- **Advanced Analytics Infrastructure** helps business analysts in banking institutions to identify the business opportunities and to measure the risk prevailing in the competitive market to safeguard the regulatory and economic capital of banks. It includes section like Sandbox Definition, Sandbox Maintenance, Application, Technique Registration, Variable Definition, Modeling, and Stress Testing.

- **AMHM UMM Offline Population** helps business analysts to populate the Business Metadata of Attributes, Members, and Hierarchies into the Data Warehouse.
- **Financial Services Applications** facilitates Business Analysts in Banking Institutions to make use of the deployed Infrastructure applications to transform financial data using the statistical techniques and identify the business opportunities. It includes sections like Administration, Master Maintenance, and Profitability Management.

The Right frame / Work Area frame allows you to choose your start page that will be displayed on logging in. Select the start page from **Set My Home Page** drop-down list. You can choose to have Forms Framework, Data Management Tools, or Default Screen as the Start Page for Oracle Financial Services Analytical Applications Infrastructure.

Click **Save**. The selected page will be the start page displayed when you log on to Infrastructure next time.

Note the following:

- Only the splash screens to which the user is mapped will be visible in the drop-down list.
- You can set Forms Framework as Startup Page even if Forms Framework role is not mapped. Ensure that you do not select this option unless Forms Framework function is mapped to your role. For more information, refer System Configuration, Administration, and Operations sections.

1 Unified Metadata Manager

The Unified Metadata Manager transforms your ability to manage your enterprise by distributing a consistent view of the business dimensions and key measures to every decision maker and application developer. Oracle Financial Services Analytical Applications Infrastructure's unique Unified Metadata technology allows your enterprise to define a consistent set of business terms and securely deploy them across the entire range of analytic applications from your data warehouses and data marts to your business intelligence and alerting tools to your data distribution and portal applications.

Unified Metadata Manager is intended for the Information and Business Analysts who are instrumental in supporting and affecting analytical decisions. **UMM** includes the following sections:

- [Import Model](#)
- [Data Management Tools](#)
- [Data Entry Forms and Queries](#)
- [Business Metadata Management](#)
- [Metadata Restore/Archive](#)

1.1 Import Model

Model refers to a data structure which consists of well organized business data for analysis. Data Model explicitly determines the structured data which stores persistent information in a relational database and is specified in a data modeling language.

Import Model or Business Model upload within the Unified Metadata Manager of the Infrastructure system facilitates you to upload the warehouse data from the operational systems to database schema using ERwin xml file. An ERwin xml file is a standard tagged xml file based on the Object Property Model which can create the required data models. You can upload the xml file by hosting it on the server and customize the update process while uploading a Business Model.

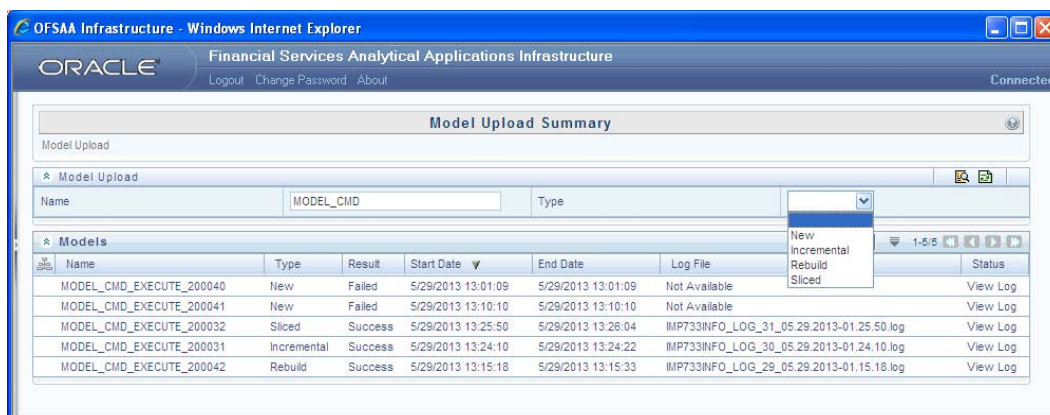
Following are the pre-requisites while working with Business Model upload:

- An appropriate buffer pool has to be available to cache table and index data.
- The page size for the Table space has to be created appropriately.

Following are the Upload Modes available in the *Business Model Upload* screen:

Field	Description
New	You can upload a new business model only when you are uploading a model for the first time for the selected Information Domain. This option is not available for subsequent model uploads.
Incremental	You can upload the incremental changes to an existing model by adding a table to a set of tables or even drop/remove tables and columns as required. The existing model details are extracted and uploaded along with the specific incremental updates. This option is available only with the subsequent model uploads and captures all the metadata pertaining to the changes in the database schema. The same can be tracked to assess the impact.
Rebuild	You can re-build a model upon the existing model in the database. The existing model is replaced with the current model details. This option is available with the subsequent model uploads and the current model uploaded is considered as the latest model for the selected Information Domain.
Sliced	You can quickly upload the Sliced model with only the incremental changes, without merging the tables or columns of an existing model. In a Sliced Model Upload you can incrementally add new tables, add/update columns in the existing tables, and add/update primary/foreign keys in the existing model. You can also drop a column or primary/foreign key. However, dropping a table is not supported. This option is available only with the subsequent model uploads. Sliced Model Upload is faster compared to other upload types as it optimizes the system memory usage and reduces the file size of ERwin.xml.

You (Business Analysts) need to have **IBMADD** (Import Business Model) function role mapped to access the Import Model framework within the Infrastructure system. You can access Import Model by expanding *Unified Metadata Manager* module > *Import Model* section within the tree structure of LHS menu.



The *Model Upload Summary* screen facilitates to upload the required Business Model and displays the summary of previously uploaded Business Models with their Name, Type (New / Incremental / Rebuild / Sliced), Result of upload (Success/Failed), Start Date, End Date, [Log File path](#), and Status. You can click on “View Log” in the Status column corresponding to the required Model to view the Model Upload details of selected Model in the [View Log Details](#) screen.

NOTE: To display the Summary of previous Model Uploads, you need to have a connection pool established to access data from the database. For more information on connection pooling, refer to “*OFSAAI Installation & Configuration Guide*” available at [OTN library](#).

You can also make use of Search and Pagination options to search for a specific Model based on the Name or Type (New / Incremental / Rebuild / Sliced) existing within the system. For more information, refer [Search and Filter](#) and [Pagination](#) sections.

1.1.1 Upload Business Model

You can upload a new model or update/re-build an existing model to the database schema. The option to upload a business model is available based on the existing model in the selected Information Domain.

Note the following:

- OFSAAI supports ERwin version 9.2 and 9.5 generated xml's in Model Upload process in addition to ERwin 4.1, ERwin 7.1, and ERwin 7.3 generated xml files.
- By default, OFSAAI supports Data Model up to 2 GB. To configure the permissible size specific to requirements, see the *Frequently Asked Questions* section in OFSAAI Installation and Configuration Guide in [OTN library](#).
- Ensure that the xml file to be uploaded is saved in “All Fusion Repository Format”.

To upload a model in the *Model Upload Summary* screen:

1. Click  button in the Models tool bar. The *Business Model Upload* screen is displayed.
2. Enter a **Name** for the model being uploaded (mandatory). Ensure that the name specified does not exceed more than 30 characters in length and does not have special characters such as #, %, &, ', and “.
3. Select the **Upload Mode** from the drop-down list. You can select only **New** if it is the first upload. For subsequent uploads, you can select **Incremental**, or **Rebuild**, or **Sliced** upload mode. For more information, refer to the [Upload Modes](#) section.
4. Select the ERwin XML File for upload using one of the following options:
 - If the ERwin file resides in the default server path (i.e. *ftpshare (Application layer)/<infodomain>/erwin/erwinXML*), select the **File Name** (file) from the drop-down list.
 - If the ERwin file does not exist in the default server path, the same will not be available for selection in the drop-down list. Hence, you will first need to save the ERwin XML from the Client machine to the Server location.
 - Click  (Save New ERwin File in Server) option. The *Save ERwin File* dialog is displayed. In “Select ERwinXML File” field, click **Browse**. Navigate to the location of the file and select the ERwin xml file.
 - Click **Save File** and the file is copied to the server path. The status is indicated in the progress bar and once complete, the ERwin XML file is added to the drop-down list and is also selected by default.
5. In the Upload Options grid, you have an option to select either **Yes / No** to directly update the database schema with Model changes.
 - If you select **Yes**, the generated SQL scripts are executed at runtime to update the Model changes in the database.
 - If you select **No**, it restricts the system from updating the database automatically with Model changes and only the model scripts will be created. Also when you select **No**, ensure the following:
 - You have a third party tool or ETL tool to manage the schema updates.
 - Database consistency and schema updates are maintained manually by the database administrator.

NOTE: The table scripts are only created and needs to be updated manually. If you choose this option for the first time and later perform an Incremental / Sliced / Complete Model Re-build, you need to manually synchronize the schema with the database schema.

6. Click **Upload Model**. The model upload execution is triggered and you are re-directed to the *Model Upload Summary* screen with the upload details in the summary grid. The “Status” of current upload is indicated as *Running* and once the process completes, the status is updated as either *Success* or *Failed* depending on the execution.

NOTE: To display the current upload status, you need to have a connection pool established to access data from the database. For more information on connection pooling, refer to “*OFSAAI Installation & Configuration Guide*” available at [OTN library](#).

You can click [View Log](#) to view the model upload details and also [Download Log File](#) to a location for reference.

1.1.1.1 Viewing Log Details

Log details of all the Model Uploads done till date to the current information domain, can be viewed in the *Model Upload Summary* screen. You can click on “View Log” in the Status column corresponding to the required Model, to view the Model Upload details of selected Model in the *View Log Details (Log Information)* screen. The *View Log Details* screen also displays other details such as Task ID, Sequence of upload, Severity, Message Description, Message Date, and Message Time.

You can also access the *View Log* screen through LHS menu (*Operations > View Log*) to find the log details of all the Model Uploads done till date. You can make use of Search option to find the required Model Upload details by selecting “Model Upload” as the Component Type from the drop-down list.

1.1.1.2 Log File Download

In the *Model Upload Summary* screen, you can download the log file of the listed Model uploads by clicking on the log file name in *Log File* column corresponding to the required Model.

In the *File Download* dialog, you can either open the file directly or save a copy for future reference. The Log file contains the following information:

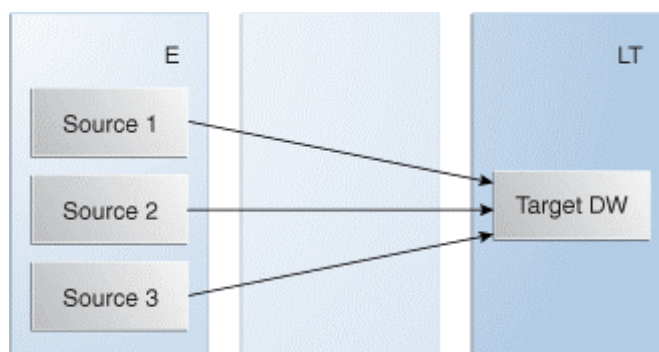
- Log File Name
- Model Upload Started At
- Source ERwin XML File
- Model Upload Mode
- Using ERwin.xsl File at
- Target XML File
- Information Domain

- Current Version Is
- Model Upload Completed at
- Object Registration Started as part of Model Upload at
- Object Registration Completed at

1.2 Data Management Tools

Data Management Tools framework within the Infrastructure system is a comprehensive data integration platform that facilitates all the data integration requirements from high-volume and high-performance batch loads to event-driven integration processes and SOA-enabled data services.

Data Management Tools is a software application based on ETL (extract-transform-load) structure, which is used for data transformation and merging. The E-LT (extract-load, transform) structure in Data Management Tools eliminates the need for a separate ETL server, and the analytical rules facilitate to optimized performance, efficiency, and scalability.



The Data Management Tools module is equipped with a set of automated tools and a tested data integration methodologies which allows you to position the advanced N-tier web-based architecture and integrate the enterprise data sources from the mainframe to the desktop.

In Data Management Tools, you can standardize and integrate the various source system data into a single standard format for data analysis. You can also populate the warehouse in a defined period using the ETL process, for data extraction, transformation, and loading.

Following are the pre-requisites while working with Data Management Tools:

- You can transform data using the options - Before load, While load or After Load.
- For source system information, filenames can be either fixed or delimited in length.
- The source types which can be loaded into the system are RDBMS and Flat-Files. For an RDBMS source type ensure that the appropriate drivers are installed.
- Ensure that you are aware of the process flow before you start with the extraction, transformation and loading process.

1.2.1 Navigating to Data Management Tools

Data Management Tools module is available within the Unified Metadata Manager module of Infrastructure system. You (Business Analysts) need to have ETL Analyst function role mapped to access the Data Management Tools.

In the left hand side (LHS) menu of Infrastructure home page, click “+” and expand the **Unified Metadata Manager** section. Select **Data Management Tools** and view the sections in detail.

1.2.2 Components of Data Management Tools

Data Management Tools consists of the following sections. Click on the links to view the sections in detail.

- [Data Ingestion](#)
- [Post Load Changes](#)
- [Data Quality Framework SQL Rule](#)

1.2.3 Data Ingestion

Data Ingestion within the Data Management Tools of Infrastructure system facilitates you to define and create Data Source Models which in turn facilitates data loading to Enterprise Data-Warehouse systems. In the Data Ingestion, you can define Data Source Models, Map Data Source to Applications, and associate database extracts to a Table/File for data extraction.

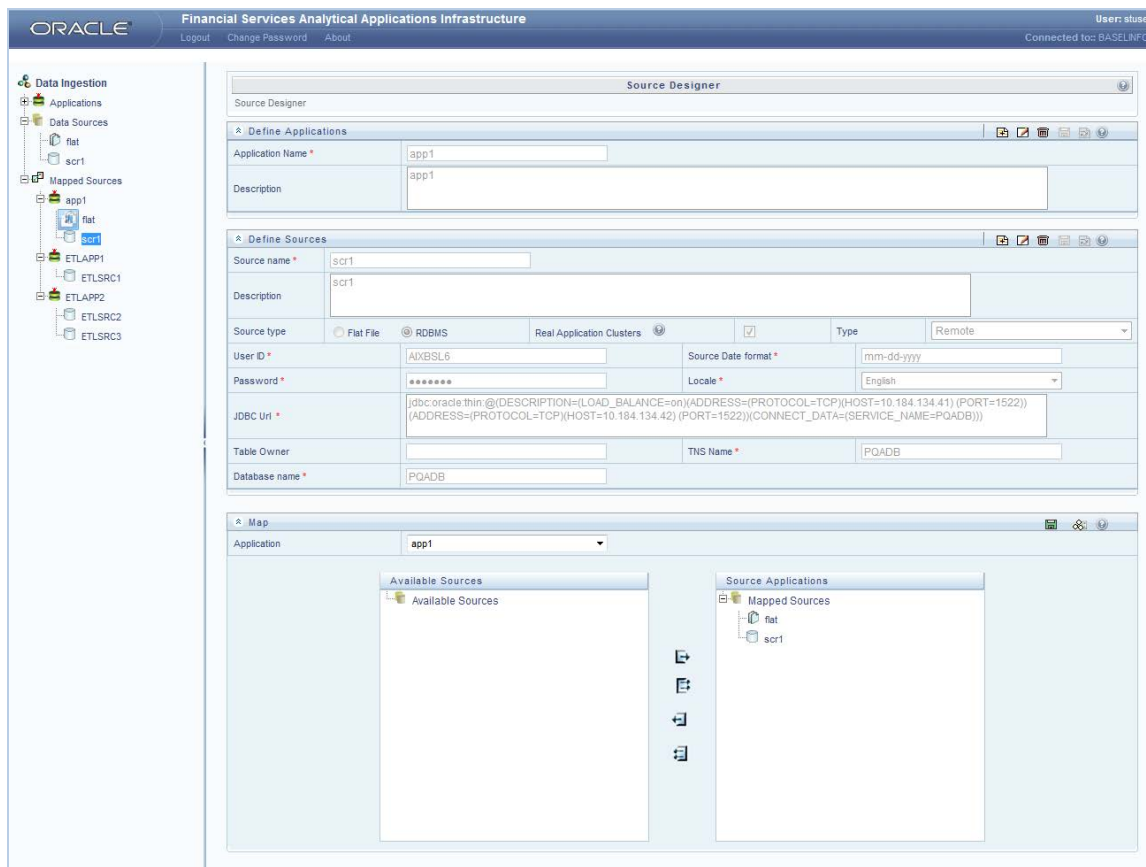
The Data Ingestion consists of the following sections:

- [Data Sources](#)
- [Database Extracts](#)
- [File Extracts](#)

1.2.3.1 Data Sources

Data Sources within the Data Management Tools of Infrastructure system facilitates you to generate data models by defining and mapping the required applications and data sources.

You (Business Analysts) need to have ETL Analyst function role mapped to access the Data Management Tools within the Infrastructure system. You can access Data Sources Designer by expanding Data Ingestion section of Data Management Tools within the tree structure of LHS menu.



The *Source Designer* screen displays the list of pre-defined Applications, Data Sources, and Mapped Sources in the LHS menu. It consists of three sections namely, Define Applications, Define Sources, and Map. In the *Source Designer* screen you can:

- [Define Data Source Applications](#)
- [Define Data Sources](#)
- [Map Data Sources to Applications](#)
- [Generate Data Models for each Application](#)

1.2.3.1.1 Defining Data Source Application

A data source application is a logical group of data sources. You can define data source applications and also modify or remove the application details in the *Source Designer* screen.

To define data source applications in the *Define Applications* grid:

1. Enter the **Application Name** by which you can identify the application.
2. Enter a description or related information about the application.

The application details should contain the name and information pertaining to the source data required. For example: *ABC Corporate* can be the source application, *ABC Corporate sales* can be the description and data can be extracted from Oracle, which has RDBMS Source Type.

3. Click  button in the *Define Applications* tool bar to save the application details.

You can also click  button to define another application or click  button to clear the specified details.

To edit the data source applications description:

1. Select the required application from the LHS menu. The application details are displayed in the *Define Applications* grid.
2. Click  button in the *Define Applications* tool bar and modify the application description as required.
3. Click  button to save the application details.

To delete data source applications:

Ensure that the application is not mapped to any data sources. You cannot delete the mapped applications. If a model is generated using the application, you cannot unmap the data sources and hence you cannot delete it.

1. Select the required application from the LHS menu. The application details are displayed in the *Define Applications* grid.
2. Click  button in the *Define Applications* tool bar and click **OK** in the information dialog to confirm deletion.

1.2.3.1.2 Defining Data Sources

Data Source refers to the physical structure or location of the source file. Data source can be either a file or a table with rows and columns, and it can reside on a remote server or on a local desktop machine. Applications access the data source using an FTP connection. You can define data sources and also modify or remove the Data Source details in the *Source Designer* screen.

To define a data source:

1. Enter the **Source Name** of the data source.
2. Enter a description or related information about the data source.
3. Select the **Source Type** as either **Flat File** (default) or **RDBMS**. For more information, refer [Flat File](#) and [RDBMS](#) source types.
 - If **Flat File** is selected as **Source Type**, select the server **Type** as either **Local** or **Remote** from the drop-down list, and enter the details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Local	Specify the Source Date Format to be used as default date format for source data extraction and mapping, which is unless modified in the <i>Define Extracts</i> screen.
Remote	▪ Server Name: Enter the Server Name or IP address where the Data Source exists. ▪ User ID: Enter the FTP User ID required to connect to the server. ▪ Server Port: Enter the active server port number which contains the flat files. ▪ Password: Enter the FTP user password required to connect to the server. ▪ FTP Drive: Enter the FTP server path. In case of Unix Servers, the home directory path is taken by default. ▪ Source Date Format: Enter the Source Date Format which will be used as the default date format for source data extraction and mapping, and which is unless modified in the <i>Define Extracts</i> screen. ▪ FTP Share: Enter the ASCII files location for loading if it is located in the staging area other than the default staging area of Infrastructure Database Server.

If **RDBMS** Source Type is selected, specify the source type details as tabulated. The available options are based on the state of **Real Application Clusters** checkbox. For more information, refer [RAC](#).

Field	Description
Fields marked in red asterisk (*) are mandatory.	
If Real Application Clusters (RAC) checkbox is selected	▪ User ID: Enter the Database User ID, which is also assumed as the Schema name if it is the Oracle database and if the Table Owner field is left blank. ▪ Source Date Format: Enter the Source Date Format which will be used as the default date format for source data extraction and mapping. ▪ Password: Enter the Database user password required to connect to the server. ▪ Locale: Select the language using which the Infrastructure Database components are installed. The available options depend on the languages defined in the "configuration" table.

Field	Description
	▪ JDBC URL: Enter the JDBC (Java Database Connectivity) URL configured by the administrator to connect to the database. ▪ Table Owner: Enter the schema name in case of Oracle database, or Owner of Database Tables in case of SQL Server and other Databases. ▪ TNSNAME: It is the SQL*Net configuration file that defines databases address to establish connection. Enter the TNSNAME created for the Information Domain. Also ensure that: It is mandatory to enter the TNS Name if it is the Oracle database. The field is inactive if SQL or DB2 database is selected.
If Real Application Clusters (RAC) checkbox is not selected	▪ Database Name: enter the name of the Source Database from which the extraction is required to be done. ▪ TNS Name: It is the SQL*Net configuration file that defines databases address to establish connection. Enter the TNSNAME created for the Information Domain. ▪ Table Owner: Enter the schema name in case of Oracle database, or Owner of Database Tables in case of SQL Server and other Databases. ▪ Database: Select the Database from the drop-down list. ▪ Server Name: Enter the Server Name or IP address where the Data Source exists. ▪ JDBC Drivers: Select the JDBC (Java Database Connectivity) driver from the drop-down list. ▪ Server Port: Enter the active port number of the server which contains the flat files. ▪ Source Date Format: Enter the Source Date Format which will be used as the default date format for source data extraction and mapping, unless modified in the <i>Define Extracts</i> screen. ▪ User ID: Enter the FTP User ID required to connect to the server. ▪ Locale: Select the language using which the Infrastructure Database components are installed. The available options depend on the languages defined in the "configuration" table. ▪ Password: Enter the Database password required to connect to the server.

4. Click  button in *Define Sources* tool bar to save the data source details.

You can also click  button to define another Data Source or click  button to clear the specified details.

To edit a data source:

1. Select the required Data Source from the LHS menu. The data source details are displayed in the *Define Sources* grid.
2. Click  button in the *Define Sources* tool bar and edit the Data Source details as required. You can update all the details except the Source Name, Source Type, and Real Application Cluster option selected. For more information, refer [Define Data Sources](#).

To delete a data source:

Ensure that the data source is not mapped to any applications. You cannot delete a mapped data source. If a model is generated using the data sources, you cannot unmap it and hence you cannot delete it.

1. Select the required Data Source from the LHS menu. The data source details are displayed in the *Define Sources* grid.
2. Click  button in the *Define Sources* tool bar. Click **OK** in the information dialog to confirm deletion.

1.2.3.1.3 Mapping Data Sources to Applications

You can associate the defined data sources to the required applications using the Map functionality. You can map one or more data source to serve multiple applications and load separate source of data into the warehouse. When mapped, the application and all the associated data sources are grouped. You can identify the source data with reference to the source business application.

To map data sources to application:

1. Select the required **Application** to map the Data Sources from the *Map* grid. Do one of the following:
 - Select the Application from the **Mapped Sources** list in the LHS menu.
 - Select the Application from the **Application** drop-down list in the Map grid.

On selection, the mapping details for the selected Application are displayed in the *Available Sources (available)* and *Source Applications (mapped)* list.
2. To map the Data Source to the selected Application, do one of the following:
 - Select the required data source from the *Available Sources* list and click  button. You can press **Ctrl** key for multiple selections.
 - To map all the listed data sources to the application, click  button.

You can also remove a data source mapping by selecting the data source from the *Source Applications* list and clicking  button. To remove all selected Data Sources mapping, click  button.

3. Click  button and save the mapping details.

1.2.3.1.4 Generating Source Models

Once you have defined and mapped the Data Sources to the required Application, you can generate the Source Models and extract the application data sources to populate data into the warehouse. The Source Models for each application-source combination are imported into the Infrastructure metadata repository. You can generate Source Model only for RDBMS data source using Data Catalogs that are defined in the database.

To generate Source Model in the *Source Designer* screen:

1. Select the required **Application** which has the RDBMS data sources mapped. Do one of the following:
 - Select the Application from the **Mapped Sources** list in the LHS menu.
 - Select the Application from the **Application** drop-down list in the *Map* grid.

On selection, the data source mapping details for the selected Application are displayed in the *Available Sources* and *Source Applications* list.

2. Select the RDBMS Data Source from the *Source Applications* list.
3. Click  button from the *Map* tool bar. The Generate Source Model screen is displayed.

From this screen, you can generate Source Model using Data Catalogs. You can specify the Filter criteria for selection. Filters are patterns for entity names in the Database and can restrict the source model generation to a specific set of entities.

4. Specify the Filter entries by entering details in the “Starts with”, “Contains”, and “Ends with” fields. The Source Model is generated even if one of the specified filter conditions matches. You can also specify multiple conditions for a single filter type using comma-separated values. For example, tables starting with TB and TM can be specified as “TB, TM”.
5. Click **Generate**. The Source Model is generated and the status is displayed in a confirmation dialog. Click **OK**.

NOTE: If the Source Model has already been generated, a confirmation dialog is displayed to replace the existing model. Click **OK** or **Cancel**.

The Source Model is generated in the specified directory which has to be extracted or transferred to the Business Data Model.

1.2.3.2 Database Extracts

Data extraction refers to the process of retrieving unstructured data from data sources for further data processing, storage, or migration. The intermediate extraction process can be followed by data transformation and metadata addition before exporting it to the staging area or to the Business Data Model.

Database Extracts within the Data Management Tools framework of Infrastructure system are defined as a subset of the source model which can have one or more source entities. You can extract data sources to a Table or a File.

You (Business Analysts) need to have ETL Analyst function role mapped to access the Data Management Tools framework within the Infrastructure system. You can access Database Extracts by expanding Data Ingestion section of Data Management Tools Framework within the tree structure of LHS menu.

ORACLE Financial Services Analytical Applications Infrastructure User: stuser
Connected to: BASELINFO

Connected to: BASELINFO

Data Ingestion

- DI Browser
 - app1
 - scr1
 - t24
 - t2f56
 - t211
 - t214

Database Extract

Define Extract

Extract Name* t2f56

Extract To ☒ File

Applications* app1 Sources* scr1

Extract Entities

Source Table	Source Column	Order	Data Type	Length	Date Format	Expression Value
DIM_INDEX	N_INDEX_SKEY	1	Number	22		
DIM_INDEX	V_INDEX_CODE	2	String	22		
DIM_INDEX	V_INDEX_DESC	3	String	22		

Join/ Filter/ ANSI Join/ Hint

ANSI Join Joins

Filter Hint

Source - Target mappings

Source Table	Source Column	Target Table	Target Column	Expression
No Record found				

Hint

Hint

The *Database Extracts* screen displays the list of pre-defined Database Extract Mappings in the LHS menu and the options to define and Map the Data Sources to populate the required Table or File. You can also make use of Pagination option to view the list of pre-defined Database Extracts within the system. For more information, refer [Pagination](#) section.

In the *Database Extracts* screen of the Data Ingestion, you can:

- Define extracts, Entities, and related Properties
- Map the Source to Target model (table or file)

1.2.3.2.1 Database Extraction

The *Database Extracts* screen facilitates you to extract data sources to a Table or a File. Extract to Table option is supported only when the source and target tables belong to the same database type. You can **Load** data incrementally from any RDBMS data source to a table based on certain criteria and **Extract** data to a file along with the other sources.

The various sections and the available options in the *Database Extracts* screen are as tabulated:

- In the *Define Extract* grid, you can define the Database Extract details. The tool bar options available are:

Button	Description
	Add Database Extracts
	Modify Database Extracts
	Save Database Extracts
	Reset the Database Extract details
	Define Database Extract Properties

- In the *Extract Entities* grid, you can define expressions to join tables and specify filter for data extraction. The tool bar options available are:

Button	Description
	Select Entities
	Reset Entity details
	Delete specified entities
	Validate grid data (order of rows and columns)
	Define Expression

- In the *Source-Target Mappings* grid, you can map the source table of a selected Information Domain to the target model. The tool bar options available are:

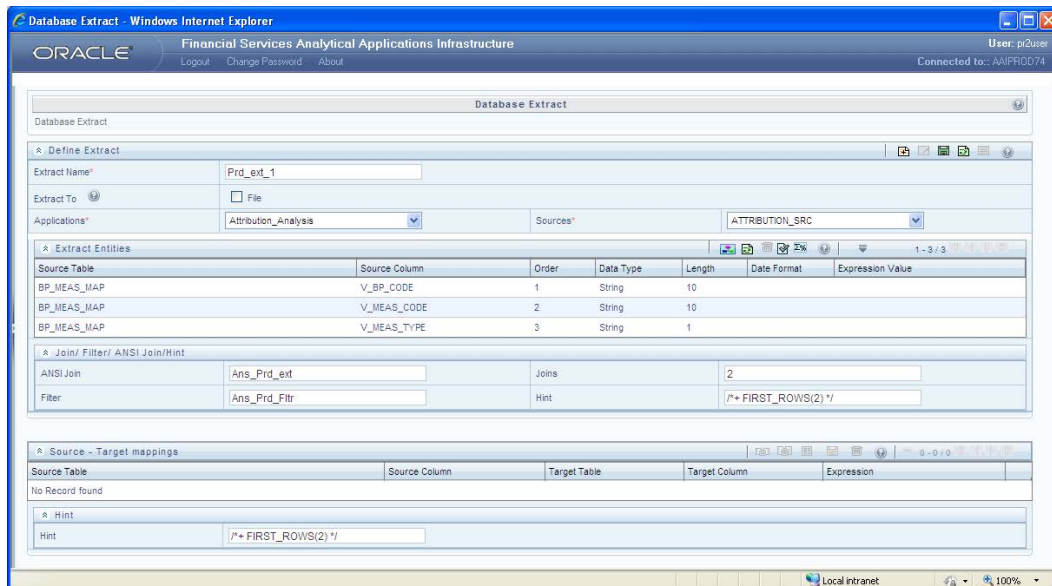
Button	Description
	Define Source to Target columns
	Un-map all selected Source to table columns
	Define Database Extract Properties

Button	Description
	Save Source-Target mappings
	Delete Database Extract Properties

1.2.3.2.2 Defining Database Extracts and Map Table to Table

You can extract data from source table to the required table in the *Database Extracts* screen. By default, the **Extract to Table** option is enabled in the *Database Extracts* screen. Extraction to Table is supported only when the source and target tables belong to the same database type. Extract to Table does not have any definition (Source) properties.

To extract data source to table, do the following:



Specify the Database Extract details in the *Define Extract* grid:

1. Enter the **Extract Name**. Special characters or extra spaces are not allowed.
2. De-select the **Extract To File** checkbox.
3. Select the required data source from the **Application** drop-down list.
4. Select the mapped **Sources** from the drop-down list.

Select the required Entities in the *Extract Entities* grid:

1. Click  button in the *Extract Entities* tool bar.
2. In the *Choose Entity* screen, do the following:

- Select the entity from the *Members* list by selecting the required node, and click .
- You can search for a specific entity by entering the keywords and clicking  button. You can also deselect an entity by selecting from the *Selected Members* list and clicking  button.
- Click **OK**. The selected source entities are displayed in the *Extract Entities* grid.

Define an expression (optional) in the Extract Entities grid:

If you have defined more than one Source Table in the *Choose Entity* screen, you need to define an expression to join the column data corresponding to each table.

1. Click  button in the Extract Entities tool bar.
2. In the *Specify Expression* screen, do the following:
 - Enter the **Expression Name**.
 - Select the **Data Type** from the drop down list. The available options are String, Date Time, Number, Integer, and Timestamp. If you have selected Date Time as **Data Type**, you need to set the Date Format by double clicking the attribute/field from the *Source Entities* pane.
3. Define an expression by doing the following:
 - Select the **Table** in the Entities section.
 - Select the **Function**. You can select Transformations, Database Functions, or Extraction Functions. Extract functions are populated from the “*DATABASE_ABSTRACT_LAYER*” table which resides in config schema.
 - Define the **Operators** by selecting Arithmetic, Concatenation, Comparison, Logical or others operators.
 - Specify the ANSI Join or Join to map the table columns and enter the filter criteria to include during extraction. For example, “\$MISDATE” can be a filter for run-time substitution of the MIS Date.

NOTE: If the defined expression uses function that has a placeholder or calls a stored procedure that has a placeholder for String data type, enclose the placeholder in single quotes. Using double-quotes would generate error during extract definition or batch execution. Also expressions with Date/Timestamp data type placeholders are not supported.

4. In the Expressions tool bar, you can also:
 - Click  button to view the Expression details.

- Click  button to view the ANSI Join details. UNION keyword cannot be used in the ANSI join in T2T framework.
 - Click  button to view the Joins.
 - Click  button to view the Filters.
 - Click  button to clear the details.
5. Select **Show Advanced Options** in the Expression tool bar, and do the following:
 - Click  button to and specify hints (Rules), if any. Oracle hints follow (/+ RULE */) format. For example, /+ FIRST_ROWS(2) */
 - Click  button to validate the query by converting to the selected RDBMS source. If Validation is successful, the Explain Plan for the SQL query is displayed. Else, the *SQL Exception* is displayed.
 - Click  button to view SQL, which acts as print command for the complete query.
 6. Click **OK**. The defined Expression is displayed in the *Extract Entities* grid as *Derived Column*. The specified ANSI Join or Joins, Filter, and Hints are also displayed and can be edited.
 7. Click  button in the Define Extract tool bar and save the details.

Map Source to Target Table in the Source-Target Mappings grid:

1. Click  button in the Source-Target Mapping tool bar. The *DI Mapping* screen is displayed. The selected source table columns are displayed in the *Definition* pane of *Target Table Map Panel*.
2. Click  and select the **Target Infodom** from the drop-down list.
3. Click  and select the target table from Target Entities drop-down list. The selected entities are displayed in the *Target Entities* pane of *Target Table Map Panel*.
4. To map source to target, do one of the following:
 - Select the required column from the *Definition* pane and select a column in the Target Entities pane and click  button.
 - Click  button to Auto-Map the selected definitions and Target Entities.

You can remove a mapping by selecting the target column and clicking  button or remove all mappings by clicking  button. You can also search for a specific definition by entering the keywords and clicking  button.

NOTE: For a single DI Mapping, you can use different target tables. That is, after mapping a source column to a column in a Target Entity, you can select another Target Entity and start mapping source columns to that target table columns.

- Click **Save** and save the mapping details.

Specify the Properties in the *Source-Target Mappings* grid:

1. Click  button in the Source-Target Mappings tool bar. The *Properties* screen is displayed.
2. Specify the properties by entering a value or selecting an option from the drop down list.

You can click  button to view the related information in a pop-up.

In the *Properties* screen, you can specify the **Loading Mode** as *Direct*, *Batch*, or *Bulk*. Specify the **Batch Size**. The ideal values for batch sizes are 1024, 2048, 10000, or 20000. Huge batch sizes may result in failure if the required system resources are not available.

In Bulk Mode of loading, note that:

- Loading is possible only when the target database and the data source created for the definition are in the same database.
- If the schema used for source and target is different but the database is same, then the target schema should be granted **Select** access for the source table.
- You cannot specify the **Batch Size** and commit happens at the end of batch load.

Batch loading is faster for lesser records as compared to larger number of records, which sometimes lead to loss of data while loading.

NOTE: In **Batch** and **Bulk** modes if any of the foreign keys are in **Disabled** state before loading the data using T2T and the property **Disable Primary Key** is set to **Yes**, then all the Primary Keys and corresponding Foreign Keys are disabled before loading and are enabled back after loading. Hence the initial status of foreign and primary keys can be changed from Disabled to Enabled. In **Direct** mode, if the **Disable Primary Key** property is not set (selected as **No**), then the **Delete Duplicate** property is set to **Yes** automatically, which in turn reports all the duplicate records in the error log table.

3. (Optional) In the *Hint* tool bar, specify Hints (if any), for faster loading. Oracle hints follow `(/*+ HINT */)` format.

For example, `/*+ PARALLEL */`.

4. Click  button and save the defined Database Extracts mapping details. An information dialog is displayed on completion. Click **OK**.

1.2.3.2.3 Defining Database Extracts and Map Table to File

You can extract data from source table to the specified file in the *Database Extracts* screen. To extract data to a file along with the other sources, you need to define the Database Extracts and specify the Extract Entities. Source-Target mapping is not required since the table structure is completely extracted to the specified file. To extract data source to file, do the following:

Database Extract - Define Extract

Extract Name: Prd_DE_178

Extract To: ☒ File

Applications: TEST Sources: VAS_TEST_06_SRC

Source Table	Source Column	Order	Data Type	Length	Date Format	Expression Value
ACCOUNT_POOL_MAPPING	FIC_MIS_DATE	1	Date Time	7	MM-DD-YYYY	
ACCOUNT_POOL_MAPPING	MODEL_ID	2	String	60		
ACCOUNT_POOL_MAPPING	N_ACCT_SKEY	3	Number	22		
ACCOUNT_POOL_MAPPING	N_CART1_SEG_ID	4	Number	22		
ACCOUNT_POOL_MAPPING	N_CART2_SEG_ID	5	Number	22		
ACCOUNT_POOL_MAPPING	N_GNI_SEG_ID	6	Number	22		
ACCOUNT_POOL_MAPPING	N_H_CLUST_ID	7	Number	22		
ACCOUNT_POOL_MAPPING	N_K_MEANS_CLUST_ID	8	Number	22		
ACCOUNT_POOL_MAPPING	N_RUN_SKEY	9	Number	22		

Join/Filter

ANSI Join: Ans_Prd_Jn Joins: 2

Filter: Ans_PRD_Filtr Hint: /* FIRSTROWS(2) */

Source Table	Source Column	Target Table	Target Column	Expression
ACCOUNT_POOL_MAPPING	FIC_MIS_DATE	ACCOUNT_POOL_MAPPING	fic_mis_date	%
ACCOUNT_POOL_MAPPING	MODEL_ID	ACCOUNT_POOL_MAPPING	model_id	%
ACCOUNT_POOL_MAPPING	N_ACCT_SKEY	ACCOUNT_POOL_MAPPING	n_acct_skey	%

Hint

Hint: /* FIRSTROWS(2) */

Specify the Database Extract details in the *Define Extract* grid:

1. Enter the **Extract Name**. Ensure that there are no special characters or extra spaces in the name specified.
2. Select **Extract To File** checkbox.
3. Select the required data source **Application** from the drop down list.
4. Select the mapped **Sources** from the drop down list.

Specify the Source Properties in the Define Extract grid:

1. Click  button in the Define Extract tool bar. The *Properties* screen is displayed.
2. Specify the properties by entering the required value or selecting an option from the drop down list.

You can click  button to view the related information in a pop-up dialog pertaining to a field.

NOTE: *Field Delimiter* and *Data File Locale* are mandatory fields. You need to set the *Data File Locale* property to **UTF-8** encoding by specifying the numeric value as **000-000-0002**.

Select the required Entities in the Extract Entities grid:

1. Click  button in the Define Entities tool bar.
2. In the *Choose Entity* screen, do the following:
 - Select the entity from the Members list by clicking on the required node, and click  button.
 - You can search for a specific entity by entering the keywords and clicking  button. You can also deselect an entity by selecting from the Selected Members list and clicking  button.
 - Click **OK**. The selected source entities are displayed in the Define Entities grid.

Define an expression (optional) in the *Extract Entities* grid:

If you have defined more than one Source Table in the *Choose Entity* screen, you need to define an expression to join the column data corresponding to the table.

1. Click  button in the Extract Entities tool bar.
2. In the *Specify Expression* screen, do the following:
 - Enter the **Expression Name**.
 - Select the **Data Type** from the drop down list. The available options are String, Date Time, Number, Integer, and Timestamp.
3. Define an expression by doing the following:
 - Select the **Table** in the Entities section.
 - Select the **Function**. You can select Transformations, Database Functions, or Extraction Functions. Extract functions are populated from the "DATABASE_ABSTRACT_LAYER" table which resides in config schema.
 - Define the **Operators** by selecting Arithmetic, Concatenation, Comparison, Logical or others operators.
 - Specify the ANSI Join or Join to map the table columns and enter the filter criteria to include the same during extraction. For example, "\$MISDATE" can be a filter for run-time substitution of the MIS Date.

NOTE: For expression that has a placeholder for String data type, enclose the placeholder in single quotes. Expressions with Date/Timestamp data type placeholders are not supported.

4. In the Expressions tool bar, you can also:
 - Click  button to view the Expression details.
 - Click  button to view the ANSI Join details.
 - Click  button to view the Joins.
 - Click  button to view the Filters.
 - Click  button to clear the details.
5. Select **Show Advanced Options** in the Expression tool bar, and do the following:
 - Click  button to and specify hints (Rules), if any. Oracle hints follow `(/*+ RULE */)` format. For example, `/*+ FIRST_ROWS(2) */`
 - Click  button to validate the query by converting to the selected RDBMS source. If Validation is successful, the Explain Plan for the SQL query is displayed. Else, the SQL Exception is displayed.
 - Click  button to view SQL, which acts as print command for the complete query.
6. Click **OK**. The defined Expression is displayed in the *Extract Entities* grid as *Derived Column*. The specified ANSI Join or Joins, Filter, and Hints are also displayed and can be edited.
7. Click  button in the Define Extract tool bar and save the details.

NOTE: While saving the Database Extract details, the system alerts you if the mandatory properties are not specified or if the grid data is not validated.

An information dialog is displayed on completion. Click **OK**.

Map Source to Target Table in the Source-Target Mappings grid:

1. Click  button in the Source-Target Mapping tool bar. The *DI Mapping* screen is displayed.
2. Select the **Target Infodomain** from the drop down list. The source details in the selected infodomain are displayed in the *Definition* pane of *Target Table Map Panel*.
3. Select the Target Table from Target Entities drop down list. The selected entities are displayed in the *Target Entities* pane of *Target Table Map Panel*.
4. To map Source to Target, do one of the following:
 - Select a Definition and Target Entity in each column and click  button.
 - Click  button to Auto-Map the selected definitions and Target Entities.

You can Un-Map a definition from a Target Entity by clicking  button or Un-Map All definitions by clicking  button. You can also search for a specific definition by entering the keywords and clicking  button.

- Click **Save** and save the mapping details.

Specify the Properties in the *Source-Target Mappings* grid:

1. Click  button in the Source-Target Mappings tool bar. The *Properties* screen is displayed.
2. Specify the properties by entering a value or selecting an option from the drop down list.

You can click  button to view the related information in a pop-up.

3. (Optional) In the *Hint* tool bar, specify Hints (if any), for faster loading. Oracle hints follow *(/*+ HINT */)* format.

For example, */*+ PARALLEL */*.

4. Click  button and save the defined Database Extracts mapping details. An information dialog is displayed on completion. Click **OK**.

NOTE: A T2F definition saved with the Source to Target mappings can be used to perform F2T operations.

1.2.3.3 File Extracts

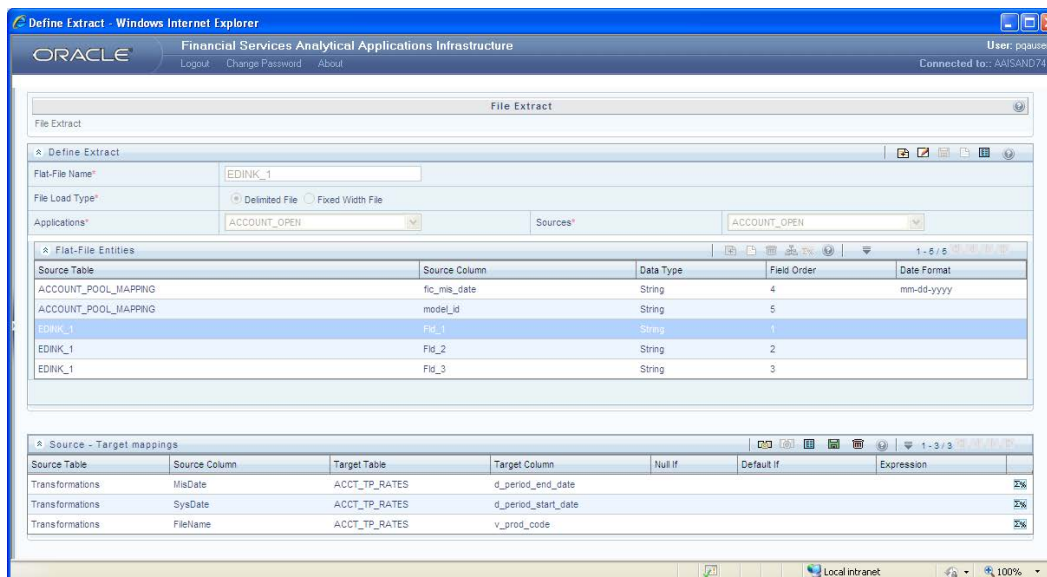
File Extracts refers to the process of extracting unstructured data from a Flat File for further data processing and storage. The extraction process can be followed by data transformation and metadata addition before exporting it to the staging area or to the Business Data Model.

File Extracts within the Data Management Tools framework of Infrastructure system facilitates you to extract Flat File data to a Database Table. A Flat File is a text and binary file which contains data in a single line, i.e. one physical record per line. For example, a list of names, addresses, and phone numbers. Flat Files are of two types namely, Delimited File and Fixed Width File.

- **Delimited File** refers to a Flat File in which the data is organized in rows and columns and are separated by delimiters (commas). Each row has a set of data, and each column has a type of data. For example, a csv (comma separated values) file.
- **Fixed Width** or Fixed Position File refers to a Flat File in which the data is defined by the character position (tab space). The data is formulated in such a way that the data fields are of same size and the file is compact in size. For example, the character spacing of a Birth date data column is known and hence the extra spaces between the Birth date column and other column can be eliminated.

You (Business Analysts) need to have ETL Analyst function role mapped to access the Data Management Tools framework within the Infrastructure system. You can access File Extracts by expanding Data Ingestion section of Data Management Tools Framework within the tree structure of LHS menu.

For date type transformation in F2T, date format should be specified.



The *File Extracts* screen displays the list of pre-defined File Extract Mappings in the LHS menu and the options to define and Map the required Flat File to populate the required Database Table. You can also make use of Pagination option to view the list of pre-defined File Extracts within the system. For more information, refer [Pagination](#) section.

In the *File Extracts* screen of the Data Ingestion, you can:

- Define Flat File definition and Source Properties.
- Map the Flat File to Target model (Table) and Specify Target Properties.

1.2.3.3.1 File Extraction

In the *File Extracts* screen you can **Load** file data incrementally from any RDBMS data source to a table based on certain criteria. Ensure that the ASCII file types are not loaded into the staging area using FTP which can corrupt the file causing load failure.

NOTE: SQL*Loader leaves indexes in an Index Unusable state when the data segment being loaded becomes more up-to-date than the index segments that index it. Two tasks cannot be executed in parallel (without setting precedence), if both the tasks are pointing to the same Destination table.

The following steps are involved while defining File Extracts:

- Create Flat File Definition
- Define Flat File Properties
 - Definition (Source) properties: Specified when defining the Flat File Extracts.
 - Loading (Target) properties: Specified when mapping the Flat File Extracts.
- Map the Flat File to the Target Model

The various sections and the available options in the *File Extracts* screen are as tabulated:

- In the *Define Extract* grid, you can define the File Extract details. The tool bar options available are:

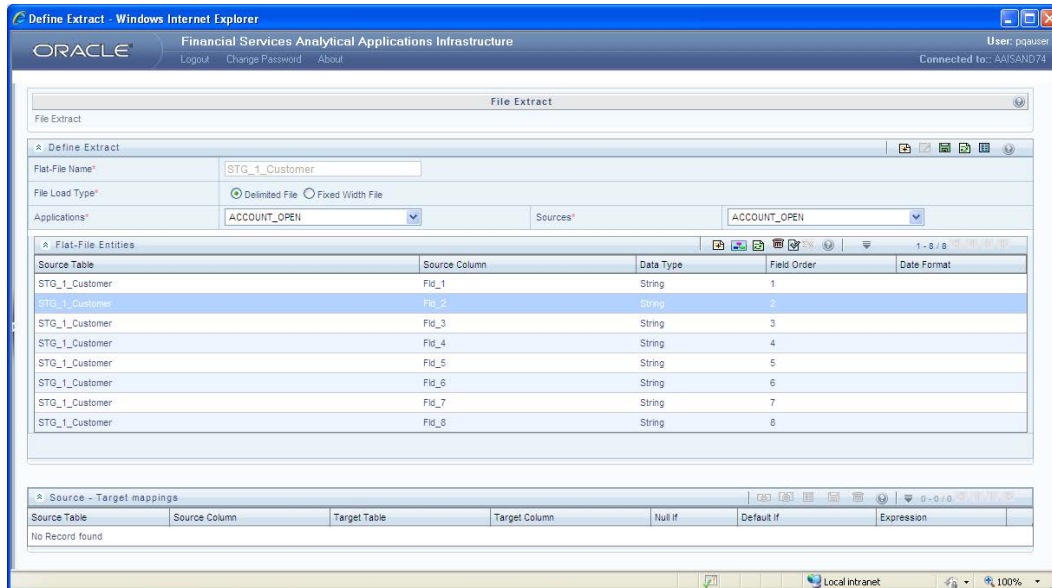
Button	Description
	Create File Extracts
	Modify File Extracts
	Save File Extracts
	Reset the File Extract details
	Define File Extract Source Properties

- In the *Flat-File Entities* grid, you can specify the required entities for data extraction. The tool bar options available are:

Button	Description
	Create an Entity Column or Field
	Select Entities
	Reset Entity details
	Delete specified entities
	Validate grid data (order of rows and columns)
	Create a logical Expression

1.2.3.3.2 Defining File Extracts and Map File to Table

You can define File Extracts such as Delimited File or Fixed Width File and Map to the required database Table. By default, the Delimited File Extract option is selected. To extract file data to table, do the following:



Specify the File Extract details in the *Define Extract* grid:

1. Enter the **Flat-File Name**. Ensure that there are no special characters or extra spaces in the name specified.
2. Select the File Load Type as **Delimited File** or **Fixed Width File**.
3. Select the required data source **Application** from the drop down list.
4. Select the mapped **Sources** from the drop down list.

Select the required Entities in the *Flat-File Entities* grid. You can define the column data in either of the following ways:

- Click  button. Select or specify the required number of columns in the drop down list and click  button. You can double-click on any row to update the details.
- Click  button in the Define Entities tool bar. The *Choose Entity* screen is displayed.
 - Select the entity from Members list by clicking on the required node, and click  button.

You can search for a specific entity by entering the keywords and clicking  button. You can also deselect an entity by selecting from the Selected Members list and clicking  button.

- Click **OK**. The selected source entities are displayed in the Flat File Entities grid.

The available columns in Delimited File are Source Table, Source Column, Data Type, Order, and Date Format. The available columns in Fixed Width File are Source Table, Source Column, Data Type, Order, Precision, Scale, Source Start Position, Date Format, and Length.

Specify the Source Properties in the *Define Extract* grid:

1. Click  button in the Define Extract tool bar. The *Properties* screen is displayed.
2. Specify the properties by entering the required value or selecting an option from the drop down list.

You can click  button to view the related information in a pop-up dialog pertaining to a field.

NOTE: It is mandatory to set the **Data File Locale** property for both *Delimited File* and *Fixed Width File* load types to **UTF-8** encoding, by specifying the numeric value as 000-000-0002. **Field Delimiter** is mandatory for *Delimited File* load type.

3. Click  button in the Define Extract tool bar and save the details.

Map Source to Target Table in the *Source-Target Mappings* grid:

1. Click  button in the Source-Target Mapping tool bar. The *DI Mapping* screen is displayed.
2. Select the **Target Infodom** from the drop down list. The source details in the selected Information Domain are displayed in the *Definition* pane of *Target Table Map Panel*.
3. Select the **Target Table** from Target Entities drop down list. The selected entities are displayed in the *Target Entities* pane of *Target Table Map Panel*.
4. To map Source to Target, do one of the following:

- Select a Definition and Target Entity in each column and click  button.
- Click  button to Auto-Map the selected Definitions and Target Entities.

You can Un-Map a Definition from a Target Entity by clicking  button or Un-Map All Definitions by clicking  button. You can also search for a specific Definition

by entering the keywords and clicking  button or click  button to create an expression to join column data in the *Specify Expression* screen.

- Click **Save** and save the mapping details.

Specify the Target Properties in the *Source-Target Mappings* grid:

1. Click  button in the Source-Target Mappings tool bar. The *Properties* screen is displayed.
2. Specify the properties by entering the required value or selecting an option from the drop down list.

You can click  button to view the related information in a pop-up dialog pertaining to a field.

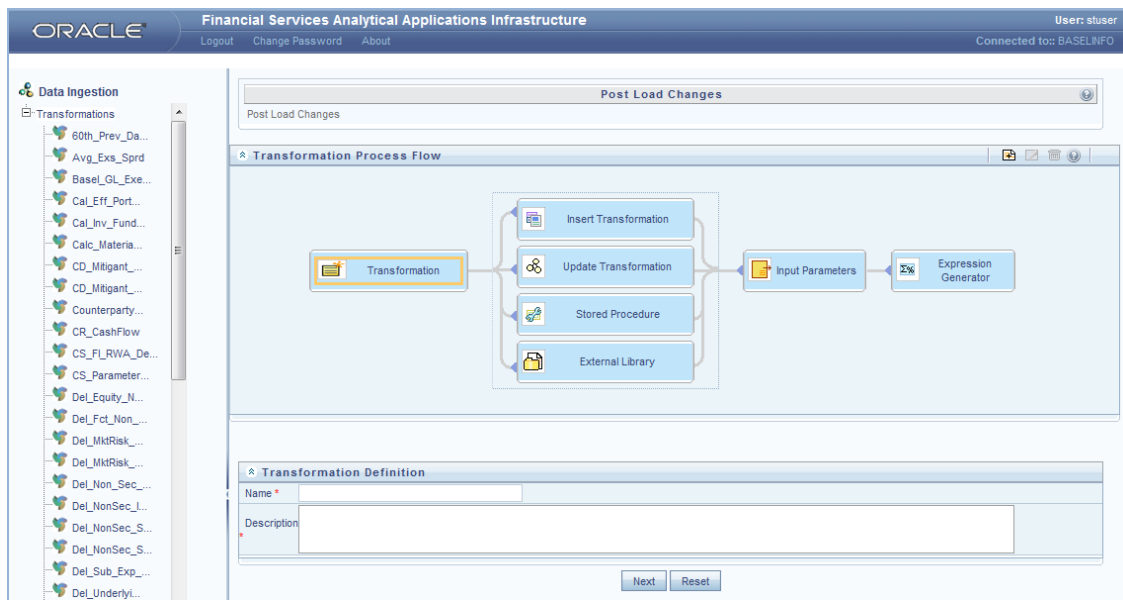
3. Click  button and save the details.

1.2.4 Post Load Changes

Post Load Changes refers to a rule describing the conversion of data from sources to Staging or from Staging to Processing (destination) tables. During the data extraction, a Post Load Changes rule facilitates in structuring the required data from sources to the target or an intermediate systems for further processing. Based on the selected mode, Post Load Changes can be applied to execute the process successfully.

Post Load Changes within the Data Management Tools framework of Infrastructure system facilitates you to define transformations to the source data before extracting/loading it to Target database to populate the data warehouse.

You (Business Analysts) need to have ETL Analyst function role mapped to access the Data Management Tools framework within the Infrastructure system. You can access Post Load Changes by expanding the Data Management Tools Framework within the Unified Metadata Manager section in tree structure of LHS menu.



The *Transformation Process Flow* section helps you to navigate and define Post Load Changes.

- [Insert/Update Transformation](#)
- [Stored Procedure Transformation](#)
- [External Library](#)

1.2.4.1 Insert/Update Transformation

Insert/Update Transformation facilitates you to define transformation parameters, create expression with source, destination, and join/filter conditions, add transformation logic, and query the SQL Rule generated.

To insert or update a transformation:

1. Click  button in the *Transformation Process Flow* tool bar.
2. In the *Transformation Definition* grid:
 - Enter the **Transformation Name**. Ensure that there are no special characters or extra spaces in the name specified.
 - Enter a **Description** for the transformation.
 - Click **Next** and save the details. You are automatically navigated to the Insert Transformation section. For Update Transformation, click **Update Transformation** in the *Transformation Process Flow* grid.
3. Click  button in the *Parameter Definition* tool bar. A new row is inserted and allows you to define the run-time parameters to the transformation.
 - Double-click on the **Parameter Name** and enter the details.

- Double-click and select the required **Data Type** from the list.
 - Double-click on the **Default Value** and enter the details.
 - Click **Next** and save the parameter details.
4. In the *Expression Generator* grid, specify the Source and Destination Entity by doing the following:
- Click  button. The *Choose Entity* screen is displayed.
 - Select the entity from the **Members** list by clicking on the required node, and click .
- You can search for a specific entity by entering the keywords and clicking  button. You can also deselect an entity by selecting from the **Selected Members** list and clicking .
- Click **OK**. The selected source entities are displayed in the Define Entities grid.
5. Specify the Join/Filter Condition. Click  button and define the expression in the *Specify Expression* screen. Click **OK**.
6. You can also:
- Click  button and include the Transformation parameter conditions in the *Transformation Logic* grid or click  button to define an expression.
 - Click  button to generate Logic and view the SQL query in the *Query Generated* grid.
 - Click **Check Syntax** to check the syntax of the query generated.
7. Click **Finish** and save the Insert or Update Transformation details.

The Transformation details are added to the list in LHS menu and a confirmation dialog is displayed. Click **OK**. You can load the transformation by double-clicking in LHS menu to view or edit.

1.2.4.2 Stored Procedure Transformation

Stored Procedure Transformation facilitates you to define complex transformations involving multiple tables which are contained in a pre-defined stored procedure.

To define a Stored Procedure Transformation:

1. Click  button in the *Transformation Process Flow* tool bar.
 2. In the *Transformation Definition* grid:
 - Enter the **Transformation Name**. Ensure that there are no special characters or extra spaces in the name specified.
 - Enter a **Description** for the transformation.
 - Click **Next** and save the details. You are automatically navigated to the *Insert Transformation* section.
 3. Click **Stored Procedure** in the *Transformation Process Flow* grid.
 4. Click  button in the *Parameter Definition* tool bar. A new row is inserted and allows you to define the run-time parameters to the transformation.
 - Double-click on the **Parameter Name** and enter the details.
 - Double-click and select the required **Data Type** from the list.
 - Double-click on the **Default Value** and enter the details.
 5. Click **Browse** in the Stored Procedure Editor tool bar and navigate to the file path containing the stored procedure. You can select either a text file or HTML file.
 6. (Optional) You can click  button in the Stored Procedure Editor tool bar to **Check Syntax** of the stored procedure.
 7. (Optional) You can upload a *Business Process Flow* diagram corresponding to the selected Stored Procedure Transformations in jpg, png, gif, or vsd format.
 - In the Business Process Flow grid, click **Browse** and locate the file path.
 - Click  button in the Business Process Flow tool bar and upload the file.
- Once uploaded, the Upload Status changes to “Yes” and a hyperlinked image icon is displayed to view the Business Process Flow diagram in the *Post Load Changes* screen. You can also view the uploaded Business Process Flow diagram from the *Metadata Browser (Applet) > Data Transformations* screen.
8. Click **Finish** and save the Stored Procedure Transformation details.

The Transformation details are added to the list in LHS menu and a confirmation dialog is displayed. Click **OK**. You can load the transformation by double-clicking in LHS menu to view or edit.

1.2.4.3 External Library

External Library consists of built-in functions/procedures and facilitates you to define complex SQL Rule Transformations which are compiled and stored as an executable file. You can load the External Library procedures and functions using the transformation wizard.

To define External Library Transformation:

1. Click  button in the *Transformation Process Flow* tool bar.
2. In the *Transformation Definition* grid:
 - Enter the **Transformation Name**. Ensure that there are no special characters or extra spaces in the name specified.
 - Enter a **Description** for the transformation.
 - Click **Next** and save the details. You are automatically navigated to the Insert Transformation section.
3. Click **External Library** in the *Transformation Process Flow* grid.
4. Click  button in the *Parameter Definition* tool bar. A new row is inserted and allows you to define the run-time parameters to the transformation.
 - Double-click on the **Parameter Name** and enter the details.
 - Double-click and select the required **Data Type** from the list.
 - Double-click on the **Default Value** and enter the details.
5. In the *External Library Details* grid, enter the **Name** of executable library file (**.sh file**) located in default ficdb/bin path. You can also specify the path till the file name.
6. Click **Finish** and save the External Library Transformation details.

The Transformation details are added to the list in LHS menu and a confirmation dialog is displayed. Click **OK**. You can load the transformation by double-clicking in LHS menu to view or edit.

1.2.5 Data Quality Framework

Data Quality Framework consists of a scalable rule-based engine which uses a single-pass integration process to standardize, match, and deduplicate information across global data. Data Quality Framework within the Infrastructure system facilitates you to define rules and execute them to query, validate, and correct the transformed data existing in an Information Domain.

You can access Data Quality Framework by expanding the Data Management Tools Framework within the Unified Metadata Manager section in tree structure of LHS menu. Data Quality Framework consists of the following sections. Click on the following links to view the section in detail.

- [Data Quality Rules](#)
- [Data Quality Groups](#)

1.2.5.1 Data Quality Rules

Data Quality Rules facilitates you to create a DQ (Data Quality) definition and define nine specific validation checks based on Range, Data Length, Column Reference/Specific Value, List of Value/Code, Null Value, Blank Value, Referential Integrity, Duplicity, and Custom Check/Business. You can also correct data for range, column reference, list of values, null value, and blank value parameters.

The defined Data Quality Rule checks can be logically grouped and executed together. You (Business Analysts) need to have DQADMN (DQ Rule Admin) function role mapped to access the Data Quality Rules within the Infrastructure system. You can access Data Quality Rules by expanding the Data Quality framework within the Unified Metadata Manager section in tree structure of LHS menu.

Name	Table	Access Type	Check Type	Folder	Creation Date	Created By	Last Modification Date	Status	Is Grouped	Is Executed
authorize_check	DM_ACCOUNT	Read/Write	Specific Check	AAPROD74C	03/14/2012 06:54:07	PRUSER	03/14/2012 06:54:07	Approved	Yes	Yes
authorize_check_copy	DM_ACCOUNT	Read/Write	Specific Check	AAPROD74C	06/25/2012 08:12:16	PRUSER	06/25/2012 08:12:16	Approved	No	No
AUTHTEST	DM_ACCOUNT	Read/Write	Specific Check	AAPROD74C	03/16/2012 09:01:16	PRUSER	03/16/2012 09:01:16	Approved	Yes	No
AUTHTEST123	DM_ACCOUNT	Read/Write	Specific Check	AAPROD74C	03/16/2012 09:04:55	PRUSER	03/16/2012 09:04:55	Rejected	No	No
AUTHTEST_rightdisadjmt_saf	DM_ACCOUNT	Read/Write	Specific Check	AAPROD74C	03/16/2012 10:20:31	PRUSER	03/16/2012 10:20:31	Approved	Yes	Yes
BK	DM_ACCOUNT	Read/Write	Specific Check	AAPROD74C	04/25/2012 03:00:48	PRUSER	04/25/2012 03:00:48	Saved	No	No
sgrrgh	DM_ACCOUNT	Read/Write	Specific Check	AAPROD74C	03/14/2012 07:34:38	PRUSER	03/14/2012 07:34:38	Saved	No	No
DORoleuuh	DM_ACCOUNT	Read/Write	Specific Check	AAPROD74C	04/19/2012 00:25:56	PRUSER	04/19/2012 00:25:56	Approved	No	No
dafedg	DM_ACCOUNT	Read/Write	Specific Check	AAPROD74C	03/13/2012 05:01:23	PRUSER	03/13/2012 05:01:23	Saved	No	No
float_data_type	DM_ACCOUNT	Read/Write	Specific Check	AAPROD74C	03/12/2012 11:22:07	PRUSER	03/12/2012 11:24:58	Saved	No	No

The *Data Quality Rule Summary* screen displays the list of pre-defined Data Quality Rules with the other details such as Name, Table, Access Type, Check Type, Folder, Creation Date, Created By, Last Modification Date, Status, Is Grouped, and Is Executed. A defined rule is displayed in **Saved** status, until it is Approved/Rejected by the approver. An Approved rule can be

grouped in order for execution and a Rejected rule is sent back to the user with the Approver comments.

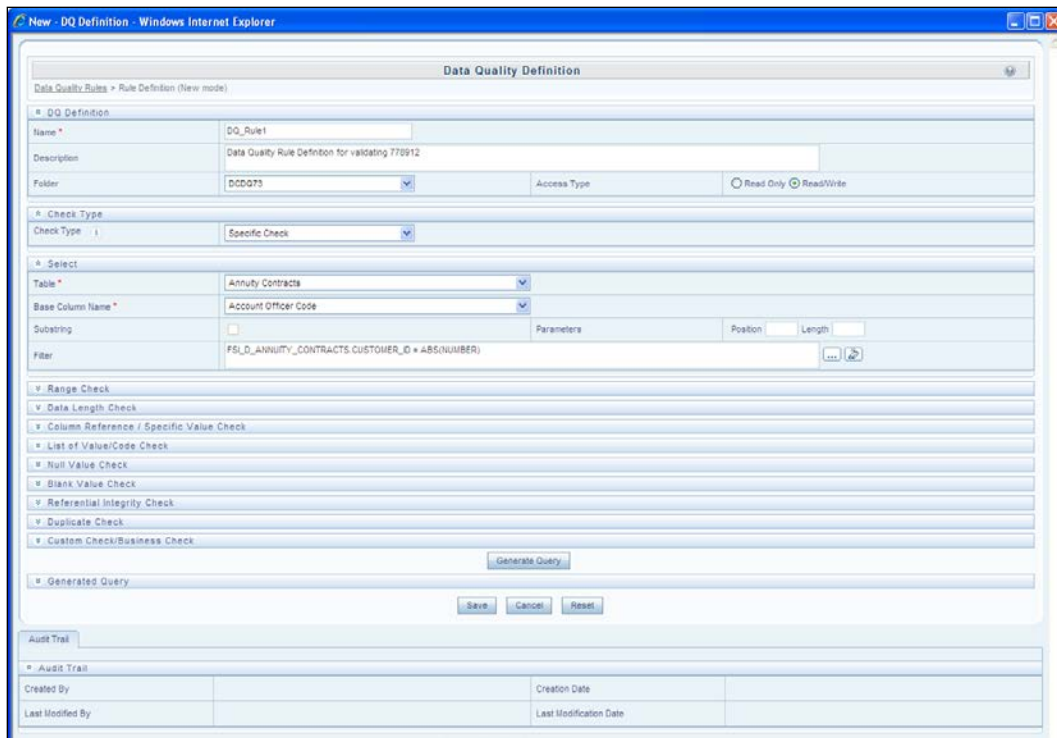
You can add, view, modify, copy, approve/reject, or delete Data Quality Rules within the *Data Quality Rule Summary* screen. You can also make use of Search and Pagination options to search for a Data Quality Rule based on Name, Folder, Table, or Check Type and view the existing Data Quality Rules within the system. For more information, refer [Search & Filter](#) and [Pagination](#) options.

1.2.5.1.1 Creating Data Quality Rule

You can create a Data Quality Rule definition by specifying the DQ Definition details along with the type of validation check on the required table and defining the required validation conditions to query and correct the transformed data.

To create Data Quality Rule in the *Data Quality Rule Summary* screen:

1. Click  button in the Data Quality Rules tool bar. **Add** button is disabled if you have selected any checkbox in the grid. The *New - DQ Definition* screen is displayed.



2. In the DQ definition section, do the following:
 - Enter the **Name** by which you can identify the DQ definition.
 - Enter a description or related information about the definition.

- Select the **Folder** (available for selected Information Domain) from the drop down list.
 - Select the **Access Type** as either *Read Only* or *Read/Write*. Read Only enables only the creator to modify the rule details, other users can only view. Read/Write enables all users to view, modify any field (including Access Type), and delete the DQ rule.
3. Select the **Check Type** from the drop down list.

You can mouse-over  button for information.

- Select *Specific Check*, if the defined conditions are based on individual checks on a single column.
- Select *Generic Check*, if the defined conditions are based on multiple columns of a single base table. These checks are not pre-defined and can be specified (user-defined) as required.

If **Specific Check** is selected, do the following:

- Select **Table Name** and **Base Column Name** from the drop down list. The list displays all the tables which are marked for Data Quality Rule in a data model, which has the table classification property code set to 340.
- (Optional) If you have selected Base Column of type Varchar/Char, select the **Substring** checkbox and enter numeric values in Parameters Position and Length characters fields.
- Click  button and define the **Filter** condition using the *Specify Expression* screen. For more information, refer [Define Expression](#).

NOTE: While defining the filter condition, you can also include the Runtime Parameter name which you would be specifying in Additional Parameters condition while executing the DQ Rule.

- Define the required *Validation Checks* by selecting the appropriate grid and specify the details. You can define nine specific validation checks based on Range, Data Length, Column Reference/Specific Value, List of Value/Code, Null Value, Blank Value, Referential Integrity, Duplicity, and Custom Check/Business.

NOTE: A minimum of one Validation check must be defined to generate a query.

- Ensure that you select **Enable** checkbox for every check to be applied as a part of rule.
- While defining any of the validation checks, you need to specify the Severity as Error or Warning or Information. You can add an Assignment only when the Severity is selected as **Warning** or **Information**. Assignments are added when

you want to correct or update record(s) in base column data / selected column data. However, selecting severity as **Error** indicates there are no corrections and only facilitates in reporting the quantity of bad records.

Check Type	Description
Range Check	Range Check identifies if the base column data falls outside a specified range of Minimum and Maximum value. Example: If the Base Table is STG_CASA, Base Column is N_MIN_BALANCE_YTD, Minimum value is 9, and Maximum value is 99, then the check with the Inclusive checkbox enabled (by default) is defined as, 'STG_CASA.N_MIN_BALANCE_YTD < 9 and STG_CASA.N_MIN_BALANCE_YTD > 99'. Here the base column data less than 9 and greater than 99 are identified as invalid. If the Inclusive checkbox is not selected for Minimum and Maximum, then the check is defined as, 'If STG_CASA.N_MIN_BALANCE_YTD <= 9 and STG_CASA.N_MIN_BALANCE_YTD >= 99'. Here the base column data less than 10 and greater than 98 are identified as invalid, where 9 and 99 are also included in the validation and considered as invalid. ▪ Select Enabled checkbox. This option is available only if the selected Base Column is either of Date or Number data type. ▪ Select the Severity as Error, Warning or Information. ▪ If the selected Base Column is of "Date" type, select Minimum and Maximum date range using the Calendar. If the selected base column is of "Number" type, enter the Range value. You can specify numeric, decimal, and negative values for number Data type. The Inclusive checkbox is selected by default and you can deselect the same to include the specified date/value during the validation check. ▪ Click  button and specify an expression for Additional Condition using <i>Specify Expression</i> screen. For more information, refer Define Expression. (Optional) If the Severity is set to Warning/Information: ▪ Select the Assignment checkbox. ▪ Select the Assignment Type from the drop down list. For more information, refer Populating Assignment Type Details in Reference section. ▪ Specify the Assignment Value. ▪ Select the Message Severity from the drop down list. ▪ Select the Message from the drop down list.

Check Type	Description
Data Length Check	Data Length Check checks for the length of the base column data using a min and max value, and identifies if it falls outside the specified range. Example: If the Base Table is STG_CASA, Base Column is N_MIN_BALANCE_YTD, Minimum value is 9 and Maximum value is 12, then the check is defined as, '<i>If length of STG_CASA.N_MIN_BALANCE_YTD < 9 and length of STG_CASA.N_MIN_BALANCE_YTD > 12</i>'. Here the base column data with characters less than 9 and greater than 12 are identified as invalid. - Select Enabled checkbox. - Select the Severity as Error, Warning or Information. - Specify the Minimum data length characters. - Specify the Maximum data length characters. - Click  button and specify an expression for Additional Condition using <i>Specify Expression</i> screen. For more information, refer Define Expression.
Column Reference / Specific Value Check	Column Reference / Specific Value Check compares the base column data with another column of the base table or with a specified direct value using the list of pre-defined operators. Example: If the Base Table is STG_CASA, Base Column is N_MIN_BALANCE_YTD, and if Column Reference check is defined against a specific value '100' with the operator '>=' then the check is defined as, '<i>If STG_CASA.N_MIN_BALANCE_YTD < 100</i>'. Here the base column data with value less than 100 are considered as invalid. Or, if Column Reference check is defined against another column N_MIN_BALANCE_MTD with the operator '=' then the check is defined as, '<i>If STG_CASA.N_MIN_BALANCE_YTD <> STG_CASA.N_MIN_BALANCE_MTD</i>'. Here the reference column data not equal to the base column data is considered as invalid. - Select Enabled checkbox. This option is available only if the selected Base Column is either of Date or Number data type. - Select the Severity as Error, Warning or Information. - Select the Mathematical Operator from the drop down list. - Select the Filter Type as one of the following: Select Specific Value and specify the Value. You can specify numeric, decimal, and negative values for number Data type. Select Another Column and select Column Name form the drop down list. - Click  button and specify an expression for Additional Condition using

Check Type	Description
	<i>Specify Expression</i> screen. For more information, refer Define Expression. (Optional) If the Severity is set to Warning/Information: - Select the Assignment checkbox. - Select the Assignment Type from the drop down list. For more information, refer Populating Assignment Type Details in Reference section. - Specify the Assignment Value. - Select the Message Severity from the drop down list. - Select the Message from the drop down list.
List of Value / Code Check	List of Value / Code Check can be used to verify values where a dimension / master table is not present. This check identifies if the base column data does not matches with any value or code specified in a list of values. Example: If the Base Table is STG_CASA, Base Column is N_MIN_BALANCE_YTD, and the list of values is mentioned are "100, 101, 102, 103, 104", then the check is defined as, '<i>If STG_CASA.N_MIN_BALANCE_YTD is NOT IN ('100, 101, 102, 103, 104')</i>'. Here the base column data apart from the one specified (i.e. 100, 101, 102, 103, 104) are considered as invalid. Or, for Code Check, If the Base Table is CURRENCY_MASTER, Base Column is COUNTRY_CODE, and the list of values is mentioned are 'IN', 'US', 'JP', then the check is defined as, '<i>If CURRENCY_MASTER.COUNTRY_CODE is NOT IN ('IN', 'US', 'JP')</i>'. Here the base column data apart from the one specified (i.e. 'IN', 'US', 'JP') are considered as invalid. - Select Enabled checkbox. - Select the Severity as Error, Warning or Information. - Select the Filter Type as one of the following: - Select Input Values and specify the List of Values. You can specify numeric, decimal, string (Varchar /char), and negative values. - Select Code and click  button in the <i>List of Values</i> column. The <i>Code Selection</i> screen is displayed. Select the required code and click . You can also click  to select all the available codes. Click OK. - Click  button and specify an expression for Additional Condition using <i>Specify Expression</i> screen. For more information, refer Define Expression. (Optional) If the Severity is set to Warning or Information: - Select the Assignment checkbox. - Select the Assignment Type from the drop down list. For more information,

Check Type	Description
	refer Populating Assignment Type Details in Reference section. - Specify the Assignment Value. - Select the Message Severity from the drop down list. - Select the Message from the drop down list.
Null Value Check	Null Value Check identifies if "NULL" is specified in the base column. Example: If the Base Table is STG_CASA and the Base Column is N_MIN_BALANCE_YTD, then the check is defined as, 'If STG_CASA.N_MIN_BALANCE_YTD is NULL'. Here the base column data, which is null, are considered as invalid. - Select Enabled checkbox. - Select the Severity as Error, Warning or Information. - Click  button and specify an expression for Additional Condition using <i>Specify Expression</i> screen. For more information, refer Define Expression. (Optional) If the Severity is set to Warning or Information: - Select the Assignment checkbox. - Select the Assignment Type from the drop down list. For more information, refer Assignment details in Generic Check section. - Specify the Assignment Value. - Select the Message Severity from the drop down list. - Select the Message from the drop down list.
Blank Value Check	Blank Value Check identifies if the base column is blank without any values considering the blank space. Example: If the Base Table is STG_CASA and Base Column is N_MIN_BALANCE_YTD, then the check is defined as, 'If Length of data of STG_CASA.N_MIN_BALANCE_YTD after trim is null'. Here the base column data that is blank/empty are considered as invalid. - Select Enabled checkbox. - Select the Severity as Error, Warning or Information. - Click  button and specify an expression for Additional Condition using <i>Specify Expression</i> screen. For more information, refer Define Expression. (Optional) If the Severity is set to Warning or Information: - Select the Assignment checkbox. - Select the Assignment Type from the drop down list. For more information, refer Populating Assignment Type Details in Reference section.

Check Type	Description
	- Specify the Assignment Value. - Select the Message Severity from the drop down list. - Select the Message from the drop down list.
Referential Integrity Check	Referential Integrity Check identifies all base column data which has not been referenced by the selected column of the referenced table. Here, the reference table and column are user specified. Example: If the Base Table is STG_CASA, Base Column is N_MIN_BALANCE_YTD, Reference table is STG_CASA_TXNS, and reference column is N_TXN_AMOUNT_NCY, then the check is defined as, <i>'(not exists (select STG_CASA_TXNS.N_TXN_AMOUNT_NCY from STG_CASA_TXNS where STG_CASA_TXNS.N_TXN_AMOUNT_NCY=STG_CASA.n_min_balance_ytd))'</i>. Here, if the STG_CASA. N_MIN_BALANCE_YTD column value does not match with STG_CASA_TXNS. N_TXN_AMOUNT_NCY, then those base table records are considered as invalid. This check can be used to validate attributes like Geography dimension, currency dimension, and so on. - Select Enabled checkbox. - Select the Severity as Error, Warning or Information. - Select the Table (Referential Integrity Check dimension table) from the drop down list. The base table selected under the <i>Select</i> grid is excluded from the drop down list. - Select the Column from the drop down list. The list displays those columns that have the same Data Type as that of the Base Column selected under <i>Select</i> grid. - Click  button and specify an expression for Additional Condition using <i>Specify Expression</i> screen. For more information, refer Define Expression.
Duplicate Check	Duplicate Check can be used when a combination of column is unique and identifies all the duplicate data of the base table in terms of the columns selected for the duplicate check. Example: If the Base Table is STG_CASA, base column is N_MIN_BALANCE_YTD, and duplicity columns are selected as N_MIN_BALANCE_MTD and N_MIN_BALANCE_ITD, then the check is defined as, <i>'If there are duplicate values for the combination of columns STG_CASA. N_MIN_BALANCE_YTD, STG_CASA.N_MIN_BALANCE_MTD and STG_CASA. N_MIN_BALANCE_ITD are considered as invalid'</i>.

Check Type	Description
	- Select Enabled checkbox. - Select the Severity as Error, Warning or Information. - Click  button in Column list and select the required column. - Click  button and specify an expression for Additional Condition using <i>Specify Expression</i> screen. For more information, refer Define Expression.
Custom Check/Business Check	Custom Check/Business Check is a valid SQL query to identify the data with the query specified as the Custom/business SQL. You can define the SQL, but the Select clause of the query has to follow the order as specified in the template of the Custom Check panel. Example: When you want all the bad records based on two column selection from same table, such as - Identify all the error records from Investments table where the account number is not null and account group code is null: <pre>select PK_NAMES,PK_1,PK_2,PK_3,PK_4,PK_5,PK_6,PK_7,PK_8,ERROR_COLUMN from (SELECT NULL PK_NAMES, NULL PK_1,NULL PK_2,NULL PK_3,NULL PK_4,NULL PK_5,NULL PK_6,ACCOUNT_NUMBER PK_7, ACCOUNT_GROUP_CD PK_8, CASE WHEN ACCOUNT_GROUP_CD IS NULL AND ACCOUNT_NUMBER IS NOT NULL THEN 1 ELSE 0 END ERROR_COLUMN FROM FSI_D_INVESTMENTS)</pre> - Select Enabled checkbox. - Select the Severity as Error, Warning or Information. - Enter the Custom/Business Check parameters within the brackets. Ensure that each parameter is separated by a comma.

- Click **Generate Query**. The details are validated and the validated query along with the status is displayed in the Generated Query section.

If **Generic Check** is selected, do the following:

- Select **Table Name** from the drop down list. The list displays all the tables which are marked for Data Quality Rule in a data model, which has the table classification property code set to 340.
- Click  button and define the **Filter** condition using the *Specify Expression* screen. For more information, refer [Define Expression](#).

NOTE: While defining the filter condition, you can also include the Runtime Parameter name which you would be specifying in Additional Parameters condition while executing the DQ Rule.

- Click  button in the *Condition* grid. The *Specify Expression* screen is displayed. Define the Condition expression. For more information, refer [Define Expression](#).

NOTE: The length of the condition is restricted to 4000 characters.

The Expression is displayed with the “IF” and “Else” conditions along with the *Severity* status as **Error** or **Warning** or **Information**. You can change the *Severity* by selecting from the drop down list.

NOTE: You can add an Assignment only when the Severity is selected as **Warning** or **Information**. Assignments are added when you want to correct or update record(s) in base column data / selected column data. There can be one or more assignments tagged to a single condition. However, selecting severity as **Error** indicates there are no corrections and only facilitates in reporting the quantity of bad records.

- Select the checkbox adjacent to the required Condition expression and click  button in the *Assignment* grid. The assignment details are populated.

NOTE: You can add an Assignment only if the *Severity* is **Warning** or **Information**. There can be one or more assignments tagged to a single condition.

- Specify the Assignment details as tabulated.

Field	Description
Column Name	Select the Column Name from the drop down list.
Assignment Type	Select the Assignment Type from the drop down list. For more information, refer Populating Assignment Type Details in Reference section.
Assignment Value	Select the Assignment Value from the drop-down list according to the Assignment Type selected.
Message Severity	Select the Message Severity as either 1 or 2 from the drop down list.
Message	Select the required Message for the <i>Severity</i> from the drop down list.

You can also add multiple assignments by clicking  button in *Assignment* grid.

NOTE: Minimum of one condition needs to be defined to save the Rule.

4. Click **Save**. The defined Data Quality Rule definition is displayed in the *Data Quality Rule Summary* screen with the status as “Saved”.

1.2.5.1.2 Viewing Data Quality Rule

You can view individual Data Quality Rule definition details at any given point. To view the existing Data Quality Rule definition in the *Data Quality Rule Summary* screen:

1. Select the checkbox adjacent to the required DQ Name.
2. Click  button from the Data Quality Rules tool bar.

The *DQ Definition* screen displays the details of the selected Data Quality definition. The *Audit Trail* section at the bottom of *View - DQ Definition* screen displays metadata information about the Data Quality Rule defined.

1.2.5.1.3 Modifying Data Quality Rule

You can modify the saved Data Quality Rule definition(s) which are not grouped in the Data Quality framework. A grouped Data Quality Rule definition can still be edited by unmapping the same from the associated group(s).

NOTE: An approved rule irrespective of whether it is mapped to group(s) or it has been executed, cannot be edited if the configuration of Data Quality Approval parameter is set to 'N'.

You can update all the definition details except for the Definition Name, Check Type, Table, and the Base Column selected. To update the required Data Quality Rule definition details in the *Data Quality Rule Summary* screen:

1. Select the checkbox adjacent to the required DQ Name.

NOTE: You can only edit those rules which has the status as **Saved** or **Rejected** and which are **Approved** (but **not mapped** with any group). If you want to edit an Executed rule, you need to unmap the rule from the group.

2. Click  button from the Data Quality Rules tool bar. The Edit button is disabled if you have selected multiple DQ Names.

The *Edit - DQ Definition* screen is displayed.

3. Update the details as required. For more information, refer [Create Data Quality Rule](#).
4. Click **Save** and update the changes. The **Status** is changed to **Saved** and the rule should undergo authorization.

1.2.5.1.4 Copying Data Quality Rule

You can copy the existing Data Quality Rule to quickly create a new DQ definition based on the existing rule details or by updating the required parameters. To copy an existing Data Quality Rule definition in the *Data Quality Rule Summary* screen:

1. Select the checkbox adjacent to the required DQ Name in the list whose details are to be duplicated.
2. Click  button from the Data Quality Rules tool bar. **Copy** button is disabled if you have selected multiple checkboxes. The *Copy - DQ Definition* screen is displayed.
3. Edit the DQ definition Name and other details as required. For more information, refer [Create Data Quality Rule](#).
4. Click **Save**. The defined Data Quality Rule definition is displayed in the *Data Quality Rule Summary* screen with the status as "Saved".

1.2.5.1.5 Approving/ Rejecting Data Quality Rule

You (Authorizer) can Approve a pre-defined Data Quality Rule definition for further execution or Reject an inappropriate DQ definition listed within the *Data Quality Rule Summary* screen. You should be mapped to DQ Authorizer function role to Approve or Reject a DQ definition.

To Approve/Reject Data Quality Rule in the *Data Quality Rule Summary* screen:

1. Select the checkbox adjacent to the required DQ Name. Ensure that you select the "Saved" DQ definition based on the *Status* indicated in the Data Quality Rules grid.
2. Do one of the following:
 - To **Approve** the DQ definition, click  button. The *User Comments* screen is displayed. Enter the notes or additional information to the user and click **OK**. The selected DQ definition is approved and a confirmation dialog is displayed.
 - To **Reject** the DQ definition, click  button. The *User Comments* screen is displayed. Enter the notes or additional information to the user and click **OK**. The selected DQ definition is rejected and a confirmation dialog is displayed.

NOTE: The authorizer can approve/reject only one definition at a time.

The Approved/Rejected status of the DQ definition is indicated in the *Status* column of the *Data Quality Rule Summary* screen. You can mouse-over  button to view the Approver comments in a pop-up.

1.2.5.1.6 Deleting Data Quality Rule

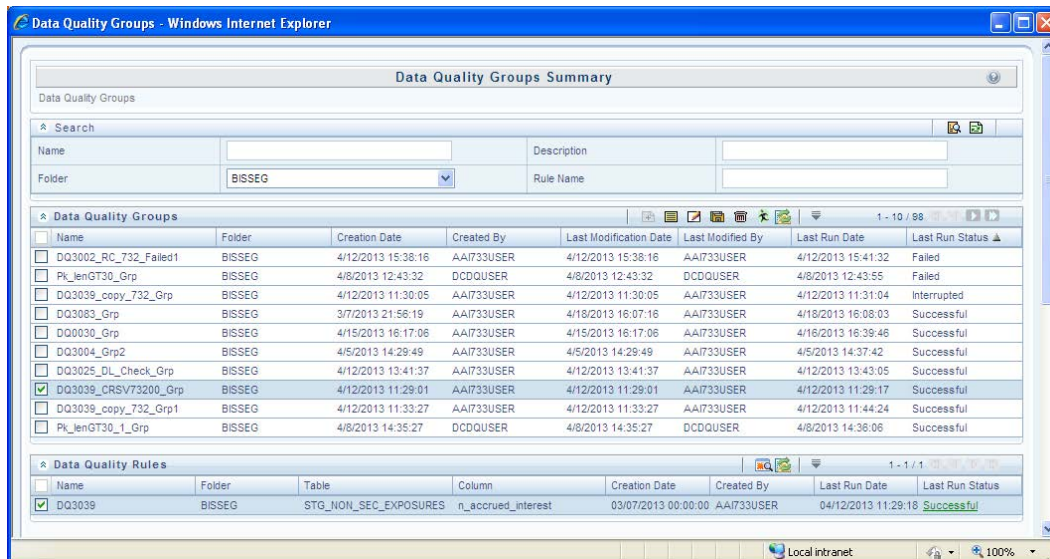
You can remove the Data Quality Rule definition(s) which are not grouped in the Data Quality framework. A grouped and non executed Data Quality Rule definition can still be deleted by unmapping the same from all the associated group(s).

1. Select the checkbox adjacent to the required DQ Name whose details are to be removed.
2. Click  button from the Data Quality Rules tool bar.
3. Click **OK** in the information dialog to confirm deletion.

1.2.5.2 Data Quality Groups

Data Quality Groups facilitates you to logically group the defined DQ definitions and schedule for execution. DQ definitions can be executed either through *Data Quality Groups Summary* screen of Data Management Tools framework or in *Batch Execution* screen of Operations module.

You (Business Analysts) need to have DQADMN (DQ Rule Admin) function role mapped to access the Data Quality Groups within the Infrastructure system. You can access Data Quality Groups Summary by expanding the Data Quality framework within the Unified Metadata Manager section in tree structure of LHS menu.



The *Data Quality Groups Summary* screen displays the list of pre-defined Data Quality Groups with the other details such as Name, Folder, Creation Date, Created By, Last Modification Date, Last Modified By, Last Run Date, and Last Run Status. You can *Create* and *Execute* DQ Group definitions and view, modify, copy, refresh, or delete DQ Group definitions within the *Data Quality Groups Summary* screen.

Note the following:

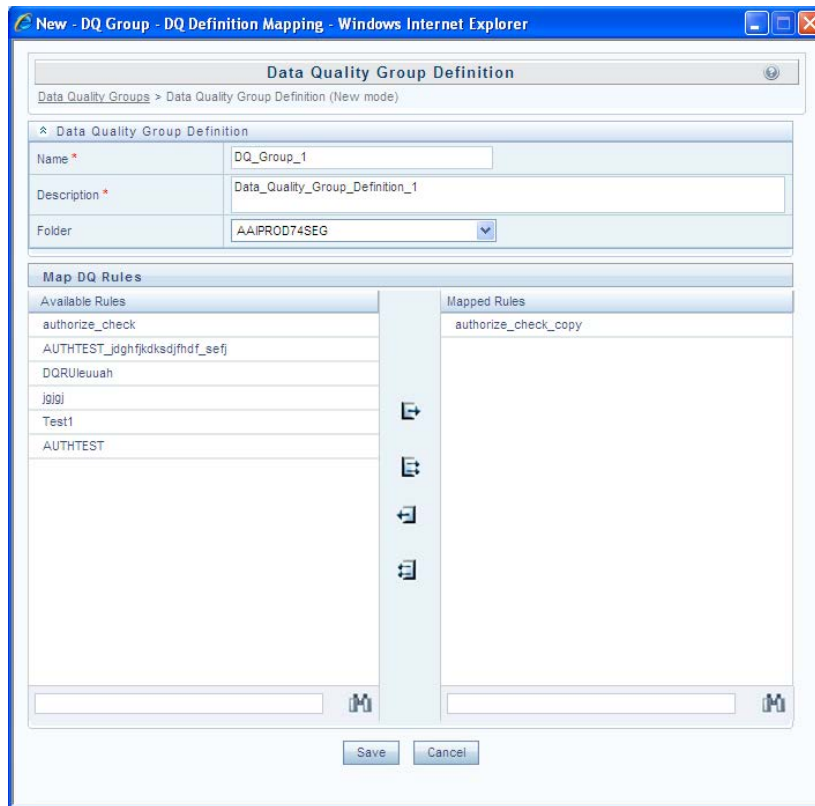
- The “Last Run Status” column in the Data Quality Groups Summary grid displays the Group execution status as *Not Executed*, *Ongoing*, *Interrupted*, *Successful*, and *Failed*.
- Those Data Quality groups created in Operations module with the execution status as *Held*, *Excluded*, or *Cancelled* are displayed as *Not Executed* in the Data Quality Groups Summary grid. However, the same can be viewed in *Operations > Batch Monitor* screen.
- The “Last Run Status” column in Data Quality Rules summary grid displays the Rule execution status as *Ongoing*, *Successful*, or *Failed*. You can click on the status to view additional details in *View Log* screen.

You can also make use of Search and Pagination options to search for a DQ Group definition based on Name, Rule Name, Folder, or Description and view the existing DQ Group definitions within the system. For more information, refer [Search & Filter](#) and [Pagination](#) options.

1.2.5.2.1 Creating Data Quality Group

You can create a DQ Group definition by defining the DQ Definition details and mapping the required DQ Rules which are authorized and approved within the system. The DQ Group definition is flexible and purpose driven. Groups can be created for different subject areas such as Credit and Market or it can be application specific like Basel II, Economic capital. To create DQ Group in the *Data Quality Groups Summary* screen:

1. Click  button in the Data Quality Groups tool bar. **Add** button is disabled if you have selected any checkbox in the grid. The *New - DQ Group - DQ Definition Mapping* screen is displayed.



2. In the Data Quality Group Definition section, do the following:
 - Enter the **Name** by which you can identify the DQ Group.
 - Enter a description or related information about the DQ Group.
 - Select the **Folder** (available for selected Information Domain) from the drop down list.

3. In the Map DQ Rules section, do the following:
 - Select the required DQ Rule from the *Available Rules* list and click . You can also search to select a specific DQ Rule by entering the required keyword and clicking  button.
 - To select all the listed DQ Rules, click .

You can also deselect a DQ Rule by selecting from the Mapped Rules list and clicking  or deselect all the mapped rules by clicking . You can search to deselect a specific DQ Rule by entering the keyword and clicking  button.
4. Click **Save**. The defined DQ group is listed in the *Data Quality Rule Summary* screen and can be executed for processing. For more information, refer, [Execute DQ Group](#).

1.2.5.2.2 Executing Data Quality Group

You can execute a defined DQ Group Definitions along with the mapped Rules and validation checks in the *Data Quality Group Summary* screen. This in turn creates a Batch in Operations module. You can also create and execute a DQ Group in the *Batch Execution* screen of Operations module. When a Data Quality Group is executed for processing, the execution details can be viewed in [View Data Quality Group Summary Log](#).

To Execute a DQ Group in the *Data Quality Group Summary* screen:

1. Select the checkbox adjacent to the required Group Name.
2. Click  button from the Data Quality Groups tool bar. The **Run** button is disabled if you have selected multiple checkboxes. The *Group Execution* screen is displayed.
3. In the Batch details section, do the following:
 - Select the **MIS Date** using the [Calendar](#). MIS Date is mandatory and refers to the date with which the data for the execution would be filtered. In case the specified MIS date is not present in the target table, execution completes with the message “No Records found” in *View Log* screen.

NOTE: If there is an As_Of_Date column in the table, it looks for As_Of_Date matching the specified MIS Date.

The **DQ Batch ID** is auto populated and is not editable.

- Specify the percentage of **Threshold (%)** limit in numeric value. This refers to the maximum percentage of records that can be rejected in a job. If the percentage of failed records exceeds the Rejection Threshold, the job will fail. If the field is left blank, the default the value is set to 100%.
- Specify the **Additional Parameters** as filtering criteria for execution in the pattern Key#Data type#Value; Key#Data type#Value;...etc.

Here the Datatype of the value should be “V” for Varchar/ Char, or “D” for Date with “MM/DD/YYYY” format, or “N” for numeric data. For example, if you want to filter some specific region codes, you can specify the Additional Parameters value as \$REGION_CODE#V#US;\$CREATION_DATE#D#07/06/1983;\$ACCOUNT_BAL#N#10000.50;

You can mouse-over  for information.

NOTE: In case the Additional Parameters are not specified, the default value is taken as NULL.

Except the standard place holders \$MISDATE and \$RUNSKEY, all additional parameters for DQ execution should be mentioned in single quotes. For example, STG_EMPLOYEE.EMP_CODE = '\$EMPCODE'.

- Click **Execute**. A confirmation message is displayed and the DQ Group is scheduled for execution.

Once the DQ Group is executed, you can view the details of the execution along with the log information in the *View Log* screen. For more information, refer [View Data Quality Group Summary Log](#).

1.2.5.2.3 Viewing Data Quality Group

You can view individual Data Quality Group definition details at any given point. To view the existing DQ Group definition in the *Data Quality Group Summary* screen:

1. Click  button in the Data Quality Groups tool bar to refresh the list displayed.
2. Select the checkbox adjacent to the required Group Name.

The mapped DQ Rules are displayed in the Data Quality Rules section.

3. Click  button from the Data Quality Groups tool bar.

The *View- DQ Group - DQ Definition Mapping* screen displays the DQ definition details.

1.2.5.2.4 Modifying Data Quality Group

You can update the existing DQ Group definition details except for the Group Name. To update the required DQ Group definition details in the *Data Quality Groups Summary* screen:

1. Select the checkbox adjacent to the required Group Name.
2. Click  button from the Data Quality Groups tool bar. The *Edit - DQ Group - DQ Definition Mapping* screen is displayed.
3. Update the details as required. For more information, refer [Create Data Quality Group](#).
4. Click **Save** and update the changes.

1.2.5.2.5 Copying Data Quality Group

You can copy the existing DQ Group details to quickly create a new DQ definition based on the existing details or by updating the required parameters. To copy an existing DQ Group definition in the *Data Quality Groups Summary* screen:

1. Select the checkbox adjacent to the required Group Name in the list whose details are to be duplicated.
2. Click  button from the Data Quality Groups tool bar. **Copy** button is disabled if you have selected multiple checkboxes. The *Copy - DQ Group - DQ Definition Mapping* screen is displayed.
3. Edit the DQ Group Name and other details as required. For more information, refer [Create Data Quality Group](#).
4. Click **Save**. The new DQ Group definition is displayed in the *Data Quality Groups Summary* screen.

1.2.5.2.6 Viewing Data Quality Group Summary Log

You can view the execution log details of Data Quality Rules in the *View Log* screen. The *View Log* screen displays the details such as Check Name, Log Message, Message Date, Message Time, Total Rows, Rows Impacted, Assignment Type, Assignment Severity, and Severity Message of the executed Data Quality Rules.

To view the Data Quality Rule execution log details in the *Data Quality Groups Summary* screen:

1. Select the checkbox adjacent to the Group Name in the *Data Quality Groups* grid.
The Data Quality Rules associated with the selected Group are displayed in the *Data Quality Rules* grid.
2. Click on the link in *Last Run Status* column corresponding to the required Data Quality Rule. The *View Log* screen is displayed with the latest execution data pertaining to Data Quality Rule selected.

You can also view the execution details of Data Quality Rule by selecting the checkbox adjacent to the Data Quality Rule Name and clicking  button in the Data Quality Rules grid. The *View Log* screen is displayed.

- Select the **Information Date** from the drop down list. Based on selection, you can select the **Group Run ID** and **Iteration ID** from the corresponding drop-down list.
- Click  button from the Group Execution Details tool bar. The Data Quality Rule Logs grid displays the execution details of the selected Data Quality Rule. You can also click  button in the Group Execution Details tool bar to reset the selection.

1.2.5.2.7 Deleting Data Quality Group

You can remove the DQ Group definition(s) which are created by you and which are no longer required in the system by deleting from *Data Quality Groups Summary* screen.

1. Select the checkbox adjacent to the required Group Name whose details are to be removed.
2. Click  button from the Data Quality Groups tool bar.
3. Click **OK** in the information dialog to confirm deletion.

1.2.6 References

This section of the document consists of information related to intermediate actions that needs to be performed while completing a task. The procedures are common to all the sections and are referenced where ever required. You can refer to the following sections based on your need.

1.2.6.1 Flat file

Flat files are data files that store records with no structured relationships. You can define the data source of a flat file present locally or on a remote server.

Flat-File present in local data source resides in the staging area of the Infrastructure Database Server. Additional metadata information such as file format properties is required to interpret these files. Flat-File present on a remote server can be accessed through FTP connection to load the remote data-file into the Staging area of the Infrastructure Database Server.

The Data Source for a Flat-File serves the purpose of logically grouping a set of Flat-Files getting loaded into the Warehouse from a defined source application.

1.2.6.2 RDBMS

RDBMS or relational database management system stores data in the form of tables along with the relationships of each data component. The data can be accessed or reassembled in many different ways without having to change the table forms.

RDBMS data source lets you define the RDBMS engine present locally or on a remote server using the FTP access. RDBMS can be defined to connect to any of the RDBMS such as Oracle, Sybase, IBM DB2, MS SQL Server and any RDBMS through native connectivity drivers or ODBC.

1.2.6.3 RAC

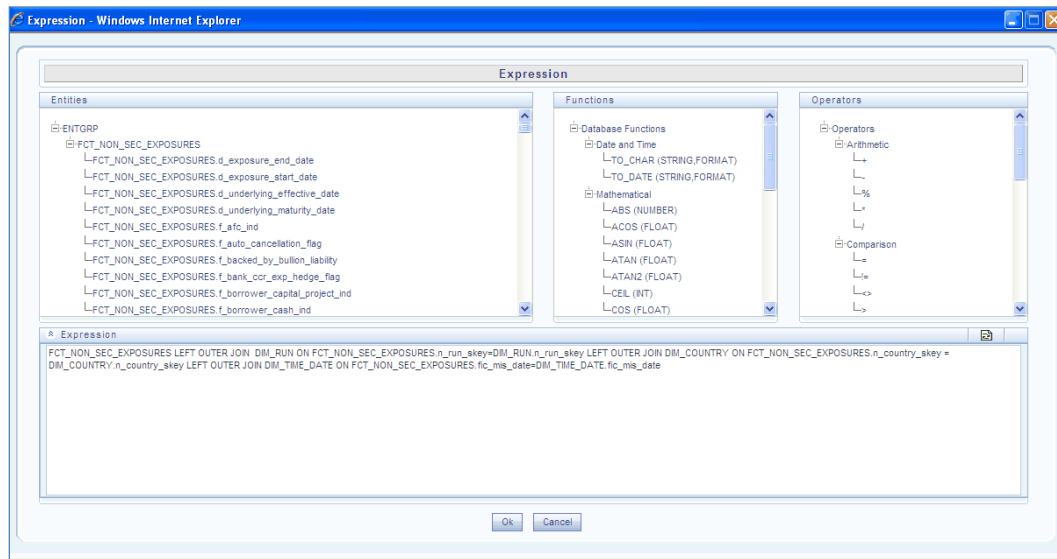
Real Application Clusters (RAC) allows multiple computers to run RDBMS software simultaneously while accessing a single database and providing a clustered database.

In an Oracle RAC environment, two or more computers (each with an instance) concurrently access a single database. This allows an application or user to connect to either of the computer

and have access to a single coordinated set of data. RAC addresses areas such as fault tolerance, load balancing, and scalability.

1.2.6.4 Defining Expression

You can define an expression in the *Expression* screen to join two selected tables. Click  button. The *Expression* screen is displayed.



The *Expression* screen consists of the following sections:

- **Entities** - consists of the Entities folder with the list of tables that you selected from the Entity Groups folder. Double-click the Entities folder to view the selected dimension tables (Product and Segment tables).
- **Functions** - consists of functions that are specific to databases like Oracle and MS SQL Server. You can use these functions along with Operators to specify the join condition. The Functions categories are displayed based on the database types as tabulated.

Database	Functions
Transact SQL	Specific to MS SQL server which consists of Date & Time, Math and System functions.
SQL OLAP	Specific to Microsoft OLAP which consists of Array, Dimension, Hierarchy, Logical, Member, Number, Set, and String functions.
SQL	Specific to Oracle which consists of Character, Conversion, Date and Numeric functions.

NOTE: It is not mandatory to specify a Function for a join condition.

- **Operators** - consists of the function operators categorized into folders as tabulated.

Operator	Types
Arithmetic	+, -, %, * and /
Comparison	'=', '!=', '<', '>', '<=', '>=', 'IN', 'NOT IN', 'ANY', 'SOME', 'LIKE' and 'ALL'.
Logical	'NOT', 'AND' and 'OR'
Set	UNION, UNION ALL, INTERSECT and MINUS
Others	The Other operators are 'PRIOR', '(+)', '(' and ')'.

To specify the join condition:

1. Select the **Entity** of the fact table to which you want join the dimension entities.
2. Select a **Function** depending on the database type.
3. Select the **Operator** which you want to use for the join condition.
4. Select the second Entity from the Entities pane that you want to join with the first entity. You can also select more than one dimension table and link to the fact table.

The defined expression is displayed in the Expression section. You can click  button to reset the values or click  button to erase the specific value.

5. Click **OK**. The defined expression is validated as per the selected table and entity definition and on successful validation, is displayed in the main screen.

1.2.6.5 Populating Assignment Type Details

To populate the Assignment Type details, select any of the below Assignment Type option from the drop down list and do the following:

- **No Assignment:** This assignment is selected by default and does not have any target column update, but the message details are pushed.
- **Direct Value:** Enter the **Assigned Value**. You can specify numeric, decimal, string (Varchar /char), and negative values as required. If the specified Assigned Value characters length exceeds the base column length, then a system alert message is displayed.
- **Another Column:** Select the required Column as **Assigned Value** from the drop down list.
- **Code:** If any code / leaf values exist for the selected base column, select the required Code as **Assigned Value** from the drop down list. If not, you are alerted with a message indicating that *No Code values exist for the selected base column*.
- **Expression:** Click  button in the Assignment Value column and specify an expression using *Specify Expression* screen. For more information, refer [Specify Expression](#).

Note the following:

The Expression you define in an *Assignment Type* field basically derives the Assignment value and is not a filter condition as defined for *Additional Condition* field. Hence, you need to specify an expression to derive only the resultant value, which needs to be updated into the base column.

For example, the expression “*STG_NON_SEC_EXPOSURES.n_accrued_interest * 1.34*” on validation, will update the base column with the derived value after multiplying “*n_accrued_interest*” value by 1.34. Therefore, expressions such as “*STG_NON_SEC_EXPOSURES.n_accrued_interest = 1.34*” are considered as invalid.

1.3 Data Entry Forms and Queries

Data entry Forms and Queries (DEFQ) within the Infrastructure system facilitates you to design web based user-friendly Data Entry screens with a choice of layouts for easy data view and data manipulation. An authorized user can enter new data and update the existing data in the shared database. Data entry Forms are primarily focused to create data entry systems which access the database and load the generated input data.

1.3.1 Navigating to DEFQ

DEFQ is available within the Unified Metadata Manager module of Infrastructure system. You (Business Analysts) need to have DEFQUSR function role mapped to access the DEFQ framework.

In the left hand side (LHS) menu of Infrastructure home page, click “+” and expand the Unified Metadata Manager section. Select Data Entry Forms and Queries and view the sections in detail.

1.3.2 Components of DEFQ

DEFQ consists of the following sections. Click on the links to view the sections in detail.

- [Excel Upload](#)
- [Forms Designer](#)
- [Forms Authorization](#)
- [Data Entry](#)

1.3.3 Excel Upload

Excel Upload utility facilitates you to download and upload the updated excel data to specific destination table(s) in atomic / configuration schema. In order to view the Excel Upload utility within the Infrastructure system, you need to manually copy the “.ssh” folder from the Application layer to the Web Server area after the OFSAAI installation. Contact System Administrator for more information.

Excel Upload supports excel files created in Microsoft 2007 along with the earlier versions. Also you can map and upload multiple sheets created within a single excel file.

You can access DEFQ - Excel upload by expanding Data Entry Forms and Queries section of Unified Metadata Manager module within the tree structure of LHS menu. The *DEFQ - Excel Upload* screen displays the following options in the LHS menu. Click on the links to view the section in detail.

- [Atomic Schema Upload](#)
- [Config Schema Download](#)

- [Config Schema Upload](#)

1.3.3.1 Atomic Schema Upload

The *Atomic Schema Upload* screen consists of Excel Utilities such as *Excel-Entity Mappings* and *Excel Upload*. The Excel Entity Mappings and Upload utilities have the restricted access depending on the following function roles mapped:

- Users with XLADMIN and XLUSER function roles can perform both mapping and upload operations.
- Users with XLADMIN function role can only define mapping and authorize, but cannot upload the file.
- User with XLUSER function can only retrieve mapping definition (pre-defined by XLADMIN user) and can upload the file based on retrieved mapping.

Click on the below links to view the section in detail.

- [Excel-Entity Mappings](#)
- [Excel Upload](#)

1.3.3.1.1 Excel-Entity Mappings

Excel-Entity Mapping helps you to map Excel Data to the destination table in the database. Excel-Entity Mapping supports excel files created in Microsoft 2007 and earlier versions along with the option to map and upload multiple sheets created within a single excel file. You need to have XLADMIN function role mapped in order to define mapping.

1.3.3.1.2 Adding Excel-Entity Mappings

To define mapping in the *Excel-Entity Mappings* screen:

1. From the LHS menu of *DEFQ- Excel Upload* screen, click **Excel-Entity Mappings**. The *Excel-Entity Mappings* screen is displayed.
2. Click  button in the *Mappings Summary* toolbar. The *Add Excel-Entity Mappings* screen is displayed.
3. Enter the **Mapping Name** and a brief **Description**.
4. Click **Browse**. The *Choose File to Upload* dialog is displayed.
5. Select the required Excel file to be used as the template and click  button.

The columns in the selected Excel template are listed in the *Select Excel Columns* grid and the database tables are listed in the *Select Entities* grid.

Excel-Entity Mappings
Excel-Entity Mapping Definition(Add Mode)

Mapping Details
Mapping Name: Description:

Select the Excel File
Excel File:

Source Date Format: Destination Date Format: ☒ First Row is the Header ☐ Bulk Authorization
☒ Template Validation Required

☐ Apply to all Dates ☐ Save With Authorization Sheet:

Select Columns
Sheet1
N_INDEX_SKEY
V_INDEX_CODE
V_INDEX_DESC

Select Entities
APP_FILTER_DIM_MAP
ATTRIBUTION_DEFINITION
ATTRIBUTION_EXECUTION_MASTER
CAP_STRUCT_PARAM_MASTER
fic_mis_date
n_baseL_consL_optn_type_skey
n_run_skey
n_std_acct_head_amt
v_cap_comp_group_code
v_entity_code
v_std_acct_head_id
COM_ENTITY_GROUP_MAP
COM_ENTITY_PROCESS_DETAILS
COM_VALUECODE_MAPPING
CONTRA_GL_ACCOUNT

Mapping Information

Excel Fields	Field Order	Date Format	Destination table	Destination column
☐ N_INDEX_SKEY	1	-	ATTRIBUTION_EXECUTION_MASTER	n_attribution_run_skey
☐ V_INDEX_CODE	2	-	CAP_STRUCT_PARAM_MASTER	v_entity_code

- Enter the format in which the dates are stored in the excel sheet in the **Source Date Format** field.
- Select the **Apply to all Dates** checkbox if you want to apply the source date format to all date fields in the excel sheet.
- Select the **First Row is the Header** checkbox, if your Excel template has a header row.
- Select the **Template Validation Required** checkbox to validate whether the Excel template you use is same as the Excel sheet you use during the [Excel Upload](#) screen. The validation is done when you upload the excel sheet. Error will be displayed if there is any mismatch between the Excel template you use to map and the actual Excel sheet you upload.
This field is displayed only if you have selected the **First Row is the Header** checkbox.
- Select the **Bulk Authorization** checkbox to assign the "Excel_Name" across the selected column. For example, the selected column "v_fic_description" will have the Excel Name assigned.

NOTE: Ensure that the selected "**Varchar2**" column contains the required length to hold the Excel Name. In order to select Bulk Authorization, you need to have **Save with Authorization** checkbox selected.

11. Select **Save with Authorization** checkbox to authorize the data upon successful data load. The three mandatory fields namely Maker ID, System Date, and Authorization Status are displayed in the *Select Excel Columns* grid.
You need to map these fields to the corresponding columns in the *Select Entities* grid. The value for Maker ID column is updated with the User ID of the user who is performing the Excel Upload. The value for Maker Date is updated with the current System Date during which the upload is performed and the value for Authorization Status is updated with flag 'U'. See [Save with Authorization](#) to create a Form where the uploaded data can be authorized.
12. Select a column from the *Select Excel Columns* grid and select an attribute or column from the required table from the *Select Entities* grid. Click **Map**.
13. Click **Automap**. The respective columns with the similar names in the Excel sheet and the database are mapped. You need to manually map the other columns. The mapping details are displayed in the *Mapping Information* grid which facilitates you to edit the details as required.
14. Click **Save Mapping**. The *Excel-Entity Mapping* screen displays the excel-database table mapping details.

In the *Excel-Entity Mappings* screen, you can also do the following:

- Click  button in the Mappings Summary tool bar to **View** the mapping details.
- Click  button in the Mappings Summary tool bar to **Edit** the mapping details.
- Click  button in the Mappings Summary tool bar to **Delete** the mapping details.

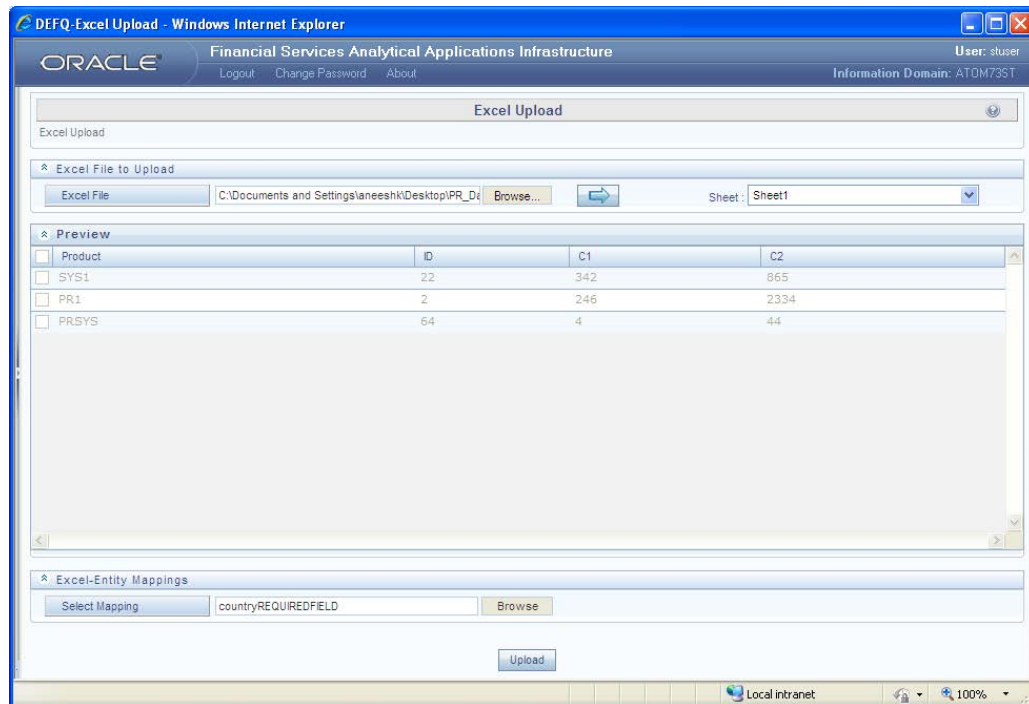
1.3.3.1.3 Excel Upload

Excel Upload helps you to upload Excel Data to destination table in the database. You need to have “XLUSER” function role mapped to access *Excel Upload* screen and retrieve mapping definition (pre-defined by XLADMIN user) to upload excel data. Excel Upload supports excel files created in Microsoft 2007 and earlier versions along with the option to map and upload multiple sheets created within a single excel file. You need to ensure that the excel data contains the dates in the format as defined in [Add Excel-Entity Mapping](#) definition.

To upload excel data in the *Excel Upload* screen:

1. Click **Browse** in the *Excel File to Upload* grid. The *Choose File to Upload* dialog is displayed.
2. Select the required Excel file and click  button.

Select the required sheet in the Excel file from the **Sheet** drop-down list and the *Preview* grid displays the data of the selected sheet of the Excel file.



3. Click **Browse** in the *Excel-Entity Mappings* grid. The *Mapping Selector* dialog is displayed with the pre-defined mapping details.
4. Select the checkbox adjacent to the required mapping definition and click **OK**.
5. Click **Upload**. A confirmation dialog is displayed on successful upload and the excel data is uploaded to the database table. You can click on **View Log** to view the log file for errors and upload status.

1.3.3.2 Config Schema Download

Configuration schema refers to the database schema that is referred by all information domains to access data related to Metadata, System Configuration, Administration Security, and so on. Configuration schema stores the user security information and metadata used within the applications which are deployed on OFSAA Infrastructure.

The *Config Schema Download* screen facilitates you download data from configuration schema tables along with the option to filter data during download, in Microsoft Excel 2003/2007 format. The *Config Schema Download* screen has restricted access and you need to have "CONFUPLOAD" function role mapped to download configuration schema data.

To download config schema data:

1. **Select the table** from the drop down list. The list consists of those database objects (tables) which are mapped to configuration schema based on a specific configuration.

2. Select the **Format to download** from the drop down list. You can either select Microsoft Excel 2003 or 2007.
3. (Optional) If you want to download only the required data instead of complete table data, specify a filter condition in **Filter(where clause)** field.

For example, if you want to download *Group Code* details from the table "cssms_group_mast", you can specify the filter condition as:

```
select * from cssms_group_mast where v_group_code in ('AUTH')
```

4. Select **Download**. The *File download* dialog box is displayed providing you with options to Open or Save a copy of the file in selected excel format.

1.3.3.3 Config Schema Upload

Configuration schema refers to the database schema that is referred by all information domains to access data related to Metadata, System Configuration, Administration Security, and so on. Configuration schema stores the user security information and metadata used within the applications which are deployed on OFSAA Infrastructure.

The *Config Schema Upload* screen facilitates you to upload data to the configuration schema table either by appending incrementally or complete re-load on the existing data, in Microsoft Excel 2003/2007 format. During upload, all the referential Constraints (Foreign Key Constraints) enabled on the selected database object (table) are disabled and enabled back post upload. In case of any errors while enabling the referential constraints or while inserting the new data, the selected database object (table) will be reverted back to its original state.

The *Config Schema Upload* screen has restricted access and you need to have "CONFUPLOAD" function role mapped to upload configuration schema data.

To upload config schema data:

1. **Select the table** from the drop down list. The list consists of those database objects (tables) which are mapped to configuration schema based on a specific configuration.
2. In *Select the File to Upload* field, click **Browse**. In *Choose File to Upload* dialog box, navigate and specify the path of the data file (Microsoft Excel 2003/2007) which you want to upload.

If the excel contains multiple sheets, you can select the sheet from which data is to be uploaded. Else, by default the first sheet data is selected for upload.

3. In *Select the Sheet* field click  button, the *Sheet Selector* pop-up screen is displayed. Select the required sheet from the drop-down list and click **OK**.
4. In the *Upload Type* options, select one of the following:

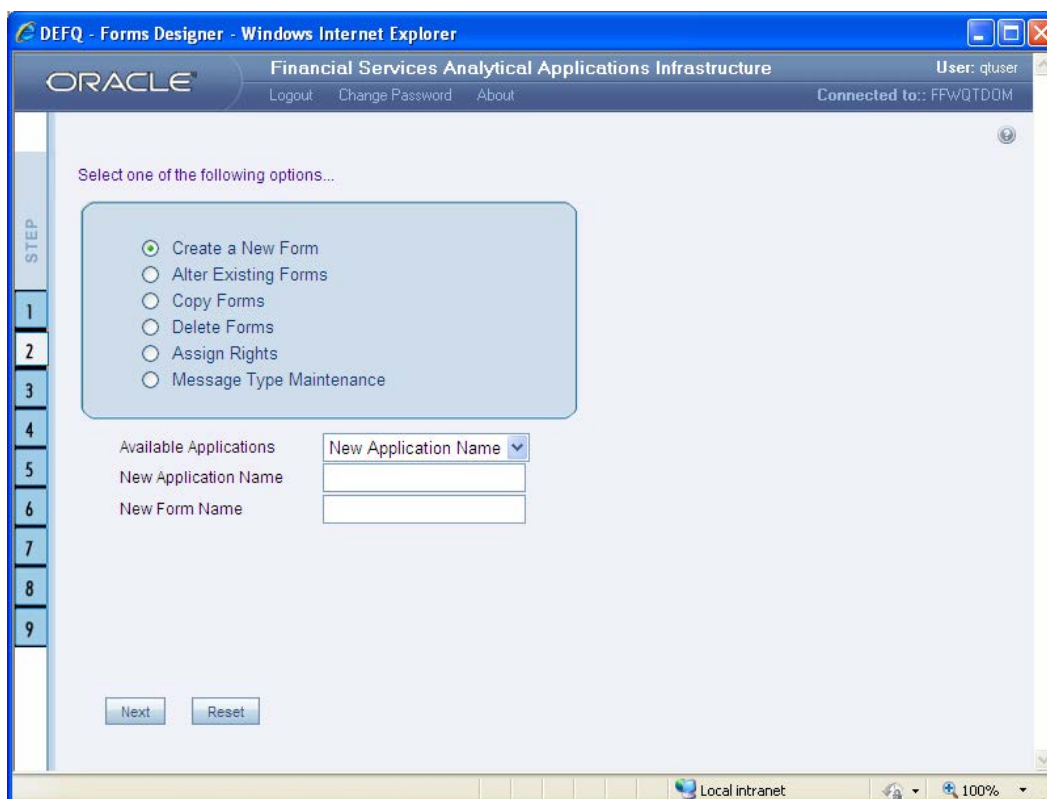
- **Incremental** - In this type of upload, the data in Excel sheet is inserted / appended to the target database object. The upload operation is successful only when all the data in the selected Excel Sheet is uploaded. In case of any error, the uploaded data will be rolled back.
 - **Complete** - In this type of upload, the data present in the selected database object is overwritten with the data in selected Excel sheet. In case of an error, data in the selected database object will be reverted back to its original state.
5. In *Source Date Format* field, specify the date format used in the data that you are uploading. An insert query is formed based on the date format specified.
 6. Select **Upload**. If you have selected *Complete* upload type, you will need to confirm to overwrite data in the confirmation dialog.

An information dialog is displayed with the status of upload. You can click on **View Log** to view the log file for errors and upload status. The log file contains the following information:

- Database object (table) to which the data is uploaded.
- Name of the excel file from which the data is uploaded.
- Number of records uploaded successfully.
- Number of records failed during upload and reason of failure.
- Upload Status (Success/Fail).

1.3.4 Forms Designer

Forms Designer within the Data Entry Forms and Queries section facilitates you to design web based user-friendly Forms using the pre-defined layouts. You can access DEFQ - Forms Designer by expanding Data Entry Forms and Queries section of Unified Metadata Manager module within the tree structure of LHS menu.



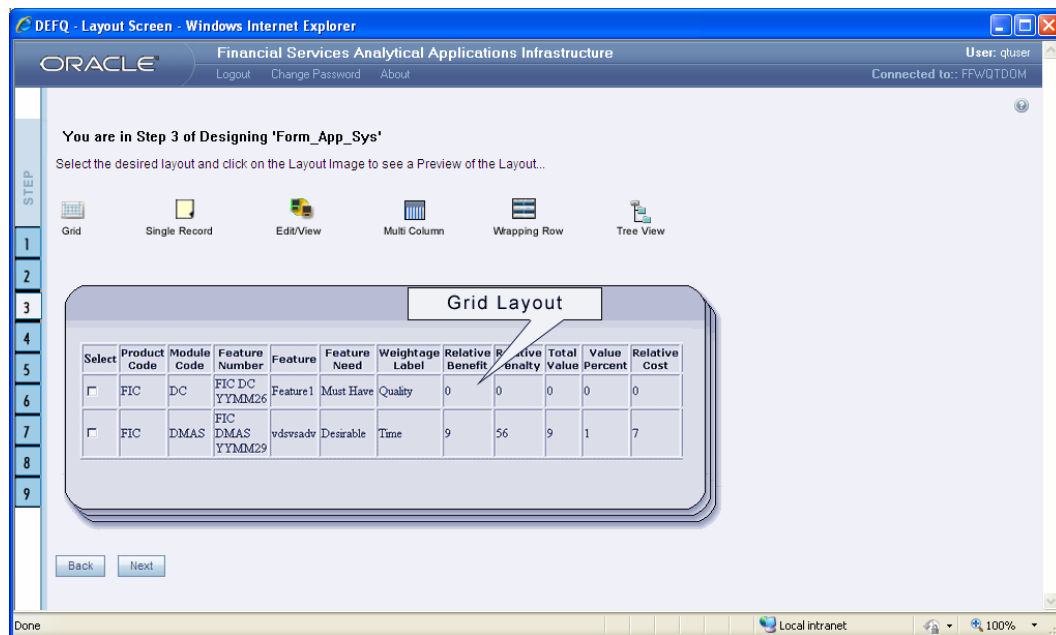
The *DEFQ - Forms Designer* screen displays a list of pre-defined options to create, modify, and delete Forms. You can also assign rights and define messages. By default, the option to *Create a New Form* is selected and the left pane indicates the total steps involved in the process. The available options are as indicated below. Click on the links to view the section in detail.

- [Creating a New Form](#)
- [Altering Existing Forms](#)
- [Copying Forms](#)
- [Deleting Forms](#)
- [Assigning Rights](#)
- [Message Type Maintenance](#)

1.3.4.1 Creating a New Form

To design a new Form in the *DEFQ - Forms Designer* screen:

1. Ensure that **Create a New Form** option is selected and do the following:
 - Specify the application name by either entering the **New Application Name** or selecting **Available Applications** from the drop down list.
 - Enter the **New Form Name**.
2. Click **Next**. The *DEFQ - Layout Screen* is displayed with the range of pre-defined layouts for you to choose.



Refer to the following table for information.

Layout	Description
Grid Layout	It is the default layout which displays the records in the Form of a table/grid with multiple rows of data.
Single Record Layout	It displays a single record at a time.
Edit/View Layout	It is a combination of the Single Record and Grid layout. By selecting a record in the grid, the record is displayed in a single record format, which is editable. By default the first record will be displayed in the editable grid. Note: The column names are editable only during altering the created Form.

Layout	Description
Multi Column Layout	It displays a single record with its column in a grid format. You can view a multi column layout Form without having to scroll or with minimum scrolling to view all the columns.
Wrapping Row Layout	It displays rows of a single record in a wrapped manner in a grid format. You can view a wrapping row layout Form easily without having to scroll horizontally to view all the data.
Tree View Layout	It displays the Hierarchical dimensional table with the selected dimension details. You can select the following options: ▪ Dimensional Table Tree ▪ Parent Child Tree Note: The process to create a Form using the Tree View Layout differs from the procedure explained below. For more information, refer Create Tree View Form in the References section.

3. Select the required layout and click **Next**. The *List of Available Tables* is displayed.
4. Select the required Table from the list on which the Form is to be created.

NOTE: You should use tables with names not longer than 25 characters. This is a limitation.

For multiple selections, you can either press **Ctrl** key for nonadjacent selection or **SHIFT** key for adjacent selections. Click **Next**, the *Fields Selection Screen* is displayed.

NOTE: If multiple tables are selected, you need to specify Join Conditions. Select the *Table* from the drop down list and select the *Available Fields*. Specify the **Join Condition**. Click **Next**, the join conditions are validated and *Fields Selection Screen* is displayed.

5. Select the fields to be joined from the **Available Fields** list and click . You can press **Ctrl** key for multiple selections and also click  to select all the listed fields. All mandatory fields are auto selected and are indicated on screen with an asterisk (*).

NOTE: You can click  or  buttons to arrange the fields in the required order as intended to display in the Data Entry Form. The fields order need not be similar to the arrangement in the underlying table.

NOTE: Ensure the fields selected are not of CLOB data type since it is not supported in DEFQ.

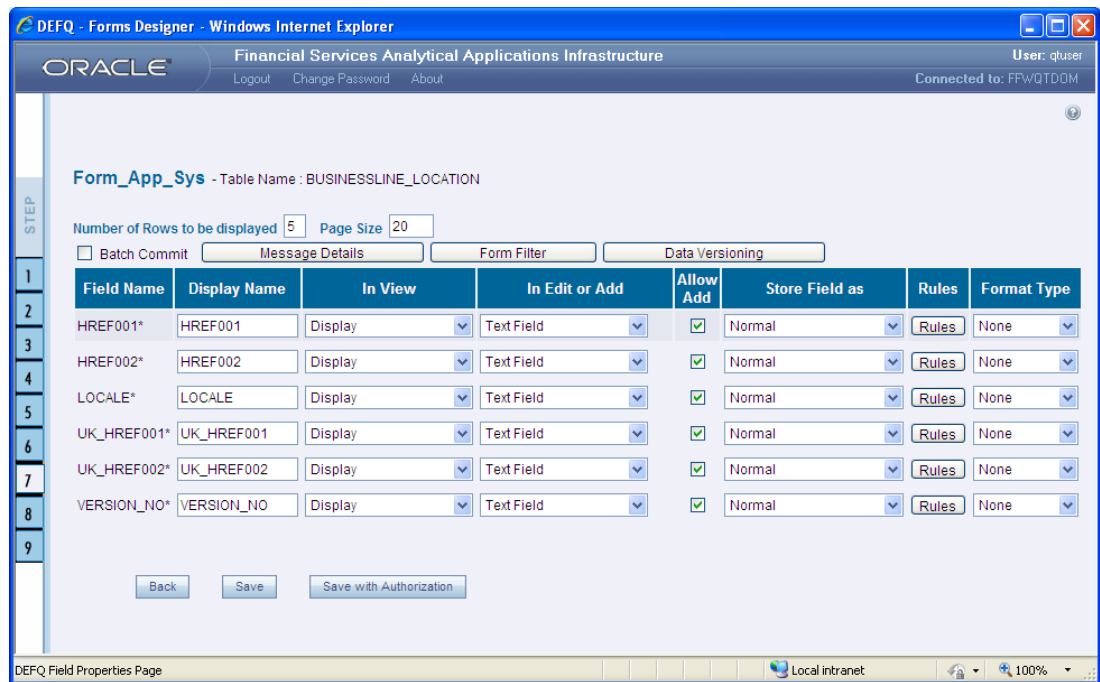
6. Click **Next**. The *Sort Fields Selection Screen* is displayed.

You can sort the fields in required order as intended to display in the Data Entry Form. Also the mandatory fields which needs user inputs are indicated in '*' symbol and are auto selected in the Selected Fields pane.

- Select the field from the **Available Fields** list and click . You can press **Ctrl** key for multiple selections and also click  to select all the listed fields.
- (Optional) To arrange multiple fields, select **Sort by Descending** checkbox.
- (Optional) Select the **Excel Map** checkbox to enable *Bulk Authorization*.

NOTE: In case you have selected **Excel Map** checkbox, you need to select "Excel Name" from the **Store Field As** list in the *DEFQ Field Properties* screen. Only on selection, the "SelectExcelSheetName" list is displayed for authorizer in the *DEFQ - Data Entry* screen.

7. Click **Next**. The *DEFQ Field Properties* screen is displayed with the Form details such as Field Name, Display Name, In View, In Edit/Add, Allow Add, Store Field as, Rules, and Format Type.



Field Name	Display Name	In View	In Edit or Add	Allow Add	Store Field as	Rules	Format Type
HREF001*	HREF001	Display	Text Field	☒	Normal	Rules	None
HREF002*	HREF002	Display	Text Field	☒	Normal	Rules	None
LOCALE*	LOCALE	Display	Text Field	☒	Normal	Rules	None
UK_HREF001*	UK_HREF001	Display	Text Field	☒	Normal	Rules	None
UK_HREF002*	UK_HREF002	Display	Text Field	☒	Normal	Rules	None
VERSION_NO*	VERSION_NO	Display	Text Field	☒	Normal	Rules	None

Specify the parameters for each field as tabulated.

Field	Description
Display Name	Edit the default Display Name if required.

Field	Description
In View	Select either Display or Do not Display to display the field in the Form. If the field is a foreign key field or if more than one table is selected, then the following options are available in the drop down list; - Same Field - Alternate Display Field - Do not Display options
In Edit/Add	Specify the edit parameters by selecting from the drop down list. The available options depend on the type of field selected. - For normal fields you can select Text Field, Text Area, Select List, Protected Field, Read Only, and Do Not Show. - For foreign key fields you can select Read Only, Select List, and Do Not Show. - For primary key fields you can select Read Only and Do Not Show. - For calendar fields you can select Calendar and Do Not Show. Note: If you choose Select List option, you need to define the values. For more information, refer Define List of Values.
Allow Add	Select the checkbox to permit users to add new record. Note: An alert message is displayed if you are trying to save a Form with add option disabled for the mandatory fields.
Store field as	Select the required option from the drop down list. You can select the store format as Normal, Sequence Generator, Maker Date, Checker Date, Created Date, Modified Date Auth Flag, Maker id, Maker Date, Checker id, Checker Date, Checker Remarks, Maker Remarks, and Excel Name (If Excel Map is selected in <i>Sort Fields Selection</i> screen).
Rules	Click Rules and specify Rules and Expressions for the selected field in the <i>Specifying Rules and Expressions for Data - Validations</i> screen. For more information, refer Applying Rules section in References.
Format Type	Select the required Format type from the drop down list depending on the field type selected. CLOB data type is not supported.
Batch Commit	Select the checkbox to group all the set of table Forms to a batch. All the Form tables are executed along with the batch execution and if in case, a Form in the table fails to execute, the entire set of Forms are returned.

Field	Description
Message Details	Click Message Details to define the message type for Creator and Authorizer in the <i>Messaging Details for a Form</i> screen. For more information, refer Define Message Details .
Form Filter	Click Form Filter to define an expression for Form-level filter condition in the Filter for Form screen.
Data Versioning	Click Data Versioning to perform data versioning on an authorized Form. For more information, refer Form Data Versioning .

- Click either **Save** to only save the Form details or click **Save for Authorization** to save the changes with authorization. For more details, refer [Save for Authorization](#) section.

NOTE: Sometime, on clicking **Save**, the form does not get saved. This is because the Java heap size setting for OFSAAI service is set too high and web server memory setting is too low. Contact System Administrator to modify it to the appropriate setting by viewing the log file created in the path: \$FIC_APP_HOME/common/FICServer/logs/.

While saving, the *User for Mapping - DEFQ* screen is displayed which facilitates you to assign user rights to the Form. For more information, refer [Assign Rights](#).

1.3.4.2 Altering Existing Forms

To alter the field details of an existing Form in the *DEFQ - Forms Designer* screen:

- Select **Alter Existing Forms** from the available options and do the following:
 - Select the **Available Applications** from the drop down list.
 - Select the **Available Forms** from the drop down list. The listed Forms are dependent on the DSN (Data Source Name) that you have specified.
- Click **Next**. The *Fields Selection Screen* is displayed.

Add or **remove** the selected fields as required to be displayed in the Form. You can choose a field from the **Available Fields** list and click  to add, or choose the selected field from the **Fields to Display** list and click  to de-select. You can press **Ctrl** key for multiple selections and also click  or  buttons to select/de-select all the listed fields.

- Click **Next**. The *Sort Fields Selection Screen* is displayed.
 - Sort the fields in required order as intended to display in the Form. You can choose a field from the list and click  or  buttons to select/deselect. You can also click  or  buttons to select/de-select all the listed fields.

- Select a field and click  or  buttons to arrange fields in the required order.
- (Optional) To arrange multiple fields, select **Sort by Descending** checkbox.
- (Optional) Select the **Excel Map** checkbox to enable *Bulk Authorization*.

NOTE: In case you have selected **Excel Map** checkbox, you need to select “Excel Name” from the **Store Field As** list in the *DEFQ Field Properties* screen. Only on selection, the “SelectExcelSheetName” list is displayed for authorizer in the *DEFQ - Data Entry* screen.

4. Click **Next**. The *DEFQ Field Properties* screen is displayed.

Modify the parameters for each field as required. Refer [DEFQ Field Properties](#) details.

5. Click either **Save** to save the Form details or click **Save for Authorization** to save the changes with authorization.

While saving, the *User for Mapping - DEFQ* screen is displayed which facilitates you to assign user rights to the Form. For more information, refer [Assign Rights](#).

1.3.4.3 Copying Forms

You can duplicate and recreate a Form with the required variants from an existing Form. You can also change user rights or display options and other subtle variations for the selected layout.

To Copy a Form in the *DEFQ - Forms Designer* screen:

1. Select **Copy Forms** from the available options and do the following:
 - Select the application from the **From Application** drop down list which consist of the required Form which you want to copy.
 - Select the application from the **To Application** drop down list for which you want to copy the Form.
 - Select the required Form from the **Save Form** drop down list.
 - Enter a name for the Form in the **As Form** field.
2. Click **Next**. The specified Form is duplicated as a new Form and a confirmation dialog is displayed with the status.

1.3.4.4 Deleting Forms

You can remove the forms which are not required in the system by deleting from the *DEFQ - Forms Designer* screen.

1. Select **Delete Forms** from the available options and do the following:
 - Select the application from the **Available Application** drop down list which consist of the required Form which you want to delete.
 - Select the Form from the **Available Forms** drop down list which you want to delete.
2. Click **Next**. An information dialog is displayed for confirmation. Click **OK**.

1.3.4.5 Assigning Rights

You can assign user permissions to view, add, edit, and delete the Form details in the *User for Mapping - DEFQ* screen.

1. Select **Assign Rights** from the available options and do the following:
 - Select the required application from the **Available Applications** drop down list.
 - Select the required form for which you want to assign rights to a user from the **Available Forms** drop down list.
2. Click **Next**. The *DEFQ- Assign Rights* screen is displayed.
3. Select the required user from **Available User List**. You can also click  or  buttons to reload previous/next set of users in the list.
4. Select the checkbox corresponding to the user permissions such as **View**, **Add**, **Edit**, **Delete**, or **All Above**. You must give View permission in order to allow users to Edit or Delete a Form.
5. Select **Authorize** or **Auto-Authorize** checkbox as required.

The **Authorize** and **Auto-Authorize** options are applicable for all the forms that have been saved with the Authorize option. The **Auto-Authorize** feature for records is applicable in scenarios where the Creator and Authorizer are the same. If a user has **Add** and **Auto-Authorize** permissions, the data entered by the user is auto authorized and the data will be in **Authorized** status. In case of normal Authorization, the Record added by the creator has to be authorized by a different user who has **Authorize** permissions.

NOTE: The **Auto-Authorize** feature in Forms Designer is applicable only for data entered through *Data Entry* screen and not through *Excel Upload* screen.

6. Select the **Show Data Created by Current Users Only** checkbox if you want the current user to view data created by him only.

7. Click [User Value Map](#) to map users to the form based on data filter.
8. Click **Save Access Rights**. A confirmation dialog is displayed after saving and the user is added to the **Assigned User List**.

User Value Map

This feature allows you to create a data filter based on any field/column of the table you selected for designing the Form. When a user tries to access the form in the *DataEntry* screen, data will be filtered and displayed based on the selected field ,to the users associated with that column .

NOTE: The data type of field/column you select to define filter should be NUMBER or VARCHAR. The users mapped to the DEFQ form whose assign rights are authorized through “Forms Authorization” can save the filter.

There are two types of filters, Global Data Filter and Custome Data Filter.

Global Data Filter: In this filter, the value will be fetched from the DEFQ_GLOBAL_VALUES table of the Atomic schema, which is automatically created during information domain creation. The table needs to be populated manually through excel upload. The table contains all the entities and the users mapped to them.

Custom Data Filter: This filter enables the user to provide a custom filter for the form you design. In this filter, you should enter values for all the users mapped to the form manually.

To set a Data Filter:

1. Click **User Value Map** in the *DEFQ- Assign Rights* screen.
The *User Value Map* screen is displayed.
2. Select the **Global Data Filter** option to filter the data globally.
 - Select the field based on which the data should be filtered and displayed for the user, from the *Fields to Display* section.

NOTE: Normally the user can access all the data from the table whenever the DEFQ form is created. Based on this filter, the user will be displayed only the data which is mapped to him.

3. Select the **Custom Data Filter** to provide a custom filter for a specific DEFQ Form.
 - Select **User ID** from the drop-down list and enter **Values** for that user. It is mandatory
4. Click **Save**.

1.3.4.6 Message Type Maintenance

You can manage the Message Type details which alert the Creator of the Form or to an Authorizer in the *DEFQ Message Type Maintenance Screen*. Message Type details can be defined while creating a Form. For more information, refer [Define Messaging Details](#).

In the In the *DEFQ - Forms Designer* screen, do the following:

1. Select **Message Type Maintenance** from the available options and click **Next**.

The DEFQ - Message Type Maintenance Screen is displayed.

2. Select the message category from the **Message Type** drop-down list.
3. Edit the message details by doing the following:
 - The defined **Message Subject** and **Message Content** is auto populated. Edit the details as required.
 - Add or remove the defined recipients. Double-click on the required member to toggle between **Available** and **Mapped Recipients** list.

NOTE: Selecting Authorizer alerts all the selected authorizers for authorization.

4. Click **Save**. A confirmation is displayed on updating the *Message Type* details.

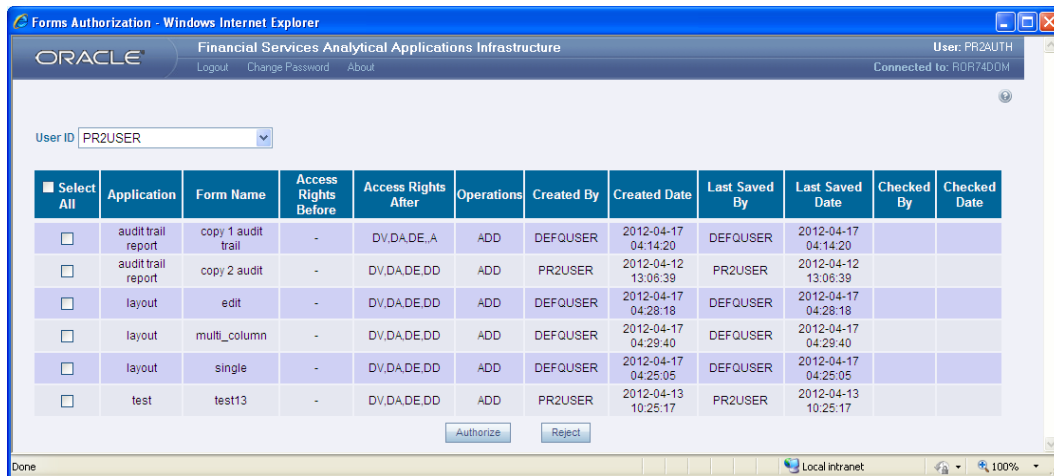
1.3.5 Forms Authorization

Forms Authorization within the Data Entry Forms and Queries section of the of Infrastructure system facilitates you to view and authorize / approve any changes that are made to the privileges assigned to a user in a particular Form.

You need to have **FRMAUTH** function role mapped to access *Forms Authorization* screen.

NOTE: You cannot authorize or reject a right request created by you, even if you have **FRMAUTH** function role mapped.

You can access *Forms Authorization* screen from the left hand side (LHS) menu of Infrastructure home page. Click “+” and expand the Unified Metadata Manager and select **Data Entry Forms and Queries**.



The *Forms Authorization* screen displays the list of privileges assigned to a user in different Forms. These privileges include create, view, modify, delete, authorize, and auto-authorize records. The *Forms Authorization* screen allows you to select a user from the drop down list adjacent to **User ID** field. This field displays the User ID's associated with the selected Information Domain.

On selecting a user from the **User ID** field, the columns in *Forms Authorization* screen lists the grants requested for that user on different Forms as listed below.

Column Name	Description
Application	Lists the specific application to which the Form has been assigned.
Form Name	Displays the Form Name.
Access Rights Before	Displays the available Right Requests for the selected user in the Form. Note: For new Form, the column remains blank.
Access Rights After	Displays the Right Requests raised for authorization. DV - DEFQ VIEW DA - DEFQ ADD DE - DEFQ EDIT DD - DEFQ DELETE A - AUTHORIZE DU - AUTO AUTHORIZE S - SHOW DATA CREATED BY CURRENT USER ONLY

Column Name	Description
Operations	Displays the operation carried out in the Form. For example, “ ADD ” indicates a new form is created and specific roles are assigned.
Created By	Displays the USER ID from which the Right Request has been created.
Created Date	Displays the Date on which the Right Request has been created.
Last Saved By	Displays the USER ID from which the previous Right Request change has been saved.
Last Saved Date	Displays the Date on which the previous Right Request change has been saved.
Checked By	Displays the USER ID from which the Right Request has been authorized.
Checked Date	Displays the Date on which the Right Request has been authorized.

To Authorize or Reject a form in the *Forms Authorization* screen:

1. Select the **User ID** from the drop down box. The Right Requests submitted on various forms are displayed.
2. Select the checkbox(s) adjacent to the requests to authorize / reject.
You can also select all the requests at once for a user, by clicking **Select All** checkbox.
3. Click **Authorize / Reject** to authorize or reject the selected Right Requests.

Once Form action privileges are authorized for a user, those actions can be performed on the Form. For an existing Form with certain rights, the rights remain the same until the changes are authorized / rejected by an authorizer.

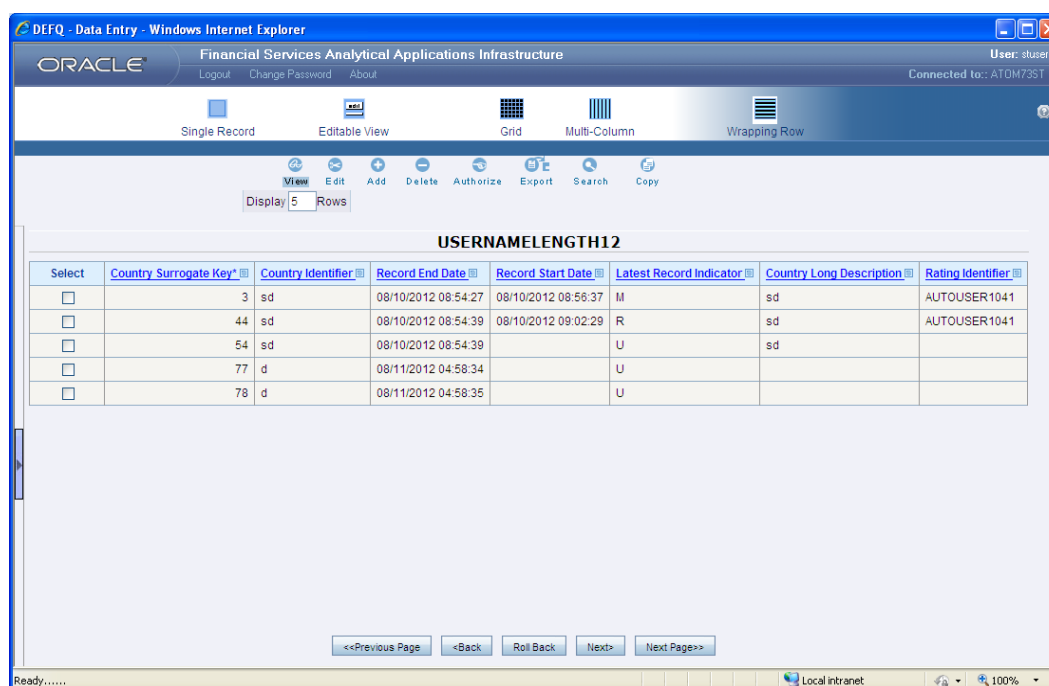
1.3.6 Data Entry

Data Entry within the Data Entry Forms and Queries section of Infrastructure system facilitates you to view, add, edit, copy, and delete data using the various layout formats and Authorize/Re-authorize data records based on the permissions defined during the Form creation.

You can use the Search option to query the records for specific data and also export the data in Microsoft Excel format for reference. You can launch multiple instances of Data Entry screen using the URL to search and update records simultaneously.

You (Business Analysts) need to have DEFQMAN function role mapped to access the DeFQ framework. You can access DEFQ - Data Entry by expanding Data Entry Forms and Queries section of Unified Metadata Manager module within the tree structure of LHS menu.

NOTE: An alert message is displayed if you are not mapped to any Forms in the system.



The *DEFQ - Data Entry* screen displays the list of Data Entry Forms and Query Forms mapped to the logged-in user in the LHS menu. You can select the required Form to view the details. In the *DEFQ - Data Entry* screen, you can do the following:

- [Viewing Form Details](#)
- [Editing Form Details](#)
- [Adding Form Data](#)
- [Authorizing Records](#)
- [Exporting Form Data](#)
- [Copying Form Data](#)
- [Deleting Form Details](#)

1.3.6.1 Viewing Form Details

The *DEFQ - Data Entry* screen displays the selected Form Data in the View mode by default. The Forms are displayed based on the application names in the LHS menu. There are various layouts available to customize the view and by default, the Form details are displayed in the layout in which it was designed.

In the *DEFQ - Data Entry* screen, the following layout types are available. You can click on any of the following layouts to view the Form details. The buttons i.e. **Previous Page**, **Back**, **Next**, and **Next Page** helps you to navigate through the records. However, the customized header sorting does not apply when you have navigate to *Previous* or *Next* pages.

NOTE: The **Roll Back** option can be used only for authorized records i.e. after the records are edited and saved, you can roll back/undo the changes in view mode.

Layout	Description
Single Record	To view a single record details at any given point. You can use the navigation buttons to view the next record in the table.
Editable View	To view and edit a single record. A list of five rows/records is displayed by default, and the same can be changed by entering the required number in Display Rows . You need to select the required record from the list to view/edit and click Save to update the changes.
Grid (Default)	To view all the records in a list. A list of five rows/records is displayed by default, and the same can be changed by entering the required number in Display Rows . You can click on the column header to alphabetically sort the list of records in the table.
Multi column	To view all the columns of a selected record. This layout enables you to view a record without having to scroll or with minimum scrolling to view all the columns.
Wrapped rows	To view all the rows of a selected record. This layout enables you to view a wrapping row easily without having to scroll horizontally to view the columns.

1.3.6.2 Searching Records

In the *DEFQ - Data Entry* screen, you can Search for a record in the View, Edit, and Authorize modes. You can perform a quick **Search** to find a specific record or run an **Advanced Search** to further query the record for the required details.

To search for a record in the *DEFQ - Data Entry* screen:

1. Click . The search fields are displayed.
2. Select **Field Name** from the drop down list.
3. Enter the **value/data** in the Search field.
4. Click **Go**. The search results are displayed in the list.

To perform an **Advanced search** in the *DEFQ - Data Entry* screen:

1. Click  within the Search fields. The *Advanced Search Screen* is displayed.

Parentheses/Join	Field	Operator	Value	Parentheses/Join
(	Record Start Date	=	02/02/2011	and
)	Record End Date	=	02/02/2011	)
and	Latest Record Indicator	=	Yes	)

GO Cancel

2. Select the required Parentheses/Join, Field, Operator from the drop down list and enter the Value as required to query the Form data.
3. Click **GO**. The results are displayed with the field names containing the searched data.

1.3.6.3 Editing Form Details

You can edit the permitted Form field values in the *DEFQ - Data Entry* screen. However, you cannot modify the primary key fields which are displayed in non editable format.

To edit Form Details in the *DEFQ - Data Entry* screen:

1. Open the required Form in view mode and click  **Edit**. The editable fields are enabled.
2. Enter/update the required details.
3. Click **Save** and update the changes.
4. If required, you can click **Reset** to undo the changes and return to original field values.

If you have edited an Authorized record, the same is again marked for authorization. Once the record is updated, a modified status flag is set, and only these record changes can be rolled back. The Roll Back option is supported in view mode only for authorized records, i.e. records which are updated and saved.

1.3.6.4 Adding Form Data

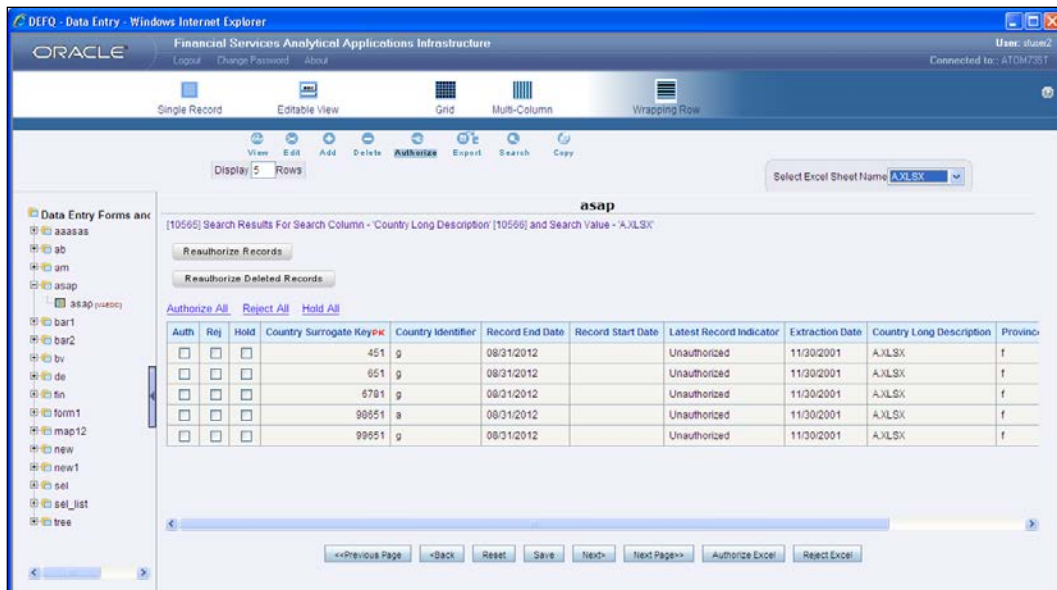
You can add a row to the required table and enter the field details. To Add Form Data in the *DEFQ - Data Entry* screen:

1. Open the required Form in view mode and click  **Add**.
2. By default, five rows are displayed. You can modify by specifying the number of required rows in **Display Rows** field and clicking **Reset**.
3. Enter the required numeric data in the new fields. If you want to view the numeric data separated by commas, enter the details accordingly.

- Click **Save** and update the data to the selected table.

1.3.6.5 Authorizing Record

You need to have DEFQMAN and SYSAUTH function roles mapped to access and authorize Forms in the DeFQ framework. You can Authorize a single record or all the records of a selected Form with the in the *DEFQ - Data Entry* screen. You can Authorize record in a table which has a primary key field. A primary key field in the record is indicated by “PK”. You need to have the authorization rights defined by the user who has created the record. You can also Reject or Hold inappropriate records in the table.



The status of each record in the table is indicated with an “AuthFlag” as indicated below:

- Unauthorized** records are displayed with the status flag “U”
- Authorized** records are displayed with the status flag “A”.
- Rejected** records are displayed with the status flag “R”.
- Modified** records are displayed with the status flag “M”.
- Deleted** records are displayed with the status flag “D”.
- If an **Unauthorized** record is on **Hold**, the status flag is displayed as “H”.
- If a **Modified** record is on **Hold**, the status flag is displayed as “X”.
- If a **Deleted** record is on **Hold**, the status flag is displayed as “Z”.

To Authorize Data in the *DEFQ - Data Entry* screen:

- Open the required Form in view mode and click  **Authorize**.

The list of available records for Authorization is displayed. If there are “no records” for Authorization in the selected Information Domain, an alert message is displayed.

2. Select the “Auth” checkbox adjacent to the required record with the status flag “**Unauthorized / Put On Hold**” and click **Save**. A confirmation dialog is displayed. Click **OK**.

You can also do a **Bulk Authorization** if Excel Map is selected in the *Sort Fields Selection* screen. Select the mapped Excel Name from the “SelectExcelSheetName” drop down list. The *DEFQ - Data Entry* screen displays only those records which are uploaded though the selected Excel sheet. Click **Authorize Excel**. A confirmation dialog is displayed. Click **OK**.

You can Reject / Hold a record by doing the following:

- To **Reject** a record, select the checkbox in the “**Rej**” column adjacent to the required record and click **Save**. A confirmation dialog is displayed. Click **OK**.

You can also Reject records in Bulk Mode if Excel Map is selected in the *Sort Fields Selection* screen. Select the mapped Excel Name from the “SelectExcelSheetName” drop down list. The *DEFQ - Data Entry* screen displays only those records which are uploaded though the selected Excel sheet. Click **Reject Excel**. A confirmation dialog is displayed. Click **OK**.

- To **Hold** a record and to authorize or reject at a later point, select the checkbox in the “**Hold**” column adjacent to the required record and click **Save**.

In the *DEFQ - Data Entry* screen, you can also do the following:

- Click **Authorize All** and click on **Save** to authorize all the records displayed in current page.
- Click **Reject All** and click on **Save** to reject all the records displayed in current page.
- Click **Hold All** and click on **Save** to hold all the records displayed in current page.

If you have enabled the option to send alerts to the Creator of the Form in *Message Type Maintenance* screen, a message is sent indicating that the records are authorized/rejected/put-on-hold.

1.3.6.5.1 Re-authorizing Records

You can re-authorize an authorized record which has been updated by other users. When an authorized record is updated, the status flag (AuthFlag) is set to “M” indicating that the record has been modified and needs re-authorization.

To re-authorize modified records in the *DEFQ - Data Entry* screen:

1. Open the required Form in view mode and click  **Authorize**.

The list of available records with the Authorization status is displayed. If there are “no records” for Authorization in the selected Information Domain, an alert message is displayed.

2. Click **Reauthorize Records**. The *DEFQ Authorization Window* is displayed.
3. Select the “Auth” checkbox adjacent to the required record.
4. Click **Save**. On re-authorization, a confirmation message is displayed.

You can also select the checkbox adjacent to “Rej” to reject the record, or “Hold” to re-authorize or reject at a later point. A message is sent to the Form creator indicating that records are authorized/rejected/put-on-hold.

1.3.6.5.2 Re-authorizing Deleted Records

You can re-authorize the delete action when an authorized record has been deleted by other users. When an authorized record is deleted, the status flag (AuthFlag) is set to “D” indicating that the record has been deleted and needs re-authorization.

Auth	Rej	Hold	Extraction Date	Currency Code Surrogate Key	Currency Code	Record End Date	Record Start Date	Latest Record Indicator	Local Currency Indicator	Reporting
☐	☐	☐	06/29/2011 14:52:08	990	45		07/23/2009 14:22:25	U		Deleted

To re-authorize deleted records in the *DEFQ - Data Entry* screen:

1. Open the required Form in view mode and click  **Authorize**.
The list of available records with the Authorization status is displayed. If there are “no records” for Authorization in the selected Information Domain, an alert message is displayed.
2. Click **Reauthorize Deleted Records**. The *DEFQ Authorization Window* is displayed.
3. Select the “Auth” checkbox adjacent to the required record.
4. Click **Save**. On re-authorization, a confirmation message is displayed.

You can also select the checkbox adjacent to “Rej” to reject the record, or “Hold” to re-authorize or reject at a later point. A message is sent to the Form creator indicating that records are authorized/rejected/put-on-hold.

1.3.6.6 Exporting Form Data

You can export the required record(s) to a selected location in CSV format. To Export Form Data in the *DEFQ - Data Entry* screen:

1. In the View mode, select the checkbox adjacent to the record(s) which you want export.
2. Click  **Export**. The *File Download* dialog is displayed.
3. Click **Save**. The *Save As* dialog is displayed.
4. Select the location and click **Save**. The selected record is exported.

1.3.6.7 Copying Form Data

You can copy the existing fields and create new fields in a record. When you copy a field, the primary key values are incremented from the pre-defined value to the next acceptable value. However, the other fields can be modified as required.

To copy fields in the *DEFQ - Data Entry* screen:

1. Open the required Form in view mode and click  **Copy**.

The list of available records is displayed. All the primary field data (indicated by *) is incremented by default.

2. Click **Save**. The field values are added to the record.

You can click **Edit** to modify the values or click **Next** to copy the next set of fields.

1.3.6.8 Deleting Form Details

You can remove a Form details which are no longer required by deleting from the *DEFQ - Data Entry* screen.

1. In the View mode, select the checkbox adjacent to the record which you want to delete.
2. Click  **Delete**. An information dialog is displayed.
3. Click **OK** to confirm and delete the record.

1.3.7 References

This section of the document consists of information related to intermediate actions that needs to be performed while completing a task. The procedures are common to all the sections and are referenced where ever required. You can refer to the following sections based on your need.

1.3.7.1 Creating Tree View Form

The process to create a Form using the Tree View Layout differs from the procedure as explained for other layouts. You can create a Form using the Tree View Layout, by selecting either Dimensional Table Tree or Parent Child Tree.

1.3.7.2 Dimensional Table Tree

If you want to create a Form using the Dimension table Tree, select **Tree view > Dimension Table Tree** option in the *DEFQ - Layout* screen. On clicking **Next**, you need to provide the required details in the following screens:

1. **Dimension Table Selection:** Enter the **Root Name** and select the Table. Click **Next**.
2. **Fields Selection:** Select required *Fields to Display* from *Available fields* and click **Next**.
3. **Dimension Node Selection:** Select Field Nodes from *Available fields* and click **Next**.
4. Select Dimensional Tree Nodes for the selected fields and click **Next**.
5. **DEFQ Field Properties screen:** Specify the required details. For more information, refer [DEFQ Field Properties](#).

1.3.7.3 Parent Child Tree

If you want to create a Form using the Parent Child Tree, select **Tree view > Parent Child Tree** option in the *DEFQ - Layout* screen. On clicking **Next**, you need to provide the required details in the following screens:

1. **Hierarchy Table Selection:** Enter the **Root Name** and select the Table. Click **Next**.
2. **Parent-Child Node Selection:** Select Parent Node, Child Node, and Node Description from the drop down list.
3. **Fields Selection:** Select required *Fields to Display* from *Available fields* and click **Next**.
4. **DEFQ Field Properties screen:** Specify the required details. For more information, refer [DEFQ Field Properties](#).

1.3.7.4 Applying Rules

You can apply rules to Validate Form Data to specific fields such as Text Field, Text Area or Protected Field. To specify rules for a field in the DEFQ - Forms Designer *DEFQ Field Properties* screen:

1. Click **Rule** adjacent to the required field. The *Specifying Rules and Expressions for Data Validations* screen is displayed.
2. Select the required Fields, Operators, and Functions from the list.
3. Enter the Rule Expression in the Expression Viewer field.
4. Depending on the data type of the selected field, the following column constraints are displayed. Select the required checkbox.
 - No Spaces
 - Characters Only
 - Alpha Numeric
 - Not Null
 - Non Negative
5. Select the **Alignment** type from the drop down list.
6. Click **OK** and save the details.

1.3.7.5 Defining List of Values

While creating a Form, if you choose the **Select List** field parameter option in the *In Edit/Add* column in the *DEFQ Field Properties* screen, you need to define the list of values in the *Select List Screen*. However, you do not need to define the values for foreign key fields and primary key fields.

In the *Select List Screen*, select the required Field Type from the following options:

- **Comma Separated Values:** Supports only the user specified values while creating a Form.
- **Dynamic List of Values:** Supports fieldname from a table and stores it in the database. The same can be used during Data Entry.

If **Comma Separated Values** is selected:

1. Enter the **List of Values** to be displayed.
2. Specify **Alternate Display Values** to be displayed.
3. Click **OK** and save the specified list of values.

If **Dynamic List of Values** is selected:

1. Select Table Value, List Value and Display Value field.
2. Select the Field, Operator, and Functions from the list.
3. Define a filter condition for the selected values.
4. Click **OK** and save the specified list of values.

1.3.7.6 Defining Messaging Details

While creating a Form, you can click **Message Details** in the *DEFQ Field Properties* screen to define the messaging details. You can specify an alert message which is sent to the Creator of the Form or to an Authorizer.

In the *Messaging Details for a Form* screen:

1. Select **Messaging Required** checkbox to activate the Messenger feature.

NOTE: If the option is not selected, a single mail is sent for the entire batch. Message details such as recipients, subject, and contents are fetched from the metadata.

2. Select the required **Available Message Types** from the list and click .
3. Select the **Message Type** from the drop-down list based on specific action.
4. Select **Specific Messages Required** to add a specific message.
5. Select Available Fields for **Subject, Content, & Recipients** from the list and click .
6. Click **Save** and save the messaging details. You also need to select **Save with Authorization** in the *DEFQ Field Properties* screen for the messages to be functional.

1.3.7.7 Form Data Versioning

You can perform data versioning on an authorized Form. The modifications made to the particular Form is tracked and displayed as per date versioning. In the *Data Versioning for Form* screen, do the following:

1. Select **Enable Data Versioning** checkbox to ensure that the version is tracked.
2. Select the **Table** and **Version Identifier** from the drop down list.
3. Click **OK** and save the versioning details.

1.3.7.8 Save with Authorization

The **Save with Authorization** feature in Forms Designer (*Sort Fields Selection* screen) allows you to authorize the uploaded data. Authorization serves as a checkpoint for validation of uploaded data.

To authorize the uploaded data, you need to create a Form in DEFQ with the **Save with Authorization** checkbox selected.

1. Before any DEFQ Form is created to authorize the data, the underlying table in the data model needs to have below columns added to its table structure. You need to perform a data model upload to have the new structures reflected in the application.

Columns required:

```
V_MAKER_ID VARCHAR2(20),
V_CHECKER_ID VARCHAR2(20),
D_MAKER_DATE DATE,
D_CHECKER_DATE DATE,
F_AUTHFLAG VARCHAR2(1),
V_MAKER_REMARKS VARCHAR2(1000),
V_CHECKER_REMARKS VARCHAR2(1000)
```

2. Navigate to [Create a New Form](#) in the Forms Designer section and complete the design steps up to Step 6. From the *DEFQ Field Properties* screen explained in step 7, select the appropriate values as listed below for **Store Field As** depending on the columns selected:

```
V_MAKER_ID - MakerID
V_CHECKER_ID - CheckerID
D_MAKER_DATE - Maker Date
D_CHECKER_DATE - Checker Date
F_AUTHFLAG - AuthFlag
V_MAKER_REMARKS - Maker Remarks
V_CHECKER_REMARKS - Checker Remarks
```

3. Click **Save with Authorization**. Once data is loaded into the table, you can login as 'Authorizer' and navigate to the *Data Entry* screen. Select the Form to open and authorize the records loaded.

1.4 Business Metadata Management

Business Metadata refers to a catalog of defined business terms with their mappings to tables and columns in various data stores. Business Metadata Management (BMM) within the Infrastructure system facilitates business analysts with the catalog of data present in the data warehouse along with their business definitions.

Business Metadata consists of business names, descriptions for columns, tables and groupings, query and report definition, join-specification tool settings, and security definitions. Maintaining this metadata centrally, helps you to achieve the following objectives:

- Create multiple and consistent data stores in the warehouse eco-system.
- Reduce redundancy and provide adequate information about the location of information.
- Manage business metadata layer to provide a common business language across the entire analytical applications for business users to interact.
- Allow rapid deployment of new or extended applications by implementing only the required data elements within a specific application or group of applications.

1.4.1 Navigating to BMM

BMM framework is available within the Unified Metadata Manager module of Infrastructure system. You (Business Analysts) need to have SYSBAU function role mapped to access the BMM framework.

In the left hand side (LHS) menu of Infrastructure home page, click “+” and expand the Unified Metadata Manager section and select Business Metadata Management framework to view the sections in detail.

1.4.2 Components of BMM

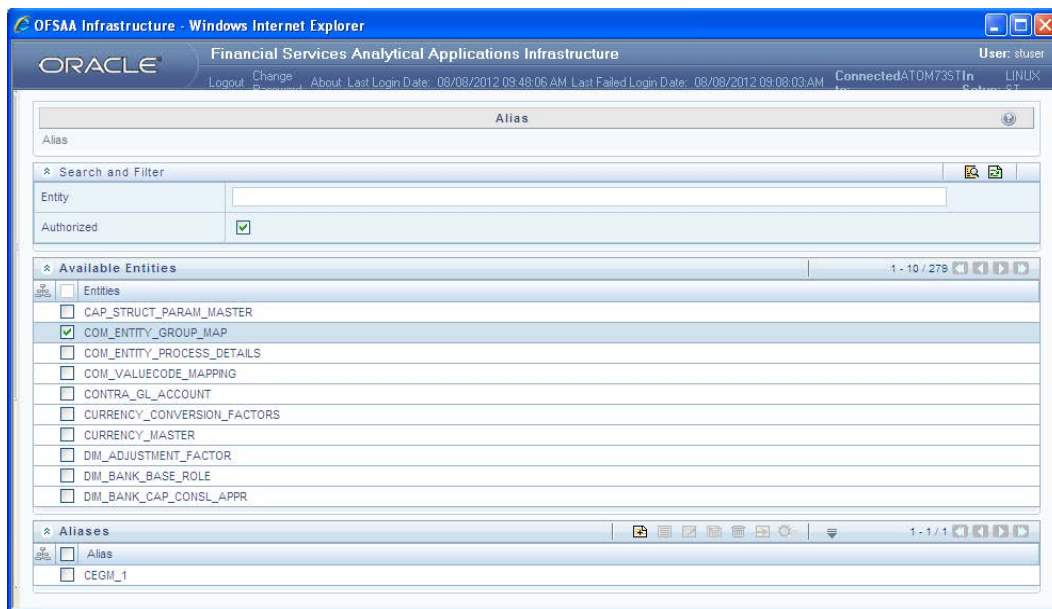
BMM consists of the following sections. Click on the links to view the sections in detail.

- [Aliases](#)
- [Derived Entity](#)
- [Data Sets](#)
- [Business Measures](#)
- [Business Hierarchy](#)
- [Business Dimensions](#)
- [Cubes](#)
- [Business Processors](#)

- [Map Maintenance](#)
- [Filters](#)
- [Cube Migration](#)

1.4.3 Aliases

Alias refers to an assumed name or pseudonym. **Aliases** section within the Infrastructure system facilitates you to define an Alias for a table and specify the join condition between fact and dimension table. Aliases defined to a table help you to query data for varied analytical requirements.



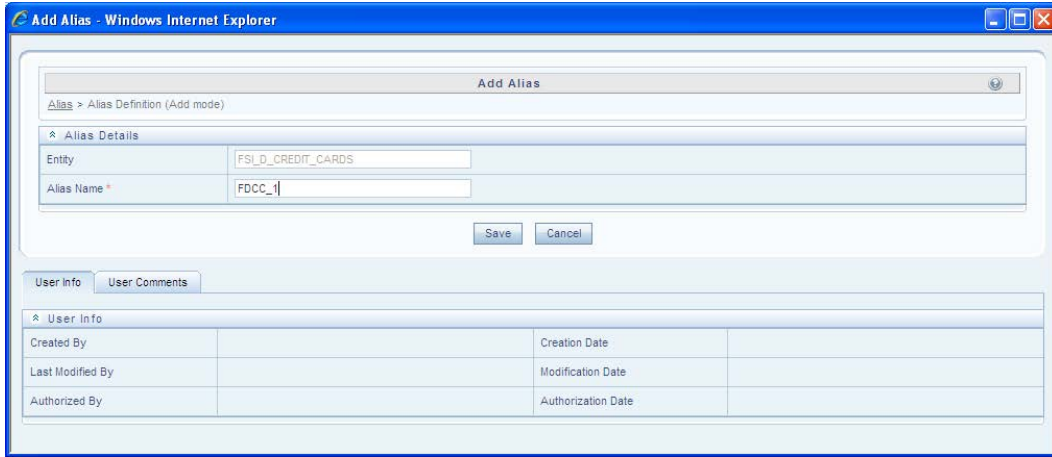
You (Business Analysts) need to have SYSBAU, Oracle Cube Administrator (ORACUB), and View Alias function roles mapped to access Aliases section in the BMM framework. You can access Aliases by expanding BMM section within the tree structure of LHS menu. The *Alias* screen displays the options to create, view, edit, copy, and delete Aliases for a selected entity.

You can make use of [Search and Filter](#) option to search for specific Aliases based on Entity name or Authorized status. The [Pagination](#) option helps you to manage the view of existing Aliases within the system.

1.4.3.1 Adding Alias

To create an Alias from the *Alias* screen:

1. Select an entity from the *Available Entities* list for which you need to create an Alias.
The *Aliases* grid displays the available aliases for the selected entity.
2. Click  button in the *Aliases* grid. The *Add Alias* screen is displayed.



The *Alias Details* grid in the *Add Alias* screen displays the entity name you have selected in a non-editable field.

3. Enter the Alias name you wish to provide for the selected entity in the **Alias Name** field.
4. Click **Save**. The Alias name is listed under the *Aliases* grid for the selected entity.

The *User Info* section at the bottom of *Add Alias* screen displays metadata information about the Alias Name created. The *User Comments* section facilitates you to add or update additional information as comments.

1.4.3.2 Viewing Alias

You can view individual Alias definition details at any given point. To view the existing Alias definition in the *Alias* screen:

1. Select the checkbox adjacent to the required Alias name.
2. Click  button from the Aliases tool bar.

The *View Alias* screen displays the details of the selected Alias definition. The *User Info* grid at the bottom of the screen displays the metadata information about the Alias definition along with the option to add comments.

1.4.3.3 Deleting Alias

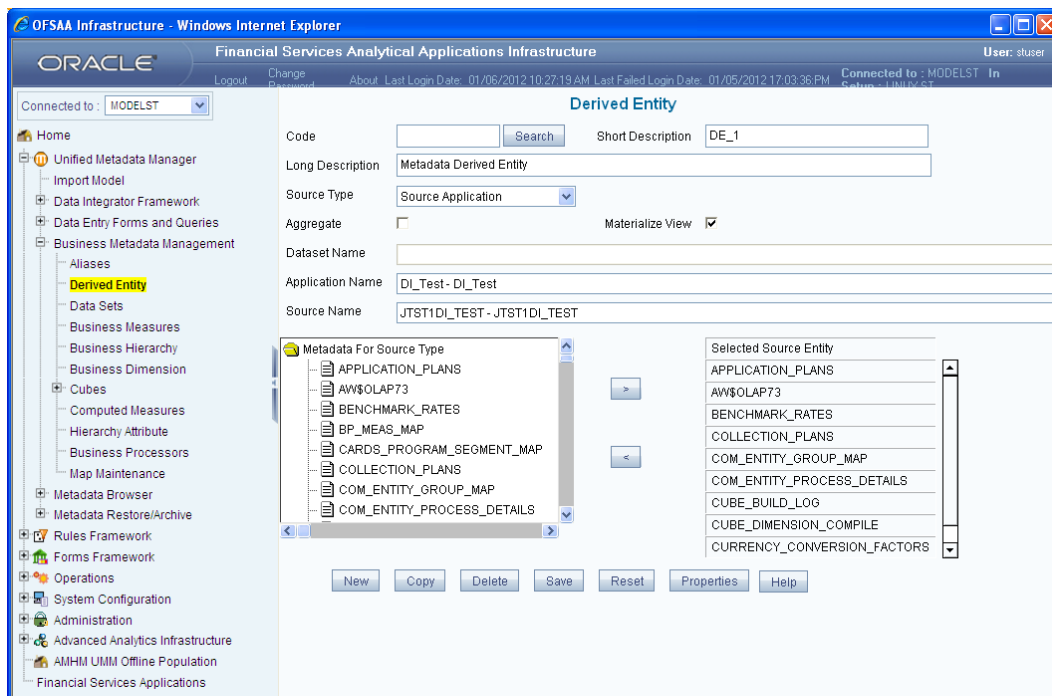
You can remove Aliases which are assigned for an entity by deleting from *Alias* screen.

1. Select the checkbox(s) adjacent to the Alias names whose details are to be removed.
2. Click  button from the *Aliases* tool bar.
3. Click **OK** in the *Warning* dialog to confirm deletion.

The selected Alias names are removed.

1.4.4 Derived Entity

Entity refers to a table in which data is stored. Derived Entity within the Infrastructure system facilitates you to define entities which are populated through a series of data transformation processes resulting from an existing Data Set or a Source Application. An Entity can be used to define other Business Metadata such as measures, hierarchies, dimensions, data sets, and cubes.



You (Business Analysts) need to have View Derived Entities function role mapped to access Derived Entity section in the BMM framework. You can access Derived Entity by expanding BMM section within the tree structure of LHS menu. The *Derived Entity* screen displays the options to define and edit the derived entity definitions for a selected table.

1.4.4.1 Creating Derived Entity

You can define Derived Entity only if you have Add Derived Entity function role mapped in the Infrastructure system. You can create a Derived Entity based on Data Set or Source Application. To define a Derived Entity based on Source Application, you need to have defined permissions for the particular Source Application in the Atomic schema. You can also authorize a Derived Entity created by other users if you have the authorizer rights.

To create a Derived Entity in the *Derived Entity* screen:

1. Click **New** if you are defining the derived entity for the first time.
2. Enter the details as tabulated.

Field	Description
Code	Enter a distinct code to identify the Entity. Ensure that the code is alphanumeric with a maximum of 8 characters in length and there are no special characters except underscore “_”. Note the following: ▪ The code can be indicative of the type of Derived Entity being created. ▪ A pre-defined Code and Short Description cannot be changed. ▪ Same Code or Short Description cannot be used for Essbase installation: "\$\$\$UNIVERSE\$\$\$", "#MISSING", "#MI", "CALC", "DIM", "ALL", "FIX", "ENDFIX", "HISTORY", "YEAR", "SEASON", "PERIOD", "QUARTER",

Field	Description
	"MONTH", "WEEK", "DAY". - In Unauthorized state, the users having Authorize Rights can view all the unauthorized Metadata. You can also search for an existing code or Derived Entity. - Click Search, the <i>Search</i> screen is displayed. - Double-click the required code from the list of available Derived Entities or enter the description for the required Derived Entity in Description Filter and press Enter. The matching Derived Entity code is displayed. - Select List Un Authorized checkbox to view all the un authorized metadata. For more information, refer List Un Authorized section.
Short Description	Enter a Short Description based on the defined code. Ensure that the description is of a maximum of 80 characters in length and does not contain any special characters except "_", "(", "-", "\$".
Long Description	Enter the Long Description if you are creating subject-oriented Derived Entity to help users for whom the Derived Entity is being created or other details about the type/subject. Ensure that the description is of a maximum of 100 characters in length.
Source Type	Select either Data Set or Source Application from the drop down list.
Aggregate	Select Aggregate checkbox to collate the information for the Derived Entity.
Materialize View	(Optional) Select the Materialize View checkbox if you are using Oracle database to create a Materialized View with the Derived Entity Name and short description. Note: You cannot enable the Materialize View option if you are using IBM DB2 database.
Data Set Name	Option available only if the Source Type is selected as Data Set. Select the Data Set Name from the drop-down list. The Short Description for the Data Sets is available in the drop down list to select.
Application Name	Option available only if the Source Type is selected as Source Application. Select the Application Name from the drop down list.
Source Name	Option available only if the Source Type is selected as Source Application. Based on the Application selected the related Sources are listed. Select the Source Name from the drop-down list.

On selecting the Data Set Name or Source Application Name, the respective fields are displayed in the **Metadata for Source Type** list.

3. Double-click **Metadata for Source Type**. The list of Metadata defined on the selected Data Set or Application and Source is displayed.
4. Click **+** to expand the folders. Select the required metadata and click .
5. Click **Save**. A confirmation dialog is displayed.

The details are displayed in the *Derived Entity* screen with the **Code** and **Short Description** as non-editable fields.

In the *Derived Entity* screen, you can also do the following:

- [Copy Derived Entity](#)
- [View Derived Entity Properties](#)
- [Modify Derived Entity](#)
- [Delete Derived Entity](#)

1.4.4.2 Copying Derived Entity

You can copy the pre-defined Derived Entity details to create another entity only if you have View Derived Entity, Add Derived Entity, and Modify Derived Entity function roles mapped.

To copy a Derived Entity in the *Derived Entity* screen:

1. Enter the description in the **Description Filter** box and press **Enter**. The matching code is displayed.
2. Click **Copy**. On completion, a confirmation dialog is displayed.

1.4.4.3 Viewing Derived Entity Properties

You can view the metadata of the selected Derived Entity. In the *Derived Entity* screen click **Properties** and open the *Properties* dialog.

- The *Properties* tab displays the metadata properties such as Created By, Creation Date, Last Modified By, Modified Date, Authorized By, and Authorized Date.
- The *Comments* tab has a text field to enter additional information as comments about the created Derived Entity definition.

Click **OK** and save the definition with the comments (if any).

1.4.4.4 Modifying Derived Entity

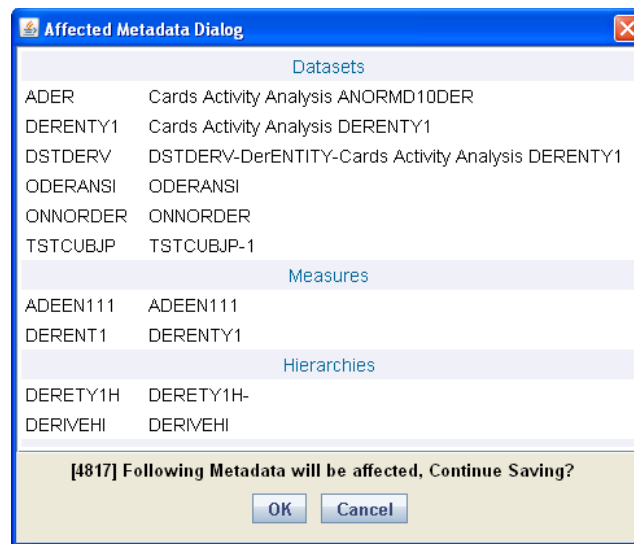
You can search for a Derived Entity and modify the details as required. You need to have Modify Derived Entity function role mapped to edit/modify the Derived Entity definitions. A Derived Entity definition in the un-authorized state (modified by other users) cannot be modified.

1. Click **Search** and enter the Description Filter value.
2. Click **OK**. The Derived Entity code matching the search filter is auto-populated.
3. Edit the required details. For more information, refer [Create Derived Entity](#).

NOTE: You cannot modify the Derived Entity Code or its Short Description.

4. Click **Save** and update the details.

When you modify a Derived Entity which is mapped to other metadata definition, the *Affected Metadata* Dialog is displayed with the list of mapped Data Sets, Measures, and Hierarchies which gets auto updated. Click **OK** to confirm, else click **Cancel**.



1.4.4.5 Deleting Derived Entity

You can delete a Derived Entity that you have created or if you are authorized to do so. A Derived Entity in **Un-Authorized** state (modified by other users) cannot be deleted. You need to have Delete Derived Entity function role mapped to delete a Derived Entity. Delete function permanently removes the Derived Entity from the database. Ensure that you have verified the details as indicated below:

- A Derived Entity definition marked for deletion is not accessible for other users.
- Every delete action has to be **Authorized/Rejected** by the authorizer.
 - On Authorization, the Derived Entity details are removed.

- On Rejection, the Derived Entity details are reverted back to authorized state.
- You cannot update Derived Entity details before authorizing/rejecting the deletion.
- An un-authorized Derived Entity definition can be deleted.

To delete a Derived Entity in the *Derived Entity* screen:

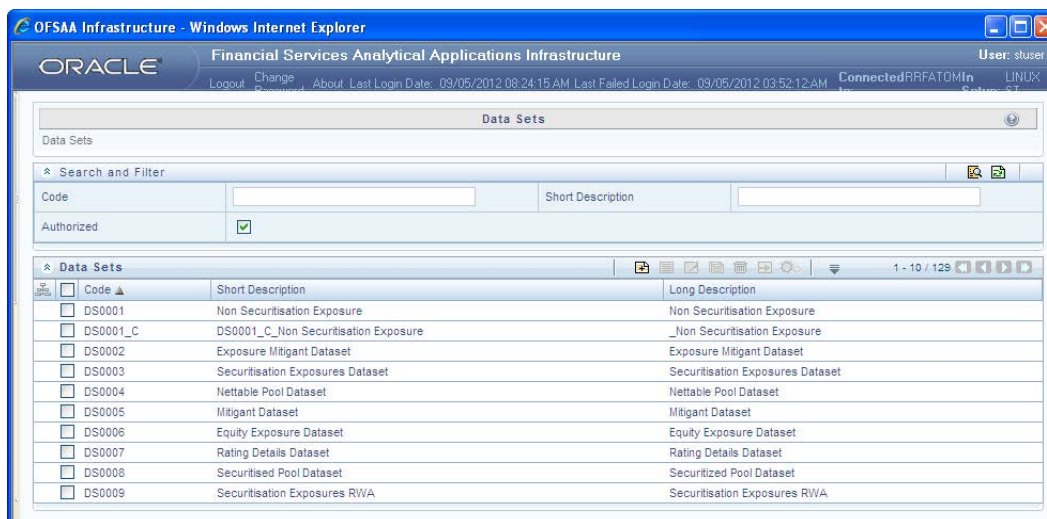
1. Search the Derived Entity code to be deleted and click **Delete**.
2. Click **OK** in the confirmation dialog.

1.4.5 Data Sets

Data Set refers to a group of tables whose inter-relationship is defined by specifying a join condition between the various tables. It is a basic building block to create a query and execute on a data warehouse for a large number of functions and to generate reports.

Data Set function within the Infrastructure system facilitates you to create data sets and specify rules that fine-tune the information for querying, reporting, and analysis. Data Sets enhances query time by pre-defining the names of tables required for an operation (such as aggregation), and also provides the ability to optimize the execution of multiple queries on the same table set. For more information, refer to [Scenario to Understand the Data Set Functionality](#).

You (Business Analysts) need to have DATVIW function role mapped to access Data Set section in the BMM framework. You can access Data Sets by expanding BMM section within the tree structure of LHS menu.

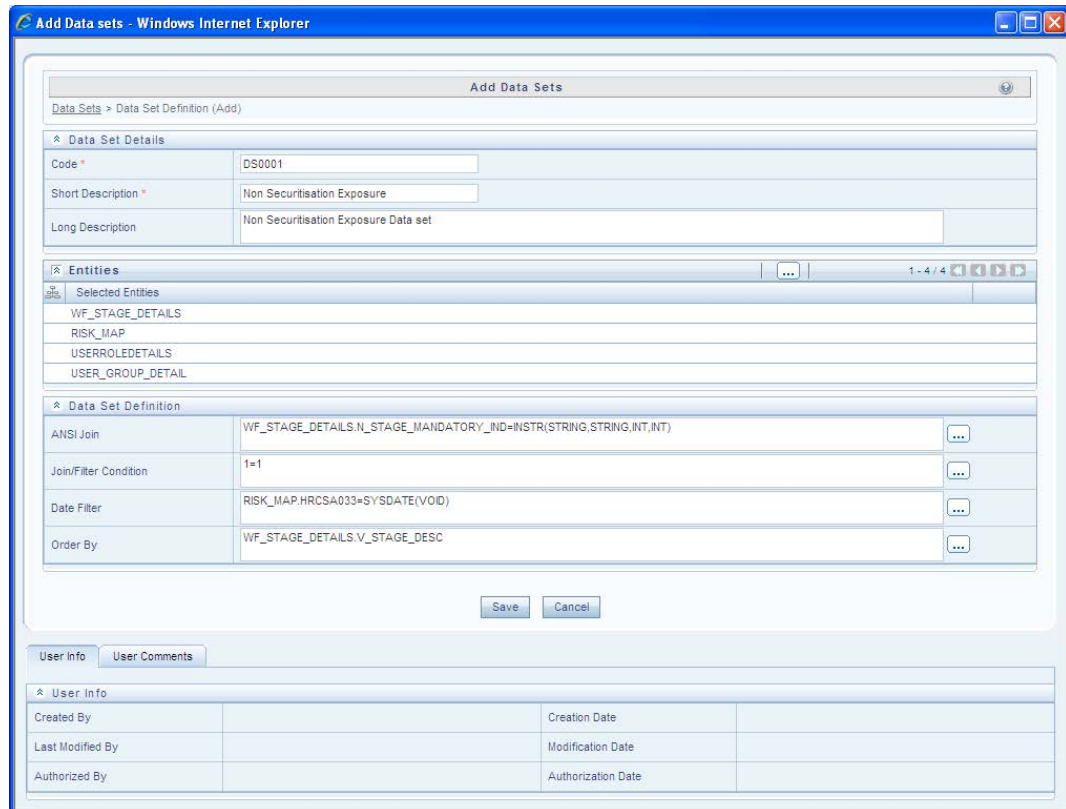


The *Data Sets* screen displays the list of pre-defined Data Sets with their code and description. You can add, view, edit, copy, and delete the required Data Set. You can also make use of Search and Pagination options to search for a specific dataset based on the code, description, and Authorization status or view the list of existing datasets within the system. For more information, refer [Search and Filter](#) and [Pagination](#) sections.

1.4.5.1 Creating Data Set

You can create Data Set by defining the Data Set Details, Entities, and Data Set Definition. You need to have **DATADD** function role mapped to create Data Sets. To create Data Set in the Data Sets screen:

1. Click  button from the Data Sets tool bar. **Add** button is disabled if you have selected a Data Set checkbox in the grid. The *Add Data Sets* screen is displayed.



2. Enter the details in the Data Set Details section as tabulated.

Field	Description
Fields marked in red asterisk (*) are mandatory.	

Field	Description
Code	Enter a distinct code to identify the Data Set. Ensure that the code is alphanumeric with a maximum of 8 characters in length and there are no special characters except underscore “_”. Note the following: - The code can be indicative of the type of Data Set being created. - A pre-defined Code and Short Description cannot be changed. - Same Code or Short Description cannot be used for Essbase installation: “\$\$\$UNIVERSE\$\$\$”, “#MISSING”, “#MI”, “CALC”, “DIM”, “ALL”, “FIX”, “ENDFIX”, “HISTORY”, “YEAR”, “SEASON”, “PERIOD”, “QUARTER”, “MONTH”, “WEEK”, “DAY”. - In Unauthorized state, the users having Authorize Rights can view all the unauthorized Metadata.
Short Description	Enter a Short Description based on the defined code. Ensure that the description is of a maximum of 8 characters in length and does not contain any special characters except underscore “_”.
Long Description	Enter the Long Description if you are creating subject-oriented Data Set to help users for whom the Data Set is being created or other details about the type/subject. Ensure that the description is of a maximum of 100 characters in length.

3. Select the Entities by doing the following:

- Click  button from the Entities tool bar.

The *Entity and Attribute* screen is displayed.

- Select the checkbox adjacent to the required fact table(s)/entities from the **Available Entities** list and click  button.

You can select multiple dimension tables and link each other and with a join condition. You can also Search for the required entity using the Search field.

The selected Entities are displayed in the Selected Entities grid. To delete a selected entity, select the Entity checkbox and click  button.

- Click **Save**. The details are populated in the *Add Data set* screen.

4. Specify the required table-join condition in the Data Set Definition grid as tabulated.

Field	Description
ANSI Join	The ANSI Join condition defines which set of data have been joined along with the type of join condition. It also describes the exact operations to be performed while joining the Data Sets. In ANSI join, the join logic is clearly separated from the filtering criteria.
Join/Filter Condition	The Join/Filter Condition facilitates the objective of creating Data Sets. Data Sets with linked tables using the join conditions help in reducing the query time. There are two ways of defining the join condition: ▪ JOIN condition for SQL Server/SQL OLAP combination should contain only EQUI JOIN condition as required by SQL OLAP. ▪ In case of SQL Server/Essbase and Oracle/Essbase, data set must be defined. Multiple cubes can be built with a single pass and the underlying data set definition should be the same for all the cubes mapped which reduces the aggregation time considerably.
Date Filter	The Date Filter condition enables you to cascade the cubes that are using the data set with the defined Date Filter.
Order By	The Order By condition enables you to sort the dimension data in order. The order of the Dimension nodes will be maintained only for Business Intelligence enabled hierarchies. The Order By condition is specific to the Essbase database.

Enter the required expression or click  button to define an expression using the Expression screen. For more information, refer [Create Expression](#).

5. Click **Save** and save the Data Set Definition details.

1.4.5.2 Viewing Data Set Details

You can view individual Data Set details at any given point. You need to have **DATVIW** function role mapped to view the Data Sets. To view the existing Data Set definition details in the *Data Sets* screen:

1. Select the checkbox adjacent to the required Data Set code.
2. Click  button from the Data Sets tool bar.

The *View Data Sets* screen displays the details of the selected Data Set definition. The *User Info* grid at the bottom of the screen displays the metadata information about the Data Set definition created along with the option to add comments.

1.4.5.3 Modifying Data Set Details

You can update the existing Data Set definition details except for the Code and Short Description. You need to have **DATMOD** function role mapped to modify the Data Sets. To update the required Data Set details in the *Data Sets* screen:

1. Select the checkbox adjacent to the required Data Set code.
2. Click  button from the Datasets tool bar. The *Edit Data Sets* screen is displayed.
3. Update the required details. For more information, refer [Create Data Set](#).
4. Click **Save** and update the changes.

1.4.5.4 Copying Data Set Details

You can copy the existing Data Set details to quickly create a new Data Set. You can later modify the Data Set Code or Short Description, add/remove tables, and also define the join conditions. You need to have **DATADD** function role mapped to copy the Data Set definitions. To copy an existing Data Set definition in the *Data Sets* screen:

1. Select the checkbox adjacent to the required Data Set code.
2. Click  button from the Data Sets tool bar.

The Data Set definition details are copied and a confirmation message is displayed.

1.4.5.5 Deleting a Data Set

You can remove the Data Set definition(s) which are created by you and which are no longer required in the system by deleting from the *Data Sets* screen. You need to have **DATDEL** function role mapped to delete a Data Set. Delete function permanently removes the Data set details from the database. Ensure that you have verified the details as indicated below:

- A Data Set definition marked for deletion is not accessible for other users.
- Every delete action has to be **Authorized/Rejected** by the authorizer.
 - On Authorization, the Data Set details are removed.
 - On Rejection, the Data Set details are reverted back to authorized state.
- You cannot update Data Set details before authorizing/rejecting the deletion.
- An un-authorized Data Set definition can be deleted.

To delete an existing Data Set in the *Data Sets* screen:

1. Select the checkbox adjacent to the required Data Set code.
2. Click  button from the Data Sets tool bar. A confirmation dialog is displayed.

3. Click **OK**. The Data Set details are marked for delete authorization.

1.4.6 Business Measures

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 function within the Infrastructure system 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. Business Measures can be stored as [Base and Computed measures](#) and can also be reused in defining other multi dimensional stores and query data using the various modules of Oracle Analytical Application Infrastructure. You (Business Analysts) need to have **MSRVIW** mapped to view Business Measure section in the BMM framework and **MSRADD**, **MSRMOD**, and **MSRDEL** to add, update and delete Business Measures. You can access Business Measure by expanding BMM section within the tree structure of LHS menu.

Code	Short Description	Long Description	Aggregation Function	Entity	Attribute
M0001	MSR - Non Sec Outstanding Principal	Measure for Outstanding Principal	SUM	FCT_NON_SEC_EXPOSURES	n_outstanding_principal
M0001CRP	Original Exposure Pre Conversion Factors	Original Exposure Pre Conversion Factors	SUM	VW_CRP_SA_CR_NON_SEC_REP	ORIG_EXP_PRE_CONV_FACTORS
M0002CRP	Of Which Arising from Counterparty Credit Risk	Of Which Arising from Counterparty Credit Risk	SUM	VW_CRP_SA_CR_NON_SEC_REP	OF_ARISING_COUNTERPARTY_CR
M0003CRP	Value Adjustments and Provisions Associated with the Original Exposure	Value Adjustments and Provisions Associated with the Original Exposure	SUM	VW_CRP_SA_CR_NON_SEC_REP	VALUE_OF_ADJ_PROV_ORIG_EXP
M0004CRP	Guarantees	Guarantees	SUM	VW_CRP_SA_CR_NON_SEC_REP	GUARANTEES
M0005	MSR - Non Sec Add On Percent	Measure for Add On Percent	SUM	FCT_NON_SEC_EXPOSURES	n_addon_percent
M0005CRP	Credit Derivatives	Credit Derivatives	SUM	VW_CRP_SA_CR_NON_SEC_REP	CREDIT_DERIVATIVES
M0006	MSR - Non Sec Notional Principal	Measure for Notional Principal	SUM	FCT_NON_SEC_EXPOSURES	n_notional_principal
M0006CRP	Financial collateral simple method	Financial collateral simple method	SUM	VW_CRP_SA_CR_NON_SEC_REP	FIN_COLL_SIMPLE_METHOD
M0007	MSR - Non Sec Current Exposure Amount	Measure for Current Exposure Amount	SUM	FCT_NON_SEC_EXPOSURES	n_exposure_amount

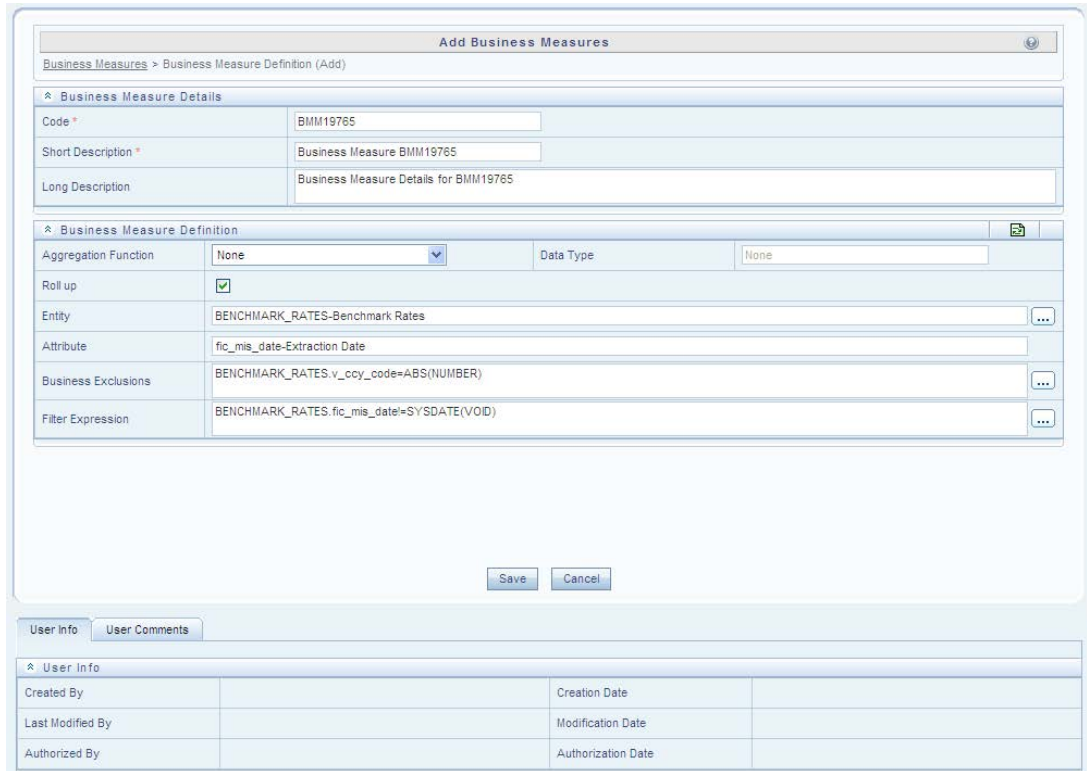
The *Business Measures* screen displays the list of pre-defined Business Measures with their Code, Short Description, Long Description, Aggregation Function, Entity, and Attribute. You can add, view, edit, copy, and delete the required Business Measures. You can also make use of Search and Pagination options to search for a specific Business Measure based on the Code, Short Description, and Authorization status or view the list of existing Business Measures within the system. For more information, refer [Search and Filter](#) and [Pagination](#) sections.

1.4.6.1 Creating Business Measure

You can create a Business Measure by specifying the Business Measure Details and defining the Business Measure Definition.

To create a measure in the *Business Measures* screen:

1. Click  button from the Business Measures tool bar. The *Add Business Measures* screen is displayed.



Add Business Measures

Business Measures > Business Measure Definition (Add)

Business Measure Details

Code *	BMM19765
Short Description *	Business Measure BMM19765
Long Description	Business Measure Details for BMM19765

Business Measure Definition

Aggregation Function	None	Data Type	None
Roll up	☒		
Entity	BENCHMARK_RATES-Benchmark Rates		
Attribute	fic_mis_date-Extraction Date		
Business Exclusions	BENCHMARK_RATES.y_ccy_code=ABS(NUMBER)		
Filter Expression	BENCHMARK_RATES.fic_mis_date!=SYSDATE(VOID)		

Save Cancel

User Info User Comments

User Info

Created By		Creation Date	
Last Modified By		Modification Date	
Authorized By		Authorization Date	

2. Enter the details in the Business Measure Details section as tabulated.

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Code	Enter a distinct code to identify the Measure. Ensure that the code is alphanumeric with a maximum of 8 characters in length and there are no special characters except underscore “_”. Note the following: - The code can be indicative of the type of Measure being created. - A pre-defined Code and Short Description cannot be changed. - Same Code or Short Description cannot be used for Essbase installation: “\$\$\$UNIVERSE\$\$\$”, “#MISSING”, “#MI”, “CALC”, “DIM”, “ALL”, “FIX”, “ENDFIX”, “HISTORY”, “YEAR”, “SEASON”, “PERIOD”, “QUARTER”, “MONTH”, “WEEK”, “DAY”. - In Unauthorized state, the users having Authorize Rights can view all the unauthorized Metadata.
Short Description	Enter a Short Description based on the defined code. Ensure that the description is of a maximum of 8 characters in length and does not contain any special characters except underscore “_”.
Long Description	Enter the Long Description if you are creating subject-oriented Measure to help users for whom the Measure is being created or other details about the type/subject. Ensure that the description is of a maximum of 100 characters in length.

Enter the details in the Business Measure Definition section.

- Select the required **Aggregation Function** from the drop down list.

The list consists of various metrics based on which a Measure can be aggregated. The available aggregation functions are as tabulated.

Aggregator	Description
SUM	Adds the actual value of attribute or data element to get the measure value.
COUNT	Counts the records for the data element to get the measure value or counts the number of occurrences
MAXIMUM	This function acquires the maximum of the data element to get the measure value.
MINIMUM	This function obtains the minimum of the data element to get the measure value.

Aggregator	Description
COUNT DISTINCT	This function is different from a simple count aggregation function. The peculiarity of these measures is that they are linked to the dimensions and they vary across the hierarchies of these dimensions. In a Count Distinct aggregation function a simple roll cannot determine the values at the intermediate nodes in the hierarchies up of their leaf level values.

- Based on the selected Aggregation Function the **Data Type** is auto populated.
 - Selecting **Roll Up** checkbox calculates the measure values and displays the nodes at the total level. By default, the checkbox is selected if the Aggregation Type is Maximum, Minimum, Count, or Sum. Roll Up option, when selected with Percentage Measures results in wrong values at intermediate/total levels.
4. Select the Entity to load the data for the Measure. Click  button, The *Entity and Attribute* screen is displayed.
- Select the checkbox adjacent to the required Entities from the **Available Entities** list. The corresponding attributes are displayed in the **Available Attributes** list. Select the checkbox adjacent to the required Attribute.

NOTE: The Entity list is dependent on the imported Data Model.

- You can also search for an Entity using the [Search](#) option.
- Click **Save**. The selected Entity and Attributes are displayed in the Entity field of the *Add Business Measures* screen.
5. Define the **Business Exclusions** rules for the base Measure. You can enter the expression or click  button to define using the [Expression](#) screen.
6. Define **Filter Expression** to filter the aggregation process. You can enter the expression or click  button to define using the [Expression](#) screen.
7. Click **Save** and save the Business Measure details.

1.4.6.2 Viewing Business Measure

You can view individual Business Measure at any given point. To view the existing Business Measure definition details in the *Business Measures* screen:

1. Select the checkbox adjacent to the required Business Measure code.
2. Click  button from the Business Measure tool bar.

The *View Business Measures* screen displays the details of the selected Business Measure definition. The User Info grid at the bottom of the screen displays the

metadata information about the Business Measure created along with the option to add comments.

1.4.6.3 Modifying Business Measure

You can update the existing Business Measure definition details except for the Code and Short Description. To update the required Business Measure details in the *Business Measure* screen:

1. Select the checkbox adjacent to the required Business Measure code.
2. Click  button from the Business Measures tool bar. The *Edit Business Measure* screen is displayed.
3. Update the required details. For more information, refer [Create Business Measure](#).
4. Click **Save** and update the changes.

1.4.6.4 Copying Business Measure

You can copy the existing Business Measure details to quickly create a new Business Measure. You can later modify the Code or Short Description, add/remove Entities and Attributes, and also define the join/filter conditions. You need to have Add Business Measure function role mapped to copy the Business Measure definitions. To copy an existing Business Measure definition in the *Business Measure* screen:

1. Select the checkbox adjacent to the required Business Measure code.
2. Click  button from the Business Measures tool bar.

The Business Measure definition details are copied and a confirmation message is displayed.

1.4.6.5 Deleting Business Measure

You can remove the Business Measure definition(s) which are created by you and which are no longer required in the system by deleting from the Business Measures screen. You need to have Delete Measures function role mapped to delete a Business Measure. Delete function permanently removes the Business Measure details from the database. Ensure that you have verified the details as indicated below:

- A Business Measure definition marked for deletion is not accessible for other users.
- Every delete action has to be **Authorized/Rejected** by the authorizer.
 - On Authorization, the Business Measure details are removed.
 - On Rejection, the Business Measure details are reverted back to authorized state.
- You cannot update Business Measure details before authorizing/rejecting the deletion.

- An un-authorized Business Measure definition can be deleted.

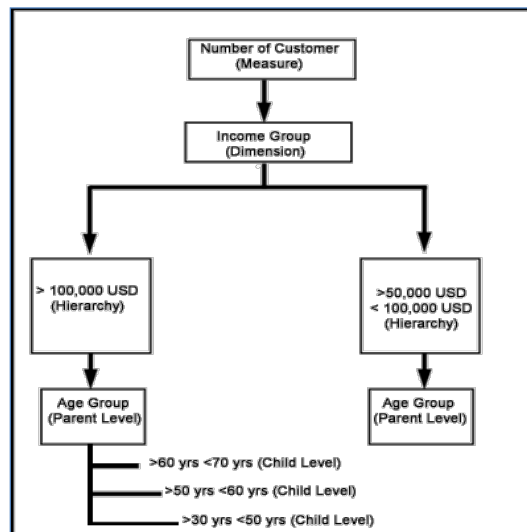
To delete an existing Business Measure in the *Business Measure* screen:

1. Select the checkbox adjacent to the required Business Measure code.
2. Click  button from the Business Measure tool bar. A confirmation dialog is displayed.
3. Click **OK**. The Business Measure details are marked for delete authorization.

1.4.7 Business Hierarchy

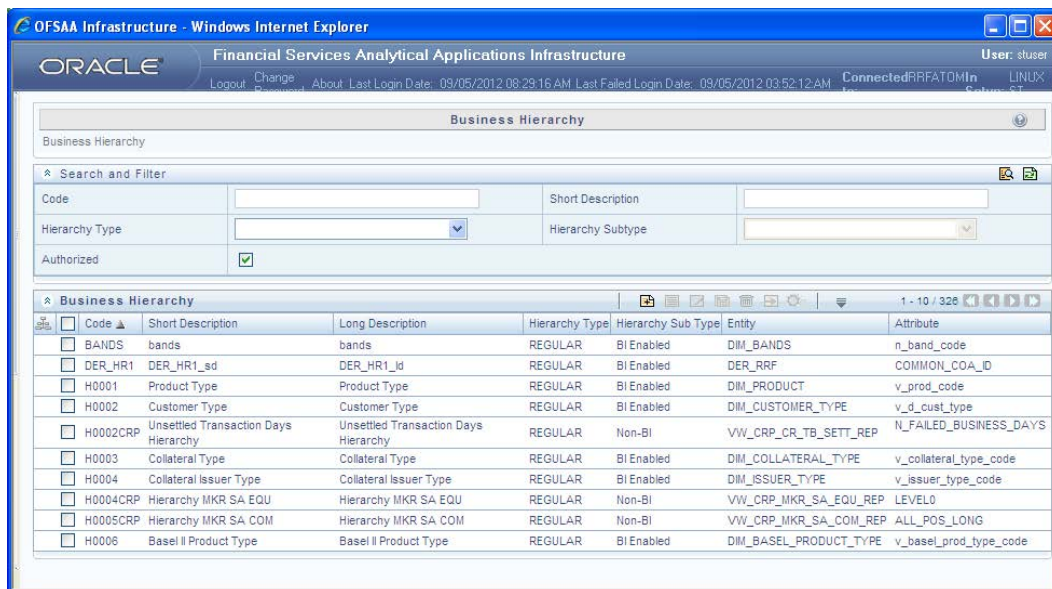
Business Hierarchy refers to *Organizing Data* into logical tree structure to represent the groups and relations among various levels at which measure can be viewed. A measure can be viewed at different levels depending upon the hierarchy breakdown of the dimension category.

For example, consider the following structure.



You can view the Number of Customers (Measure) across Income Group (Dimension), which is further broken down by different age groups (Hierarchy). While number of customers is a metric, it is useful when viewed based on some categorization such as customer income profile or customers having an annual income of over USD 100,000 per annum, to provide better quality of information.

You (Business Analysts) need to have SYSBAU, Oracle Cube Administrator (ORACUB), and View Hierarchy function role mapped to access Business Hierarchy section in the BMM framework. You can access Business Hierarchy by expanding BMM section within the tree structure of LHS menu.



The *Business Hierarchy* screen displays the list of pre-defined Business Hierarchies with their Code, Short Description, Long Description, Hierarchy Type, Hierarchy Sub Type, Entity, and Attribute. You can create Business Hierarchies for measure(s), and view, edit, copy, or delete the required Business Hierarchies. For more information on the Business Hierarchy Types and Subtypes, refer [Business Hierarchy Types](#).

You can also make use of Search and Pagination options to search for a specific Business Hierarchy based on the Code, Short Description, Hierarchy Type, Hierarchy Sub Type, and Authorization status, or view the list of existing Business Hierarchies within the system. For more information, refer [Search and Filter](#) and [Pagination](#) sections.

1.4.7.1 Creating Business Hierarchy

You can create a Business Hierarchy by specifying the Hierarchy definition details and defining the required Hierarchies.

To create a Business Hierarchy in the *Business Hierarchy* screen:

1. Click  button from the Business Hierarchy toolbar. The *Add Business Hierarchy* screen is displayed.

2. Enter the details in Business Hierarchy Details section as tabulated.

Field	Description
Code	Enter a distinct code to identify the Hierarchy. Ensure that the code is alphanumeric with a maximum of 8 characters in length and there are no special characters except underscore “_”. - Note the following: - The code can be indicative of the type of Hierarchy being created. - A pre-defined Code and Short Description cannot be changed. - Same Code or Short Description cannot be used for Essbase installation: “\$\$\$UNIVERSE\$\$\$”, “#MISSING”, “#MI”, “CALC”, “DIM”, “ALL”, “FIX”, “ENDFIX”, “HISTORY”, “YEAR”, “SEASON”, “PERIOD”, “QUARTER”, “MONTH”, “WEEK”, “DAY”. - In Unauthorized state, the users having Authorize Rights can view all the unauthorized Metadata.
Short Description	Enter a Short Description based on the defined code. Ensure that the description is of a maximum of 8 characters in length and does not contain any special characters except underscore “_”.
Long Description	Enter the Long Description if you are creating subject-oriented Hierarchy to help users for whom the Hierarchy is being created or other details about the

Field	Description
	type/subject. Ensure that description is of a maximum of 100 characters in length.

- In the Business Hierarchy Definition section, select the **Hierarchy Type** from the drop down list.

NOTE: Hierarchy Type is the basic differentiator and based on your selection, the other options to define the Business Hierarchy are available.

You can select the following Hierarchy Type/Sub-Type. Click on the links to navigate to the respective sections and define the required Hierarchy. For detailed information on all the Hierarchy Types, refer [Business Hierarchy Types](#).

Hierarchy Type	Description / Hierarchy Sub Type													
Regular	In a Regular Hierarchy Type, you can define the following Hierarchy Sub Types: Non Business Intelligence Enabled In a non Business Intelligence Enabled Hierarchy, you need to manually add the required levels. The levels defined will form the Hierarchy. Business Intelligence Enabled You can Enable Business Intelligence hierarchy when you are not sure of the Hierarchy structure leaf values or the information is volatile and also when the Hierarchy structure can be directly selected from RDBMS columns. The system will automatically detect the values based on the actual data. In a BI enabled Hierarchy, you will be prompted to specify if a Total node is required (not mandatory) and system auto-detects the values based on actual data. For example, you can define three levels in BI Enabled hierarchies like, Region (1), State (2), and Place (3). The auto generated Hierarchies are: <table><tr><th>Region (1)</th><th>State (2)</th><th>Place (3)</th></tr><tr><td rowspan="3">South</td><td>Tamil Nadu</td><td>Madras</td></tr><tr><td>Karnataka</td><td>Bangalore</td></tr><tr><td>Andhra Pradesh</td><td>Hyderabad</td></tr><tr><td>North</td><td>Punjab</td><td>Chandigarh</td></tr></table> Parent Child This option can be selected to define a Parent Child Type hierarchy.	Region (1)	State (2)	Place (3)	South	Tamil Nadu	Madras	Karnataka	Bangalore	Andhra Pradesh	Hyderabad	North	Punjab	Chandigarh
Region (1)	State (2)	Place (3)												
South	Tamil Nadu	Madras												
	Karnataka	Bangalore												
	Andhra Pradesh	Hyderabad												
North	Punjab	Chandigarh												
Measure	A Measure Hierarchy consists of the defined measure as nodes and has only the <i>Non Business Intelligence Enabled</i> as Hierarchy Sub Type.													

Hierarchy Type	Description / Hierarchy Sub Type
Time	A Time Hierarchy consists of the levels/nodes of high time granularity and has only the <i>Business Intelligence Enabled</i> as Hierarchy Sub Type.

NOTE: When the defined Hierarchy consists of more than 100 leaf levels, the system treats it as a Large Hierarchy in order to provide efficient and optimized hierarchy handling. For more information on modify the default value, refer [Large Hierarchy](#).

Once you have populated the required details in Business Hierarchy Definition and Hierarchy details section, save the details.

- Click **Save** in *Add Business Hierarchy* screen and save the details.

1.4.7.2 Viewing Business Hierarchy

You can view individual Business Hierarchy at any given point. To view the existing Business Hierarchy definition details in the *Business Hierarchy* screen:

- Select the checkbox adjacent to the required Business Hierarchy code.
- Click  button from the Business Hierarchy tool bar.

The *View Business Hierarchy* screen displays the details of the selected Business Hierarchy definition. The *User Info* grid at the bottom of the screen displays metadata information about Business Hierarchy created along with the option to add comments.

1.4.7.3 Modifying Business Hierarchy

You can update the existing Business Hierarchy definition details except for the Code, Short Description, and Hierarchy Type/Sub-Type. You need to have Modify Hierarchy function role mapped to modify the Business Hierarchy definitions. To update the required Business Hierarchy details in the *Business Hierarchy* screen:

- Select the checkbox adjacent to the required Business Hierarchy code.
- Click  button from the Business Hierarchy tool bar. The *Edit Business Hierarchy* screen is displayed.
- Update the required details. For more information, refer [Create Business Hierarchy](#).
- Click **Save** and update the changes.

1.4.7.4 Copying Business Hierarchy

You can copy the existing Business Hierarchy details to quickly create a new Business Hierarchy. You need to have Add Hierarchy function role mapped to copy the Business Hierarchy definitions. To copy an existing Business Hierarchy definition in the *Business Hierarchy* screen:

1. Select the checkbox adjacent to the required Business Hierarchy code.
2. Click  button from the Business Hierarchy tool bar.

The Business Hierarchy definition details are copied and a confirmation message is displayed.

1.4.7.5 Deleting Business Hierarchy

You can remove the Business Hierarchy definition(s) which are created by you and which are no longer required in the system by deleting from the *Business Hierarchy* screen. You need to have Delete Hierarchy function role mapped to delete a Business Hierarchy. Delete function permanently removes the Business Hierarchy details from the database. Ensure that you have verified the details as indicated below:

- A Business Hierarchy definition marked for deletion is not accessible for other users.
- Every delete action has to be **Authorized/Rejected** by the authorizer.
 - On Authorization, the Business Hierarchy details are removed.
 - On Rejection, the Business Hierarchy details are reverted back to authorized state.
- You cannot update Business Hierarchy details before authorizing/rejecting the deletion.
- An un-authorized Business Hierarchy definition can be deleted.

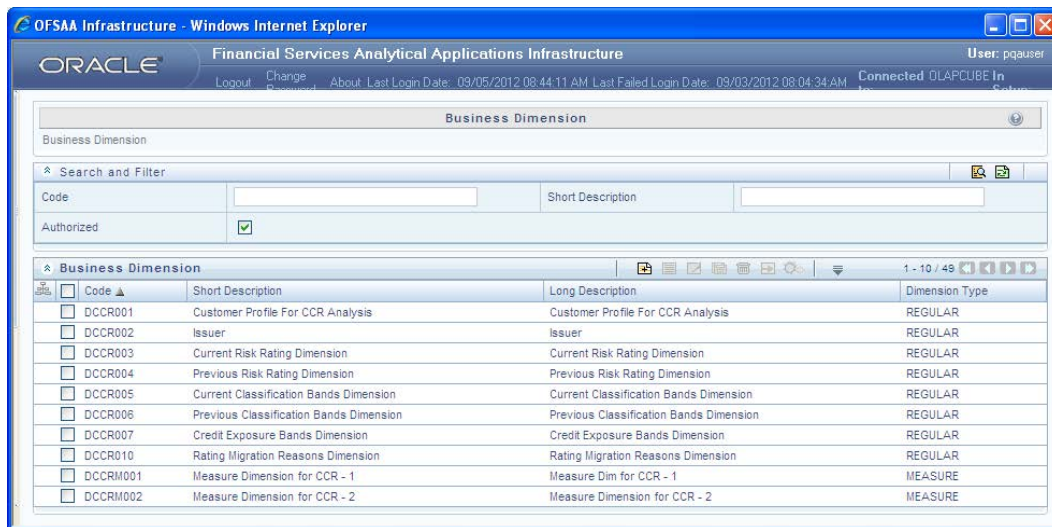
To delete an existing Business Hierarchy in the *Business Hierarchy* screen:

1. Select the checkbox adjacent to the required Business Hierarchy code.
2. Click  button from the Business Hierarchy tool bar. A confirmation dialog is displayed.
3. Click **OK**. The Business Hierarchy details are marked for delete authorization.

1.4.8 Business Dimension

Business Dimension within the Infrastructure system facilitates you to create a logical connection with measures. It gives you various options across which you can view measures. 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.

You (Business Analyst) need to have SYSBAU, Oracle Cube Administrator (ORACUB), and View Dimension function roles mapped to access the Business Dimension section in the BMM framework. Based on the user requirements you can define different dimensions as Regular, Time, or Measure. A Dimension combined with measures helps in business query. Since dimension data is collected at the lowest level of detail and then aggregated into higher-level totals, it is useful for analysis.



The *Business Dimension* screen displays the list of pre-defined Business Dimensions with their Code, Short Description, Long Description, and Dimension Type. In the *Business Dimension* screen, the user is required to enter the Dimension code and a description when the user is defining it for the first time. The user is required to select the dimension type, data type, and map available hierarchies to a dimension. You can also make use of Search and Pagination options to search for a specific business dimension based on the Code, Short Description, and

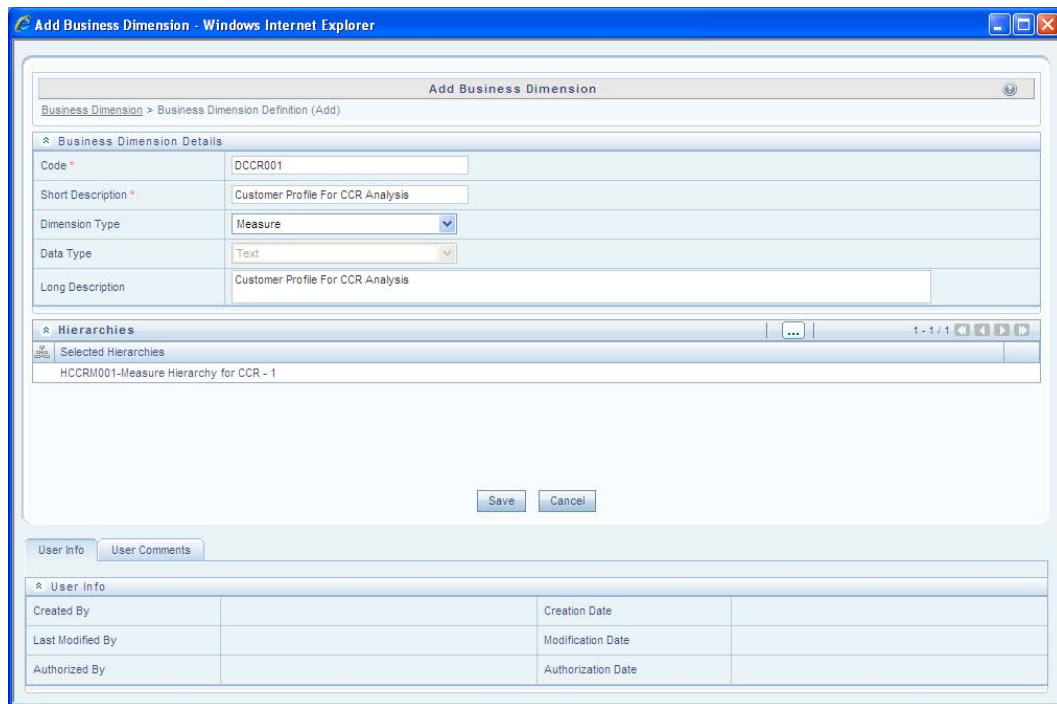
Authorization status or view the list of existing business dimensions within the system. For more information, refer [Search and Filter](#) and [Pagination](#) sections.

1.4.8.1 Creating Business Dimension

You can create a Business Dimension by specifying the Dimension definition details and defining the required Dimension. You can define a Business Dimension only if you have Business Dimension function role mapped in the Infrastructure system.

To create a new Business Dimension from the *Business Dimension* screen:

1. Click  button from the Business Dimensions toolbar. The *Add Business Dimension* screen is displayed.



2. Enter the details in the Business Dimension Details section as tabulated:

Field	Description
Code	Enter a distinct code to identify the Dimension. Ensure that the code is alphanumeric with a maximum of eight characters in length and there are no special characters except underscore “_”. Note the following: ▪ The code can be indicative of the type of Dimension being created. ▪ A pre-defined Code and Short Description cannot be changed. ▪ Same Code or Short Description cannot be used for Essbase installation:

Field	Description
	\$\$\$UNIVERSE\$\$\$", "#MISSING", "#MI", "CALC", "DIM", "ALL", "FIX", "ENDFIX", "HISTORY", "YEAR", "SEASON", "PERIOD", "QUARTER", "MONTH", "WEEK", "DAY". In Unauthorized state, the users having Authorize Rights can view all the unauthorized Metadata.
Short Description	Enter a Short Description based on the defined code. Ensure that the description is of a maximum of eight characters in length and does not contain any special characters except underscore "_".
Dimension Type	Select the Dimension Type from the drop down list. The available options are: Regular: A regular dimension can have more than one hierarchy mapped to it. The option of mapping multiple hierarchies is available only for a non-SQLOLAP environment. Time: In a time dimension, the hierarchy defined has leaves/nodes of high time granularity. Measure: A measure dimension can have hierarchies of only type measure mapped to them it. The Measure hierarchy type is specific to Essbase MOLAP.
Data Type	The Data Type is automatically selected based on the dimension type selected. The default data type for the Business Dimension definition is Text .
Long Description	Enter the Long Description if you are creating subject-oriented Dimension to help users for whom the Dimension is being created or other details about the type/subject. Ensure that description is of a maximum of 100 characters in length.

- Click  button in the Hierarchies grid. The *Hierarchy Browser* screen is displayed.

Based on the dimension type, the hierarchies are displayed in the **Members** pane. You can expand and view the members under the Hierarchies by clicking "+" button.

- Select the hierarchies from the **Members** pane and click . The selected hierarchies are moved to the **Selected Members** pane.
- If you want to map all the available hierarchies, click .
- If you want to remove a selected hierarchy, select it from the Selected Members pane and click . To deselect all the selected hierarchies, click .
- Click **OK** and the selected hierarchies are listed in the Hierarchies grid.

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.

4. Click **Save** in the *Add Business Dimension* screen and save the details.

1.4.8.2 Viewing Business Dimension

You can view details of an individual Business Dimension at any given point. To view the existing Business Dimension definition details in the *Business Dimension* screen:

1. Select the checkbox adjacent to the required Business Dimension code.
2. Click  button from the Business Dimension tool bar.

The *View Business Dimension* screen displays the details of the selected Business Dimension definition. The *User Info* grid at the bottom of the screen displays metadata information about Business Dimension created along with the option to add comments.

1.4.8.3 Modifying Business Dimension

You can update the existing Business Dimension definition details except for the Code, Short Description, Dimension Type, and Data Type. You need to have Modify Dimension function role mapped to modify the Business Dimension definitions. To update the required Business Dimension details in the *Business Dimension* screen:

1. Select the checkbox adjacent to the required Business Dimension code.
2. Click  button from the Business Dimension tool bar. The *Edit Business Dimension* screen is displayed.
3. Update the required details. For more information, refer [Create Business Dimension](#).
4. Click **Save** and update the changes.

1.4.8.4 Copying Business Dimension

You can copy an existing Business Dimension details to quickly create a new Business Dimension. You need to have Add Dimension function role mapped to copy the Business Dimension definitions. To copy an existing Business Dimension definition in the *Business Dimension* screen:

1. Select the checkbox adjacent to the required Business Dimension code.
2. Click  button from the Business Dimension tool bar.
3. The Business Dimension definition details are copied and a confirmation message is displayed.

1.4.8.5 Deleting Business Dimension

You can remove the Business Dimension definition(s) you have created and are no longer required in the system, by deleting from the *Business Dimension* screen. You need to have Delete Dimension function role mapped to delete a Business Dimension. Delete function permanently removes the Business Dimension details from the database. Ensure that you have verified the details as indicated below:

- A Business Dimension definition marked for deletion is not accessible for other users.
- Every delete action has to be **Authorized/Rejected** by the authorizer.
 - On Authorization, the Business Dimension details are removed.
 - On Rejection, the Business Dimension details are reverted back to authorized state.
- You cannot update Business Dimension details before authorizing/rejecting the deletion.
- An un-authorized Business Dimension definition can be deleted.

To delete an existing Business Dimension in the *Business Dimension* screen:

1. Select the checkbox adjacent to the required Business Dimension code.
2. Click  button from the Business Dimension tool bar. A confirmation dialog is displayed.
3. Click **OK**. The Business Dimension details are marked for delete authorization.

1.4.9 Cubes

Cube represents a multi-dimensional view of data which is vital in business analytics. It gives you the flexibility of defining rules that fine-tune the information required to reflect in the hierarchy. Cube enhances query time and provides a decision support for Business Analysts.

A cube is a combination of measures and dimensions, i.e. measures represented along multiple dimensions and at different logical levels within each dimension. For example, in a cube, you can view Number of Customers, Number of Accounts, and Number of Relationships by Product, Time, and Organization.

Essbase Cubes and Oracle Cubes

With the acquisition of Hyperion Solutions Corporation in 2007, Oracle supports Essbase Cubes and Oracle Cubes. While both products are categorized to the OLAP category, they have some similar capabilities and are also different in significant ways. This section intends to guide you with each OLAP capabilities so that you can choose the solution that best suits your environment.

Similarities	Differences
Both Oracle OLAP and Essbase have the capability of storing data in OLAP cubes with the following capabilities: ▪ Excellent performance for queries that require summary-level data. ▪ Fast, incremental update of data sets, which is required to facilitate frequent data updates. ▪ Rich calculation models that may be used to enrich analytic content. ▪ A dimensional model that presents data in a form that is easy for business users to query and define analytic content.	The differences between Essbase and Oracle OLAP is that, each solution focuses on delivering OLAP capabilities into different types of applications and for different classes of users. Most of the differences between Essbase and Oracle OLAP are derived from the fact that Essbase is a <i>Separate Process</i>, while Oracle OLAP is an option to the <i>Oracle Database Enterprise Edition</i>.

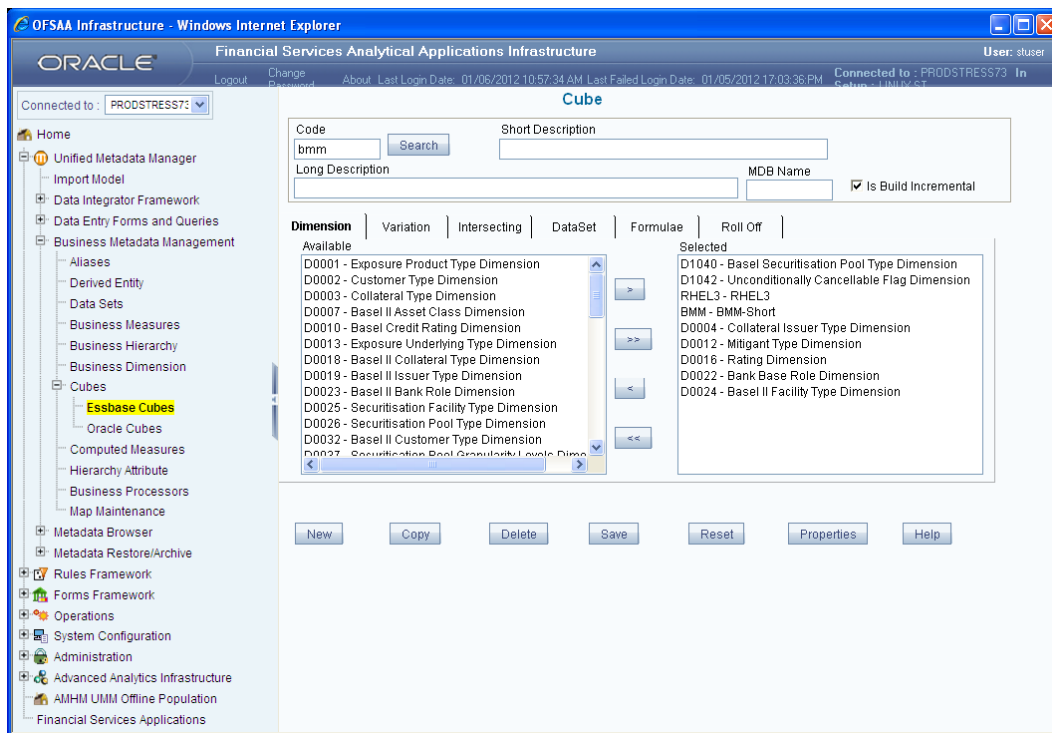
Cubes consists of the following sections. Click on the links to view the section in detail.

- [Essbase Cubes](#)
- [Oracle Cubes](#)

1.4.9.1 Essbase Cubes

Essbase has been derived from a history of OLAP applications based in the middle tier. The strategy of Essbase is mainly on custom analytics and Business Intelligence applications with a focus on EPM. This strategy addresses the what-if, modeling, and future-oriented questions that companies need answers today in order to see into the future.

Typically, Essbase applications are started and maintained by Business Analysts who are usually in the line of business. The typical end users are analysts in the finance, marketing, and sales departments, who query and create data with Essbase tools and Oracle Hyperion applications. The line of business typically has a large degree of uncertainty and needs to understand a dynamic and changing environment.



Essbase - A Separate-Server OLAP: Essbase is the OLAP server that provides an environment for rapidly developing custom analytic and EPM applications. The data management strategy allows Essbase to easily combine data from a wide variety of data sources, including the Oracle Database. Essbase is part of the Oracle Fusion Middleware architecture.

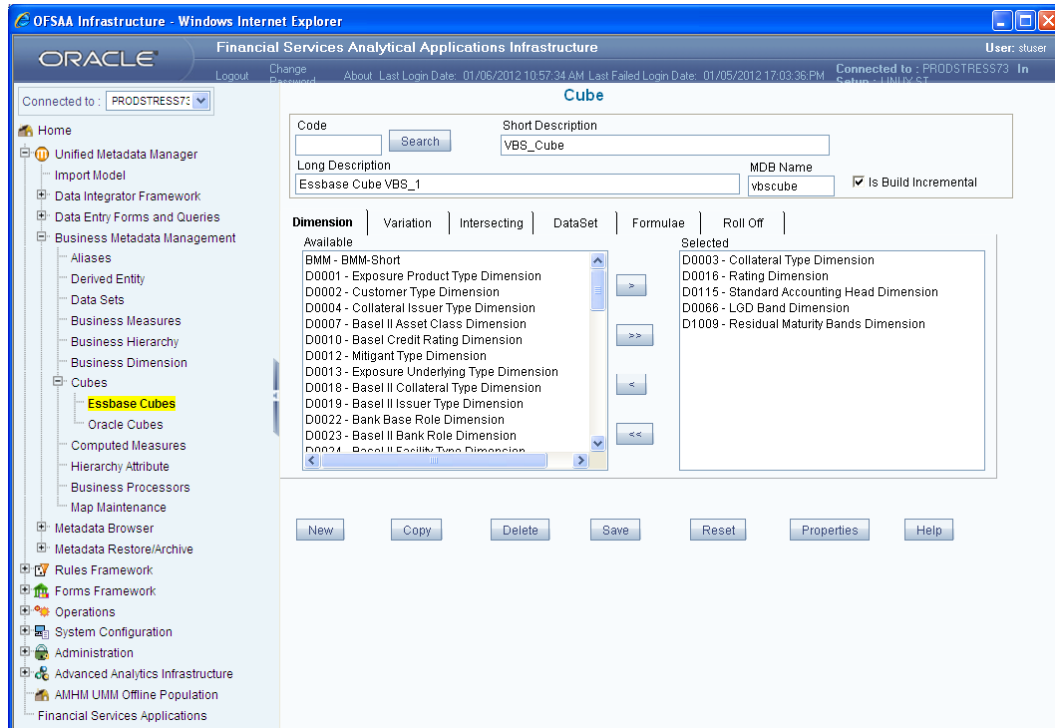
1.4.9.1.1 Creating Essbase Cube

You can define an Essbase Cube in the *Cube* screen only if you are mapped to Add Cube function role. When you are defining Essbase cube for the first time, you need to specify the Cube definition details and the Cube-Building components such as Dimension, Variation, Intersecting details, DataSet, Formulae, and Roll Off period details.

Note the following:

- Cube Build with OLAP type as Essbase – If there is a Business Intelligence (BI) hierarchy in the cube definition, cube build is supported only if the data length for BI Hierarchy processing is less than **50**.
- You must define at least two Business Dimensions. Else, an alert message is displayed.

To create an Essbase Cube in the *Cube* screen:



1. Click **New**. The screen is refreshed and displays the editable fields.
2. Enter the Cube definition details as tabulated.

Field	Description
Code	Enter a distinct code to identify the Cube. Ensure that the code is alphanumeric with a maximum of 8 characters in length and there are no special characters except underscore “_”. ▪ Note the following: ▪ The code can be indicative of the type of Cube being created. ▪ A pre-defined Code and Short Description cannot be changed. ▪ Same Code or Short Description cannot be used for Essbase installation: “\$\$\$UNIVERSE\$\$\$”, “#MISSING”, “#MI”, “CALC”, “DIM”, “ALL”, “FIX”, “ENDFIX”, “HISTORY”, “YEAR”, “SEASON”, “PERIOD”, “QUARTER”, “MONTH”, “WEEK”, “DAY”. ▪ In Unauthorized state, the users having Authorize Rights can view all the unauthorized Metadata.

Field	Description
Short Description	Enter a Short Description based on the defined code. Ensure that the description is of a maximum of 8 characters in length and does not contain any special characters except underscore “_”.
Long Description	Entering the Long Description is helpful when creating Cube. It could indicate the contents of the cube or any other useful information that would help an analyst. You can enter a Long Description with a minimum of one character and a maximum of 100 characters in length.
MDB Name	Enter the name by which you want to identify the cube while saving it in a multi-dimensional database. Saving a cube to a multi-dimensional database is different from saving the Cube definition wherein the definition (like all other metadata definitions) is stored in the repository. When saved, the cube details are updated by the cube name that you have attributed to it. Ex: NoofProd (Number of Products) Note: Ensure that the name is within 1 to 8 characters in length and can contain alphabetical, numerical (only 0-9), or alphanumerical characters without special characters and extra spaces.
Is Build Incremental	Select Is Build Incremental checkbox if you wish to capture all incremental changes made to the database. The cube definitions with the Is Build Incremental checkbox selected can be executed with different MIS dates.

3. Enter the Cube Components in each of the tabs as tabulated.

Field	Description
Dimension (default)	In the Dimension tab, the <i>Available</i> list consists of the pre-defined Dimensions. - Select the required Dimension for the cube and click  button. - You can click  button to select all the listed Dimensions. You can also click  button to deselect a Dimension or click  button to deselect all the selected Dimensions. Note: It is mandatory to select at least two dimensions and only one dimension of the type measure can be selected.

Field	Description
Variation	In the Variation tab, you can define the Variation by mapping the Dimension against the defined Measure. - Select the required Dimension from the <i>Selected Dimensions</i> list. In the Measure Mapping list click “+” to expand the required Measure folder and click  button. You can click  button to select all the listed Dimensions. - You can also deselect a mapping by selecting the Dimension in the Measure Mapping list and clicking  button or clicking  button to deselect all the Dimension mappings.
Intersecting	Note that the Intersection option is specific to Count Distinct Measures. The Count Distinct Measures should be intersected only across those dimensions on which a duplicate is expected for that measure. For example, there can be no customer who has both gender as Male and Female. Thus intersecting the Count distinct measures across a Gender dimension will not make sense. Similarly, the Count Distinct measures will have duplicates across Products or Regions. Thus, the intersecting can be across those dimensions (Product/Region). For more information, refer to “Selecting Aggregation Function” in Business Measures section. - Select the required Dimension from the <i>Selected Dimensions</i> list. In the Measure Mapping list click “+” to expand the required Measure folder and click  button. You can click  button to select all the listed Dimensions. - You can also deselect a mapping by selecting the Dimension in the Measure Mapping list and clicking  button or clicking  button to deselect all the Dimension mappings.
Data Set	In the Data Set tab you can select the DataSet for the cube along with the additional filters like the Date Filter and Business Exclusions. - Select the required DataSet from the list and click  button. The selected <i>From Clause</i> and <i>Join Condition</i> for the selected DataSet are displayed. - To define the Date Filter, click  button. The <i>Specify Expression</i> screen is displayed. Define the required expression by selecting the appropriate Entities, Functions, and Operator. Click OK. - To define the Business Exclusion, click  button. The <i>Specify Expression</i> screen is displayed. Define the required expression by selecting the appropriate Entities, Functions, and Operator. Click OK.

Field	Description
Formulae	Note that the Formulae tab is specific to Essbase MOLAP. In the Formulae tab, you can apply filters to a hierarchy node. The <i>Selected Dimensions vs. Mapped Hierarchies</i> list displays the Selected Dimensions folder. Double-click a folder to view the dimension-hierarchy mapping. - Select the Hierarchy for which you want to apply the node formula and click  button. The Hierarchy is displayed in the <i>Parentage Hierarchy</i> list. - Click  button adjacent to Node Formula. The <i>Specify Expression</i> screen is displayed. Define the required expression by selecting the appropriate Entities, Functions, and Operator. Click OK.
Roll Off	In the Roll Off tab, you can define the start date of the cube to specify the history of the data which is to be picked up during aggregation. The maximum period of data history that can be specified is 24 months. The Roll Off option is enabled only to BI enabled hierarchies. - Select the Roll Off Required checkbox. - Enter the Roll Off Period value (in integer) to specify the period for which the data should be maintained in the system. The data will be automatically rolled off with the addition of new nodes to the cube. - Select the Dimension for which you want to specify the roll off period from the drop down list. - Select the Level from the drop down list. The list contains the hierarchy levels of the selected Dimension.

- Click **Save** and save the Cube Definition details. A confirmation dialog is displayed.

The Cube definitions are stored in repository and accessed for query. Once saved, the cube details are displayed with non-editable Code and Short Description fields.

1.4.9.1.2 Viewing Essbase Cube Properties

You can view the metadata of the selected Cube definition. In the *Cube* screen click **Properties** and open the properties dialog.

- The *Properties tab* displays the metadata properties such as Created By, Creation Date, Last Modified By, Modified Date, Authorized By, and Authorized Date.
- The *Comments tab* has a text field to enter additional information as comments about the created Cube definition.
- Click **OK** and save the definition with the comments (if any).

1.4.9.1.3 Copying Essbase Cube Details

The Copy function is similar to “Save As” functionality and helps you to copy the pre-defined Cube details to quickly create another Cube. You need to be mapped to Add Cube function role to copy the Cube details.

To copy Cube details in the *Cube* screen:

1. Search for the required Cube and Click **Copy**. A confirmation dialog with “Copy Successful” message is displayed.
2. Modify the Cube **Code** and **Short Description**. You can also modify the cube components as required. For more information, refer [Create Essbase Cube](#).
3. Click **Save** and save the updated details. A confirmation dialog is displayed.

1.4.9.1.4 Modifying Essbase Cube Details

You can search for the required Essbase Cube definition and modify the details. You need to be mapped to Modify Cube function role to modify an Essbase Cube definition. You cannot modify a cube definition which is in the un-authorized state i.e. modified by another user.

1. Click **Search**. The *Search* dialog is displayed with the list of authorized Essbase Cubes by default.

(Optionally) you can select **List Un Authorized** checkbox to view all the un authorized cube definitions.
2. Modify the Essbase Cube definition with the cube components details as required. For more information, refer [Create Essbase Cube](#).
3. Click **Save** and save the updated details. A confirmation dialog is displayed.

1.4.9.1.5 Deleting Essbase Cube Details

You can remove Essbase Cube definition(s) which are created by you and which are no longer required in the system by deleting from the *Cube* screen. You need to have Delete Cube function role mapped to delete a Essbase Cube. Delete function permanently removes the Essbase Cube details from the database. Ensure that you have verified the details as indicated below:

- An Essbase Cube definition marked for deletion is not accessible for other users.
- Every delete action has to be **Authorized/Rejected** by the authorizer.
 - On Authorization, the Essbase Cube details are removed.
 - On Rejection, the Essbase Cube details are reverted back to authorized state.
- You cannot update Essbase Cube details before authorizing/rejecting the deletion.
- An un-authorized Essbase Cube definition can be deleted.

To delete an existing Essbase Cube in the *Cube* screen:

1. Click **Delete**. A confirmation dialog is displayed.
2. Click **OK**. The Cube details are marked for delete authorization.

1.4.9.2 Oracle Cubes

Oracle OLAP - A Database-Centric OLAP: Oracle OLAP is available as an option to the Oracle Database Enterprise Edition. As an embedded component of the Oracle Database, Oracle OLAP benefits from the scalability, high availability, job scheduling, parallel processing, and security features inherent in the Oracle Database. With Oracle OLAP, all of the data resides in an Oracle database, governed by centralized data security and calculation rules.

An SQL interface to OLAP cubes allows SQL-based applications to query cubes within an Oracle database, and benefit from the performance and analytic content of the OLAP option. The primary data-access language for Oracle OLAP is SQL, making Oracle OLAP a natural choice for enhancing the performance and calculation capabilities of an existing Oracle data warehouse.

Oracle Cube within the Infrastructure system facilitates you to define the cubes using the Business Metadata objects such as Dimensions, Hierarchies, and Measures. The Rule files and data files generated can be used to load data and build the cubes. Oracle Cube consists of OLAP Servlet, Server, OLAP API's, and Oracle database integrated into a module.

You (Business Analyst) need to be mapped to SYSBAU and Oracle Cube Administrator (ORACUB) function roles to access Cube Summary within the Infrastructure system. You can access Oracle Cubes by expanding Cube section within the BMM section in LHS menu of Infrastructure home page.

Cubes Summary					
Cubes					
Search Code Short Description Authorized ☒					
Cubes					
Code	Short Description	Resave Required	In Analytical Workspace	Authorized	
☐ AIX_OLPCB73ST	AIX_OLPCB73ST sd	Y	Y	Y	
☐ ARC_OLPCB	ARC_OLPCB_SD_ENG	Y	Y	Y	
☐ CB02	CB02 sd	Y	Y	Y	

The Cubes Summary screen facilitates you to do the following:

Field	Description
Cube Search	You can search for cubes based on Code, Short Description and Authorized check box. ▪ Unauthorized cubes: These are definitions which are yet to be authorized by the metadata authorizer. These definitions are not used by the Analytical Workspace unless authorized. ▪ Authorized cubes: These are definitions which are authorized by the metadata authorizer. Select Authorized check box to display the authorized cubes. By default, the check box is selected.
Resave Required column	This column displays the status as "Y" if resave is required; else "N" is displayed. Resave is required when an authorized change is made to the underlying metadata such as datasets, measures, dimensions, or hierarchies used in the cubes.
In Analytical Workspace column	This column displays the status as "Y" if the definition is saved in the Analytical Workspace; else "N" is displayed.
Authorized column	This column displays the status as "Y" if the cube has been authorized; else "N" is displayed.

You can make use of Search and Pagination options to search for a specific Oracle Cube details or view the list of existing Oracle Cubes within the system. For more information, refer [Search & Filter](#) and [Pagination](#) sections.

Following are the pre-requisites while working with Oracle Cubes:

- Oracle Database 11g with the OLAP option (Patch level 11.1.0.7 or higher) is required.
- Only those Business Dimensions which have Business Intelligence Hierarchies can be selected for Cube creation.
- For Non BI Hierarchies, Dimension tables need to be created with possible values and the surrogate key column should be updated to fact table.
- Cube validation is done in both Client side and Server side. The client side validation involves the basic validation of values such as "not null", "not number" while the server side validation involves validating data with respect to database. All the validation errors are recorded in the log file.
- OLAP Cube definitions, which are migrated using Metadata Restore and Archive functionality, have to be resaved in *Cube Summary* screen.

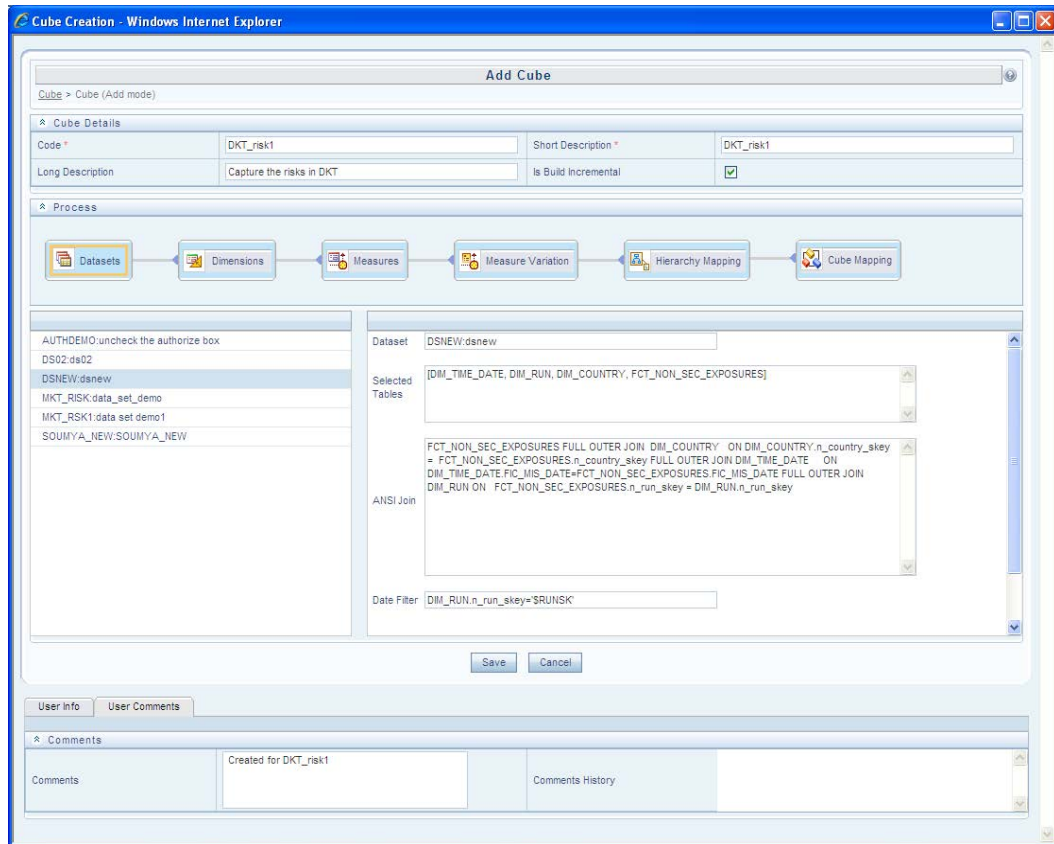
- If a filter is defined on a Dataset, then the respective dimension should be part of **Selected Dimension** of Oracle Cube.

For details of AAI and OLAP limitations, refer to [OLAP Cube Limitations](#) section.

1.4.9.2.1 Creating Oracle Cube

To create an Oracle Cube in the *Cubes Summary* screen:

1. Click  button from the Cubes toolbar. The *Cube Creation* screen is displayed.



2. In the *Code Details* section, enter the details as tabulated.

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Code	Enter a distinct code to identify the Cube. Ensure that the code is alphanumeric with a maximum of 23 characters in length and there are no special characters except underscore “_”. ▪ Note the following: ▪ The code can be indicative of the type of Cube being created.

Field	Description
	- A pre-defined Code and Short Description cannot be changed. - Same Code or Short Description cannot be used for Essbase installation: "\$\$\$UNIVERSE\$\$\$", "#MISSING", "#MI", "CALC", "DIM", "ALL", "FIX", "ENDFIX", "HISTORY", "YEAR", "SEASON", "PERIOD", "QUARTER", "MONTH", "WEEK", "DAY". - In Unauthorized state, the users having Authorize Rights can view all the unauthorized Metadata.
Short Description	Enter a Short Description based on the defined code. Ensure that the description is of a maximum of 80 characters in length and does not contain any special characters except underscore "_".
Long Description	Entering the Long Description is helpful when creating Cube. It could indicate the contents of the cube or any other useful information that would help an analyst. You can enter a Long Description with a minimum of one character and a maximum of 256 characters in length.
Is Build Incremental	Select Is Build Incremental checkbox if you wish to capture all incremental changes made to the database. The cube definitions with the Is Build Incremental checkbox selected can be executed with different MIS dates.

Once you have specified the Cube details, you can define the different Process which involves selecting the pre-defined Datasets, Dimensions, Measures, and associating the required Measure Variation, Hierarchy, and defining Cube Mapping details.

- In the Datasets section (default selected), select the pre-defined **Dataset** from the list. The selected Dataset details such as Dataset Name, Selected Tables, ANSI Join, Date Filter, and Join/Filter Condition are populated in the right panel.
- Select **Dimension** tab. The list of the pre-defined Business Dimensions with all the Parent-child and Business Intelligence Dimensions associated with the selected Dataset are displayed. Select the required Business Dimension from *Select Dimensions* list and click  button, or click  button to select all dimensions.
- Select **Measures** tab. The list of pre-defined Business Measures associated with the selected Dataset are displayed. Select the required Business Measure from the *Select Measures* list and click  button, or click  button to select all measures.
- Select **Measure Variation** tab. Select the Measure from the drop down list. The list consists of the related Business Measures. Select the checkbox adjacent to the listed Measure Variation.

7. Select **Hierarchy Mapping** tab. The Hierarchy tables mapped to the *Member* and *Parent Code* of the selected Measure Variation is displayed along with the description.
8. Select **Cube Mapping** tab. The section below displays the mapping between the Fact table of the Dataset and its mapping with the Dimensions selected along with the defined conditions for *Oracle Cube Creation*. You can review the details and if required, revisit any of the appropriate tabs in Process section to modify the details.
9. Click **Save** and save the defined cube details.

1.4.9.2.2 Viewing Oracle Cube Details

You can view individual Oracle Cube details at any given point. To view the existing Cube definition details in the *Cube Summary* screen:

1. Select the checkbox adjacent to the required Cube Code.
2. Click  button from the Cubes tool bar.

The *View Cube* screen displays the details of the selected Oracle Cube definition. The *User Info* grid at the bottom of the screen displays the metadata information about the Oracle Cube definition created along with the option to add additional information as comments.

1.4.9.2.3 Modifying Oracle Cube Details

You can update the existing Oracle Cube definition details except for the Code and Short Description. To update the required Oracle Cube details in the *Cube Summary* screen:

1. Select the checkbox adjacent to the required Cube Code.
2. Click  button from the Cubes tool bar. The *Edit Cube* screen is displayed.
3. Update the required details. For more information, refer [Create Oracle Cube](#).
4. Click **Save** and update the changes.

1.4.9.2.4 Copying Oracle Cube Details

You can copy the existing Oracle Cube details to quickly create a new Cube with the existing details or by modifying the required details. You need to have Add Cube function role mapped to copy the Cube definition. To copy an existing Oracle Cube definition in *Cube Summary* screen:

1. Select the checkbox adjacent to the required Cube Code.
2. Click  button from the Cubes tool bar. The *Copy Cube* screen is displayed.

The Oracle Cube definition details are copied and a confirmation message is displayed.

1.4.9.2.5 Deleting Oracle Cube Details

You can remove Oracle Cube definition(s) which are created by you and which are no longer required in the system by deleting from the *Cube Summary* screen. You need to have Delete Cube function role mapped to delete a Oracle Cube. Delete function permanently removes the Oracle Cube details from the database. Ensure that you have verified the details as indicated below:

- An Oracle Cube definition marked for deletion is not accessible for other users.
- Every delete action has to be **Authorized/Rejected** by the authorizer.
 - On Authorization, the Oracle Cube details are removed.
 - On Rejection, the Oracle Cube details are reverted back to authorized state.
- You cannot update Oracle Cube details before authorizing/rejecting the deletion.
- An un-authorized Oracle Cube definition can be deleted.

To delete an existing Oracle Cube in the *Cube Summary* screen:

1. Select the checkbox adjacent to the required Cube Code.
2. Click  button from the Cubes tool bar. A confirmation dialog is displayed.
3. Click **OK**. The Cube details are marked for delete authorization.

1.4.10 Business Processor

Business Processor 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.

A Business Processor encapsulates a business logic for assigning a value to a measure as a function of observed values for other measures. Business Processors are required Measurements that require complex transformations that entail transforming data based on a function of available base measures.

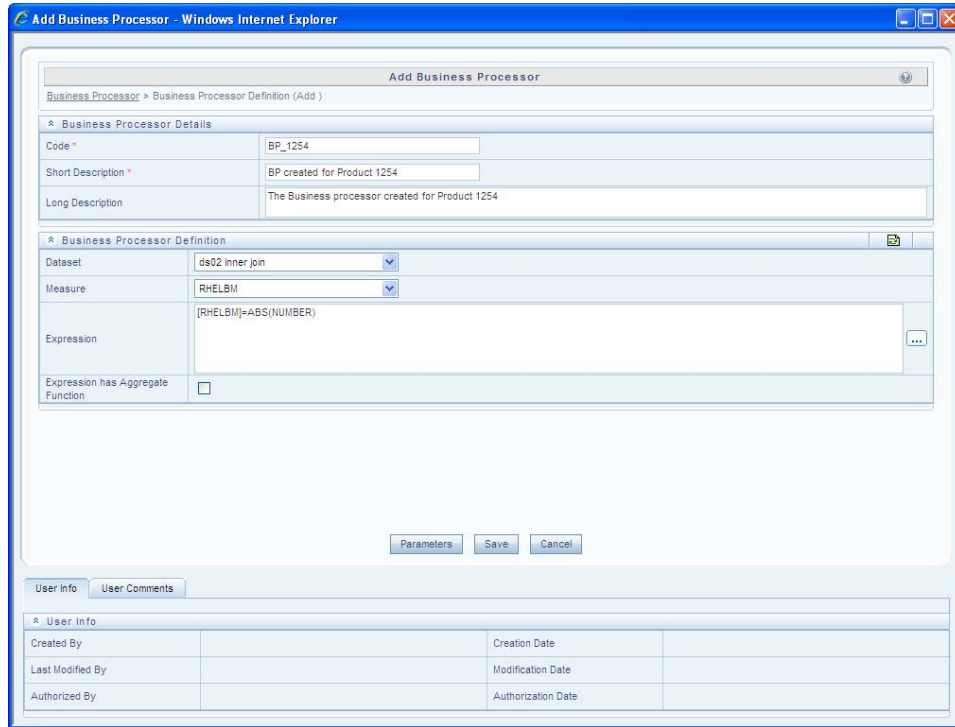
Measurements that require complex transformations that entail transforming data based on a function of available base measures require Business Processors. A supervisory requirement necessitates the definition of such complex transformations with available metadata constructs.

Business Processors are metadata constructs that are used in the definition of such complex rules. Business Processors are designed to update a measure with another computed value. When a rule that is defined with a Business Processor is processed, the newly computed value is updated on the defined target.

1.4.10.1 Adding Business Processor

To create a Business Processor from the *Business Processor* screen:

1. Click  button. The *Add Business Processor* screen is displayed.



2. Enter the details as tabulated:

Field	Description
Code	While creating a new Business Processor, you need to define a distinct identifier/Code. It is recommended that you define a code that is descriptive or indicative of the type of Business Processor being created. This will help in identifying it while creating rules. Note the following: ▪ It is mandatory to enter a Code. ▪ The Code should be minimum eight characters in length; it can be alphabetical, numerical (only 0-9) or alphanumerical characters. ▪ The Code should start with an Alphabet. ▪ The Code cannot contain special characters with the exception of the underscore symbol (_). ▪ The saved Code or Short Description cannot be changed.

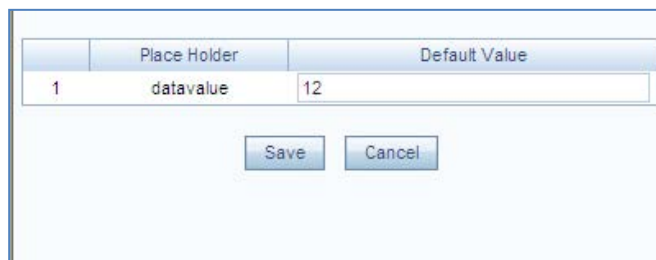
Field	Description
Short Description	Short description is useful in understanding the content of the Business Processor you are creating. It would help to enter a description based on the code. Note the following: - It is mandatory to enter a Short Description. - The Short Description should be of minimum one character and maximum of 80 characters in length. - Only Alphanumeric, non-English, and Special characters such as "<blank space>", ".", "\$", "&", "%", "<", ">", ")", "(", "_", and "-" are permitted to be entered in the Short Description field.
Long Description	The long description gives an in-depth understanding of the Business process you are creating. It would help you to enter a Long Description based on the code. The Long Description should be of minimum one character and maximum 100 characters in length.
Data Set	Select the Data Set from the drop-down list. The list of available Data Sets for the selected Information Domain will appear in the drop-down. The Short Description of the Data Sets as entered in the <i>Data Sets</i> screen under Business Metadata Management will be reflected in the dropdown.
Measure	Select the Measure from the drop-down list. All base measures that are defined on any of the tables present in the selected Data Set will appear in the drop-down. If the underlying measure is deleted after the Business Processor definition, then the corresponding Business Processor definition will automatically be invalidated.

Field	Description
Expression	Click  button. The <i>Expression</i> screen is displayed. For more details on creating an expression using entities, functions and operators, refer Create Expression section. The placeholder option enables the user to provide values for the constants in the expression. The user can specify values to the business processor expression during the run time rather than at definition time through the place holders defined while specifying the expression. The user can specify the expression in the “Expression” field. Note the following: ▪ The values for the placeholders can be alphanumeric. ▪ The process of specifying place holders enables the user to execute the same business processor definition with different values during the run time.
Expression has Aggregate Function	The expression may require an aggregation function depending on the business logic. The aggregation functions have to be entered in the expression field per acceptable syntax. IF an aggregation function is used in the expressions, the checkbox “Expression has Aggregate Function” must be enabled. Leave the checkbox “Expression has Aggregate Function” blank if your expression does not contain an aggregation function.

You can also:

- Click  button in the *Business Processor Definition* grid to refresh the entries.
- Click **Parameters** button to specify default values for any of the placeholders defined.

The Business Processor Expression Parameters dialog is displayed.



The dialog box has a table with two columns: 'Place Holder' and 'Default Value'. The first row contains the value '1' in the 'Place Holder' column and '12' in the 'Default Value' column. Below the table are 'Save' and 'Cancel' buttons.

	Place Holder	Default Value
1	datavalue	12

Save Cancel

Enter a default value for the place holders defined along with the expression in the **Default Value** box.

Click **Save** to save the default value for a Place Holder.

The *User Info* grid at the bottom of the screen displays the metadata information about the Business Processor definition created along with the option to add comments.

3. Click **Save**. The Business Processor is saved and listed in the *Business Processor* screen after validating the entries.

1.4.10.2 Viewing Business Processor

You can view individual Business Processor definition details at any given point. To view the existing Business Processor definition in the *Business Processor* screen:

1. Select the checkbox adjacent to the required Business Processor code.
2. Click  button from the *Business Processor* tool bar.

The *View Business Processor* screen displays the details of the selected Business Processor definition. The *User Info* grid at the bottom of the screen displays the metadata information about the Business Processor definition along with the option to add comments.

1.4.10.3 Editing Business Processor

You can update the existing Business Processor definition details except for the Business Processor Code and Short Description. To update the required Business Processor definition details in the *Business Processor* screen:

1. Select the checkbox adjacent to the required Business Processor code.
2. Click  button from the *Business Processor* tool bar. The *Edit Business Processor* screen is displayed.
3. Update the details as required. For more information refer [Add Business Processor](#).
4. Click **Save** and update the changes.

1.4.10.4 Copying Business Processor

You can copy the existing Business Processor to quickly create a new Business Processor definition based on the existing rule details or by updating the required parameters. To copy an existing Business Processor definition in the *Business Processor* screen:

1. Select the checkbox adjacent to the required Business Processor code in the list whose details are to be duplicated.
2. Click  button from the Business Processor tool bar. **Copy** button is disabled if you have selected multiple checkboxes. The *Copy Business Processor* screen is displayed.

3. Edit the Business Processor details as required. It is mandatory that you change the **Code** and **Short Description** values. For more information refer [Add Business Processor](#).
4. Click **Save**. The defined Business Processor is displayed in the *Business Processor* screen.

1.4.10.5 Deleting Business Processor

You can remove Business Processor definition(s) which are no longer required in the system by deleting from *Business Processor* screen.

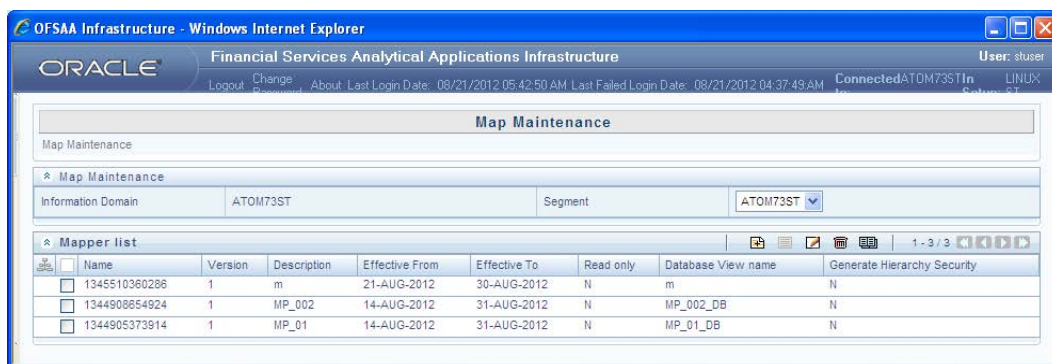
1. Select the checkbox(s) adjacent to the Business Processor codes whose details are to be removed.
2. Click  button from the *Business Processor* tool bar.
3. Click **OK** in the *Warning* dialog to confirm deletion.

The selected Business Processor definitions are removed.

1.4.11 Map Maintenance

The *Map* screen enables in creating the metadata and hierarchy filter. The mappings (mapped nodes of the hierarchies) in a Map become the valid nodes for selection of the mapper; the mapper definition is in turn used in the Hierarchy filter in Forms Renderer.

The mappings (mapped nodes of the hierarchies) in a Map become the valid nodes for selection. You (Business Analyst) need to be mapped with the **Ops Risk Admin** role to access to the Mapper definition screen. The user should be mapped to create, view, modify, and delete functions to use the respective functionality of the mapper.



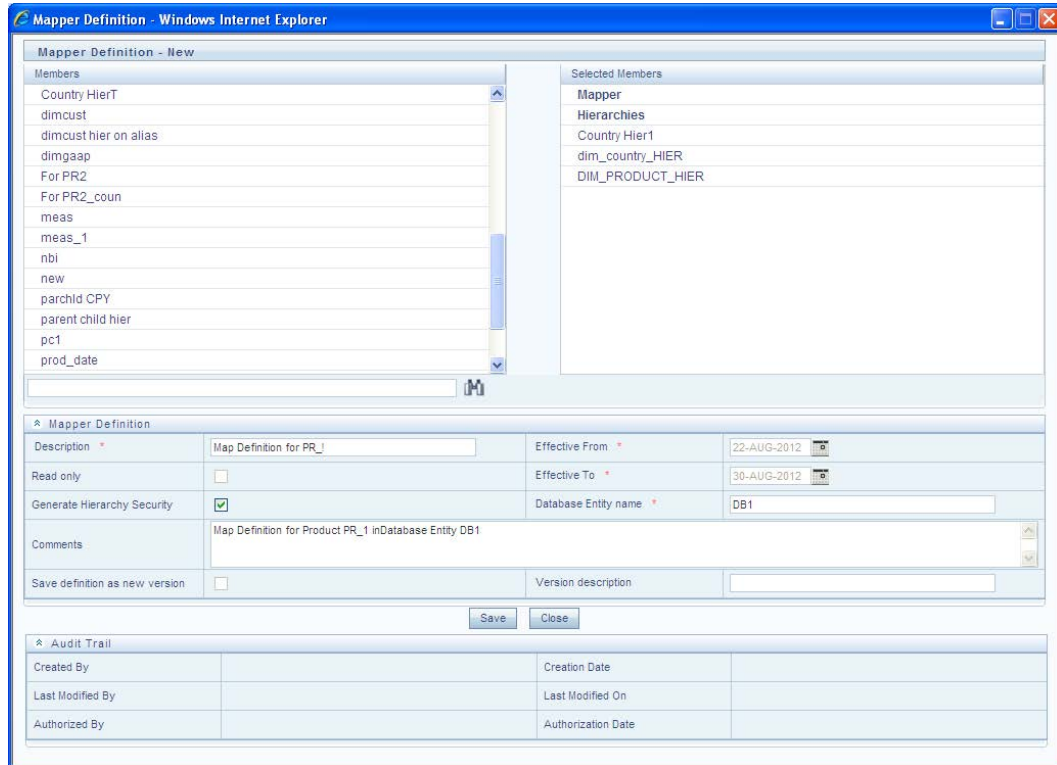
Click the **Map Maintenance** option to launch the *Map Maintenance* screen. The *Map Maintenance* screen displays the Name, Description, Version number, Effective From date, Effective To date, Read Only, Database View Name and Generate Hierarchy Security details for the available map definitions. You can also click the Segment drop down list to select the segment. Segments are defined through the System Administration menu options. Segments

facilitate classification of related metadata in a single segment. Users are permitted access to only those metadata objects that are mapped to the same segment that the user has been mapped to.

1.4.11.1 Creating Map Maintenance

To create a new map from the *Map Maintenance* screen:

1. Click  from the Mapper List tool bar. The *Mapper Definition* screen is displayed.



Under the Members pane in the LHS, you have a list of all available Mapper and Hierarchies.

2. Click once to select the required Mapper and Hierarchy. The selected Mapper and Hierarchy are displayed under the Selected Members pane.

Note the following:

- Only one Mapper is allowed in a Map definition.
- The Hierarchies selected in *Mapper Definition* screen should not contain special characters “~” (Tilda) and “\$” (Dollar) in their node descriptions.

3. Enter the map definition details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Description	Enter a description for the map definition in this field.
Effective From	Select the Effective From date from the Calendar by clicking  button. The selected map definition is effective / valid from the selected date.
Effective To	Select the Effect To date from the Calendar by clicking  button. The selected map definition is effective / valid till the selected date.
Generate Hierarchy Security	This option allows you to keep Nodes confidential. If this option is selected, the other users are able to view the nodes for which the security has been applied.
Database Entity Name	Enter a valid name for the Database Entity in this field.
Comments	Enter comments about the map in this field.
Read Only	Check if you want the map definition to be read only. This option is enabled only while editing the Map.
Save Definition as New Version	Check if you want to create the definition as a new version. This option is enabled only while editing the Map.
Version Description	Enter the description for the version. This option is enabled only while editing the Map.

NOTE: Both the Roles and User Group Hierarchy should be selected for the creation of Security Mapper. The View will be created in the atomic schema. There will be an entry in the CSSMS_USR_SECURITY table in config schema in case Generate Hierarchy Security checkbox is checked.

- Click **Save** to save the map definition details.

The Map definition is saved with the version number as 1 in the authorized state.

1.4.11.2 Map Maintenance Option

You can create mapping for the Mapper definitions created. From the *Map Maintenance* screen. The mappings can be assigned only if the Read only checkbox is not checked in a Mapper definition.

Select the Map and click  button. The *Mapper* screen is displayed. In the *Mapper* screen, you have the following two options:

- [Map](#)
- [Unmap](#)

1.4.11.2.1 Map

1. Select the **Map** option.

The Mapper/Hierarchy that was selected in the *Create new map* screen appears in the *Mapper* screen. Select the options that you wish to Map and click **Save Mapping**. You can also search for the required record by entering the keyword/name in the search field and clicking on  button.

2. To view the Map, select the Node and click **View Mapping**. The *View Mapping* screen is displayed.
3. To delete a Map, select the mapping and click **Delete mapping**.
4. Once mapping is done, click **Save Mapping**. A confirmation message comes up stating that the Mapping was successful. Click **OK**.

1.4.11.2.2 Unmap

1. Select the **Unmap** option.

The screen is refreshed and all mapped records are listed in red. The **Save Mapping** option is disabled. You can also search for the required record by entering the keyword/name in the search field and clicking on  button.

2. To view the Map, select the Map and click on **View Mapping**.
3. To delete a mapping combination:
 - Select the Nodes from each hierarchy
 - Click on **Delete Mapping**. A confirmation message is displayed.
 - Click **OK** in the confirmation message to delete the map combination of the selected hierarchies.

Refer [Read Only Selected in Mapper Screen](#) section for more details on how the mapping changes when the option is selected.

1.4.11.3 Modifying Map Maintenance

You can update the existing Map Maintenance definition details except for the Members, Description, and the Database Entity Name.

To update the Map Maintenance details in the *Map Maintenance* screen:

1. Select the checkbox adjacent to the required Mapper code.
2. Click  button from the Mapper List tool bar. The *Mapper Definition* screen is displayed.

3. Update the required details. For more information, refer [Create Map Maintenance](#).
4. Click **Save** and update the changes.

1.4.11.4 Deleting Map Maintenance

You can remove the Mapper definition(s) which are created by you and which are no longer required in the system by deleting from the *Map Maintenance* screen. You need to have Delete Mapper definition function role mapped to delete a Mapper definition. Delete function permanently removes the Mapper definition details from the database.

To delete a Mapper definition from the *Map Maintenance* screen:

1. Select the checkbox adjacent to the required Mapper definition code.
2. Click  button from the Mapper List tool bar. A confirmation dialog is displayed.
3. Click **OK**. The Mapper definition details are deleted.

1.4.12 Filters

The contents of this section has been referenced from source. Click [Filters](#) to view the details.

1.4.13 Cube Migration

Cube Migration within the Infrastructure system helps you to migrate Essbase Cube definition to Oracle OLAP Cube. You can convert the Cubes defined in Essbase to Oracle Cube definition and either build the Cube or create a Batch for later execution of the build.

You (Business Analysts) need to have **ORACBADD** function role mapped to access Cube Migration within the Infrastructure system. You can access Cube Migration by expanding *Unified Metadata Manager* module > *Business Metadata Management* section within the tree structure of LHS menu.

Code	Short Description	Long Description	Build	Initiated	Status	Build Date
CECR0036	Retail Portfolio Account Migration Analysis	Cube for Retail Portfolio Account Migration Analysis	☐	Yes	Batch Successful	
CECR0037	Wholesale Counterparty Analysis	Cube for Wholesale Counterparty Analysis	☐	Yes	Batch Successful	
CECR0038	Collector Performance Analysis	Cube for Collector Performance Analysis	☐	Yes	Batch Successful	
CECR0039	Service Analysis	Cube for Service Analysis	☐	Yes	Batch Successful	
☒ CECR0040	Retail Ability to Repay Analysis	Cube for Retail Ability to Repay Analysis	☒	No		04/23/2013
CECR0041	Transaction Analysis	Cube for Transaction Analysis	☐	Yes	Batch Successful	
CECR0042	Wholesale Account Migration Analysis	Cube for Wholesale Account Migration Analysis	☐	No		
CUCR0001	Portfolio Account Analysis	Cube for Portfolio Account Analysis	☐	Yes	Migration Failed	
DECR0037	Wholesale Counterparty Analysis Copy	Cube for Wholesale Counterparty Analysis Copy	☐	No		
ECCR0002	Application Document AnalysisENG copy	Cube for Application Document Analysis copy	☐	Yes	Build Failed	

The *Cube Migration* screen displays the list of existing Essbase Cubes with their Code, Short Description, Long Description, Build, Initiated status, Status of migration, and Build Date.

The Status column indicates the status of migration of a particular Cube as *Batch Successful*, *Build Successful*, *Build Failed*, and *Migration Failed*.

The Initiated column indicates the status of migration as either **Yes / No** of a particular Cube. By clicking on the “Yes” status, you can view the migration history of selected Cube along with the following details in the *Migration Summary* screen.

Essbase Cube Code	Olap Cube Code	Status	Description	Migration Done At	Log File Path
CUBPROD	O_OLAP_CUBPROD	Initiated	Cube Migration Initiated	2013-04-04 11:15:36.505822	ficapp/common/FICServer/logs/Cube_Migration/20130404111536
CUBPROD	O_OLAP_CUBPROD	Started	Cube Migration Started	2013-04-04 11:15:36.516829	ficapp/common/FICServer/logs/Cube_Migration/20130404111536
CUBPROD	O_OLAP_CUBPROD	Migration Successful	Cube Migration Successful	2013-04-04 11:16:36.975886	ficapp/common/FICServer/logs/Cube_Migration/20130404111536
CUBPROD	O_OLAP_CUBPROD	Batch Successful	Cube CUBPROD Migrated and Batch Created Successfully	2013-04-04 11:16:37.377672	ficapp/common/FICServer/logs/Cube_Migration/20130404111536
CUBPROD	O_OLAP_CUBPROD	Initiated	Cube Migration Initiated	2013-04-08 09:57:13.971668	ficapp/common/FICServer/logs/Cube_Migration/20130408095713
CUBPROD	O_OLAP_CUBPROD	Started	Cube Migration Started	2013-04-08 09:57:13.981258	ficapp/common/FICServer/logs/Cube_Migration/20130408095713
CUBPROD	O_OLAP_CUBPROD	Migration Failed	Cube Migration Failed	2013-04-08 09:57:14.861284	ficapp/common/FICServer/logs/Cube_Migration/20130408095713
CUBPROD	O_OLAP_CUBPROD	Initiated	Cube Migration Initiated	2013-04-15 10:09:40.16342	ficapp/common/FICServer/logs/Cube_Migration/20130415100940
CUBPROD	O_OLAP_CUBPROD	Started	Cube Migration Started	2013-04-15 10:09:40.1746	ficapp/common/FICServer/logs/Cube_Migration/20130415100940
CUBPROD	O_OLAP_CUBPROD	Migration Failed	Cube Migration Failed	2013-04-15 10:09:41.348144	ficapp/common/FICServer/logs/Cube_Migration/20130415100940

Column Name	Description
Essbase Cube Code	Refers to the code defined for Essbase Cube.
Olap Cube Code	Refers to the new auto assigned OLAP Cube code in the format O_OLAP_(Essbase_Cube_code). For example, CECR0032=O_OLAP_CECR0032.

Column Name	Description	
Status	Refers to the status of migration. The following status are displayed: ▪ Initiated ▪ Started ▪ Migration Successful ▪ Build Failed ▪ Build Successful ▪ Batch Successful ▪ Migration Failed	
Description	Refers to additional details of execution based on status, as indicated below.	
	Initiated	Cube Migration Initiated
	Started	Cube Migration Started
	Migration Successful	Cube Migration Successful
	Build Failed	Cube (Code) Migrated Successfully Build Failed
	Build Successful	Cube (Code) Migrated and Build Successfully
	Batch Successful	Cube (Code) Migrated and Batch Created Successfully
	Migration Failed	Failed to Migrate as Cube definition is not valid Failed To Save In Analytical Workspace
Migration Done At	Refers to the date and time stamp of migration in the below format. YYYY-MM-DD HH:MM:SS.Milliseconds. Example, 2013-03-25 18:18:40.516972	
Log File Path	Refers to the path where migration log file resides for debugging. For example, ficapp/common/FICServer/logs/Cube_Migration/20130327080907. The number "20130327080907" indicates the date and time stamp.	

In the *Migration Summary* screen, you can search for a Cube by specifying the Code and clicking  button in Search and Filter tool bar. You can also click  button to reset the Code field.

The *Cube Migration* screen, you can also make use of Search and Pagination options to search for a specific Cube within the system based on Code and Short Description. For more information, refer [Search and Filter](#) and [Pagination](#) sections.

1.4.13.1 Migrating Cube

Before migrating Essbase to Oracle Cubes, ensure the following:

- The “atomic schema” of the database is of version 11.2.0 or greater, since OFSAAI does not support building Cube(s) for lower versions of Oracle Database.
- Dimensions present in the Essbase Cube should not have multiple Hierarchies.
- The Essbase Cube definition should not have any derived entities.
- Essbase Cube to be migrated should have only simple join condition.
- If a filter is defined on a Dataset, then the respective dimension should be part of **Selected Dimension** of Oracle Cube.

For details of AAI and OLAP limitations, refer to [OLAP Cube Limitations](#) section.

In the *Cube Migration* screen, you can either build the Cube or create a Batch for later execution of the build. In both the options, the selected Essbase cube is migrated to Oracle Cube and will be displayed in *Oracle Cube summary* screen.

To migrate Essbase Cube(s) to Oracle Cube(s), do the following:

1. Select the checkbox adjacent to the required Code (Essbase). You can also select multiple checkboxes for group migration.
2. Do one of the following:
 - To start the migration through *Operation > Batch execution* process by creating a Batch, click  button from the Cube Migration tool bar.
 - To directly Build the Cube, select the *Build* column checkbox of the Cube selected.
(Optional) Select the **Build Date** (MIS Date) in the *Build Date* column, by clicking on the  ([calendar](#)) icon to start the Cube Build for the particular date. However, Build Date is not mandatory and if not specified, the last quarter date is considered. Click  button from the Cube Migration tool bar.

An information dialog is displayed indicating “Migration Triggered Successfully”. Click **OK**, the *Migration Summary* screen is displayed with the initial status.

You can click **Refresh** to fetch the latest status or click **Close** to exit the screen.

NOTE: When multiple Cubes are selected for migration, the status *Initiated* indicates that migration is triggered for all the selected Cube(s) and *Started* indicates the status of those Cubes, which are currently being migrated.

1.4.13.2 OLAP Cube Limitations

Following are the limitations of Oracle Cube with respect to migration/creation.

Limitations from OFSAA Infrastructure:

- Oracle Cube cannot be defined on a Dataset, which is defined on a Derived Entity.
- Oracle Cube cannot be defined on a Computed Measure.
- Oracle cube cannot be defined on Dataset having complex joins.
- For Oracle Cube, the joins are automatically derived (meaning standard equi-joins). For joins that are defined using AAI Dataset interface, as it requires parsing is not supported.
- Old MDB does not support Oracle Cube.
- Migration of Essbase Cube does not consider the Roll Off.
- Migration of Essbase Cube does not consider the intersection.
- Does not consider any parameter which are part of Dataset other than \$MISDATE while building.
- If a Dataset, having RUNSK as part of its filter condition, is used in Essbase Cube definition and you want to migrate it to Oracle Cube with the **Build** option selected, from the *Cube Migration* page, it will fail. The cube should be built through RRF.
- Migration of Essbase Cube does not consider the formula.

Limitation From Oracle OLAP:

- Oracle Cube cannot be defined on a Non-BI Hierarchy.
- Dimensions cannot have more than one Hierarchy.
- Hierarchies must have more than one level if total required is not selected.

1.4.14 References

This section of the document consists of information related to intermediate actions that needs to be performed while completing a task. The procedures are common to all the sections and are referenced where ever required. You can refer to the following sections based on your need.

1.4.14.1 Scenario to Understand Data Set Functionality

Consider the scenario, where you want to analyze the Customer Relationship Management through various profiles of a customer against the various transactions and the channels of transaction through which the actual transactions have happened.

This information is maintained in relational tables. In a typical Star Schema implementation of the relations, Customer profiles like Age, Gender, Sex, Residence, and Region are maintained in Individual Dimension tables. Similarly, the Transaction Types and Channels would be maintained in a separate Dimension tables. The actual transaction performed by the Customers will be stored in a Fact table.

A Data Set allows you to collate all the tables with a valid join condition. The tables defined in the data set would form the FROM clause while aggregating for the Cube.

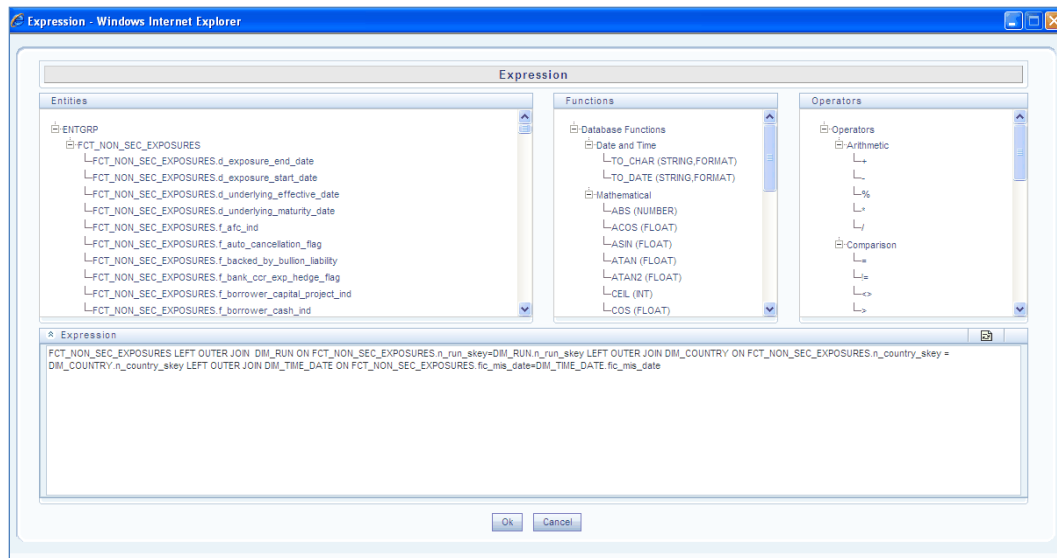
1.4.14.2 List Unauthorized

When you are searching for a derived entity code, you can select the **List Unauthorized** checkbox in the search dialog to view all the unauthorized Derived Entity definitions.

The unauthorized list displays the modified Derived Entities, and the Derived Entity which are to be authorized. Users having Authorize rights will only be able to view the list of unauthorized Derived Entity definitions.

1.4.14.3 Creating Expression

You can define an expression in the *Expression* screen to join two selected tables. Click  button. The *Expression* screen is displayed.



The *Expression* screen consists of the following sections:

- **Entities** - consists of the Entities folder with the list of tables that you selected from the Entity Groups folder. Double-click the Entities folder to view the selected dimension tables (Product and Segment tables).
- **Functions** - consists of functions that are specific to databases like Oracle and MS SQL Server. You can use these functions along with Operators to specify the join condition. The Functions categories are displayed based on the database types as tabulated.

Database	Functions
Transact SQL	Specific to MS SQL server which consists of Date & Time, Math and System functions.
SQL OLAP	Specific to Microsoft OLAP which consists of Array, Dimension, Hierarchy, Logical, Member, Number, Set, and String functions.
SQL	Specific to Oracle which consists of Character, Conversion, Date and Numeric functions.

NOTE: It is not mandatory to specify a Function for a join condition.

- **Operators** - consists of the function operators categorized into folders as tabulated.

Operator	Types
Arithmetic	+, -, %, * and /
Comparison	'=', '!=', '< >', '>', '<', 'IN', 'NOT IN', 'ANY', 'SOME', 'LIKE' and 'ALL'.
Logical	'NOT', 'AND' and 'OR'
Set	UNION, UNION ALL, INTERSECT and MINUS

Operator	Types
Others	The Other operators are 'PRIOR', '(+)', '(' and ')'.

To specify the join condition:

1. Select the **Entity** of the fact table to which you want join the dimension entities.
2. Select a **Function** depending on the database type.
3. Select the **Operator** which you want to use for the join condition.
4. Select the second Entity from the Entities pane that you want to join with the first entity.
You can also select more than one dimension table and link to the fact table.
5. Click **OK** and save the join condition details.

1.4.14.4 Base and Computed Measures

A **Base Measure** refers to a measure where the aggregation is done directly on the raw data from the database. It represents some operation on the actual data available in the warehouse and its storage in its aggregated form in another data store. This is different from metrics that is not stored in physical form, but as functions that can be operated on other measures at viewing time. The choice of base or computed measure is based on the user's requirement of a design issue on storage optimality as it is on query response speeds desired. These functions defined on other measures are called **Computed Measures** and dealt separately. It is the metric definition like amount of sales or count of customers.

1.4.14.5 Business Hierarchy Types

The available Business Hierarchies are as tabulated.

Hierarchy Type	Description / Hierarchy Sub Type
Regular	In a Regular Hierarchy Type, you can define the following Hierarchy Sub Types: ▪ Non Business Intelligence Enabled In a non Business Intelligence Enabled Hierarchy, you need to manually add the required levels. The levels defined will form the Hierarchy. ▪ Business Intelligence Enabled You can Enable Business Intelligence hierarchy when you are not sure of the Hierarchy structure leaf values or the information is volatile and also when the Hierarchy structure can be directly selected from RDBMS columns. The system will automatically detect the values based on the actual data. ▪ Parent Child

Hierarchy Type	Description / Hierarchy Sub Type
	This option can be selected to define a Parent Child Type hierarchy.
Measure	A Measure Hierarchy consists of the defined measure as nodes and has only the <i>Non Business Intelligence Enabled</i> as Hierarchy Sub Type.
Time	A Time Hierarchy consists of the levels/nodes of high time granularity and has only the <i>Business Intelligence Enabled</i> as Hierarchy Sub Type.

You can select the required Business Hierarchy from the drop down list and specify the Hierarchy Sub Type details. The screen options differ on selecting each particular Hierarchy type. Click on the following links to view the section in detail.

- [Regular Hierarchy](#)
- [Measure Hierarchy](#)
- [Time Hierarchy](#)

1.4.14.6 Regular Hierarchy

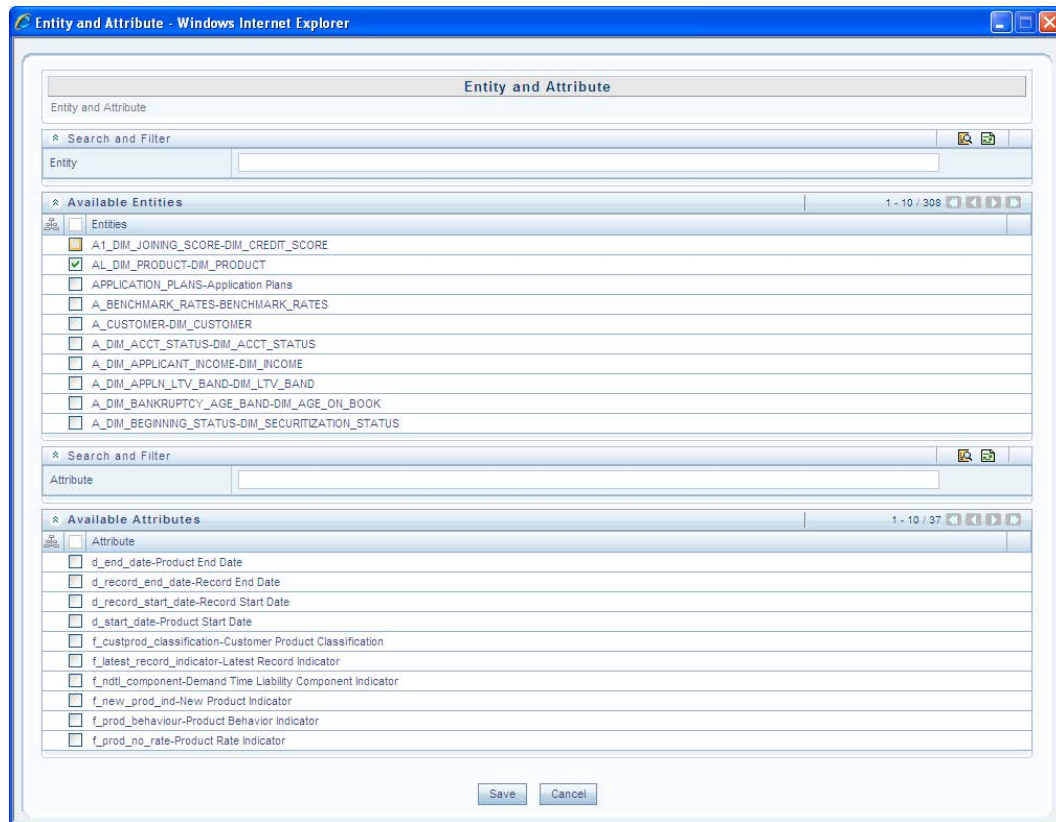
When you select Regular Hierarchy, you can define the Hierarchy Sub Type for Non Business Intelligence Enabled, Business Intelligence Enabled, and Parent Child Hierarchy. Select the required Hierarchy Sub Type from the drop down list. Click on the following links to view the section in detail.

- [Non Business Intelligence Enabled Hierarchy](#)
- [Business Intelligence Enabled Hierarchy](#)
- [Parent Child Hierarchy](#)

1.4.14.6.1 Non Business Intelligence Enabled Hierarchy

When you have selected *Regular - Non Business Intelligence Enabled Hierarchy* option, do the following:

1. Click  button in the **Entity** field. The *Entity and Attribute* screen is displayed.



- You can either search for a specific **Entity** using the [Search](#) field or select the checkbox adjacent to the required **Entity** in the *Available Entities* list. The list of defined Attributes for the selected entity is displayed *Available Attributes* list.
- You can either search for a specific **Attribute** using the [Search](#) field or select the checkbox adjacent to the required **Attribute** in the *Available Attributes* list.
- Click **Save**. The selected Entity and Attribute is displayed in the *Add Business Hierarchy* screen.

NOTE: Ensure that the values present in Attribute column do not contain new line characters. Because the hierarchy node descriptions in the hierarchy browser are considered as text fields and do not permit new line characters.

2. Click  button from the Business Hierarchy tool bar. The *Add Node Values* screen is displayed.

- Enter the details in Hierarchy Values section as tabulated.

Field	Description
Node	▪ The Node value is auto-populated and is editable.
Short Description	Enter the required short description for the node.
Node Identifier	Click  button and define an expression in the <i>Expression</i> screen for the Node Identifier. For more information, refer Create Expression .
Sort Order	Enter the Sort order in numeric value.

- In the *Node Attributes* section, select **Storage type** from the drop down list.

There are four Storage Types as tabulated.

Field	Description
Data Store	▪ This storage type allocates a data cell for the information to be stored in the database. The consolidated value of the data is stored in this cell. The consolidation for the node occurs during the normal process of rollup.

Field	Description
Dynamic Calc	In this storage type, no cell is allocated and the consolidation is done when the data is viewed. The consolidation for the node is ignored during the normal process of rollup. The consolidation of node occurs when you use the OLAP tool for viewing data.
Dynamic Calc & Store	In this storage type, a cell is allocated but the data is stored only when the data is consolidated when viewed, for the first time. The consolidation for the node is ignored during the normal process of rollup. It occurs only when you first retrieve the data from the database.
Label	In this storage type, a cell is not allocated nor is the data consolidated. It is only viewed. Note: The Label storage type is specific to Essbase MOLAP. Storage type is applicable only for the Regular hierarchy type and Measure. If the user wants to specify a dynamic calc option at level members in a multi-level time hierarchy, the same is provided through OLAP execution utility.

- Click **Save**. The Node values are displayed in *Add Business Hierarchy* screen.

3. Click **Save** in the *Add Business Hierarchy* screen and save the details.

In the Business Hierarchy tool bar, you can also do the following:

- Click  button to **Add** subsequent node(s). For the second node or subsequent node, you can define the *Hierarchy Tree* and *Node Attributes* details as explained below.

Field	Description
Add Hierarchy Node	Click  button adjacent to Child of field and select the required Member in the <i>Hierarchy Browser</i> screen. Click OK .
Consolidation Type	Consolidation Type option is available to Essbase MOLAP. There are six consolidation types such as Addition, Subtraction, Product, Division, Percent, and Ignore. Select the required option from the drop down list.

- Click  button by selecting the required Node level checkbox to edit the Node details.
- Click  button to delete the defined Node details.

1.4.14.6.2 Business Intelligence Enabled Hierarchy

When you have selected *Regular - Business Intelligence Enabled Hierarchy* option, do the following:

1. (Optional) Select **Total Required** checkbox, if you want the total of all the nodes.
2. (Optional) Select **List** checkbox to retrieve information from database when queried.

NOTE: List hierarchy can have only one level and you cannot select List option if the Total Required option has been selected. Refer [List hierarchy](#).

3. Click  button in the **Entity** field. The *Entity and Attribute* screen is displayed.
 - You can either search for a specific **Entity** using the [Search](#) field or select the checkbox adjacent to the required **Entity** in the *Available Entities* list. The list of defined Attributes for the selected entity is displayed *Available Attributes* list.
 - You can either search for a specific **Attribute** using the [Search](#) field or select the checkbox adjacent to the required **Attribute** in the *Available Attributes* list.
 - Click **Save**. The selected Entity and Attribute is displayed in the *Add Business Hierarchy* screen.

NOTE: Ensure that the values present in Attribute column do not contain new line characters. Because the hierarchy node descriptions in the hierarchy browser are considered as text fields and do not permit new line characters.

4. Click  button from the Business Hierarchy tool bar. The *Add Hierarchy levels* screen is displayed.
 - Enter the details in Level Details section as tabulated.

Field	Description
Level	▪ The Level value is auto-populated and is editable.
Short Description	Enter the required short description for the level.
Level Identifier	Click  button and define an expression in the <i>Expression</i> screen for the Level Identifier. For more information, refer Create Expression .
Level Description	Click  button and define an expression in the <i>Expression</i> screen for the Level Description. For more information, refer Create Expression .

- Click **Save**. The Level details are displayed in *Add Business Hierarchy* screen.

NOTE: BI Hierarchy value refresh on **On Load** property is not functional for data loads performed through Excel Upload. It is applicable only for data loads which run through a batch process.

5. Click **Save** in the *Add Business Hierarchy* screen and save the details.

In the Business Hierarchy tool bar, you can also do the following:

- Click  button to **Add** subsequent Levels. For the second or subsequent levels, the levels are incremented.
- Click  button by selecting the required level checkbox to edit the Level details.
- Click  button to delete the defined Level details.

1.4.14.6.3 Parent Child Hierarchy

When you have selected *Regular - Parent Child Hierarchy* option, do the following:

1. Click  button in the **Entity** field. The *Entity and Attribute* screen is displayed.
 - You can either search for a specific **Entity** using the [Search](#) field or select the checkbox adjacent to the required **Entity** in the *Available Entities* list. The list of defined Attributes for the selected entity is displayed *Available Attributes* list.
 - You can either search for a specific **Attribute** using the [Search](#) field or select the checkbox adjacent to the required **Attribute** in the *Available Attributes* list.
 - Click **Save**. The selected Entity and Attribute is displayed in the *Add Business Hierarchy* screen.

NOTE: Ensure that the values present in Attribute column do not contain new line characters. Because the hierarchy node descriptions in the hierarchy browser are considered as text fields and do not permit new line characters.

2. The Business Hierarchy section displays the pre-defined nodes such as Child code, Parent Code, Description, Storage Type, Consolidation Type and Formula. You can modify the node values by doing the following:
 - Click  button from the Business Hierarchy tool bar. The *Edit Hierarchy Values* screen is displayed.
 - Click  button adjacent to the required node field and define the expression in the *Expression* screen. For more information, refer [Create Expression](#).
 - Click **Save**. The node details are displayed in *Add Business Hierarchy* screen.
3. Click **Save** in the *Add Business Hierarchy* screen and save the details.

Note the following:

- When the size of the hierarchy is large, Parent Child Hierarchy can be configured to be treated as a Business Intelligence enabled hierarchy for optimal performance. The hierarchy behaves like a non-Business Intelligence hierarchy till a limit of the number of nodes is reached. This limit (default value is 2048) which decides a hierarchy as BI or non-BI is configurable and can be given a value considering the system and JVM capabilities.
- Creating Parent Child Hierarchy with **Roll-up Option** - It is possible to roll up the values of child nodes in Parent child hierarchy to the parent level. If the parent node itself has some value and the child nodes of it also have associated values, it is possible for the value of the parent node to be displayed as the sum of its value and child values.

For using the Roll-up option, it is required to specify parameters in the **Consolidation Type** for the node field. Based on the column that is specified in the Consolidation Type field, the values of the child nodes will be rolled up i.e. added to the parent level. This can then be viewed using the OBIEE reporting server. However, when Consolidation type is not selected, then it is referred to as Parent Child Hierarchy with Rollup option.

1.4.14.7 Measure Hierarchy

When you select Measure Hierarchy, the Hierarchy Sub Type is selected as Non Business Intelligence Enabled by default. To define a Measure Hierarchy in the *Add Business Hierarchy* screen, do the following:

1. Click  button in the **Entity** field. The *Entity and Attribute* screen is displayed.
 - You can either search for a specific **Entity** using the [Search](#) field or select the checkbox adjacent to the required **Entity** in the *Available Entities* list. The list of defined Attributes for the selected entity is displayed *Available Attributes* list.
 - You can either search for a specific **Attribute** using the [Search](#) field or select the checkbox adjacent to the required **Attribute** in the *Available Attributes* list.
 - Click **Save**. The selected Entity and Attribute is displayed in the *Add Business Hierarchy* screen.

NOTE: Ensure that the values present in Attribute column do not contain new line characters. Because the hierarchy node descriptions in the hierarchy browser are considered as text fields and do not permit new line characters.

2. In the *Add Business Hierarchy* screen, select the Hierarchy Type as **Measure**.
3. Click  button in the **Entity** field. The *Entity and Attribute* screen opens.

- A list of all the available entities will be listed under **Available Entities**. Select the required entity. The attributes for that entity will be listed under **Available Attributes**.
 - Select the required Attribute and click **Save**. Click **Cancel** to quit the screen without saving. After saving, the Entity and Attribute will be displayed in their respective fields.
4. Click  button from the Business Hierarchy tool bar. The *Add Node Values* screen is displayed. Enter the details in the Node Details section as tabulated.

Field	Description
Node	▪ The Node value is auto-populated and is editable.
Short Description	Enter the required short description for the node.

- In the *Node Attributes* section, do the following:
 - Select **Storage type** from the drop down list. For more information, refer [Storage Types](#) section.
 - Select the **TB Type** as First, Average, or Last from the drop down list.
 - Click **Save**. The Node values are displayed in *Add Business Hierarchy* screen.
5. Click **Save** in the *Add Business Hierarchy* screen and save the details.

In the Business Hierarchy tool bar, you can also do the following:

- Click  button to **Add** subsequent Node/Measures. For the second node or subsequent node, you can also define the *Hierarchy Tree* and *Consolidation Type* details as explained below.

Field	Description
Select Hierarchy Node	Click  button adjacent to Child of field and select the required Member in the <i>Hierarchy Browser</i> screen. Click OK .
Consolidation Type	Consolidation Type option is available to Essbase MOLAP. There are six consolidation types such as Addition, Subtraction, Product, Division, Percent, and Ignore. Select the required option from the drop down list.

- Click  button by selecting the required Node level checkbox to edit the Node details.
- Click  button to delete the defined Node details.

1.4.14.8 Time Hierarchy

When you select Time Hierarchy, the Hierarchy Sub Type is selected as Business Intelligence Enabled and the “Total Required” checkbox is selected by default.

To define a Time Hierarchy in the *Add Business Hierarchy* screen, do the following:

1. Click  button in the **Entity** field. The *Entity and Attribute* screen is displayed.
 - You can either search for a specific **Entity** using the [Search](#) field or select the checkbox adjacent to the required **Entity** in the *Available Entities* list. The list of defined Attributes for the selected entity is displayed *Available Attributes* list.
 - You can either search for a specific **Attribute** using the [Search](#) field or select the checkbox adjacent to the required **Attribute** in the *Available Attributes* list.
 - Click **Save**. The selected Entity and Attribute is displayed in the *Add Business Hierarchy* screen.

NOTE: Ensure that the values present in Attribute column do not contain new line characters. Because the hierarchy node descriptions in the hierarchy browser are considered as text fields and do not permit new line characters.

2. Select the **Time Hierarchy Type** from the drop down list. Depending on the selection, the *Hierarchy Levels* are displayed in the Business Hierarchy section.

You can also **Edit** the required Hierarchy Level. Select the checkbox adjacent to the required Level and click  button. The *Edit Hierarchy Levels* screen is displayed. You can update *Short Description*, *Level Identifier*, and *Level Description* details.

3. Specify **Hierarchy Start Date** by selecting *Month* and *Day* from the drop down list.
4. Click **Save** and save the Time Hierarchy details.

1.4.14.9 Large Hierarchy Type

A large hierarchy refers to a hierarchy having large number of leaf levels. In order to provide an efficient and optimized hierarchy handling, a hierarchy is defined as Large in Oracle Infrastructure. A default value is set to accommodate the number of hierarchy nodes that a hierarchy can contain, for example, 100. If a hierarchy exceeds the default value specified, then the system treats it as a large hierarchy.

Note the following:

- The maximum hierarchy node limit can be configured to a higher number in the FIC_HOME / CONFIG file. However, the recommended, default value, is 100.
- A large hierarchy is possible only when you are defining a Time or BI enabled hierarchy.

- A large hierarchy cannot be user-defined it is handled automatically by the system.

1.4.14.10 List Hierarchy Type

A list hierarchy is a flat hierarchy i.e. with only one level. In a list hierarchy, all the nodes are displayed unlike the large hierarchy. You can create hierarchy based on business terms like, Customer, Product, Geography, and so on. The information for this hierarchy is generated from the metadata framework, which encapsulates these business terms. This enables the user to generate a report in OBIEE reporting server based on these business terms.

The advantage of defining a list hierarchy is that you need not know technical terminology or have technical knowledge. It also allows the user to specify a range of values. You can also define a summary or group total and perform a sort on the list hierarchy based on the hierarchy member value or attribute value; these two features are available only for the fact-less view.

Ensure that when you save a **BI enabled hierarchy**, the defined hierarchy structure is formed (in the back-end process) and stored in an xml format (as Hierarchycode.xml) in the application server. However, when you save a **BI-enabled List hierarchy**, the hierarchy structure is not formed and hence there will be no BIHIER.XML formed. Whenever this hierarchy is queried, the data is fetched from the atomic database.

1.4.14.11 Measure Types

You can choose the type of computed measure you want. The type options available are as follows:

- [Simple Relationship](#)
- [Growth Function](#)
- [Time-series Function](#)
- [Other](#) –referring to the advanced mode where you can define measures to suit your requirements.

Each of the computed measure types has sub-types. Each of these sub-options is explained below to help you choose the right computed measure type.

1.4.14.11.1 Simple Relationship

The Simple Relationship type computed measure is of five types. They are:

- Ratio
- Ratio as Percentage
- Difference
- Addition

- **Percentage Difference**
 1. When you select the Ratio option, the screen displays a simple ratio of two measures. To define the relationship as a ratio, double click the first <<Select Measure>> option to open the Select Measure pop-up.
 2. The pop-up displays will display the Measure folder. Double-click the folder to expand the list of measures under it. Depending on the Information Domain you are logged in to, the measures for that domain are displayed.
 3. Select the measure for which you want to compute the ratio and click OK. To close the pop-up without saving the selected measure option, click Cancel. Repeat the same procedure to choose the second measure.

NOTE: The method of selecting the Measures is common to all the sub-options of the Simple Relationship type.

When you select the Ratio as Percentage option, the screen displays the ratio percentage of the selected measures. When you select the Difference option, the value displayed will be the difference between two selected measures. When you select the Addition option, the summated value of the selected measures will be displayed. When you select the Percentage Difference option, the percentage value of the selected measures is computed.

1.4.14.11.2 Growth Function

Growth type computed measures are used to calculate the growth of a measure over a certain time period. The Growth type measures are of two types:

- **Absolute** – where the growth of a measure can be calculated either in absolute terms i.e. a simple difference
- **Percentage** – where the growth of a measure is calculated on a percentage basis.

Absolute Growth Option

1. Select the **Absolute Growth** option and enter the details as tabulated.

Field	Description
Select the base on which to calculate the growth	▪ Select it from the drop down list. The available option is Consecutive Period.
Select the period	▪ Select the period from the drop down list for which you want the growth to be monitored. The available options are Year, Quarter or month.

NOTE: If the time Dimension period specified in the cube is Year, Quarter and Month, it takes the previous period of the Time Level.

2. Select the measure from the **Select the Measure** pane. Depending on the Information Domain you are logged in to, the measures for that domain are displayed in the pane. Select the measure from the pane. On selecting the measure, the growth of the measure will be calculated for the consecutive period for a year.

Percentage Growth Option

3. Select the Percentage Growth option and enter the details as tabulated.

Field	Description
Select the base on which to calculate the growth	▪ Select it from the drop down list. The available option is Consecutive Period.
Select the period	▪ Select the period from the drop down list for which you want the growth to be monitored. The available options are Year, Quarter or month.

4. Select the measure from the **Select the Measure** pane. Depending on the Information Domain you are logged in to, the measures for that domain are displayed in the pane. Select the measure from the pane. On selecting the measure, the growth of the measure will be calculated for the consecutive period for a year.

1.4.14.11.3Time-Series Function

The Time Series type measures are time dependent. The Time Series types are:

- **Aggregation type** – This option computes the estimate of the periodical performance on a period-to-date basis.
- **Rolling Average** – This option computes the average for the previous N values based on the given dynamic value (N).This dynamic range could vary from a period of three months to any number of months.

Aggregation Type Option

1. Select the **Aggregate** option.
2. Select the measure from the **Select the Measure** pane. Depending on the Information Domain you are logged in to, the measures for that domain are displayed in the pane.

Rolling Average Option

1. Select the **Rolling Average** option.

2. Enter the rolling average in the **Select the number of periods for which to calculate the rolling average** field.

NOTE: The duration/period refers to the number of periods with respect to the current level in the time dimension of the chosen cube i.e. if the Current Value of the time dimension + the previous X values (where 'x' is 10 as you have specified) / 10 +1.

3. Select the measure from the **Select the Measure** pane. Depending on the Information Domain you are logged in to, the measures for that domain are displayed in the pane.

1.4.14.11.4Other (Advanced Mode) Type

The **Advanced** computed measures option allows you to specify a formula for computation of the measure. In order to enter the formula, it is assumed that the user is familiar with MDB specific OLAP functions.

There are two ways that you can enter a formula.

You can define the function/condition for a measure and/or dimension by entering the expression in the pane. It is not essential that you select the measure/dimension and the function in the order displayed. You can select the function and then proceed to specify the parameters, which can be either a measure or dimension or both.

You can define it by following the procedure mentioned below:

Selecting the Measure

1. Click **Insert Measure** to open the **Select Measure** pop-up. The pop-up displays will display the **Measure** folder. Double-click the folder to expand the list of measures under it. Depending on the Information Domain you are logged in to, the measures for that domain are displayed.
2. Click **OK** to select the measure selection. To close the pop-up without saving the selected measure option, click **Cancel**.

Selecting the Dimension

1. Click **Insert Dimension** to open the **Select Dimension** pop-up. The pop-up displays will display the **Dimension** folder. Double-click the folder to expand the list of dimensions under it. Depending on the Information Domain you are logged in to, the dimensions for that domain are displayed.
2. Click **OK** to select the dimension selection. To close the pop-up without saving the selected dimension option, click **Cancel**.

Selecting the Function

1. Click **Insert Function** to open the **Select Function** pop-up. Double-click the **Functions** folder to expand the list of functions within in it. The functions available are those specific to Essbase. The parameters for the function are displayed in the **Parameters** pane.

NOTE: The functions displayed are based on the OLAP type and therefore, vary for SQL OLAP and Essbase.

2. Click **OK** to select the function. To close the pop-up without saving the selected function option, click **Cancel**.

1.4.14.12 Read Only Selected in Mapper Screen

1. After selecting the **Read Only** option in the Mapper screen (New), click **Save**.
2. In the *Mapper List* screen, the Read Only option against the created Map would appear as **Y**. Now select the defined Map and click  button. The *Mapper* screen is displayed.
3. The **Save Mapping** and **Delete Mapping** options are disabled.
4. Select the Node and click on **View Mapping**. The *View mapping* screen is displayed. The **Delete** button is inactive.
5. Click **Close** to exit the screen.

1.5 Metadata Restore/Archive

Metadata Restore/Archive within the infrastructure system facilitates you to archive metadata present in different modules of the OFSAAI application and restore it when required. You can access Metadata Restore/Archive within the LHS menu of the Infrastructure home page. You need to be mapped with the Export Metadata and Import Metadata functions to access the Metadata Restore/Archive utility.

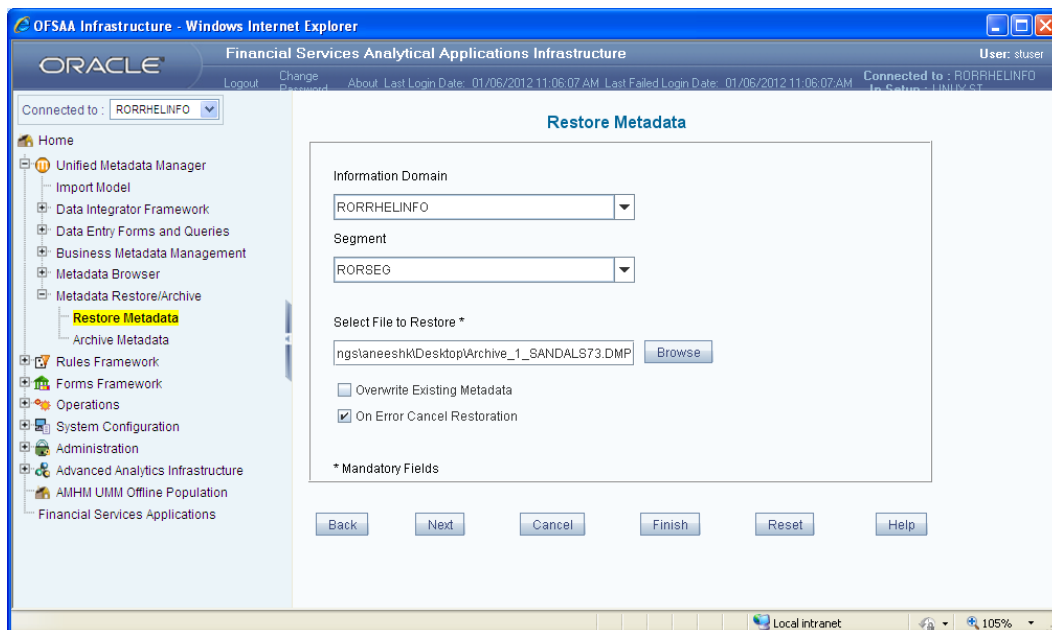
NOTE: Apart from this method, you can migrate objects through [Command Line Utility to Migrate Objects](#) or [Object Migration](#) rules based on whether the objects you want to migrate are supported in that approach.

While doing Metadata Restore/Archive, the source and target should be of the same version to ensure that the data structures are compatible for objects that you want to archive/restore. Metadata Restore/Archive consists of the following sections. Click on the links to view the section in detail.

- [Restoring Metadata](#)
- [Archiving Metadata](#)

1.5.1 Restoring Metadata

You can Restore the Metadata which are archived as DMP files in *Restore Metadata* screen. You can access the Restore Metadata within the Metadata Restore/Archive section of the Infrastructure system. In the left hand side (LHS) menu of Infrastructure home page, click “+” and expand the Metadata Restore/Archive section within Unified Metadata Manager. Select **Restore Metadata**. The *Restore Metadata* screen is displayed.



In the *Restore Metadata* screen you can select the required Information Domain, Segment, File, and Restore the Metadata.

1.5.1.1 Select the Information Domain

To restore metadata, you need to select an Information Domain to which you want to restore the metadata in the *Restore Metadata* screen. By default the Information Domain selected from the **Connected to** drop down list is displayed in the Information Domain field in the *Restore Metadata* screen.

To change the Information Domain select from the **Information Domain** dropdown list. The page is refreshed to the selected Information Domain and displays the Segments within it.

1.5.1.2 Select the Segment

By default the Segment field displays the first Segment of the selected Information Domain. You can select/change the Segment of the selected Information Domain to which the metadata is to be restored from the Segment drop-down list. To select/change the Segment, select from the **Segment** dropdown list.

1.5.1.3 Select the File

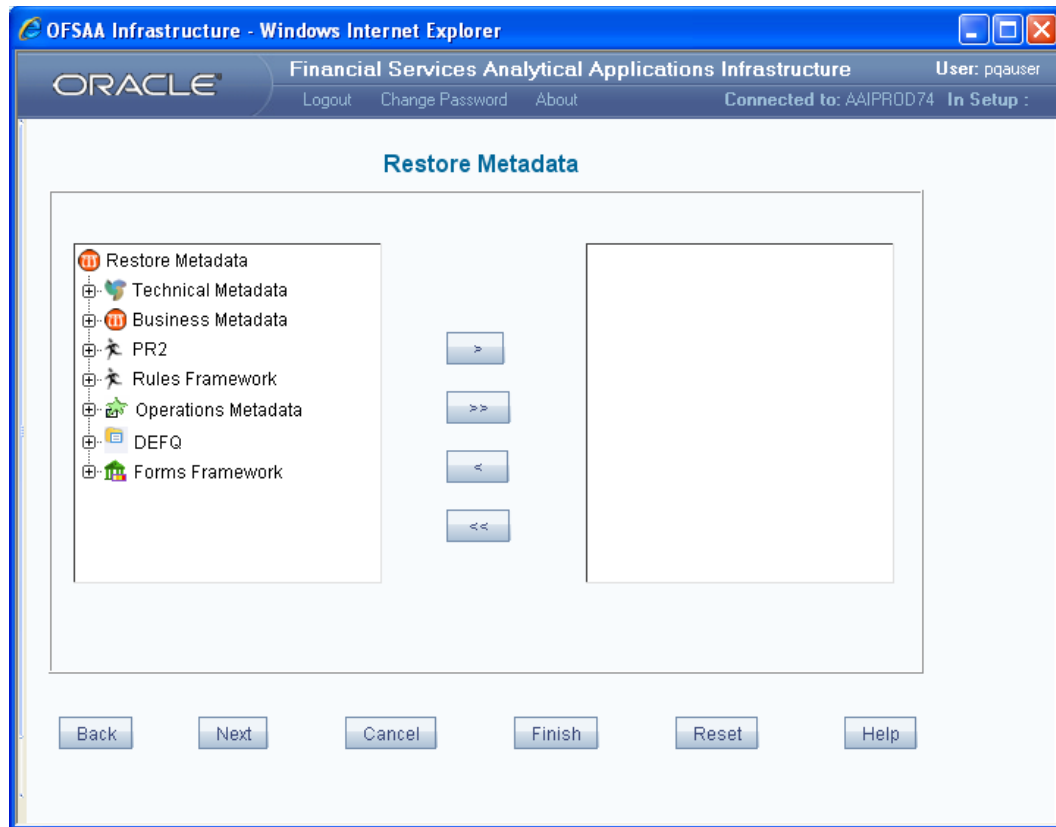
To restore the metadata from a file, the source database/OLAP type and the destination database/OLAP type should be matching for the selected Information Domain and the selected metadata file. You have to select the file to restore from the *Restore Metadata* screen. To select the .DMP file from the *Restore Metadata* screen:

1. Click **Browse** in the *Select File to Restore* field. The *Open* dialog is displayed with the local machine folders from which you can chose the .DMP file to upload.
2. Locate the file in the local machine and click **OK**.

The path of the selected file on the local machine is displayed in the **Select File to Restore** field.

NOTE: If the local copy of the archive (.DMP) file has been renamed, you might notice an error during restoration.

3. (Optional) From the *Restore Metadata* screen you can also:
 - Select the checkbox adjacent to **Overwrite Existing Metadata**. This allows overwriting the existing metadata that is being selected to restore.
 - Select the checkbox adjacent to **On Error Cancel Restoration** if you want to cancel the restore process in case of an error.
4. Click **Next** to continue the metadata restore process. The screen is refreshed to list the metadata information in the selected Information Domain and Segment.



The *Restore Metadata* screen displays two panes, the left pane lists the available metadata and the right pane to display the metadata selected from those available in the left pane. The available metadata pane lists all the Metadata available in the file selected to be restored in a tree structure. The list includes Technical Metadata, Business Metadata, PR2, Rules framework, Operations Metadata, DEFQ, and Forms Framework. You can click + button on each section to view the underlying metadata definitions.

NOTE: In case of Rules Framework where both old (*Pr2 - Process Run Rule*) and new (*RRF - Run Rule Framework*) exist, the definitions archived from old PR2 should be restored into both old and new Rules Framework and definitions archived from new Rules Framework should be restored into new Rules Framework alone.

5. Select the required metadata from the left pane and click . The selected metadata is displayed in the right pane.

NOTE: When you select a parent node and click , all child nodes are selected and moved to the right pane.

6. Click  to move all the available metadata from the left pane to the selected metadata pane.

You can also click  to remove a selected metadata from the selected metadata pane or click  to remove all the selected metadata from the selected metadata pane.

NOTE: The dependent metadata does not get automatically selected. The user has to ensure that all dependent metadata is also explicitly selected for restoration purposes.

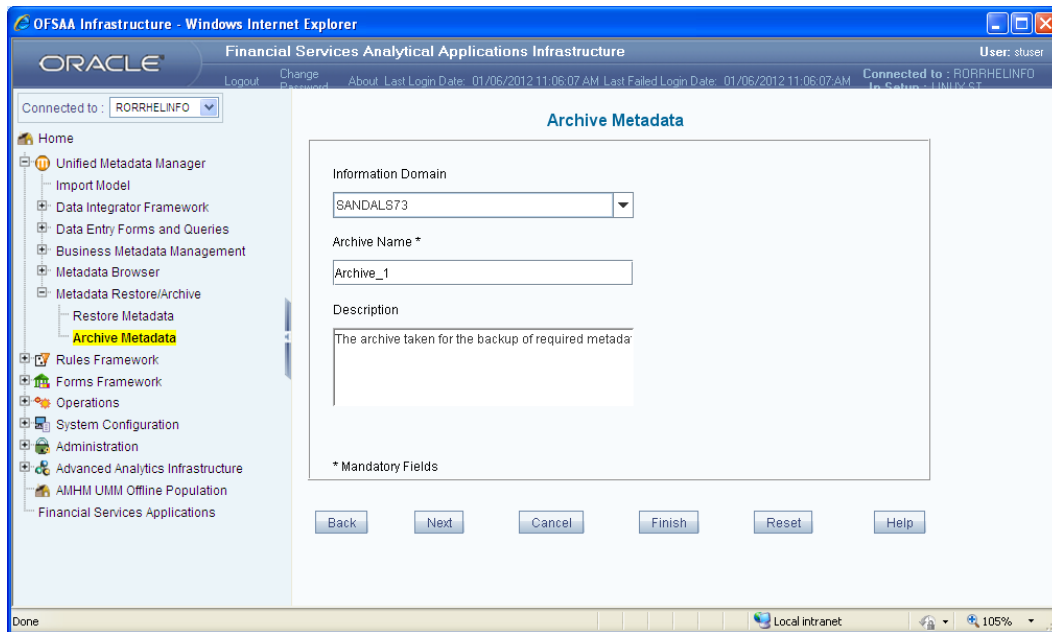
7. Click **Finish** to start the metadata restoration process.

Once the execution is finished, a status message is displayed in the *Status* screen. The *Status* screen of the Metadata Restore wizard displays the status of the restoration operation of the metadata file selected as **Success** or **Failed**. All the Restored data is mapped to the selected Segment in the selected Information Domain.

8. In the *Restore Metadata* screen you can also:
 - Click **Back** button to go back to the previous screen.
 - Click **Reset** to go to the first screen of the *Restore Metadata* screen.
 - Click **Cancel** button at any point during the operation to discard the metadata restoration process.

1.5.2 Archiving Metadata

You can access the Archive Metadata within the Metadata Restore/Archive section of the Infrastructure system. In the left hand side (LHS) menu of Infrastructure home page, click “+” and expand the Metadata Restore/Archive section within Unified Metadata Manager. Select **Archive Metadata**. The *Archive Metadata* screen is displayed.



In the *Archive Metadata* screen you can archive the required Metadata by selecting the Information Domain and creating an archive file.

1.5.2.1 Select the Information Domain

To archive metadata, you need to select an Information Domain from which you want to archive the metadata on the *Archive Metadata* screen. By default the Information Domain selected from the **Connected to** drop down list is displayed in the information Domain field of the *Archive Metadata* screen.

To change the Information Domain, select the Information Domain from the **Information Domain** dropdown list. The page is refreshed to the selected Information Domain.

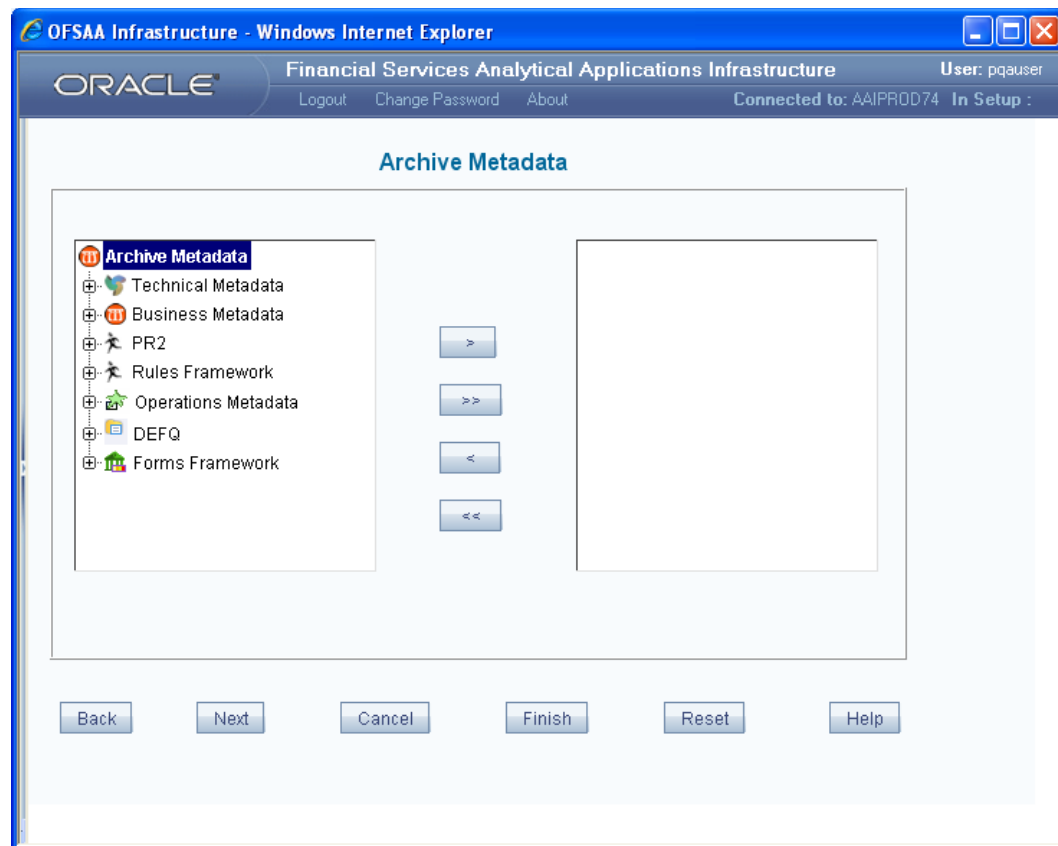
1.5.2.2 Create Archive File

You can create an archive of the metadata by specifying a file name.

1. Enter the **Archive Name** for the metadata archive operation.

NOTE: There can be more than one instance of archival process running at the same time but the archive name and the Information Domain combination should be different.

2. Enter the required **Description** for the metadata archive operation.
3. Click **Next**. The *Archive Metadata* screen is refreshed and lists the metadata information in the selected Information Domain.



This screen lists only the authorized metadata. Unauthorized metadata cannot be archived. The *Archive Metadata* screen has two panes, the left pane lists the available metadata and the right pane displays the selected metadata. The available metadata pane lists all the Metadata available in the selected Information Domain in a tree structure. The list includes Technical Metadata, Business Metadata, PR2, Rules framework, Operations Metadata, DEFQ, and Forms Framework. You can click + button on each section to view the underlying metadata definitions.

4. Select the required metadata from the left pane and click . The selected metadata is displayed in the right pane.

NOTE: When you select a parent node and click , all child nodes are selected and moved to the right pane.

5. Click  to select all the available metadata in the left pane.

You can also click  to remove a selected metadata from the selected metadata pane or click  to remove all the selected metadata from the selected metadata pane.

NOTE: The dependent metadata does not get automatically selected. You need to ensure that all dependent metadata is also explicitly selected for archival purposes.

6. Click **Finish** and start the metadata archival process.

Once the execution is completed, a status message is displayed in the *Status* screen. The *Status* screen of the Metadata Archive wizard displays the status of the archival operation of all the metadata that are selected as **Success** or **Failed**. All the archived data is mapped to the selected Segment in the selected Information Domain.

7. Click the **Download Archive** button to download the archived metadata. The *File Download* dialog is displayed.
8. Click **Save**. The *Save As* dialog is displayed. Specify the File Name and the location where you want to save the file. Click **Save**.

The file is saved with the specified name and with an extension .DMP.

NOTE: Ensure that you do not rename the Archive (.DMP) file after saving into your locale machine. Doing so will prevent the archive from restoring.

9. In the *Archive Metadata* screen you can also:
 - Click **Back** button to go back to the previous screen.
 - Click **Reset** to go to the first screen of the *Archive Metadata* screen.
 - Click **Cancel** button at any point during the operation to discard the metadata archival process.

2 Rules Framework

Rules Framework has been re-designed to accommodate new RRF (Run Rule Framework) module with enhanced features and functionalities. However, the existing PR2 (Process Run Rule) framework is also accessible through Rules Framework > Designer link. Based on the module configured, you can access the respective links to view the section details.

Financial institutions require constant monitoring and measurement of risk in order to conform to prevalent regulatory & supervisory standards. Such measurement often entails significant computations and validations with an organization's data. Data must be transformed to support such measurements and calculations. The data transformation is achieved through a set of defined Rules.

Rules Framework within the infrastructure system facilitates you to define a set of rules, reporting objects, and processes that are required to transform data in a warehouse. You can execute Rules and Process and manage the pre-define rules within the system.

The Rules Framework is used for following three main purposes:

- To design a set of rules, processes and structuring execution flow of processes that are required to transform data in a data warehouse or data store.
- To design reporting objects based on previously transformed data that is stored as aggregated data in multidimensional databases.
- To design reporting objects based on the atomic information stored in the data warehouse or data store.

Before you begin, do the following:

- Select the required **Information Domain**: An Information Domain refers to a logical grouping of specific information and defines the underlying data warehouse or data store in which the physical data model has been implemented. When you login to the Infrastructure system, you can access only those Information Domains to which your user ID is mapped. Contact System Administrator for permissions to access a specific Information Domain.

You can select the Information Domain in the following ways:

- In the Infrastructure home page, select the required Information Domain from the **Connected to** drop down list.
- In the *Rules Framework* screen, select the required Information Domain from the **Information Domain** the drop down list.
- Select the associated **Segment**: Segments are defined through the Administration module. A Segment facilitates you to classify all the related metadata in the selected Information Domain. You are authorized to create a metadata object in a folder to which your user group has been mapped.

Note the following:

- For Rules framework functionality, the default system roles that are required are Business Analyst, OBIEE Author, and PR2 Administrator.
- Users mapped to the role PR2ADMIN will be able to access/view/export/trace all RRF definitions across all segments/folders, irrespective of their user group mapping to the folder/segment.
- The users mapped to the PR2 Administrator role will have the rights to Add, View, Edit, and Delete definitions defined in the Rule, Process, and Run screens. However, for creating, editing, copying, authorizing, or deleting a RRF definition in a folder, the user should be mapped to the corresponding infodomain-folder.
- Suppose you copy an RRF definition created in F1 folder to F2 folder. Then F1 folder is not required to be mapped to your user group, but F2 should be mapped to your user group.
- No folder-user group mapping is required for object usage in Process or Run definition.

2.1 Navigating to Rules Framework

Rules Framework is available within the LHS menu of the Infrastructure home page. You (Business Analysts) need to have PR2ADMIN function role mapped to access the Rules framework.

In the left hand side (LHS) menu of Infrastructure home page, click “+” and expand the Rules Framework section. You can access PR2 (Process Run Rule), framework by selecting **Designer** link or new RRF (Run Rule Framework) by selecting **Rule**, **Process**, **Run**, **Manage Run Execution** and **Utilities** links.

2.2 Components of Rules Framework

Rules Framework consists of the following sections. Click on the links to view the section details.

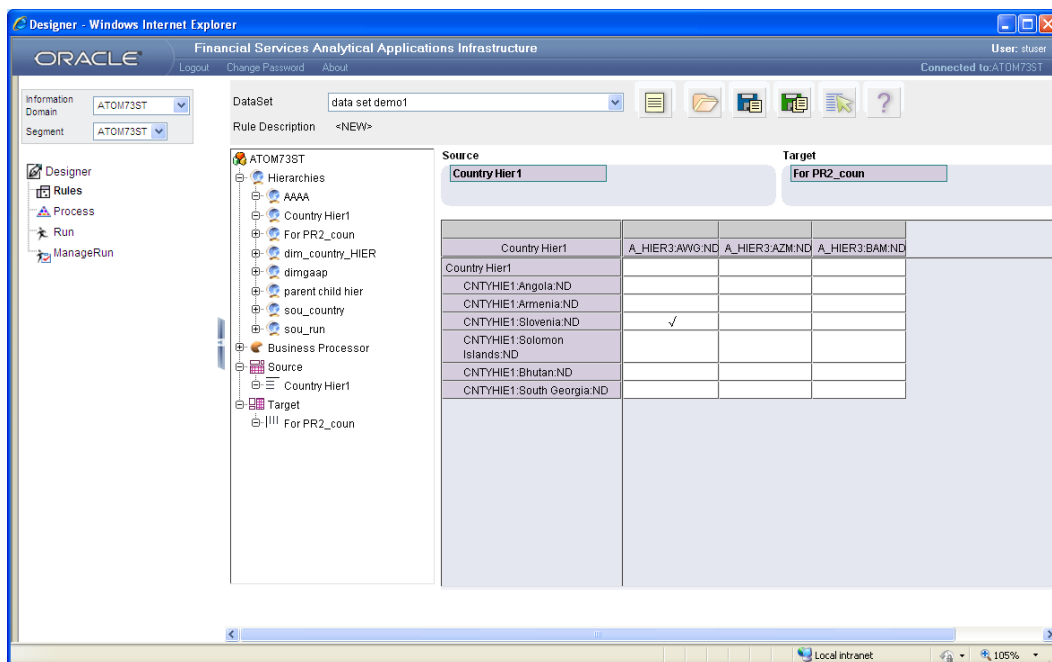
- [Designer](#)
- [Rule](#)
- [Process](#)
- [Run](#)
- [Manage Run](#)
- [Utilities](#)

2.3 Designer

The *Designer* screen within the Rules framework of Infrastructure system consists of the navigation links to [Rule](#), [Process](#), [Run](#), and [ManageRun](#) sections (existing PR2 framework) in the LHS menu. You can click the required links to define and execute rules, processes, and also to manage the pre-defined definitions within the system.

2.3.1 Rule

Financial institutions require constant monitoring and measurement of risk in order to conform to prevalent regulatory & supervisory standards. Such measurement often entails significant computations and validations with an organizations data. Data must be transformed to support such measurements and calculations. The data transformation is achieved through a set of defined rules.



The Rules option in the Rules Framework *Designer* provides a framework that facilitates the definition and maintenance of a transformation. The metadata abstraction layer is used in the definition of rules where the user is permitted to re-classify the attributes in the data warehouse model thus transforming the data. The underlying metadata objects such as Hierarchies that are non-large or non-list, Datasets and Business Processors drive the Rule functionality. You need to have PR2ADMIN function role mapped to access to the Rule definition.

Rules are of the following three types:

- **Type 1:** This type of rule involves creating a subset of records from a given set of records in the data model based on certain filters. This process can involve transformations or aggregation or even both. Type 1 Rule definitions are achieved through Table-to-Table

(T2T) Extract. For more information on T2T Extraction, refer to the *Data Management Tools* Section.

- **Type 2:** This type of rule involves re-classification of records in a table in the data model based on criteria that include complex Group By clauses and Sub Queries within the tables.
- **Type 3:** This type of rule involves computation of a new value/ metric based on a simple measure and updating an identified set of records within the data model with the computed value.

Rules Framework *Designer* is used to define **Type 2** and **Type 3** class of rules.

The Rules Framework *Designer* screen consists of a set of tools which helps you to work with the rule definitions. For more information, refer to [Tools Menu](#).

2.3.1.1 Components of Rule Definition

A rule is defined using existing metadata objects. The various components of a rule definition are as tabulated.

Component	Description
Dataset	This is a set of tables that are joined together by keys. A dataset must have at least one FACT table. Type 3 rule definitions may be based on datasets that contain more than one FACT tables. Type 2 rule definitions must be based on datasets that contain a single FACT table. The values in one or more columns of the FACT tables within a dataset are transformed with a new value.
Source	This component determines the basis on which a record set within the dataset is classified. The classification is driven by a combination of members of one or more hierarchies. A hierarchy is based on a specific column of an underlying table in the data warehouse model. The table on which the hierarchy is defined must be a part of the dataset selected. One or more hierarchies can participate as a source so long as the underlying tables on which they are defined belong to the dataset selected.
Target	This component determines the column in the data warehouse model that will be impacted with an update. It also encapsulates the business logic for the update. The identification of the business logic can vary depending on the type of rule that is being defined.
Mapping	This operation classifies the final record set of the target that is to be updated into multiple sections. It also encapsulates the update logic for each section. The logic for the update can vary depending on the hierarchy member / business processor used. The logic is defined through the selection of members from an intersection of a combination of source members with target members.

Component	Description
Node Identifier	This is a property of a hierarchy member. In a Rule definition the members of a hierarchy that cannot participate in a mapping operation are target members, whose node identifiers identify them to be an 'Others' node, 'Non-Leaf' node or those defined with a range expression. Source members, whose node identifiers identify them to be 'Non-Leaf' nodes, can also be mapped. For more information on Hierarchy properties, refer Defining Business Hierarchies in the Unified Metadata Manager section.

2.3.1.2 Creating Rule Definition

You can create rule definitions from the *Designer* screen of the Rules Framework by defining the following metadata objects.

2.3.1.2.1 Select Dataset

The datasets depend on the Information Domain selected. To select a DataSet under a selected Information Domain from the Rules Framework *Designer* screen:

1. Click **New**. The Rule Description <NEW> is displayed

NOTE: If you are modifying an existing Rule, the name of the rule that is being modified will be displayed in this field.

2. Select the **Dataset** from the drop-down list. The list contains all the available datasets defined in the Information Domain across all Segments.

2.3.1.2.2 Select Source and Target

The LHS menu displays the Information Domain on which the rule is being defined. Under the Information Domain, four metadata object tags namely **Hierarchies**, **Business Processor**, **Source**, and **Target** are displayed.

1. Click "+" button in the LHS menu and expand the Hierarchies tag to view only those hierarchies that are based on tables which are a part of the selected dataset.
2. Right-click the selected **Hierarchy** and do one of the following:
 - Select **Source** to add the hierarchy as a source.
 - Select **Target** to add the hierarchy as a target.
3. Click "+" button in the LHS menu and expand the Business Processor tag to view only those business processors that are related to the selected dataset.

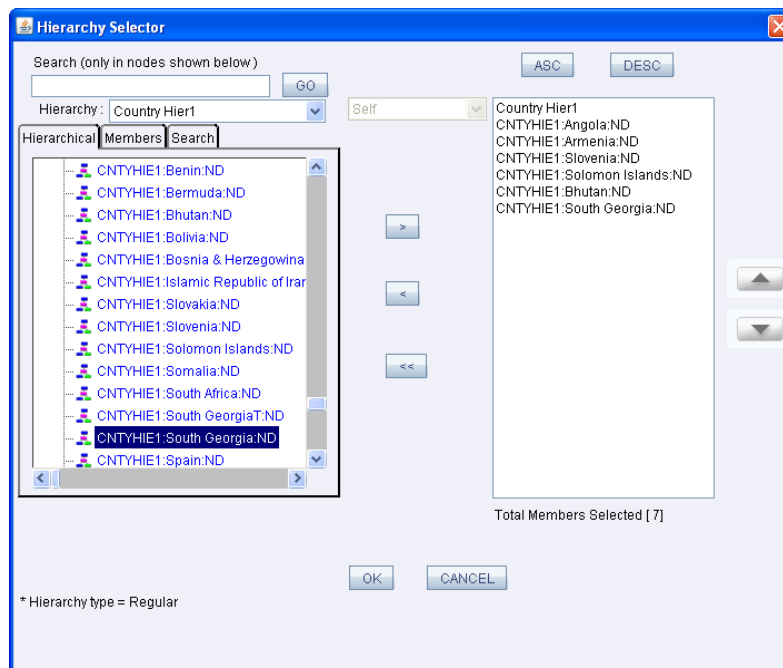
- Right-click the selected **Business Processor** and select **Target** to add the Business Processor as a target.

Note the following:

- List and Large hierarchies will not be displayed under the hierarchy tag. A Business processor can only be selected as a target. You can select either a hierarchy or a business processor as target.
- If any of the selected business processor has place holders defined with default values, then the business processor will be displayed along with the placeholder name and the default value in the grid.
- On selection of a source and target, the details are populated. The section above the rule grid identifies the metadata objects that have been selected.
- The **Source** section displays the hierarchy names of all selected hierarchies. The **Target** section displays either the hierarchy name or the tag business processor depending on the selection. The default members of the hierarchies selected as source form the row axis of the rule grid.

2.3.1.2.3 Add Hierarchy Members to Source / Target

- Click on the **Source/Target** header. The *Hierarchy Selector* screen is displayed.



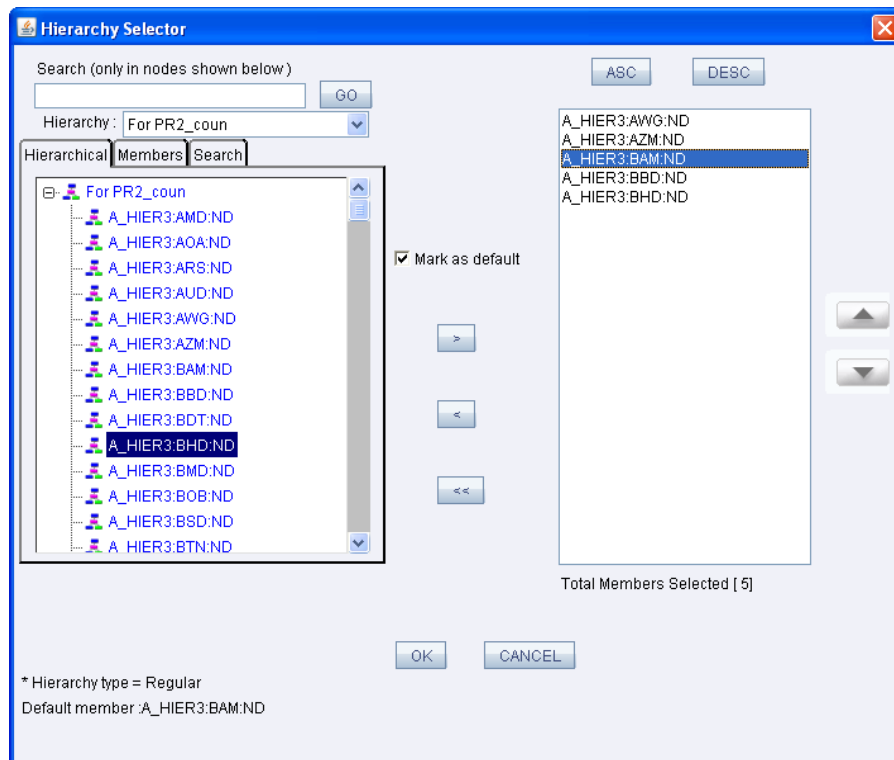
The LHS pane of the **Hierarchy Selector** displays the name of the hierarchy that was selected along with its members. If the hierarchy has multiple levels, the members can be expanded to display the child members in a tree structure.

2. (Optional) You can search for a particular hierarchy member by specifying the keyword. For more information, refer [Search Hierarchies](#).
3. Select the required member and click  button. Do the following:
 - Filter the Hierarchical list by selecting the standard mode from the drop-down such as Self, Self & Descendent, Self & Children, and Children Only. For more information refer [Hierarchical Member Selection Modes](#).
 - Select **Mark as Default** checkbox in the Target *Hierarchy Selector* screen to set the member property as default selection. For more information refer [Default Member](#).
 - Sort the selected members list by clicking **ASC** or **DESC** button and change the order of the selected member by clicking  or  buttons.
4. Click **OK** and save the selection.

The selected hierarchy members are displayed in the specified order in the row axis of the rule grid. The default member is highlighted in blue.

2.3.1.2.4 Add Business Processors to Target

1. Click on the Target header. The *Business Processor Selector* screen is displayed.



The LHS pane of the Business Processor Selector displays the tag business processor and its members.

2. Select the required member and click .
3. You can also do the following:
 - If you want to set the member property as default selection, select **Mark as Default** checkbox. For more information refer [Default Member](#).
 - Sort the selected members list by clicking **ASC** or **DESC** button and change the order of the selected member by clicking  or  buttons.
4. Click **OK** and save the selection.

The selected Business Processors are displayed in the specified order in the column axis of the rule grid. The default member is highlighted in blue.

2.3.1.2.5 Work on Rule Grid

The section above the rule grid identifies the metadata objects that have been selected. The section marked as **Source** displays the hierarchy names of all selected hierarchies. The section marked **Target** displays either the hierarchy name or the tag business processor depending on the selection. To aid the rule definition process, the user is provided with swap options between **Source** and **Target**. The hierarchy content on the row axis of the grid (Source) can be moved to the column axis of the grid (Target) and vice-versa using the swap option. The swap results in a change in the display in the rule grid.

To move from Source to Target:

1. Drag and drop a hierarchy from the **Source** to the **Target** section. A menu is displayed.
2. Select the **Swap with <Target Hierarchy Name>** and initiate the swap.

When a hierarchy is swapped from source to target, only the non 1=1 leaf nodes and non range leaf nodes will appear in the target section.

NOTE: A hierarchy should previously be selected as the **Target** to move it and swapping of same hierarchy from **Source** to **Target** and vice versa is not allowed.

To move within Source:

1. Drag and drop a hierarchy from the **Source** section to another hierarchy in the **Source** section. A position swap between the two hierarchies is initiated.
2. (Optional) Multiple hierarchies can be selected onto the **Source** section.

The order in which the hierarchies are positioned in the **Source** section can be altered using the swap option.

To move from Target to Source:

1. Drag and drop a hierarchy from the **Target** section and drop it in the **Source** section and a menu is displayed.
2. Select **Swap with <Source Hierarchy Name>** and initiate the swap.

When a hierarchy is swapped from target to source, only leaf nodes will appear in the source section.

NOTE: If a Business Processor is selected as the **Target**, then it cannot be swapped with the **Source** and swapping of the same hierarchy from **Target** to **Source** and vice versa is not allowed.

2.3.1.2.6 Mapping

Following are the characteristics of Mapping.

- At least one row that denotes a source leaf member combination must be mapped with a target member.
- Only one of the target members can be mapped to a particular source member combination.

If you have specified a default member while selecting hierarchy / business processor members as the target, an automatic mapping of source leaf-member combinations with the default member is displayed in the rule grid. (For more information, refer [Add Hierarchy Members to Source/Target](#) or [Add Business Processors to Target](#) sections). The mapping is represented with a tick mark. Only leaf members on the source can participate in the mapping, a source member combination can have only one target node mapped to it, and you cannot save a rule definition unless a mapping is defined. The default hierarchy / business processor member in the target is highlighted in blue.

NOTE: The right-click options of Map All, Un-map All, and Exclude members are not available in the case of a Default Target Member.

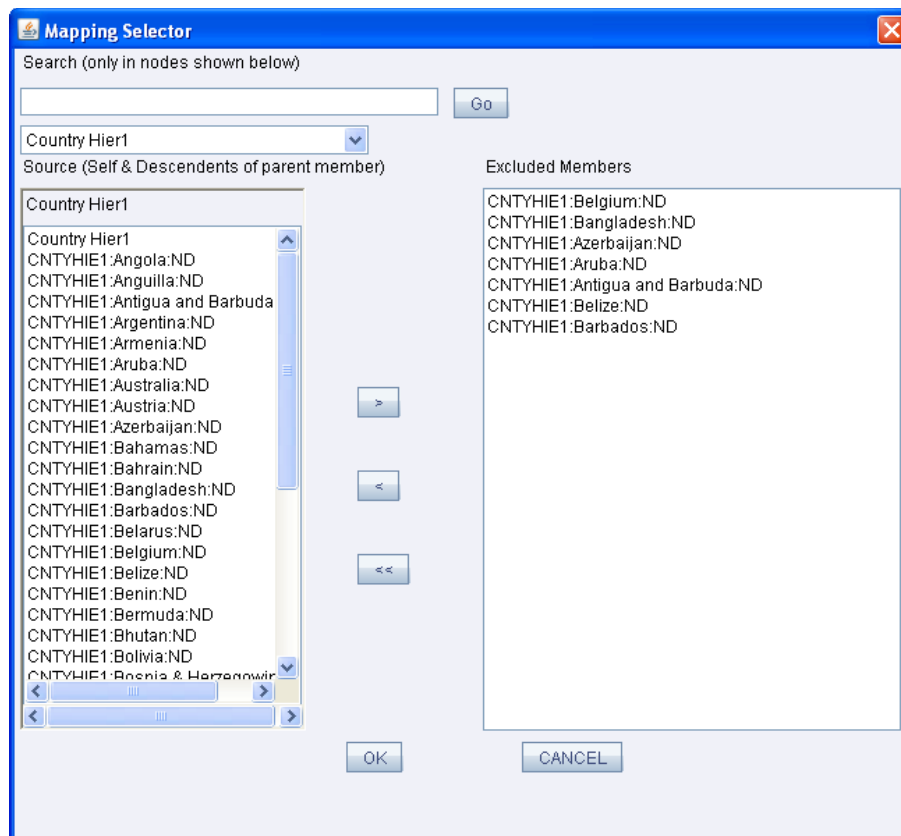
If you have not specified a default member in the hierarchy / business processor selection in the target section, then you must explicitly map the required combinations.

To define mapping:

1. Click a cell that results from an intersection between the row hierarchy member(s) and column hierarchy / business processor member.
2. Right-click a cell in the grid to map all the hierarchy member(s) and column hierarchy / business processor member combinations for the selected cell.
3. Click **Map All** and the source / target member combinations for the selected cell are mapped. The mapped cells are ticked.

NOTE: If the user selects the Map All option to map all the source/target member combinations for the selected cell, then Apply Parameters option will not be enabled for the child level members.

4. Select **Exclude Members** and the *Mapping Selector* screen is displayed with the selected source hierarchy name in the drop down list.



To search for a specific node from the selected hierarchy:

1. Enter the node name for the selected hierarchy member in the **Search** box and the members for the selected hierarchy is displayed in Source pane.
2. Click  button and move a selected hierarchy member to the Excluded Combinations pane.
3. Click **OK** and save the selection. The selected hierarchy members are excluded in the row axis of the rule grid.

NOTE: If the user clicks **OK** in the Mapping Selector without selecting the members to be excluded, all the members/member-combinations will be mapped to the target for the specific cell.

Once the Mapping is completed, the user can assign values to the placeholders defined for the selected business processor(s).

To assign values to the placeholders defined for the selected business processor(s) after mapping:

1. Right-click the **Business Processor** column where place holders are available against the member which is mapped.
2. Select **Apply Parameters > Add** and the *Apply Parameters* screen is displayed With the Source Combination and the Expression defined for the selected mapped cell.

Description	Default Value	Assigned Value
BP - Equity Post Materiality Risk Weight-Fund		
RW	3	

3. Enter the placeholder value in the **Assigned Values** column for each placeholders and a confirmation pop up is displayed.
4. Click **OK** and the assigned values are saved. The Placeholder names and the assigned values are displayed in the grid.

Once the placeholder is created you can click **Edit** and re-define the assigned values for the placeholders.

NOTE: If the Map All option is selected to map all the source / target member combinations for the selected cell, then the values can be assigned only to the Parent level node.

5. Once the mapping is complete, click  button and save the rule definition.

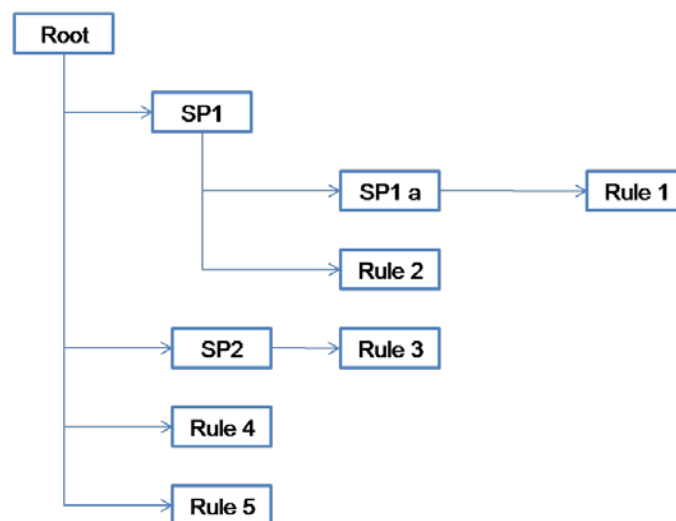
2.3.2 Process

A set of rules collectively forms a Process. A process definition is represented as a Process Tree. The Process option in the Rules Designer Framework provides a framework that facilitates the definition and maintenance of a process. By defining a Process, you can logically group a collection of rules that pertain to a functional process.

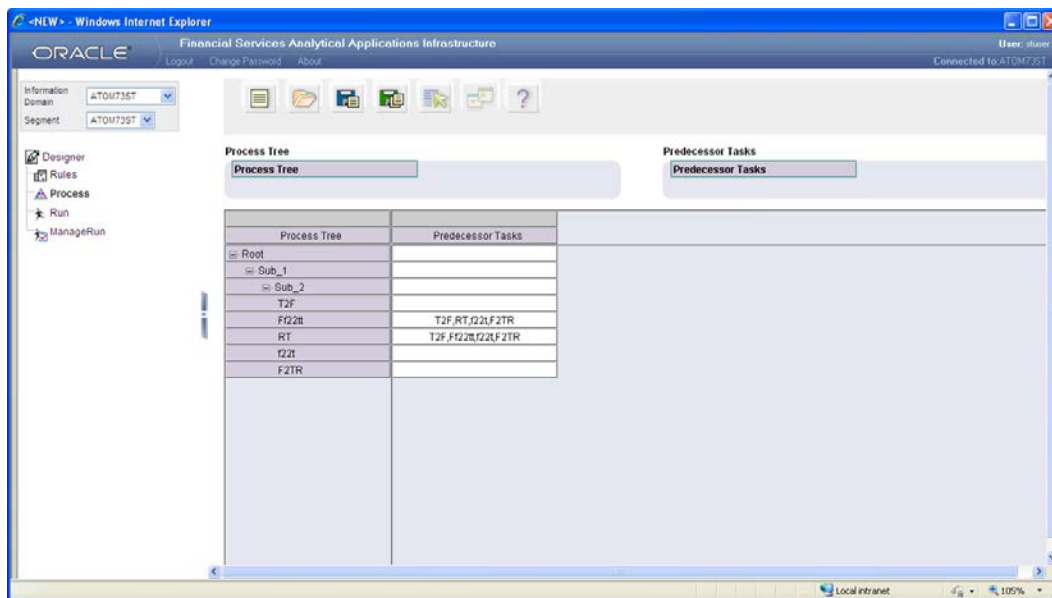
You can define a Process with the existing rule metadata objects using a hierarchical structure which facilitates the construction of a process tree. Process tree can have many levels and one or many nodes within each level. Sub-processes are defined at level members and rules form the leaf members of the tree. Each member can be a Type 2 rule or Type 3 rule, an existing non end-to-end process, a Type 1 rule (T2T) or an existing transformation that is defined through Data Management Tools. Consider the following illustration:

- The first sub process **SP1** is executed in the manner - Rule 1 > SP1a > Rule 2 > SP1.
- The Sub Process **SP2** is executed after execution of SP1 in the manner - Rule 3 > SP2.
- **Rule 4** is executed after the execution of sub-process SP2, and then **Rule 5** is executed.

NOTE: Same rule cannot be selected more than once in the process hierarchy.



When the Process is executed, Rules are processed in the natural sequence of the tree. However, if no predecessor is defined, the process tree is executed in its natural hierarchical sequence.



Further, the business may require simulating conditions under different business scenarios and evaluate the resultant calculations with respect to the baseline calculation. Such simulations are done through the construction of Simulation Processes and Simulation Process trees. Underlying metadata objects such as Rules, T2T Definitions, Non End-to-End Processes and Database Stored Procedures drive the Process functionality.

The Rules Framework *Designer* screen consists of a set of Tools which helps you to work with the Process definition. For more information refer [Tools Menu](#).

2.3.2.1 Types of Processes

Processes are of two types:

- **End-to-End Process**– Denotes functional completeness and is ready for execution.
- **Non End-to-End Process**– A logical collection of rules and cannot be executed by itself. It must be defined as a sub-process in an end-to-end process to be executed.

2.3.2.2 Creating Process Definition

You can build a Process tree by adding one or more members called Process Nodes. If there are Predecessor Tasks associated with any member, the tasks defined as predecessors precede the execution of that member. There are two types of process trees:

1. **Base Process Tree**- a hierarchical collection of rules that are processed in the natural sequence of the tree. The rules are sequenced in a manner required by the business condition. The base process tree does not include sub-processes that are created at run time during execution.

2. **Simulation Process Tree-** a tree constructed using a base process tree. It is also a hierarchical collection of rules that are processed in the natural sequence of the tree. It reflects a different business scenario from Base Process tree, that are built by either substituting an existing process with another or inserting a new process / rules.

2.3.2.2.1 Define Base Process

To define a new Base Process from the Process *Designer* screen:

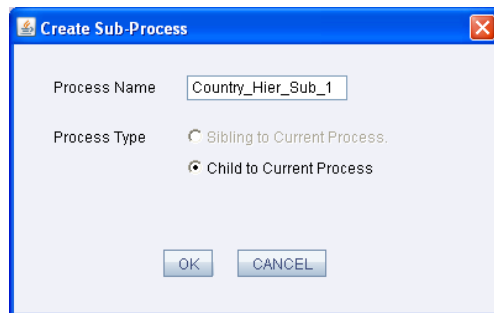
1. Click  button in the Process menu. The *Define a Process* dialog is displayed.
2. Select **Base Process** option and click **OK**.

The **Root** node is displayed in the Process Tree grid.

NOTE: A Root node cannot be deleted or renamed.

To add Sub Process to Root:

1. Right-click on the **Root** node and select the **Create Sub-Process** from the floating menu. The *Create Sub-Process* dialog is displayed.



2. Enter the **Process Name** and click **OK**.

NOTE: The current OFSAAI version has only the **Child to Current Process** active.

To add Sub Process to Sub Process:

1. Right-click on a selected **Sub Process** node and select **Create Sub-Process** option from the floating menu. The *Create Sub-Process* dialog is displayed.
2. Enter the sub **Process Name** and click **OK**.

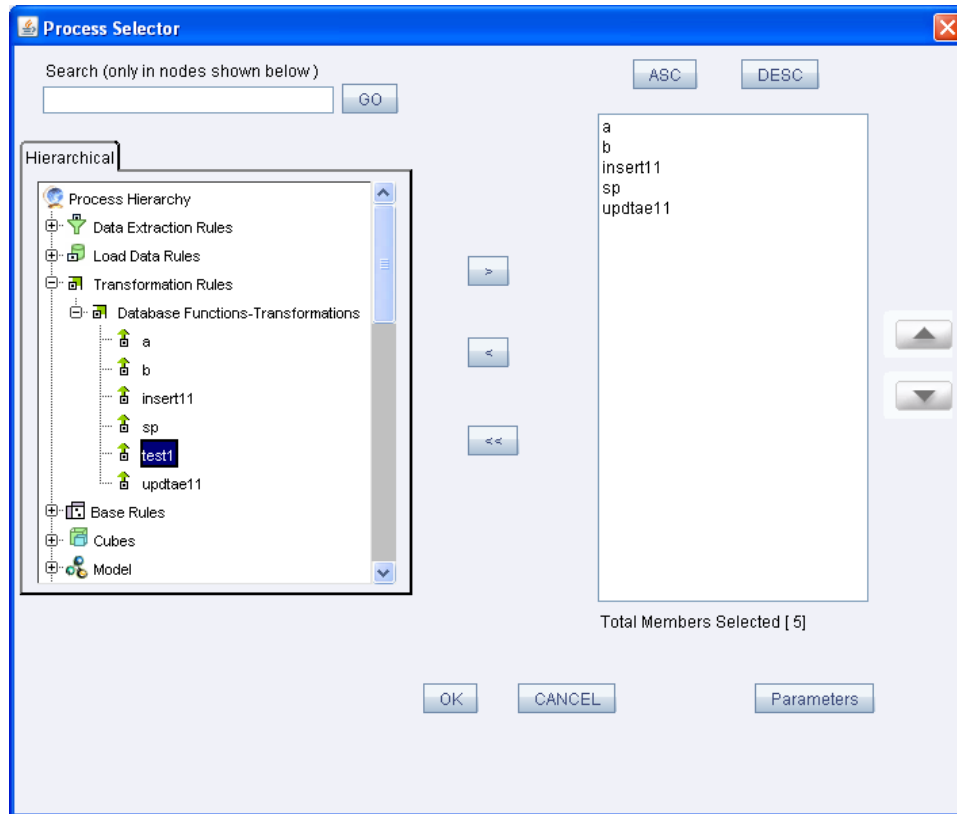
The sub-process is created and is displayed in a collapsed mode.

NOTE: You can add more than one sub processor to the sub processor node.

To add Process Members to Root/Sub Process:

1. Right-click on the selected Root node / Sub process node and select **Add Process Member** option from the floating menu. The *Process Selector* screen is displayed.

The *Process Selector* screen displays Process Hierarchy which has members namely Data Extract Rules, Load Data Rules, Transformation Rules, Base Rules, Cubes, Model, Stress Testing and Processes.



NOTE: Same rule cannot be selected more than once in the process hierarchy

2. In the *Process Selector* screen, click “+” and expand each Process Hierarchy Members. For more information on Hierarchy members and their description, refer [Process Hierarchy Members](#).
3. To select a member, do one of the following:
 - Use a keyword to search a particular Process member. For more information refer [Search Hierarchies](#).
 - Select a member by selecting from the Hierarchical tree. For more information refer [Hierarchical Member Selection modes](#).
4. Click **OK** and save the selection.

You can define Parameters in the *Process Selector* screen which reflect the parameters being applied to the selected member.

To define Parameters for File Loading Rules / Insertion Rules (Type1 Rules):

1. Click on a selected member.
2. Click **Parameters** in the *Process Selector* screen. The *Parameters* dialog is displayed.
3. Enter the required value in the **Parameter List** box.
4. Click **OK** and save the parameter details.

To define Parameters for Cubes:

1. Click on a selected member.
2. Click **Parameters** in the *Process Selector* screen. The *Parameters* dialog is displayed.
3. Select the operation to be performed for cube build operation from the drop-down list in Operation Value field.
4. Click **OK** and save the parameter details.

The process tree is executed in its natural hierarchical sequence. You must define task precedence if you wish the execution of certain members to be preceded by the execution of other members.

To define Predecessor Task:

1. Select the member on the row axis in the process grid to specify precedence.
2. Right-click on column section for the selection and the *Task Precedence Selector* screen is displayed.

NOTE: Task Precedence Selector is not displayed for the corresponding root node.

The Hierarchical section of the *Task Precedence Selector* screen displays the tag Root. The members of this tag are the sibling members of the selected process hierarchy member.

3. To select a member, do one of the following:
 - You can use a keyword to search a particular Process member. For more information refer [Search Hierarchies](#).
 - You can select a member from the Hierarchical section. For more information refer [Hierarchical Member Selection Modes](#).
4. Click **OK** and save the members selection details.

NOTE: You can resize the column width in the grid to view the details.

To rename a member:

1. Select the member on the row axis of the process grid to rename.
2. Right-click on the member and a menu is displayed.
3. Select the **Rename** option and the *Edit Process* dialog is displayed.
4. Enter the new name in the **Process Name** text box.
5. Click **OK** and the member name is changed.

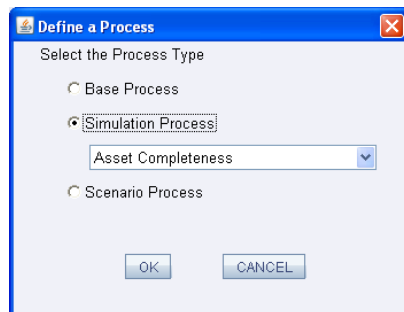
2.3.2.2.2 Define Simulation Process

Defining a Simulation Process is a two-step process. The first step involves defining the **Scenario Process**. Since the simulation process is created around a Base Process, the Base Process must be selected while defining the Simulation Process.

The second step is to define the **Simulation Process** by substituting or inserting the newly created scenario process in the base process tree. The base process tree definition is not overwritten; instead the simulation process definition is saved as a separate process tree.

To define a new Simulation Process from the Rules Framework *Designer* screen for Processes:

1. Click  button in the Process menu. The *Define a Process* dialog is displayed.



2. Select **Simulation Process** option and select **Base process** from the drop down list.

NOTE: The Simulation Process can have multiple Base processes assigned to it.
The **Map** button is enabled only for the Simulation Process.

To apply Scenario:

1. Right-click on a Base process for which the scenario substitution / insertion is required.
2. Select the **Apply Scenario** option. The *Apply Scenario* dialog is displayed.
If a Base process is required to be substituted with a scenario process, select the Substitute option and select a scenario for the substitution from the drop-down list.
3. Click **OK** and the selected scenario is substituted for the selected process.

4. Click **Save** and the process tree is saved. The new process tree when saved becomes the Simulation Process.

To add a scenario process to the process tree:

1. Select **Insert Scenario Process** option and select a scenario from the drop-down list.
2. Click **OK** and the selected scenario is inserted into the existing process tree.
3. Click **Save** and the process definition is saved. Such a new process definition when saved becomes the **Simulation Process**.

2.3.2.2.3 Define Scenario Process

To define a new Scenario Process from the Rules Framework *Designer* screen for Processes:

1. Click  button in the Process menu. The *Define a Process* dialog is displayed.
2. Click the **Scenario Process** option and click **OK**.

The **Root** node is displayed in the Process Tree grid.

NOTE: A Root node cannot be deleted or renamed.

To add a Sub Process to Root:

1. Right-click Root node and select the **Create Sub-Process** option from the floating menu. The *Create Sub Process* dialog is displayed.
2. Enter the process name in the **Process Name** text box.
3. Click **OK** and save the sub process details.

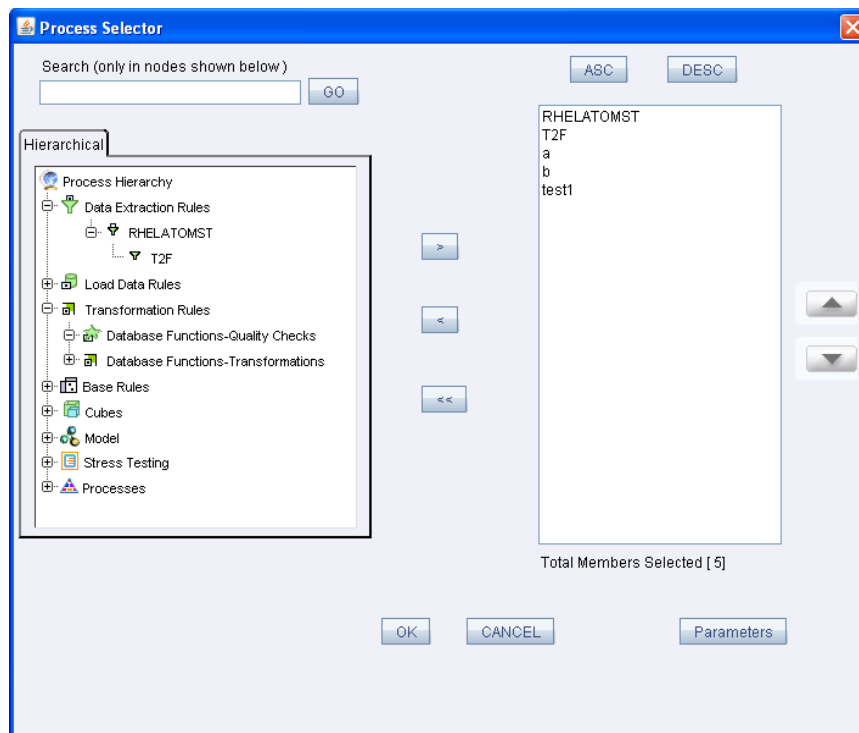
NOTE: The current OFSAI version provides only the Child to Current Process option as the Process Type.

To add Sub Process to Sub Process:

1. Right-click on a selected sub process node and select the option **Create Sub-Process** from the floating menu. The *Create Sub Process* dialog is displayed.
2. Enter the sub process name in the **Process Name** text box.
3. Click **OK** and the sub-process to which a new sub-process has been added is displayed in a collapsed mode

To add Process Member to Root/Sub Process:

1. Right-click on the Root node/Sub Process node and click **Add Process Members** option from the floating menu. The *Process Selector* screen is displayed.



The LHS pane of the Process Selector displays the Process Hierarchy. The members of Process Hierarchy are Data Extract Rules, Load Data Rules, Transformation Rules, Base Rules, Cubes, Model, and Stress Testing. Each of the members can be expanded to display the child members in a tree structure.

2. In the *Process Selector* screen, click “+” and expand each Process Hierarchy Members. For more information on Hierarchy members and their description, refer [Process Hierarchy Members](#).
3. To select a member, do one of the following:
 - Use a keyword to search a particular member. For more information refer [Search Hierarchies](#).
 - Select a member to the RHS pane by selecting from LHS pane. For more information, refer [Hierarchical Member Selection Modes](#).
4. Click **OK** and save the selection.

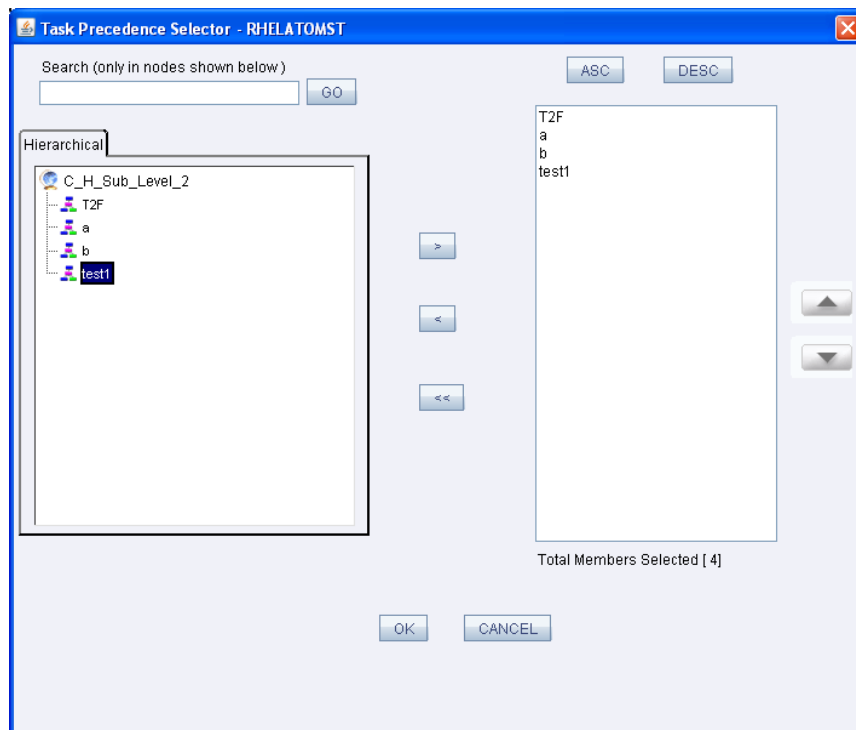
The selected process hierarchy members are displayed in the specified order in the row axis of the process grid.

The process tree is executed in its natural hierarchical sequence. If you wish the execution of certain members to be preceded by the execution of other members, you must define task precedence.

To define Predecessor Task:

1. Select the member on the row axis in the process grid to specify precedence.
2. Right-click on column section of the selection. The *Task Precedence Selector* screen is displayed.

NOTE: You cannot open *Task Precedence selector* for a corresponding root node.



The Hierarchical section in *Task Precedence Selector* displays the tag Root. The members of this tag are the sibling members of the selected process hierarchy member.

- You can use a keyword to search a particular member. For more information, refer [Search Hierarchies](#).
- You can select a member to the RHS pane by selecting from LHS pane. For more information, refer [Hierarchical Member Selection Modes](#).

NOTE: If there is more than one predecessor task specified for a process member / sub process, then those predecessor tasks are executed in parallel.

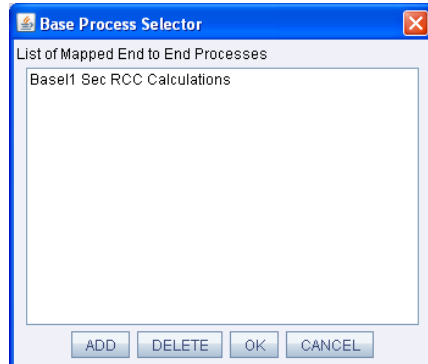
To rename a member:

1. Right-click the selected member and a menu is displayed.
2. Select the **Rename** option and the *Edit Process* dialog is displayed.

3. Enter the new name in the **Process Name** text box.
4. Click **OK** and the member.name is changed.

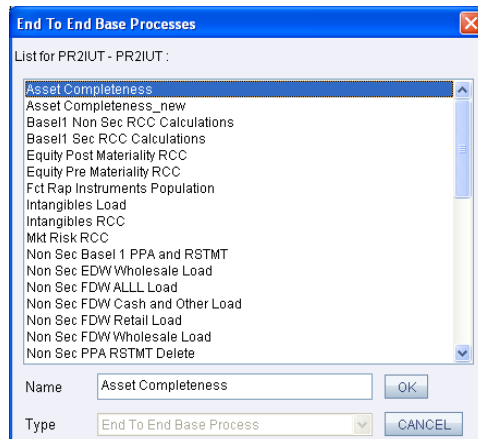
To map Base Processes:

1. Click  button and the *Base Process Selector* dialog is displayed.

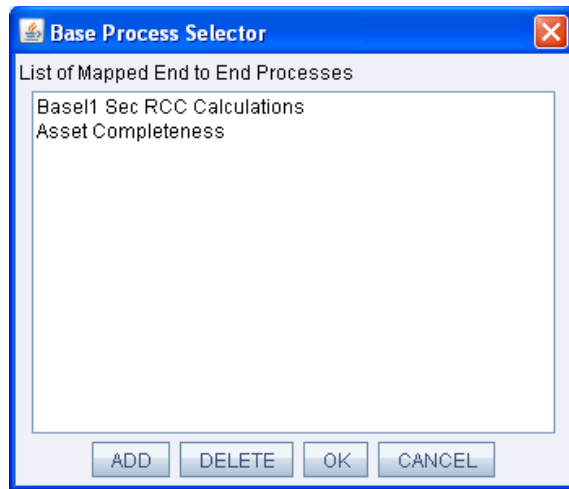


2. Click **ADD** and the end-to-end process is selected from the list of available Mapped End to End Processes.

The *End to End Base Processes* dialog is displayed with all associated end-to-end base process definitions for the selected Information Domain.



3. Select the end-to-end base process definition and the name of the selected end-to-end base process definition appears in the **Name** textbox
4. Click **OK**. The selected end-to-end base process is added to *Base Process Selector*.

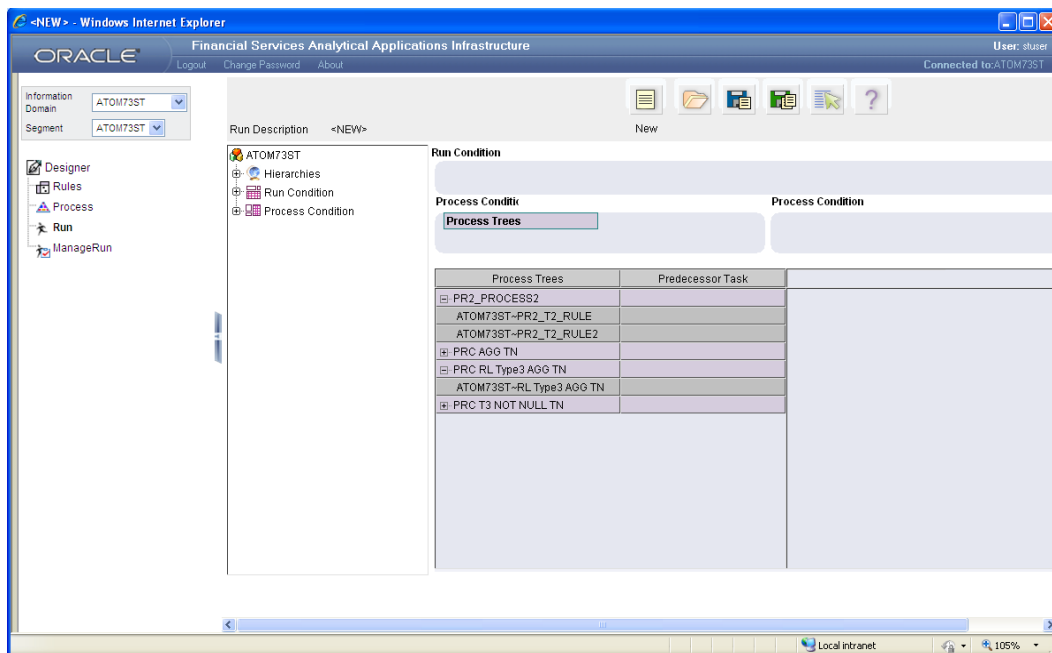


5. Click **OK** and the selected base process is mapped with the scenario process defined.
6. Click **Save** to save the **Scenario Process** definition.

NOTE: Multiple base processes can be mapped to the Scenario Process definition.

2.3.3 Run

The "Run" option in the Rules framework helps you to combine the various defined Rules together as processes to execute as different 'Baseline Runs' for different underlying approaches. Different approaches are achieved through process definitions. Further, run level conditions or process level conditions can be specified while defining a 'Run'. From a business perspective, different 'Runs' of the same set of processes may be required to satisfy different approaches to the underlying data.



In addition to the baseline runs, simulation runs can be executed through the usage of the different Simulation Processes. Such simulation runs are used to compare the resultant performance / calculations with respect to the baseline runs. This comparison will provide useful insights on the effect of anticipated changes to the business.

The Rules Framework *Designer* screen for the Run definition includes a set of menu icons in the tools menu. For more information refer [Tools Menu](#).

2.3.3.1 Components of Run Definition

A Run is a collection of processes that are required to be executed on the database. The various components of a run definition are as tabulated.

Component	Description
Process	The user may select one or many End-to-End processes that need to be executed as part of the Run
Run Condition	When multiple processes are selected, there is likelihood that the processes may contain rules / T2Ts whose target entities are across multiple datasets. When the selected processes contain Rules, the target entities (hierarchies) which are common across the datasets are made available for defining Run Conditions. When the selected processes contain T2Ts, the hierarchies that are based on the underlying destination tables which are common across the datasets are made available for defining the Run Condition. A Run Condition is defined as a filter on the available hierarchies.

Component	Description
Process Condition	A further level of filter can be applied at the process level. This is achieved through a mapping process.
Types of Runs	Two types of runs can be defined namely Baseline Runs and Simulation Runs. Baseline Runs are those base End-to-End processes that are executed. Simulation Runs are those scenario End-to-End processes that are executed. Simulation Runs are compared with the Baseline Runs and therefore the Simulation Processes used during the execution of a simulation run are associated with the base process.

2.3.3.2 Creating Run Definition

Two types of runs can be defined namely Baseline Runs and Simulation Runs.

Baseline Runs:- Which are base End-to-End processes that are executed.

Simulation Runs:- Which are scenario End-to-End processes that are executed.

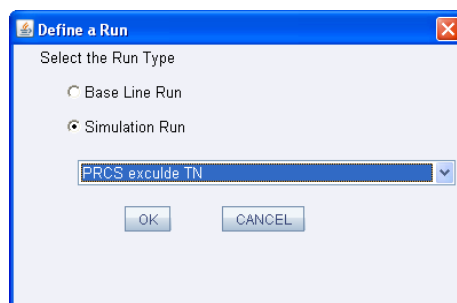
Simulation Runs are compared with the Baseline Runs and therefore the Simulation Processes used during the execution of a simulation run are associated with the base process.

2.3.3.2.1 Define Baseline Run

You can create Run definitions from the Rules Framework *Designer* screen.

To define Run definition from the Rules Framework *Designer* screen:

1. Click  button. The *Define a Run* dialog is displayed.

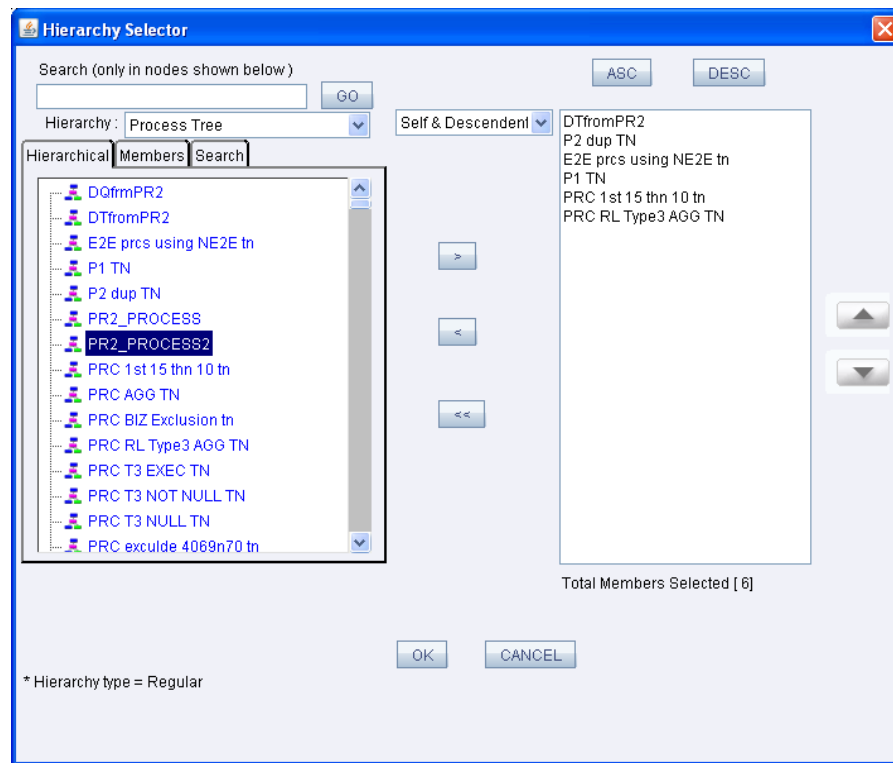


2. Select the **Base Line Run** and click **OK**.

The Run Description field displays <NEW>.

NOTE: If you are modifying an existing run, the name of the run that is being modified will be displayed in this field.

3. Right-click on **Process Tree**. The *Hierarchy Selector* screen is displayed.



NOTE: By default, the first process appearing in the Process Tree is displayed in the row axis of the run grid.

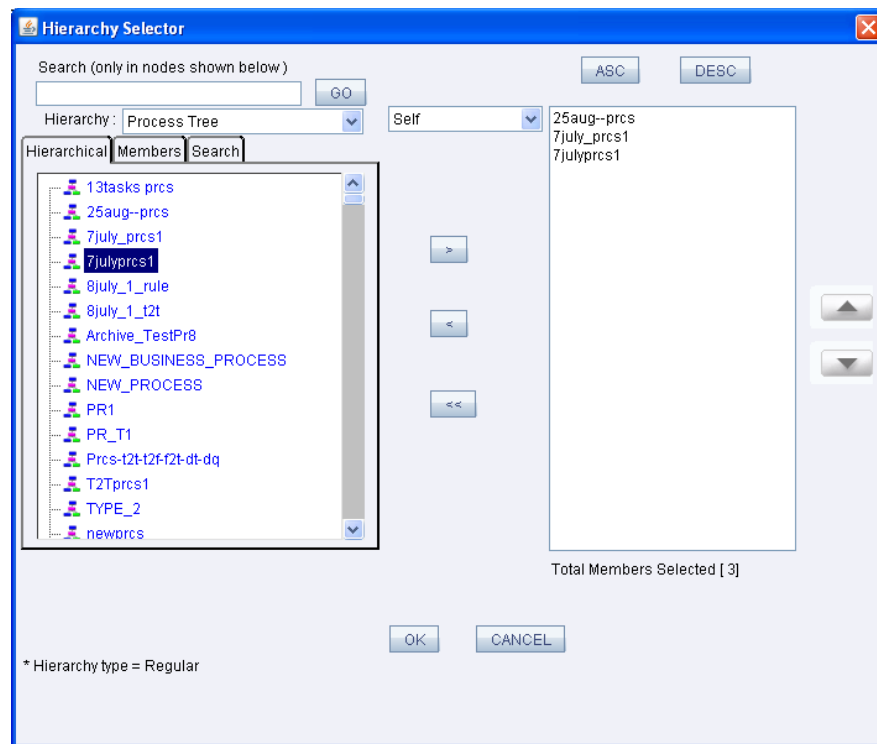
The LHS pane of the *Hierarchy Selector* displays the tag **Process Trees**. The members of this tag display all the End-to-End processes defined.

- You can use a keyword to search a particular member. For more information refer [Search Hierarchies](#).
- You can select a member to the RHS pane by selecting from LHS pane. For more information, refer [Hierarchical Member Selection Modes](#).

To specify Run Condition:

1. Click “+” button in the LHS pane and view the hierarchies that are based on tables that are part of the selected dataset.
2. Select a hierarchy and right-click for options.
3. Select **Run Condition** and add the hierarchy as a run condition.
4. Right-click the **Run Condition**. The *Hierarchy Selector* screen is displayed.

NOTE: Multiple Hierarchies can be mapped to the Run condition. Once the hierarchy is mapped to the Run Condition then it is not displayed in the list of Hierarchies in the LHS Pane.



The LHS pane of the *Hierarchy Selector* displays the hierarchies.

Hierarchy Type is displayed at the bottom LHS corner of the *Hierarchy Selector* screen.

- You can use a keyword to search a particular member. For more information refer [Search Hierarchies](#).
- You can select a member to the RHS pane by selecting from LHS pane. For more information, refer [Hierarchical Member Selection Modes](#).

The selected hierarchy members are displayed in the specified order in the Run Condition pane.

You can sort the order in which the hierarchies in the Run Condition grid are displayed.

To sort the hierarchies in the Run Condition grid:

1. Click  button in the Run Condition grid. The *Order of Display* dialog is displayed.

You can specify the sequence or the order of display of the hierarchies in *Order of Display* dialog using  and  buttons

2. Click **OK**. The order of display is saved.

To specify Process Condition:

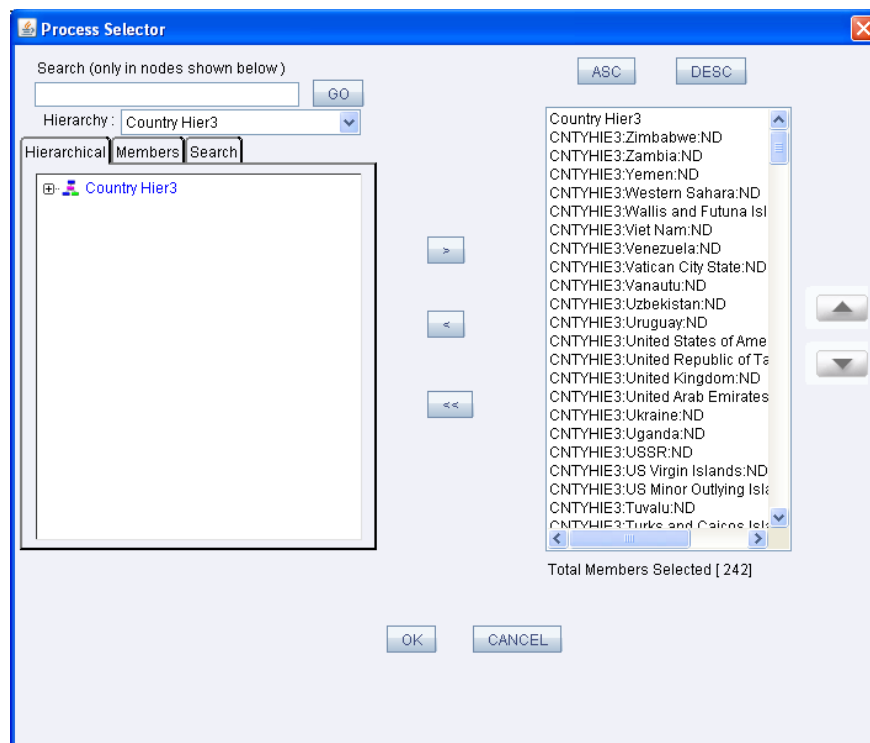
1. Click “+” button in the LHS pane and the **Hierarchies** tag is expanded.

The expansion displays only those hierarchies that are based on tables that are part of the selected dataset.

2. Select a hierarchy and right-click for options.
3. Select **Process Condition** and right-click if you want to add the hierarchy as a process condition. The *Process Selector* section is displayed.

NOTE: Only one hierarchy can be mapped to the Process condition. *Once the hierarchy is mapped to the Process Condition then it will not be displayed in the list of Hierarchies in the LHS Pane.*

4. Click on **Process Condition**. The *Process Selector* is displayed.



- You can use a keyword to search a particular member. For more information refer [Search Hierarchies](#).
- You can select a member to the RHS pane by selecting from LHS pane. For more information, refer [Hierarchical Member Selection Modes](#).

The selected members are displayed in the specified order in **Process Condition**.

5. Right-click the mouse on the grid in the Process Tree column and an option to exclude selected members from the execution is displayed.
6. Click **Exclude Members** and the selected member is excluded from execution

The excluded member name is displayed in **Red**.

If the Baseline definition is having type 3 rule as a part of the Process Tree, to specify run time values to the specific rule:

1. Right-click the mouse on the type 3 rule in the grid.
2. Select **Apply Parameter** option and select **Add** to assign values to the selected rule definition. The *Apply Parameters* screen is displayed.

Description	Default Value	Assigned Value
03_Rule_Mar8	CASE WHEN 1 = 1 THEN FCT_NON_SEC_EXPOSURES.n_ncL_amt END +[name1]+[name2]+[name3]+[name4]+[name5]	
3P with more than one place holdertest		

3. Click "+" button and the node and all the parameters defined for the BP in the selected type 3 rule definition are expanded.

Description	Default Value	Assigned Value
03_Rule_Mar8	CASE WHEN 1 = 1 THEN FCT_NON_SEC_EXPOSURES.n_ncL_amt END +[name1]+[name2]+[name3]+[name4]+[name5]	
3P with more than one place holdertest		
name1	77	10
name2	777	
name3	7777	
name4	77777	77777
name5	77777	
name6	777777	
name7	7777777	
name8	7777777	
name9	7777777	
name10	77777777	

4. Enter the value in the **Assigned Value** box provided against each parameter name.
5. Click **OK** and the assigned value is saved.

Once the assigned values are defined for the BP, the **ADD** option is disabled and the **Edit** and **Delete** options are enabled.

6. Click **Edit** to re-define the assigned values for the placeholders.

NOTE: All the process members defined as a part of the process condition are available as tasks along with the parameters defined.

A **Mapping** between a row member and column member in the run grid defines the condition for the process appearing in the corresponding column. Only the leaf nodes are allowed to be mapped.

NOTE: A row member can be mapped to multiple column members (process trees) in a mapping.

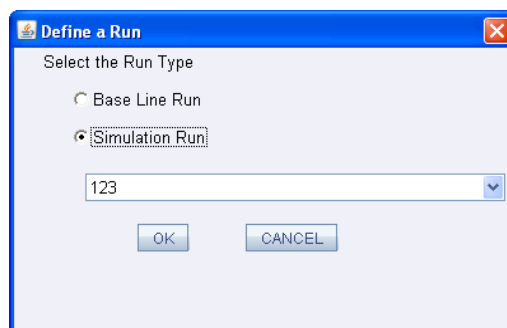
To save the Run definition:

1. Click **Save**. The Save dialog is displayed with the existing run definitions available under the selected Information Domain.
2. Enter the name for the new rule in the **Name** textbox provided.
3. Do one of the following:
 - Select the checkbox adjacent to Optimize Run to save the Run in Immediate batch creation mode by creating batch with single fire-run task.
 - Select the checkbox adjacent to Immediate batch creation mode and select either create batch with a single fire-run task or Create batch with run-rule tasks. These Batches are automatically displayed as available definitions in [Batch Execution](#) screen.
4. Click **Save** and the Run definition is saved.

2.3.3.2.2 Define Simulation Run

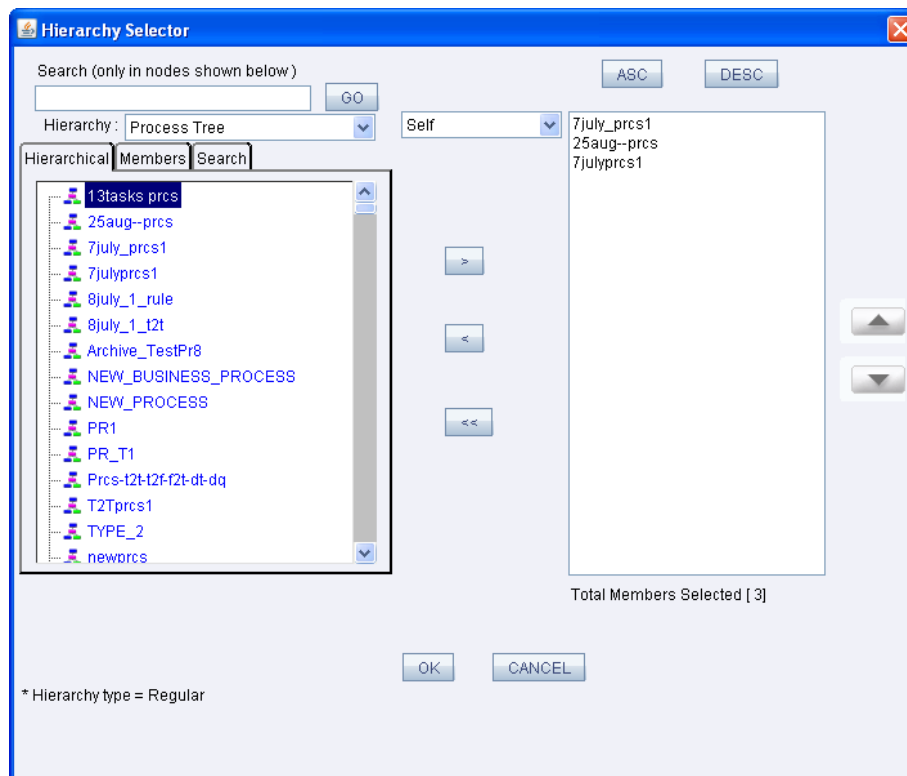
To define Run definition from the Rules Framework *Designer* screen:

1. Click  button. The *Define a Run* dialog is displayed.



2. Select the **Simulation Run** option and select the Baseline run from the drop down list which has to be associated to the simulation run.
3. Click **OK**. The *Run* screen for the selected baseline run is displayed.
4. Right-click **Process Tree**. The *Hierarchy Selector* screen is displayed.

By default, the first process appearing in the Process Tree is displayed in the row axis of the run grid. If you have not yet defined a process, you will not be able to define a run.



The LHS pane of the *Hierarchy Selector* displays the tag Process Trees. The members of this tag display all the End-to-End processes that have been defined.

- You can use a keyword to search a particular member. For more information refer [Search Hierarchies](#).
- You can select a member to the RHS pane by selecting from LHS pane. For more information, refer [Hierarchical Member Selection Modes](#).

To specify Run Condition:

1. Click “+” button in the LHS pane and the **Hierarchies** tag and those hierarchies that are based on tables that are part of the selected dataset are expanded.
2. Right-click on a selected hierarchy and select **Run Condition** to add the hierarchy as a run condition.

You can sort the order in which the hierarchies in the Run Condition grid are displayed.

To sort the hierarchies in the Run Condition grid:

1. Click  button in the Run Condition grid and the *Order of Display* dialog is displayed.
You can specify the sequence or the order of display of the hierarchies in *Order of Display* dialog using  and  buttons.
2. Click **OK**. The order of display is saved.

To specify Process Condition:

1. Click “+” button in the LHS pane and the Hierarchies tag and those hierarchies that are based on tables that are part of the selected dataset are expanded.
2. Right-click on a selected hierarchy and select **Process Condition** to add the hierarchy as a process condition. The *Process Selector* screen is displayed.

The LHS pane of the **Process Selector** displays the name of the hierarchy that was selected and its members. If the hierarchy has multiple levels, the members can be expanded to display the child members in a tree structure.

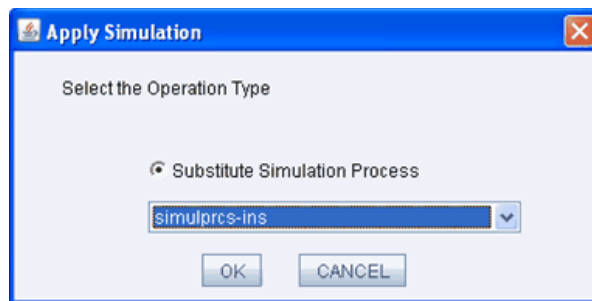
- You can use a keyword to search a particular member. For more information refer [Search Hierarchies](#).
- You can select a member to the RHS pane by selecting from LHS pane. For more information, refer [Hierarchical Member Selection Modes](#).

A **Mapping** between a row member and column member in the run grid defines the condition for the process appearing in the corresponding column. Only the leaf nodes are allowed to be mapped.

NOTE: A row member can be mapped to multiple column members (process trees) in a mapping.

To apply Simulation:

1. Click on a Base Process without releasing the mouse right-click on it and a menu is displayed.
2. Select the **Apply Simulation** option and the *Apply Simulation* screen is displayed.



3. Select a Simulation Process that is required to be substituted for the base process.
4. Click **OK** and the selected Simulation Process Tree is substituted.

NOTE: Only the Simulation Process defined using the same base process that has been selected in the run definition is displayed in the *Apply Simulation* drop-down list.

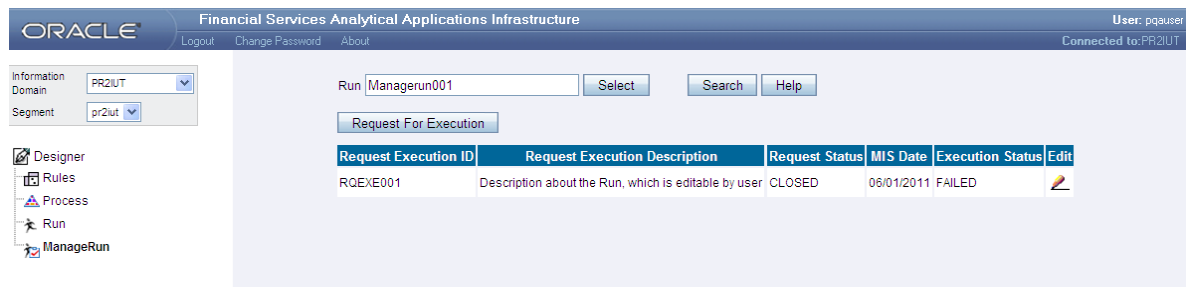
5. Click **Save** and the run definition is saved

The definition becomes the **Simulation Run Definition**.

NOTE: The run cannot be saved without substituting at least one Simulation Process tree to the base process.

2.3.4 Manage Run

The **Run** definitions created results in a unique batch group. These batches could then be scheduled for execution in the *Manage Run* screen. Every request for execution of a RUN definition become a batch in that batch group.



Refer to the Batch Group Execution section in Operations module for information on how to execute the Run definition.

You can select the Run Definition in one of the following ways:

- Click **Select** to open the *Run Selector* screen with existing run definitions.
- Enter the run id or run definition name in the Run Description textbox
- Click  button to search for the specific run definitions.

Once the Run Descriptions are listed:

1. Select the run definition which is to be marked for execution and the name of the selected run definition appears in the **Run Description** textbox
2. Click **OK** and the selected Run definition is displayed.

The *Manage Run* screen displays details such as the Request Execution ID, Request Execution Description, Request Status, MIS Date, Execution Status, and Edit. The screen has options to select batches that are defined for execution.

The Request Status **Open** indicates that the selected run id is ready for execution. The Execution Status **NOT STARTED** indicates that the particular run definition/batch has not been executed in the *Batch Group Execution* Screen.

3. Click **Edit** to edit the request for execution. The *Edit Request for Execution* screen is displayed.

The *Edit Request for Execution* screen displays details such as the Run definition Name, Request Execution ID, Request Execution Description, Requested User, Request Date, Modified Date, Request Status, MIS Date, and the Execution Status.

4. Click **Request Status** drop down list to specify the request status for the selected run definition.
 - The status **Open** indicates that the particular batch is ready and can be selected for execution.

- The status **Closed** indicates that the particular batch has already been selected for execution.

If you have saved the execution request in **Closed** status:

- A batch is created and is displayed in *Batch Execution* and *Batch Scheduler* screens within the Operations module. You can execute this individual batch either from *Batch Execution* screen or from *Batch Scheduler* screen.
- Also a Batch Group in which the batch is created is listed in the *Batch Group Execution* screen. This Batch Group can be executed form the *Batch Group Execution* screen.
- The status **TBD** indicates that the particular batch has to be deleted and should not take part in the batch group for execution.

NOTE: More than one batch can be created for the selected Run ID.

5. Click  button to specify the MIS date for the execution of the selected run definition /batch.

The selected run definition is executed as a batch for the selected MIS Date.

6. Click **Save** and the execution request is saved.

Once the particular batch is executed, the Execution Status in the *Manage Run* screen changes to **Executed**.

If more than one batch is created for the selected run id, the user can change the status as **Final** for a selected batch after the batches in the batch group being executed in the *Batch Group Execution* Screen. Once a batch in the batch group is made as final for a selected MIS date, then a new batch cannot be created on the same MIS date. If the Request Status is Final for a selected batch for the selected run definition, all the other batch definitions for the run definition will become invalid and the status will be changed to TBD.

2.3.5 References

This section of the document consists of information related to intermediate actions that needs to be performed while completing a task. The procedures are common to all the sections and are referenced where ever required. You can refer to the following sections based on your need.

2.3.5.1 Tools Menu

This section comprises of the common tool menu buttons present in the Rules, Processes, and Run sections of the Rules Framework component in the Infrastructure system. The Rules menu, Process menu, and Run menu have the following buttons in common.



- [New](#)
- [Open](#)
- [Save](#)
- [Save As](#)
- [Properties](#)
- [Map](#)

2.3.5.1.1 New

Click  button to add a new Rule, Process, or Run definition.

In order to proceed with creating a new Rule definition you must select the source dataset type from the Source Dataset drop down menu on the top of the *Designer* screen. The Process definition can be a baseline definition or a variation of the baseline definition (scenario definition). The Run definition may be a baseline definition or a variation of the baseline definition termed as simulation run.

If you are working on a new definition and subsequently move to the New/Open menu option without saving the new definition, the system displays an alert that requests for your confirmation.

2.3.5.1.2 Open

1. Click  button to open an existing Rule, Process, or Run definition. The list of Information Domains mapped are displayed in the *Open* dialog.
2. Select the **Information Domain** to view the list of available Segments mapped to the selected Information Domain.

3. Double-click to select the **Segment** within the pop-up menu to view either the list of associated definitions or the list of definitions.
4. Select the definition from the list and click **Open**.

If you open a Process or Run definition, you are prompted to select the **Process Type** or **Run Type**.

2.3.5.1.3 Save

1. Click  button to save a new definition or a modified definition.

The Save dialog is displayed with the existing definitions available in the selected Information Domain.

2. Enter the Name for the new definition in the **Name** textbox provided.
3. Click **Save** to save the definition in the selected Information Domain and Segment. A confirmation message is displayed if the operation is successful.

A source to target mapping must be defined to save a Rule definition and at least one rule must be defined as a sub-process member to save a Process definition.

2.3.5.1.4 Save As

1. Click  button and the Save As dialog is displayed.
2. Enter a Name for the definition in the **Name** field.
3. Click **Save** to save the definition in the selected Information Domain and Segment. A confirmation message is displayed if the operation is successful.

2.3.5.1.5 Properties

1. Click  button and the *Properties Dialog* is displayed.

The *Properties Dialog* displays the metadata such as Created By, Created Date, Modified By, Modified Date, Authorized By, and Authorized Date in the Property (default) tab.

2. Click **Comments** tab in the *Properties Dialog* and enter the narration/comments about the created definition.
3. If you are working on a Rule definition or a Run Definition:
 - Select **Display Description** checkbox if you want the description of the hierarchies to be displayed in the work area.
 - Select **Indent Hierarchy** checkbox if you want to view the hierarchies in tree structure.

4. Select the Process Type as **End to End** or **Non-End to End** in case you are working on a Process definition.
5. Click **OK** and save the definition with the changes.

2.3.5.1.6 Map

Map button is enabled only in the Rules Framework *Designer* screen for Scenario Process definition.

1. Click  button from the tools menu.
The *Base Process Selector* dialog is displayed with the list of mapped End to End processes.
2. In the *Base Process Selector* dialog:
 - Click **ADD** to select the End to End Base process under the selected Information Domain and Segment from the *End to End Base Processes* dialog.
 - Click **DELETE** to remove a selected mapped End to End process from the list.
3. Click **OK** to map the selected End to End Base process from the list.

2.3.5.2 Process Hierarchy Members

The Process Hierarchy Members and their description are as tabulated.

Component	Description
Data Extraction Rules	Displays all the Extract definitions defined through OFSAAI Data Management Tools.
Load Data Rules	Display the following two sub types of definitions: ▪ File Loading Rules display the entire File to Table definitions defined through OFSAAI Data Management Tools. ▪ Insertion Rules (Type1 Rules) display all the Table to Table definitions defined through OFSAAI Data Management Tools.
Transformation Rules	Displays the following definition sub type: ▪ Database Functions-Transformations display all the DT definitions defined in OFSAAI Data Management Tools.
Base Rules	Display the following two sub types of definitions: ▪ Classification Rules (type 2 rule) display all the type 2 rules defined in the Rules Designer. ▪ Computation Rules (type 3 rule) display all the type 3 rules defined in the Rules Designer.

Component	Description
Cubes	Display all the cubes definitions defined for the selected Information Domain in OFSAAI unified metadata manager. Note: The cubes under the segment to which the user is mapped only will be displayed.
Model	Display all the existing model definitions defined in the Modeling framework screens.
Stress Testing	Display all the existing stress testing definitions defined in the Variable Shock Library, Scenario Management, and Stress Definition screens.
Processes	Display all the existing Non End-to-End processes defined through Process Designer.

2.3.5.3 Search Hierarchies

To search for a particular member:

1. Enter the keyword and click  button.
2. If a result containing the keyword is located, the corresponding member is highlighted.
3. Click **Search** again and the next member that contains the keyword is highlighted.

2.3.5.4 Hierarchical Member Selection Modes

To aid the selection process, certain standard modes are offered through a drop-down. The available modes are **Self**, **Self & Descendent**, **Self & Children**, and **Children Only**.

- The **Self** mode is the default mode displayed. In this mode, only the specific member selected in the LHS pane will be selected onto the RHS pane.
- Choose the **Self & Descendent** mode when you want a specific member and all its descendants right up to the end of its branch to be selected onto the RHS pane.
- Choose the **Self & Children** mode when you want a specific member and only its immediate children to be selected onto the RHS pane.
- Choose the **Children Only** mode when you want only the immediate children of a specific member to be selected onto the RHS pane mode.

The number of members selected onto the RHS pane is displayed below the pane.

You can deselect a member by selecting the required member from the list and clicking  button. You can also deselect all the selected members by clicking  button.

2.3.5.5 Default Member

To mark an item as a default member:

1. Select a member in the Selected Members pane.
2. Select **Mark as Default** checkbox and the Default Member field is displayed with the selected member name.

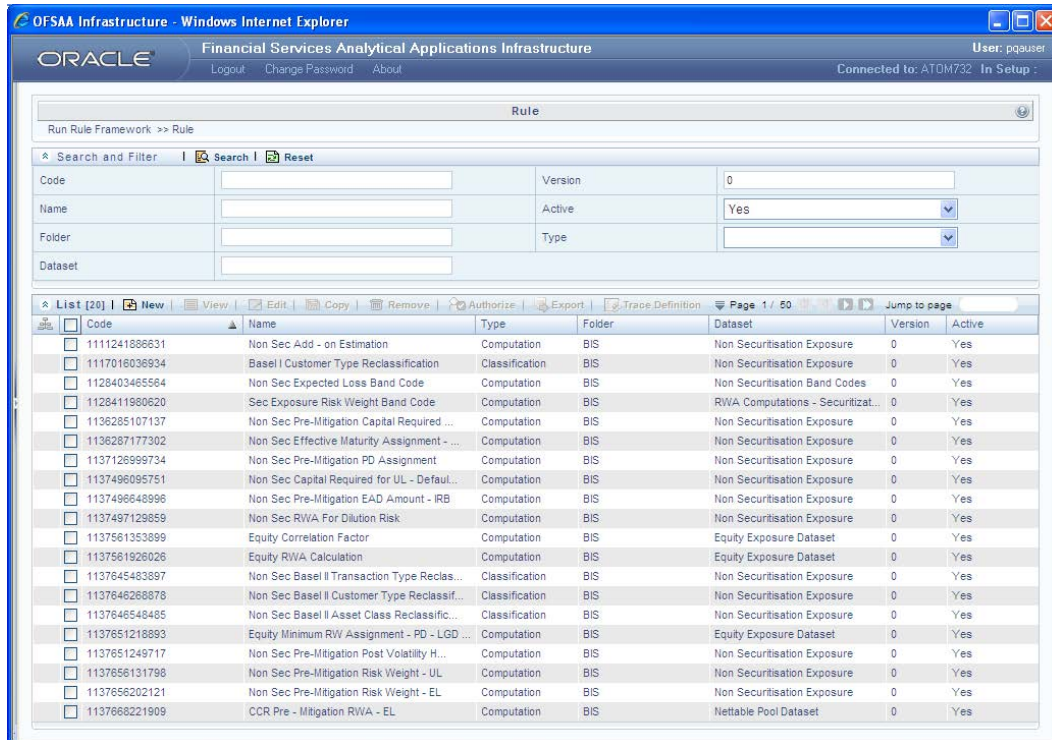
If more than one item is selected the Mark as Default option is disabled. The item marked as default is automatically mapped to the non-leaf member combinations of hierarchies selected as source. At the least one member must be marked as the default member to save the rule definition.

To change the default member:

1. Select the current default member.
2. Deselect the **Mark as Default** checkbox.
3. Select a new hierarchy member and mark as default.

2.4 Rule

Financial institutions require constant monitoring and measurement of risk in order to conform to prevalent regulatory & supervisory standards. Such measurement often entails significant computations and validations with an organization's data. Data must be transformed to support such measurements and calculations. The data transformation is achieved through a set of defined Rules.



The Rules option in the Rules Framework provides a framework that facilitates the definition and maintenance of a transformation. The metadata abstraction layer is used in the definition of rules where the user is permitted to re-classify the attributes in the data warehouse model thus transforming the data. The underlying metadata objects such as Hierarchies that are non-large or non-list, Datasets and Business Processors drive the Rule functionality. You need to have PR2ADMIN function role mapped to access the Rule definition. The definition, modification, copy, and deletion of a Rule must be approved by an authorizer for the action to be effective.

The *Rule* screen displays the rules created in the current Information Domain with the metadata details such as Code, Name, Description, Type, Folder, Dataset, Version, and Active status.

You can make use of [Search and Filter](#) option to search for specific Rules based on Code, Name, Folder, Dataset, Version, Active status, or Type. The Pagination option helps you to manage the view of existing Rules within the system. For more information, refer [Pagination](#) section. You can also click Code, Name, Description, Type, Folder, Dataset, Version, or Active tabs to sort the Rules in the *List* grid either in ascending or in descending order.

You can migrate the existing PR2 definitions to RRF across Information Domains / Setups using the [Metadata Restore/Archive](#) utility and also through the [Command Line Utilities](#). For more information, refer “*Rules Migration Utility Guide*” ([1540442.1](#)) available at Oracle Support Portal.

2.4.1 Components of Rule Definition

A Rule is defined using existing metadata objects. The various components of a rule definition are as tabulated.

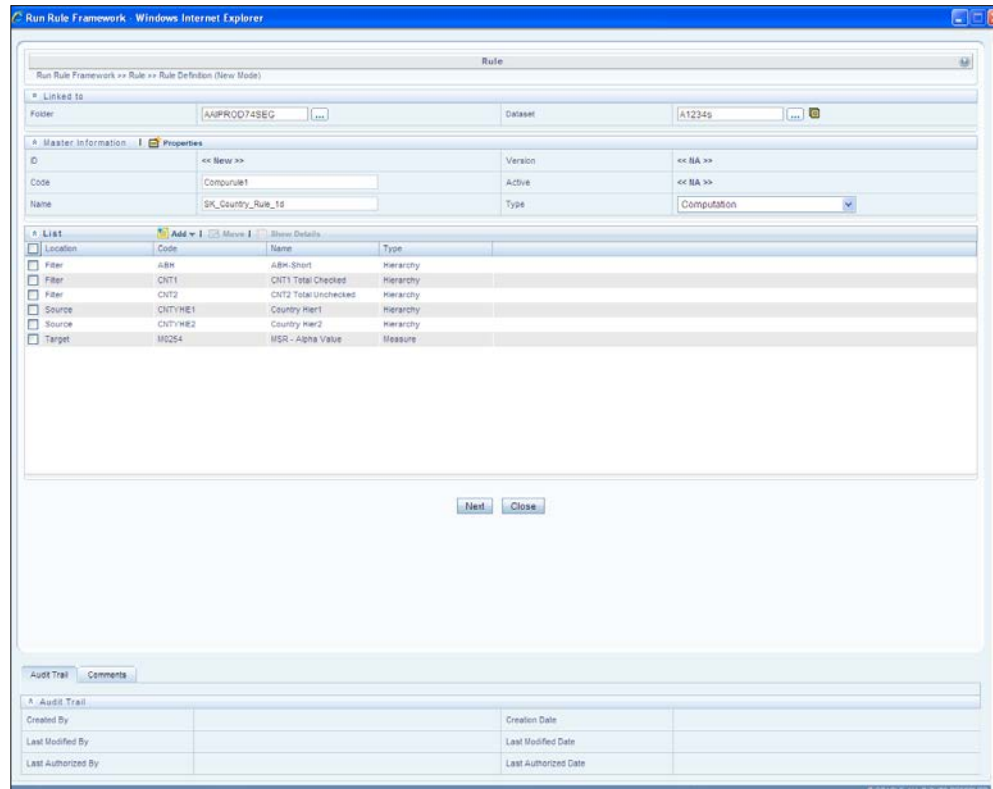
Component	Description
Dataset	This is a set of tables that are joined together by keys. A dataset must have at least one FACT table. The values in one or more columns of the FACT tables within a dataset are transformed with a new value.
Source	This component determines the basis on which a record set within the dataset is classified. The classification is driven by a combination of members of one or more hierarchies. A hierarchy is based on a specific column of an underlying table in the data warehouse model. The table on which the hierarchy is defined must be a part of the dataset selected. One or more hierarchies can participate as a source so long as the underlying tables on which they are defined belong to the dataset selected.
Target	This component determines the column in the data warehouse model that will be impacted with an update. It also encapsulates the business logic for the update. The identification of the business logic can vary depending on the type of rule that is being defined.
Mapping	This operation classifies the final record set of the target that is to be updated into multiple sections. It also encapsulates the update logic for each section. The logic for the update can vary depending on the hierarchy member / business processor used. The logic is defined through the selection of members from an intersection of a combination of source members with target members.
Node Identifier	This is a property of a hierarchy member. In a Rule definition the members of a hierarchy that cannot participate in a mapping operation are target members, whose node identifiers identify them to be an ‘Others’ node, ‘Non-Leaf’ node or those defined with a range expression. Source members, whose node identifiers identify them to be ‘Non-Leaf’ nodes, can also be mapped. For more information on Hierarchy properties, refer Defining Business Hierarchies in the Unified Metadata Manager section.

2.4.2 Create Rule

You can create rule definitions using the existing metadata objects.

To create a Rule definition:

1. Click  **New** button from the *List* toolbar in the *Rule* screen. The *Rule Definition (New Mode)* screen is displayed.



2. Click  button adjacent to **Folder** in the *Linked to* grid. The *Folder Selector* dialog is displayed. The folders to which your user group is mapped are displayed.
3. Select the checkbox adjacent to the required folder. Click **OK**.
4. Click  button adjacent to **Dataset** in the *Linked to* grid. The *Dataset Selector* dialog is displayed with the list of datasets available under the selected folder.
5. Select the checkbox adjacent to the required Dataset name. Click **OK**.

In the *Dataset Selector* dialog, you can also do the following:

- Search for a particular folder by specifying keyword and clicking  button.
- View properties of the selected Dataset by clicking  button.

- Make use of Pagination option to manage the view of existing Datasets within the system. For more information, refer [Pagination](#) section.

6. Enter the details in the *Master information* grid as tabulated below:

Field Name	Description
ID	Refers to the default ID of a newly created rule and is <<New >>.
Code	Enter a valid code for the rule. Ensure that the rule code is alphanumeric with a maximum of 30 characters in length and there are no special characters except underscore “_”.
Name	Enter a valid name for the rule. Ensure that Rule Name is alphanumeric and does not contain any of the following special characters: #, %, &, +, ", and ~.
Version	By default the version field is displayed as <<NA>> for the new rule being created. Once the rule definition is saved, an appropriate version is assigned as either -1 or 0 depending on the authorization permissions. For more information, refer Rule Definition Versioning .
Active	By default, the Active field is displayed as <<NA>> for the new rule being created. Once the rule definition is saved, the status is set to Yes if you are an Authorizer creating the rule or No if the created rule needs to be authorized by an Authorizer.
Type	Select the Type based on which you would like to create the rule from the drop-down list. The options are Computation and Classification .

7. Click  button in the *Master information* grid. The *Properties* dialog is displayed.

The *Properties* dialog lists the Rule Properties, PreProcessing status, and Query Optimization Settings as tabulated below. The data in *Query Optimization Settings* are derived from the global properties (if defined) in the *Optimization tab* of *System Configuration > Configuration* screen. However, some options defined in Global Preferences precede the Rule level properties that you define here.

Field Name	Description
Properties	
Effective Start Date	Select the Effective Start Date by clicking  (Calendar) button.
Effective End Date	Select the Effective End Date by clicking  (Calendar) button.
Last operation type	By default, this field displays the last change done to the Rule definition. While creating a Rule, the field displays the operation type as Created .
Pre processing	

Field Name	Description
Pre Built Flag	This field refers to the pre-compiled rules, which are executed with the query stored in database. While defining a rule, you can make use of Pre Built Flag to fasten the rule execution process by making use of existing technical metadata details wherein the rule query is not rebuilt again during Rule execution. Select the required option from the drop down list. By default, Pre Built Flag status is set to No. This indicates that the query statement is formed dynamically retrieving the technical metadata details. If the Pre Built Flag status is set to Yes then the relevant metadata details required to form the rule query is stored in database on saving the rule definition. When this rule is executed, database is accessed to form the rule query based on stored metadata details, thus ensuring performance enhancement during rule execution. For more information, refer Significance of Pre-Built Flag.
Query Optimization Settings	
Merge Hints	Specify the SQL Hint that can be used to optimize Merge Query. For example, "/*+ ALL_ROWS */" In a Rule Execution, Merge Query formed using definition level Merge Hint precede over the Global Merge Hint Parameters defined in the <i>Optimization</i> tab of <i>System Configuration</i> > Configuration screen. In case the definition level Merge Hint is empty/ null, Global Merge Hint (if defined) is included in the query.
Select Hints	Specify the SQL Hint that can be used to optimize Merge Query by selecting the specified query. For example, "SELECT /*+ IS_PARALLEL */" In a Rule Execution, Merge Query formed using definition level Select Hint precede over the Global Select Hint Parameters defined in the <i>Optimization</i> tab of <i>System Configuration</i> > Configuration screen. In case the definition level Select Hint is empty / null, Global Select Hint (if defined) is included in the query.

Field Name	Description
Pre Script	Refers to a set of semicolon (;) separated statements which are to be executed before Merge Query on the same connection object. In a Rule Execution, Global Pre Script Parameters (defined in Configuration screen) are added to a Batch followed by Rule definition level Pre Script statements if the same has been provided during rule definition. However, it is not mandatory to have a Pre Script either at Global or definition level.
Post Script	Refers to a set of semicolon (;) separated statements which are to be executed after Merge Query on the same connection object. In a Rule Execution, Global Post Script Parameters (defined in Configuration screen) are added to a Batch followed by Rule definition level Post Script statements if the same has been provided during rule definition. However, it is not mandatory to have a Post Script either at Global or definition level.
Use ROWID	You can select the ROWID checkbox to create a Merge Statement based on ROWID instead of Primary Keys. In a Rule Execution, ROWID is considered while creating Merge Statement if Use ROWID checkbox is selected in either Global Parameters (Configuration screen) or Rule definition properties. If Use ROWID checkbox is not selected in either Global Parameters (Configuration screen) or Rule definition properties, then the flag is set to "N" and Primary Keys are considered while creating in Merge Statements.

- Click **OK**. The properties are saved for the current Rule definition.

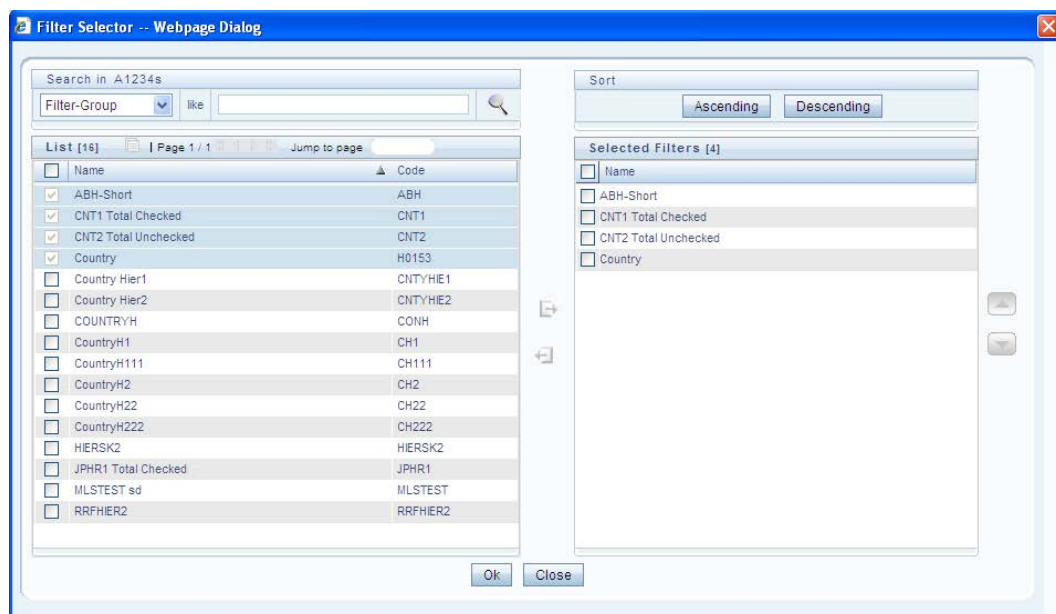
2.4.2.1 Add Members to Filter

You can define filters for a rule definition such as Hierarchy, Filter-Data Element, Filter-Hierarchy, or Filter Group.

NOTE: In order to access *Filter Selector* screen and to select the pre-defined filters, you need to have **FILTERRULE** function mapped to your role.

To create a filter for a rule in the *Rule Definition (New Mode)* screen:

1. Click  button from the *List* grid and select Filter (). The *Filter Selector* screen is displayed.



The LHS pane of the *Filter Selector* screen displays the available members under the selected Information Domain and Dataset.

2. Select any of the following filters from the *List* grid drop down list to sort the members:

Member Type	Description
Hierarchy	Hierarchy refers to the defined Business Hierarchies and will list all the UMM Hierarchies pertaining to the selected dataset.
Filter-Data Element	Data Element Filter is a stored rule that expresses a set of constraints. Only columns that match the data type of your Data Element selection are offered in the Data Element drop down list box.
Filter-Hierarchy	Hierarchy Filter allows you to utilize rollup nodes within a Hierarchy to help you exclude (filter out) or include data within an OFSAA rule.

Member Type	Description
Filter-Group	Group Filters can be used to combine multiple Data Element Filters with a logical "AND".

3. Select the checkbox adjacent to the members you want to select.
4. Click  to move the selected members to the **Selected Filters** pane.

NOTE: You can select maximum of nine Filters for a Rule.

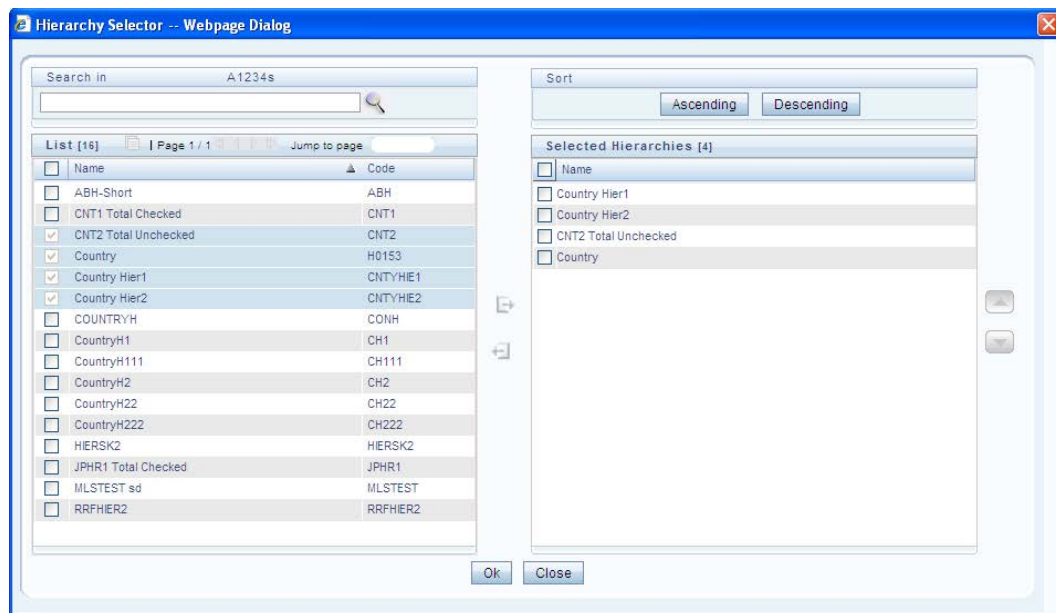
In *Filter Selector* screen you can:

- You can search for a specific member type by selecting from the drop-down list and clicking  button. You can also modify your search criteria specifying the nearest keyword in the **like** field.
 - The Pagination option helps you to manage the view of existing Hierarchies within the system. For more information, refer [Pagination](#) section.
 - Click  button to view the details of a selected member.
 - Click **Ascending** or **Descending** button to sort the selected components in Ascending or Descending order.
 - Click  or  button to re-arrange the selected list of members.
 - Click  button to remove selected members from the Selected Filters pane.
5. Click **OK**. The selected filters are listed in the *Rule Definition (New Mode)* screen.

2.4.2.2 Add Hierarchies to Source

The Source and Target can be selected from the *List* grid. To select the Source for a Rule in the *Rule Definition (New Mode)* screen:

1. Click  button from the *List* grid and select **Source** (). The *Hierarchy Selector* screen is displayed.



The LHS pane of the *Hierarchy Selector* screen displays the available hierarchies under the selected Folder.

2. Select the checkbox adjacent to the Hierarchies you want to select as Source.
3. Click  to move the selected hierarchies to the **Selected Hierarchies** pane.

NOTE: You can select maximum of nine Sources for a Rule.

In *Hierarchy Selector* screen you can:

- Search for a member by specifying the nearest keyword and clicking  button.
- The Pagination option helps you to manage the view of existing Hierarchies within the system. For more information, refer [Pagination](#) section.
- Click  button to view the details of a selected hierarchy.
- Click **Ascending** or **Descending** button to sort the selected components in Ascending or Descending order.
- Click  or  button to re-arrange the selected list of hierarchies.
- Click  button to remove selected hierarchies from the Selected Hierarchies pane.

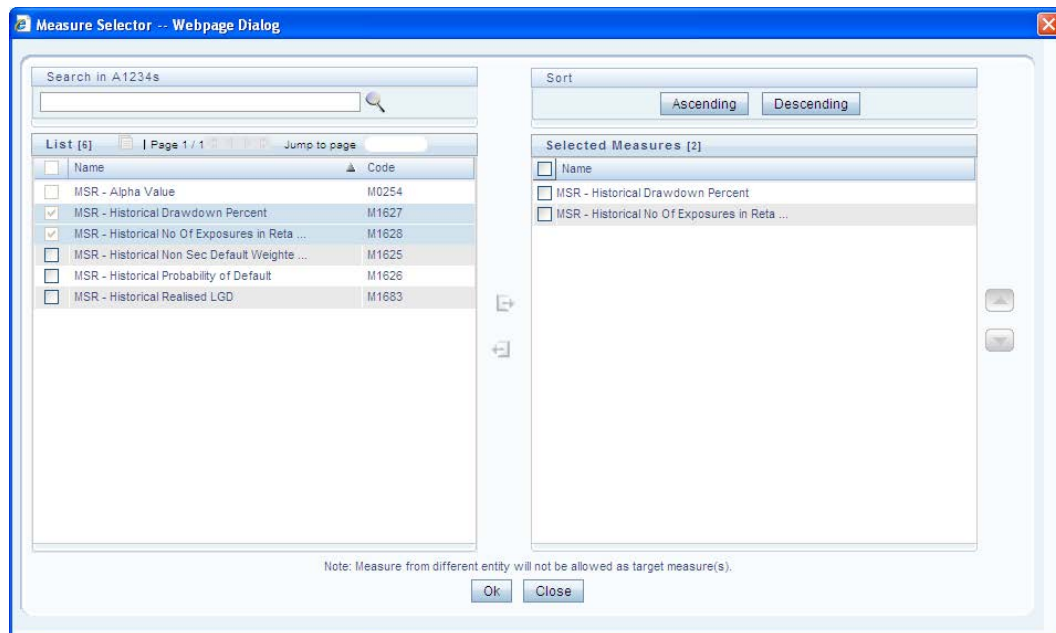
4. Click **OK**. The selected hierarchies are listed in the *Rule Definition (New Mode)* screen.

2.4.2.3 Add Measures / Hierarchies to Target

To select the Target for a Rule in the *Rule Definition (New Mode)* screen:

1. Click  button from the *List* grid and select **Target** (). The *Measure Selector / Hierarchy Selector* screen is displayed.

The *Measure Selector* and *Hierarchy Selector* screens are displayed depending on the Type of the Rule you have selected, i.e. the Computation Rule and Classification Rule respectively.



The LHS pane of the *Measure Selector / Hierarchy Selector* screen displays the available Measures / Hierarchies under the selected Information Domain and Dataset.

2. Select the checkbox(s) adjacent to the members you want to select as Target.
3. Click  to move the selected measures to the Selected Measures / Selected Hierarchies pane.

NOTE: Measures from different entities are not allowed as target measures. You can select maximum of five measures and a single Hierarchy to the target.

In Measure Selector / Hierarchy Selector screen you can:

- Search for a member by specifying the nearest keyword and clicking  button.
- The Pagination option helps you to manage the view of existing members within the system. For more information, refer [Pagination](#) section.
- Click  button to view the details of a selected member.

- Click **Ascending** or **Descending** button to sort the selected components in Ascending or Descending order.
- Click  or  button to re-arrange the selected list of members.
- Click  button to remove selected measures from the Selected Measures / Selected Hierarchies pane.

4. Click **OK**. The selected members are listed in the *Rule Definition (New Mode)* screen.

In the List grid you can also:

- Click  button to move a selected member between **Filter**, **Source**, or **Target**.
- Click  button to view the selected member details.

Once all the necessary information in the first screen of the *Rule Definition (New Mode)* is populated, click **Next** button to navigate to the concurrent procedures of defining a Rule.

2.4.2.4 Hierarchical Member Selection

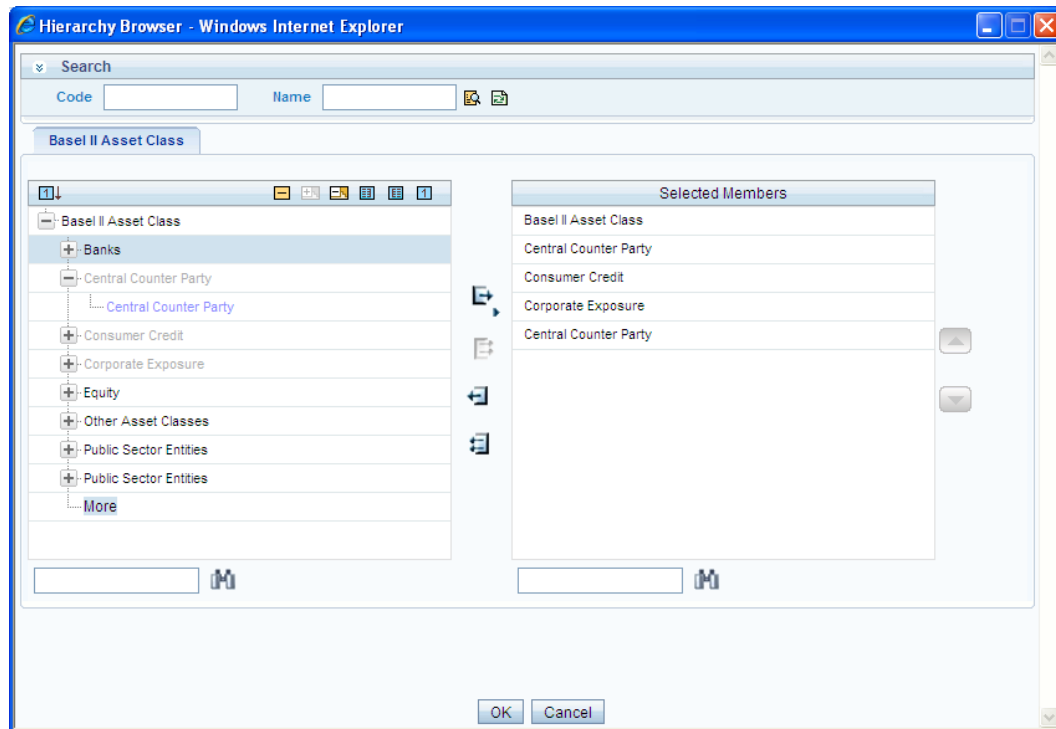
The second screen of *Rule Definition (New Mode)* screen displays all the information you have provided in the *Linked to* and *Master info* grids. You can view the filters you have selected in the *Rule Condition* grid.

In the Rule Condition grid, you can apply conditions for each of the BMM hierarchy filters.

NOTE: In case of Data Element, Group, or Hierarchy filters, you can only view the SQL query.

To apply condition for a BMM hierarchy filter and view the SQL query in the *Rule Condition* grid:

1. Click  button adjacent to the filter details. The *Hierarchy Browser* screen is displayed.



The *Search* grid allows you to search for a particular member by entering Code or any part of the Name and clicking button. You can click button to refresh the Code or name fields. You can also find a member in the grid using button.

- Click and expand the members of the selected hierarchy.
- Select a member / node and click to select the same. Click the to select the member as Self or Parent. For More information refer [Hierarchical Member Selection Modes](#).

In the *Hierarchy Browser* screen you can also:

- Click or to sort the members by Code or Name.
 - Click or to expand or collapse the members under a node.
 - Click or to expand a branch or collapse a branch.
 - Click or to view the code values of members right or left.
 - Click or to show code or show name of the members.
 - Click or to re-arrange the members in the Selected Members pane. However, the rearranged members are not displayed on the *Combination Mapper* grid based on the reordering.
- Click button adjacent to a filter details. The *Preview SQL Query* screen is displayed with the resultant SQL query.

2.4.2.5 Move Source to Slicer

The selected Source and Target Hierarchies are displayed under *Combination Mapper* grid. You can move the source Hierarchies from *Combination Mapper* grid to *Slicer*.

To move a source Hierarchy from *Combination Mapper* grid to *Slicer* grid:

1. Click the Hierarchy member and drag it to the *Slicer* grid. The member is displayed under *Slicer* grid.
2. Click  button to select the members of a Hierarchy. The Hierarchy Browser is displayed. For more information refer [Hierarchical Member Selection Modes](#).
3. Click  button. The *CombiFilter Node Browser* screen is displayed.



4. Select the checkbox adjacent to the member name and click **OK**.

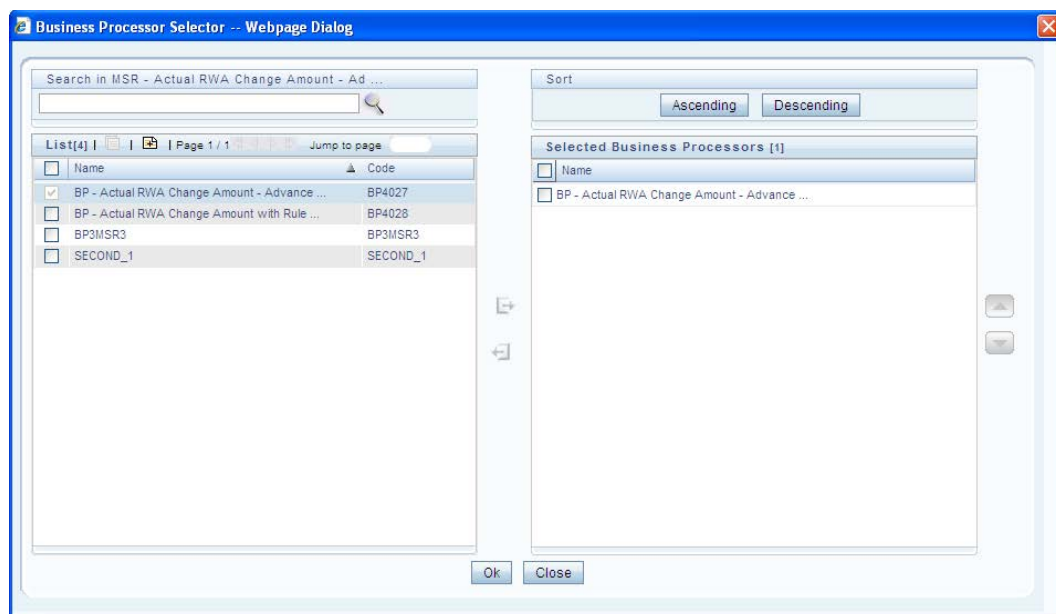
2.4.2.6 Select Business Processor as Target

The Measures selected as target are displayed under Target page in the *Combination Mapper* grid. You can select the Business Processors (BP) from these Measures.

NOTE: If you are not able to view the *Combination Mapper* pane properly due to resolution issues, click **Collapse View** in *Map* tool bar.

To select the Business Processors form a Measure:

1. Click  button in the Measure displayed under Target page. The *Business Processor Selector* screen is displayed.



2. Select the checkbox adjacent to the Business Processor name and click .

In Business Processor Selector screen you can:

- Search for a Business Processor by specifying the nearest keyword and clicking  button.
- The Pagination option helps you to manage the view of existing Business Processors within the system. For more information, refer [Pagination](#) section.
- Click  button to view the details of a selected Business Processor.
- Click  button to define a new Business Processor. For more information refer [Create Business Processor](#).
- Click **Ascending** or **Descending** button to sort the selected components in Ascending or Descending order.

- Click  or  button to re-arrange the selected list of Business Processors.
 - Click  button to remove the selected Business Processors from **Selected Business Processors** pane.
3. Click **OK**. The selected Business Processors are listed under the *Combination Mapper* grid along with the **Source** and **Filter** definition details.

(Optional) After selecting Business Processor(s) in the *Combination Mapper* grid, you can set the Default Target member, specify Parameters, and exclude child nodes for the Rule definition.

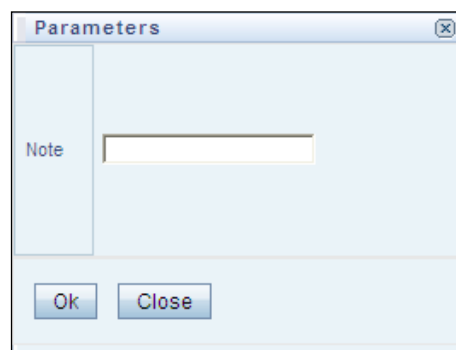
- You can set the selected Target member as default by clicking  button on the header bar of required Business Processor and selecting **Default Member** checkbox.

When a Target member is selected as default, all the unmapped Source member combinations for that Target object will be logically mapped to the default member and the corresponding target appears disabled. Run time parameters cannot be applied for such defaulted target BP's. However, the logical mappings will not overwrite the physical mapping.

- You can specify parameters for the selected Business Processor. Select the checkbox(s) adjacent to the required Business Processor and click  button adjacent to a checkbox selected. The *Parameters* pop-up is displayed.

NOTE: A physical mapping is established when mapping is explicitly done upon a combination of source and target members.

- For a Classification Rule and Computation Rule with non-parameterized BP, the Parameters pop-up is as displayed. Enter the required note in the text field and click **OK**.



- For a Computation Rule with parameterized BP, the Parameters pop-up is as displayed. Enter the required note in the text field. The *Parameter Default Value* is fetched from the *Business Processor* definition and the *Assign Value* can be entered manually which is considered during Rule execution at Runtime. You

can also clear the *Assign Value* field by clicking the **Clear Values** button. Click **OK**.

The Parameters dialog box contains a 'Note' field with the text 'Data resides between'. Below it are two tabs: 'Default Values' and 'Assign Values'. Under the 'Assign Values' tab, there is an 'ADDON' section with two input fields: the first contains '0' and the second contains '0.1'. At the bottom of the dialog are three buttons: 'Ok', 'Close', and 'Clear Values'.

- You can exclude child node(s) in the *Combination Mapper* grid, if they are not required in the Rule execution. Click (Exclude) button. The *Rule Exclude* screen is displayed.

NOTE: The exclude icon is available only for the combinations with physical mappings. When a default member is removed from the target member, all logical mappings would be removed retaining only physical mappings.

The 'Rule Exclude - Webpage Dialog' shows a table with the following data:

Mapping	BP - RWA Pre CRM for CDR - EL	Net Pool Nettable Agreement	Nettable Eligibility Yes
Basel II Product Type	SFT-OTC Cross Product		

Below the table, there is a section for 'List [1]' with columns for 'Net Pool Nettable Agreement', 'Basel II Product Type', and 'Exclude'. The 'Exclude' column has a checkbox next to the 'SFT-OTC Cross-Product' entry. At the bottom right, there is an 'Ok' button.

The *Rule exclude* screen displays only the child nodes associated to a Parent node. Ensure that the selected parent has associated child nodes and is not the default member in the target.

- Select the checkbox adjacent to Rule code that you want to exclude and click **OK**.

Once all the necessary details are entered, click **Save**. The Rule definition is saved with the provided details and is displayed in the *Rule* screen.

Note that, the default version of a new Rule definition created by an Authorizer is **0** and the one created by non-authorizer is **-1**. For more details on Versioning, refer [Rule Definition Versioning](#) section.

The *Audit Trail* section at the bottom of *Rule Definition (New Mode)* screen displays metadata information about the Rule definition created. The *User Comments* section facilitates you to add or update additional information as comments.

2.4.3 View Rule Definition

You can view individual rule definition details at any given point.

To view the existing rule definition details in the *Rule* screen:

1. Select the checkbox adjacent to the rule **Code** whose details are to be viewed.
2. Click  button in the List tool bar.

The *Rule Definition (View Mode)* screen is displayed with all the details of the selected Rule. Click **Next** and **Back** buttons to navigate back and forth in the *Rule Definition (View Mode)* screen.

2.4.4 Edit Rule Definition

You can modify all the details except ID, Code, Version, Active, and Type of a rule definition. An authorizer needs to approve the modified rule. Otherwise, it will be in Inactive state.

To modify an existing rule definition in the *Rule* screen:

1. From the Rule screen, select the checkbox adjacent to the Rule Code whose details are to be updated.
2. Click  button in the *List* tool bar. The Edit button is disabled if you have selected multiple rules. The *Rule Definition (Edit Mode)* screen is displayed.
3. Edit the rule details as required. For more information, refer [Create Rule](#).
4. Click **Save** to save the changes.

2.4.4.1 Rule Definition Versioning

For an authorizer:

When you create a new rule, its version will be **0**. When you edit an existing rule and try to save, you are prompted whether to save it as a new version or not. If you click **Yes**, a new rule is created with version as **0** and the rule having version as **0** will be saved with version as maximum version +1. If you click **No**, the existing rule is overwritten and the version will be as it is.

For a non-authorizer:

When you create a new rule, its version will be **-1**. Once the rule is approved by an authorizer, the version becomes **0**. When you edit an existing rule and try to save, you are prompted whether to save it as a new version or not. If you click **Yes**, a new rule is created with version as **-1**. Once the rule is approved, its version becomes **0** and the rule having version as **0** will be saved with version as maximum version +1. If you click **No**, the existing rule is overwritten and the **Active** flag of the rule becomes **N** (which you can view from the *Summary* screen). The version remains the same. Once the rule gets approved, its **Active** flag changes to **Y**.

Note the following:

- The rule with version 0 is the latest one and it can have many versions say 1 to n, where 1 is the oldest rule and n is the next to latest.
- A rule with version -1 will always be in Inactive state.

You can view all the versions of a particular rule by providing the rule's name or code and clicking **Search** in the *Search and Filter* grid. (Ensure the **Version** field is cleared since it is auto populated with 0).

2.4.5 Copy Rule Definition

This feature facilitates you to quickly create a new rule definition based on an existing rule or by updating the values of the required rule.

To copy an existing rule definition:

1. From the *Rule* screen, select the checkbox adjacent to the Rule Code whose details are to be duplicated.
2. Click  button in the *List* toolbar. The *Rule Definition (Copy Mode)* screen is displayed. Copy button is disabled if you have selected multiple Rules.

In the Rule Definition (Copy Mode) screen you can:

- Create new Rule definition with existing variables. Specify a new **Rule Code** and **Folder**. Click **Save**.
- Create new Rule definition by updating the required variables. Specify new **Rule Code**, **Folder**, and update other required details. For more information, refer [Create Rule](#). Click **Save**.

The new Rule definition details are displayed in the *Rule* screen. By default, version “0” is set if you have authorization rights, else the version is set to “-1”.

2.4.6 Authorize Rule Definition

A rule definition when created/modified should be approved by an authorizer. An authorizer can approve/ reject a pre-defined rule definition listed within the *Rule* screen. To approve/ reject a rule in the *Rule* screen, you need to have Authorizer function mapped to your role. If you are an authorizer, then all the Rule definitions created/ modified by you are auto approved and the **Active** status is set to **Yes**. Otherwise, the **Active** status is set to **No** and an authorizer needs to approve it to change the **Active** status to **Yes**.

To approve or reject a rule definition:

1. Select the checkbox(s) adjacent to the required Rule Code(s).
2. Do one of the following:

- To approve the selected rule definitions, click  button.
- To reject the selected rule definitions, click  button.

A rule is made available for use only after the approval. For a rejected definition a comment with the rejection details will be added.

2.4.7 Export Rule to PDF

You can export single/multiple rule definition details to a PDF file.

To export the rule definition details in the *Rule* screen:

1. Select the checkbox(s) adjacent to the Rule Code(s) you want to export.
2. Click  button in the *List* toolbar.
3. Click the  button in the popup. The *Export* dialog is displayed.



The *Export* dialog displays the Export Format, Definition Type, and the names of the Selected Definitions.

4. Click **Export**. The process is initiated and is displayed in a pop-up specific to the current download. Once the PDF is generated, you can open / save the file from the *File Download* dialog box.

You can either save the file on the local machine or view the file contents in a PDF viewer. The downloaded PDF displays all the details such as Linked to, Properties, Master information, Audit Trail, List, Mapping Details, and Comments of all the Rule definitions selected.

2.4.8 Trace Rule Definition Details

You can trace the metadata details of individual rule definitions.

To trace the underlying metadata details of a rule definition in the *Rule* screen:

1. Select the checkbox adjacent to the Rule Code whose details are to be traced.
2. Click  button from the *List* toolbar.

The *Trace Definition* screen is displayed with the details such as Traced Object (Name and definition type) and Processes and Runs in which the selected Rule is used. In the *Trace Definition* screen you can also select individual Process or Run and click  button to view the definition details.

2.4.9 Delete Rule Definition

You can remove rule definition(s) which are no longer required in the system by deleting from *Rule* screen. However, it is a soft deletion only. An authorizer has to approve the deletion.

To delete rule definition:

1. Select the checkbox(s) adjacent to the Rule Code(s) which you want to delete.
2. Click  button from the *List* tool bar.
3. Click **OK** in the information dialog to confirm deletion.

An information dialog is displayed confirming the deletion of the rule definition(s) and asking the authorization.

2.5 Process

A set of rules collectively form a Process. A process definition is represented as a Process Tree. The Process option in the Rules Framework provides a framework that facilitates the definition and maintenance of a process. By defining a process, you can logically group a collection of rules that pertain to a functional process.

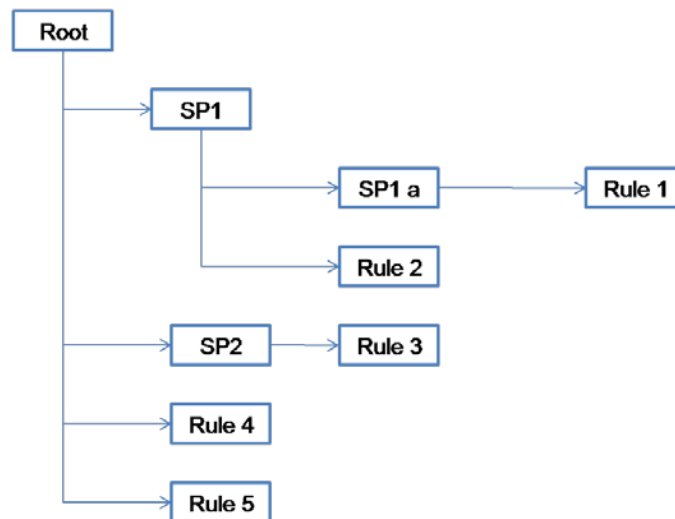
You can define a process with the existing metadata objects using a hierarchical structure which facilitates the construction of a process tree. Process tree can have many levels and one or many nodes within each level. Sub-processes are defined at level members and process hierarchy members form the leaf members of the tree. Refer [Process Hierarchy Members](#) for more information.

Note the following:

- Precedence defined to each process determines the Process Initiation Sequence.
- If precedence is defined, the process execution (along with the associated Rules) happens based on the precedence defined to each component.
- If no precedence is defined, all the processes within the process tree are initiated together in its natural hierarchical sequence.

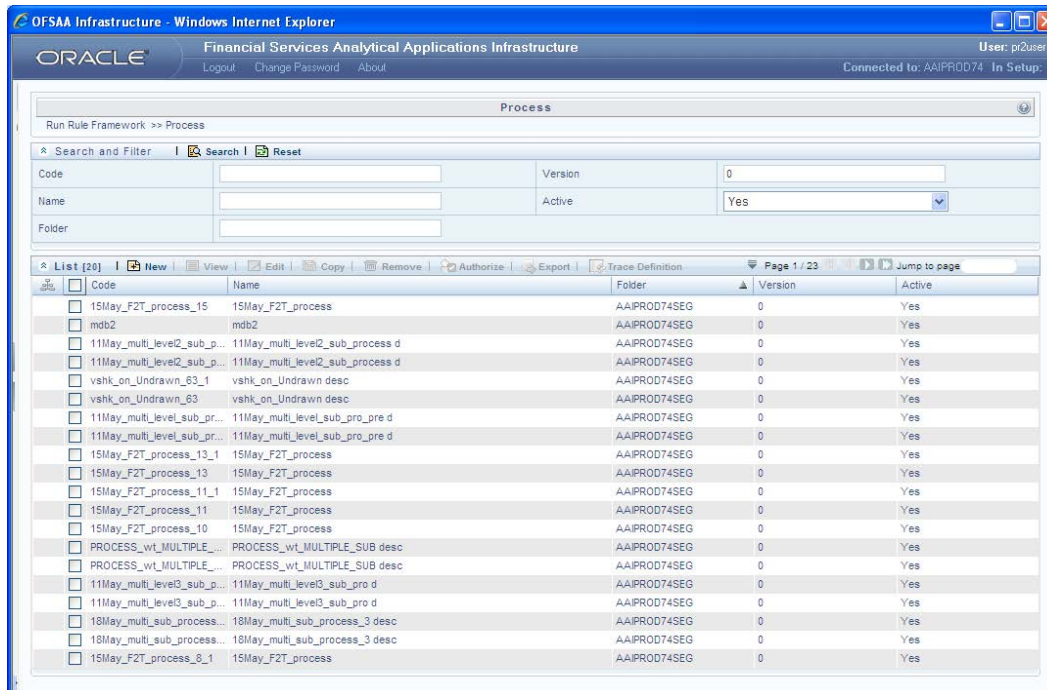
Consider the following illustration:

- If natural precedence is defined to the sub process **SP1**, process execution is triggered in the sequence Rule 1 > SP1a > Rule 2 > SP1.
- If no precedence is defined, all the sub processes SP1, SP2, Rule 4, and Rule 5 are executed in parallel.



Further, the business may require simulating conditions under different business scenarios and evaluate the resultant calculations with respect to the baseline calculation. Such simulations are

done through the construction of Processes and Process trees. Underlying metadata objects such as Rules, T2T Definitions, Processes, and Database Stored Procedures drive the process functionality.



The *Process* screen displays the processes created in the current Information Domain with the metadata details such as Code, Name, Folder, Version, and Active.

You can make use of [Search and Filter](#) option to search for specific Processes based on Code, Name, Folder, Version, or Active. The [Pagination](#) option helps you to manage the view of existing Processes within the system.

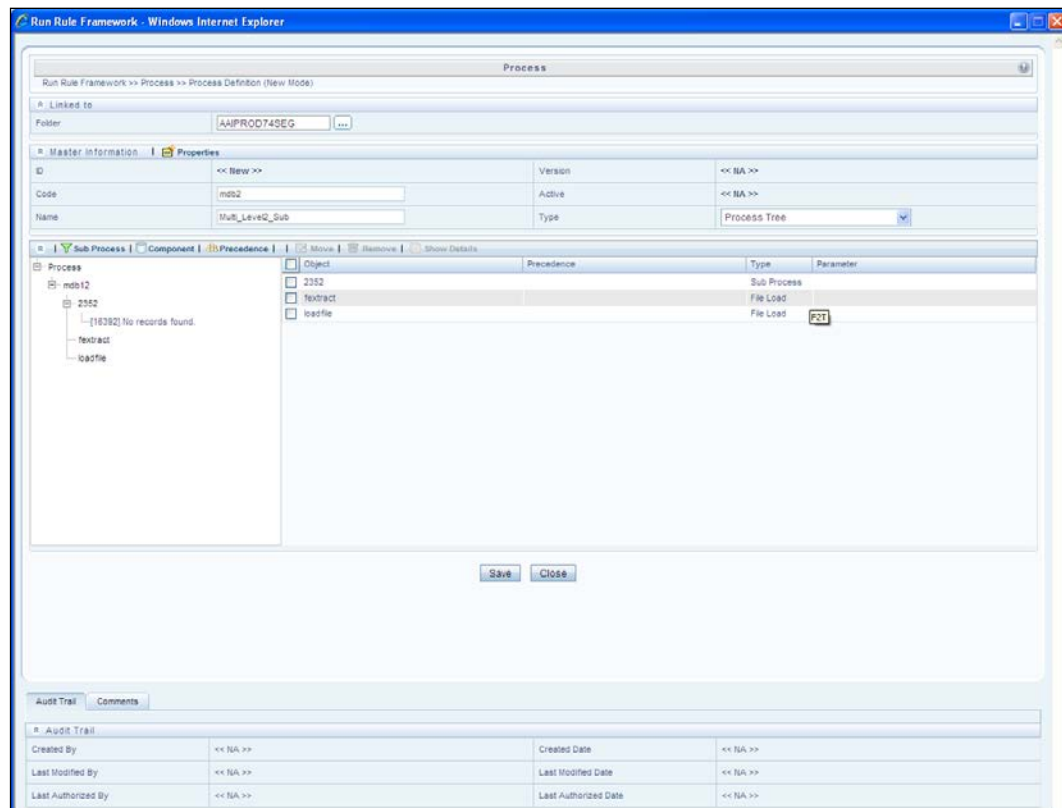
You can archive/restore the existing PR2 definitions using the [Metadata Restore/Archive](#) utility and also migrate PR2/RRF definitions through the [Command Line Utility](#) across Information Domains / Setups.

2.5.1 Create Process

You can build a process by adding one or more members called Process Nodes. If there are Predecessor Tasks associated with any member, the tasks defined as predecessors precede the execution of that member.

To define a process in the *Process* screen:

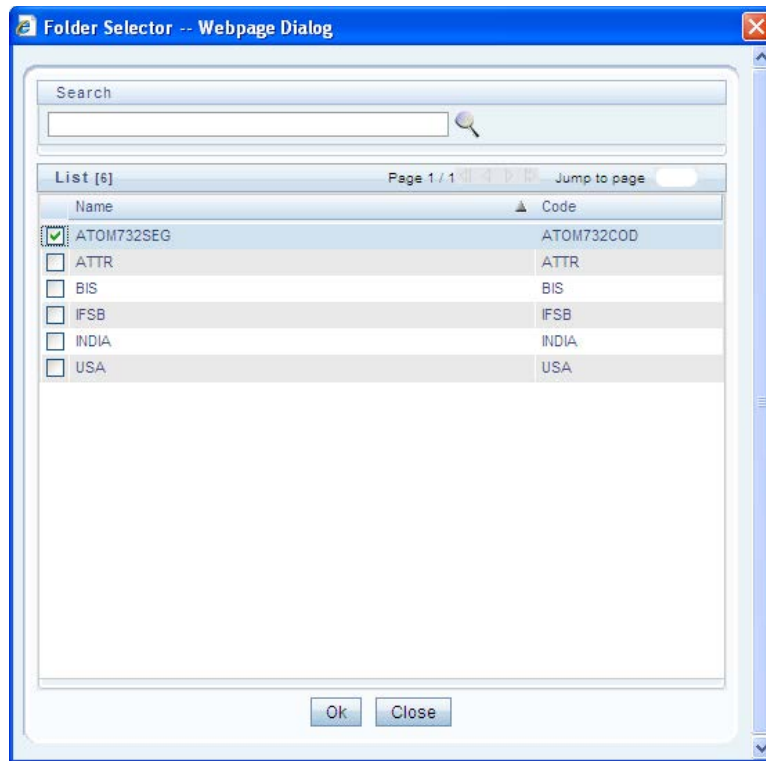
1. Click  button from the List toolbar. The *Process Definition (New Mode)* screen is displayed.



The screenshot shows the 'Process Definition (New Mode)' screen in the Run Rule Framework application. The 'Process' tab is selected, displaying a tree view of the process structure. The 'Precedence' tab is also visible, showing a table of process nodes.

Object	Precedence	Type	Parameter
2352		Sub Process	
extract		File Load	
loadfile		File Load	P21

2. Click  button adjacent to the **Folder** field in the *Linked to* grid. The *Folder Selector* dialog is displayed.



The folders to which your user group is mapped are displayed.

3. Select the checkbox adjacent to the required folder. Click **OK**.

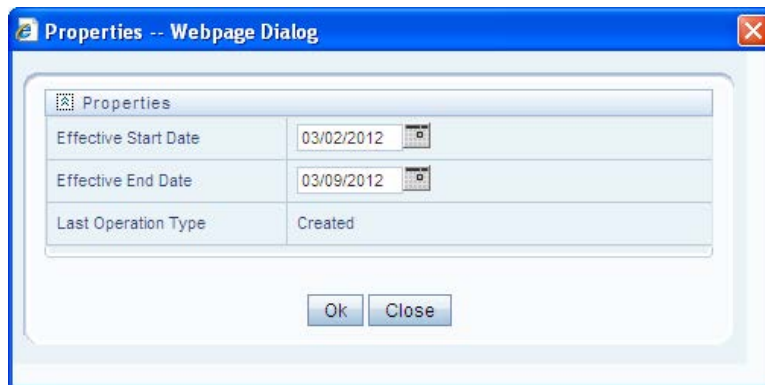
You can also enter a keyword and click  button in the Search field of *Folder Selector* dialog to locate a particular folder. The Pagination option helps you to manage the view of existing Folders within the system. For more information, refer [Pagination](#) section.

4. Enter the details of the *Master information* grid as tabulated below:

Field Name	Description
ID	Refers to the default ID of a newly created process and is <<New>>.
Code	Enter a valid code for the process. Ensure that the code is alphanumeric with a maximum of 30 characters in length and there are no special characters except underscore "_".
Name	Enter a valid name for the process. Ensure that process name is alphanumeric and does not contain any of the following special characters: #, %, &, +, ", and ~.

Field Name	Description
Version	By default the version field is displayed as <<NA>> for the new process being created. Once the process definition is saved, an appropriate version is assigned as either -1 or 0 depending on the authorization permissions. For more information, see Process Definition Versioning .
Active	By default, the Active field is displayed as <<NA>> for the new process being created. Once the process definition is saved, the status is set to “ Yes ” if you are an authorizer or No if the created process needs to be authorized by an authorizer.
Type	Select the process type based on which you would like to create the rule from the drop-down list.

5. Click  button in the *Master info* grid. The *Properties* dialog is displayed.



You can edit the below tabulated details in the *Properties* dialog:

Field Name	Description
Effective Start Date	Select the Effective Start Date by clicking  (Calendar) button.
Effective End Date	Select the Effective Start Date by clicking  (Calendar) button.
Last Operation Type	By default, this field displays the last change done to the process definition. While creating a process, the field displays the operation type as Created .

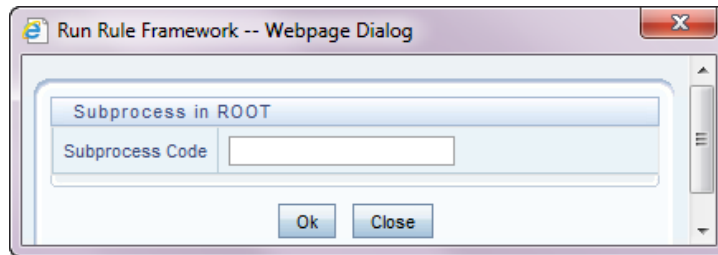
6. Click **OK**. The properties are saved for the current process definition.

2.5.1.1 Define Sub Process to Root

You can define sub processes to the base process being created or for a pre-defined sub process under a base process.

To create a sub process in the *Process Definition (New Mode)* screen:

1. Click  (Subprocess) button. The *Sub Process in ROOT* dialog is displayed.



2. Enter the Sub Process Code. You cannot enter any special characters except underscore “_”. Click **OK**.

The sub process is listed under the root process as a branch.

NOTE: You can further create sub processes for the existing processes or for the base process by selecting the process and following the above procedure.

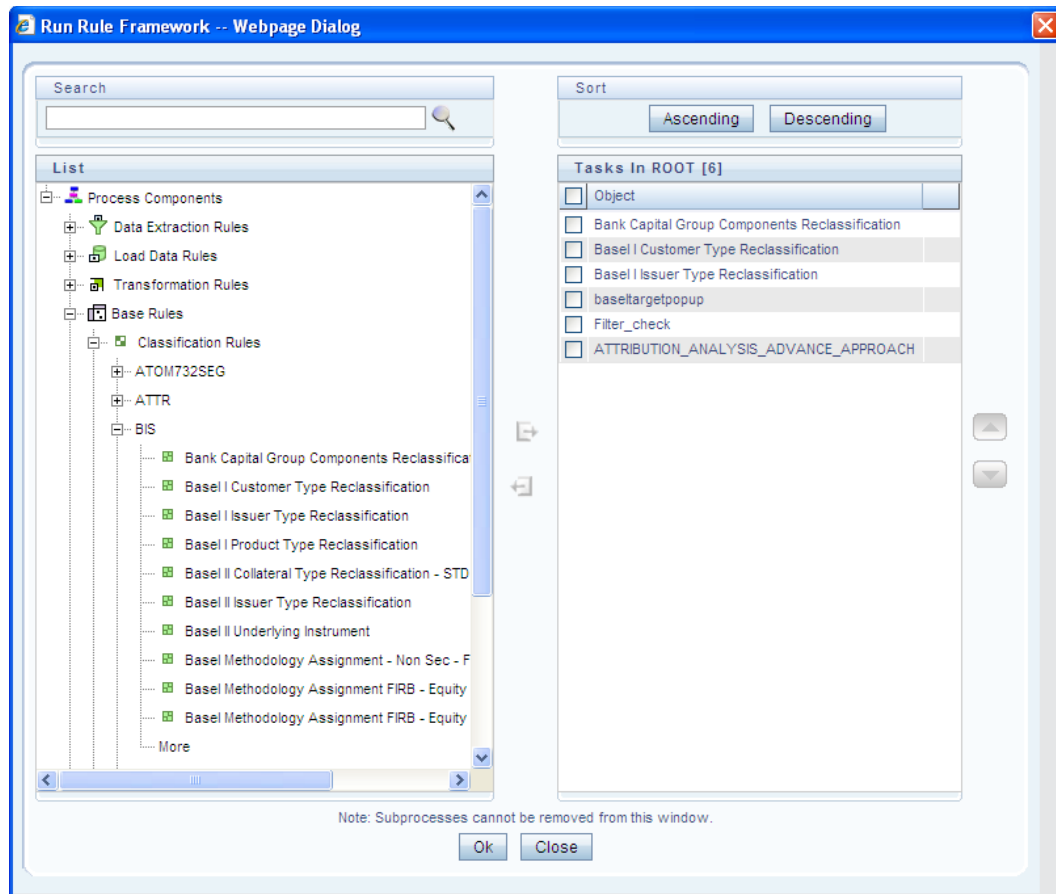
2.5.1.2 Add Component to Base Process / Sub Process

You can add process components to the base process as well as the sub processes.

To add the process components from the *Process Definition (New Mode)* screen:

1. Select the process for which you want to add the component.
2. Click  (Component) button.

The *Component Selector* screen is displayed.



On the List pane, click button to expand the members and view the process components. For more information, refer [Process Hierarchy Members](#).

3. Select a Process Component and click to move the component to the *Tasks In <Process Name>* pane.

In *Component Selector* screen you can also:

- Search for a component by specifying the nearest keyword and clicking button.
- Click **Ascending** or **Descending** button to sort the selected components in Ascending or Descending alphabetical order.
- Click or button to move up or move down the selected components.
- Click button to add parameters for the selected components.

The parameters must be specified in double quotes and in case of multiple parameters, specify the values separated by commas. E.g.: "value 1","value 2".

- Click button to remove the selected components from the *Tasks In <Process Name>* pane.

NOTE: Sub processes listed in *Tasks In <Process Name>* pane cannot be removed.

4. Click **OK**. The components are listed under the selected process.

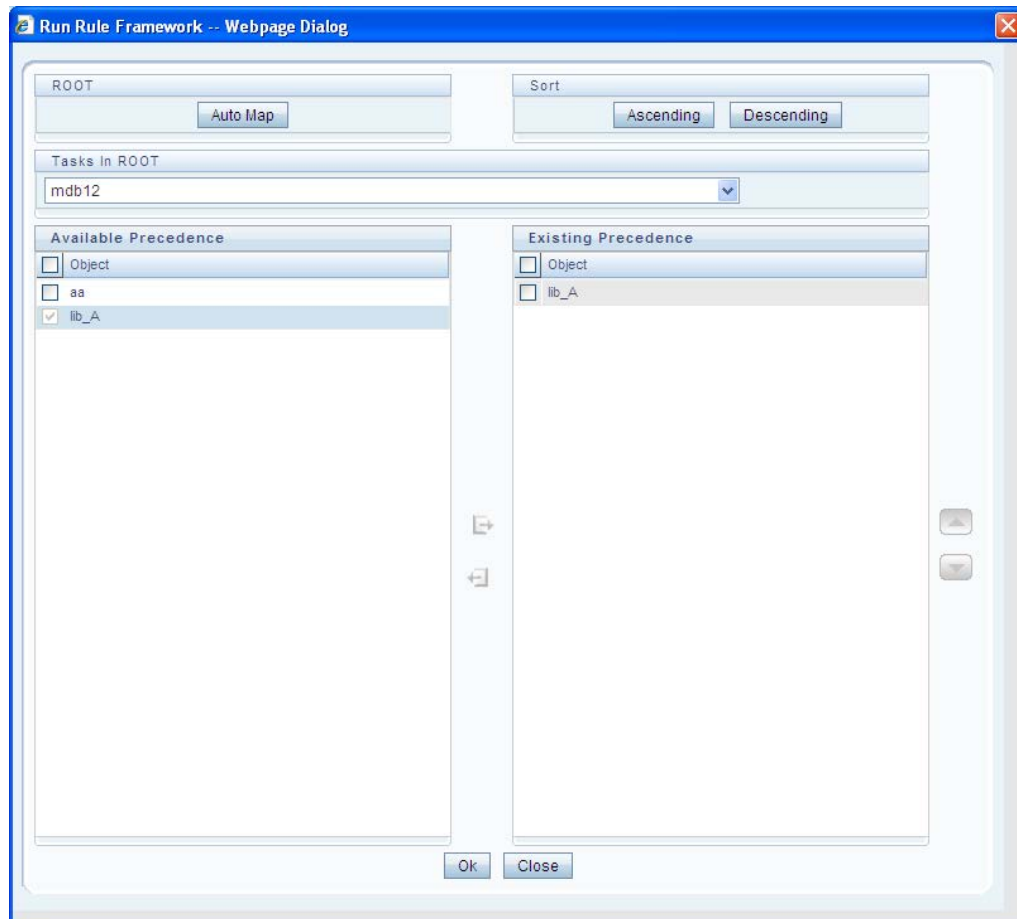
2.5.1.3 Add Precedence for Selected Components

You can add precedence for the selected components in the *Process Definition (New Mode)* screen. Precedence can be defined to peer processes in a selected parent process.

To add precedence for a selected component:

1. Select the process for whose components you want to select precedence.
2. Click  (Precedence) button.

The *Precedence Selector* screen is displayed.



3. Select **Auto Map** to override the predefined precedence and to set predecessor tasks as precedence.
4. To manually select predecessor tasks for a task:

- Select a task from **Tasks In <Process Name>** drop-down list. The other tasks are listed in the Available Precedence pane.
- Select the tasks to set as predecessor tasks and click  button.
- The selected tasks are listed in the **Existing Precedence** pane.

NOTE: You cannot select tasks as predecessor tasks if they have cyclic dependencies with the selected task.

In the *Precedence Selector* screen you can also:

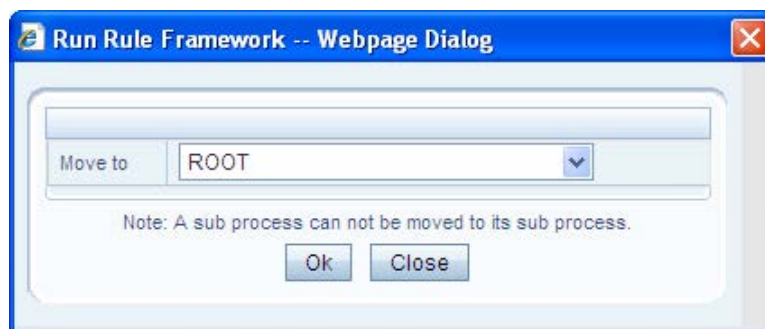
- Click **Ascending** or **Descending** button to sort the selected tasks in Ascending or Descending order.
 - Click  or  button to move up or move down the selected tasks.
 - Click  button to remove selected tasks from the **Existing Precedence** pane.
5. Click **OK**. The precedence is set for the tasks in the selected process.

2.5.1.4 Move Tasks among Processes

You can move the tasks which have no dependency, among different processes in the *Process Definition (New/ Edit Mode)* screen.

To move tasks:

1. Select the task to be moved or the sub process under which the task to be moved comes. On the right pane, the task or sub process details are displayed.
2. Select the checkbox(s) adjacent to the tasks to be moved to a different process.
3. Click  **Move** button. The *Move to* dialog is displayed.



4. Select the process/ sub process to which you want to move the task.
5. Click **OK**. The screen is refreshed and the task is displayed under the selected process.

2.5.1.5 Remove Tasks from a Process

You can remove/ delete the tasks which have no dependency, from the *Process Definition (New/ Edit Mode)* screen.

To remove tasks:

1. Select the task to be removed or the sub process under which the task to be removed comes. On the right pane, the task or sub process details are displayed.
2. Select the checkbox(s) adjacent to the tasks you want to remove.
3. Click  **Remove** button. The Warning dialog is displayed.
4. Click **OK**. The selected tasks are removed from the process.

In the *Process Definition (New/ Edit Mode)* screen, you can also view the details of a selected task by clicking  button.

Click **Save**. The process definition is saved with the provided details and is displayed in the *Process* screen.

Note that, the default version of a new process definition created by an authorizer is **0** and the one created by a non authorizer is **-1**. For more details on versioning, see [Process Definition Versioning](#).

The *Audit Trail* section at the bottom of *Process Definition (New Mode)* screen displays metadata information about the Process definition created. The *User Comments* section facilitates you to add or update additional information as comments.

2.5.2 View Process Definition

You can view individual process definition details at any given point.

To view the existing process definition details in the *Process* screen:

1. Select the checkbox adjacent to the Process Code whose details are to be viewed.
2. Click  button in the List tool bar.

The *Process Definition (View Mode)* screen is displayed with all the details of the selected Process.

2.5.3 Edit Process Definition

You can modify all the details except ID, Code, Version, Active status, and Type of a Process definition. An authorizer needs to approve the modified rule. Otherwise, it will be in Inactive state.

To modify an existing process definition in the *Process* screen:

1. Select the checkbox adjacent to the Process Code whose details are to be updated.
2. Click  button in the *List* tool bar. The Edit button is disabled if you have selected multiple Processes. The *Process Definition (Edit Mode)* screen is displayed.
3. Modify the process details as required. For more information, see [Create Process](#).
4. Click **Save** to save the changes.

2.5.3.1 Process Definition Versioning

For an authorizer:

When you create a new process, its version will be **0**. When you edit an existing process and try to save, you are prompted whether to save it as a new version or not. If you click **Yes**, a new process is created with version as **0** and the process having version as **0** will be saved with version as maximum version +1. If you click **No**, the existing process is overwritten and the version will be as it is.

For a non-authorizer:

When you create a new process, its version will be **-1**. Once the process is approved by an authorizer, the version becomes **0**. When you edit an existing process and try to save, you are prompted whether to save it as a new version or not. If you click **Yes**, a new process is created with version as **-1**. Once the process is approved, its version becomes **0** and the process having version as **0** will be saved with version as maximum version +1. If you click **No**, the existing process is overwritten, and the **Active** flag of the process becomes **N** (which you can view from the *Summary* screen). The version remains the same. Once the process gets approved, its **Active** flag changes to **Y**.

Note the following:

- The process with version 0 is the latest one and it can have many versions say 1 to n, where 1 is the oldest process and n is the next to latest.
- A rule with version -1 will always be in Inactive state.

You can view all the versions of a particular process by providing the process's name or code and clicking **Search** in the *Search and Filter* grid. (Ensure the **Version** field is cleared since it is auto populated with **0**).

2.5.4 Copy Process Definition

The Copy Process Definition facilitates you to quickly create a new process definition based on an existing process or by updating the values of the required process.

To copy an existing process definition in the *Process* screen:

1. Select the checkbox adjacent to the Process Code whose details are to be duplicated.
2. Click  button in the *List* toolbar to copy a selected process definition. The *Process Definition (Copy Mode)* screen is displayed. The **Copy** button is disabled if you have selected multiple processes.

In the Process Definition (Copy Mode) screen you can:

- Create new process definition with existing variables. Specify a new **Process Code** and **Folder**. Click **Save**.
- Create new process definition by updating the required variables. Specify a new **Process Code**, **Folder**, and update other required details. For more information, refer [Create Process](#). Click **Save**.

The new process definition details are displayed in the *Process* screen. By default, version **0** is set if you have authorization rights, else the version is set to **-1**.

2.5.5 Authorize Process Definition

A process definition when created/modified should be approved by an authorizer. An authorizer can approve/ reject a pre-defined process definition listed within the *Process* screen. To approve/ reject process(s) in the *Process* screen, you need to have the Authorizer function mapped to your role. If you are an authorizer, then all the process definitions created/ modified by you are auto approved and the **Active** status is set to **Yes**. Otherwise, the **Active** status is set to **No** and an authorizer needs to approve it to change the **Active** status to **Yes**.

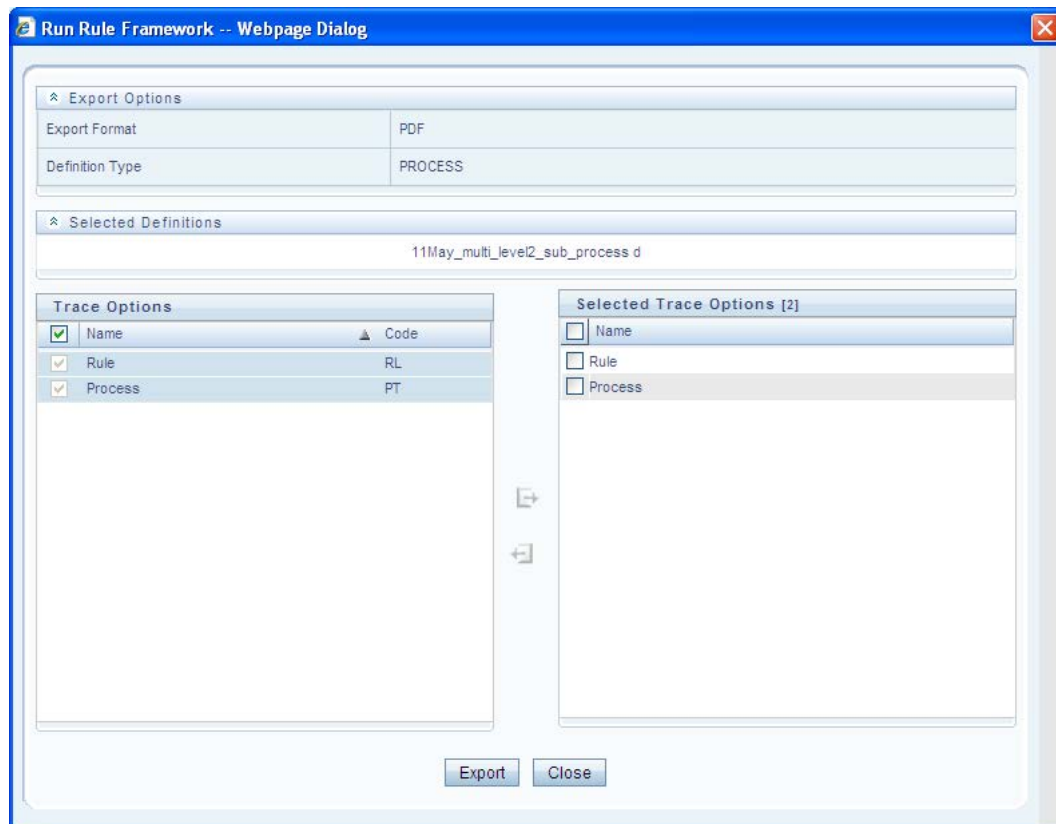
1. Select the checkbox(s) adjacent to the required Process Code(s).
2. Do one of the following:
 - To approve the selected process definitions, click  button.
 - To reject the selected process definitions, click  button.

A process is made available for use only after the approval. For a rejected definition a comment with the rejection details will be added.

2.5.6 Export Process to PDF

You can export single/multiple process definition details to a PDF file. To export the process definition details in the *Process* screen:

1. Select the checkbox(s) adjacent to the required Process Codes.
2. Click  button in the *List* toolbar.
3. Click the  button in the popup. The *Export* dialog is displayed.



The *Export* dialog displays the Export Format, Definition Type, the names of the Selected Definitions, and the Trace Options.

To select the Trace Options in the Trace Options grid:

- Select the checkbox(s) adjacent to the available options.
 - Click  button. The selected options are displayed in the **Selected Trace Options** pane. You can also select a trace option and click  button to deselect it from the *Selected Trace Options* pane.
4. Click **Export**. The process is initiated and is displayed in a pop-up specific to the current download. Once the PDF file is generated, you can open/ save the file from the *File Download* window.

You can either save the file on the local machine or view the file contents in a PDF viewer. The downloaded PDF displays all the details such as Linked to, Properties, Master info, Audit Trail, List, Mapping Details, and Comments of all the Process definitions selected.

2.5.7 Trace Process Definition Details

You can trace the metadata details of individual process definitions. To trace the underlying metadata details of a process definition in the *Process* screen:

1. Select the checkbox adjacent to the Process Code whose details are to be traced.
2. Click  button from the List toolbar.

The *Process Definition* screen is displayed with the details such as Traced Object (Name and Definition Type), other Processes and Runs in which the selected Process is used. In the *Trace Definition* screen you can also select individual Process or Run and click  button to view the definition details.

2.5.8 Delete Process Definition

You can remove process definition(s) which are no longer required in the system by deleting from *Process* screen. However, it is a soft deletion only. An authorizer has to approve the deletion.

To delete process definition

1. Select the checkbox(s) adjacent to the Process Code(s) whose details are to be removed.
2. Click  button from the *List* tool bar.
3. Click **OK** in the information dialog to confirm deletion.

An information dialog is displayed confirming the deletion of the Process definition(s) and asking the authorization of the same.

2.6 Run

The Run feature in the Rules framework helps you to combine various components and/or processes together and execute them with different underlying approaches. Further, run conditions and/or job conditions can be specified while defining a run.

Two types of runs can be defined namely Base Run and Simulation Run.

Base Run allows you to combine different rules and processes together as jobs and apply run conditions and job conditions.

Simulation Run allows you to compare the resultant performance/ calculations with respect to the baseline runs by replacing an existing job with a simulation job (a job can be a rule or a process). This comparison will provide useful insights on the effect of anticipated changes to the business.

Code	Name	Type	Folder	Version	Active
1305055181022	Capital Calculation - BG Basel Approach	Base Run	BGSE0	0	Yes
1305055191314	Capital Calculation - BG Standardised Approach	Base Run	BGSE0	0	Yes
1305055191393	Capital Calculation - BG Advanced RB Approach	Base Run	BGSE0	0	Yes
1305055191393	Risk Weighted Asset Calculation - Operational Risk - BG Standardised Approach	Base Run	IFSE0	0	Yes
1305055191393	Capital Calculation - BG Foundation RB Approach	Base Run	BGSE0	0	Yes
1305055191393	Risk Weighted Asset Calculation - Credit Risk - BG Standardised Approach	Base Run	BGSE0	0	Yes
1305055191393	Risk Weighted Asset Calculation - Credit Risk - BG Advanced RB Approach	Base Run	BGSE0	0	Yes
1305055191393	Risk Weighted Asset Calculation - Credit Risk - BG Foundation RB Approach	Base Run	BGSE0	0	Yes
1305055191393	Capital Calculation - FSB Standardised Approach - CAR Standard Formula	Base Run	IFSE0	0	Yes
1305055191393	Risk Weighted Asset Calculation - Credit Risk - FSB Standardised Approach	Base Run	IFSE0	0	Yes
1305055191393	Capital Calculation - FSB Standardised Approach - CAR Standard Formula	Base Run	IFSE0	0	Yes
1305055191393	Risk Weighted Asset Calculation - Market Risk - FSB Standardised Approach	Base Run	IFSE0	0	Yes
1305055191393	Risk Weighted Asset Calculation - Operational Risk - FSB Basic Indicator Approach	Base Run	IFSE0	0	Yes
1305055191393	Staging Data Population - Market Risk - FSB Standardised Approach	Base Run	IFSE0	0	Yes
1305055191393	Staging Data Population - Market Risk - FSB Standardised Approach	Base Run	BGSE0	0	Yes
1305055191393	Capital Calculation - FSB RB Approach	Base Run	USASE0	0	Yes
1305055191393	Risk Weighted Asset Calculation - Credit Risk - FSB RB Approach	Base Run	USASE0	0	Yes
1305055191393	Capital Calculation - RBI Standardised Approach - Indian Banks	Base Run	INDSE0	0	Yes
1305055191393	Capital Calculation - RBI Standardised Approach - Foreign Banks	Base Run	INDSE0	0	Yes
1305055191393	Risk Weighted Asset Calculation - Credit Risk - RBI Standardised Approach	Base Run	INDSE0	0	Yes

The *Run* screen displays the runs created in the current Information Domain with the metadata details such as Code, Name, Type, Folder, Version, and Active status.

You can make use of [Search and Filter](#) option to search for specific runs based on Code, Name, Folder, Version, Active status, or Type. The Pagination option helps you to manage the view of existing runs within the system. For more information, refer to the [Pagination](#) section.

You can archive/restore the existing PR2 definitions using the [Metadata Restore/Archive](#) utility and also migrate PR2/RRF definitions through the [Command Line Utility](#) across Information Domains / Setups.

2.6.1 Create Run

You can create run definitions using the existing metadata objects. The various components that can be used to form run definitions are mentioned in [Process Hierarchy Members](#).

The following filter conditions can also be applied to a run definition:

Condition Type	Description
Run Condition	When multiple components are selected, there is likelihood that the components may contain Rules / T2Ts whose target entities are across multiple datasets. When the selected components contain Rules, the target entities (hierarchies) which are common across the datasets are made available for defining Run Conditions. When the selected components contain T2Ts, the hierarchies that are based on the underlying destination tables which are common across the datasets are made available for defining the Run Condition. A Run Condition is defined as a filter on the available hierarchies. You can select up to 9 run conditions.
Job Condition	A further level of filter can be applied at the component level. This is achieved through a mapping process by which you can apply a job condition to the required jobs You can select only one job condition and the hierarchy which you have already selected as a run condition cannot be selected as job condition again.

To create a run definition in the *Run* screen:

1. Click  New button from the *List* toolbar. The *Run Definition (New Mode)* screen is displayed.

Run Rule Framework >> Run >> Run Definition (New Mode)

Linked to

Folder

Master Information | Properties

ID: << New >> Version: << NA >>
 Code: 1306855181022 Active: << NA >>
 Name: Capital Calculation - BG Basel I Approach Type: Base Run

List

Location	Code	Name	Type	Simulation Job
Run Condition	H2005	Hedge in effective Pair	Hierarchy	
Run Condition	H2290	100 pct RIV for Corporates	Hierarchy	
Run Condition	H2139	Actual Business Days	Hierarchy	
Run Condition	H2384	AFC Indicator	Hierarchy	
Job	Avg_Ext_Sprd	Avg_Ext_Sprd	Data Transformation	
Job	Basel_OI_Execution	Basel_OI_Execution	Data Transformation	
Job Condition	HBL0072	Balance Phase in Capital Component Group	Hierarchy	

Audit Trail

Created By: SYSADMIN Creation Date: 11/22/2013 02:32:44
 Last Modified By: SYSADMIN Last Modification Date: << NA >>
 Last Authorized By: SYSADMIN Last Authorization Date: 11/22/2013 02:32:44

- Click  button adjacent to the **Folder** field in the *Linked to* grid. The *Folder Selector* window is displayed.

Folder Selector -- Webpage Dialog

Search

List [7] Page 1 / 1 Jump to page

Name	Code
☐ AttributionSegment	ATRSEG
☐ BISSEG	BISSEG
☐ BRASEG	BRASEG
☐ CBRCSEG	CBRCSEG
☐ IFSBSEG	IFSBSEG
☐ INDSEG	INDSEG
☐ USASEG	USASEG

Ok Close

The folders to which your user group is mapped are displayed.

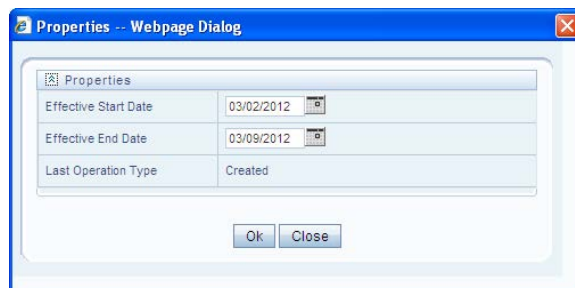
- Select the checkbox adjacent to the required folder. Click **OK**.

You can also enter a keyword and click  button in the **Search** field of *Folder Selector* window to locate a particular folder.

4. Enter the details of the *Master information* grid as tabulated below:

Field Name	Description
ID	Refers to system generated ID for a newly created run. When you create a rule, it is displayed as <<New >>.
Code	Enter a valid code for the run. Ensure that the code value specified is of maximum 30 characters in length and does not contain any special characters except “ _ ”. The code is unique and case sensitive. It is used to identify a run definition during execution. Note: You cannot use the same code of a rule which has been deleted from the UI.
Name	Enter a valid name for the run. Ensure that Run Name is alphanumeric and does not contain any of the following special characters: #, %, &, +, ", and ~. Note that the name needs not be unique.
Version	By default the version field is displayed as <<NA>> for the new run being created. Once the run definition is saved, an appropriate version is assigned as either -1 or 0 depending on the authorization permissions. For more information, refer Run Definition Versioning .
Active	By default, the Active field is displayed as <<NA>> for the new run being created. Once the run definition is saved, the status becomes Yes if you are an authorizer or No if the created Run needs to be authorized by an authorizer.
Type	Select the type of the run from the drop-down list. The available types are Base Run and Simulation Run .

5. Click  button in the *Master information* grid. The *Properties* window is displayed.



You can edit the below tabulated details in the *Properties* window:

Field Name	Description
Effective Start Date	Select the effective start date by clicking  (Calendar) button.
Effective End Date	Select the effective end date by clicking  (Calendar) button.
Last operation Type	By default, this field displays the last change done to the run definition. While creating a run, the field displays the operation type as Created .

- Click **OK**. The properties are saved for the current Run definition.

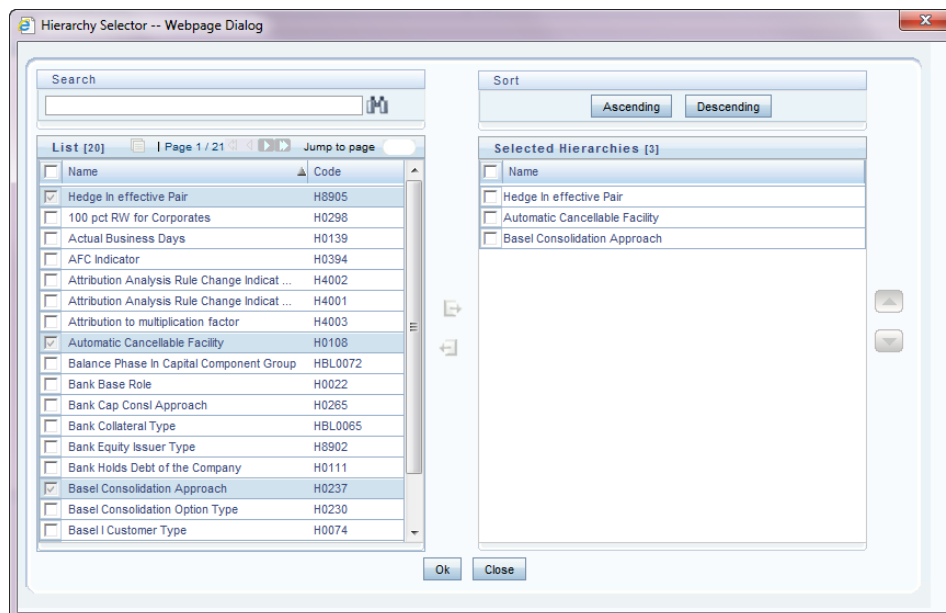
2.6.1.1 Select Run Condition for Run

You can select conditions to preset the initialization mechanism of a run definition.

NOTE: The Cumulative Node Expression for Hierarchy Nodes used as Run Condition in a Run definition should not cross 4000 characters. If it is exceeded, you will get error while executing the Run definition.

To select a condition for a run in the *Run Definition (New Mode)* screen:

- Click  **Add** button from the *List* grid and select Run Condition (). The *Hierarchy Selector* screen is displayed.



The LHS pane of the *Hierarchy Selector* screen displays all the available hierarchies defined in the selected infodomain.

- Select the checkbox(s) adjacent to the members you want to select and click .

In the *Hierarchy Selector* screen you can:

- Search for a member by specifying the nearest keyword and clicking  button.
- The Pagination option helps you to manage the view of existing Hierarchies within the system. For more information, refer [Pagination](#) section.
- Select a hierarchy and click  button to view its metadata information.
- Click **Ascending** or **Descending** button to sort the selected list of hierarchies in the alphabetical ascending or descending order.
- Click  or  button to move up or move down the selected members.

NOTE: The re-ordering of hierarchies does not affect the resulting SQL query.

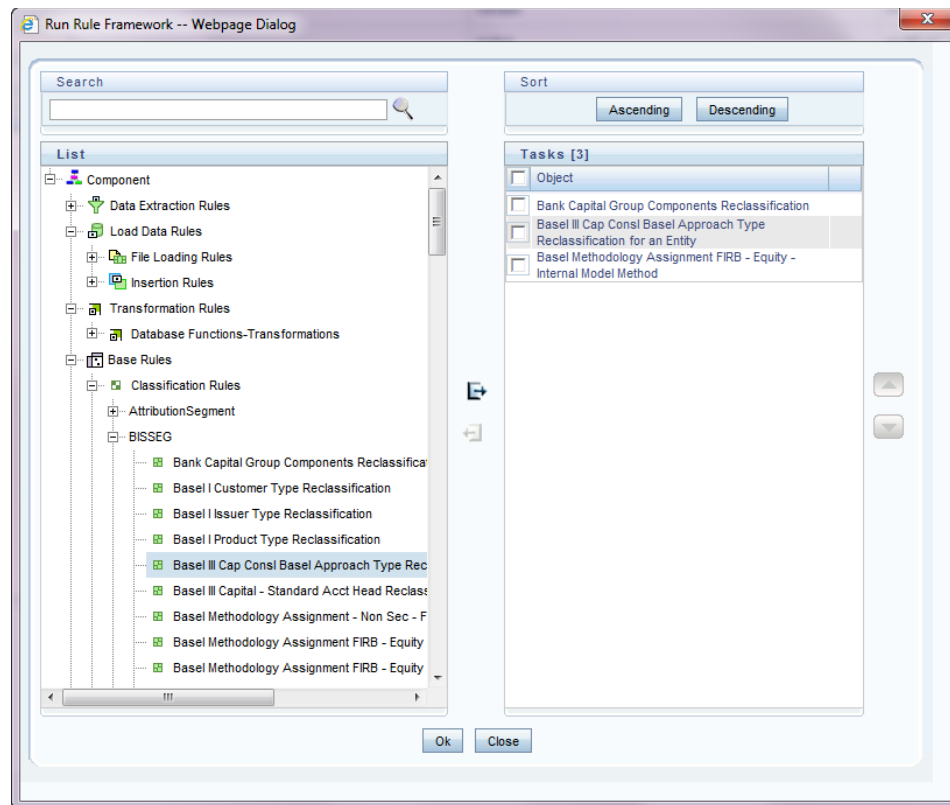
- Click  button to remove selected members from the *Selected Hierarchies* pane.
3. Click **OK**. The selected Hierarchies are listed in the *Run Definition (New Mode)* screen.

2.6.1.2 Select Jobs for Run

You can select the required jobs for the run definition being created.

To select jobs for a run:

1. Click  **Add** button from the *List* grid and select **Job** (). The *Job Selector* screen is displayed.



On the **List** pane, you can click button to expand the members and view the job components. For more information, refer to [Process Hierarchy Members](#).

2. Select a job component and click to move the component to the *Tasks* pane.

NOTE: You cannot select jobs with the same unique code in a run definition. Wherever jobs have same unique code, the jobs should be added to a process and the process should be added to the run definition.

In *Job Selector* screen you can also:

- Search for a component by specifying the nearest keyword and clicking button. It may not display search results if the branch of that component has not been expanded.
- Click **Ascending** or **Descending** button to sort the selected components in ascending or descending alphabetical order.
- Click or button to re-order the selected components.
- Click button to add parameters for the selected components.
- Click button to remove the selected components from the *Tasks* pane.

3. Click **OK**. The components are listed under the List pane in the *Run Definition* screen.

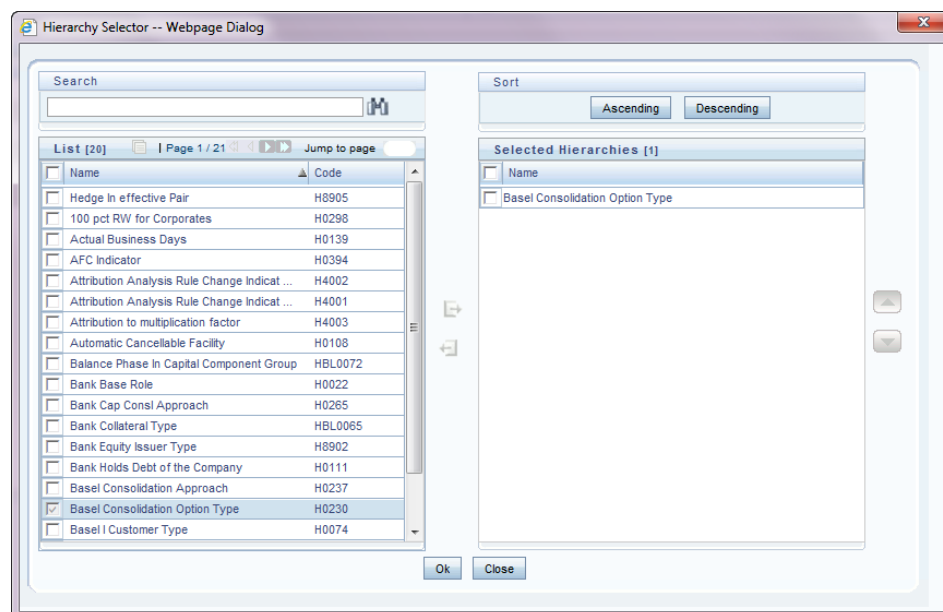
2.6.1.3 Select Job Condition for Run

You can select only a single job condition for the execution of predefined jobs in a run. A hierarchy which is already selected as a run condition cannot be selected as a job condition.

NOTE: The Cumulative Node Expression for Hierarchy Nodes used as Job Condition in a Run definition should not cross 4000 characters. If it is exceeded, you will get error while executing the Run definition.

To select the job condition for a run:

1. Click  **Add** button from the *List* grid and select **Job Condition** (). The *Hierarchy Selector* screen is displayed.



2. Select the checkbox adjacent to the hierarchy that you want to select as job condition and click .

To know about the operations you can do in this screen, refer to [Hierarchy Selector](#) screen.

NOTE: Ensure that you have selected only one Job Condition and the same hierarchy is not selected as both Run & Job conditions.

3. Click **OK**.

From the *List* grid in the *Run Definition (New Mode)* screen, you can also:

- Click  **Move** button to change a selected run condition to job condition and conversely.
- Click  **Show Details** button to view the metadata information of the selected member.

Once all the necessary information in the first screen of the *Run Definition (New Mode)* is populated, click the **Next** button to navigate to the concurrent procedures of defining a Rule.

The screenshot displays the 'Run Definition (New Mode)' window. It includes a 'Linked to' section with a 'Folder' dropdown set to 'ATRSEG'. Below this is a 'Master Information' grid with fields for ID, Code, Name, Version, Active, and Type. The 'Run Condition' grid lists conditions with columns for Code, Name, Type, and Condition. The 'Detail Information' section includes a 'Jobs' grid and a 'Job Condition' grid. At the bottom, there are 'Back', 'Save', and 'Close' buttons.

The second screen of *Run Definition (New Mode)* screen displays all the information you have provided in the *Linked to* and *Master information* grids. You can view the selected filters in the *Run Condition* grid and selected jobs along with the job condition in the *Detail Information* grid

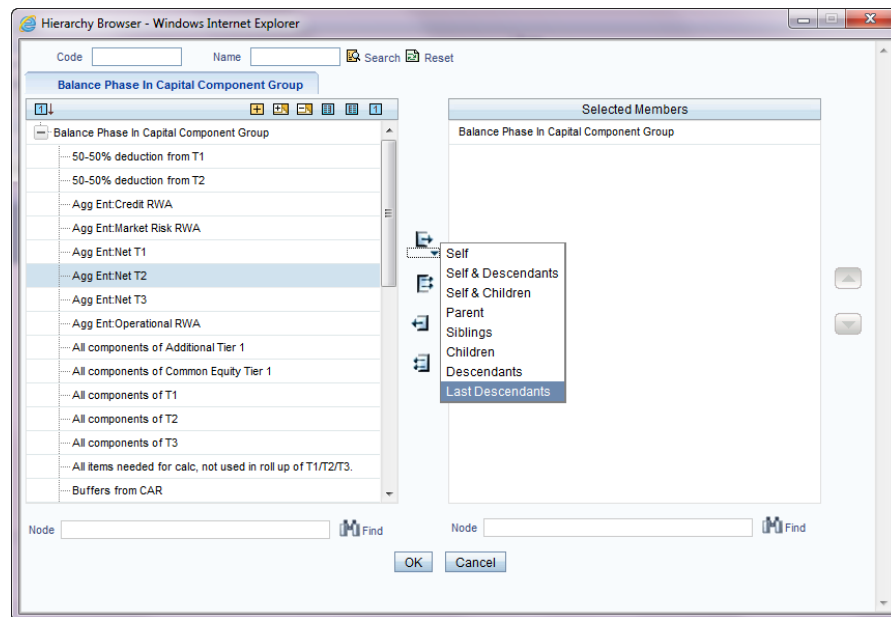
Expand a job which is a process, then the Object, Parent Object, Precedence and Type columns are populated.

2.6.1.4 Hierarchical Member Selection

In the *Run Condition* grid, you can modify the run conditions by including hierarchical members.

To modify a run condition:

1. Click  button corresponding to the run condition you want to modify. The *Hierarchy Browser* screen is displayed.



The *Search* grid allows you to search for a particular member by entering Code or any part of the Name and clicking **Search** button. You can click **Reset** button to refresh the Code or name fields. You can also find a member in the grid using **Find** button.

2. Click and expand the members of the selected hierarchy.
3. Select a member / node and click to select the same. Click the to select the member as Self, Self & Descendants, Self & Children, Parent, Siblings, Children, Descendants, or Last Descendants. For more information, refer to [Hierarchical Member Selection Modes](#).

In the *Hierarchy Browser* screen you can also:

- Click or to sort the members by code or name.
 - Click or to expand or collapse the members under a node.
 - Click or to expand a branch or collapse a branch.
 - Click or to view the code values of members right or left.
 - Click or to show code or show name of the members.
 - Click or to move the members up or down in the *Selected Members* pane.
4. Click button corresponding to the run condition to view the SQL query. The SQL query is formed based on the hierarchical member selection mode. The *Preview SQL Query* screen is displayed with the resultant SQL equivalent of the run condition.

The *Detail Information* grid displays the jobs and job condition defined for the run definition.

- Click  button adjacent to the job names to re-order the selected jobs.
- Click  button beside the job condition to launch the *Hierarchy Browser* window.
- Select the checkbox corresponding to the job if you want to apply the Job condition to that job.
- Click a job to view its definition details. For example, if it is a Rule, the *Show Details* screen displays the *Rule Definition (View Mode)* screen.

You can click **Back** button to navigate back to the first page of the *Run Definition (New Mode)* screen to modify any details.

Once all the necessary details are entered, click **Save**. If you are an authorizer, the version of the run definition will be **0**, else it will be **-1**.

The *Audit Trail* section at the bottom of *Run Definition (New Mode)* screen displays metadata information about the Run definition created. The *User Comments* section facilitates you to add or update additional information as comments.

2.6.2 View Run Definition

You can view individual run definition details at any given point. To view the existing Run definition details in the *Run* screen:

1. Select the checkbox adjacent to the Run Code whose details are to be viewed.
2. Click  button in the List tool bar.

The *Run Definition (View Mode)* screen is displayed with all the details of the selected Run. Click **Next** and **Back** buttons to navigate back and forth in the *Run Definition (View Mode)* screen.

2.6.3 Edit Run Definition

You can modify all the details except ID, Code, Version, Active status, and Type of a run definition. To modify an existing run definition in the *Run* screen:

1. Select the checkbox adjacent to the Run Code whose details are to be updated.
2. Click  button in the *List* tool bar. Edit button is disabled if you have selected multiple Runs. The *Run Definition (Edit Mode)* screen is displayed.
3. Edit the Run details as required. For more information, refer [Create Run](#).
4. Click **Save** to save the changes.

2.6.3.1 Run Definition Versioning

For an authorizer:

When you create a new run, its version will be **0**. When you edit an existing run and try to save, you are prompted whether to save it as a new version or not. If you click **Yes**, a new run is created with version as **0** and the run having version as **0** will be saved with version as maximum version +1. If you click **No**, the existing run is overwritten and the version will be as it is.

For a non-authorizer:

When you create a new run, its version will be **-1**. Once the run is approved by an authorizer, the version becomes **0**. When you edit an existing run and try to save, you are prompted whether to save it as a new version or not. If you click **Yes**, a new run is created with version as **-1**. Once the run is approved, its version becomes **0** and the run having version as **0** will be saved with version as maximum version +1. If you click **No**, the existing run is overwritten, and the **Active** flag of the run becomes **N** (which you can view from the *Summary* screen). The version remains the same. Once the run gets approved, its **Active** flag changes to **Y**.

Note the following:

- The run with version 0 is the latest one and it can have many versions say 1 to n, where 1 is the oldest run and n is the next to latest.
- A run with version -1 will always be in Inactive state.

You can view all the versions of a particular rule by providing the run's name or code and clicking **Search** in the *Search and Filter* grid. (Ensure the **Version** field is cleared since it is auto populated with **0**).

2.6.4 Copy Run Definition

This option facilitates you to quickly create a new run definition based on an existing run by updating the values of the required fields.

To copy an existing Run Definition in the *Run* screen:

1. Select the checkbox adjacent to the Run Code whose details are to be duplicated.
2. Click  button in the List toolbar to copy a selected Run definition. The *Run Definition (Copy Mode)* screen is displayed. Copy button is disabled if you have selected multiple Runs.

In the Run Definition (Copy Mode) screen you can:

- Create new Run definition with existing variables. Specify a new **Run Code** and **Folder**. Click **Save**.

- Create new Run definition by updating the required variables. Specify a new **Run Code**, **Folder**, and update other required details. For more information, refer [Create Run](#). Click **Save**.

The new Run definition details are displayed in the *Run* screen. By default, version **0** is set if you have authorization rights, else the version is set to **-1**.

2.6.5 Authorize Run Definition

All the actions in a run definition should be approved by an authorizer. An authorizer can approve a pre-defined run definition for further execution or reject an inappropriate run definition listed within the *Run* screen. If you are an authorizer, the run definition is auto approved as you save it and the **Active** status is set to **Yes**. Otherwise, the **Active** status is set to **No** and an authorizer needs to approve it to change the **Active** status to **Yes**.

To approve/reject runs:

1. Select the checkbox(s) adjacent to the required Run Codes.
2. Do one of the following:
 - To approve the selected run definitions, click  button.
 - To reject the selected run definitions, click  button.

A run is made available for use only after the approval. For a rejected definition a comment with the rejection details will be added.

2.6.6 Export Run to PDF

This option allows you to export multiple run definitions to a PDF file. You have the option to export only the rules or processes in the run definition to PDF by selecting the required Trace Options.

To export the run definitions in the *Run* screen:

1. Select the checkbox(s) adjacent to the required Run Codes.
2. Click  Export button in the *List* toolbar and click the  PDF button in the popup. The *Export* dialog is displayed.

Export Options	
Export Format	PDF
Definition Type	Run

Selected Definitions	
Risk Weighted Asset Calculation - Credit Risk - BIS Standardised Approach Risk Weighted Asset Calculation - Credit Risk - BIS Advanced IRB Approach	

Trace Options	
☐ Name	Code
☒ Rule	RL
☐ Process	PT

Selected Trace Options [1]	
☒ Rule	

Export Close

The *Export* dialog *displays* the Export Format, Definition Type, the names of the Selected Definitions, and the Trace Options.

- Select the checkbox adjacent to Rule or Process if you want to export only the rule details or Process details respectively. If you do not select any checkbox, all details of the selected run definitions will be exported.
 - Click  button. The selected options are displayed in the *Selected Trace Options* pane. You can also select a trace option and click  button to deselect it from the *Selected Trace Options* pane.
3. Click **Export**. The process is initiated and is displayed in a pop-up specific to the current download. Once the PDF is generated, you can open / save the file from the *File Download* dialog.

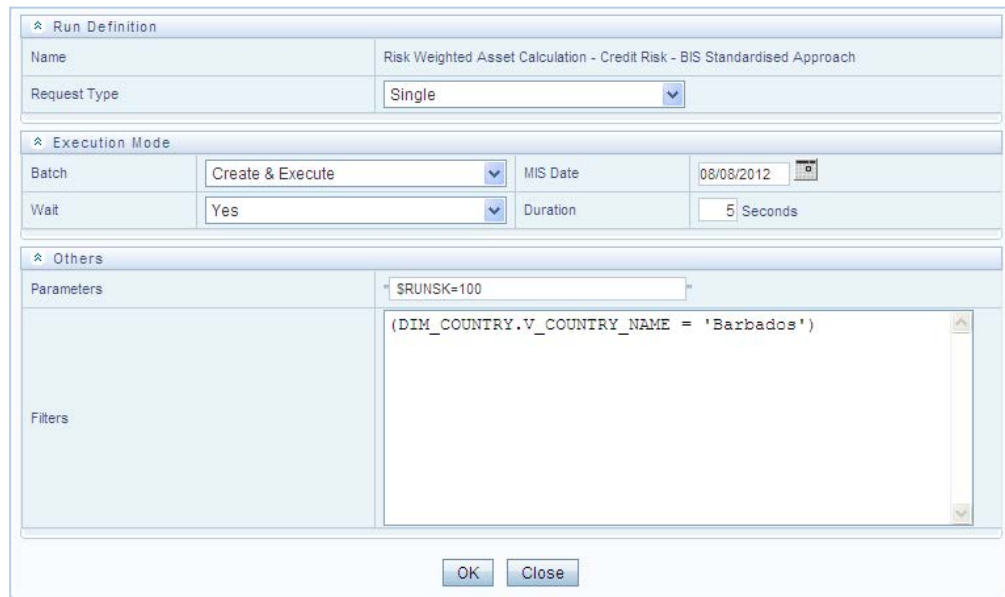
You can either save the file on the local machine or view the file contents in a PDF viewer. The downloaded PDF displays all the details such as Linked to, Properties, Master info, Audit Trail, List, and Comments of all the Run definitions selected.

2.6.7 Fire Run

This feature facilitates you to execute a previously created Run. You can execute the run definition as a batch or batch group.

To execute a run definition:

1. Select the checkbox adjacent to the Run Code which you want to execute and click  button in the *List* toolbar. The *Fire Run* screen is displayed.



The screenshot shows the 'Fire Run' dialog box with the following details:

- Run Definition:**
 - Name: Risk Weighted Asset Calculation - Credit Risk - BIS Standardised Approach
 - Request Type: Single
- Execution Mode:**
 - Batch: Create & Execute
 - MIS Date: 08/08/2012
 - Wait: Yes
 - Duration: 5 Seconds
- Others:**
 - Parameters: * \$RUNSK=100
 - Filters: (DIM_COUNTRY.V_COUNTRY_NAME = 'Barbados')

Buttons: OK, Close

2. Enter the field details as tabulated below:

Field Name	Description
Name	This field displays the name of the selected run.
Request Type	Select the request type either as Single or as Multiple from the drop-down list. ▪ Single- The selected run definition will be created as a batch for execution. ▪ Multiple- The selected run definition will be created as a batch group for execution.

Field Name	Description
Batch	Select the Batch either as Create or as Create & Execute from the drop-down list ▪ Create- The batch or batch group will be created and needs to be executed from the <i>Operations</i> module. ▪ Create & Execute- The batch or batch group will be created and executed. You can monitor it from the <i>Operations</i> module.
MIS Date	Click  button and the Calendar is displayed. Select the MIS Date from the calendar. This field is displayed only if you have selected Request Type as Multiple with any of the Batch mode or Request Type as Single with Batch mode as Create & Execute.
Wait	▪ Select Yes and provide the Duration in seconds after which the run definition should be executed. ▪ Select No to execute it immediately.
Parameters	Enter the required parameters in the field provided. The parameter provided in this field is considered for Run execution.
Filters	Enter the filter details in the field provided. The filters provided in this field are considered for Run execution.

3. Click **OK**. The details are saved and the run definition is executed as per the Fire Run details.

2.6.8 Delete Run Definition

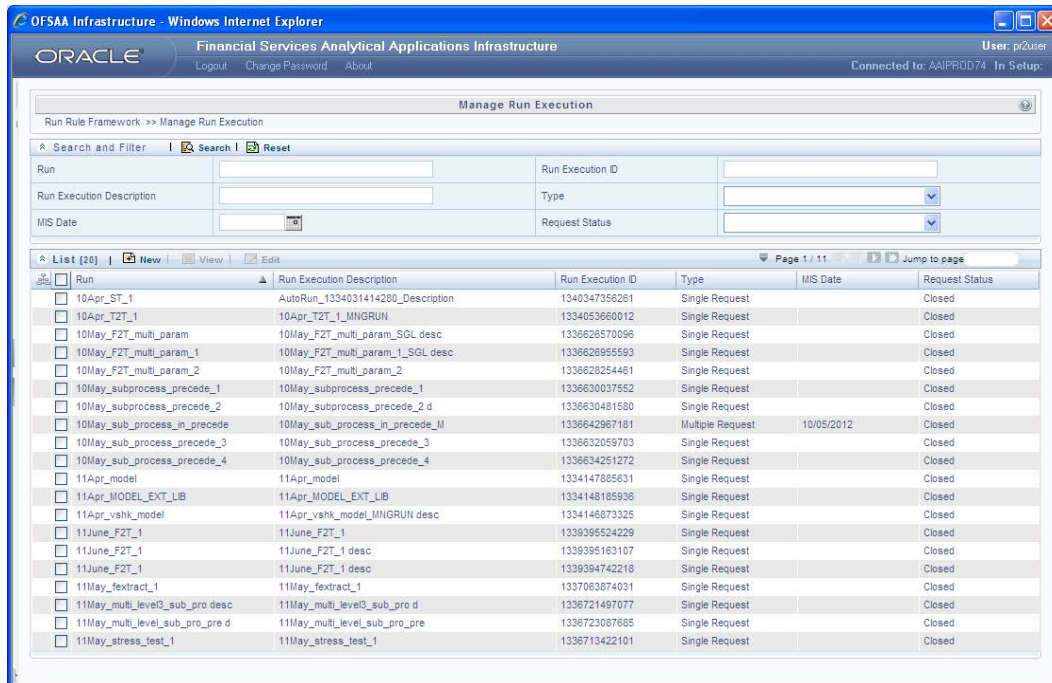
You can remove Run definition(s) which are no longer required in the system by deleting from *Run* screen. However, it is a soft deletion only. An authorizer has to approve the deletion.

1. Select the checkbox(s) adjacent to the Run Codes whose details are to be removed.
2. Click  button from the List tool bar.
3. Click **OK** in the information dialog to confirm deletion.

An information dialog is displayed confirming the deletion of the Run definitions and asking the authorization of the same.

2.7 Manage Run Execution

Manage Run execution enables you to have a work flow for Run execution. The pre defined Run definitions can be executed in a unique batch or batch group depending on the Type of the Manage Run Execution defined. These batches can then be executed from *Operations* module.



The *Manage Run Execution* screen displays the Run Execution requests created in the current Information Domain with the metadata details such as Run name, Run Execution Description, Run Execution ID, Type, MIS Date, and Request Status.

You can also make use of [Search and Filter](#) option to search for specific Runs based on Run Name, Run Execution Description, MIS Date, Run Execution ID, Type, or Request Status. The Pagination option helps you to manage the view of existing Rules within the system. For more information, refer [Pagination](#) section.

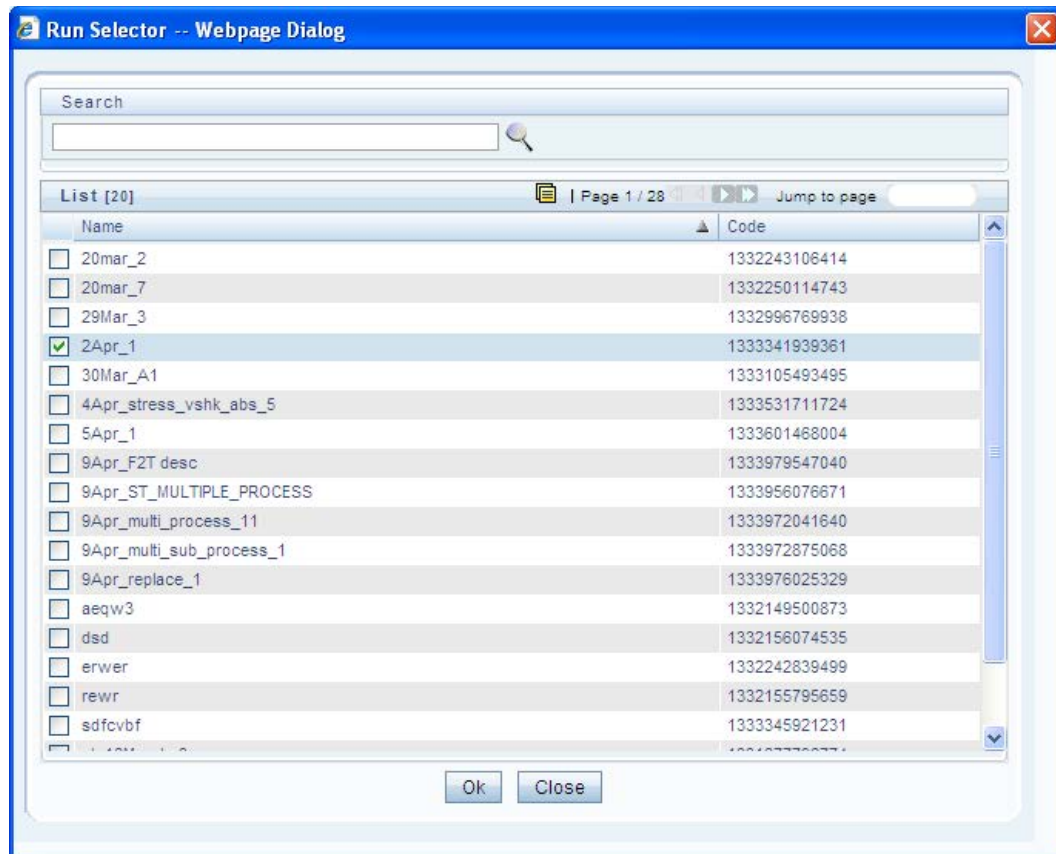
2.7.1 Creating Manage Run Definition

You can create the Manage Run Definitions from the *Manage Run Execution* screen.

To create a Manage Run Definition:

1. Click  button from the List toolbar. The *Manage Run Definition (New Mode)* screen is displayed.

2. Click  button in the Run field. The *Run Selector* screen is displayed.



In the *Run Selector* screen click button to view the details of the selected Run.

The Pagination option helps you to manage the view of existing Runs within the system. For more information, refer [Pagination](#) section.

Click **OK**. The selected Run is displayed in the Run field.

Click button displayed adjacent to the button to view the details of the selected Run.

- Enter the details in the *Master Info* and *Execution Details* grids as tabulated:

Field Name	Description
Master Information grid	
Run Execution ID	The default ID of a newly created Run Execution is <<New >>
Run Execution Code	Enter a valid Run Execution Code. Ensure that the Run Execution Code specified is of maximum 30 characters in length and does not contain any special characters except “_”.

Field Name	Description
Run Execution Name	Enter the Name of the Run Execution. Ensure that Run Execution Name is alphanumeric and does not contain any of the following special characters: #, %, &, +, ", ~, and '.
Type	Select the type of the Run Execution either as Single Request or as Multiple Request . Note: A Single Request creates a Batch where as a Multiple Request creates Batch group.
Execution Details grid	
Execution ID	The default Execution ID of a newly created Run Execution is <<NA>>
Request Status	Select the request status either as Open or as Closed . - Status Open creates a Manage Run definition. - Status Closed creates a Manage Run definition along with a Batch/Batch Group.
MISDate	MIS Date refers to the date with which the data for the execution would be filtered. Click  button and the Calendar is displayed. You can select the MIS Date from the calendar. This field is displayed only if you have selected Type as Multiple Request .
Execution Status	The default Execution status of a newly created Run Execution is <<NA >>

- Click **Save**. The Run Execution is saved and a confirmation dialog is appeared.

The *Audit Trail* section at the bottom of *Manage Run Definition (New Mode)* screen displays metadata information about the Manage Run definition created. The *User Comments* section facilitates you to add or update additional information as comments.

2.7.2 Viewing Manage Run Definition

You can view individual Manage Run definition details at any given point. To view the existing Manage Run definition details in the *Manage Run Execution* screen:

- Select the checkbox adjacent to the Run Name whose details are to be viewed.
- Click  button in the List tool bar.

The *Manage Run Execution Definition (View Mode)* screen is displayed with all the details of the selected Manage Run Definition.

2.7.3 Editing Manage Run Definition

You can Modify the Run Execution Description and Request Status details of a Manage Run definition. To modify an existing Manage Run definition in the *Manage Run Execution* screen:

1. Select the checkbox adjacent to the Manage Run Definition name whose details are to be updated.
2. Click  button in the *List* tool bar. Edit button is disabled if you have selected multiple Manage Run Definitions. The *Manage Run Definition (Edit Mode)* screen is displayed.
3. Edit the Manage Run definition details as required. For more information, refer [Manage Run Definition](#).

You can select the Request Status as **Open**, **Closed**, **To be Deleted**, or **Final** depending on the current status of the definition:

- Status **Open** creates/updates a Manage Run definition.
- Status **Closed** creates a Manage Run definition along with a Batch/Batch Group.
- Status **To be Deleted** indicates the Manage Run definition is marked for deletion.
- Status **Final** indicates the Manage Run definition is successfully executed with expected results.

The **Execution Status** field displays the current execution status of a triggered Run as *Success*, *Failure*, or *Ongoing* and <<NA>> for a non-executed Run.

4. Click **Save** to save the changes.

2.8 Utilities

This section consists of information related to the utilities available in Rules Framework module of OFSAAI.

2.8.1 Component Registration

The Component Registration section allows you to add components by defining certain parameters in the *Component Registration* screen.

Before you begin, ensure that you have registered all the required components within the Run Rule Framework (RRF). For detailed information, refer OFSAAI Administration Guide available at [OTN library](#).

The *Component Registration* screen displays the current components in the left pane and the field values of the selected component in the right pane. The parameters described for a component in this screen are Component ID, ICC Component ID, Image Name, Parent ID, Class Path, and Tree Order.

The *Audit Trail* section at the bottom of *Component Registration* screen displays metadata information about the Component selected / created.

2.8.1.1 Creating Components

You can create new components from the *Component Registration* screen.

To create a new component:

1. Click  button. The fields in the right pane of the *Component Registration* screen are reset.
2. Enter the details as tabulated below:

Field Name	Description
Component ID	Enter the Component ID.
ICC Component ID	Select the ICC Component ID from the dropdown list.
Image Name	Key in the image name which is allocated for the component.
Parent ID	Select the Parent ID from the dropdown list.
Class Path	Key in the class path.
Tree Order	Enter the tree order as numeric value.

3. Click **Save**. The fields are validated and the component is saved.

2.8.1.2 Editing Component Definition

You can modify all the details except the Component ID of a Component. To modify an existing component in the *Component Registration* screen:

NOTE: Seeded Components cannot be modified.

1. Select the Component from the left pane tree structure, whose details are to be updated.
2. Click  button. The fields of the selected component are editable.
3. Edit the Component details as required. For more information, refer [Create Component](#).
4. Click **Save** to save the changes.

2.8.1.3 Removing Component Definition

You can remove individual Component definitions which are no longer required in the system by deleting from *Component Registration* screen.

NOTE: Seeded Components cannot be deleted.

1. Select the Component whose details are to be removed.
2. Click  button.
3. Click **OK** in the warning dialog to confirm deletion.

The *Component Registration* screen confirms the deletion of the component definition.

2.9 References

This section of the document consists of information related to intermediate actions that needs to be performed while completing a task. The procedures are common to all the sections and are referenced where ever required. You can refer to the following sections based on your need.

2.9.1 Process Hierarchy Members

The Process Hierarchy Members and their description are as tabulated.

Component	Description
Data Extraction Rules	Display all the Extract definitions defined through OFSAAI Data Management Tools.
Load Data Rules	Display the following two sub types of definitions: ▪ File Loading Rules display the entire File to Table definitions defined through OFSAAI Data Management Tools. ▪ Insertion Rules (Type1 Rules) display all the Table to Table definitions defined through OFSAAI Data Management Tools.
Transformation Rules	Displays the following definition sub type: ▪ Database Functions-Transformations display all the DT definitions defined in OFSAAI Data Management Tools.
Base Rules	Display the following two sub types of definitions: ▪ Classification Rules (type 2 rule) display all the type 2 rules defined in the Rules Framework which have Active status as "Yes" and Version "0". ▪ Computation Rules (type 3 rule) display all the type 3 rules defined in the Rules Framework which have Active status as "Yes" and Version "0".

Component	Description
Processes	Display all the existing processes defined through Process Framework which have Active status as "Yes" and Version "0" .
Cubes	Display all the cubes definitions defined for the selected Information Domain in OFSAAI unified metadata manager. Note: The cubes under the segment to which the user is mapped only will be displayed.
Model	Display all the existing model definitions defined in the Modeling framework screens.
Stress Testing	Display all the existing stress testing definitions defined in the Variable Shock Library, Scenario Management, and Stress Definition screens.

The parameters needed to execute all the listed components are explained in *References > Seeded Component Parameters* section.

2.9.2 Hierarchical Member Selection Modes

To aid the selection process, certain standard modes are offered through a drop-down. The available modes are **Self**, **Self & Descendants**, **Self & Children**, **Parent**, **Siblings**, **Children**, **Descendants**, and **Last Descendants**.

- The **Self** mode is the default mode displayed. In this mode, only the specific member selected in the LHS pane will be selected onto the RHS pane.
- Choose the **Self & Descendent** mode when you want a specific member and all its descendants right up to the end of its branch to be selected onto the RHS pane.
- Choose the **Self & Children** mode when you want a specific member and only its immediate children to be selected onto the RHS pane.
- Choose the **Parent** mode when you want to select only the parent member of a selected member onto the RHS pane.
- Choose the **Siblings** mode when you want to select only the sibling members from the same parent of the selected member onto the RHS pane.
- Choose the **Children** mode when you want only the immediate children of a specific member to be selected onto the RHS pane mode.
- Choose the **Descendants** mode when you want to select only the descendant members of selected member onto the RHS pane.
- Choose the **Last Descendants** mode when you want to select only the last descendant members of selected member onto the RHS pane.

You can also click  to select all the members to the Selected Members pane. Click  to deselect a selected member from the Selected Members pane or click  to deselect all the members.

2.9.3 Significance of Pre-Built Flag

While defining a Rule, you can make use of Pre Built Flag to fasten the Rule execution process by making use of pre compiled technical metadata details. The purpose of Pre Built Flag is to enhance the Rule execution process bypassing the need to search for the required technical metadata within multiple database tables.

Condition	Process flow
Creating Rule:	Rule definition with Pre-Built Flag set to "Y" > Build the Rule query.
	Rule definition with Pre-Built Flag set to "N" > Do not build the Rule query during Rule Save.
Executing Rule:	Pre-Built Flag set to "Y" > Retrieve the rule query from appropriate table and execute.
	Pre-Built Flag set to "N" > Build the Rule query by referencing the related metadata tables and then execute.

For example, consider a scenario where **Rule 1** (RWA calculation), using a Dataset **DS1** is to be executed. If the Pre-Built Flag condition is set to "N", then the metadata details of From Clause and Filter Clause of **DS1** are searched through the database to form the query. Whereas, when the Pre-Built Flag condition is set to "Y", then the From Clause and Filter Clause details are retrieved from appropriate table to form the query and thereby triggered for execution.

Like Dataset, pre-compiled rules also exist for other Business Metadata objects such as *Measures, Business Processors, Hierarchies*, and so on.

Note the following:

When you are sure that the Rule definition is not modified in a specific environment (production), you can set the flag for all Rule definitions as "Y". This would in turn help in performance improvement during Rule execution. However, if the Rule is migrated to a different environment and if there is a change in query, change the status back to "N" and also may need to resave the Rule, since there could be a change in metadata.

2.9.4 Seeded Component Parameters in RRF

Following are the seeded component parameters available with the base installation of OFSAAI 7.3.2 IR.

2.9.4.1 Cube Aggregate Data (CubeAggregateData)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	
Cube Parameter (System Defined)	Unique Name of the component definition	
Optional Parameters (System Defined)	It is a set of different parameters like Run ID, Process ID, Exe ID, and Run Surrogate Key. For example, \$RUNID=123,\$PHID=234,\$EXEID=345,\$RUNSK=456	
Operation (User Defined)	It is a drop down list with the following optional values - "ALL", "GENDATAFILES", and "GENPRNFILES" to generate Data files or PRN files or both, during Cube build.	ALL

2.9.4.2 Create Cube (CubeCreateCube)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	
Cube Parameter (System Defined)	Unique Name of the component definition	

Parameter Name / (Type)	Description	Default Value
Operation (User Defined)	It is a drop down list with the following optional values - "ALL", "BUILDDDB", "TUNEDB", "PROCESSDB", "DLRU", "ROLLUP", "VALIDATE", "DELDDB", "OPTSTORE"	ALL

2.9.4.3 Data Extraction Rules (ExtractT2F)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	
Extract Name (System Defined)	Unique Name of the component definition	
Source Name (System Defined)	The scope of T2F is limited to the Source of the tables and this gives the name of the source.	

2.9.4.4 Load Data Rules (LoadF2T)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	
File Name (System Defined)	Unique Name of the component definition	
Source Name (System Defined)	The scope of this component is limited to the source and it gives the name of the source file.	
Load Mode (System Defined)	Additional parameter to differentiate between F2T and T2T	File To Table

Parameter Name / (Type)	Description	Default Value
Data File Name (User Defined)	Name of the source file. If not specified, the source name provided in the definition will be used.	

2.9.4.5 Load Data Rules (LoadT2T)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	
File Name (System Defined)	Unique Name of the component definition	
Source Name (System Defined)	The scope of this component is limited to the source and it gives the name of the source table.	
Load Mode (System Defined)	Additional parameter to differentiate between F2T and T2T	Table To Table
Default Value (System Defined)	It is a set of different parameters like Run ID, Process ID, Exe ID, and run surrogate key. For example, \$RUNID=123,\$PHID=234,\$EXEID=345,\$RUNSK=456	
Data File Name (User Defined)	Not Applicable since this parameter is only used for F2T not T2T	

2.9.4.6 Modeling Framework - Model (MFModel)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW

Parameter Name / (Type)	Description	Default Value
Datastore Name (System Defined)	Information Domain Name	
Operation (System Defined)	Refers to the operation to be performed. You can click the drop down list to select additional parameters to direct the engine behavior.	ALL
Model Code (System Defined)	Unique Name of the component definition	
Optional Parameters (System Defined)	It is a set of different parameters like Run ID, Process ID, Exe ID, and Run Surrogate Key. For example, \$RUNID=123,\$PHID=234,\$EXEID=345,\$RUNSK=456	

2.9.4.7 Modeling Framework - Optimizer (MFOptimizer)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	
Operation (System Defined)	Refers to the operation to be performed. You can click the drop down list to select additional parameters to direct the engine behavior.	ALL
Model Code (System Defined)	Unique Name of the component definition	
Optional Parameters (System Defined)	It is a set of different parameters like Run ID, Process ID, Exe ID, and run surrogate key. For example, \$RUNID=123,\$PHID=234,\$EXEID=345,\$RUNSK=456	

2.9.4.8 Modeling Framework - Pooling (MFPooling)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	
Operation (System Defined)	Refers to the operation to be performed. You can click the drop down list to select additional parameters to direct the engine behavior.	ALL
Model Code (System Defined)	Unique Name of the component definition	
Optional Parameters (System Defined)	It is a set of different parameters like Run ID, Process ID, Exe ID, and run surrogate key. For example, \$RUNID=123,\$PHID=234,\$EXEID=345,\$RUNSK=456	

2.9.4.9 Process

Process component does not have any seeded parameters and are the same defined in the [Process](#) screen.

2.9.4.10 Base Rules - Classification Rule (RuleType2)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	
Rule Code (System Defined)	This is the rule ID	

Parameter Name / (Type)	Description	Default Value
Build Flag (System Defined)	The status Y - yes or N - no indicates if the rule query has to be re-built before execution or not.	N
Optional Parameters (System Defined)	It is a set of different parameters like Run ID, Process ID, Exe ID, and run surrogate key. For example, \$RUNID=123,\$PHID=234,\$EXEID=345,\$RUNSK=456	

2.9.4.11 Base Rules - Computation Rule (RuleType3)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	
Rule Code (System Defined)	Rule ID.	
Build Flag (System Defined)	The status Y - yes or N - no indicates if the rule query has to be re-built before execution or not.	N
Optional Parameters (System Defined)	It is a set of different parameters like Run ID, Process ID, Exe ID, and run surrogate key. For example, \$RUNID=123,\$PHID=234,\$EXEID=345,\$RUNSK=456	

2.9.4.12 Run Executable (RunExecutable)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	

Parameter Name / (Type)	Description	Default Value
Wait (System Defined)	This determines if the executable is Synchronous (Y) / Asynchronous (N)	Y
Batch Parameter (System Defined)	This determines if the implicit system parameters like batch ID, MIS date, and so on are to be passed or not.	Y
Executable (User Defined)	It is name of the ".sh" file that has to be executed through this run executable component.	

2.9.4.13 Stress Testing -Variable Shocks (SSTVariableShock)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	
Variable Shock Code (System Defined)	Unique Name of the component definition	
Operation (System Defined)	Refers to the operation to be performed. You can click the drop down list to select additional parameters to direct the engine behavior.	ALL
Optional Parameters (System Defined)	This consists of Run Surrogate Key.	

2.9.4.14 Transformation Rules (TransformDQ)

Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW

Datastore Name (System Defined)	Information Domain Name	
Rule Name (System Defined)	Unique Name of the component definition	
Parameter List (User Defined)	It is a user defined parameter list along with different system defined parameters like Run ID, Process ID, Exe ID, and Run Surrogate Key only if the subtype is SP (Stored Procedure) or EXT (External). For example, <pre><<ParameterList>>,"\$RUNID=123","\$PHID=234","\$EXEID=345","\$RUNSK=456" otherwise it will be only "\$RUNID=123","\$PHID=234","\$EXEID=345","\$RUNSK=456"</pre>	

2.9.4.15 Transformation Rules (TransformDT)

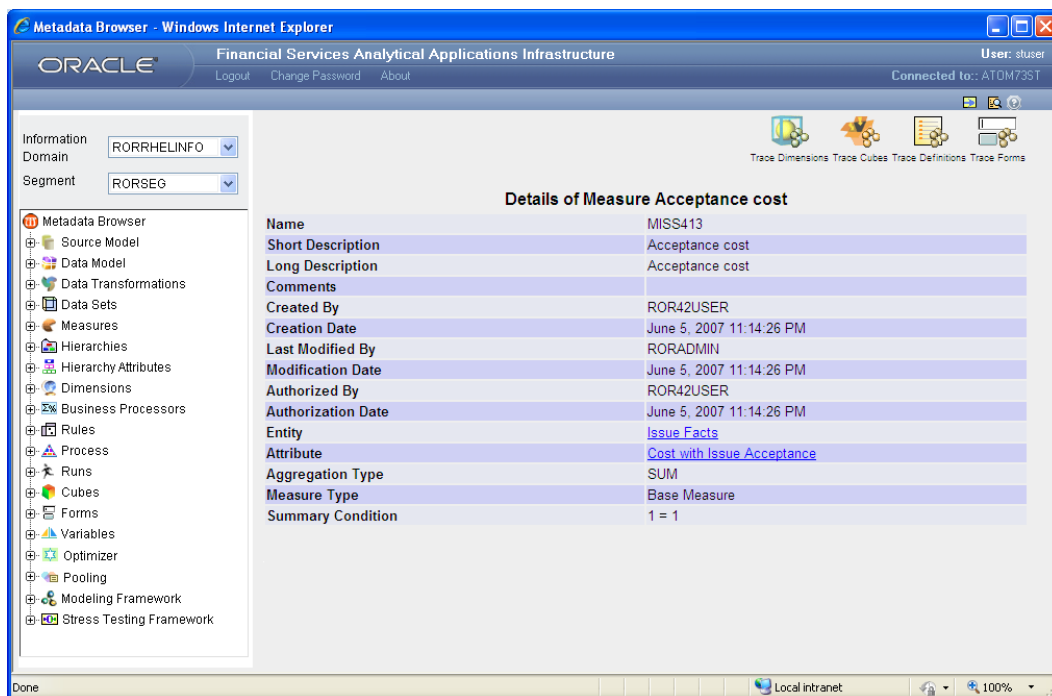
Parameter Name / (Type)	Description	Default Value
IP Address (System Defined)	Refers to the IP Address of the server where the OFSAAI Database components for the particular information domain have been installed. This IP Address also specifies the location (server hostname / IP Address) where the component is to be executed.	
Datastore Type (System Defined)	Enterprise Data Warehouse (EDW)	EDW
Datastore Name (System Defined)	Information Domain Name	
Rule Name (System Defined)	Unique Name of the component definition	
Parameter List (User Defined)	It is a user defined parameter list along with different system defined parameters like Run ID, Process ID, Exe ID, and Run Surrogate Key only if the subtype is SP (Stored Procedure). For example, <pre><<ParameterList>>,"\$RUNID=123","\$PHID=234","\$EXEID=345","\$RUNSK=456" otherwise it will be only "\$RUNID=123","\$PHID=234","\$EXEID=345","\$RUNSK=456"</pre>	

3 Metadata Browser

This chapter helps you to navigate through Metadata Browser and guides you in tracing the source of the metadata. The Metadata Browser function allows you to view and analyze all aspects of the metadata used in the OFSAAI. It provides extensive browsing capabilities of metadata, helps in tracking the impact of changes to metadata, and trace through to the source of originating data

3.1 Metadata Browser (Object View)

In the Metadata Browser (Object View), you can view the underlying metadata of the folders like Source Model, Data Model, Data Transformations, Datasets, Measures, Hierarchies, Hierarchy Attributes, Dimensions, Business Processor, Rules, Process, Run, Cubes, Forms, Variables, Optimizer, Pooling, Modeling Framework, and Stress Testing Framework.

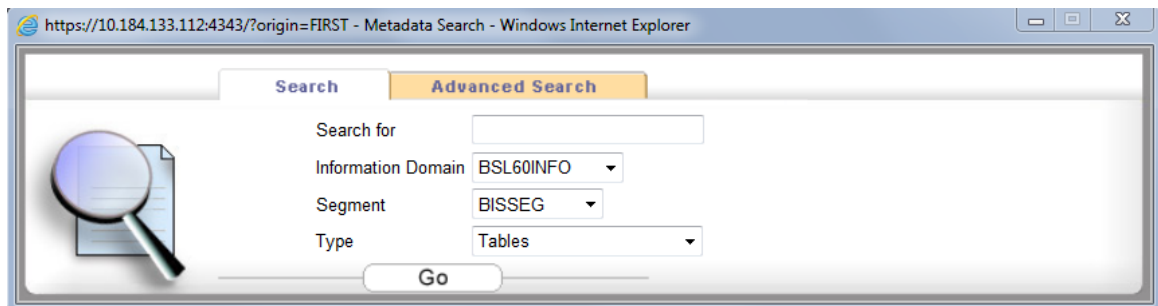


In the LHS menu, click “+” to expand the **Metadata Browser** section. In the expanded menu, click **Metadata Browser (Object View)** option to open the *Metadata Browser* screen. The *Metadata Browser* screen displays the metadata under the selected Information Domain and Segment. You can change the Information Domain and Segment on the LHS of the *Metadata Browser* screen. By default, the right pane does not display any content.

3.1.1 Search Metadata

You can search for a particular metadata definition in any module from the *Metadata Browser* screen. This search can list out metadata from Tables, Measures, Dimensions, Hierarchies, Cubes, Marts, Business Processors, Rules, Process, Run, Optimizer, Pooling, Model Objective, Models, Variables, Variable Shocks, Scenario Definition, Stress Definition, or from ALL.

You can click  from the metadata browser toolbar in the *Metadata Browser* screen to search for a metadata definition. The *Metasearch* dialog is displayed.



The *Metasearch* dialog has two tabs namely **Search** and **Advanced Search**. By default, the **Search** tab is selected.

To perform simple Search:

1. Enter the keyword in the **Search For** field.
2. Select the Information Domain under which you want to perform search from the drop down list in the **Information Domain** field.

Selecting the Information Domain refresh the Segment listing.

3. Select the segment under which you want to perform search from the drop down list in the **SEGMENT** field.
4. Select the metadata type from the drop down list in the **Type** field.

The metadata types include Tables, Measures, Dimensions, Hierarchies, Cubes, Marts, Business Processors, Rules, Process, Run, Optimizer, Pooling, Model Objective, Models, Variables, Variable Shocks, Scenario Definition, Stress Definition, or from ALL. The search will be performed only for the selected metadata type in the **Type** field.

5. Click **Go**. The search results are listed in the *Metadata Search* screen.

The search results list out the Short Description, Entity Code, Information Domain, and Properties in four columns. In the results page you can also click  button to view the properties like Table Name, Short Description, Long Description, Type, Data Entry Type, Last Modified by, and Last Modified Date of an entity in the *Details of Entity <entity name>* screen. Click **Back** button to go back to the search results page.

The Advanced Search option allows you to search a node in a hierarchy and across hierarchies.

To perform Advanced search:

1. Select the Advanced Search tab in the *Metadat Search* dialog.
2. Enter the keyword in the **Search For** field.
3. Select the Information Domain under which you want to perform search from the drop down list in the **Information Domain** field.

Selecting the Information Domain refresh the Segment listing.

4. Select the segment under which you want to perform search from the drop down list in the **SEGMENT** field.

In Advanced Search option the **Type** field is pre-entered with Hierarchies. And the search will be performed on hierarchies.

5. Click **Go**. The search results are listed in the *Metadata Search* screen.

The search results list out the Member Description, Member Code, Container Hierarchy, Container Hierarchy Code, Information Domain, and Properties in six columns. In the results page you can also click  button to view the properties like Table Name, Short Description, Long Description, Type, Data Entry Type, Last Modified by, and Last Modified Date of an entity in the *Details of Entity <entity name>* screen. Click **Back** button to go back to the search results page.

3.1.2 Tools in Metadata Browser (Object View)

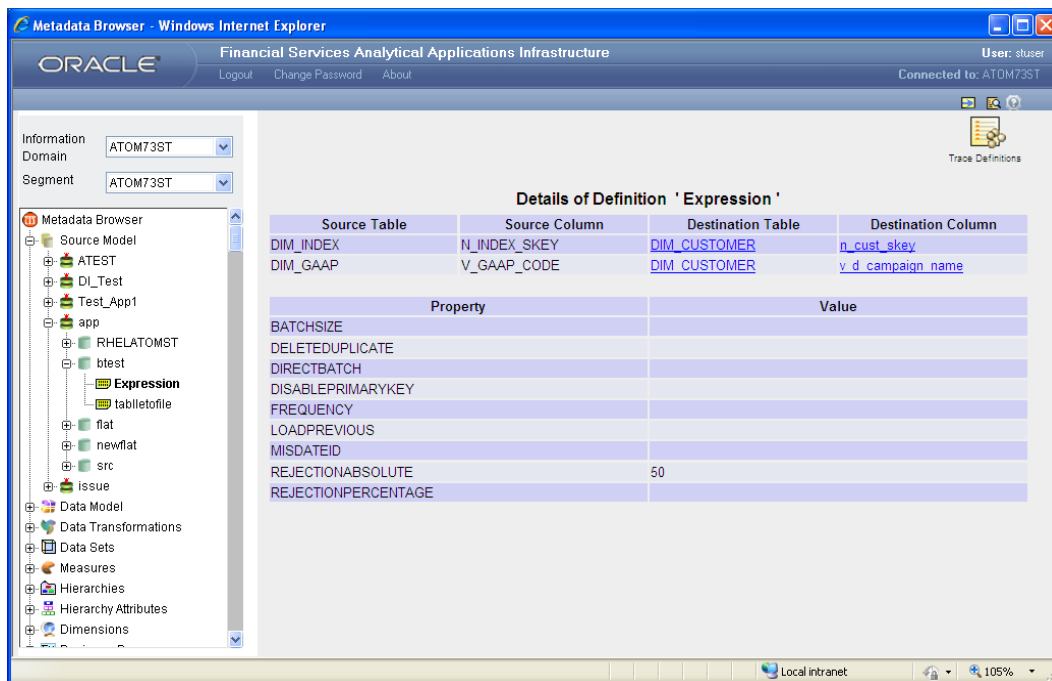
The following are the tools used in the *Metadata Browser* screen. The icons appear on the pages as the functions are derived.

Button	Description
	Display the trace details of Definitions mapped to a dimension, hierarchy, measure, cube, or mart.
	Display the trace details of Datasets defined for a definition.
	Display the trace details of Dimensions mapped to the definition.
	Display the trace details of Measures mapped to the definition.
	Display the trace details of Cubes mapped to the definition.

Button	Description
	Display the details of the mapped Models for a definition.
	Display the trace details of Hierarchy Attributes of a definition.
	Display the trace details Source of the definition.
	Display the trace details of Transformations defined for a definition.
	Display the trace details of mapped Scenarios for a definition.
	Display the details of the mapped Stress Definitions.
	Display the details of mapped Variable Shocks to a particular variable.

3.1.3 Browse/View linked Metadata in Modules

To browse and access the underlying metadata in a particular module, you need to select the corresponding Information Domain and Segment. You can select the required Information Domain and underlying Segment from the LHS of the *Metadata Browser* screen. Each module in metadata browser are arranged in a hierarchical structure and you can click + button to expand and view the structure in detail.



To view the details of metadata in different modules from the *Metadata Browser* screen:

1. Click + to expand a module. You can also click + to expand the sub sections, if any.
2. Select the last node which consist of application, or table, or dataset depending on the module selected. The details are displayed in the main screen (*Details of application <application name>*) screen.

3.1.3.1 Scenario to Browse Metadata for DataSet

Consider the following scenario where you want to Browse Metadata for a Data Set.

A **Data Set** is a group of tables whose inter-relationship is defined by specifying a join condition between the various tables. It is a basic building block for the creation of queries to be executed on the data warehouse for a large number of functions including creating marts as well as running queries and creating reports.

You want to analyze the Customer Relationship Management through various profiles of a customer as against the kinds of transaction and channels of transaction through which the actual transaction happened. This information is maintained in relational tables.

In a typical Star Schema implementation of the relations, the Customer profiles like Age, Gender, Sex, Residence, Region and so on is maintained in Individual Dimension tables. Similarly, the transaction types, channels would also be maintained in a separate Dimension tables.

The actual transaction performed by the Customers will be stored in a Fact table. The Data Set allows the users to collate all these tables with a valid join condition. The tables defined in the data set would form the FROM clause while aggregating for the Cube.

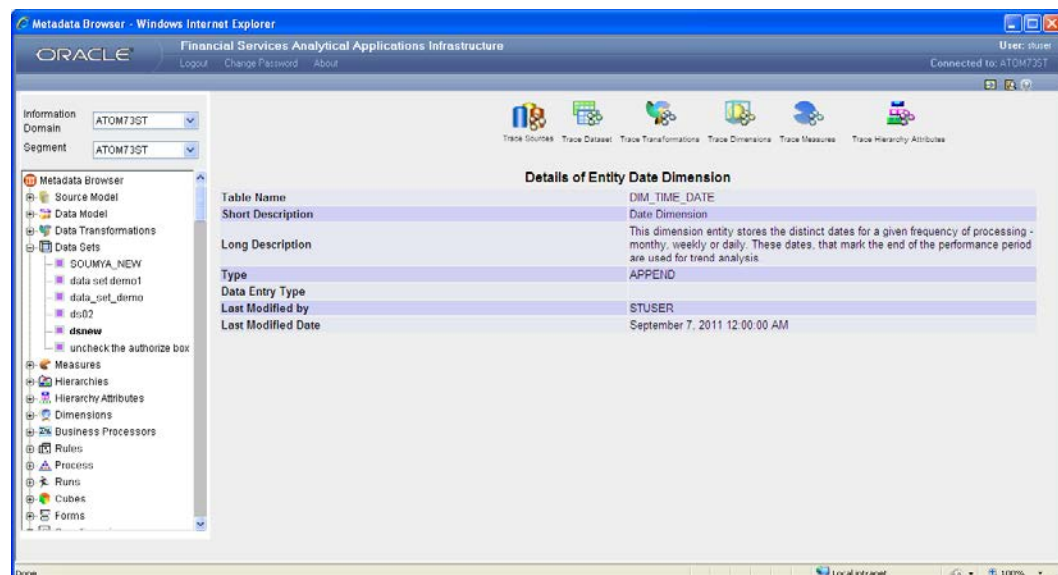
To browse details of a Dataset you have to select the Information Domain and Segment:

- To browse details of a Dataset you have to select the Information Domain and Segment.
- Click the + (plus sign) against the Dataset folder displayed under the Metadata Browser in the left pane. The folder expands and displays the data sets available for the selected Information Domain/Segment.
- Click a data set to view its details.



The Name, Short Description, Long Description, Comments, Created By, Creation Date, Last Modified By, Modified Date, Authorized By, Authorized Date, Selected Entities, Join Condition, ANSI Join condition, and Order By details of the selected data set are displayed.

- To view the details of the Selected Entities of the dataset, click the entity hyperlink.



- You can trace the source, dataset, transformation, dimensions, measures and affected hierarchy attributes of the selected table by click on the appropriate icons.

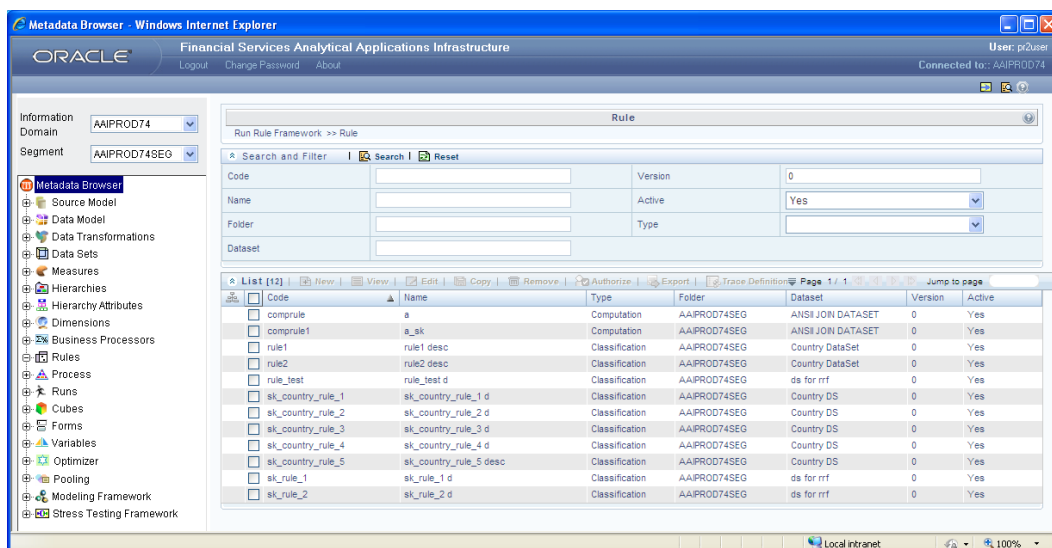
Similarly, you can drill through the available options and navigate to the interlinked metadata to view the details.

3.1.3.2 Browsing Metadata for Rules Framework

If you have configured Run Rule Framework component, you can browse the metadata pertaining to Rules, Process, or Run. On selecting the required component, the *Summary* screen is displayed with options to view, Trace Definition, and Export the required metadata.

NOTE: If you have set the configuration to RRF (Run Rule Framework), the *Base Line Run* and *Stress Run* links are disabled in *Stress Definition Details* section of *Metadata Browser* screen. However, if you have set the configuration to PR2 (Process Run Rule Framework) the *Base Line Run* and *Stress Run* links are enabled which facilitates you to trace the linked metadata.

You can make use of [Search and Filter](#) option to search for specific Rules/Processes/Run based on Code, Version, Name, Active status, Folder, Type, or Dataset. The [Pagination](#) option helps you to manage the view of existing Rules/Processes/Run within the system.



From the list toolbar, you can select individual Rule/Process/Run definition and do the following:

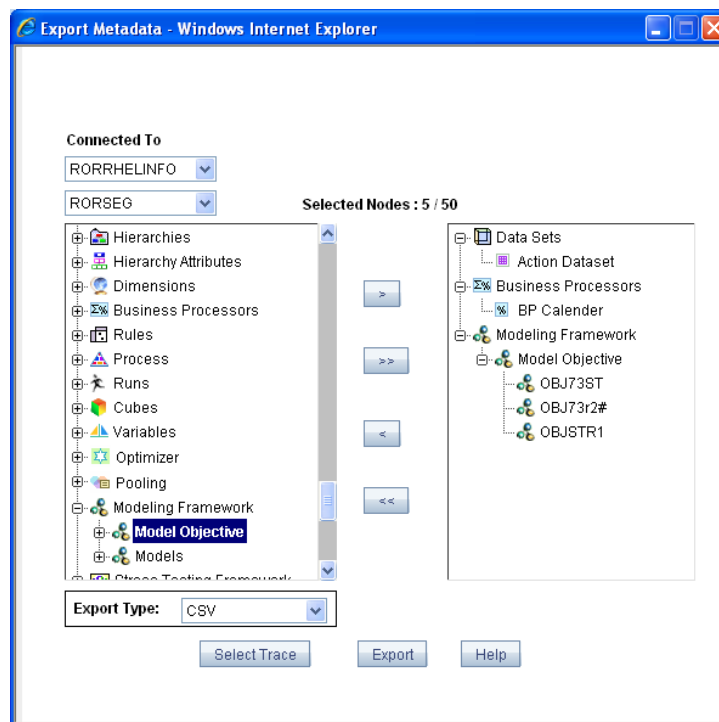
- Click button to view the definition details in the *View Mode* screen.
- Click button to view the definition trace details in the *Trace Definition* screen.
- Select individual or multiple definitions and click button to export the definitions detail to PDF.

3.1.4 Exporting Metadata

You can export the metadata from the *Metadata Browser* screen in to CSV, PDF, or HTML format. To export the metadata from the *Metadata Browser* screen:

1. Click  from the *Metadata Browser* screen.

The *Export Metadata* screen is displayed.



2. Select the required Information Domain and respective Segment from the drop down boxes.

The LHS pane is refreshed you fetch the data from the selected Information Domain and Segment.

3. Click + button to expand each module and locate the required metadata.
4. Click  to move the selected metadata to the selected pane or click  to select all the metadata from the current Information Domain.

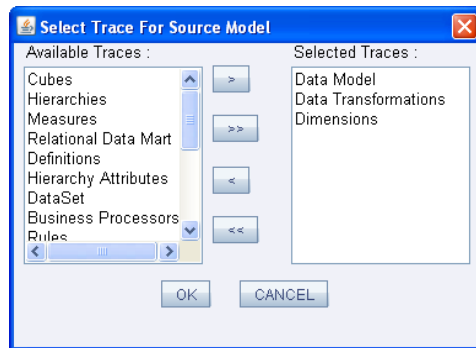
NOTE: If you select a module and click  button the entire metadata under the selected module will move to the selected pane. The maximum number of nodes you can select is limited to 50.

You can also click  to deselect a selected metadata from the selected pane or click  to deselect all from the selected pane.

5. Select the **Export Type** as CSV, HTML, or PDF from the drop down list.

You can select traces for the metadata in the selected pane if the metadata objects present in the selected pane are of same type. To select traces for the metadata in the selected pane:

6. Click **Select Trace**. The *Select Trace for <module name>* dialog is displayed.



7. Click  to move the selected Traces from Available Traces to the Selected Traces pane or click  to select all the traces.

You can also click  to deselect a selected Trace from the Selected Traces pane or click  to deselect all. Click **OK**.

8. Click **Export**. The *Exporting* dialog is displayed. You can click **Cancel** at any time in the *Exporting* dialog to cancel the process.

On completion, an information dialog with “**Successfully Exported**” message is displayed. Click **OK**.

The *File Download* dialog is displayed. Click **Save**. The *Save As* dialog is displayed. Specify the File Name and the location where you want to save the file. Click **Save**.

The type of the file completely depends on the Export Type you have selected. If you have selected CSV, HTML, or PDF the file download will be a .csv file, .html page, or .pdf file respectively.

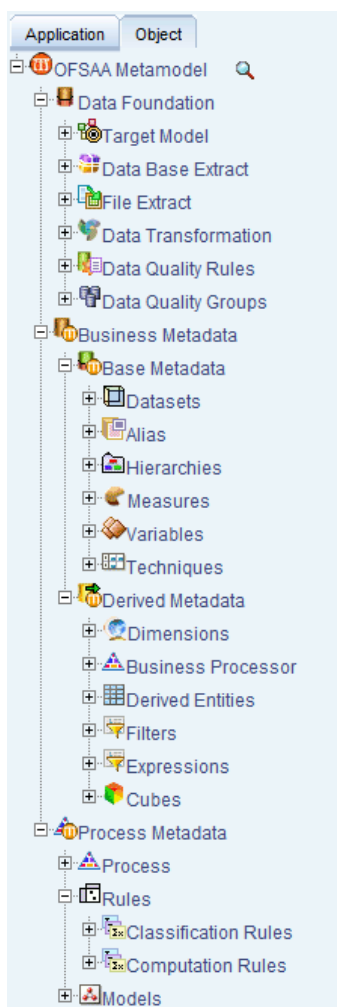
3.2 Metadata Browser (Object and Application View)

Metadata Browser (Object and Application View) provides common repository of metadata objects created in OFSAAI and applications hosted in OFSAAI. Using this view, you can identify the usage of base objects in higher level objects and the mapping of Objects to Application. It enables traceability and impact analysis. It also allows you to view the data flow and the work flow of the application and understand the usage of objects within the application.

The new visualization of Metadata Browser (MDB) supports Application view and Object view. In Application view, you can browse through the metadata created using the applications hosted in OFSAAI. In object view, you can view the metadata created in OFSAAI.

To access the Metadata Browser (Object and Application View), your role Business Analyst (SYSBAU) must be mapped to the **SCR_MDB** function. For more information on mapping functions to a role, see [Function - Role Map](#).

3.2.1 Object View



The Object view will provide the following details:

- Object basic details
- Object specific details
- Mapping across objects for certain objects like T2T and Rules
- Dependency details of the Child objects
- Usage of the current Object in the higher order objects
- Object usage in the various Applications

3.2.2 Searching Metadata

3.2.2.1 Global Search

You can search for metadata based on name, description, creation start and end dates, last modified start and end date, application, object type or folder.

To run global search:

1. Click the **Global Search** link on the menu bar of the *Metadata Browser* window. The *Metadata Browser Global Search* window is displayed.

Name	Description	Type	Creation Date	Created By	Last Modification Date	Last Modified By
DQ_1510	Range Check_with All conditions and assignments(DirectValue)	Data Quality Rule	2014-03-15 00:13:42	OFSUSER	2014-03-15 00:13:42	OFSUSER
DQ_1510_Grp	Range Check_with All conditions and assignments(DirectValue)	Data Quality Group	2014-03-15 00:13:42	OFSUSER	2014-03-15 00:13:42	OFSUSER
DQ_1540CP	CRSV check_MathOper : greater than :: FillType : Specific Value::AsstType:AnotherColu_DQ_154	Data Quality Rule	2014-03-15 00:13:41	OFSUSER	2014-03-15 00:13:41	OFSUSER

2. Enter details in the required fields based on which the search results will be displayed.

Field	Description
Name	Enter the name of the object which you want to search.
Description	Enter the description of the object which you want to search.
Creation Start Date/ Creation End Date	Click  and specify the dates if you want to search metadata objects created between those dates.
Last Modified Start Date / Last Modified End Date	Click  and specify the dates if you want to search metadata objects which are modified between those dates.
Application	Select the application from the drop-down list. All objects used in the selected application will be displayed.

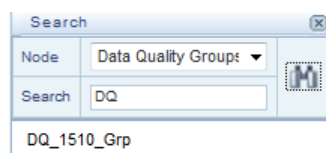
Field	Description
Object Type	Select the object type from the drop-down list. All objects of the selected Object Type will be displayed.
Folder	Select the folder from the drop-down list. All objects used in the selected folder will be displayed.

- Click . The search results are displayed in the *Metadata Summary* grid.
- Select an object and click  to view the metadata details of the selected object. The details are displayed below the *Metadata Summary* grid.

3.2.2.2 Simple Search

You can quickly search for an object based on the object type and object name.

- Click  in the *Object* tab. The *Search* pane is displayed.



- Select the metadata object type from the **Node** drop-down list.
- Enter the name of the metadata object in the **Search** field.
- Click  to display the search results.
- Click the metadata object link to view the details.

3.2.3 Exporting Metadata Details

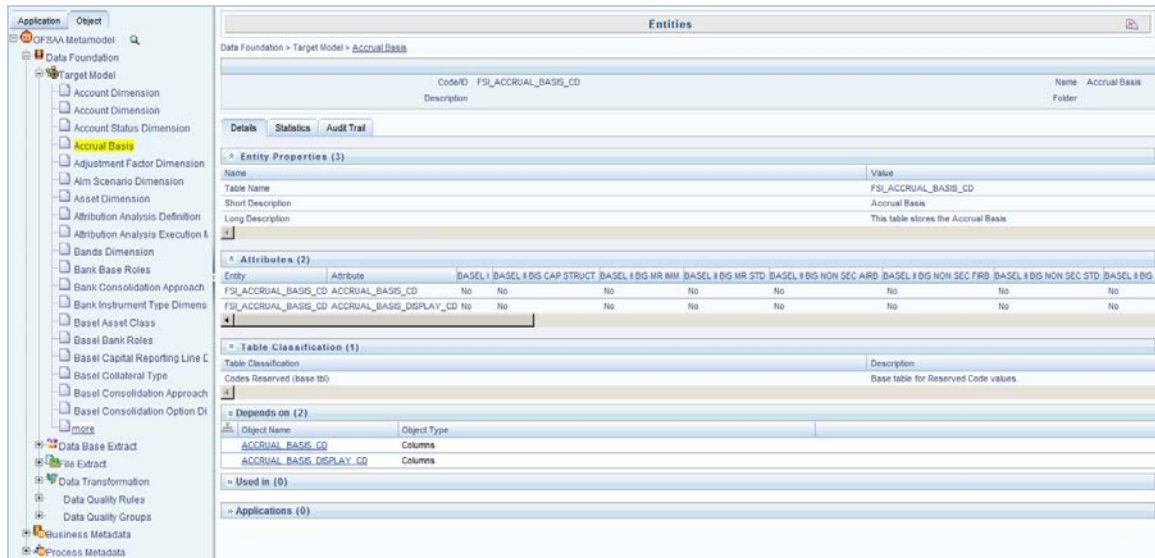
You can export metadata details to a PDF file. To export metadata details of a particular object, select the object from the *Object* tab and click  on the top right corner. You will be prompted whether to open or save the file.

Limitation:

The Export to PDF option is not available for Variables, Techniques, and Models.

3.2.4 Browsing/ Viewing Linked Metadata

To browse and access the underlying metadata in a particular module, click + button to drill down to the object whose details you want to view. Each module in the metadata browser is arranged in a hierarchical structure.



When you click any of the metadata objects, it displays the basic object properties as described in the following table:

Field	Description
Code ID	The code used to denote the object. Note: This field is not applicable for objects such as Database Extract, File Extract, and Data Transformation.
Name	Name of the object.
Description	A brief description of the object.
Folder	Name of the folder in which the object is present.

There are three tabs displayed such as Details, Statistics, and Audit Trail.

Details Tab View

This tab displays the specific properties based on the type of object you selected. It also displays the dependency details (**Depends on**) of any child object, usage of the selected object in parent/ higher objects (**Used in**) and the applications in which the object is used (**Applications**).

Statistics Tab View

This tab displays the statistics of the selected object such as number of mappings, expressions, entities, hierarchies, or measures used in the object.

Audit Trail Tab View

This tab displays the selected object's audit information as described in the following table:

Field	Description
Created By	The name of the user who created the object.
Creation Date	The date on which the object is created.
Last Modified By	The name of the user who modified the object for the last time.
Last Modification Date	The date on which the object is modified for the last time.
Authorized By	The name of the user who authorized the object.
Authorization Date	The date on which the object is authorized.

3.2.5 Data Foundation Metadata

In Data Foundation, there are various metadata like Target Model, Data Base Extract, File Extract, Data Transformation, Data Quality Rules, and Data Quality Groups.

3.2.5.1 Entity Metadata

From the *Metadata Browser Object* tab, expand **Data Foundation> Target Model** and click the required object.

The entity specific details are explained in the following table:

Field	Description
Entity Properties	Displays the table name, its short description, and long description.
Attributes	Displays the columns present in the entity.
Table Classification	Displays the classification of the entity and its description.
Depends on	Displays the columns used in the entity/ table. Click the column link to drill down for more details.
Used In	Displays the objects and object types in which the entity is used. An entity can be used in a Dataset, Measure, Business Processor, Hierarchy, Database Extract, File Extract and so on. Click the object link to drill down for more details.

Field	Description
Applications	Displays the applications in which the entity is used.

3.2.5.2 Database/ File Extract Metadata

From the *Metadata Browser Object* tab, expand **Data Foundation** and then expand **Data Base Extract** for T2T and T2F definitions or expand **File Extract** for F2T definitions. Click the required T2T/ T2F/ F2T definition.

NOTE: If the properties of T2T/ T2F/ F2T definition have null values, then it will not be displayed in Metadata Browser.

The T2T/ T2F specific details are explained in the following table:

Field	Description
Definition Details	Displays the Application Name and the Definition Load Type (T2T, T2F, or F2T).
Properties	Displays various parameters and their value such as Batch size, Direct Batch, Rejection Absolute, Rejection Percentage, Duplicate Row Checks, Remove Duplicate, Disable Primary Key, Edit Reload, Field Delimiter, Load Empty File and so on.
Join Condition and Filters	Displays the ANSI Join, Joins, and Filter that have been used in creating the T2T/ T2F or F2T definition.
Mapping Details	Displays the source table, source column, target table, and target column in case of T2T definition.
Depends on	Displays the entity/ table and the columns that are used in creating the T2T/ T2F/ F2T. Click the entity or column link to drill down for more details.
Used In	Displays the object name and object type in which the T2T/ T2F/ F2T definition is used. It can be used in a Run and Process. Click the object link to drill down for more details.
Applications	Displays the applications in which the T2T/ T2F/ F2T definition is used.

3.2.5.3 Data Transformation Metadata

From the *Metadata Browser Object* tab, expand **Data Foundation> Data Transformation** and click the required data transformation definition.

The Data Transformation specific details are explained in the following table:

Field	Description
Transformation Details	Displays the transformation type and its value. The transformation type can be SQL Procedure or External Library. If the image of the flowchart is available, it is displayed.
Depends on	Displays the Entity that is used in creating the Data Transformation. Click the object link to drill down for more details.
Used In	Displays the object and its type in which the data transformation is used. A data transformation can be used in a Rule or Process. Click the object link to drill down for more details.
Applications	Displays the applications in which the data transformation is used.

3.2.5.4 Data Quality Rule Metadata

From the *Metadata Browser Object* tab, expand **Data Foundation> Data Quality Rules** and click the required data quality rule definition.

The Data Quality Rule specific details are explained in the following table:

Field	Description
Specific Properties	Displays the specific properties of the data quality rule definition such as Check Type, Table, Column, Substring, Position, Length, and Filter.
Check Type	Displays the details of different checks used in the data quality rule definition such as Range Check, Date Length Check, Specific Value Check, List of Value/Code Check, Null Value Check, Referential Check, Duplicate Check and so on.
Depends on	Displays the object and its type that is used in creating the data quality rule. The objects can be Entity and Column. Click the object link to drill down for more details.
Used In	Displays the data quality group in which the data quality rule is used. Click the object link to drill down for more details.
Applications	Displays the applications in which the data quality rule is used.

3.2.5.5 Data Quality Group Metadata

From the *Metadata Browser Object* tab, expand **Data Foundation> Data Quality Group** and click the required data quality group definition.

The Data Quality Group specific details are explained in the following table:

Field	Description
Depends on	Displays the data quality rule that is used in creating the data quality group. Click the object link to drill down for more details.
Used In	The data quality group object cannot be used in any higher objects. So this field will be blank.
Applications	Displays the applications in which the data quality group is used.

3.2.6 Business Metadata

The Business Metadata is logically classified into Base Metadata and Derived Metadata. The Base metadata comprises of metadata like Datasets, Alias, Hierarchies, Measures, Variables, and Techniques. The Derived metadata comprises of metadata like Dimensions, Business Processor, Derived Entities, Filters, Expressions, and Cubes.

3.2.6.1 Dataset Metadata

From the *Metadata Browser Object* tab, expand **Business Metadata> Base Metadata** and **Datasets**. Then click the required dataset to view its metadata.

The Dataset specific details are explained in the following table:

Field	Description
Dataset Properties	Displays the Join condition, Filter condition Data filter, and Order By used to create the dataset.
Depends on	Displays the Entities and Aliases used in the dataset. Click the object link to drill down for more details.
Used In	Displays the objects and object types in which the dataset is used. A dataset can be used in a Rule, Process, Business Processor, Cube, and Derived Entity. Click the object link to drill down for more details.
Applications	Displays the applications in which the dataset is used.

3.2.6.2 Alias Metadata

From the *Metadata Browser Object* tab, expand **Business Metadata**> **Base Metadata** and **Alias**. Then click the required alias to view its metadata.

The Alias specific details are explained in the following table:

Field	Description
Depends on	Displays the entity corresponding to the alias. Click the object link to drill down for more details.
Used In	Displays the objects and object types in which the alias is used. An alias can be used in a Dataset, Measure, Business Processor, and Hierarchy. Click the object link to drill down for more details.
Applications	Displays the applications in which the alias is used.

3.2.6.3 Hierarchy Metadata

From the *Metadata Browser Object* tab, expand **Business Metadata**> **Base Metadata** and **Hierarchies**. Then click the required hierarchy to view its metadata.

The Hierarchy specific details are explained in the following table:

Field	Description
Hierarchy Properties	Displays the Hierarchy type, Multi-dimensional property (Regular/ Time), and Total Required.
Depends on	Displays the Entity and Alias used in the hierarchy definition. Click the object link to drill down for more details.
Used In	Displays the objects and object types in which the hierarchy is used. A hierarchy can be used in a Dimension, Rule, or Derived Entity. Click the object link to drill down for more details.
Applications	Displays the applications in which the hierarchy is used.

3.2.6.4 Business Measure Metadata

From the *Metadata Browser Object* tab, expand **Business Metadata**> **Base Metadata** and **Measures**. Then click the required measure to view its metadata.

The Measure specific details are explained in the following table:

Field	Description
Measure Properties	Displays the Aggregation Function, Measure Data type, Business Exclusion, Filter, and Rollup Type.
Depends on	Displays the object and its type which are used in creating the business measure. The objects can be Entity, Alias, and Attributes. Click the object link to drill down for more details.
Used In	Displays the objects and object types in which the measure is used. A measure can be used in a Cube, Hierarchy, Rule, or Business Processor. Click the object link to drill down for more details.
Applications	Displays the applications in which the business measure is used.

3.2.6.5 Variables Metadata

As part of 7.3.4.1.0 ML, this feature is introduced.

From the *Metadata Browser Object* tab, expand **Business Metadata**> **Base Metadata** and **Variables**. Then click the required variable to view its metadata.

The Variable specific details are explained in the following table:

Field	Description
Variable Properties	Displays the Type, Structure, Classification, Based on, and Variable property.
Depends on	Displays the object and its type which are used in creating the variable. The objects can be Entity, Business Measure, Business Processor, and Hierarchy. In case of Term Structure Variable, the dependent object will be Single Value Variables. Click the object link to drill down for more details.
Used In	Displays the objects and object types in which the variable is used. A variable can be used in Variable Shock, or Model. In case of Single Value Variable, the used in object can be Term Structure Variable. Click the object link to drill down for more details.
Applications	Displays the applications in which the variable is used.

3.2.6.6 Techniques Metadata

As part of 7.3.4.1.0 ML, this feature is introduced.

From the *Metadata Browser Object* tab, expand **Business Metadata**> **Base Metadata** and **Techniques**. Then click the required technique to view its metadata.

NOTE: Only the techniques registered through the *Technique Registration* screen are available.

The Technique specific details are explained in the following table:

Field	Description
Technique Properties	Displays the Technique Class.
Technique Inputs	Displays the name and the type of Input Parameters used in the technique. The parameter types can be a variable or single value parameter.
Technique Outputs	Displays the output name and its value.
Script	Displays the R script of the technique.
Depends on	NA.
Used In	Displays the Model in which the technique is used. Click the object link to drill down for more details.
Applications	Displays the applications in which the technique is used.

3.2.6.7 Dimension Metadata

From the *Metadata Browser Object* tab, expand **Business Metadata**> **Derived Metadata** and **Dimension**. Then click the required dimension object to view its metadata.

The dimension specific details are explained in the following table:

Field	Description
Dimension Properties	Displays the Dimension Type and Data Type of the selected dimension object.
Depends on	Displays the Hierarchy object which is used in creating the dimension. Click the object link to drill down for more details.
Used In	Displays the Essbase cube object in which the dimension is used. Click the object link to drill down for more details.
Applications	Displays the applications in which the dimension is used.

3.2.6.8 Business Processor Metadata

From the *Metadata Browser Object* tab, expand **Business Metadata> Derived Metadata** and **Business Processor**. Then click the required business processor object to view its metadata.

The Business Processor specific details are explained in the following table:

Field	Description
Business Processor Properties	Displays the Source Expression and the status whether the Expression has Aggregate Function.
Placeholders	Displays the parameter names and their values for the selected business processor object. This field is displayed only if the parameters are defined for the BP.
Depends on	Displays the object and its type which are used in creating the business processor. The objects can be Dataset and Measure. Click the object link to drill down for more details.
Used In	Displays the objects and object types in which the business processor is used. A business processor can be used in a Rule. Click the object link to drill down for more details.
Applications	Displays the applications in which the business processor is used.

3.2.6.9 Derived Entity Metadata

From the *Metadata Browser Object* tab, expand **Business Metadata> Derived Metadata** and **Derived Entity**. Then click the required derived entity object to view its metadata.

The Derived Entity specific details are explained in the following table:

Field	Description
Derived Entity Properties	Displays the Source Type, Aggregate Flag, Materialized View, Application Name, and Source Name.
Depends on	Displays the object and its type which are used in creating the derived entity. The objects can be Entity, Dataset, Hierarchy, or Measure. Click the object link to drill down for more details.
Used In	Displays the objects and object types in which the derived entity is used. A derived entity can be used in a Rule. Click the object link to drill down for more details.
Applications	Displays the applications in which the derived entity is used.

3.2.6.10 Filter Metadata

From the *Metadata Browser Object* tab, expand **Business Metadata> Derived Metadata** and **Filters**. Then click the required filter object to view its metadata. There are four types of filters such as Data Element Filter, Hierarchy Filter, Group Filter, and Attribute Filter.

The Filter specific details are explained in the following table:

Field	Description
Filter Properties	Displays the Access Code, Filter Type, and SQL query of the selected filter.
Depends on	Displays the object and its type which are used in creating the filter. For Data Element filter, the objects can be Columns and Expressions. For Hierarchy filter, the object can be Hierarchy. For Group filter, the object can be Data Element filter. For Attribute filter, the object can be Dimension. Click the object link to drill down for more details.
Used In	Displays the objects and object types in which the filter is used. For Data Element filter, the object can be Group Filter. For Hierarchy filter, the object can be Rules. The Group filter and Attribute filter are used in applications. Click the object link to drill down for more details.
Applications	Displays the applications in which the filter is used.

3.2.6.11 Expressions Metadata

NOTE: Expression object details are not supported in 7.3.4.0.0 IR release.

3.2.6.12 Essbase Cubes Metadata

From the *Metadata Browser Object* tab, expand **Business Metadata> Derived Metadata** and **Cubes**. Then click the required cube object to view its metadata.

The Essbase Cube specific details are explained in the following table:

Field	Description
Cube Properties	Displays the cube properties like MDB name and status of Complete Build.
Cube Variation	Displays the Dimension objects mapped to the Measure object for the selected Essbase cube.

Field	Description
Depends on	Displays the object and its type which are used in creating the Essbase cube. The objects can be Dataset, Dimension, or Measure. Click the object link to drill down for more details.
Used In	Displays the Process in which the Essbase cube is used. Click the object link to drill down for more details.
Applications	Displays the applications in which the Essbase cube is used.

3.2.7 Process Metadata

The Process Metadata is classified into Process, Rules, and Models. The Rules metadata is again classified into Classification Rules and Computation Rules.

3.2.7.1 Process Metadata

From the *Metadata Browser Object* tab, expand **Process Metadata** and **Process**. Then click the required process object to view its metadata.

The Process specific details are explained in the following table:

Field	Description
Process Specific Property	Displays the Effective Start Date, Effective End Date, and Last Operation Type. An additional grid is displayed to show the tree structure of the process. That is, it displays the sub processes and rules present in the process. Expand a sub process to view the rules present in it. The rule can be Computation Rule, Data Transformation, or Model.
Depends on	Displays the object and its type which are used in creating the process. The objects can be Data Extraction, File Load, Table Load, Data Quality Check, Data Transformation, RRF Rule, RRF Process, Aggregate Data, Essbase Cube, Pooling, Optimizer, Model, or Variable Shock. Click the object link to drill down for more details.
Used In	Displays the objects and object types in which the process is used. A process can be used in another Process or Run. Click the object link to drill down for more details.
Applications	Displays the applications in which the process is used.

3.2.7.2 Rules Metadata

A rule can be classification rule or computation rule.

From the *Metadata Browser Object* tab, expand **Process Metadata** and **Rules**. Then click the required rule object to view its metadata.

The Rule specific details are explained in the following table:

Field	Description
Rule Specific Properties	Displays Pre Build Flag, Use ROWID, Merge Hint, Effective Start Date, Effective End Date, and Last Operation Type.
Mapping	Displays the mapping details of the rule.
Depends on	Displays the object and its type which are used in creating the rule. The objects can be Dataset, Hierarchy, Measure, Business Processor, Data Filter, Group Filter, Hierarchy Filter, and Attribute Filter. Click the object link to drill down for more details.
Used In	Displays the objects and object types in which the rule is used. A rule can be used in another Process or Run. Click the object link to drill down for more details.
Applications	Displays the applications in which the rule is used.

3.2.7.3 Models Metadata

As part of 7.3.4.1.0 ML, this feature is introduced.

From the *Metadata Browser Object* tab, expand **Process Metadata** and **Models**. Expand the required sandbox and click the model object to view its metadata.

The Model specific details are explained in the following table:

Field	Description
Model Properties	Displays the model properties such as model objective and the technique used in creating the model if the model is based on technique. Note: Technique will be displayed only for technique based R models.
Model Inputs	Displays the configured script variables and the selected variables.
Output Structures	Displays the output structure of the R based models. For NAG based models, nothing is displayed.
Script	Displays the script of the model for R based models.

Field	Description
Depends on	Displays the object and its type which are used in creating the model. The objects can be Variable, Dataset, and Technique. Note: Technique will be displayed only for technique based R models. Click the object link to drill down for more details.
Used In	Displays the objects and object types in which the model is used. A model can be used in Run, Process, or Stress Definition. Click the object link to drill down for more details.
Applications	Displays the applications in which the model is used.

3.2.8 Metadata Map

The Metadata Map feature helps you to map the metadata objects to applications. You need to map metadata objects to required applications to view the usage of metadata across all applications where it is being used.

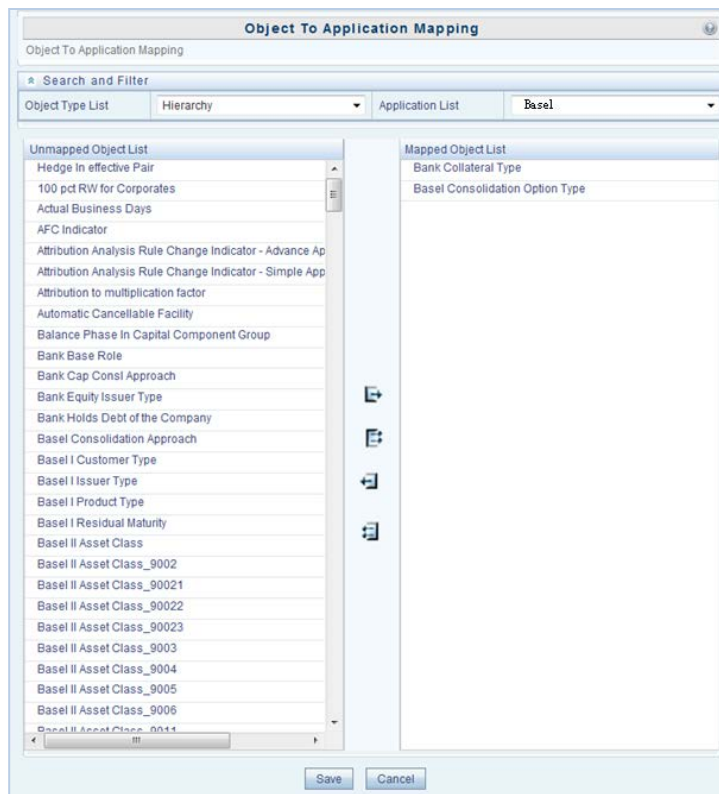
Mapping of metadata object will implicitly map its dependent objects to the selected application recursively. You can also remove the mapping of objects from applications. However, it will not remove the mapping of its dependent objects.

To view and use this feature, you must be mapped to the role METADMN (Publish Metadata), which is mapped to the function **Map Metadata** (METMAP). For more information on mapping functions to a role, refer to [Function - Role Map](#).

You have a command line utility for object application mapping. For more information, refer to [Command Line Utility for Object Application mapping in new Metadata Browser](#).

To add or remove the object application mapping:

1. From the LHS menu, click **Metadata Browser> Utilities> Metadata Map**. The *Object To Application Mapping* screen is displayed.



2. Select the object type and the application to which you want to map the objects from the drop-down lists. In Unmapped Object List section, all objects of the selected object type are displayed.

NOTE: The objects and object types displayed are based on the Infodomain selected.

3. For mapping:
 - Select the required object and click  to map the object to the selected application.
 - Click  to map all the objects to the selected application.
4. For removing the mapping:
 - Select the required object and click  to unmap the object from the selected application.
 - Click  to unmap all the objects from the selected application.
5. Click **Save**. All the dependent metadata objects get mapped to the selected application recursively.

4 Operations

Operations refers to administration and processing of business data to create the highest level of efficiency within the system and to derive results based on a specified rule. Operations framework within the Infrastructure system facilitates you (system administrator) to:

- Configure and operate the business processes effectively.
- Maintain the Operator Console by Defining and Executing Batches through the Operations menu.
- Monitor the Batches scheduled for execution.
- Monitoring the Batch groups with the list of Batches scheduled for execution.

To access the Operations framework, you must be mapped to the Data Centre Manager function role within the Infrastructure system. For more details on various function roles, refer [Function Mapping codes](#).

4.1 Navigating to Operations

Operations framework is available within the tree structure of Infrastructure login screen. In the left hand side (LHS) menu of Infrastructure home page, click “+” and expand the Operations section.

4.2 Components of Operations

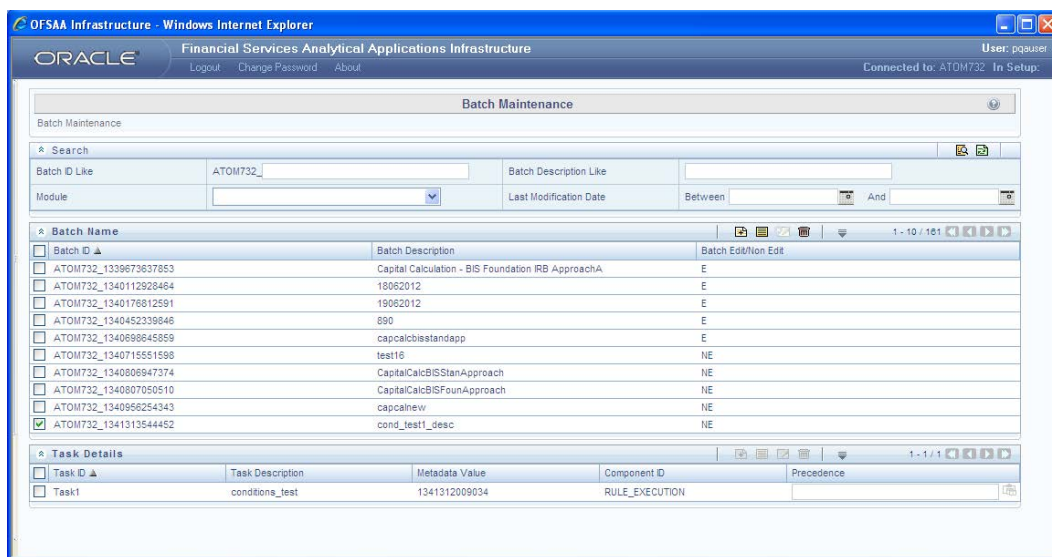
Operations framework consists of the following sections. Click on the links to view the sections in detail.

- [Batch Maintenance](#)
- [Batch Execution](#)
- [Batch Scheduler](#)
- [Batch Monitor](#)
- [Batch Processing Report](#)
- [Batch Cancellation](#)
- [View Log](#)
- [Batch Group](#)

4.3 Batch Maintenance

Batch refers to a set of executable processes based on a specified rule. Batch Maintenance framework within the Infrastructure system 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 such as Advanced Analytics Infrastructure and Rules framework.

You (System Administrator) need to have Data Centre Manager function role mapped to access the Operations framework within the Infrastructure system. You can access Batch Maintenance by expanding Operations section within the tree structure of LHS menu. The *Batch Maintenance* screen 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.



In the *Batch Maintenance* screen of Operations framework, you can do the following:

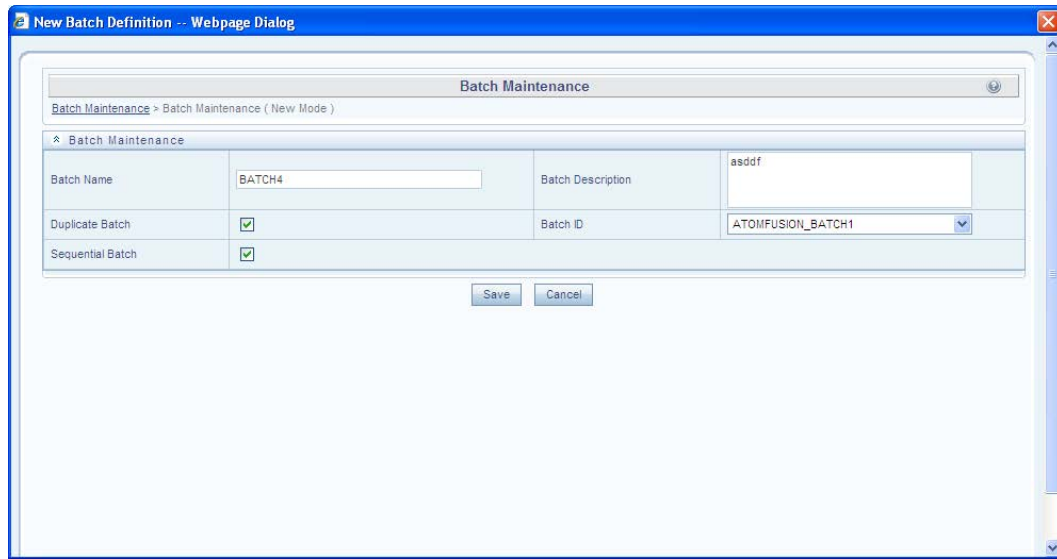
- Create Batch Definitions and assign task details to a Batch. You can also set the task precedence, specify component, and define the dynamic parameters based on the component.
- View the Batch Definition details.
- Change the Batch Definition Status as Non Editable (NE).
- Delete Batch Definition details.

You can also make use of [Batch Search](#) option to search for a specific Batch based on the Batch ID, Batch Description, Module, or Last Modified Date. The pagination option helps you to view the list of existing Batches within the system. For more information, refer [Pagination](#) section.

4.3.1 Adding Batch Definition

You can either define an empty Batch or duplicate an existing Batch and specify the task details. To add Batch definition in the *Batch Maintenance* screen:

1. Select  button from the Batch Name tool bar. The *New Batch Definition* screen is displayed.



2. Enter the Batch details as tabulated.

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 alphanumeric and should not start with a number. ▪ The Batch Name should not exceed 41 characters in length. ▪ The Batch Name should not contain any special characters except “_”.
Batch Description	Enter a description for the Batch based on the Batch Name. Batch description should be alphanumeric. The allowed special characters are “_”, “-”, “:”, “.”, and “<blank space>”.
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.

Field	Description
Sequential Batch	Select the checkbox 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.

3. Click **Save** to save the Batch definition details. The new Batch definition details are displayed in the Batch Name section of *Batch Maintenance* screen with the specified Batch ID.

In the Batch Name tool bar of *Batch Maintenance* screen you can select the Batch ID and do the following:

- Click  button and view the Batch Definition details.
- Click  button to change the status of the Batch as **Non Editable (NE)**.

NOTE: Non Editable batch status cannot be reverted to Editable status later.

By default the new Batch created will have the status set as **Editable (E)**.

- Click  button to delete the Batch definition details.

4.3.2 Specify Task Details

The Tasks Details section of *Batch Maintenance* screen displays the list of tasks associated with a specific Batch definition. In the Task Details section you can do the following:

- Update the pre-defined task and assign new tasks.
- Specify the Task Precedence.
- Update the pre-defined Component or specify new component.
- Specify the Dynamic Parameters based on the component selected.

4.3.2.1 Adding Task Details

To specify the task details in the *Batch Maintenance* screen:

1. Click  from the Task Details tool bar. The *New Task Definition* screen is displayed.
2. Enter the task details as tabulated.

Field	Description
Task ID	The task ID is auto generated by the system depending on the precedence level and is not editable.

Field	Description
Description	Enter the task description. No special characters are allowed in Task Description. The words like Select From or Delete From (identified as potential SQL injection vulnerable strings) should not be entered in the Description.
Components	Components refers to individual functional units that are put together to form a process. A component triggers its own set of processes in the back-end to achieve the final output. For more information on each component Property and Value Description, refer Task Component Parameters. Select the required component from the drop down list.
Dynamic Parameters List	On selecting a task component, a list of dynamic parameters is displayed. It is mandatory to select the parameter values based on the component. Specify the value for each parameter by selecting from the drop down list. Click the following links to view the component parameter details. AGGREGATE DATA Allocation Engine CREATE CUBE EXTRACT DATA FIRE RUN LOAD DATA MODEL ORACLECUBEBUILD RULE_EXECUTION RUN DQ RULE RUN EXECUTABLE RUN RULE SQL RULE TRANSFORM DATA VARIABLE SHOCK

- Click **Save** to save the task definition details. The new task details are displayed in the Task Details of the *Batch Maintenance* screen with the Task ID.

In the Task Details tool bar of *Batch Maintenance* screen you can select the Task ID and do the following:

- Click  button to add another Task.
- Click  button and view the selected Task details.
- Click  to modify the selected Task details.
- Click  button to delete the selected Task details.

4.3.2.2 Defining Task Precedence

Task Precedence indicates the execution-flow of a Batch. Task Precedence value in the Task Details facilitates you to determine the order in which the specific Tasks of a Batch are executed.

For example, consider a Batch consisting of 4 Tasks. First 3 Tasks does not have a precedence defined and hence will be executed simultaneously during the Batch execution. But, Task 4 has precedence value as task 1 which indicates that, Task 4 is executed only after Task 1 has been successfully executed.

You can set Task precedence between Tasks, or schedule a Task to run after another Task, or even define to run a Task after a set of other tasks. However, multiple tasks can be executed simultaneously and cyclical execution of tasks is not permitted. If the precedence for a Task is not set, the Task it is executed immediately on Batch execution.

To define the task precedence in the *Batch Maintenance* screen:

1. Select the  button adjacent to Component ID of the required Task. The *Task Precedence Mapping* browser is displayed.

NOTE: Task Precedence option is disabled if a batch has only one task associated.

- Select the required Task from the Task List and click . You can press **Ctrl** key for multiple selections.
 - To select all the listed Tasks, click .
 - To remove a Task, select the task from Select Tasks pane and click .
 - To remove all the selected Tasks, click .
2. Click **OK** and update Task Precedence definition.

4.4 Batch Execution

Batch Execution refers to the process of initiating a Batch for current processing. When a Batch is submitted for execution, a series of commands are sent to the database with respect to the defined component parameters. This in turn returns an array of update counts (required value definitions) when the commands are executed successfully.

You (System Administrator) need to have Data Centre Manager function role mapped to access the Operations framework within the Infrastructure system. You can access Batch Execution by expanding Operations section within the tree structure of LHS menu. The *Batch Execution* screen displays the list of only those Batches which have at least one task associated, with the other details such as Batch ID and Batch Description. When you select a Batch ID in the list, the Task Details sections displays all the defined Tasks associated with the Batch.

The Batch Details section in the *Batch Execution* screen lists the Batches depending on the Batch Mode selected.

- The **Run** mode displays the Batch definitions which are newly defined and which have been scheduled for execution.
- The **Restart** Mode displays the Batch definitions which are not executed successfully or either has been interrupted during the previous Batch execution.
- The **Rerun** mode displays the Batch definitions which have been successfully executed, failed, cancelled, or even interrupted during the previous Batch execution.

You can also make use of [Batch Search](#) option to search for a specific Batch based on the Batch ID, Batch Description, Module or Last Modified Date. The pagination option helps you to view the list of existing Batches within the system. For more information, refer [Pagination](#) section.

4.4.1 Executing Batch

You can Run/Execute the Batches which are scheduled for execution in the *Batch Execution* screen. You can also modify the pre-defined Batch schedule or define a new schedule using the Batch Scheduler. In the *Batch Execution* screen you can execute a Batch in Run, Restart, or Rerun modes.

4.4.1.1 Run/Execute Batch

You can Run/Execute Batch(s) which have been scheduled for execution in the *Batch Execution* screen. You can also Run/Execute a Batch using the External Scheduler (ES) which has the “External Scheduler Interface Component” (ESIC) integrated with Infrastructure system. For more information, refer [External Scheduler Interface Component](#).

To Execute a Batch in the *Batch Execution* screen:

1. Select **Run** in the *Batch Mode* section. The list of Batches scheduled for execution is displayed in the *Batch Details* section.

The screenshot shows the Oracle Financial Services Analytical Applications Infrastructure Batch Execution screen. The 'Batch Mode' section has 'Run' selected. The 'Batch Details' section displays a list of batches with their IDs and descriptions. The 'Task Details' section shows the tasks for the selected batch, including Task ID, Task Description, Metadata Value, Component ID, Precedence, and Task Status. The 'Information Date' section has a date picker. An 'Execute Batch' button is located at the bottom.

Batch ID	Batch Description
ATOM732_1340807050510	CapitalCalcISFourApproach
ATOM732_1340806254343	capitalnew
ATOM732_1341313544452	cond_test1_desc
ATOM732_1341313650090	AutoRun_1341313351568_Description
ATOM732_1341318285630	test12
ATOM732_1341318584242	cond_test2
ATOM732_1341318753752	test4
ATOM732_1341318789534	test5
ATOM732_1341380507248	AutoRun_1341380433660_Description
ATOM732_1341384800571	AutoRun_1341384770995_Description

Task ID	Task Description	Metadata Value	Component ID	Precedence	Task Status
Task1	1147260096729	1147260096729	RULE_EXECUTION		N
Task2	conditions_test	1341312009034	RULE_EXECUTION	Task1	N
Task3	1228391353240CC	1340863282140	RULE_EXECUTION	Task2	N

2. Select the checkbox adjacent to the Batch ID which has to be executed. The specified task(s) defined to the selected Batch are displayed in the *Task Details* section.
 - (Optional) In the Batch Details tool bar, click button to define new or modify the pre-defined Batch Schedule. For more information, refer [Batch Scheduler](#).
 - (Optional) In the Task Details tool bar, click button to Exclude/Include a task, or click button to Hold/Release a task before executing the Batch. For more information, refer [Modify Task Definitions of a Batch](#).
3. Specify the **Information Date** (mandatory) by clicking ([calendar](#)) button. The specified date is recorded for reference.

NOTE: You can also modify the required task parameters of the selected Batch and include the changes during the Batch rerun. For more information, refer [Specify Task Details](#).

4. Click **Execute Batch** button and select **OK** in the information dialog to confirm Batch Execution.

An information dialog is displayed indicating that Batch Execution is triggered successfully.

4.4.1.2 Restart Batch

You can Restart a Batch which has not been executed successfully or which has been explicitly interrupted, or cancelled, or put on hold during the execution process. These Batches are categorized separately and listed in the **Restart** mode within the *Batch Execution* screen. By restarting a Batch, you can continue Batch execution directly from the point of interruption or failure and complete executing the remaining tasks.

To Restart a Batch in the *Batch Execution* screen:

1. Select **Restart** in the *Batch Mode* section. The list of interrupted/failed Batches during execution is displayed in the *Batch Details* section.
2. Select the checkbox adjacent to the Batch ID which has to be executed. The specified Task(s) defined to the selected Batch are displayed in the *Task Details* section.
 - (Optional) In the Batch Details tool bar, click  button to define new or modify the pre-defined Batch Schedule. For more information, refer [Batch Scheduler](#).
3. Select the **Information Date** (mandatory) from the drop down list.
4. Select the **Batch Run ID** (mandatory) from the drop down list.
 - (Optional) In the Task Details tool bar, click  button to Exclude/Include a task, or click  button to Hold/Release a task before executing the Batch. For more information, refer [Modify Task Definitions of a Batch](#).

NOTE: The Tasks in a Batch which have failed during the execution process are indicated in **Red** in the Task Details section. You can modify the required task parameters in [Specify Task Details](#) screen and include the changes during the Batch restart. Else, the tasks fail again during the Batch **Restart**.

5. Click **Execute Batch** button and select **OK** in the information dialog to confirm Batch Execution.

An information dialog is displayed indicating that Batch Execution is triggered successfully.

4.4.1.3 Rerun Batch

You can Rerun a Batch which has previously been executed. Rerun Batch facilitates you to run the Batch irrespective of the previous execution state. A new Batch Run ID is generated during the Rerun process and the Batch is executed as similar to the new Batch Run.

To Rerun a Batch in the *Batch Execution* screen:

1. Select **Rerun** in the *Batch Mode* section. The list of executed Batches is displayed in the *Batch Details* section.
2. Select the checkbox adjacent to the Batch ID which has to be executed. The specified Task(s) defined to the selected Batch are displayed in the *Task Details* section.
 - (Optional) In the Batch Details tool bar, click  button to define new or modify the pre-defined Batch Schedule. For more information, refer [Batch Scheduler](#).
3. Select the **Information Date** (mandatory) from the drop down list.
4. Select the **Batch Run ID** (mandatory) from the drop down list.
 - (Optional) In the Task Details tool bar, click  button to Exclude/Include a task, or click  button to Hold/Release a task before executing the Batch. For more information, refer [Modify Task Definitions of a Batch](#).

NOTE: You can also modify the required task parameters of the selected Batch and include the changes during the Batch rerun. For more information, refer [Specify Task Details](#).

5. Click **Execute Batch** button and select **OK** in the information dialog to confirm Batch Execution.

An information dialog is displayed indicating that Batch Execution is triggered successfully.

4.4.2 Modifying Task Definitions of a Batch

You can modify the task definition state in the *Batch Execution* screen to exclude or hold the defined task in a Batch from execution. The excluded tasks are therefore assumed to have completed execution and get excluded during the Batch Run.

While executing a Batch in the *Batch Execution* screen, you can:

- Exclude a task or Include the excluded task.
- Hold a task and Release the held task.

When you modify the task definition(s) in the Task Details section:

- The Excluded task(s) are displayed in “Grey” with the Task Status set to “K”.

- The task(s) on Hold are displayed in “Red” with the Task Status set to “H”.

NOTE: In the combination, you are not permitted to Hold/Release an Excluded task or Exclude/Include a task which is on Hold.

4.4.2.1 Exclude Task Definitions

You can Exclude Task(s) definition or Include the Excluded task(s) during Batch Execution. The excluded task components are therefore executed in the normal process assuming that the Excluded Task(s) have completed execution.

To Exclude Task(s) in the in the *Batch Execution* screen:

1. Click  button in the Task Details tool bar.
2. In the *Task Mapping* screen, do one of the following:
 - To exclude a task, select the required task from the Available Tasks list and click . You can press **Ctrl** key for multiple selections.
 - To exclude all tasks in the Available Tasks list, click .
3. Click **OK** and return to the *Batch Execution* screen.

The Excluded Task(s) in the task details section are marked in “Grey” with the Task Status set to “K”.

4.4.2.2 Include Excluded Task Definitions

To Include an Excluded Task(s) in the in the *Batch Execution* screen:

1. Click  button in the Task Details tool bar.
2. In the *Task Mapping* screen, do one of the following:
 - To include an excluded task, select the required task from the Set Tasks list and click . You can press **Ctrl** key for multiple selections.
 - To include all tasks in the Set Tasks list, click .
3. Click **OK** and return to the *Batch Execution* screen.

4.4.2.3 Hold Task Definitions

You can Hold task(s) definition or Release the held task(s) during Batch Execution. In the Batch Run, the task(s) which are on Hold along with the defined components are skipped during execution. However, at least one task should be available in a Batch without being held/excluded for Batch execution.

To Hold Task(s) in the in the *Batch Execution* screen:

1. Click  button in the Task Details tool bar.
 2. In the *Task Mapping* screen, do one of the following:
 - To Hold a task, select the required task from the Available Tasks list and click . You can press **Ctrl** key for multiple selections.
 - To Hold all tasks in the Available Tasks list, click .
 3. Click **OK** and return to the *Batch Execution* screen.
- The Task(s) on Hold in the task details section are marked in “Red” with the Task Status set to “H”.

4.4.2.4 Release Held Task Definitions

To Release Task(s) on Hold in the in the *Batch Execution* screen:

1. Click  button in the Task Details tool bar.
2. In the *Task Mapping* screen, do one of the following:
 - To release a held task, select the required task from the Set Tasks list and click . You can press **Ctrl** key for multiple selections.
 - To release all tasks in the Set Tasks list, click .
3. Click **OK** and return to the *Batch Execution* screen.

4.5 Batch Scheduler

Batch Scheduler in the Infrastructure system facilitates you to schedule a Batch for later processing. You can define a new Batch schedule or update a previously defined Batch schedule for processing.

You (System Administrator) need to have Data Centre Manager function role mapped to access the Operations framework within the Infrastructure system. You can access Batch Scheduler by expanding Operations section within the tree structure of LHS menu. The *Batch Scheduler* screen displays the list of Batches scheduled for execution with the other details such as Batch ID and Batch Description. When you select a Batch in the list, the Batch Scheduler options are displayed.

You can click  button in the Server Time section to view the Current Server Time while defining a Batch schedule. You can also make use of [Batch Search](#) option to search for a specific Batch based on the Batch ID Like, Batch Description Like, Module, or Last Modified Date. The pagination option helps you to view the list of existing Batches within the system. For more information, refer [Pagination](#) section.

4.5.1 Creating Batch Schedule

You can define a new schedule for processing Batch by specifying the required day(s) and time intervals. The Batch is executed when the server time synchronizes with the scheduled time.

Oracle Financial Services Analytical Applications Infrastructure

Batch Scheduler

Search

Batch ID Like: ATOM732_ Batch Description Like: Module: Last Modification Date: Between And

Server Time

Current Server Time: Wednesday, August 1, 2012 1:38:22 PM IST

Batch ID	Batch Description
☒ ATOM732_1305855689766_RQEXE001	Capital Calculation - BIS Foundation IRB Approach
☐ ATOM732_1305855689766_RQEXE002	Capital Calculation - BIS Foundation IRB Approach
☐ ATOM732_1305855689766_RQEXE003	Capital Calculation - BIS Foundation IRB Approach
☐ ATOM732_1339673637853	Capital Calculation - BIS Foundation IRB Approach
☐ ATOM732_1340112928464	18062012
☐ ATOM732_1340176812591	19062012
☐ ATOM732_1340452339848	890
☐ ATOM732_1340698645859	capcalcibisstandapp
☐ ATOM732_1340715551598	test16
☐ ATOM732_1340808947374	CapitaCalcBISStanApproach

Batch Scheduler

Domain: ATOM732 Batch: ATOM732_1305855689766_RQEXE001

Schedule: ☒ New Schedule ☐ Existing Schedule

New Schedule

Schedule Name: Frequency: ☒ Once ☐ Daily ☐ Weekly ☐ Monthly ☐ Adhoc

Schedule Time

Dates: Start Date: End Date: Run Time: 00 Hours 00 Minutes Lag: 0 Days

Save Cancel

To create a schedule for Batch processing in the *Batch Scheduler* screen:

1. Select the checkbox adjacent to the Batch ID whose details are to be updated.

The options to schedule a new Batch are displayed. By default, the Schedule type is selected as **New Schedule** in the *Batch Scheduler* section.

2. In the New Schedule section, enter the **Schedule Name** to identify the task.
3. Select the **Schedule** option as one of the following, and specify the related details as tabulated:

Schedule Option	Schedule Task Details
Once (default option)	- Specify the Date on which the Batch has to be scheduled for processing using the Calendar. - Enter the Run Time during which the Batch Scheduling should be run, in hours (hh) and minutes (mm) format. - Enter the number of Lag days which signifies the misdate when the Batch is currently run. For the schedule type "Once" lag days is optional.
Daily	- Specify the Dates, Start and End dates during which the Batch has to be scheduled for processing using the Calendar. - Enter the Run Time during which the Batch Scheduling should be run, in hours (hh) and minutes (mm) format. - Enter the number of Lag days which signifies the misdate when the Batch is currently run. - Enter the frequency of Batch Run in the Every field as per the defined schedule type. For example, Every 2 day(s)
Weekly	- Specify the Dates, Start and End dates during which the Batch has to be scheduled for processing using the Calendar. - Enter the Run Time during which the Batch Scheduling should be run, in hours (hh) and minutes (mm) format. - Enter the number of Lag days which signifies the misdate when the Batch is currently run. - Enter the frequency of Batch Run in the Every field as per the defined schedule type. For example, Every 2 week(s). - Select the checkbox adjacent to the Days of the Week to specify the days on which you need to run the Batch schedule.

Schedule Option	Schedule Task Details
Monthly	- Specify the Dates, Start and End dates during which the Batch has to be scheduled for processing using the Calendar. - Enter the Run Time during which the Batch Scheduling should be run, in hours (hh) and minutes (mm) format. - Enter the number of Lag days which signifies the misdate when the Batch is currently run. - Select Interval option to enter the frequency of Batch Run in the Every field or select Random to select the checkbox adjacent to Months on which you need to run the Batch schedule. - Do one of the following: Select Dates (default) option and enter the Dates of the Month on which you need to run the Batch schedule. Also select the checkbox Include Month's Last Date to do so. -Or- Select Occurrence and specify the day of the week days and select the specific weekday by clicking on the drop down list.
Adhoc	- Specify the Information Date of Batch schedule using the Calendar. - Specify the Run Date of Batch schedule using the Calendar. - Enter the Run Time of Batch schedule in hours (hh) and minutes (mm) format. - You can also click  to add another row or click  to delete the row in the Schedule Task tool bar.

- Click **Save** to save the new Batch schedule details.

4.5.2 Updating Existing Batch Schedule

You can modify the required details and later schedule the previously defined Batch for processing. To update existing Batch schedule in the *Batch Scheduler* screen:

- Select the checkbox adjacent to the Batch ID whose details are to be updated. The various Batch schedule options are displayed.
- In the *Batch Scheduler* section, select **Existing Schedule** as the Schedule type. The screen is refreshed and displays the *Existing Schedule* options.
- In the Scheduled Task Name, select the task from the drop down list.
- Click  button in the Existing Schedule tool bar. The details of the scheduled Batch are displayed.

5. In the Schedule Task section, update the required details. You can modify the Start and End dates, Run Time, Lag days, and other details depending on the Schedule Type selected. For more information, refer [Create Batch Schedule](#).
6. Click **Save** to save the modified details of an existing Batch schedule.

You can also do the following in the Existing Schedule section of the *Batch Scheduler* screen:

- Click  button to view details of the selected Batch schedule.
- Click  button to delete the selected Batch schedule.
- Click  button to view the specified Log details in the grid.
- Click  button to view all the log details for the selected Batch in the grid.
- Click  button to reset the Batch scheduler details.

4.6 Batch Monitor

Batch Monitor in the Infrastructure system facilitates you to view the status of executed Batch definitions along with the tasks details. You can track the issues if any, on regular intervals and ensure smoother Batch execution. An event log provides you the real time status of the executed Batches.

You (System Administrator) need to have Data Centre Manager function role mapped to access the Operations framework within the Infrastructure system. You can access Batch Monitor by expanding Operations section within the tree structure of LHS menu. The *Batch Monitor* screen displays a list of Batches with the other details such as Batch ID and Batch Description.

You can also make use of [Search](#) option to search for a specific Batch based on Date range, Module, Status, and Batch Description. The Batches listed in the Batch Details section can be sorted based on the current state as Successful, Failed, Held, or New. The pagination option helps you to view the list of existing Batches within the system. For more information, refer [Pagination](#) section.

4.6.1 Monitoring Batch

The Batch Details section in the *Batch Monitor* screen lists all the Batches which are schedule or executed within the Infrastructure system.

The screenshot displays the Oracle Financial Services Analytical Applications Infrastructure Batch Monitor interface. The top navigation bar includes the Oracle logo, 'Financial Services Analytical Applications Infrastructure', and user information (User: pgsaur, Connected to: ATOM732, In Setup). The main content area is titled 'Batch Monitor' and contains several sections:

- Search:** Fields for Batch ID Like (ATOM732_), Batch Description Like, Module, Status, Start Date, and End Date.
- Batch Details:** A table listing batches with columns for Batch ID and Batch Description. The table shows 10 results, with the first one selected.
- Batch Run Details:** Fields for Information Date (20120718) and Monitor Refresh Rate (seconds) (5).
- Batch Status:** A table with columns for Batch Run ID and Batch Status.
- Task Details:** A table with columns for Task ID, Task Description, Metadata Value, Component ID, and Task Status. It shows 'No data found'.
- Event Log:** A table with columns for Message ID, Description, Severity, and Time. It shows 'No data found'.

You can view and monitor the required Batch definitions and the corresponding task details. You can also export the values in Microsoft Excel format for reference.

To monitor a Batch in the *Batch Monitor* screen:

1. Select the checkbox adjacent to the Batch ID whose details are to be monitored.

You can also search for a specific Batch by using the [Search](#) option and filter the search results by selecting the required Status as Successful, Failed, Held, or New in the drop down list.

2. Enter the Batch Run Details as tabulated.

Field	Description
Information Date	Select the information date from the drop down list which consists of recently executed Batch Information dates.
Monitor Refresh Rate	Specify the refresh rate at which the latest Batch status details have to be fetched in seconds. You can enter a value between 5 to 999 seconds.
Batch Run ID	Select the Batch Run ID from the drop down list which consists of Batch ID's form which the Batch has been executed.

3. Click  button in the Batch Run Details tool bar.

The state of the selected Batch is monitored and status the displayed in the following order:

- The **Batch Status** section displays the Batch Run ID with the Batch Status as Successful, Failed, Held, or New.
- The **Task Details** section displays the executed task details such as Task ID, Component ID, and Task Status. You can select the checkbox adjacent to the Task ID to view the task component execution details in Event Log section.

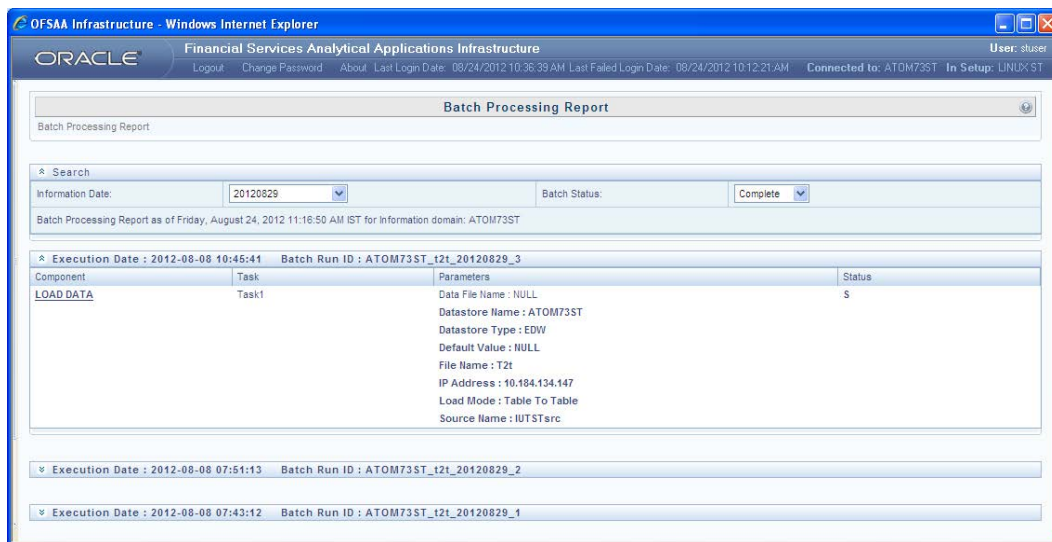
NOTE: If the component used in the task is Data Transformation, the status will be **Successful** or **Failed** based on the invocation of function/procedure is successful or failure. The errors produced by PL/SQL will not have impact on task status unless it throws an oracle exception.

- The **Event Log** section displays the list of errors and events of the Batch being executed. The events are displayed in the ascending order with the latest event being displayed at the top. The Event log consists of:
 - Message ID, which is auto generated.
 - Description, which has the error details.
 - Severity, which can be Fatal, Inform or Successful.

- Time, which indicates the time of the event.
4. In the Batch Run Details tool bar, you can do the following:
 - Click  button to **Stop** the Batch monitoring process.
 - Click  button to reset Batch Run Details.
 5. In the Event Log tool bar, you can click  button to export the event log details to Microsoft Excel file for reference.

4.7 Batch Processing Report

Batch Processing Report in the Infrastructure system facilitates you to view the execution status of each task component defined in a Batch. You can access Batch Processing Report by expanding Operations section within the tree structure of LHS menu. The *Batch Processing Report* screen displays the Batch execution details such as Component, Task, Parameters, and Status. By default, the details of the Latest Batch Run are displayed.



To view the status of the required Batch, in the *Batch Processing Report* screen:

1. Select the **Information Date** from the drop down list. The list consists of executed Batch Information dates in the descending order with the latest Batch Run details being displayed at the top.
2. Select the required **Batch Status** from the drop down list. The available batch statuses are:
 - ALL
 - Not Started
 - Ongoing

- Complete
- Failed
- Cancelled

The screen is refreshed and displays the status of each executed component of the selected Batch with the Task ID, defined Parameters, and the Status.

Refer to the following table to know the available Status Codes of the task and their description.

Status Code	Description
N	Not Run - Task has not been executed.
F	Failed- Task execution failed due to some error.
S	Success- Task has been successfully executed.
O	Ongoing - Task is being executed.
C	Completed – Task execution completed.
R	Restart - Task restarted.
H	Held- Task is on Hold.
K	Excluded - Task has been excluded.
I	Interrupted - Task has been interrupted for issues with Batch environment.
Q	Task Cancelled - Task has been manually cancelled during execution.

4.8 Batch Cancellation

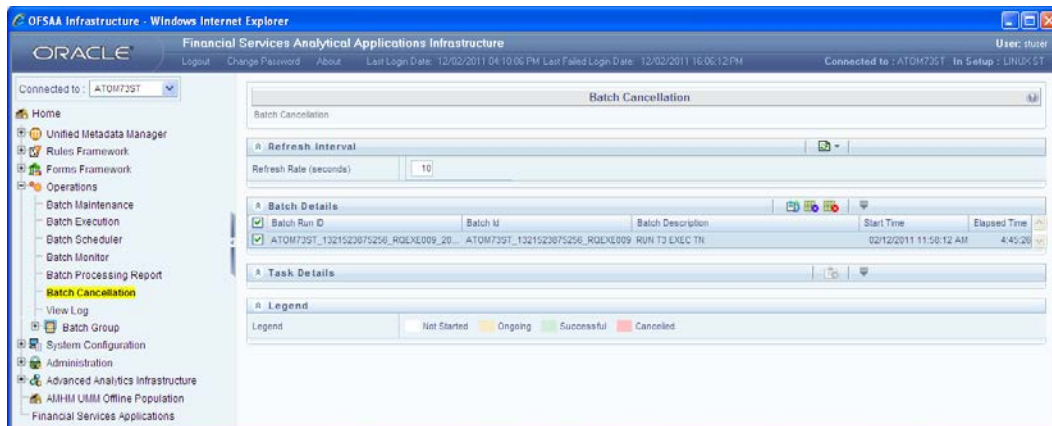
Batch Cancellation in the Infrastructure system facilitates you to cancel or abort a Batch, or a specific Task, which is either scheduled or is in the process of execution.

In the Batch Cancellation,

- When a Batch is **aborted**, the Task which is in the process of execution will be interrupted and a scheduled task is cancelled from execution.
- When a Batch is **cancelled**, the Task which is in the process of execution will be executed completely and a scheduled task is cancelled from execution.
- When a Task is **cancelled**, all the dependent Tasks are also cancelled automatically.

You (System Administrator) need to have Data Centre Manager function role mapped to access the Operations framework within the Infrastructure system. You can access Batch Cancellation by expanding Operations section within the tree structure of LHS menu. The *Batch Cancellation*

screen displays a list of scheduled and current processing Batches with the other details such as Batch Run ID, Batch ID, Batch Description, Start Time, and Elapsed Time.



In the *Batch Cancellation* screen, you can do the following before cancelling a Batch/Task:

- In the Refresh Interval section, you can define the required **Refresh Rate** in seconds to fetch the current status of Batches being executed.

Click  button to refresh the screen and fetch the current status of Batches being executed.

Click  button to select the required Refresh Rate and click  button.

- In the Legend section, you can refer to know the specific defined colors which are used to indicate a particular state of a Task during Batch execution.

-  Indicates - Not Started
-  Indicates - On Going
-  Indicates - Successful
-  Indicates - Cancelled

4.8.1 Cancelling Batch

You can **Cancel** a Batch or a specific Task within the Batch, when you want to postpone or reschedule the Batch for later execution. To cancel a Batch in the *Batch Cancellation* screen:

1. Select the checkbox adjacent to the Batch Run ID which has to be cancelled.
2. Click  button in the Batch Details tool bar. The selected Batch is **Cancelled** from processing and the results are displayed in a confirmation dialog. Click **OK**.

The Tasks associated with the cancelled Batch are also cancelled excluding the ongoing Tasks. The cancelled Batch can be viewed in Restart and Rerun Batch list, within the *Batch Execution* screen.

4.8.1.1 Cancel Task Details

To **Cancel** the specific Task(s) in a Batch from processing:

1. Select the checkbox adjacent to the Batch Run ID.
2. Click  button in the Batch Details tool bar to Fetch Task Details. The defined Task(s) are displayed in the Task Details section.
3. Click  button in the Task Details tool bar.

NOTE: The **Cancel Task** button is disabled if you are not mapped to *TASKCANCEL* function role.

The selected Task is **Cancelled** from processing and the results are displayed in a confirmation dialog. Click **OK**.

4.8.2 Aborting Batch

You can **Abort** a Batch when you want to terminate the Batch execution before completion. To abort a Batch in the *Batch Cancellation* screen:

1. Select the checkbox adjacent to the Batch Run ID which has to be aborted.
2. Click  button in the Batch Details tool bar. The selected Batch is **Aborted** from processing and the results are displayed in a confirmation dialog. Click **OK**.

NOTE: The **Abort Batch** button is disabled if you are not mapped to *OPRABORT* function role.

The Tasks associated with the cancelled Batch are also cancelled including the ongoing Tasks. The cancelled Batch can be viewed in Restart and Rerun Batch list within the *Batch Execution* screen.

4.9 Viewing Log

View Log in the Infrastructure system facilitates you to view the execution status of each task component defined in a Batch. You can access View Log by expanding Operations section within the tree structure of LHS menu.

NOTE: Currently only limited number of Component Types are supported for viewing log. The supported component types can be viewed from the **Component Type** drop-down list in the *Search* grid.

As of Date	Component	Task Name	Task ID	Process Type	Status	Process Step	Records Processed	Number of Errors	Start Date	End Date	Elapsed Time	User	Batch Run ID
31-DEC-09	Asset Liability Management	GOLD DY DER PROCESS 12-31-2009	40005247	Dynamic Deterministic ALM Process	Completed		106		18-AUG-10 16:51:23	18-AUG-10 16:52:28	00:01:05	UT2USER	INFOEPM52R02_40005247_EXEC_20091231_1

The *View Log* screen displays Task ID's Information such as Component, Task Name, Task ID, Process Type, Status, Start Date, End Date, Elapsed Time, User, Batch Run ID, As of Date, Process Step, Records Processed, and Number of Errors for the respective Component Type selected.

4.9.1 Search and View Task ID Log

To search for a Task ID and view the log information:

1. Specify the details in any or all of the following parameters:

Field	Description
Component Type	Select the Component Type from the drop down list. The available component types are listed and based on the component type selected, the Task ID details are displayed. For example, if the component type is selected as Object Validation, then the Task ID Information section displays the Date, Component, Batch Run ID, and Task ID.
As Of Date	Select the date using the Calendar . This field is not applicable for some component types.

Field	Description
Folder	Select the folder from the drop down list. This field is not applicable for some component types.
Task Name	Click  button, the <i>Task Name</i> screen is displayed. - Search for the required Task by entering the keyword in the search field and click . - Select the required task from Available Task list and click . You can also click  button to deselect a Task from the selected list. - Click OK.
User	Enter the user details.
Batch Run ID	Enter the Batch Run ID which has a unique ID (timestamp) and a short description for identification.

- Click  button. The Task ID Information section displays the search results based on the specified parameters.

You can click  button to **Reset** the search fields.

- In the Task ID Information section, click the Task ID of the required component. The *View Log Details* screen is displayed with additional information.

NOTE: There are differences in time stamp between View Log and FSI_MESSAGE_LOG.

4.10 Batch Group

This feature is not available if you have newly installed OFSAAI 7.3.3.0.0 IR. However, the same is not applicable if you have upgraded to 7.3.3.0.0 from any previous versions. In case of any issues, contact Oracle Support.

Batch Group refers to a set of individual Batches consolidated to form a single group. Batch Group in the Infrastructure system facilitates you to create Batch groups and associate the required Batches. You can schedule, execute, and monitor multiple Batches of a Batch Group simultaneously.

You (System Administrator) need to have Data Centre Manager function role mapped to access the Operations framework within the Infrastructure system. You can access Batch Group by expanding Operations section within the tree structure of LHS menu. The Batch Group section consists of the following sections:

- [Batch Group Creation](#)
- [Batch Group Execution](#)
- [Batch Group Monitor](#)

4.10.1 Batch Group Creation

The Batch Group Creation within the Infrastructure system facilitates you to create Batch groups, associate the required Batches, and define the precedence of each Batch which can later be scheduled for execution. You can also delete Batch groups along with the defined Batches.

Batch Group Creation is available in the Operations module within the Batch Group section. Click “+” and expand the Batch Group section. The *Batch Group Creation* screen displays the selected Batch Group with the list of associated Batches and the other details such as Batch Name, MIS Date, and Precedence. The Batch Group drop down list displays only the user defined Batch Groups along with the associated Batches.

4.10.1.1 Adding Batch Group

You can add Batch Group and associate the required Batches to the Batch Group.

Batch Group Creation

Batch Group: BG11:BG11

Select	Batch Name	MIS Date	Precedence
☐	ATOM73ST_BG1	SMISDATE	START
☐	ATOM73ST_BG2	SMISDATE	START
☐	ATOM73ST_AAABB	SMISDATE	START

Buttons: Add Batch, Remove Batch, Save, Refresh

To add a Batch Group in the *Batch Group Creation* screen:

1. Click **Add New Group**. The *Add New Group* screen is displayed.
2. Enter the required ID for the Batch Group. Ensure that there are no special characters and extra spaces in the ID specified.
3. Enter the required description of the new Batch Group.
4. Click **OK**. The new Batch Group is added to the Batch Group list.
5. Click **Save** in the *Batch Group Creation* screen and save the Batch Group details.

You can now associate the required Batches for the Batch Group created.

4.10.1.2 Adding Batch to Batch Group

To associate Batches to the Batch Group:

1. Select or ensure that the required Batch Group is selected from the drop down list.
2. Click **Add Batch**. The *Add Batch* screen is displayed with the list of available Batches which can be mapped to the Batch Group.
3. Select the required Batch by clicking on the appropriate row.
4. Click **OK**. The Batch is added to the Batch Group list with the details such as Batch Name, MIS Date, and Precedence.
5. Click **Save** in the *Batch Group Creation* screen and save the Batch details.

You can now define the precedence value if you have associated more than two Batches to the Batch Group.

4.10.1.3 Defining Precedence to Batch

To define the Precedence value for Batches within the Batch Group:

1. Select or ensure that the required Batch Group is selected from the drop down list.
2. Click  button adjacent Precedence column of the required Batch.
3. In the *Precedence* screen, do the following:
 - To set the precedence after a specific Batch, select the required Batch from the Available Batches list and click . You can press **Ctrl** key for multiple Batch selections.
 - To set the precedence after all or as the last Batch, click .

In the *Precedence* screen, you can also increment the precedence value by selecting the required Batch from the selected Batch list and clicking . You can also click  to remove the defined precedence.

- Click **OK**. The defined Batch Precedence is saved.
- 4. Click **Save** and in the *Batch Group Creation* screen and save the Batch Precedence details.

4.10.1.4 Deleting Batch/Batch Group

You can remove a Batch from Batch Group or delete the Batch Group with all the associated Batches.

To delete a Batch within the Batch Group in the *Batch Group Creation* screen:

1. Select or ensure that the required Batch Group is selected from the drop down list.
2. Select the Batch by selecting the checkbox adjacent to the Batch Name.
3. Click **Remove Batch**. The Batch is removed from the associated Batch Group.
4. Click **Save** in the *Batch Group Creation* screen.

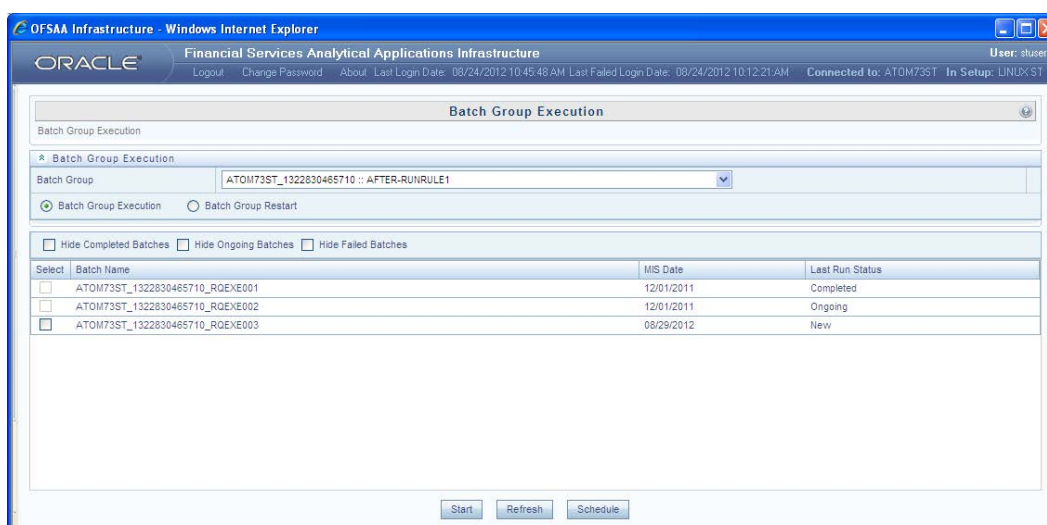
To delete a Batch Group in the *Batch Group Creation* screen:

1. Select the required Batch Group from the drop down list.
2. Click **Delete Group**. An information dialog is displayed to confirm, click **OK**.
3. Click **Save**. The Batch Group details along with the associated Batches and defined precedence are removed from the system.

4.10.2 Batch Group Execution

Batch Group Execution within the Infrastructure system facilitates you to execute or restart a Batch Group with the set of associated Batches. The required Batches within a Batch Group can be executed simultaneously. You can also schedule a Batch Group for later processing.

Batch Group Execution is available in the Operations module within the Batch Group section. Click “+” and expand the Batch Group section. You can access the *Batch Group Execution* screen only if you are mapped to Batch Group Execution function role.



The *Batch Group Execution* screen displays the selected Batch Group with the list of associated Batches and the other details such as Batch Name, MIS Date, and Last Run Status. The Last Run Status can be New, Completed, On-going, or Failed. The Batch Group drop down list displays only the user defined Batch Groups along with the associated Batches.

4.10.2.1 Executing Batch Group

You can execute only those Batches in a Batch Group which has the Last Run Status indicated as “New”. The Batches which have been “completed” or “On-going” cannot be executed. To execute a Batch Group in the *Batch Group Execution* screen:

1. Select or ensure that **Batch Group Execution** (default) option is selected.
2. Select the required **Batch Group** from the drop down list. The associated Batches are listed with the Batch Name, MIS Date, and Last Run Status.

(Optional) Sort the list of displayed Batches based on the Last Run Status by selecting the checkbox adjacent to Hide Completed Batches, Hide On-going Batches, and Hide Failed Batches.
3. Select the required Batches by selecting the checkbox adjacent to the Batch Name. You can also click **Refresh** to populate the latest Batches in the list.
4. Click **Start**. A confirmation dialog is displayed. Click **OK**.

The selected Batches in the Batch Group are executed. You can also select **Schedule** to schedule a Batch for later processing. For more information, refer [Batch Scheduler](#).

NOTE: Batch Groups created through “PR2 framework” cannot be scheduled. Only those batches created through *Operations* module can be scheduled for execution.

4.10.2.2 Restarting Batch Group

You can restart only those Batches in a Batch Group which has the Last Run Status indicated as “Failed” or “New”. The Batches which have been “completed” or “On-going” cannot be restarted. To restart a Batch Group in the *Batch Group Execution* screen:

1. Select **Batch Group Restart** option. The screen is refreshed to display available Batches for the selected Batch Group.
2. Select the required **Batch Group** from the drop down list. The associated Batches are listed with the Batch Name, Batch Run ID, MIS Date, and Last Run Status.
3. Select the **Run IDs** from the drop down list. Each RUN definition will have a unique ID (timestamp) and a short description to identify.

The Batches list is sorted based on the Batch Run ID selected. You can also click **Refresh** to populate the latest Batches in the list.

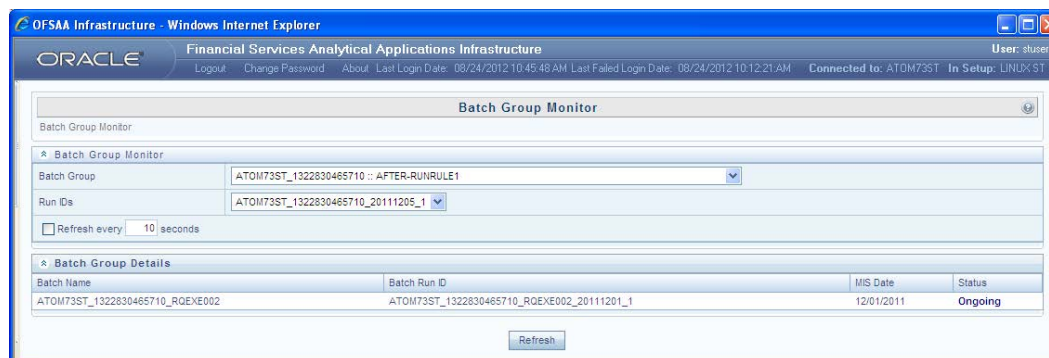
4. Click **Restart**. A confirmation dialog is displayed. Click **OK**.

The selected Batches in the Batch Group are restarted. You can also select **Schedule** to schedule a Batch for later processing. For more information, refer [Batch Scheduler](#).

4.10.3 Batch Group Monitor

Batch Group Monitor in the Infrastructure system facilitates you to view the status of executed Batches within a Batch Group. You can track the issues if any, on regular intervals and ensure smoother Batch execution.

Batch Group Monitor is available in the Operations module within the Batch Group section. Click “+” and expand the Batch Group section. You can access the *Batch Group Monitor* screen only if you are mapped to Batch Group Monitor function role.



The *Batch Group Monitor* screen displays the current state of each Batch in a Batch Group which are completed, Ongoing, or Failed. The list of Batches and the associated Run IDs are displayed based on the selected Batch Group with the other details such as Batch Name, Batch Run ID, a MIS Date, and Status. However, to monitor the status of individual batch, you can access [Batch Monitor](#) screen.

4.10.3.1 Monitoring Batch Group

To monitor a Batch Group in the *Batch Group Monitor* screen:

1. Select the **Batch Group** from the drop down list. The screen is refreshed to populate the associated Run IDs and Batches.
2. Select the required **Run IDs** from the drop down list. Each RUN definition will have a unique ID (timestamp) and a short description to identify.
3. Select **Refresh Every** checkbox and enter the refresh duration in seconds. The Batch Status details are refreshed based on the time interval specified.
4. Click **Refresh**. The Batch execution status for the selected Batch Group is displayed in the Status column as Completed, Ongoing, or Failed.

4.11 References

This section of the document consists of information related to intermediate actions that needs to be performed while completing a task. The procedures are common to all the sections and are referenced where ever required. You can refer to the following sections based on your need.

4.11.1 Task Component Parameters

Components are individual functional units that are put together to form a process. Task Component Parameters reflect the parameters that are being applied to the selected task. Each component triggers its own set of processes in the back-end to achieve the final output.

The parameters required for each of the component ID's are as tabulated.

4.11.1.1 Component: AGGREGATE DATA

Property	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain. The unique combination of the Datastore Name and the Datastore Type determine the physical machine on which the task will be executed. It is assumed that the user gives the correct information else task invocations may fail at runtime.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.

Property	Description
Cube Parameter	Refers to the cube identifier as defined through the Business Metadata (Cube) menu option. Click the field in the Value column to select the cube code.
Operation	Refers to the operation to be performed. Click the drop-down list in the Value field to select the Operation. The available options are ALL , GENDATAFILES , and GENPRNFILES .
Optional parameters	Refers to the additional parameter that has to be processed during runtime. You can specify the runsk value that should be processed as a runtime parameter during execution. By default, the value is set to "null".

4.11.1.2 Component: Allocation Engine

Property	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain. The unique combination of the Datastore Name and the Datastore Type determine the physical machine on which the task will be executed. It is assumed that the user gives the correct information else task invocations may fail at runtime.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Folder	Refers to the location where the Process definition resides. Click the drop down list box in the Value column to select the desired Folder.
Process Type	Refers to the type of PFT Process defined. For example Allocation or Allocation Model. Click the drop down list box in the Value column to select the desired Process Type.
Process Name	Enter the name of the Process as defined by the user. Key in the process name and the matching results are displayed.

Property	Description
Optional parameters	Refers to the set of parameters specific to the model that has to be processed. This set of parameters is automatically generated by the system at the time of definition. You must NOT define a Model using the Define mode under Batch Scheduling. You must define all models using the Modeling framework menu.

4.11.1.3 Component: CREATE CUBE

Field	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain. The unique combination of the Datastore Name and the Datastore Type determine the physical machine on which the task will be executed. It is assumed that the user gives the correct information else task invocations may fail at runtime.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Cube Parameter	Refers to the cube identifier as defined through the Business Metadata (Cube) menu option. Click the field provided in the Value column to select the cube code.

Field	Description
Operation	Refers to the operation to be performed. Click the drop down list to select the Operation. ▪ ALL – This option will execute BUILDDDB and DLRU. ▪ BUILDDDB – This option should be used to build the outline in Essbase Cube. The outline is built based on the parentage file(s) contents. ▪ TUNEDB – This option should be used to analyze data and optimize cube settings. For example, if you are trying to achieve the best block size, where 64K bytes is the ideal size. ▪ PROCESSDB – This option will execute BUILDDDB and DLRU, and is same as All option. Selecting this option will internally assign as ALL. ▪ DLRU – This option should be used to Load Data in the Essbase Cube and trigger a Rollup. ▪ ROLLUP – ROLLUP refers to populating data in parent nodes based on calculations (E.g. Addition). This option should be used to trigger just the ROLLUP option where in the CALC scripts are executed. The same is applicable for DLRU option also. ▪ VALIDATE – This option will validate the outline. ▪ DELDB – This option will delete the Essbase cube. ▪ OPTSTORE – This option will create the Optimized outline for the cube.

4.11.1.4 Component: EXTRACT DATA

Field	Description
Datastore Type	Refers to the type of data store such as: Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Source Name	Identifies the Source from which the Extract is derived. This is defined in the Define Source Screen of Data Management Tools. Select the source name from the drop down list.

Field	Description
Extract Name	Identifies the extract file definition file for the given source. This is defined in the <i>Define Extract</i> screen of Data Management Tools.

4.11.1.5 Component: FIRE RUN

Field	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Run Code	Refers to the IP Address of the machine on which OFSAAI Database components have been installed. Select the desired IP address from the drop down list.
Optional Parameters	Refers to the set of parameters specific to the rule that has to be processed. This set of parameters is automatically generated by the system at the time of run definition.

4.11.1.6 Component: LOAD DATA

Field	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Load Mode	Refers to the mode which user wants to work, which means the user, can transfer data from Table to Table or File to Table.
Source Name	Identifies the Source from which the extract is derived. This is defined in the <i>Define Source</i> Screen of Data Management Tools. Select the source name from drop down list.

Field	Description
File Name	Identifies the File to Table (F2T) definition name or Table to Table (T2T) definition name as defined for the given source. This can be different from the data file. File Name is defined in the <i>File Extracts</i> screen (F2T) or <i>Database Extracts</i> (T2T) screen of Data Management Tools framework. Select the file name from the drop down list.
Data File Name	The data filename refers to the .dat file that exists in the database. Specifying Data File Name is mandatory for F2T definition and optional in case of T2T definition. If the file name or the .dat file name is incorrect, the task fails during execution.
Default Value	Used to pass values to the parameters defined in Load Data Definition. You can pass multiple runtime parameters while defining a batch by specifying the values separated by 'comma'. For example, \$MIS_DATE=value,\$RUNSKEY=value,[DLCY]=value and so on. Note the following: - The parameters can either be specified with \$ or within []. For example, \$RUNSKEY=value or [RUNSKEY]=value. When the definition is saved from the UI, no value is assigned to these parameters and these are just passed for syntax correctness only. Actual values will be passed to these parameters while defining an ICC batch or a RUN. - The list of valid Default Parameters are: - RUNID- Data type is String and can be mapped to VARCHAR2 - PHID- Data type is String and can be mapped to VARCHAR2 - EXEID- Data type is String and can be mapped to VARCHAR2 - RUNSK- Data type is Integer and can be mapped to VARCHAR2 or INTEGER. - SYSDATE- Data type is Date and can be mapped to DATE, VARCHAR2. - TASKID- Data type is String and can be mapped to VARCHAR2 - MISDATE- Data type is Date and can be mapped to DATE, VARCHAR2. Note: RUNID, PHID, EXEID, RUNSK, MISDATE are implicitly passed through RRF. Rest must be explicitly passed. - Only those variable which start with \$ or [, will be replaced at run time and the value of this variable will be equal to anything starting after "=" and ending before comma ",". For example, if \$DCCY/[DCCY] ='USD', \$RUNSKEY=1, then the replaced value in query for \$DCCY will be 'USD' and for \$RUNSKEY will be 1.

Field	Description
	- If you are using "RUNSKEY" parameter in ICC Batch, then ensure that you specify the value of it instead of specifying \$RUNSKEY / [RUNSKEY]. For example, FCT_STANDARD_ACCT_HEAD.N_RUN_SKEY=\$RUNSKEY'. Since the value of RUNSKEY will not be replaced during runtime. - If there are quotes specified in parameter name, then ensure not to use quotes while defining the expression or vice versa to avoid SQL errors. For example, if the parameter name is \$DCCY='USD' and the expression is defined using 'DCCY' instead of \$DCCY, then the final value will be 'USD'. - When you execute a RUN, the run is always tagged with a RUNSK value (a unique value for each run fired directly from the RRF). You might have a DERIVED COLUMN in your T2T with expression like \$RUNSK. If you execute this T2T through a RUN, a unique RUNSK value is passed implicitly to the T2T engine, which then assigns that value wherever \$RUNSK is found. But if you try to execute the T2T through ICC, then you need to explicitly pass a \$RUNSK as a parameter so that the T2T engine can use it.

4.11.1.7 Component: MODEL

Field	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Model Code	Refers to the model that has to be processed. This is a system generated code that is assigned at the time of model definition.
Operation	The All definition for the Operation field conveys the process of extracting the data from the flat files and applying the run regression on the data extracted. For Batches that are being built for the first time the data will be extracted from the flat files and the run regression will be applied on it.

Field	Description
Optional Parameters	Refers to the set of parameters specific to the model that has to be processed. This set of parameters is automatically generated by the system at the time of definition. You must NOT define a Model using the Define mode under Batch Scheduling. You must define all models using the Modeling framework menu.

4.11.1.8 Component: ORACLECUBEBUILD

Field	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Cube Parameter	Refers to the cube identifier as defined through the Business Metadata (Cube) menu option. Click the field provided in the Value column to select the cube code.
Optional parameters	Refers to the additional parameter that has to be processed during runtime. You can specify the runsk value that should be processed as a runtime parameter during execution. By default, the value is set to "null".

4.11.1.9 Component: RULE_EXECUTION

Field	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Rule Code	Display the codes of the RRF Rules defined under the selected Infodom.

Field	Description
Build Flag	Select the required option from the drop down list as “Yes” or “No”. Build Flag refers to the pre-compiled rules, which are executed with the query stored in database. While defining a Rule, you can make use of Build Flag to fasten the Rule execution process by making use of existing technical metadata details wherein the rule query is not rebuilt again during Rule execution. Built Flag status set to “No” indicates that the query statement is formed dynamically retrieving the technical metadata details. If the Build Flag status is set to “Yes” then the relevant metadata details required to form the rule query is stored in database on “Save” of a Rule definition. When this rule is executed, database is accessed to form the rule query based on stored metadata details, thus ensuring performance enhancement during Rule execution. For more information, refer Significance of Pre-Built Flag.
Optional Parameters	Refers to the set of parameters which would behave as filter criteria for the merge query.

4.11.1.10 Component: RUN DQ RULE

Property	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain. The unique combination of the Datastore Name and the Datastore Type determine the physical machine on which the task will be executed. It is assumed that the user gives the correct information else task invocations may fail at runtime.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
DQ Group Name	Refers to the Data Quality Groups consisting of associated Data Quality Rule definition(s). Select the required DQ Group from the drop down list.
Rejection Threshold	Specify the percentage of Rejection Threshold (%) limit in numeric value. This refers to the maximum percentage of records that can be rejected in a job. If the percentage of failed records exceeds the Rejection Threshold, the job will fail. If the field is left blank, the default the value is set to 100%.

Property	Description
Additional Parameters	Specify the Additional Parameters as filtering criteria for execution in the pattern Key#Data type#Value; Key#Data type#Value;...etc. Here the Data type of the value should be "V" for Varchar/Char, or "D" for Date with "MM/DD/YYYY" format, or "N" for numeric data. For example, if you want to filter some specific region codes, you can specify the Additional Parameters value as \$REGION_CODE#V#US;\$CREATION_DATE#D#07/06/1983;\$ACCOUNT_BAL#N#10000.50; Note: In case the Additional Parameters are not specified, the default value is fetched from the corresponding table in configuration schema for execution.

4.11.1.11 Component: RUN EXECUTABLE

Field	Description
Datastore Type	Refers to the type of data store such as: Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Executable	Refers to the executable path on the DB Server. The Executable parameter contains the executable name as well as the parameters to the executable. These executable parameters have to be specified as they are specified at a command line. In other words, the Executable parameter is the exact command line required to execute the executable file. The path to the executable has been entered in quotes. Quotes have to be used if the exe name has a space included in it. In other words, the details entered here should look exactly as you would enter it in the command window while calling your executable. The parameter value is case-sensitive. So, ensure that you take care of the spaces, quotes and case. Also, commas are not allowed while defining the parameter value for executable.
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 drop down list to select either 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.

Field	Description
Batch Parameter	There are four Batch Parameters in the screen: Batch Id , BatchRun Id , Infodate and Infodom . Click the drop-down list to select either Yes or No . 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.

4.11.1.12 Component: RUN RULE

Field	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Rule Code	Refers to the rule that has to be processed. This is a system generated code that is assigned at the time of rule definition.
Optional Parameters	Refers to the set of parameters specific to the rule that has to be processed. This set of parameters is automatically generated by the system at the time of run definition. You can view existing run definitions through the Define Mode in Batch Scheduling.

4.11.1.13 Component: SQLRULE

Field	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Folder	Refers to the location where the SQL Rule definition resides. Click the drop down list box in the Value column to select the desired Folder.

Field	Description
SQL Rule Name	Refers to the defined SQL rule. Click the drop down list in the Value column to select the SQL Rule.

4.11.1.14 Component: TRANSFORM DATA

Field	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain.
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Rule Name	Refers to the Data transformation name that was defined in the <i>Post Load Changes</i> screen of Data Management Tools framework. Select the rule name from the drop down list.
Parameter List	Is the list of parameters defined in Data Transformation check in which the parameters must be in the same order as in the definition and must be separated by a comma (","). Irrespective of the data type of the parameter defined in the procedure. The parameter specified through the front-end does not require to be specified within quotes (' ').

4.11.1.15 Component: VARIABLE SHOCK

Field	Description
Datastore Type	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
Datastore Name	Refers to the name of the Information Domain. Click the drop down list in the Value column to select the Information Domain. The unique combination of the Datastore Name and the Datastore Type determine the physical machine on which the task will be executed. It is assumed that the user gives the correct information else task invocations may fail at runtime.

Field	Description
IP Address	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed. Click the drop down list box in the Value column to select the desired IP address.
Variable Shock Code	Refers to the variable shock that has to be processed. This is a system generated code that is assigned at the time of variable shock definition.
Operation	Refers to the operation to be performed. Click the drop-down list in the Value field to select the Operation. The available options are ALL , GENDATAFILES , and GENPRNFILES .
Optional Parameters	Refers to Process ID and the User ID. Click in the text box adjacent to the Optional Parameters field and enter the Process ID and User ID.

4.11.2 Batch Search

The Search option in the user interface helps you to quickly retrieve the required Batch information depending on the framework on which the Batches have been defined. You can search for a Batch based on the following parameters:

- Module Name, by selecting the required module.
- Last Modified Date, by specifying the modified date range using [Calendar](#).
- Batch ID, by specifying the nearest matching keyword to the Batch ID.

You can click  to start a search and  to reset the search fields.

5 System Configuration

System Configuration is an integral part of Infrastructure administration process and facilitates System Administrators to provide security and operational framework required for Infrastructure.

System Administrators can configure the Server details, Database details, OLAP details and Information Domain along with the other Configuration process such as segment and metadata mapping, mapping segment to security and rules setup. System Configuration is mostly a onetime activity which helps System administrator to make the Infrastructure system operational for usage.

System Configuration activities should be performed by the infrastructure administrator using the admin credentials. To access System Configuration, you must be mapped to SYSADM function role within the Infrastructure system. For more details on various function roles, refer [Function Mapping Codes](#).

5.1 Navigating to System Configuration

System Configuration is available within the tree structure of Infrastructure login screen. In the left hand side (LHS) menu of Infrastructure home page, click + and expand the System Configuration section.

5.2 Components of System Configuration

System Configuration consists of the following sections. Click on the links to view the sections in detail.

- [Server Details](#)
- [Database Details](#)
- [OLAP Details](#)
- [Information Domain](#)
- [Configuration](#)
- [Segment/Metadata Mapping](#)
- [Segment Map Security](#)
- [Rules Setup Configuration](#)

5.3 Server Details

Server Details in the System Configuration section facilitates you to define and configure the various server setup details maintained within the Infrastructure System.

You (System Administrator) need to have full access rights to ftpshare folder with appropriate User ID and password to add and modify the server details. You can access *Server Details* screen in LHS menu of System Configuration. The options available under Server Details are:

- [Database Server](#)
- [Application Server](#)
- [Web Server](#)

5.3.1 Database Server

Database server refers to a computer in network which is dedicated to support database storage and retrieval. The database layer of Infrastructure system can be represented by a single database server.

The *Database Server* screen within the System Configuration section of Infrastructure system facilitates you to add and modify the database server details on which the Infrastructure Database, Application, and Web components have been installed. A database server can support multiple Information Domains, but however, one Information Domain can be mapped to only one database layer.

The screenshot shows the 'Database Server Details' screen within the Oracle Financial Services Analytical Applications Infrastructure web application. The browser window title is 'OFSAA Infrastructure - Windows Internet Explorer'. The page header includes the Oracle logo, the application name, and user information: 'User: pguser', 'Connected to: AAIPR0074', and 'In Setup:'. The main content area is titled 'Database Server Details' and contains two sections. The first section, 'Database Server Details', has fields for 'IP Address' (10.184.134.152), 'Socket Server Port' (10101), 'OS type' (UNIX), and radio buttons for 'FTP' and 'SFTP' (SFTP is selected). The second section, 'FTP Details', has tabs for 'Technical Metadata', 'Business Metadata', and 'Staging Area'. The 'Technical Metadata' tab is active, showing fields for 'Drive' (/export/home/solmockweb/ftpshare/), 'Port Number' (22), 'User ID' (solmockweb), and 'Password'. At the bottom are buttons for 'Add', 'Modify', 'Next', and 'Cancel'.

You can access *Database Server Details* screen by selecting System Configuration in LHS menu and selecting the Server Details section. By default the *Database Server Details* screen displays

the pre-configured database server details. In order to add or modify the database server details, you need to ensure that:

- The FTP/SFTP service should be installed on the Web/Application and DB Server.
- The FTP/SFTP ID for Web/App and DB server has to be created through the Computer Management option under Administrative Tools for all the installations other than UNIX installations.
- This user should belong to the administrator group.
- The FTP/SFTP password for Web/App and DB server needs to be specified in the Computer Management option under Administrative Tools. Also the Password Never Expires option has to be checked.

NOTE: The *Database Server Details* screen displays the pre-configured Database Server Details specified during OFSAA Infrastructure Installation. For more information, refer to Database Server Details configuration in “Start Infrastructure” section of OFSAAI 7.3 Installation & Configuration Guide.

5.3.1.1 Adding Database Server Details

You can add a database server by specifying the Database Server Details, FTP Details, and Security Details. To add database server details:

1. Select **Add** button from the *Database Server Details* screen. The screen is refreshed and enables you to populate the required data in the fields.

The screenshot shows the 'Database Server Details' configuration window in a web browser. The window title is 'OFSAA Infrastructure - Windows Internet Explorer'. The page header includes the Oracle logo and 'Financial Services Analytical Applications Infrastructure'. The user is logged in as 'pgausser' and is connected to 'AAIPROD74' in 'Setup' mode. The main content area is titled 'Database Server Details' and contains several input fields: 'IP Address' (10.184.134.152), 'Socket Server Port' (10101), 'OS type' (UNIX), and radio buttons for 'FTP' and 'SFTP'. Below these are three tabs: 'Technical Metadata', 'Business Metadata', and 'Staging Area'. The 'Technical Metadata' tab is selected, showing fields for 'Drive' (/export/home/solmockweb/ftpshare/), 'Port Number' (22), 'User ID' (solmockweb), and 'Password' (masked with dots). 'Next' and 'Cancel' buttons are at the bottom right.

2. Enter the **Database Server Details** as tabulated.

NOTE: Few of the fields in Database Server details are auto populated based on the options specified during application installation and are not editable.

Field	Description
IP Address	If the IP address of the Infrastructure configuration servers is specified during setup, the same is auto populated and cannot be modified. If not, select the IP address by clicking on the drop down list.
Socket Server Port	The socket server port is auto populated from dynamicservices.xml file in the ficserver/configuration path, and should not be edited. By default the port number is 10101.
OS Type	The OS type (Operating System) of the database is auto detected by the Infrastructure Application and cannot be edited. The system supports only similar OS types in a single implementation and does not support UNIX with NT combination.
FTP / SFTP	FTP refers to the transfer of files such as metadata and staging files from one server to another. SFTP refers to secure FTP for transfer of files from one server to another. Note the following: - The FTP / SFTP option specified during setup is auto populated and is not editable. - The FTP/SFTP information should be created manually, prior to entering the details. The application validates the information ensuring that the value in FTP/SFTP and Host DB is not blank. - When there is a change to the FTP/SFTP path, the old files should be physically moved to the new path. The system ensures that all new files are generated /transferred into the new path.

The FTP Details consists of:

- Technical Metadata** tab, which consists of the path to ERwin file which in turn stores TFM, Database Model XML files, and Table Creation scripts.
- Business Metadata** tab, which consists of path to the business logic XMLs such as Cube Configuration files and Hierarchy Parentage files.

- **Staging Area** tab, which stores the path to FLAT files (data files) which can be loaded through Data Management Tools. This is the only path that is not tagged to any Information Domain.
3. Enter the FTP details in the technical Metadata, Business Metadata, and Staging Area tabs as tabulated. The *Technical Metadata* tab is selected by default and the details specified here are replicated as default values to *Business Metadata*, and *Staging Area* tabs.

NOTE: It is recommended to define the same FTP share directory for Technical Metadata, Business Metadata and Staging Area.

Field	Description
Drive	Specify the physical path of the FTP/SFTP shared directory/Drive. For example: e:\dbftp\
Port Number	Specify the database FTP/SFTP port number. By default the SFTP port number is 22 and can be changed if the port is enabled.
User ID	Specify the user ID that is used to perform an FTP/SFTP in the machine where the database server is located. It is mandatory to specify the FTP/SFTP User ID.
Password	Enter the password which is same as the specified password for FTP/SFTP user ID by the administrator. Note: The password is represented by asterisk (*) for security reasons. Ensure that there are no special characters in the password specified.

4. Click **Next** and enter the Security Details as tabulated:

Field	Description
Security User ID	Enter the user ID which has the same user rights as the user who installed Infrastructure. The Application server validates the database user Id / Password to the database server(s) for connection purposes.
Security Password	Specify the password for the user who would be accessing the security share name. The password is represented by asterisk (*) for security reasons.
Security Share Name	Enter the path locating the DB components installation folder which has been specified by the user who has installed the infrastructure system. For example: D:\Infrastructure

5. Click **Save** to save the Database Server details.

5.3.1.2 Modifying Database Server Details

To update the existing database server details:

1. Select **Modify** button from the *Database Server Details* screen. The screen is refreshed and enables you to edit the required data in the fields.
2. Update the Database Server details as required.

Except for the auto populated OS type, you can edit all other details including IP Address, Server Socket Port, and FTP details in Technical Metadata, Business Metadata, and Staging Area tabs. For more info refer [Add Database Server Details](#).

3. Click **Save** to save the changes.

5.3.2 Application Server

Application Server refers to a computer in a distributed network which provides the business logic for an application program. The Application Server in the Infrastructure system maintains the application layer which in turn consists of shared services, sub system services, and ICC server to manage the warehouse operations.

Application Sever within the System Configuration section of Infrastructure system facilitates you (System Administrator) to maintain the Application Server set-up details. You can access *Application Server* screen by selecting System Configuration in LHS menu and selecting the **Server Details** section. By default the *Application Server (Server Master)* screen displays the pre-configured application server details in the **View** mode.

The screenshot shows the 'Application Server Details' screen in the Oracle Financial Services Analytical Applications Infrastructure. The screen is titled 'Application Server Details' and has a 'User: duser' indicator. It contains several sections: 'Application Server Details' with fields for 'IP Address' (10.184.134.147) and 'FTP' (SFTP); 'FTP Details' with fields for 'Drive' (/oracle/melapp/ftpshare/), 'Port Number' (22), 'User ID' (rnelapp), and 'Password'. There are tabs for 'Technical Metadata', 'Business Metadata', and 'Staging Area'. At the bottom, there are 'Modify' and 'Cancel' buttons.

The *Application Server* screen is displayed in the **Add** mode when accessed for the first time during the installation process to enter the application server setup details. Subsequently the screen is displayed in **View** mode providing option to only update the defined application server details.

5.3.2.1 Modifying Application Server Details

You can update the pre-defined Application Server details and FTP/SFTP details in the *Server Master* screen. To update the existing application server details:

1. Select **Modify** button from the *Server Master* screen. The screen is refreshed and enables you to edit the required data in the fields.
2. Update the Application Server details as tabulated.

NOTE: The data in some of the fields are auto populated with the pre-defined Application Server details. Ensure that you edit only the required fields.

Field	Description
IP Address	Enter the new IP address of the application server. Note the following: In case the IP Address of Application server is changed in any of the following two scenarios, contact Infrastructure Support for help: ▪ Change in IP Address of the Application server machine in use. ▪ Application server is physically moved from one machine to another.
FTP / SFTP	Select the option as either FTP or SFTP. FTP refers to the transfer of files such as metadata and staging files from one server to another. SFTP refers to secure FTP for transfer of files from one server to another. Note the following: ▪ The FTP / SFTP option specified during setup is auto populated. ▪ The FTP/SFTP information should be created manually, prior to entering the details. The application validates the information ensuring that the value in FTP/SFTP and Host DB is not blank. ▪ When there is a change to the FTP/SFTP path, the old files should be physically moved to the new path. The system ensures that all new files are generated /transferred into the new path.

3. Enter the FTP details in the Technical Metadata, Business Metadata, and Staging Area tabs as tabulated. The *Technical Metadata* tab is selected by default and the details specified here are replicated as default values to *Business Metadata*, and *Staging Area* tabs.

NOTE: It is recommended to define the same FTP share directory for Technical Metadata, Business Metadata and Staging Area.

Field	Description
Drive	Specify the new physical path of the FTP/SFTP shared directory/Drive. For example: e:\dbftp\
Port Number	Specify the database FTP/SFTP port number. By default the SFTP port number is 22 and can be changed if the port is enabled.
User ID	Specify the user ID that is used to perform an FTP/SFTP in the machine where the database server is located. It is mandatory to specify the FTP/SFTP User ID.
Password	Enter the password which is same as the specified password for FTP/SFTP user ID by the administrator. The password is represented by asterisk (*) for security reasons. Ensure that there are no special characters in the password specified.

4. Click **Save** to save the changes.

5.3.3 Web Server

Web server refers to a computer program that delivers (serves) content, such as Web pages using the Hypertext Transfer Protocol (HTTP) over the World Wide Web. The Web Server in the Infrastructure system constitutes the presentation layer.

The Infrastructure Web Server (presentation layer) can be implemented in the following two ways:

- Installation of Single Web Server.
- Installation of Primary Web Server and a Secondary Server.

The screenshot displays the 'Web Server Details' configuration window within the 'OFSAA Infrastructure' application. The window is titled 'Web Server Details' and includes a 'Web Server Details' tab. The configuration fields are as follows:

- IP Address:** 10.184.134.147:7077
- Servlet Port:** 7077
- Is Primary:** ☒
- Local Path (*Please enter a valid path):** /oracle/helweb/ftpshare/
- Shared Storage Enabled:** ☒
- OFSAAI Context:** ofsa73
- Protocol:** https
- FTP Enabled:** ☒

Below the main details, there is a section for 'FTP Details' with the following fields:

- FTP:** ☐ **SFTP:** ☒
- Drive:** /oracle/helweb/ftpshare/
- Port Number:** 22
- User ID:** rhelweb
- Password:** (masked with asterisks)

At the bottom of the window, there are three buttons: 'Add', 'Modify', and 'Cancel'.

Web Server within the System Configuration section of Infrastructure system facilitates you (System Administrator) to add and modify the Web Server set-up details. You can access *Web Server* screen by selecting System Configuration in LHS menu and selecting the **Server Details** section. By default the *Web Server (Server Master)* screen displays the pre-configured web server details in the **View** mode.

5.3.3.1 Adding Web Server Details

In the Infrastructure system you can create multiple web servers to route users through different web servers. For example, you can route internal and external users through different web servers. However, one of the Web Server has to be defined as primary server.

You can add a web server by specifying the Web Server details and FTP/SFTP Details in the *Server Master* screen.

To add web server details:

1. Select **Add** button from the *Server Master* screen. The screen is refreshed and enables you to populate the required data in the fields.
2. Enter the Web Server details as tabulated.

Field	Description
IP Address	Enter the IP address of the web server.
Servlet Port	Specify the web server port number. For example: 21

Field	Description
Is Primary	Select the checkbox if you are defining a primary web server. All the static files will be copied to the defined web server. You can also configure a web server which is installed in other machine as primary web server by selecting the checkbox.
Local Path	Specify the local path (location) where the static files need to be copied in the primary server. For example: e:\revftp\ The static files such as Infrastructure OBIEE reporting server pages are copied to the specified location. Note: The web server Unix user must have read/write privileges on the Local Path directory. If not, contact your system administrator.
Shared Storage Enabled	Select Shared Storage Enabled checkbox to access the static files or folders shared in another web server within the network. The files are read from the specified directory instead of copying to the primary web server.
OFSAAI Context	Enter the context in the OFSAAI Context field.
Protocol	Select the protocol as either HTTP or HTTPS from the drop down list. Infrastructure supports FTP/SFTP into Web Server and streaming of files. In case, FTP/SFTP is not allowed in a Web Server due to security reasons, system can stream the data across Web Servers so that the Client need not compromise on their Security policy.
FTP Enabled	Select FTP enabled checkbox to configure Web Server FTP details and to create FIV path automatically.

3. (Optional) If you have selected the **FTP Enabled** checkbox, you can specify the Drive, Port Number, and user details in the FTP details section. Select the option as either FTP or SFTP and enter the other details as tabulated.

Field	Description
Drive	Specify the physical path of the FTP/SFTP shared directory/Drive. For example: e:\ftpshare\
Port Number	Specify the database FTP/SFTP port number. By default the SFTP port number is 22 and can be changed if the port is enabled.
User ID	Specify the user ID that is used to perform an FTP/SFTP in the machine where the database server is located. It is mandatory to specify the FTP/SFTP User ID.

Field	Description
Password	Enter the password which is same as the specified password for FTP/SFTP user ID by the administrator. The password is represented by asterisk (*) for security reasons. Ensure that there are no special characters in the password specified.

4. Click **Save** to save the Web Server details.

5.3.3.2 Modifying Web Server Details

You can update the pre-defined Web Server details and FTP/SFTP Details in the *Server Master* screen. To update the existing web server details:

1. Select **Modify** button from the *Server Master* screen. The screen is refreshed and enables you to edit the required data in the fields.
2. Update the Web Server details as required.

You can edit all the Web Server Details and FTP details in the *Server Master* screen. For more information, refer [Add Web Server Details](#).

3. Click **Save** to save the changes.

5.4 Database Details

Database Details in the System Configuration section facilitates you to define the database setup details after you have configured the database server within the Infrastructure System. The Infrastructure Database server for which you need to specify the database setup details could have been installed in any of the following ways:

- Single tier with multiple Information Domains hosted across machines.
- Multi-tier with Multiple Information Domains hosted across machines.
- Single tier with single Information Domain on the same machine.
- Multi tier with single Information Domain on the same machine as Infrastructure DB Server.

You (System Administrator) need to have SYSADM function role mapped to your role to access and modify the database details. You can access *Database Details* screen in LHS menu of System Configuration. By default the *Database Details for DB Server (Database Master)* screen displays the pre-configured database server details specified during the installation.

5.4.1 Adding Database Details for DB Server

You can add database details by specifying the IP address, User ID, password, and JDBC details. Ensure that the Server Details are specified and the database is created before adding the database details.

The screenshot shows the 'Database Master' window in the Oracle Financial Services Analytical Applications Infrastructure. The 'Database Details for DB Server' section is active, displaying a form with the following fields and values:

Field	Value
IP Address	10.184.134.147
Type	ORACLE
Name	RHELATOMST
Locale Identifier	en_US
User ID	rhelatomst
Password	
JDBC Driver Name	oracle.jdbc.driver.OracleDriver
JDBC Connection String	jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_)
Date Format	mm-dd-yyyy
Block Size	N/A

Buttons at the bottom: Add, Save, Cancel.

To add database details for DB server:

1. Select **Add** button from the *Database Master* screen. The screen is refreshed and enables you to populate the required data in the fields.
2. Enter the Database Server details as tabulated.

Field	Description
IP Address	Select the Database IP Address from the drop-down list. This list displays the database server IP address defined during the set-up.
Type	By default, ORACLE Database Type is selected as specified during installation.
Name	Enter the database Name. Ensure that there are no special characters and extra spaces. Note that, for Oracle database, the TNS (Transparent Network Substrate) database name should be same as SID.
Locale Identifier	Select the locale from the drop down list. The specified locale is identified at the time localization set-up.
User ID	Specify the atomic schema User ID to access the database. The system authenticates the specified User ID before providing access. The User ID should not exceed 16 characters.

Field	Description
Password	Enter the password required to access the database. The system authenticates the specified password before providing access.
JDBC Driver Name	The default JDBC Driver Name is auto populated based on the database type selected. - For MSSQL DB type it is com.microsoft.jdbc.sqlserver.SQLServerDriver - For ORACLE DB type it is oracle.jdbc.driver.OracleDriver - For DB2UDB DB type it is com.ibm.db2.jcc.DB2Driver In case of modification, ensure that the specified driver name is valid since the system does not validate the Driver Name.
JDBC Connection String	The default JDBC Connection String is auto populated based on the database type selected. - For MSSQL DB type it is jdbc:microsoft:sqlserver://<<DB Server Name>>:<<Port Number>> - For ORACLE DB type it is jdbc:oracle:thin:@<<DB Server Name>>:<<Port Number>>:<<Oracle SID>> - For DB2UDB DB type it is jdbc:db2://<<DB Server Name>>:<<Port Number>>/<<Database Name>> You need to specify the appropriate details corresponding to the information suggested in brackets. For example, in ORACLE DB you can specify the Port number as 1521 and the SID as ORCL
Date Format	Enter the date format used in the Database server. You can find this in nls_date_format entry for the database. This date format will be used in all the applications using date fields.
Block Size	(Optional) Specify the Block Size when you have selected ORACLE as the database type. The details are available in the INIT.ORA file which stores the initialization parameters of Oracle DB.

3. Click **Save** to save the Database Details for DB Server.

5.4.2 Modifying Database Details for DB Server

By default, the *Database Details for DB Server (Database Master)* screen displays the database setup details specified during the installation. The database details are editable and you can modify the required information except the Database Type. For more information, refer [Add Database Details for DB server](#).

NOTE: The database date when modified does not get auto updated. You need to manually update the date in the database parameters of NLS_DATE_FORMAT file and restart the BD. Also the to_date function translation is not performed during the data load.

Once you have updated all the required information, click **Save** to save the Database Details.

5.5 OLAP Details

OLAP or Online Analytical Processing is an approach to swiftly answer multi-dimensional analytical queries. Any database configured for OLAP uses a multidimensional data model, allowing for complex analytical and ad-hoc queries with a rapid execution time.

OLAP Details in the System Configuration section facilitates you to define the OLAP details after you have configured the OLAP server within the Infrastructure System. The Infrastructure design makes it mandatory for the System Administrators to define the OLAP details which is usually a onetime activity. Once defined the details cannot be modified except for the user credentials.

The screenshot shows the 'OLAP Details' configuration window. The title bar indicates 'OFSAA Infrastructure - Windows Internet Explorer'. The page header includes the Oracle logo and 'Financial Services Analytical Applications Infrastructure'. Below the header, there are links for 'Logout', 'Change Password', 'About', 'Last Login Date: 08/21/2012 03:43:32 AM', 'Last Failed Login Date: 08/18/2012 07:28:40 AM', 'Connected to: ATOM735.T', and 'In Setup: LINUX ST'. The main content area is titled 'OLAP Details' and contains a table with the following fields: 'Server IP' (10.184.108.74), 'Type' (SQLOLAP), 'User ID' (test), and 'Password'. At the bottom of the table are three buttons: 'Add', 'Save', and 'Cancel'.

You (System Administrator) need to have SYSADM function role mapped to your role to access and modify the OLAP details. You can access *OLAP* screen in LHS menu of System Configuration. By default the *OLAP Details* screen displays the pre-configured server details specified during the installation.

5.5.1 Adding OLAP Details

You can add OLAP details by specifying the server IP, database type, and locale. Ensure that the OLAP server is configured before adding the OLAP details. To add OLAP details:

1. Select **Add** button from the *OLAP Details* screen. The screen is refreshed and enables you to populate the required data in the fields.

The screenshot shows the 'OLAP Details' configuration window. It includes a header with the Oracle logo and navigation links. The main area contains three sections: 'OLAP Details' with fields for Server IP, Type (a dropdown menu), and Locale Identifier; 'For Cube Creation' with fields for User ID and Password; and 'For Cube Viewing' with fields for FIV User ID and FIV Password. At the bottom are 'Save' and 'Cancel' buttons.

2. Enter the OLAP details as tabulated.

Field	Description
Server IP	Enter or select the OLAP server IP from the drop down list. The OLAP Server IP address is the IP address of the machine on which OLAP server is running.
Type	Select the OLAP database type from the drop down list. The available options: ▪ SQLOLAP ▪ ESSBASE ▪ EXPRESS ▪ DB2OLAP ▪ ORACLE Note the following while selecting the OLAP DB type: ▪ By selecting ESSBASE and DB2OLAP, you need to specify different user id and password for Cube Creation and Cube Viewing to avoid locking of the cube when the cube is being built. ▪ By selecting SQLOLAP and EXPRESS, you need to specify one set of user id and password common for both Cube Creation and Cube Viewing. ▪ By selecting ORACLE, you need not specify user id and password for Cube

Field	Description
	Creation and Cube Viewing. In the same server, Multiple OLAP types can be installed in the same server and configured in OFSAAI.
Locale Identifier	Select the locale from the drop down list. The specified locale is identified at the time localization set-up.

3. Specify the User ID and Password in the **For Cube Creation** section, based on the selected OLAP DB Type. Ensure that User ID should not have any special characters or extra spaces and it should not exceed 16 characters.
 - For SQLOLAP, the User ID should be created in Microsoft Windows with appropriate privileges for cube creation.
 - For EXPRESS, the User ID should be created in EXPRESS with appropriate privileges for cube creation.
4. Specify the User ID and Password For **Cube Viewing**, based on the selected OLAP DB Type. Ensure that there are no special characters and extra spaces.
 - Enter the FIV User ID to view the cube. If ESSBASE is selected as the database type, the cube can be viewed in OBIEE reporting server.
5. Click **Save** to save the OLAP Details.

5.5.2 Modifying OLAP Details

By default, the *OLAP Details* screen displays the OLAP details specified during the installation. The defined OLAP details are not editable and you can only modify the user privileges for Cube Creation and Viewing based on the selected OLAP DB Type. For more information, refer [Add OLAP Details](#).

Once you have updated all the required information, click **Save** to save the OLAP Details.

5.6 Information Domain

Information Domain within the Infrastructure system refers to a specific area of analysis which consists of stored data models with the related Technical and Business data definitions for processing. An Information Domain forms the backbone for all the data analysis.

The screenshot displays the 'Information Domain Maintenance' interface within the Oracle Financial Services Analytical Applications Infrastructure. The 'Information Domain Details' section includes a dropdown for 'Name' (set to 'ATOM73ST'), a text field for 'Description' (set to 'atom73st'), and two checkboxes: 'Is authorization required for Business Metadata?' (checked) and 'Is this a Staging Information Domain?' (unchecked). Below the details are buttons for 'Add', 'Next', 'Save', 'Delete', and 'Cancel'. The 'Audit Trail' section shows a table with columns for 'Created By', 'Last Saved By', 'Date', and 'Time'. The first row shows 'Created By' as 'STUSER' and 'Date' as 'Wednesday, September 7, 2011 6:16:10 AM IST'. The second row shows 'Last Saved By' as 'STUSER' and 'Date' as 'Friday, August 17, 2012 12:00:00 AM IST'.

Information Domain in the System Configuration section facilitates you to define and maintain the Information Domain Details within the Infrastructure system.

- The *Information Domain Maintenance* screen can be accessed only if the Server details are defined and at least one database has been created.
- One Information Domain can be mapped to only one database and one database can be mapped to only one Information Domain.
- You need to execute the file **privileges_config_user.sql** which is available under \$FIC_HOME directory by logging into database as **sysdba** user, to grant privileges to the database schema.
- The Information Domain schema makes use the tables from the configuration schema and to facilitate that you need to execute the file "<Infrastructure Database Layer Install Directory>/config_table_privileges_for_atomic_user.sql" from the Infrastructure config database before the Information Domain is created.

You (System Administrator) need to have SYSADM function role mapped to your role to access and modify the Information Domain details. You can access *Information Domain* in LHS menu of System Configuration. By default the *Information Domain Maintenance* screen displays the pre-configured Information Domain details and allows you to add, modify, and delete Information Domains.

5.6.1 Creating Information Domain

You can create Information Domain only when you have a defined database which has not been mapped to any Information Domain. To add Information Domain details:

1. Select **Add** button from the *Information Domain Maintenance* screen. The screen is refreshed and enables you to populate the required data in the fields.

The screenshot shows the 'Information Domain Maintenance' screen in the Oracle Financial Services Analytical Applications Infrastructure. The 'Information Domain Details' section contains the following fields:

- Name: AAISYSCON1
- Description: Information Domain - System configuration
- ☒ Is authorization required for Business Metadata?
- ☒ Is this a Staging Information Domain?

Below the details section is an 'Audit Trail' section with the following fields:

- Created By: STUSER
- Last Saved By: (empty)
- Date: (empty)

2. Enter the Information Domain details as tabulated:

Field	Description
Name	Enter the name of the Information Domain. Ensure that the name specified is of minimum 6 characters long and does not contain any special characters or extra spaces.
Description	Enter the description of the Information Domain. Ensure the description field is neither empty nor exceeds 50 characters.
Is authorization required for Business Metadata?	Select the checkbox if user authorization is required to access Business Metadata.
Is this Staging Information Domain?	Select the checkbox if you are creating a Staging/Temporary Information Domain.

3. Click **Next** and enter the database details as tabulated:

Field	Description
Database Server	Select the database server from the drop down list. The list contains all the defined database servers.
Database Name	Select the database name from the drop down list. The list contains all the database names contained within the server.

Field	Description
OLAP Server	Select the OLAP server from the drop down list. The list contains all the servers defined in OLAP Details.
OLAP Type	Select OLAP Type from the drop down list. The available options are: ▪ ESSBASE ▪ ORACLE ▪ SQAOLAP
Generate BI hierarchy	Select the required option to re-generate all the Business Intelligence Hierarchies either upon Data Load or upon Transformation or both. By default, None option is selected.

- Click **Next**.
- Specify the file location path of **ERwin**, **Log**, and **Scripts** file on the application server.
Ex: An ERwin file path could be /oracle/app73/ftpshare/<infodom>/Erwin
 - ERwin file stores TFM and Database Model XML files.
 - Log file stores the Log data for all the Backend and Front-end components.
 - Script file stores Table Creation scripts.
- Specify the file location path of **ERwin**, **Log**, and **Scripts** file on the database server.
For example, an ERwin file path could be /home/db73/ftpshare/<infodom>/erwin
The specified details provided for the database and application server details will be mapped to the Information Domain. A consolidated data would be stored in the **DSNMASTER** table in the **config schema** database.
- Click **Save** to save the Information Domain details.
On creating an Information Domain a list of objects are created using the script files.
For more information, refer to [List of Objects Created in Information Domain](#).

5.6.2 Modifying Information Domain

By default, the *Information Domain Maintenance* screen displays the details of the selected Information Domain. Select the required Information Domain by clicking on the Name drop down list. You can edit only the specific information as indicated below:

- In **Information Domain Details** section you can update the Information Domain Description and change the option to specify “if authorization is required for Business Metadata?”

- In **Generate BI hierarchy** section, you can change the option re-generate all the Business Intelligence Hierarchies either upon Data Load or upon Transformation or both. By default, “None” option is selected
- In **Paths on the APP and DB Server**, you can update only the Log File Path. The ERwin and Scripts file path is updated automatically by the system when there is a change in the Server Details. The change in path of Log and MDB files has to be updated manually by moving the files to the new path.

Once you have updated the required information, click **Save** to save the Information Details. For more information, refer [Create Information Domain](#).

5.6.3 Deleting Information Domain

You can remove an Information Domain in the Infrastructure system only when there are no users mapped to it. Select the required Information Domain by clicking on the Name drop down list and click **Delete**.

5.7 Configuration

Configuration refers to a process of defining all the system accessibility components of an information system. Configuration in the System Configuration section facilitates you (System Administrator) to define and maintain the user accessibility details within the Infrastructure system.

You (System Administrator) need to have SYSADM function role mapped to your role to access and modify the Configuration details. You can access *Configuration* in LHS menu of System Configuration.

The screenshot shows the 'Configuration' window with the 'General Details' tab active. The window title is 'Configuration'. Below the title bar, there's a section for 'Environment Details' showing 'Database - ORACLE' and 'Server - Unix'. The 'General Details' tab is selected, displaying a list of configuration parameters:

Number of invalid logins	10
Path for Application Packaging	
Session Timeout Value(in seconds)	3000
LDAP URL	
LDAP Password	
Environment Details	
SSO Enabled	☐
Authentication Type	SMS Authentication and Authorization
LDAP SSL Mode	☐
Display login details in the header	☐
Allow user to log in from multiple machines	☒
Encrypt Login Password	☐
Hierarchy Security Type	User Based Hierarchy Security
Dormant Days	
Inactive Days	
Working Hours From	00:00 To 23:59
Frequency of Password Change	30
Password History	1
Password Restriction	☐ Restricted ☒ Un Restricted

At the bottom of the window, there are 'Save' and 'Cancel' buttons.

The *Configuration* screen consists of four sections namely General Details, Guest Login Details, Optimization, and Others. By default the *General Details* screen is displayed with the pre-configured details of the Server and Database that you are currently working on and allows you to modify the required information.

5.7.1 Update General Details

OFSAAI supports three types of authentications:

- **SMS Authentication & Authorization**- By default, this is selected.
- **LDAP Authentication & SMS Authorization**- Ensure that the LDAP servers are up and running if you are selecting this option.
- **SSO Authentication & SMS Authorization**- Ensure SSO server is configured if you are selecting this option.

Specify the configuration details as tabulated:

Field	Description
Number of invalid logins	This field is not applicable if you are selecting SSO Enabled check box. Enter the number of attempts permitted for the user to enter wrong passwords, after which the user account will be disabled.
Path for Application Packaging	Enter the Application Packaging path where the JSP's generated through DEFQ is saved.
Session Timeout Value (in seconds)	Enter the permitted duration of inactivity after which the session will be automatically timed out and the user will be requested to login again. Note the following: ▪ The session time out depends on the specified Session Timeout Value and web server internal session maintenance. It may vary for different web servers. ▪ If SSO authentication is selected, ensure you set the Session Timeout Value equivalent to the configured server session time to avoid improper application behavior after session expired.
LDAP URL	This field is applicable only if you are selecting Authentication Type as LDAP Authentication & SMS Authorization . Enter the LDAP URL from which the system authenticates the user. For more information, refer to the Authentication and Logging section.
LDAP Password	This field is applicable only if you are selecting Authentication Type as LDAP Authentication & SMS Authorization . Enter the LDAP server root password for authentication.
Environment Details	Enter the system environment details such as Development, UAT, Production and so on which are displayed in the application top banner as the "In Setup" info.
SSO Enabled	Select this check box to enable SSO Authentication & SMS Authorization .

Field	Description
Authentication Type	Select the required authentication type from the drop-down list. The options are : ▪ SMS Authentication & Authorization ▪ LDAP Authentication & SMS Authorization ▪ SSO Authentication & SMS Authorization Note: If SSO Enabled check box is selected, the Authentication Type is automatically selected as SSO Authentication & SMS Authorization. You cannot modify it.
LDAP SSL Mode	This field is applicable only if you are selecting Authentication Type as LDAP Authentication & SMS Authorization. Select the checkbox to enable and pool the defined LDAP connections.
Display login details in the header	Select the checkbox to display the login details such as Last Login Date and Last Failed Login Date on the application header. Note: If SSO authentication is selected, the Last Failed Login Date is displayed during the subsequent login for SYSADMN and SYSAUTH users only.
Allow user to login from multiple machines	Select the checkbox to allow concurrent user login.
Encrypt Login Password	This field is not applicable if you are selecting SSO Enabled check box. Select the checkbox to encrypt the login password for more protection.
Hierarchy Security Type	Select the hierarchy security node type from the drop down list. The available options are: ▪ Group Based Hierarchy Security ▪ User Based Hierarchy Security Depending on the selection, the user/ group details are displayed in the Hierarchy Security screen.
Dormant Days	This field is not applicable if you are selecting SSO Enabled check box. Enter the number of inactive days permitted after which the user is denied to access the system.
Inactive Days	This field is not applicable if you are selecting SSO Enabled check box. Enter the number of inactive days permitted after which the user access permissions are removed and the delete flag status is set as "Y". Ensure that the number of Inactive days is greater than or equal to Dormant days. Note that, the user details still exist in the database and can be revoked by changing the status flag.

Field	Description
Working Hours	This field is not applicable if you are selecting SSO Enabled check box. Enter the working hours (From and To) to restrict the user to login to the system within the specified time range. The time is accounted in 24 hours and hh:mm format.
Frequency of Password Change	This field is not applicable if you are selecting SSO Enabled check box. Enter the number of days after which the login password will be expired and the user is navigated directly to the <i>Change Password</i> screen.
Password History	This field is not applicable if you are selecting SSO Enabled check box. Enter the number of instances the old passwords need to be maintained and the user will be restricted not to use the same password again. A maximum of last 10 passwords can be recorded.
Password Restriction	This field is not applicable if you are selecting SSO Enabled check box. Select one of the following options: ▪ Restricted - To impose additional rules and parameters for users while defining a password. ▪ Un Restricted - To allow users to define any password of their choice ensuring that the password is alphanumeric without any special characters.
These fields are displayed only if you select Restricted option for Password Restriction .	Specify the following password restriction parameters: ▪ Password Length - Enter the minimum and maximum characters permitted for setting a password. The default range is between 6 and 20 characters. ▪ Numbers - Enter the minimum and maximum numeric characters permitted. ▪ Upper Case - Enter the minimum and maximum numbers of upper case characters are permitted. ▪ Lower Case - Enter the minimum and maximum numbers of lower case characters are permitted. ▪ Special Characters Occurrence Allowed - Select the checkbox if special characters are allowed in passwords. ▪ Special Character - Enter the minimum and maximum numbers of special characters are permitted. ▪ Special character occurrence Frequency - Enter the number of times the same special character can occur in the password. ▪ Disallowed Special Characters - Enter the special characters (without spaces) which are not permitted in a password.

Field	Description
	▪ Running Alphabets - Select the checkbox to allow running alphabets in a password. For example, abc, xyz, AbC and so on. ▪ Sequence Of Running Alphabets- Enter the number of times the sequence is permitted. ▪ Running Numbers - Select the checkbox to allow running numbers in a password. For example, 123, 456, and so on. ▪ Sequence Of Running Numbers- Enter the number of times the sequence is permitted.
If you select the SSO Enabled check box, the following fields are displayed.	
SSO Method	Select the required SSO method. These methods are to specify how the user id should be passed from the SSO engine. ▪ HTTP Request Header - Returns the value of the specified request header as a string from the server. If selected, you need to specify the header value in SSO Header Value field. For example, SM_USER and iv-user header values are supported in OAM. ▪ HTTP Request Remote User - Returns the login details of the user who is requesting access to the application remotely. ▪ HTTP Request User Principal - Returns a "java.security.Principal" object containing the name of the current authenticated user.
SSO Logout URL	Enter the URL of the page that is to be displayed when users exit the application.
SSO Redirect URL	Enter the URL of the page to which the user should be redirected if some error occurs.

Click **Save** and save the general tab details.

SSO Authentication and SMS Authorization

Before you configure SSO authentication, ensure that:

- You have configured OAM (Oracle Access Manager) or equivalent server for SSO user authentication.
- The configured SSO server is up and running and an SSO login page is displayed for users to provide the authentication details.
- The configuration fields are updated correctly before saving the details.

In case of any errors, the mapped users will not be able to login to the application and you may need to correct the details by logging to the system as **sysadmn**.

For System Users:

- You can access OFSAAI Application using <Protocol (http/https)>://<IP/ HOSTNAME>:<SERVLET PORT>/<CONTEXT NAME>/direct_login.jsp.
- You have to select the appropriate user id from the drop-down list.

For Application Users:

- The login page will be their respective SSO Authentication page.
- After successful login, you can change your locale from the **Select Language** link in the application header of the landing page. Move the pointer over the link and select the appropriate language from the listed languages. Based on the locales installed in the application, languages will be displayed.
- The **Change Password** link will not be available in the application header.

5.7.2 Update Guest Login Details

You (System Administrator) can facilitate Guest Users to login to the Infrastructure system by configuring the Guest Login Details. If a password is defined, then the guest users are required to enter the password during logon and would then be navigated to the specific modules based on the mapped Roles and Functions.

Ensure the following before configuring the guest user details:

- Functions and Roles should be mapped appropriately for tracking the guest user activities on the system.

For example, when a guest user is permitted to modify Metadata, the change done cannot be tracked since the system recognizes Guest User as Modifier.

- When there is a provision for Guest User to access the Infrastructure system from an external machine, a specific set of .jsp's (web pages) has to be defined to the Guest User and maintained in the "urllist.cfg" in ficweb/conf folder.

For example, if the "urllist.cfg" contains "ficportal/**Testing.jsp**" and "fiv/**OpenView.jsp**'s", Guest users can view and execute Testing and OpenView.jsp's from ficportal and fiv contexts.

- Any number of pages can be defined within the "urllist.cfg" file
- The additions into the CFG file will be done manually.
- Only the links specified in the urllist.cfg file can be accessed through the guest login.
- You can also specify access based on wild card entries. A wildcard character can be applied at the main folder level only and not to a subset of files within a folder.

For example, if access is provided to ficportal/testing/*, then all the pages under ficportal/testing folder are accessible from Guest login.

1. Select Guest Login tab and update the details as tabulated:

General Details	Guest Login	Optimization	Others
Guest Login	Enabled		
Guest Password	Not Required		
Guest Password			
Save Cancel			

Field	Description
Guest Login	Select one of the following option from the drop down list: - ENABLED - To enable guest users and allow them to login to the system. - DISABLED - To restrict access to guest users.
Guest Password	You can select the Guest Password as one of the following from the drop down list only if you have ENABLED guest Login: - Required - Guest users need to specify a password to logon. - Not Required - Guest users can logon directly.
Guest Password	You can specify the Guest Password only if you have selected the previous Guest Password field option as Required. Enter the Guest Password as indicated: - If Password Restrictions is set in the General Details tab, the specified password must satisfy all the defined parameters. However Guest Users do not comply to change password, invalid login attempts, or logging from multiple workstations, - If no Password Restrictions is set, ensure that the specified password is alphanumeric without any extra spaces.

2. Click **Save** and save the guest login configuration details.

5.7.3 Update Optimization Details

1. Select Optimization Details tab and update the details as tabulated:

General Details	Guest Login	Optimization	Others
Hint used for MERGE statement	IS_PARALLEL		
Hint used for SELECT statement	ALL_ROWS		
Script executed before MERGE statement	alter session set star_transformation_enabled		
Script executed after MERGE statement	alter session set star_transformation_enabled		
User ROWID in ON clause of MERGE statement	☐		
Save Cancel			

The Optimization details such as Hints, Scripts, and Using ROWID instead of Primary Keys can be specified to optimize Merge statements. The defined configurations are also fetched as Query Optimization Settings while defining Rule definition properties.

Field	Description
Hint used for MERGE statement	Specify the SQL Hint that can be used to optimize Merge Query. For example, <code>/*+ ALL_ROWS */</code> In a Rule Execution, Merge Query formed using definition level Merge Hint precede over the Global Merge Hint Parameters defined here. In case the definition level Merge Hint is empty / null, Global Merge Hint (if defined here) is included in the query.
Hint used for SELECT statement	Specify the SQL Hint that can be used to optimize Merge Query by selecting the specified query. For example, <code>"SELECT /*+ IS_PARALLEL */"</code> In a Rule Execution, Merge Query formed using definition level Select Hint precede over the Global Select Hint Parameters defined here. In case the definition level Select Hint is empty / null, Global Select Hint (if defined here) is included in the query.
Script executed before MERGE statement	Refers to a set of semicolon (;) separated statements which are to be executed before Merge Query on the same connection object. In a Rule Execution, Global Pre Script Parameters defined here are added to a Batch followed by Rule definition level Pre Script statements if the same has been provided during rule definition. However, it is not mandatory to have a Pre Script either at Global or definition level.

Field	Description
Script executed after MERGE statement	Refers to a set of semicolon (;) separated statements which are to be executed after Merge Query on the same connection object. In a Rule Execution, Global Post Script Parameters defined here are added to a Batch followed by Rule definition level Post Script statements if the same has been provided during rule definition. However, it is not mandatory to have a Post Script either at Global or definition level.
User ROWID in ON clause of MERGE statement	You can select the ROWID checkbox to create a Merge Statement based on specified ROWID instead of Primary Keys. In a Rule Execution, ROWID is considered while creating Merge Statement if Use ROWID checkbox is selected in either Global Parameters defined here or Rule definition properties. If Use ROWID checkbox is not selected in either Global Parameters defined here or Rule definition properties, then the flag is set to "N" and Primary Keys are considered while creating in Merge Statements.

2. Click **Save** and save the Optimization details.

5.7.4 Updating Others Tab

1. Select the *Others* tab and update the details as tabulated:

The screenshot displays the Oracle Financial Services Analytical Applications Infrastructure Configuration interface. The 'Configuration' tab is active, and the 'Others' sub-tab is selected. The configuration details are as follows:

Field	Description
Limit on number of mappings displayed	1000
Page size used in tree pagination	100
Application uses new Run Rule Framework	☒
Enable audit log through Security Management System	☒ Currently applicable for Run Rule Framework
Populate Execution Statistics	☐

Buttons: Save, Cancel

You can modify the *Others* tab details as tabulated below:

Field	Description

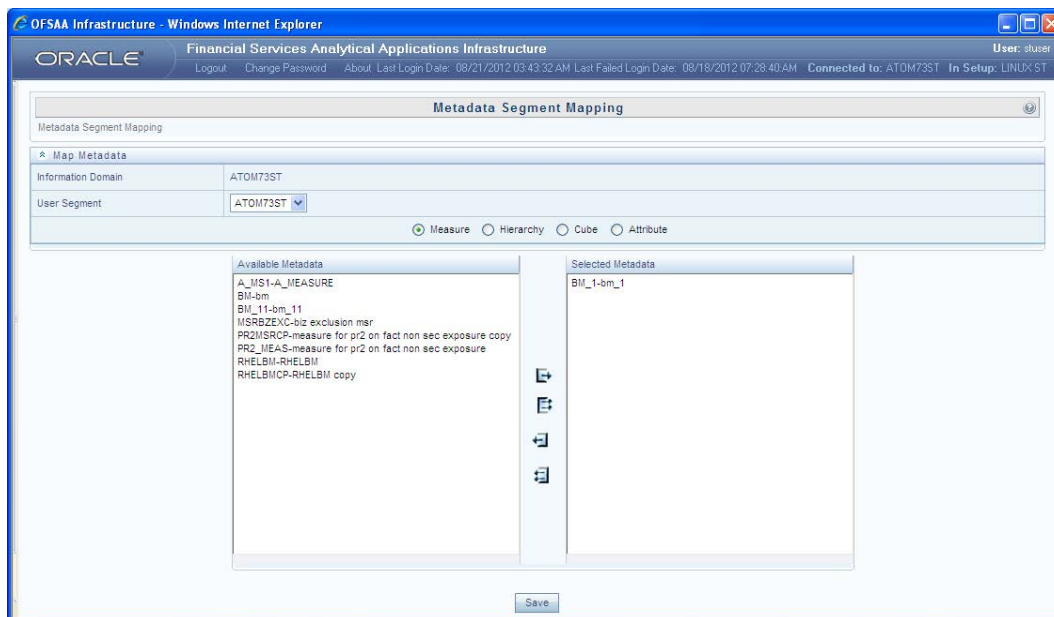
Field	Description
Limit on number of mappings displayed	Specify the number of mappings which are to be displayed in <i>Rule Definition</i> screen. A maximum of 9999 records can be displayed.
Page size used in tree pagination	Specify the number of subcomponents that can be displayed in each Component from the <i>Process Component Selector</i> screen. A maximum of 9999 records can be displayed.
Application uses new Run Rule Framework	Selecting this option will display only the new Run Rule Framework links in <i>Metadata Browser</i> and <i>Advanced Analytics Infrastructure</i> screens.
Enable audit log through Security Management System	You can select this checkbox to enable Infrastructure system to log all the usage and activity reports. A System Administrator can to generate Audit Trail Reports in HTML format to monitor user activity on regular intervals. Note: This is currently applicable for Run Rule Framework only.
Populate Execution Statistics	This feature is disabled by default. Select the check box to determine which case statement of a rule has updated how many corresponding records. Though there is no impact in Rule execution, an insert query is used in the back-end to list the number of records processed by each condition in the rule. For more information, refer to Populate Execution Statistics in References section.

- Click **Save** and save the *Others* tab changes.

5.8 Segment/ Metadata Mapping

Segment refers to a logically divided part of the whole object based on specific requirement. Segment/Metadata Mapping in the System Configuration section facilitates you to map/unmap the required business metadata definitions such as measures, hierarchies, cubes, and attributes to the selected segment within a specific Information Domain.

Based on the mapping, users mapped to the segment are restricted to access only the relevant metadata to view and edit during metadata maintenance and information security.



You (System Administrator) need to have SYSADM function role mapped to your role to access Segment/Metadata Mapping section. You can access *Segment/Metadata Mapping* in LHS menu of System Configuration. By default the *Metadata Segment Mapping* screen displays the Information Domain Name to which you are connected along with the metadata details of Measure.

5.8.1 Mapping Metadata Definitions

You can map/unmap the required business metadata definitions to a segment available within the selected Information Domain. To map the required metadata definitions, do the following:

1. Select the required **User Segment** from the drop-down list.
2. Select the required metadata definition as Measure, Hierarchy, Cube, or Attribute. The defined metadata are listed in the Available Metadata pane.
3. Map/Unmap the required metadata by doing the following:

- To map a metadata, select the metadata from the *Available Metadata* list and click  button. The metadata is added to the *Selected Metadata* pane. You can press **Ctrl** key for multiple selections.
 - To map all the listed metadata definitions, click  button.
 - To remove a metadata mapping, select the metadata from the *Selected Metadata* list and click  button.
 - To remove the entire metadata mapping, click  button.
4. Click **Save** to save the metadata mapping details. The screen is refreshed displaying the mapping results.
 5. Click **Show Details** to view the results in detail.

You can modify the mapping at any point and the mapping table is updated only on saving the mapping details. When a metadata definition such as measures, hierarchies, cubes, and attributes are removed from the Information Domain, the same is updated in the mappings table.

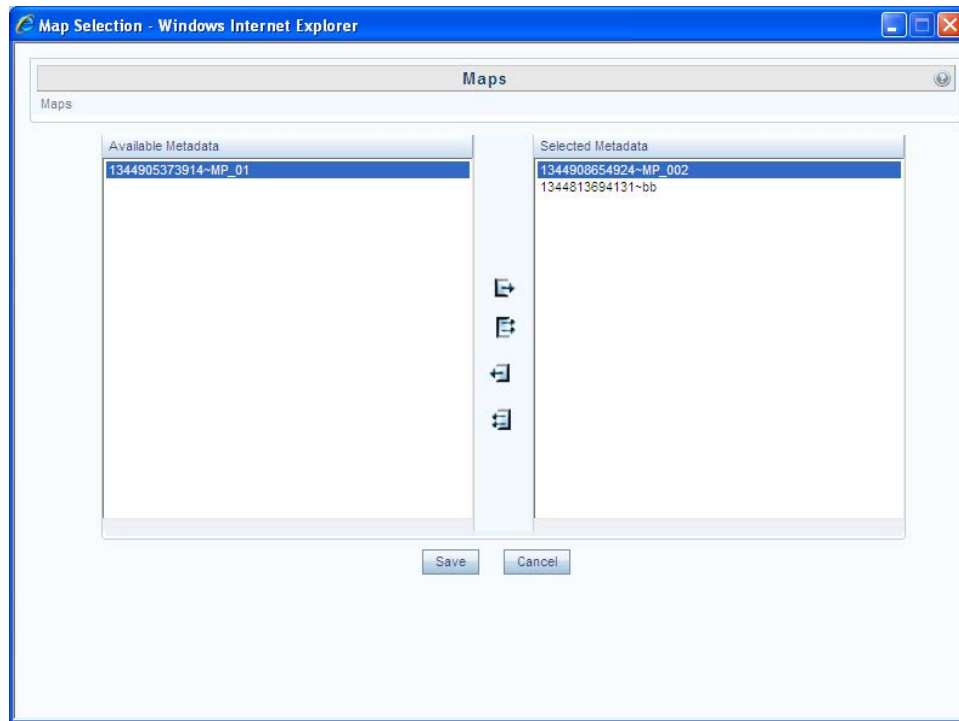
5.9 Segment Map Security

Segment refers to a logically divided part of the whole object based on specific requirement. Segment Map Security in the System Configuration section facilitates you to map/unmap the required Map definitions of an Information Domain to a Segment defined in another Information Domain. Based on the mapping, users can view and edit the relevant metadata across Information Domains.

You (System Administrator) need to have SYSADM function role mapped to your role to access Segment Map Security section. You can access *Segment Map Security* in LHS menu of System Configuration. On selection, *Segment Map Security* is displayed in a new screen with the option to select the required Information Domain and the associated segment.

To associate a Map definition to a Segment of another Information Domain in the *Segment Map Security* screen, do the following:

1. Select the required **Information Domain** from the drop down list. The list of associated segments is available in the *Segment* list.
2. Select the **Segment** from the drop down list to which the Map definition needs to be mapped.
3. Click **Maps**. The *Map Selection* screen is displayed with Available and Selected Map definitions for the selected Information Domain.



4. Map/Unmap the required map definitions by doing the following:
 - To map a map definition, select the required map from the Available Metadata list and click  button. The metadata is added to the Selected Metadata pane. You can press **Ctrl** key for multiple selections.
 - To map all the map definitions, click  button.
 - To remove a map definition mapping, select the metadata from the Selected Metadata list and click  button.
 - To remove the entire map definition mapping, click  button.
5. Click **Save** to save the Map definition mapping details. The screen is refreshed displaying the mapping results.
6. Click **Show Details** to view the results in detail.

5.10 Rules Setup Configuration

Rules Setup Configuration in the System Configuration section facilitates you to define the required Run Definitions which in turn helps you to populate the required data in the corresponding Dimension Tables or Datasets. Run Definitions are defined in the *Rules Framework Designer* screen and are mapped to the respective Dimension Tables or Datasets.

The screenshot shows the 'Rules Setup Configuration' window. At the top, it says 'ORACLE Financial Services Analytical Applications Infrastructure'. Below that, there's a 'Rules Setup Configuration' tab. The main area is divided into sections. The first section is 'OLAP Details' with a dropdown for 'Information Domain' set to 'ATOM73ST'. Below that is 'Select Run Dimension Table' with a dropdown set to 'DIM_RUN'. The next section is a list of run definition attributes, each with a dropdown menu: Run Key (n_run_skey), Run ID (v_run_id), Run Description (v_run_id), MIS Date (fic_mis_date), Run Type Skey (n_run_type_skey), Run Main ID (v_run_main_id), Run Main Description (v_run_main_desc), Run Execution ID (v_run_execution_id), Start Date (d_record_start_date), End Date (d_record_end_date), Latest Record Indicator (f_latest_record_indicator), Unique ID (v_unique_id), Version number (n_version_number), Execution Description (v_execution_description), Version description (v_version_description), and Run Status (v_run_status). A 'Save' button is at the bottom right.

You (System Administrator) need to have SYSADM function role mapped to your role to access Rules Setup Configuration section. You can access *Rules Setup Configuration* in LHS menu of System Configuration. By default the *Rules Setup Configuration* screen displays the selected Information Domain with the list of Run Definitions corresponding to the selected Run Dimension Table.

5.10.1 Defining Run Definitions

You can define the Run Definitions for the required Run Dimension Table in the selected Information Domain. To define Run Definition in the *Rules Setup Configuration* screen:

1. Select the Run Dimension Table from the list. The tables in the list are available based on the selected Information Domain.

2. The following Run Definitions are listed and enabled with the appropriate values.

Run Definition
▪ RunSKey ▪ Run ID ▪ Run Description ▪ MIS Date ▪ Run Type SKey ▪ Run Main ID ▪ Run Main Description ▪ Run Execution ID ▪ Start Date ▪ End Date ▪ Latest Record Indicator ▪ Unique ID ▪ Version Number ▪ Execution Description ▪ Version Description ▪ Run Status

3. Click on drop down list of each Run Definition to select and map the appropriate value.
4. Click **Save** to save the Rules Setup Configuration details.

The metadata of the defined values for each Run Definition are also saved and you view the details at any given point by selecting the Dimension Table in the *Rules Setup Configuration* screen.

5.11 References

This section of the document consists of information related to intermediate actions that needs to be performed while completing a task. The procedures are common to all the sections and are referenced where ever required. You can refer to the following sections based on your need.

5.11.1 List of Objects Created in Information Domain

On saving an Information Domain a list of objects will be created in the atomic database, mapped to this Information Domain. You can view the list in *My Oracle Support Portal* by clicking the Document ID: [1566694.1](#)

If the required objects have not been created, there could be a problem in connecting to the database, or required privileges are not set to the database users, or there may not be enough space in the database. Ensure to rectify any of the above noted issues and then save the Information Domain.

5.11.2 Authentication and Logging

During the Oracle Financial Services Analytical Applications Infrastructure installation you will be provided the options of selecting the authentication type required for OFSAAI Users. You can select either SMS authentication and authorization or the Lightweight Directory Access Protocol (LDAP) authentication for OFSAAI login.

LDAP is a standalone access directory that provides for a logon and requires only one user name and password, while accessing different Software. During installation, if you have selected the LDAP Users option in the *User Configuration* screen the same will be configured for authentication.

For example, ldap://iflexop-241:389

5.11.3 Scenario to Understand Hierarchy Security

Consider a bank “ABC” which has presence across the country and has split their business based on regions. Each region is being managed by a Relationship manager reporting the Chief Executive Officer. The Hierarchy is as indicated below.

Retail Assets Sales Head

- Sales Manager Personal Loans
 - Sales Officer 1
 - Sales Officer 2
- Sales Manager Mortgages
 - Sales Officer 3

- Sales Officer 4
- Sales Manager Credit Cards
 - Sales Officer 5
 - Sales Officer 6
- Sales Manager Auto Loans
 - Sales Officer 7
 - Sales Officer 8

Products

- Personal Loans
- Mortgages
- Credit Cards
- Auto Loans

Each product is marketed by a separate team and which is headed by a Sales Manager who reports to the Sales Head. Each Sales Manager in turn has two Sales Officers who are responsible for sales and profitability of the product.

The Sales Head has decided that the Sales Officer of each product will not have access to the information of other products. However, each Sales Manager will have access to Sales figures of the other products.

Using the Oracle Infrastructure Security Hierarchy feature Administrator can provide information security at hierarchy level by defining security options for each hierarchy node. Thus, the Bank can control access of information at a node level and not increase the overheads.

This is how it is done in Oracle Infrastructure:

- First, the users are created in Oracle Infrastructure and then, a business hierarchy (as defined above) is created.
- Now, the bank can restrict access of certain information to certain people in the Hierarchy Security configuration. In this screen,
- The administrator can control security by mapping the users to various nodes in hierarchy.

For example, the administrator maps Sales Officer 1 and Sales Officer 2 to only the Personal Loans Node in the Product hierarchy. This restricts Sales Officer 1 and 2 to only viewing and maintaining their particular node in the hierarchy.

By default, all the users mapped to a domain can access all the hierarchy levels to which they are mapped. This function allows the administrator to restrict or exclude a user/s from accessing restricted nodes.

5.11.4 Populating Execution Statistics

This feature is introduced as a part of OFSAAI 7.3.3.0.0 IR to determine which case statement of a rule has updated how many corresponding records.

On selecting this checkbox in **Others** tab of *System Configuration > Configuration* screen, an insert query is generated and executed just before the merge statement of the rule is executed. This inturn lists the number of records processed by all mappings and also stores information about *Run ID, Rule ID, Task ID, Run Skey, MIS Date, number of records fetched by each mapping, order of evaluation of each mapping*, and so on, in configuration table (EXE_STAT).

Typically, the insert query lists the number of records processed by each condition in the rule and is done just before the task gets executed and not after the batch execution is completed (since the state of source data might change). This insert query works on all types of query formation including Computation Rules with and without Aggregation, Classification Rules, Rules with multiple targets, Rules with default nodes, Rules with Parameters in BPs, and Rules with exclusions.

Scenario

Consider the following scenario where, a typical rule would contain a series of Hierarchy Nodes (BI/Non BI) as **Source** and one or more BPs or BI Hierarchy Leaf Nodes in the **Target**.

Rule 1 consists of the following:

SOURCE	TARGET
Condition 1	Target 1
Condition 2	Target 1
Condition 3	Target 1
Condition 4	Target 2

The insert query execution populates execution statistics based on the following:

- Each rule has processed at least one record.
- Each target in the rule has processed at least one record through *Condition 1 / Condition 2 / Condition 3* and *Condition 4*.
- Each source in the rule has processed at least one record through *Condition 1 / Condition 2 / Condition 3* and *Condition 4*.

6 Administration

Administration is an integral part of the Infrastructure system and facilitates system administrators to define the security framework with the capacity to restrict access to the data and metadata in the warehouse, based on a flexible, fine-grained access control mechanism. These activities are mainly done at the initial stage and then on need basis.

The document deals with the information related to the workflow of Infrastructure Administration process with related procedures to assist, configure, and manage the administrative tasks effectively.

You (System Administrator/System Authorizer) need to have SYSATH, SYSADM, and METAAUTH function roles mapped to access the Administration framework within the Infrastructure system. **Administration** is available within the tree structure of left hand side (LHS) menu in the Infrastructure home page. Click + to expand and view the Administration sections in detail.

Administration consists of the following sections. Click the links to view the sections in detail.

- [Security Management](#)
- [Metadata Authorization](#)
- [Save Metadata](#)
- [Utilities](#)

6.1 Security Management

Security Management in the Infrastructure administration process facilitates System Administrators to provide access, monitor, and administer users along with the Infrastructure metadata operations.

The SMS component is incorporated with Password Encryption, Single Logon, Role and Data Based Security, Access Control and Audit Trail features to provide a highly flexible security envelope.

System Administrators can create, map, and authorize users defining a security framework which has the ability to restrict access to the data and meta-data in the warehouse, based on fine-grained access control mechanism. These activities are mainly done at the initial stage and then on need basis.

6.1.1 Navigating to Security Management

Security Management is available within the tree structure of Infrastructure Administration.

- In the left hand side (LHS) menu of Infrastructure home page, click + and expand the **Administration** section.
- Select **Security Management**.

6.1.2 Components of Security Management

Security Management consists of the following sections. Click on the links to view the sections in detail.

- [User Administrator](#)
- [System Administrator](#)
- [Audit Trail Report](#)
- [User Activity Report](#)
- [User Profile Report](#)

6.1.3 User Administrator

User Administration is one of the core functions of Security Management which involves administrators to create user definitions, user groups, maintain profiles, authorize users and usergroups, and map users to groups, domains and roles.

User Administration refers to a process of controlling the user privileges in accessing the Infrastructure resources and is based on business requirements to provide access to view, create, edit, or delete confidential data. It also involves the administrator tasks to grant permissions based on user roles and requirements.

You (System Administrator) need to have SYSADM and METAAUTH function roles mapped to access User Administrator in LHS menu of Security Management. The options available under User Administrator are:

- [User Maintenance](#)
- [UserGroup Maintenance](#)
- [User UserGroup Map](#)
- [Profile Maintenance](#)
- [User Authorization](#)
- [User Group Authorization](#)
- [UserGroup Domain Map](#)
- [UserGroup Role Map](#)

6.1.3.1 User Maintenance

User Maintenance facilitates you to create user definitions, view, manage, modify, and delete user information. You can access User Maintenance by expanding **User Administrator** section within the tree structure of LHS menu.

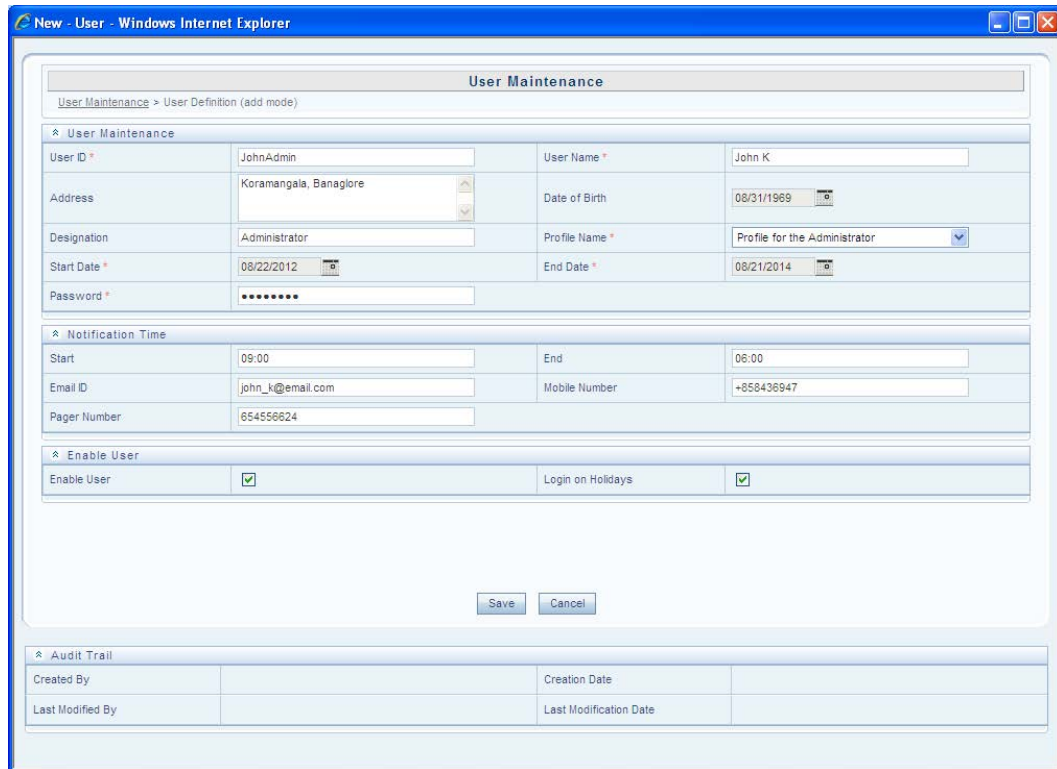
The *User Maintenance* screen displays user details such as User ID, Name, Profile Name, Start and End dates. You can also identify the user status if enabled to access the Infrastructure system.

You can also make use of Search and Pagination options to search for a specific user or view list of existing users within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

6.1.3.1.1 Adding User

To add a user definition in the *User Maintenance* screen:

1. Select  button from the User Maintenance tool bar. **Add** button is disabled if you have selected any User ID in the grid. The *New User* screen is displayed.



2. Enter the user details as tabulated.

Field	Description
Fields marked in red asterisk (*) are mandatory.	
User ID	Enter a unique user id. Ensure that the User ID does not contain any special characters or spaces except ".", "@", "-", and "_".
User Name	Enter the user name. The user name specified here will be displayed on the Infrastructure splash screen. Ensure that the User Name does not contain any special characters except "-", "'", and ".".
Contact Address	Enter the contact address of the user. It can be the physical location from where the user is accessing the system. Ensure that Contact Address does not contain any special characters except ".", "#", "-", ";".
Date Of Birth	Specify the date of birth. You can use the popup calendar to enter the date.
Designation	Enter the user designation. Ensure that Designation does not contain any special characters except "_", ".", and "-".
Profile Name	Select the profile name by clicking on the drop down list.
User Start Date	Specify the user start date based on the day slot the user is enabled to access the system. Ensure that User Start Date is greater than today's date. You can use the popup calendar to enter the date.
User End Date	Specify the user end date based on month and year when the user Id expires. Ensure that user End Date is greater than User Start Date. You can use the popup calendar to enter the date.
Password	Enter the default password for the user for the initial login. User needs to change the default password during the first login. A user is denied access in case the user has forgotten the password or enters the wrong password for the specified number of attempts (as defined in the <i>Configuration</i> screen). To enable access, enter a new password here.
Notification Time	(Optional) Specify the notification start and end time within which the user can be notified with alerts.
E-mail ID	Enter the e-mail address of the user.
Mobile No	(Optional) Enter the mobile number of the user.
Pager No	(Optional) Enter the pager number of the user.
Enable User	Select the checkbox to allow user to access the system. A deselected checkbox denies access to the user.

Field	Description
Login on Holidays	Select the checkbox to allow users to access the system on holidays. A deselected checkbox denies access to the user on holidays.

3. Click **Save** to upload the user details.

The new User details are populated in the [User Authorization](#) screen which has to be authorized by System Authorizers. Once authorized, the **User** details are displayed in *User Maintenance* screen and can then be mapped to the required user group in the [User UserGroup Map](#) screen.

6.1.3.1.2 Viewing User Details

You can view individual user details at any given point. To view the existing function details in the *User Maintenance* screen:

1. Select the checkbox adjacent to the User ID.
2. Click  button in the User Maintenance tool bar.

The *View User Details* screen is displayed with the details such as User ID, User Name, Address, Date of Birth, Designation, Profile Description, Start and End Date in which the user can access Infrastructure system. The *View User Details* screen also displays the notifications details and status if enable to access the system on holidays.

6.1.3.1.3 Modifying User Details

To update the existing user details in the *User Maintenance* screen:

1. Select the checkbox adjacent to the User ID whose details are to be updated.
2. Click  button in the User Maintenance tool bar.

The *Edit User Details* screen is displayed.

3. Update the required information. *For more details, refer [Add User](#).*

NOTE: You cannot edit the User ID. You can view the modifications once the changes are authorized. Also a new password must be provided during the user details modification.

4. Click **Save** to save the changes.

6.1.3.1.4 Deleting User Details

You can remove the user definition(s) which are created by you and which are no longer required in the system, by deleting from the *User Maintenance* screen.

1. Select the checkbox adjacent to the user ID whose details are to be removed.
2. Click  button in the User Maintenance tool bar.
3. Click **OK** in the information dialog to confirm deletion.

NOTE: User can access the application until the delete request is authorized.

6.1.3.1.5 Adding User Attributes

To add attributes to a user in the *User Maintenance* screen:

1. Select the checkbox adjacent to the User ID for whom you wish to add additional attributes.
2. Click  button in the User Maintenance tool bar. The *User Maintenance Attributes* screen is displayed.
3. In the *User Maintenance Attributes* screen, enter additional attributes in the field adjacent to the user name.

The attribute fields that are displayed in this window can be configured depending on your requirements. For more information, refer [Function Mapping Codes](#).

4. Click **Save** to upload the changes.

6.1.3.2 UserGroup Maintenance

UserGroup Maintenance facilitates you to create view, edit, delete, and map user(s) to specific groups. You can maintain and modify the user group information within the *UserGroup Maintenance* screen.

You can access UserGroup Maintenance by expanding **User Administrator** section within the tree structure of LHS menu.

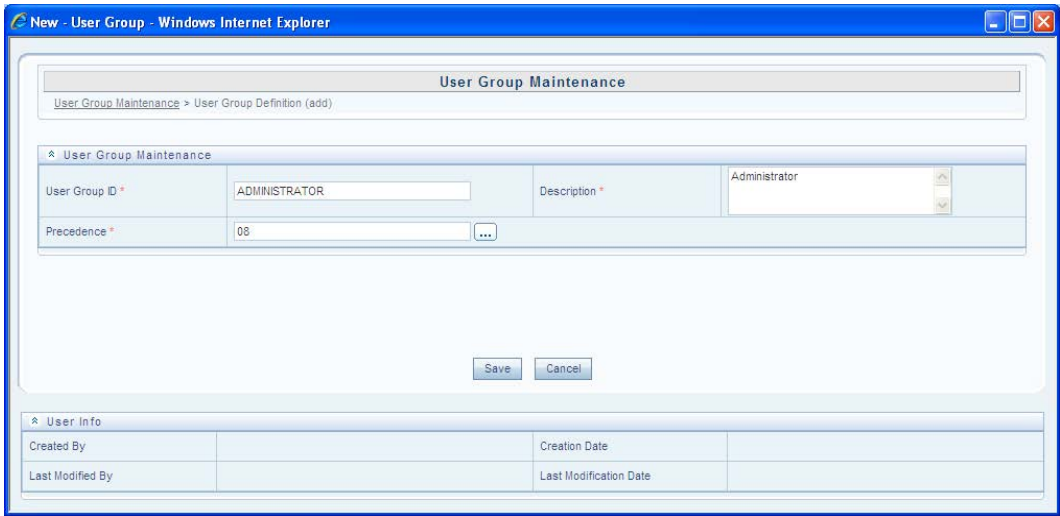
UserGroup Maintenance screen displays details such as User Group ID, Description, Precedence, and the number of Mapped Users.

You can also make use of Search and Pagination options to search for a specific user group or view the list of existing user groups within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

6.1.3.2.1 Adding User Group

To add a User Group in the *UserGroup Maintenance* screen:

- 1. Select  from the User Group tool bar. **Add** button is disabled if you have selected any UserGroup ID in the grid. The *New User Group* screen is displayed.



- 2. Enter the details as tabulated.

Field	Description
User Group ID	Specify a unique id for the user group. Ensure that there are no special characters and extra spaces in the id entered.
Description	Enter a description for the user group.
Precedence	Enter the Precedence value. You can click  button to Lookup for the existing precedence values applied to the various user groups.

NOTE: The lower the value in the precedence column, the higher is precedence. A user may be mapped to multiple user groups and hence the precedence value is required if Group Based Hierarchy Security setting is selected in the *Configuration* screen.

- 3. Click **Save** to upload the user group details. The new User Group details need to be authorized before associating users to the user group created.

6.1.3.2.2 Viewing UserGroup Details

You can view individual usergroup details at any given point. To view the existing usergroup details in the *UserGroup Maintenance* screen:

1. Select the checkbox adjacent to the User Group ID.
2. Click  button in the User Group tool bar.

The *View UserGroup Details* screen is displayed with the details such as User Group ID, Description, and Precedence value.

6.1.3.2.3 Modifying User Group

To update the existing usergroup details in the *UserGroup Maintenance* screen:

1. Select the usergroup whose details are to be updated by clicking on the checkbox adjacent to the User Group ID.
2. Click  button in the User Group tool bar. Edit button is disabled if you have selected multiple groups.
3. Edit the required User Group details except for UserGroup ID which is not editable. For more information refer [Add User Group](#).
4. Click **Save** to upload changes.

6.1.3.2.4 Deleting User Group

You can remove user group definition(s) which are created by you, which do not have any mapped users, and which are no longer required, by deleting from the *Usergroup Maintenance* screen.

1. Select the checkbox adjacent to the user group ID(s) whose details are to be removed.
2. Click  button in the User Group tool bar.
3. Click **OK** in the information dialog to confirm deletion.

NOTE: UserGroups cannot be deleted if any requests (Domain map/unmap and Role map/unmap) are pending for authorization or any users are mapped to it.

6.1.3.3 User UserGroup Map

User UserGroup Map facilitates you to map user(s) to specific user group which in turn is mapped to a specific [Information Domain](#) and [role](#). Every UserGroup mapped to the infodom needs to be authorized. Else, it cannot be mapped to users.

User UserGroup Map screen displays details such as User ID, Name, and the corresponding Mapped Groups. You can view and modify the existing mappings within the *User UserGroup Maintenance* screen.

You can access User UserGroup Map by expanding User Administrator section within the tree structure of LHS menu.

You can also make use of Search and Pagination options to search for specific users or view the list of existing usergroup map within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

6.1.3.3.1 Viewing Mapped Users

You can view usergroup mapping of a particular user at any given point.

To view the existing usergroup map details in the *User UserGroup Map* screen select the checkbox adjacent to the User ID. The list of group(s) to which the selected user has been mapped is displayed under *Mapped Groups* grid.

6.1.3.3.2 Mapping/Unmapping Users

User UserGroup Map facilitates you to map user(s) to specific user group which in turn is mapped to a specific Information Domain and Role. Every UserGroup mapped to the Information Domain needs to be authorized. Otherwise it cannot be mapped to users.

To map/unmap users in *User UserGroup Map* screen:

1. Select the checkbox adjacent to the User ID.
2. Click  button in the *Mapped Groups* grid. The *User UserGroup Mapping* screen is displayed.
3. In the *User UserGroup Mapping* screen, you can search for a UserGroup using the Search field and edit the mapping.
 - To map a user to a group, select the UserGroup and click . You can press **Ctrl** key for multiple selections.
 - To map all the UserGroups to a user, click .
 - To remove a UserGroup mapping for a user, select the UserGroup from Select Members pane and click .

- To remove all the group mappings of a user, click .
4. Click **OK** to save the mappings and return to *User UserGroup Map* screen.

NOTE: UserGroup is displayed in the *User UserGroup Mapping* screen only if it is mapped to at least one Domain and Role.

6.1.3.4 Profile Maintenance

NOTE: As part of OFSAAI 7.3.3.0.0 release, this feature will not be available if **Authentication Type** is selected as **SSO Authentication and SMS Authorization** from **System Configuration > Configuration**.

Profile Maintenance facilitates you to create profiles, specify the time zones, specify the working days of the week and map holiday's schedule. *Profile Maintenance* screen displays the existing profiles with details such as the Profile Code, Profile Name, Time Zone, Workdays of Week, Holiday Time Zone, and mapped Holidays. In the *Profile Maintenance* screen you can add, view, edit, and delete user profile definitions.

You can access Profile Maintenance by expanding **User Administrator** section within the tree structure of LHS menu.

You can also make use of Search and Pagination options to search for specific profile or view the list of existing profiles within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

6.1.3.4.1 Adding Profile

To add a profile in the *Profile Maintenance* screen:

1. Select  from the Profile Maintenance tool bar. **Add** button is disabled if you have selected any Profile Code checkbox in the grid.

Profile Maintenance

Profile Maintenance > Profile Definition (add)

Profile Maintenance

Profile Code * ADMIN Profile Name * Profile for Administrator

Time Zone* 1 1 Holiday Time Zone* 1 1

Work Days of Week

Sunday	☐	Monday	☒
Tuesday	☒	Wednesday	☐
Thursday	☒	Friday	☐
Saturday	☐		

New - Holidays 0 - 0 / 0

Holidays	

Save Cancel

User Info

Created By		Creation Date	
Last Modified By		Last Modification Date	

2. The *New Profile* screen is displayed. Enter the details as tabulated.

Field	Description
Profile Code	Enter a unique profile code based on the functions that the user executes. For example, specify AUTH if you are creating an authorizer profile.
Profile Name	Enter a unique profile name. Ensure that Profile Name does not contain any special characters except ".", "(", ")", "_", "-".
Time Zone	Select the Start and End time zone from the drop-down list. Time zones are hourly based and indicate the time at which the user can access the system.
Holiday Time Zone	Select the Holiday Start and End time zone from the drop-down list. Time zones are hourly based and indicate the time at which the user can access the system on holidays.
Work Days of Week	Select the work days of a week by clicking on the checkbox adjacent to week days. The specified time zones will be applicable to the selected days.

3. Click **Save** to save the profile.

6.1.3.4.2 Mapping Holidays

To enable user to access the Infrastructure system during holidays, map the profile to the holiday's schedule. For the user to access the system on holidays, the **Login on Holidays** checkbox in the *User Maintenance* screen must be checked.

1. Click  button in the *New Holidays* grid. *Holiday Mapping* screen is displayed.

The *Holiday Mapping* screen displays the holidays that are added through the **Holiday Maintenance** section.

2. To map a holiday, you can do the following:

- To map holiday to the user profile, select from the list and click .
- To map all the listed holidays to the user profile, click .
- To remove holiday mapping to user profile, select from the list and click .
- To remove entire holiday mapping for the user profile, click .

3. Click **OK** to save the mapping.

6.1.3.4.3 Viewing Profile

You can view the profile of a particular user at any given point. To view the existing user profile details in the *Profile Maintenance* screen:

1. Select the checkbox adjacent to the Profile Code.
2. Click  button in the Profile Maintenance tool bar.

The *Profile Maintenance* screen displays profile of the user with the holiday mapping details.

6.1.3.4.4 Modifying Profile

You can modify all the details except **Profile Code** and **Profile Name** of individual profiles at any given point of time.

To edit a user profile in the *Profile Maintenance* screen:

1. Select the checkbox adjacent to the Profile Code.
2. Click  button in the Profile Maintenance tool bar.
3. Edit the user profile as required. For more information refer [Add Profile](#).
4. Click **Save** to upload changes.

6.1.3.4.5 Deleting Profile

You can remove user profile definition(s) which are created by you and which are no longer required in the system, by deleting from the *Profile Maintenance* screen.

1. Select the checkbox adjacent to the Profile Code(s) whose details are to be removed.
2. Click  button in the Profile Maintenance tool bar.
3. Click **OK** in the information dialog to confirm deletion.

6.1.3.5 User Authorization

User Authorization function facilitates system authorizers to authorize and allow user(s) created or modified by system administrator to access the Infrastructure system. Whenever a new user is created or an authorized user details are updated, the user has to be authorized by the system authorizers to allow access to the Infrastructure system. The function also restricts access to unauthorized user(s).

- As a system Authorizer, you can:
 - View the available user ID's which are to be authorized.
 - Authorize or reject users to access the system.
 - Authorize or reject modification request of Users.
 - View the current updated and previous user details for authorization.
 - Authorize based on the user ID's created by Systems Administrator.
- As a user, you can login to the Infrastructure system only if authorized by the system Authorizer.

You can access *User Authorization* screen by expanding User Administrator section within the tree structure of LHS menu.

The *User Authorization* screen displays a list of available users for Authorization. By default, the users will be displayed in alphabetical order of the User ID's with the other details such as User ID, Name, User Start Date, and User Expiry Date.

You can also make use of Search and Pagination options to search for specific users. For more information, refer [Pagination](#) and [Search & Filter](#).

6.1.3.5.1 Authorizing or Rejecting User(s)

In the *User Authorization* screen, do the following:

1. Select User ID which has to be authorized. The screen is refreshed and the details are displayed below.
2. In the User Authorization tool bar,
 - Click  (authorize) button to authorize a user(s).
 - Click  (reject) button to reject a user(s).
3. Click **OK** in the information dialog to confirm authorization or rejection. On processing, a system message is displayed.

6.1.3.6 User Group Authorization

User Group Authorization function facilitates system authorizers to authorize or reject the user groups listed in the *User Group Authorization* screen.

- As a system Authorizer, you can:
 - View the list of mapped/unmapped user(s) to be authorized.
 - Authorize or reject mapping/unmapping of user group(s) to a role or a domain.

You can access *User Group Authorization* screen by expanding **User Administrator** section within the tree structure of LHS menu.

The *User Group Authorization* screen displays a list of available user groups for Authorization. By default, the user groups are displayed in alphabetical order of the Mapped User Groups with the other details such as Mapped/Unmapped Users, Mapped/Unmapped Roles, and Mapped/Unmapped DSNs.

You can also make use of Search and Pagination options to search for specific user group. For more information, refer [Pagination](#) and [Search & Filter](#).

6.1.3.6.1 Authorizing or Rejecting User Group(s)

In the *User Group Authorization* screen, do the following:

1. Select the required **User Group ID** for authorization.

The Mapped/Unmapped Users, Mapped/Unmapped Roles, and Mapped/Unmapped DSNs corresponding to the selected User Group are displayed in the respective grids.
2. Select the checkbox adjacent to the mapped or unmapped group details.
3. In the User Authorization tool bar,
 - Click  (authorize) button to authorize a user group(s).

- Click  (reject) button to reject a user group(s).
- 4. Click **OK** in the information dialog to confirm authorization or rejection. On processing, a system message is displayed.

6.1.3.7 UserGroup Domain Map

UserGroup Domain Map facilitates System Administrators to view the available user groups and map the required Domain to User Group(s). System Administrators can also remove user group mapping for specific domain or map additional domains to a specific user group to ensure confidentiality of restricted Information Domains.

You can access *UserGroup Domain Map* screen by expanding **User Administrator** section within the tree structure of LHS menu.

The *UserGroup Domain Map* screen displays a list of available user groups in alphabetical order with the User Group ID and Description. On selecting a user group, the list of available mapped domains are displayed.

You can also make use of Search and Pagination options to search for specific usergroup or view the list of existing usergroups within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

To map a UserGroup to a Domain, do the following:

1. Select the checkbox adjacent to the required UserGroup ID. The *UserGroup Domain Map* screen is refreshed to display the existing mapped domains.
2. Click  button in the Mapped Domains section tool bar. The *UserGroup Domain Map* screen is displayed.
3. In the *UserGroup Domain Map* screen, you can search for a Domain using the Search field and edit the mapping.
 - To map Domains to a User Group, select the Domain from the Members list and click . You can press **Ctrl** key for multiple selections.
 - To map all the Domains to a User Group, click .
 - To remove mapping for a user group, select the Domain from Select Members list and click .
 - To remove all Domains mapped to UserGroup, click .
4. Click **OK** to save the mappings and return to *UserGroup Domain Map* screen.

6.1.3.8 UserGroup Role Map

UserGroup Role Map facilitates System Administrators to map Role(s) to specific User Group(s). Each role has a defined function and any user(s) mapped to the role has to perform only those functions.

For example, the table below lists the user group mapped to a specific role.

GROUP CODE	ROLE CODE
ADMIN	SYSADM
AUTH	SYSATH
CWSADM	CWSADMIN

You can access *UserGroup Role Map* screen by expanding **User Administrator** section within the tree structure of LHS menu.

The *UserGroup Role Map* screen displays a list of available user groups in alphabetical order with the User Group ID and Description. On selecting a user group, the list of available mapped roles are displayed.

You can also make use of Search and Pagination options to search for specific usergroup or view the list of existing usergroups within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

To map a Role to User Group, do the following:

1. Select the checkbox adjacent to the required UserGroup ID. The *UserGroup Role Map* screen is refreshed to display the existing mapped roles.
2. Click  button in the Mapped Roles section tool bar. The *UserGroup Role Map* screen is displayed.
3. In the *UserGroup Role Map* screen, you can search for a Role using the Search field and edit the mapping.
 - To map Role to a User Group, select the Role from the Members list and click . You can press **Ctrl** key for multiple selections.
 - To map all the Roles to a specific User Group, click .
 - To remove mapping for a user group, select the Role from Select Members list and click .
 - To remove all Roles mapped to a User Group, click .

4. Click **OK** to save the mappings and return to *UserGroup Role Map* screen.

6.1.4 System Administrator

System Administration refers to a process of managing, configuring, and maintaining confidential data in a multi-user computing environment. System Administration in Security Management involves creating functions, roles, and mapping functions to specific roles. System Administration also involves maintaining segment information, holiday list, and restricted passwords to ensure security within the Infrastructure system.

You can access System Administrator in LHS menu of Security Management. The options available under System Administrator are:

- [Function Maintenance](#)
- [Role Maintenance](#)
- [Function - Role Map](#)
- [Segment Maintenance](#)
- [Holiday Maintenance](#)
- [Restricted Passwords](#)

6.1.4.1 Function Maintenance

A function in the Infrastructure system defines the privileges to access modules or components and to define or modify metadata information associated. Function Maintenance allows you to create functions for users to ensure only those functions are executed which are specific to the user's role.

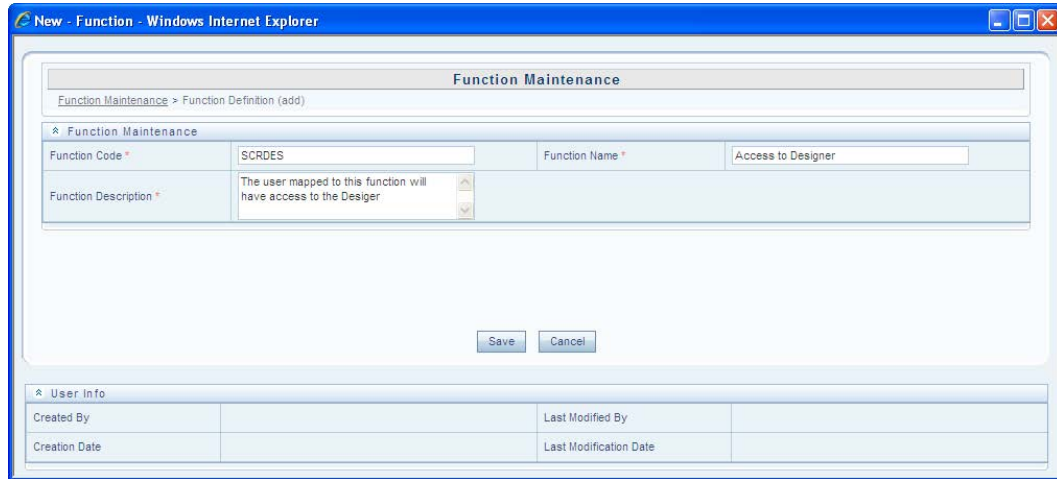
You can access Function Maintenance by expanding **System Administrator** section within the tree structure of LHS menu. The *Function Maintenance* screen displays the function details such as Function Code, Function Name, Description and the number of Roles Mapped to the function. The *Function Maintenance* screen also facilitates you to view, create, modify, and delete functions within the system.

You can also make use of Search and Pagination options to search for a specific function or view the list of existing functions within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

6.1.4.1.1 Creating Function

To create function in the *Function Maintenance* screen:

1. Select  from the Function Maintenance tool bar. **Add** button is disabled if you have selected any function in the grid. The *New Function* screen is displayed.



2. Enter the function details as tabulated. You can also refer to pre-defined [Function Codes](#) for reference.

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Function Code	Enter a unique function code. Ensure that there are no special characters and extra spaces in the code entered. For example, DATADD to add dataset.
Function Name	Enter a unique name for the function. Ensure that the Function Name does not contain any special characters except "(", ")", "_", "-", "."
Function Description	Enter the function description. Ensure that the Function Description does not contain any special characters except "(", ")", "_", "-", "."

3. Click **Save** to upload the function details.

The User Info grid at the bottom of *Function Maintenance* screen display metadata information about the function created.

6.1.4.1.2 Viewing Function

You can view individual function details at any given point. To view the existing user details in the *Function Maintenance* screen:

1. Select the checkbox adjacent to the Function Code.
2. Click  button in the Function Maintenance tool bar.

The *View Function Details* screen is displayed with the details such as Function Code, Function Name, and Function Description.

6.1.4.1.3 Modifying Function

To update the existing function details (other than system generated functions) in the *Function Maintenance* screen:

1. Select the checkbox adjacent to the required Function Code.
2. Click  button in the Function Maintenance tool bar. The *Edit Function Details* screen is displayed.
3. Update the required information. For more details, refer [Create Function](#).

NOTE: Function Code cannot be edited.

4. Click **Save** to upload the changes.

6.1.4.1.4 Deleting Function

You can remove only those function(s) created by you and which are no longer required in the system, by deleting from the *Function Maintenance* screen.

1. Select the checkbox adjacent to the Function Code whose details are to be removed.
2. Click  button in the Function Maintenance tool bar.
3. Click **OK** in the information dialog to confirm deletion.

6.1.4.2 Role Maintenance

A role in the Infrastructure system is a collection of functions defined for a set of users to execute a specific task. You can create roles based on the group of functions to which users are mapped.

You can access Role Maintenance by expanding **System Administrator** section within the tree structure of LHS menu. The *Role Maintenance* screen displays the role details such as Role Code, Role Name, Role Description and the number of Users Mapped to the role. The *Role Maintenance* screen also facilitates you to view, create, modify, and delete roles within the system.

You can also make use of Search and Pagination options to search for a specific role or view the list of existing roles within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

To view the default roles defined within the Infrastructure application, refer [Role Mapping Codes](#).

6.1.4.2.1 Creating Role

To create role in the *Role Maintenance* screen:

1. Select  from the Role Maintenance tool bar. **Add** button is disabled if you have selected any role in the grid. The *New Role* screen is displayed.

The screenshot shows the 'Role Maintenance' window with the 'Role Definition (add)' tab selected. The form contains the following fields:

- Role Code ***: ARAASR
- Role Name ***: Action Assessor
- Role Description**: Role for Action Assessors

At the bottom of the form are 'Save' and 'Cancel' buttons. Below the form is a 'User Info' section with fields for 'Created By', 'Last Modified By', 'Creation Date', and 'Last Modification Date'.

2. Enter the role details as tabulated. You can also refer to pre-defined [Codes](#) for reference.

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Role Code	Enter a unique role code. Ensure that there are no special characters and extra spaces in the code entered. For example, ACTASR to create Action Assessor.

Field	Description
Role Name	Enter a unique name for the role. Ensure that the Role Name does not contain any special characters except space.
Role Description	Enter the role description. Ensure that the Role Description does not contain any special characters except space.

- Click **Save** to upload the role details. The User Info grid at the bottom of *Role Maintenance* screen display metadata information about the role created.

6.1.4.2.2 Viewing Role

You can view individual role details at any given point. To view the existing role details in the *Role Maintenance* screen:

- Select the checkbox adjacent to the Role Code.
- Click  button in the Role Maintenance tool bar.

The *View Role Details* screen is displayed with the details such as Role Code, Role Name, and Role Description.

6.1.4.2.3 Modifying Role

To update the existing role details in the *Role Maintenance* screen:

- Select the checkbox adjacent to the required Role Code.
- Click  button in the Role Maintenance tool bar. The *Edit Role Details* screen is displayed.
- Update the required information. For more details, refer [Create Role](#).

NOTE: Role Code and Role Name cannot be edited.

- Click **Save** to upload the changes.

6.1.4.2.4 Deleting Role

You can remove only those role(s) which are created by you, which does not have any users mapped, and which are no longer required in the system by deleting from the *Role Maintenance* screen.

- Select the checkbox adjacent to the Role Code whose details are to be removed.
- Click  button in the Role Maintenance tool bar.
- Click **OK** in the information dialog to confirm deletion.

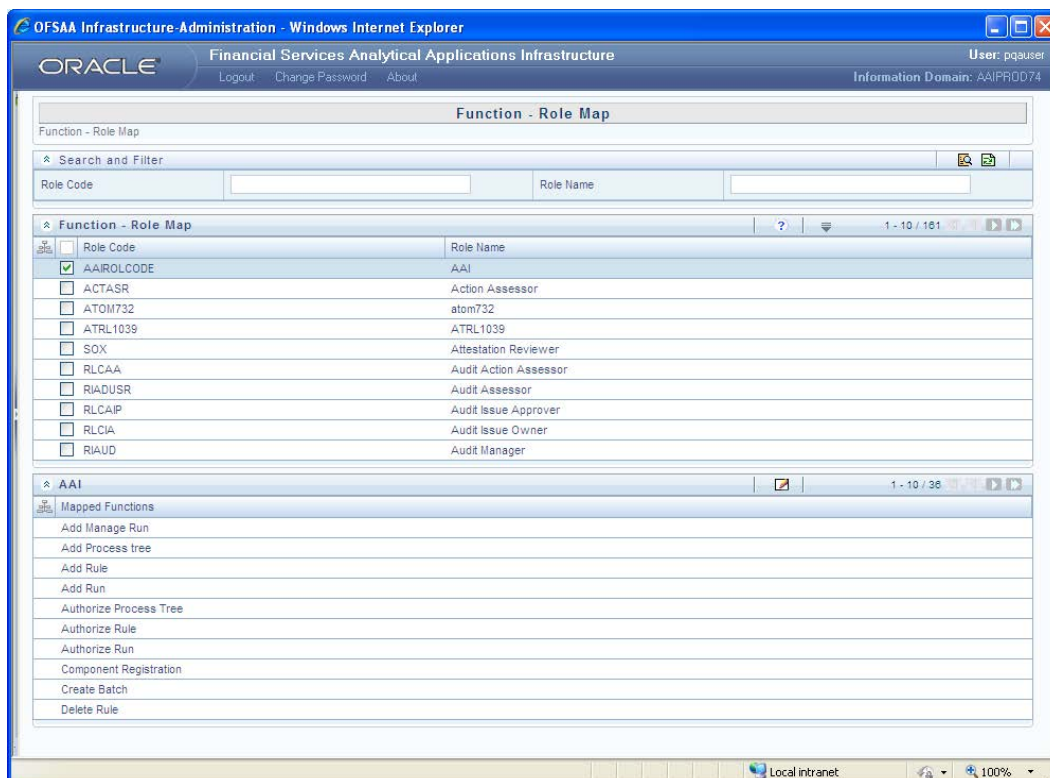
6.1.4.3 Function - Role Map

Function Role Map facilitates you to view and map a set of function(s) to a specific role within the Infrastructure system. Functions can only be mapped to a defined set of roles to ensure effective Infrastructure system security.

You can access Function – Role Map by expanding **System Administrator** section within the tree structure of LHS menu. The *Function – Role Map* screen displays a list of available Role Codes in alphabetical order with the Role Name. On selecting a particular Role Code, the Mapped Functions are listed in the *Mapped Functions* grid of *Function – Role Map* screen.

You can also make use of Search and Pagination options to search for a specific role or view the list of existing roles within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

To view the default Function – Role mapping defined within the Infrastructure application, refer [Function Role Mapping](#).



To map a role to a function in the *Function – Role Map* screen, do the following:

1. Select the checkbox adjacent to the required Role Code. The *Function – Role Map* screen is refreshed to display the existing mapped functions.
2. Click  button in the Mapped Functions section tool bar. The *Function Role Mapping* screen is displayed.

3. In the *Function Role Mapping* screen, you can search for a function using the Search field and edit the mapping.
 - To map a function to a role, select the function from the Members list and click . You can press **Ctrl** key for multiple selections.
 - To map all the functions to the selected role, click .
 - To remove function mapping for a specific role, select the function from Select Members pane and click .
 - To remove all function mapping for a role, click .
4. Click **OK** to save the mappings and return to *Function – Role Map* screen.

6.1.4.4 Segment Maintenance

Segment is a category of specific defined functions within the system. Segment Maintenance in the Infrastructure system facilitates you to create segments and attribute the required functions. You can have different segments for different Information Domains or same segments for different Information Domains.

You can access Segment Maintenance by expanding System Administrator section within the tree structure of LHS menu. The *Segment Maintenance* screen displays a list of available segments in alphabetical order with other details such Domain, Segment Code, Segment Name, Segment Description, and the number of Users Mapped to the segment. You can view, create, modify, and delete segments within the *Segment Maintenance* screen.

You can also make use of Search and Pagination options to search for a specific role or view the list of existing roles within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

6.1.4.4.1 Creating Segment

To create segment in the *Segment Maintenance* screen:

1. Select  button from the Segment Maintenance tool bar. **Add** button is disabled if you have selected any checkbox in the grid. The *New Segment* screen is displayed.

Segment Maintenance

Segment Maintenance > Segment Definition (add)

Segment Maintenance

Domain *

PRODSTRESS73

Segment Code *

ATOM11

Segment Name *

AtomFusion

Segment Description

Access to the domain

Save

Cancel

User Info

Created By

Creation Date

Last Modified By

Last Modification Date

2. Enter the segment details as tabulated.

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Domain	Select the required domain for which you are creating a segment, from the drop down list.
Segment Code	Enter a unique segment code. Ensure that the segment code does not exceed more than 10 characters and there are no special characters or extra spaces.
Segment Name	Enter a unique name for the segment. Ensure that there are no special characters in the name entered except space and single quotes.
Segment Description	Enter the segment description. Ensure that there are no special characters in the description entered except spaces, "(", ")", "_", "-", and ".".

3. Click **Save** to upload the segment details.

The User Info grid at the bottom of *Segment Maintenance* screen displays metadata information about the segment created.

6.1.4.4.2 Viewing Segment

You can view individual segment information at any given point. To view the existing segment details in the *Segment Maintenance* screen:

1. Select the checkbox adjacent to the required segment.
2. Click  button in the Segment Maintenance tool bar.

The *View Segment Details* screen is displayed with the details such Domain, Segment Code, Segment Name, and Segment Description.

6.1.4.4.3 Modifying Segment

To update the existing segment details in the *Segment Maintenance* screen:

1. Select the checkbox adjacent to the segment.
2. Click  button in the Segment Maintenance tool bar. The *Edit Segment Details* screen is displayed.
3. Update the Segment Description as required. The others fields are view only and are not editable. For more details, refer [Create Segment](#).
4. Click **Save** to upload the changes.

6.1.4.4.4 Deleting Segment

You can remove only those segment(s) which are created by you, which does not have any users mapped, and which are no longer required in the system by deleting from the *Segment Maintenance* screen.

1. Select the checkbox adjacent to the segment whose details are to be removed.
2. Click  button in the Segment Maintenance tool bar.
3. Click **OK** in the information dialog to confirm deletion.

6.1.4.5 Holiday Maintenance

NOTE: As part of OFSAAI 7.3.3.0.0 release, this feature will not be available if Authentication is configured to **SSO Authentication and SMS Authorization**.

Holiday Maintenance facilitates you to create and maintain a schedule of holidays or non-working days within the Infrastructure system. On a holiday, you can provide access to the required users and restrict all others from accessing the system from the *User Maintenance* screen..

You can access Holiday Maintenance by expanding **System Administrator** section within the tree structure of LHS menu. The *Holiday Maintenance* screen displays a list of holidays in ascending order. In the *Holiday Maintenance* screen you can create and delete holidays.

6.1.4.5.1 Adding Holiday

To add holiday date in the *Holiday Maintenance* screen:

1. Select  from the Holiday Maintenance tool bar. Add button is disabled if you have selected any checkbox in the grid. The *New Holiday* screen is displayed.
2. Click  button and specify date using the calendar.

For more information on selecting a date, refer [Calendar](#) section.

3. Click **Save** to upload changes.

6.1.4.5.2 Deleting Holiday(s)

You can remove a holiday entry by deleting from the *Holiday Maintenance* screen.

1. Select the checkbox adjacent to the holiday which has to be removed.
2. Click  button in the Holiday Maintenance tool bar.
3. Click **OK** in the information dialog to confirm deletion.

6.1.4.6 Restricted Passwords

NOTE: As part of OFSAAI 7.3.3.0.0 release, this feature will not be available if **Authentication Type** is selected as **SSO Authentication and SMS Authorization** from **System Configuration > Configuration**.

Restricted Passwords facilitates you to add and store a list of passwords using which users are not permitted to access the Infrastructure system.

You can access Restricted Passwords by expanding **System Administrator** section within the tree structure of LHS menu. The *Restricted Passwords* screen displays a list of restricted passwords and allows you to add and delete passwords from the list.

You can also make use of Search and Pagination options to search for a specific password or view the list of existing passwords within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

NOTE: While searching for any pre defined restricted password, you have to key in the entire password.

6.1.4.6.1 Adding Restricted Password

To add restricted password in the *Restricted Passwords* screen:

1. Select  from the Restricted Passwords tool bar. **Add** button is disabled if you have selected any checkbox in the grid.

The Add Restricted Passwords screen is displayed.



2. Enter the password in the **New – Password** field. Ensure that the password is alphanumeric, without any spaces, and the length should be between six and 20.characters.
3. Click **Save** to upload new password.

6.1.4.6.2 Deleting Restricted Password(s)

You can de-restrict a password by deleting from the *Restrict Passwords* screen.

1. Select the checkbox adjacent to the password which has to be removed.
2. Click  button in the Restricted Passwords tool bar.
3. Click **OK** in the information dialog to confirm deletion.

6.1.5 Audit Trail Report

Audit trail is a chronological sequence of records which contain information resulting from the execution of a business process or system function. Audit records typically contain activity data of users resulting from operational transactions.

In the Infrastructure system, a System Administrator can generate Audit Trail reports to monitor the usage and activities of users within the system on regular intervals. For example, you can create reports on daily/weekly/monthly/quarterly basis. Audit Trail report also facilitates to extract the report in HTML format for reference.

6.1.5.1 Generating Audit Trail Report

You can access Audit Trail Report in LHS menu of Security Management. The *Audit Trail Report* screen facilitates you to generate audit trail reports based on Domain, SMS Module, User Name, Operations, Start Date, and End Date. You can search for a specific user using the [Search](#) field. The *Audit Trail Report* screen displays the report on screen by default, and you can also print the report as a HTML file. You can generate Audit Trail Report in the following ways.

6.1.5.1.1 Generating consolidated Audit Trail Report

In the *Audit Trail Report* screen select **Generate Reports**. The screen is refreshed and a consolidated report with details of all the modules, user id's, function types, function codes, with the user operations and time corresponding to the current logged in date is displayed.

6.1.5.1.2 Generating Sorted Audit Trail Report

You can sort the Audit Trail report by filtering the consolidated data with the options available in the *Audit Trail Report* screen.

The screenshot shows the 'Audit Trail Report' window in a web browser. The Oracle logo is at the top left. The title bar says 'OFSA Infrastructure-Administration - Windows Internet Explorer'. The page header includes 'Financial Services Analytical Applications Infrastructure', 'User: stuser', and 'Information Domain: ATOM73ST'. The main content area has a 'Search and Filter' section with a 'User Name' input field. Below that is the 'Audit Trail Report' section with filters for 'Domain' (DCDQ73), 'User Name' (Action Assessor), 'SMS Module' (checkbox), 'Operations' (-All-), 'Start Date' (08/01/2012), and 'End Date' (08/16/2012). There is a 'Print Option' section with 'Print To' radio buttons for 'File' and 'Screen'. At the bottom are 'Generate Reports', 'Reset', and 'Purge' buttons.

Choose the following options from the drop down list.

Field	Description
Domain	Select the required domain to generate the report based on domain specific activities.
SMS Module	Select the checkbox if the report has to be generated for the domain independent activities.
User name	Select the user name to filter activity data based on the user.
Operations	Select the required operation to generate the report based on the operations performed by the user.
Start and End Date	Specify the date range using Calendar . By default the current date is selected.
Print Option	Select File to generate HTML output. If not, Screen is selected by default.

Select **Generate Reports** to create the Audit Trail Report.

NOTE: If you have selected **File** as the print option, a HTML report is created and the access link is displayed at the bottom of *Audit Trail Report* screen.

You can also select **Reset** to default the field values and **Purge** to delete records of a selected domain, module, and user id for the specified time duration.

6.1.6 User Activity Report

User Activity Report displays a list of various user types associated and facilitates System Administrator to view and generate user activity reports to track and ensure security within the infrastructure system.

You can access User Activity Report in LHS menu of Security Management. The *User Activity Report* screen facilitates you to generate reports of the currently logged in users, disabled users, deleted users, unauthorized users, and idle users. You can also make use of Pagination option to view the list of users within the system. For more information, refer [Pagination](#) section.

The table below lists each user type within the *User Activity Report* screen with other details.

Report Type	Description
Currently logged in users	This screen displays the list of current users accessing the Infrastructure system with details such as; User ID, User Name, and Last Login Date information.

Report Type	Description
Disabled Users	This screen displays the list of users who are authorized but are currently disabled to access the Infrastructure system with their details such as; User ID, User Name, and Disabled On date.
Deleted Users	This screen displays the list of users who are removed from the system with the status as authorized to access the Infrastructure system. The list also displays the details such as; User ID, User Name, Last Login, Authorization Status, and the Deleted On date.
Unauthorized Users	This screen displays the User ID, and User Name of all the users which are not authorized.
Idle Users	This screen displays the list of users who have not logged in to the Infrastructure system for a certain period, with details such as; User ID and User Name. The default number of idle days accounted is 10 and the value can be modified by entering the required number of days in the Idle Users (No of Days) field located in Search and Filter grid.

In any of the *User Activity Report* screen, you can:

- Click **Save to File** to generate a HTML format of the report. The *File Download* window is displayed.
 - Click **Open** in the *File Download* window to view the report in your browser.
 - Click **Save** in the *File Download* window to save a local copy of the report.

6.1.7 User Profile Report

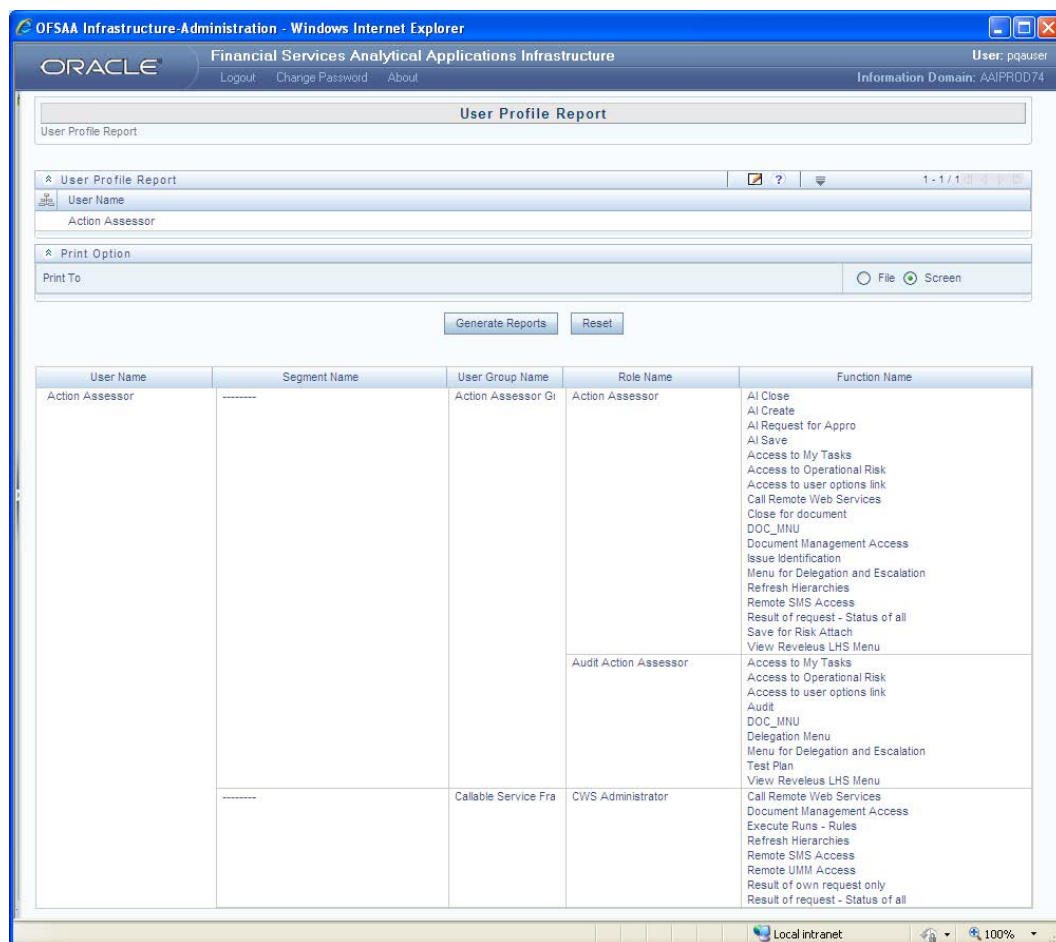
User Profile Reports in the Infrastructure system provides information about the Segment Name, Usergroup Name, Role Name, and Function Name to which a user is mapped.

You can access User Profile Report in LHS menu of Security Management. The *User Profile Report* screen facilitates you to generate user profile reports. You can make use of Pagination option to view the list of users within the system. For more information, refer [Pagination](#) section.

6.1.7.1 Generate User Profile Report

1. Select  in the User Profile Report tool bar. The *User Mapping* screen is displayed.
2. In the *User Mapping* screen, do the following:

- Select the user names from the Members list and click . You can press **Ctrl** key for multiple selections.
 - To select all users to Selected Members pane, click .
 - To remove a selected user, select the user from Select Members pane and click .
 - To remove all the selected users from Select Members pane, click .
3. Click **OK** to save the mappings and return to *User Profile Report* screen.
 4. Select **Generate Reports** in the *User Profile Report* screen and view the report.



User Name	Segment Name	User Group Name	Role Name	Function Name
Action Assessor	-----	Action Assessor Gr	Action Assessor	AI Close AI Create AI Request for Appro AI Save Access to My Tasks Access to Operational Risk Access to user options link Call Remote Web Services Close for document DOC_MINU Document Management Access Issue Identification Menu for Delegation and Escalation Refresh Hierarchies Remote SMS Access Result of request - Status of all Save for Risk Attach View Reveleus LHS Menu
			Audit Action Assessor	Access to My Tasks Access to Operational Risk Access to user options link Audit DOC_MINU Delegation Menu Menu for Delegation and Escalation Test Plan View Reveleus LHS Menu
		Callable Service Fra	CWS Administrator	Call Remote Web Services Document Management Access Execute Runs - Rules Refresh Hierarchies Remote SMS Access Remote UMM Access Result of own request only Result of request - Status of all

NOTE: You can select **File** as the print option, to generate a HTML report. The access link to the report is displayed at the bottom of *User Profile Report* screen.

You can also select **Reset** to refresh the selections in the *User Profile Report* screen.

6.2 Metadata Authorization

Metadata Authorization within the Infrastructure system facilitates you to authorize or reject the metadata version(s) created as a result of an update to the existing business definitions. The modifications done to the higher level metadata or business definitions are recorded as a new version of the same metadata which needs to be accepted or rejected, to reflect the changes. On Authorization, the existing metadata is replaced with the current version. In case of Rejection, that selected version of the metadata is removed from the system.

You need to have SYSADM and METAAUTH function roles mapped to access the Metadata Authorization within the Administration framework of the Infrastructure system. The *Metadata for Authorization* screen displays the list of modified Metadata Type and the total number of eligible metadata for authorization in the Business Metadata tab (Default).



6.2.1 Authorize / Reject Metadata

To Authorize or Reject Metadata Types in the *Metadata for Authorization* screen:

1. Select the *Module tab* as Business Metadata (default) or Rules Framework. The list of Metadata Type eligible for authorization is displayed.
2. Select the required **Metadata Type** by clicking on *(n) Forms to be Authorized* link.

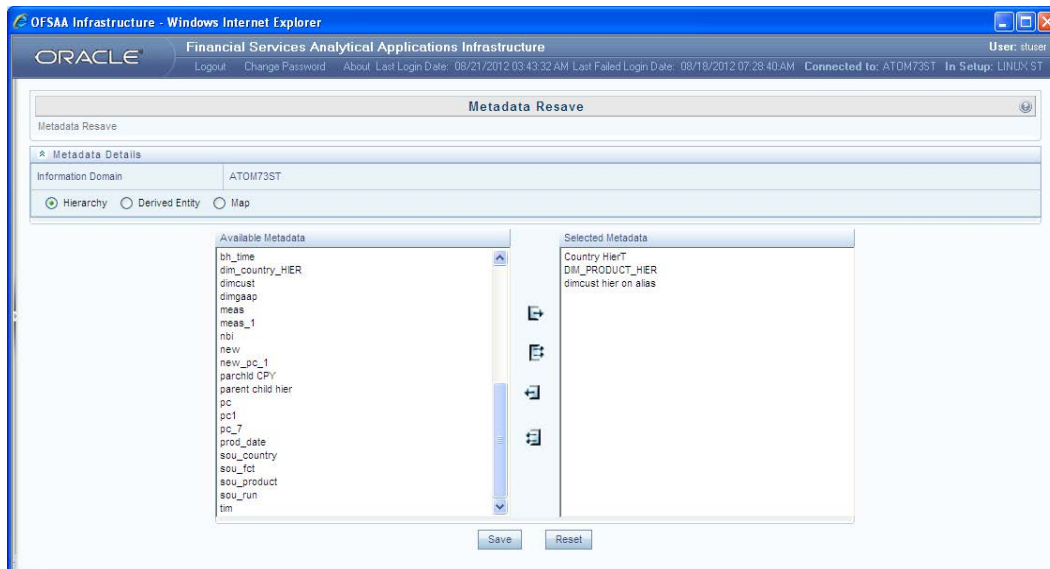
A list of the metadata versions is displayed along with the other details such as Code, Short Description, Action Performed, and Performed By details for the selected metadata definition.

3. Select the checkbox adjacent to the required version of the selected metadata and do one of the following:
 - Click **Authorize** to accept the metadata changes of the selected version.
 - Click **Reject** to ignore the metadata changes and delete the selected version.

The screen is refreshed on every action and the updates are displayed in the respective tab of the *Metadata for Authorization* screen.

6.3 Save Metadata

Save Metadata within the Infrastructure system facilitates you to resave the changes done to an authorized metadata for the selected Information Domain. When you resave metadata, all the existing metadata definitions are updated with the current changes along with the current modified date.



You (System Administrator) need to have SYSADM function role mapped to access the Metadata Authorization within the Administration framework of the Infrastructure system. The *Metadata Resave* screen displays the list of Available Metadata for Hierarchy (default) for the selected Information Domain.

To resave metadata in the *Metadata Resave* screen:

1. Filter the metadata type by selecting Hierarchy, Derived Entity, or Map. The list of Available Metadata is populated. Do one of the following:
 - Select the required metadata from the Available Metadata list and click  button. You can press **Ctrl** key for multiple selection.
 - To select all the Available Metadata, click  button.

You can also deselect a metadata by selecting from the *Selected Metadata* list and clicking  button or deselect all the selected metadata by clicking  button.
2. Click **Save** and update the metadata changes.

Once the details are updated, you can click **Show Details** to view the status. You can also click **Reset** to clear the selection.

6.4 Utilities

Utilities refer to a set of additional tools which helps you to fine tune a defined process or maximize and ensure the security of a database based on your need. The Utilities within the Administration framework of Infrastructure system facilitates you to maintain the data in the Oracle database using the various administrative tools. You can define the user access permissions, batch securities, upload attributes, find metadata difference, and migrate source objects to target database.

You (System Administrator) need to have SYSADM function role mapped to access the Utilities section within the Infrastructure system. You can access Utilities section within the Administration framework under the tree structure of LHS menu.

Administration Utilities consists of the following sections. Click on the links to view the sections in detail.

- [Enable User](#)
- [Write-Protected Batch](#)
- [UserGroup-Batch Execution Map](#)
- [User Attribute Upload](#)
- [Locale Desc Upload](#)
- [Metadata Difference](#)
- [Object Migration](#)
- [Patch Information](#)

6.4.1 Enable User

Enable User facilitates you to search and select the required user and re-define the access to the Infrastructure system. In the *Enabling User* screen, you can permit user access and clear the workstation information based on the following conditions:

- When user access is locked due to exceeding the number of invalid login attempts
- When user access is locked due to an abnormal exit from the system

You (System Administrator) need to have SYSADM function role mapped to access the Enable User within the Utilities section of the Infrastructure system. The *Enabling User* screen displays the details of a selected user such as User Name, User Start and End Date, Last Disabled, Enabled, and Login Date, IP Address, along with Enable Login and Clear Station status.

To Enable User in the *Enabling User* screen:

1. Select the **User ID** for whom you need to enable access, from the drop down list.

You can also use search to filter the list and find the required ID. Click **Search** and enter the keyword in *Search For* field. Click **OK**, the list is sorted based on the specified keyword.

2. Enable access to the selected user on any or both the conditions:
 - Select **Enable Login** checkbox, if the user access is denied due to invalid login attempts.
 - Select **Clear Station** checkbox, if the user access is denied due to an abnormal exit from the system.
3. Click **Save** and update the changes.

The Info grid at the bottom of the screen displays the metadata about the changes.

6.4.2 Write-Protected Batch

Write-Protected Batch facilitates you to change the Editable State of Batches defined in the *Batch Maintenance* screen of the Infrastructure system. You can either restrict a Batch from being edited, or remove the restrictions and allow users to modify the Batch Definition details.

You (System Administrator) need to have SYSADM function role mapped to access the Write-Protected Batch within the Utilities section of the Infrastructure system. The *Write-Protected Batch* screen displays the list of defined Batches for the selected Information Domain along with the other details such as Batch Name, Batch Description, and Write-Protection status. By default, the Batch list is sorted in ascending order of the Batch Name and can be changed by clicking  and  buttons respectively.

To change the Editable State of Batch in the *Write-Protected Batch* screen, do the following:

- To change the Batch state as “Non Editable”, select the Write-Protected Batch checkbox of the required Batch in the list and click **Save**. The Batch details are restricted from being edited in the *Batch Maintenance/Scheduler* screen.
- To change the Batch state as “Editable”, deselect the Write-Protected Batch checkbox of the required Batch in the list and click **Save**. The Batch details can be modified as required in the *Batch Maintenance/Scheduler* screen.
- You can also click **Check All** to write-protect (restrict editing) all the batches in the list or click **Uncheck All** to remove the restriction and allow editing of all the Batches.

6.4.3 UserGroup-Batch Execution Map

UserGroup-Batch Execution Map facilitates you to map the required UserGroup to the defined Batch(s) before you execute them from *Batch Execution* or *Batch Scheduler* screen. You can map multiple user groups of an Information Domain to different batches. If a user is mapped to multiple UserGroups, the combined list of batches mapped to these user groups is available in the *Batch Execution* or *Batch Scheduler* screen for execution.

The default UserGroup of a user who has created the batch has the maximum *Precedence Value* among the other UserGroups and is automatically mapped for execution. An explicit mapping of this UserGroup to the Batch is not required.

You (System Administrator) need to have SYSADM function role mapped to access the UserGroup-Batch Execution Map within the Utilities section of the Infrastructure system. The *UserGroup-Batch Execution Map* screen displays the list of defined Batches for the selected Information Domain along with the other details such as Batch Name and Batch Description. You can filter the list of defined batches which are created in Batch Maintenance, Advanced Analytics Infrastructure, or in Rules Framework. By default the list displays the batches defined in the *Batch Maintenance* screen.

To Map UserGroup to the required Batch in the *UserGroup-Batch Execution Map* screen:

1. Select the **Information Domain** from the drop down list. By default, the screen displays the Information Domain to which you are connected.
2. Select the **Groups** from the drop down list. The list consists of all the User Groups mapped to the selected Information Domain. The screen is refreshed and the list of defined batches is populated.

You can also search for a specific user group by clicking **Search** and specifying the User Group Name in the *User Maintenance-Search* screen. Click **OK**.

3. Select the checkbox adjacent to *Batch Maintenance (default)*, *Advanced Analytics Infrastructure*, or *Rules Framework* and filter the list of batches. You can also select **ALL** to list all the defined batches for the selected Information Domain.
4. Map UserGroup to Batch(s) by doing the following:
 - To map batch(s) to the selected UserGroup, select **Batch Map** checkbox.
 - To map all the batches to the selected UserGroup, click **CheckAll**.

You can also click **UnCheckAll** to remove all the mapping.

5. Click **Save** to save the UserGroup-Batch mapping details.

6.4.4 User Attribute Upload

An attribute refers to the distinguished characteristics of a User such as the User Name, Address, Marital Status, Occupation, User Age, User Professional, Address, and Phone Number. The *User Attribute CSV Upload* screen facilitates you to directly upload the user attributes into the system in a csv (comma separated values) file. The uploaded user attributes are associated to the specific user details and can be viewed in the *User Maintenance* screen by clicking  button.

You (System Administrator) need to have SYSADM function role mapped to access the User Attribute Upload within the Utilities section of the Infrastructure system.

To upload User Attributes in the *User Attribute CSV Upload* screen:

1. Click **Browse**. The *Choose File to Upload* dialog is displayed.
2. Navigate to the csv file directory and click **Open**.
3. Click **Upload Data**. A confirmation is displayed on successful upload. Click **OK**.

You can view the details in the *User Maintenance* screen by selecting the user from the list and clicking  (attributes) button.

6.4.5 Locale Desc Upload

The Locale Description Upload within the Infrastructure system facilitates you to provide multiple language support to users of different locales. In the *Locale Data Upload* screen, you can upload the .csv file of the required locale, which in turn displays the respective metadata of that locale in which the user logs-on to the Infrastructure system.

You can upload a locale data irrespective of any locale that you have currently logged in. For example, when a metadata has been saved in the English locale (en_US) and if a user logs on to OFSAAI in the Korean locale (ko_KR), then the metadata is displayed in Korean locale.

You (System Administrator) need to have SYSADM function role mapped to access the Locate Desc Upload within the Utilities section of the Infrastructure system. The *Locale Data Upload* screen facilitates you to Upload new local data or Download the existing locale data with the template format. You can upload *Business Measure Descriptions* and *Hierarchy Node Descriptions* in a .csv file with short description, long description, and comments. In case of Hierarchy Node Descriptions the .csv file can also have node descriptions included.

6.4.5.1 Downloading Locale Data

In the *Locale Data Upload* screen, you can download the csv file which consists of the metadata description of the existing Information Domain and the template format to upload new locale data.

1. Click **Download Locale data** in the *Locale Data Upload* screen.

A confirmation message is displayed with a link to download the .csv file.

2. Click on the link to download the file to the required location.

6.4.5.2 Uploading Locale Data

In the *Locale Data Upload* screen, you can upload locale metadata in a csv format related to the locale which has to be supported in the Infrastructure system. You can upload only the authorized metadata locale descriptions.

1. Select **Metadata / Hierarchy** from the drop down list.
2. Click **Browse**. The *Choose File to Upload* dialog is displayed.
3. Navigate to the csv file directory and click **Open**.
4. Click **Upload Locale Data**. A confirmation message is displayed on successful upload.

6.4.6 Metadata Difference

Metadata Difference within the Infrastructure system facilitates you to view the difference between two versions of a Metadata or Rule Definitions within the selected Information Domain. You (System Administrator) need to have SYSADM function role mapped to access the Metadata Difference within the Utilities section of the Infrastructure system.

To view the Metadata Difference, do the following:

1. Click  button adjacent to **Select Metadata**.
The *Metadata Tree* dialog is displayed with a list of metadata available within the Unified Metadata and Rules framework modules of the selected Information Domain.
2. Select the required metadata by expanding the required node. Click **OK**.
3. Click  button adjacent to **Between Version**.
The *Version Tree* dialog is displayed with the list of available version for the selected metadata.
4. Select the required version by expanding the required node. Click **OK**.
5. Click  button adjacent to **And Version**. The *Version Tree* dialog is displayed.
6. Select the required version by expanding the required node. Click **OK**.
7. Click  button from the Metadata Difference tool bar.

The difference of the selected two metadata versions is displayed.

You can also click  button to clear the metadata and version selections.

6.4.7 Object Migration

Objects refer to the various definitions defined in the Infrastructure and Financial Services applications. Object Migration framework within the Infrastructure facilitates you to define a set of objects to migrate across Information Domains within the same setup or across different setups.

You can select one or more objects within an object type or within multiple object types and migrate same along with the dependencies of the selected object automatically. For example, if you explicitly select a Group Filter, the migration will automatically happen for the Data Element Filters which are the dependents referenced within that Group Filter.

The following object types are available:

- Infrastructure UMM Objects such as Alias, Business Processor, Essbase Cube, Datasets, Business Measures, Business Hierarchy, Business Dimension, Data Quality Rule and Data Quality Group.
- Financial Services Applications infrastructure objects such as Dimension, Hierarchy, Filter, and Expression Rule.
- You can also migrate objects which are specific to applications such as Asset Liability Management, Funds Transfer Pricing, or Profitability Management, if you have installed those applications.

NOTE: Apart from this method, you can migrate objects through [Command Line Utility to Migrate Objects](#) or Unified Metadata Manager - [Metadata Restore/ Metadata Archive](#) process based on whether the objects you want to migrate are supported in that approach.

Following are the pre-requisites while working with Object Migration:

- Both the Source and Target should have the same OFSAA version number (v7.3 or later).
- Folders (Segments) that are present in the Source should also be present in the Target.
- The Source and Target environment should have the same installed locales for migration.
- Users in Source should be the same in Target. (At least for users associated with objects migrated).
- Users should have access to Folders in Target similar to the access in Source.
- Tables accessible to users in Source should also exist in Target.

For example, if you want to migrate a Data Element Filter based on "Table A" and "Table B" in the Source, those two tables should exist in the Target.

- The key processing Dimensions should be the same in both the Source and Target environments.

- For member migration, the dimension type should have the same Attributes in both Source and Target environments.
- Numeric dimension member IDs should be the same in both the Source and Target environments, to ensure the integrity of any member-based assumptions you want to migrate.

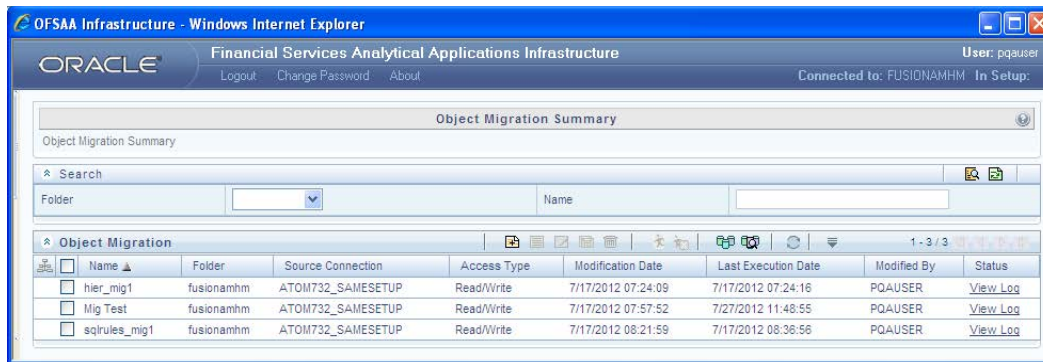
NOTE: If you have used the Master Table approach for loading dimension data and set it up to generate surrogate keys for members, this results in different IDs between the Source and Target. So it may cause error if you try to migrate objects which depend on these IDs.

- Migration of Infrastructure UMM Objects happens over a secure Java Socket based communication channel. To facilitate effective communication between the Source and Target systems and also to display the UMM objects from the source, you need to import the SSL certificate of Source in to the Target. For information on importing SSL certificate, refer to [How to Import SSL Certificate for Object Migration \(Doc ID 1623116.1\)](#).
- For Object migration across setups, migration process should always be triggered from the target setup. You need to login to the target setup and select the required information domain. Object Migration works more like an IMPORT into the Target. Thus, in case of migrating objects within the same setup across Information Domains, you need to have logged into the Target Information Domain in order to migrate the objects.
- The following object types will not be migrated with their parent objects even though they are registered as dependencies:
 - Currencies registered as dependents of Interest Rate Codes (IRCs).
 - Dimension Members registered as dependents.

Ensure that these dependencies exist in the target environment prior to the migration of parent object.

You (AAI System Administrator) need to have FU_MIG_HP function role mapped to access the Object Migration framework within Infrastructure. You can access Object Migration in the Utilities section of Administration module within the tree structure of LHS menu.

Ensure that you have logged in to the Target setup and have selected the required Information Domain from the “Connected to” drop down list to which you need to migrate the objects from Source setup. Select Administration > Utilities > Object Migration. The Object Migration Summary screen is displayed as shown below.



The *Object Migration Summary* screen displays the list of pre-defined Object Migration rules with the other details such as Name, Folder, Source Infodomain, Access Type, Modification Date, Last Execution Date, Modified By, and Status. You can use the [Search](#) option to search for a required Object Migration rule based on the Name or Folder in which it exists. The pagination option helps you to view the list of existing Object Migration rules within the system. For more information, refer [Pagination](#) section.

In the *Object Migration Summary* screen you can do the following:

- [Defining Source Configuration](#)
- [Creating Object Migration Definition](#)
- [Viewing Object Migration Definition](#)
- [Modifying Object Migration Definition](#)
- [Copying Migration Rules](#)
- [Migrating Stored Object Rules](#)
- [Viewing Migration Execution Log](#)

6.4.7.1 Defining Source Configuration

You can define a source configuration by specifying the database connection details and user credentials to access the database. You can also edit a pre-defined Source configuration.

To define a Source Configuration in the *Object Migration Summary* screen:

1. Click  button from the Object Migration tool bar. The *Source Configuration* screen is displayed with the pre-configured database details.

You can also click  button to view the pre-configured database details.

2. Click  button adjacent to the Name field. The screen is refreshed and enables you to enter the required details.
3. Enter a **Name** for the source connection and add a brief **Description**.
4. Enter the Source Database details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
JDBC Driver Name	Enter the JDBC (Java Database Connectivity) URL configured by the administrator to connect to the database. For example, oracle.jdbc.driver.OracleDriver
JDBC Connection String	Enter the connection string in the following format. "jdbc:oracle:thin:@<hostname>:port:<servicename>"
User ID	Enter the Atomic Schema user ID for the Source Information domain.
Password	Enter the password required for authentication.
Web Server URL	Enter the web server URL in the format "https://<hostname>:<port>/<domain>"
Source Infodom	Enter the source Information Domain on which the database exists.

5. Click **Validate** to validate the specified configuration details.
6. Click **Save** to save the Source Definition details.

The *Audit Trail* section at the bottom of *Source Configuration* screen displays the metadata information about the source definition created.

You can also edit a pre-defined Source Definition by selecting the required source definition from **Name** drop down list. Edit the details, and click **Save**.

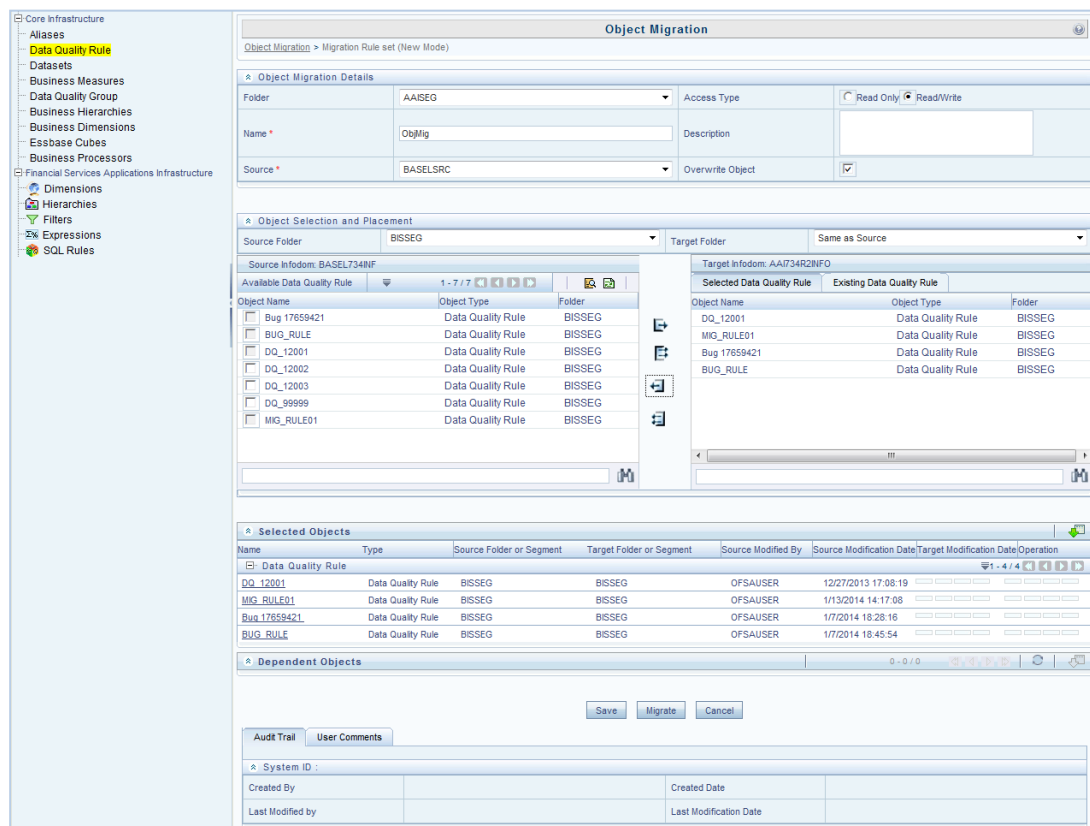
6.4.7.2 Creating Object Migration Definition

You can create an Object Migration definition in the target setup and launch the migration from the definition, or save the definition details and execute the migration process at a later point.

- If source objects exist in the target setup, the objects are migrated only on selection of **Overwrite Object** option in *Object Migration definition* screen.
- If source objects do not exist in the target setup, then the objects are created in the target setup. The dependent objects are migrated first and then the parent objects.

To create an Object Migration definition:

1. Click  button from the *Object Migration* tool bar. The *New - Object Migration* screen is displayed.



Object Migration

Object Migration > Migration Rule set (New Mode)

Object Migration Details

Folder: AAISEG Access Type: ☐ Read Only ☒ Read/Write

Name: ObjMig Description:

Source: BASELSRC Overwrite Object: ☒

Object Selection and Placement

Source Folder: BISSEG Target Folder: Same as Source

Source Infomd: BASEL734INF Target Infomd: AAD734R2INFO

Available Data Quality Rule	Object Type	Folder
☐ Bug 17659421	Data Quality Rule	BISSEG
☐ BUG_RULE	Data Quality Rule	BISSEG
☐ DO_12001	Data Quality Rule	BISSEG
☐ DO_12002	Data Quality Rule	BISSEG
☐ DO_12003	Data Quality Rule	BISSEG
☐ DO_99999	Data Quality Rule	BISSEG
☐ MIG_RULE01	Data Quality Rule	BISSEG

Selected Data Quality Rule	Existing Data Quality Rule	Object Type	Folder
DO_12001		Data Quality Rule	BISSEG
MIG_RULE01		Data Quality Rule	BISSEG
Bug 17659421		Data Quality Rule	BISSEG
BUG_RULE		Data Quality Rule	BISSEG

Selected Objects

Name	Type	Source Folder or Segment	Target Folder or Segment	Source Modified By	Source Modification Date	Target Modification Date	Operation
DO_12001	Data Quality Rule	BISSEG	BISSEG	OFSAUZER	12/27/2013 17:08:19		
MIG_RULE01	Data Quality Rule	BISSEG	BISSEG	OFSAUZER	1/13/2014 14:17:08		
Bug 17659421	Data Quality Rule	BISSEG	BISSEG	OFSAUZER	1/7/2014 18:28:16		
BUG_RULE	Data Quality Rule	BISSEG	BISSEG	OFSAUZER	1/7/2014 18:45:54		

Dependent Objects

0 - 0 / 0

Save Migrate Cancel

Audit Trail **User Comments**

System ID

Created By	Created Date	Last Modified by	Last Modification Date

2. Enter the Object Migration details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Folder	Select the required folder from the drop down list. This folder refers to the folder associated with the Object Migration rule.
Access Type	Select one of the following options: ▪ Read-Only: Select this option to give other users the access to only view the Object Migration definitions. ▪ Read/Write: Select this option to give other users the access to object to view, modify (including Access Type) and delete the Object Migration definitions.
Name	Enter a name for the Object Migration definition. Ensure that there are no special characters or extra spaces in the name specified.
Description	Enter a brief description about the definition.
Source	Select the required source configuration from the drop down list. The list displays the available source configurations that are created from the Configuration screen.
Overwrite Object	Select this checkbox to overwrite the target data, if source objects exist in the target setup.
Object Selection and Placement After you select an object type from the Migration rule's LHS menu, the Object Selection and Placement section will display the following options related to that object type:	
Source Segment/Folder	This field is displayed if you have selected a segment /folder-based object type. Select the required source segment/folder from the drop-down list. All the registered objects for the selected source segment/folder are displayed in the Source Infodom table. Note: If you leave Source Folder blank, the Source Infodom table displays all objects in all the folders to which you have access in the source environment.
Object-type specific selections, such as Filter Type	For some object types, there are additional selections. For example, if you select the object type as Filters , you can select the required Filter Type from the drop-down list. The Source Infodom table displays all objects belonging to the selected Filter Type. If you leave Filter Type blank, all filters will be displayed.

Field	Description
Target Folder	This field is displayed if you have selected a segment /folder-based object type. Target folder is the folder to which the selected objects are migrated. Select Same as Source option to migrate the objects to the same folder as source folder. By default, Same as Source is selected. Select the required folder from the drop-down list if you want a folder other than source folder. Consider the following scenarios to know how the Parent and Dependent objects are migrated to the selected Target Folder. ▪ Dependent objects are migrated either implicitly or explicitly. ▪ Implicit Migration: This occurs when the dependents are not explicitly selected. The dependent will be migrated automatically if its parent is selected (this occurs regardless of whether it is folder-based). For folder-based objects, the dependent migration uses “Same as Source” logic: It uses a Target Folder matching the dependent’s Source Folder. ▪ Explicit Migration: When you need to migrate the dependent objects to a specific folder (different than the dependent’s Source Folder), explicitly select the dependent object and the desired Target Folder for it. Note: Explicit selection takes precedence over implicit migration for a dependent. For folder-based objects: A dependent object will not inherit the parent’s Target Folder. This logic avoids the potential for unintended duplicates; that is, an object could be a dependent of multiple parent objects, and those parents each could be targeted for a different folder. An auto validation is done to check if the Target Folder exists. If it does not exist, ▪ The object will not be migrated. ▪ Objects’ parents (if any) will not be migrated, regardless of whether the child is implicitly or explicitly selected for migration. ▪ If the object has children whose migration could be valid (i.e. a valid Target Folder and valid dependents, if any) then migration is done by migrating a child prior to its parent to ensure integrity of parent.

Field	Description
Source Infodom Table	All available objects are displayed based on your selection of object type and (if applicable) source segment/folder. - Select the checkbox corresponding to the required object and click  to migrate the object to the target folder. You can also double click to select the required object. - Click  to select all the listed objects for migration. (Optional) You can use the Search and pagination options to find the required object. Click the  Search button and enter the name or description in the Search screen. Use  Reset button to clear the search criteria. - Use the  Find button to find an object displayed on the current page.
Target Infodom Table	All objects which you have selected for migration are displayed. - Select the checkbox corresponding to the required object and click  to remove the object from migration. You can also double click to remove the required object. - Click  to remove all the selected objects from migration.

3. The Selected Objects grid shows all objects you have explicitly selected, for all object types.

(Optional) Click  button from the Selected Objects tool bar to populate the complete object details such as Target Modification Date (if object exists in target Infodom) and Operation (Add/Update) that can be performed during migration.

4. The Dependent Objects grid shows all objects which are automatically migrated due to a dependency in a parent object.

(Optional) Click  button from the Dependent Objects tool bar to display the dependencies of the selected objects.

To view the dependencies of a specific object, click on the object **Name** in either the Selected Objects grid or the Dependent Objects grid. The parent / child dependencies are displayed in the *Parent / Child Dependency Information* screen.

Child Dependency Information				
Child Dependency Information				
* Dependency Information				
☐ Parent ☒ Child				
* Dependency Information				
1 - 3 / 3				
Name	Type	Folder or Segment	Modified By	Modification Date
DS0001	Data Sets		SYSADMIN	
M0253	Business Measures		SYSADMIN	
M0254	Business Measures		SYSADMIN	
Close				

You can also toggle the view of Parent / Child dependency information by selecting **Parent** or **Child** in the *Dependency Information* grid.

5. The Audit Trail section will display details about Object Migration Rule creation and modification, after it is saved. You can add comments from the *User Comments* tab.
6. Click **Migrate** to save and migrate the selected source objects to target setup or click **Save** to save the Object Migration definition for future migration. You can later run the saved object migration rule. For more information, refer to [Migrate Stored Object Definition](#) section.

Once the migration starts, the source objects are migrated to target setup and the Migration details such as status, start and end time are recorded. You can click **View Log** in the *Object Migration Summary* screen to view the details.

NOTE: In case of an error during migration of any dependent objects, the specific parent object is excluded from migration. You can view the [Migration Execution Log](#) for details.

6.4.7.3 Viewing Object Migration Definition

You can view individual Object details at any given point.

To view the existing Object Migration definition details:

1. Select the checkbox adjacent to the Object Migration Definition **Name**.
2. Click  button in the *Object Migration* tool bar. The *View - Object Migration* screen is displayed.
3. Click  button from the Selected Objects tool bar to populate the complete object details such as Target Modification Date (if object exists in target Infodom) and Operation (Add/Update) that can be performed during migration.
4. Click  button from the Dependent Objects tool bar to display the dependencies of the selected Object.
5. The *Audit Trail* section displays the details about Object Migration Rule creation and modification. You can add comments from the *User Comments* tab.

6.4.7.4 Modifying Object Migration Definition

To update the existing Object migration definition details:

1. Select the checkbox adjacent to the Object Migration Definition **Name**.
2. Click  button in the *Object Migration* tool bar. The *Edit - Object Migration* screen is displayed.

3. Edit the required details. For more information, refer [Create Object Migration Definition](#).

NOTE: You cannot edit the Source details.

4. Click **Save** and save the changes.

In the *Object Migration Summary* screen, you can also click  button to delete the Object Migration Definition details.

6.4.7.5 Copying Migration Rules

The Copy Migration Rules facilitates you to quickly create a new Migration Rule Definition based on the existing Source-Target Object mappings or by updating the required mapping details.

To copy an existing Migration Definition:

1. Select the checkbox adjacent to the Rule Name whose details are to be duplicated.
2. Click  button in the Object Migration tool bar. Copy button is disabled if you have selected multiple migration rules.
3. Edit the Migration Rule Definition as required. You can modify the details such as Folder, Name, Description, Access Type, Overwrite option, and also view the dependencies of the selected objects. For more information, refer [Create Object Migration Definition](#).

NOTE: You cannot edit the Source details.

4. Click **Migrate** to migrate the selected source objects to the target setup or click **Save** to save the Object Migration definition for future migration.

6.4.7.6 Migrating Stored Object Definition

You can execute a stored Object Migration Definition and migrate the mapped objects to the target setup. You can also interrupt the ongoing migration process at any given point.

To execute migration from a Stored Object Rules:

1. Select the checkbox adjacent to the Object Migration Definition **Name**.
2. Click  button in the Object Migration tool bar.

The migration process is triggered and the source objects are migrated to target setup. The details can be viewed by clicking **View Log** in the *Object Migration Summary* screen.

You can also interrupt the ongoing migration process by selecting the object rule definition and clicking  button.

6.4.7.7 Viewing Migration Execution Log

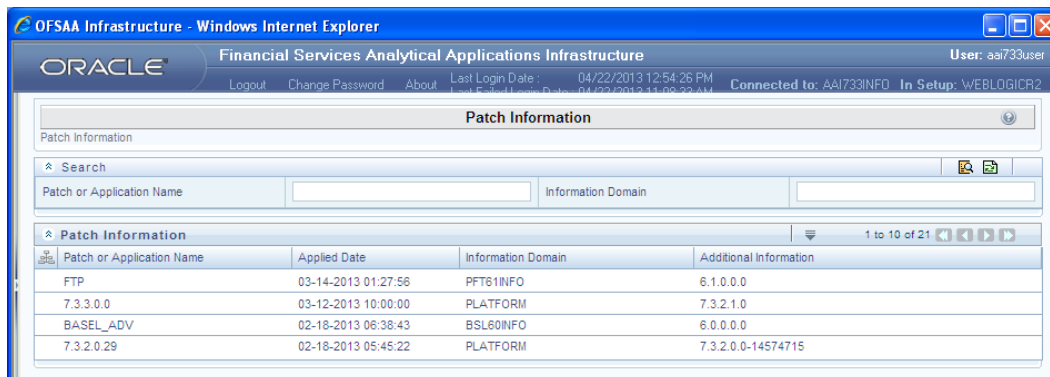
You can view the status of an executed migration rule definition with the log details of each migrated object (parent) with the dependencies (child objects) indicated as components, along with its sequence and severity.

To view the log details of an executed migration rule definition:

1. Click **View Log** in the Status column corresponding to the required Object Migration Definition. The *View Log* screen is displayed with the list of all the executed Object Migration Rule definitions.
2. Click on the **Task ID** of the required Object Migration Rule and view the migration status such as Task ID, Sequence, Severity, Message Description as Successful, Started, or Failed, Message Date, and Message Time.

6.4.8 Patch Information

This feature is available from OFSAAI 7.3.2.1.0 ML and subsequent versions.



Patch or Application Name	Applied Date	Information Domain	Additional Information
FTP	03-14-2013 01:27:56	PFT61INFO	6.1.0.0.0
7.3.3.0.0	03-12-2013 10:00:00	PLATFORM	7.3.2.1.0
BASEL_ADV	02-18-2013 06:38:43	BSL60INFO	6.0.0.0.0
7.3.2.0.29	02-18-2013 05:45:22	PLATFORM	7.3.2.0.0-14574715

The *Patch Information* screen within the Infrastructure facilitates you to view the list of patches applied and applications installed till date. You (application user) need to have **SYSADM** function mapped to your role to access the *Patch Information* screen within the **Utilities** section of the Infrastructure.

The *Patch Information* screen dynamically displays a list of applied patches & applications installed along with the Patch or Application Name, Information Domain on which the patch/application has been installed, and Additional Information (if any). These records are fetched from the corresponding tables in the database and are sorted in the ascending order of **Applied Date** by default.

You can make use of [Search](#) option in the *Patch Information* screen to search for a specific patch/application installation based on Patch/Application Name or Information Domain. You can also use the [Pagination](#) option to modify the page display as required.

6.5 References

This section of the document consists of information related to intermediate actions that needs to be performed while completing a task. The procedures are common to all the sections and are referenced where ever required. You can refer to the following sections based on your need.

6.5.1 Role Mapping Codes

By default, the following roles are defined within the Infrastructure application:

Role Code	Role Name	Role Description
CWSADMIN	CWS Administrator	CWS Administrator Role
DEFQMAN	DEFQ Manager	Data Entry Forma and Query Manager Role
DQADMN	DQ Rule Admin	Data Quality Rule Admin Role
ETLADM	ETL Analyst	ETL Analyst Role
METAAUTH	Metadata Authorizer	Metadata Authorizer Role
ORACUB	Oracle Cube Administrator	Oracle Cube Administrator Role
PR2ADM	PR2 Administrator	PR2 Administrator Role
SYSADM	System Administrator	System Administrator Role
SYSAMHM	Fusion AMHM Admin	Fusion Dimension Maintenance Admin Role
SYSAMHMUMM	Fusion AMHM UMM Map Admin	Fusion UMM Maintenance Admin Role
SYSATH	System Authorizer	System Authorizer Role
SYSBAU	Business Analyst	Business Analyst Role
SYSEXP	Fusion Expressions Admin	Fusion Expressions Admin Role
SYSFILTERS	Fusion Filters Admin	Fusion Filters Admin Role
SYSOBJMIG	Object Migration Admin	Object Migration Maintenance Admin Role

Role Code	Role Name	Role Description
SYSOPC	Data Centre Manager	Operator Console Role
SYSSQLRULE	SQL Rule Admin	SQL Rule Administrator Role

6.5.2 Function Role Mapping

The default roles are mapped to the following functions within the Infrastructure application.

Roles	Function Mappings	
Business Analyst	Add Alias	Model Calibration
	Add Attributes	Model Definition
	Add Business Processor	Model Deployment
	Add Computed Measure	Model Execution
	Add Cube	Model Make Champion
	Add Dataset	Model Outputs
	Add Derived Entities	Modify Alias
	Add Dimension	Modify Attributes
	Add Hierarchy	Modify Business Processor
	Add Measure	Modify Computed Measure
	Add RDM	Modify Cube
	Alias Admin	Modify Dataset
	Authorize Hierarchy	Modify Derived Entities
	Authorize Attributes	Modify Dimension
	Authorize Dataset	Modify Hierarchy
	Authorize Dimension	Modify Measure
	Authorize Measure	Modify RDM
	Business Analyst User Screen	Optimizer Add
	Call Remote Web Services	Optimizer Delete
	Cash Flow Equation Definition	Pooling Add
	Computed Measure Advanced	Pooling Delete
	Defi Administrator	Refresh Hierarchies
	Defi User	Remote SMS Access
	Delete Alias	Result of own request only

Roles	Function Mappings	
	Delete Attributes Delete Business Processor Delete Computed Measure Delete Cube Delete Dataset Delete Derived Entities Delete Dimension Delete Hierarchy Delete Measure Delete RDM Design RDM Document management Access Excel Admin Excel User Execute Runs and Rules Export Metadata GMV Definition Hierarchy Attributes Import Business Model Import Metadata	Result of Request and Status of all Rule Shock Definition Sandbox Creation Sandbox Maintenance Scenario Definition Stress Definition Variable Definition Variable Shock Definition View Alias View Attributes View Business Processor View Computed Measures View Cube View Dataset View Derived Entities View Dimension View Hierarchy View Measure View Metadata View RDM
CWS Administrator	Call Remote Web Services Document Management Access Execute Runs - Rules Refresh Hierarchies Remote SMS Access Remote UMM Access Result of own request only Result of request - Status of all	
Data Centre Manager	Batch Cancellation Batch Group Creation Batch Group Execution Batch Group Monitor	

Roles	Function Mappings
	Batch Group Restart Batch Monitor Batch Processing Create Batch Delete Batch Execute Batch Operator Console View log
DEFQ Manager	DeFi Excel Defq User Defq Administrator
DQ Rule Admin	Data Quality Delete Rule Data Quality Authorization Rule Data Quality Add Rule Data Quality Edit Rule Data Quality Copy Rule Data Quality Execute Rule Group Data Quality View Rule Group Data Quality Copy Rule Group Data Quality Delete Rule Group Data Quality Add Rule Group Data Quality View Rule Data Quality Edit Rule Group
ETL Analyst	DI Designer DTDQ Data Quality Add DI User
Fusion AMHM Admin	Fusion Add Attributes Fusion Add Hierarchies Fusion Add Members Fusion Attribute Home Page Fusion Attributes - View Dependent Data

Roles	Function Mappings
	Fusion Copy Attributes Fusion Copy Hierarchies Fusion Copy Members Fusion Delete Attributes Fusion Delete Hierarchies Fusion Delete Members Fusion Edit Attributes Fusion Edit Hierarchies Fusion Edit Members Fusion Hierarchies - View Dependent Data Fusion Hierarchy Home Page Fusion Member Home Page Fusion Members - View Dependent Data Fusion View Attributes Fusion View Hierarchies Fusion View Members
Fusion AMHM UMM Map Admin	Fusion Hierarchies to UMM Mapping
Fusion Expressions Admin	Fusion Add Expressions Fusion Copy Expressions Fusion Delete Expressions Fusion Edit Expressions Fusion Expressions Home Page Fusion View Dependency Expressions Fusion View Expressions
Fusion Filters Admin	Fusion Add Filters Fusion Copy Filters Fusion Delete Filters Fusion Edit Filters Fusion Filters - View Dependent Data Fusion Filters - View SQL Fusion Filters Home Page Fusion View Filters

Roles	Function Mappings
Infrastructure Administrator	Configuration Database Details Database Server Hierarchy Security Information Domain Metadata Segment Map Operator Console Infrastructure Administrator Infrastructure Administrator Screen
Metadata Authorizer	Authorize Alias Authorize Attributes Authorize BBs Authorize Business Processor Authorize Computed Measure Authorize Cube Authorize Dataset Authorize DBs Authorize Derived Entities Authorize Dimension Authorize Hierarchy Authorize KPIs Authorize Measure Authorize Nested Views Authorize Pages Authorize Process Tree Authorize RDM Authorize Reports Authorize Rule Authorize Run Authorize Templates Authorize Views Metadata Authorize Screen

Roles	Function Mappings
	Model Authorize Sandbox Authorize View Alias View Attributes View Business Processor View Computed Measures View Cube View Dataset View Derived Entities View Dimension View Hierarchy View Measure View Process View RDM View Rule View Run
Object Migration Admin	Cancel Migration Execution Execute/Run Migration Process Object Migration Copy Migration Ruleset Object Migration Create Migration Ruleset Object Migration Delete Migration Ruleset Object Migration Edit Migration Ruleset Object Migration Home Page Object Migration Source Configuration Object Migration View Migration Ruleset Object Migration ViewSource Configuration
Oracle Cube Administrator	Add Dataset Add Dimension Add Hierarchy Add Measure Add Oracle Cube Authorize Oracle Cube

Roles	Function Mappings
	Business Analyst User Screen Delete Oracle Cube Modify Dataset Modify Dimension Modify Hierarchy Modify Measure Modify Oracle Cube View Alias View Dataset View Dimension View Hierarchy View Measure View Oracle Cube
PR2 Administrator	Access to Process Access to Rule Access to Run Add Process tree Add Rule Add Run Delete Process Delete Rule Delete Run Modify Process Tree Modify Rule Modify Run PR2 Screens View Process View Rule View Run
SQL Rule Admin	SQL Rule Edit SQL Rule View SQL Rule Add

Roles	Function Mappings
	SQL Rule Run SQL Rule Delete SQL Rule Copy
System Administrator	Administration Screen Application Server Screen Audit Trail Report Screen Batch Cancellation Batch Monitor Configuration Database Details Database Server Design OFSAAI Menu Screen Enable User Screen Function Maintenance Screen Function Role Map Screen Hierarchy Security Holiday Maintenance Screen Information Domain Locale Desc Upload Screen Metadata Difference Screen Metadata Segment Map OLAP Details Screen Operator Console Restricted Passwords Screen Role Maintenance Screen Rules Setup Configuration Screen Save Metadata Screen Segment Maintenance Screen System Administrator System Administrator Screen User Activity Reports Screen User Attribute Upload Screen

Roles	Function Mappings
	User Group Domain Map Screen User Group Maintenance Screen User Group Role Map Screen User Group User Map Screen User Maintenance Screen User Profile Report Screen User-Batch Execution Mapping Screen View log Web Server Screen Write-Protected Batch Screen
System Authorizer	Administration Screen Infrastructure Administrator Screen Profile Maintenance Screen System Administrator Screen System Authorizer User Authorization Screen

7 Advanced Analytics Infrastructure

Advanced Analytics component of Infrastructure system helps business analysts in banking institutions to identify the business opportunities and to measure the risk prevailing in the competitive market to safeguard the regulatory and economic capital of banks.

Business Analysts can make use of Advanced Analytics Infrastructure (AAI) framework to build robust models or validate the existing models to quantify and predict the risk involved. It also helps business analysts to conform to prevalent regulatory and supervisory standards based on constant monitoring.

Previously models were built using various pre-packaged statistical functions/ techniques within the system. OFSAAI 7.3.4.0.0 enables a unique scripting environment that allows business analysts to develop R scripted techniques (using R functions as well as ORE functions) which can be used in defining the models. In addition, they can directly script the model within AAI framework. Thus it provides a unified environment to build, host and execute models across risk categories and a common framework to manage stress scenarios.

Enterprise-R support with OFSAAI

R is an open source statistical programming language and environment for computing and graphics. For information about R, see the R Project for Statistical Computing at <http://www.r-project.org>.

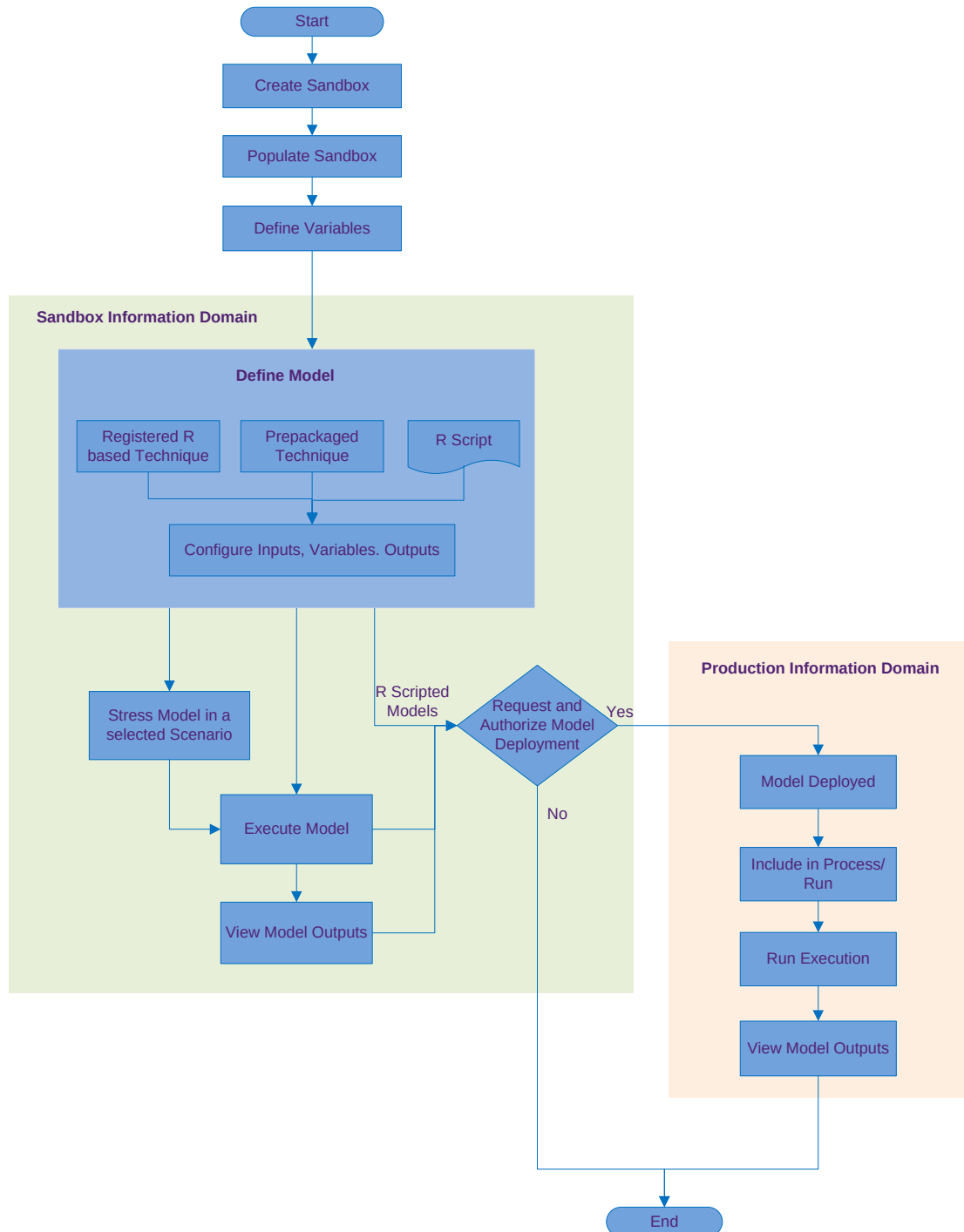
AAI has been enhanced to support developing statistical models using algorithms written in R language. The models thus developed can be registered in AAI to use them in the OFSAA ecosystem. The models can then be executed, monitored, and audited.

The AAI helps to achieve mapping of R objects to OFSAAI objects/ variables. The framework captures the execution results or R objects available in the R execution environment, and then analyses and transforms them to a format which can be easily interpreted by business users.

A user can either develop R scripts within AAI, or bring in already written R scripts into AAI. The R scripted models thus developed are pushed into the database only after abstracting them within AAI and enforcing a certain level of security.

Oracle R Enterprise (ORE) is a component of the Oracle Advanced Analytics Option of Oracle Database Enterprise Edition. ORE comes with statistical function implementations that use R syntax. ORE Embedded R Execution enables running R scripts managed by Oracle Database. For more information on ORE, see *Oracle R Enterprise User's Guide*.

7.1 Advanced Analytics Infrastructure Process Flow



Two information domains namely, production and sandbox, are required to perform operations in the Advanced Analytics Infrastructure module. Create a Sandbox infodomain in the required production infodomain and upload the data model into it. Then populate the data into sandbox infodomain. In the production infodomain, create R scripted techniques and define variables. In the

sandbox infodomain, create models using techniques (NAG techniques or user defined R techniques) or script the models using R language. Then execute the model. Based on the execution status and the generated output, verify the results and deploy the model into production. Once deployed successfully, request for model execution, generate model outputs, and work with champion challenger.

7.2 Accessing Advanced Analytics Infrastructure

Advanced Analytics Infrastructure is available within the LHS menu of OFSAAI home page. Click “+” to expand and view the sections in detail.

Select the **Information Domain** from the **Connected to** drop down list in the OFSAAI home page. The window is refreshed to display the information pertaining to the selected Information Domain.

7.3 Components of Advanced Analytics Infrastructure

Advanced Analytics Infrastructure consists of the following sections. Click the links to view the sections in detail.

- [Sandbox Definition](#)
- [Sandbox Maintenance](#)
- [Application](#)
- [Technique Registration](#)
- [Variable Definition](#)
- [Modeling](#)
- [Stress Testing](#)

7.4 Sandbox Definition

Sandbox in Advanced Analytics Infrastructure framework refers to a restricted modeling environment. A sandbox is defined in a production information domain where the OFSAAI Data model has been uploaded. It is implemented as an information domain.

The *Sandbox Definition* window can be accessed by Business Analysts who are mapped to SANDBXCR or SANDBXAUTH function roles. It can be accessed by expanding **Advanced Analytics Infrastructure** from the LHS menu and clicking **Sandbox Definition**.

Sandbox ID	Sandbox Name	Created By	Creation Date
☐ 1332447959392	NEWSAND	PR2USER	22-MAR-2012 07:37:38 AM
☐ 1331320689793	SANDBOX74	PR2USER	09-MAR-2012 06:10:20 AM

Using the *Search* grid, you can look for a specific sandbox based on the sandbox name. For more information on search and pagination options, see the [Search & Filter](#) and [Pagination](#) sections.

The *Sandbox Definition* grid displays the sandbox definition details such as Sandbox ID, Sandbox Name, Created By and Creation Date. This window facilitates you to create new sandbox definitions, and modify or view existing sandbox definitions.

7.4.1 Creating Sandbox Definition

This option allows you to create a sandbox by selecting the required dataset and the information domain (infodom) which you want to implement as the sandbox. You can upload the data model while defining the sandbox, or upload it later using the [Import Model](#) option in Unified Metadata Manager. When you save the sandbox definition, the required tables are created in the sandbox information domain. However, data present in the tables will be copied only during [Sandbox Maintenance](#).

NOTE: Ensure the data model of the sandbox infodom should be a sub-set of the data model of the production information domain.

To create a sandbox definition:

1. Select  from the Sandbox Definition tool bar. The *Sandbox Definition* window is displayed. The **Add** button is disabled if you have selected any checkbox in the grid.

Sandbox Definition

Sandbox Definition (Edit Mode)

Sandbox Name * Non Securitization Sandbox

Sandbox Description Non Securitization Sandbox

Source Dataset * Non Sec Sandbox Population Dataset

Is data model upload required? ☒ Yes ☐ No

Sandbox Location * ECSTSAND1

Scope

Non-Time Hierarchy

Non-Time Hierarchy

No Element Selected

Hierarchy Member

Time Hierarchy

Time Hierarchy

Modeling Time Hierarchy

No Element Selected

Hierarchy Member

Save Cancel

User Info

Created By SYSADMIN Creation Date 25-NOV-2009 01:04:05 PM

Last Modified By OFSAUSER Last Modification Date 24-DEC-2013 06:43:00 PM

2. Enter the details as described in the following table.

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Sandbox Name	Enter a name for the sandbox. Ensure that there are no special characters like ` , { } , " , ' , ~ , < , > , / , \ , and multiple spaces.
Sandbox Description	Enter a brief description for the sandbox.
Source Dataset	Select the required dataset. The dataset you want to select should match the Data Model of the sandbox. - Click  and open the <i>Source Dataset</i> Browser. All the Authorized Datasets in the selected production Infodomain are listed in the Hierarchical Browser. - Select the required dataset from the <i>Datasets</i> pane and click . You can also deselect a dataset by selecting it from the <i>Selected Datasets</i> pane and clicking .
Is data model upload required?	By default, the Yes option is selected. - Select Yes to upload the data model while saving the sandbox definition. - Select No to upload the data model later using the Import Model option in Unified Metadata Manager.

3. Sandbox Location	This is the information domain, which you want to implement as sandbox. - Click  and open the <i>Sandbox Location</i> Browser. If Yes is selected for Is data model upload required? option, the <i>Sandbox Location</i> pane displays the list of the Information Domains where data model is not uploaded and sandbox has not been defined. If No is selected for Is data model upload required? option, the <i>Sandbox Location</i> pane displays the list of the Information Domains where data model is uploaded and sandbox has not been defined. - Select the required infodomain and click . You can deselect an infodomain by selecting it from the <i>Selected Information Domain</i> pane and clicking .
Non Time Hierarchy	- Click  in the Non Time Hierarchy toolbar. The <i>Hierarchy</i> Browser is displayed with the available Hierarchies for the selected Information Domain. You can click "+" to expand the node to view the sub levels. - Select the required hierarchies and click . You can also deselect hierarchy by selecting it from the <i>Selected Members</i> pane and clicking . - Click OK.
Hierarchy member	Click  in the Hierarchy Member toolbar and specify the members or nodes in the <i>Hierarchy</i> browser. You can click "+" to expand the node to view the sub levels. When you select a hierarchy member, the data belonging to that hierarchy will be copied to the sandbox.
Time Hierarchy	This field is mandatory. - Click  in the Time Hierarchy toolbar. The <i>Hierarchy</i> Browser is displayed with the available Time Hierarchies for the selected Information Domain. You can click "+" to expand the node to view the sub levels. - Select the required time hierarchy and click  to move it to the Selected Hierarchies pane. You can also deselect time hierarchies by selecting from the Selected Hierarchies pane and clicking . - Click OK.
Hierarchy member	Click  in the Hierarchy Member toolbar and specify the members or nodes in the <i>Hierarchy</i> browser. You can click "+" to expand the node to view the sub levels. Time hierarchy is used to group data based on time (year or month). When you select time hierarchy member, the data belonging to that time hierarchy will be copied to the sandbox.

Click **Save**. The tables of the selected dataset get populated in the sandbox infodm.

7.4.2 Viewing Sandbox Definition

You can view individual Sandbox Definition details at any given point. To view the existing Sandbox Definition details in the *Sandbox Definition* window:

1. Select the checkbox adjacent to the Sandbox ID.
2. Click  button in the Sandbox Definition tool bar.

The *Sandbox Definition View* window is displayed with the details such as Sandbox Name, Sandbox Description, Source Dataset, Sandbox Locations, Time and Non Time Hierarchy and Hierarchical members.

7.4.3 Modifying Sandbox Definition

You can update only the description and Time Hierarchy Member of an existing Sandbox Definition in the *Sandbox Definition* window.

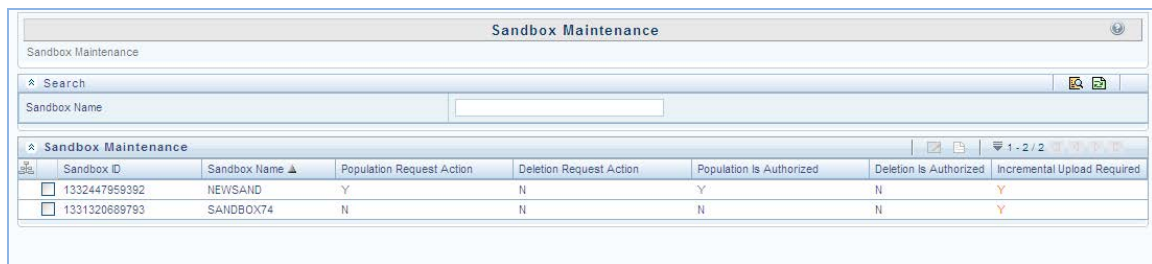
1. Select the checkbox adjacent to the Sandbox ID whose details are to be updated.
2. Click  button in the Sandbox Definition tool bar. The **Edit** button is disabled if you have selected multiple Sandbox IDs.
3. Modify the Sandbox Definition description and Time Hierarchy Member details as required. For more information, see the [Create Sandbox Definition](#) section.

7.5 Sandbox Maintenance

Sandbox Maintenance facilitates you to populate the data to the tables in the Sandbox information domain, based on the dataset and the filters in the Sandbox definition. You have the option to do complete or incremental sandbox data population. You can also delete a sandbox definition. An authorizer has to authorize the sandbox population and deletion.

Business analysts who are mapped with SANDBXMOD or SANDBXAUTH function roles can access the *Sandbox Maintenance* window.

You can access Sandbox Maintenance by selecting the required Production Information Domain from the **Connected to** drop-down list in the Infrastructure home page and clicking **Advanced Analytics Infrastructure** and **Sandbox Maintenance** within the tree structure of LHS menu.



The screenshot shows the 'Sandbox Maintenance' window. It includes a search bar at the top and a table below. The table has columns for Sandbox ID, Sandbox Name, Population Request Action, Deletion Request Action, Population Is Authorized, Deletion Is Authorized, and Incremental Upload Required. Two rows are visible: one for 'NEWSAND' and one for 'SANDBOX74'.

Sandbox ID	Sandbox Name	Population Request Action	Deletion Request Action	Population Is Authorized	Deletion Is Authorized	Incremental Upload Required
1332447959392	NEWSAND	Y	N	Y	N	Y
1331320689793	SANDBOX74	N	N	N	N	Y

Using the *Search* grid, you can search for a specific sandbox based on sandbox name or view the list of sandboxes defined within the system. For more information on search and pagination options, see [Search & Filter](#) and [Pagination](#).

The *Sandbox Maintenance* window displays details such as Sandbox ID, Sandbox Name, statuses of Sandbox population or deletion request, and statuses of authorization request for Sandbox population or deletion.

The **Increment Upload Required** column in the *Sandbox Maintenance* window displays the status as “Y” or “N” depending on the need for Incremental Data Model Upload for the Sandbox definition. The Incremental Data Model Upload  button is enabled only when the model versions between Production and Sandbox information Domain are different.

NOTE: The Incremental Data Model Upload button will not be enabled for the sandboxes in which No option is selected for **Is data model upload required?** field, even though there is a difference between the model versions in Production and Sandbox information domains.

7.5.1 Request and Authorize to Populate Sandbox

To request and authorize to populate sandbox in the *Sandbox Maintenance* window:

1. Select the sandbox which you want to populate and click  button in the *Sandbox Maintenance* toolbar. The **Edit** button is disabled if you have selected multiple checkboxes. The *Sandbox Maintenance Edit* window is displayed.
2. In the *Request Action* tab, select **Complete** for **Populate Sandbox** to copy the required table data from production infodm to sandbox infodm based on the sandbox definition.
3. Click the *Authorize* tab, and select the **Populate Sandbox – Complete/ Incremental** checkbox to authorize sandbox population. This tab will be enabled only if your user role is mapped to the function SANDBXAUTH.
4. Click **Save** to confirm changes.

On authorization, a Sandbox-Populate batch is registered in the OFSAA Infrastructure Operations module. The batch will be available in the *Batch Scheduling* window with the Sandbox ID. This batch must be triggered from the *Batch Scheduling* window to complete the data population.

7.5.2 Request and Authorize to Delete Sandbox

To request and authorize to delete sandbox in the *Sandbox Maintenance* window:

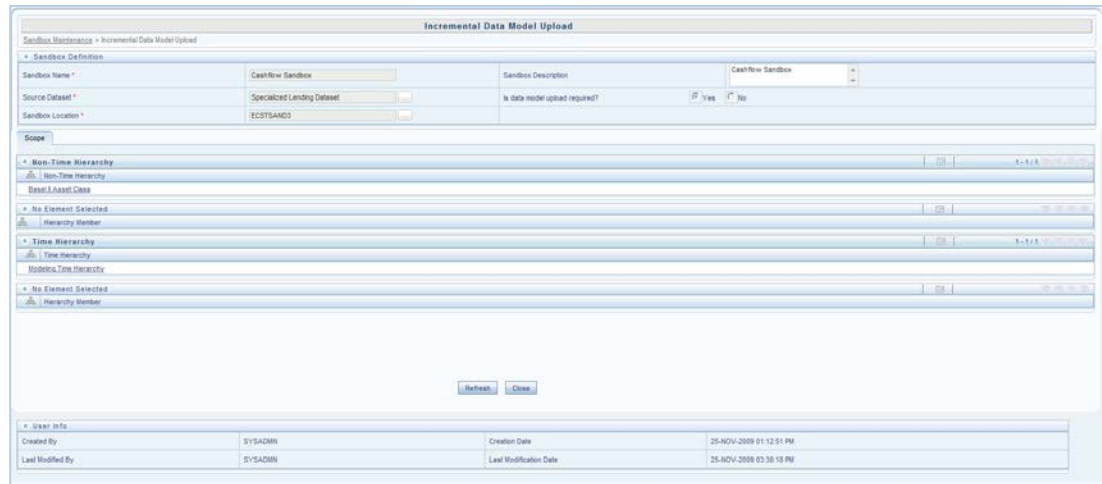
1. Select the sandbox which you want to delete and click  button in the *Sandbox Maintenance* tool bar. **Edit** button is disabled if you have selected multiple checkboxes. The *Sandbox Maintenance Edit* window is displayed.
2. In the *Request Action* tab, select the **Delete Sandbox** checkbox.
3. Click the *Authorize* tab, and select the **Delete Sandbox** checkbox to authorize the deletion. This tab will be enabled only if your user role is mapped to the function SANDBXAUTH.
4. Click **Save** to remove the Sandbox Definition.

7.5.3 Incremental Data Model Upload

Incremental Data Model Upload facilitates you to synchronize the difference of a Data Model which exists in Production and Sandbox Information Domain. You can refresh the details and fetch the incremental data model changes from Production to Sandbox Information Domain.

To perform an incremental data model upload:

1. Select the checkbox adjacent to the Sandbox ID which has the Increment Upload Required status as “Y”. The status will be Y only when there is a difference in the model versions between Production and Sandbox information Domain.
2. Click  from the Sandbox Maintenance tool bar. The *Incremental Data Model Upload* window is displayed with the selected Sandbox definition details in the **View** mode.



Incremental Data Model Upload																																																											
Sandbox Maintenance - Incremental Data Model Upload																																																											
Sandbox Definition																																																											
Sandbox Name *	Cashflow Sandbox	Sandbox Description	Cashflow Sandbox																																																								
Source Dataset *	Specialized Lending Dataset	Is data model upload required?	☒ Yes ☐ No																																																								
Sandbox Location *	ECSTAND																																																										
Scope																																																											
<table border="1"> <thead> <tr> <th>Non-Time Hierarchy</th> <th>Is Data Model Upload Required?</th> <th>Version</th> <th>Created By</th> <th>Created Date</th> <th>Last Modified By</th> <th>Last Modified Date</th> </tr> </thead> <tbody> <tr> <td>Non-Time Hierarchy</td> <td>☐</td> <td>1.0.1.1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="7">Base Asset Class</td> </tr> <tr> <td colspan="7">No Element Selected</td> </tr> <tr> <td>Time Hierarchy</td> <td>☐</td> <td>1.0.1.1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="7">Model Time Hierarchy</td> </tr> <tr> <td colspan="7">No Element Selected</td> </tr> <tr> <td colspan="7">Hierarchy Member</td> </tr> </tbody> </table>				Non-Time Hierarchy	Is Data Model Upload Required?	Version	Created By	Created Date	Last Modified By	Last Modified Date	Non-Time Hierarchy	☐	1.0.1.1					Base Asset Class							No Element Selected							Time Hierarchy	☐	1.0.1.1					Model Time Hierarchy							No Element Selected							Hierarchy Member						
Non-Time Hierarchy	Is Data Model Upload Required?	Version	Created By	Created Date	Last Modified By	Last Modified Date																																																					
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User Info																																																											
Created By	SVSADMIN	Creation Date	25-NOV-2009 01:12:51 PM																																																								
Last Modified By	SVSADMIN	Last Modification Date	25-NOV-2009 03:30:19 PM																																																								

3. Click **Refresh**. The incremental data model changes are fetched and updated.
4. An information dialog is displayed confirming successful incremental data model upload. Click **OK**.
5. Once the Incremental changes are updated to the Data Model in the Sandbox Information Domain, you need to re-save the details in the *Sandbox definition* window. For more information, see the [Modify Sandbox Definition](#) section.

7.6 Application

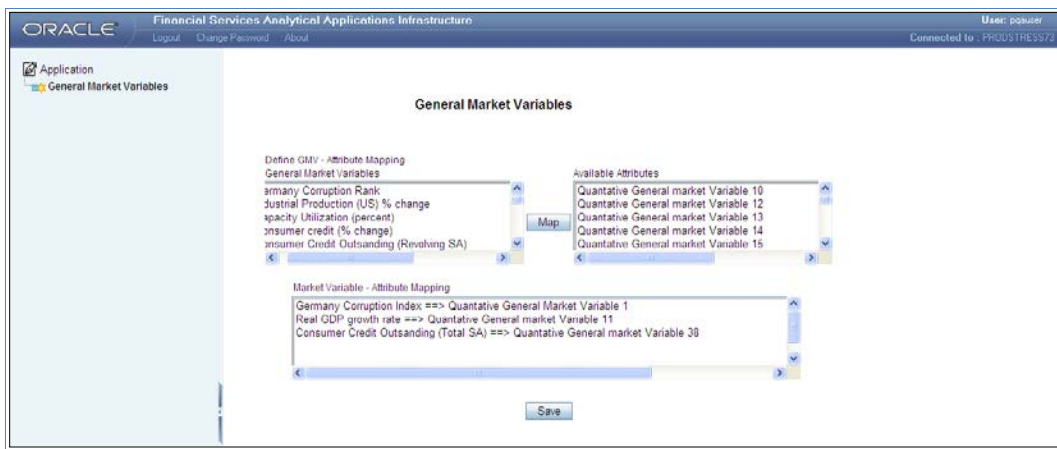
Application framework can be accessed by selecting Production Information Domain in the **Connected to** drop-down list of Infrastructure homepage and expanding Advanced Analytics Infrastructure section within the tree structure of LHS menu. Application in the Advanced Analytics Infrastructure facilitates you to:

- Map the available market variables to attributes using [General Market Variables](#).
- Define [Cash Flow Equations](#) to compute the economic capital.

7.6.1 General Market Variables

The General Market Variables utility within the Advanced Analytical Infrastructure system facilitates Business Analysts to map the available General Market Variables to the available Attributes within the system.

You can access General Market Variables within the Application section of Infrastructure system. Select Production Information Domain in the **Connected to** drop-down list of Infrastructure homepage and expanding Advanced Analytics Infrastructure section within the tree structure of LHS menu.



7.6.1.1 Mapping General Market Variables

To map the general market variables to the available Attributes:

1. Select the required mapping **Variable** from the list in the General Market Variable pane.
2. Select the required mapping **Attribute** from the list in the Available Attributes pane.
3. Click **Map** button. The selected mapping of market variable with the attribute is displayed in the *Market Variable - Attribute Mapping* pane.
4. Click **Save**. An information dialog is displayed.

- Click **OK** in the information dialog to confirm populating the General Market Variable entity. Else, click **Cancel**.

On clicking **OK**, the General Market Variable is populated with the attribute mapping and a confirmation message is displayed. Click **OK** and another information dialog is displayed.

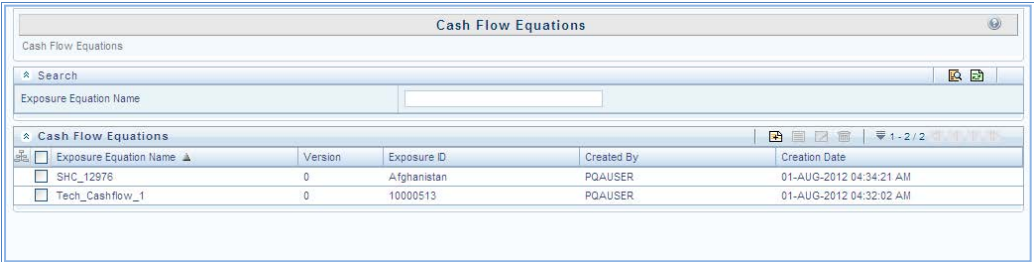
- Click **OK** in the information dialog to generate Business Metadata based on the select mapping. Else click **Cancel**.

On clicking **OK**, the system generates a hierarchy or a Measure based on the mapped column and a confirmation message is displayed stating that the Metadata has been generated successfully. The metadata generation is dependent on the pre-configuration of the production Information Domain.

7.6.2 Cash Flow Equations

The Cash Flow Equations utility within the Advanced Analytical Infrastructure system facilitates you to define cash flow definitions or use the pre-defined cash flow equations to compute the Economic Capital for specialized lending exposures of the Non-Securitization portfolio. Economic Capital can be computed by simulating the inflows and outflows of the exposure for a period of one year from the date of processing. The inflows and outflows are represented by linear equations which comprises of the drivers of cash flow or deterministic values.

You can access Cash Flow Equations within the Application section of Infrastructure system by selecting Sandbox Information Domain in the **Connected to** drop-down list of Infrastructure homepage and expanding Advanced Analytics Infrastructure section within the tree structure of LHS menu.



The screenshot shows the 'Cash Flow Equations' window. It has a search bar at the top with the label 'Exposure Equation Name'. Below the search bar is a table with the following columns: Exposure Equation Name, Version, Exposure ID, Created By, and Creation Date. The table contains two rows of data.

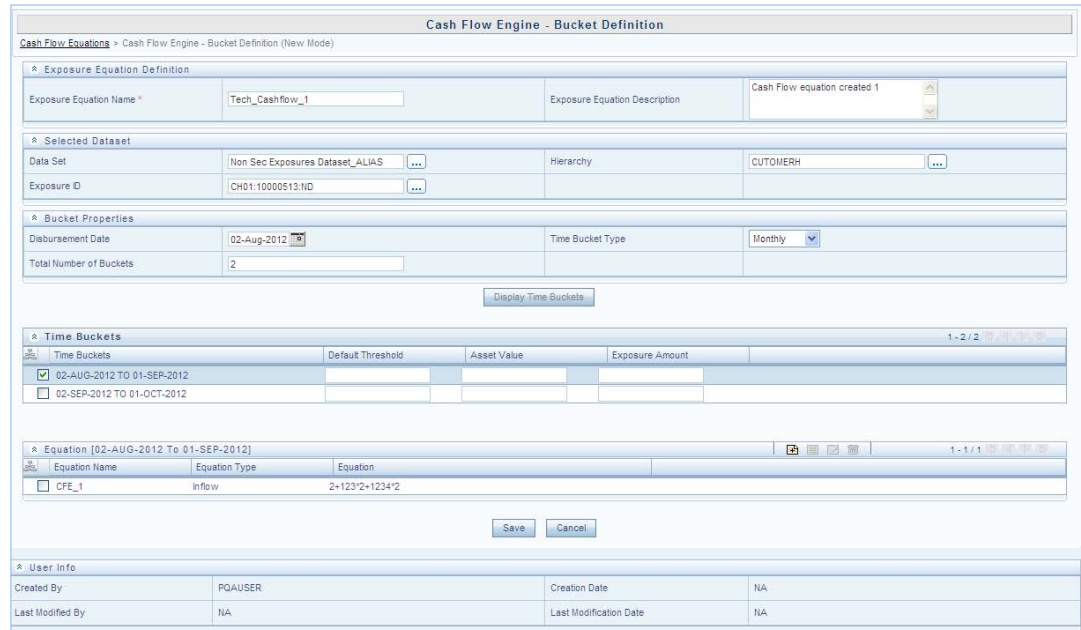
Exposure Equation Name	Version	Exposure ID	Created By	Creation Date
SHC_12976	0	Afghanistan	PQAUSER	01-AUG-2012 04:34:21 AM
Tech_Cashflow_1	0	10000513	PQAUSER	01-AUG-2012 04:32:02 AM

The *Cash Flow Equations* window displays the list of pre-defined Cash Flow Equations with the other details such as Exposure Equation Name, Version, Exposure ID, Created By, and Creation Date. You can add, view, edit, and delete the required cash flow equations. You can also make use of Search and Pagination options to search for a Cash Flow definition using Exposure Equation Name or view the list of existing definitions within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

7.6.2.1 Creating Cash Flow Equation

You can define the required Cash Flow Equation by specifying the exposure equation details, dataset, and disbursement date. To create a Cash Flow Equation in the *Cash Flow Equations* window:

1. Click  button in the Cash Flow Equations tool bar. The *Cash Flow Engine – Bucket Definition – New* window is displayed.



2. Enter the **Exposure Equation Name** and **Description**.
3. Enter the details in the Selected Dataset section as tabulated.

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Dataset	- Click  button, the <i>Source Dataset Browser</i> is displayed. - Select the required Dataset from the Source Dataset list and click . - The select Dataset is displayed in the Selected Member list. Click OK.
Hierarchy	- Click  button, the <i>Hierarchy Browser</i> is displayed. - Select the required Hierarchy from the Hierarchical list and click . - The selected Hierarchy is displayed in the Selected Member list. Click OK.

Field	Description
Exposure ID	- Click  button, the <i>Hierarchy Browser</i> is displayed. - Select the required root Node from the Hierarchical list and click . - The selected Node is displayed in the Selected Member list. Click OK.

4. Define the Bucket Properties details as tabulated.

Field	Description
Disbursement Date	Specify the Disbursement date by selecting from the calendar. For more information refer Calendar in references section.
Time Bucket Type	Select the Time Bucket Type as Monthly, Quarterly, Half Yearly, or Yearly from the drop down list.
Total Number of Buckets	Enter the numeric value of the total number of time buckets required.

5. Click **Display Time Buckets**. The *Time Buckets* section is displayed with the specified number of time buckets. You can specify the numeric values of Default Threshold, Asset Value, and Exposure Time fields corresponding to the required Time Bucket.

NOTE: You must define a Time Bucket Equation for each Time Bucket in the *Equation* section. For more information, refer [Define Time Bucket Equation](#).

6. Click **Save** to save the Cash Flow definition details.

The User Info grid at the bottom of the window displays metadata information about the Cash Flow definition created.

7.6.2.2 Defining Time Bucket Equation

Time Bucket Equation can be defined in the *Cash Flow Engine – Bucket Definition* window by specifying the Equation definition, Equation Type, Inflow/Outflow, and Intercept details.

To define Time Bucket Equation in the *Cash Flow Engine – Bucket Definition* window:

- Click the required *Time Bucket* checkbox. The *Equation* grid is displayed.
- Click  button from the Equation tool bar. The *Cash Flow Engine – Equation-New* window is displayed.

3. Enter the **Equation Name** and **Equation Description**.
 4. Select the **Equation Type** from the drop down list. The available options are:
 - **Deterministic** - By selecting this option, you need to select the Inflow/Outflow type and specify the Deterministic numeric value.
 - **Equation** (Default) - By selecting this option, you need to select the Inflow/Outflow type and specify the Intercept numeric value. You also need to specify the Equation Variable for the selected Time Bucket.
 - Click  button in the Equation tool bar. The *Cash Flow Engine – Equation Variable* window is displayed.
 - Specify the **Driver Name**, click  button. The *Variable Browser* window is displayed. Select the required Variable Driver and click **OK**.
 - Select the **Variable Type** from the drop down list. Click **OK**.
 5. (Optional) In the Equation section, specify the numeric value for **Variable Coefficient**.
 6. Define the Transformation Action. Select the Equation checkbox and click  button from the Equation tool bar. The *Transformation Browser* is displayed.
 - Select the **Transformation Type** (Log, Exponential, Sin, Cos, Tan, Cosec, Sec, or Cot) and click . The selected *Action Type* is displayed in the Selected Members list. You can use  or  buttons to sort the order of selection.
 - Click **OK** and save the Transformation Action details.
- In the *Cash Flow Engine – Equation - New* window, you can click  button to update the variable details or click  button to delete an equation variable. Click **OK**.

- Click **Save** in the *Cash Flow Engine – Bucket Definition* window and save the Cash Flow Equation details.

7.6.2.3 Viewing Cash Flow Equation

You can view individual Cash Flow Equation details at any given point. To view the existing Cash Flow Equation definition details in the *Cash Flow Equations* window:

- Select the checkbox adjacent to the Exposure Equation Name.
- Click  button in the Cash Flow Equations tool bar.

The *Cash Flow Engine - Bucket Definition - View* window is displayed. You can select the required Time Bucket checkbox along with the Equation checkbox and click  button to view the variable and equation details.

7.6.2.4 Modifying Cash Flow Equation

In a pre-defined Cash Flow Equation, you can modify the Time Bucket properties and Equation details along with the defined Variables. To modify an existing Cash Flow Equation definition in the *Cash Flow Equations* window:

- Select the checkbox adjacent to the Exposure Equation Name.
- Click  button in the Cash Flow Equations tool bar. The *Cash Flow Engine - Bucket Definition - Edit* window is displayed.
- Select the required **Time Bucket** checkbox and edit the values of Default Threshold, Asset Value, and Exposure Time fields. You can edit the Bucket Properties including the Disbursement Date, Bucket Type and the number of Buckets. For more information, refer [Create Cash Flow Equation](#).
- Select the **Equation** checkbox and click  button to edit the Equation definition. You can modify the Equation Type from Deterministic to Equation or vice versa, and from Inflow to Outflow or vice versa. For more information, refer [Define Time Bucket Equation](#).
- Click **Save** to save the changes.

7.6.2.5 Deleting Cash Flow Equation

You can remove the Cash Flow definition(s) which are no longer required in the system, by deleting from the *Cash Flow Equations* window.

- Select the checkbox adjacent to the Exposure Equation Name.
- Click  button from the Cash Flow Equations tool bar.
- Click **OK** in the information dialog to confirm deletion.

7.7 Technique Registration

Technique is a set of generalized statistical algorithms which can be used to build analytical models. Technique Registration window in OFSAAI facilitates to develop techniques using R script and ORE functions. Previously, the modeling framework was totally based on techniques developed by NAG and deployed in the Infrastructure.

The user defined techniques once authorized can be used to create statistical models.

Technique Registration can be accessed by Business Analysts who are mapped to TECHDEF or TECHAUTH function roles. The window can be accessed by clicking **Advanced Analytics Infrastructure** and **Technique Registration** from the LHS menu.

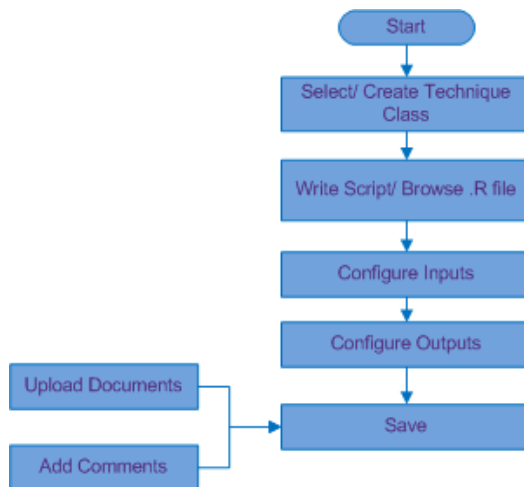
Technique Registration						
Technique Registration						
Search Technique Name Technique Class						
Technique Registration						
Technique ID	Technique Name	Status	Technique Class	Created By	Creation Date	
1388643726301	R_ORAE FLAG ENABLED	Authorized	ORE1	OFSAUSER	02-Jan-2014 11:52:06	
1388130189261	R_ORE flag Y	Authorized	ORE1	OFSAUSER	27-Dec-2013 13:13:09	
1388998547201	R_prepack_ORE_LM	Authorized	prepack_tech1	OFSAUSER	06-Jan-2014 14:25:47	
1388995064581	R_prepack_R_LM	Authorized	prepack_tech1	OFSAUSER	06-Jan-2014 13:27:44	
1388742827854	R_R_LIN_REG	Authorized	reg	OFSAUSER	03-Jan-2014 15:23:47	
1388053702993	R_R_LM_Tech	Authorized	R LM	OFSAUSER	26-Dec-2013 15:58:23	
1388398541451	R_R_ORE flag Y	Authorized	ORE1	OFSAUSER	30-Dec-2013 15:45:41	
1388743223251	R_R_ORE_LIN_REG	Authorized	ore_LIN_REG_1	OFSAUSER	03-Jan-2014 15:30:23	
1388053885010	R_R_ORE_LM_Tech	Authorized	R LM	OFSAUSER	26-Dec-2013 16:01:25	
1388999192716	R_R_prepack_ORE_LM_Copy1	Authorized	prepack_tech1	OFSAUSER	06-Jan-2014 14:36:32	
1388995581042	R_R_prepack_R_LM_Copy1	Authorized	prepack_tech1	OFSAUSER	06-Jan-2014 13:36:21	

Using the *Search* grid, you can search for a specific technique based on the technique name or technique class. For more information, see [Search & Filter](#) and [Pagination](#).

The *Technique Registration* grid displays the list of user defined as well as prepackaged Techniques with details such as Technique ID, Technique Name, Status, Technique Class, Created By and Creation Date. This window facilitates you to create new techniques using R script, authorize or reject techniques, view and modify existing techniques, and delete techniques. For pre-packaged R techniques, only View and Copy buttons will be enabled.

To see the list of prepackaged ORE techniques, refer to the List of Prepackaged ORE Techniques section.

7.7.1 Technique Registration Process Flow



7.7.2 Creating a Technique

You can create a technique using R functions and ORE functions and register it in OFSAAI for using it in model definitions. If you already have defined a technique using R script and saved it in a .R file, you can upload it and register it as a technique in OFSAAI.

The Declaration Block in the script is used to declare the input and output parameters. The format of declaration block and the content should not be altered. The scripting should start only from the line after the declaration block.

There are two types of input parameters which can be used in the R script, namely variable, and single value parameter. The input parameters can be defined from the Declaration block in the *Script Console* pane, or by right-clicking the parameter and selecting the type as variable or single value parameter. The value of single value parameter is defined from the *Inputs* window. However, the value of variable is mapped during the [model definition](#) in which the technique is used.

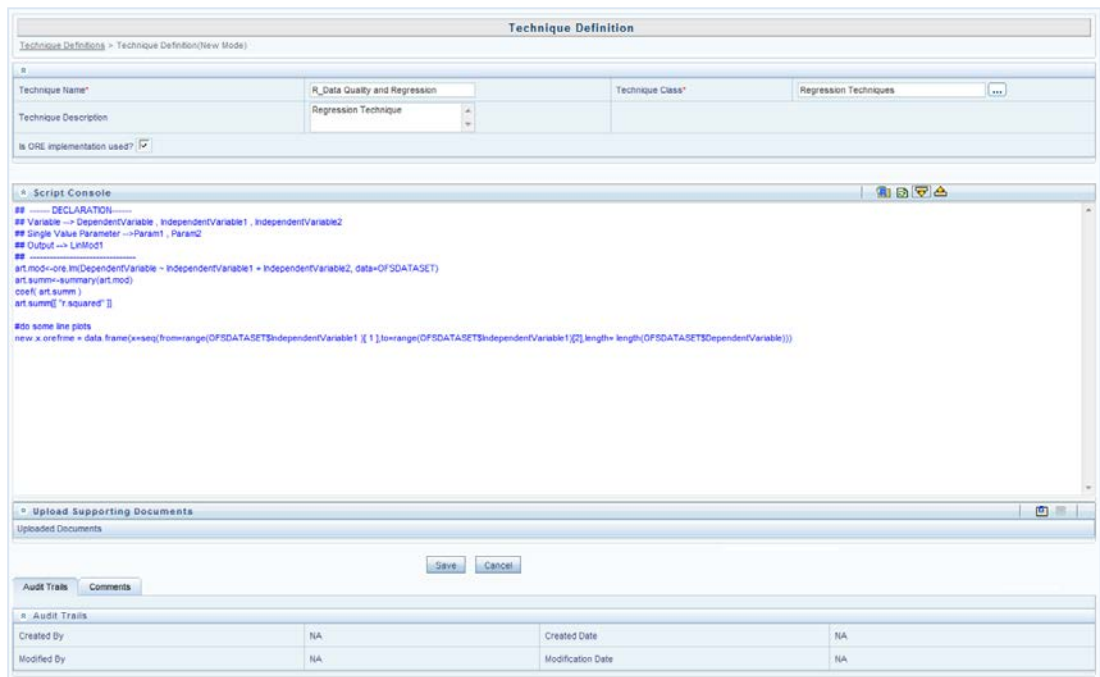
You can configure the numeric output by declaring it in the Declaration block (`## Output -->`), or by right-clicking the parameter and selecting the type as **Output**. It is not required to declare output parameters for plots or graphical outputs.

The script should be a valid R script. You can use ORE functions instead of R functions for better performance. All the object names or functions used in the script should be syntactically valid names. Validation of the script is not done while registering the technique.

You can upload supporting documents that explains the logic or algorithm of the technique.

To create a technique, perform the following steps:

1. From the LHS menu, click **Advanced Analytics Infrastructure** and **Technique Registration**. The Technique Registration window is displayed.
2. Click  from the *Technique Registration* toolbar. The *Technique Definition* window is displayed.

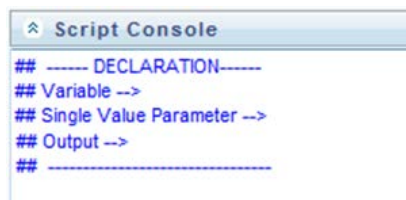


3. Enter the details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Technique Name	Enter a name for the technique. Ensure that there are no special characters like ` , { , } , " , ' , ~ , < , > , / , \ , and multiple spaces.
Technique Class	Technique Class is used for logically grouping the techniques. - Click  and open the <i>Technique Class Selection</i> window. - Right-click Technique Classes or the technique class name under which you want to create a technique class, and click Add Technique Class. Enter the technique class name in the <i>Add Node</i> window. - Expand the Technique Classes tree, select the required technique class and click . - Remove a selected technique class by selecting the technique class and clicking .

Field	Description
Technique Description	Enter a brief description about the technique.
Is ORE implementation used?	Select the checkbox if you want to use ORE objects within the R script. It is recommended to use Standard-R entirely or ORE variant entirely and not to mix the two. Note: The multi selection of variables for a single input will not be allowed if ORE implementation is used.

4. In the *Script Console* pane, enter the R script for the technique. For information on how to use fitting and prediction, see [Fitting and Prediction Using R Script](#).



5. By default, the **Script Console** is displayed as shown in the figure.
- **## Variable -->** Enter the variables you want to use in the R script separated by commas. You should map these variables to the corresponding variables which are available in the [Variable Management](#) window, during defining the model.
 - **## Single Value Parameter -->** Enter the input parameters you want to use in the R script.
 - **## Output -->** Enter the output parameters you want to use in the R script.

NOTE: The variables and the input parameters are case sensitive. Same name cannot be used for both variable and input parameters.

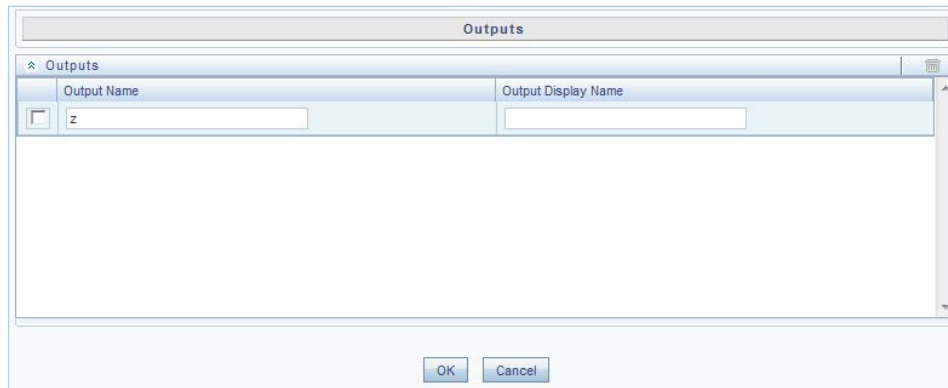
6. Click  from the *Script Console* toolbar. The *Inputs* window is displayed.

Input Name	Type	Display Name	Value
☐ x	Variable	Mean	
☐ y	Variable	Median	
☐ a	Single Value Parameter	Pie	3.141
☐ b	Single Value Parameter	e	2.71828

OK Cancel

- Enter **Display Name** for the variables you defined. The mapping of variables is done during model definition.
- Enter **Display Name** and **Value** for single value parameters you defined.

- Select the parameter and click  to delete it.
7. Click  from the *Script Console* toolbar. The *Outputs* window is displayed.



- Enter **Display Name** for the output parameter you defined.
8. Click  to browse and upload .R file. You can use this option if you have already defined a technique and saved it in an **R** file. Once uploaded successfully, the script is displayed in the script console pane.
 9. Click  from the *Upload Supporting Documents* toolbar.
 - Click **Browse** and select the file you want to upload.
 - Click  to add additional row to upload more files.
 - Click  to remove selected/ uploaded file.
 - Click **Upload Files**.
 10. Click the *Comments* tab and click  to add additional information, if required.
 11. Click **Save**. If you have authorization privilege, then the technique is auto authorized and it can be used in creating models.

7.7.3 Authorizing a Technique

An authorizer has to authorize a technique before it can be used for model definition. Users who have the function TECHAUTH mapped to their user role can authorize the technique. If the user who created the technique has authorization privilege, then the technique is auto authorized. An authorizer can reject a technique if required.

To authorize or reject a technique:

1. From the LHS menu, click **Advanced Analytics Infrastructure** and **Technique Registration**. The *Technique Registration* window is displayed.
2. Select the technique and click . The *Authorize Technique* window is displayed.

3. Enter a brief description in the **Comments** field. This is mandatory for rejecting the technique.
4. Click **Approve** or **Reject**.

7.7.4 Viewing a Technique

This option allows you to view the details of user defined as well as prepackaged techniques like technique name, class, description and the script.

To view the technique details:

1. From the LHS menu, click **Advanced Analytics Infrastructure** and **Technique Registration**. The *Technique Registration* window is displayed.
2. Select the checkbox adjacent to the Technique ID and click  in the *Technique Registration* tool bar.

The *Technique View* window is displayed with all the technique details.

7.7.5 Modifying a Technique

You can update the details of a user defined technique. If the technique is already mapped to a model or if it is a prepackaged technique, you cannot modify it. An alert message is displayed. You cannot modify the Technique Name and Technique Class.

After modification, the technique should be authorized. If you have authorization rights, it will be auto authorized; else an authorizer has to approve it.

To modify a technique:

1. From the LHS menu, click **Advanced Analytics Infrastructure** and **Technique Registration**. The *Technique Registration* window is displayed.
2. Select the technique you want to modify and click . This button is disabled if you have selected multiple techniques.
3. Modify the technique details. For more information, see the [Creating a Technique](#) section.

7.7.6 Copying a Technique

You can create a copy of a user defined as well as prepackaged technique with the required variants. The copied technique should be authorized. An authorizer has to approve or reject the copying of the technique. If you have authorization rights, it will be auto authorized.

To copy a technique:

1. From the LHS menu, click **Advanced Analytics Infrastructure** and **Technique Registration**. The *Technique Registration* window is displayed.

2. Select the technique you want to copy and click . This button is disabled if you have selected multiple techniques.
3. In the *Technique Definition Copy* window, you can:
 - Create a new technique with the existing details. Specify a new **Technique Name** and click **Save**.
 - Create a new technique by updating only the required details. Specify a new **Technique Name** and update the required details.
4. For more information, see the [Creating a Technique](#) section.

7.7.7 Deleting a Technique

You can delete a user defined technique which is no longer required. However, if the technique is already mapped to a model or if it is a pre-packaged technique, you cannot delete it.

An authorizer has to approve or reject the deletion of the technique. If you have authorization rights, it will be auto authorized.

To delete a technique:

1. From the LHS menu, click **Advanced Analytics Infrastructure** and **Technique Registration**. The *Technique Registration* window is displayed.
2. Select the technique you want to delete and click .
3. Click **OK** in the information dialog to confirm deletion.

7.8 Variable Definition

Variable refers to a logical set of attributes that are likely to change based on the selected parameters. In a modeling environment variable plays a vital role in filtering the model parameters and to derive an estimate based on historical data. Variables are defined in production information domain.

You can access Variable Management by selecting Production Information Domain in the **Connected to** drop-down list of Infrastructure homepage and expanding Advanced Analytics Infrastructure section within the tree structure of LHS menu.

Variable Management						
Variable Management						
* Search						
Variable Name						
* Variable Management						
☐	Variable ID	Variable Name	Variable Property	Based On	Created By	Creation Date
☐	V1341990362655	123	Direct	Hierarchy	PQAUSER	10-JUL-2012 05:20:58 AM
☐	V1341990379773	1234	Direct	Hierarchy	PQAUSER	10-JUL-2012 05:21:15 AM
☐	V1341314282011	CCF	Direct	Measure	PQAUSER	02-JUL-2012 09:36:19 AM
☐	V1342766753299	comm_term	Direct	Measure	PQAUSER	19-JUL-2012 04:56:56 AM
☐	V1342766550136	com_single_1	Direct	Measure	PQAUSER	19-JUL-2012 04:53:33 AM
☐	V1342766659355	com_single_2	Direct	Measure	PQAUSER	19-JUL-2012 04:55:22 AM
☐	V1341486971092	Delq Days	Direct	Measure	PQAUSER	04-JUL-2012 09:33:49 AM
☐	V1341486817906	Exposure Amount	Direct	Measure	PQAUSER	04-JUL-2012 09:31:16 AM
☐	V1341486843274	Undrawn	Direct	Measure	PQAUSER	04-JUL-2012 09:31:41 AM
☐	V1342001700236	品品品	Direct	Measure	PQAUSER	10-JUL-2012 08:29:53 AM

Using the Search grid, you can search for a specific variable based on Variable Name or view the list of variables defined within the system. For more information on search and pagination options, see [Search & Filter](#) and [Pagination](#).

The *Variable Management* window displays variable details such as Variable ID, Variable Name, Variable Property, Based On, Created By, and Creation Date. This window facilitates you to define variables, view, modify, copy, and delete variables.

7.8.1 Adding Variable Definition

The Add Variable Definition facilitates you to define a variable by filtering through the required parameters. The options available to filter the data vary depending on the variable type selected.

To add variable definition:

1. Select  button from the Variable Management tool bar. **Add** button is disabled if you have selected any checkbox in the grid. The *Variable Definition Add* window is displayed.

Variable Definition			
Variable Management > Variable Definition (New Mode)			
* Variable Definition			
Variable Name*	Bond_Price_B22	Variable Description	Bond values at maturity
Variable Type*	Commodity Variable	Variable Structure*	Single Value
* Single Maturity			
Maturity Unit*	Days	Maturity Type*	☒ Value ☐ Node
* Value			
Maturity Value*	435		
* Based On			
Based On*	Hierarchy	Variable Classification*	Numeric Variable
* Hierarchy			
Variable Property*	Direct	Selected Hierarchy*	asset hierarchy
Save Cancel			
* User Info			
Created By	PQAUSER	Creation Date	NA
Last Modified By	NA	Last Modification Date	NA

2. Enter the Variable details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Variable Name	Enter a name for the variable. Ensure that there are no special characters like ` , {,}, " , ' , ~ , < , > , / , \ , and multiple spaces.
Variable Description	Enter the required description for the variable.
Variable Type	Select the variable type from the drop down list. The available options are: - Commodity Variable - Correlation Variable - Currency Variable - Equity Variable - General Macroeconomic Indicator Variable - Idiosyncratic Variable - Interest Rate Variable
Variable Structure	Select the Variable Structure as either Single Value or Term Structure from the drop down list. The Term Structure option is available only if the Variable Type is selected as Commodity Variable or Interest Rate Variable. Click  from the <i>Term Structure</i> toolbar. Select the required variables from the <i>Variable Browser</i> window.
Single Maturity	This field is displayed only if Commodity Variable or Interest Rate Variable is selected as Variable Type: - Select the Maturity Unit as Days, Months, Quarters or Years from the drop down list. - Select the Maturity Type as either Value or Node.
Value	This field is displayed only if Commodity Variable or Interest Rate Variable is selected as Variable Type and Maturity Type is selected as Value. Specify a numeric value in the Maturity Value field.
Node Selection	This field is displayed only if Commodity Variable or Interest Rate Variable is selected as Variable Type and Maturity Type is selected as Node. - Click Selected Hierarchy  button and select the required hierarchy from the <i>Hierarchy browser</i> window. - Click Selected Node  button and select the required node of the selected hierarchy from the <i>Hierarchy browser</i> window.

Field	Description
Based On	Select any of the following options from the drop-down list, based on which the variable definitions are to be created. ▪ Hierarchy ▪ Measure ▪ Business Processor ▪ Entity
Variable Classification	Select the required variable classification from the drop-down list. The options are Numeric Variable, Nominal Variable, and Ordinal Variable. The Nominal Variable and Ordinal Variable options are available only if you select General Macroeconomic Indicator or Idiosyncratic Variable as Variable Type.
Variable Transformation	This feature is available for variables based on Measures, Business Processor, and Entity. ▪ Click  to define a transformation for the Variable. The <i>Technique Browser for Transformation</i> window is displayed. ▪ Select the transformation you want to apply to the variable and click . The options are Arithmetic, Exponential, Logarithm, Power, and Trigonometric. ▪ Click  or  to change the order in which the transformation has to be applied. Click OK. ▪ If Arithmetic is selected, select the operator (Addition, Subtraction, Multiplication, and Division) from the drop-down list and enter the Operator Value. ▪ If Logarithm is selected, select the Base from the drop-down list. The options are 10, 2, and e. ▪ If Power is selected, enter the value of Power. ▪ If Trigonometric is selected, select the function from the drop-down list. The options are Sine, Cosine, and Tangent.

3. If the variable is Based on Hierarchy,

- Select **Variable Property** as **Direct** or **Dummy** (variable in Binary form and used mainly in regression analysis). The **Dummy** option is available only if **General Macroeconomic Indicator** or **Idiosyncratic Variable** is selected as **Variable Type**.
- Click **Selected Hierarchy**  button and select the required hierarchy from the *Hierarchy Browser* window.

4. If the variable is Based on Measures,
 - Select **Yes** adjacent to **Apply Filters**:
 - Specify Dataset and Selected Measures by clicking  button and selecting from *Dataset* and *Measures* browsers respectively.
 - Click  in the Filters grid and the *Hierarchy* browser is opened.
 - Select the hierarchy member(s) and click **OK**. The selected members are displayed in the Filters grid under Hierarchies.
 - Double-click a hierarchy member to invoke a grid with the member name.
 - Click  in the hierarchy member grid and the *Hierarchy Browser* is displayed.
 - Select the node(s) and click **OK**. The selected nodes are displayed in the Hierarchy member grid under Nodes.
 - Click  button and specify the **Selected Measures** by selecting from the *Measure Browser*.
5. If the variable is Based on Business Processor,
 - Specify the Business Processor by clicking  button and selecting the required Business Processor from the *Business Processor* browser.
6. If the variable is Based on Entity:
 - Click  **Entity** to open the *Entity and Attribute* window. The available tables are displayed under the *Available Entities* section.
 - Select the checkbox corresponding to the table you want to select. The available columns in the selected table are displayed under the *Available Attributes* section.
 - Select the required attribute and click **Save**.
7. Click **Save** to upload the new Variable definition details.

The User Info grid at the bottom of *Variable Definition Add* window displays metadata information about the Variable definition created.

7.8.2 Viewing Variable Definition

You can view individual Variable Definition details at any given point. To view the existing Variable Definition details in the *Variable Management* window:

1. Select the checkbox adjacent to the Variable ID.
2. Click  button in the Variable Management tool bar.

The *Variable Definition View* window is displayed with all the variable details.

7.8.3 Modifying Variable Definition

You can modify only the Variable Description details if the variable is mapped to a definition. If the variable is not mapped to any definition, then all the filtering parameters can be modified. To modify an existing Variable Definition in the *Variable Management* window:

1. Select the checkbox adjacent to the Variable ID whose details are to be updated.
2. Click  button in the Variable Management tool bar. **Edit** button is disabled if you have selected multiple Variable ID's. The *Variable Definition Edit* window is displayed.
3. Edit the Variable Definition details as required. For more information, refer [Add Variable Definition](#).
4. Click **Save** to upload changes.

7.8.4 Copying Variable Definition

The Copy Variable Definition facilitates you to quickly create a new Variable based on the existing variable parameters or by updating the required parameters. To copy an existing Variable Definition in the *Variable Management* window:

1. Select the checkbox adjacent to the Variable ID whose details are to be duplicated.
2. Click  button in the Variable Management tool bar. **Copy** button is disabled if you have selected multiple Variable ID(s).
3. In the *Variable Definition Copy* window, you can:
 - Create new variable with the existing details. Specify a new **Variable Name** and click **Save**.
 - Create new variable by updating only the required details. Specify a new **Variable Name** and update the required details. For more information, refer [Add Variable Definition](#). Click **Save**.

The new variable definition details are displayed in the *Variable Management* window.

7.8.5 Deleting Variable Definition

You can remove the variable definition(s) which are no longer required in the system, by deleting from the *Variable Management* window. You cannot delete a variable which is mapped to any definition.

1. Select the checkbox adjacent to a Variable ID.
2. Click  button from the Variable Management tool bar. A confirmation dialog is displayed.
3. Click **OK** to confirm deletion.

7.9 Modeling

Modeling refers to the process of designing a prototype based on a structured data model, considering all the variables for statistical analysis and to simulate real events and processes.

Modeling framework within the infrastructure system facilitates you to measure and quantify risk. You can make use of pre-defined models to predict the business trends and also to validate the existing models.

OFSAAI modeling framework capabilities are extended by introducing R scripting (using R functions as well as ORE functions), in creating business models.

R is an open source statistical programming language and environment for computing and graphics. For information about R, see the R Project for Statistical Computing at <http://www.r-project.org>.

Oracle R Enterprise (ORE) is a component of the Oracle Advanced Analytics Option of Oracle Database Enterprise Edition. ORE Embedded R Execution enables running R scripts managed by Oracle Database. For more information on ORE, see *Oracle R Enterprise User's Guide*.

OFSAAI modeling framework enables you to run/ execute R functions as well as ORE functions in the database, thereby greatly increasing scalability and performance.

For modeling framework two information domains are used: Sandbox and Production.

- In a **Sandbox Information Domain**, the Modeling framework facilitates you to create and execute business models. Based on the execution status and the generated output, you can verify the results and deploy the model into production.
- In a **Production Information Domain**, the Modeling framework facilitates you to request for model execution, generate model outputs, and work with champion challenger.

Modeling framework is accessible to Business Analysts who are mapped to the function roles, namely MDLDEF, MDLAUTH, MDLEXEC, MDLOUTPUT, MDLDEPLOY, and MDLCALIB.

Modeling framework can be accessed from Advanced Analytics Infrastructure section within the tree structure of LHS menu in the Infrastructure home page.

7.9.1 Model Management

Models are built based on various techniques and related parameters based on the business purpose. Models thus built use various metadata objects such as Measures, Hierarchies, Filters, Datasets and so on. The techniques can be inbuilt techniques or user defined R/ ORE based techniques.

Select the required sandbox information domain and then click **Advanced Analytics Infrastructure> Modeling** from the LHS menu. From the *Modeling* window, click **Model Management**.

NOTE: You can create models only in Sandbox Information Domain.

Model Management

Model Management

Search

Model Name

Model Objective

Model Management

Model ID

Model Name

Version

Model Objective

Created By

Creation Date

1341652296929

TJUL_Poisson Regression

0

OBJ

PQAUSER

06-JUL-2012 07:28:27 AM

1341652957707

ARIMA

0

OBJ

PQAUSER

06-JUL-2012 07:39:25 AM

1341652704579

ARIMA_HOST

0

OBJ

PQAUSER

06-JUL-2012 07:35:12 AM

1341658990561

ARIMA_HOST 2

0

OBJ

PQAUSER

06-JUL-2012 09:19:56 AM

1341901730713

Linear Regression

0

OBJ

PQAUSER

09-JUL-2012 04:44:24 AM

1341904017147

Linear Regression 3 var

0

OBJ

PQAUSER

09-JUL-2012 05:22:22 AM

1341487151962

Poisson Regression

0

OBJ

PQAUSER

04-JUL-2012 09:36:53 AM

1342175065401

Poisson Regression1

0

OBJ

PQAUSER

12-JUL-2012 08:38:41 AM

1341660177623

Poisson Regression_HOST

0

OBJ

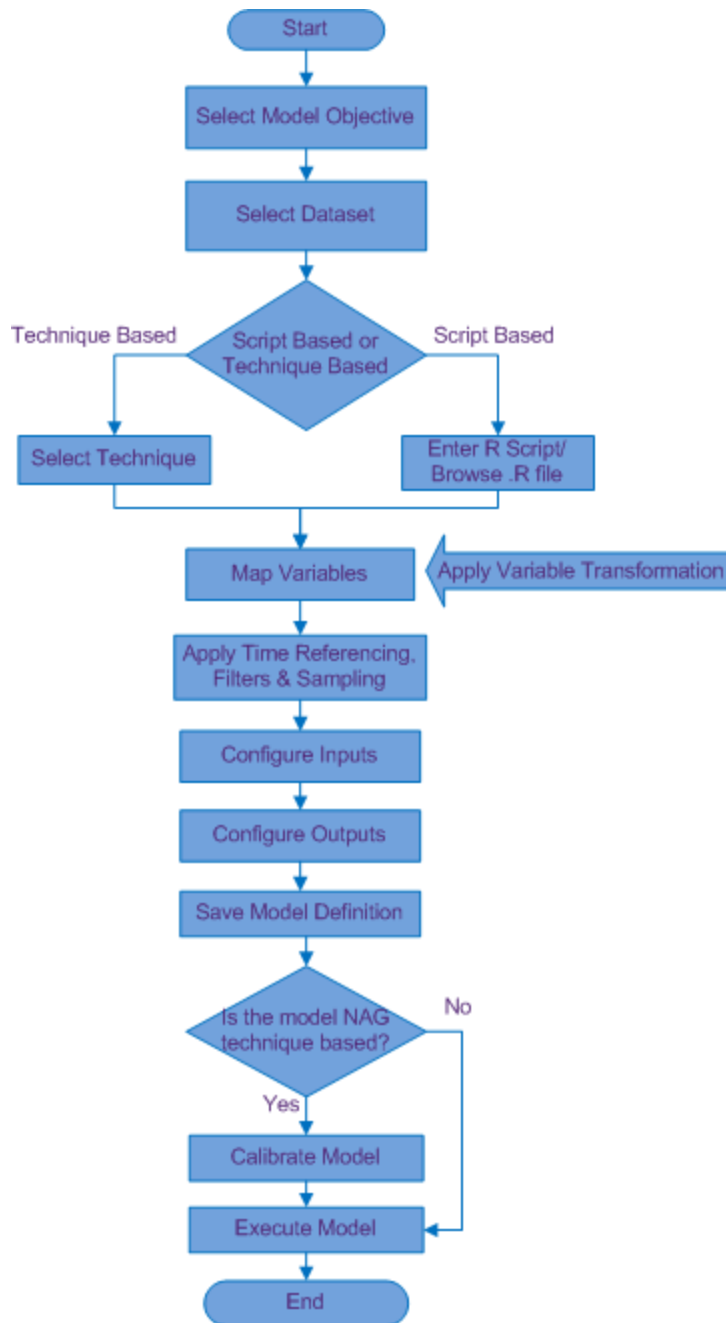
PQAUSER

06-JUL-2012 09:39:53 AM

Using the *Search* grid, you can look for a specific model based on model name and model objective. For more information on search and pagination options, see the [Search & Filter](#) and [Pagination](#) sections.

The *Model Management* grid displays model definition details such as Model ID, Model Name, Version, Model Objective and Created By and Creation Date. This window facilitates you to construct models, view the model details, modify or copy existing models, and delete models.

7.9.1.1 Model Definition Process Flow



In the sandbox infodomain, create a model definition by selecting a model objective and a dataset. If the model is technique-based, select the technique (inbuilt or user defined). Otherwise, script the model in R language (R functions and ORE functions can be used), or upload the .R file. Based on the selected technique, map variables; apply time referencing, filters and sampling (only for NAG techniques); and configure inputs and outputs. Save the model definition and then execute

the model. For models based on NAG techniques, you have the option to apply sampling to the input data and various transformations to the variables.

7.9.1.2 Creating and Executing a Model

You can define a model using:

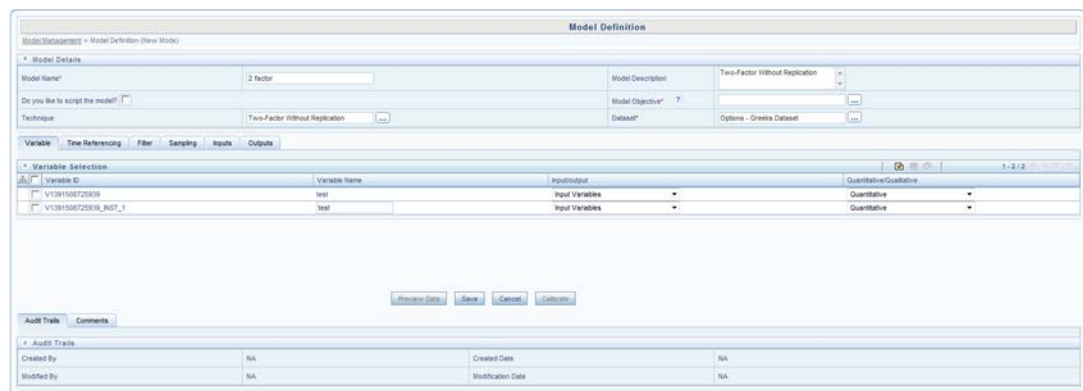
- [NAG Technique](#)
- [R Scripted Technique](#)
- [R script \(Using R and ORE Functions\)](#)

Creating a Model Using NAG Technique

For information on inbuilt NAG techniques, see the [List of NAG Techniques](#) section. OFSAAI supports both time homogeneous and non-homogeneous estimates of transition probabilities. For more information on defining such a statistical technique, refer [Transition Matrix](#).

To create a model using inbuilt technique, perform the following steps:

1. From the LHS menu, click **Advanced Analytics Infrastructure** and then click **Modeling**. From the *Modeling* window, click **Model Management**.
2. Select  button from the Model Management tool bar. The *Model Definition* window is displayed. The **Add** button is disabled if you have selected any Model ID in the grid.



Variable ID	Variable Name	Input/Output	Quantitative/Qualitative
V1391508729393	test	Input Variables	Quantitative
V1391508729393_1	test	Input Variables	Quantitative

3. Enter the model definition details. The common fields are described in the following table.

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Model Name	Specify a model name for the model definition. Model Name is case sensitive and does not allow duplication. For example, model name "Linear Regression" is not allowed if a model with the name "linear regression" exists. Ensure that there are no special characters like ` , { , } , " , ' , ~ , < , > , / , \ , and multiple spaces.
Model Description	Enter a description for the model.
Do you like to script the model?	Select the checkbox to script the model in <i>Model Script</i> pane.
Model Objective	- Click  button and open the <i>Model Objective</i> browser. - Select the required Model Objective from the hierarchical members list and click  button. You can also create a model objective by right-clicking  Model Objectives and clicking Add Model Objectives. Enter the Objective Name in the Add Node window. You can search for Model Objective using the search field and clicking . - Click OK.
Technique	This field is disabled if you have selected to script the model. - Click  button and open the <i>Technique Selection</i> window. The pre-packaged techniques and user defined (registered and authorized) R techniques are listed in the <i>Techniques</i> pane. Click  and expand the technique heading groups. - Select the required technique and click  button. For more information on inbuilt techniques, see the List of NAG Techniques section. - Click OK. The selected Technique details are displayed in the <i>Model Definition New</i> window. - If you have selected R technique, click  to view the script and upload documents.

Field	Description
Dataset	By default, the dataset of the Sandbox will be displayed. You can change the dataset if necessary. However, the dataset you want to select should be a sub-set of the dataset of the sandbox. Dataset selection is mandatory: - For models based on NAG techniques. - For models based on R scripted techniques if variables are declared in the R script Click  button and open the <i>Dataset</i> browser. The available datasets are listed in the Members pane. Select the required Dataset based on which the model is to be created and click  button. Click OK.
Is ORE implementation used?	This field is displayed after you select a dataset. However, this field is not displayed for NAG techniques. The checkbox is enabled only if you have selected Do you like to script the model? checkbox. If you select an R technique, the checkbox will be selected/de-selected based on the selection of this checkbox in the <i>Technique Definition</i> window. You cannot modify it. Select the checkbox if you want to use ORE objects/frames within a standard-R script. It is recommended to use Standard-R entirely or ORE variant entirely and not to mix the two. Note: The multi selection of variables for a single input will not be allowed if ORE implementation is used. For more information, see the Data usage when ORE native implementation is used section.
Calibrate Model / Host Existing Model	These options to choose Calibrate or Host Existing Model are displayed if NAG technique is selected. The Calibrate Model option is selected by default. - Select Calibrate Model to calibrate the variable output parameters and process for model execution. - In Host Existing model, the sampling option is not available and model has to be processed through batch execution.

The grid below the *Model Details* section displays the various parameters available for the selected technique.

Some of the common parameter types for NAG techniques are explained as follows. To update the required information, click the following links.

- [Variable](#)
 - [Time Referencing](#)
 - [Filter](#)
 - [Sampling](#)
 - [Inputs](#)
 - [Outputs](#)
4. Once you have updated all the necessary details in the available tabs, click **Save** to save the model definition details.
 5. Click **Preview Data** to view the data of the selected dataset. It displays the primary keys and the attributes/ columns of the tables in the selected dataset. Only those columns that are mapped to the variables in the script are displayed.
 6. Click **Calibrate** and select the Calibration Date from the *Calibration Parameters* window.
 7. Click **Execute** to execute the model. The *Execution Parameters* window is displayed.

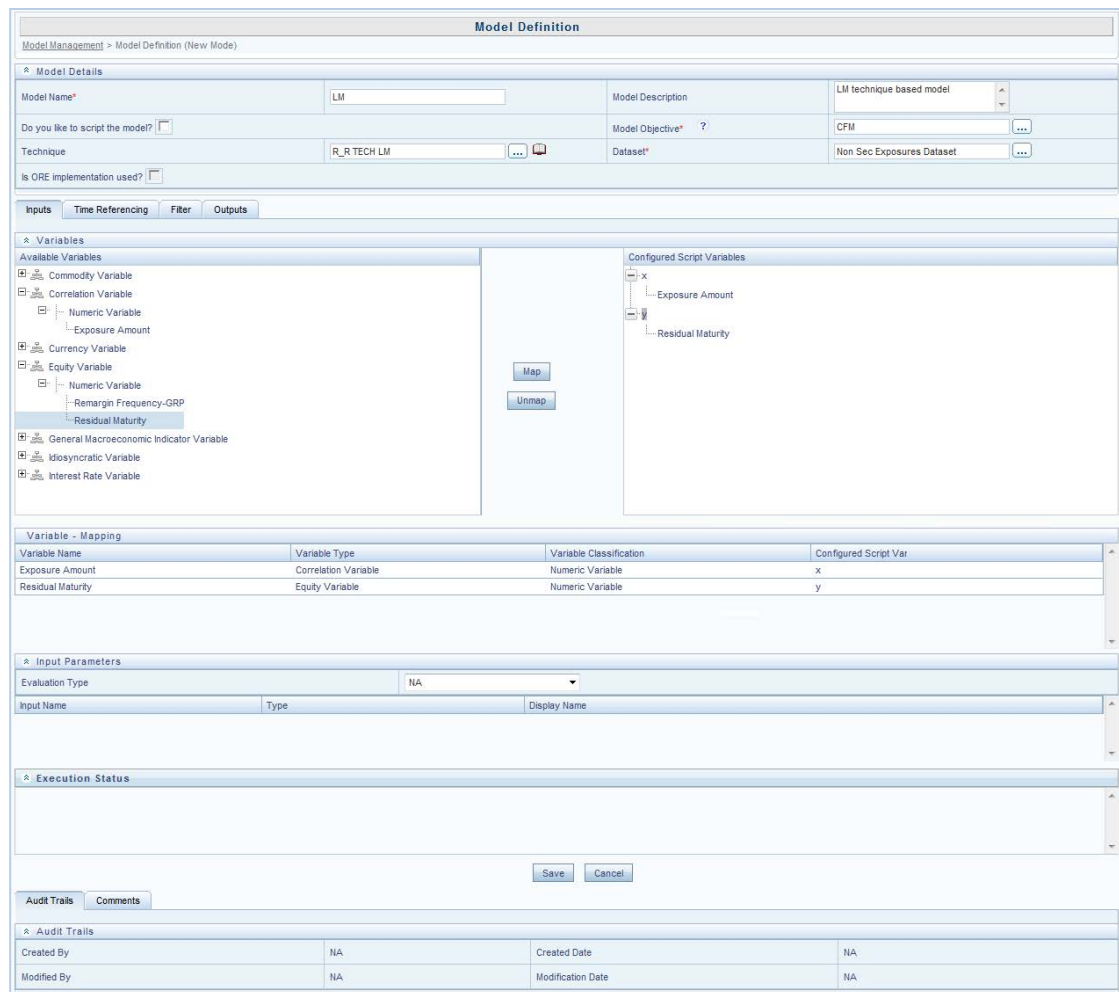
- Select the **Execution Date** from the calendar. The data of the selected date will be used for model execution.
 - Select the Execution Type as **Baseline** or **Stress**.
 - If **Stress** is selected, click **Stress Scenario** to open the *Scenario Browser* window. Select the scenario and click . The variables and their shocks of the selected scenario are displayed in the *Model Variable Shock Mapping* grid. For more information on stress testing, see the [Stress Testing](#) section.
8. The [Model Execution Status](#) window provides the execution details.

Creating a Model Using R Scripted Technique

You can create models using a prepackaged technique or a technique which you have defined from the [Technique Registration](#) window. To know about available prepackaged ORE techniques, refer to [List of Prepackaged ORE Techniques](#).

To create a model using R scripted technique, perform the following steps:

1. Select  button from the Model Management tool bar. The *Model Definition* window is displayed. The **Add** button is disabled if you have selected any Model ID in the grid.



The screenshot shows the 'Model Definition' window with the following sections:

- Model Details:**
 - Model Name: LM
 - Model Description: LM technique based model
 - Do you like to script the model?: ☐
 - Model Objective: CFM
 - Technique: R_R TECH LM
 - Dataset: Non Sec Exposures Dataset
 - Is ORE implementation used?: ☐
- Inputs:**
 - Available Variables:**
 - Commodity Variable
 - Correlation Variable
 - Numeric Variable
 - Exposure Amount
 - Currency Variable
 - Equity Variable
 - Numeric Variable
 - Remargin Frequency-GRP
 - Residual Maturity
 - General Macroeconomic Indicator Variable
 - Idiosyncratic Variable
 - Interest Rate Variable
 - Configured Script Variables:**
 - x: Exposure Amount
 - y: Residual Maturity
 - Map/Unmap:** Buttons to map or unmap variables.
- Variable - Mapping:**

Variable Name	Variable Type	Variable Classification	Configured Script Var
Exposure Amount	Correlation Variable	Numeric Variable	x
Residual Maturity	Equity Variable	Numeric Variable	y
- Input Parameters:**
 - Evaluation Type: NA
- Execution Status:** (Empty section)
- Audit Trails:**
 - Created By: NA
 - Created Date: NA
 - Modified By: NA
 - Modification Date: NA

2. Enter the Model Definition Details. The common fields are described in the [table](#).
3. The grid below the *Model Details* section displays the various tabs available for the selected technique. Click the links for more information.
 - [Inputs](#)
 - [Time Referencing](#)

- [Filter](#)
 - [Outputs](#)
4. Once you have updated all the necessary details, click **Save** to save the model definition details.
 5. Click **Preview Data** to view the data of the selected dataset. It displays the primary keys and the attributes/ columns of the tables in the selected dataset. Only those columns which are mapped to the variables in the script are displayed.
 6. Click **Execute**.
 - Select **Baseline** to execute the model normally.
 - Select **Stress** to execute the model based on a stress scenario. The *Execution Parameters* window is displayed.

The screenshot shows a dialog box titled "Execution Parameters -- Webpage Dialog". It contains the following fields and controls:

- Execution date:** A text field with the value "17-Oct-2013" and a calendar icon to its right.
- Stress Scenario:** A text field with the value "Scenario for R model[0]" and a dropdown arrow icon to its right.
- Model Variable Shock Mapping:** A table with two columns: "Variable Name" and "Shock Name".

Variable Name	Shock Name
SA_ACCOUNTCLOSEDINDICATOR_Y	test
SA_FREQUENCYOFTRANSACTION_X1	variable_shock_for_R_model_X1
- Buttons:** "OK" and "Cancel" buttons at the bottom right.

- Select the **Execution Date** from the calendar. The data of the selected date will be used for model execution.
 - Click **Stress Scenario**  to open the *Scenario Browser* window. Select the scenario and click . The variables and their shocks of the selected scenario are displayed in the *Model Variable Shock Mapping* grid. For more information on stress testing, see the [Stress Testing](#) section.
7. The *Execution Status* grid displays the model execution log dynamically.

NOTE: For R based models, the execution may fail if the dataset contains internal joins.

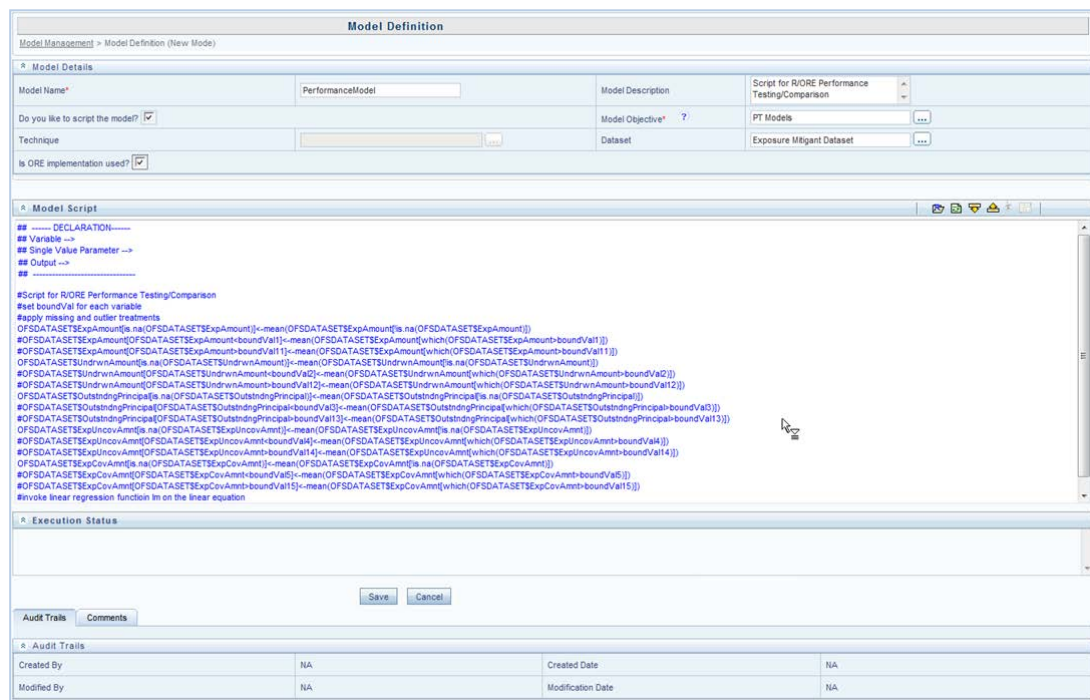
Creating a Model using R Script (R and ORE Functions)

You can script the model using R script with R functions as well as ORE functions. The script that is used should be a valid R/ ORE script. Moreover, all the object names used in the R-script should be syntactically valid names. You should select the ORE Implementation checkbox if you are using ORE functions in the script. ORE enables transparent access to data stored in the Database for scalability and high performance. For more information, see [AAI support for R Scripts and Oracle R Enterprise \(ORE\) Statistical Functions](#) section.

NOTE: The models defined based on R scripting can be directly deployed to the production infodomain without execution in sandbox.

To create a model using script, perform the following steps:

1. Select  button from the *Model Management* tool bar. The *Model Definition* window is displayed.



The screenshot shows the 'Model Definition' window with the following sections:

- Model Details:**
 - Model Name: PerformanceModel
 - Model Description: Script for R/ORE Performance Testing/Comparison
 - Do you like to script the model?: ☒
 - Model Objective: PT Models
 - Technique: (empty)
 - Dataset: Exposure Mitigant Dataset
 - Is ORE implementation used?: ☒
- Model Script:**

```
## ----- DECLARATION -----
## Variable -->
## Single Value Parameter -->
## Output -->
##

#Script for R/ORE Performance Testing/Comparison
#set boundVal for each variable
#Apply missing and outlier treatments
OFSDATASETExpAmount[is.na(OFSDATASETExpAmount)]<-mean(OFSDATASETExpAmount[is.na(OFSDATASETExpAmount)])
OFSDATASETExpAmount[boundVal1]<-mean(OFSDATASETExpAmount[which(OFSDATASETExpAmount==boundVal1)])
OFSDATASETExpAmount[boundVal11]<-mean(OFSDATASETExpAmount[which(OFSDATASETExpAmount==boundVal11)])
OFSDATASETUndrwnAmount[is.na(OFSDATASETUndrwnAmount)]<-mean(OFSDATASETUndrwnAmount[is.na(OFSDATASETUndrwnAmount)])
OFSDATASETUndrwnAmount[boundVal2]<-mean(OFSDATASETUndrwnAmount[which(OFSDATASETUndrwnAmount==boundVal2)])
OFSDATASETUndrwnAmount[boundVal21]<-mean(OFSDATASETUndrwnAmount[which(OFSDATASETUndrwnAmount==boundVal21)])
OFSDATASETOutstndngPrncpal[is.na(OFSDATASETOutstndngPrncpal)]<-mean(OFSDATASETOutstndngPrncpal[is.na(OFSDATASETOutstndngPrncpal)])
OFSDATASETOutstndngPrncpal[boundVal3]<-mean(OFSDATASETOutstndngPrncpal[which(OFSDATASETOutstndngPrncpal==boundVal3)])
OFSDATASETOutstndngPrncpal[boundVal31]<-mean(OFSDATASETOutstndngPrncpal[which(OFSDATASETOutstndngPrncpal==boundVal31)])
OFSDATASETExpIncovAmt[is.na(OFSDATASETExpIncovAmt)]<-mean(OFSDATASETExpIncovAmt[is.na(OFSDATASETExpIncovAmt)])
OFSDATASETExpIncovAmt[boundVal4]<-mean(OFSDATASETExpIncovAmt[which(OFSDATASETExpIncovAmt==boundVal4)])
OFSDATASETExpIncovAmt[boundVal41]<-mean(OFSDATASETExpIncovAmt[which(OFSDATASETExpIncovAmt==boundVal41)])
OFSDATASETExpCovAmt[is.na(OFSDATASETExpCovAmt)]<-mean(OFSDATASETExpCovAmt[is.na(OFSDATASETExpCovAmt)])
OFSDATASETExpCovAmt[boundVal5]<-mean(OFSDATASETExpCovAmt[which(OFSDATASETExpCovAmt==boundVal5)])
OFSDATASETExpCovAmt[boundVal51]<-mean(OFSDATASETExpCovAmt[which(OFSDATASETExpCovAmt==boundVal51)])
#Invoke linear regression function lm on the linear equation
```
- Execution Status:** (Empty table)
- Audit Trails:**

Created By	NA	Created Date	NA
Modified By	NA	Modification Date	NA

2. Enter the model definition details. The common fields are described in the [table](#).
3. Click  to browse and upload .R file. You can use this option if you have already defined a technique and saved it in an R file. Once uploaded successfully, the script is displayed in the *Model Script* pane.
Or
4. In the *Model Script* pane, enter the R script for the model. For information on how to use fitting and prediction, see [Fitting and Prediction Using R Script](#).

```

Script Console
## ----- DECLARATION -----
## Variable -->
## Single Value Parameter -->
## Output -->
## -----

```

NOTE: The format of declaration and the content should not be altered. The scripting should start only from the line after the declaration block.

5. By default, the **Model Script** is displayed as shown above.
 - **## Variable -->** Enter the variables you want to use in the R script separated by commas.
 - **## Single Value Parameter -->** Enter the input parameters you want to use in the R script.
 - **## Output -->** Enter the output parameters you want to use in the R script.

NOTE: The variables and the input parameters are case sensitive. Same name cannot be used for both variables and input parameters.

6. Click  from the *Script Console* toolbar. The *Inputs* window is displayed.

Inputs

Variables

Available Variables

- Commodity Variable
- Correlation Variable
- Currency Variable
- Equity Variable
 - Numeric Variable
 - Remargin Frequency-GRP
 - Residual Maturity
- General Macroeconomic Indicator Variable
- Idiosyncratic Variable
- Interest Rate Variable

Configured Script Variables

x

Exposure Amount

y

Residual Maturity

Map

Unmap

Variable - Mapping			
Variable Name	Variable Type	Variable Classification	Configured Script Variable
Exposure Amount	Correlation Variable	Numeric Variable	x
Residual Maturity	Equity Variable	Numeric Variable	y

Input Parameters

Evaluation Type: NA

Input Name	Type	Display Name	Value
a	Single Value Parameter	Pie	3.141
b	Single Value Parameter	e	2.718

OK

Cancel

NOTE: You need to select the dataset before configuring input parameters.

- Select the variable from the *Available Variables* pane, to which you want to map the variable declared in the script console, and click **Map**. The mapping details are displayed in the *Variable-Mapping* grid. To unmap, select the variable from the *Configured Script Variables* pane and click **Unmap**.

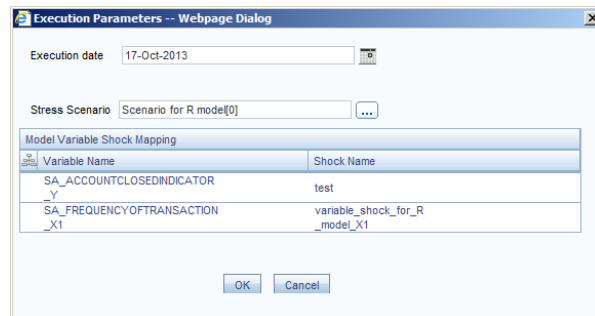
Note the following:

- You cannot select a variable in the *Available Variables* pane which is already mapped to another variable in the R script.
- Mapping of single variable declared in the R script to multiple variables is not supported if ORE implementation is used.
- From the *Input Parameters* grid, select the **Evaluation Type** from the drop-down list. You can execute model on complete set of records in the dataset, or on a group of records, or on a set of rows.
 - **Group-** Select this option if the model needs to be executed on a group of records. Select the **Grouping Variable** from the drop-down list.
 - **Row-** Select this option if the model needs to be executed on a set of rows. Specify the Number of rows.

NOTE: For **Evaluation Type** as **Row**, graphical output (plot) is not supported.

- **NA-** Select this option if the model needs to be executed on complete set of records in the dataset.
 - All single value parameters declared in the Model Script Console are displayed.
 - Enter the name to be displayed and the value in the **Display Name** and **Value** fields respectively.
 - You can select an input parameter and click  to delete it. Then the deleted input parameter is removed from the declaration block.
7. Click  from the *Script Console* toolbar. The *Outputs* window is displayed. For more information, see the [Outputs](#) section.
 8. Enter valid R script of the model using R and ORE functions as required. For more information on data usage and data handling when R script and ORE functions are used, see [AAI support for R Scripts and ORE Functions](#).
 9. Click  to execute the model.
 - Select **Baseline** to execute the model normally.

- Select **Stress** to execute the model based on a stress scenario. The *Execution Parameters* window is displayed.



- Select the **Execution Date** from the calendar. The data of the selected date will be used for model execution.
- Click **Stress Scenario** to open the *Scenario Browser* window. Select the scenario and click . The variables and their shocks of the selected scenario are displayed in the *Model Variable Shock Mapping* grid. For more information on stress testing, see the [Stress Testing](#) section.
- You can view the status of the model execution dynamically in the *Execution Status* grid.

NOTE: For R based models, the execution may fail if the dataset contains internal joins.

10. Click to view the output. For more information, see the [View Model Outputs](#) section.

7.9.1.3 Model Parameters

The grid in the *Model Details* section displays the various parameters applicable when a technique is selected. It is mandatory to update the required information in the tabs displayed and the parameters or fields in the available tabs vary depending on the technique selected. Few of the common input parameter types are explained below.

Variable

This tab is displayed for NAG techniques only.

In the *Variable* tab, you can add variables you wish to use in the model definition.

1. Click from the *Variable Selection* toolbar. The *Variable Browser* window is displayed. It displays all the variables defined in the [Variable Management](#) window.
2. Select the required variable from the hierarchical members list and click .

3. Click **OK**. The selected Variable details are displayed in the grid. Multiple instances of a single variable can be selected and the variable summary grid displays all the variables with unique ID's.
4. Click  in the variable grid to view the Variable Transformation details. You can add a technique for transformation.
5. Select a variable you want to delete and click  to remove the variable.

Time Referencing

In the Time Referencing tab, you can apply a time filter to further slice the data based on time for specific models. Time referencing can be in terms of days, months or years. You can specify a particular variable as the Anchor Variable and all the other selected variables are referenced relatively to the anchor variable.

1. In the *Model Definition* window, click  adjacent to **Make Anchor Variable** in the *Relative Referencing* grid. The *Anchor Variable Browser* window displays the list of variables you have mapped in the *Variable* tab.

NOTE: You need to map at least one variable from the *Variable* tab before adding Anchor variable.

2. Select the required variable from the hierarchical members list and click . The selected variable is added to the Selected Members pane.
3. Select the **Time Reference Period** as either **Days** or **Months** or **Years**.
4. Click **OK**. The *Variables* collapsible grid displays the list of variables in the model definition. The selected Time Referencing variable is displayed in the *Model Definition* window and is denoted with an anchor sign.

Once you have defined a set of Time Referencing variables, you can click  to view the details and  to edit the details specifying the anchor position and time Reference Values.

Filter

In the Filter tab, you can add multiple non-time hierarchy members as filters.

1. In the *Model Definition* window, click  from the *Filters* toolbar. The *Filter Browser* window is displayed.
2. Select **Data Filter** or **Hierarchy** to display the corresponding filters.
3. Select the required filter or hierarchy from the list and click . The selected filter is added to the *Selected Members* pane.
4. Click **OK**. The selected Filters are displayed in the grid.

5. Filters can be applied to both Production and Sandbox Information Domains. Select the required option **Apply in Production** or **Apply in Sandbox** to apply the filter in the required information domain.

Sampling

This is applicable for models based on NAG techniques only.

In the Sampling tab, you can specify the type of sample for the model definition. The available options are Stratified, Training, Test, and Control sample.

1. In the Sampling tab of the *Model Definition* window, select the Basis of Sampling as either in **Percentage (%)** or **Absolute** option.
2. Select Replacements option as either **Yes** to repeat the records with other samples, or **No** to restrict one record to one sample.
3. Select the **Stratification** (grouping) Basis based on distinct values. Click  button, the *Stratification Basis* browser is displayed.
4. Select the hierarchy in which you want to group the records and click  button. The selected filter is added to the Selected Hierarchies pane.
5. Click **OK**. The selected hierarchy is displayed in the grid. Usually there is a single level hierarchy available for Stratified sample selection.
6. Specifying **Training Sample** value, which is the default sample on which model fitting or predictions are carried out. It is mandatory to select a training sample else, the default 100% record set is assumed as Training Sample.
7. Add **Test Sample** by click  button, and specifying the **Sample Name** and **Sample Size** in the *New Test Sample* window. Click **OK**. You can also view, modify, and delete the test sample created.

Ensure that the sum of **Training Sample** value and **Test Sample** values constitutes to 100%.

8. Specify the **Control Sample** by clicking  button and selecting the Control Hierarchy and Control Hierarchy Node in the *Control Hierarchy* browser separately.

Inputs

For R scripted Technique:

The variables you have declared in the R script of the technique are displayed under the *Configure Script Variables* pane.

1. Select a variable from the *Available Variables* pane by expanding the required variable type and a variable in the *Configured Script Variables* pane, and click **Map**. The mapping details are displayed in the *Variable-Mapping* grid. To unmap, select the variable from the *Configured Script Variables* pane and click **Unmap**.

Note the following:

- You cannot select a variable in the *Available Variables* pane which is already mapped to another variable in the R script.
 - Mapping of single variable declared in the R script to multiple variables is not supported if ORE implementation is used. However, for prepackaged ORE models, multiple variable mapping to single variable in the R script is supported.
2. From the *Input Parameters* grid, select the **Evaluation Type** from the drop-down list. You can execute model on complete set of records in the dataset, on a group of records or on a set of rows.
 - **Group**- Select this option if the model needs to be executed on a group, which is defined using a grouping variable. Select the **Grouping Variable** from the drop-down list.
 - **Row**- Select this option if the model needs to be executed on a set of rows. Specify the Number of rows.

NOTE: For **Evaluation Type** as **Row**, graphical output (plot) is not supported and the number of records processed is five times the value given in the **Number of Rows** field. These are limitations.

- **NA**- Select this option if the model needs to be executed on complete set of records in the dataset.
3. All single value parameters declared in the technique are displayed. Displays the **Value** if it was given while defining the technique. Else enter the appropriate value.

For NAG Technique:

Based on the selected NAG Technique, the Input tab will vary. For some techniques, this tab will not appear.

In the *Inputs* tab, you can specify the link function associated to the selected technique and confirm if a Mean value is included during prediction.

1. Specify the **Link Function** by selecting from the drop-down list.
2. Specify if **Mean** value is included by selecting **Yes** or **No**.

In the *Model Inputs* tab, you can define the transition parameters for the historic data.

1. In the *State Space* grid, enter the details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Historical Transition Percentage	- Click  button. The <i>Variable Browser</i> window is displayed. You can search for a particular Member by entering the keyword and clicking  button in the <i>Search</i> grid. - In the Members list, you can click + to expand each hierarchy member and view the subsequent members. - Select the required member and click  button or double click to move the member to the Selected Members pane. You can also remove a member by selecting from the Selected Members list and clicking  button. - Click OK. The selected member is displayed in the Historical Transition Percentage field.
Current State	Click  button. The <i>Hierarchy Browser</i> window is displayed. Follow the above procedure (as explained to define Historical Transition Percentage) to define the Current State parameter.
Future State	Click  button. The <i>Hierarchy Browser</i> window is displayed. Follow the above procedure (as explained to define Historical Transition Percentage) to define the Future State parameter.
State Space Sequence	Click  button. The <i>Hierarchy Browser</i> window is displayed. Follow the above procedure (as explained to define Historical Transition Percentage) to define the State Space Sequence parameter. Note: You can select multiple states by holding Ctrl button while selecting. You can also sort the selected list by clicking  and  buttons.

Field	Description
Unity Adjustment State	Click  button. The <i>HierarchyMember Browser</i> window is displayed. Follow the above procedure (as explained to define Historical Transition Percentage) to define the Unity Adjustment State parameter. Note: Ensure that you select a state which is present in the selected State Space Sequence list.
Absorbing State	Click  button. The <i>HierarchyMember Browser</i> window is displayed. Follow the above procedure (as explained to define Historical Transition Percentage) to define the Current State parameter. Note: Ensure that you select a state which is present in the selected State Space Sequence list.

2. Select the Time Interval as Day, Week, Month, Quarter, Half-Year, or Year from the drop down list.
3. Enter a numeric value in the **Number of Historic Intervals** field.

NOTE: The **Number of Historic Intervals** field is present only if you have selected the Calibrate Model option.

4. The options to define the transition parameters vary depending on the technique selected.
 - If you have selected Transition Matrix – EWMA, enter the **Decay Factor** value (lesser than 1) in the *EWMA Parameter* grid.
 - If you have selected Transition Matrix – Linear Regression, enter the **Confidence Level** value (lesser than 1) in the *Regression Parameters* grid.
 - If you have selected Transition Matrix – Multi Factor, select the **Time Homogeneous Estimation** option as either **YES** or **NO**. In case you have selected **No**, enter numeric value in **Number of Intervals Predicted** field.

You also need to select **Standard Normal Assumption** as either **YES** or **NO** in the *Asset Value Parameter* grid.

 - If you have selected Transition Matrix – Time Series, enter the numeric values in following fields. i.e. Number of Autoregressive Terms, Number of Non-seasonal Difference, Number of Lagged Forecast Error in the Prediction Equation, Seasonal Period, Order of Seasonal Differencing, Seasonal Autoregressive, Seasonal Moving Average Arguments, and Number of Future Values.

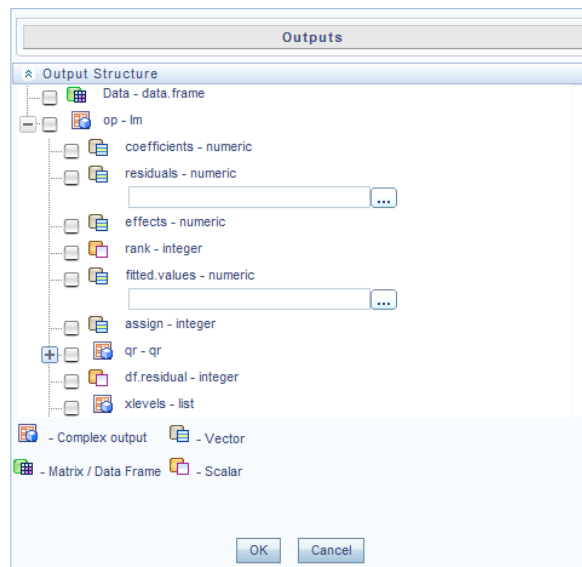
Outputs

For R scripted Technique:

The *Outputs* window allows you to choose outputs from the list of R objects in the output tree view. The tree is formed out of either the R objects declared as outputs in the declaration block, or the output of the last line of the script. That is, when no output is declared in the declaration block, the framework will follow the same logic as it is done by any regular R interface.

If the output section in the declaration block is left unfilled and the last line of the script is a graphical output (plot () or so), then no output tree will be generated as there are no non-graphical output (only the plots will come up in the results).

NOTE: You can view the output tree structure only after entering the R/ ORE script in the *Model Script* pane and configuring the input parameters.



- Select the outputs to be generated, by selecting the checkboxes corresponding to those outputs.
- You can store the output values computed during the model execution to a table in your atomic schema by mapping the output value to a variable, which you have defined through the *Variables Definition* screen. Click  corresponding to the output variables which you want to map to an attribute. From the *Variable Browser* window, select the variable.

NOTE: For models where ORE implementation is used, you cannot map the row level outputs to Variables.

Scenarios

Consider the following script where outputs are not configured. Then the framework output will be just the graphical output. The output tree will not be formed as there are no non-graphical results.

That is, when the outputs are not chosen by the user, then the framework reports the last line's output as the only default output.

Note that the plots are always produced.

```
## -----DECLARATION-----
## Variable --> DepVar, IndepVar1, IndepVar2
## Single Value Parameter -->
## Output -->
## -----
art.mod<-lm(DepVar ~ IndepVar1 + IndepVar2)

art.summ<-summary(art.mod)
coef( art.summ )
art.summ[[ "r.squared" ]]

#do some line plots
#plot()

#form new data.frame object
new.x.datafrme = data.frame(x=seq(from=range(IndependentVariable1)[ 1
],to=range( IndependentVariable1)[2],length=length(DependentVariable)))

#form new regression model
RegModel<-lm(DepVar ~ new.x.datafrme$x + IndepVar2)

#perform some operations on the new data
Plot(RegModel)

If you want to see the regression model components too, you will have to configure the same by
right-click selection or by directly declaring in the Script Declaration Block. See the following
script:

## -----DECLARATION-----
## Variable -->
## Single Value Parameter -->
## Output --> RegModel
## -----
art.mod<-lm(DepVar ~ IndepVar1 + IndepVar2)

art.summ<-summary(art.mod)
```

```
coef( art.summ )
art.summ[[ "r.squared" ]]

#do some line plots
#plot()

#form new data.frame object
new.x.datafrme = data.frame(x=seq(from=range(IndependentVariable1)[ 1
],to=range( IndependentVariable1)[2],length=length(DependentVariable)))

#form new regression model
RegModel<-lm(DepVar ~ new.x.datafrme$x +
IndepVar2)

#perform some operations on the new data
Plot(RegModel)
```

In this case, the output window will have a tree containing the components of 'RegModel' object with the same name as the root node.

Alternatively, you can also put the intended objects name at the last line of the script as:

```
## -----DECLARATION-----
## Variable -->
## Single Value Parameter -->
## Output --> RegModel
## -----
art.mod<-lm(DepVar ~ IndepVar1 + IndepVar2)

art.summ<-summary(art.mod)
coef( art.summ )
art.summ[[ "r.squared" ]]

#do some line plots
#plot()

#form new data.frame object
```



```

new.x.datafrme = data.frame(x=seq(from=range(IndependentVariable1)[ 1
],to=range( IndependentVariable1)[2],length=length(DependentVariable)))

#form new regression model
RegModel<-lm(DepVar ~ new.x.datafrme$x +
IndepVar2)

#perform some operations on the new data
Plot(RegModel)
RegModel

```

Here the output window will show a tree containing the components of 'RegModel' object, but since the output name was not configured or specified, it will be held under a generic framework name 'OFSAAOutput'

One of the added advantages of configuring the outputs is that one can get more than one object as output as shown in the following script:

```

## -----DECLARATION-----
## Variable -->
## Single Value Parameter -->
## Output --> RegModel, art.mod
## -----
art.mod<-lm(DepVar ~ IndepVar1 + IndepVar2)

art.summ<-summary(art.mod)
coef( art.summ )
art.summ[[ "r.squared" ]]

#do some line plots
#plot()

#form new data.frame object
new.x.datafrme = data.frame(x=seq(from=range(IndependentVariable1)[ 1
],to=range( IndependentVariable1)[2],length=length(DependentVariable)))

#form new regression model
RegModel<-lm(DepVar ~ new.x.datafrme$x +
IndepVar2)

```

```
#perform some operations on the new data
Plot(RegModel)
```

For the above script, the output window will contain trees for both 'RegModel' and 'art.mod'.

Here are the possible scenarios and the respective framework behavior:

- **Case A:** When no outputs are specified in the declaration block and outputs are not configured in the *Outputs* window:-

The value of the last evaluated expression is returned with the name 'OFSAAOutput' for the model execution.

- **Case B:** When no outputs are specified in the declaration block and the Configure Outputs button is clicked:-

All the objects from the script execution environment get listed as a tree with each object as separate nodes. Now you can choose the outputs to be reported. The selected ones will be placed in the declaration block. If you do not select any object as output, then the behavior will be the same as case A, for the model execution.

- **Case C:** Some objects are declared as outputs in the declaration block either by explicitly writing the correct names in the declaration block against the label **Outputs**, or by right-clicking a valid object name and selecting it as output:-

Now, only those which are listed in the declaration block will come in the *Configure Outputs* window (as checked ones, since you have already selected them as the outputs explicitly).

For NAG Techniques:

In the *Outputs* tab, there are two grids namely, *Process Output Selection* and *Data Output variables Selection*. In the Process Output Selection grid, you can specify the type of output which can be derived when predictions are carried out.

1. In the *Model Definition* window, click  button from the *Process Output Selection* toolbar. The *Process Output* browser is displayed.
2. Select the required output type from the Members list and click  button. The selected process output is added to the Selected Members pane.
3. Click **OK**. The selected Process Outputs are displayed in the grid.
4. Select the **Process Output Required in Tables** checkbox to store process output in your Database with Name and Comments.

In the *Data Output Variables Selection* grid, you can populate the variable data into the tables as another filtering parameter.

1. Click  button from the *Data Output Variable Selection* toolbar. The *Data Output* browser is displayed.

2. Select the required Data Output variable from the Members list and click  button. The selected Data output filter is added to the *Selected Members* pane.
3. Click **OK**. The selected Data Outputs are displayed in the grid.

In the *Data Output Variable Selection* toolbar, you can click , to view the properties of Data output variable transformation and click  to delete the Data output.

7.9.1.4 Viewing Model Definition

You can view individual Model Definition details at any given point. To view the existing Model Definition details in the *Model Definition* window:

1. Select the checkbox adjacent to the Model ID.
2. Click  button in the Model Management tool bar.

An information dialog is displayed indicating that view mode is selected and any accidental changes will not be updated. Click **OK** to confirm and view the details.

3. In the *Model Definition View* window you can:
 - Select **Preview Data** to view the variable parameters corresponding to the technique selected.
 - Select **Execute** to process the model execution. The status of which can be verified in *Model Execution Status* option, accessing *Advanced Analytics Infrastructure > Modeling > Model > Model Execution Status*.

7.9.1.5 Modifying Model Definition

You can update the model definition details of an existing Model in the *Model Definition* window:

1. Select the checkbox adjacent to the Model ID whose details are to be updated.
2. Click  button in the Model Management tool bar. **Edit** button is disabled if you have selected multiple Model ID's.
3. Edit the Model Definition details as required. Model Name, Technique, and Model Objective are not editable. You can update the Model Description, Dataset, and the variable parameters based on the technique selected. For more information, refer [Create Model Definition](#).
4. Once you have updated all the necessary details in the *Model Definition Edit* window, you can:
 - Click **Preview Data** to view the new Model Definition details before upload.
 - Click **Save** to update the model definition details.

- Click **Save** and select **Execute** to process the model execution. The status of which can be verified in *Model Execution Status* option, accessing *Advanced Analytics Infrastructure > Modeling > Model > Model Execution Status*.

7.9.1.6 Deleting Model Definition

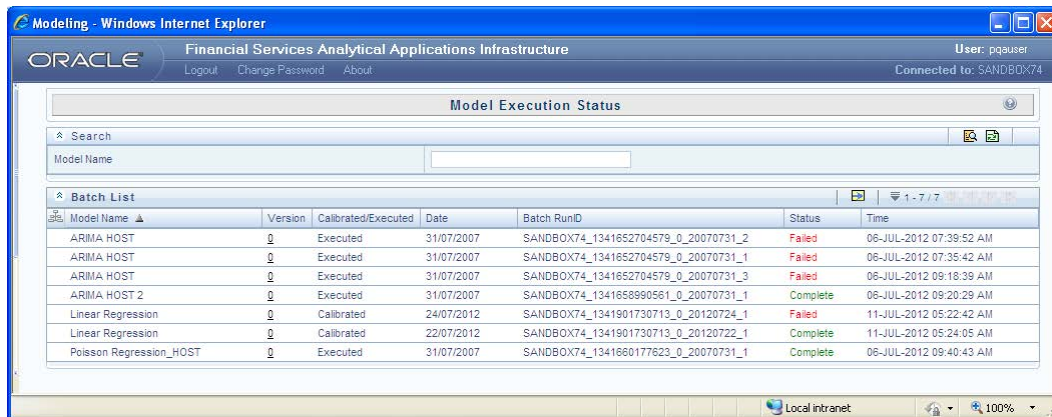
You can remove the model definitions which are no longer required by deleting from the *Model Management* window.

- Select the checkbox adjacent to the Model ID(s) whose details are to be removed.
- Click  button in the Model Management tool bar.
- Click **OK** in the information dialog to confirm deletion.

7.9.2 Model Execution Status

Model Execution Status in the *Sandbox Information Domain* of Infrastructure system facilitates you to verify the status of the executed model at any given point. The status can be **Complete**, **Ongoing**, or **Failed** based on the current processed stage of the system.

You can access the *Model Execution Status* window from the *Modeling* window by clicking **Model Execution Status** from the LHS Menu. This menu will be displayed only if you are in sandbox infodomain.



Model Name	Version	Calibrated/Executed	Date	Batch RunID	Status	Time
ARIMA HOST	0	Executed	31/07/2007	SANDBOX74_1341652704579_0_20070731_2	Failed	06-JUL-2012 07:39:52 AM
ARIMA HOST	0	Executed	31/07/2007	SANDBOX74_1341652704579_0_20070731_1	Failed	06-JUL-2012 07:35:42 AM
ARIMA HOST	0	Executed	31/07/2007	SANDBOX74_1341652704579_0_20070731_3	Failed	06-JUL-2012 09:18:39 AM
ARIMA HOST 2	0	Executed	31/07/2007	SANDBOX74_1341658990561_0_20070731_1	Complete	06-JUL-2012 09:20:29 AM
Linear Regression	0	Calibrated	24/07/2012	SANDBOX74_1341901730713_0_20120724_1	Failed	11-JUL-2012 05:22:42 AM
Linear Regression	0	Calibrated	22/07/2012	SANDBOX74_1341901730713_0_20120722_1	Complete	11-JUL-2012 05:24:05 AM
Poisson Regression_HOST	0	Executed	31/07/2007	SANDBOX74_1341660177623_0_20070731_1	Complete	06-JUL-2012 09:40:43 AM

Using the *Search* grid, you can search for a specific model execution based on model name. For more information on search and pagination options, see [Search & Filter](#) and [Pagination](#).

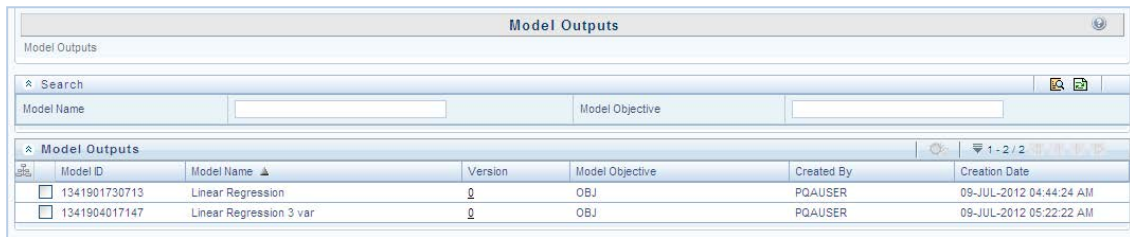
The *Batch List* grid displays model definition details such as Model ID, Model Name, Version, Model Objective and Created By and Creation Date. This window facilitates you to construct models, modify or copy existing models, and delete models.

Batch List section in the *Model Execution Status* window displays the model execution details such as Model Name, Version, whether the Model is Calibrated or Executed, Execution Date, Batch Run Id, Status, and Execution Time. You can click  to refresh the batch list.

7.9.3 Model Outputs

Model Outputs in the *Sandbox Information Domain* of Infrastructure system facilitates you to view and compare the outputs of the model execution. You can also view or download the derived output values as a .csv file and plots as .png files for reference.

You can access the *Model Outputs* window from the *Modeling* window by clicking **Model Outputs** from the LHS Menu. This menu will be displayed only if you are in sandbox infodomain.



The screenshot shows the 'Model Outputs' window. It has a search bar at the top with fields for 'Model Name' and 'Model Objective'. Below the search bar is a table with the following data:

Model ID	Model Name	Version	Model Objective	Created By	Creation Date
1341901730713	Linear Regression	0	OBJ	PQAUSER	09-JUL-2012 04:44:24 AM
1341904017147	Linear Regression 3 var	0	OBJ	PQAUSER	09-JUL-2012 05:22:22 AM

Using the *Search* grid, you can search for a specific model output based on model name and model objective. For more information on search and pagination options, see [Search & Filter](#) and [Pagination](#).

The *Model Output* window displays the list of models which are executed successfully, with details such as Model ID, Model Name, Version, Model Objective, Created By, and Creation Date.

7.9.3.1 View and Compare Model Outputs

To view and compare the model outputs in the *Model Outputs* window:

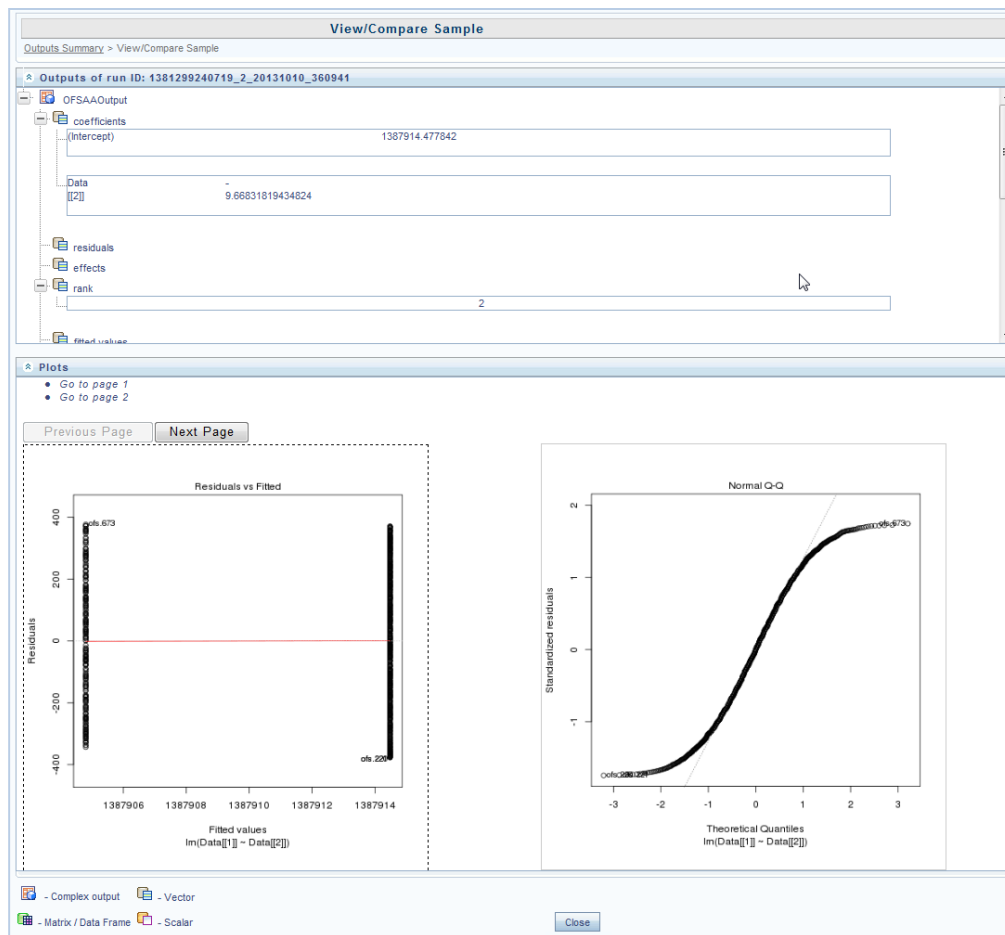
1. Select the checkbox adjacent to the Model ID.
2. Click  from the *Model Outputs* toolbar. The *Output Summary* window is displayed.
3. Select the checkbox adjacent to a Batch Run ID to view the details or select multiple checkboxes to compare Batch Run ID's.
4. Click  to view details or compare Batch Run ID(s). The *View/Compare Sample* window is displayed with the comparison details of the selected models.

Output Window for NAG Technique Based Models

View/Compare Sample	
Outputs Summary > View/Compare Sample	
[Linear_Regression_23Sep_1 Version: 0Type: TrainingBatch Run ID: CRECSAND1_1379923502613_0_20130923_1]	
Covariance	Covariance.csv
Error Degrees of Freedom	4982.000000
F-Statistic	104.087384
Independent Variables By Predicted Plot	Regression Plot for Predicted var CORR on entity 1 vs CCF Percentage.png
Independent Variables By Residual Plot	Plot of Residuals vs CCF Percentage.png
Parameter Estimates	Parameter Estimates.csv
p-value	0.000000
R-Square Statistic	0.020465
Residual P-P Plot	P-P Plot of Residuals.png
Residuals By Predicted Plot	Residuals by Predicted Plot.png
Residual Q-Q Plot	Q-Q PLOT of Residuals.png
Error Sum of Squares	548902730679337536.000000
Test for Autocorrelation	Test For AutoCorrelation.csv
Close	

- Click the links to view/download the derived values stored as .csv files or plots saved as image files.

Output window for R scripted models

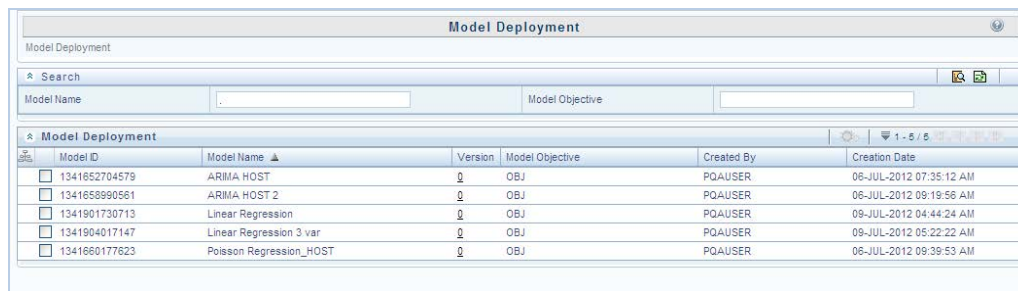


- Click the links in the *Outputs* pane to download or view the derived values in .csv files.

7.9.4 Model Deployment

Model Deployment in the *Sandbox Information Domain* of Infrastructure system facilitates you to request for deployment of a model to the production information domain. Since models based on R scripting can be directly deployed without execution, those models will be displayed in the *Model Deployment* window. In case of models based on NAG techniques, the successfully executed models only will be displayed.

Business Analysts who are mapped to MDLAUTH function role can authorize a model for deployment.



The screenshot shows the 'Model Deployment' window. It has a search bar at the top with fields for 'Model Name' and 'Model Objective'. Below the search bar is a table with the following data:

Model ID	Model Name	Version	Model Objective	Created By	Creation Date
☐ 1341652704579	ARMA HOST	0	OBJ	PQAUSER	08-JUL-2012 07:35:12 AM
☐ 1341658990581	ARMA HOST 2	0	OBJ	PQAUSER	08-JUL-2012 09:19:56 AM
☐ 1341901730713	Linear Regression	0	OBJ	PQAUSER	09-JUL-2012 04:44:24 AM
☐ 1341904017147	Linear Regression 3 var	0	OBJ	PQAUSER	09-JUL-2012 05:22:22 AM
☐ 1341660177623	Poisson Regression_HOST	0	OBJ	PQAUSER	06-JUL-2012 09:39:53 AM

Using the *Search* grid, you can look for a specific model deployment based on model name and model objective. For more information on search and pagination options, see [Search & Filter](#) and [Pagination](#).

The *Model Deployment* window displays the list of models with details such as Model ID, Model Name, Version, Model Objective, Created By, and Creation Date.

7.9.4.1 Model Deployment Authorization

To request and authorize for model deployment:

1. Select the checkbox adjacent to Model ID and click . The *Model Deployment Authorization* window is displayed.
2. Select the **Request for Deployment** checkbox in the Model Deployment grid.
3. If you have been mapped to MDLAUTH function role, select **Authorize and Deploy** checkbox to authorize the deployment request. Otherwise, an authorizer has to authorize for deployment.
4. Click **Save** to process for model deployment.

When there is a request for model authorization and deployment, the data in both sandbox and production Information Domains are validated for compatibility and then deployed into the production Information Domain. The status of processing is displayed in an information dialog.

7.9.5 Request for Model Execution

Request for Model Execution in the *Production Information Domain* of Infrastructure system facilitates you to request for a batch execution for the selected model. A batch is scheduled in the Batch Processing and the model is executed into the production environment.

Model ID	Model Name	Version	Model Objective
1393304463922	feb25_R_LM_Plot_GROUP_1	0	GA7340BJ
1393304375111	feb25_R_LM_Plot_ROW_2	0	GA7340BJ

Using the *Search* grid, you can search for a specific model execution request based on model name and model objective. For more information on search and pagination options, see [Search & Filter](#) and [Pagination](#). The *Request for Model Execution* window displays the list of models which are requested for execution with details such as Model Objective, Model Name, Model ID, and Version.

To request for model execution:

1. Select the required model and click . The *Request for Model Execution* window is displayed.
2. Select the **Register Batch** checkbox.
3. Click **Save** to process for model execution.

When there is a request for model execution, a batch is registered in the Operations framework which has to be executed from the *Batch Scheduling* window within the Infrastructure system. For more information, refer Infrastructure Operations section.

7.9.6 Champion Challenger

Champion refers to the first model deployed, after calibrating the parameters for a specific model objective. **Challenger(s)** refers to the subsequent models deployed for the same model objective but with different techniques used for predictions.

When several prediction models (challengers) are deployed and one of the challengers produces optimum output meeting all the prediction requirements, the same can be set as Champion.

Champion Challenger is accessible to Business Analysts who are mapped to MDLCHAMP (Model Make Champion) function role in the Infrastructure system.

Model Name	Version	Champion/Challenger	Status
☐ ARIMA_HOST	0	Challenger	Available
☐ Poisson Regression_HOST	0	Champion	Authorized

Using the *Search* grid, you can search for a specific champion challenger based on model name. For more information on search and pagination options, see [Search & Filter](#) and [Pagination](#).

The *Champion Challenger* window displays the list of available models with details such as Model Name, Version, Calibration status, status if a model is champion or challenger, and status of availability. This window facilitates you to request and authorize a new champion.

7.9.6.1 Requesting New Champion

To request new champion:

1. Select the Model Objective, click  button and open *Model Objective* browser.
 - Select the required Model Objective in the Hierarchy list and click  button.
 - Click **OK**. The window is refreshed to display the available models.
2. Select the checkbox adjacent to the model whose status has to be set to champion.
3. Click  in the Champion Challenger toolbar. The *Request New Champion* window is displayed.
4. Select the **Request New Champion** checkbox.
5. If you have been mapped to MDLCHAMP function role, you can select **Authorize** checkbox to authorize new champion.

6. Click **Save** to update the changes and return to *Champion Challenger* window.
In the *Champion Challenger* window, the status of the selected model is updated as Champion and Authorized.

7.10 Stress Testing

Stress testing is now an integral part of a bank's risk measurement system and plays an important role in estimating the effects of potential financial crises on a bank's operations. Stress Testing or risk estimation technique refers to the process of examining the stability of a system or entity in adverse conditions. It involves testing beyond normal operational capacity, often to a breaking point, in order to observe the results.

Stress Testing also facilitates banks to conduct analysis to estimate the impact of movements in the variables on specific measures such as profitability and capital adequacy.

Stress testing within the infrastructure system is an integrated framework which supports the stress testing requirements across the entire suite of OFSAAI products. It allows banks to define shocks and assess the impact of such shocks across multiple business areas.

The two commonly accepted forms of Stress Testing are:

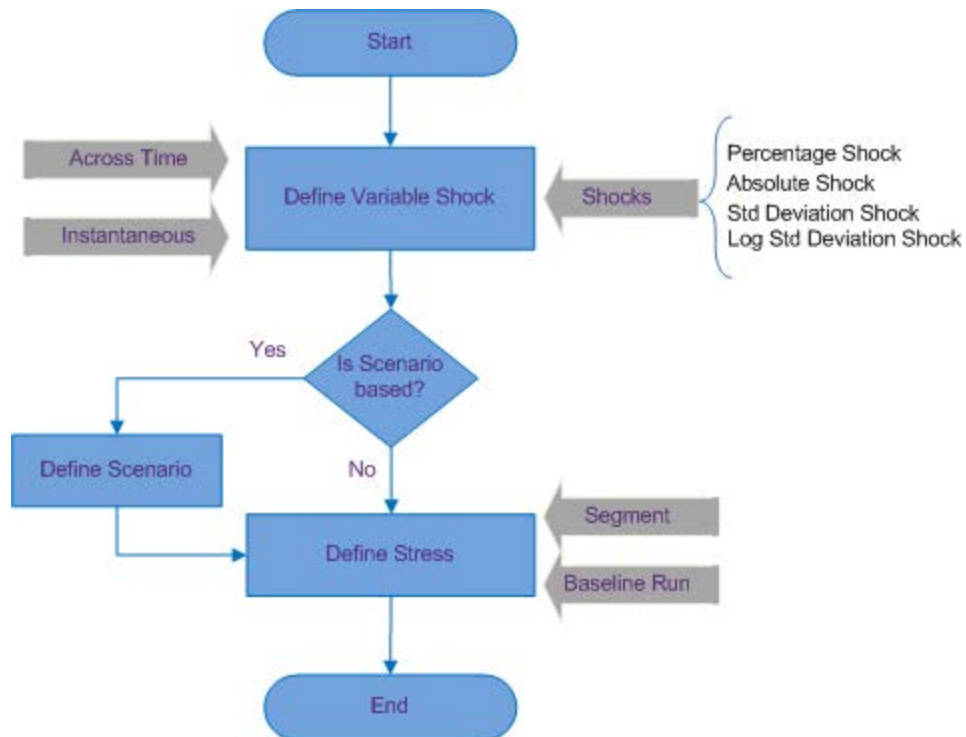
- **Sensitivity Analysis:** It involves applying shocks on a single variable.
- **Scenario Analysis:** A scenario is defined as a shock to a single variable or a collection of shocks on multiple variables. Scenario analysis involves applying simultaneous shocks on multiple variables to assess the impact of scenario on a measure or a set of measures. Scenarios are further classified into:
 - **Historical Scenarios**, which replicate past events docket. Historical scenarios are defined by specifying shocks to variables such that they replicate the movement seen during historical events.

For example, the user may define a scenario that replicates the movement in stock market indices as observed during catastrophic event. This scenario can then be applied to the current trading book portfolio of the bank to estimate the loss that might be incurred if a catastrophic event type event occurs. However, the historical scenarios may not cover the entire range of potential adverse conditions
 - **Hypothetical Scenarios** are based on user judgment and addresses the other possible adverse movements in the variables.

You can access the Stress Testing framework within the LHS menu tree structure of Advanced Analytics Infrastructure section in the Infrastructure home page. The options available under Stress Testing are:

- [Variable Shock Library](#)
- [Scenario Management](#)
- [Stress Definition](#)

7.10.1 Stress Testing Process Flow



7.10.2 Variable Shock Library

Variable Shock refers to modulating the data causing an adverse shift in the value of a variable. The Variable Shock Library within the Stress Testing framework facilitates you to define multiple shocks to variables and maintaining a library of such shocks in the *Production Information Domain*. You can also view, modify, copy, and delete variable shock definitions.

Variable Shock Library						
Variable Shock Library						
Variable Shock Name						
Variable Shock List						
Shock ID	Variable Shock Name	Version	Variable	Created By	Creation Date	
1341990154568	Delq Days shk	0	Delq Days	PQAUSER	10-JUL-2012 05:17:30 AM	
1341989897859	ex amt shk	0	Exposure Amount	PQAUSER	10-JUL-2012 05:13:14 AM	
1341990518840	q	0	Exposure Amount	PQAUSER	10-JUL-2012 05:23:35 AM	
1341377100515	sol_vshk_ccf_abs_11	0	CCF	PQAUSER	03-JUL-2012 03:03:17 AM	
1341377100515	sol_vshk_ccf_abs_11	1	CCF	PQAUSER	19-JUL-2012 04:41:46 AM	
1341990206055	Undrawn shk	0	Undrawn	PQAUSER	10-JUL-2012 05:16:22 AM	
1342768950147	vshk_on_com_single_1	0	com_single_1	PQAUSER	19-JUL-2012 05:00:13 AM	
1342768894800	vshk_on_com_term	0	comm_term	PQAUSER	19-JUL-2012 04:59:18 AM	
1341990462825	zdf	0	Exposure Amount	PQAUSER	10-JUL-2012 05:22:38 AM	
1342001832653		0		PQAUSER	10-JUL-2012 08:32:06 AM	

The *Variable Shock Library* window displays the list of defined variable shocks with details such as Shock ID, Variable Shock Name, Version, Variable, Created By, and Creation date. You can also make use of Search and Pagination options to search for a variable shock or view the list of existing variable shock definitions within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

7.10.2.1 Adding Variable Shock Definition

The Add Variable Shock Definition facilitates you to define a variable shock by filtering through the specific required parameters. The options available to filter the data vary depending on the variable type selected.

To add variable shock definition:

1. Select  button from the Variable Shock List tool bar. **Add** button is disabled if you have selected any checkbox in the grid.

The Variable Shock Definition Add window is displayed.

2. Enter the variable shock details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Shock Name	Enter a name for the variable shock. Ensure that there are no special characters like ` , { , } , " , ' , ~ , < , > , / , \ , and multiple spaces.
Shock Description	Enter the required description for the variable shock.
Dataset	Click  button and open the <i>Dataset</i> browser. The available

Field	Description
	datasets are listed in the Members pane. - Select the required Dataset based on which the variable shock is to be created and click  button. - Click OK.
Variable Name	- Click  button and open the <i>Variable</i> browser. The defined variables are listed in the Members pane. - Select the required variable based on which the variable shock is to be created and click  button. - Click OK. The fields; Variable Type, Classification, Structure, and Property are auto populated based on the variable selected.
Time Specification: Specify the shifts in the value across multiple time points.	
Time Hierarchy	- Click  button and open the <i>Hierarchy</i> browser. The available Time Hierarchies are listed in the Members pane. - Select the required Time Hierarchy based on which the variable shock is to be created and click  button. - Click OK.
Shock Type	Select the shock type from the drop down list, as either: Across Time - to specify shocks at multiple time points and the occurrence of which might be in the past or in the future. Instantaneous - if you don't have specific time points and want to shock the data based on the current values. Selecting Instantaneous will disable the other options in the <i>Time Specification of Shock</i> grid.
(Optional) If Across Time option is selected in the Shock Type	Select <i>Shock in Reference to</i> from the drop down list as either, Current Value or Future Estimated Value. If Current Value is selected, - Select Time Point as either Standard or Custom. - Specify the frequency from the drop down list as either Days or Weeks or Months or Years. - Specify Number of Time Points and click  button. The <i>Time Point values</i> are auto populated. The <i>Shock Current Value</i> checkbox is selected by default. If Future Estimated Value is selected, you can specify the Time Point, Frequency, and Number of Time Points as indicated above.

Field	Description
	- Click  button and open the <i>Model</i> browser. The models which are successfully executed in sandbox and deployed to production are listed in the Members pane. - Select the required model and click  button. - Click OK.
	Filter Specification: Define the filtering criteria for the specified shock. The option is available only for Idiosyncratic Variables. Multiple shocks can to be applied across filters which are specified based on combinations of dimensions. - Click  button and open the <i>Filter</i> browser. - Click  button in the <i>Filter</i> Browser and open the <i>Hierarchy</i> browser. - Select the required hierarchy(s) and click  button. - Click OK and return to the <i>Filter</i> Browser. - In the Hierarchical list click  to expand a node and select the required checkbox (). - click  button and move the selection to the <i>Selected Hierarchy</i> pane. - Click OK.
	Shock Parameters: Specify quantum of shifts in variables, based on time specification and shock curve.
Shock Unit	Select the shock unit from the drop down list. The available options are; - Percentage Shift - Absolute Shift - Standard Deviation Shift - Long Standard Deviation Shift A shock value may be positive or negative.
Time Window Size	If you have selected Standard Deviation Shift or Long Standard Deviation Shift as Shock Unit, then the Time Window Size is enabled with a default value "2". You can change the same by entering the required value.
Shock Curve	Shock Curve is enabled for term structure variables. Select any of the following option from the drop down list. - Parallel - Twist - Inversion
Shock Values	Shock Value is the quantum of shift in the variable. You can specify Shock Values across filters and time points. You can specify a shock that involves a transition from one category to another or map the selected to a shock

Field	Description
	category. - Click  button in the Shock Value toolbar. The <i>Category</i> browser is displayed. - Select the required category and click  button. - Click OK. - Click  button to generate the list of shock values that are selected. - Click  against the listed category and specify the values for each category in the <i>Category</i> browser. - Click OK.

- Click **Save**. The new variable shock details are saved and displayed in the *Variable Shock Library* window.

7.10.2.2 Viewing Variable Shock Definition

You can view individual Variable Shock Definition details at any given point. To view the existing Variable Shock Definition details in the *Variable Shock Library* window:

- Select the checkbox adjacent to the Shock ID.
- Click  from the Variable Shock List tool bar.

The *Variable Shock Definition View* window is displayed with the variable shock details.

7.10.2.3 Modifying Variable Shock Definition

You can modify only the Shock Description if the selected shock is mapped to a Variable definition. If not, then all the filtering parameters can be modified except the Shock Name. When you modify any of the Variable Shock parameters other than the Shock Description, the details are uploaded as an incremented version without overwriting the existing definition details.

To modify an existing Variable Shock Definition in the *Variable Shock Library* window:

- Select the checkbox adjacent to the Shock ID whose details are to be updated.
- Click  button in the Variable Shock List tool bar. **Edit** button is disabled if you have selected multiple Shock ID's. The *Variable Shock Definition Edit* window is displayed.
- Edit the Variable Shock Definition details as required. For more information, refer [Add Variable Shock Definition](#).
- Click **Save** to save the changes.

7.10.2.4 Copying Variable Shock Definition

The Copy Variable Shock Definition facilitates you to quickly create a new Shock Definition based on the existing shock variables or by updating the values of the required variables. To copy an existing Variable Shock Definition in the *Variable Shock Library* window:

1. Select the checkbox adjacent to the Shock ID whose details are to be duplicated.
2. Click  button in the Variable Shock List tool bar. **Copy** button is disabled if you have selected multiple Shock ID(s).
3. In the *Variable Shock Definition Copy* window, you can:
 - Create new variable shock definition with existing variables. Specify a new **Variable Name** and click **Save**.
 - Create new variable shock definition by updating the required variables. Specify a new **Variable Name** and update the required details. For more information, refer [Add Variable Shock Definition](#). Click **Save**.

The Variable Shock details are displayed in the *Variable Shock Library* window.

7.10.2.5 Deleting Variable Shock Definition

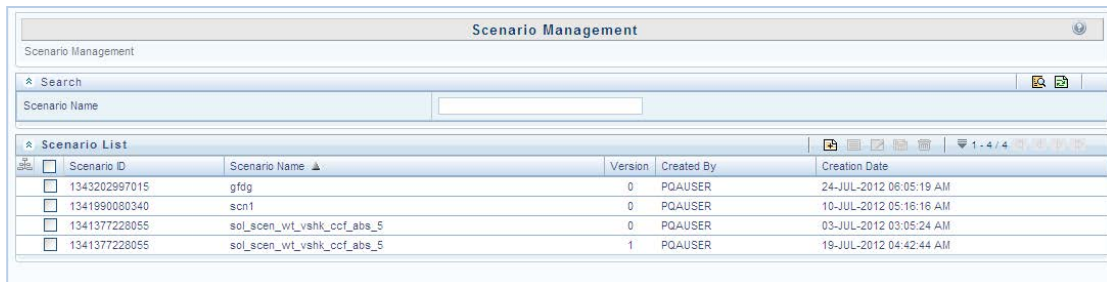
You can remove the variable shock definition(s) which are not used in Scenario Definition and which are no longer required in the system, by deleting from the *Variable Shock Library* window.

1. Select the checkbox adjacent to the Shock ID whose details are to be removed.
2. Click  button in the Variable Shock List tool bar.
3. Click **OK** in the information dialog to confirm deletion.

7.10.3 Scenario Management

Scenario in Stress Testing framework refers to a set of unusual, hypothetical events structured within the variables. A scenario can be defined using variable based shocks and every single Variable Shock constitutes a scenario.

Scenario Management within the Stress Testing framework facilitates you to define and maintain multiple Scenarios on the same set of Variables in the *Production Information Domain*. You can also view, modify, copy, and delete scenario(s).



The screenshot shows the 'Scenario Management' window. It has a search bar at the top and a table below. The table has columns for Scenario ID, Scenario Name, Version, Created By, and Creation Date. There are four rows of data.

Scenario ID	Scenario Name	Version	Created By	Creation Date
1343202997015	gfdg	0	PQAUSER	24-JUL-2012 06:05:19 AM
1341990080340	scn1	0	PQAUSER	10-JUL-2012 05:16:16 AM
1341377228055	sol_scen_wt_vshk_ccf_abs_5	0	PQAUSER	03-JUL-2012 03:05:24 AM
1341377228055	sol_scen_wt_vshk_ccf_abs_5	1	PQAUSER	19-JUL-2012 04:42:44 AM

The *Scenario Management* window displays the list of defined scenario(s) within the system with the other details such as Scenario ID, Scenario Name, Version, Created By, and Creation Date. You can also make use of Search and Pagination options to search for a scenario or view the list of existing scenarios within the system. For more information, refer [Pagination](#) and [Search & Filter](#).

7.10.3.1 Adding Stress Testing Scenario

You can create stress testing scenario by associating the appropriate Variable Shock Definitions. To add stress testing scenario definition in the *Scenario Management* window:

1. Select  button from the Scenario List tool bar. **Add** button is disabled if you have selected any checkbox in the grid. The *Scenario Definition Add* window is displayed.

2. Enter the Scenario details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Scenario Name	Enter a name for the scenario. Ensure that there are no special characters like ` , {,}, " , ' , ~ , < , > , / , \ , and multiple spaces.
Scenario Description	Enter the required description for the scenario.

3. To add **Variable Shock** to the scenario, do the following:

- Select  button from the Variable Shocks tool bar. **Add** button is disabled if you have selected any checkbox in the grid. The *Add Variable to Scenario* window is displayed.
- Select the required variable(s) by clicking on the adjacent checkbox in the Variable Shock List.

You can also make use of [Search](#) option to search for a variable by specifying Variable Name or Shock Name or even by selecting the Variable Type from the drop down list.
- Click **OK**. The selected variables are listed in the Variable Shock grid in the *Scenario Definition Add* window.

You can also remove a variable by selecting the adjacent checkbox and clicking on  button.

4. Click **Save**. The scenario details are saved and displayed in the *Scenario Management* window.

7.10.3.2 Viewing Stress Testing Scenario

You can view individual Scenario Definition details at any given point. To view the existing Scenario Definition details in the *Scenario Management* window:

1. Select the checkbox adjacent to the Scenario ID.
2. Click  button in the Scenario List tool bar.

The *Scenario Definition View* window is displayed with the scenario details and the mapped variable shock.

7.10.3.3 Modifying Stress Testing Scenario

You can modify only the Scenario Description if the selected scenario is mapped to a Stress definition. If not, then all the filtering parameters can be modified except the Scenario Name. When you modify any of the Scenario parameters other than the Scenario Description, the details are uploaded as an incremented version without overwriting the existing scenario details. To modify an existing Scenario Definition in the *Scenario Management* window:

1. Select the checkbox adjacent to the Scenario ID whose details are to be updated.
2. Click  button in the Scenario List tool bar. **Edit** button is disabled if you have selected multiple Scenario ID's. The *Scenario Definition Edit* window is displayed.
3. Edit the Scenario Definition details as required. For more information, refer [Add Stress Testing Scenario](#).
4. Click **Save** to save the changes.

7.10.3.4 Copying Stress Testing Scenario

The Copy Stress Testing Scenario facilitates you to quickly create a Scenario definition based on the existing details or by updating the values and remapping the required variables. To copy an existing Stress Testing Scenario Definition in the *Scenario Management* window:

1. Select the checkbox adjacent to the Scenario ID whose details are to be duplicated.
2. Click  button in the Scenario List tool bar. **Copy** button is disabled if you have selected multiple Scenario ID(s).
3. In the *Scenario Definition Copy* window, you can:
 - Create new scenario definition with existing variables. Specify a new **Scenario Name** and click **Save**.
 - Create new scenario definition by updating the required variables. Specify a new **Variable Name** and remap the required variables. For more information, refer [Add Stress Testing Scenario](#). Click **Save**.

The scenario definition details are displayed in the *Scenario Management* window.

7.10.3.5 Deleting Stress Testing Scenario

You can remove only those scenarios which are not mapped to any Stress Definitions and which are no longer required in the system, by deleting from the *Scenario Management* window.

1. Select the checkbox adjacent to the Scenario ID whose details are to be removed.
2. Click  button in the Scenario List tool bar.
3. Click **OK** in the information dialog to confirm deletion.

7.10.4 Stress Definition

Stress Definition within the Infrastructure system refers to modeling a series of scenarios to analyze the impact of extreme market conditions and to measure the risk.

Expand **Advanced Analytics Infrastructure** and click **Stress Testing** from the LHS menu. Click **Stress Definition** in the *Stress Testing Framework* window.

Stress Definition						
Stress Definition						
Search Stress Definition Name						
Stress Definition List						
☐	Stress ID	Stress Name	Baseline Run	Scenario	Created By	Creation Date
☐	1342786041233	18JUL_1	10May_subproces s_precede_1	sol_scen_wt_vsh k_ccf_abs_5	PQAUSER	19-JUL-2012 04:45:05 AM
☐	1343889372735	1AUG_rule2	sol_brun_extlib _A_desc	sol_scen_wt_vsh k_ccf_abs_5	PQAUSER	01-AUG-2012 04:41:13 AM
☐	1343888335844	1AUG_stress_RUN_vshk	11Apr_MODEL_EXT _LIB	sol_scen_wt_vsh k_ccf_abs_5	PQAUSER	01-AUG-2012 04:23:56 AM
☐	1343886491077	1AUG_ST_wt_RUN_vshk _ccf	stress_F2T_in_r un	sol_scen_wt_vsh k_ccf_abs_5	PQAUSER	01-AUG-2012 03:53:12 AM
☐	1343109707004	23JUL_extlib_in_run	16Apr_extlib_AB	sol_scen_wt_vsh k_ccf_abs_5	PQAUSER	23-JUL-2012 04:10:58 AM
☐	1343474764844	27JUL_ARIMA	pr2_BRUN_wt_mod el	sol_scen_wt_vsh k_ccf_abs_5	PQAUSER	27-JUL-2012 09:33:18 AM
☐	1343473818766	27JUL_stress_test_1	pr2_BRUN_wt_mod el	sol_scen_wt_vsh k_ccf_abs_5	PQAUSER	27-JUL-2012 09:17:33 AM
☐	1343558957672	28JUL_F2T	21May_ext_lib	sol_scen_wt_vsh k_ccf_abs_5	PQAUSER	28-JUL-2012 08:56:05 AM
☐	1343559980347	28JUL_T2F	11Apr_model	sol_scen_wt_vsh k_ccf_abs_5	PQAUSER	28-JUL-2012 09:13:08 AM
☐	1343580972981	28JUL_T2F_in_run	9May_T2F	sol_scen_wt_vsh k_ccf_abs_5	PQAUSER	28-JUL-2012 09:29:40 AM

Using the Search grid, you can search of a stress definition based on the name. For more information on search and pagination options, see [Search & Filter](#) and [Pagination](#).

The *Stress Definition List* grid displays the list of defined stress definitions with details such as Stress ID, Stress Name, Base Line Run, Scenario, Created By, and Creation Date.

This window facilitates you to create a stress definition. You can either specify a stand-alone execution of a Scenario, or map a Scenario(s) to a Baseline Run. The integrated process helps you to assess the impact of a Scenario across multiple areas. You can also view, modify, and delete stress definitions.

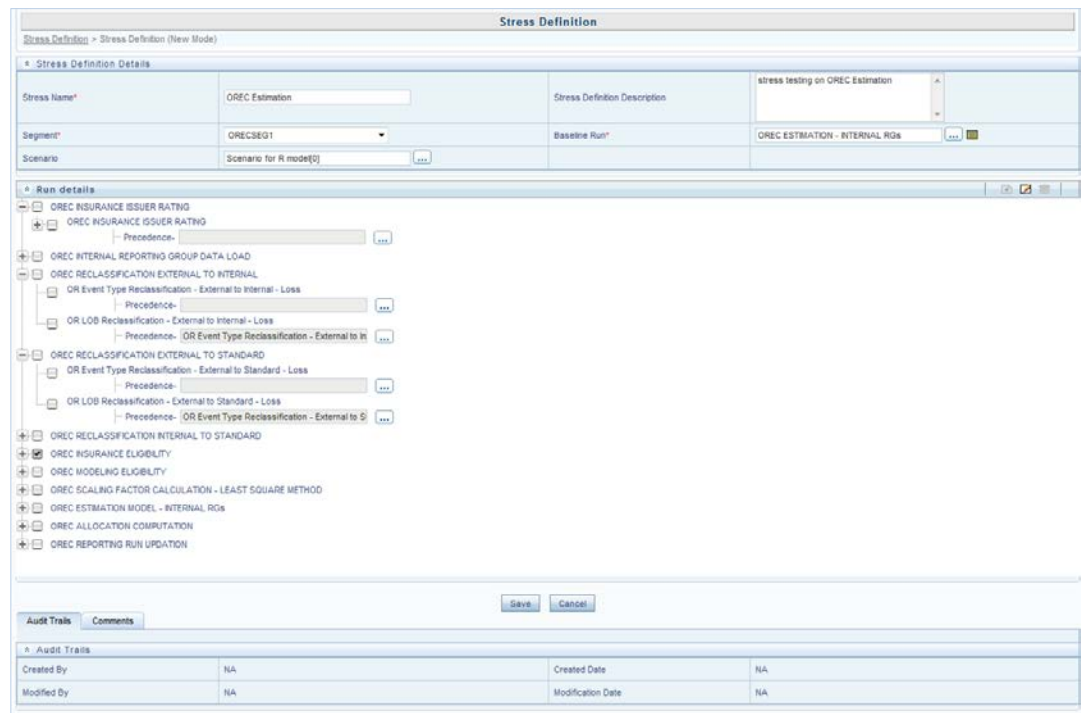
7.10.4.1 Adding Stress Definition

Stress definition can be based on stress scenarios or business assumptions. A business assumption is essentially a process comprising of multiple rules which facilitate the computation of the impact of the assumption on base cash flows. Business assumptions are non-variable based.

Scenario based stress testing involves applying simultaneous shocks on multiple variables to assess the impact of scenario on a measure or a set of measures.

To add stress definition:

1. Select  button from the Stress Definition List tool bar. The *Stress Definition Add* window is displayed. The **Add** button is disabled if you have selected any checkbox in the grid.



2. Enter the Stress Definition details as described in the following table:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Stress Name	Enter a name for the stress definition. Ensure that there are no special characters like ` , { , } , " , ' , ~ , < , > , / , \ , and multiple spaces.

Field	Description
Stress Definition Description	Enter the required description for the stress definition.
Segment	Select the Segment from the drop down list. The list consists of the segments defined for the selected <i>Production Infodom</i> .
Base Line Run	- Click  button and open the <i>Baseline Run</i> browser. The available Baseline Runs are listed in the Hierarchical pane. Note: Depending on the configuration selected in <i>System Configuration > Configuration > Others</i> tab as either <i>PR2</i> or <i>RRF</i>, the corresponding Base Line Runs are displayed for selection. - Select the required Baseline Run based on which stress definition is to be created and click . - Click OK. - Click  button and view the selected baseline Run details.
Scenario	If the stress definition is based on variable shocks, select the scenario which you have defined with the required variable shocks. If it is non-variable based as in liquidity risk management, you need not select the scenario. - Click  button and open the <i>Scenario</i> browser. The available Scenarios are listed in the Hierarchical pane. - Select the required Scenario based on which stress definition is to be created and click . - Click OK.

- In the *Run Details* grid, all the processes and tasks associated with the selected baseline run is displayed.
 - You can replace a process in the selected baseline run with another process. The process replacement can happen only for the processes which are directly placed under the run.
 - Select the checkbox adjacent to the process and click  to replace it with another process. The *Tasks Browser* window displays all the processes which are defined in the selected segment and infodom.
 - Select the required process from the list and click . You cannot select a process which is already present in the baseline run.
 - You can add a new task to a selected process.

- Click  to insert new tasks. You can add pre-defined Variable Shocks within the selected scenario as Tasks in the Stress Run.
- You can modify or replace a task within a process with another task.
 - Select the checkbox adjacent to the task and click . The *Tasks Browser* window displays all the tasks which are defined in the selected segment and infodomain.
 - Select the required process from the and click .
- Select a task and click  to delete it.
- Set the precedence in which the tasks need to be executed.
 - Click  adjacent to the Precedence field of a task. The available scenarios/tasks are listed in the *Precedence Browser* window.
 - Select the tasks in the order in which they need to be executed and click . You can change the order by clicking  and .
- Provide the Parameters for the task in the **Parameters** field.

NOTE: If the configuration is set to RRF, then the Parameters field value must be specified within double quotes.

4. Click **Save**. The stress definition details are saved and displayed in the *Stress Definition* window.

7.10.4.2 Executing Stress Definition

After creating stress definition, you need to create Manage Run Definition. Based on the Run Type (Single Request or Multiple Request), you need to execute the stress definition from *Batch Execution* window or *Batch Group Execution* window respectively. You can also monitor the status of stress definition execution.

To execute stress definition

1. Go to **Rules Framework > Manage Run Execution**. The *Manage Run Execution* window is displayed.
2. Click  button from the *List* toolbar. The *Manage Run Execution* window is displayed.
3. Click  button in the **Run** field and select the Stress Definition that you want to execute from the *Run Selector* window. For more information, see the [Manage Run Definition](#) section.
4. Click **Save**.
5. Execute the stress definition:

- If you have selected **Type** as **Single Request** in the *Manage Run Execution* window:
 - Go to **Operations> Batch Execution**. The *Batch Execution* window is displayed. For more information on how to execute a Batch, see the [Execute Batch](#) section.
 - Click **Execute Batch**.
 - If you have selected **Type** as **Multiple Request** in the *Manage Run Execution* window:
 - Go to **Operations> Batch Group Execution**. The *Batch Execution* window is displayed. For more information on how to execute a Batch Group, see the [Batch Group Execution](#) section.
 - Click **Start**.
6. To monitor the stress execution:
- For Batch Execution:
 - Go to **Operations> Batch Monitor**. The *Batch Monitor* window is displayed.
 - Select the Stress Definition whose execution you want to monitor and select the Batch Run details. For more information, see the [Monitor Batch](#) section.
 - Click  button to start monitoring.
 - For Batch Group Execution:
 - Go to **Operations> Batch Group > Batch Group Monitor**. The *Batch Group Monitor* window is displayed.
 - Select the Batch Group and Run IDs from the drop-down lists. For more information, see the [Batch Group Monitor](#) section.
 - Click **Refresh** to start monitoring
7. To view log files:
- Go to **Operations> Batch Processing Report**. The *Batch Processing Report* window is displayed.
 - Select the Information Date and Batch Status from the drop-down lists. For more information, see the [Batch Processing Report](#) section.

7.10.4.3 Viewing Stress Definition

You can view individual Stress Definition details at any given point. To view the existing Stress Definition details in the *Stress Definition Summary* window:

1. Select the checkbox adjacent to the Stress ID.
2. Click  button in the Stress Definition tool bar. The *Stress Definition View* window is displayed with the stress definition details along with the mapped scenarios.
3. Click  button in the Model Variable Shock Mapping toolbar. The *Model Variable Shock Mapping* window is displayed with the list of variable shocks associated with the selected scenario.

7.10.4.4 Modifying Stress Definition

You can modify only the *Stress Description* and *Scenario* for any selected Stress Definition. To modify an existing Stress Definition in the *Stress Definition Summary* window:

1. Select the checkbox adjacent to the Stress ID whose details are to be updated.
2. Click  button in the Stress Definition List tool bar. **Edit** button is disabled if you have selected multiple Stress ID's. The *Stress Definition Edit* window is displayed.
3. Edit the Stress Definition details as required. For more information, refer [Add Stress Definition](#).
4. Click **Save** to save changes.

7.10.4.5 Deleting Stress Definition

You can remove the stress definitions which are no longer required in the system, by deleting from the *Stress Definition Summary* window.

NOTE: Stress definitions, which use PR2 Base Line Run and has batch registered for processing, cannot be deleted. However, Stress definitions, which use RRF Base Line Run, can be deleted irrespective of whether it has batch registered for processing/not.

1. Select the checkbox adjacent to the Stress ID whose details are to be removed.
2. Click  button in the Stress Definition List tool bar.
3. Click **OK** in the information dialog to confirm deletion.

7.11 References

This section of the document consists of information related to intermediate actions that needs to be performed while completing a task. The procedures are common to all the sections and are referenced where ever required. You can refer to the following sections based on your need.

7.11.1 AAI support for R Scripts and Oracle R Enterprise (ORE) Statistical Functions

Data usage when R script is used entirely

While defining a model scripted in R, user can select **Dataset** and **Variables** to assign data (table columns) to the R/ ORE objects used within the script. AAI framework will prepare data from the dataset, variables and other attributes like filters chosen for the model and will make the same available as user specified R objects/ frames.

No specific treatment is required in the script for using the data. User can just have an R data.frame object say 'GDP' and a variable (table.column) assigned to it and use 'GDP' as is in the script.

Data usage when ORE native implementation is employed - AAI Specifics to be considered

The data which is prepared from the dataset and variables as explained in the previous section, will be available in this case as a named ORE ore.frame object ('OFSDATASET') when ORE native implementations are used (that is, when the **Is ORE implementation used?** checkbox is selected). Hence, the R objects(data) must always be accessed through the ore.frame object 'OFSDATASET'.

For instance, if two objects say 'x' and 'y' are used and dataset/ variables are chosen for 'x' and 'y' in the model definition, then the objects 'x' and 'y' should be accessed in the script as 'OFSDATASET\$x' and 'OFSDATASET\$y' respectively.

An illustration to explain the R and ORE cases is given in the following section:-

For a simple regression model which is entirely scripted in R, that uses a dataset and three variables (DependentVariable, IndependentVariable1 and IndependentVariable2), the user should not select the **Is ORE implementation used?** checkbox. In this case the R script is as follows:

```
art.mod<-lm(DependentVariable ~ IndependentVariable1 +
IndependentVariable2)
art.summ<-summary(art.mod)
coef( art.summ )
art.summ[[ "r.squared" ]]

#do some line plots
```

```
new.x.datafrme = data.frame(x=seq(from=range(IndependentVariable1)[ 1
],to=range( IndependentVariable1)[2],length=length(DependentVariable)))
```

Here the variables chosen for the model are accessed directly in the script as IndependentVariable1, IndependentVariable2 and DependentVariable.

Whereas for a parallel ORE implementation of the same (a dataset and three variables DependentVariable, IndependentVariable1 and IndependentVariable2) using ORE statistical functionalities, user must check the **Is ORE implementation used?** checkbox and the script is as follows:

```
art.mod<-ore.lm(DependentVariable ~ IndependentVariable1 +
IndependentVariable2, data=OFSDATASET)
art.summ<-summary(art.mod)
coef( art.summ )
art.summ[[ "r.squared" ]]

#do some line plots

new.x.orefrme =
data.frame(x=seq(from=range(OFSDATASET$IndependentVariable1 )[ 1
],to=range(OFSDATASET$IndependentVariable1)[2],length=
length(OFSDATASET$DependentVariable)))

#perform some operations on the new data
```

Here the variables chosen for the model are accessed from OFSDATASET as OFSDATASET\$IndependentVariable1, OFSDATASET\$IndependentVariable2, OFSDATASET\$DependentVariable.

Data Handling

It is highly recommended that data required from the database should be pulled through the framework provided mechanism, that is, using dataset and variables and not with any explicit DB connections. This ensures proper security, authenticity, and auditing.

Auditing is enabled in the definition windows by introducing audit trails that captures and displays the user details and the date of creation/ modification, along with comments.

For instance, here is a sample script where data is fetched from the DB directly (not through framework). This way of accessing the database resident data in a model is not recommended.

```
con<-dbConnect(Oracle(),"userName","password")
qry<-"select EventLoss as Y, CardType as X1, AccBalance as X2,
CustSalary as X3 from CustTable where Default= 'Y' "
res<- dbSendQuery(con, qry)
OperationalData<-fetch(res)
dbDisconnect(con)

#Model Logic
NewRegModel<-lm(Y~X1+X2+X3, data= OperationalData)
Plot(NewRegModel)
NewRegModel
```

Here is how a script for the same purpose can be created for accessing data via framework dataset and variables. Define 'EventLoss', 'CardType', 'AccBalance' and 'CustSalary' from the table 'CustTable' as variables in the AAI framework. While defining the model, select these variables and assign them to R objects (the R names used within the script) say, 'IndepVariable1', 'IndepVariable2', 'IndepVariable3' and 'DepVar' from the *Configure Inputs* window.

```
#Assuming EventLoss, CardType, AccBalance, CustSalary from #CustTable
are defined as variables in a data set, and that #dataset is selected
for variable assignments to the respective R #variable names: Y, X1, X2
and X3.
```

```
NewRegModel<-lm(DepVar ~ IndepVariable1+ IndepVariable2+
IndepVariable3)
```

```
#The variables are made directly available to the R
#environment by the framework
```

```
Plot(NewRegModel)
```

```
NewRegModel
```

Logging

R processing log that captures script processing information, any warnings, errors or exceptions from the script, gets generated in the database server at '\$ORACLE_HOME/dbs', since the R executable runs completely on the database server. Purging of the files is recommended at a regular basis.

7.11.2 Fitting and Prediction Using R Script

In order to support fitting and prediction using R script, the output objects can be stored in datastore using `ore.save()` during fitting and retrieve it using `ore.load()` during prediction.

`ore.save()` saves an R object or a list of R objects to the specified datastore in the current user's schema of the connected database.

`ore.load()` loads all of the R objects stored in a specified datastore from the current user's schema of the connected database.

For more information, see *Oracle® R Enterprise User's Guide* ([E36761-08](#)).

The approach to use `ore.save()` and `ore.load()` is explained with the following example:

7.11.2.1 R scripting

Fitting:

```
fit<-lm(y~x)
ore.save(fit, name='regression_fit', overwrite=TRUE)
```

`ore.save()` will store the R object 'fit' in the datastore with the name 'regression_fit'. `overwrite` is a logical value specifying whether to overwrite the datastore if it already exists; the default is FALSE.

The `overwrite` flag is set to true to make sure that `ore.save()` does not fail. This is one way of doing it; otherwise the user's script should check for the existence of the datastore object.

Prediction:

```
ore.load('regression_fit')
predict<-predict(fit)
```

`ore.load()` is going to load all the R objects in the datastore 'regression_fit'.

From the datastore user should know the R object name to be used in the predict call.

7.11.2.2 ORE scripting

The approach is same as explained above, but the 'Is ORE implementation used?' checkbox to be checked.

Fitting:

```
ore_fit<-ore.lm(y~x, data=OFSDATASET)
ore.save(ore_fit, name='ore_regression_fit', overwrite=TRUE)
```

Prediction:

```
ore.load('ore_regression_fit')
predict<-ore.predict(ore_fit, newdata=OFSDATASET)
```

7.11.3 List of Prepackaged ORE Techniques

Button	Description
Regression Techniques	Linear Regression GLM Logistic Regression Stepwise Regression
Clustering Techniques	K-means Clustering
Correlation Techniques	Kendall Rank Correlation Pearson Correlation Coefficient Spearman Rank Correlation

7.11.4 List of NAG Techniques

The OFSAA Infrastructure aims to address the statistical computation needs of a Bank for its operations. The techniques that are supported including the regression models as well as Static Variable Transformations are as follows:

Button	Description	
Business Models	Credit Risk	CashFlow Model Conditional Default Model Credit Metrics Structural Model Distribution Fitting based Future Value Model Historical Loss Distribution Fitting Model Historical Pool Average Default Rate Model Merton Model Time to Default Model VAR Reader
	Market Risk	EWMA Model GARCH Model Market Risk VaR Model
	Operational Risk	Loss Distribution Approach
Statistical Techniques	Analysis of Variance	Two Factor Without Replication

Button	Description	
	Classification and Regression Trees	Entropy GINI
	Copula	Cook-Johnson Empirical Gaussian Gumbel - Hougaard Student t
	Data Analysis	Bivariate Analysis Descriptive Statistics
	Factor Analysis	Maximum Likelihood Extraction Method Principal Component Extraction method
	Goodness of Fit Tests	Anderson – Darling Test Chi-Square Test Kolmogrov-Smirnov Test
	Monte Carlo Simulation for Continuous Distributor	Beta Burr Chi - Square Empirical Exponential Gamma Generalized Pareto Gumbel Log Gamma Log Logistic Log Normal Log Weibull Multivariate Normal Pareto Distribution Snedecor F Student t Truncated Burr

Button	Description	
		Truncated Exponential Truncated Gamma Truncated Gumbel Truncated Log- Gamma Truncated Log- Logistic Truncated Log- Normal Truncated Pareto Truncated Uniform Truncated Weibull Uniform Univariate Normal Weibull
	Monte Carlo Simulation for Discrete Distributions	Binomial Negative Binomial Poisson
	Multivariate Methods	Discriminant Analysis Hierarchical Clustering k-means k-means and Boundary Based Prediction
	Non-Parametric Tests	Kruskal Wallis Mann Whitney Median Test Run Test Sign Test Two sample KS Test Wilcoxon Sign Rank
	Optimization techniques	Linear Programming Quadratic Programming
	Parametric Tests	Two Sample t-Test
	Regression Techniques	Generalized Linear Models - Gamma errors Generalized Linear Models - Gaussian errors

Button	Description	
		Linear Regression Linear Regression with Mixed Effects – ML Linear Regression with Mixed Effects – REML Logistic Regression Monte Carlo Expectation Maximization Poisson Regression Stepwise Regression
	Simultaneous Equations	Hermitian Linear Equations Simultaneous Linear Equations with Choleskey Factorization Simultaneous Linear Equations with LU Factorization
	Time Series	ARIMA Autocorrelation Cross Correlation between two Time Series
	Transition Matrix	Transition Matrix – EWMA Transition Matrix – Linear Regression Transition Matrix – Multi Factor Transition Matrix – Stepwise Regression Transition Matrix – Time Series
	Variance Covariance and Correlation Matrix	Kendall Rank Correlation Pearson Correlation Coefficient Spearman Rank Correlation

7.11.5 Prediction Techniques

Button	Description
Regression Techniques	Generalized Linear Mixed Models with Gamma Errors Generalized Linear Mixed Models with Gaussian Errors Linear Regression Logistic Regression Linear Regression with Mixed Effects – ML Linear Regression with Mixed Effects - REML

Button	Description
	Monte Carlo Expectation Maximization Poisson Regression Stepwise Regression
Clustering	K-means and Boundary Based Prediction Discriminant Analysis Hierarchical Clustering
Classification and Regression Trees	GINI
Factor Analysis	Principal Component Extraction Method
Time Series	ARIMA

7.11.6 Transition Matrix

Transition Matrix is a statistical technique used across multiple applications in OFSAAI. Transition Matrix is defined as a set of measures that quantify the probability of moving data from one state to another. *Transition Probability* defines the probability of transitioning data from one state to another over the time interval. The time interval and the horizon on which probabilities are estimated are derived from the User Input in the model definition interface.

Transition Matrix technique parameters are completely based on historical data. You can create multiple transition matrices and calibrated a set of data. For example institutions may calibrate different transition matrices for wholesale and retail exposures.

You can calibrate the parameters of a Transition Matrix technique by defining the required options in the *Model Definition* window. The *Model Definition* window within the Model Management section of OFSAAI consists of the following five different types of transition matrix techniques. Click on the required section to view the details.

- [Transition Matrix – EWMA](#)
- [Transition Matrix – Linear Regression](#)
- [Transition Matrix – Multi Factor](#)
- [Transition Matrix – Stepwise Regression](#)
- [Transition Matrix – Time Series](#)

7.11.6.1 Transition Matrix – EWMA

In EWMA (Exponentially Weighted Moving Average) method the *Decay factor* is the mandatory parameter required as user input. There is no calibration associated with the EWMA Model. The framework predicts transition probabilities based on user input of decay factor and time interval.

7.11.6.2 Transition Matrix – Linear Regression

Linear Regression method is used to establish relationship between *Explanatory Variable(s)* with a *Scalar Variable*. Linear Regression technique uses Linear functions for data modeling which can also estimate the unknown model parameters.

Regression scenario: Suppose you want to learn more about the purchasing behavior of customers of different ages. You can build a model to predict the ages of customers as a function of various demographic characteristics and shopping patterns. The prediction can then be done using a regression algorithm.

7.11.6.3 Transition Matrix – Multi Factor

The Multi Factor technique of model calibration refers to the process of estimating measures such as the *Average Z-Score* (difference between Standard Deviation from Mean), *Average Transition*, and so on. The historical data is transferred to the Sandbox Information Domain for model calibration. The following are the steps required for the estimation of the above measures:

- Calculate the historical average transitions.
- Calculate the z-scores.
- Subtract the average z-score from each historical time series.

In addition to calculating realized z-scores, the calibration process also computes the average z-score for each row of historical z-score time series and a parameter Alpha which is the standard deviation of average z-score shifts.

7.11.6.4 Transition Matrix – Stepwise Regression

In stepwise regression, the independent variables are selected automatically and the model is constructed in an iterative fashion. The three approaches for achieving the stepwise regression are:

- **Forward Selection:** In which the inclusion of a variable completely depends on its statistical significance.
- **Backward Elimination:** In which the included candidate variables are tested for statistical significance and are eliminated as they fail.
- **Combination:** This includes both Forward Selection and Backward Elimination process in which the variables are tested at different steps (check points) to determine whether they need to be carried along or not.

7.11.6.5 Transition Matrix – Time Series

Time series regression includes a series of data points considered at consecutive time intervals. This type of analysis is done to validate the time series data and to extract the statistics of the data under consideration. This model can also predict the future values using the previously observed values.

8 AMHM UMM Offline Population

AMHM (Attributes Members Hierarchies Module) UMM (Unified Metadata Manager) Offline Population within the Infrastructure system facilitates you to define the required Hierarchies data and Dimensions to populate large hierarchies in the UMM screens. You can map/unmap the required Hierarchies and submit for Execution.

You can access the *AMHM UMM Offline Population* screen from the LHS menu of the Infrastructure home page. In the Infrastructure home page, select the required Information Domain from the "Connected to" drop down list and select AMHM UMM Offline Population in the left hand side (LHS) menu.

AMHM UMM Offline Population

AMHM UMM Offline Population

⌵ Dimension Filter

Dimension: Common Chart of Accounts

⌵ Hierarchy Selection

Hierarchies	Selected Hierarchies
Alert@	
DATA FILTER_ID CODE_ABS EXP	Common Chart of Accounts - DATA FILTER_ID CODE_ABS EXP
DATA FILTER_ID CODE_ABS EXP	
hier	Common Chart of Accounts - hier
hier	
hier hier hier	
HIER1_copy	
HIER3_RW	
huge	
huge	
huge_copy	
JavaScript	
large1	

Save

⌵ Hierarchy Execution

Name	Status
Common Chart of Accounts - hier	SUCCESS
Common Chart of Accounts - DATA FILTER_ID CODE_ABS EXP	SUCCESS

Submit Refresh Close

To execute AMHM UMM offline population:

1. In the *Dimension Filter* section, select the required **Dimension** from the drop down list. The list consist of the Dimensions defined in the *Dimension Management* screen of Financial Services Application module. By default, “ALL” option is selected.
2. In the *Hierarchy Selection* section, define the required Hierarchies for offline submission. Select the required Hierarchy from the *Hierarchies* list and click . The hierarchy is displayed in the *Selected Hierarchies* list.

You can deselect a Hierarchy by selecting from the *Selected Hierarchies* list and clicking  or click  to deselect all Hierarchies.

3. Click **Save**. The selected Hierarchies are listed in the *Hierarchy Execution* section.
The *Hierarchy Execution* section displays the name of the hierarchies selected for submission along with the status as “NOT STARTED” before the submission. You can submit the selected hierarchies for execution.
4. Select **Submit**. Click **OK** in the information dialog to confirm submission. The details are queued for processing.

You can click **Refresh** to retrieve the status of each Hierarchy execution. Once the execution is complete, the status of each Hierarchy is changed to “SUCCESS”.

9 Financial Services Applications

Financial Services Applications in Oracle Financial Services Analytical Applications Infrastructure facilitates Business Analysts to make use of the deployed Infrastructure applications and transform financial data using the statistical techniques and identify the business opportunities.

The document deals with the information related to the workflow of Infrastructure Applications such Data Entry Forms and Queries, Dimension Management, Filters, and Expressions with the related procedures to assist, configure, and execute the tasks effectively.

You (Business Analysts) need to have Analyst function role mapped to access Financial Services Applications within the Infrastructure system. In the Infrastructure home page, select the required Information Domain in the “Connected to” drop down list and select Financial Services Applications in the left hand side (LHS) menu.

The *Financial Services Analytical Applications Infrastructure* screen is displayed with the deployed Infrastructure Applications and consists of **Administration**, **Master Maintenance**, and **Profitability Management** sections which in turn consist of the following sections. Click the links to view the sections in detail.

- [Data Entry Forms and Queries](#)
- [Dimension Management](#)
- [Filters](#)
- [Expressions](#)

9.1 Data Entry Forms and Queries

The contents of this section have been referenced from source. Click [Data Entry Forms and Queries](#) to view the details.

9.2 Dimension Management

Dimension Management within the Infrastructure system facilitates you to categorizes data into a single object as a Member, define levels and aggregate data to form the Hierarchies, and distinguish each member by defining the required Attributes.

Dimension Management is a licensed module and is accessible to those users who are mapped with the Business Analyst role in the Oracle Financial Services Analytical Application Infrastructure system.

9.2.1 Navigating to Dimension Management

Dimension Management is available within the Financial Services Applications module of Infrastructure system. You (Business Analysts) need to have ETL Analyst function role mapped to access Filters.

In the left hand side (LHS) menu of Infrastructure home page, click Financial Services Applications. In the *Financial Services Applications* screen click + to expand Master Maintenance section and select Dimension Management.

9.2.2 Components of Dimension Management

Dimension Management consists of the following sections. Click on the links to view the sections in detail.

- [Attributes](#)
- [Members](#)
- [Hierarchies](#)

9.2.3 Attributes

Attributes refers to the distinguished properties or qualifiers that describes a dimension member. Attributes may or may not exist for a simple dimension. Attributes section is available within the Dimension Management section of Financial Services Applications module. You (Business Analysts) need to have ETL Analyst function role mapped to access Attributes.

Attributes					
Attributes					
* Dimension					
Dimension		Common Chart of Accounts			
* Search					
Numeric Code		Name			
Data Type					
* Dimension Attributes					
	Numeric Code	Name	Data Type	Required	Seeded
☐	5091	%+1	Date	No	No
☐	5088	+	Date	No	No
☐	123456789	1234567890asdfghjklm123456789012345678901234567890a	Date	No	No
☐	123456797	123456797	Dimension	No	No
☐	123456800	a	Date	No	No
☐	123456801	A	Date	No	No
☐	5077	a1111111	Date	No	No

The *Attributes* screen displays the list of pre-defined Dimension Attributes with the other details such as the Numeric Code, Name, Data Type, Required, and Seeded. You can also make use of Search and Pagination options to search for a specific Attribute based on Numeric Code, Name,

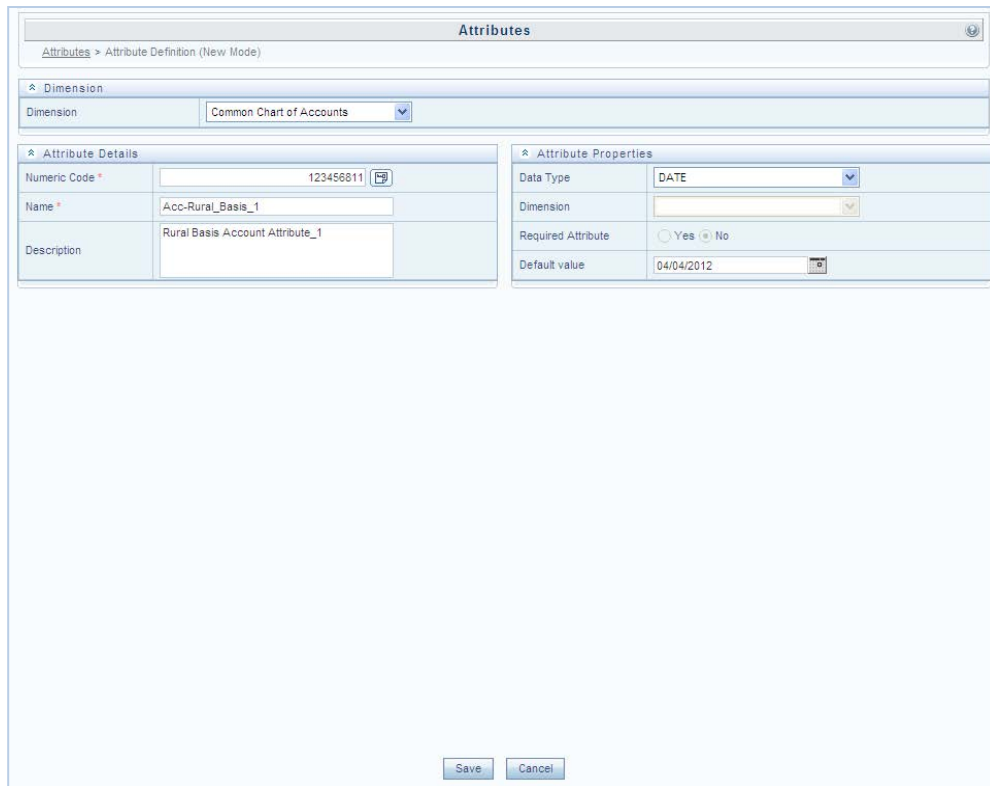
or Data Type and view the list of existing definitions within the system. For more information, refer [Pagination](#) and [Search and Filter](#).

9.2.3.1 Adding Attribute Definition

Attributes facilitates you to define the properties or qualifiers for the Dimension members.

To create an Attribute definition in the *Attributes* screen:

1. Select the  button in the Dimension Attributes toolbar. **Add** button is disabled if you have selected any checkbox in the grid. The *New - Attributes* screen is displayed.



2. In the Dimension section, select the required dimension from the drop down list.
3. Click  button in the Numeric Code field. A unique code is auto generated.
You can also manually enter the code in the **Numeric Code** field.
4. Enter the **Name** and required **Description** for the Attribute.
5. Enter the Attribute Properties as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	

Field	Description
Data Type	Select the Data Type as DATE, DIMENSION, NUMBER, or STRING from the drop-down list. If NUMBER is selected as the Data Type: The Scale field is enabled with "0" as default value. Enter a Scale value ≥ 0. If it is left as 0, values for this attribute will be limited to Integers. If you wish to enable decimal entries for this attribute, the maximum Scale value must be > 0 and $\leq$ the scale defined for NUMBER_ASSIGN_VALUE in the dimension's underlying attribute table. Please refer to the Data Model Utilities Guide for further details on the attribute table.
Required Attribute	Select Yes or No. If this is set to No, an attribute value is optional for the associated dimension members. Note: This field is disabled in Add and Edit modes if any members already exist for the Dimension upon which this attribute is defined.
Default Value	If Required Attribute is set to Yes, a Default Value must be entered, otherwise it is optional. If DIMENSION is selected as the Data Type: - Select the required Dimension from the drop-down list in the Dimension field. - Select the Default Value from the drop-down list of members mapped to the selected Dimension. If the required Member is not listed in the drop-down then select --More-- and the <i>Member Search</i> screen is displayed. For more information refer search. If NUMBER is selected as the Data Type: - Enter a numeric value in the Default Value field, and it must be consistent with the Scale you have defined. If DATE is selected as the Data Type: - Click  button to select a valid date as the Default Value from the calendar. If STRING is selected as the Data Type: - Enter alphanumeric value in the Default Value field.

6. Click **Save**. The entries are validated and the defined Attribute is captured.

9.2.3.2 Viewing Attribute Definition

You can view individual Attribute Definition details at any given point. To view the existing Attribute Definition details in the *Attribute* screen:

1. Select the checkbox adjacent to the Numeric Code of the Attribute, whose details are to be viewed.
2. Click  button in the Dimension Attributes tool bar.

The *View – Attributes* screen is displayed with the details such as Dimension, Numeric Code, Name, Description, and Attribute Properties.

9.2.3.3 Modifying Attribute Definition

You can Modify the Name, Description, or Default Value fields of an attribute definition. To modify an existing Attribute Definition in the *Attributes* screen:

1. Select the checkbox adjacent to the Numeric Code of the Attribute, whose details are to be updated.
2. Click  button in the Dimension Attribute tool bar. **Edit** button is disabled if you have selected multiple Attributes. The *Edit - Attributes* screen is displayed.
3. Edit the Attribute details such as Name, Description, or Default value. For more information, refer [Add Attribute Definition](#).
4. Click **Save** to save the changes.

9.2.3.4 Copying Attribute Definition

The Copy Attribute Definition facilitates you to quickly create a new Attribute Definition based on the existing attributes or by updating the values of the required attributes. To copy an existing Attribute Definition in the *Attributes* screen:

1. Select the checkbox adjacent to the Numeric Code of the Attribute, whose details are to be duplicated.
2. Click  button in the Dimension Attributes toolbar to copy a selected Attribute definition. **Copy** button is disabled if you have selected multiple Attributes.
3. In the *Copy – Attributes* screen you can:
 - Create new attribute definition with existing variables. Specify new **Numeric Code** and **Attribute Name**. Click **Save**.
 - Create new attribute definition by updating the required variables. Specify new **Numeric Code** and **Attribute Name**. Update the required details. For more information, refer [Add Attribute Definition](#). Click **Save**.

The new attribute definition details are displayed in the *Attributes* screen.

9.2.3.5 Attribute Definition Dependencies

You can view the dependencies of Attributes. To view the dependency of attribute in the *Attributes* screen:

1. Select the checkbox adjacent to the Numeric Code of the Attribute whose dependency is to be checked.
2. Click  button in the Dimension Attributes toolbar. The **Check Dependencies** button is disabled if you have selected multiple attributes. The *Attributes Dependency Information* screen is displayed with the dependency details.

9.2.3.6 Deleting Attribute Definition

You can remove the Attribute Definitions which are not required in the system by deleting from the *Attributes* screen.

1. Select the checkbox adjacent to the Numeric Code(s) of the Attributes whose details are to be removed.
2. Click  button in the Dimension Attributes tool bar.
3. Click **OK** in the information dialog to confirm deletion.

9.2.4 Members

Dimension Members refers to the individual items that constitutes a dimension when data is categorized into a single object. Example, Product, Organization, Time, and so on. Members is available within Dimension Management section of the Infrastructure system. You (Business Analysts) need to have ETL Analyst function role mapped to access Members.

Alphanumeric Code	Numeric Code	Name	Is Leaf
☐ 30/360	1	30/360	
☐ 30/365	4	30/365	
☐ 30/A	5	30/Actual	
☐ A/360	2	Actual/360	
☐ A/365	6	Actual/365	
☐ A/A	3	Actual/Actual	
☐ B/252	7	Business/252	
☐ NONE	-1	None	

The *Members* screen displays the list of pre-defined Dimension Members with the other details such as the Alphanumeric Code, Numeric Code, Name, and Is Leaf. You can also make use of Search and Pagination options to search for a specific Member based on Alphanumeric / Numeric Code (irrespective of whether dimension is configured to be numeric or alphanumeric), Name, Description, Enabled status, Is Leaf status, Attribute Name, or Attribute Value and view the list of existing definitions within the system. For more information, refer [Pagination](#) and [Search and Filter](#).

9.2.4.1 Adding Member Definition

To create an Attribute definition in the *Attributes* screen:

1. Select the  button in the Dimension Members toolbar. **Add** button is disabled if you have selected any checkbox in the grid. The *New – Member Details* screen is displayed.

2. In the Dimensions section, select the required dimension from the drop down list.
3. Enter the Member Details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Alphanumeric Code	The Alphanumeric Code field is editable only if the selected Dimension accepts Alphanumeric Code. For example, Billing Method Dimension. Else, the field is Read Only and the value is fetched from the Numeric Code field entered. Enter the required Alphanumeric Code. Ensure that the code has a maximum of 14 characters and there are no special characters like & ' ~ " @ + included.
Numeric Code	Enter the Numeric Code by doing any of the following: - To auto-generate a Numeric Code, click  button. A system generated code is displayed. - Manually enter the required code which is auto validated for uniqueness. A maximum of 14 numeric characters can be specified. Note: if the selected Dimension accepts only Numeric Code, then the specified, the Numeric Code is auto populated to the Alphanumeric Code field also.
Name	Enter the Name of the Member.
Description	Enter the required Description for the Member.

Field	Description
Enabled	This field is set to Yes by default and is editable only in Edit screen. Note: You can change the option to No only when the particular member is not used in any hierarchy. The disabled members will not be displayed in Hierarchy rules, or UIs which are based on Hierarchies, such as Hierarchy Filters and hierarchical assumption browsers used in applications.
Is Leaf	This field is set to Yes by default. If Yes, the particular member can be used as a leaf node in any hierarchy and child cannot be added to this node. If No, the node becomes a non leaf and can have child nodes. Note: A member created as Non Leaf having child nodes to it in any hierarchy cannot be made Leaf.

NOTE: If the Dimension is selected as “Common Chart of Accounts”, proceed further. Else, jump to step 5.

- Click  button in **Copy Attribute Assignment From** field. The *Member Browser Properties* screen is displayed. (Optional) This field can be left blank so that the Member Attributes panel can be filled in without considering the values already assigned.

Members

Dimension: Common Chart of Accounts

Search

Alphanumeric Code: Numeric Code:

Name:

Description:

Enabled: ☐ Yes ☐ No Is Leaf: ☐ Yes ☐ No

Attribute Name: Attribute Value:

Dimension Members

Alphanumeric Code	Numeric Code	Name
109	109	a12
108	108	aaa101
124	124	aaa10111
107	107	AMHMUMM_MEM
135	135	aMHMUMM_MEM
114	114	AMHMUMM_MEM12
117	117	AMHMUMM_MEM13
118	118	AMHMUMM_MEM14
119	119	AMHMUMM_MEM15
120	120	AMHMUMM_MEM17

Ok Close

- Select the required Member from the *Dimension Members* list.

Click  button in the *Search* grid to search for a specific Member based on Alphanumeric Code, Numeric Code, Name, Description, Enabled status, Is Leaf status, Attribute Name, or Attribute Value. You can also click  button to find a member present in the *Dimension Members* grid using key words.

- Click **OK**. The selected Member is displayed in the **Copy Attribute Assignment From** field in *New – Member Details* screen and the details of selected Attribute are displayed in the *Member Attributes* section. You can edit the Attribute details as indicated:
 - Edit Attribute based on date by clicking the  ([Calendar](#)) icon.
 - Edit Attribute based on Dimension Value by selecting from the drop down list.
 - Edit Attribute based on Number Value by entering the valid numerical value.
 - Edit Attribute based on String Value by specifying alphanumerical value.

5. Click **Save** and the defined Member Definition is captured after validating the entries.

9.2.4.2 Viewing Member Definition

You can view individual Member Definition details at any given point. To view the existing Member Definition details in the *Members* screen:

1. Select the checkbox adjacent to the Alphanumeric Code of the Member, whose details are to be viewed.
2. Click  button in the Dimension Members tool bar.

The *View – Member Details* screen is displayed with the details such as Dimension, Member Details, and Member Attributes details.

9.2.4.3 Modifying Member Definition

You can Modify the Name, Description, or Enabled fields of a Member definition. To modify an existing Member Definition in the *Members* screen:

1. Select the checkbox adjacent to the Alphanumeric Code of the Member, whose details are to be updated.
2. Click  button in the Dimension Member tool bar. **Edit** button is disabled if you have selected multiple Members. The *Edit – Member Details* screen is displayed.
3. Edit the Member details as required. For more information, refer [Add Member Definition](#).
4. Click **Save** to save the changes.

9.2.4.4 Copying Member Definition

The Copy Member Definition facilitates you to quickly create a new Member Definition based on the existing attributes or by updating the values of the required members. To copy an existing Member Definition in the *Members* screen:

1. Select the checkbox adjacent to the Alphanumeric Code of the Member, whose details are to be duplicated.
2. Click  button in the Dimension Members toolbar to copy a selected Member definition. **Copy** button is disabled if you have selected multiple Members.
3. In the *Copy – Member Details* screen you can:
 - Create new Member with existing variables. Specify the **Numeric Code** and new **Member Name**.
 - Create new Member definition by updating the required variables. Specify the **Numeric Code** and new **Member Name**. Update the required details. For more information, refer [Add Member Definition](#). Click **Save**.

The new member definition details are displayed in the *Members* screen.

9.2.4.5 Member Definition Dependencies

You can view the dependencies of Members. To view the dependency of member in the *Members* screen:

1. Select the checkbox adjacent to the Alphanumeric Code of the Member, whose dependency is to be viewed.
2. Click  button in the Dimension Members toolbar. The **Check Dependencies** button is disabled if you have selected multiple members. The *Members Dependency Information* screen is displayed with the dependency details.

9.2.4.6 Deleting Member Definition

You cannot delete predefined members or the members which are the Nodes for a hierarchy. To delete a Member in the *Members* screen.

1. Select the checkbox adjacent to the Alphanumeric Code(s) of the Members, whose details are to be removed.
2. Click  button in the Dimension Members tool bar.
3. Click **OK** in the information dialog to confirm deletion.

9.2.5 Hierarchies

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

The screenshot shows the 'Hierarchies' screen. At the top, there is a search bar with 'FUSamhm' entered. Below the search bar, there is a table of hierarchy definitions. The table has columns: Name, Display Level, Created By, Creation Date, and Last Modification Date. The table contains the following data:

Name	Display Level	Created By	Creation Date	Last Modification Date
HIER3_RW	1	STUSER	14-SEP-11 11:54:00	14-SEP-11 11:54:00
hierarchy_member01	1	STUSER	03-APR-12 10:30:20	03-APR-12 10:34:08
Hierst	1	STUSER	07-APR-12 16:04:26	07-APR-12 16:04:26
HIER_AMHM	1	STUSER	15-FEB-12 13:32:27	15-FEB-12 13:32:27
hier_dep02	1	STUSER	09-MAY-12 00:30:33	09-MAY-12 00:35:39
hier_depend01	1	STUSER	09-MAY-12 00:08:22	09-MAY-12 00:08:22
huge	1	STUSER	15-SEP-11 02:37:29	15-SEP-11 02:39:53

The *Hierarchies* screen displays the list of pre-defined Hierarchies with the other details such as the Name, Display level, Created By, Creation Date, and Last Modification Date. You can also make use of Search and Pagination options to search for a specific Hierarchy definition based on Folder, Hierarchy Name, Dimension Member Alphanumeric Code, Dimension Member Numeric Code, or Dimension Member Name and view the existing definitions within the system. For more information, refer [Pagination](#) and [Search and Filter](#).

9.2.5.1 Adding Hierarchy Definition

In the *Hierarchies* screen, you can create Hierarchy Definition up to 15 levels by default. The maximum permissible levels are up to 58 Hierarchies. To create a Hierarchy definition in the *Hierarchies* screen:

1. Select the  button in the Hierarchies toolbar. **Add** button is disabled if you have selected any checkbox in the grid. The *New – Hierarchy Details* screen is displayed.

2. Select **Dimension** from the dropdown list. The selected Dimension from the *New – Hierarchy Details* screen is displayed as the default dimension for which member has to be defined. Enter the Hierarchy Properties as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Name	Enter the Name of the Hierarchy.
Description	Enter the required Description for the Hierarchy.
Folder	Select the Folder where the hierarchy is to be stored from the drop down list.
Access Type	Select the Access Type as Read Only or Read/Write . Read-Only: Select this option to give other users access to only view the hierarchy definition. Read/Write: Select this option to give all users the access to view, modify (including Access Type) and delete the hierarchy definition.
Automatic Inheritance	- Click Yes to inherit the hierarchy properties of the parent to the child. - Click No if you want to define a new hierarchy.

Field	Description
Display Signage	Click Yes to display the Signage to the right hand side of the member in the Show hierarchy panel. Else, click No .
Show Member Code	Select from the drop down list as one of the following: ▪ Alphanumeric Code to Left of Name: Displays Alphanumeric Code on the Left side of Member name. ▪ Alphanumeric Code to Right of Name: Displays Alphanumeric Code on the Right side of Member name. ▪ Only Name - No Code: Displays only the Member Name. ▪ Numeric Code to Left of Name: Displays the Numeric Code on the Left side of Member name. ▪ Numeric Code to Right of Name: Displays the Numeric Code on the Right side of Member name.
Initial Display Level	Select the Initial Display level from the drop down list.
Orphan Branch	Click Yes to display the Orphan Branch in the Show Hierarchy panel. Else, click No .

To add Child under the **Show Hierarchy** tab:

- Right-click in the *Show Hierarchy* tab.
- Select **Add Child** option and the *Add Member* screen are displayed.
- Select the required Member and click . The Member is displayed in the **Selected Members** panel. You can click  to select all Members.

You can click  to deselect a Member or click  to deselect all the Members. You can click  to search for the required member using Alphanumeric code, Numeric Code, Name, Description, Attribute Name, or Attribute Value.

You can also click  button to toggle the display of Numeric Code left, right, or name and click  button to display Alphanumeric Code left, right, or name.

- Click **OK**. The selected Member is displayed as Child under **Show Hierarchy** panel in the *New – Hierarchy Details* screen.

To add Sibling:

- Right-click on the Child and select the option **Add Sibling**. The *Add Member* screen is displayed.

- Select the required Member and click . The Member is displayed in the **Selected Members** panel. You can click  to select all Members.
You can click  to deselect a Member or click  to deselect all the Members. You can also Click  to search for the required member.
- Click **Apply**. The selected Member is displayed as **Sibling** below the **Parent** under Show Hierarchy panel in the *New – Hierarchy Details* screen.

To add Leaf under a Parent, Child, or Sibling:

- Right-click the Parent or Child and select **Add Leaf**. The *Add Member* screen is displayed.
- Select the required Member and click . The Member is displayed in the **Selected Members** panel. You can click  to select all Members.
You can click  to deselect a Member or click  to deselect all the Members. You can also Click  to search for the required member.
- Click **Apply**. The selected Member is displayed as Leaf below the Parent or Sibling under **Show Hierarchy** panel in the *New – Hierarchy Details* screen.

To define Level Properties:

- Select **Level Properties** from the options under Parent, Child, Sibling or Leaf and the *Level Properties* screen is displayed.
- Enter the valid **Name** and **Description** in the respective fields.
- Click **OK** and the Levels defined are displayed in the dropdown in **Initial Level Display** field in **Hierarchy Properties** grid in *New – Hierarchy Details* screen.

To cut and paste Child or Sibling:

- Right-click on any node and select **Cut**.
- Right-click on any node and **Paste as Child** or **Paste as Sibling**.

To Delete and Undelete:

- Right-click on the node to be deleted and select **Delete Node**.
The node deleted is stroked out.
- Right-click and select **UnDelete** to cancel deletion of the node.

To add Child / Sibling / leaf:

- Right-click on any node and select **Create and add Child**. The *New - Member Details* screen is displayed. For more information, refer [Add Member Definition](#).

- Right-click on any node and select **Create and add Sibling**.
- Right-click on any node and select **Create and add leaf**.

To View the Member Properties and Member Attributes of a node in the Show Hierarchy panel:

- Click < button and the Member Property grid is displayed.
- Click on a Member. The properties such as **Alphanumeric code, Numeric Code, Name, Description, Enabled, Is Leaf, Created By, Creation Date, Last Modified By, Last Modification Date, Attribute**, and **Value** of the selected Member are displayed in the *Member Properties* and *Member Attributes* grids.

In the *Hierarchies* screen you can also:

- Click  or  to expand or collapse the members under a node.
 - Click  or  to expand a branch or collapse a branch.
 - Click  or  to focus or unfocus a selected node except the root node.
 - Click  or  to toggle the display of Numeric Code or Alphanumeric code at left of the nodes, right of the nodes or to hide.
 - Click  button to view the Advanced Properties of the nodes.
3. Click **Save** in the *New – Hierarchy Details* screen to validate and capture the entries.

The *Audit Trail* section at the bottom of the screen displays the metadata about the Hierarchy with the option to add additional information as comments. The *User Comments* section facilitates you to add or update additional information as comments.

9.2.5.2 Viewing Hierarchy Definition

You can view individual Hierarchy Definition details at any given point. To view the existing hierarchy Definition details in the *Hierarchies* screen:

1. Select the checkbox adjacent to the Hierarchy Name.
2. Click  button in the Hierarchies tool bar. The **View** button is disabled if you have selected multiple Hierarchies.

The *View – Hierarchy Details* screen is displayed with all the hierarchy details.

In the *View – Hierarchy Details* screen you can click  button to search for a member using the Alphanumeric Code, Numeric Code, or Member Name in the *Search* dialog.

9.2.5.3 Modifying Hierarchy Definition

You can Modify the Name, Description, Folder, Access Type, Automatic inheritance, Display Signage, Show Member Code, Initial Display level, Orphan branch, Show hierarchy details in *Edit – Hierarchy Details* screen.

1. Select the checkbox adjacent to the Hierarchy Name whose details are to be updated.
2. Click  button in the Hierarchies tool bar. **Edit** button is disabled if you have selected multiple Members. The *Edit – Hierarchy Details* screen is displayed.

In the *Edit – Hierarchy Details* screen you can click  button to search for a member using the Alphanumeric Code, Numeric Code, or Member Name in the *Search* dialog.

3. Edit the Hierarchy details as required. For more information, refer [Add Hierarchy Definition](#).
4. Click **Save** and save the changes.

9.2.5.4 Copying Hierarchy Definition

The Copy Hierarchy Definition facilitates you to quickly create a new Hierarchy Definition based on the existing attributes or by updating the values of the required hierarchies. To copy an existing Hierarchy Definition in the *Hierarchies* screen:

1. Select the checkbox adjacent to the Hierarchy name whose details are to be duplicated.
2. Click  button in the Hierarchies toolbar to copy a selected Hierarchy definition. **Copy** button is disabled if you have selected multiple Hierarchies. The *Copy – Hierarchy Details* screen is displayed.

In the *Copy – Hierarchy Details* screen you can click  button to search for a member using the Alphanumeric Code, Numeric Code, or Member Name in the *Search* dialog.

3. In the *Copy – Hierarchy Details* screen you can:
 - Create new hierarchy definition with existing variables. Specify a new **Hierarchy Name**. Click **Save**.
 - Create new hierarchy definition by updating the required variables. Specify a new Hierarchy Name and update the required details. For more information, refer [Add Hierarchy Definition](#). Click **Save**.

The new Hierarchy definition details are displayed in the *Hierarchies* screen.

9.2.5.5 Hierarchy Definition Dependencies

You can view the dependencies of Hierarchies. To view the dependency of hierarchy in the *Hierarchies* screen:

1. Select the checkbox adjacent to the Hierarchy Name.
2. Click  button in the Hierarchies toolbar. The **Check Dependencies** button is disabled if you have selected Hierarchy definitions. The *Hierarchies Dependency Information* screen is displayed.

9.2.5.6 Deleting Hierarchy Definition

You can remove the Hierarchy Definitions which are not required in the system by deleting from the *Hierarchies* screen.

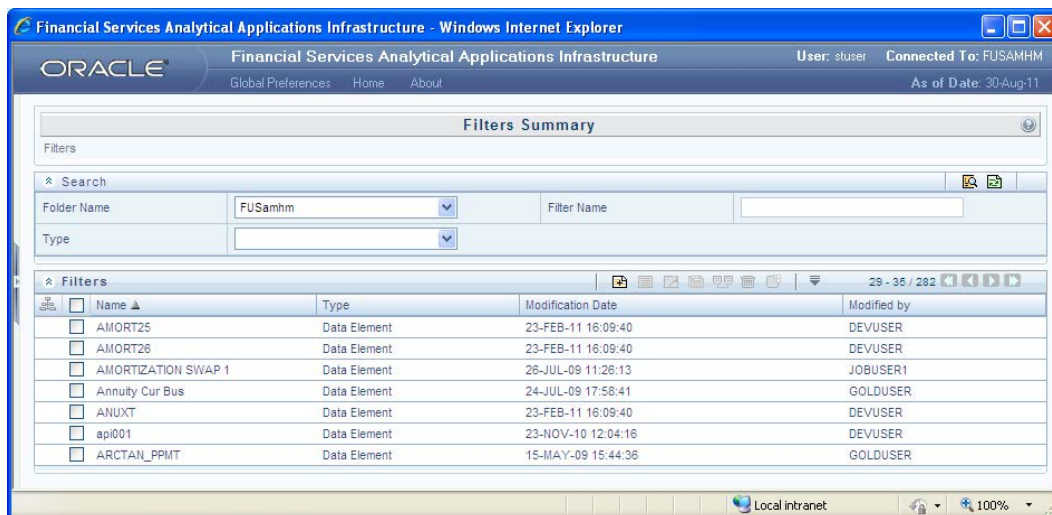
1. Select the checkbox adjacent to Hierarchy Name(s) whose details are to be removed.
2. Click  button in the Hierarchies tool bar.
3. Click **OK** in the information dialog to confirm deletion.

9.3 Filters

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

9.3.1 Navigating to Filters

Filters is available in both *Business Metadata Management > Filters* and *Financial Services Applications > Master Maintenance* sections of Infrastructure system.

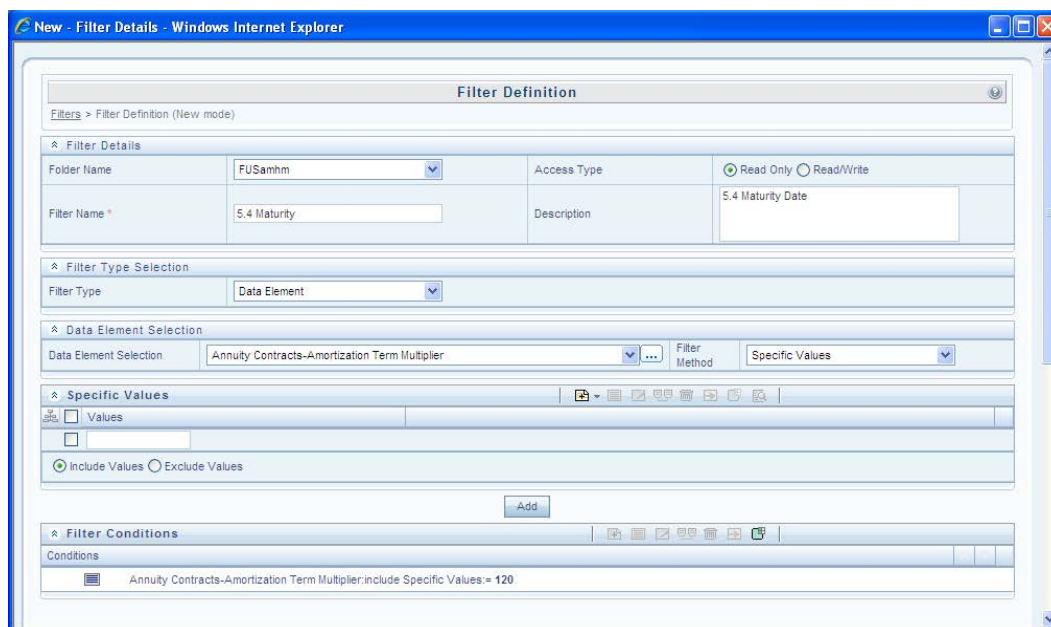


The *Filters Summary* screen displays the list of pre-defined Filters with the other details such as the Name, Type, Modification Date, and Modified By. You can also make use of Search and Pagination options to search for a specific Filter definition based on Folder Name, Filter Name, or Type and view the list of existing definitions within the system. If you have selected Hierarchy filter type, the Dimension drop down list is also displayed. For more information, refer [Pagination](#) and [Search and Filter](#).

9.3.2 Adding Filter Definition

To create a new filter from the *Filters Summary* screen:

1. Select the  button in the Filters toolbar. **Add** button is disabled if you have selected any checkbox in the grid. The *New - Filter Details* screen is displayed.



2. Enter the Filter Details section details as tabulated:

Field	Description
Folder Name	Select the Folder Name where the Filter is to be stored from the drop down list.
Access Type	Select the Access Type as Read Only or Read/Write . ▪ Read-Only: Select this option to give other users the access to only view the filter definition. ▪ Read/Write: Select this option to give all users the access to view, modify (including Access Type) and delete the filter definition.
Filter Name	Enter the filter name in the Filter Name field.

Field	Description
Description	Enter the description of the filter in the Description field.

3. In the *Filter Type Selection* select the **Filter Type** from the drop down list.

The *Filter Details* grid fields remain the same despite the Filter Type selected. There are four different Filter Types available in the *Filter Type Selection* grid as tabulated. Click on the links to navigate to the appropriate sections.

Filter	Description
Data Element	Data Element Filter is a stored rule that expresses a set of constraints. Only columns that match the data type of your Data Element selection are offered in the Data Element drop down list box. Example: Balances between 10,000 and 20,000 Accounts opened in the current month Loans with amortization terms greater than 20 years. Data Element Filters can access most instrument columns and most columns in the Management Ledger. Data Element Filters are used within other OFSAA rule types (e.g., Allocation rules, Transfer Pricing rules, Asset Liability Management rules, etc)
Hierarchy	Hierarchy Filter allows you to utilize rollup nodes within a Hierarchy to help you exclude (filter out) or include data within an OFSAA rule. Example: You might want to process data for a specific set of divisions or lines of business where you have a Hierarchy rule that expresses those divisions or lines of business as rollup nodes. A Hierarchy Filter could be constructed to "enable" the Commercial and Retail lines of business while NOT enabling the Wealth Management line of business. Each of these lines of business might include a handful or even thousands of cost centers. When incorporated into an OFSAA processing rule, this Hierarchy Filter would include every cost center in the Commercial and Retail lines of business.
Group	Group Filters can be used to combine multiple Data Element Filters with a logical "AND". Example: If Data Element Filter #1 filtered on mortgage balances greater than 100,000 and Data Element Filter #2 filtered on current mortgage interest rates greater than 6%, you could construct a Group Filter to utilize both Data Filters. In this case, the resulting Group Filter would constrain your data selection to mortgage balances greater than 100,000 AND current mortgage interest.
Attribute	Attribute Filters are created using defined Attributes. Attribute filters facilitates

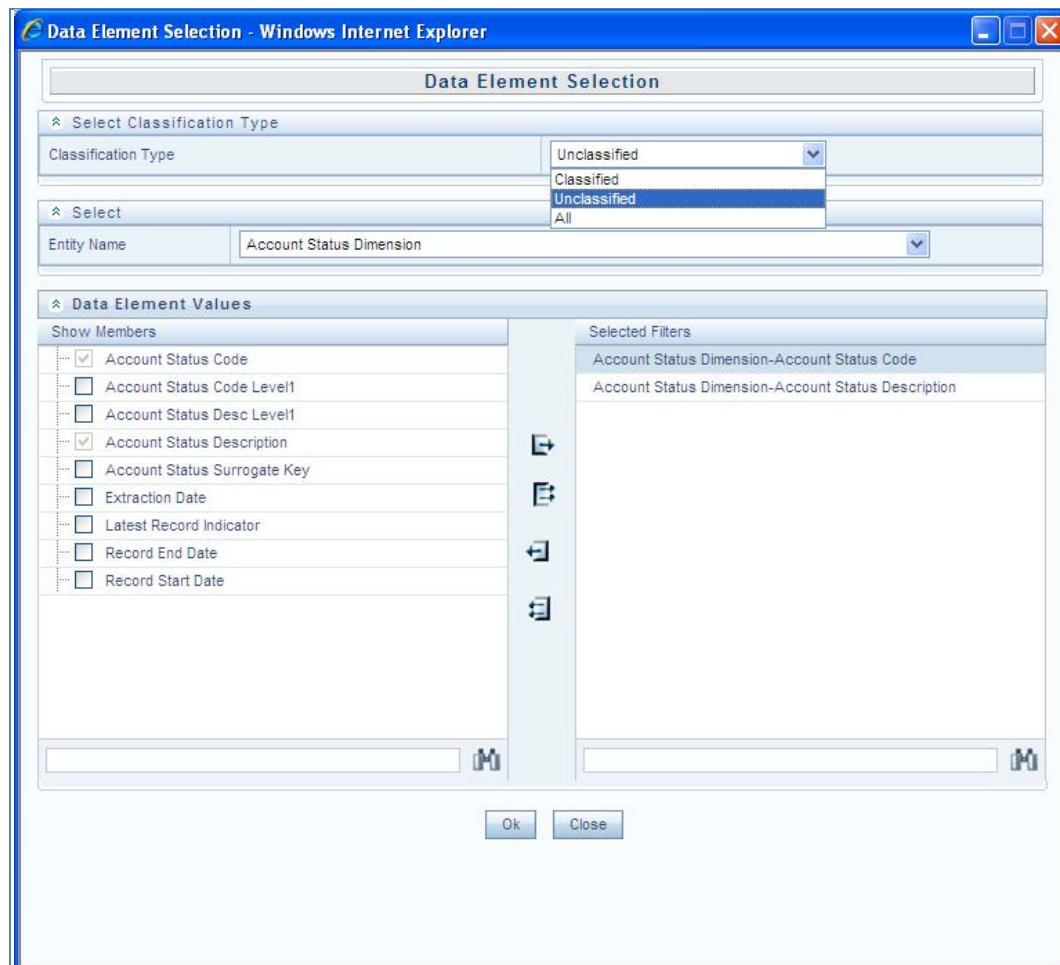
Filter	Description
	you to filter on one or more Dimension Type Attributes. For each attribute, you can select one or more values. Example: Consider a filter that selects all records where the dimension <i>Common Chart of Account member</i> represents an attribute value <i>Expense account</i>, i.e., the attribute "Account Type" = Expense. Now, using Attribute Filters, you can specify complex criteria as given below: Common Chart of Accounts where the Account Type attribute is Earning Assets or Interest-bearing Liabilities, and the Accrual Basis attribute is Actual/Actual Also, You could further refine the filter by adding another condition for: Organizational Unit where the Offset Org ID is a specific Org member The Filter then saves these criteria rather than the member codes which meet the criteria at the time the Filter is saved. During execution, the engine dynamically selects all records from your processing table (e.g. Mortgages, Ledger, etc.), which meet the specified member attribute criteria.

Once the required filter conditions are defined, save the Filter definition.

9.3.2.1 Define Data Element Filter

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

1. In the *Data Element Selection* section, click  button. The *Data Element Selection* screen is displayed.



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

- Click **OK**. The selected Data Elements are displayed in the **Data Element Selection** field.

2. Select the **Filter Method** from the drop down list.

For each column you wish to include in your Data Filter definition, you must specify one of the following Filter Method:

Filter	Description
Specific Values	Specific Values are used to match a selected database column to a specific value or values that you provide. You may either include or exclude Specific Values. You can add additional values by clicking on the  button, and reduce the number of Specific Values by clicking on the checkbox to the left of a value and then clicking on the  button. ▪ When comparing Specific Values for a character type column, you must provide Specific Values that are character strings. ▪ When comparing Specific Values for a date type column, you must provide Specific Values that are dates (the application displays a Calendar control). ▪ When comparing Specific Values for a numeric column, you must provide Specific Values that are numbers. Select Include Values or Exclude Values to include or exclude the selected values.
Ranges	Ranges are used to match a selected database column to a range of values or to ranges of values that you provide. You may either include or exclude Range values. You can add additional values by clicking on the  button and you can reduce the number of Ranges by clicking on the checkbox to the left of a value and then clicking on the  button. ▪ When comparing Ranges for a character type column, you must provide Specific Values that are character strings. ▪ When comparing Ranges for a date type column, you must provide Specific Values that are dates (the application displays a Calendar control). ▪ When comparing Ranges for a numeric column, you must provide Specific Values that are numbers. You can use any of the following operators when choosing the Another Data Element Filter Method: =, <> (meaning "not equal to"), <, >, <=, or >=. Select Include Values or Exclude Values to include or exclude the selected values
Another Data Element	Another Data Element is used to match a selected database column to another database column. When constructing an Another Data Element Filter Method, you

Filter	Description
	may only compare a column to other columns that you have already selected (the Data Element drop down list box will only contain columns that you have already selected). You may use any of the following operators when choosing the Another Data Element Filter Method: =, <> (meaning "not equal to"), <, >, <=, or >=.
Expression	Expression is used to match a selected database column to the results of an OFSAAI Expression rule. You may any of the following operators when choosing the Expression Filter Method: =, <> (meaning "not equal to"), <, >, <=, or >=.

- Click **Add** to list the completed filter conditions in the *Filter Conditions* grid.
 - Click **Update** after modifying a filter condition to update in the *Filter Conditions* grid.
 - Click ▲ or ▼ buttons to move a selected Filter Condition up or down.
 - Click  button to delete selected individual Filter Conditions records.
3. Click **Add/Update** in the *Filter Definition* screen if you are creating a new or updating an existing Filter definition.
 4. Click **Save** to validate the entries and save the filter details.

9.3.2.2 Define Hierarchy Filter

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

1. Select the required **Dimension** from the drop down list.
2. Select the associated **Hierarchy** from the drop down list. You can select **More** to search for a specific Hierarchy in the *Hierarchy more* dialog.
3. Select any combination of rollup points and leaf (last descendent child) values.

In the *New – Filter Details* screen you can:

- Click  button to search for a hierarchy member using Dimension Member Alphanumeric Code, Dimension Member Numeric Code, Dimension Member Name, or Attribute and by keying in Matching Values in the *Search* dialog.
- Click  or  to expand or collapse the members under a node.
- Click  or  to expand a branch or collapse a branch.
- Click  or  to focus or unfocus a selected node except the root node.

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

You can also click  button to find a member present in the nodes list using key words.

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

9.3.2.3 Define Group Filter

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

- Select the checkbox(s) adjacent to the required member names in the *Available Filters* section and click . The selected members are displayed in the *Selected Filters* section. Click  to select all the Members.

You can click  to deselect a Member or click  to deselect all the Members.

You can also click  button to search for a member in the *Data Element Filter Search* dialog using **Folder Name** and **Filter Name**.

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

9.3.2.4 Define Attribute Filter

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

- Select the required **Dimension** from the drop down list.
- Select the associated **Attribute** from the drop down list. The list consists of only *Dimension Type* attributes for selection.
- Click  button in the *Attribute Values* grid. The *Attribute Values* screen is displayed.

In the *Attribute Values* screen, the **Dimension** field under *Dimension* grid is auto populated with the Dimension name with which the selected Attribute is defined and is non-editable. In the *Search* grid you can search for Attribute Values depending on Alphanumeric Code, Numeric Code, or Name.

- Select the checkbox(s) adjacent to the Alphanumeric Codes of the required Attribute Values in the *Attribute Values* grid and click **OK**. The *Attribute Values* grid displays the selected attribute values.

Select Attribute Value(s) in the *Attribute Values* grid and click  button to delete it.

You can use the Attribute Values present in the *Attribute Values* grid to generate conditions.

- Click **Add** button in the *Attribute Values* grid. The *Filter Conditions* grid is populated with the filter condition using all the Attribute values.

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

In the *Filter Conditions* grid, you can select a condition to view the Attribute Values used to generate it and can update the condition.

You can also click  button to view the SQL statement in *View SQL* screen. Click  button to view a long filter condition in *View Condition* dialog.

- Click **Save**. The Attribute Filter definition is saved.

9.3.3 Viewing Filter Definition

You can view individual Filter details at any given point. To view the existing Filter Definition details in the *Filters Summary* screen:

- Select the checkbox adjacent to the Filter Name.
- Click  button in the Filter tool bar.

The *View – Filter Details* screen is displayed with the filter details.

9.3.4 Modifying Filter Definition

You can Modify the Filter Definition details as required in the *Edit – Filter Details* screen.

- Select the checkbox adjacent to the Filter Name whose details are to be updated.
- Click  button and the *Edit – Filter Details* screen is displayed. Modify the required changes. For more information refer [Add Filter Definition](#).
- Click **Save** to save the changes.

9.3.5 Copying Filter Definition

The Copy Filter Definition facilitates you to quickly create a new Filter Definition based on the existing parameters or by updating the values. To copy an existing Filter Definition in the *Filters* screen:

- Select the checkbox adjacent to the Filter Name which you want to create a copy.
- Click  button in the Filters tool bar. **Copy** button is disabled if you have selected multiple checkboxes. The *Copy – Filter Details* screen is displayed.
- In the *Copy – Filter Details* screen you can:
 - Create new filter definition with existing variables. Specify a new **Filter Name** and click **Save**.

- Create new filter definition by updating the required variables. Specify a new Filter Name and update the required details. For more information refer [Add Filter Definition](#). Click **Save**.

The new filter definition details are displayed in the *Filters Summary* screen.

9.3.6 Checking Dependencies

You can view the dependencies of a defined Filter. To check the dependencies of a filter from the Filters Summary screen:

1. Select the checkbox adjacent to the Filter Name.
2. Click  button in the Filters tool bar. The **Check Dependencies** button is disabled if you have selected multiple members.

The *Dependent Objects* screen is displayed with Object ID, Name, and ID Type of the dependant Objects.

9.3.7 Viewing SQL of Filter

You can view the corresponding SQL of a defined filter.

To view the SQL of a filter from the *Filters Summary* screen:

1. Select the checkbox adjacent to the filter to view the SQL.
2. Click  button. The SQL equivalent of the selected filter is displayed in the *View SQL* screen

9.3.8 Deleting Filter Definition

You can remove the Filter Definitions which are not required in the system by deleting from the *Filters Summary* screen.

NOTE: A filter definition with dependency cannot be deleted.

1. Select the checkbox adjacent to the Filter Name whose details are to be removed.
2. Click  button in the Filters tool bar.
3. Click **OK** in the information dialog to confirm deletion.

9.4 Expressions

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

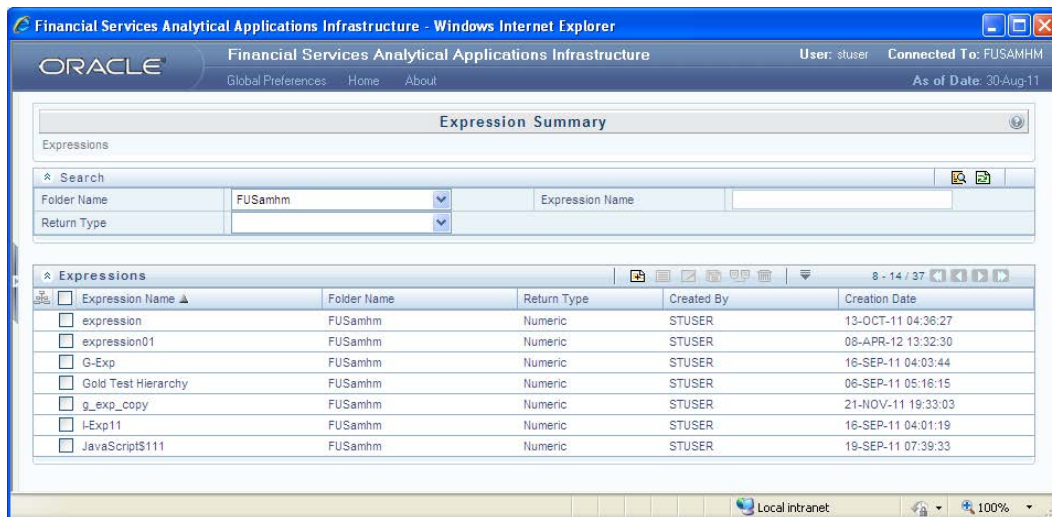
- To specify a calculated column that the Oracle Financial Services Analytical Application derivatives from other columns in the database.
- To calculate assignments in data correction.
- To create calculated conditions in data and relationship filters.

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

9.4.1 Navigate to Expressions

Expressions is available within the Dimension Management section of Infrastructure system. You (Business Analysts) need to have ETL Analyst function role mapped to access Filters.

In the left hand side (LHS) menu of Infrastructure home page, click Financial Services Applications. In the *Financial Services Applications* screen click + to expand Master Maintenance section and select Expressions.

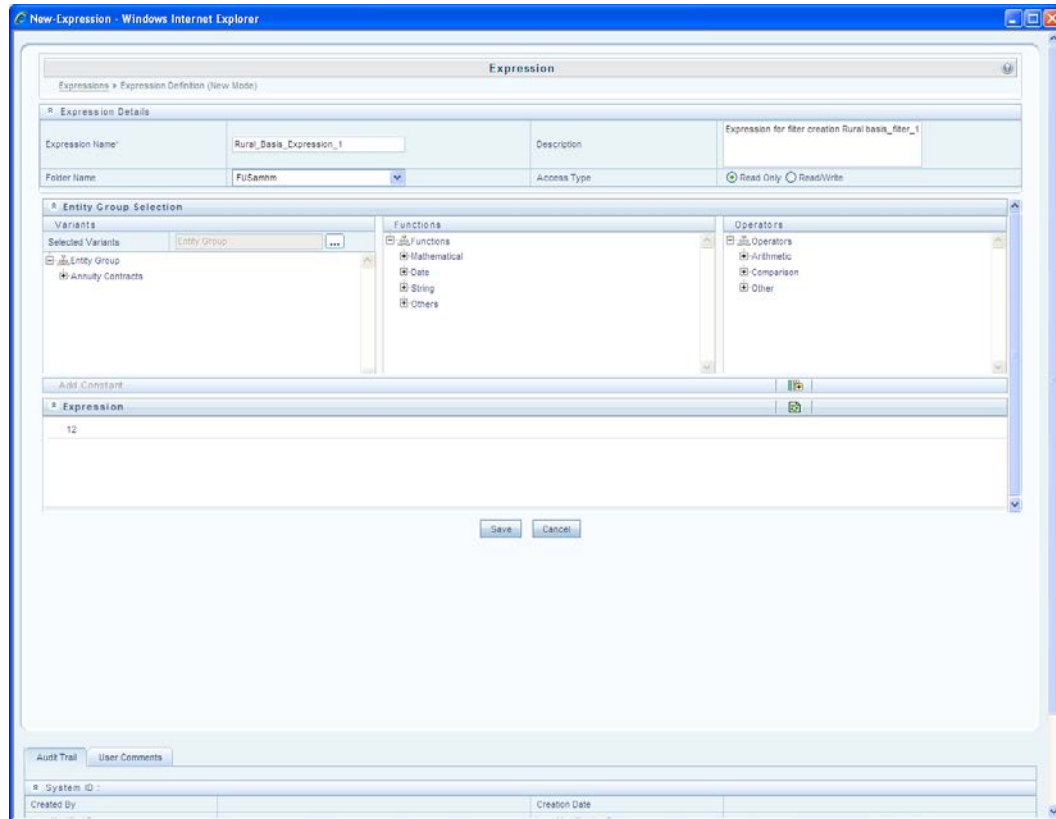


The *Expression Summary* screen displays the list of pre-defined Expressions with other details such as the Expression Name, Folder Name, Return Type, Created By, and Creation Date. You can also make use of Search and Pagination options to search for a specific Expression definition based on Folder Name, Expression Name, or Return Type and view the list of existing definitions within the system. For more information, refer [Pagination](#) and [Search and Filter](#).

9.4.2 Adding Expression Definition

To create a new Expression from the *Expressions Summary* screen:

1. Click  button in the Expressions Toolbar. The *New - Expression* screen is displayed.



2. In the Expression Details grid:
 - Enter the **Expression Name** and the required **Description**.
 - Select the **Folder Name** from the drop down list.
 - Select the **Access Type** as *Read Only* or *Read/Write*.
3. In the Entity Group Selection grid:
 - In the Variants section, click  button The *Variant Selection* screen is displayed.
 - Select the **Entity Type** and **Entity Name** from the drop down lists.
 - Select the required member and click . The member is displayed *Selected Members* list. Click  to select all the Members.
 - You can also click  to deselect a Member or click  to deselect all Members.

- Click **OK**. The selected Entity Name and Members are displayed in the Variants section in the *New Expression* screen.
- In the Variants section, click “+” to expand Entity Group and double-click to select the required Entity. The selected Entity is displayed in the Expression grid.
- In the Function section, click “+” to expand Functions and select a function such as Mathematical, Date, String, or Others options. The selected Function is displayed in the Expression grid. For more information refer [Function Types and Functions](#).
- In the Operators section, click “+” to expand Operators and select an operator such as Arithmetic, Comparison, or Others. The selected Operator is displayed in the Expression grid. For more information refer [Operator Types](#).
- You can click  button from the Add Constant grid to specify a Constant Value. Enter the numerical value and click .

In the *Expression* grid, you can right-click on the expression and do the following:

- Click **Replace Expression** () to replace the expression with a new one.
- Click **Insert Expression After** () to insert a new expression after the selected expression.
- Click **Delete** () to delete a selected expression.

You can also click  button in the *Expression* grid to clear the Expression.

4. Click **Save** to validate the entries and save the new Expression.

9.4.3 Viewing Expression

You can view individual Expression details at any given point. To view the existing Expression details the *Expression Summary* screen:

1. Select the checkbox adjacent to the Expression Name.
2. Click  button in the Expressions tool bar.

The *View Expression* screen is displayed with the Expression details.

9.4.4 Modifying Expression

You can Modify the Expression details as required in the *Edit – Expression* screen.

1. Select the checkbox adjacent to the Expression Name whose details are to be updated.
2. Click  button and the *Edit – Expression* screen is displayed. Modify the required changes. For more information refer [Add Expression Definition](#).
3. Click **Save** and upload the changes.

9.4.5 Copying Expression

The Copy Expression facilitates you to quickly create a new Expression based on the existing parameters or by updating the values. To copy an existing Expression in the *Expression Summary* screen:

1. Select the checkbox adjacent to the Expression Name which you want to create a copy.
2. Click  button in the Expressions tool bar. **Copy** button is disabled if you have selected multiple checkboxes. The *Copy – Expression* screen is displayed.
3. In the *Copy – Expression* screen you can:
 - Create new Expression with existing variables. Specify a new **Filter Name** and click **Save**.
 - Create new Expression by updating the required variables. Specify a new Expression Name and update the required details. For more information refer [Add Expression Definition](#). Click **Save**.

The new Expression details are displayed in the *Expression Summary* screen.

9.4.6 Checking Dependencies

You can view the dependencies of a defined Expression in the *Expression Summary* screen:

1. Select the checkbox adjacent to the required Expression Name.
2. Click  button in the Expressions tool bar. The **Check Dependencies** button is disabled if you have selected multiple expressions.

The *Dependent Objects* screen is displayed with Object id, Name, and id type of the dependant Objects.

9.4.7 Deleting Expression

You can delete an expression which has Read/Write Access Type. To delete an expression from the *Expression Summary* screen:

1. Select the checkbox adjacent to the Expression Name(s) whose details are to be removed.
2. Click  button in the Expressions tool bar.
3. Click **OK** in the information dialog to confirm deletion.

9.5 References

This section of the document consists of information related to intermediate actions that needs to be performed while completing a task. The procedures are common to all the sections and are referenced where ever required. You can refer to the following sections based on your need.

9.5.1 Creating Tree View Form

The process to create a Form using the Tree View Layout differs from the procedure as explained for other layouts. You can create a Form using the Tree View Layout, by selecting either Dimensional Table Tree or Parent Child Tree.

9.5.2 Dimensional Table Tree

If you want to create a Form using the Dimension table Tree, select **Tree view > Dimension Table Tree** option in the *DEFQ - Layout* screen. On clicking **Next**, you need to provide the required details in the following screens:

1. **Dimension Table Selection:** Enter the **Root Name** and select the Table. Click **Next**.
2. **Fields Selection:** Select required *Fields to Display* from *Available fields* and click **Next**.
3. **Dimension Node Selection:** Select Field Nodes from *Available fields* and click **Next**.
4. Select Dimensional Tree Nodes for the selected fields and click **Next**.
5. **DEFQ Field Properties screen:** Specify the required details. For more information, refer [DEFQ Field Properties](#).

9.5.3 Parent Child Tree

If you want to create a Form using the Parent Child Tree, select **Tree view > Parent Child Tree** option in the *DEFQ - Layout* screen. On clicking **Next**, you need to provide the required details in the following screens:

1. **Hierarchy Table Selection:** Enter the **Root Name** and select the Table. Click **Next**.
2. **Parent-Child Node Selection:** Select Parent Node, Child Node, and Node Description from the drop down list.
3. **Fields Selection:** Select required *Fields to Display* from *Available fields* and click **Next**.
4. **DEFQ Field Properties screen:** Specify the required details. For more information, refer [DEFQ Field Properties](#).

9.5.4 Applying Rules

You can apply rules to Validate Form Data to specific fields such as Text Field, Text Area or Protected Field. To specify rules for a field in the DEFQ - Forms Designer *DEFQ Field Properties* screen:

1. Click **Rule** adjacent to the required field. The *Specifying Rules and Expressions for Data Validations* screen is displayed.
2. Select the required Fields, Operators, and Functions from the list.
3. Enter the Rule Expression in the Expression Viewer field.
4. Depending on the data type of the selected field, the following column constraints are displayed. Select the required check box.
 - No Spaces
 - Characters Only
 - Alpha Numeric
 - Not Null
 - Non Negative
5. Select the **Alignment** type from the drop down list.
6. Click **OK** to save the details.

9.5.5 Define List of Values

While creating a Form, if you choose the **Select List** field parameter option in the *In Edit/Add* column in the *DEFQ Field Properties* screen, you need to define the list of values in the *Select List Screen*. However, you do not need to define the values for foreign key fields and primary key fields.

In the *Select List Screen*, select the required Field Type from the following options:

- **Comma Separated Values:** Supports only the user specified values while creating a Form.
- **Dynamic List of Values:** Supports fieldname from a table and stores it in the database. The same can be used during Data Entry.

If **Comma Separated Values** is selected:

1. Enter the **List of Values** to be displayed.
2. Specify **Alternate Display Values** to be displayed.
3. Click **OK** and save the specified list of values.

If **Dynamic List of Values** is selected:

1. Select Table Value, List Value and Display Value field.
2. Select the Field, Operator, and Functions from the list.
3. Define a filter condition for the selected values.
4. Click **OK** and save the specified list of values.

9.5.6 Define Messaging Details

While creating a Form, you can click **Message Details** in the *DEFQ Field Properties* screen to define the messaging details. You can specify an alert message which is sent to the Creator of the Form or to an Authorizer.

In the *Messaging Details for a Form* screen:

1. Select **Messaging Required** checkbox to activate the Messenger feature.

NOTE: If the option is not selected, a single mail is sent for the entire batch. Message details such as recipients, subject, and contents are fetched from the metadata.

2. Select the required **Available Message Types** from the list and click .
3. Select the **Message Type** from the drop-down list based on specific action.
4. Select **Specific Messages Required** to add a specific message.
5. Select Available Fields for **Subject, Content, & Recipients** from the list and click .
6. Click **Save** to save the messaging details. You also need to select **Save with Authorization** in the *DEFQ Field Properties* screen for the messages to be functional.

9.5.7 Form Data Versioning

You can perform data versioning on an authorized Form. The modifications made to the particular Form is tracked and displayed as per date versioning. In the *Data Versioning for Form* screen, do the following:

1. Select **Enable Data Versioning** checkbox to ensure that the version is tracked.
2. Select the **Table** and **Version Identifier** from the drop down list.
3. Click **OK** to save the versioning details.

9.5.8 Operator Types

The operators available are of three types:

- Arithmetic
- Comparison
- Other

Type	Operator	Example
Arithmetic	+	CUR_BOOK_BAL = CUR_PAR_BAL + DEFERRED_CUR_BAL
	-	AS_OF_DATE = MATURITY_DATE – REMAIN_TERM_C
	*	Remaining Balance after Offset = Opening balance – (Expected balance on every payment date * Mortgage offset %)
	/	CUR_PAYMENT = ORG_BOOK_BAL/ (ORG_TERM/ PMT_FREQ [in months])
Comparison	=	CUR_PAYMENT = principal + interest
	<>	If ADJUSTABLE_TYPE_CD <> 0, INTEREST_RATE_CD = 001 to 99999.
	>	If ORIGINATION_DATE > AS_OF_DATE, LAST_PAYMENT_DATE = ORIGINATION_DATE.
	>=	AS_OF_DATE >= ORIGINATION_DATE
	<	AS_OF_DATE < NEXT_REPRICE_DATE
	<=	If ORIGINATION_DATE <= AS_OF_DATE, LAST_PAYMENT_DATE >= ORIGINATION_DATE
Other	(	Parentheses group segments of an expression to make logical sense.
	)	MATURITY_DATE <= NEXT_PAYMENT_DATE + (REMAIN_NO_PMTS_C * PMT_FREQ)
	,	The comma separates statements of a function.

9.5.9 Function Types and Functions

You select the type of function for your expression from the Type list.

The choices are:

- Mathematical Functions
- Date Functions
- String Functions
- Other Functions

The type of function you select determines the choices available in the Function box. These unique functions in the Functions Sub-container enable you to perform various operations on the data. The following table lists each available function and Detail on the operations of each function in which it appears.

Function Type	Function Name	Notation	Description	Syntax	Example
Mathematical	Absolute	ABS(a)	Returns the positive value of the database column	{ABS(} followed by {EXPR1 without any embedded or outermost left-right parentheses pair} followed by { }	ABS (-3.5) = 3.5.ABS(F), ABS(F + C), ABS(F + C * R + F) are possible. However, ABS((F + C + R)), ABS((F + (MAX * CEILING))) are not possible.
	Ceiling	Ceiling (a)	Rounds a value to the next highest integer	Ceiling(column or expression)	3.1 becomes 4.0, 3.0 stays the same
	Greatest	Greatest(a,b) GREATEST(column or expression, column or expression)	Returns the greater of 2 numbers, formulas, or columns	Greatest(column or expression, column, or expression)	Greatest(1.9,2.1) = 2.1
	Least	Least (a,b) LEAST(column or expression, column or expression)	Returns the lesser of 2 numbers, formulas, or columns	Least(column or expression, column or expression)	Least(1.9,2.1) = 1.9
	Natural Log	LN(number) LN(a)	Returns the natural logarithm of a number. Natural logarithms are based on the constant e (2.71828182845904).	LN(number) where number is the positive real number for which you want the natural logarithm	LN(86) equals 4.454347 LN(2.7182818) equals 1
	Minimum	Min(a)	Returns the minimum value of a -database column	Max(Column)	
	Maximum	Max(a)	Returns the maximum value of a -database column	Max(Column)	

Function Type	Function Name	Notation	Description	Syntax	Example
	Power	Power(a,b) POWER(coeffi ent, exponent)	Raises one value to the power of a second	{POWER} followed by {EXPR1 without any embedded or outermost left- right parentheses pair followed by {,} followed by {EXPR1 without any embedded or outermost left- right parentheses pair} followed by { }}	Valid examples: POWER(F, R) POWER(F + C * R, F / R) Invalid examples: POWER((F/R), F + R) POWER((F + C), (C * R)) POWER(F + POWER, R) POWER(MAX, C)
	Round	Round(a,b) ROUND (number, precision)	Rounds a value to a number of decimal places	Round(x, n) returns x rounded to n decimal places	Round(10.52354,2)=10.52
	Sum	Sum(a)	Sums the total value of a database column. Sum is a multi-row function, in contrast to +, which adds 2 or more values in a given row (not column)	Sum(Column)	

Function Type	Function Name	Notation	Description	Syntax	Example
	Weighted Average	WAvg(a,b) WAvg (column being averaged, weight column)	Takes a weighted average of one database column by a second Column. WAvg cannot appear in any expression. If you have two formulas called F1 and F2, both of which are WAvg functions, then you can form a third formula F3 as F1 + F2. If F3 is chosen as a calculated column, then an error message appears and the SQL code is not generated for that column. This is similar for nested WAvg functions if F3 is WAvg and it has F1 or F2 or both as its parameters.	WAvg(Column A, Column B)	WAvg(DEPOSITS.CUR_NET_RATE,DEPOSITS.CUR_BOOK_BAL)
Note : You cannot use the Maximum and Minimum functions as calculated columns or in Data Correction Rules. The Maximum, Minimum, Sum, and Weighted Average functions are multi-row formulas. They use multiple rows in calculating the results.					
Date	Build Date	BuildDate(year, month,days)	Requires three parameters, (CCYY,MM,DD) (century and year, month, day). It returns a valid data and enables you to build a date from components. CAUTION: If the parameters are entered incorrectly, the date is invalid.	BUILDDATE(CCYY,MM,DD)	BuildDate(95,11,30) is invalid (invalid century). BuildDate(1995,11,30) is valid.

Function Type	Function Name	Notation	Description	Syntax	Example																				
	Go Month	GoMonth(date,m onths)	Advances a date by x number of months. Go Month does not know the calendar. For example, it cannot predict the last day of a month. Typical functionality is illustrated in the following table:	GOMONTH(Date column, Number of months to advance)	GOMONTH(DEPOSITS. ORIGINATION_DATE, DE POSITS.ORG_TERM) Valid examples: GOMONTH(F, F + R + C) GOMONTH(F, R) Invalid examples: GOMONTH(F + (R + C), MAX) GOMONTH((F * C), F)																				
	For Example:																								
	<table><tr><td>Date Column</td><td>No of Months</td><td>GOMONTH</td><td>Comment</td></tr><tr><td>1/31/94</td><td>1</td><td>2/28/94</td><td>Because 2/31/94 does not exist</td></tr><tr><td>1/15/94</td><td>2</td><td>3/15/94</td><td>Exactly 2 months:15th to 15th</td></tr><tr><td>2/28/94</td><td>3</td><td>5/28/94</td><td>Goes 28th to 28th: does not know that 31st is the end of May</td></tr><tr><td>6/30/94</td><td>-1</td><td>5/30/94</td><td>Goes back 30th to 30th: does not know that 31st is end of May</td></tr></table>					Date Column	No of Months	GOMONTH	Comment	1/31/94	1	2/28/94	Because 2/31/94 does not exist	1/15/94	2	3/15/94	Exactly 2 months:15th to 15 th	2/28/94	3	5/28/94	Goes 28 th to 28 th : does not know that 31 st is the end of May	6/30/94	-1	5/30/94	Goes back 30 th to 30 th : does not know that 31 st is end of May
	Date Column	No of Months	GOMONTH	Comment																					
1/31/94	1	2/28/94	Because 2/31/94 does not exist																						
1/15/94	2	3/15/94	Exactly 2 months:15th to 15 th																						
2/28/94	3	5/28/94	Goes 28 th to 28 th : does not know that 31 st is the end of May																						
6/30/94	-1	5/30/94	Goes back 30 th to 30 th : does not know that 31 st is end of May																						
Year	Year(date)	Year(x) returns the data for year x.	Year(Column) returns the year in the column, where the column is a date column.	Year(Origination Date) returns the year of the origination date.																					
Month	Month(date)	Month(x) returns the month in x, where x is a numbered month.	Month(Column) returns the month in the column, where the column is a date column.	Month(9) returns September. Month(Origination Date) returns the month of the origination date.																					

Function Type	Function Name	Notation	Description	Syntax	Example
String	Trim All	AllTrim(a)		Trims leading and following spaces, enabling the software to recognize numbers (entered in All Trim) as a numeric value, which can then be used in calculating	
Other	If statement	If(a=b,c,d)	The IF function should always have odd number of parameters separated by commas. The first parameter is an expression followed by a relational operator, which is in turn followed by an expression. Note: Avoid embedding multiple individual formulas in subsequent formulas. This can create an invalid formula.	If(Condition, Value if True, Value if False). {IF(} followed by EXPR2 followed by {> < <> = >= <=} followed by EXPR2 followed by {{,} followed by EXPR followed by },} followed by EXPR}n followed by {} where n = 1, 2, 3, ...	If(LEDGER_STAT.Financial= 110, LEDGER_STAT.Month 1 Entry,0) IF(((MAX + SUM) >= 30), F, POWER) is valid.

Function Type	Function Name	Notation	Description	Syntax	Example
	Lookup	Lookup(OrigCol, LookupCol,...,ReturnedCol)	Enables you to assign values equal to values in another table for data correction. LOOKUP function should always have an odd number of parameters separated by commas and with a minimum of 3 parameters. Note: Lookup is used exclusively for data correction.	Lookup(O1,L1,O2,L2,...On,Ln,R) where O=Column from Original table L=Column from Lookup table R=Column to be Returned So the previous statement would read: where O1=L1 and O2=L2... Returned value R	Valid examples: LOOKUP(F, R, R) LOOKUP(F, R, F, F, F) Invalid examples: LOOKUP(F) LOOKUP(F, R) LOOKUP(F + R, (F + R), MAX)

10 References

This section of the document consists of information related to intermediate actions that needs to be performed while completing a task. The procedures are common to all the sections and are referenced where ever required. You can refer to the following sections based on your need.

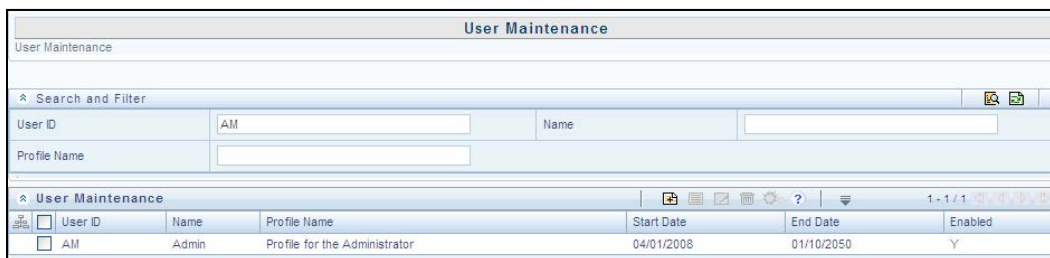
10.1 Workspace Options

The workspace option consists of the various elements available in the user interface to help you in selecting an option or to navigate to a specific location on the page. The available workspace options are discussed in detail.

10.1.1 Search and Filter

The Search and Filter option in the user interface helps you to find the required information. You can enter the nearest matching keywords to search, and filter the results by entering information in the additional fields.

For example, if you are in the *User Maintenance* screen and need to search for administrator details, enter the **User ID** and filter the results by specifying either the **Name** or **Profile Description** or both. The search results are always filtered based on the additional information you provide.



The screenshot shows the 'User Maintenance' screen. At the top, there's a title bar 'User Maintenance'. Below it, a 'Search and Filter' section contains input fields for 'User ID' (with 'AM' entered), 'Name', and 'Profile Name'. Below the search fields is a table with columns: 'User ID', 'Name', 'Profile Name', 'Start Date', 'End Date', and 'Enabled'. The first row of data shows 'AM', 'Admin', 'Profile for the Administrator', '04/01/2008', '01/10/2050', and 'Y'. Above the table, there are icons for search and filter, and a '1 - 1 / 1' indicator.

You can click  button to start a search and  button to reset the search fields.

10.1.2 Pagination

The Pagination toolbar as indicated below is available in the user interface screen and helps you to navigate through the display grid. The toolbar displays the total number of available list items and the number of list items displayed in the current view.



The screenshot shows a pagination toolbar with the text 'Page 2 / 24' and navigation buttons (back, forward, first, last). It also includes a 'Jump to page' input field.

In the pagination toolbar, you can do the following:

- Click  button to open a dropdown list and specify the number of rows to be displayed at any given time.
- Click  or  navigation buttons to view the previous or next set of list items.

- Click  or  navigation buttons to view the first or last set of list items.

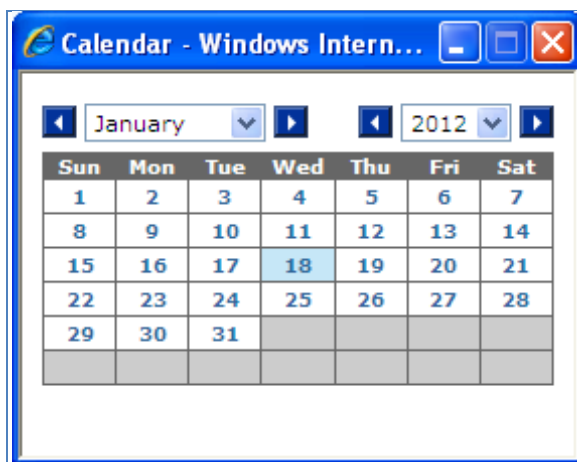
10.1.3 Customize work area

You can use the interface options to customize and auto adjusted the work area.

- To View or Hide the left hand side (LHS) menu, click the collapsible icon.
- To Expand/Collapse a grid or section, click  or  icons.

10.1.4 Calendar

Calendar icon in the user interface helps you to specify a date in the DD/MM/YYYY format by selecting from the pop-up calendar. You can navigate to the specific month or year by using the arrow buttons or select using the drop down list. When you click on the required date the details are auto updated in the date field.



10.2 Function Mapping Codes

The following table lists the function codes with their description to help you identify the user functions who needs to access the Infrastructure system and map roles appropriately.

Function Code	Function Name	Function Description
ADAPTERS	Run Adapters	The user mapped to this function will have rights to run OFSAAI Infrastructure adapters
ADDPROCESS	Add Process tree	The user mapped to this function can add the process tree
ADDRULE	Add Rule	The user mapped to this function can add the rules
ADDRUN	Add Run	The user mapped to this function can add the run

Function Code	Function Name	Function Description
ADMINSCR	Administration Screen	The user mapped to this function can access the Administration Screen
ADVDRLTHR	Access to Advanced drill thru	The User mapped to this function will have access to Advanced Drill thru
ALDADD	Add Cube	The user mapped to this function can add cubes
ALDATH	Authorize Cube	The user mapped to this function can authorize cubes
ALDDEL	Delete Cube	The user mapped to this function will have rights to delete cubes
ALDMOD	Modify Cube	The user mapped to this function can modify cubes
ALDVIW	View Cube	The user mapped to this function can view cubes
ALSADD	Add Alias	The user mapped to this function can add Alias
ALSATH	Authorize Alias	The user mapped to this function can authorize Alias
ALSDEL	Delete Alias	The user mapped to this function will have rights to delete Alias
ALSMOD	Modify Alias	The user mapped to this function can modify Alias
ALSVIW	View Alias	The user mapped to this function can view Alias
APPSRVR	Application Server Screen	The user mapped to this function can access the Application Server Screen
ATHPROCESS	Authorize Process Tree	The user mapped to this function can authorize Process Tree
ATHRDM	Authorize RDM	The user mapped to this function can authorize RDM
ATHRULE	Authorize Rule	The user mapped to this function can authorize the rule
ATHRUN	Authorize Run	The user mapped to this function can authorize run
ATTADD	Add Attributes	The user mapped to this function can add Hierarchy Attributes
ATTATH	Authorize Attributes	The user mapped to this function can authorize Hierarchy Attributes
ATTDEL	Delete Attributes	The user mapped to this function can delete Hierarchy Attributes

Function Code	Function Name	Function Description
ATTMOD	Modify Attributes	The user mapped to this function can add Hierarchy Attributes
ATTVIW	View Attributes	The user mapped to this function can view Hierarchy Attributes
AUD_TRL	Audit Trail Report Screen	The user mapped to this function can access the Audit Trail Report Screen
AUTH_MAP	Authorize Map(s)	The user mapped to this function can AUTHORIZE Map definitions
AUTH_SCR	Metadata Authorize Screen	The user mapped to this function can see Authorization Screen
BATPRO	Batch Processing	The user mapped to this function will have rights to process batch
BBATH	Authorize BBs	The user mapped to this function can authorize BBs
BGCREATION	Batch Group Creation	The user mapped to this function will have rights to Creating Batch Group
BGEXEC	Batch Group Execution	The user mapped to this function will have rights to Execute Batch Group
BGMONITOR	Batch Group Monitor	The user mapped to this function will have rights to Monitor Batch Group Execution
BGRESTART	Batch Group Restart	The user mapped to this function will have rights to Restart Batch Group Execution
BPROCADD	Add Business Processor	The user mapped to this function can add business processors
BPROCATH	Authorize Business Processor	The user mapped to this function can authorize business processors
BPROCDEL	Delete Business Processor	The user mapped to this function can delete business processors
BPROCMOD	Modify Business Processor	The user mapped to this function can modify business processors
BPROCVIW	View Business Processor	The user mapped to this function can view business processors
CFEDEF	Cash Flow Equation Definition	The user mapped to this function can view/add the Cash Flow Equation definitions
CFG	Configuration	The user mapped to this function will have access to configuration details
COMADD	Add Computed Measure	The user mapped to this function can add computed measures
COMADV	Computed Measure Advanced	The user mapped to this function will have rights to the advanced options of computed measure

Function Code	Function Name	Function Description
COMATH	Authorize Computed Measure	The user mapped to this function can authorize computed measures
COMDEL	Delete Computed Measure	The user mapped to this function will have rights to delete computed measures
COMMOD	Modify Computed Measure	The user mapped to this function can modify computed measures
COMVIW	View Computed Measures	The user mapped to this function can view computed measures
CRTRDM	Add RDM	The user mapped to this function can Add RDM
CRT_MAP	Create Map	The user mapped to this function can CREATE/SAVEAS Map definitions
CWSDOCMGMT	Document Management Access	The user mapped to this function can use Document Management APIS via Callable Services Framework
CWSEXTWSAS	Call Remote Web Services	The user mapped to this function can call web services configured in the Callable Services Framework
CWSHIERRFR	Refresh Hierarchies	The user mapped to this function can refresh hierarchies through the Callable Services Framework
CWSPR2ACCS	Execute Runs - Rules	The user mapped to this function can execute runs and rules through the Callable Services Framework
CWSSMSACCS	Remote SMS Access	The user mapped to this function can access SMS APIS through the Callable Services Framework
CWSUMMACCS	Remote UMM Access	The user mapped to this function can access UMM APIS through the Callable Services Framework
CWS_STATUS	Result of request - Status of all	The user mapped to this function can access requests status through the Callable Services Framework
CWS_TRAN	Result of own request only	The user mapped to the function can access own requests status using Callable Services Framework
DATADD	Add Dataset	The user mapped to this function can add datasets
DATATH	Authorize Dataset	The user mapped to this function can authorize datasets
DATDEL	Delete Dataset	The user mapped to this function will have rights to delete datasets
DATMOD	Modify Dataset	The user mapped to this function can modify datasets
DATVIW	View Dataset	The user mapped to this function can view datasets
DBATH	Authorize DBs	The user mapped to this function can authorize DBs

Function Code	Function Name	Function Description
DBD	Database Details	The user mapped to this function will have access to database details
DBS	Database Server	The user mapped to this function will have access to Database Server details
DEEADD	Add Derived Entities	The user mapped to this function can add derived entities
DEEATH	Authorize Derived Entities	The user mapped to this function can authorize derived entities
DEEDEL	Delete Derived Entities	The user mapped to this function can delete derived entities
DEEMOD	Modify Derived Entities	The user mapped to this function can modify derived entities
DEEVIW	View Derived Entities	The user mapped to this function can view derived entities
DEFADM	Defi Administrator	The user mapped to this function will have Defi Administration rights
DEFEXL	DeFi Excel	DeFi Excel
DEFQADM	Defq Administrator	The user mapped to this function will have Defi Administration rights
DEFQUSR	Defq User	The user mapped to this function will have Defi user rights
DEFUSR	Defi User	The user mapped to this function will have Defi user rights
DELPROCESS	Delete Process	The user mapped to this function can the process
DELRDM	Delete RDM	The user mapped to this function can delete RDM
DELRULE	Delete Rule	The user mapped to this function can delete the rules
DELRUN	Delete Run	The user mapped to this function can delete the run
DEL_MAP	Delete Map	The user mapped to this function can DELETE Map definitions
DESRDM	Design RDM	The user mapped to this function can design RDM
DESREV	Design OFSAAI Menu Screen	The user mapped to this function can access the Design OFSAAI Menu Screen
DIMADD	Add Dimension	The user mapped to this function can add dimensions

Function Code	Function Name	Function Description
DIMATH	Authorize Dimension	The user mapped to this function can authorize dimensions
DIMDEL	Delete Dimension	The user mapped to this function will have rights to delete dimensions
DIMMOD	Modify Dimension	The user mapped to this function can modify dimensions
DIMVIW	View Dimension	The user mapped to this function can view dimensions
DQLADD	Data Quality Add	This function is for Data Quality Map applet
DQ_ADD	Data Quality Add Rule	The user mapped to this function can add DQ Rule
DQ_AUTH	Data Quality Authorization Rule	The user mapped to this function can authorize DQ Rule
DQ_CPY	Data Quality Copy Rule	The user mapped to this function can copy DQ Rule
DQ_DEL	Data Quality Delete Rule	The user mapped to this function can delete DQ Rule
DQ_EDT	Data Quality Edit Rule	The user mapped to this function can edit DQ Rule
DQ_GP_ADD	Data Quality Add Rule Group	The user mapped to this function can add DQ Rule Group
DQ_GP_CPY	Data Quality Copy Rule Group	The user mapped to this function can copy DQ Rule Group
DQ_GP_DEL	Data Quality Delete Rule Group	The user mapped to this function can delete DQ Rule Group
DQ_GP_EDT	Data Quality Edit Rule Group	The user mapped to this function can edit DQ Rule Group
DQ_GP_EXEC	Data Quality Execute Rule Group	The user mapped to this function can execute DQ Rule Group
DQ_GP_VIW	Data Quality View Rule Group	The user mapped to this function can view DQ Rule Group
DQ_VIW	Data Quality View Rule	The user mapped to this function can view DQ Rule
ENABLEUSR	Enable User Screen	The user mapped to this function can access the Enable User Screen
ETLDEF	DI Designer	Defining Application, Extract, Flat-File, Mapping
ETLDTQ	DTDQ	Data Quality Rules and Data Transformation

Function Code	Function Name	Function Description
ETLUSR	DI User	The user mapped to this function will be a Data Management Tools user
EXPMD	Export Metadata	The user mapped to this function can Export Metadata
FIFADMIN	Alerts Administrator	The user mapped to this function can define admin mode rules
FIFUSR	Alerts User	The user mapped to this function will be an Alerts user
FUNCMINT	Function Maintenance Screen	The user mapped to this function can access the Function Maintenance Screen
FUNCROLE	Function Role Map Screen	The user mapped to this function can access the Function Role Map Screen
FU_ATR_ADD	Fusion Add Attributes	The user mapped to this function can Create New Attributes
FU_ATR_CPY	Fusion Copy Attributes	The user mapped to this function can Copy Attributes
FU_ATR_DD	Fusion Attributes - View Dependent Data	The user mapped to this function can View Dependent Data for Attributes
FU_ATR_DEL	Fusion Delete Attributes	The user mapped to this function can Delete Attributes
FU_ATR_EDT	Fusion Edit Attributes	The user mapped to this function can Edit Attributes
FU_ATR_HP	Fusion Attribute Home Page	The user mapped to this function can view Attribute Home Page
FU_ATR_VIW	Fusion View Attributes	The user mapped to this function can View Attributes
FU_EXP_ADD	Fusion Add Expressions	The user mapped to this function can Create New Expressions
FU_EXP_CPY	Fusion Copy Expressions	The user mapped to this function can Copy Expressions
FU_EXP_DD	Fusion View Dependency Expressions	The user mapped to this function can View Dependent Data for Expressions
FU_EXP_DEL	Fusion Delete Expressions	The user mapped to this function can Delete Expressions
FU_EXP_EDT	Fusion Edit Expressions	The user mapped to this function can Edit Expressions
FU_EXP_HP	Fusion Expressions Home Page	The user mapped to this function can view Expressions Home Page
FU_EXP_VIW	Fusion View Expressions	The user mapped to this function can View Expressions

Function Code	Function Name	Function Description
FU_FIL_ADD	Fusion Add Filters	The user mapped to this function can Create New Filters
FU_FIL_CPY	Fusion Copy Filters	The user mapped to this function can Copy Filters
FU_FIL_DD	Fusion Filters - View Dependent Data	The user mapped to this function can View Dependent Data for Filters
FU_FIL_DEL	Fusion Delete Filters	The user mapped to this function can Delete Filters
FU_FIL_EDT	Fusion Edit Filters	The user mapped to this function can Edit Filters
FU_FIL_HP	Fusion Filters Home Page	The user mapped to this function can view Filters Home Page
FU_FIL_SQL	Fusion Filters - View SQL	The user mapped to this function can view SQL for Filters
FU_FIL_VIW	Fusion View Filters	The user mapped to this function can View Filters
FU_HIE_ADD	Fusion Add Hierarchies	The user mapped to this function can Create New Hierarchies
FU_HIE_CPY	Fusion Copy Hierarchies	The user mapped to this function can Copy Hierarchies
FU_HIE_DD	Fusion Hierarchies - View Dependent Data	The user mapped to this function can View Dependent Data for Hierarchies
FU_HIE_DEL	Fusion Delete Hierarchies	The user mapped to this function can Delete Hierarchies
FU_HIE_EDT	Fusion Edit Hierarchies	The user mapped to this function can Edit Hierarchies
FU_HIE_HP	Fusion Hierarchy Home Page	The user mapped to this function can view Hierarchy Home Page
FU_HIE_UMM	Fusion Hierarchies to UMM Mapping	The user mapped to this function can Map Fusion Hierarchies to UMM Hierarchies
FU_HIE_VIW	Fusion View Hierarchies	The user mapped to this function can View Hierarchies
FU_MEM_ADD	Fusion Add Members	The user mapped to this function can Create New Members
FU_MEM_CPY	Fusion Copy Members	The user mapped to this function can Copy Members
FU_MEM_DD	Fusion Members - View Dependent Data	The user mapped to this function can View Dependent Data for Members
FU_MEM_DEL	Fusion Delete Members	The user mapped to this function can Delete Members

Function Code	Function Name	Function Description
FU_MEM_EDT	Fusion Edit Members	The user mapped to this function can Edit Members
FU_MEM_HP	Fusion Member Home Page	The user mapped to this function can view Member Home Page
FU_MEM_VIW	Fusion View Members	The user mapped to this function can View Members
FU_MIG_ADD	Object Migration Create Migration Ruleset	The user mapped to this function can Create Migration Ruleset
FU_MIG_CFG	Object Migration Source Configuration	The user mapped to this function can manipulate Source Configuration
FU_MIG_CPY	Object Migration Copy Migration Ruleset	The user mapped to this function can Object Migration Edit Migration Ruleset, Copy Migration Ruleset
FU_MIG_CRN	Cancel Migration Execution	The user mapped to this function can Cancel migration execution
FU_MIG_DEL	Object Migration Delete Migration Ruleset	The user mapped to this function can Delete Migration Ruleset
FU_MIG_EDT	Object Migration Edit Migration Ruleset	The user mapped to this function can Edit Migration Ruleset
FU_MIG_HP	Object Migration Home Page	The user mapped to this function can Object Migration Link
FU_MIG_RUN	Execute/Run Migration Process	The user mapped to this function can Run the migration process
FU_MIG_VCF	Object Migration ViewSource Configuration	The user mapped to this function can view Source Configuration
FU_MIG_VIW	Object Migration View Migration Ruleset	The user mapped to this function can View Migration Ruleset
FU_SQL_ADD	SQL Rule Add	This function is for SQL Rule Add
FU_SQL_CPY	SQL Rule Copy	This function is for SQL Rule Copy
FU_SQL_DEL	SQL Rule Delete	This function is for SQL Rule Delete
FU_SQL_EDT	SQL Rule Edit	This function is for SQL Rule Edit
FU_SQL_RUN	SQL Rule Run	This function is for SQL Rule Run
FU_SQL_VIW	SQL Rule View	This function is for SQL Rule View
GMVDEF	GMV Definition	The user mapped to this function can view/add the General Market Variable definitions

Function Code	Function Name	Function Description
GSTMNU	Menu for Guest User	Menu for Guest User
HCYADD	Add Hierarchy	The user mapped to this function can add hierarchies
HCYATH	Authorize Hierarchy	The user mapped to this function can authorize hierarchies
HCYDEL	Delete Hierarchy	The user mapped to this function will have rights to delete hierarchies
HCYMOD	Modify Hierarchy	The user mapped to this function can modify hierarchies
HCYVIW	View Hierarchy	The user mapped to this function can view hierarchies
HOLMAINT	Holiday Maintenance Screen	The user mapped to this function can access the Holiday Maintenance Screen
HSEC	Hierarchy Security	The user mapped to this function will have access to hierarchy security settings
IBMADD	Import Business Model	The user mapped to this function can import business models
IMPMD	Import Metadata	The user mapped to this function can Import Metadata
IND	Information Domain	The user mapped to this function will have access to Information Domain details
KPIATH	Authorize KPIs	The user mapped to this function can authorize KPIs
LOCDESC	Locale Desc Upload Screen	The user mapped to this function can access the Locale Desc Upload Screen
MDDIFF	Metadata Difference Screen	The user mapped to this function can access the Metadata Difference Screen
MDLAUTH	Model Authorize	The user mapped to this function can Authorize Model Maintenance
MDLCALIB	Model Calibration	The user mapped to this function can view/add the Model Calibration screen
MDLCHAMP	Model Make Champion	The user mapped to this function can view the Champion Challenger screen
MDLDEF	Model Definition	The user mapped to this function can view/add the Model definitions
MDLDEPLOY	Model Deployment	The user mapped to this function can access the Model Deployment screen
MDLEXEC	Model Execution	The user mapped to this function can access the Model Execution screen

Function Code	Function Name	Function Description
MDLOUTPUT	Model Outputs	The user mapped to this function can view the Model Outputs
MDMP	Metadata Segment Map	The user mapped to this function will have rights to perform metadata segment mapping
METVIW	View Metadata	The user mapped to this function can access metadata browser
MODPROCESS	Modify Process Tree	The user mapped to this function can modify Process Tree
MODRDM	Modify RDM	The user mapped to this function can Modify RDM
MODRULE	Modify Rule	The user mapped to this function can modify the rules
MODRUN	Modify Run	The user mapped to this function can modify run
MOD_MAP	Modify Map	The user mapped to this function can SAVE Map definitions
MSRADD	Add Measure	The user mapped to this function can add measures
MSRATH	Authorize Measure	The user mapped to this function can authorize measures
MSRDEL	Delete Measure	The user mapped to this function will have rights to delete measures
MSRMOD	Modify Measure	The user mapped to this function can modify measures
MSRVIW	View Measure	The user mapped to this function can view measures
NVATH	Authorize Nested Views	The user mapped to this function can authorize Nested Views
OLAPDETS	OLAP Details Screen	The user mapped to this function can access the OLAP Details Screen
OPRADD	Create Batch	The user mapped to this function will have rights to define batches
OPRCANCEL	Batch Cancellation	The user mapped to this function can Cancel Batch
OPRDEL	Delete Batch	The user mapped to this function will have rights to delete batches
OPREXEC	Execute Batch	The user mapped to this function will have rights to run, restart and rerun batches
OPRMON	Batch Monitor	The user mapped to this function will have rights to monitor batches

Function Code	Function Name	Function Description
OPTDEF	Optimizer Add	The user mapped to this function can view/add the Optimizer definitions
OPTDEL	Optimizer Delete	The user mapped to this function can delete the Optimizer definitions
ORACBADD	Add Oracle Cube	The user mapped to this function can add Oracle cubes
ORACBATH	Authorize Oracle Cube	The user mapped to this function can authorize Oracle cubes
ORACBDEL	Delete Oracle Cube	The user mapped to this function will have rights to delete Oracle cubes
ORACBMOD	Modify Oracle Cube	The user mapped to this function can modify Oracle cubes
ORACBVIW	View Oracle Cube	The user mapped to this function can view Oracle cubes
PGATH	Authorize Pages	The user mapped to this function can authorize Pages
POOLDEF	Pooling Add	The user mapped to this function can view/add the Pooling definitions
POOLDEL	Pooling Delete	The user mapped to this function can delete the Pooling definitions
PR2SCREEN	PR2 Screens	The user mapped to this function can access PR2 screens
PROFMAINT	Profile Maintenance Screen	The user mapped to this function can access the Profile Maintenance Screen
REPATH	Authorize Reports	The user mapped to this function can authorize Reports
RESTPASS	Restricted Passwords Screen	The user mapped to this function can access the Restricted Passwords Screen
RLSETCFG	Rules Setup Configuration Screen	The user mapped to this function can access the Rules Setup Configuration Screen
ROLEMAINT	Role Maintenance Screen	The user mapped to this function can access the Role Maintenance Screen
RULESHKDEF	Rule Shock Definition	The user mapped to this function can define the rule shocks
SANDBXAUTH	Sandbox Authorize	The user mapped to this function can Authorize a Sandbox Maintenance
SANDBXCR	Sandbox Creation	The user mapped to this function can view/add the Sandbox definitions
SANDBXMOD	Sandbox Maintenance	The user mapped to this function can view the Sandbox Maintenance

Function Code	Function Name	Function Description
SAVEMD	Save Metadata Screen	The user mapped to this function can access the Save Metadata Screen
SCNDEF	Scenario Definition	The user mapped to this function can define the scenarios
SCRBAU	Business Analyst User Screen	The user mapped to this function can access the business analyst user screen
SCRDES	Access to Designer	The User mapped to this function will have access to Designer
SCROPC	Operator Console	The user mapped to this function will have access to the operator console
SCRPRT	Portal User	The user mapped to this function will be a portal user
SCRRUN	Access to Runner	The User mapped to this function will have access to Runner
SCRSAU	System Administrator Screen	The user mapped to this function can access system administrator screens
SCRVIEW	Access to Viewer	The User mapped to this function will have access to Viewer
SCR_ROR	Access to Operational Risk	The user mapped to this function can access Operational Risk
SEGMAINT	Segment Maintenance Screen	The user mapped to this function can access the Segment Maintenance Screen
STRESSDEF	Stress Definition	The user mapped to this function can define the stress
SYSADM	System Administrator	The user mapped to this function will be a system administrator
SYSATH	System Authorizer	The user mapped to this function will be a system authorizer
TEMPATH	Authorize Templates	The user mapped to this function can authorize Templates
TRANS_OWN	Access to Transfer Ownership	The User mapped to this function will have access to Transfer Portal Objects
TSK_MNU	Access to My Tasks	The user mapped to this function can access My Tasks
UGDOMMAP	User Group Domain Map Screen	The user mapped to this function can access the User Group Domain Map Screen
UGMAINT	User Group Maintenance Screen	The user mapped to this function can access the User Group Maintenance Screen
UGMAP	User Group User Map Screen	The user mapped to this function can access the User Group User Map Screen

Function Code	Function Name	Function Description
UGROLMAP	User Group Role Map Screen	The user mapped to this function can access the User Group Role Map Screen
USRACTREP	User Activity Reports Screen	The user mapped to this function can access the User Activity Reports Screen
USRATH	User Authorization Screen	The user mapped to this function can access the User Authorization Screen
USRATTUP	User Attribute Upload Screen	The user mapped to this function can access the User Attribute Upload Screen
USRBATMAP	User-Batch Execution Mapping Screen	The user mapped to this function can access the User-Batch Execution Mapping Screen
USRMAINT	User Maintenance Screen	The user mapped to this function can access the User Maintenance Screen
USRPROFREP	User Profile Report Screen	The user mapped to this function can access the User Profile Report Screen
VARDEF	Variable Definition	The user mapped to this function can view/add the Variable definitions.
VARSHKDEF	Variable Shock Definition	The user mapped to this function can define the variable shocks
VARTRANS	Variable Transformation	The user mapped to this function can view and add the Variable Transformation screen
VIEWLOG	View log	The user mapped to this function will have rights to view log
VIEWPROC	View Process	The user mapped to this function can view the process tree definitions
VIEWRULE	View Rule	The user mapped to this function can view the rules definitions
VIEWRUN	View Run	The user mapped to this function can view the run definitions
VIEW_HOME	View OFSAAI LHS Menu	The user mapped to this function can view main LHS menu
VIWATH	Authorize Views	The user mapped to this function can authorize Views
VIWRDM	View RDM	The user mapped to this function can view RDM
VSDEF	VariableSet Definition	The user mapped to this function can define the variablesets
WEBSRVR	Web Server Screen	The user mapped to this function can access the Web Server Screen
WRTPR_BAT	Write-Protected Batch Screen	The user mapped to this function can access the Write-Protected Batch Screen

Function Code	Function Name	Function Description
XLADMIN	Excel Admin	The user mapped to this function can define Excel Mapping
XLUSER	Excel User	The user mapped to this function can Upload Excel Data

10.3 External Scheduler Interface Component

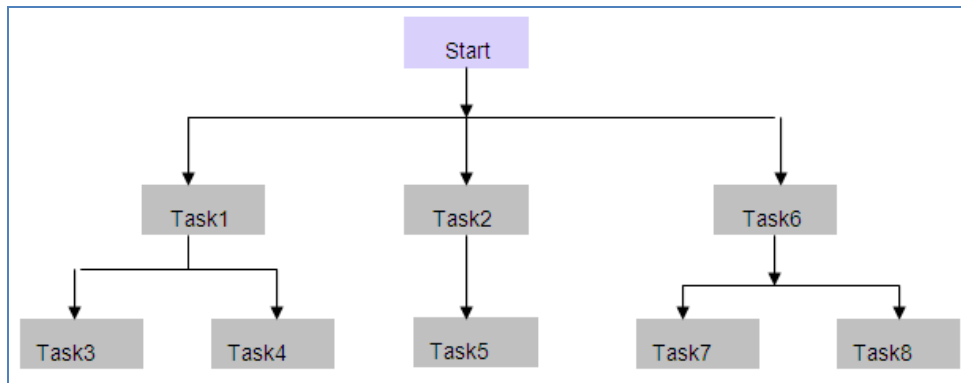
ESIC (External Scheduler Interface Component) is an external command line executable which integrates with the Infrastructure system to run or execute a Batch definition. This integration is achieved by the Run Executable component.

The Operations module (ICC - Information Command Center) within the infrastructure system manages the execution of all components within OFSAI. This reports the status of tasks, which are inseparable unit of work that must be executed as one single piece during a batch run. It also prompts for subsequent course of action depending on success/failure of execution.

A task may have many subtasks and their execution mechanism is handled by the component internally. Collection of tasks with defined precedence results in a Batch. There can be precedence set for tasks which enforce the relative order of execution. The task precedence is responsible for the parallelism achieved during the execution of a batch. Thus it is essential to take into account the performance implications, while defining task precedence in a batch apart from the logical or functional reasons that primarily define the relative order in which they may be executed.

For example, consider a batch comprising of tasks in the following figure. The arrows show the precedence involved. The way these tasks are selected for execution is as follows:

- Pick up all the tasks that have START as their parent. It essentially means that these tasks (Task1, Task2, and Task6) can be run independently.
- Subsequently pick all tasks for execution (at that instance of time) which has successful parent tasks.
- A Batch is marked as successful only if all the executable tasks are successful.



10.3.1 Architecture

The ES executes a component named "External Scheduler Interface Component" (ESIC) and passes the suitable parameters. For more information about these parameters refer [ESIC Command Line Parameters and Job Types](#). The ESIC in turn passes these requests to OFSAAI to fetch the Exit status and interpret as per the [Exit Status Specifications](#).

10.3.2 Scope of Integration

The Integration of External Scheduler (ES) with OFSAAI facilitates with the following capabilities:

Run New Batch

- Initialize Batch, will create an instance of current definition to be executed against the provided MIS Date.
- Execute complete Batch.
- De-initialize Batch, will update the status of instance.
- Restart Failed Batch
- On failure of Batch, Execute Batch in Restart mode after making necessary corrections

Rerun Batch

- Initialize Batch, will create an instance of current definition to be executed against the provided MIS Date.
- Execute complete Batch.
- De-initialize Batch, will update the status of instance.

Execution of Tasks in a Batch

- Initialize Batch of which the task is a member, will create an instance of current definition to be executed against the provided MIS Date.
- Execute individual Task of the Batch one after the other.

- Provided option to exclude the precedence specified in AAI for the tasks while executing through ESIC.
- De-initialize Batch, will update the status of instance.

Restart of Failed Task

- On failure of Task, Re-execute Tasks after making necessary corrections.
- De-initialize Batch, will update the status of instance

NOTE: Explicit initialization is not required for restart of a failed Batch or Task if it is not de-initialized.

Export Batch

- To export a Batch definition from OFSAAI to a specified location in an [OFSAAI standard XML](#) format. Also, an ES can add other ES specific details after importing the Batch definition to utilize its capability.

10.3.3 ESIC Invocation

The ESIC commands can be invoked from anywhere in the machine where Infrastructure is installed only if `$FIC_APP_HOME/icc/bin` is added to `$PATH` variable. Alternatively, you can navigate to that directory where ESIC component is installed (`$FIC_APP_HOME/icc/bin`) and Execute.

The log files are generated in `$FIC_APP_HOME/icc/log`. ESIC handles all exceptions generated during its execution.

The log file name for ESIC for each instance would be as follows:

ESIC_<Date>_<Time>_<PID>_< External Unique ID>.log

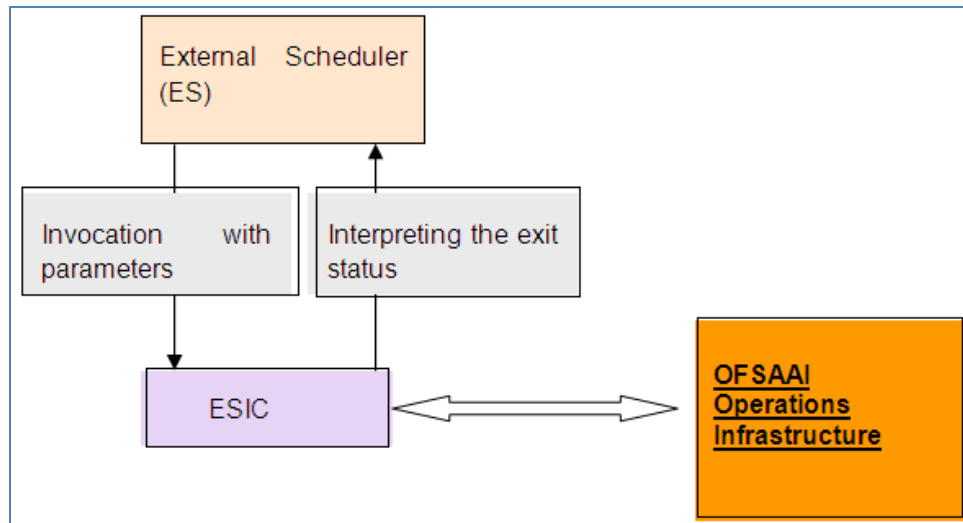
ESIC_<Date>_<Time>_<PID>_< External Unique ID>_<TaskId>.log

In case of an exception, ESIC logs appropriately and exits with an appropriate exit status that can be used by the ES.

Ensure the following:

- ES should execute Initialization and De-Initialization tasks which are invocations of ESIC with specific parameters.
- ES invokes ESIC as a command line executable for each task that are to be executed which includes the initialization and de-initialization tasks.
- Optionally, ESIC can wait for an executed task to complete. Once done, ESIC exits with an appropriate exit status that is fetched by the ES.
- Once an execution has started, the instance of ESIC will exist till the request is completed.

- ESIC handles all exceptions generated and in case of an exception, ESIC logs it appropriately and exits with an appropriate exit status that can be fetched by the ES.



For more details of ESIC exit status, refer [Exit Status Specifications](#) section. and for other miscellaneous information of ESIC, refer [Additional Information on ESIC](#) section.

10.3.4 Batch Execution Mechanism

The recommendation for Batch Execution with an External Scheduler is as follows:

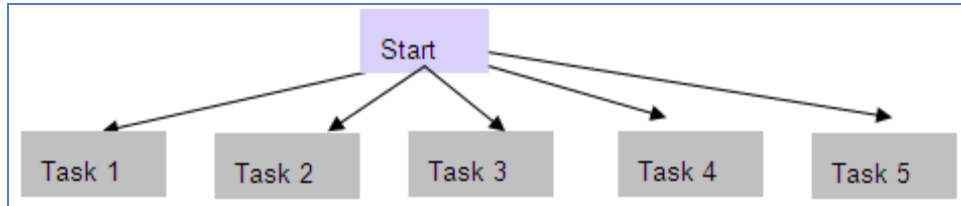
During the definition of a batch using the *Batch Definition* screen of Operations module, the Batch is called as **EXTBATCH** and the Information Domain in which this Batch is defined is called as **AMEXDOM**. Hence **AMEXDOM_EXTBATCH** becomes the Batch ID.

Consider a scenario, to run the following tasks in this Batch.

- The first task 'Task1' loads data in a warehouse table **FCT_CUSTOMER**.
- The second task 'Task2' loads data in a warehouse table **DIM_GEOGRAPHY**.
- The third task 'Task3' is a Data Transformation, uses both the Tables mentioned above. Hence this can run only if both the above tasks, Task1 and Task2 are complete.
- If either Task1 or Task2 fails, a new task namely Task 4 can be executed with the Data Transformation which uses the data of the previous load.
- The final task is a task namely Task5 which is a Cube building task. This takes several hours as it builds a Cube with many dimensions and hierarchies and holds large number of combinations.

The parameters for the Tasks are chosen from the drop down choices provided. OFSAAI provides the choices through its **Unified Metadata Management**.

Since, the Task 3 or Task 5 is executed based on conditional success / failure of previous tasks, the conditionality needs to be simulated in the ES. If the External Scheduler wants to control the order/conditionality for tasks then it needs to be defined in such a way that they have the same precedence. Here it would be ideal to define it as follows. The arrows in the following figure, shows the precedence involved.



The export of such a Batch from OFSAAI would look like the following. For more information, refer [OFSAAI Standard XML](#).

```

<BATCH BATCHID="AMEXDOM_EXTBATCH" NOOFTASKS="5" SYSTEMLOCALE="+5:30
GMT" INFODOMAIN="AMEXDOM" REVUSER="OPERADMIN" DEFTYPE="DEF">

  <RUNINFO REVUID="" EXTUID="" BATCHSTATUS="" INFODATE="" LAG=""/>
  <TASK TASKID="Task1" COMPONENTID="LOAD DATA" TASKSTATUS="N"
  FILTER="N">

    <PARAMETER name="IP Address" value="A.B.C.D">

    <PARAMETER name="Datastore Type" value="EDW">

    <PRECEDENCE>

      <ONSUCCESSOF>

        <TASKID/>

      </ONSUCCESSOF>

      <ONFAILUREOF>

        <TASKID/>

      </ONFAILUREOF>

    </PRECEDENCE>

  </TASK>
  <TASK TASKID="Task2" COMPONENTID="CUBE CREATE" TASKSTATUS="N"
  FILTER="N">

    <PARAMETER name="Cube Parameter" value="CC1">

    <PRECEDENCE>

      <ONSUCCESSOF>
  
```

```
<TASKID/>
</ONSUCCESSOF>
<ONFAILUREOF>
<TASKID/>
</ONFAILUREOF>
</PRECEDENCE>
</TASK>
<TASK TASKID="Task3" COMPONENTID="RUN EXECUTABLE" TASKSTATUS="N"
FILTER="N">
  <PARAMETER name="EXECUTABLE" value="run.sh">
  <PARAMETER name="WAIT" value="Y">
  <PRECEDENCE>
    <ONSUCCESSOF>
      <TASKID/>
    </ONSUCCESSOF>
    <ONFAILUREOF>
      <TASKID/>
    </ONFAILUREOF>
  </PRECEDENCE>
</TASK>
<TASK TASKID="Task4" COMPONENTID="EXTRACT DATA" TASKSTATUS="N"
FILTER="N">
  <PARAMETER name="Source Name" value="CardSrc">
  <PARAMETER name="Extract Name" value="Extract1">
  <PRECEDENCE>
    <ONSUCCESSOF>
      <TASKID/>
    </ONSUCCESSOF>
    <ONFAILUREOF>
      <TASKID/>
    </ONFAILUREOF>
```

```

    </PRECEDENCE>

</TASK>
<TASK TASKID="Task5" COMPONENTID=" TRANSFORM DATA" TASKSTATUS="N"
FILTER="N">

    <PARAMETER name="Rule Name" value="Trans1">

    <PARAMETER name="Parameter List" value="20030405">

    <PRECEDENCE>

        <ONSUCCESSOF>

            <TASKID/>

        </ONSUCCESSOF>

        <ONFAILUREOF>

            <TASKID/>

        </ONFAILUREOF>

    </PRECEDENCE>

</TASK>
</BATCH>

```

Valid Values for Task Status are:

Task Status	Value
N	Not Started
O	On Going
F	Failure
S	Success

Valid Values for Batch Status are:

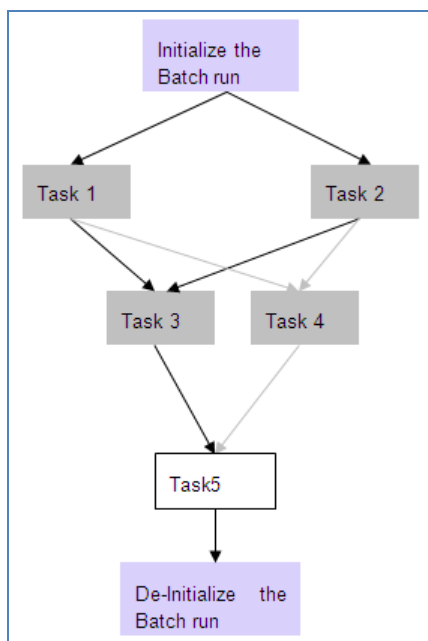
Batch Status	Value
N	Not Started
O	On Going
R	For Restart
C	Complete

Valid values for FILTER are:

Filter Status	Value
H	Hold
K	Exclude/Skip
N	No Filter

When the definition of a Batch is exported and imported in ES, the Task Status, the Batch Status, and the Filter become irrelevant. This happens if you export a specific run of a Batch, which is not currently supported by OFSAAI. This should be included as a part of the XML for completeness.

After importing it in the ES, the Administrators can decide the order in which the tasks must be executed and alter the order of execution without violating the precedence set in OFSAAI. For example, the Administrator might configure it as in the following figure.



The invocation of ESIC by the ES and the command line parameters passed for each task for the above configuration is as follows. For more information about command line parameters refer [ESIC Command Line Parameters and Job Types](#).

The ES needs to provide the 'Ext Unique ID'. In this case it is **MAESTRO_AMEXDOM_EXTBATCH_20031001_1**.

To Initialize the Batch Run:

```
esic -JI -Urevuser -Ppassword -RMAESTRO_AMEXDOM_EXTBATCH_20031001_1 -
IAMEXDOM -BEXTBATCH -D20031001 -F/tmp/AMEXDOM
```

Task 1:

```
esic -JXT -Urevuser -Ppassword -RMAESTRO_ AMEXDOM_EXTBATCH_20031001_1 -
IAMEXDOM -WC -TTask1 -P<paramname1>=<value1> -P<paramname2>=<value2>
```

Task 2:

```
esic -JXT -Urevuser -Ppassword -RMAESTRO_ AMEXDOM_EXTBATCH_20031001_1 -
IAMEXDOM -WC -TTask2 -P<paramname1>=<value1> -P<paramname2>=<value2> -
P<paramname3>=<value3>
```

Task 3:

```
esic -JXT -Urevuser -Ppassword -RMAESTRO_ AMEXDOM_EXTBATCH_20031001_1 -
IAMEXDOM -WC -TTask3 -P<paramname1>=<value1>
```

Task 4:

```
esic -JXT -Urevuser -Ppassword -RMAESTRO_ AMEXDOM_EXTBATCH_20031001_1 -
IAMEXDOM -WC -TTask4 -P<paramname1>=<value1> -P<paramname2>=<value2>
```

Task 5:

```
esic -JXT -Urevuser -Ppassword -RMAESTRO_ AMEXDOM_EXTBATCH_20031001_1 -
IAMEXDOM -WC -TTask5
```

De-initialize:

```
esic -JD -Urevuser -Ppassword -RMAESTRO_ AMEXDOM_EXTBATCH_20031001_1 -
IAMEXDOM -BAMEXDOM_EXTBATCH -D20031001
```

Ensure the following scenarios while executing an ES Batch:

- Every Task executed in ES must have an equivalent task defined in a Batch within the Operations module, except for specific tasks such as Initialization, De-initialization, and Status Query / Alter Tasks.
- If ES requests to alter the status of a task that has already been requested for execution, an error value is returned specific to such a case. The same hold good for Batch Run as well.
- Task Execution must follow the precedence as defined in OFSAAI. Else, the task execution would result in failure.
- Re executing a task of a Batch run, which was successfully executed will result in failure.
- Execution of a Batch whose definition does not exist or deleted will result in failure. An error value is returned specific to such a case.
- Execution of a task before the initialization of Batch will result in failure.
- Simultaneous execution of the same Task of a Batch Run will result in failure. The same holds good for a Batch Run as well.

10.3.5 External Scheduler Batch Run ID

Batch Run ID is a unique identifier used to identify a particular Batch Run in the following format:

Infodom_Batchname_Infodate_Run

The **Batch Run ID** consists of the following components:

Component	Description
Infodom	The Information Domain for which the batch is being run.
Batchname	The name of the Batch as assigned by the user.
Infodate	The date on which the batch is run.
Run	This indicates the number of times the Batch has been executed. This value is incremented if the Batch is re run for the same MISDATE .

10.3.6 Batch Monitoring

The *Batch Monitoring* screen in Operations module facilitates with the static and real time monitoring of a Batch. On choosing a particular batch definition, an **Infodate** and a **Batch Run ID** displays the status of the tasks inside the selected batch.

10.3.7 Advantages of ES

Following are the advantages of ES component:

- ES is capable of importing a Batch definition, which was previously exported in [OFSAAI Standard XML](#) format. This eliminates the necessity to manually re-define the batch as per the OFSAAI format.
- ES is capable of passing a unique id for a Batch Run to Operations module through an initialization mechanism. For more information, refer [Batch Execution Mechanism](#).
- Every Batch run can be uniquely identified in both ES and Operations module, when tasks are executed under the scope of a particular Batch Run.
- ES is capable of executing and passing the desired parameters to a Batch. Further it can fetch an Exit status and interpret as per the [Exit Status Specifications](#).

10.3.8 OFSAAI Standard XML

```
<BATCH BATCHNAME="Name of the Batch" NOOFTASKS="Total no of tasks in the Batch"
SYSTEMLOCALE="The locale of the system where the batch is defined " INFODOMAIN="The
Information domain where the batch is defined" REVUSER="User who defined the batch"
DEFTYPE="To Identify whether the XML file describes a batch definition or run (can take values
'D' in case of definition and 'R' in case of run)">
```

<RUNINFO REVUID="Batch Run ID" EXTUID="External Unique ID for the Batch Run"
BATCHSTATUS="Status of the Batch Run" INFODATE="The info Date for the system"
LAG="Defines the Lag for the Batch"/>

<TASK TASKID="Task1" COMPONENTID="LOAD DATA" TASKSTATUS="0"
FILTER="H">

<PARAMETER name="IP ADDRESS" value="A.B.C.D">

<PARAMETER name="Source Name" value="RemoteSrc">

<PRECEDENCE>

<ONSUCCESSOF>

<TASKID></TASKID>

</ONSUCCESSOF>

<ONFAILUREOF>

<TASKID/>

</ONFAILUREOF>

</PRECEDENCE>

</TASK>

<TASK TASKID="Task2" COMPONENTID="RUN EXECUTABLE" TASKSTATUS="0"
FILTER="H">

<PARAMETER name="EXECUTABLE" value="run.sh">

<PARAMETER name="WAIT" value="Y">

<PRECEDENCE>

<ONSUCCESSOF>

<TASKID></TASKID>

</ONSUCCESSOF>

<ONFAILUREOF>

<TASKID></TASKID>

</ONFAILUREOF>

</PRECEDENCE>

</TASK>

<TASK TASKID="Task3" COMPONENTID="EXTRACT DATA" TASKSTATUS="0"
FILTER="N">

```

<PARAMETER name="Source Name" value="CardSrc">
<PARAMETER name="Extract Name" value="Extract1">
<PRECEDENCE>
<ONSUCCESSOF>
<TASKID>TASK1</TASKID>
</ONSUCCESSOF>
<ONFAILUREOF>
<TASKID>Task2</TASKID>
</ONFAILUREOF>
</PRECEDENCE>
</TASK>
</BATCH>

```

The valid values for **FILTER** are:

Filter Status	Value
H	Hold
R	Released
E	Excluded/Skipped
I	Included

10.3.9 Exit Status Specifications

The following table contains the list of Exit Statuses of the ESIC and their interpretations.

Exit Status	Interpretation
0	Success
-1	Failure
-2	Unable to contact OFSAAI
-3	Unable to query OFSAAI Metadata
-4	Unable to Initialize Batch
-5	Unable to De-Initialize Batch

Exit Status	Interpretation
-6	Failed to Execute a Task because of incorrect parameters passed to the task
-7	Failed to Execute a Task/Batch
-8	Failed to Wait for Task/Batch
-9	Failed to Set Batch as Complete
-10	Failed to Add Filter to Task
-11	Failed to Purge Batch
-12	Failed to Export Batch Definition
-14	Invalid Configuration File
-15	Supplied Parameters Incorrect for Task Execution
-16	Failed to Export Batch Logs
-13, -16 to -31	Reserved
1	Successful Poll of the Task – Task/Batch Ongoing (O)
2	Successful Poll of the Task – Task Excluded (K)
3	Successful Poll of the Task – Task/Batch Held (H)
4	Successful Poll of the Task – Task/Batch Not Started (N)
5-8	Reserved

10.3.10 ESIC Operations using Wrapper Scripts

OFSAAI has been enhanced to provide standardized wrapper scripts to perform ESIC batch operations.

10.3.10.1 Prerequisites

- JAVA_HOME (Required) must point at JAVA bin installation directory.
- ES_HOME (Required) must point to the ES Home folder.
- Copy the ES folder and the following jars should be present in ES/lib folder:
 - FICServer.jar
 - AESCryptor.jar
 - aai-client.jar
- Update ES/conf/<Infodom>.ini file and specify the proper values.

- MISDATE=Information Date in format mm-dd-yyyy (For example: MISDATE=01-31-2010)
- USERNAME=OFSAAI Login user (For example: USERNAME=BASELUSER)

10.3.10.2 Initialize a Batch for Execution

1. Navigate to the \$ES_HOME > bin folder.
2. Run InitializeBatch.sh by passing the following arguments
 - Infodom: Information Domain name.
 - Runid: RRF run code / ICC batch name
 - BatchType: RRF/ICC

Example: ksh InitializeBatch.sh BASELINFO TESTBATCH ICC

10.3.10.3 Execute a Batch

1. Navigate to the \$ES_HOME > bin folder.
2. Run ExecuteBatch.sh by passing the following arguments
 - Infodom: Information Domain name.
 - Runid: RRF run code / ICC batch name
 - Mode:run/restart [optional]

Example: ksh ExecuteBatch.sh BASELINFO TESTBATCH run

10.3.10.4 Execute a Task

1. Navigate to the \$ES_HOME > bin folder.
2. Run ExecuteTask.sh by passing the following arguments
 - Infodom: Information Domain name.
 - Runid: RRF run code / ICC batch name
 - TaskName: Individual Task in a batch
 - TaskPrecedenceCheck: Y/N [optional]

Example: ksh ExecuteTask.sh BASELINFO TESTBATCH Task1 Y

10.3.10.5 De-initializing a Batch

1. Navigate to the \$ES_HOME > bin folder.
2. Run DeinitializeBatch.sh by passing the following arguments

- Infodom: Information Domain name.
- Runid: RRF run code / ICC batch name

Example: ksh DeinitializeBatch.sh BASELINFO TESTBATCH

10.3.10.6 View Logs for Individual Batch Run

\$ES_HOME/log/ESIC_<batchrunid>.log

10.3.11 ESIC Operations Using Command Line Parameters and Job Types

ESIC Command Line Parameters can be invoked using the following command:

esic -J<Job Type> <Parameters>

The type of the Parameters depends on the value of the Job Type. The various Job types are provided below:

10.3.11.1 I - Initialize a Batch for Execution

This command prepares all the run tables and initialize the run of a batch. This should be executed before any other external API for execution of a batch, as it registers the <External Unique ID> against the Batch Run ID.

-JI -U<User ID> -P<Password> -R<Ext Unique ID> -I<Info Dom> -B<Batch Name> -D<Info Date>-F<Temp Directory Name>

The components of the above command are tabulated below:

Exit Status	Interpretation
Password	This is supplied to ESIC is encrypted and the encrypted password is stored in the column v_password in the table CSSMS_USR_PROFILE .
Ext Unique ID	This can be anything unique against a batch execution. It is the responsibility of the External Scheduler/calling program to supply the unique id to ESIC.
Temp Directory Name	This can be any value chosen by the user.
Ext Unique ID	The value of this against OFSAAI batch execution id mapping is stored in the table EXT_BATCH_RUN_ID_MAPPING .
External Unique ID	This is stored in a table against a newly generated Batch Run ID.
Temporary Dir Name	This is stored in a table against a newly generated Batch Run ID.

10.3.11.2 D - DeInitialize/Clean up temporary files created for a Batch Execution

This command DeInitializes the run of a Batch. All temporary resources allocated for that run of a Batch will be reclaimed. An attempt to call an API for a batch for which DeInitialize has been called will return an error. If DeInitialize is called for an ongoing Batch which has no ongoing tasks, the batch status will be in accordance to the status of the Tasks under this Batch. If any of the Tasks are Ongoing, then this command will return a failure "batch cannot be de-initialized".

JD -U<User ID> -P<Password> -R<Ext Unique ID> -I<Info Dom> -B<Batch Name> -D<Info Date>

10.3.11.3 X - Execute a Task/Batch or Restart of Batch

These options can be used to execute a Batch or Task of a Batch in OFSAAI. In the case of a batch, the Batch must have been initialized. In the case of a Task, the batch, of which the task is a member, must have been initialized, by calling the Initialize API.

When a Batch is defined in OFSAAI, each task will be assigned with unique id like Task1, Task2 and so on. This task id has to be supplied for <Task ID>. [-A<Parameter Name>=<Parameter Value>...] is an optional parameter for ESIC. If this is not given, ESIC will use the default parameters defined for the Batch, otherwise the parameter name-value pairs would override the parameters provided to the task during batch definition in OFSAAI. The parameters and values are stored in BATCH_PARAMETER_MASTER. This command would execute the batch/task as in current system; the return value would depend on the wait mode specified. If the wait mode were 'S', then a call would return success if the task was successfully triggered.

-JXB -U<ID> -P<Password> -R<Ext Unique ID> -I<Info Dom> -W<Wait Mode>

-JXT -U<User ID> -P<Password> -R<Ext Unique ID> -I<Info Dom> -W<Wait Mode>-T<Task ID> [-A<Parameter Name>=<Parameter Value>...]

-JXRB -U<User ID> -P<Password> -R<Ext Unique ID> -I<Info Dom> -W<Wait Mode>

Wait Modes:

C - Wait Completion of a Task/Batch

S - Successful Trigger/Relay of Task to OFSAAI

If the wait mode were 'C', then the command would wait for completion of the task/batch and returns the task/batch execution return values. Only Task/Batch marked as 'N' (not started) can be executed using this API. A task can only be executed if it does not violate the precedence set in OFSAAI batch definition.

10.3.11.4 W - Get Task/Batch Status

-JWB -U<User ID> -P<Password> -R<Ext Unique ID> -W<Wait Mode> -I<Info Dom>

-JWT -U<User ID> -P<Password> -R<Ext Unique ID> -W<Wait Mode> -I<Info Dom> -T<Task ID>

10.3.11.5 S – Finalize the Batch execution – primarily mark the Batch run as complete

-JSB -U<User ID> -P<Password> -R<Ext Unique ID> -I<Info Dom> -V<Batch Status>

Valid Values for Batch Status are:

C - Complete

10.3.11.6 F - Adding filter to a Task

-JFT -U<User ID> -P<Password> -R<Ext Unique ID> -I<Info Dom> -T<Task ID> -V<Task Filter>

Valid values for filter are:

H - Hold

R - Release

E - Exclude/Skip

I - Include

10.3.11.7 P - Purge Batch Run data between two info dates

-JP -U<User ID> -P<Password> -I<Info Dom> [-B<Batch Name>] -S<Start Date> -E<End Date>

The Start and End Dates must be in the following format: YYYYMMDD.

10.3.11.8 E - Export a Batch Definition

-JE -U<User ID> -P<Password> -I<Info Dom> -B<Batch Name> -F<File Name>

<File Name> contains the complete file name that would be created overwriting any file that exists with the same name.

10.3.11.9 BL – View messages logged for a batch run

***-JBL -U<User ID> -P<Password> -R<Ext Unique ID> -I<Info Dom> -F<File Name>
[-V<Message Format String>]***

<File Name> contains the complete file name that would be created overwriting any file that exists with the same name.

<Message Format String> specifies the information that needs to be logged.

Format string can contain parameters that will be replaced with actual values from logs.

Valid values for message parameter are *msgid*, *brid*, *taskid*, *component*, *tstatus*, *severity*, *tstamp*, and *sysmsg*.

Each parameter, when passed in a message format string should be enclosed within {}.

Example:

A typical message format string would look like:

{msgid}\t{brid}\t{taskid}\t{component}\t{tstatus}\t{severity}\t{tstamp}\t{sysmsg}

If no message format string is supplied, then the log generated will be in the above format, with each value separated by a tab.

10.3.11.10 XBG – Execute a Batch-Group

-JXBG-U<User-ID> -P<password> -R< Ext Unique ID> -G<Batch Group Name>-I<InfoDOM Name>-D<MIS Date>-W<Wait Mode>

This command is used to execute a created batch group with the parameters to be passed in the formats as tabulated below.

Command	Description
XBG	Stands for executing Batch Groups
User-ID	OFSAAI User
Password	OFSAAI password
Ext Unique Run-ID	BatchGroupName_RequestForExecutionID_MISDATE_Run, Run being the number of times batch-group is executed.
Batch Group Name	INFODOM_BatchGroup-ID (BatchGroup-ID gets generated when batch group is created and this can be seen in batch group execution screen of OFSAAI front-end).
InfoDOM Name	Name of the information domain
MIS Date	To be in the format 'YYYYMMDD'
Wait Mode	C - Wait Completion of the batch-group +S - Successful Triggering of the batch-group

10.3.11.11 JXBG – Execute selected batches in a Batch-Group

-JXBG -U<User-ID> -P<password> -R< Ext Unique ID> -G<Batch Group Name>-I<Infodom Name> -D<MIS Date> -W<Wait Mode> -BBatchNames

This is used to execute selected batches of a batch-group with the names of the batches to be executed to be passed.

BatchNames > List of batch names each separated by comma >
BatchGroupID_RequestForExecutionID.

10.3.11.12 Restart / Rerun Batches on Failure of a Task using JXRB Command

You can Restart and Rerun the batches in the event of failure of any task/batch during execution. Ensure that batch execution which is being restarted is not De-Initialized.

To restart the batch, run the following command:

-JXRB -U<User ID> -P<Password> -R<BATCH RUN ID> -I<Info Dom> -W<Wait Mode>

To Rerun a batch follow the below steps:

1. Initialize the batch.
2. Run the following command:
-JXRB -U<User ID> -P<Password> -R<BATCH RUN ID> -I<Info Dom> -W<Wait Mode>
3. De-Initialize batch.

The wait modes that can be used in both the above commands are:

- **C** - Wait Completion of a Task/Batch.
- **S** - Successful Trigger/Relay of Task to OFSAAI.

The entire batch must be initialized when:

- The batch is failed.
- Task in a Batch is failed. (The batch in which the task is a member must be initialized).

This initializations can be performed from the **Initialize API**.

The parameter name/value pairs override the parameters provided to the task during batch definition in OFSAAI. This command executes the batch/task as in the current system.

The return value entirely depends on the wait mode specified.

- If the wait mode chosen as **S**, the execution returns a Success post the successful triggering of the task.
- If the wait mode is selected as **C**, the command waits for the completion of the task/batch execution and returns the values.

NOTE: Only Task/Batch marked as 'N' (not started) can be executed using this API. A task can be executed only when it does not violate the precedence set in batch definition.

10.3.11.13 XBG – Execute batches of a Batch-Group with precedence

Individual batches of a batch-group can also be assigned with precedence to define the order in which the batches are to be executed.

We can define a batch group containing multiple batches with each one associated with precedence and execute the batch group by passing the usual parameters. In this case, the batch-group execution is successful if all the batches are executed successfully. If there are two batches B1 and B2 in a batch-group and B1 precedes B2, then B2 should get executed only if the execution of B1 is successful.

Batch Groups

As a part of Rules framework, you create RUN definitions, each of which would result in a unique batch group. Every request for execution of a RUN will become a batch in that batch group. These batches can then be scheduled for execution as if it were any other batch.

The Batch Group feature enables creating batch groups, associating batches to them and executing and monitoring the batch groups. Multiple batches of a batch group can be selected and executed in a parallel sequence at the same time.

BATCH GROUP RUN ID

The Batch Group Run Id is an identifier used to uniquely identify a particular run of a batch group. It is as follows:

BatchGroupName_RequestForExecutionID_MISDATE_Run.... This is same as the External Unique Run-ID passed for the batch-group execution.

BATCH GROUP MONITORING

The batch-group-monitoring screen in OFSAAI Operations allows static and real time monitoring of the Batch Group. On choosing a particular batch-group definition, an Infodate and a batch run ID, it displays the status of batches of the batch group.

Assumptions:

- Every Batch Group run is uniquely identifiable both in ES and OFSAAI. Every batch must be executed under the purview of a Batch Group Run in OFSAAI.
- ES is capable of passing a unique id for a run of a Batch Group to OFSAAI.
- ES is capable of importing a Batch Group definition, exported in OFSAAI Standard XML format. Else the Batch Group needs to be manually defined in exactly the same way as defined in OFSAAI.

LogFiles:

ESIC Batch-Group log files will be created in the folder *\$FIC_APP_HOME/icc/log* and the file-names will be in the format.

ESIC_XBG_DATE_TIME_ExtUniqueRunID.log where DATE and TIME will be the current date and time in the formats "yyyymmdd" and "hhmmss".

10.3.12 Additional Information on ESIC

This section includes the information regarding the miscellaneous details, dependencies, and error logging details for ESIC.

10.3.12.1 Miscellaneous Details and Dependencies

- ESIC resides on App Layer of OFSAI.
- ESIC expect the environment variable **FIC_APP_HOME** to be defined for configuration and log paths.
- In case the environment variable **FIC_APP_HOME** is not defined, ESIC will exit with an error message on console.
- ESIC and ICC Server share a single configuration file, which resides in *FIC_APP_HOME/icc/conf*.
- ESIC resides in *FIC_APP_HOME/icc/bin* and paths to dependencies (ICC API library in this case) need to be set to *FIC_APP_HOME/icc/lib*.

10.3.12.2 Error Logging for ESIC

ESIC opens a file in *\$FIC_APP_HOME/icc/log* for logging and the file descriptor for that file is passed to the ICC API library for logging. The log file name for ESIC for each instance are as follows:

ESIC_<Date>_<Time>_<External Unique ID>_<TaskID>.log

ESIC log messages into a file only if the exit status values are -2, -12, -14, and -15. For more information refer [Exit Status Specifications](#). In all other cases, ICC Server logs the errors and the causes and ESIC only return the error value as an exit status.

NOTE: <External Unique ID> and <Task ID> can be used
wherever applicable.

10.4 Command Line Utilities

The following command line utilities are introduced in OFSAAI.

- [Command Line Utility to Migrate Objects](#)
- [Command Line Utilities to Execute RRF Rule Definitions](#)
- [Command Line Utility to publish Metadata in Metadata Browser](#)
- [Command Line Utility for Object Application mapping in new Metadata Browser](#)
- [Command Line Utility for Resaving UMM Hierarchy Objects](#)

10.4.1 Command Line Utility to Migrate Objects

There are three approaches available for object migration namely Command Line Object Migration Utility, Object Migration from Administration>Utilities, and Metadata Archive/Restore available in UMM module. You can choose an approach based on whether the objects you intend to migrate are supported in that approach. Command Line Object Migration is the common integrated approach and is recommended over other methods.

Using the command line utility, you can migrate (export/ import) Infrastructure metadata objects across different information domains or setups. You can specify one or more objects within an object type or within multiple object types. For the list of objects that can be migrated, see the [Objects Supported for Command Line Migration](#) section. However, currently some objects are not supported. You need to migrate them separately from *Unified Metadata Manager - Metadata Restore/ Metadata Archive* process, [Object Migration](#) UI, or manually recreate them in the target environment. See the [Objects not supported for Command Line Migration](#) section.

10.4.1.1 Prerequisites

- Ensure the OFSAAI versions of both source and target setups/ information domains across which you are migrating objects are the same.
- You must have access and execution rights in the *Migration Utility - Conf* directory in both the source and target environment.
- Folders (segments) that are designated for the import should be present in the target.
- The source and target environment should have the same installed languages.
- OFSAA users in source should be the same in target (at least for users associated with objects migrated).
- OFSAA users should have access to folders in target as well as source.
- Tables accessible to users in source should also exist in target. For example, if you want to migrate a Data Element Filter based on "Table A" and "Table B" in the source, those two tables should exist in the target.

- For AMHM Dimensions and Hierarchies:
 - The key processing Dimensions should be the same in both the source and target environments.
 - For Member migration, the Dimension type should have the same attributes in both source and target environments.
 - Numeric Dimension Member IDs should be the same in both the source and target environments, to ensure the integrity of any Member-based objects.

NOTE: If you have used the Master Table approach for loading Dimension data and set it up to generate surrogate keys for Members, this results in different IDs between the source and target, so it may cause errors if you have objects which depend on these IDs.

10.4.1.2 Migrating Objects

To migrate objects, perform the following steps:

1. Navigate to the **Migration Utility - Conf** folder which is available under `$FIC_HOME/utility/Migration` of OFSAAI APP tier.

This directory consists of **migration.properties** file and **OBJECTMIGRATION.xml** file.

2. Populate the **migration.properties** file with appropriate values as explained in the following table.

NOTE: The values in the properties file are updated by the installer. If you want to run this utility from another location, the values should be specified accordingly.

Name	Description
EXPORTIMPORT_BASEPATH	Absolute path of the directory where the metadata/ archive and metadata/ restore folders are created. Example: EXPORTIMPORT_BASEPATH= /oracle/rhelapp/ofs73app/utility/Migration
FIC_HOME	OFSAAI installation directory. Example: FIC_HOME=/oracle/rhelapp/ofs73app

3. Update the **OBJECTMIGRATION.xml** file as explained below based on whether you want to import or export objects:

NOTE: The **OBJECTMIGRATION.xml** file is available with the installer. The Tag name, Attribute and the entries to be made in the XML file are case sensitive.

For Exporting Objects

Tag Name	Attribute	Description
USERID		Specify the user ID of the OFSAAI user who will be running the migration utility. Ensure the user is mapped to the specific source Information Domain / Segment. The user id should be provided in capital letters.
LOCALE		Set this as en_US.
INDODOM		Specify the Information Domain from where objects need to be exported. The information domain name should be provided in capital letters.
MODE		Set the mode of the operation as EXPORT .
FILE		Specify the name of the file to be exported which will be created under <i>\$FIC_HOME/utility/Migration/metadata/archive</i> folder as a .DMP file.
FOLDER		Not Applicable, only used for importing.
FAILONERROR		Not Applicable, only used for importing.

Tag Name	Attribute	Description
OBJECT	Code	Specify the object Code which should be a unique identifier of the definition according to the Type of the object in the Information Domain. Code should be either system generated or user defined unique code. See the Objects Supported for Command Line Migration section to know for a particular object whether it is user defined or system generated. - You can specify the Code value as wildcard "*" if you are migrating all objects of that Type. For example, to export all Rules from RRF: <pre><OBJECTS> <OBJECT Code="*" Type="112" /> </OBJECTS></pre> - To export multiple objects of a particular object type, multiple entries with each object code should be made in the OBJECTMIGRATION.xml file. For example, if you want to export three different rules, the entries should be made as given below: <pre><OBJECTS> <OBJECT Code="Rule Code_1" Type="112" /> <OBJECT Code="Rule Code_2" Type="112" /> <OBJECT Code="Rule Code_3" Type="112" /> </OBJECTS></pre>
OBJECT	Type	Specify the Type ID of the required metadata objects to be exported. Refer to the Objects Supported for Command Line Migration section.
	SubType	SubType is available for Filters and AMHM hierarchy only. This is a mandatory field. For filters, SubType indicates the type of the filter. For hierarchies, this indicates the Dimension ID. See the table for filter SubTypes. Example: For Group Filter, <pre><OBJECTS> <OBJECT Code="200265" Type="1" SubType="21"/> </OBJECTS></pre>

4. Once you have updated the files with required information in the source environment, navigate to **\$FIC_HOME/utility/Migration/bin** path and execute **ObjectMigration.sh**. The dump file will be created.
5. Once executed, you can view the related log files from the **\$FIC_HOME/utility/Migration/logs** location.

For Importing Objects

Tag Name	Attribute	Description
USERID		Specify the user ID of the OFSAAI user who will be running the migration utility. Ensure that the user is mapped to the specific target Information Domain / Segment. The user id should be provided in capital letters.
LOCALE		Set this as en_US.
INDODOM		Specify the Information Domain where objects need to be imported. The information domain name should be provided in capital letters.
MODE		Set the Mode of the operation as IMPORT .
FILE		Specify the name of the file to be imported, which is present under <i>\$FIC_HOME/utility/Migration/metadata/restore</i> folder.
FOLDER		Specify the Code of the folder /segment to which you need to import objects. This field is optional. The folder value should be provided in capital letters. Note: This is the default target folder if object specific TargetFolder is not provided. However, if both FOLDER and TargetFolder are not specified, then source folder available in the exported dump file will be considered as target folder. For behavior in 7.3.4.0.0 release, see Limitations section.

Tag Name	Attribute	Description
IMPORTALL		Y indicates that all exported objects in the .DMP file (dump) will be imported (regardless of any specific OBJECT entries in theOBJECTMIGRATION.XML file). Example: <pre><IMPORTALL TARGETFOLDER="BASEG">Y</IMPORTALL></pre> N indicates that only objects explicitly specified in the OBJECTMIGRATION.xml file will be imported (provided they are already exported and available in the dump file).
FAILONERROR		Specify whether to fail operation on any error. Y - Stops the import process if there is any error. N - Continues with the next object in the import process even if there is an error.
OVERWRITE		Specify whether to overwrite any existing metadata. Y - Overwrites metadata even if the metadata already exists. N - Will not overwrite the object if it already exists and continue migrating the next object.

Tag Name	Attribute	Description
OBJECT	Code	Specify the object Code which should be a unique identifier of the definition according to the Type of the object in the Information Domain. Code should be either system generated or user defined unique code. See the Objects Supported for Command Line Migration section to know for a particular object whether it is user defined or system generated. - You can specify the Code value as wildcard "*" if you are importing all objects of that Type. For example: <pre><OBJECTS> <OBJECT Code="*" Type="112" /> </OBJECTS></pre> - To import multiple objects of a particular metadata type, multiple entries with each metadata code should be made in the OBJECTMIGRATION.xml file. For example, if you want to import three different rules, the entries should be made as given below: <pre><OBJECTS> <OBJECT Code="Rule Code_1" Type="112" /> <OBJECT Code="Rule Code_2" Type="112" /> <OBJECT Code="Rule Code_3" Type="112" /> </OBJECTS></pre> Note: You need to specify only those Codes, which are present in the exported dump file.
	Type	Specify the Type ID of the required metadata objects to be imported. Refer to the Objects Supported for Command Line Migration section. Note: You need to specify only those Types, which are present in the exported dump file.

Tag Name	Attribute	Description
	SubType	SubType is available for Filters and AMHM hierarchy only. This is a mandatory field. For filters, SubType indicates the type of the filter. For hierarchies, this indicates the Dimension ID. See the table for filter SubTypes. Example: For Group Filter, <pre><OBJECTS> <OBJECT Code= "200265" Type="1" SubType="21"/> </OBJECTS></pre>
OBJECTS	TargetFolder	Specify an optional attribute TargetFolder in <OBJECTS> tag to import objects to a specific folder. Objects can be migrated individually or in groups. Example: <pre><OBJECTS TargetFolder="FSGBSEG"> <OBJECT Code="200143" Type="14"/> </OBJECTS> <OBJECTS TargetFolder="BASEG"> <OBJECT Code="M0001NW" Type="101"/> <OBJECT Code="H0002CRP" Type="103"/> </OBJECTS></pre> Note: If you have not specified the TargetFolder, the objects will be imported to the folder specified in FOLDER tag. If you have not provided the default FOLDER value also, then the source folder value in the dump file will be taken as target folder. For behavior in 7.3.4.0.0 release, see Limitations section.

6. Once you have updated the files with required information in the target environment:
 - Create **metadata/ restore** folder under *\$FIC_HOME/utility/Migration* directory (if not present).
 - Copy the exported **.DMP** file that needs to be imported to *\$FIC_HOME/utility/Migration/metadata/restore* folder.
 - Navigate to *\$FIC_HOME/utility/Migration/bin* path and execute **ObjectMigration.sh**.

7. Once executed, you can view the related log files from the **\$FIC_HOME/utility/Migration/logs** location.

10.4.1.3 Limitations

- If **IMPORTALL** flag is set as 'Y' and **TargetFolder** is not provided, it should consider the value specified under **FOLDER** tag. However, objects are migrated to the source folder available in the exported dump file. Hence ensure the same folder is present in the target environment.
- For AMHM objects, irrespective of values specified in **TargetFolder** or **FOLDER** tags, the objects are migrated to the source folder available in the exported dump file. Hence, ensure folder with same name as it is in the dump file is present in target environment.
- Ensure the specified **Folder** is present in the target environment during **IMPORT** operation. Currently validation is not done.

10.4.1.4 Objects Supported for Command Line Migration

Object Name	Object Type ID	Support for Wildcard Select Option	Support for Implicit Dependency ¹	Object Code
DATA QUALITY RULE	120	No	No	System generated code
DATA QUALITY GROUP	1003	No	Yes	User defined unique code
DATA TRANSFORMATION	121	No	No	User defined unique code
ETL	122	No	No	User defined unique code
DATA ENTRY FORMS AND QUERIES (DEFQ)	124	No	No	User defined unique code
ALIAS	54	Yes	Yes	User defined unique code
DERIVED ENTITY	128	No	No	User defined unique code
BUSINESS MEASURE	101	No	Yes	User defined unique code
BUSINESS DIMENSION	102	No	Yes	User defined unique code
BUSINESS HIERARCHY	103	No	Yes	User defined unique code
DATASET	104	No	Yes	User defined unique code
BUSINESS PROCESSOR	105	No	No	User defined unique code
ESSBASE CUBE	106	No	No	User defined unique code

Object Name	Object Type ID	Support for Wildcard Select Option	Support for Implicit Dependency ¹	Object Code
ORACLE CUBE	133	No	No	User defined unique code
MAPPER	136	Yes	No	System generated code
FORMS FRAMEWORK	126	Yes	No	User defined unique code
FORMS MENU	125	Yes	No	User defined unique code
RULE	112	Yes	No	System generated code
PROCESS	111	Yes	No	System generated code
RUN	110	Yes	No	System generated code
BATCH	123	Yes	No	System generated code
DIMENSION	12	No	Yes	System generated code
FILTER	1	No	Yes	System generated code
EXPRESSION	14	No	Yes	System generated code
AMHM HIERARCHY	5	No	Yes	System generated code

¹ The objects which do not have Implicit Dependency support need to be migrated explicitly using any of the object migration methods available. For example, dependent metadata such as Business Hierarchies and Datasets used in Forms will not be migrated. You need to migrate it explicitly.

Filter SubTypes

Object Name	Object SubType ID
DataElement Filter	4
Hierarchy Filter	8
Group Filter	21
Attribute Filter	25

10.4.1.5 Objects not Supported for Command Line Migration

Security Management System (SMS) Objects

10.4.1.6 De-Supported Objects for Command Line Migration

Computed Measure
Hierarchy Attribute
Old PR2
Batch Group

10.4.2 Command Line Utilities to Execute RRF Rule Definitions

RRF Rule definitions can be executed through the following command line utilities:

- [Command Line Utilities for Rule Execution](#)
- [Command Line Utilities for Rule Execution through web services](#)

10.4.2.1 Command Line Utilities for Rule Execution

You can execute RRF Rule definitions through command line utility.

To execute Rule definitions, do the following:

1. Navigate to `$FIC_HOME/utility/RuleExecution/bin` of OFSAAI APP tier.
2. Execute **RuleExecution.sh** (UNIX) or **RuleExecution.bat** (Windows) along with the required arguments i.e. `<BatchRunExeID> <ComponentID> <TaskID> <MisDate> <DataStoreType> <INFODOM> <IPaddress> <RuleID> <BuildFlag> <OptionalParameters>` in the same order.

Arguments	Description
BatchRunExeID	Refers to the Execution ID of the Batch being executed.
ComponentID	Refers to The Type of component to be executed.
TaskID	Refers to the Task ID.
MisDate	Refers to the date with which the data for the execution would be filtered.
DataStoreType	Refers to the type of data store such as Enterprise Data Warehouse (EDW) which refers to the Multi-dimensional Database/Cubes.
INFODOM	Refers to the Information Domain mapped.
IPaddress	Refers to the IP Address of the machine on which Infrastructure Database Components have been installed.
RuleID	Refers to the Rule definition to be executed.

Arguments	Description
BuildFlag	Build Flag refers to the pre-compiled rules, which are executed with the query stored in database. Built Flag status set to "No" indicates that the query statement is formed dynamically retrieving the technical metadata details. If the Build Flag status is set to "Yes" then the relevant metadata details required to form the rule query is re-compiled in database.
OptionalParameters	Refers to the set of parameters which would behave as filter criteria for the merge query.

For example,

```
ksh RuleExecution.sh RRFATOM_exec_rule_20120904_1 RULE_EXECUTION Task1
20120906 EDW RRFATOM A.B.C.D 1344397138549 N
'$RUNID=,$PHID=,$XEID=,$RUNSK='
```

- You can access the location `$FIC_HOME/utility/RuleExecution/logs` to view the related log files. Also the component specific logs can be accessed in the location `$FIC_DB_HOME/logs`.

10.4.2.2 Command Line Utilities for Rule Execution through web services

You can execute RRF Rule definitions through Web Services using command line utility.

To execute Rule definitions through web services, do the following:

- Navigate to `$FIC_HOME/utility/ WSExecution/bin` of OFSAAI APP tier.
- Update the following parameters in **WSExecution.sh** file with the required values.
i.e. you need to replace "**\$6 \$8 \$9 \$4 \$3 \${10} \$1**" with `<INFODOM> <RULECODE> <BUILDFLAG> <MISDATE> <TaskID> <OptionalParameters> <BATCHID>` details.

Arguments	Description
INFODOM	Refers to the Information Domain mapped.
RULECODE	Refers to the Rule definition to be executed.
BUILDFLAG	Build Flag refers to the pre-compiled rules, which are executed with the query stored in database. Built Flag status set to "No" indicates that the query statement is formed dynamically retrieving the technical metadata details. If the Build Flag status is set to "Yes" then the relevant metadata details required to form the rule query is re-compiled in database.

Arguments	Description
MISDATE	Refers to the date with which the data for the execution would be filtered.
TaskID	Refers to the Task ID
OptionalParameters	Refers to the set of parameters which would behave as filter criteria for the merge query.
BATCHID	Refers to the Execution ID of the Batch being executed.

For example, "RORSTSOL" "1345163118421" "Y" "20110407" "Task1"
'\$EXEID=1345819753253,\$RUNSK=2' "1345819753253"

3. Execute **WSExecution.sh** (UNIX) or **WSExecution.bat** (Windows).

For example, .\WSExecution.sh

4. You can access the location `$FIC_HOME/utility/WSExecution/logs` to view the related log files. Also the component specific logs can be accessed in the location `<OFSAAI deployed path>/logs`.

10.4.2.3 Command Line Utilities for Fire Run Service through web services

Fire Run Service can be executed through Web Services using the command line utility.

To execute Fire Run Service through web services, do the following:

1. Navigate to `$FIC_HOME/ficapp/icc/bin` of OFSAAI APP tier.
2. Update the following parameters in **WSMRERequest.sh** file with the required values.

Replace "**\$1 \$2 \$3 \$4 \$5 \$6**" with `<RUNCODE> <INFODOM><SEGMENT/FOLDER>`
`<Run Execution Description> <USERNAME> <MISDATE>` details.

Arguments	Description
RUNCODE	Refers to Run Code to be executed.
INFODOM	Refers to the mapped Information Domain.
SEGMENT/FOLDER	Refers to the Folder / Segment name to which run is getting executed.
Run Execution Description	Refers to the batch description. Note: In case the Run Execution description has space, the same can be passed using double quotes.
USERNAME	Refers to the user name who is executing.
MISDATE	Refers to the date with which the data for the execution would be filtered.

For example, "RUN_CODE" "BASELII" "BASELIISEG" "Run Execution Description"
"BASELUSER" "20110407"

3. Execute **WSMRERequest.sh** (UNIX)

For example, `./WSExecution.sh`

4. You can access the location `$FIC_HOME/ficapp/icc/log/WSMRERequest.log` to view the related log files. Also the component specific logs can be accessed in the location `<OFSAAI deployed path>/logs`.

Every execution of Fire Run Service creates a text file in the properties file path (`ficapp/icc/conf/WSMREService.properties`) which contains the Batch ID created for that particular Run.

10.4.3 Command Line Utility to Publish Metadata in Metadata Browser

This section is applicable if you are using new Metadata Browser, released with OFSAAI 7.3.3 IR.

The following command line utility is introduced to publish Metadata in Metadata Browser.

Following are the pre-requisites before executing this utility:

1. If the FICSERVER is configured to cache the metadata at the start up of the server, you need to wait till the caching of metadata is completed to invoke this utility.
2. Ensure that JAVA_HOME is pointing to JAVA bin installation directory.
3. Ensure that the following jar file is present in `$FIC_DB_HOME/lib` directory.
`aai-wsclient-mdbpublish.jar, aai-wsmdbpublishservice.jar`
4. Ensure that the following properties file is present in `$FIC_DB_HOME/conf` folder.

MDBPublishExecution.properties

You can also manually update the properties file in the path
`$FIC_DB_HOME/conf/MDBPublishExecution.properties` to point to the required ServiceURL.

`MDBPUBLISH_EXECUTION_WSDL_LOCATION` = URL of WebService (For example,
`http://<<IP ADDRESS>>/OFSAAI/mdbPublishExecution?wsdl`)

5. Metadata should be present.

To execute Metadata Browser publish utility:

1. Navigate to `$FIC_DB_HOME/bin` of OFSAAI FIC DB tier.
2. Execute **MDBPublishExecution.sh** (UNIX)
For example, `./MDBPublishExecution.sh`
3. While executing, provide any of the following parameter as required:

- ALL - To publish metadata to all the available information domains.
- INFODM1 - To publish metadata to only one (specified) information domain.
- INFODOM1~INFODOM2~INFODOM3 - To publish metadata to multiple (specified) information domains separated by tilde "~".

NOTE: If no parameter is specified, by default "ALL" option is considered.

4. You can access the location `$FIC_DB_HOME\log\MDBPublishExecution.log` to view the related log files.
5. The publish execution specific logs will be generated in format "MDB_<timestamp>" in the path `$LOG_HOME/logs/` mentioned in **MDBLogger.xml** file available under MDB appender.

You can change the log file creation path by modifying the **\$LOG_HOME** variable with the desired path. For example, the **\$LOG_HOME** can be replaced with `/user1/ofsaa/webserver/logs/`. However, the default path set by the installer will be `/<<web-application-server>>/webapps/ofsaai733/logs/DynamicFilename`.

10.4.4 Command Line Utility for Object Application Mapping in Metadata Browser

This section is applicable if you are using new Metadata Browser, released with AAI 7.3.3 IR.

The following command line utility is introduced to perform Object Application mapping

Following are the pre-requisites before executing this utility:

1. Ensure that **JAVA_HOME** is pointing to JAVA bin installation directory.
2. Ensure that the following jar file is present in `$FIC_DB_HOME/lib` directory.
`aai-wsclient-mdbpublish.jar`, `aai-wsmdbpublishservice.jar`
3. Ensure that the following properties file is present in `$FIC_DB_HOME/conf` folder.

`ObjAppMap.properties`

You can also manually update the properties file in the path `$FIC_DB_HOME/conf/ObjAppMap.properties` to point to the required ServiceURL.

`MAP_WSDL_LOCATION= URL of WebService (For example, https://<<IP ADDRESS>>/OFSAAI/ mdbObjAppMap?wsdl)`

To execute Metadata Object Application Mapping utility:

1. Navigate to `$FIC_DB_HOME/bin` of OFSAAI FIC DB tier.
2. Execute **MDBObjAppMap.sh** (UNIX)

For example, `./MDBObjAppMap.sh`

3. While executing, provide any of the following parameter as required:
 - ALL - To do object application mapping in all the available information domains.
 - INFODM1 - To do object application mapping in only one (specified) information domain.
 - INFODOM1~INFODOM2~INFODOM3 - To do object application mapping in multiple (specified) information domains separated by tilde "~".

NOTE: If no parameter is specified, by default "ALL" option is considered.

4. You can access the location `$FIC_DB_HOME\log\MDBObjAppMap.log` to view the related log files.

10.4.5 Command Line Utility for Resaving UMM Hierarchy Objects

OFSAAI has facilitated a utility called RUNIT.sh to resave UMM Hierarchy Objects. This file resides under ficdb/bin area.

To run the utility directly from the console:

1. Navigate to `$FIC_DB_HOME/bin` of OFSAAI FIC DB tier.
2. Execute **RUNIT.sh** (UNIX).

For example, `./RUNIT.sh`

This will resave all the available hierarchy objects.

3. Provide the following parameters if you want to resave particularly some hierarchy objects:
 - INFODOM- Specify the information domain name.
 - USERID- Specify the user id.
 - HIERARCHY Code- Specify the hierarchy codes separated by tilde "~".

For example, `./RUNIT.sh,INFODOM,USERID,HIERARCHY code1~ HIERARCHY code2`

To run the utility through the **Operations** module:

1. Navigate to the **Operations** module and define a batch.
2. Add a task by selecting the component as RUN EXECUTABLE.
3. Under Dynamic Parameter List panel, specify `./RUNIT.sh` or `./RUNIT.sh,INFODOM,USERID,HIERARCHY code1` in the **Executable** field.

After saving the Batch Definition, execute the batch to resave the UMM Hierarchy Objects.

ANNEXURE

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OFSAAI

7.3.4.0.0 User Manual

Oracle Corporation
World Headquarters
500 Oracle Parkway
Redwood Shores, CA 94065
U.S.A.

Worldwide Inquiries:

Phone: +1.650.506.7000

Fax: +1.650.506.7200

www.oracle.com/us/industries/financial-services/

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