Oracle Financial Services Analytical Applications Infrastructure

User Guide

Release 8.0.8.0.0

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Financial Services

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Oracle Financial Services Analytical Applications Infrastructure

Document Control

Version Number	Revision Date	Change Log
1.0	Created May 2019	Following sections are updated/added for the enhancements done in 8.0.8.0.0 release: • OFSAA Datamodel extensions through SQL Data Modeler • DMT Configurations • Performance Optimizations • Appendix B: Frequently Asked Questions
2.0	June 2019	Updated RETAIN_IDS tag description as per bug 29761416. A note is added based on Bug 29806885. Added a note to mention copy functionality is not supported in Post Load Changes.
3.0	Jan 2020	Added a note based on bug 30349206.
3.1	Apr 2020	Updated the Update General Details section for Doc 31073093.
4.0	May 2020	Updated the guide for 8.0.8.1.0 ML changes: • Updated the supported versions of ERwin versions. • Added a note based on Bug 27730951 in the *Creating a Data Source for WebLogs* section. • A new SMG mode called Dictionary is introduced in the DMT Configurations window. • Modified the Data Mapping section for the support of user defined constant in F2T. • Updated the Objects Supported for Command Line Migration section for Bug 30964097. • Updated the I - Initialize a Batch for Execution section for Bug 31136683.
4.1	Sep 2020	Added a note in the Modification of Columns of Existing Tables section for import of columns into SQL Modeler (Doc 31466709).
4.2	Nov 2020	Added Email Notification detials to the Configuration section.
4.3	Nov 2020	Added Instance Access Token section.
4.4	Jan 2021	Updated Instance Access Token section.
4.5	May 2021	Updated Custom Check in Data Quality Rules.

Version Number	Revision Date	Change Log
4.6	August 2021	The following sections are updated: • Specifying Source Properties (Doc 31868152). • Specifying Properties for Load To Table Option (Doc 32850510). • Defining Data Mapping to Table (T2T, F2T, H2T, T2H, H2H, F2H, L2H) (29726268). • Excel Upload (31121617). The following section is added: • Configure Email Configuration (Doc 33221927).
4.7	September 2021	The following section is updated: • Executing H2H on Spark (Doc 31589927)
4.8	October 2021	The following section is updated: • Defining Data Mapping to Table (T2T, F2T, H2T, T2H, H2H, F2H, L2H) (Doc 27806511).
4.9	February 2022	The following section is updated: • Passing Runtime Parameters in Data Mapping (Doc 33684371).
5.0	December 2023	The Session timeout value is updated to more than 10 minutes. (Doc 36099483)
6.0	July 2024	• Saving Derived entities and hierarchies with duplicate short description using Resave Utility (29614778) • ENHANCEMENT TO REDUCE THE DELAY BETWEEN THE TASK EXECUTIONS (34350150)

Table of Contents

1 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.

1.1 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 that 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 purposes.

It also encompasses modules that 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.

1.2 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.

1.3 Recommended Skills

- System Administrators should be aware of the database concepts and the underlying 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 store organization's data, the ETL concept of data warehousing and associated terminologies along with the statistical techniques for model designing and execution.

1.4 Recommended Environment

Infrastructure application has been tested with Microsoft Internet Explorer™ browser IE 11. For best viewing of Infrastructure pages, set the window resolution to a minimum resolution of 1024 x 768 pixels.

1.5 Prerequisites

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

1.6 Conventions and Acronyms

Conventions	Description
Window Names are *italicized*.	
Window actions are indicated in **Bold**	
ALM	Asset Liability Management
AMHM	Attributes Members Hierarchies Module
ANSI	American National Standards Institute
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

Conventions	Description
CSV	Comma Separated Values
DBA	Database Administrator
DEFQ	Data Entry Forms and Queries
DMP	Window 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
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
OHC	Oracle Help Centre
OLAP	Online Analytical Processing
PDF	Portable Data Format

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

2 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.

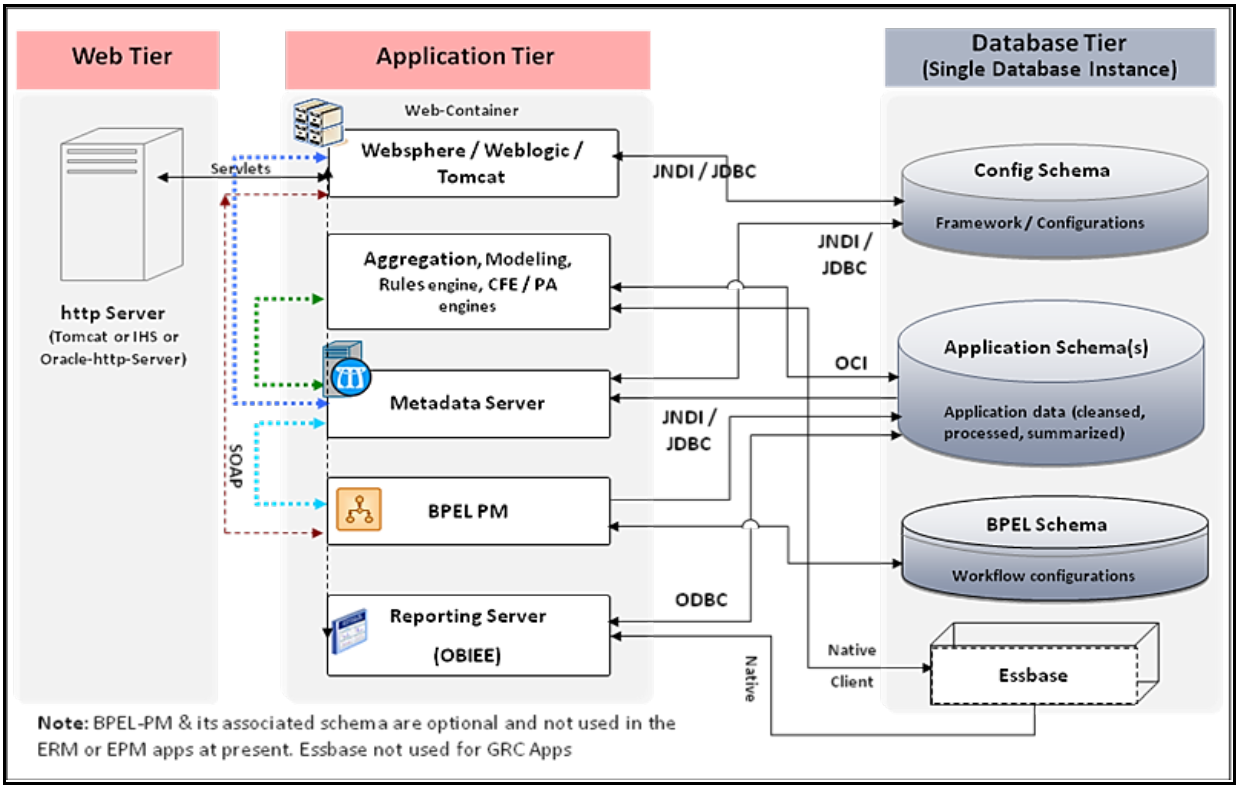
This chapter provides an overview of Infrastructure, its components, and explains how these components are organized in the Splash window with the user login process.

2.1 Components of OFSAAI

The OFSAA Infrastructure consists of the following components/modules that are used to deploy an analytical solution.

- Data Model Management
- Data Management Tools
- Unified Analytical Metadata
- Rules Run Framework
- Metadata Browser
- Operations
- Questionnaire
- Process Modelling Framework
- System Configuration & Identity Management
- Object Administration
- Forms Framework

All components are encapsulated within a common Security and Operational framework as shown in the following figure.



Infrastructure also supports many business analytical solution(s) like Operational Risk, PFT, and Basel, which are licensed separately to the organization. This manual provides an overview of only the technological components.

For a detailed overview of OFSAAI modules, see Modules in OFSAAI section.

2.2 Accessing OFSAA Applications

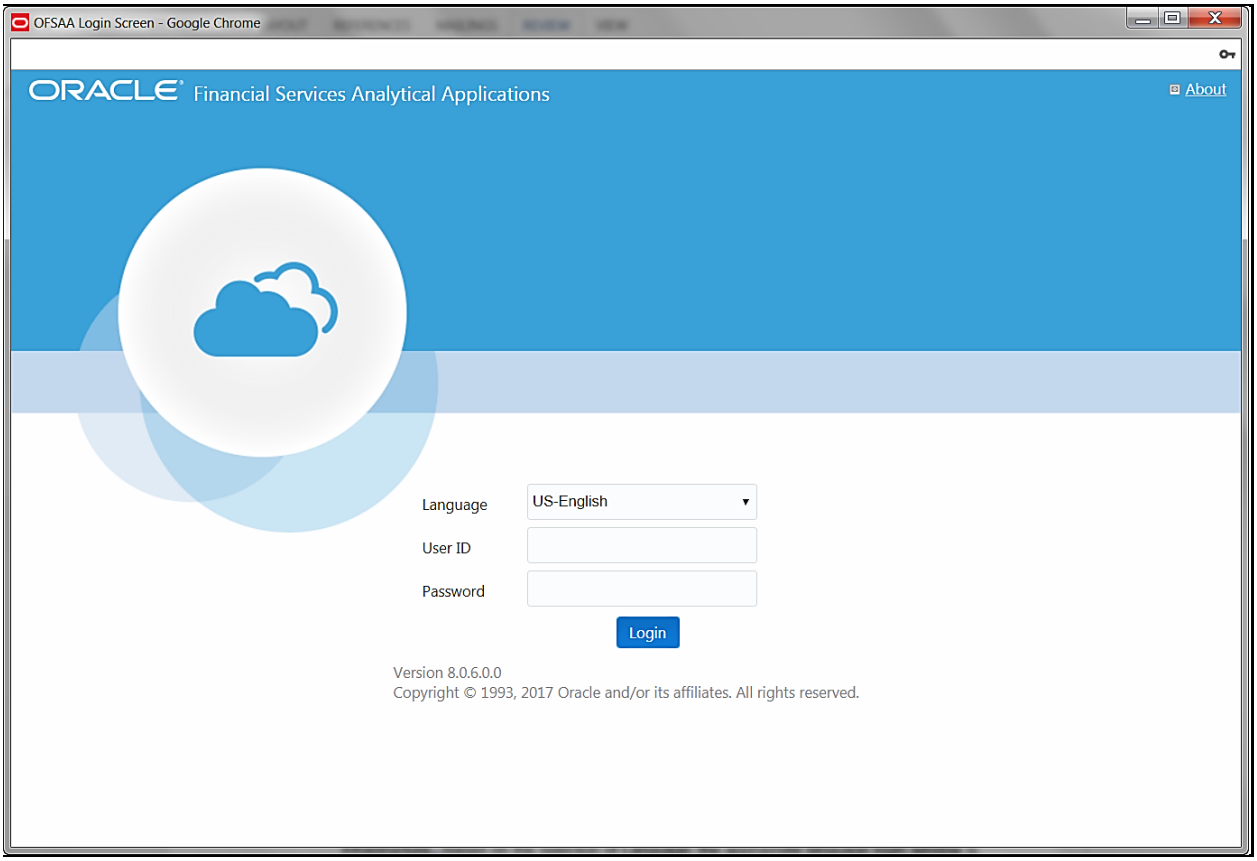
OFSAA can be accessed through your web browser as soon as the System Administrator (SA) installs and configures Oracle Financial Services Analytical Applications.

The SA will provide you with a link through which you can access Oracle Financial Services Analytical Applications. You can access the login window through your web-browser using the URL `http(s):<IP Address of the Web Server > :<servlet port>/<context name>/login.jsp`.

You can also login to the application with the host name instead of the IP address.

2.3 OFSAA Login Screen

On entering the URL (`<IP Address/hostname of the Web Server>:<servlet port>/<context name>/login.jsp`) in your browser window, the *OFSAA Login Screen* is 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 language packs installed for the OFSAA infrastructure. Based on the selected Language, the appropriate language login window 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. For details on how to change password, see the Changing Password section.

In case the OFSAA setup has been configured for OFSAA native Security Management System (SMS) Authentication, the password to be entered will be as per the password restrictions set in the OFSAA SMS repository.

2.3.1 Log in as System Administrator

Post installation, the first login into Infrastructure is possible only for a System Administrator through user id "sysadmn". This ID is created at the time of installation with default password as "password0".

Enter User ID as "sysadmn" and password as "password0". Click **Login**.

2.3.2 Log in as System Authorizer

System Authorizer ID is also created at the time of installation with the default password "password0". This ID is required to authorize the users created by the system administrator.

Enter login id as "**sysauth**" and password as "password0". Click **Login**.

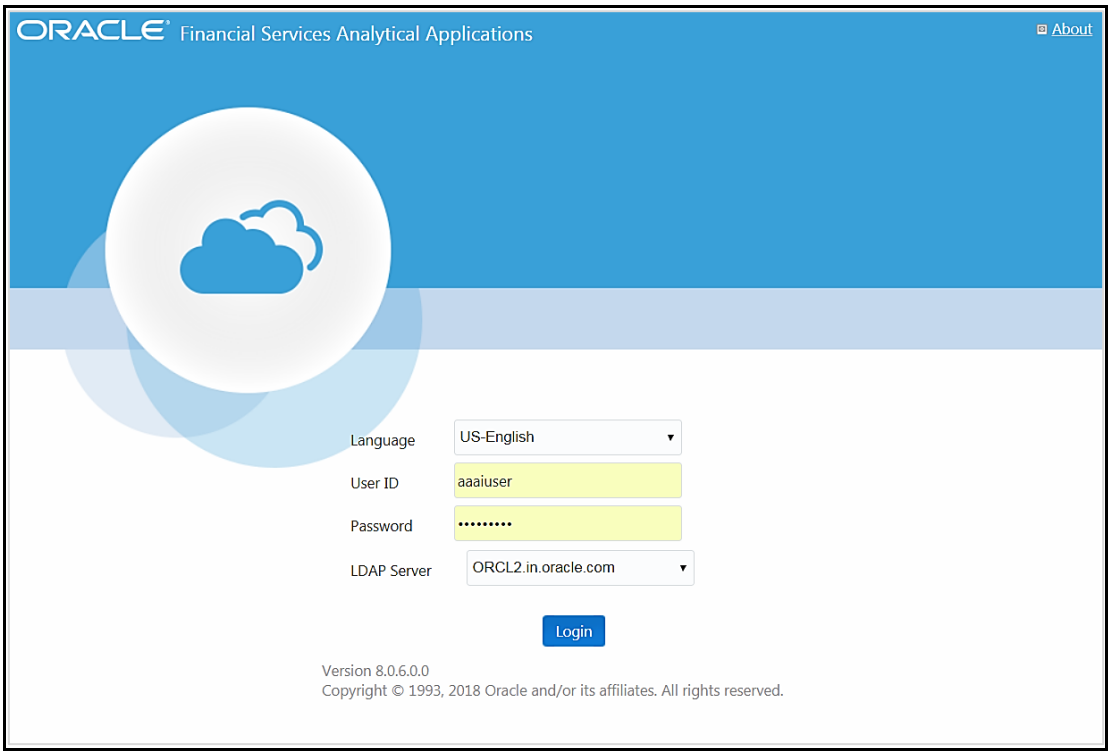
2.3.3 Log in as Business User

The Business users will be created by System Administrator and will be authorized by the System Authorizer.

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

2.3.3.1.1 OFSAA Login if LDAP Servers are configured

If the OFSAA setup has been configured for LDAP Authentication, the login page is displayed as shown:



1. Enter your **User ID** and **Password (as in LDAP store)** in the respective fields.
2. Select the appropriate **LDAP Server** from the drop-down list, against which you want to get authenticated. This is optional. If you do not select any server, you will be authenticated against the appropriate LDAP server.

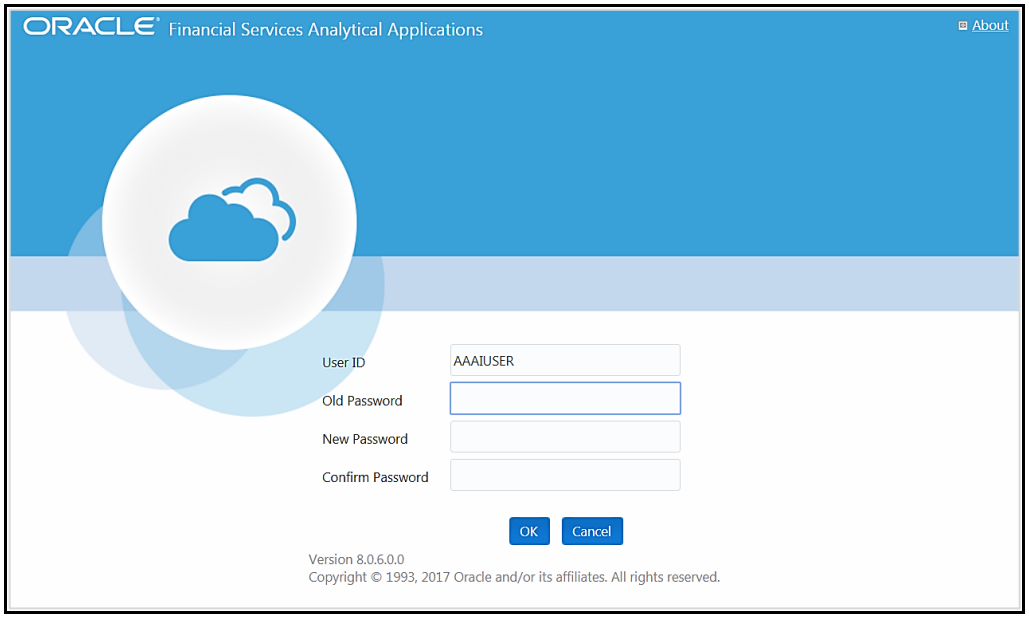
> **NOTE** For SYSADMN/ SYSAUTH/ GUEST users, no need to select any LDAP server as they are always authenticated against the SMS store. Additionally, in case a specific user has been marked as "SMS Auth Only" in the *User Maintenance* window even though the OFSAA instance is configured for LDAP authentication, then that user will also be authenticated against SMS store instead of LDAP store. The user has to enter the password as per the SMS store.

2.4 Changing Password

You can choose to change your password any time by clicking your username appearing on the right top corner and selecting **Change Password**.

Note that this option is available:

- If **SMS Authentication & Authorization is configured as Authentication Type** from the *Configuration* window**.**
- If **LDAP Authentication & SMS Authorization** is **configured as Authentication Type** from the Configuration window and the **SMS Auth Only** checkbox is selected for the user in the *User Maintenance* window**.**
- If **SSO Authentication & SMS Authorization** is **configured as Authentication Type** from the *Configuration* window and the **SMS Auth Only** checkbox is selected for the user in the *User Maintenance* window**.**



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

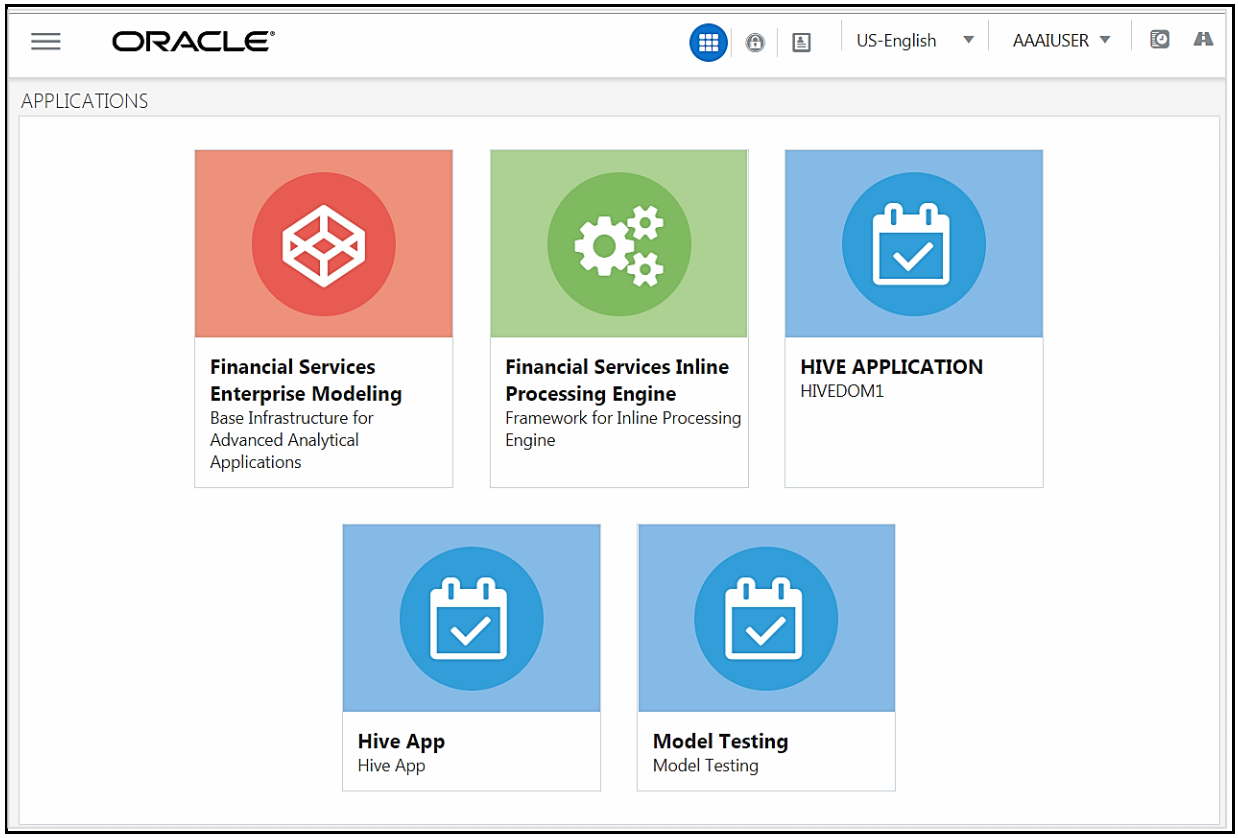
- Passwords are displayed as asterisks (stars) while you enter. This is to ensure that the password is not revealed to other users.
- Ensure that the entered password is at least six characters long.
- The password must be alphanumeric with a combination of numbers and characters.
- The password should 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.
- The new password should be different from previously used passwords based on the password history, which can be configured. For more information, see the 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.
- The guest user cannot change the password.

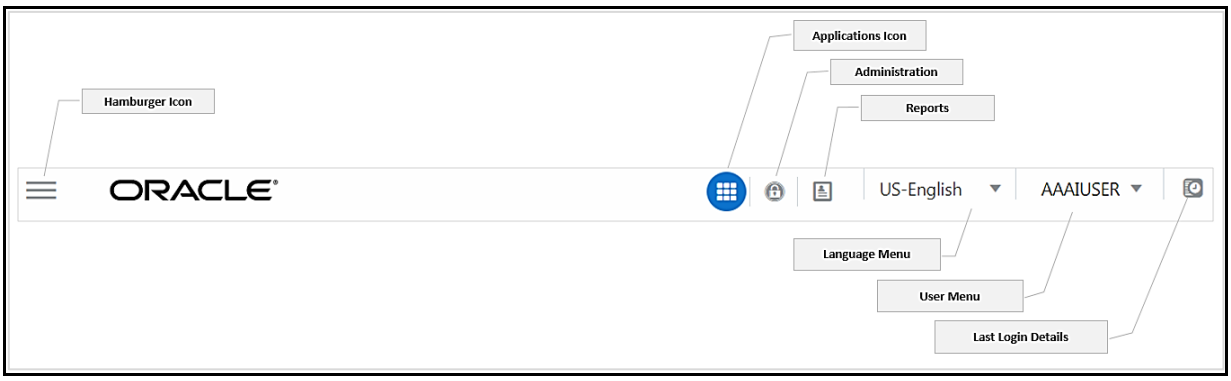
2.5 OFSAA Landing Screen

On successful login, the *OFSAA Landing* screen is displayed.



OFSAA Landing screen shows the available Applications as tiles, for which a user has access to. Clicking the respective Application tile launches that particular Application. You can change the landing page based on your preference. For more information, see the Preferences section.

2.5.1 Masthead



Hamburger Icon- This icon is used to trigger the Application Navigation Drawer.

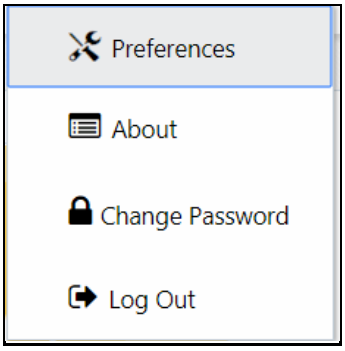
Application Icon- This icon is used to show the available Applications installed in your environment at any time.

Administration Icon- This icon is used to go to the *Administration* window. The *Administration* window displays modules like System Configuration, Identity Management, Database Details, manage OFSAA Product Licenses, Create New Application, Information Domain, Translation Tools and process Modelling Framework as Tiles.

Reports Icon- This icon is used to launch various User Reports such as user Status Report, User Attribute Report, User Admin Activity Report, User Access Report, and Audit Trial Report.

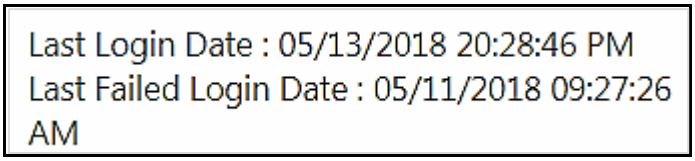
Language Menu- It displays the language you selected in the OFSAA Login Screen. The language options displayed in the Language Menu are based on the language packs installed in your OFSAA instance. Using this menu, you can change the language at any point of time.

User Menu- Clicking this icon displays the following menu:



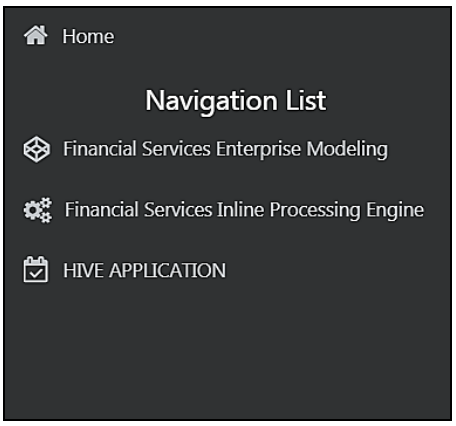
- **Preferences**- To set the OFSAA Landing Page.
- **Change Password**- To change your password. For more information, see Change Password section. This option is available only if SMS Authorization is configured.
- **Log Out**- To log out from OFSAA applications.

Last Login Details - This displays the last login details as shown:



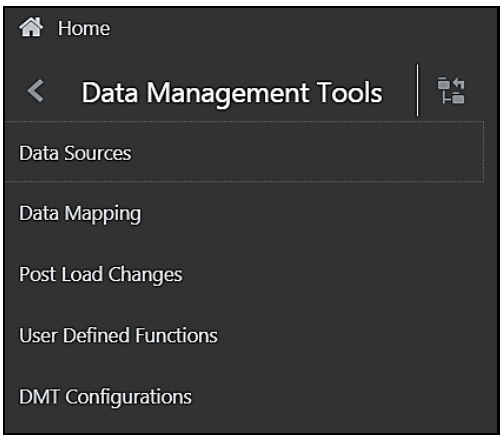
2.5.2 Navigation Drawer

Click **Hamburger Icon** to launch the Navigation Drawer as shown:

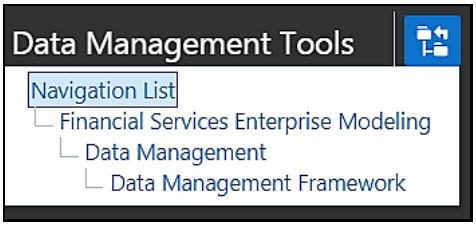


Here the navigation items appear as a list. The First Level menu shows the installed applications. Clicking an application displays the second-level menu with the application name and Common tasks menu. The arrangement of the menu depends on your installed application.

Clicking an item in the menu displays the next level sub menu and so on. For example, to display Data Sources, click Financial Services Enterprise Modeling>Data Management>Data Management Framework>Data Management Tools>Data Sources.



Click  **Hierarchical Menu** to display the navigation path of the current sub menu as shown:



The RHS Content Area shows the Summary page of Data Sources. Click anywhere in the Content Area to hide the Navigation Drawer. To launch it back, click the Hamburger icon.

Click **Home** to display the OFSAA Landing Screen.

2.6 Modules in OFSAAI

- **Data Model Management** is intended for uploading the warehouse data from the operational systems to database schema using ERwin XML file.
- **Data Management Framework** 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. This module is used for managing Data movement. This includes sub modules like Data Sources, Data Mapping, Post Load Changes and Data Quality Framework.
- **Data Entry Forms and Queries** module facilitates you to design web-based user friendly Data Entry windows with a choice of layouts for easy data view and data manipulation. This module has sub modules like Forms Designer, Data Entry, and Excel Upload.
- **Unified Analytical Metadata** is intended for the Information and Business Analysts who are instrumental in supporting and affecting analytical decisions. This module is used to define and maintain analytical metadata definitions. This module has sub modules like Alias, Derived Entity, Dataset, Dimension Management, Business Measure, Business Processor, Build Hierarchy, Business Dimension, Essbase Cube, Filters, Expression, Map Maintenance, and Cube Migration.
- **Rule Run Framework** facilitates you to define a set of rules, reporting objects, and processes that are required to transform data in a warehouse. This module has sub modules like Rule, Process, Run, and Manage Run Execution.
- **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. The metadata in the *Metadata Browser* window is organized into different categories like Data Foundation Metadata, Business Metadata, and Process Metadata.
- **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.
- **Questionnaire** module is an assessment tool, which presents a set of questions to users, and collects the answers for analysis and conclusion. It can be interfaced or plugged into OFSAA application packs.

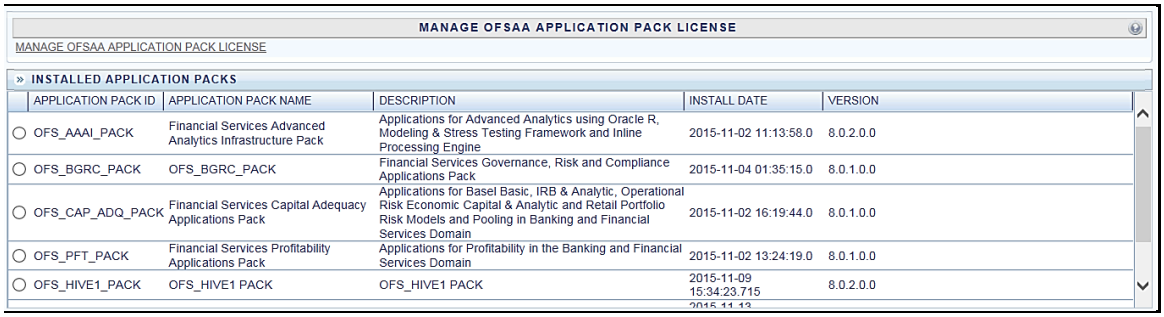
- **Administration** module facilitates System Administrators to provide security and operational framework required for Infrastructure. *Administration* window has a Tiles menu with Tiles like System Configuration, Identity Management, Database Details, Manage OFSAA Product Licenses, Create New Application, Information Domain, Translation Tools and Process Modelling Framework.
- **Object Administration** 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 a need basis. It includes sections like Object Security, Object Migration, and Utilities (consisting of Metadata Difference, Metadata Authorization, Save Metadata, Write-Protected Batch, Component Registration, Transfer Document Ownership, and Patch Information).

2.7 Enabling an Additional Product License Post Installation of Application Pack

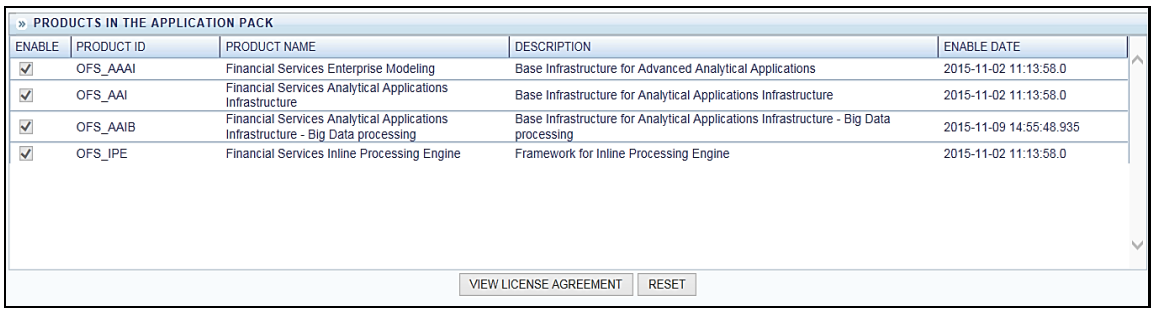
You can also enable an application product license within an application pack post installation at any point of time.

To enable a product license through the application UI

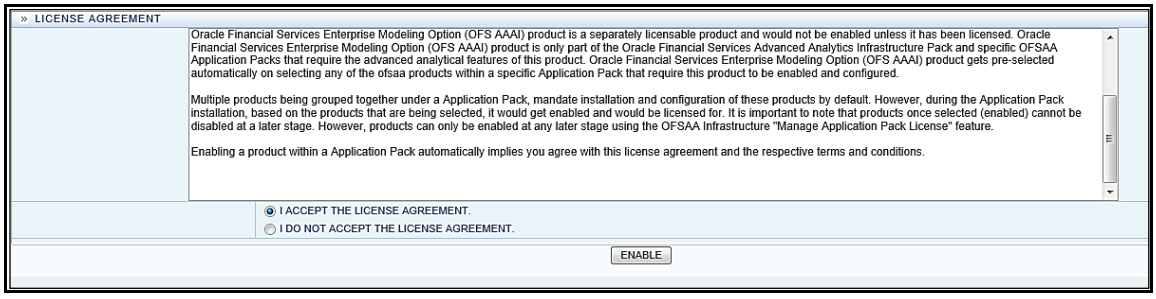
1. Login to the application as SYSADMN user or any user with System Administrator privileges.
2. Navigate to the System Configurations & Identity Management tab, expand Administration and Configuration and select **System Configuration**.
3. Click **Manage OFSAA Product License(s).** The *Manage OFSAA Application Pack License* window is displayed.



4. Select an Application pack to view the products in it. The products are displayed in the Products in the Application Pack grid.



5. Select the checkbox to enable a product within the Application Pack which is not enabled during installation.
6. Click **VIEW LICENSE AGREEMENT** to view the license information. The *License Agreement* section is displayed.



7. Select the option **I ACCEPT THE LICENSE AGREEMENT** and click **ENABLE**. A pop-up message confirmation is displayed showing that the product is enabled for the pack.

> **NOTE** To use the newly enabled product, you need to map your users to the appropriate product-specific User Groups and authorize the actions by logging in as System Authorizer. For more information, see Mapping/Unmapping users section. To identify the newly enabled product-specific User Groups/ Application Pack specific User Groups, see the respective Application Pack specific Installation and Configuration Guide. After enabling a new product, perform the required configurations explained in OFSAAI Administration Guide.

2.8 Logging in OFSAA

Logging in OFSAA is done using Log4J. The log files are available in the following locations:

- **UI/Web Logs**: `<DEPLOYED LOCATION>/<Context>.ear/<Context>.war/logs`
- **Application Logs**: `$FIC_HOME/logs`
- **Execution Logs**: `/ftpshare/logs/<MISDATE>/<INFODOM>/<COMPONENT NAME>/<LOG FILE NAME>.log`

2.8.1 Purging of Logs

Configure the logger related attributes in the `RevLog4jConfig.xml` file available in the `$FIC_HOME/conf/` folder. Each log file will have appenders in this file and attributes pertaining to this particular appender can be changed.

The default size of the log files is set to 5000 KB and the number of maximum backup log files retained is set to 5, both of which are configurable. Increasing these parameters to a higher value should depend on the server hardware configurations and may reduce the performance.

To configure the Logs file size, follow these steps:

1. Navigate to `$FIC_HOME/conf` folder or `<DeployedLocation>/<context.war>/<context>/` and locate `RevLog4jConfig.xml` file.
2. Configure the logger related attributes in the `RevLog4jConfig.xml` file. This file will have Appenders for each log file.

   Sample Appender for UMM log file is shown:

```
<RollingFile name="UMMAPPENDER"
fileName="/scratch/ofsaaweb/weblogic/user_projects/domains/cdb/applicat
ions/cdb.ear/cdb.war/logs/UMMService.log"

filePattern="/scratch/ofsaaweb/weblogic/user_projects/domains/cdb/appli
cations/cdb.ear/cdb.war/logs/UMMService-%i.log" >

<PatternLayout>

  <Pattern> [%d{dd-MM-yy HH:mm:ss,SSS zzz aa}{GMT}] [%-5level] [WEB]
%m%n </Pattern>

  </PatternLayout>

  <Policies>

       <SizeBasedTriggeringPolicy size="5000 KB" />

  </Policies>

   <DefaultRolloverStrategy max="5"> <!-- number of backup files -->

       </DefaultRolloverStrategy>

  </RollingFile>
```

3. To change the log file size, modify the value set for `SizeBasedTriggeringPolicy size`.
4. To change the number of backup files to be retained, modify the value set for `DefaultRolloverStrategy max`.

2.8.2 Log File Format

In OFSAA, log format is standardized and can be read by any standard log analysis tool. The standard log format is as follows:

```
[GMT TIMESTAMP] [LOGGER LEVEL] [LOGGER LOCATION]  [MODULE/COMPONENT]
[LOGGED IN USER] [JAVA CLASS] <LOG MESSAGE>
```

Sample:

```
[25-04-18 10:08:41,066 GMT AM] [INFO    ] [WEB]  [UMM]  [UMMUSER]
[BUSINESSMETADATA] Inside createImplicitObjectsForAllInfodom

[25-04-18 10:08:41,069 GMT AM] [INFO    ] [WEB]  [UMM]  [UMMUSER]
[BUSINESSMETADATA] Call createImplicitObjectsForMapper for infodom =
TESTCHEF

[25-04-18 10:08:42,142 GMT AM] [DEBUG] [WEB]  [UMM]  [UMMUSER]
[BUSINESSMETADATA] Source created successfully for infodom TESTCHEF

[25-04-18 10:08:42,142 GMT AM] [INFO    ] [WEB]  [UMM]  [UMMUSER]
[BUSINESSMETADATA] Start - code added to create user group hierarchy for
this infodom
```

```
[25-04-18 10:08:42,142 GMT AM] [INFO    ] [WEB]  [UMM]  [UMMUSER]
[BUSINESSMETADATA] Inside createUserGroupHierarchyForInfodom
```

3 Data Model Management

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.

Data Model Maintenance within the Infrastructure system facilitates you to upload the warehouse data from the operational systems to database schema using ERwin XML file or Database Catalog.

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.

Database Catalog feature is used to generate a business model out of the database catalog information. This can be used when a database physically exists and the business model has to be reverse-generated for OFSAA metadata references. The reverse model generation feature can be extended to RDBMS based Infodoms as well. This populates the following:

- OFSAA logical model abstraction layer, that is, the `DATABASE.xml` file for the Infodom.
- Object registration repository

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

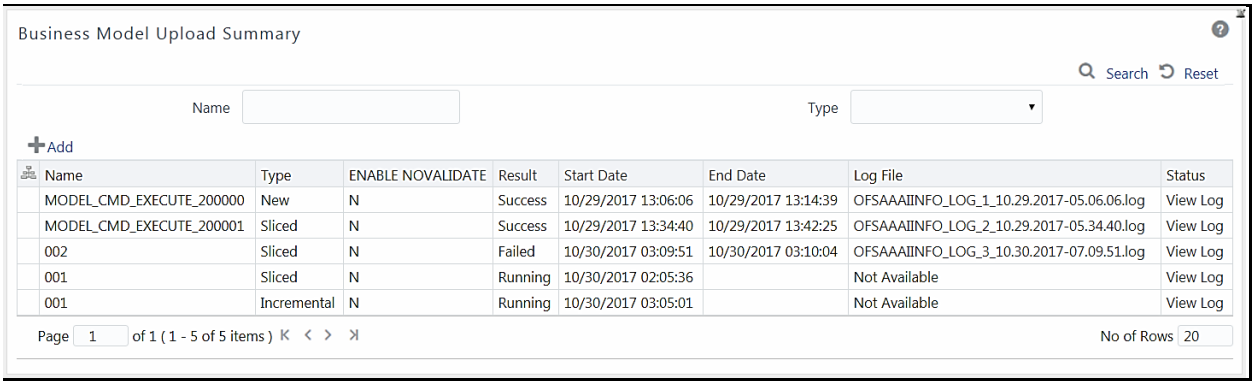
- Buffer pool has to be available to cache table and index data.
- The page size for the Tablespace has to be created appropriately.

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

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. Erwin XML and DB Catalog options are available for New model upload.
Incremental	Supported incremental changes include: • Add tables • Drop tables • Alter table to add column • Alter table to change/remove existing column 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. Incremental is not supported if DB Catalog is selected for the Model Upload option.

Field	Description
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. Any incremental changes are considered as a 'Rebuild' while DB catalog option is used for Model Upload.
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. Sliced is not supported if DB Catalog is selected for the Model Upload option. In sliced model upload, if the version of the Base model existing in the environment is higher than the Sliced model getting uploaded, then the columns (which are not present in the Sliced model) are not dropped. For more information, see the Model Versioning section.

You (Business Analysts) need to have **IBMADD** (Import Business Model) function role mapped to access the Import Model framework within the Infrastructure system.



The *Business Model Upload Summary* window facilitates to upload the required Business Model and displays the summary of previously uploaded Business Models with their Name, Type (New/ Incremental/Rebuild/Sliced), Enable NoValidate status (Y or N), Result of upload (Success/Failed/Running), Start Date, End Date, Log File path, and Status. You can click the View Log link in the Status column corresponding to the required Model to view the Model Upload details in the View Log Details window.

> **NOTE** To display the summary of the previous Model Uploads, you need to have a connection pool established to access data from the database. For more information on connection pooling, see OFS AAAI Application Pack Installation & Configuration Guide available in the OHC Documentation Library

You can also search for a specific Model based on the Name or Type (New / Incremental / Rebuild / Sliced) existing within the system.

3.1 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 9.8, 2018R1, 2019R1, and 2020R1 generated XMLs in Model Upload process in addition to ERwin 9.7, ERwin 9.6, ERwin 9.5, ERwin 9.2, 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 *OFS AAAI Application Pack Installation & Configuration Guide* available in the OHC Documentation Library.
- Ensure that the XML file to be uploaded is saved in "All Fusion Repository Format".
- Datatypes of `TIMESTAMP WITH TIME ZONE` and `TIMESTAMP WITH LOCAL TIME ZONE` are supported for model upload. However, the processing of these datatypes is not supported in OFSAAI.

To upload a Business Model:

1. From the *Business Model Upload Summary* window, click ➕ **Add** button The *Business Model Upload* window 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 required **Upload Option.** The options are **Erwin**, **DB Catalog,** and **Data Model Descriptor**. For more information on each model upload option, see the corresponding sections:
   - Model Upload Using Erwin
   - Model Upload Using DB Catalog
   - Model Upload Using OFSAA Data Model Descriptor

> **NOTE** For subsequent model uploads, you should select the same "Model Upload Option" as used in the first model upload. That is, if you did the "New" model upload using Erwin, then the subsequent model uploads should be done using the Erwin option only.

4. Click **Upload Model**. The model upload execution is triggered and you are re-directed to the *Model Upload Summary* window 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, see OFS AAAI Application Pack Installation & Configuration Guide available in the OHC Documentation Library.

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

> **NOTE** The Model Upload process will be successful even if the object registration fails. In such cases, you should manually do the object registration by running the Command line utility for Object Registration, since object registration is mandatory for subsequent model upload to be successful.

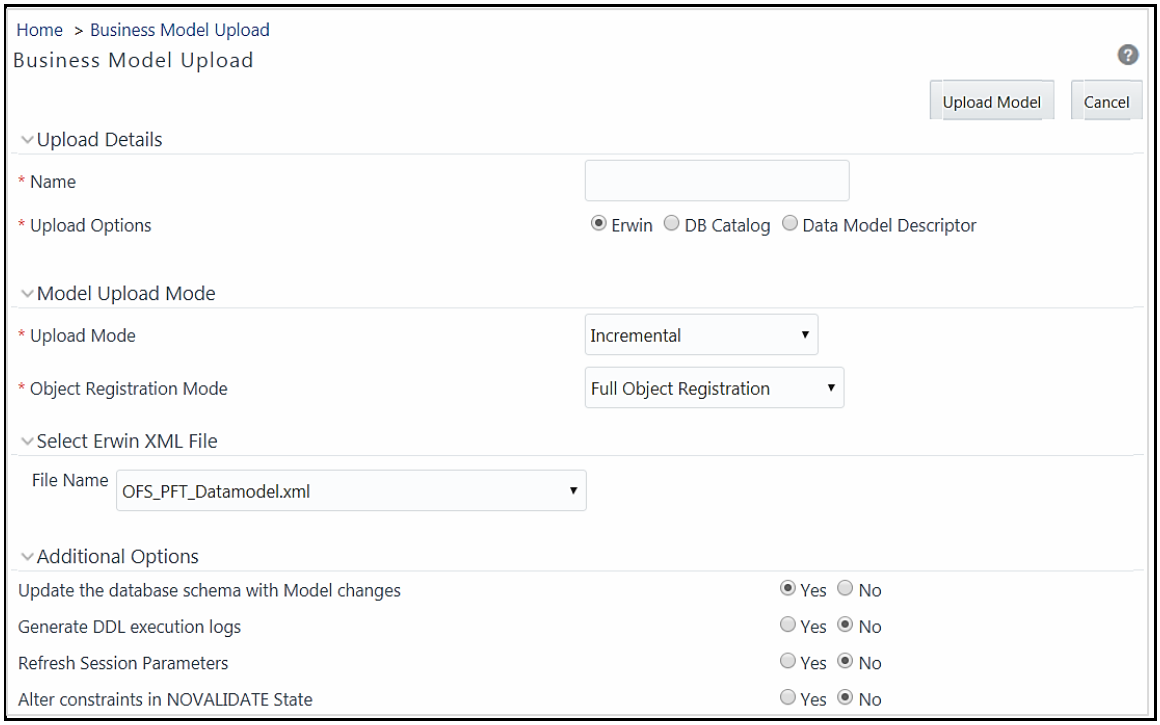
> **NOTE** The model upload process will be stopped if any errors are encountered. It will not proceed till the end to capture all the errors.

3.1.1 Model Upload Using Erwin

You can upload the warehouse data from the operational systems to the database schema using the ERwin XML file. An ERwin XML file is a standard tagged XML file based on the Object Property Model that 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.

To do model upload using the **Erwin** option:

1. From the *Business Model Upload* window, select **Upload Options** as **Erwin**.



2. 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**, **Rebuild**, or **Sliced** upload mode. For more information, see the Upload Modes section. For the Sliced model upload, you can use SQL Data Modeler. For more information, see OFSAA Datamodel Extensions through the SQL Data Modeler section.
3. Select the **Object Registration Mode** from the drop-down list as **Full Object Registration** or **Incremental Object Registration**. You can select Incremental Object Registration for the **Upload Mode** as Incremental and Sliced. It is recommended to select incremental only if the changes are minimal.
4. Select the ERwin XML File for upload from the **File Name** drop-down list. The list displays the ERwin files that reside in the default server path (that is, ftpshare(Application layer/<infodom>/erwin/erwinXML). See Frequently Asked Questions for more details on functionality changes.

> **NOTE** The Erwin XML file name should have alphanumeric characters and underscore only.

5. In the Upload Options grid, 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. Later you should execute the SQL

scripts in a correct sequence, in order to make the Infodom Schema to be consistent with the DATABASE.xml. For more information, see the Sequence of Execution of Scripts section.

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 need 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. In the Upload Options grid, select **Yes** for the **Generate DDL Execution Logs** option if you want execution audit information such as execution start time, end time, and status of each SQL statement run as part of the model upload process. The execution log file will be available under the `ftpshare/<INFODOM>/Erwin/executionlogs` folder.
7. Select **Yes** for **Refresh Session Parameters** option to use Database session parameters during the model upload process. For more information, see Configuring Session Parameters section.
8. In the Upload Options grid, you have an option to select either **Yes** / **No** to directly update the **Alter constraints in NOVALIDATE State**. During incremental or sliced model upload, alterations to constraints consumes a lot of time as the constraints need to be validated.
   - If you select **Yes**, an option to alter the constraints in the NOVALIDATE state is enabled and it will not check the existing data for the integrity constraint violation. It is quite useful in cases where it is known that the existing data is clean. So, NOVALIDATE can potentially reduce the additional overhead of the constraint validation and it would enhance the performance.
   - By default, the option selected is **No.** If you select **No,** then the option to alter the constraints is not enabled and it will check the existing data for the integrity constraint violation.

NOTE Note the following points about the NOVALIDATE option.

- Constraints in the NOVALIDATE state are supported only in incremental and sliced modes.
- Model upload process irrespective of the status of success or failure will bring the constraints into NOVALIDATE state. Hence, ENABLE VALIDATE should be done as a post-model upload activity. That is, Rollback does not validate the constraints that are non-validated during the upload activity.
- The NOVALIDATE option is not relevant for HDFS systems.

9. Click **Upload Model**.

3.1.2 Model Upload Using DB Catalog

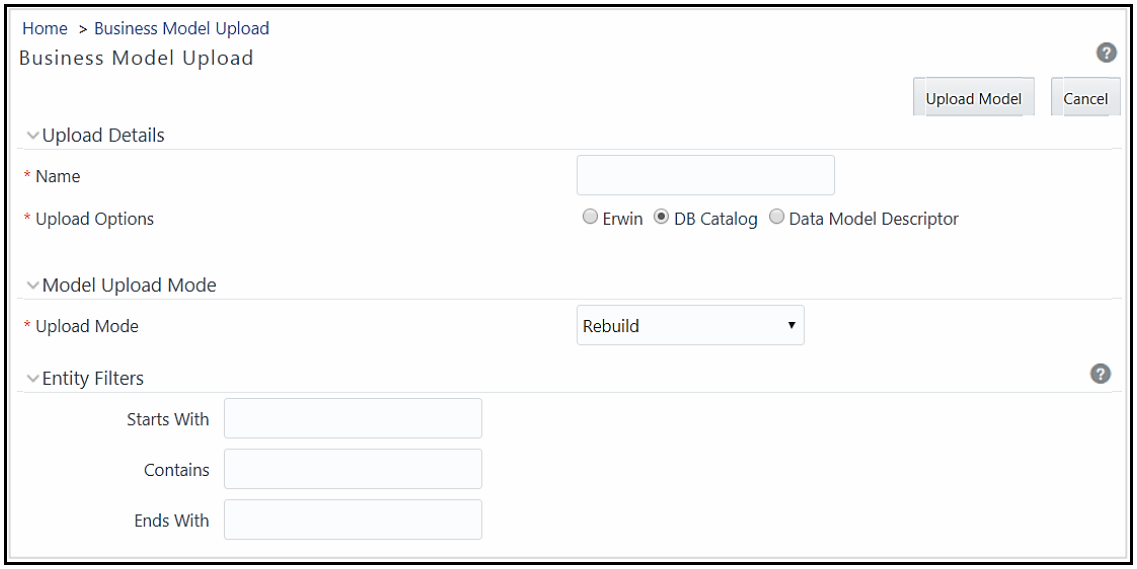
Database Catalog feature is used to generate a business model out of the database catalog information. This can be used when a database physically exists and the business model has to be reverse-generated for OFSAA metadata references. The reverse model generation feature can be extended to RDBMS based Infodoms as well. This model upload populates the following:

- OFSAA logical model abstraction layer, that is, the DATABASE.xml file for the Infodom.
- Object registration repository

NOTE Erwin is the primary & boot-strap mode to register the data-model with the OFSAA ecosystem. The DB Catalog option does not take care of the logical artifacts. So you should not consider DB Catalog as a replacement for Erwin.

To do model upload using the DB Catalog option:

1. From the *Business Model Upload* window, select **Upload Options** as **DB Catalog**.



2. 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 **Rebuild.** For more information, see the Upload Modes section.
3. Specify the Filter entries by entering details in the **Starts with**, **Contains**, and **Ends with** fields. Filters are patterns for entity names in the Database and can restrict the Database Model generation to a specific set of entities. The Database Model is generated even if one of the specified filter conditions matches.
4. 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 **Upload Model**.

3.1.3 Model Upload Using OFSAA Data Model Descriptor (Database.XML) File

This feature allows you to resume the data model upload from the logical data model, in the form of OFSAA Data Model Descriptor file (`Database.XML`) that is generated in a base environment. This helps in speeding up the model upload process, by skipping the XSL transformation in the primary environment. This feature can be used if the same model in the development environment needs to be uploaded to multiple OFSAA instances in the production environment. In such scenarios, you can copy the model definition (`Database.XML`) files and scripts to the target environment and run the command line utility CopyUpload.sh, to integrate those files in the target environment. You can choose to resume the model upload process from script generation or script execution.

Following are the steps involved:

1. Copy the required files from source to target environment based on the start point from where you want to resume the model upload process.
2. Execute the CopyUpload utility.
3. Perform the model upload.

3.1.3.1 Copying the Required Files

Based on the selection of your start point, copy the required files from your source environment to the desired location.

1. If the start point is script generation, copy the `<INFODOM>_DATABASE.XML` file from `/ftpshare/<INFODOM>/erwin/fipxml/` folder on the source.
2. If the start point is script execution, copy the `<INFODOM>_DATABASE.XML` from the `/ftpshare/<INFODOM>/erwin/fipxml/` folder as well as the DB scripts from the `/ftpshare/<INFODOM>/erwin/scripts` and `/ftpshare/<INFODOM>/scripts` folders.

Start point	Required Files
Script generation	`/ftpshare/<INFODOM>/erwin/fipxml/<INFODOM>_DATABASE.xml`
Script Execution	`/ftpshare/<INFODOM>/erwin/fipxml/<INFODOM>_DATABASE.xml`
	DB Scripts from `/ftpshare/<INFODOM>/erwin/scripts` and `/ftpshare/<INFODOM>/scripts` folders

3.1.3.2 Executing CopyUpload Utility

The command line utility CopyUpload is used to prepare the target OFSAA instance to resume the model upload process from script generation or script execution. This utility is available in the `$FIC_HOME/ficapp/common/FICServer/bin/` folder.

Following are the prerequisites for executing the utility:

- CopyUpload.sh should have Execute permissions.
- Appropriate permissions should be granted on the source folders.
- All the required files should have been copied to the target environment. For details, see Copying the Required Files.

To run the utility from the console:

1. Navigate to `$FIC_HOME/ficapp/common/FICServer/bin`.
2. Execute the utility using the command:

   `./CopyUpload.sh`
3. Enter the following when prompted:
   - `Enter ftpshare location`- the path of the ftpshare location
   - `Enter dsnname` – the information domain name
   - `Enter absolute filepath of database XML` - the path of the folder in which the `<INFODOM>_DATABASE.XML` file is available
   - `Continue with scripts transfer? [y,n]`– Enter 'y' if you want to copy scripts also, else enter 'n'.

- `Enter absolute path for table folder`– the path of the folder in which the table is available.
- `Enter absolute path for alter table`– the path of the folder in which the alter table file is available
- `Enter absolute path for scripts`– the path of the folder in which the DB scripts are available

4. Once the utility is executed successfully, the files are copied to the following locations:
   - `//ftpshare/archive/<INFODOM>/Erwin/fipxml/<INFODOM>_DATABASE.xml`
   - `//ftpshare/archive/<INFODOM>/Erwin/scripts/`
   - `//ftpshare/archive/<INFODOM>/scripts`

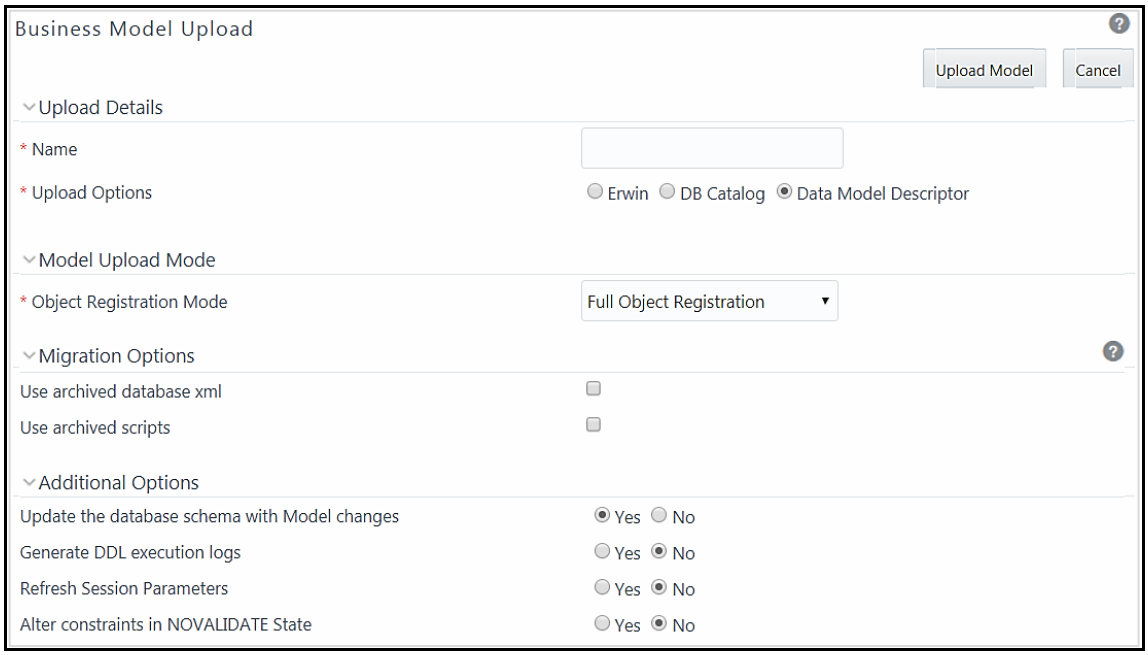
3.1.3.3 Triggering Model Upload

Trigger the model upload process either through command line or through UI.

> **NOTE** CopyUpload.sh should have been executed successfully

To perform model upload using Data Model Descriptor:

1. From the *Business Model Upload* window, select **Upload Option** as **Data Model Descriptor**.



2. Select the **Object Registration Mode** from the drop-down list as **Full Object Registration** or **Incremental Object Registration**. It is recommended to select incremental only if the changes are minimal.

> **NOTE** Incremental Object Registration should be opted only if the object registration on the base environment was incremental. Full Object Registration can be performed irrespective of mode opted in the base environment.

3. Select the **Use archived database xml** check box.
4. Select the **Use archived scripts** check box if the starting point of the model upload process is from the script execution, that is, if you have copied the DB scripts to the target environment. Otherwise, deselect the check box.
5. Select either **Yes** or **No** for the **Update the database schema with Model changes** option.
   - **Yes** – to execute the generated SQL scripts at runtime to update the data model changes in the database.
   - **No** –This restricts the system from updating the database with the data model changes and only the model scripts will be created. Later you should execute the SQL scripts in a correct sequence, in order to make the Infodom Schema to be consistent with the DATABASE.xml. For more information, see the Sequence of Execution of Scripts section.

     Additionally, 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 need 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. Select **Yes** for the **Generate DDL execution logs** option if you want execution audit information such as execution start time, end time, and status of each SQL statements run as part of the model upload process. The execution log file will be available under the `ftpshare/<INFODOM>/Erwin/executionlogs` folder.
7. Select **Yes** for **Refresh Session Parameters** option to use database session parameters during the model upload process. For more information, see the Configuring Session Parameters section.
8. Select either **Yes** / **No** to directly update the **Alter constraints in NOVALIDATE state**. During incremental or sliced model upload, alterations to constraints consumes a lot of time as the constraints need to be validated.
   - If you select **Yes**, an option to alter the constraints in the NOVALIDATE state is enabled and it will not check the existing data for the integrity constraint violation. It is quite useful in cases where it is known that the existing data is clean. So, NOVALIDATE can potentially reduce the additional overhead of the constraint validation thereby enhancing the performance.

- By default, the option is selected as **No.** If you select **No,** then the option to alter the constraints is not enabled and it will check the existing data for the integrity constraint violation.

> **NOTE** Note the following points about the NOVALIDATE option.
>
> - Constraints in the NOVALIDATE state are supported only in incremental and sliced modes.
> - Model upload process irrespective of its success or failure status will bring the constraints into NOVALIDATE state. Hence, ENABLE VALIDATE should be done as a post-model upload activity. That is, Rollback does not validate the constraints which are non-validated during the upload activity.
> - The NOVALIDATE option is not relevant for HDFS systems.

9. Click **Upload Model**.

3.2 OFSAA Datamodel extensions through the SQL Data Modeler

OFSAA out of the box data models continues to be released as Erwin. But it supports Oracle SQL modeler for data model extensions.

Proposed data model extensions are:

1. Modifying a column of an existing table. Note that only data length modifications are allowed.
2. Adding one or more columns to an existing table.
3. Adding one or more tables.

A SQL Modeler template is released by Oracle Financial Services Data Foundation Pack (Enh 29467329 - SUPPORT FOR DATA MODEL EXTENSION USING ORACLE SQL MODELER) which should be used for all customizations. Refer to the Patch Readme and guidelines for more information on the process.

3.2.1 Customization Process

3.2.1.1 Modification of Columns of Existing Tables

- Column UDP 'Custom' should be set as YES for all the columns being customized

  (Table UDP 'Custom' is not required to be set for out of the box tables.)
- Support is extended for column length change and addition of new columns. Ensure that the existing column, when represented in SQL Modeler, should be intact with the base model definition, with respect to the information such as UDPs, domains, and other logical information. Otherwise, it may create inconsistencies in the populated information of the OFSAA metadata repository.

> **NOTE** Oracle recommends that you import only the altered columns into the SQL Modeler. If you import all the columns (altered and unaltered), the changes from the previous upload will be overwritten.
>
> However, if you choose to import all the columns and avoid overwriting the existing changes, select the blank value (do not select BYTE or CHAR) from the **Units** drop-down list in the **Column Properties** tab in the SQL Modeler.

- As model level UDPs are not supported by SQL Modeler, Model UDP - VERSION is expected to be added at table level. Ensure that the version for an existing table undergoing customization is equal or higher than that of the previous model. If it is missing for any table, the default value would be 80000 hence there are possibilities to ignore customizations.

3.2.1.2 Addition of New Tables

- Tables will be created only when the physical table UDP 'Custom' is set to YES.
- Columns of a custom table are considered as Custom; it is not required to mark them explicitly as Custom with a UDP.
- One or more custom tables having a relationship with each other can be brought in together.
- If any of the custom tables is establishing a relationship with an existing table from OOB, then ensure that the parent tables with keys or entire parent table structure should be available in the SQL modeler model. Only the immediate parent is required to be brought in, not beyond that.
- Table and Column display names should be represented as notes in SQL Modeler (whereas it used to be a logical name in Erwin).
- As model level UDPs are not supported by SQL Modeler, Model UDP - VERSION is expected to be added at table level. If it is missing for any table, the default value would be 80000.

3.2.1.2.1 Limitations

- Index tablespace is not supported.
- Logical table UDPs are not supported.

> **NOTE** Customizations are tracked under the table **AAI_DMM_MODEL_EXT_AUDIT_TRAIL**.

3.2.1.3 OOB Model after Customization

- All customizations are retained after OOB slice.
- During the upgrade, if the out of the box model comes with a PK change that is referenced by a custom table, the custom table is expected to be modified accordingly to hold the FK change prior to the OOB upload.

For instance, if the parent table PK is modified to have an additional column, the following steps have to be performed to achieve the latest changes in the out of the box model.

a. The child table (added as an extension) is expected to be altered to have the additional column via the SQL modeler mode of upload.

b. Proceed with the upgrade of the OOB model upload.

3.2.2 Steps for Creating XML File:

1. **Model Persistence** should be selected as **Model in one file**:

   Design Properties->General-> Model Persistence

2. Model should be saved as Relational Model and it will be located under `<DesignName>/rel/<ID>` folder with `.model.local` extension.

   Example: `D:\SQLMOD001\rel\F7706246-5EAEB0DCA216\F7706246-5EAEB0DCA216.model.local`

3. Rename `.model.local` to `<Model_name>_RELATIONAL.xml`

   Example: `MDL_01_RELATIONAL.xml`

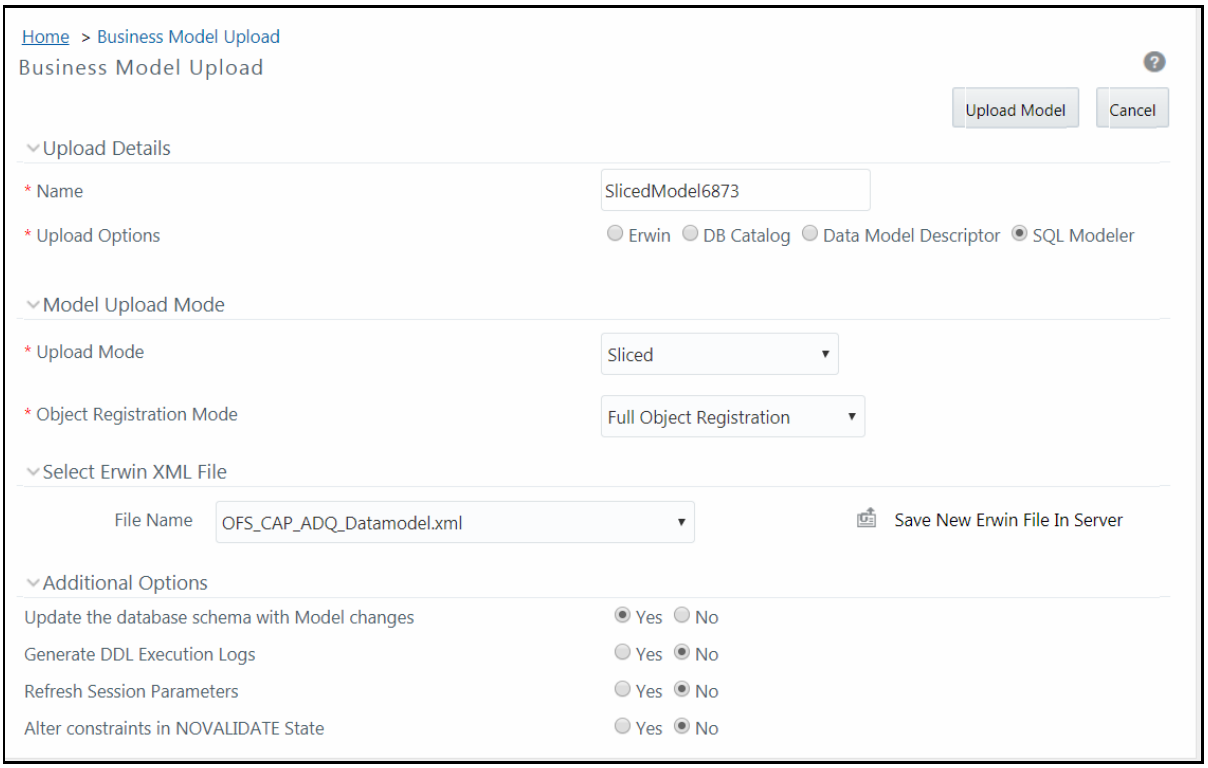
4. If tablespace information is expected to be brought in during customization, model upload process expects input from physical model as well. Physical model will be located under `<Design Name>/rel/phys/<ID>` folder with `.model.local` extension.

   Example: `D:\SQLMOD001\rel\F7706246-5EAEB0DCA216\phys\32076570-BF29817DFF70\32076570-BF29817DFF70.model.local`

5. Rename `.model.local` to `<Model_name>_PHYSICAL.xml.`

   Example: `MDL_01_PHYSICAL.xml`

3.2.3 Triggering Model Upload Process



From the *Business Model Upload* window, perform the following steps:

1. Enter a **Name** for the model being uploaded.

2. Select **Sliced** from the **Upload Mode** drop-down list.
3. Select **SQL Modeler** as the **Upload Options**.
4. Select the XML file for upload from the **File Name** drop-down list. The XML file is the one you created as explained in Steps for Creating XML File: section.
5. Click **Upload Model**.

> **NOTE** Model upload command line utility does not support SQL Modeler as of now.

3.3 Sequence of Execution of Scripts

When the model upload is done with the option **Update the database schema with Model changes** as **No** or `<runscriptsFlag>` is set as FALSE, you should execute the SQL scripts generated as part of OFSAAI model upload process in a correct sequence, in order to make the Infodom Schema to be consistent with the DATABASE.xml. The sequence is explained in the following table:

The folders are available at `ftpshare/<INFODOM>/erwin/scripts/altertable` location.

Sequence	Action	Folder name	Rollback folder name
1.	Drop Indexes	droppedindex	r_droppedindex
2.	Drop foreign keys	alterdropfkey	r_ alterdropfkey
3.	Drop primary keys	droppkey	r_droppkey
4.	Drop tables	dropoldtable	r_dropoldtable
5.	Create new tables	newtables	Droptable
6.	Alter columns	altercolumn	r_altercolumn
7.	Add primary keys	addpkey	r_addpkey
8.	Add foreign keys	addfkey	r_addfkey
9.	Add foreign keys for new tables	newfkeys	dropfkey
10.	Create indexes	createdindexes	r_createdindexes

Roll back scripts should be executed in case of failures in the reverse order. That is, if the 4th step has caused rollback, then roll back scripts from 4 to 1 has to be executed in sequence. Rollback scripts are available in the same path with the file name prefixed with r_.

3.3.1.1 Rollback

Rollback of the model upload will happen to the state just before the CopyUpload.sh process. The migrated files will be preserved under the `ftpshare/<INFODOM>/archive` path.

1. Automatic Rollback will occur in the following cases:

c. When your start point is script generation:

- Failure during parsing of Database XML file.
- Parsing of the Database XML file is successful, but the generation of scripts failed.
- Parsing of the Database XML file and generation of scripts are successful, but the execution of scripts failed.

d. When your start point is script execution:

- The execution of scripts failed.

2. In case of failure, for troubleshooting, check the following log files:

- `$FIC_HOME/ficapp/common/FICServer/bin/nohup.out`
- `$FIC_HOME/ficapp/common/FICServer/logs/ETLService.log`
- `$FIC_HOME/ficapp/common/FICServer/logs/SMSService.log`
- `$FIC_HOME/ficapp/common/FICServer/logs/UMMService.log`
- `ftpshare/logs/`
- `ftpshare/executelogs`

Contact Oracle Support services for further information.

3. You can trigger the model upload again, if required, using the files available in the path: `ftpshare/archive/<INFODOM>`. It is not required to execute the CopyUpload utility again.

3.4 Configuring Session Parameters

Model upload is relatively time consuming as the data and model size grows. This enhancement allows you to set the database session parameters according to an individual database environment, thus improving the performance of the model upload process.

The configuration file `Session_Parameters.conf` is available in the `$FIC_HOME/conf/dmm` folder.

Following are the steps involved:

1. Specify database session level parameter settings in the `Session_Parameters.conf` file.

2. Set the option to refresh session parameters from configuration files to TRUE either through command line or UI.

3.4.1 Specify Database Session Level Parameters

The `Session_Parameters.conf` file contains ALTER SESSION statements that need to be set while a connection is established. Any valid oracle session setting can be specified. It is a single file that contains parameter specification for different Infodoms, separated by an INFODOM parameter. The first parameter in the file is the INFODOM parameter that identifies the DB parameters for that particular Infodom. Followed by that, the session settings for second Infodom comes that again starts with the INFODOM parameter.

```
# The file specifies the database session level parameter settings for
better performance
```

```
# of model upload process. The db session will be set with the following
statements mentioned.


# Parameter settings for Infodom 1
INFODOM = <INFODOM_NAME1>
#<alter session statement1;>
#<alter session statement2;>
#For example,
#<alter session set db_cache_size=200G;>
#<ALTER SESSION FORCE PARALLEL DML PARALLEL 49;>

# Parameter settings for Infodom 2
INFODOM = <INFODOM_NAME2>
#<alter session statement1;>
#<alter session statement2;>
#For example,
#<alter session set db_cache_size=200G;>
#<ALTER SESSION FORCE PARALLEL DML PARALLEL 49;>
#End of Parameter settings for Infodom 2
```

When the database session for model upload is initiated, the particular database session is initialized with the specified settings. The settings are valid till the session ends.

NOTE

- The alter session statements mentioned in the Session_Parameters.conf file should adhere to the privileges of the respective OFSAA users.
- Every ALTER SESSION statement should start in a new line and need not end with a semicolon (;); component will take care of it.
- The syntax of the ALTER SESSION statements is validated against the syntax tree of Oracle to ensure credibility and to protect from any vulnerability. If the syntax fails, model upload operation will fail.
- RESUMABLE, SYNC and CLOSE DB LINK are not supported.

3.5 Partitioning Support

Oracle Partitioning is supported for model upload process using Erwin. The supported partition types are Range Partitions, List Partitions Hash Partitions, and Interval Partitions.

NOTE

- In the Sliced Model Upload mode, partition information can be added to new tables only; partitioning an existing table is not supported.
- By default , the date format for partitions columns of DATE type is set as MM/DD/YYYY and it is seeded in the DMM_PARTITION_DATEFORMAT parameter in the Configuration table. If the date format for DATE partition columns are different in Erwin model, update the parameter value appropriately before doing the model upload.

3.5.1 Registering Partition Information

You can register the Partition information during model upload. Partition information for tables is retrieved and registered into OFSAAI object registration table REV_TAB_PARTITIONS during the model upload process.

Partition table name and column names will be added to V_TABLE_NAME and V_COLUMN_NAME respectively. Partition Sequence is stored in N_PARTITION_SEQUENCE. The sequence will start from 1 for the major partition column and the maximum sequence number will be equal to the number of partitioned columns. V_PARTITION_VALUE holds the value for a particular partition to be considered for any executions. Data into this column can be populated manually or with the help of any OFSAAI table data load options.

Hive supports static and dynamic partitions. Values for static partition are known in the query whereas dynamic partition values are known at the execution time. If V_PARTITION_VALUE is null in REV_TAB_PARTITIONS, the table is considered as dynamic partitioned. AAI executions run on static and dynamic partitions.

3.5.2 Sub Partitioning Support

Sub partitions of type Range-Hash, List-Hash, and Interval-Hash are supported for the model upload process using Erwin.

3.6 Configurations for File Formats for Hive Infodom

Hive file format refers to how records are stored in the file. The supported file formats are Text, Sequence, RC, Avro, Parquet and ORC. Models upload component accepts the Input File Format and Output File Format as inputs at three levels:

1. Configuration table entries

   This is the OFSAA instance-level configuration. This is applicable to all Information Domains in the instance. Configuration table entries are:

   - HIVE_INPUT_FILE_FORMAT– Default value is seeded as org.apache.hadoop.mapred.TextInputFormat.
   - HIVE_OUTPUT_FILE_FORMAT – Default value is seeded as org.apache.hadoop.hive.ql.io.HiveIgnoreKeyTextOutputFormat.

2. Model-level properties (Model UDP)

   You can define Model UDPs to hold the input and output file formats. These will be applied to all tables in the model. UDP names are the same as the configuration parameters (HIVE_INPUT_FILE_FORMAT and HIVE_OUTPUT_FILE_FORMAT).

3. Table-level properties (Table UDP)

   File formats can be applied at an individual table-level by specific table level UDPs. UDP names are the same as the configuration parameters (HIVE_INPUT_FILE_FORMAT and HIVE_OUTPUT_FILE_FORMAT).

> **NOTE** Configuration Table data will be overridden by Model UDPs, which in turn will be overridden by Table UDPs.

Following are the supported File Formats:

Types	Input File Format	Output File Format
Text File	org.apache.hadoop.mapred.TextInputFormat	org.apache.hadoop.hive.ql.io.HiveIgnoreKeyTextOutputFormat
Sequence File	org.apache.hadoop.mapred.SequenceFileInputFormat	org.apache.hadoop.hive.ql.io.HiveSequenceFileOutputFormat
RC File	org.apache.hadoop.hive.ql.io.RCFileInputFormat	org.apache.hadoop.hive.ql.io.RCFileOutputFormat
Avro File	org.apache.hadoop.hive.ql.io.avro.AvroContainerInputFormat	org.apache.hadoop.hive.ql.io.avro.AvroContainerOutputFormat
ORC File	org.apache.hadoop.hive.ql.io.orc.OrcInputFormat	org.apache.hadoop.hive.ql.io.orc.OrcOutputFormat
Parquet File	parquet.hive.DeprecatedParquetInputFormat	parquet.hive.DeprecatedParquetOutputFormat

3.7 Model Versioning

A model level UDP known as “VERSION” is available with every model. 5 digits OFSA version numbering is followed for model versions. Each table will inherit the model version into Table version as Table level UDPs. Model upload registers the version against each entity during the model upload process.

Sliced model upload checks the model version to decide if columns should be dropped or not. When the SLICE and BASE models have common tables and if BASE entity version is higher than SLICE, then entity in the BASE is retained unchanged. If the SLICE entity version is higher than or equal to the BASE version, the entity in the SLICE will replace the BASE. Once the entity is brought into the BASE model, the version of it is stamped against it. Any models/ tables prior to OFSAAI version 80100 is defaulted to version 80000.

3.8 Viewing Log Details

Log details of all the Model Uploads done till the date to the current information domain can be viewed in the *Model Upload Summary* window. You can click "View Log" in the **Status** column corresponding to the required Model, to view the Model Upload details of the selected Model in the *View Log Details (Log Information)* window. The *View Log Details* window 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* window through the LHS menu (Operations > View Log) to find the log details of all the Model Uploads done till the date. You can make use of the Search option to find the required Model Upload details by selecting "Model Upload" as the **Component Type** from the drop-down list.

3.9 Log File Download

In the *Model Upload Summary* window, you can download the log file of the listed Model Uploads by clicking on the log file name in the 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

4 Data Management Framework

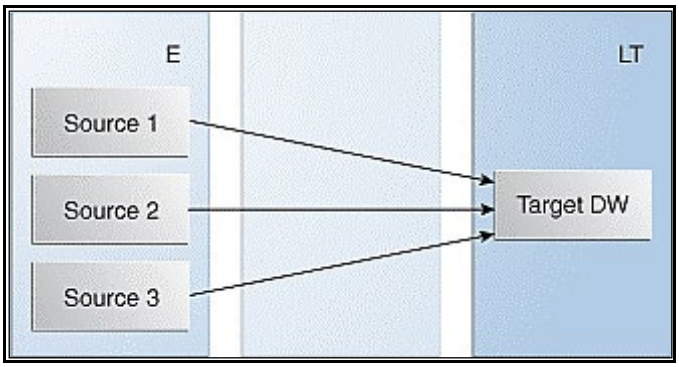
Data Management framework within the Infrastructure system is a comprehensive data integration platform that facilitates all the data integration requirements from high-volume and high-performance batch loads to event-driven integration processes and SOA-enabled data services.

Data Management Framework consists of the following sections:

- Data Management Tools
- Data Quality Framework

4.1 Data Management Tools

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.

As part of 8.0.6.0.0 release, Data Management Tools User Interface is re-organized and OJET/ALTA theme is adapted for better usability. All metadata in DMT is now persisted in Database instead of XML files.

> **NOTE** For migrating DMT metadata in previous versions to 8.0.6.0.0 version and above, see DMT Metadata Migration Guide.

4.2 Components of Data Management Tools

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

- Data Sources
- Data Mapping
- Post Load Changes
- User Defined Functions
- DMT Configurations

4.3 Data Sources

Data Sources within the Data Management Tools of Infrastructure system facilitates you to define Data Sources and generate data models of the Source systems. While defining a Data Source itself, source model generation happens.

Data source type is classified as:

- File based
  - HDFS
  - Flat File (Local to OFSAA or on a Remote Machine)
  - WebLog
- Table based
  - HDFS (HIVE)
  - RDBMS (Oracle, MSSQL, DB2)

> **NOTE** HDFS and WebLog based options will be displayed only if the Big Data Processing license is enabled.

DMT Metadata will be stored in Database Tables instead of earlier approach of storing in XML and it will be Infodom specific.

Since source model generation is done for Flat file based Data Sources while defining a Data Source, there is no separate *Data File Mapping* window for creating mapping definition. In other words, F2T and F2H can be defined from the *Data Mapping* window itself.

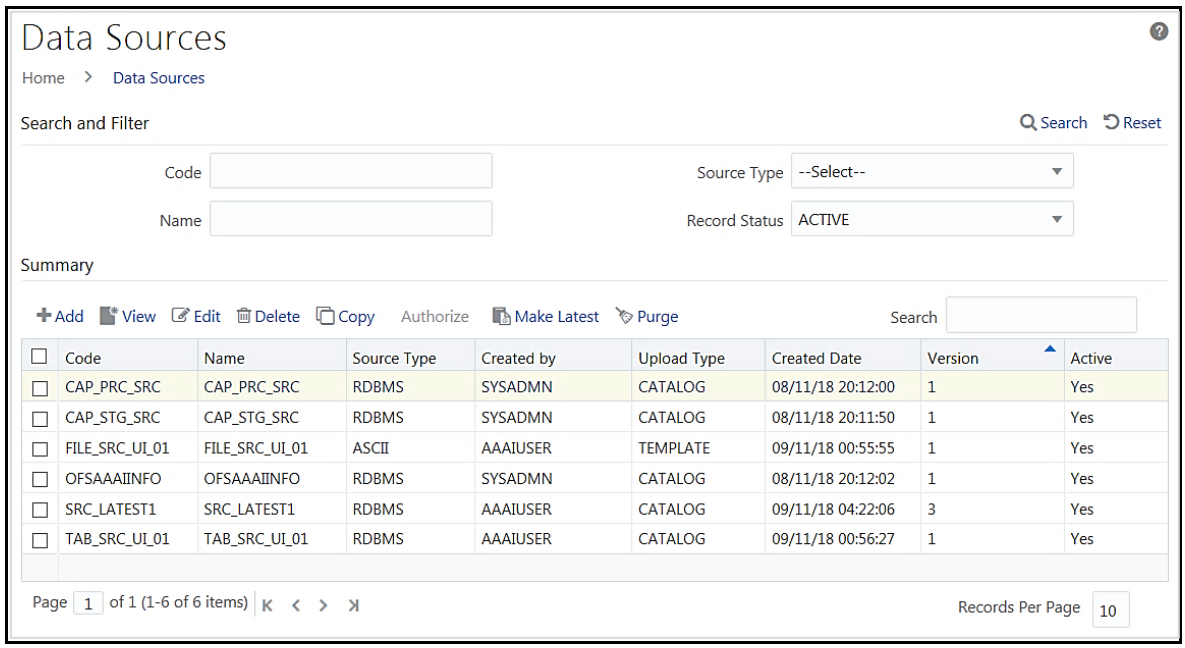
If the Data Source is an OFSAA Infodom and model upload has already been done for the Infodom, there is no need to create another Data Source pointing to this Infodom. The Infodom can directly be used in the Data Mapping Definition as a source. In addition Dataset filters can also be applied on this Infodom to get a further subset of Entities.

The roles mapped to Data Sources are as follows:

- SRCACCESS
- SRCREAD
- SRCWRITE
- SRCPHANTOM
- SRCAUTH
- SRCADV

> **NOTE** Both old functions ETLDEF and ETLUSER and the aforementioned new functions will be supported if you set **Allow Old Functions** as **Yes** in the *DMT Configurations* window. Ensure the new User Roles are mapped to the required User Groups.

For all the roles, functions and descriptions, see Appendix A.



The *Data Sources Summary* window displays the list of pre-defined Data Sources with details such as Code, Name, Source Type, Upload Type, Created By, Creation Date, Version, and Active. You can add, view, modify, copy, authorize, delete, or purge Data Sources definitions. You can make any version of a Data Source definition as latest. For more information, see Versioning and Make Latest Feature section.

For sorting the fields, mouse-over at the end of the Column heading and click to sort in the ascending order or click to sort the fields in the descending order.

You can search for a Data Source based on Code, Name, Source Type, and Record Status (Active, Inactive or Deleted). In the Search and Filter pane, enter the details of the Data source you want to search in the respective fields and then click Search.

4.3.1 Creating a Data Source

Data Source refers to the physical structure or location of the source system. Data source can be a file, a table or WebLogs.

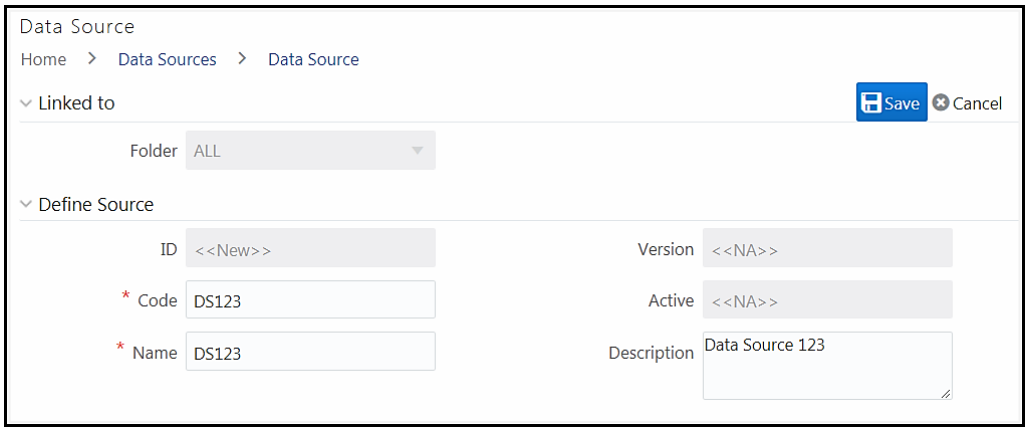
- In case of File, it can be a flat file which can be local to OFSAA or remote to OFSAA, or a file on HDFS.
- In case of table, it can be an RDBMS table or HDFS table.
- In case of WebLogs, it can be in local file system or in an HDFS cluster. If it is in HDFS cluster, you need to register a cluster with the required information from the *DMT Configurations>Register Cluster* window.

For tables, the connection and authentication details are defined in the System Configuration > Database Details section. Proper connection pooling has to be done if you have to create an external Data Source on a database without an Information Domain created on it. Applications access the data source using an FTP connection.

> **NOTE** Source creation now implicitly does a source model generation.
>
> Defining the structure of a Flat File is now mandatory during the creation of Flat File based sources.
>
> Data Sources cannot be defined on Configuration Schema. OFSAA by default generates Data Sources on Configuration Schema, which can be viewed only; you cannot edit them.

To create a data source

1. From the *Data Sources* window, click **+Add**. The *Data Source* window is displayed.



The **ID** will be automatically generated once you create a data source. The **Folder** field is not enabled.

2. Enter a distinct **Code** to identify the Data Source. Ensure that the code is alphanumeric with a maximum of 50 characters in length and there are no special characters except underscore "_".
3. Enter the **Name** of the Data Source.
4. Enter a **Description** for the Data Source.

4.3.1.1 Creating a Data Source Based on Local File System

This feature allows you to extract unstructured data from a Flat File for loading in 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. The flat file can be local to OFSAA or remote to OFSAA.

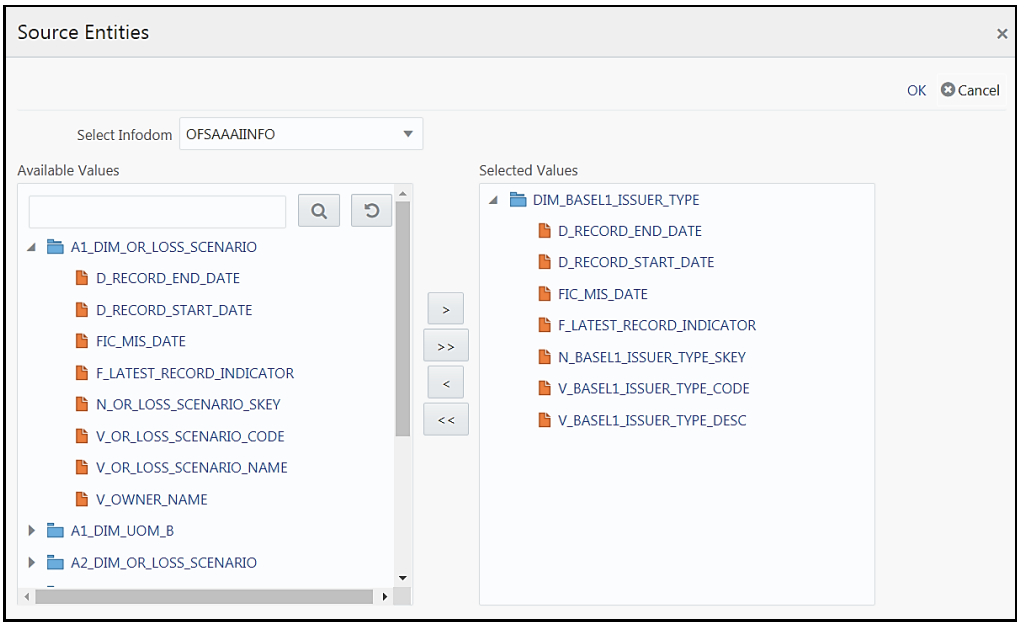
To create a data source based on LFS:

1. Select the **Source Type** as **File.**
2. Select the **Based on** as **LFS**.
3. Enter details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Type	Select **Local** or **Remote** from the drop-down list.
If **Type** is selected as **Local**:	Specify the **Source Date Format** to be used as default date format for source data extraction and mapping.
If **Type** is selected as **Remote:**	**Server Name**: Enter the Server Name or IP address where the Data Source exists. **Server Port**: Enter the active server port number that contains the flat files. **User ID**: Enter the FTP User ID required to connect to the server. **Password**: Enter the FTP user password required to connect to the server. **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. **FTP Drive**: Enter the FTP server path. In case of Unix Servers, the home directory path is taken as default. **Source Date Format**: Enter the Source Date Format which will be used as the default date format for source data extraction and mapping. The date format you enter is validated against the supported date formats of the database to which the Config Schema points.

4. Select the required **File Type**. The options are:
   - **Delimited** - Select **Delimited** if the data is separated by a delimiter.
     - Enter the delimiter in the **Field Delimiter** field. This is a mandatory field.
   - **Fixed** - Select **Fixed** if it is Fixed Width or Fixed Position File (it refers to a Flat File in which the data is defined by the character position (tab space)).

5. From the Generate Model pane, click **Select** if the **File Type** is **Delimited** or **Fixed**. This allows you to select the table whose structure is similar to the structure of your source. Using this option, you can generate model based on the selected table. The *Source Entities* window is displayed.



   a. Select the **Infodom** from the drop-down list.

   b. Select the Table from Available Values pane.

      — Select the required Entity and click › to move it to the Selected Values pane.

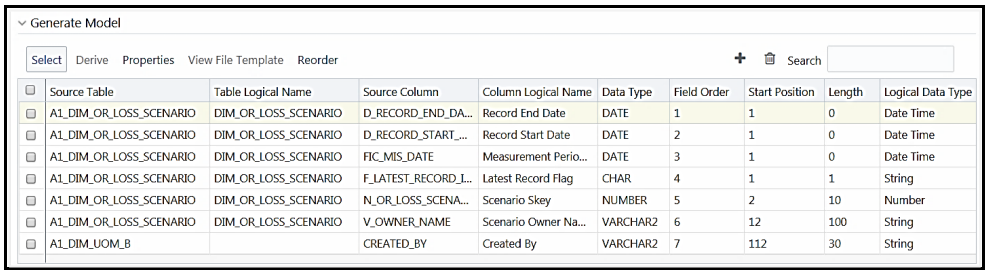
      — Click >> to select all entities.

      — Select an entity and click ‹ to de-select an entity.

      — Click << to de-select all entities.

      — You can search for an entity by giving its name in the text field and click . Click to reset the search field.

   c. Click **OK**. All the columns in the selected Entity will be displayed in the Generate Model pane. The available columns are Source Table, Table Logical Name, Source Column, Column Logical Name, Data Type, Field Order, Start Position, Length, and Logical Data Type.



Source Table	Table Logical Name	Source Column	Column Logical Name	Data Type	Field Order	Start Position	Length	Logical Data Type
A1_DIM_OR_LOSS_SCENARIO	DIM_OR_LOSS_SCENARIO	D_RECORD_END_DA...	Record End Date	DATE	1	1	0	Date Time
A1_DIM_OR_LOSS_SCENARIO	DIM_OR_LOSS_SCENARIO	D_RECORD_START_...	Record Start Date	DATE	2	1	0	Date Time
A1_DIM_OR_LOSS_SCENARIO	DIM_OR_LOSS_SCENARIO	FIC_MIS_DATE	Measurement Perio...	DATE	3	1	0	Date Time
A1_DIM_OR_LOSS_SCENARIO	DIM_OR_LOSS_SCENARIO	F_LATEST_RECORD_I...	Latest Record Flag	CHAR	4	1	1	String
A1_DIM_OR_LOSS_SCENARIO	DIM_OR_LOSS_SCENARIO	N_OR_LOSS_SCENA...	Scenario Skey	NUMBER	5	2	10	Number
A1_DIM_OR_LOSS_SCENARIO	DIM_OR_LOSS_SCENARIO	V_OWNER_NAME	Scenario Owner Na...	VARCHAR2	6	12	100	String
A1_DIM_UOM_B		CREATED_BY	Created By	VARCHAR2	7	112	30	String

   You can perform the following actions:

- Click + to add a new row to specify a new column.
- Select a row and click 🗑 to delete a row.
- Double-click the Field Order number and update if you want to change the order in which columns appear in the source file. Click the **Reorder** button to sort and reorder the Field Order numbers to fill any missing numbers.
- Mouse-over at the end of the Column heading and click ▲ to sort the fields in the ascending order or click ▼ to sort the fields in the descending order.

6. From the Generate Model pane, click **Properties** to specify the source properties. For more information, see Specifying Source Properties section.
7. Click **Save** on top-right corner of the window. The Data Source definition will be saved as version 1.

4.3.1.2 Creating a Data Source for WebLogs

In case of WebLogs, it can be in local file system (LFS) or in an HDFS cluster. If it is in HDFS cluster, you need to register a cluster with the required information from the *DMT Configurations>Register Cluster* window.

To create a data source based on WebLogs:

1. Select the **Source Type** as **File.**
2. Select the **Based on** as **LFS** if the WebLogs are present in local file system or as **HDFS** if WebLogs are present in HDFS cluster.
3. If **Based on** is selected as **LFS,** enter details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Type	Select **Local** or **Remote** from the drop-down list.
If **Type** is selected as **Local**:	Specify the **Source Date Format** to be used as default date format for source data extraction and mapping.

If **Type** is selected as **Remote:**	**Server Name**: Enter the Server Name or IP address where the Data Source exists. **Server Port**: Enter the active server port number that contains the flat files. **User ID**: Enter the FTP User ID required to connect to the server. **Password**: Enter the FTP user password required to connect to the server. **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. **FTP Drive**: Enter the FTP server path. In case of the Unix Servers, the home directory path is taken as default. **Source Date Format**: Enter the Source Date Format which will be used as the default date format for source data extraction and mapping. The date format you enter is validated against the supported date formats of the database to which the Config Schema points.

4. If **Based on** is selected as **HDFS,** enter the details:
   a. Select the HDFS cluster in which the file/folder is present, from the **Cluster** drop-down list. This list displays the clusters that are registered from Register Cluster tab in the *DMT Configurations* window. For more information, see Cluster Registration section.
   b. Enter the folder path present within the HDFS System in the **HDFS File Path** field. All files present inside this folder will be loaded.
   c. The **Source Date Format** field is not editable. The supported source date format is YYYY-MM-DD.
5. Select the **File Type** as **Regex**.
6. Select the **File Format** from the drop-down list. The options are Text File, Sequence File, Parquet, RC File, Avro and Input Format.
7. From the Generate Model pane, click **Derive**. The *Source Model Generation* window is displayed. See Source Model Generation for WebLog section for detailed information.

> **NOTE** Source model generation of HDFS files on Derive mode is not supported. The workaround is to derive the model on local files and point the source to the HDFS before saving the Data Source definition.

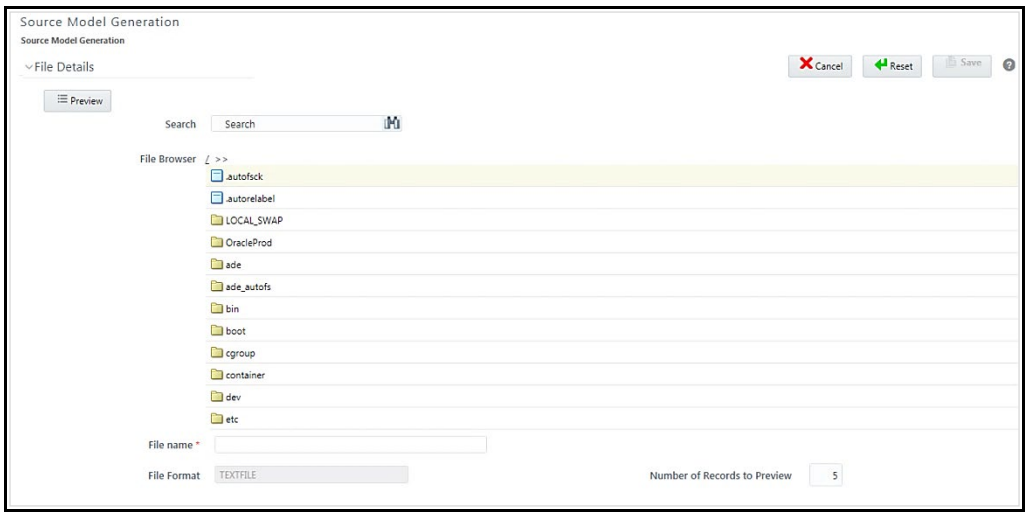
4.3.1.2.1 Source Model Generation for WebLog

Source model generation (SMG) for Weblog files is done by reverse-generation of the data model from WebLog files. That is, you can choose a sample file from the source base folder and SMG process tries to fit the data file to a known log type, or to a custom log model. Then it validates the data model against few records from the file, and publishes them to you. If you find the model satisfactory, you can save the model. Else, you can edit the model and submit it.

When source is saved from the UI, SMG logs will be available in the <web local path>/<infodom>/dmt/source/<source code>/log folder. When source is saved from utilities (any non j2ee container), logs will be written to <app ftpshare>/<infodom>/dmt/source/<source code>/log folder.

To generate Source Model for WebLog:

1. From the Generate Model pane in the *Data Sources* window, click **Derive**. The *Source Model Generation* window is displayed.



   All the files/folders from the base folder of the WebLog source are listed in the File Browser pane. You can search for a particular file by entering the filename in the **Search** field. All special characters except +, \, #, ~, %, &, *, ? , (,), [,],\\ and ,. The selected file will be used to generate the data model for the whole of weblog source.

2. Select the file from the **File Browser** pane.

   The **File Format** field displays the selected File format from the Generate pane.

3. Enter the number of records (n) to be fetched from the selected file for preview. By default, 5 is displayed. These records will be finally used to validate the data model.

4. Click **Preview**.

   You can view the “n” number of records displayed in the Preview pane.

5. Select a record from the Sample Data based on which you want to generate data model. By default, last record is selected.

6. Select the appropriate **Logger Type** from the drop-down list. The available options are**:**

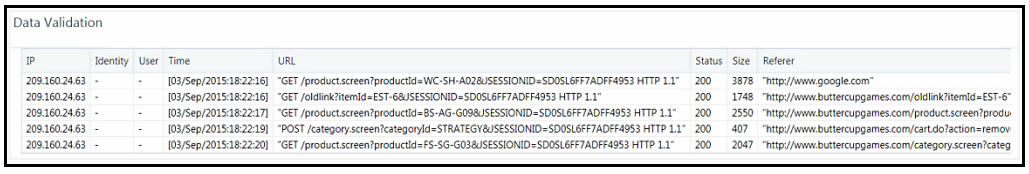
- **APACHE - Sample** - Select this if you know the log format of your data is in Apache log format.
- **MICROSOFT-IIS - Sample** - Select this if you know the log format of your data is in Microsoft log format.
- **Custom**- Select this option if you are not sure about the log format. It will intelligently try to fit data to a standard log format, or generate a custom log model. Select the **Delimited** checkbox if the data is separated by a delimiter and enter it in the **Field Delimiter** field.

> **NOTE** Standard logger types and their details are seeded in AAI_DMT_WEBLOG_TYPES table. By default, details for Apache and Microsoft-IIS logs are pre-populated. You can add other logger methods to the table to make them visible in the UI. For more information, see Logger Type Seeded Table section in OFSAAI Administration Guide.

7. Click **Generate Data Model**. If the model generation is successful, you can view Data Model Preview pane. Model is generated based on the selected record in the Sample Data pane.

- If you have selected standard **Logger Type**, standard column names are displayed. If **Custom** is selected, column names are set as fld_0, fld_1, fld_2, and so on.
- The supported Data Types are **String** and **Int**.
- If Custom is selected as Logger Type and the **Delimited** checkbox is selected, the **Regex** field will be non-editable and the **Input Regex** field will not be displayed.
- The data model is based on the generated **Input Regex** value. For the standard logger types, this value is hard-coded. The regex is fuzzy-logically computed in case of Custom **Logger Type**.
- For more information on tweaking the data model, see Model Customization section.

8. Click **Validate** to validate the "n" number of records against the model.



If there are any records, which do not conform to the model, an alert with the number of invalid records is displayed. You can scroll the grid to check the erroneous data marked in red, or optionally click the **Invalid Data** button in the Data Validation grid.

In case of invalid records, you can tweak the Input Regex (Regular Expression) and re-validate the model. For more details, see Model Customization section.

9. Click **Save** once you are satisfied with the model.

   Even if there are erroneous records, you can still save the model. Then, during the final load, those records will result in erroneous data being loaded in the final table. In such cases, you can separately apply data corrections rules to weed out those records.

4.3.1.2.2 Model Customizations

Clubbing Columns

Consider a scenario in which you want to club columns appearing in the Data Model Preview pane. You can do it by deleting any one of the columns and then update the column name and the Input Regex of the retained column appropriately.

Suppose you want to combine Status and Size columns, as shown in the following figure.

- Rename Status column to “Status + Size”.
- Change the Regex of the renamed column by combining the value within brackets(). For example, in this case the Regex should be ([0-9]* [0-9]*).
- Click corresponding to the Size column.
- Click to refresh/ reset the **Input Regex** based on the modifications you did.
- Click **Validate** to generate the model again.

Adding New Columns

Consider a scenario where you want to split a single column appearing in the Data Model Preview pane to appear as multiple columns. This can be done by clicking **Add** and tweaking **Input Regex** appropriately.

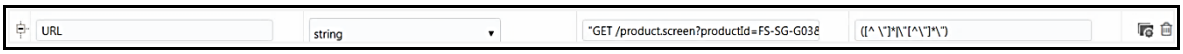
For example, if you want to split the Time column into Date and Time columns as shown in the following figure.

- Click **Add** to add a new column. A new record is added in the last.
- Enter the Regex appropriately for both columns.
- If you want to add a column in between, change the **Input Regex** field appropriately. That is, Regex of the newly added column should be added after the Regex of the column where you want to insert the new column. Even though in the Data Model Preview pane, it does not get reflected, it is displayed properly in the Data Validation pane.

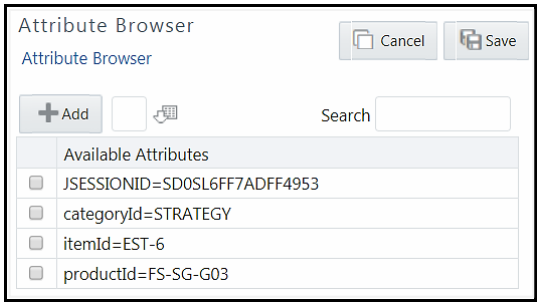
URI and Referer Parsing

URI and Referer fields are considered complex attributes since apart from the hierarchical part (scheme://example.com:123/path/data), there is a query part to it (?key1=value1&key2=value2). The query part by convention is mostly a sequence of attribute-value pairs. SMG process identifies these keys as potential attributes of interest, and hence an option to keep them in the data model is provided.

Both in Standard and Custom logger methods, URI and Referer fields will show up icon, only if the selected record's URI or Referer field has a query part to it. You can choose a different record with a query part instead.



- Click **.** The *Attribute Browser* window is displayed.



- Enter the number of records you want to look up beyond the previously selected n records for attributes and click . The Available Attributes column will get refreshed.
- Select the required attributes which you want to add as columns in your data model and click **OK**.
- Click **Add** to add attribute which is not part of the data file.
- Click **Save**.

> **NOTE** The selected attributes might become a sparse column after data load. Also, these attributes will not be available separately in the data validation grid.

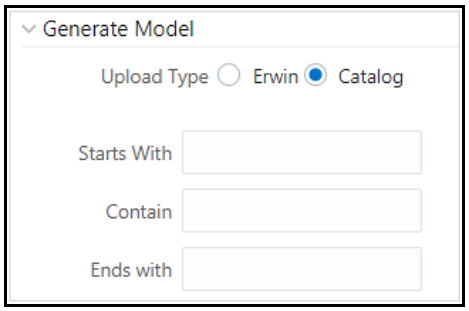
4.3.1.3 Creating a Data Source Based on Table

This feature allows you to create a data source from RDBMS table or Hive table. Source model generation for RDBMS and HIVE is done using the following options:

- Generate using the Erwin option- The working of this mode is the same for RDBMS and HIVE. The erwin.xml file is read and an XSLT converts it into the SOURCE_DATABASE.xml.
- Generate using the Catalog option- In this option the database catalog (HIVE metastore or RDBMS) is directly queried to get the list of Tables and Columns. This metadata information is then saved into the SOURCE_DATABASE.xml file. This component captures the Logical Names of the Tables and Columns in addition to the Physical names. This option can be used for both RDBMS and HIVE.

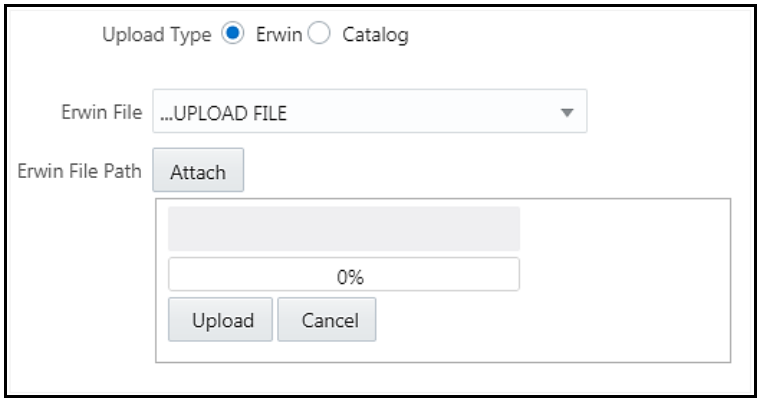
To create a data source based on table:

1. Select the **Source Type** as **Table.**
2. Select the required database from the **Database Name** drop-down list. If RDBMS is selected, the drop-down list displays the available RDBMS tables. If HDFS is selected, it displays the available HDFS table based sources (HIVE).
3. Enter the schema name in case of Oracle database in the **Table Owner** field**.**
4. **Source Date Format** is displayed as mm-dd-yyyy. You cannot modify it.
5. From the Generate Model pane, select the **Upload Type** as **Erwin** or **Catalog**. By default, **Catalog** is selected.
   a. If **Catalog** is selected:



   Specify the Filter entries by entering details in the **Starts with**, **Contains**, and **Ends with** fields. Filters are patterns for entity names in the Database and can restrict the source model generation to a specific set of entities. 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”.

   b. If **Erwin** is selected:



   Select the required **Erwin File** from the drop-down list. The files which are placed under ftpshare/<Infodom name>/dmt/erwin folder are displayed in the drop-down list.

   Or

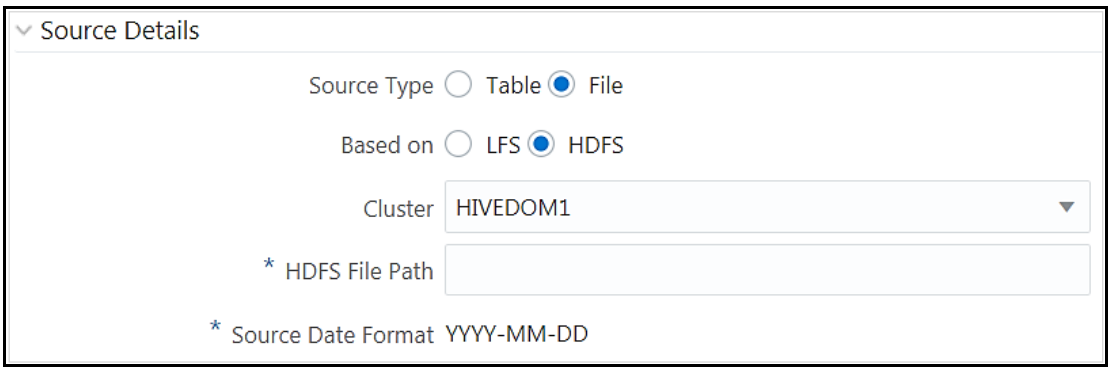
   Click **Attach** and select the Erwin file from your local system. Click **Upload**. You can see the progress of the file upload in percentage. Once uploaded, select that file from the drop-down list.

6. Click **Save** on the top-right corner of the window. The Data Source definition will be saved as version 1.

4.3.1.4 Creating a Data Source Based on HDFS File

This option is used if the file is present on HDFS cluster.

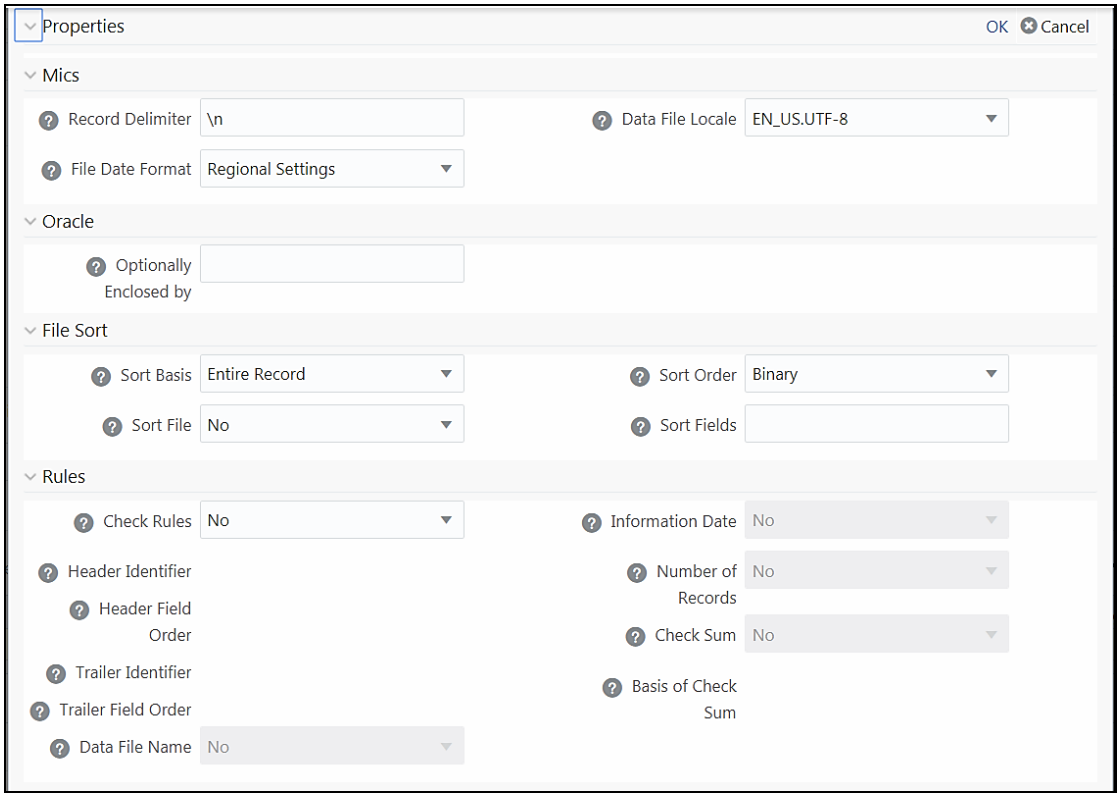
To create a data source based on HDFS File:



1. Select the **Source Type** as **File.**
2. Select the **Based on** as **HDFS**.
3. Select the HDFS cluster in which the file/folder is present, from the **Cluster** drop-down list. This list displays the clusters which are registered from Register Cluster tab in the *DMT Configurations* window. For more information, see Cluster Registration section.
4. Enter the folder path present within the HDFS System in the **HDFS File Path** field. All files present inside this folder will be loaded.
5. The **Source Date Format** field is not editable. The supported source date format is YYYY-MM-DD.

4.3.1.5 Specifying Source Properties

1. From the Generate Model pane in the *Data Sources* window, click **Properties**. The *Properties* window is displayed.



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

2. Enter the details as tabulated:

Field	Description
File Sort This section is applicable for **File Type** selected as **Delimited** or **Fixed**.	
Sort Basis	Select the basis on which the data file should be sorted, from the drop-down list. **Entire Record**- By default, this option is selected. **Primary Key**- Select this option if the destination table has primary keys. **List of Fields**- Select this option if you want to sort based on some particular field.
Sort Order	Select whether you want to sort the data file based on **Binary** or **Linguistic**, from the drop-down list.
Sort File	Select whether you want to sort it in **Ascending** or **Descending** order, from the drop-down list.
Sort Fields	This field is applicable only if you have selected **Sort Basis** as **List of Fields**. Specify the field based on which you want to sort the data file.
Miscellaneous	

Field	Description
Record Delimiter	Specify the record separator used in the data file. By default, \n is selected as record delimiter. Modify if required. **Note**: Only this field is applicable in case of WebLogs.
File Date Format	Select the **Regional Settings** from the drop-down list if the Data File is created with the date format of the Regional settings of the Database server. By default, **Database Settings** is selected.
Data File Locale	Select **EN_US.UTF-8** from the drop-down list.
Oracle This section is applicable only for **File Type** selected as **Delimiter**.	
Optionally Enclosed By	Specify any optional Field Identifier used in the Data File apart from the Field Delimiter. It can be Fields enclosed by "Field".
Rules This section is applicable for **File Type** selected as **Delimited** or **Fixed**.	
Check Rules	Select **Header**, **Trailer**, **Header and Trailer** or **No** from the drop-down list depending on where the Validity rules are specified in the Data File. If you select **No**, all other fields will be disabled.
Header Identifier	This field is enabled only if you select **Header** or **Header and Trailer** options for **Check Rules**. Specify the first character or string that identifies the header record.
Data File Name	Select **Yes** if the name of the Data File is part of the Header/Trailer.
Information Date	Select **Yes** if Information Date (MIS Date) in the Data File is provided as part of Header/Trailer.
Number of Records	Select **Yes** if the number of records in the Data File is provided as part of the Header/Trailer.
Check Sum	Select **Yes** if Check Sum value in the Data File is provided as part of Header/Trailer. **NOTE:** For checksum to be computed in F2T, it is mandatory that there must be a column mapping to identify the current load. The supported mappings are as follows: 1. Constant mapped to #MISDATE 2. Constant mapped to #FILENAME
Basis of Check Sum	Specify the Source Column name on which the Check Sum is computed. Ensure that source column is a numeric column.
Trailer Identifier	This field is enabled only if you select **Trailer** or **Header and Trailer** options for **Check Rules**. Specify the first Character or String that identifies the Trailer Record.

Field	Description
Header Field Order	This field is enabled only if you select **Header** or **Header and Trailer** options for **Check Rules**. Specify the header field order as comma separated values-: 1-Header Identifier,2-Data File Name, 3-Information Date, 4-Number of records, 5-Value of Checksum, 6-Basis of Checksum. For example, if you specify 1, 3, 2, 4, 5, 6; the header fields will be Header Identifier, Information Date, Data File Name, Number of records, Value of Checksum, Basis of Checksum.
Trailer Field Order	This field is enabled only if you select **Trailer** or **Header and Trailer** options for **Check Rules**. Specify the **Trailer** field order as comma separated values-: 1- Trailer Identifier,2-Data File Name, 3-Information Date, 4-Number of Records, 5-Value of Checksum, 6-Basis of Checksum.

3. Click **Ok**.

4.3.2 Versioning and Make Latest Feature

When a new definition is created, it will be saved as version 1. Once you modify and save a definition, it will be saved with version as highest version +1. That is, if you modify version 2, which is the highest version available and save it, the version becomes 3.

To make any older version as latest:

1. From the *Data Sources* window, turn OFF the **Active** toggle button and click **Search**. All inactive definitions are displayed.
2. Select the required definition and click **Make Latest.** The selected definition becomes active and the current active definition becomes inactive.

4.3.3 Modifying a Data Source

This option allows you to modify a data source. You cannot modify inactive versions of a Data Source definition. To make an inactive version as active, you should make that version as latest.

To modify a data source:

1. From the *Data Sources* window, select the data source that you want to edit and click **Edit**. The *Data Source* window is displayed.
2. Modify the required details. You cannot modify Code and Name. For more information, see Creating a Data Source section.
3. Click **Save**. The definition will be saved as highest version +1. That is, if you are modifying a definition of version number as 3 and the highest version available is 5, the definition will be saved as version 6.

4.3.4 Viewing a Data Source

You can view individual Data Source definition details at any given point.

To view an existing Data Source definition:

1. From the *Data Sources* window, select the data source that you want to view and click **View**. The *Data Source* window is displayed.

   The *Data Source* window displays the details of the selected Data Source definition. The Audit Panel section at the bottom of the window displays creation and modification information of the Data Source definition. The Comments section displays additional information or notes added for the definition, if any.

4.3.5 Copying a Data Source

This feature facilitates you to quickly create a new Data Source definition based on an existing one by updating the required fields.

To copy a Data Source definition

1. From the *Data Sources* window, select the data source that you want to copy and click **Copy**. The *Data Source* window is displayed.
2. Enter **Code** and **Name** for the definition. Modify the required fields. For more information, see Creating a Data Source section.

4.3.6 Deleting Data Sources

This option allows you to delete data sources. However, it is a soft deletion only. To permanently delete from system, you need to purge it.

To delete Data Sources:

1. From the *Data Sources* window, select the data source that you want to delete and click **Delete**. You can select multiple Data Sources for deletion. A confirmation message is displayed.
2. Click **Yes** to confirm deletion or **No** to cancel deletion.

4.3.7 Purging Data Sources

This option allows you to remove deleted Data Sources permanently from the system. You should have DMTADMIN user role mapped to your user group.

To purge Data Sources

1. Search for the Deleted records by selecting **Deleted** from the **Record Status** drop-down list and click **Search**.
2. Select the required Data Source definitions you want to permanently remove from the system and click **Purge**.
3. Click **OK** to confirm purging.

4.4 Data Mapping

Data Mapping 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.

Data movement can be from:

- RDBMS source to RDBMS target (T2T)
- RDBMS source to Flat File target(T2F)
- RDBMS source to HDFS-Hive target (T2H)
- HDFS-Hive source to RDBMS target(H2T)
- HDFS-Hive source to HDFS target (H2H)
- HDFS/Local-WebLog Source to HDFS Target (L2H)
- HDFS-Hive source to Flat File target (H2F)
- Flat File to RDBMS target (F2T)
- Flat File present in Local File System (LFS) to HDFS target or HDFS file to HDFS target(F2H)

NOTE File present in HDFS system cannot be loaded into RDBMS target Infodom.

F2T and F2H can be defined from *Data Mapping* window. There is no separate *Data File Mapping* window.

Data movement between Hive and RDBMS can be enhanced using third party tools like SQOOP and OLH (Oracle Loader for Hadoop). You need to set parameters from the *DMT Configurations* window. For details, see DMT Configurations section. For details on the configurations for SQOOP and OLH, see OFSAAI Administration Guide available in OHC Documentation Library.

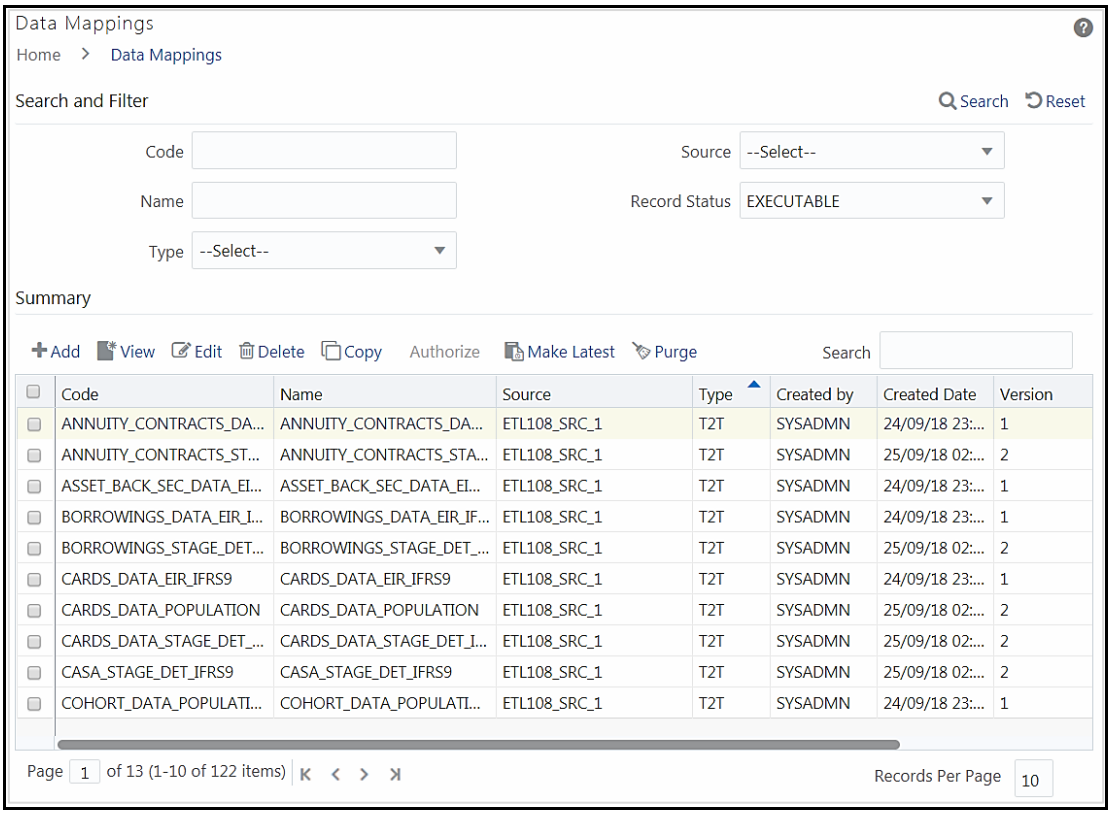
For the configurations required to support Weblog ingestion (L2H), refer Data Movement of WebLog Source to HDFS target section in OFSAAI Administration Guide available in OHC Documentation Library.

The roles mapped to Data Mapping are as follows:

- DMACCESS
- DMREAD
- DMWRITE
- DMPHANTOM
- DMAUTH
- DMADV

NOTE Both old functions ETLDEF and ETLUSER and the aforementioned new functions will be supported if you set **Allow Old Functions** as **Yes** in the *DMT Configurations* window. Ensure the new roles are mapped to the required User Groups.

For all the roles, functions and descriptions, see Appendix A.



The *Data Mappings* window displays the list of pre-defined Data Mapping definitions with **Record Status** as Executable with details such as Code, Name, Source, Type, Created By, Creation Date, Version, and Active. You can add, view, modify, delete, or purge Data Mapping definitions. You can make any version of a Data Mapping definition as latest. For more information, see Versioning and Make Latest Feature of Data Mapping section.

For sorting the fields, mouse-over at the end of the Column heading and click to sort in the ascending order or click to sort the fields in the descending order.

You can search for a Data Mapping definition based on Code, Name, Type (F2T, T2F and T2T), Source and Record status. The options for Record Status are Executable, Active, Inactive, and Deleted.

- Executable- Displays all active versions of Data Mapping definitions and inactive versions of the same Data Mapping definitions with distinct sources.
- Active- Displays only active version of all Data Mapping definitions
- Inactive- Displays all inactive versions of Data Mapping definitions
- Deleted- Displays all the deleted Data Mapping definitions.

4.4.1 Creating Data Mapping Definition

This option facilitates you to extract data from data sources and load to a table. The data source and target can be RDBMS table, HDFS-HIVE table or Flat File. It can also be a WebLog source and HDFS-Hive target. You can **Load** data incrementally from any data source to a table based on certain criteria.

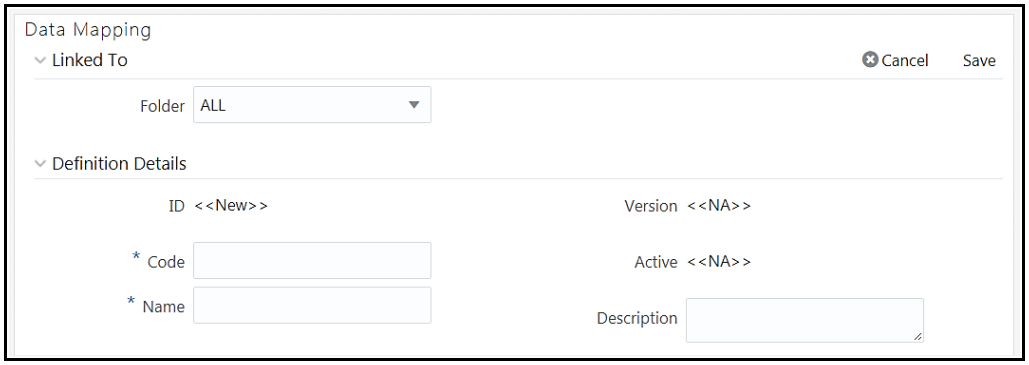
> **NOTE** If DB2 is selected as the source database, map data from Table to File (T2F) and then File to Table (F2T).
>
> Processing on Datatypes TIMESTAMP WITH TIME ZONE and TIMESTAMP WITH LOCAL TIME ZONE is not supported, even though source model generation is supported for those datatypes.

Defining Data Mapping involves the following steps:

- Specifying Data Mapping Details
- Selecting Model
- Defining Data Mapping to Table or File
- Defining Mapping Properties
- Associating DQ rules to the Data Mapping Definition

4.4.1.1 Specifying Data Mapping Definition Details

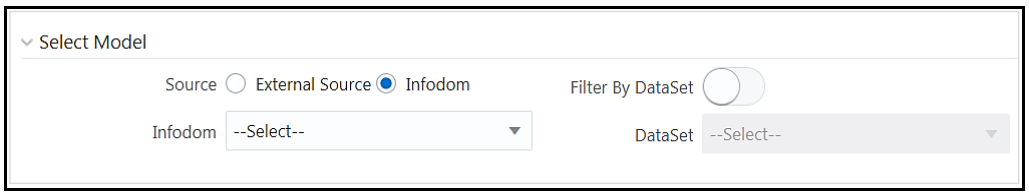
1. From the *Data Mappings* window, click **Add**. The *Data Mapping* window is displayed.



   The **ID** will be automatically generated once you create a data mapping definition. The **Folder** field is not enabled.

2. Enter a distinct **Code** to identify the Data Mapping definition. Ensure that the code is alphanumeric with a maximum of 50 characters in length and there are no special characters except underscore "_".
3. Enter the **Name** of the Data Mapping definition.
4. Enter a **Description** for the Data Mapping definition.

4.4.1.2 Selecting Model



1. Select the Source as **External Source** or **Infodom**. By default, **Infodom** is selected.
2. If **External Source** is selected as **Source**, select the Data Source from the **External** drop-down list. All the Data Sources you have defined in the current infodom will be displayed in the drop-down list.
3. If **Infodom** is selected as **Source**:
   - Select the Information Domain from the **Infodom** drop-down list.
   - Turn on the **Filter By Dataset** toggle button if you want to filter the infodom by dataset. Select the **Dataset** from the drop-down list. The Dataset drop-down is enable only if the **Filter By Dataset** toggle button is turned on.

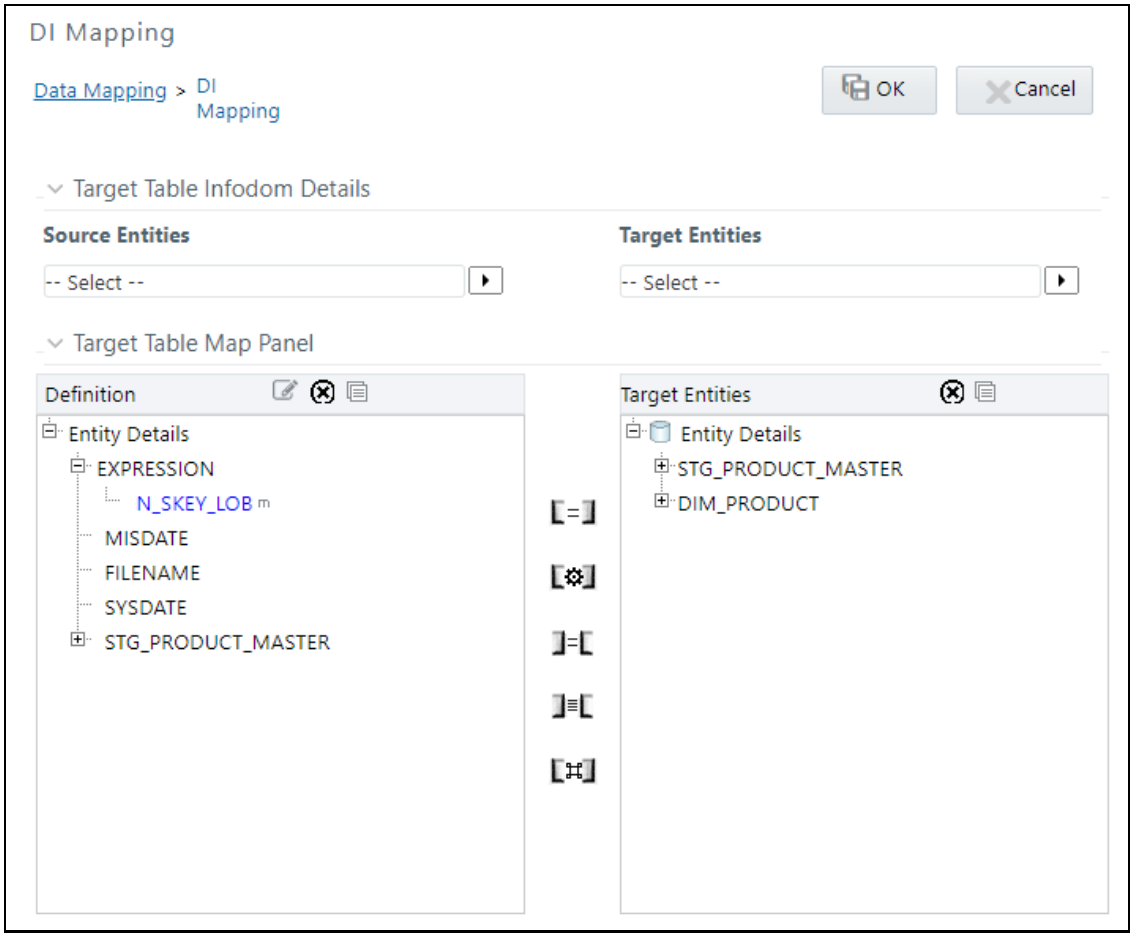
4.4.1.3 Defining Data Mapping to Table (T2T, F2T, H2T, T2H, H2H, F2H, L2H)

In case of F2T or F2H, the source data file should be located at /ftpshare/<INFODOM>/dmt/source/<SOURCE_NAME>/data/<MIS_DATE>. In case of multi-tier setup, if the dmt/source/<SOURCE_NAME>/data/<MIS_DATE>/ folder structure is not present in /ftpshare/<INFODOM> location, you need to manually create the folder structure.

For local L2H executions, you should create the execution file path explicitly in the app layer. Since the source folders get created in web local path, the execution will search for data file in ftpshare/<infodom>/dmt/<sourcename>/data/<datefolder>/ folder in the app layer.

> **NOTE** Data source based on File present in HDFS system cannot be loaded into RDBMS target Infodom.

1. Select **Load to Table** option as **Load Type**.
2. Click the **Map** button. The *DI Mapping* window is displayed.



3. Click ▸ and select the required table from the **Source Entities** drop-down list. The list displays all the tables that are part of the source model.

   The selected source entity attributes are displayed in the Definition pane of Target Table Map Panel.

4. Click ▸ and select the target table from the **Target Entities** drop-down list. The selected entities are displayed in the Target Entities pane of Target Table Map Panel.

   If the Target column is a partitioned column, it is indicated using a superscript **P** and if it has a static value, mouse over the column displays the partition value.

   You can select an entity and click button to view the Entity details. You can remove a selected Entity from the Definition pane or Target Entities pane by clicking **Remove Table** button. You cannot remove an entity if any of its attribute is mapped. The mapped attribute is indicated using a superscript m.

> **NOTE** You can create a new table by clicking if the target information domain is based on HDFS database. The newly created table will be part of the OFSAAI data model and it is made visible and available to all other modules. For more information, see Dynamic Creation of Table.

5. To map source to target, do one of the following:
   - Select the required attribute from the Definition pane and select an attribute from the Target Entities pane and click button.
   - Click button to automatically map between source attribute and target attribute. Automapping happens if both source and target attributes have the same name.
   - Select EXPRESSION from the Definition pane and select an attribute from the Target Entities pane and click **Transformed Map** button. The Specify Expression window is displayed. Define expression to transform the column.
   - To modify an expression, select the expression name and click from the *Definition* toolbar. Modify the expression from the Specify Expression window.

   You can remove a mapping by selecting the target column and clicking button or remove all mappings by 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. Also the same source column can be mapped to different target columns of different target entities.

6. For F2T definition, you can map Row Level Transformation (RLT) functions, that is, SysDate() and Constant values to a target column:
   - Click **SysDate()** from the Definition pane and required target column from the Target Entities pane and click button. The target column should be a Date column.
   - Click **Constant Value** from the Definition pane and required target column from the Target Entities pane and click button. Select the required constant value type from the drop-down list. The supported constant values are #DEFINITIONNAME, #SOURCENAME, #MISDATE, #FILENAME, and Others. Ensure the Data Type of the target column is matching with the constant value Data Type.

   The options for Constants are:
   - #DEFINITIONNAME- The name of the Data File Mapping Definition will be transformed at Row level and loaded into mapped target column.
   - #SOURCENAME- The name of the Source on which Data File Mapping is defined will be transformed at Row level & loaded into mapped target column.
   - #MISDATE- Execution date of the Data File Mapping will be transformed at Row Level and loaded into mapped target column.

> **NOTE** Columns mapped to #MISDATE will use the NLS format of DB for loading. For loading successfully, the DB_DATE_FORMAT given in AAI_DB_PROPERTY table should be the NLS date format of the corresponding atomic schema. To know the NLS date format of the DB , you can fire the following query: select * from V$nls_Parameters

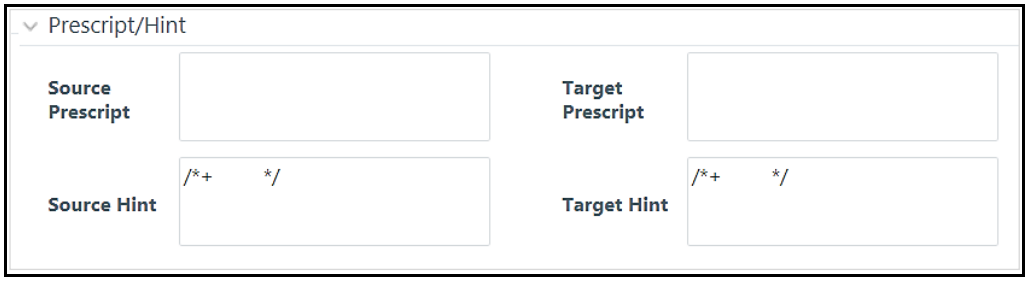
- #FILENAME- The name of the file used for loading will be transformed at Row Level and loaded into mapped target column.
- Others- Enter user-defined constant value in the textbox provided. To map a constant date to a target column, the date has to be given in NLS format of the database. That is, if the NLS format is DD-MON-RR, in the text box value should be 25-OCT-19.

> **NOTE** Row Level Transformation is supported only for F2T.
>
> In case of date based columns in F2T, when you map the same source date column to multiple target columns, an expression value is added for all mapped target columns, except the first column mapped. The expression will be in this format: TO_DATE(<<first record>>,'mm-dd-yyyy').

If you are mapping from multiple Source Tables, you need to define an expression to join the column data corresponding to each table. You can pass Runtime Parameters through Expressions, Joins and Filter conditions. For more information, see Passing Runtime Parameters in Data Mapping section.

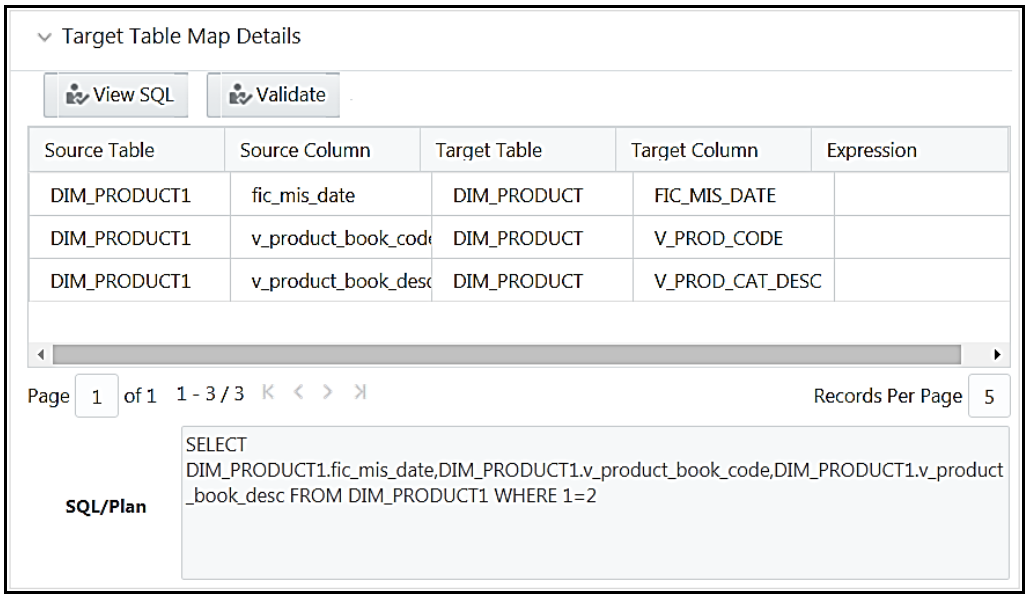
7. Specify the **ANSI Join** or **Join** to join the source tables and enter the **Filter** criteria and **Group By** to include during extraction. For example, "$MISDATE" can be a filter for run-time substitution of the MIS Date.

> **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.



8. Specify any **Source Prescript** or **Target Prescript** if you want to use. Prescripts are supported for all HIVE based target Infodoms, that is, H2H and T2H. In case of H2T the prescripts are fired on the source. For more information, see Prescripts.
9. Specify Source Hint and Target Hint (if any), for faster loading. Oracle hints follow (/*+ HINT */) format. The mapping level hint is applicable for T2T, H2T, and H2H only.

   For example, /*+ PARALLEL */.



The Target Table Map Details pane displays the mapping details.

> **NOTE** The **View SQL** and **Validate** button will be enabled only if your user group is mapped to the User Role DMADV.

10. Click **View SQL** to view the complete query in the **SQL/Plan** pane.
11. Click **Validate** to validate the query by converting to the selected data source. If Validation is successful, the Explain Plan for the SQL query is displayed. Else, the SQL Exception is displayed.
12. Double-click the **Expression** column to add a target-level expressions for T2T and F2T definitions. For T2Ts it is recommended to use source level expressions because source and target expressions are similar in T2T. Target expression for T2T is mainly provided to edit the target level expression of the migrated Data Mapping definitions.

13. Click **Properties** to specify the properties. See Specifying Properties for Load To Table Option section.
14. Click **Save** to save the mapping details. The Data Mapping definition will be saved as version 1.

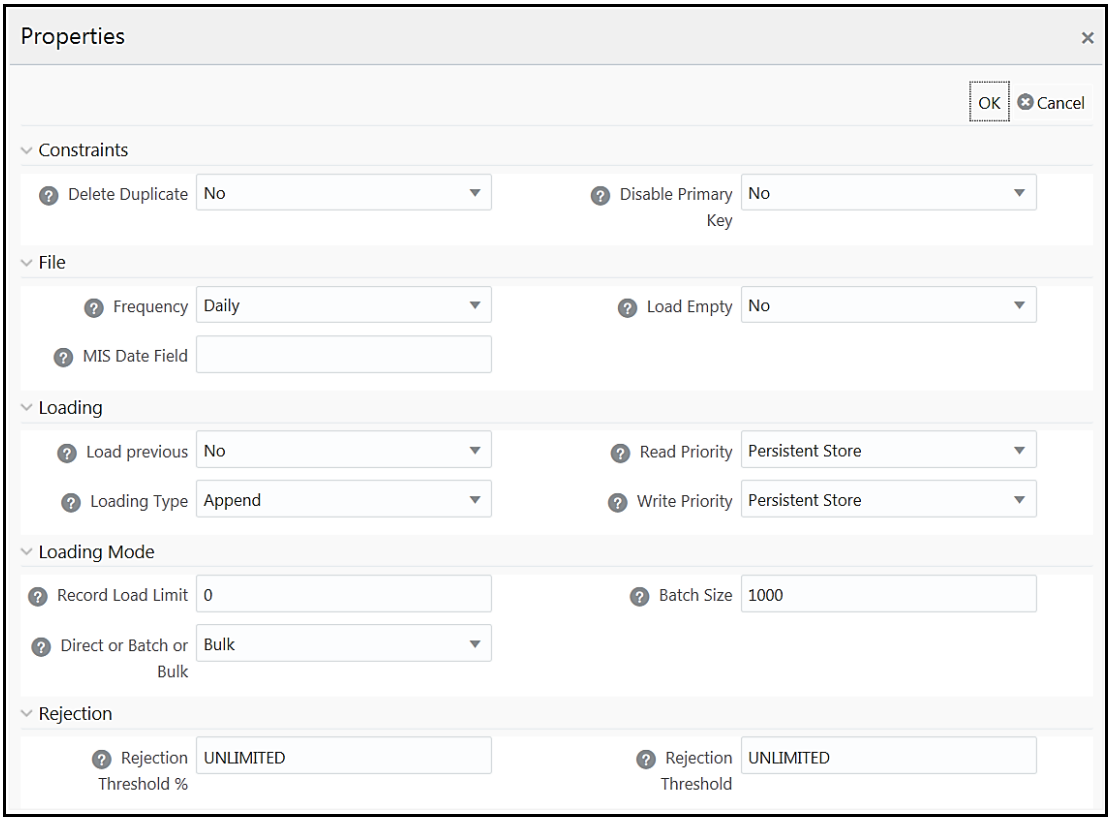
NOTE

1. If a partitioned column is not mapped and the static value is not set for the partitioned column, an alert is displayed. The saving of mapping definition does not fail. You can set a static value at any time before execution.
2. For H2H definition, if the source and target are pointing to two different Hive Schemas, it is mandatory to prefix the schema name to the source tables. Otherwise, the execution will fail.
3. You need to manually drop the error log tables ($ tables), that are created as part of T2T executions, after any data model upload changes involving addition or removal of columns to the corresponding base table.
4. When you click **Save**, if there are Primary Key Columns in the Target Entities which are not mapped, then the following alert appears:
[8368] Mandatory Columns are not Mapped [9024] Do you want to continue?
You can click **OK** if no change is required and proceed, or click **Cancel** to stay on the current window.

4.4.1.3.1 Specifying Properties for Load To Table Option

- T2T
- T2H
- H2H
- F2H
- H2T
- F2T

For T2T definition:

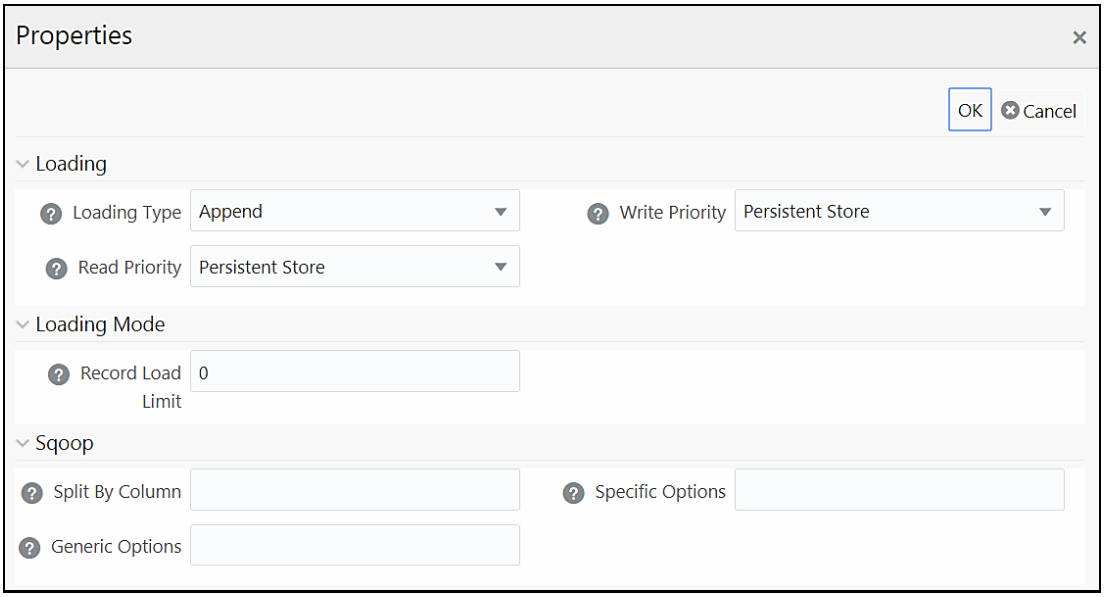


Property Name	Property Value
Constraints	
Delete Duplicate	Select **Yes** if you want to delete the duplicate records after insertion if Primary Keys are disabled.
Disable Primary Key	Select **Yes** to disable Primary Key while loading the data. In **Batch** and **Bulk** modes if any of the foreign keys are in Disabled state before loading the data using T2T or 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.
File	
Frequency	Select the frequency of loading the data file into Data Warehouse. This property can be used to schedule Batch operations. The options are Daily, Weekly, Monthly, Quarterly, Yearly, and One Time Load.
Load Empty	If this is set to Yes, the task will be successful, even if there are no records to load or if all the records are discarded or rejected.

Property Name	Property Value
MIS Date Field	Specify the MIS Date field in the source data file. If MIS Date is not part of the download, then you can use the MISDate() function in the *Data Mapping* window to add MIS Date to the table automatically.
Loading	
Load Previous	Set to **Yes** if you want to load the data of the previous period if current period data is not available.
Loading Type	Select the loading type from the drop-down list. The options are: **Insert**- The records will be overwritten. **Append**- The records will be appended to the target table.
Read Priority	Specify the priority of reading data from. The options are **Persistent Store** and **Memory Store**.
Write Priority	Specify the priority of writing data to. The options are **Persistent Store** and **Memory Store**.
Loading Mode	
Record Load Limit	If the number of records in the source table exceeds **Record Load Limit** value, the data loading will not happen. If the value is set as 0 or not specified, record count check is skipped.
Direct or Batch or Bulk	Specify the Loading Mode as **Direct**, **Batch**, or **Bulk**. 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.
Batch Size	Specify the **Batch Size** if you want to load the records in batches. 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. If it is not specified, commit is done on the entire set.
Rejection	

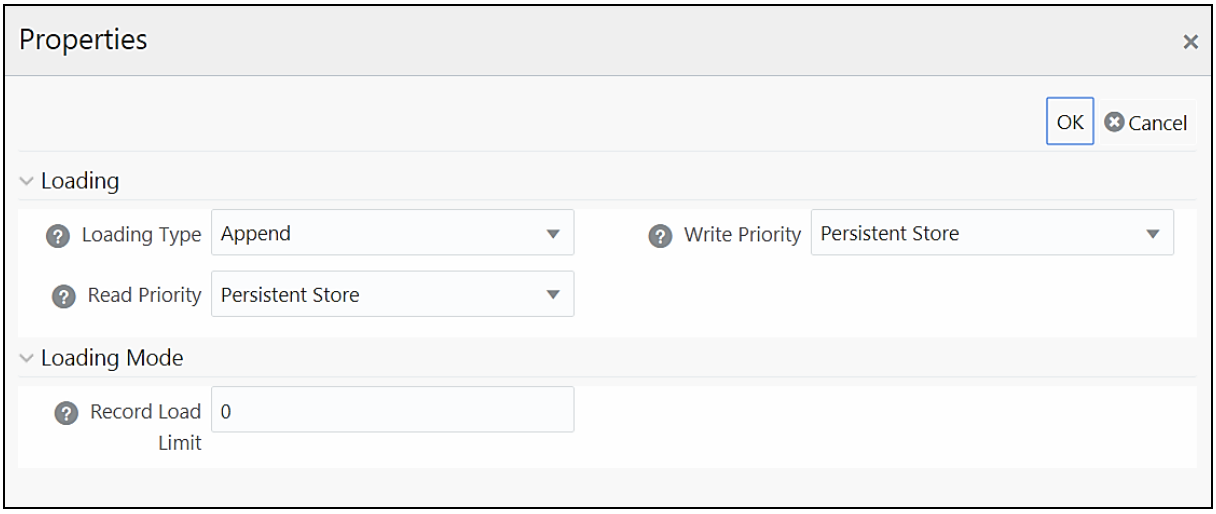
Property Name	Property Value
Rejection Threshold	Enter the maximum errors in absolute value that a Data File can have and the Data Load will be marked successful. Once the erroneous record count exceeds the **Rejection Threshold** value, the data loading task will fail and the inserted values will be rolled back for that table. Inserts for the previous tables won't be reverted. Rejection Threshold will be applied to each of the target table individually in a batch. By default, the value is set as UNLIMITED. Note the behavior of Rejection Threshold and Rejection Threshold %: Rejection Threshold is checked before Rejection Threshold %. If you set a value for Rejection Threshold, it will be considered as the rejection limit and any value given to Rejection Threshold % is not considered. If you set Rejection Threshold as UNLIMITED or blank, it checks for Rejection Threshold % and the value set for Rejection Threshold % will be taken as rejection limit. If you set both Rejection Threshold and Rejection Threshold % as UNLIMITED or blank, the whole Data file will be loaded irrespective of the number of errors.
Rejection Threshold %	Set Rejection Threshold as a percentage of the number of rows in the Data file. Enter the maximum errors as a percentage of the number of rows in the data file, which a Data File can have and the Data Load will be marked as successful. By default, the value is set as UNLIMITED. Rejection Threshold % is considered only if Rejection Threshold is set to UNLIMITED or blank.

For T2H definition:



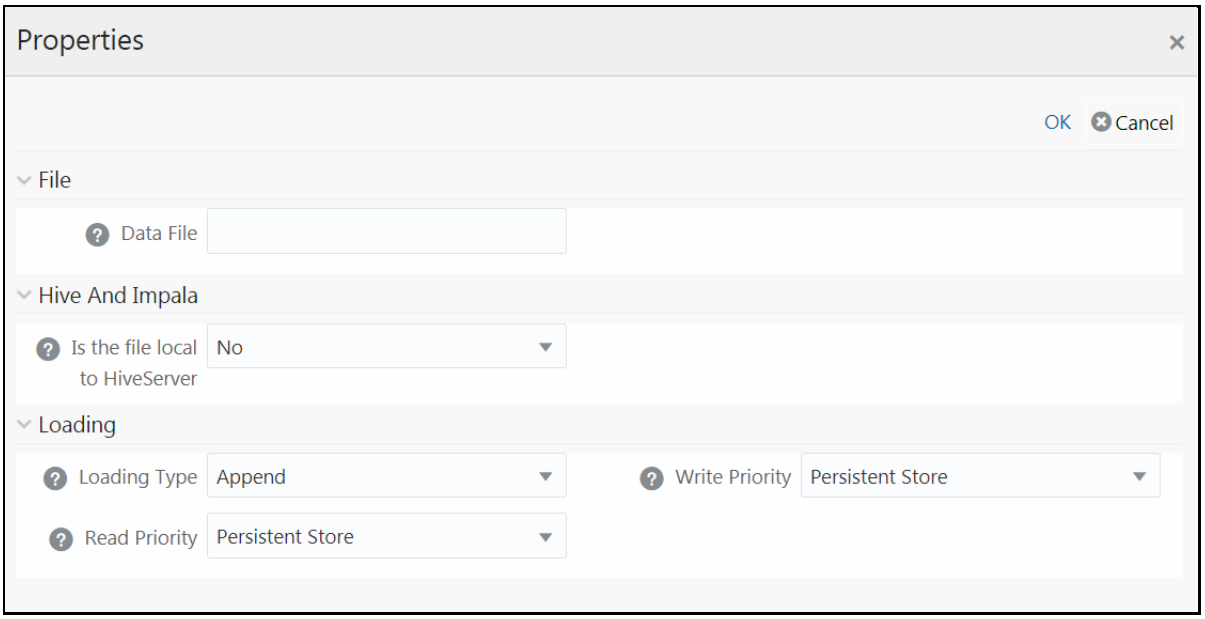
Property Name	Property Value
Loading	
Loading Type	Select the loading type from the drop-down list. The options are: **Insert**- The records will be overwritten. **Append**- The records will be appended to the target table.
Read Priority	This field determines the priority of reading the data from Memory Store or Persistent Store. Select **Memory Store** or **Persistent Store** from the drop-down list.
Write Priority	This field determines the priority of writing the data from Memory Store or Persistent Store. Select **Memory Store** or **Persistent Store** from the drop-down list.
Loading Mode	
Record Load Limit	If the number of records in the source table exceeds **Record Load Limit** value, the data loading will not happen. If the value is set as 0 or not specified, record count check is skipped.
Sqoop	
Split By Column	This is applicable only if you are using Sqoop for loading to Hive tables. Specify the split by column in the format "TableName.ColumnName". It should not be an expression. Additionally, the column should not be of data type "Date" and it should not have Null data. This is a mandatory field for T2H executions using Sqoop. If you have not provided any value for this field, the T2H Sqoop engine defaults the value to the last mapped source column. Ideally, you should set Split-by column to a PK numeric column. If the split by column is String based, Generic Options property needs to be set to -Dorg.apache.sqoop.splitter.allow_text_splitter=true
Generic Options	This field is applicable only in Sqoop SSH mode. Specify the generic arguments which will be appended before all the tool specific arguments. For example, -Doraoop.nologging=true
Specific Options	This field is applicable only in Sqoop SSH mode. Specify any tool specific arguments, which will be appended at the end of the Sqoop command. For example, --connection-param-file ora.properties --update-mode allowinsert --update-key <COLUMN_NAME>

For H2H Definition:



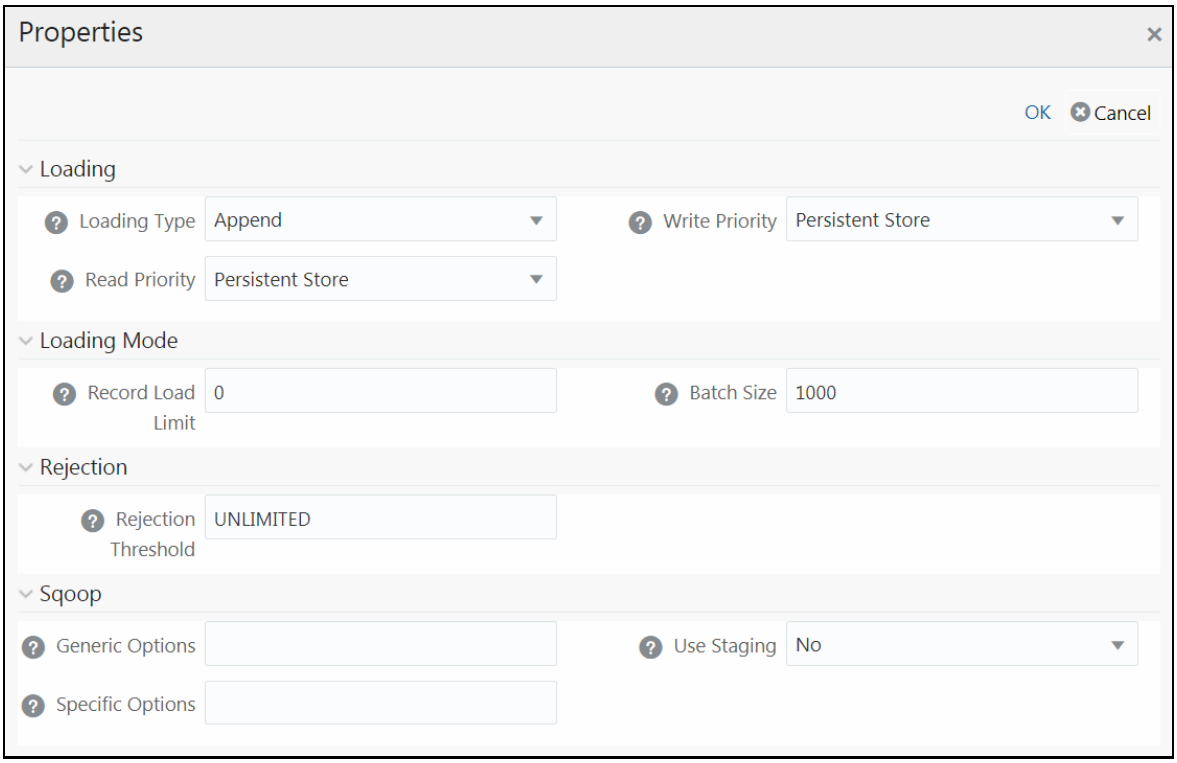
Property Name	Property Value
Loading	
Loading Type	Select the loading type from the drop-down list. The options are: **Insert**- The records will be overwritten. **Append**- The records will be appended to the target table.
Read Priority	This field determines the priority of reading the data from Memory Store or Persistent Store. Select **Memory Store** or **Persistent Store** from the drop-down list.
Write Priority	This field determines the priority of writing the data from Memory Store or Persistent Store. Select **Memory Store** or **Persistent Store** from the drop-down list.
Loading Mode	
Record Load Limit	If the number of records in the source table exceeds **Record Load Limit** value, the data loading will not happen. If the value is set as 0 or not specified, record count check is skipped.

For F2H Definition



Property Name	Property Value
File	
Data File	Enter the name of the Data File which need to be extracted. You can specify multiple files separated by '/'. This property is useful to create metadata definitions for multiple Flat-Files of the same structure by copying the Definition File.
Hive and Impala	
Is File Local To Hive Server	Select **Yes** if the file is on the server where HiveServer is running, else select **No** from the drop-down list. This is applicable only for remote file source.
Loading	
Loading Type	Select the loading type from the drop-down list. The options are: **Insert**- The records will be overwritten. **Append**- The records will be appended to the target table.
Read Priority	This field determines the priority of reading the data from Memory Store or Persistent Store. Select **Memory Store** or **Persistent Store** from the drop-down list.
Write Priority	This field determines the priority of writing the data from Memory Store or Persistent Store. Select **Memory Store** or **Persistent Store** from the drop-down list.

For H2T Definition



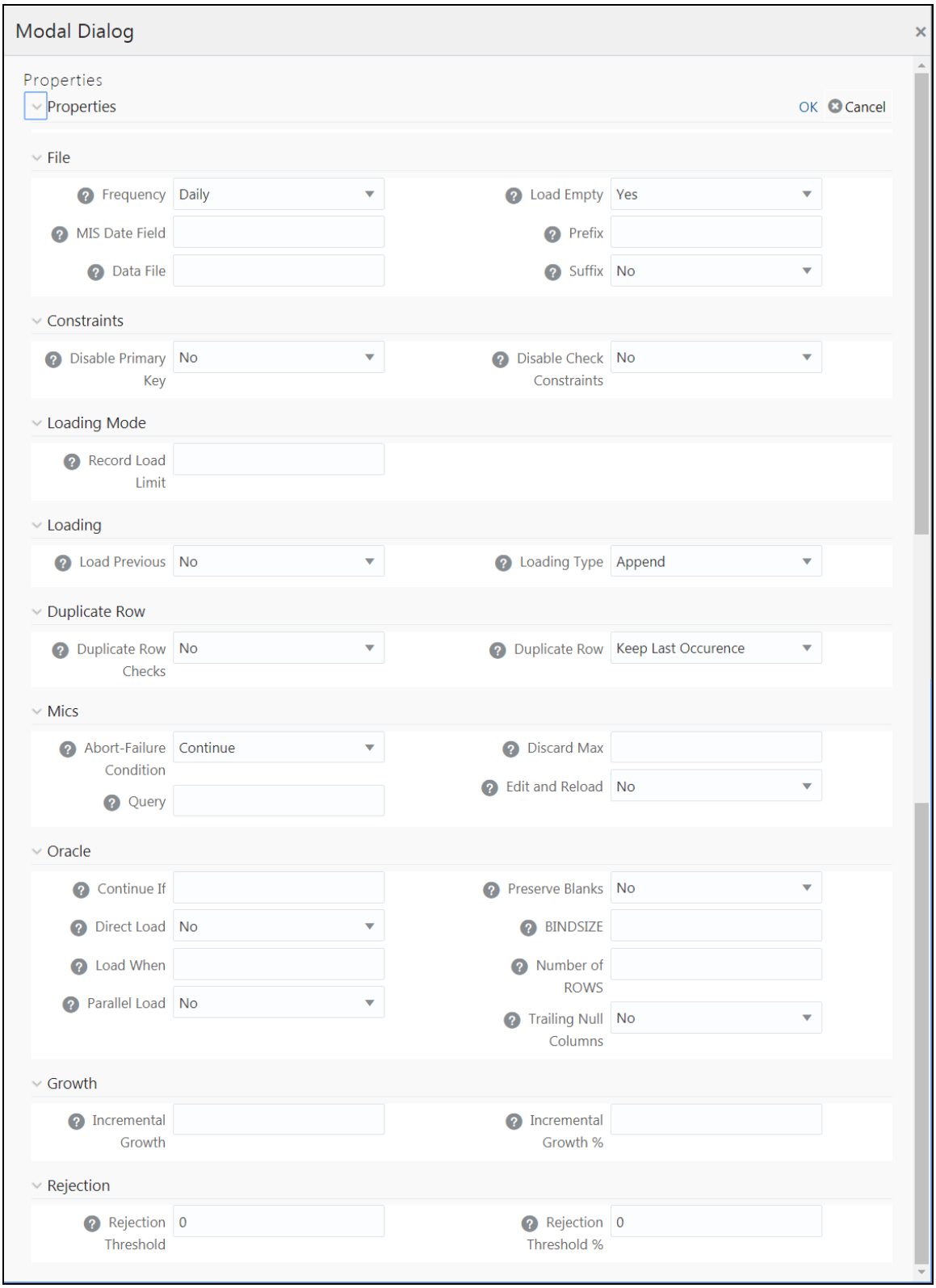
Property Name	Property Value
Loading	
Loading Type	Select the loading type from the drop-down list. The options are: **Insert**- The records will be overwritten. **NOTE:** **Limitation:** In the Insert Mode for H2T SQOOP Execution, the Target Tables are truncated. If a Task fails, the changes cannot be rolled back. **Append**- The records will be appended to the target table.
Read Priority	This field determines the priority of reading the data from Memory Store or Persistent Store. Select **Memory Store** or **Persistent Store** from the drop-down list.
Write Priority	This field determines the priority of writing the data from Memory Store or Persistent Store. Select **Memory Store** or **Persistent Store** from the drop-down list.
Loading Mode	
Record Load Limit	If the number of records in the source table exceeds **Record Load Limit** value, the data loading will not happen. If the value is set as 0 or not specified, record count check is skipped.

Property Name	Property Value
Batch Size	Specify the **Batch Size** if you want to load the records in batches. 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. If it is not specified, commit is done on the entire set.
Rejection	
Rejection Threshold	Enter the maximum errors in absolute value that a Data File can have and the Data Load will be marked successful. Once the erroneous record count exceeds the **Rejection Threshold** value, the data loading task will fail and the inserted values will be rolled back for that table. Inserts for the previous tables won't be reverted. Rejection Threshold will be applied to each of the target table individually in a batch. By default, the value is set as UNLIMITED.
Sqoop	
Generic Options	This field is applicable only in Sqoop SSH mode. Specify the generic arguments which will be appended before all the tool specific arguments. For example, -Doraoop.nologging=true

Specific Options	This field is applicable only in Sqoop SSH mode.
	Specify any tool-specific arguments, which will be appended at the end of the Sqoop command. For example, `--connection-param-file ora.properties --update-mode allowinsert --update-key <COLUMN_NAME>`
	NOTE:
	To parse the date column values, set this property as shown in the follows:
	• In Sqoop cluster:
	`--connection-param-file <path to the ora.properties file on the sqoop node>`
	• In Sqoop client mode:
	`--connection-param-file $FIC_DB_HOME/bin/ora.properties`
	Update the `ora.properties` file with the following parameter:
	`oracle.jdbc.mapDateToTimestamp=false`

Use Staging	Select **Yes** to use staging table during Sqoop export.

For F2T Definition



Property Name	Property Value
File	
Frequency	Select the frequency of loading the data file into Data Warehouse. This property can be used to schedule Batch operations. The options are Daily, Weekly, Monthly, Quarterly, Yearly, and One Time Load.
MIS Date Field	Specify the MIS Date field in the source data file. If MIS Date is not part of the download, then you can use the MISDate() function in the *Data Mapping* window to add MIS Date to the table automatically.
Data File	Enter the data file name if it is different from the Definition name. This property is useful to create metadata definitions for multiple Flat-Files of the same structure by copying the Definition File. **Note**: For F2T CPP execution, you should not enter "/ " in the Data File name.
Load Emplty	If this is set to Yes, the task will be successful, even if there are no records to load or if all the records are discarded or rejected.
Prefix	Enter the string that is prefixed with the data file name separated by an underscore (_).
Suffix	Select **No** if the data file name is not suffixed. Select **Information Date** if the data file name is suffixed with Information Date or MIS Date in YYYYMMDD format separated by an underscore (_).
Constraints	
Disable Primary Key	Select **Yes** to disable Primary Key while loading the data. In **Batch** and **Bulk** modes if any of the foreign keys are in Disabled state before loading the data using T2T or 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.
Disable Check Constraints	Select **Yes** if the Check Constraints on columns of the table needs to be disabled or select **No** to load with the constraints enabled.
Loading Mode	
Record Load Limit	If the number of records in the source file exceeds **Record Load Limit** value, the data loading will not happen. If the value is set as 0 or not specified, record count check is skipped.
Loading	
Load Previous	Set to **Yes** if you want to load the data of the previous period if current period data is not available.
Loading Type	Select the loading type from the drop-down list. The options are: **Insert**- The records will be overwritten. **Append**- The records will be appended to the target table.

Property Name	Property Value
Duplicate Row	
Duplicate Row Checks	Select **Yes** to check for Duplicate Rows and to be removed from the Data File.
Duplicate Row	This field determines which of the Duplicate Record(s) to be removed if found. The options are **Keep Last Occurrence** and **Keep First Occurrence**.
Misc	
Abort-Failure Condition	Select **Stop** to stop the loading on reaching the Rejection Threshold. Select **Continue** to ensure the reading of the entire Data File.
Query	Enter the Query that needs to be executed before file loading.
Discard Max	Enter the maximum errors allowed for SQL*Loader Discards while loading.
Edit and Reload	Select **Yes** to have an option of editing the error file and re-loading it.
Oracle	
Continue If	Enter a condition which when satisfied will continue the file load.
Direct Load	Select **Yes** to do Fast Load into the Oracle Database only if you have not defined any target expressions. Select **Force** to do Fast Load into the Oracle Database if target expressions have only constant values. Select **No** if you do not want to enable Fast Load.
Load When	Enter a condition which when satisfied will start the file load.
Parallel Load	Select **Yes** to load data in parallel into the Database table for faster Load, else select **No**.
Preserve Blanks	Select **Yes** to retain blank values in the Data without trimming.
BINDSIZE	For conventional path loads, BINDSIZE specifies the maximum size (bytes) of the bind array. The size of the bind array given by BINDSIZE overrides the default size (which is system dependent) and any size determined.
Number of ROWS	For conventional path loads, ROWS specifies the number of rows in the bind array. For direct path loads, ROWS identifies the number of rows you want to read from the data file before a data save. The default is to read all rows and save data once at the end of the load.
Trailing Null Columns	Select **Yes** to retain Trailing Null Columns in the Data File.
Growth	
Incremental Growth	Enter the Incremental Growth of Data in absolute values over the previous period.
Incremental Growth %	Enter the Incremental Growth of Data in percentage over the previous period.
Rejection	

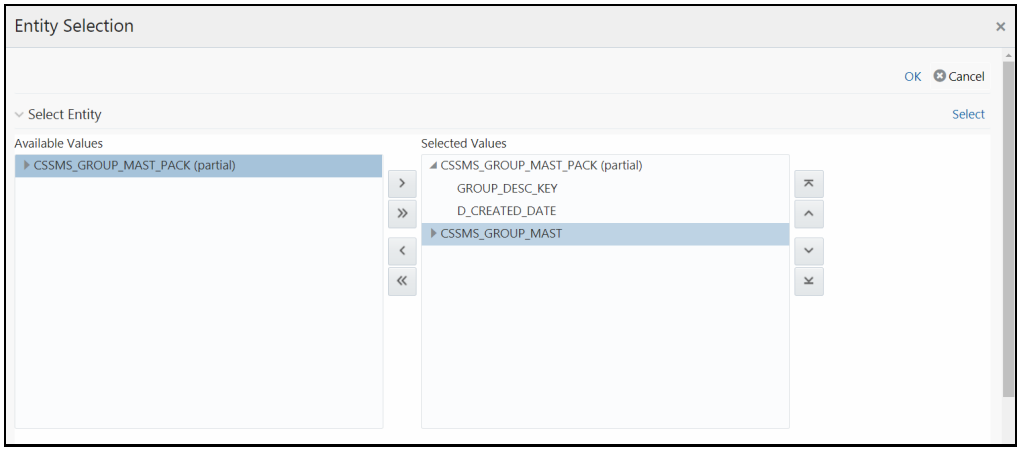
Property Name	Property Value
Rejection Threshold	Enter the maximum errors in absolute value that a Data File can have and the Data Load will be marked successful. Once the erroneous record count exceeds the **Rejection Threshold** value, the data loading task will fail and the inserted values will be rolled back for that table. Inserts for the previous tables won't be reverted. Rejection Threshold will be applied to each of the target table individually in a batch. By default, the value is set as UNLIMITED. Rejection Threshold is considered only if Rejection Threshold % is set to UNLIMITED or blank. If you set both Rejection Threshold % and Rejection Threshold as UNLIMITED or blank, the whole Data file will be loaded irrespective of the number of errors.
Rejection Threshold %	Set Rejection Threshold as a percentage of the number of rows in the Data file. Enter the maximum errors as a percentage of the number of rows in the data file, which a Data File can have and the Data Load will be marked as successful. By default, the value is set as UNLIMITED. Note the behavior of Rejection Threshold % and Rejection Threshold: Rejection Threshold % is checked before Rejection Threshold. If you set a value for Rejection Threshold %, it will be considered as the rejection limit and it will not check Rejection Threshold. If you set Rejection Threshold % as UNLIMITED or blank, it checks for Rejection Threshold and the value set for Rejection Threshold will be taken as rejection limit. If you set both Rejection Threshold and Rejection Threshold % as UNLIMITED or blank, the whole Data file will be loaded irrespective of the number of errors.

4.4.1.4 Defining Data Mapping for File Extraction (T2F, H2F)

You can map data from source table to the specified file in the *Data Mapping* window. The source can be RDBMS table or HDFS source. To load data to a file along with other sources, you need to define the Data Mapping and specify the Source Entities. Source-Target mapping is not required since the table structure is completely extracted to the specified file. However, if you want to do a F2T after T2F, source- target mapping is required. For example, for DB2 you cannot directly load data from DB2 to RDBMS, so you need to map data from Table to File (T2F) and then File to Table (F2T).

After execution of T2F or H2F definition, the extracted file will be present in /ftpshare/<INFODOM>/dmt/def/<DEFINITIONNAME>/<BATCH_ID>/<DATE_FOLDER>. The column names in the table will not be present in the extracted file.

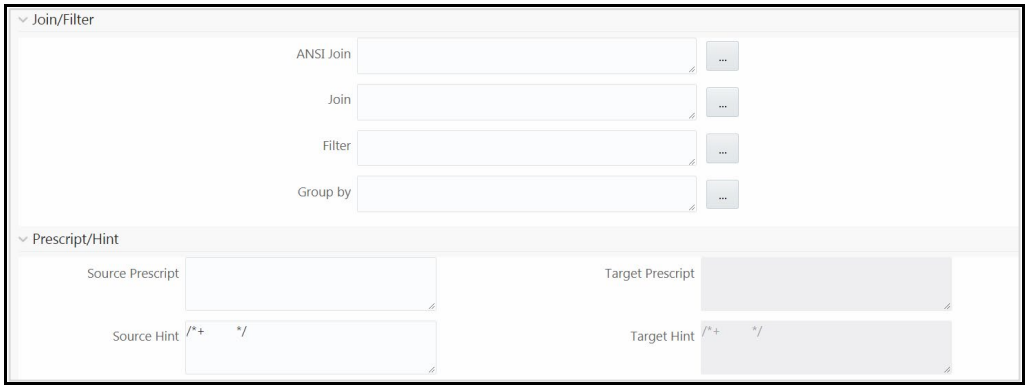
1. Select **Extract to File** option as **Load Type**.
2. Click the **Select** button. The *Entity Selection* window is displayed.



The Select Entity grid displays all entities in the selected Source or Infodom. Expand the Entity name to view the attributes in each entity.

3. Select the required entities or attributes you want to extract to file:
   - Select an entity and click ›› if you want to extract all attributes in an entity.
   - For extracting only selected attributes in an entity, expand the required entity, select the attribute and click ›.
   - Click » to select all entities.
   - To remove an attribute from the **Selected Values**, select the attribute and click ‹ or click « to remove all selected values.
   - You can rearrange the selected attributes/entities. Select an attribute or entity and click ^ to move it up or click ˅ to move it down. Click ⤒ to move it to the top or click ⤓ to move it to the bottom.
4. Click the **Select** button to populate the selected entities or attributes in the Source Entity Details grid.

> **NOTE** Whenever you make any changes in the Select Entity grid, click the **Select** button to refresh the Source Entity Details grid to reflect the changes done.



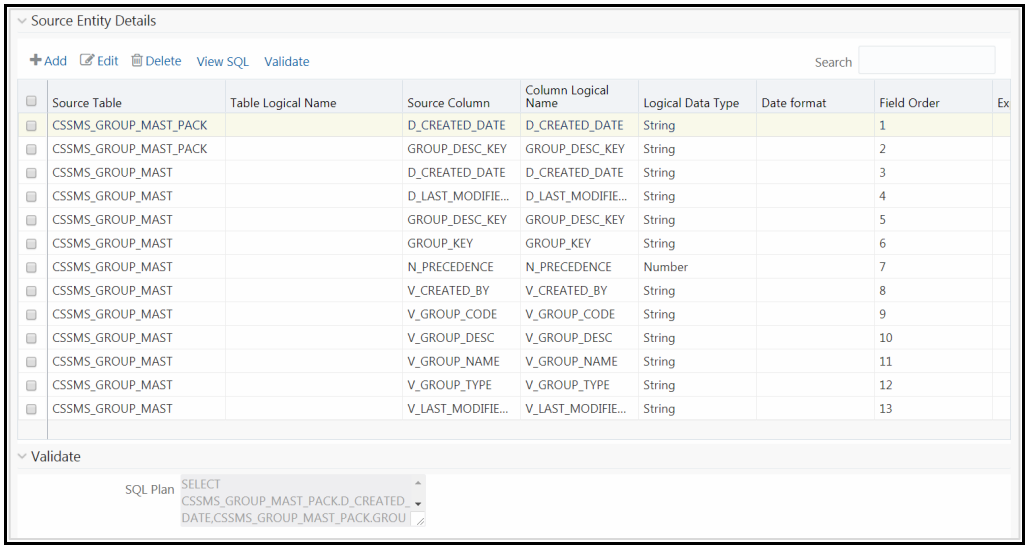
5. If you are mapping from multiple Source Tables, you need to define an expression to join the column data corresponding to each table. Specify the **ANSI Join** or **Join** to join the source tables and enter the **Filter** criteria and **Group By** to include during extraction. For example, "$MISDATE" 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.

6. Specify **Source Prescript** if any. For more information, see Prescripts.
7. Specify **Source Hint** if any, for faster loading. Oracle hints follow (/*+ HINT */) format. The mapping level hint is not applicable.

   For example, /*+ PARALLEL */.

> **NOTE** Hints are not supported for T2F definitions.



> **NOTE** The **View SQL** and **Validate** button will be enabled only if your user group is mapped to the User Role DMADV.

8. Click **View SQL** to view the complete query in the **SQL/Plan** pane.
9. Click **Validate** to validate the query by converting to the selected data source. If validation is successful, the Explain Plan for the SQL query is displayed. Else, the SQL Exception is displayed.
10. Perform the following actions if required:
    - Double-click the **Field Order** number and update if you want to change the order in which columns should appear in the target file.

> **NOTE** No validation is provided for missing Field Orders. Hence, during execution those columns after the missing field order will be omitted. Click the **Reorder** button to sort and reorder the Field Order numbers to fill any missing numbers.

    - Double-click the **Logical Data Type** and select the required option from the drop-down list to change the Data Type of the target column. The available Data types are Number, String, Date Time, Integer, and Timestamp.
    - Double-click the **Date Format** and modify the date format, if required, for the target column.

> **NOTE** **Date Format** should be mentioned for target columns with **Logical Data Type** as Date Time. Else, the execution will fail.

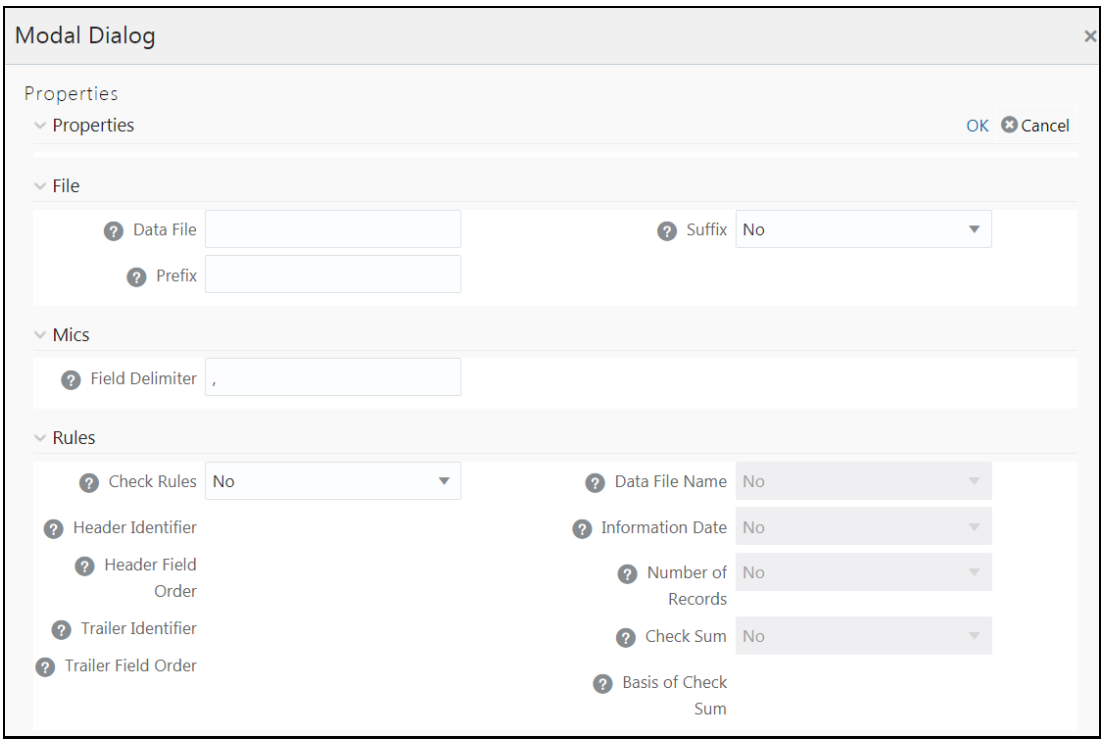
    - Select an attribute and click  if you do not want that attribute in the target file.

- Click  to validate grid data.

11. Click **Ok** to save the changes in the *Entity Selection* window.
12. Click **Properties** to specify the properties. See Specifying Properties for Extract To File Option section.
13. Click **Save** and save the mapping details. The Data Mapping definition will be saved as version 1.

4.4.1.4.1 Specifying Properties for Extract To File Option

For T2F or H2F definition:



Property Name	Property Value
File	
Data File	Enter the data file name. Data File Name can be different from the Definition File Name. This property is useful to create metadata definitions for multiple Flat-Files of the same structure by copying the Definition File.
Suffix	Select **No** if you do not want to suffix the data file name. Select **Information Date** if you want to suffix the data file name with Information Date or MIS Date in YYYYMMDD format separated by an underscore (_).
Prefix	Enter the string that you want to prefix with the data file name separated by an underscore (_).
Misc	

Property Name	Property Value
Field Delimiter	Enter the field separator used in the Data File. By default, comma (,) is selected.
Rules	
Check Rules	Select **Header**, **Trailer**, **Header and Trailer** or **No** from the drop-down list depending on where the Validity rules are specified in the Data File.
Header Identifier	This field is enabled only if you select **Header** or **Header and Trailer** options for **Check Rules**. Specify the first Character or String that identifies the Header Record.
Header Field Order	This field is enabled only if you select **Header** or **Header and Trailer** options for **Check Rules**. Specify the header field order as comma separated values-: 1-Header Identifier,2-Data File Name, 3-Information Date, 4-Number of records, 5-Value of Checksum, 6-Basis of Checksum. For example, if you specify 1,3,2,4,5,6; the header fields will be Header Identifier, Information Date, Data File Name, Number of records, Value of Checksum, Basis of Checksum.
Trailer Identifier	This field is enabled only if you select **Trailer** or **Header and Trailer** options for **Check Rules**. Specify the first Character or String that identifies the Trailer Record.
Trailer Field Order	This field is enabled only if you select **Trailer** or **Header and Trailer** options for **Check Rules**. Specify the **Trailer** field order as comma separated values-: 1- Trailer Identifier,2-Data File Name, 3-Information Date, 4-Number of Records, 5-Value of Checksum, 6-Basis of Checksum.
Data File Name	Select **Yes** if the name of the data file should be provided as part of the Header/Trailer.
Information Date	Select **Yes** if the Information (MIS) Date in the Data File should be provided as part of the Header/Trailer.
Number of Records	Select **Yes** if the number of records in the Data File should be provided as part of the Header/Trailer.
Checksum	Select **Yes** if a Check Sum Value should be provided as part of the Header/Trailer.
Basis of Checksum	Specify the Source Column Name on which the Check Sum is computed. It has to be a Numeric column.

4.4.1.5 Associating DQ Rules to a Data Mapping Definition:

Data Quality rules can be associated to Data Mapping definitions so that Data Quality(DQ) checks are done on the source and Data Correction (DC) is done while loading to the target table. Thus DC is segregated from DQ checks. This is supported for both RDBMS and HIVE based Data Mapping

definitions. However, DC on DQ Generic Check is not supported in T2H, H2T, and H2H. Also, associating DQ Rules to Data Mapping is not supported for H2T OLH (Oracle Loader for Hadoop) mode.

If we associate DQ Rules with T2T and execute the batch, both T2T and all the DQ rules defined on the Source table are executed. You have an option to include or exclude the Associated DQ rules. If we exclude a DQ check and execute the batch, then only T2T operation is performed and not the DQ.

Prerequisites

- De-select the **Allow Correction on DI Source** checkbox from the *Configuration* window. For more information, see the Updating Others Tab section.
- The DI Source should exist as an information domain.

To associate DQ rules to Data Mapping definition:

1. Click  button in the Associated DQ Rules toolbar. The *Data Quality Rule Association* window is displayed.
2. All DQ Rules defined on the source table are displayed.
3. Select the **Exclude** checkboxes corresponding to the DQ rules to exclude them being executed along with the T2T operation.
4. Enter the sequence in which the selected DQ Rules should get executed in the Sequence column.
5. Click **Save**.

> **NOTE** When a DQ rule is associated with a T2T mapping and the **Allow Correction on DI Source** checkbox is not selected in the **System Configuration**> **Configuration** > **Others** tab, DQ rule checking is done on source, but data correction is done while loading to the target table.

4.4.1.6 Replacing Source or Target of Data Mapping Definition During Execution

You can replace the source of the Data Mapping definition during execution by using the run time parameter EXEC_ENV_SOURCE. Thus you can convert a T2T definition into H2T or T2H into H2H or H2H into T2H. But if the resultant definition is T2T, execution of T2T using CPP engine is not supported.

Similarly, you can replace the target of the Data Mapping definition during execution by using the run time parameter EXEC_ENV_TARGET. Thus you can convert a T2T definition into T2H or H2T into H2H or H2H into H2T. But if the resultant definition is T2T, execution of T2T using CPP engine is not supported.

If you are executing the Data Mapping definition through RRF module, you should pass the parameter with double quotes.

For example,

```
"EXEC_ENV_SOURCE","newSourceName"
```

```
"EXEC_ENV_TARGET","newTargetName"
```

If you are executing the Data Mapping definition through ICC module, you should pass the parameter with square brackets. For more information, see Component: LOAD DATA section.

> **NOTE** Ensure the structure of the source/target in the mapping definition is same as that of the replacing source/target.
>
> Note that you can use both EXEC_ENV_SOURCE and EXEC_ENV_TARGET together as well. Only limitation is if the resultant definition is T2T, it cannot be executed using CPP engine.

4.4.1.7 Executing H2H on Spark

Following are the configurations required for executing H2H on Spark:

1. Register a cluster from DMT Configurations > Register Cluster with the following details:
   - Name- Enter name of the target information domain of the H2H mapping.
   - Description- Enter a description for the cluster.
   - Livy Service URL- Enter the Livy Service URL used to connect to Spark from OFSAA.
2. To execute H2H on spark, set the EXECUTION_ENGINE_MODE parameter as SPARK from ICC or RRF.
   - Execution through Operations module- you should pass [EXECUTION_ENGINE_MODE]=SPARK while defining the H2H tasks from the *Task Definition* window. For more information, see Component: LOAD DATA section.
   - Execution through RRF module- you should pass the following as a parameter while defining H2H as jobs from the *Component Selector* window:

     ```
     "EXECUTION_ENGINE_MODE","SPARK"
     ```
3. Spark Session Management- In a batch execution, a new Spark session is created when the first H2H-spark task is encountered, and the same spark session is reused for the rest of the H2H-spark tasks in the same run. For the spark session to close at the end of the run, set the CLOSE_SPARK_SESSION to YES in the last H2H-spark task in the batch.
   - Execution through Operations module- you should pass [CLOSE_SPARK_SESSION]=YES while defining the last H2H-Spark task from the *Task Definition* window. For more information, see Component: LOAD DATA section.
   - Execution through RRF module- you should pass the following as a parameter while defining the last H2H-spark job from the *Component Selector* window:

     ```
     "CLOSE_SPARK_SESSION","YES"
     ```

NOTE

1. Ensure that the task with "CLOSE_SPARK_SESSION","YES" has less precedence set from all the rest of the H2H-spark tasks.
2. By default, the created spark session will be closed when any of the H2H-spark tasks fail.
3. Execution of H2H with large number of mappings may fail because Spark restricts the length of the SQL code in the spark.sql file to maximum 65535 (2^16 - 1).
4. When you run an H2H Load with Hive and Apache Spark, it fails with the following error:

   ```
   Error executing statement : java.lang.RuntimeException:
   Cannot create staging directory
   'hdfs://<HOST_NAME>/user/hive/warehouse/hivedatadom.db/dim_
   account/.hive-staging_hive_2020-07-06_22-44-
   57_448_3115454008595470139-1': Permission denied:
   user=<USER_NAME>, access=WRITE,
   inode="/user/hive/warehouse/hivedatadom.db/dim_account":hiv
   e:hive:drwxrwxr-x
   ```

   Provide the required permissions to the logged-in user in the Hive Database Storage, which enables the user to access and perform tasks in the storage.

4.4.1.8 Dynamic Table Creation

This option allows you to create a new table on the fly if the target Information Domain of the Data Mapping or Data File Mapping definition is based on HDFS database. You can use the newly created table for mapping. The newly created table will be part of the OFSAAI data model and it is made visible and available to all other modules.

You cannot create a table with partition.

To dynamically create a table

1. From the *DI Mapping* window, click  in the Target Entities pane. The *Create Table* window is displayed.
2. Enter a table name and click **Generate**. The new table name is displayed on the Target Entities pane.
3. Select the required attributes from the Definition pane and map them to the new Table in the Target Entities pane by clicking  button.
4. After defining all mappings, click **Save**. The table will be created in the HDFS/ HIVE system, with the structure/data types of the mapped columns and it will be added to the metadata repository (both database xml and the object registration tables). The newly created table will be available for use in other metadata like Datasets, Hierarchies, and so on.

4.4.1.9 Prescripts

Prescripts are fired on a Hive connection, before firing a select from or insert into a hive table. While defining Prescript, note the following:

- Prescripts should mandatorily begin with the keyword "SET".
- Multiple Prescripts should be semi-colon separated.
- Prescripts are validated for SQL Injection. The following key words are blocklisted:

  "DROP","TRUNCATE","ALTER","DELETE","INSERT","UPDATE","CREATE", "SELECT"

All validations applicable in the UI are checked on execution also. If a prescript fails any of the validations or if there is an error in firing the pre-script, the load operation is exited.

> **NOTE** For H2T, the Prescript is fired on the source.

4.4.1.10 Handling Partitioned Target Tables

Data loading into a partitioned Hive target table is supported. The partitioned columns are indicated using a superscript **P** in the *DI Mapping* window.

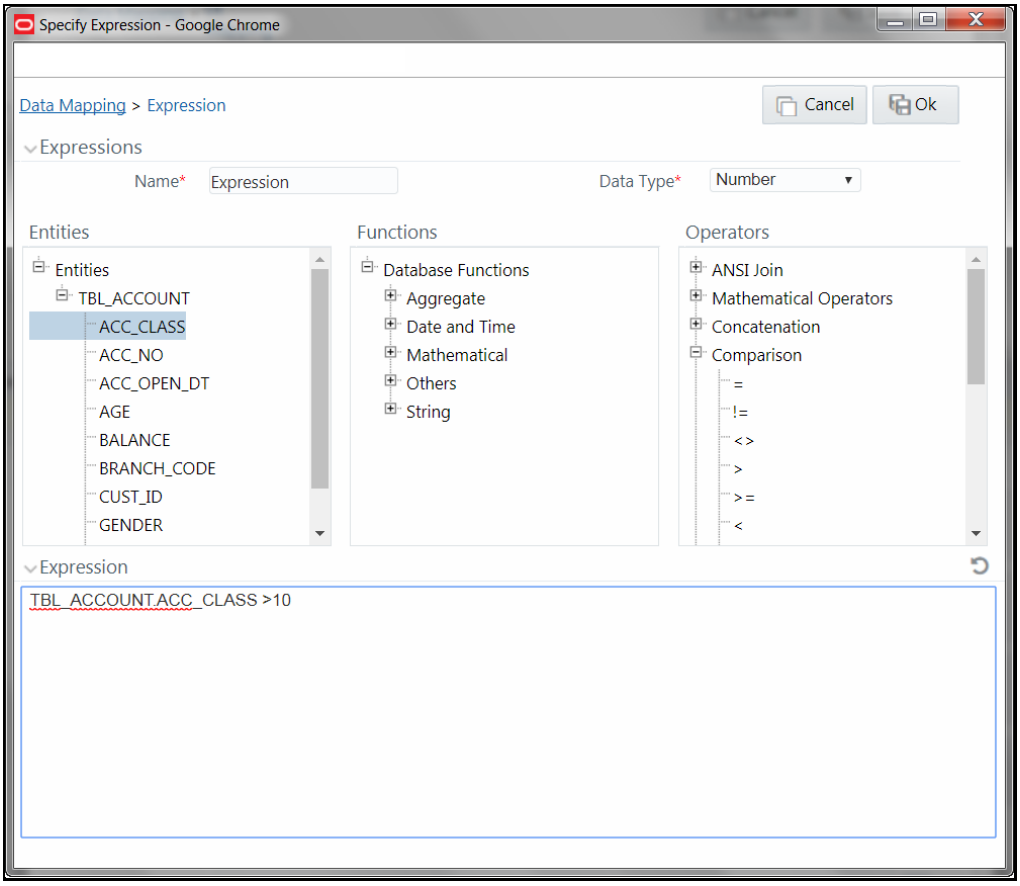
You can set a static value to a partitioned column from the REV_TAB_PARTITIONS table. If it is set, you can view it from the *DI Mapping* window by pointing the mouse over the column name. You need not to map the target column to any source column. If you map a source column to a target partitioned column which already has a static value, the static value will get precedence.

If no static value is set to a partitioned column, you can pass a dynamic partitioned valued. You should map a source column to the target partitioned column. If there is no mapping and static value is not set, the empty or blank is passed as the partition value. Hive defaults the partition to _HIVE_DEFAULT_PARTITON_. There is no loss of data in the non-partitioned columns.

> **NOTE** If you need to enable dynamic partition in non-strict mode, set the below property as a Prescript in the *Data Mapping* window:
>
> `set hive.exec.dynamic.partition.mode=nonstrict`

Static partition value can also be set with placeholders. The placeholders supported in Data Mapping are $RUNID, $PHID, $EXEID, $RUNSK, $SYSDATE, $TASKID, and $MISDATE. Additionally, partition value can be provided as a parameter within square brackets. For example, [PARAM1]. Passing the parameter values at runtime from RRF/ Operations module is same as for the other run time parameters in Data Management Framework. Value for the placeholders/ additional parameters will be substituted as the static partition values during the run time. For more information, see Passing Runtime parameters in Data Mapping.

4.4.1.11 Specifying Expression



1. In the *Specify Expression* window, 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.
2. 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.

3. Click **Ok**.

4.4.2 Modifying a Data Mapping Definition

This option allows you to modify a Data Mapping definition. You cannot modify inactive versions of a Data Mapping definition. To make an inactive version as active, you should make that version as latest.

To modify a Data Mapping definition:

1. From the *Data Mappings* window, select the Data Mapping definition that you want to edit and click **Edit**. The *Data Mapping* window is displayed.
2. Modify the required details. You cannot modify Code and Name. For more information, see Creating Data Mapping Definition section.
3. Click **Save**. The definition will be saved as highest version +1. That is, if you are modifying a definition of version number as 3 and the highest version available is 5, the definition will be saved as version 6.

4.4.3 Versioning and Make Latest Feature of Data Mapping

When a new definition is created, it will be saved as version 1. Once you modify and save a definition, it will be saved with version as highest version +1. That is, if you modify version 2, which is the highest version available and save it, the version becomes 3.

In earlier version, Data Mapping definitions having same name with different sources could co-exist, which is not allowed in OFSAAI 8.0.6.0.0 version and above. Hence, while migrating Data mapping definitions from earlier OFSAAI versions, the second occurrence of the definition with different source will be saved as version 2. Then version 2 will be active and version 1 will be inactive and both are executables. But, you can modify only the active versions.

To make any older version as latest:

1. From the *Data Mapping* window, select INACTIVE from the **Record Status** drop-down list and click **Search**. All inactive definitions are displayed.
2. Select the required definition and click **Make Latest.** The selected definition becomes active and the current active definition becomes inactive.

4.4.4 Copying Data Mapping Definition

This feature facilitates you to quickly create a new Data Mapping definition based on an existing one by updating the required fields.

To copy a Data Mapping definition

1. From the *Data Mappings* window, select the Data Mapping definition that you want to copy and click **Copy**. The *Data Mapping* window is displayed.
2. Enter **Code** and **Name** for the definition. Additionally, modify the required fields. For more information, see Creating Data Mapping Definition section.

4.4.5 Viewing Data Mapping Definition

You can view individual Data Mapping definition details at any given point.

To view the existing Data Mapping definition:

1. From the *Data Mappings* window, select the Data Mapping definition that you want to view and click **View**. The *Data Mapping* window is displayed.
2. The *Data Mapping* window displays the details of the selected Data Mapping definition. The Audit Panel section at the bottom of the window displays creation and modification information of the Data Mapping definition. The Comments section displays additional information or notes added for the definition, if any.

4.4.6 Deleting Data Mapping Definitions

This option allows you to delete a Data Mapping definition. However, it is a soft deletion only. To permanently delete from system, you need to purge it.

To delete a Data Mapping definition:

1. From the *Data Mapping* window, select the Data Mapping definition that you want to delete and click **Delete**. You can select multiple definitions for deletion. A confirmation message is displayed.
2. Click **Yes** to confirm deletion or **No** to cancel deletion.

4.4.7 Purging Data Mapping Definitions

This option allows you to remove deleted Data Mapping definitions permanently from the system. You should have DMTADMIN user role mapped to your user group.

To purge Data Mapping definitions

1. Search for the Deleted Data Mapping definitions by selecting **Deleted** from the **Record Status** drop-down list in the *Data Mappings* window and click **Search**.
2. Select the required Data Mapping definitions you want to permanently remove from the system and click **Purge**.
3. Click **OK** to confirm purging.

4.5 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.

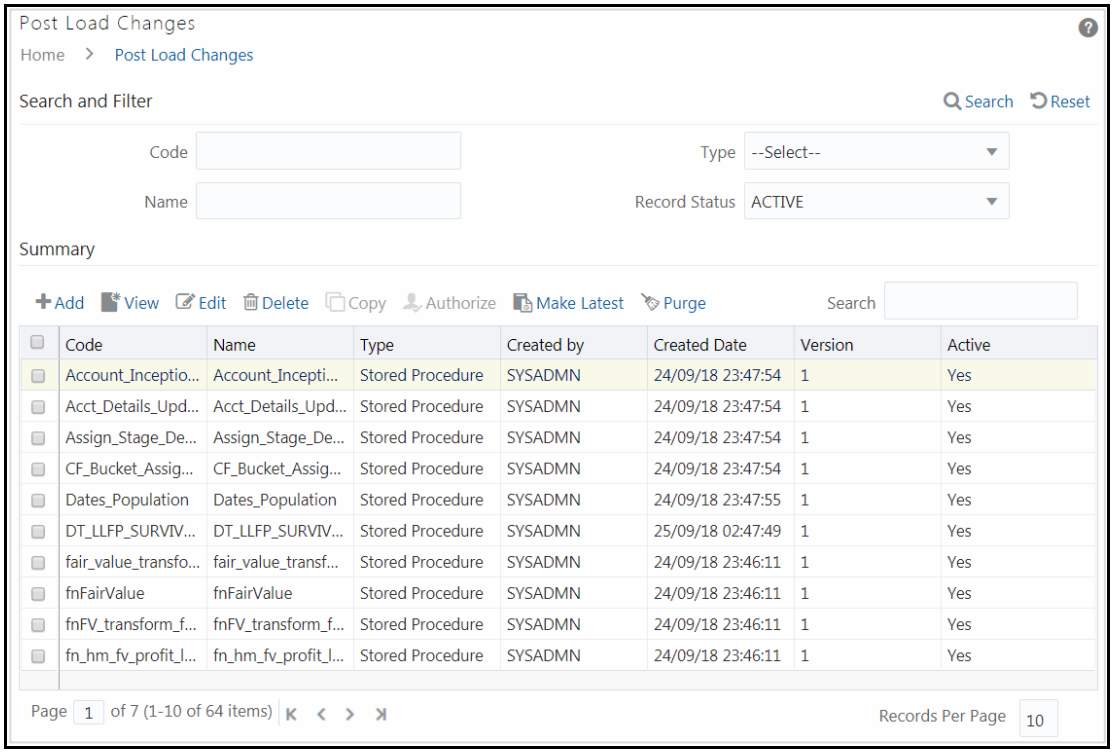
Post Load Changes within the Data Management Tools framework of Infrastructure system facilitates you to define transformations to the source data before extracting/loading it to Target database to populate the data warehouse.

The Roles mapped for Post Load Changes are as follows:

- PLCACCESS
- PLC READ
- PLC WRITE
- PLC PHANTOM
- PLC AUTH
- PLC ADV

> **NOTE** Both old functions ETLDTQ and ETLUSER and the aforementioned new functions will be supported if you set **Allow Old Functions** as **Yes** in the *DMT Configurations* window. Ensure the new roles are mapped to the required User Groups.

For all the roles, functions and descriptions, see Appendix A.



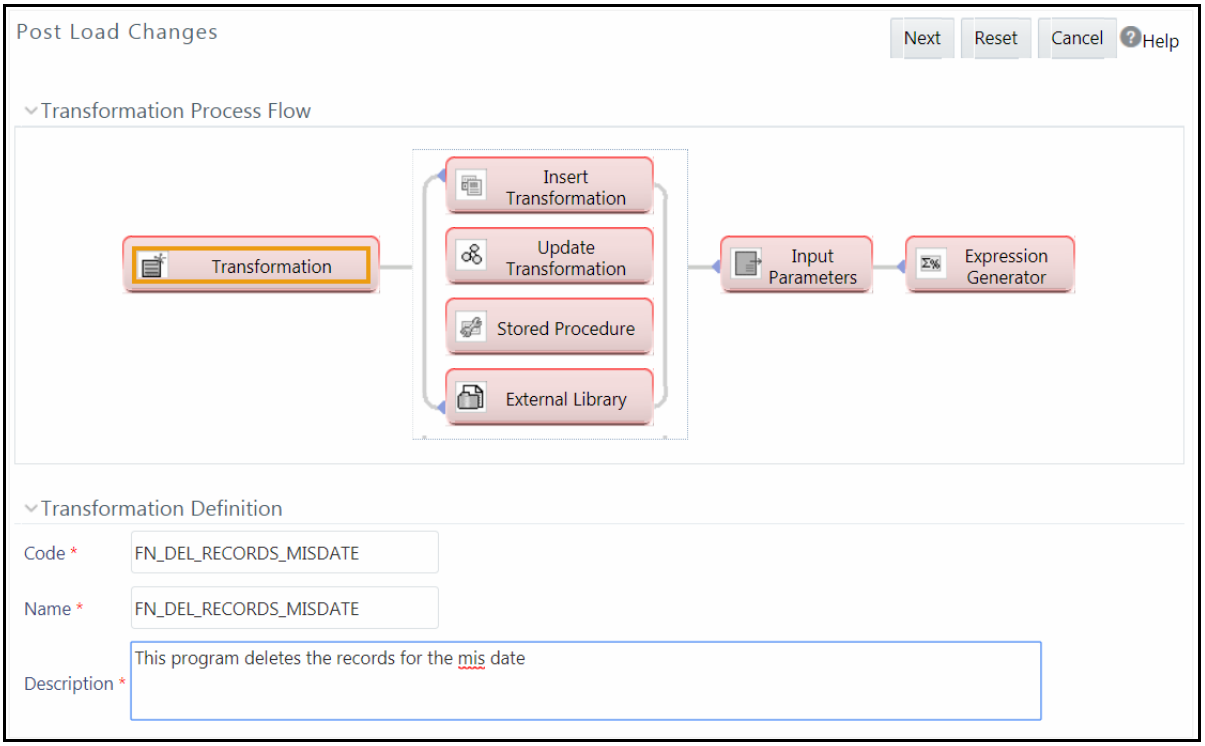
The *Post Load Changes Summary* window displays the list of pre-defined Post Load Changes definitions with details such as Code, Name, Type, Created By, Creation Date, Version, and Active. You can add, view, modify, authorize, delete or purge Post Load Changes definitions. Note that copy functionality is not yet available. You can make any version of a Post Load Changes definition as latest. For more information, see Versioning and Make Latest Feature section.

For sorting the fields, mouse-over at the end of the Column heading and click to sort in the ascending order or click to sort the fields in the descending order.

You can search for a Post Load Changes definition based on Code, Name, Type, and Record Status (Active, Inactive or Deleted). In the Search and filter pane, enter the details of the Post Load Changes definition you want to search in the respective fields and then click **Search**.

4.5.1 Adding Post Load Changes Definition

This feature allows you to create Post Load Changes definition based on Transformation, Stored Procedure or External Library.



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

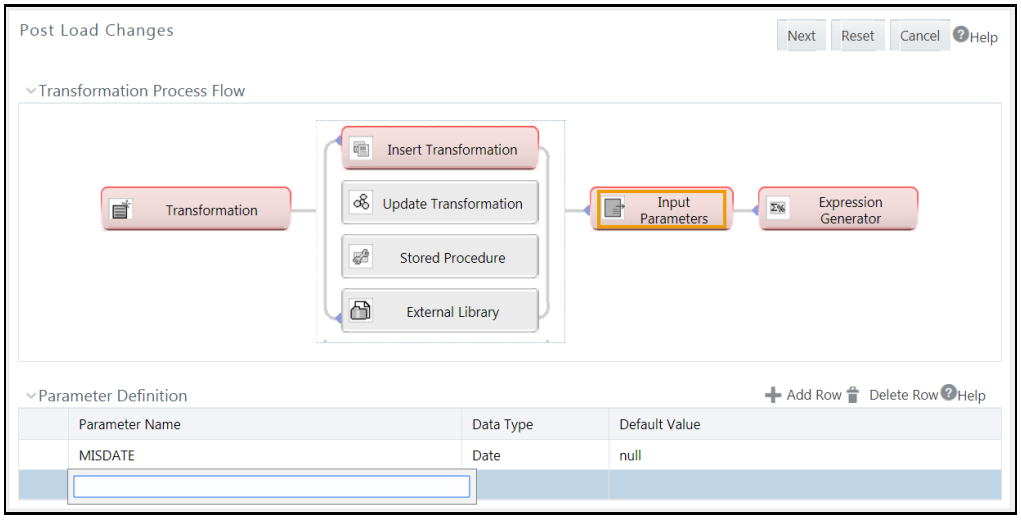
- Insert/Update Transformation
- Stored Procedure Transformation
- External Library

4.5.1.1 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.

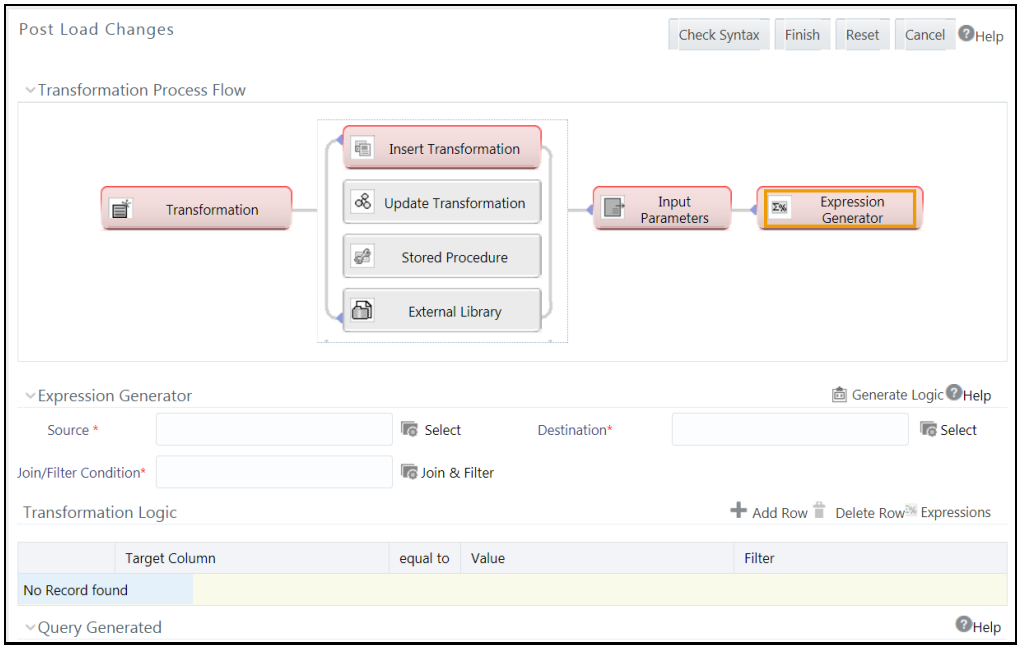
To insert or update a transformation:

1. Click **+Add** from the *Post Load Changes Summary* window. The *Post Load Changes* window is displayed. By default, Transformation is selected.
2. In the Transformation Definition grid:
   - Enter the **Code** of the transformation. Maximum number of characters allowed is 27.
   - Enter the **Name** of the transformation. Ensure that there are no special characters or extra spaces in the name specified. Maximum number of characters allowed is 250.
   - Enter a **Description** for the transformation. Maximum number of characters allowed is 250.
3. 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.
4. Click **+Add Row** 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 the **Parameter Name** column and enter the details.
   - Double-click and select the required **Data Type** from the list. The supported data types are Varchar2, Date, Number, Integer, Decimal, and Char.
   - Double-click the **Default Value** column and enter the details.

     You can add more parameters by inserting additional rows and entering appropriate details. Additionally, you can delete a parameter by selecting the row and clicking **Delete Row** button.
5. Click **Next.** The Expression Generator grid is displayed.



6. Specify the **Source** and **Destination** Entity by doing the following:
   - Click **Select** button. The *Choose Entity* window is displayed.
   - Select the entity from the **Members** list 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**.
7. Specify the **Join/Filter Condition**.
   - Click **Join & Filter** button and define the expression in the *Specify Expression* window.
   - Click **OK**. For more information, see Defining Expression section.
8. Add transformation logic.
   - Click **Add Row** button in the Transformation Logic toolbar. A new row is added.
   - Click **Target Column** and select the required column from the drop-down list. The list displays the columns from the selected Destination table.
   - Click **Value** column and enter the value to define the transformation logic.
   - Click **Filter** column and add the filter if you want to apply filter for the transformation logic.
   - Else, click **Expressions** button to define the transformation logic from the *Specify Expression* window. For more information, see Defining Expression section.
9. Click **Generate Logic** button in the Expression Generator toolbar to generate Logic and view the SQL query in the Query Generated grid.

> **NOTE** The **Generate Logic** button will be enabled only if your user group is mapped to the User Role DTADV.

10. Click **Check Syntax** to check the syntax of the query generated.
11. Click **Finish** to save the definition.

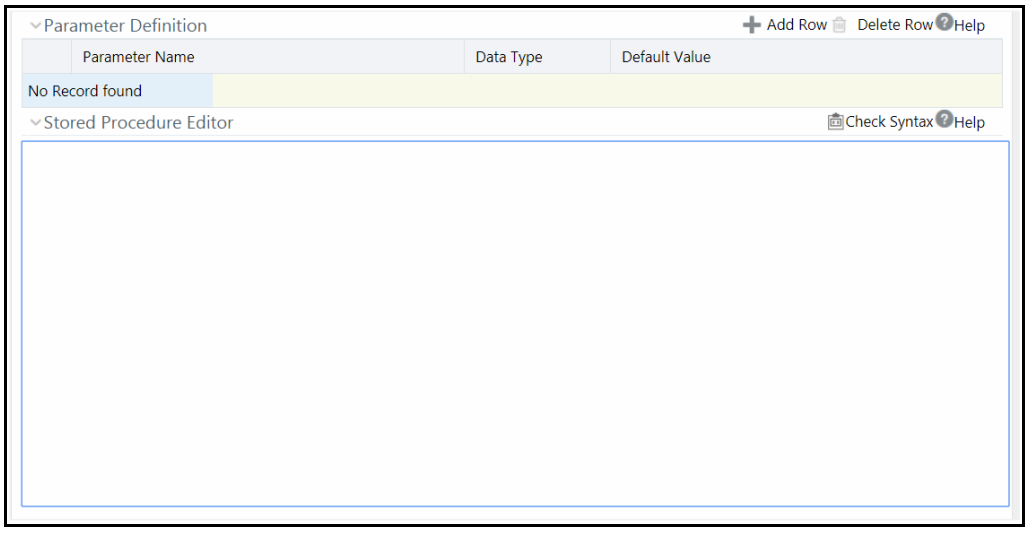
    The Post Load Changes definition is added to the *Summary* window.

4.5.1.2 Stored Procedure Transformation

Stored Procedure Transformation facilitates you to define complex transformations involving multiple tables which are contained in a pre-defined stored procedure/function. The recommended method is to use CALL <function name>, provided the function is present in the Atomic Schema.

To define a Stored Procedure Transformation:

1. Click **Add** from the *Post Load Changes Summary* window. The *Post Load Changes* window is displayed.
2. In the Transformation Definition grid, enter the details as explained in the Insert/Update transformation section.
3. Click **Stored Procedure** in the Transformation Process Flow grid.



4. Click **Add Row** button in the Parameter Definition tool bar and add the required parameters for the Stored Procedure you want to call, as explained in the Insert/Update transformation section.
5. In the **Stored Procedure Editor** field, enter the CALL function to invoke the function stored in the Atomic Schema. You can also enter the SQL block of the stored procedure/function. Ensure all parameters used in your stored procedure are added from the Parameter Definition grid. Every function you create should contain BatchID (VARCHAR2) and MisDate (VARCHAR2) as the first two parameters.

> **NOTE** In case of CALL function, BatchID (VARCHAR2) and MisDate (VARCHAR2) should not be added as Parameters from the Parameter Definition grid since these two mandatory parameters will be appended while creating the procedure.
>
> If you want to pass Task_ID or Infodom name to the stored procedure/function, define a parameter and explicitly pass the parameter value as TASKID or INFODOM from ICC or RRF. TASKID will be replaced with the task ID during execution and INFODOM will be replaced with the Information Domain name.

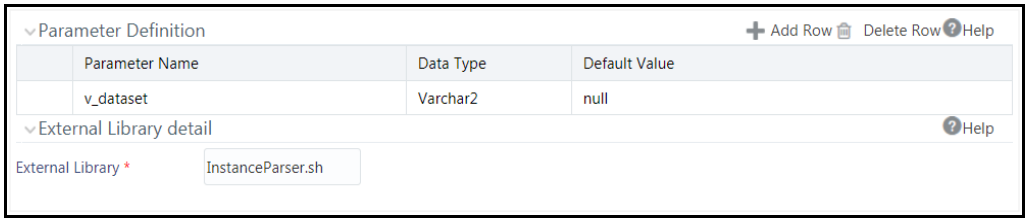
6. Click **Check Syntax** button in the Stored Procedure Editor tool bar if you want to check syntax of the stored procedure. This is an optional step.
7. Click **Finish** and save the Stored Procedure Transformation details.

4.5.1.3 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 **Add** from the *Post Load Changes Summary* window. The *Post Load Changes* window is displayed.
2. In the Transformation Definition grid, enter the details as explained in the Insert/Update transformation section.
3. Click **External Library** in the Transformation Process Flow grid.



4. Click **Add Row** button in the Parameter Definition tool bar and add required parameters as explained in the Insert/Update transformation section.
5. In the External Library Details grid, enter the name of executable library file (**.sh file**) located in default ficdb/bin path in the **External Library** field. You can also specify the path till the file name.
6. Click **Finish** and save the External Library Transformation details.

4.5.2 Versioning and Make Latest Feature

When a new definition is created, it will be saved as version 1. Once you modify and save a definition, it will be saved with version as highest version +1. That is, if you modify version 2, which is the highest version available and save it, the version becomes 3.

To make any older version as latest:

1. From the *Post Load Changes Summary* window, turn OFF the **Active** toggle button and click **Search**. All inactive definitions are displayed.
2. Select the required definition and click **Make Latest.** The selected definition becomes active and the current active definition becomes inactive.

4.5.3 Modifying Post Load Changes Definition

This option allows you to update the Post Load Changes definitions. You cannot modify inactive versions of a Data Mapping definition. To make an inactive version as active, you should make that version as latest.

To modify Post Load Changes definition

1. From the *Post Load Changes Summary* window, select the definition you want to modify and click **Edit**.
2. Modify the required details. For more information, see Adding Post Load Changes Definition.
3. Click **Save**. The definition will be saved as highest version +1. That is, if you are modifying a definition of version number as 3 and the highest version available is 5, the definition will be saved as version 6.

4.5.4 Viewing Data Mapping Definition

You can view individual Post Load Changes definition details at any given point.

To view the existing Post Load Changes definition:

1. From the *Post Load Changes Summary* window, select the Post Load Changes definition that you want to view and click **View**. The *Post Load Changes* window is displayed.
2. The *Post Load Changes* window displays the details of the selected definition. Click the enabled blocks in the Transformation Process View to view more details.

4.5.5 Deleting Post Load Changes Definition

This option allows you to delete Post Load Changes definition. However, it is a soft deletion only. To permanently delete the definition from system, you need to purge it.

To delete Post Load Changes definition

1. From the *Post Load Changes Summary* window, select the definition you want to delete and click **Delete**. You can select multiple definitions for deletion.
2. Click **OK** in the information dialog to confirm deletion.

4.5.6 Purging Post Load Changes Definitions

This option allows you to remove deleted Post Load Changes definition permanently from the system. You should have DMTADMIN user role mapped to your user group.

To purge PLC definitions

1. Search for the Deleted PLC definitions by selecting **Deleted** from the **Record Status** drop-down list in the *Post Load Changes* window and click **Search**.
2. Select the required PLC definitions you want to permanently remove from the system and click **Purge**.
3. Click **OK** to confirm purging.

4.6 User Defined Functions

This feature allows you to register Hive Permanent and Temporary user defined functions, which can be used in Expression Builders in OFSAAI.

Hive supports a lot of built-in SQL-like functions in HiveQL. However, a few functions that are available in Oracle are not yet supported in Hive. A Java implementation for such functions has been provided as custom Hive UDFs by OFSAAI.

- TO_NUMBER(String input [, String format])

  The TO_NUMBER function converts String input to a value of NUMBER datatype.
- TO_DATE(String input, String format)
  - The TO_DATE function converts input to a value of DATE datatype in the specified format.
  - Native Hive to_date(String) function when format is not specified works as is, and expects the input to be specified in yyyy-MM-dd [HH:mm:ss] format.
- TO_CHAR(Number/Date input [, String format])

  The TO_CHAR function converts a Date, Number, or String input to a String expression in a specified format.
- NVL2(T Input1, T Input2, T Input3)

  NVL2 lets you determine the value returned by a query based on whether a specified expression is null or not null. If Input1 is not null, then NVL2 returns Input2. If expr1 is null, then NVL2 returns Input3.

These functions are registered in OFSAAI and are available in the U*ser Defined Functions Summary* window for use in metadata definitions. However, you should register the OFSAAI Hive UDF jar in the Hive server. The Hive UDF classes are present in $OFSAA_HOME/utility/DMT/UDF/lib/ofsaa-hive-udf.jar. Copy the Jar to $HIVE_AUX_LIB path on the Hive server and restart Hive services, to start using the functions in HiveQL.

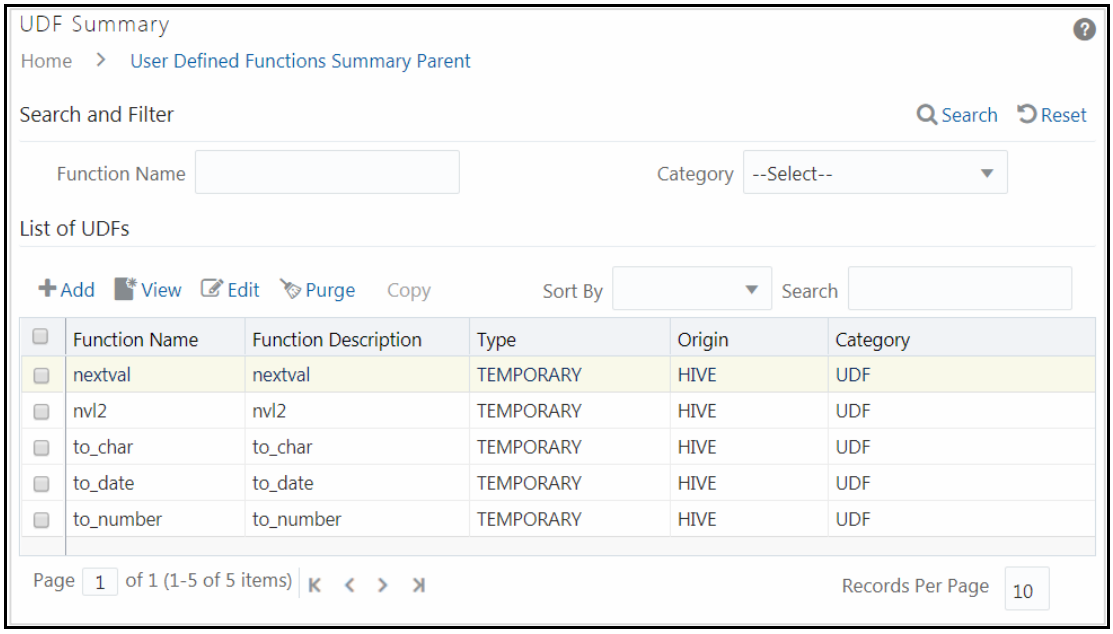
> **NOTE** User Defined Functions support only Java Date format.

The Roles mapped for User Defined Functions are as follows:

- UDFACCESS
- UDFREAD

- UDFWRITE
- UDFPHANTOM
- UDFAUTH
- UDFADV

For all the roles, functions and descriptions, see Appendix A.



The *User Defined Functions Summary* window displays the available UDFs with details such as Function Name, Origin, Function Description, Type, and Category. You can add new UDFs, modify, view, and purge existing UDFs.

4.6.1 Creating User Defined Functions (UDFs)

This option allows you to create HIVE Permanent and Temporary User Defined Functions. After registering the UDFS, they can be used in expression builders in OFSAAI (Data Mapping, Data Quality Rules and Business Processor/ Measure/ Hierarchy/Dataset).

4.6.1.1 Prerequisites

1. The UDF JAR must be present in the Hive Auxiliary JARs Path. To create an Auxiliary JAR path, see Cloudera Documentation on Creating Temporary Functions (http://www.cloudera.com/content/cloudera/en/documentation/core/latest/topics/cm_mc_hive_udf.html#concept_wsd_nms_lr_unique_2)
2. In case, you want to use Permanent functions, following are the additional prerequisites:
   c. Create permanent functions as shown in the following example:

   Execute the following command from Hive CLI/Hue/Hive browser:

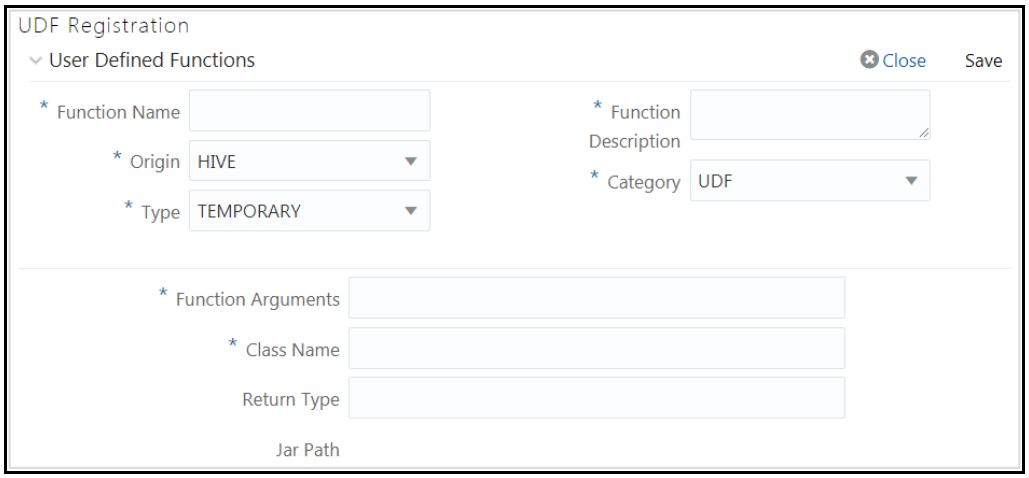
```
CREATE FUNCTION toChar AS
'com.ofs.aai.service.dmt.udf.custom.TO_CHAR USING JAR
'hdfs:///path/to/jar'
```

> **NOTE** Schema Name should be specified initially before function name. By default, the default schema will be used.

d. Check if the UDF can be accessed through Hive Console.

To register User Defined Functions

1. From the *UDF Summary* window, click **+Add** from the toolbar. The *UDF Registration* window is displayed.



2. Enter the details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Function Name	Enter the function name.
Function Description	Enter a description of the function.
Origin	Select the Origin from the drop-down list. Only **HIVE** is supported now.
Type	Select the function type from the drop-down list. The options are TEMPORARY and .PERMANENT. **Note**: Permanent Functions have to be saved individually from Hive CLI/Hue/Hive browser before registering in OFSAAI using the UI.
Category	Select the category of the function from the drop-down list. For HIVE, the categories available are, **UDF UDAF**, and **UDTF**.
Function Arguments	Enter the arguments to be passed for the function. For example, STRING and INT.
Class Name	Enter the class name of the function.
Return Type	This field is not application for HIVE UDFs.

Field	Description
Jar Path	This field is not application for HIVE UDFs. **Note**: For HIVE, the jars should be present in the Hive Auxiliary JARs directory.

3. Click **Save**.

4.6.2 Viewing UDFs

This option allows you to view the user defined functions.

To view UDF definitions

1. From the *UDF Summary* window, select the UDF and click View from the toolbar. The *UDF Registration* window is displayed.
2. You can view the details of the selected UDF definition.
3. Click **Close**.

4.6.3 Modifying the User Defined Functions

This option allows you to modify the user defined functions.

To modify the User Defined Functions:

1. From the *User Defined Functions Summary* window, select the UDF and click **Edit** from the toolbar. The *User Defined Functions Registration* window is displayed.
2. Modify the required details. You can modify Type, Function Arguments and Return type. For more information, see Creating User Defined Functions (UDFs).

4.6.4 Purging User Defined Functions

This option allows you to remove User Defined Functions from the system. You should have DMTADMIN user role mapped to your user group.

To purge User Defined Functions

1. From the *User Defined Functions Summary* window, select the required User Defined Functions you want to permanently remove from the system and click **Purge**.
2. Click **OK** to confirm purging.

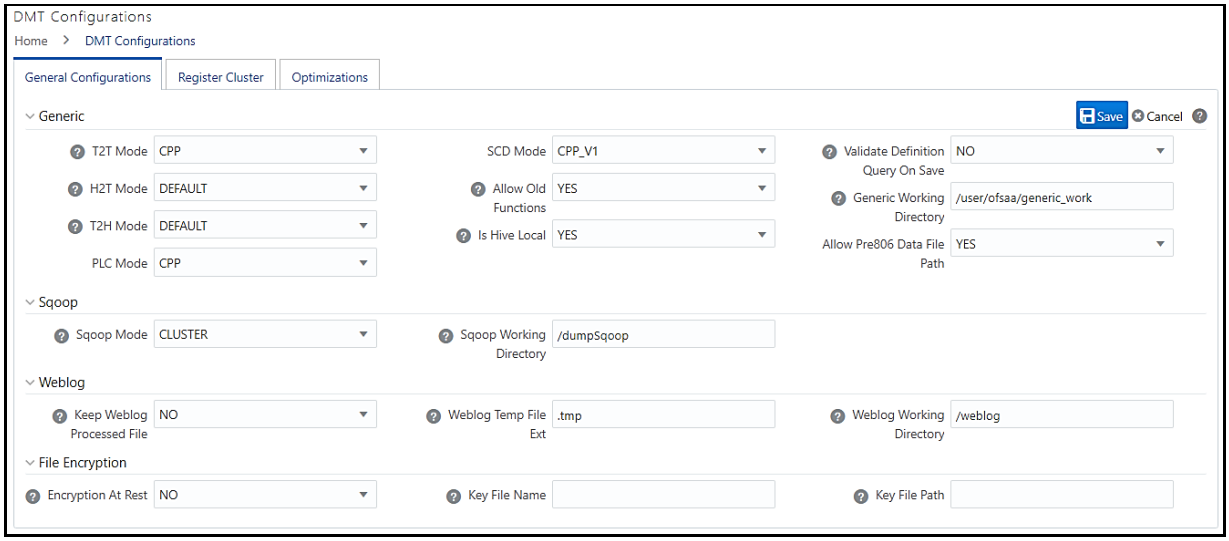
4.7 DMT Configurations

This section explains the configurations to be performed for a Data Mapping definition or PLC definition.

The role mapped to DMT Configurations is DMTADMIN. For the functions and descriptions, see Appendix A.

- General Configurations if Big Data Processing License is enabled
- General Configurations if Big Data Processing License is not enabled
- Cluster Registration
- Performance Optimizations

4.7.1 General Configurations if Big Data Processing License is enabled

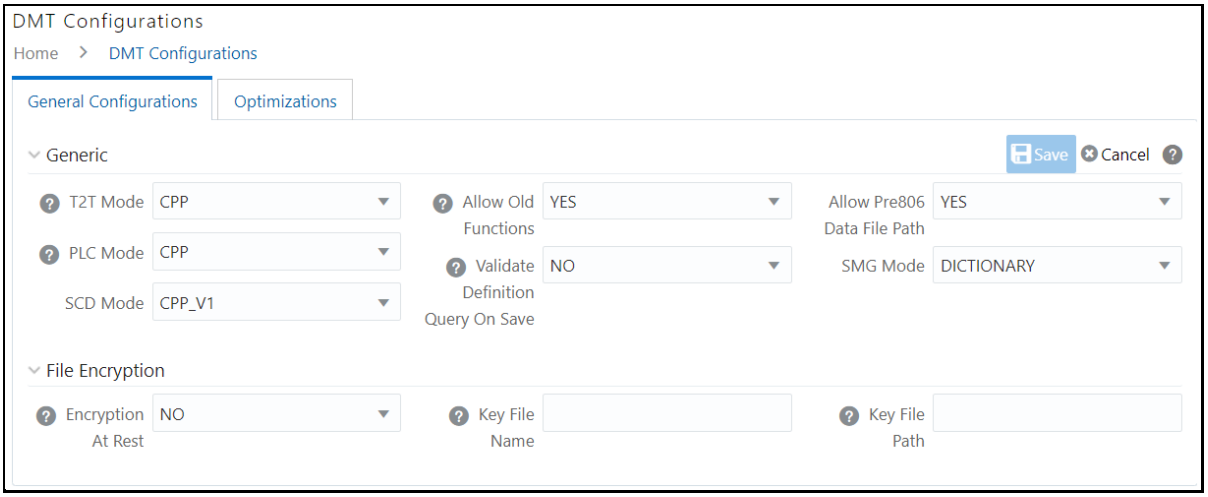


Property Name	Property Value
Generic	
T2T Mode	Select the mode of T2T to be used for execution of Data Mapping definition, from the list. The options are **Default** (for Java engine) and **CPP** (for CPP engine).
H2T Mode	Select the mode of H2T to be used for execution of Data Mapping definition, from the list. The options are **Default**, **Sqoop** and **OLH**. **OLH** (Oracle Loader for Hadoop) should have been installed and configured in your system. For more information on how to use OLH for H2T, see Oracle® Loader for Hadoop (OLH) Configuration section in OFS Analytical Applications Infrastructure Administration Guide. **Sqoop** should have been installed and configured in your system. For more information, see Sqoop Configuration section in OFS Analytical Applications Infrastructure Administration Guide. Additionally, you should register the cluster information of the source Information domain using Register Cluster tab.

Property Name	Property Value
T2H Mode	Select the mode of T2H to be used for execution of Data Mapping definition, from the list. The options are **Default** and **Sqoop**. For **Default** option, additional configurations are required, which is explained in the Data Movement from RDBMS Source to HDFS Target (T2H) section in OFS Analytical Applications Infrastructure Administration Guide. Additionally, you should register the cluster information of the target Information domain using Register Cluster tab. For **Sqoop** option, Sqoop should have been installed and configured in your system. For more information, see Sqoop Configuration section in OFS Analytical Applications Infrastructure Administration Guide. Additionally, you should register the cluster information of the source Information domain using Register Cluster tab.
PLC Mode	Select the mode of execution to be used for Post Load Changes definition, from the list. The options are **Default** (for Java engine) and **CPP** (for CPP engine).
SCD MODE	This field is applicable only if SCD uses merge approach. • CPP_V1- Select this option to perform execution using single Merge query for both Update and Insert. This is the default execution mode. This was the old approach. • CPP_V2- Select this option to perform execution using Merge query for updates and using Insert query for inserts. Since Insert is a separate query, sequence used for SKEY will be incremented only for the required records making the SKEY column value continuous.
Allow Old Functions	Select **Yes** to support the old functions like ETLDEF, ETLUSER, and ETLDTQ along with the new functions and roles for Data Sources, Data Mapping and Post Load Changes modules. Select **No** to support only the new functions and roles for Data Sources, Data Mapping and Post Load Changes modules.
Is Hive Local	This is applicable for T2H and F2H. Select **Yes** if HiveServer is running locally to OFSAA, else select **No,** from the drop-down list.
Validate Definition Query on Save	Select **Yes** to validate the SQL Query of the Data Mapping definition on save.
Allow Pre806 Data File Path	This field is applicable only in case of upgrade from an earlier version to 8.0.6.0.0 version and above. If yours is a fresh installation of 8.0.8.0.0 version using Full installer, this field is not applicable. For F2T, the path for Data File in versions before 8.0.6.0.0 is /<ftpshare>/STAGE/<FileBasedSource>/<MISDate>/**<dataFile.dat>**. In 8.0.6.0.0, it is changed to /ftpshare/<INFODOM>/dmt/source/<Data Source Code>/data/<MISDATE>/**<dataFile.dat>.** Select **Yes** to allow the old Data File path in 8.0.8.0.0 version.
Generic Working Directory	Specify the path of the HDFS working directory for generic operations. By default the path is set as /user/ofsaa/GenericPath.

Property Name	Property Value
SMG Mode	By default, the Source Model Generation (SMG) mode is set as **Dictionary**. When **SMG Mode** is selected as **Dictionary**, the time taken for generating Source models of Views from the database is optimized. Select **Default** for the earlier mode.
Sqoop (This section is applicable only if you select **Sqoop** for **T2H Mode** or **H2T Mode.**).	
Sqoop Mode	Select **Client** to execute Sqoop in client mode or select **Cluster** to execute Sqoop in cluster mood, from the drop-down list. If you select **Cluster** as **Sqoop Mode**, you should register the cluster from Register Cluster tab. For more details, see Registering a Cluster section. **Note:** Copying of any Sqoop jars and Hadoop/Hive configuration XMLs to OFSAAI is not required in cluster mode.
Sqoop Working Directory	Specify the path of the HDFS working directory for Sqoop related operations.
WebLog (This section is applicable only for L2H)	
Keep Weblog Processed File	Select **Yes** or **No** from the drop-down list. **Yes**- The working directory will be retained with the processed WebLog files. If the data loading was successful, the WebLog file name will be appended with Processed. Else, the WebLog file name will be appended with Working. **No**- The working directory will be deleted after data loading.
Weblog Temp File Ext	Enter the extension of the Weblog temporary file.
Weblog Working Directory	Enter the name of the temporary working directory in HDFS.
File Encryption	
Encryption At rest	Select **Yes** from the drop-down list, if encryption is required for T2F or H2F and decryption is required for F2T or F2H.
Key File Name	Enter the name of the Key File, which you used to encrypt the Data File.
Key File Path	Enter the absolute path of the Key File, which you used to encrypt the Data File.

4.7.2 General Configurations if Big Data Processing License is not enabled



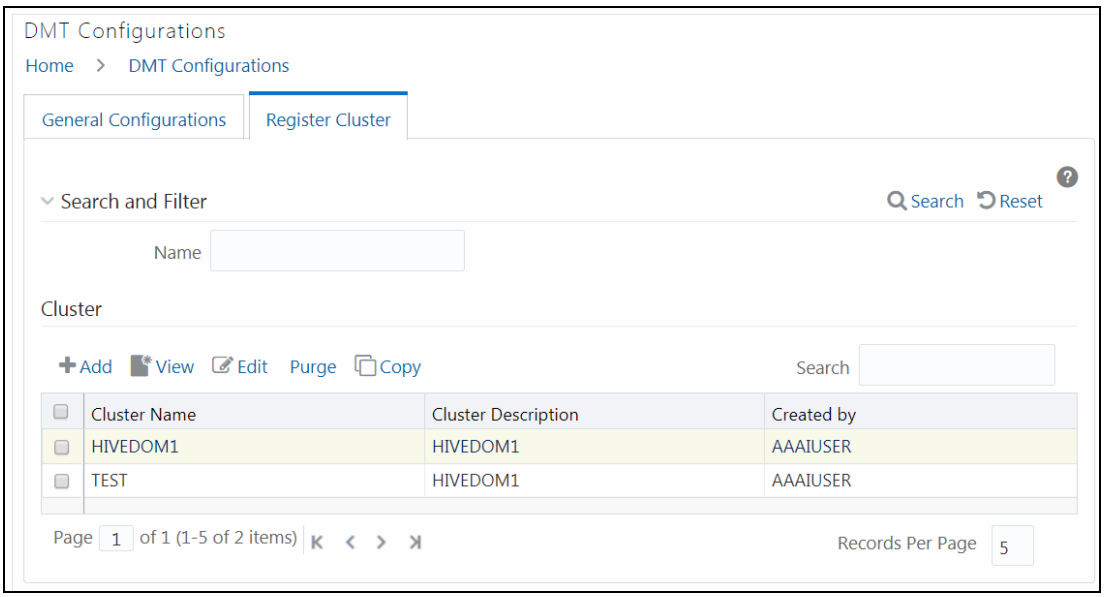
Property Name	Property Value
Generic	
T2T Mode	Select the mode of T2T to be used for execution of Data Mapping definition, from the list. The options are **Default** (for Java engine) and **CPP** (for CPP engine).
PLC Mode	Select the mode of T2T to be used for execution of Post Load Changes definition, from the list. The options are **Default** (for Java engine) and **CPP** (for CPP engine).
SCD MODE	This field is applicable only if SCD uses a merge approach. • **CPP_V1**- Select this option to perform execution using a single Merge query for both Update and Insert. This is the default execution mode. • **CPP_V2**- Select this option to perform execution using Merge query for updates and using Insert query for inserts. Since Insert is a separate query, the sequence used for SKEY will be incremented only for the required records making the SKEY column value continuous.
Allow Old Functions	Select **Yes** to support the old functions like ETLDEF, ETLUSER, and ETLDTQ along with the new functions and roles for Data Sources, Data Mapping and Post Load Changes modules. Select **No** to support only the new functions and roles for Data Sources, Data Mapping and Post Load Changes modules.
Validate Definition Query on Save	Select **Yes** to validate the SQL Query of the Data Mapping definition on save.

Property Name	Property Value
Allow Pre806 Data File Path	This field is applicable only in case of upgrade from an earlier version to 8.0.6.0.0 version and above. If yours is a fresh installation of 8.1.0.0.0 version using Full installer, this field is not applicable. For F2T, the path for Data File in versions before 8.0.6.0.0 is `/<ftpshare>/STAGE/<FileBasedSource>/<MISDate>/<dataFile.dat>`. In 8.0.6.0.0, it is changed to `/ftpshare/<INFODOM>/dmt/source/<Data Source Code>/data/<MISDATE>/<dataFile.dat>`. Select **Yes** to allow the old Data File path in 8.1.0.0.0 version.
SMG Mode	By default, the Source Model Generation (SMG) mode is set as **Dictionary**. When **SMG Mode** is selected as **Dictionary**, the time taken for generating Source models of Views from the database is optimized. Select **Default** for the earlier mode.
File Encryption	
Encryption At rest	Select **Yes** from the drop-down list, if encryption is required for T2F and decryption is required for F2T.
Key File Name	Enter the name of the Key File, which you used to encrypt the Data File.
Key File Path	Enter the absolute path of the Key File, which you used to encrypt the Data File.

4.7.3 Cluster Registration

This is required only if you have enabled Big Data Processing within your application pack.

This feature allows you to register cluster information for creating Data sources based on HDFS File or WebLogs in HDFS cluster. Additionally, if you are using Sqoop, cluster registration is required.



This window allows you to register a new cluster, modify, view, copy or delete an existing cluster. You can search for a cluster based on Name.

For sorting the fields, mouse-over at the end of the Column heading and click to sort in the ascending order or click to sort the fields in the descending order.

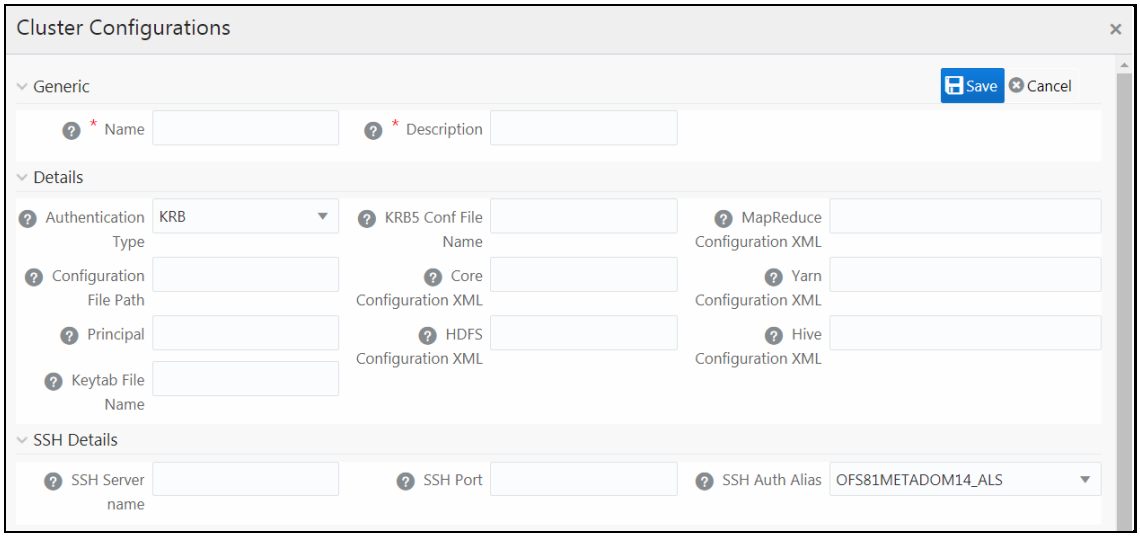
4.7.3.1 Registering a Cluster

This option allows you to register a cluster.

> **NOTE** In case of T2H, cluster details should be given against target Infodom name, and in case of H2T, cluster details should be given against source name.

To register a cluster:

1. From the Register Cluster tab in the *DMT Configurations* window, click ➕Add. The *Cluster Configurations* window is displayed.



2. Enter the details as tabulated.

Field Name	Description
Generic	
Name	Enter a unique name for the cluster.
Description	Enter a brief description of the cluster.
Details (This section is not applicable for Sqoop Cluster mode.)	
Authentication Type	Enter the authentication type. KRB- Kerberos with Key Tab for secured cluster DEFAULT- for non-secured cluster
Configuration File Path	Enter the path where Kerberos Configuration files such as core-site.xml, hdfs-site.xml reside.

Field Name	Description
Principal	Enter Kerberos Principal name.
Keytab File Name	Enter the name of the Key Tab file.
KRB5 Conf File Name	Enter the name of the Kerberos Realm file.
Core Configuration XML	Enter the name of core-site.xml
HDFS Configuration XML	Enter the name of hdfs-site.xml
MapReduce Configuration XML	Enter the name of mapred-site.xml
Yarn Configuration XML	Enter the name of yarn-site.xml
Hive Configuration XML	Enter the name of Hive configuration XML file.
SSH Details (This section is applicable only for Sqoop in Cluster mode.)	
SSH Server Name	Enter the IP address of the node having Sqoop client installed.
SSH Port	Enter the SSH port on the node, usually 22.
SSH Auth Alias	Select the Auth Alias entered for SSH server from the drop-down list.

3. Click **Save**.

4.7.4 Performance Optimizations

This feature allows you to externalize the Optimization parameters like Source Hint, Source Prescript, Target Hint and Target Prescript for OOB metadata definition. Since these parameters are external to the metadata definition, they will not be overridden by OOB metadata during upgrade and as a result customized data will remain intact.

Optimization parameters can be set:

1. From the *Data Mapping* window, while creating the Data mapping definition.
2. In the Performance Parameter Table (aai_dmt_performance_params) (set from the DMT Configurations>Optimizations tab). You can set at the following levels:
   - OFSAA_INSTANCE level
   - INFODOM level
   - Definition level
3. From the *Task Definition* window, at execution parameter level. For more information, see Component: LOAD DATA section.

Precedence

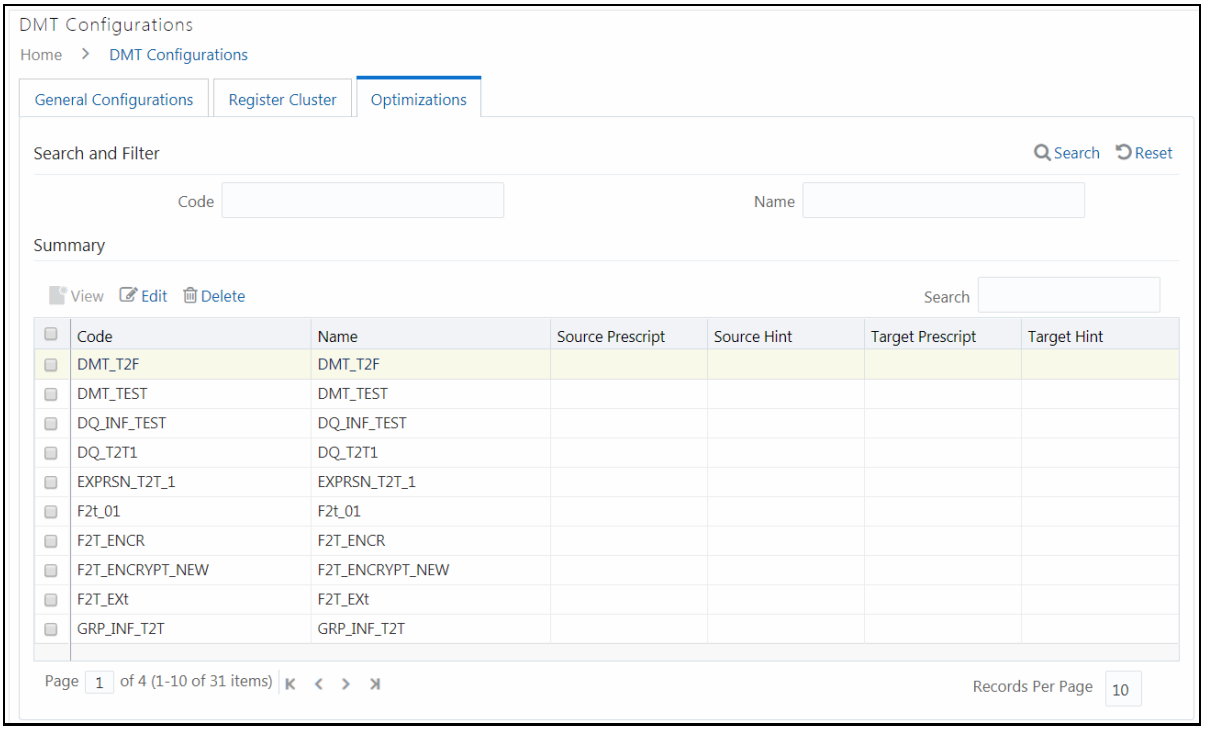
Following is the precedence in the descending order:

1. Task level square bracket parameters from the *Task Definition* window
2. Definition level parameters from DMT Configurations>Optimizations tab

3. Definition level parameters from the *Data Mapping* window
4. INFODOM level parameters from DMT Configurations>Optimizations tab
5. OFSAA_Instance/setup level parameters from DMT Configurations>Optimizations tab

NOTE

5. Precedence is at the parameter level, and not at definition level (record level). That is, you can override only the Target Hint from the Optimizations tab, and still use Target Prescript from the Data Mapping Definition.
6. For CPP engine, OracleDB.conf parameters gets fired at first and then optimization parameters from performance parameters table gets fired.
7. For ORACLE database, Prescripts should start with ALTER SESSION and for HIVE database Prescripts should start with SET; otherwise those will be skipped.
8. Source Hint and Source Prescript are not relevant at Infodom and OFSAA Instance level.



The Optimizations tab displays all active Data Mapping definitions available in the setup. Additionally, an entry for OFSAA instance and Information Domain will be also be present. It displays Data Mapping definition details such as Code, Name, Source Prescript, Source Hint, Target Prescript, and Target Hint. You can edit, view and delete performance parameters.

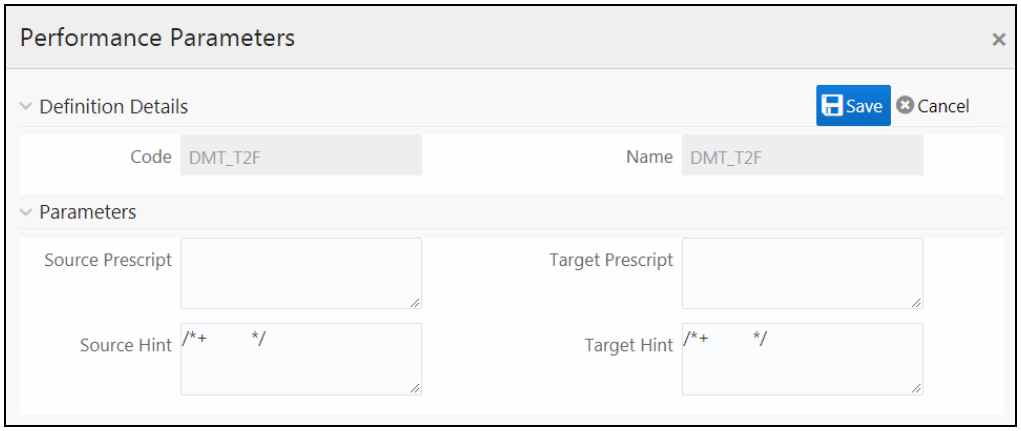
4.7.4.1 Configuring Performance Parameters

This option allows you to externalize performance parameters like Source Hint, Source Prescript, Target Hint and Target Prescript for OOB metadata definition.

- For T2T- Source Hint, Source Prescript, Target Hint, and Target Prescript are applicable.
- For T2F - Source Hint and Source Prescript are applicable.
- For F2T : Nothing is supported.

To configure Performance Parameters

1. From the Optimizations tab in the *DMT Configurations* window, select the required Data Mapping definition for which you want to configure performance parameters and click **Edit**. The *Performance Parameters* window is displayed.



2. Specify **Source Prescript** or **Target Prescript** if you want to use. Prescripts are supported for all HIVE based target Infodoms, that is, H2H and T2H. In case of H2T the prescripts are fired on the source. For more information, see Prescripts.
3. Specify Source Hint and Target Hint (if any), for faster loading. Oracle hints follow (/*+ HINT */) format. The mapping level hint is applicable for T2T, H2T, and H2H only.

   For example, /*+ PARALLEL */.
4. Click **Save**.

4.8 Slowly Changing Dimensions (SCD)

A Slowly Changing Dimension (SCD) is a dimension that stores and manages both current and historical data over time in a data warehouse. There are three types of SCDs:

Type 1 SCDs - Overwriting

In a Type 1 SCD the new data overwrites the existing data. Thus the existing data is lost as it is not stored anywhere else. No additional information is to be specified to create a Type 1 SCD.

Type 2 SCDs - Creating another dimension record

A Type 2 SCD retains the full history of values. When the value of a chosen attribute changes, the current record is closed. A new record is created with the changed data values and this new record

becomes the current record. Each record contains the effective time and expiration time to identify the time period between which the record was active.

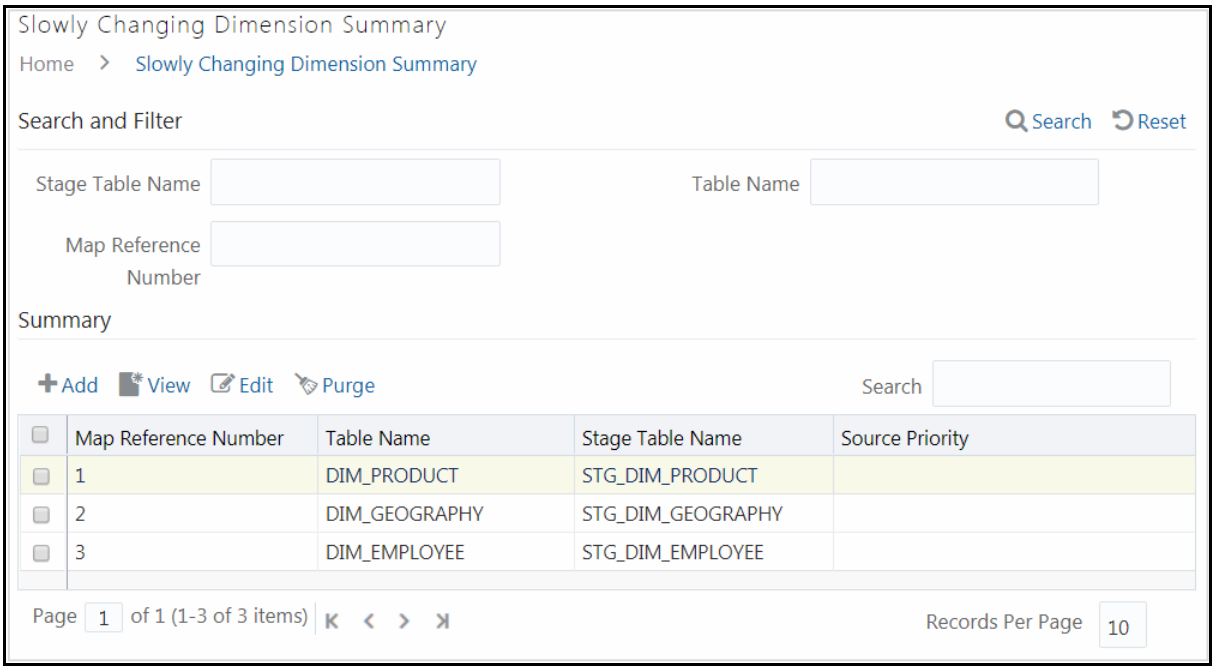
Type 3 SCDs - Creating a current value field

A Type 3 SCD stores two versions of values for certain selected level attributes. Each record stores the previous value and the current value of the selected attribute. When the value of any of the selected attributes changes, the current value is stored as the old value and the new value becomes the current value.

OFSAA supports Type1 and Type 2 types of SCD. You can define and manage SCD metadata using the *Slowly Changing Dimension* window. For information on constraints and assumptions of SCD execution on Hive Information Domain, see SCD execution on Hive Information Domain section and Heterogeneous Support for SCD to RDBMS in OFS Analytical Applications Infrastructure Administration Guide.

The Roles mapped for Slowly Changing Dimensions module are as follows:

- SCDACCESS
- SCDREAD
- SCDWRITE
- SCDPHANTOM
- SCDAUTH
- SCDADV



The *Slowly Changing Dimension Summary* window displays the available SCDs with details such as Map Reference Number, Table Name, Stage Table Name, and Source Priority. You can add new SCDs, modify, view, and purge existing SCDs.

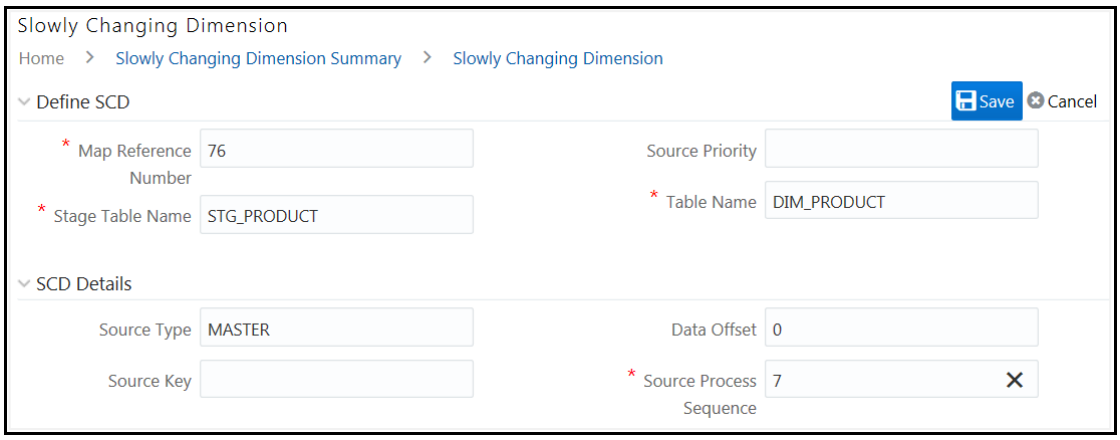
You can search for a SCD based on Stage Table Name, Dimension Table Name, and Map Reference Number.

4.8.1 Creating Slowly Changing Dimension

This option allows you to create a new SCD entry.

To create SCD

1. From the *Slowly Changing Dimension Summary* window, click ➕Add. The *Slowly Changing Dimension* window is displayed.



2. Enter the details as tabulated:

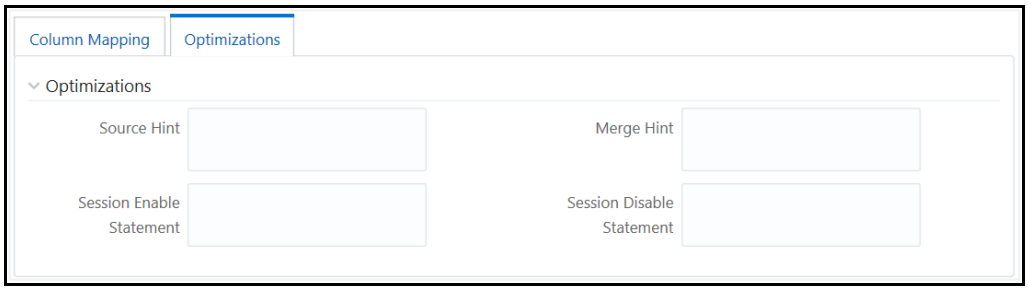
Field Name	Description
Define SCD	
Map Reference Number	Enter a Mapping Reference Number for this unique mapping of a Source to a Dimension Table. The supported numbers are from 0 to 999. SCD will execute for all Map Reference Numbers if it is given as -1.
Stage Table Name	Enter the stage table name.
Source Priority	Enter the priority of the source when multiple sources are mapped to the same target.
Table Name	Enter the dimension table name, whose record needs to be updated.
SCD Details	
Source Type	Enter the type of the Source for a Dimension, that is, Transaction Or Master Source.
Source Key	Enter Source Key.
Data Offset	Enter the offset for calculating the Start Date based on the File Received Date.
Source Process Sequence	Enter the sequence in which the various sources for the DIMENSION will be taken up for processing.

3. Click ➕ from the Column Mapping tab. A new row gets added.

4. Double-click each cell to edit it. Enter the following details for each record.

Column Name	Description
Sr. No.	Enter a unique serial number.
Stage Column Name	Enter the stage column name.
Column Name	Enter the Column name in the Dimension Table.
Colum Type	Enter the type of column. For information for the possible values, see Column Types section. You should enter information about at least the following column types: PK- Primary key, SK -Surrogate Key, SD- Start Date, LRI - Latest Record Indicator, ED - End Date, DA - Dimensional attribute and MD - MIS Date.
Column Datatype	Enter the column data type.
SCD Type	Enter the SCD type. 1 – Type I SCD 2 – Type II SCD NULL – No SCD handling for such attributes For information on different SCD types, see SCD Types section.
Priority Lookup Required	Specify whether Lookup is required for Priority of Source against the Source Key Column or not. The possible values are Y and N.
Column Format	Enter the format of the column.

5. Click Optimizations tab to add optimizer hints for merge execution mode.



6. Enter statement level optimizer hints for the merge statement in the **Source Hint** field.
7. Enter statement level optimizer hint for the select statement in merge in the **Merge Hint** field.
8. Enter alter statements to enable session level execution before merge statement in the **Session Enable Statement** field.

   Format: "<enable stmt1>","<enable stmt2>"

   For example: "alter session enable parallel dml","alter session enable parallel query"
9. Enter alter statements to disable session level execution after merge statement in the **Session Enable Statement** field.

Format: "< disable stmt1>","< disable stmt2>"

For example: "alter session disable parallel dml","alter session disable parallel query"

10. Click **Save**.

4.8.1.1.1 Column Types

The possible values for column type in the SYS_STG_JOIN_MASTER are –

1. PK – Primary Dimension Value (may be multiple for a given “Mapping Reference Number”)
2. SK – Surrogate Key
3. DA – Dimensional Attribute (may be multiple for a given “Mapping Reference Number”)
4. DS – works same as DA, Additionally inserts description for default entries(MSG and OTH) into DS type columns
5. SD – Start Date
6. ED – End Date
7. LRI – Latest Record Indicator (Current Flag)
8. CSK – Current Surrogate Key
9. PSK – Previous Surrogate Key
10. SS – Source Key
11. LUD – Last Updated Date / Time
12. LUB – Last Updated By
13. NN- Not Null columns
14. MD – MISDATE

NOTE

- For records of Column type SK, the value of STG_COL_NM for that record should be SEQUENCE_NAME.nextval. Name of the sequence can be of the form SEQ_DIMTABLENAME which has to be created before executing SCD.
- For records of Column type DA (value of OL_TYP of sys_stg_join_master is DA), the value of the column SCD_TYP_ID should be set to 1 or 2 (depending upon the SCD type). Since SKEY is a sequence, this is available only in the dimension table and this cannot be considered for the change in the values of the fields, so, for any non-DA column we cannot set the SCD_TYP_ID to 1 or 2. They have to be set to NULL.
- For records of Column type ED, the value that goes into the column STG_COL_NM should be ’31-dec-9999’.

4.8.2 Executing SCDs

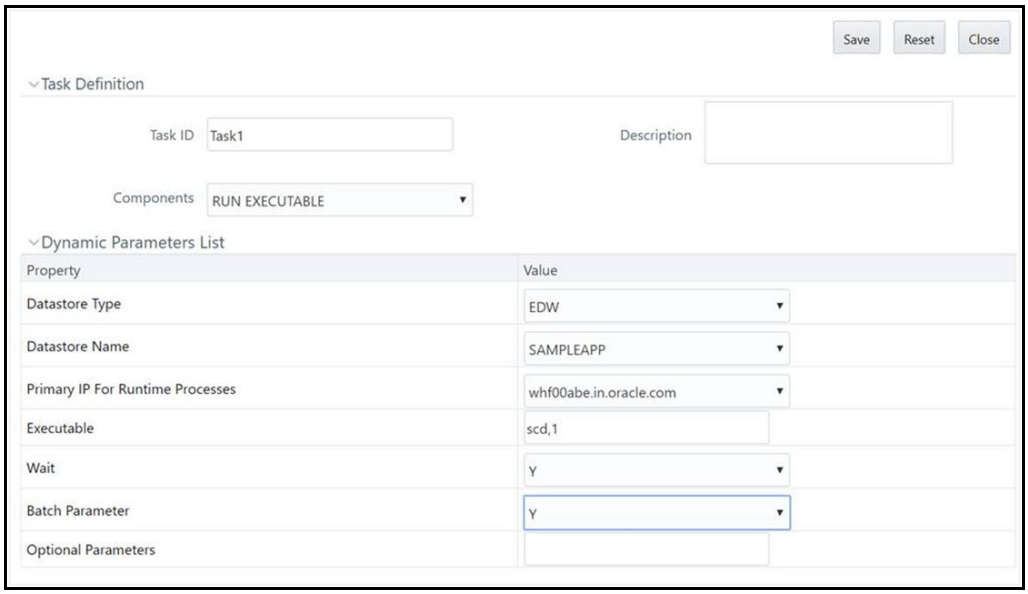
You can execute SCDs through Operations (ICC) module or Rule Run Framework (RRF).

4.8.2.1 SCD Execution using Operations Module

This section is applicable for SCDs defined on RDMBS source and RDBMS target (T2T) or HIVE source and HIVE target (H2H).

To execute SCDs from Operations

1. From the *Batch Maintenance* window, create a new Batch. For more information, see Adding Batch Definition section.
2. Create a task with Task parameters as shown:



   - The **Executable** field format is <SCD_Name>,<Map_Reference_Number>. For example, SCD,1
   - Set Batch parameter as Y for all cases.
   - If Wait is set as 'Y', then Run executable waits for SCD component to finish task execution and then update the task status.
3. Click **Save**.
4. Execute the Batch.

4.8.2.2 SCD Execution using RRF

This section is applicable for SCDs defined on RDMBS source and RDBMS target (T2T) or HIVE source and HIVE target (H2H).

To execute SCDs using RRF

1. Navigate to the RRF module and define a Run with Job as Executable:
2. Click button adjacent to the component name. The *Parameters* window is displayed.

3. Specify Parameters in the following format:

   “scd”,”<Map Reference Number>”

   For example, “scd”,”1”

4.8.3 SCD Execution for Heterogeneous Support

Assumptions:

1. DIM table in Hive and RDBMS should have the same table and column names, though column order may differ but not the data type.
2. You need to log into the ICC/ RRF pages from the source Infodom, that is, Hive Infodom.
3. You need to pass two additional parameters DBSERVERNAME and DBSERVERIP while invoking the SCD using the Run Executable component.

   For SCD execution from Operations (ICC) module, the Executable format is <SCD EXECUTABLE NAME>,<REFRENCE NUMBER>,<TARGET RDBMS NAME>,<TARGET RDBMS SERVER>

   For example: scd,78,ofsaatm,192.168.1.0

   From RRF, specify **Parameters** in the format “<SCD EXECUTABLE NAME>”,”<REFRENCE NUMBER>”,”<TARGET RDBMS NAME>”,”<TARGET RDBMS SERVER>”

   For example: “scd”,”78”,”ofsaatm”,”192.168.1.0”

4.8.4 Modifying SCD Definition

This option allows you to update the SCD definition.

To modify SCD definition

1. From the *Slowly Changing Dimension Summary* window, select the definition you want to modify and click **Edit**.
2. Modify the required details. For more information, see Creating Slowly Changing Dimension section.
3. Click **Save**.

4.8.5 Viewing SCD Definition

You can view individual SCD definition details at any given point.

To view the existing SCD definition:

1. From the *Slowly Changing Dimension Summary* window, select the SCD definition that you want to view and click **View**. The *Slowly Changing Dimension* window is displayed.
2. This window displays the details of the selected definition.

4.8.6 Purging SCD Definitions

This option allows you to remove SCD definitions permanently from the system. You should have DMTADMIN user role mapped to your user group.

To purge SCD definitions

1. From the *Slowly Changing Dimension Summary* window, select the SCD definition which you want to purge and click **Purge**.
2. Click **OK** to confirm purging.

4.9 CPP Execution Performance Enhancements

You can enhance the CPP execution performance, to reduce the execution time between the tasks for the Data Management component. To enhance the CPP execution performance, invokethe CPP Engine directly without initializing intermediate JVMs based on system variable `CPP_DIRECT_EXECUTION`.

Add the `CPP_DIRECT_EXECUTION` variable to the `.profile` file, and set the following execution flags:

- When CPP_DIRECT_EXECUTION flag is set to “true”:

  The DMT configuration properties - T2T_MODE and PLC_MODE will be overridden. When a T2T/F2T/DT task is triggered by the ICC Batch Execution, the corresponding CPP Engine is invoked in an optimized manner. The Java task logs will not be generated.

- When CPP_DIRECT_EXECUTION flag is set to “false”:

  The original behavior is restored where the executions happens based on the T2T_MODE and PLC_MODE properties set in DMT configuration.

> **NOTE** Restart the services, after adding the system variable. system variable is added, you must restart the services.

4.10 Data Quality Framework

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

Data Quality Framework consists of the following sections:

- Data Quality Rules
- Data Quality Groups

4.10.1 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.

Control Total Check

Data Quality Rules supported by OFSAA, integral to OFSAA eco-system and domain specific are largely technical checks. Result of these checks lead to corrections to the data. Enterprise Data Quality tools also support only technical checks. Business semantic driven checks are not typically seeded rule-type.

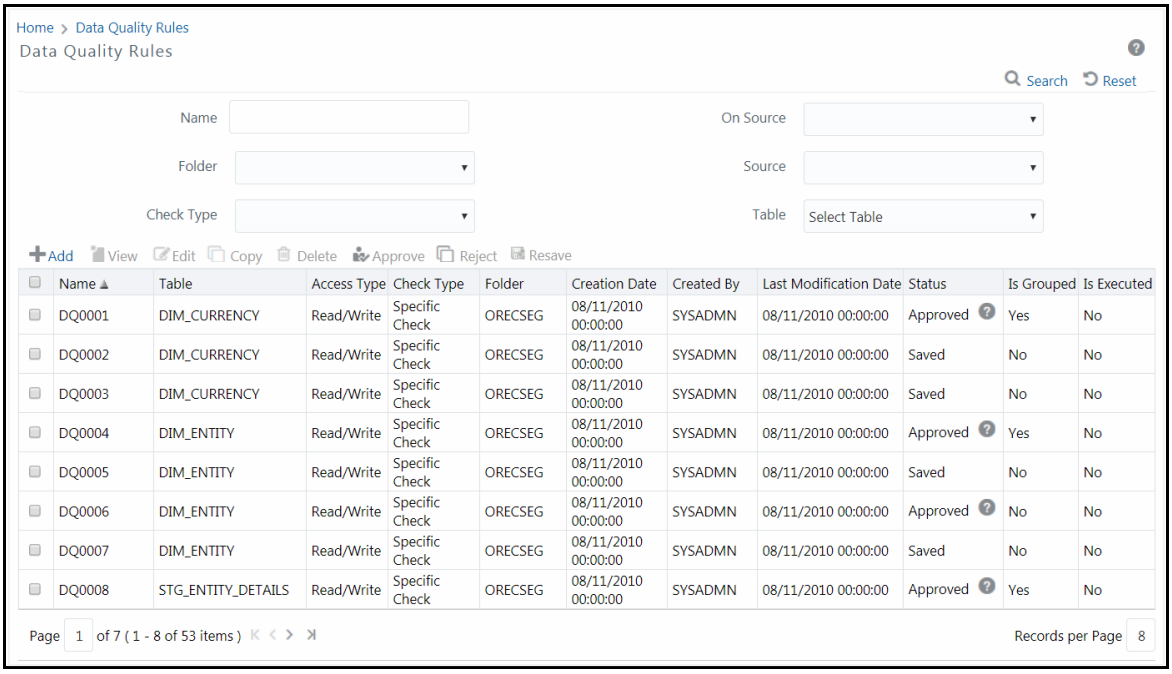
OFSAAI is provided with a comprehensive business semantic rich and FSI domain centric Data Quality Rule Type. This type of quality check allows configuration of entity-attributes (multiple ones) checked against a reference entity with its set of attributes. The attributes on both sides need not match (though the data-type will match). Both LHS (subject entity) and RHS (reference entity) should permit tagging aggregate functions to attributes, adding dimension-filters to the where-clause and support of group-by predicates (that are also dimensional filters or attributes specific to LHS and RHS entity respectively). The group-by columns need not match the filter criteria columns in the where clause of LHS and RHS.

Note that the result of the check is to log if the check failed/succeeded, along with criteria used with the subject and reference. If there is group-by, against every row of the result on LHS (subject) and RHS (reference), failure or success will be recorded respectively.

The roles mapped to DQ Rule are as follows:

- DQ Access
- DQ Advanced
- DQ Authorize
- DQ Phantom
- DQ Read Only
- DQ Write
- DQ View Query

See Appendix A for the functions and roles required to access the framework.



The *Data Quality Rule Summary* window displays the list of pre-defined Data Quality Rules with 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, resave, or delete Data Quality Rules within the *Data Quality Rule Summary* window. You can search for a Data Quality Rule based on Name, On Source, Application, Source, Folder, Table, or Check Type.

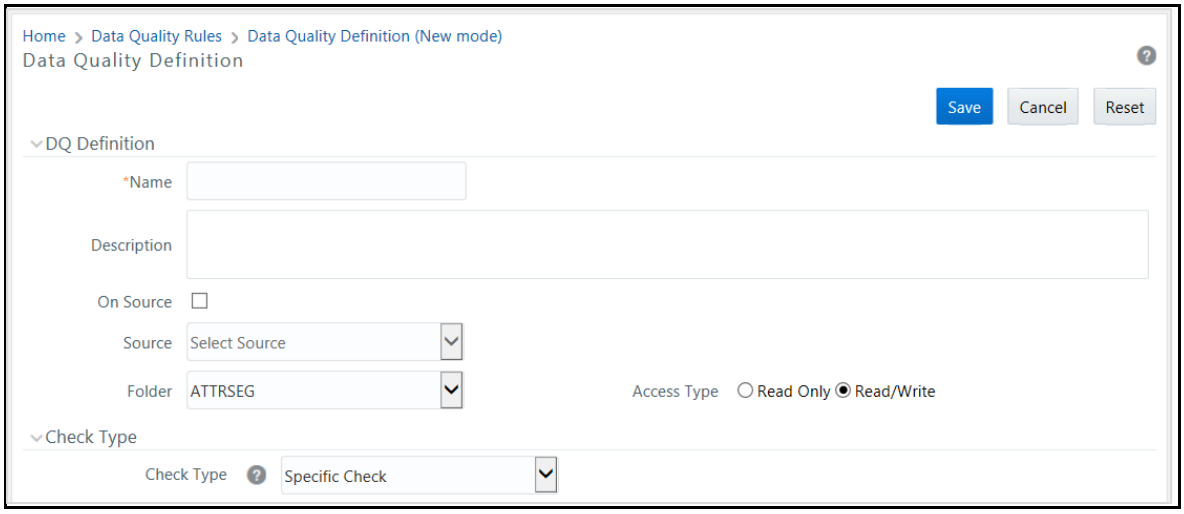
4.10.1.1 Creating Data Quality Rule

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. Data Quality Rules can be defined on entities of Infodom as well as on Data sources which are defined from the Data Sources window. Before defining DQ Rule on a Data Source, the Source Model generation should have been done.

> **NOTE** Data Quality Rules can be defined only on the DI Sources whose underlying schema resides in the same database, where OFSAAI METADOM or atomic schema exists.
>
> If you are defining Data Quality check on a Data Management Source, only quality check will be done; data correction will not be done since it is an external source.

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

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

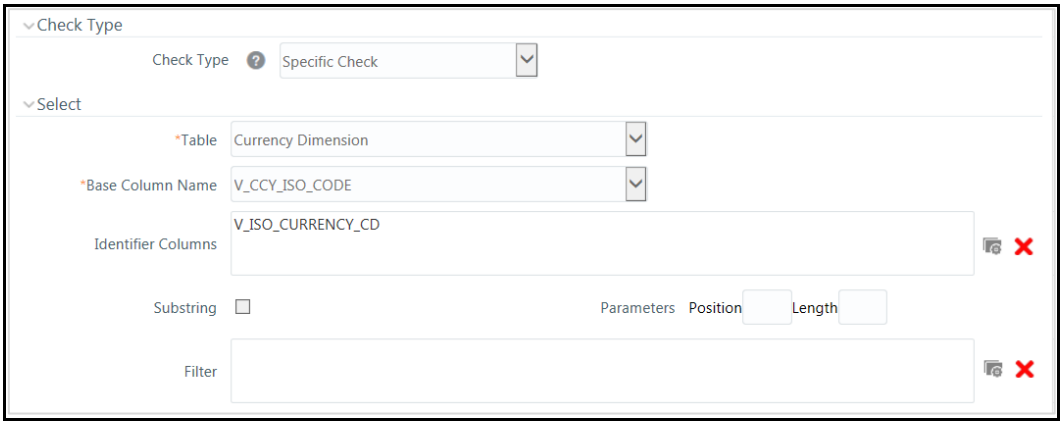


2. In the DQ definition section, do the following:
   - Enter the **Name** by which you can identify the DQ definition.
   - Enter a **Description** or related information about the definition.
   - Select the **On DI Source** checkbox if you want to define data quality check on a Data Source. This is optional.
     - Select the required Data **Source** from the drop-down list. The **Source** drop-down list displays sources created on Oracle DB and Hive DB if it is RDBMS Information Domain or sources created on Hive DB if it is Hive Information Domain.
   - Select the **Folder** (available for selected Information Domain) from the drop-down list.
   - Select the **Access Type** as either Read Only or Read/Write. The **Read Only** option enables only the creator to modify the rule details. Other users can only view the DQ rules. The **Read/Write** option enables all users to view, modify any fields (including Access Type), and delete the DQ rule.
3. Select the **Check Type** from the drop-down list. The options are **Specific Check**, **Generic Check**, and **Control Total Check**.

   You can mouse-over button for information.

4.10.1.1.1 Specific Check

This check is used to define conditions based on individual checks on a single column.



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

1. Select **Table** 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; that is, based on ENABLE_CLASSIFICATION parameter. For more information, see Table Classification section.
2. Click button and select the **Identifier Columns**. The list displays all PK columns of the selected base table.
   This feature allows you to view the DQ results report based on the selected identifier columns apart from the PK columns. You can select up to 8 Identifier columns including the PK columns. It is mandatory to select the PK Columns.
3. 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.
4. Click button and define the **Filter** condition using the *Specify Expression* window. For more information, see Define Expression.

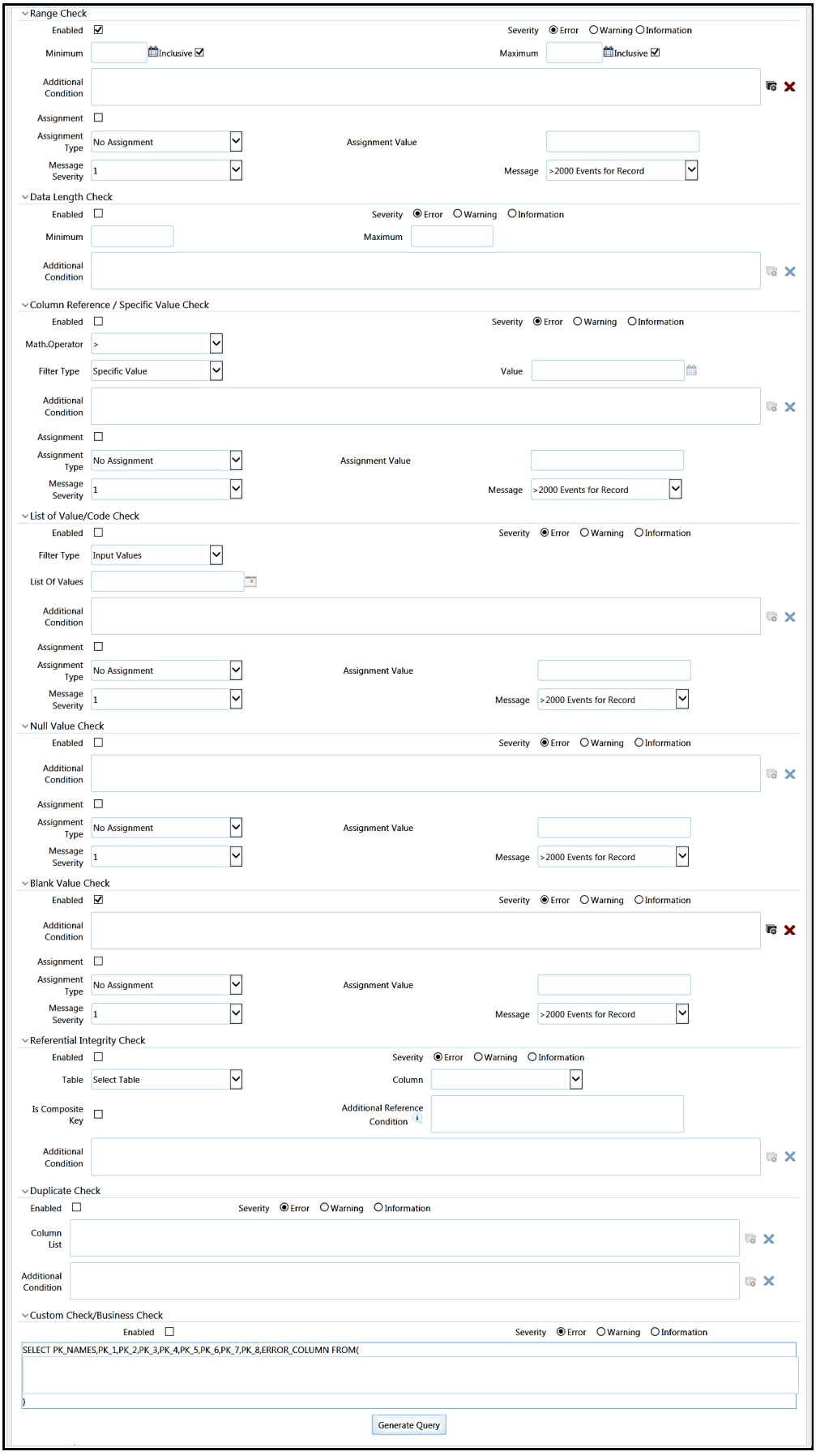
> **NOTE** While defining the filter condition, you can also include the Runtime Parameter name which you would be specifying in Additional Parameters condition while executing the DQ Rule.

5. 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.


Range Check
Enabled
Severity Error Warning Information
Minimum
Inclusive
Maximum
Inclusive
Additional Condition
Assignment
Assignment Type
No Assignment
Assignment Value
Message Severity
1
Message
>2000 Events for Record
Data Length Check
Enabled
Severity Error Warning Information
Minimum
Maximum
Additional Condition
Column Reference / Specific Value Check
Enabled
Severity Error Warning Information
Math.Operator
>
Filter Type
Specific Value
Value
Additional Condition
Assignment
Assignment Type
No Assignment
Assignment Value
Message Severity
1
Message
>2000 Events for Record
List of Value/Code Check
Enabled
Severity Error Warning Information
Filter Type
Input Values
List Of Values
Additional Condition
Assignment
Assignment Type
No Assignment
Assignment Value
Message Severity
1
Message
>2000 Events for Record
Null Value Check
Enabled
Severity Error Warning Information
Additional Condition
Assignment
Assignment Type
No Assignment
Assignment Value
Message Severity
1
Message
>2000 Events for Record
Blank Value Check
Enabled
Severity Error Warning Information
Additional Condition
Assignment
Assignment Type
No Assignment
Assignment Value
Message Severity
1
Message
>2000 Events for Record
Referential Integrity Check
Enabled
Severity Error Warning Information
Table
Select Table
Column
Is Composite Key
Additional Reference Condition
Additional Condition
Duplicate Check
Enabled
Severity Error Warning Information
Column List
Additional Condition
Custom Check/Business Check
Enabled
Severity Error Warning Information
SELECT PK_NAMES,PK_1,PK_2,PK_3,PK_4,PK_5,PK_6,PK_7,PK_8,ERROR_COLUMN FROM(
)
Generate Query

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 *Specify Expression* window. For more information, see 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, see Populating Assignment Type Details in the References section. Specify the Assignment Value. Select the **Message Severity** from the drop-down list. Select the **Message** from the drop-down list.
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, 'If length of STG_CASA.N_MIN_BALANCE_YTD < 9 and length of STG_CASA.N_MIN_BALANCE_YTD > 12'. 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 *Specify Expression* window. For more information, see Define Expression.

Check Type	Description
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, 'If STG_CASA.N_MIN_BALANCE_YTD < 100'. 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, 'If STG_CASA.N_MIN_BALANCE_YTD <> STG_CASA.N_MIN_BALANCE_MTD'. 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 *Specify Expression* window. For more information, see 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, see 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
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, 'If STG_CASA.N_MIN_BALANCE_YTD is NOT IN ('100, 101, 102, 103, 104)'. 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, 'If CURRENCY_MASTER.COUNTRY_CODE is NOT IN ('IN', 'US', 'JP')'. 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 List of Values column. The *Code Selection* window 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 *Specify Expression* window. For more information, see 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, see Populating Assignment Type Details in the References 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
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 *Specify Expression* window. For more information, see 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, see Populating Assignment Type Details in the References 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 *Specify Expression* window. For more information, see 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, see Populating Assignment Type Details in the References 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
Referential Integrity Check	Referential Integrity Check identifies all base column data which has not been referenced by the selected column of the referenced table. Here, the reference table and columns are user specified. **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, '(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))'. 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 Select grid is excluded from the drop-down list. Select the **Column** from the drop-down list. The list displays those columns that have the same Data Type as that of the **Base Column** selected under Select grid. Select the **Is Composite Key** checkbox if the base column is part of a Composite Key. Enter the **Additional Reference Condition** for the Composite Key. For example, baseTable.column2=refTable.column2 and baseTable.column3=refTable.column3 where column1, column2, column3 are part of the Composite Keys, baseTable.column1 is the base column and refTable.column1 is the reference column. Click  button and specify an expression for **Additional Condition** using *Specify Expression* window. For more information, see Define Expression. **Note**: SELECT privilege should be granted to METADOM (atomic schema) user on Base Table and Reference Table for all DQ rules which are defined on "Data Management Sources".
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, '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'. 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 *Specify Expression* window. For more information, see Define Expression.

Check Type	Description
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: • 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_8,1 ERROR_COLUMN FROM FSI_D_INVESTMENTS WHERE ACCOUNT_GROUP_CD IS NULL AND ACCOUNT_NUMBER IS NOT NULL) • 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. **Note**: Threshold check is performed based on the value set to **Y** for the following parameter `DQ_ENABLE_CUSTOM_THRESHOLD`. By default, the value is **N**.

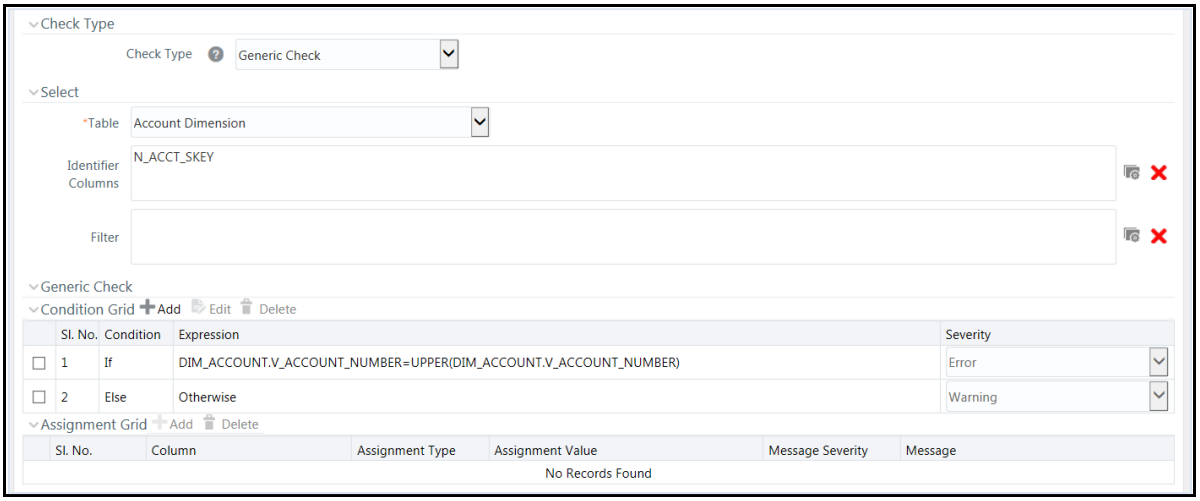
1. Click **Generate Query**. The details are validated and the validated query along with the status is displayed in the Generated Query section.
2. Click **Save**. The defined Data Quality Rule definition is displayed in the *Data Quality Rule Summary* window with the status as "Saved".
3. Additional conditions would be appended to the RI check criteria, that is, to the NOT EXISTS clause in conjunction with an AND.

> **NOTE** For all checks except Referential Integrity Check, the additional condition is expected to be defined on the base table; whereas for RI check, it can be done on the base table as well as the reference table.

4.10.1.1.2 Generic Check

Generic Check is used to define conditions based on multiple columns of a single base table. These checks are not pre-defined and can be specified (user-defined) as required.

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



1. 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; that is, based on ENABLE_CLASSIFICATION parameter. For more information, see Table Classification section.

2. Click button and define the **Filter** condition using the *Specify Expression* window. For more information, see 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.

3. Click **Add** button in the Condition grid. The *Specify Expression* window is displayed. Define the Condition expression. For more information, see 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 the checkbox corresponding to the condition and selecting the Severity as **Warning or Information** 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.

4. Select the checkbox adjacent to the required Condition expression and click **Add** 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.

5. 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, see Populating Assignment Type Details in the References 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 Severity from the drop-down list.

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

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

6. Click **Save**. The defined Data Quality Rule definition is displayed in the *Data Quality Rule Summary* window with the status as "Saved".

4.10.1.1.3 Control Total Check

Using Control Total check, you can compare a constant reference value or reference entity against single or multiple values obtained by applying aggregate functions on the columns of a master/main table, with supporting dimensional filters. The dimensional filters can be time, currency, geography or so on.

There is no data correction configurable for the Control Total check. This check provides summary level information on the entity used, attributes used, aggregate function applied, dimension-filters, group-by columns/predicates selected, number of records subject to the check and so on.

Example of Control Total check based on Constant/Direct Value

Consider an example where you want to check the sum of loan amount for currency code 'INR' is greater than or equal to a Constant Value. In the LHS, select Table as "stg_loan_transactions", Dimensional Filter as "dim_currency.n_currency_code='INR'" and Group By as

"dim_legal_entities.le_code, lob.lob_code, dim_branch.branch_code, dim_prodcut.product_id". In this case, the query for LHS Criteria will be

```
Select sum(end_of_period_balance)

from stg_loan_transactions SLT, dim_currency DC

where SLT.n_currency_skey=DC.n_currency_skey and DC.n_currency_code = 'INR'
and fic_mis_date = '12/12/2015'

group by dim_legal_entities.le_code, lob.lob_code, dim_branch.branch_code,
dim_prodcut.product_id"
```

If the result of the aggregate function is greater than or equal to the specified constant value, it will be marked as Success, else Failure. After execution, the results can be viewed in DQ reports.

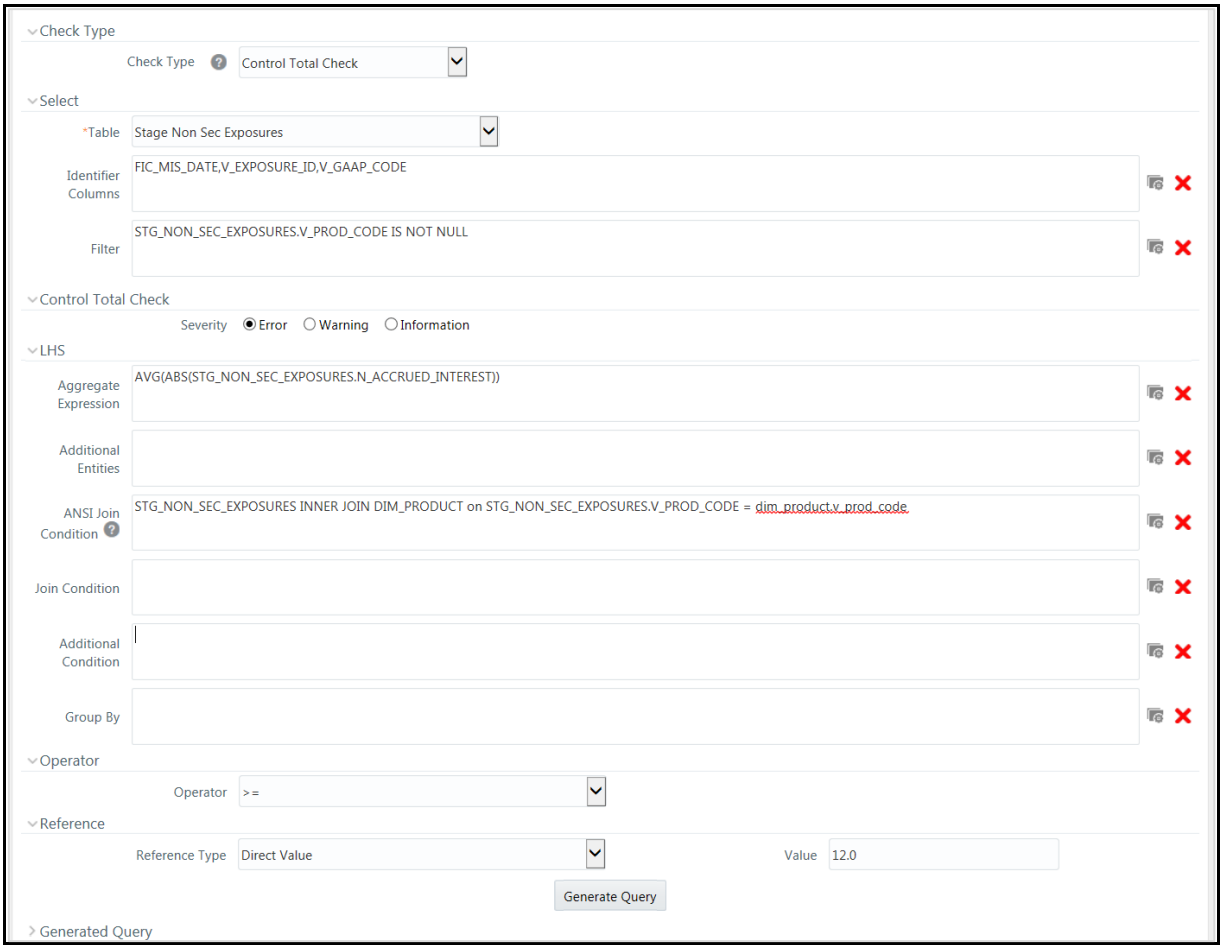
Example of Control Total check based on Reference Entity

Consider an example where you want to compare the sum of loan amount for currency code 'INR' with the sum of transaction amount for currency code 'INR' for a period with MIS DATE as 12/12/2015. In the LHS, select Table as "stg_loan_transactions", Dimensional Filter as "dim_currency.n_currency_code='INR'" and Group By as "dim_legal_entities.le_code, lob.lob_code, dim_branch.branch_code, dim_prodcut.product_id". In the RHS, select Table as "gl_master", Dimensional Filters as "dim_currency.n_currency_code='INR'" and fic_mis_date = 12/12/2015, and Group By as "dim_legal_entities.le_code, lob.lob_code, dim_branch.branch_code, dim_prodcut.product_id". In this case, the query for LHS criteria will be same as given in the previous example and the query for RHS criteria will be:

```
select sum(end_of_period_balance)

from gl_master GM, dim_currency DC, dim_time_date DTD

where GM.n_currency_skey = DC.n_currency_skey  and GM.gl_code = 'LES_001'
and DTD.fic_mis_date = '12/12/2015' and DC.n_currency_skey = 'INR'

group by dim_legal_entities.le_code, dim_lob.lob_code,
dim_branch.branch_code, dim_prodcut.product_id
```

Consider you have selected the Operator as ">=". Then, if the result of the aggregate function in the LHS is greater than or equal to the result of the aggregate function in the RHS, it will be marked as Success, else Failure. After execution, the results can be viewed in DQ reports.

If **Control Total Check** is selected, do the following:



1. 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; that is, based on ENABLE_CLASSIFICATION parameter. For more information, see Table Classification section.
2. Click button and select the Identifier Columns from the *Column Selection* window. The list displays all PK columns of the selected base table.
   This feature allows you to view the DQ results report based on the selected identifier columns apart from the PK columns. You can select up to 8 Identifier columns including the PK columns. It is mandatory to select the PK Columns.
3. Click button and define the **Filter** condition using the *Specify Expression* window. For more information, see 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.

4. Select the Severity as **Error**, **Warning** or **Information**.
5. Enter the details in the LHS grid as tabulated:

Field	Description
Aggregate Expression	Click button and define the **Aggregate Expression** using the *Specify Expression* window. For more information, see Define Expression.
Additional Entities	Click button and add additional entities if required from the *Additional Entities Selection* window. This is optional.
ANSI Join Condition	Specify ANSI Join condition if you have added Additional Entities. For DQ rules defined on source, prefix the table names with "$SOURCE$" if you are directly entering the ANSI Join Condition in the Expression editor.
Join Condition	Specify Join condition if you have added Additional Entities.
Additional Condition	Specify additional condition if any.
Group By	Specify the group by predicates/ columns by clicking button and selecting **Table** and **Column** from the respective drop-down lists. **Note**: The group-by columns need not match the filter criteria columns in the where clause of LHS. If Group By columns are not selected on LHS and RHS, a single row on LHS will be compared with a single row on RHS.
Group By Join Condition	Specify the Group By Join condition in the form LHS.GRPBY_COL1 = RHS.GRPBY_COL1 AND LHS.GRPBY_COL2 = RHS.GRPBY_COL2 and so on. LHS and RHS will be joined based on this. If the number of Group By columns on LHS does not match with the number of Group By columns on RHS, it is mandatory to enter **Group By Join Condition**. If Group By Join Condition is not specified and the number of Group By columns on LHS and RHS are equal, Group By Join Condition will be automatically generated in the form "LHS.GRPBY_COL1 = RHS.GRPBY_COL1 AND LHS.GRPBY_COL2 = RHS.GRPBY_COL2". If Group By columns are present only on LHS, every row on LHS will be compared against the single row on RHS. Group By Join Condition will be generated in the form "RHS.R_ID=1". If Group By columns are present only on RHS, the single row in LHS will be compared against every row on RHS. Group By Join Condition will be generated in the form "LHS.L_ID=1".

6. Select the appropriate **Operator** from the drop-down list. The available operators are **>**, **<**, **=**, **<>**, **<=**, and **>=**. Evaluation is done based on the selected numeric operator.
7. Select the **Reference Type** as:
   - **Direct Value-** Enter the reference value in the **Value** field.
   - **Another Entity**- This is used when you want to compare LHS with a different entity with its set of attributes. Enter the details as follows:
     - **Reference Base Table**- Select the reference table from the drop-down list.

- Specify **Aggregate Expression**, **Additional Entities**, **ANSI Join Condition**, **Join Condition, Additional Condition** and **Group By** in the respective fields. For more information, see the preceding table.

- **Relative Reference**- Here Reference value is the same aggregate function on the subject entity itself, but dimensional filters can vary. **Reference Base Table** and **Aggregate Expression** are pre-seeded as in the LHS grid. You cannot modify them. Enter the other details as follows:
  - Specify **Additional Entities, ANSI Join Condition, Join Condition, Additional Condition** and **Group By** in the respective fields. For more information, see the preceding table.

> **NOTE** Control Total check is allowed only on numeric columns.
>
> Group By clauses on LHS and RHS should be defined in such a way that output of RHS and LHS are semantically correct to be compared. That is, RHS and LHS should not result in two different sets that cannot be compared against. Hence, ensure the rule definitions are technically validated to meet this.

8. Click **Generate Query**. The details are validated and the validated query along with the status is displayed in the Generated Query section.
9. Click **Save**. The defined Data Quality Rule definition is displayed in the *Data Quality Rule Summary* window with the status as "Saved".

> **NOTE** No corrections or assignments are done by the framework for Control Total check.

4.10.1.1.4 Table Classification

DQ rules whether can be defined on a table is decided by a new Servlet parameter ENABLE_CLASSIFICATION, which is present in the web.xml file.

If ENABLE_CLASSIFICATION is set to Y, any tables with classification code 340 can be selected as base table for DQ rule definition. This is the old behavior.

If ENABLE_CLASSIFICATION is set to N, then irrespective of the classification any table can be selected as base table for DQ rule definition.

4.10.1.1.5 Defining Data Quality Rules on Partitioned Tables

Data correction on partitioned table is accomplished by overwriting the particular partition specified. At run time, DQ engine look for partition information from OFSAAI object registration table REV_TAB_PARTITION. If base table is partitioned, REV_TAB_PARTITIONS table will have partition column, value and sequence registered in it.

If PARTITION_VALUE does not present in REV_TAB_PARTITIONS table for a TABLE_NAME.COLUMN_NAME, it is considered as a dynamic partition.

Hive allows operations on dynamic partition only in non-strict mode. Non-strict mode is set by DQ engine while it identifies REV_TAB_PARTITION.V_PARTITION_VALUE as null.

Static partition value can also be set with placeholders. For example, $PARAM1, $PARAM2 and the same can be mentioned as 'Additional Parameters' while DQ batch execution. Value for the placeholders/ additional parameters will be substituted as the static partition values during DQ run time.

4.10.1.2 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* window:

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

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

4.10.1.3 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* window:

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

   The *Data Quality Definition (Edit Mode)* window is displayed.
3. Update the details as required. For more information, see Create Data Quality Rule.

4. Click **Save** and update the changes. The **Status** is changed to **Saved** and the rule should undergo authorization.

4.10.1.4 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* window:

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

4.10.1.5 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* window. 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* window:

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 **Approve** button. The *User Comments* window 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 **Reject** button. The *User Comments* window 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* window. You can mouse-over button to view the Approver comments in a pop-up.

4.10.1.6 Resaving Data Quality Rule

The DQ rule definition undergoes changes when the OFSAA data model alters the base tables attributes (columns, primary keys) as a part of model versioning. The Resave option allows you to select multiple DQs and save at once, instead of re-generating and re-saving the rules one by one. For DQ Rules defined on Infodom tables, resave persists the default PK columns as identifier columns and regenerate the query. So the custom identifier columns selected at the time of rule definition will not be considered when you resave the DQ rule. For DQ rules defined on Source, as the PK columns of source tables are not identifiable, resave just re-generates the query and resave the query; it does not update the identifier columns.

To resave data quality rule:

1. From the *Data Quality Rules* window, select the DQ Rules which you want to resave and click **Resave**.
2. A status message is displayed showing whether the Resave was successful or failed.

4.10.1.7 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).

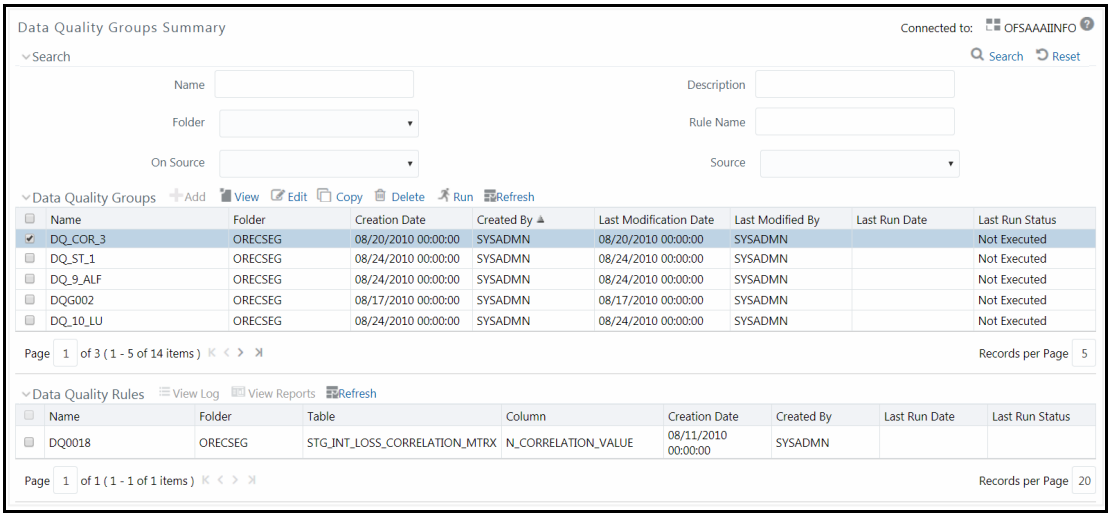
1. Select the checkbox adjacent to the required DQ Name whose details are to be removed.
2. Click **Delete** button from the Data Quality Rules tool bar.
3. Click **OK** in the information dialog to confirm deletion.

4.10.2 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* window of Data Management Tools framework or in *Batch Execution* window of Operations module.

The roles mapped to DQ Group are as follows:

- DQ Group Access
- DQ Group Advanced
- DQ Group Authorize
- DQ Group Phantom
- DQ Group Ready
- DQ Group Write



The *Data Quality Groups Summary* window 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* window.

NOTE

- 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* window.
- 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* window.

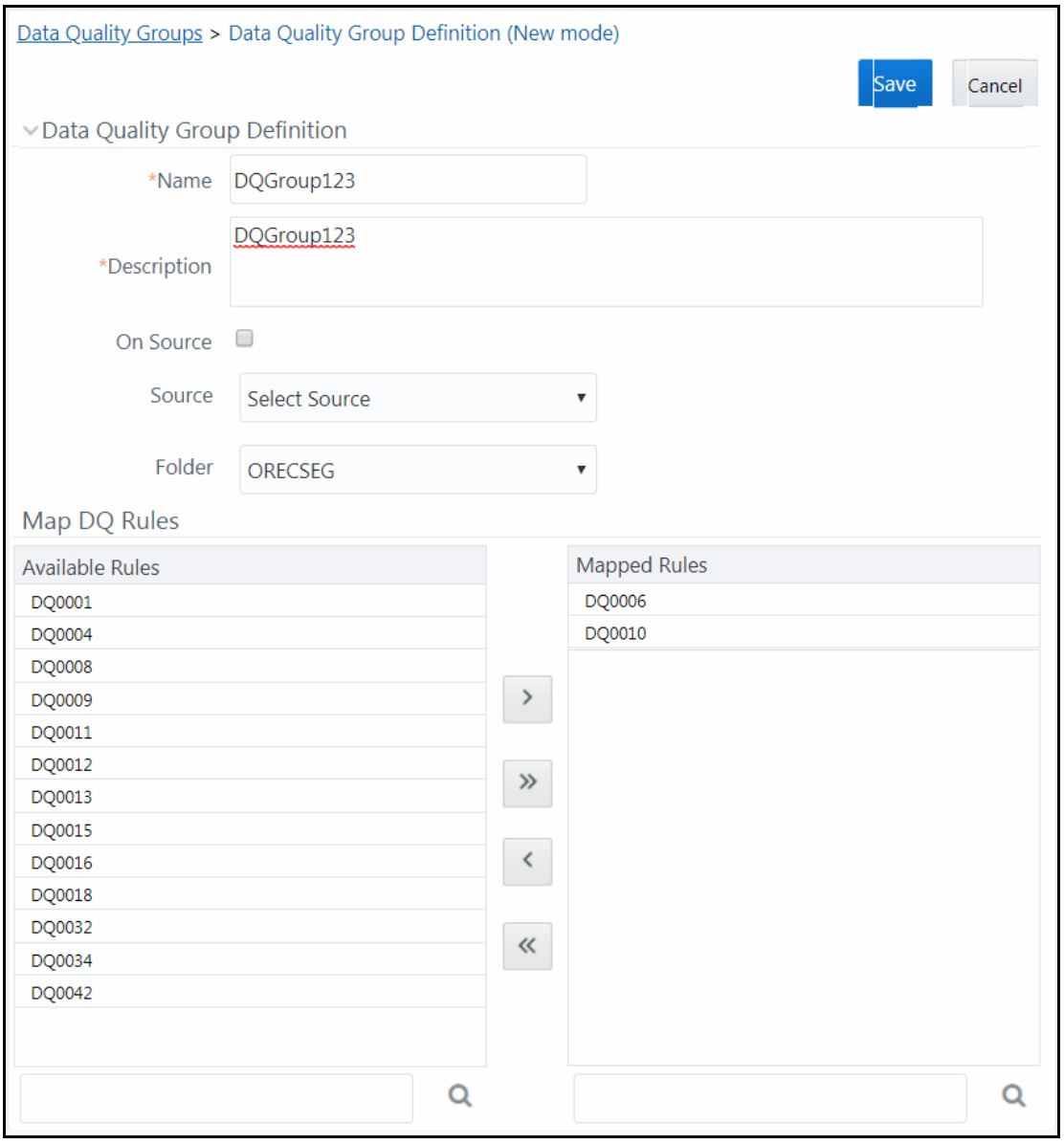
You can also search for a DQ Group definition based on Name, Description, Folder, Rule Name, On Source, or Source.

4.10.2.1 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* window:

1. From the *Data Quality Groups Summary* window, click **Add** button in the Data Quality Groups tool bar. **Add** button is disabled if you have selected any checkbox in the grid. The *Data Quality Group Definition* window is displayed.



1. 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 **On DI Source** checkbox if you want to group DQ Rules defined on DI Sources.
   - Select the **Source** from the drop-down list. The **Source** drop-down list displays sources created on Oracle DB and Hive DB if it is RDBMS Information Domain or sources created on Hive DB if it is Hive Information Domain.

> **NOTE** DQ rule defined on a particular application- source mapping cannot be grouped together with DQ rules defined on another application- source mapping.

- Select the **Folder** (available for selected Information Domain) from the drop-down list.

2. 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.

> **NOTE** If a DQ group has interdependent rules, such rules would not give the expected result.

   - 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.
3. Click **Save**. The defined DQ group is listed in the *Data Quality Rule Summary* window and can be executed for processing. For more information, see Executing Data Quality Group.

4.10.2.2 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* window. This in turn creates a Batch in Operations module. You can also create and execute a DQ Group in the *Batch Execution* window 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.

> **NOTE** Ensure **Allow Correction on DI Source** checkbox is selected in the **System Configuration**> **Configuration** > **Others** tab if you want to do the Data Quality check and correction simultaneously through DCDQ framework.

Note that the results of execution of Data Quality Rules are stored in the table DQ_RESULT_DETL_MASTER of respective METADOM schema. During OFSAAI installation ensure the Oracle database tablespace in which this table resides is configured to AUTOEXTEND ON. Otherwise, the DQ Rule executions might result in error due to insufficient storage space available (ORA-01653 - Unable to extend tablespace by 1024). To mitigate this error, ensure sufficient storage for the tablespace has been allocated. For a single check (DQ) on a row of data, the table DQ_RESULT_DETL_MASTER stores the results in 1 row. Thus, for 2 checks on a row, the table would store results in 2 rows and so on.

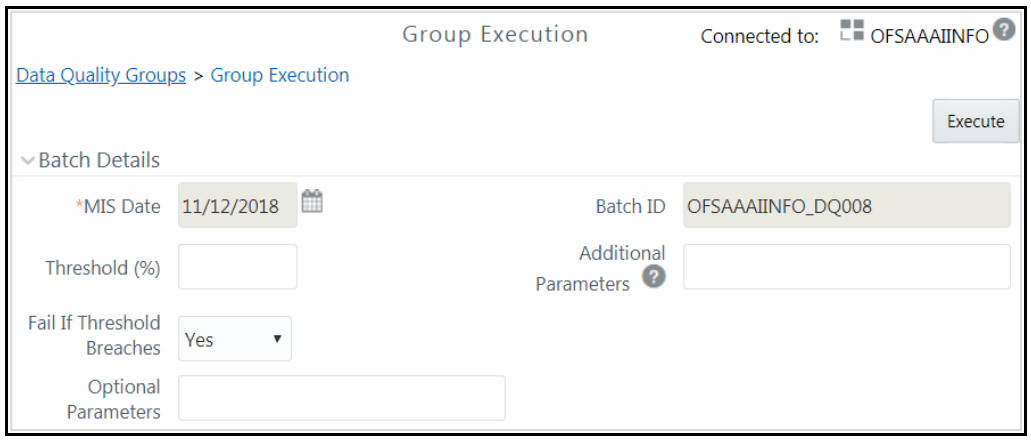
A provision to run DQ Rules in a DQ Group in parallel is introduced. There are two parameters DQ_ENABLE_PARALLEL_EXEC and DQ_MAX_NO_OF_EXEC_THREADS added in the CONFIGURATION table. If DQ_ENABLE_PARALLEL_EXEC parameter is set to 'Y', DQ rules within the group are executed in parallel. DQ_MAX_NO_OF_EXEC_THREADS can be used to specify the number of rules which should be run simultaneously.

If DQ_ENABLE_PARALLEL_EXEC parameter is set to 'N' or is not present, rules within the group are executed sequentially.

> **NOTE** 'Fail if threshold breaches' flag will not be considered for parallel execution.

To execute a DQ Group in the *Data Quality Group Summary* window:

1. From the *Data Quality Groups Summary* window, select the checkbox adjacent to the required DQ Group Name.
2. Click  **Run** button from the Data Quality Groups tool bar. The **Run** button is disabled if you have selected multiple checkboxes. The *Group Execution* window 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* window.

> **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 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; and so on.

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 more 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'.

- Select **Yes** or **No** from the **Fail if Threshold Breaches** drop-down list. If **Yes** is selected, execution of the task fails if the threshold value is breached. If **No** is selected**,** execution of the task continues.

> **NOTE** For Custom Check type DQ Rules in Hive Infodoms, the execution of the task will not fail even if the threshold is breached. This is a limitation.

- For executing DQ rules on Spark, specify 'EXECUTION_VENUE=Spark' in the **Optional Parameters** field. Before execution, you should have registered a cluster from *DMT Configurations > Register Cluster* window with the following details:
  - Name- Enter name of the Hive information domain.
  - Description- Enter a description for the cluster.
  - Livy Service URL- Enter the Livy Service URL used to connect to Spark from OFSAA.

4. 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* window. For more information, see Viewing Data Quality Group Summary Log.

4.10.2.3 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* window:

1. From the *Data Quality Groups Summary* window, select the checkbox adjacent to the required DQ Group Name. The mapped DQ Rules are displayed in the Data Quality Rules grid.

2. Click **View** button from the Data Quality Groups tool bar.

   The *Data Quality Group Definition* window displays the DQ Group definition details and the mapped DQ rules.

4.10.2.4 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* window:

1. From the *Data Quality Groups Summary* window, select the checkbox adjacent to the required Group Name.
2. Click **Edit** button from the Data Quality Groups tool bar. The *Edit - DQ Group - DQ Definition Mapping* window is displayed.
3. Update the details as required. For more information, see Creating` Data Quality Group.
4. Click **Save** and update the changes.

4.10.2.5 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* window:

1. From the *Data Quality Groups Summary* window, select the checkbox adjacent to the required Group Name in the list whose details are to be duplicated.
2. Click **Copy** button from the toolbar. **Copy** button is disabled if you have selected multiple checkboxes. The *Copy - DQ Group - DQ Definition Mapping* window is displayed.
3. Edit the DQ Group Name and other details as required. For more information, see Create Data Quality Group.
4. Click **Save**. The new DQ Group definition is displayed in the *Data Quality Groups Summary* window.

4.10.2.6 Viewing Data Quality Group Summary Log

You can view the execution log details of Data Quality Rules in the *View Log* window. The *View Log* window 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.

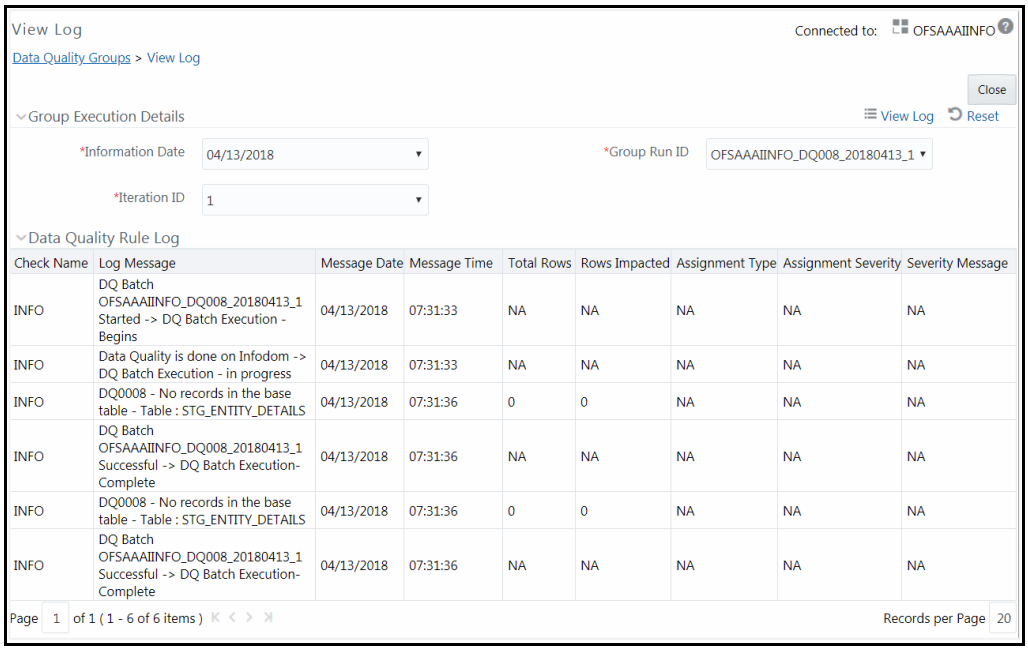
To view the Data Quality Rule execution log details in the *Data Quality Groups Summary* window:

1. From the *Data Quality Groups Summary* window, select the DQ Group Name whose execution log you want to view.

   The Data Quality Rules associated with the selected Group are displayed in the Data Quality Rules grid.
2. Click the link in Last Run Status column corresponding to the required Data Quality Rule.
   Or

Select the required Data Quality Rule and click **View Log** from the Data Quality Rules toolbar.

The *View Log* window is displayed with the latest execution data pertaining to Data Quality Rule selected.



- 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 lists.
- Click **View Log** button from the Group Execution Details toolbar. The Data Quality Rule Log grid displays the execution details of the selected Data Quality Rule. You can also click **Reset** button in the Group Execution Details toolbar to reset the selection.

4.10.2.7 Viewing Data Quality Report

You can view the execution summary report of Data Quality Rules in the *Data Quality Reports* window. The Data Quality Summary Report grid displays the details such as Group Name, Description, Category, Table, Column, Total Rows, and Rows Impacted. By clicking the corresponding DQ check link under Category, you can view the Data Quality Detailed Report grid, which displays details of the record which has a data correction such as Primary Key Columns, Error Value, and Assignment value.

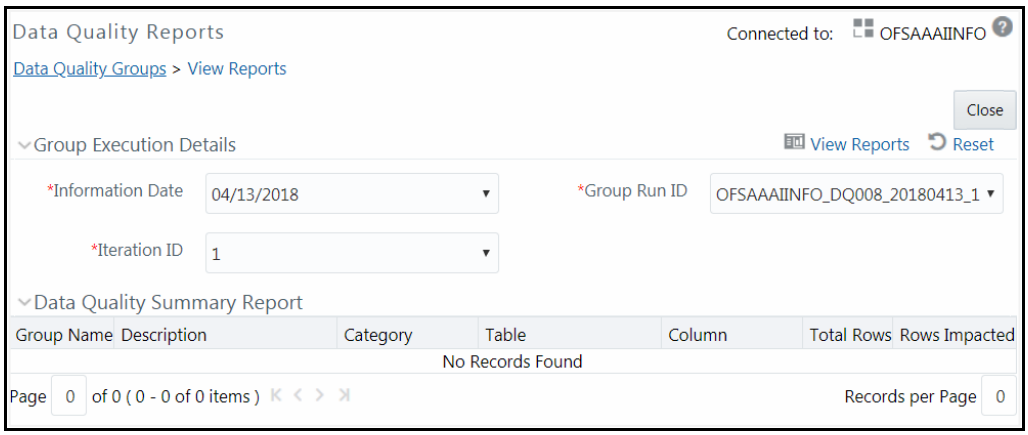
> **NOTE** If you have opted to run T2T with data correction, then the data quality checking is done in the source and the Data Quality Report generated is only a preview report of the actual execution. That is, though the execution may have failed, you can view Data Quality report.

To view the *Data Quality Reports* window:

1. From the *Data Quality Groups Summary* window, select the DQ Group Name whose DQ Report you want to view.

   The Data Quality Rules associated with the selected Group are displayed in the Data Quality Rules grid.

2. Select the checkbox corresponding to the DQ rule and click **View Reports** button in the Data Quality Rules grid. The *Data Quality Reports* window is displayed.
3. 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 lists.
4. Click button from the Group Execution Details toolbar. The Data Quality Summary Report grid is displayed.
5. Click the DQ check link under the Category column. The Data Quality Detailed Report grid is displayed.



For Control Total Check type, the Data Quality Detailed Report displays Subject Reference Value, Operator, Aggregate Reference Value, Group By columns, Aggregate Row Status and Rows Impacted.

4.10.2.8 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* window.

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

4.10.3 Configure Dynamic Degree of Parallelism (DOP) in DQ Framework

This feature allows you to achieve Oracle parallelism or any setting's change before executing DQ component. You can add scripts in the `preScriptDQDC.conf` file located at `$FIC_DB_HOME/conf/` folder. These scripts will be executed before executing DQ task. These are generic scripts and are common for all the DCDQ tasks.

> **NOTE** This is applicable only on Oracle based Information domain.

You can define any optimization statement inside the preScriptDQDC.conf file as stated below:

1. Statement starting with #, will be ignored as it is considered as comments.
2. Statement with Key Words like CREATE, TRUNCATE, DROP, SELECT, and UPDATE will be ignored.
3. Different statements should be separated either by ; or new line.
4. Accepted/Filtered statements will be executed and can be seen in the log with execution status as SUCCESS/FAILURE.
5. If unable to execute optimization statements or if file is not present in the respective path, log will show the message, but DCDQ will not fail. It will continue with the execution.

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 see to the following sections based on your need.

4.11.1 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.

4.11.2 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.

A separate license is required for third party jars and the client has to procure it.

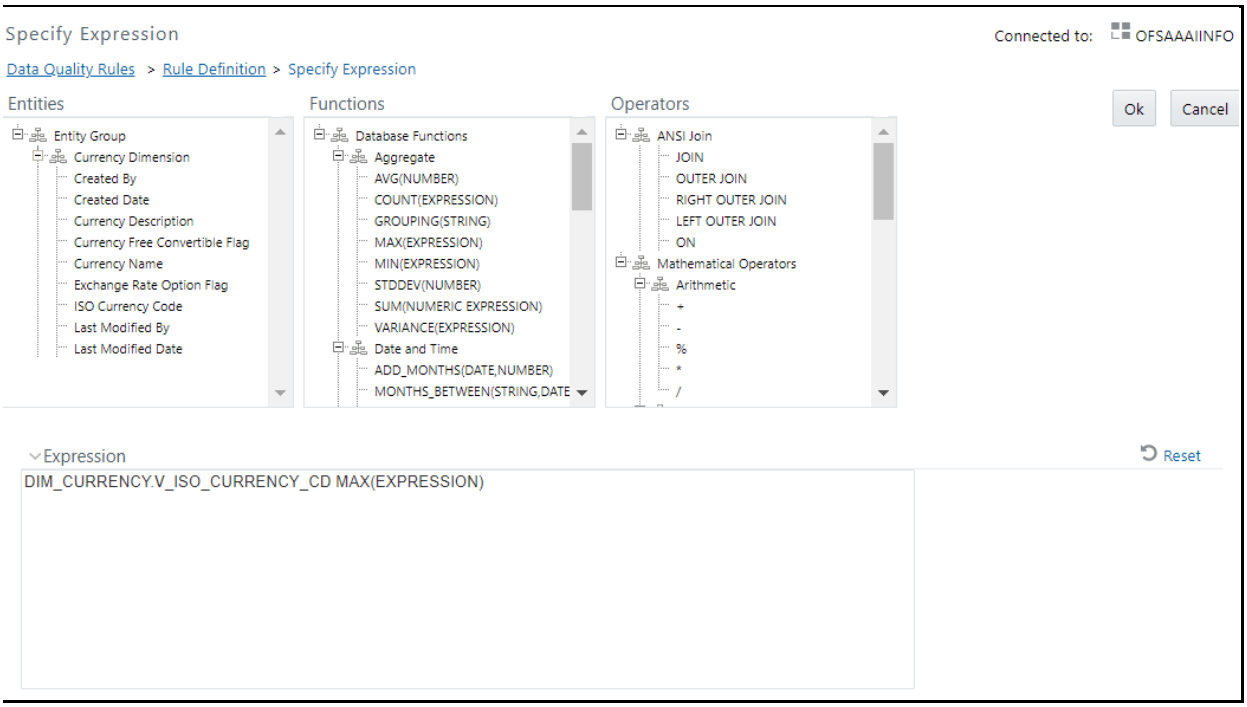
4.11.3 RAC

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.

4.11.4 Defining Expression

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



The *Specify Expression* window 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** – This is divided as Database Functions and User Defined Functions. Database 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 String, Aggregate, Date and Time, and Mathematical 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', 'BETWEEN', 'LIKE', 'IS NULL', and 'IS NOT NULL'.
Logical	'NOT', 'AND' and 'OR'
Set	UNION, UNION ALL, INTERSECT and MINUS
Others	The Other operators are 'PRIOR', '(+)', '(' and ')'.
Concatenation	||

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 window.

4.11.5 Passing Runtime Parameters in Data Mapping

The following Parameters are supported in Expressions, Joins and Filters used in the Data Mapping definition.

- $RUNID
- $PHID
- $EXEID
- $RUNSK
- $SYSDATE
- $TASKID
- $MISDATE
- $BATCHRUNID

Apart from the above $Parameters, any other parameter can be passed within Square-Brackets. For example, [PARAM1], [PARAM2], [XYZ], [ABCD].

Apart from these, L2H/H2H/T2H/H2T/F2H mappings also support following additional default parameters. Values for these are implicitly passed from ICC/RRF.

- $MISDT_YYYY-MM-DD - Data type is String and can be mapped to VARCHAR2. Value will be the MISDATE in 'yyyy-MM-dd' format.
- $MISYEAR_YYYY - Data type is String and can be mapped to VARCHAR2. Value will be the year value in 'yyyy' format from MISDATE.
- $MISMONTH_MM - Data type is String and can be mapped to VARCHAR2. Value will be the month value in 'MM' format from MISDATE.
- $MISDAY_DD - Data type is String and can be mapped to VARCHAR2. Value will be the date value in 'dd' format from MISDATE.
- $SYSDT_YYYY-MM-DD- Data type is String and can be mapped to VARCHAR2. Value will be the System date in 'yyyy-MM-dd' format.
- $SYSHOUR_HH24 - Data type is String and can be mapped to VARCHAR2. Value will be the hour value in 'HH24' format from System date.
- $MISDT_YYYYMMDD - Data type is String and can be mapped to VARCHAR2. Value will be MISDATE in YYYYMMDD date format.
- $SYSDATE_YYYYMMDD- Data type is String and can be mapped to VARCHAR2. Value will be system date in YYYYMMDD date format.

> **NOTE** The aforementioned parameters are not supported for T2T and F2T.

Two additional parameters are also supported for L2H mappings:

- [INCREMENTALLOAD] – Specify the value as TRUE/FALSE. If set to TRUE, historically loaded data files will not be loaded again (load history is checked against the definition name, source name, target infodom, target table name and the file name combination). If set to FALSE, the execution is similar to a snapshot load, and everything from the source folder/file will be loaded irrespective of load history.

- [FOLDERNAME] – Value provided will be used to pick up the data folder to be loaded.
  - For HDFS based Weblog source: Value will be suffixed to HDFS File Path specified during the source creation.
  - For Local File System based Weblog source: By default the system will look for execution date folder (MISDATE: yyyymmdd) under STAGE/<source name>. If the user has specified the FOLDERNAME for this source, system will ignore the MISDATE folder and look for the directory provided as [FOLDERNAME].

Passing values to the Runtime Parameters from the RRF module

- Values for $Parameters are implicitly passed through RRF
- Values for dynamic parameters (given in Square Brackets) need to be passed explicitly as: "PARAM1","param1Value", “PARAM2”, “param2Value"

Passing values to the Runtime Parameters from the Operations module

- Value for $MISDATE is passed implicitly from ICC
- Value for other $parameters and dynamic parameters (given in Square Brackets) is passed as: [PARAM] = param1VALUE , $RUNSK = VALUE

> **NOTE** If the Runtime parameter is a string or involves string comparison, ensure that appropriate single quotes are given in the DI UI. For example, Filter Condition can be DIM_COUNTRY.CountryName = ‘[PARAMCNTRY]’.

4.11.6 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* window. For more information, see Specify Expression.

NOTE 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.

5 Unified Analytical Metadata

The Unified Analytical Metadata 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 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.

The Unified Analytical Metadata is intended for the Information and Business Analysts who are instrumental in supporting and affecting analytical decisions. This section includes the following topics:

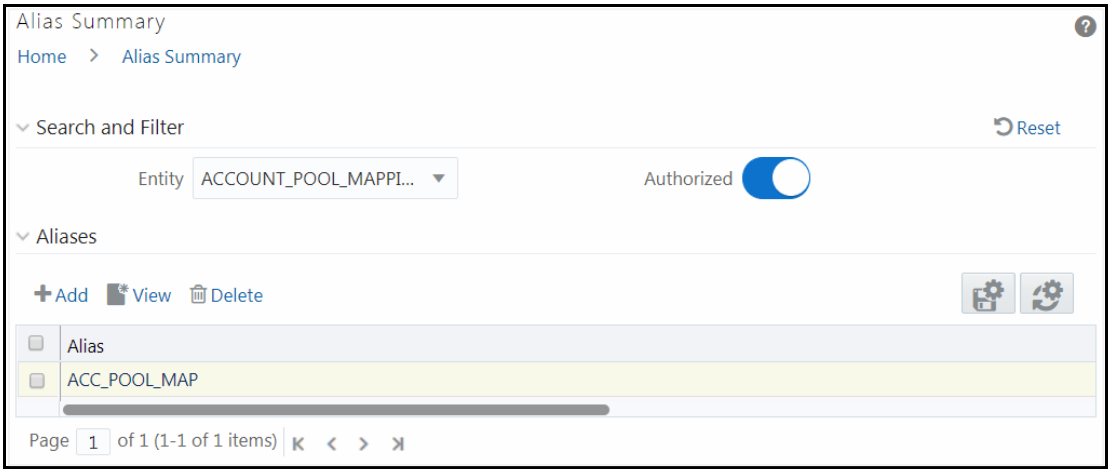
5.1 Alias

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

The roles mapped to Alias module are as follows:

- Alias Access
- Alias Advanced
- Alias Authorize
- Alias Phantom
- Alias Read Only
- Alias Write

For all the roles and descriptions, see Appendix A.



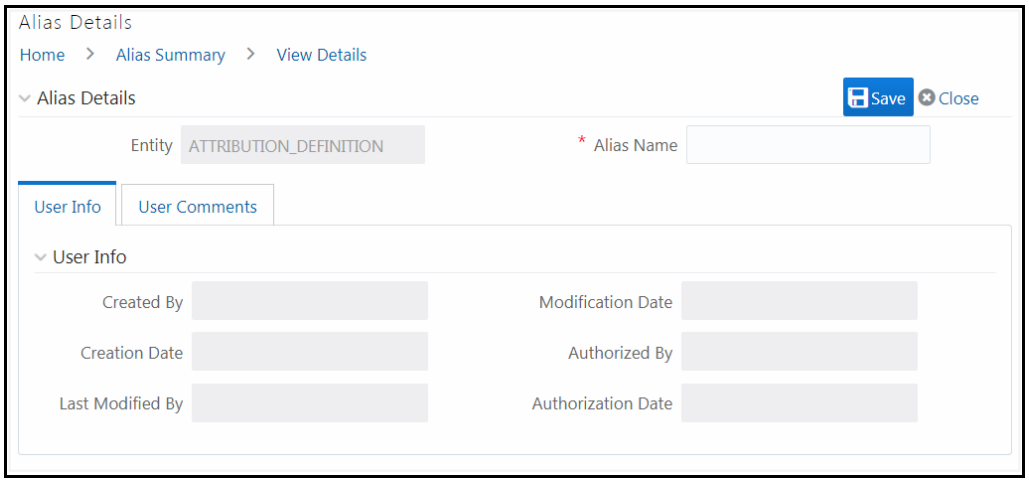
The *Alias Summary* window displays the Alias name of the selected Entity. You can also add a new Alias, view the Alias details and delete an existing Alias. By clicking the Column header names, you can sort the column names in ascending or descending order. Click  if you want to retain your user preferences so that when you login next time, the column names will be sorted in the same way. To reset the user preferences, click  .

5.1.1 Adding Alias

This option allows you to add an Alias to an Entity. Your user group should be mapped to the role Alias Write for adding alias.

To create an Alias:

1. Select an **Entity** from the drop-down list for which you need to create an Alias and click **+Add.** The *Add Alias* window is displayed.



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

2. Enter the Alias name you wish to provide for the selected entity in the **Alias Name** field.
3. 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* window displays metadata information about the Alias Name created. The User Comments section facilitates you to add or update additional information as comments.

5.1.2 Viewing Alias

You need to be mapped to the role Alias Read Only to view Alias.

To view the existing Alias:

1. Select an **Entity** from the drop-down list whose Alias details you want to view and click **View**. The *View Details* window is displayed.

   The User Info grid at the bottom of the window displays the metadata information about the Alias definition along with the option to add comments.

5.1.3 Deleting Alias

You need to be mapped to the role Alias Write to Delete Alias.

To delete an Alias

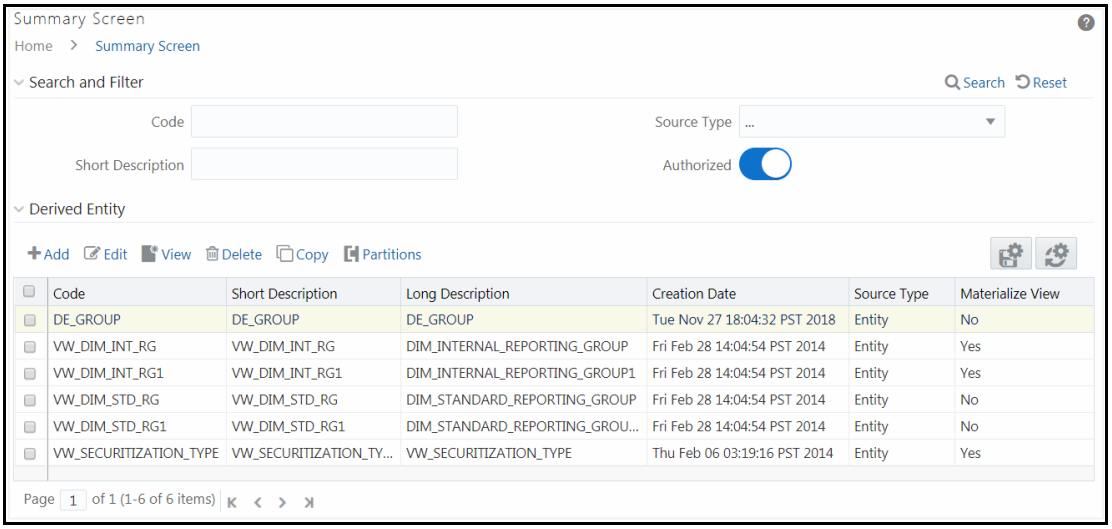
1. Select an **Entity** from the drop-down list, whose Alias you want to delete and click **Delete** from the Aliases tool bar.
2. Click **OK** in the warning dialog to confirm deletion.

   The selected Alias names are removed.

5.2 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 Dataset or a Data Source. A Derived Entity can be used to define other Business Metadata such as measures, hierarchies, dimensions, Datasets, and cubes.

Partitioning support is introduced for Dataset based Derived entity, which have partitions enabled on the FACT table. This facilitates in fetching data from the specified partitions only, thus results in better performance. The partition values can be provided dynamically.



The *Derived Entity Summary* window displays the list of pre-defined Derived Entities with their Code, Short Description, Long Description, Creation Date, Source Type, and Materialize View status. By clicking the Column header names, you can sort the column names in ascending or descending order.

Click  if you want to retain your user preferences so that when you login next time, the column names will be sorted in the same way. To reset the user preferences, click  .

You can add, view, edit, copy, and delete a Derived Entity. You can search for a specific Derived Entity based on the Code, Short Description, Source Type, and Authorization status.

Based on the role that you are mapped to, you can access, read, modify or authorize Derived Entity. For all the roles and descriptions, see Appendix A. The roles mapped to Derived Entity are as follows:

- Derived Entity Access
- Derived Entity Advanced
- Derived Entity Authorize
- Derived Entity Phantom
- Derived Entity Read Only
- Derived Entity Write

5.2.1 Creating Derived Entity

This feature allows you to create a Derived Entity based on a Dataset, an Entity or a union of Derived Entities. For Union and Union All options, the metadata used in the participating derived entities determines the columns of the physicalized materialized view. For Union based Derived Entity, even if the participating derived entities have metadata in common, the resultant materialized view in database will ensure unique columns. The same is explained in a tabular format:

Union Based DE	Participating DEs	Metadata present in participating DEs	Final physicalized materialized view for union based DE

UN001	DE001	MSR 001	MSR 002	MSR 003	MSR001	MSR002	MSR003	MSR004	MSR005
	DE002	MSR 001	MSR 004	MSR 005					

In case of Union All based definition, the resultant materialized view in database may have repetition of data based on data present in the participating derived entities.

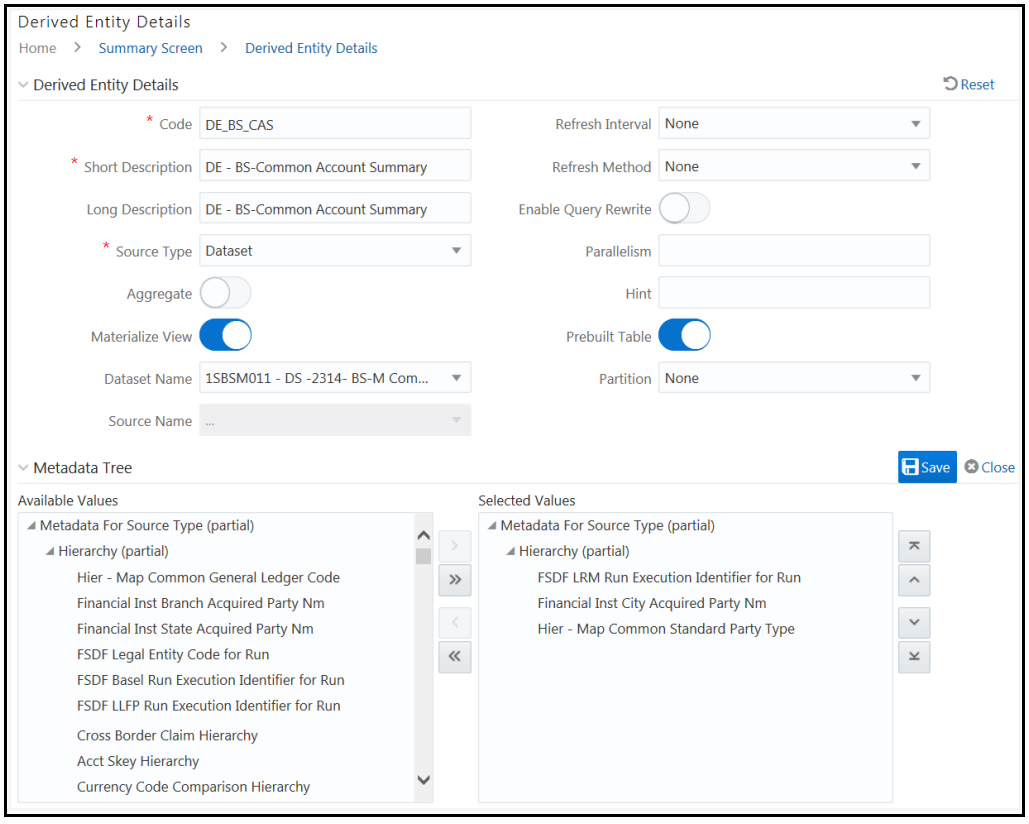
> **NOTE** To define a Derived Entity based on an Entity in a Data Source, you should have defined permissions for the particular Data Source in the Atomic schema.

You can approve a Derived Entity created by other users if you have the authorizer rights. You need to be mapped to the role Derived Entity Write to add or create a derived entity.

Partitioning is supported for Dataset based Derived Entities which have partitions enabled on the FACT table.

To create a Derived Entity:

1. Click ➕ **Add** from the Derived Entity toolbar. The *Derived Entity Details* window is displayed.



2. Enter the details as tabulated.

Field	Description
Code	Enter a distinct code to identify the Derived 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", "MONTH", "WEEK", "DAY".
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 the source type from the drop-down list. The options are **Dataset**, **Entity**, **Union** and **Union All**. The **Union** and **Union All** options are used to create a Derived Entity by combining 2 or more existing Derived Entities.
Aggregate	This field is enabled only if **Source Type** is selected as **Dataset**. Turn ON the **Aggregate** toggle button to collate the information for the Derived Entity.
Materialize View	Turn ON the **Materialize View** toggle button 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.
Dataset Name	This field is enabled only if the **Source Type** is selected as **Dataset**. Select the **Dataset Name** from the drop-down list. The Short Description for the Datasets is available in the drop-down list to select.
Source Name	This field is enabled only if the **Source Type** is selected as **Entity**. Select the **Source Name** from the drop-down list.
Refresh Interval	This field is enabled only if the **Materialize View** checkbox is selected. Select the appropriate refresh interval from the drop-down list, The options are: None- Only materialized view will be created. If you select None for **Refresh Interval**, it is mandatory to select None for **Refresh Method**. Demand- The refresh of the Materialized View is initiated by a manual request or a scheduled task. Commit- The refresh is triggered by a committed data change in one of the dependent tables.

Field	Description
Refresh Method	This field is enabled only if the **Materialize View** checkbox is selected. Select the appropriate refresh method from the drop-down list, The options are: None- Only materialized view will be created. If you have selected None for **Refresh Interval**, it is mandatory to select None for **Refresh Method**. Complete- This recreates the materialized view replacing the existing data. This can be a very time-consuming process, especially if there are huge amounts of data to be read and processed. Fast- Applies the incremental changes to refresh the materialized view. If materialized view logs are not present against the source tables in advance, the creation fails. Force- A fast refresh is attempted. If it is not possible, it applies Complete refresh. **Note**: Refresh Methods Fast and Commit do not work if the query has some ANSI Join conditions.
Enable Query Rewrite	This toggle button is enabled only if the **Materialize View** toggle button is turned ON. Turn ON the toggle button if you want to create materialized view with the query rewrite option.
Parallelism	
Hint	Specify Hints (if any), for optimized execution of query. The specified hints are appended to the underlying query of the derived entity. Oracle hints follow (/*+ HINT */) format. For example, /*+ PARALLEL */.
Prebuilt Table	This toggle button is enabled only if the **Materialize View** toggle button is turned ON and **Source Type** is selected as **Dataset**. Turn ON the toggle button to enable partition for the Derived Entity.

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

3. Double-click Metadata for Source Type.
   - For **Source Type** selected as **Dataset**, the **Metadata for Source Type** displays all Hierarchies and Measures defined on the Entities that are part of the selected Dataset, and Business processors defined on the selected Datasets.
   - For **Source Type** selected as **Entity**, it displays all Entities in the selected DI Source.
   - For **Source Type** selected as **Union** or **Union All**, it displays all Derived Entities created with **Source Type** as **Dataset**. You can select maximum of 15 Derived Entities.
4. Click ▸ to expand the folders. Select the required metadata and click › . Click » to select all metadata. You can select a metadata and click ‹ to remove that metadata or click « to remove all selected metadata.

5. Select the hierarchy for which you want to add partition from the **Partition** drop-down list. This field is enabled only if the **Materialize View** toggle button is turned ON and **Source Type** is selected as **Dataset**. This drop-down lists the Hierarchies you selected as Metadata for Source Type.
6. Click **Save**. A confirmation dialog is displayed.

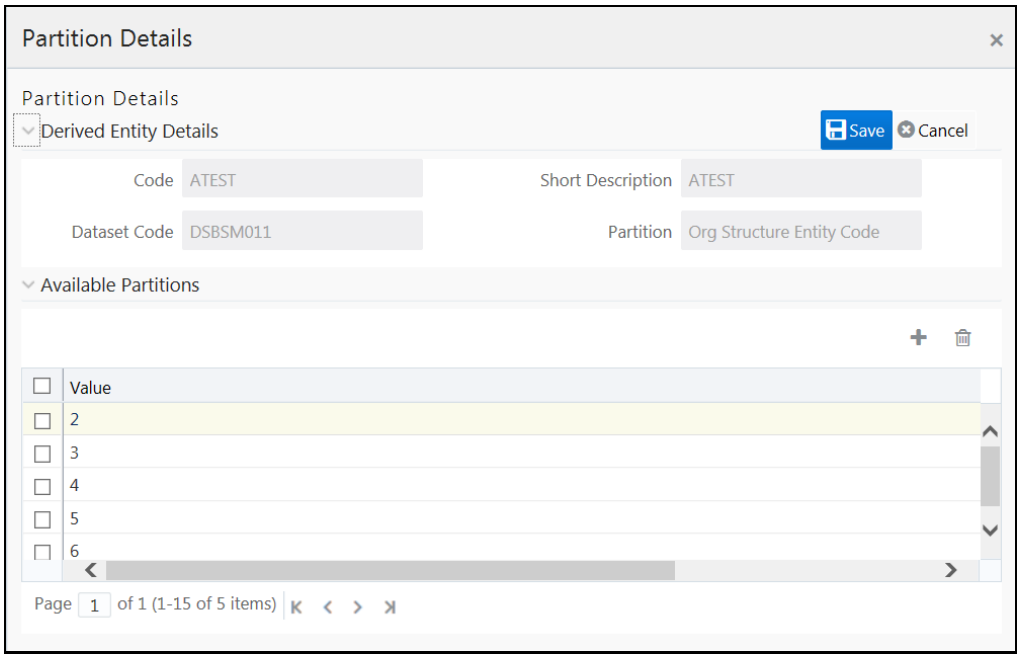
   The details are displayed in the *Derived Entity Summary* window.

5.2.2 Adding Partition Values

This option is used for adding partition values for the Derived Entity definitions which are created with Prebuilt Table flag set as Y. Once you provide partition values, data is fetched from the specified partitions only, thereby resulting in better performance.

To add partition values

1. From the *Derived Entity Summary* window, select the Derived Entity for which you want to add partition values and click **Partitions**. The *Partition Details* window is displayed.



2. Click + and enter the partition value in the editable row.
3. Click **Save**.

5.2.3 Copying Derived Entity

You can copy the pre-defined Derived Entity details to create another entity. You should have the Derived Entity Write role mapped to your user group to copy a derived entity.

To copy a Derived Entity:

1. From the *Derived Entity Summary* window, select the derived entity you want to copy and click **Copy.** The *Derived Entity Details* window is displayed.

2. Enter the required details. For more information, see Creating Derived Entity section.
3. Click **Save**.

5.2.4 Viewing Derived Entity Properties

You can view the metadata of the selected Derived Entity.

To view the existing Derived Entity definition details

1. From the *Derived Entity Summary* window, select the derived entity you want to view and click **View.** The *Derived Entity Details* window is displayed.

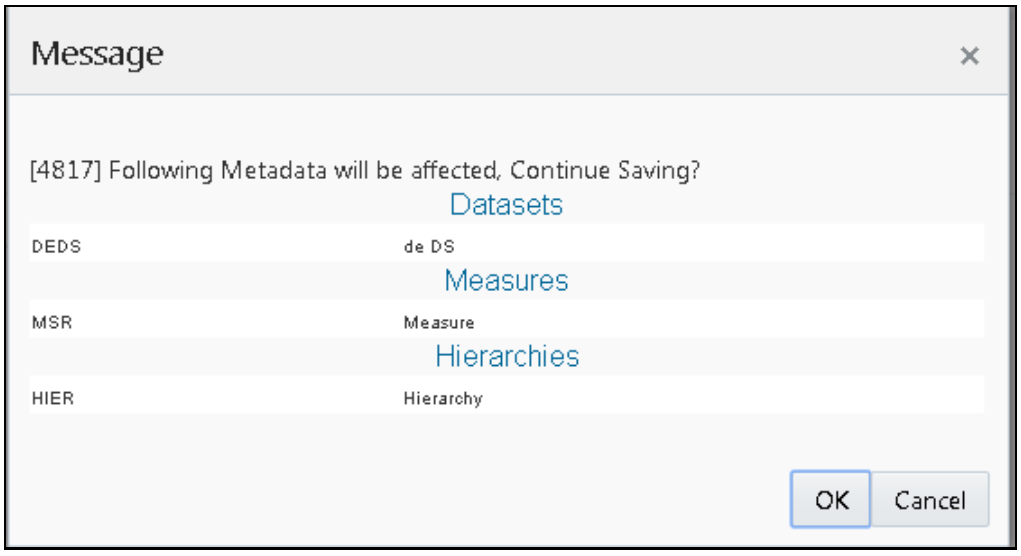
   The *View Derived Entity Details* window displays the details of the selected Derived Entity definition. The User Info grid at the bottom of the window displays the metadata information about the Derived Entity definition created along with the option to add comments.
2. Click **Close**.

5.2.5 Modifying Derived Entity

You can modify a Derived Entity definition as required. A Derived Entity definition in the un-authorized state (modified by other users) cannot be modified. You can modify Derived Entity if you have Derived Entity Write role mapped to your user group.

1. From the *Derived Entity Summary* window, select the derived entity you want to modify and click **Edit.** The *Derived Entity Details* window is displayed.
2. Modify the required details such as Short Description, Long Description and the metadata to be associated with the Derived Entity. For more information, see Create Derived Entity.
3. 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 Datasets, Measures, and Hierarchies which gets auto updated. Click **OK** to confirm, else click **Cancel**.



5.2.6 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 **Unauthorized** state (modified by other users) cannot be deleted. You can delete Derived Entity if you have the Derived Entity Write role mapped to your user group.

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.

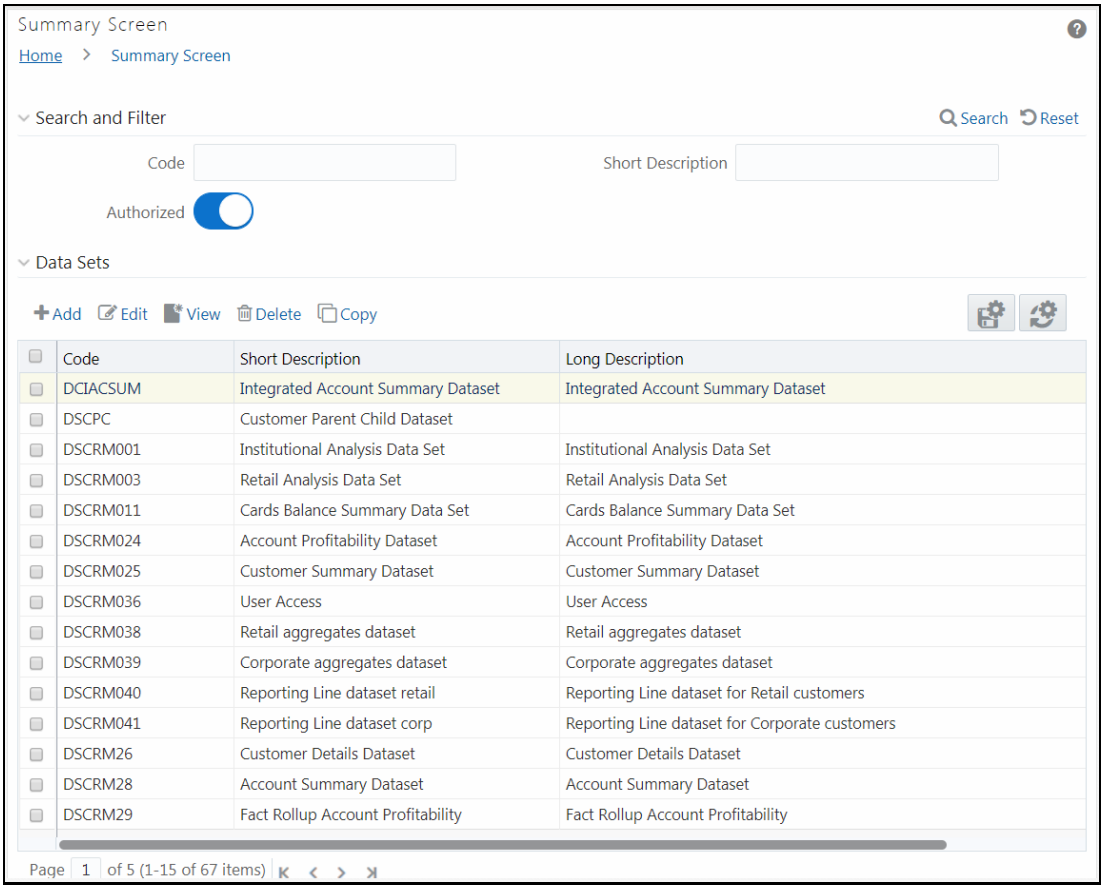
To delete a Derived Entity in the *Derived Entity* window:

1. From the *Derived Entity Summary* window, select the derived entity you want to delete and click **Delete.**
2. Click **OK** in the confirmation dialog.

5.3 Datasets

Dataset 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.

Dataset function within the Infrastructure system facilitates you to create Datasets and specify rules that fine-tune the information for querying, reporting, and analysis. Datasets 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, see Scenario to Understand the Dataset Functionality section.



The *Datasets* window displays the list of pre-defined Datasets with their Code, Short Description and Long Description. You can add, view, edit, copy, and delete the required Dataset. You can also search for a specific dataset based on the Code, Short Description, and Authorization status or view the list of existing datasets within the system.

By clicking the Column header names, you can sort the column names in ascending or descending order. Click  if you want to retain your user preferences so that when you login next time, the column names will be sorted in the same way. To reset the user preferences, click  .

Based on the role that you are mapped to, you can access read, modify or authorize Datasets. For all the roles and descriptions, see Appendix A. The roles mapped to Datasets are as follows:

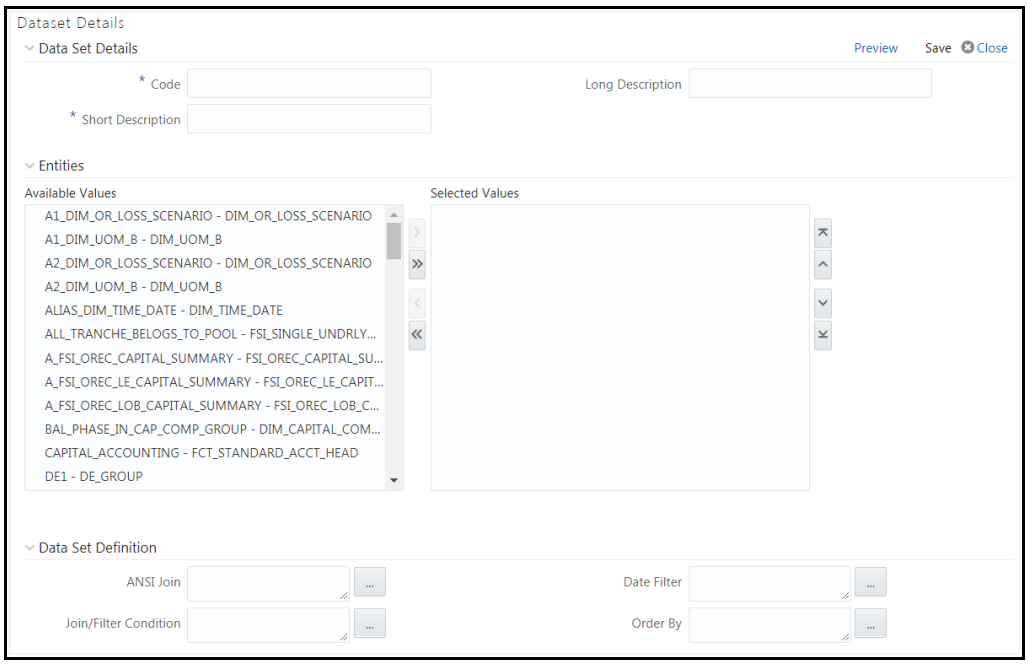
- Dataset Access
- Dataset Advanced
- Dataset Authorize
- Dataset Phantom
- Dataset Read Only
- Dataset Write

5.3.1 Creating Dataset

You can create Dataset by defining the Dataset Details, Entities, and Dataset Definition. You need to have **Dataset Write** role mapped to create Datasets.

To create Dataset in the *Datasets* window:

1. From the *Dataset Summary* window, click **Add** from the Datasets tool bar. The *Add Datasets* window is displayed.



2. Enter the details in the Dataset Details section as tabulated.

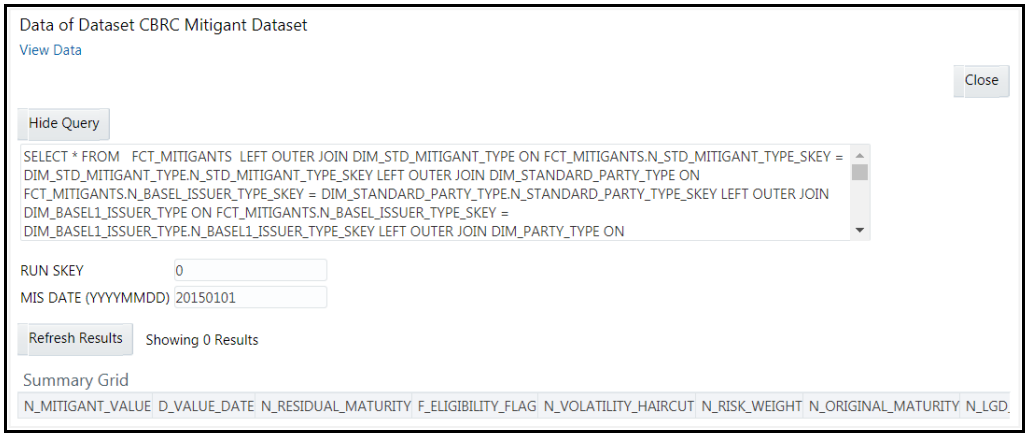
Field	Description
Fields marked in red asterisk (*) are mandatory.	
Code	Enter a distinct code to identify the Dataset. Ensure that the code is alphanumeric with a maximum of 8 characters in length and there are no special characters except underscore "_". Note the following: The code can be indicative of the type of Dataset 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 Dataset to help users for whom the Dataset is being created or other details about the type/subject. Ensure that the description is of a maximum of 100 characters in length.

3. From the Entities pane, you can perform the following:
   - Select the required entity and click › button.
   - To select all entities, click » button.
   - To remove an entity, select the entity from the Selected Values grid and click ‹ button.
   - To remove all entities from the Selected Values grid, click « button.
   - Additionally, you can rearrange the entities by moving an entity up (^), down (v), to the top (⤒), or to the bottom (⤓).
4. Specify the required table-join condition in the Dataset Definition pane 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 Datasets. 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 Datasets. Datasets 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, Dataset must be defined. Multiple cubes can be built with a single pass and the underlying Dataset 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 Dataset 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.

5. Enter the required expression or click ... button to define an expression using the *Expression* window. For more information, see Expression Builder.
6. Click **Preview**. The Data of *Dataset <<dataset name>>* window is displayed.



This window displays an error message if the Query execution fails. Up to 400 records of data is displayed in the Summary Grid.

7. Click **Show Query** to view the query.
8. Enter the values for **MIS DATE (YYYYMMDD)** and **RUN SKEY** parameters.
9. Click **Save** and save the Dataset Definition details.

5.3.2 Viewing Dataset Details

You can view individual Dataset details at any given point. You need to have **Dataset Read Only** role mapped to view the Datasets. To view the existing Dataset definition details in the *Datasets* window:

1. From the *Dataset Summary* window, select the checkbox adjacent to the required Dataset code.
2. Click **View** from the Datasets toolbar.

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

5.3.3 Modifying Dataset Details

You can update the existing Dataset definition details except for the Code and Short Description. You need to have **Dataset Write** role mapped to modify the Datasets. To update the required Dataset details in the *Datasets* window:

1. From the *Dataset Summary* window, select the checkbox adjacent to the required Dataset code.
2. Click **Edit** from the Datasets toolbar. The *Edit Datasets* window is displayed.
3. Update the required details. For more information, see Create Dataset.
4. Click **Save** and update the changes.

5.3.4 Copying Dataset Details

You can copy the existing Dataset details to quickly create a new Dataset. You can later modify the Dataset Code or Short Description, add/remove tables, and also define the join conditions. You need

to have **Dataset Write** role mapped to copy the Dataset definitions. To copy an existing Dataset definition in the *Datasets* window:

1. From the *Dataset Summary* window, select the checkbox adjacent to the required Dataset code.
2. Click **Copy** from the Datasets toolbar.

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

5.3.5 Deleting a Dataset

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

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

To delete an existing Dataset in the *Datasets* window:

1. From the *Dataset Summary* window, select the checkbox adjacent to the required Dataset code.
2. Click **Delete** from the Datasets toolbar. A confirmation dialog is displayed.
3. Click **OK**. The Dataset details are marked for delete authorization.

5.4 Dimension Management

Dimension Management within the Infrastructure system facilitates you to categorize data into a single object as a Member; define levels and aggregate data to form the Hierarchies, and distinguish each member by defining the required Attributes.

The roles mapped to Dimension Management are as follows:

- Dimension Access
- Dimension Advanced
- Dimension Authorize
- Dimension Phantom
- Dimension Read Only
- Dimension Write

5.4.1 Object Security

- This is implemented for Hierarchy, Filter, and Expressions objects.
- There are some seeded user groups and seeded user roles mapped to those user groups. If you are using the seeded user groups, the restriction on accessing objects based on user groups is explained in the OFSAA Seeded Security section.
- For creating/editing/copying/removing an object in Dimension Management module, your user group should have been mapped to the folder in case of public or shared folder, or you should have been the owner of the folder in case of private folder. Additionally, the WRITE role should be mapped to your user group. For more information, see Object Security in OFSAAI section.
- To access the link and the *Summary* window, your user group should have ACCESS role mapped. You can view all objects created in Public folders, Shared folders to which you are mapped and Private folders for which you are the owner. For more information, see the Object Security in OFSAAI section.
- The *Folder selector* window behavior and consumption of higher objects are explained in User Scope section.

5.4.2 Hierarchy Member Security

- This is implemented for Hierarchy and Filter objects.
- For each information domain, a mapper definition can be set as the default Security mapper. Based on this mapper definition, the usage of hierarchy members are restricted.
- The nodes/members in a Hierarchy/ Filter which are mapped to your user group will be enabled and can be used. Those which are not mapped can be viewed, but you cannot use it since they are in disabled state.
- If a child hierarchy is mapped and the parent is not mapped to your user group, the parent will be displayed as a disabled node.
- You should have separate roles/functions mapped to add a leaf, sibling, or child to your hierarchy.

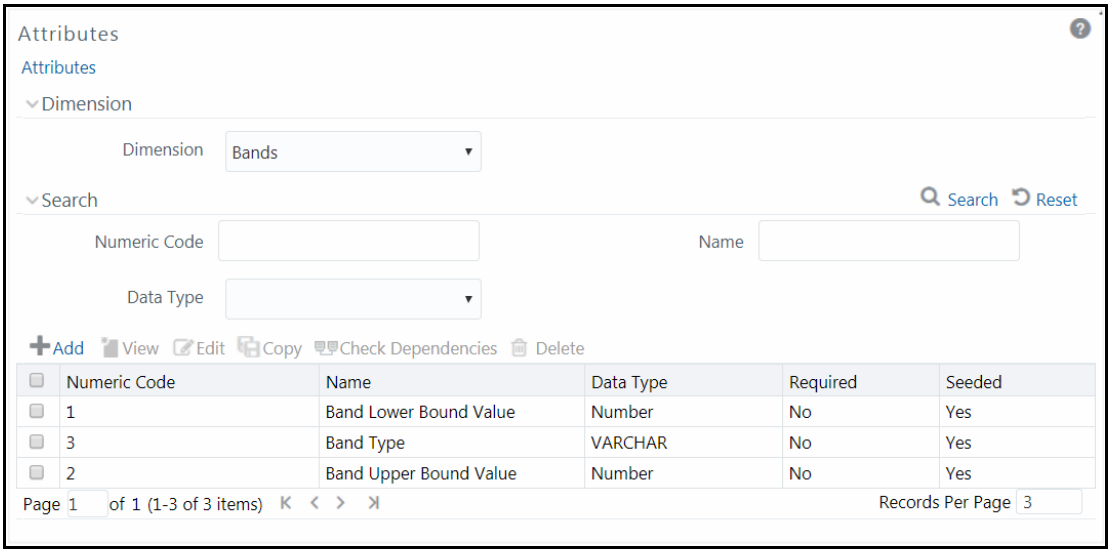
5.4.3 Components of Dimension Management

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

- Attributes
- Members
- Build Hierarchy
- Hierarchy Maintenance

5.4.4 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.



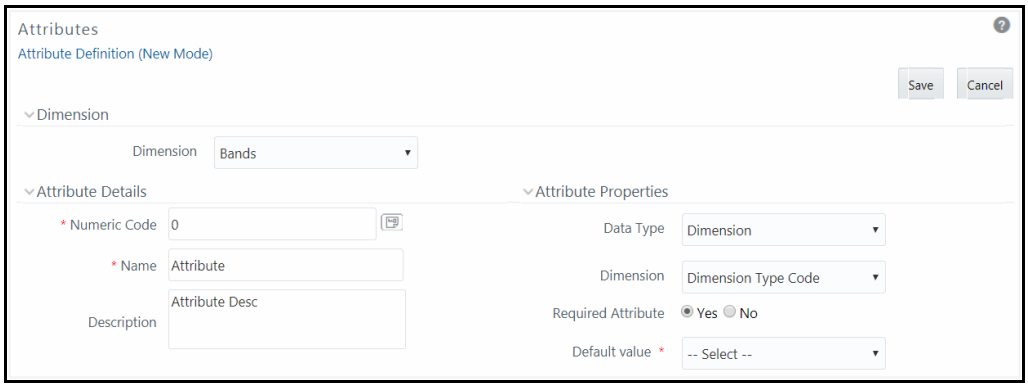
The *Attributes* window displays the list of pre-defined Dimension Attributes with the other details such as the Numeric Code, Name, Data Type, Required, and Seeded. You can search for a specific Attribute based on Numeric Code, Name, or Data Type and view the list of existing definitions within the system.

5.4.4.1 Adding Attribute Definition

Attributes facilitates you to define the properties or qualifiers for the Dimension members. The Write role should be mapped to your user group, from the *User Group Role Map* window.

To create an Attribute definition in the *Attributes* window:

1. From the *Attributes* window, click **+ Add**. The *Attribute Definition (New Mode)* window 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.

> **NOTE** Name: The characters & ' " are restricted in the name field.
>
> Description: The characters ~&+' "@ are restricted in the description field.

5. Enter the Attribute Properties as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Type	Select the **Data Type** as DATE, DIMENSION, NUMBER, or STRING from the drop-down list. If **NUMBER** is selected as the Data Type: The **Scale** field is enabled with "0" as default value. Enter a Scale value >= 0. If it is left as 0, values for this attribute will be limited to Integers. If you wish to enable decimal entries for this attribute, the maximum Scale value must be > 0 and <= the scale defined for NUMBER_ASSIGN_VALUE in the dimension's underlying attribute table. See 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.

Field	Description
Default Value	If **Required Attribute** is set to **Yes**, a Default Value must be entered, otherwise it is optional. If **DIMENSION** is selected as the **Data Type**: Select the required Dimension from the drop-down list in the Dimension field. Select the **Default Value** from the drop-down list of members mapped to the selected Dimension. If the required Member is not listed in the drop-down then select **--More—**and the *Member Search* window is displayed. For more information see 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. The Maximum characters allowed in Default value field for String Data Type is 1000.

6. Click **Save**. The entries are validated and the defined Attribute is captured.

5.4.4.2 Viewing Attribute Definition

You can view individual Attribute Definition details at any given point. The Read only role should be mapped to your user group.

To view the existing Attribute Definition details in the *Attribute* window:

1. Select the checkbox adjacent to the Numeric Code of the Attribute, whose details are to be viewed.
2. Click **View** button in the Dimension Attributes tool bar.

   The *View – Attributes* window is displayed with the details such as Dimension, Numeric Code, Name, Description, and Attribute Properties.

5.4.4.3 Modifying Attribute Definition

You can modify the Name, Description, or Default Value fields of an attribute definition. The Write role should be mapped to your user group.

To modify an existing Attribute Definition in the *Attributes* window:

1. Select the checkbox adjacent to the Numeric Code of the Attribute, whose details are to be updated.

2. Click **Edit** button in the Dimension Attribute tool bar. **Edit** button is disabled if you have selected multiple Attributes. The *Edit - Attributes* window is displayed.
3. Edit the Attribute details such as Name, Description, or Default value. For more information, see Add Attribute Definition.
4. Click **Save** to save the changes.

5.4.4.4 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. The Write role should be mapped to your user group.

To copy an existing Attribute Definition in the *Attributes* window:

1. Select the checkbox adjacent to the Numeric Code of the Attribute, whose details are to be duplicated.
2. Click **Copy** 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* window you can:
   - Create new attribute definition with existing variables. Specify new **Numeric Cod**e and **Attribute Name**. Click **Save**.
   - Create new attribute definition by updating the required variables. Specify new **Numeric Cod**e and **Attribute Name**. Update the required details. For more information, see Add Attribute Definition. Click **Save**.

     The new attribute definition details are displayed in the *Attributes* window.

5.4.4.5 Attribute Definition Dependencies

You can view the dependencies of Attributes. The Read only role should be mapped to your user group.

To view the dependency of attribute in the *Attributes* window:

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* window is displayed with the dependency details.

5.4.4.6 Deleting Attribute Definition

You can remove the Attribute Definitions which are not required in the system by deleting from the *Attributes* window. The Write role should be mapped to your user group.

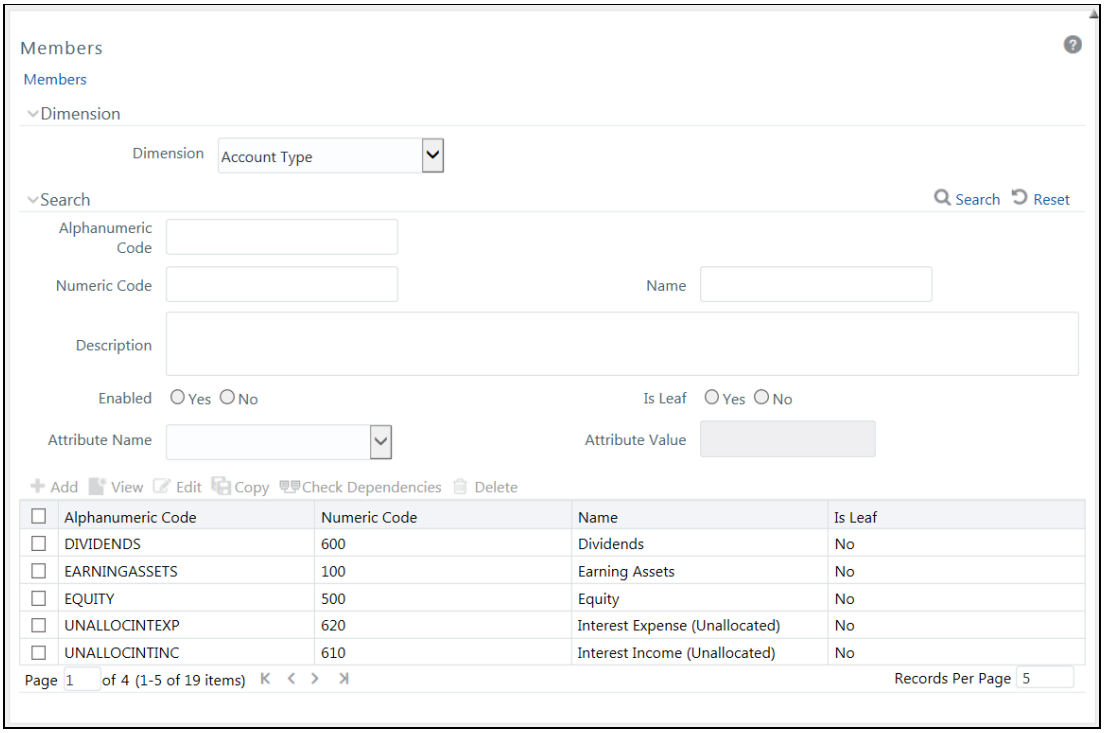
1. Select the checkbox adjacent to the Numeric Code(s) of the Attributes whose details are to be removed.

2. Click **Delete** button in the Dimension Attributes tool bar.
3. Click **OK** in the information dialog to confirm deletion.

5.4.5 Members

Dimension Members refer to the individual items that constitute a dimension when data is categorized into a single object. Example, Product, Organization, Time, and so on. Members are available within Dimension Management section of the Infrastructure system.

For more information on how to set up alphanumeric and numeric codes, see Configurations to use Alphanumeric and Numeric Codes for Dimension Members section in OFSAAI Administration Guide.



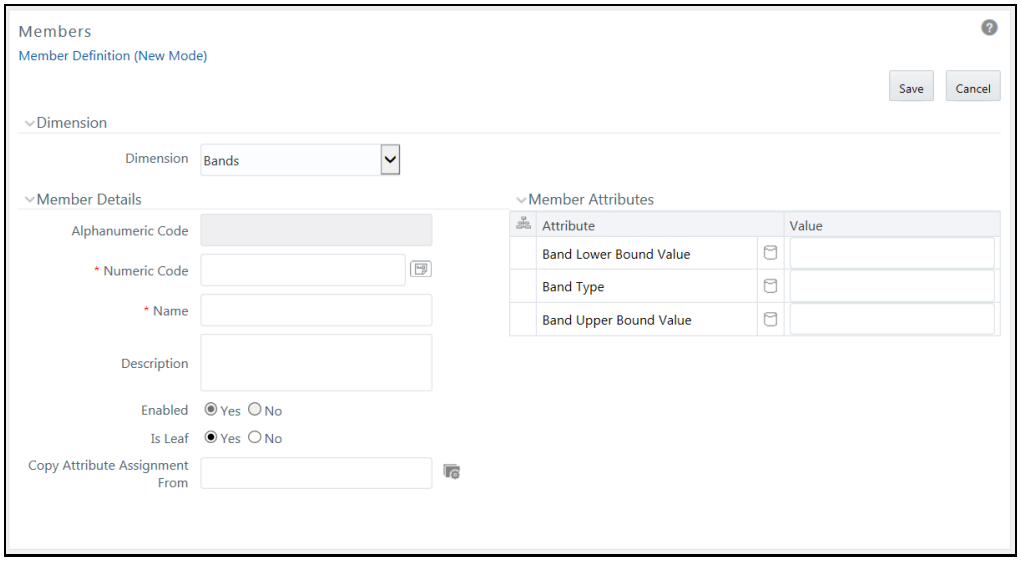
The *Members* window displays the list of pre-defined Dimension Members with the other details such as the Alphanumeric Code, Numeric Code, Name, and Is Leaf. You can also search for a specific Member based on Alphanumeric / Numeric Code (irrespective of whether dimension is configured to be numeric or alphanumeric), Name, Description, Enabled status, Is Leaf status, Attribute Name, or Attribute Value and view the list of existing definitions within the system.

5.4.5.1 Adding Member Definition

This option allows you to add member definition. The Write role should be mapped to your user group.

To create an Attribute definition in the *Attributes* window:

1. Click **Add** from the toolbar. The *Member Definition (New Mode)* window is displayed.



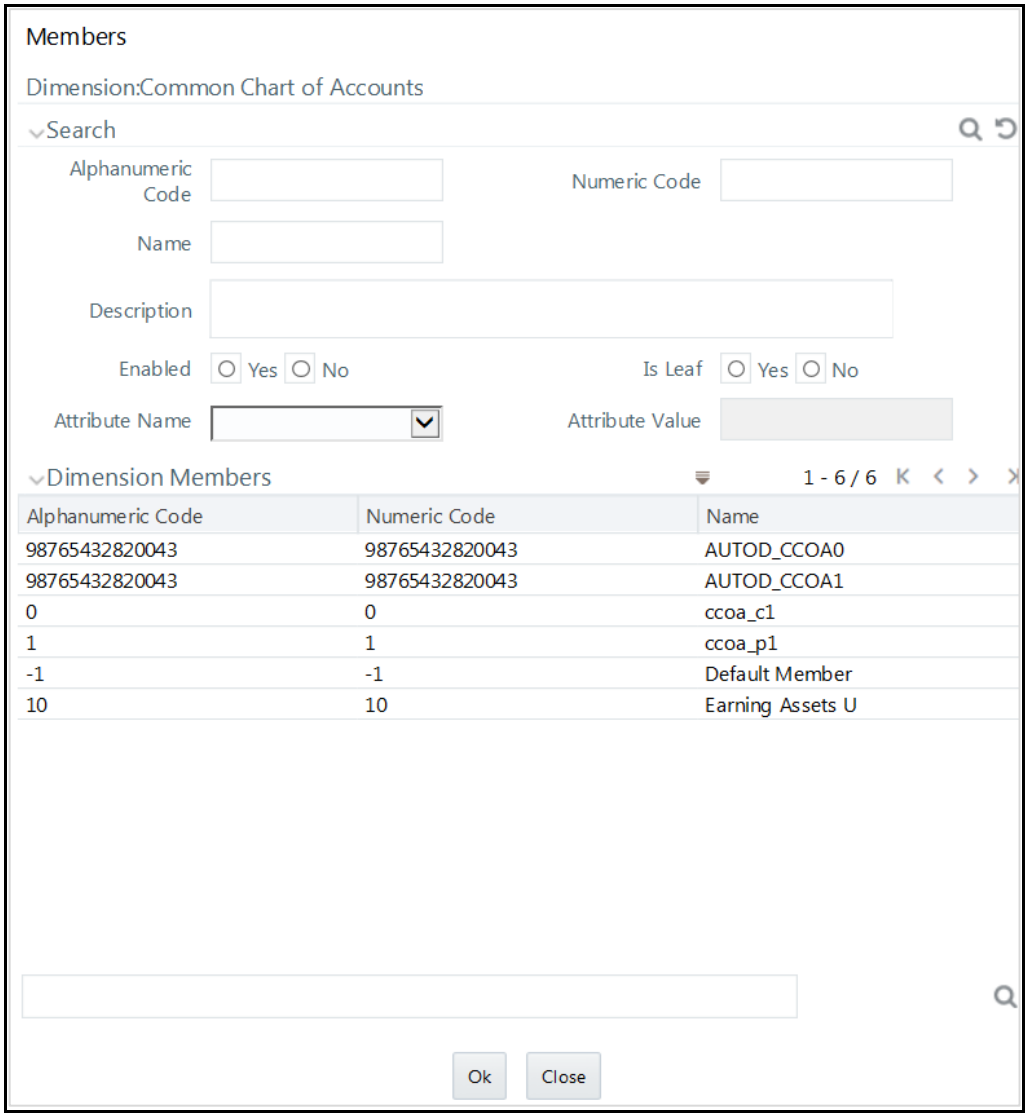
2. In the Dimensions section, select the required **Dimension** from the drop-down list.
3. Enter the Member Details as tabulated:

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. **Note**: The characters &' " are restricted
Description	Enter the required Description for the Member. **Note**: The characters ~&+' "@ are restricted.

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

4. Click  button in **Copy Attribute Assignment From** field. The *Member Browser Properties* window is displayed. This field can be left blank so that the Member Attributes panel can be filled in without considering the values already assigned.



- 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* window 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.

5.4.5.2 Viewing Member Definition

You can view individual Member Definition details at any given point. To view the existing Member Definition details in the *Members* window:

1. Select the checkbox adjacent to the Alphanumeric Code of the Member, whose details are to be viewed.
2. Click **View** button in the toolbar.

   The *View – Member Details* window is displayed with the details such as Dimension, Member Details, and Member Attributes details.

5.4.5.3 Modifying Member Definition

To modify an existing Member Definition in the *Members* window:

1. Select the checkbox adjacent to the Alphanumeric Code of the Member, whose details are to be updated.
2. Click **Edit** button in the toolbar. **Edit** button is disabled if you have selected multiple Members. The *Edit – Member Details* window is displayed.
3. Edit the Member details as required. For more information, see Add Member Definition.
4. Click **Save** to save the changes.

5.4.5.4 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* window:

1. Select the checkbox adjacent to the Alphanumeric Code of the Member, whose details are to be duplicated.
2. Click **Copy** button in the toolbar to copy a selected Member definition. **Copy** button is disabled if you have selected multiple Members.
3. In the *Copy – Member Details* window 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, see Add Member Definition. Click **Save**.

     The new member definition details are displayed in the *Members* window.

5.4.5.5 Member Definition Dependencies

You can view the dependencies of Members. To view the dependency of member in the *Members* window:

1. Select the checkbox adjacent to the Alphanumeric Code of the Member, whose dependency is to be viewed.
2. Click **Check Dependencies** button in the toolbar. The **Check Dependencies** button is disabled if you have selected multiple members. The *Members Dependency Information* window is displayed with the dependency details.

5.4.5.6 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* window.

1. Select the checkbox adjacent to the Alphanumeric Code(s) of the Members, whose details are to be removed.
2. Click **Delete** button in the Dimension Members tool bar.
3. Click **OK** in the information dialog to confirm deletion.

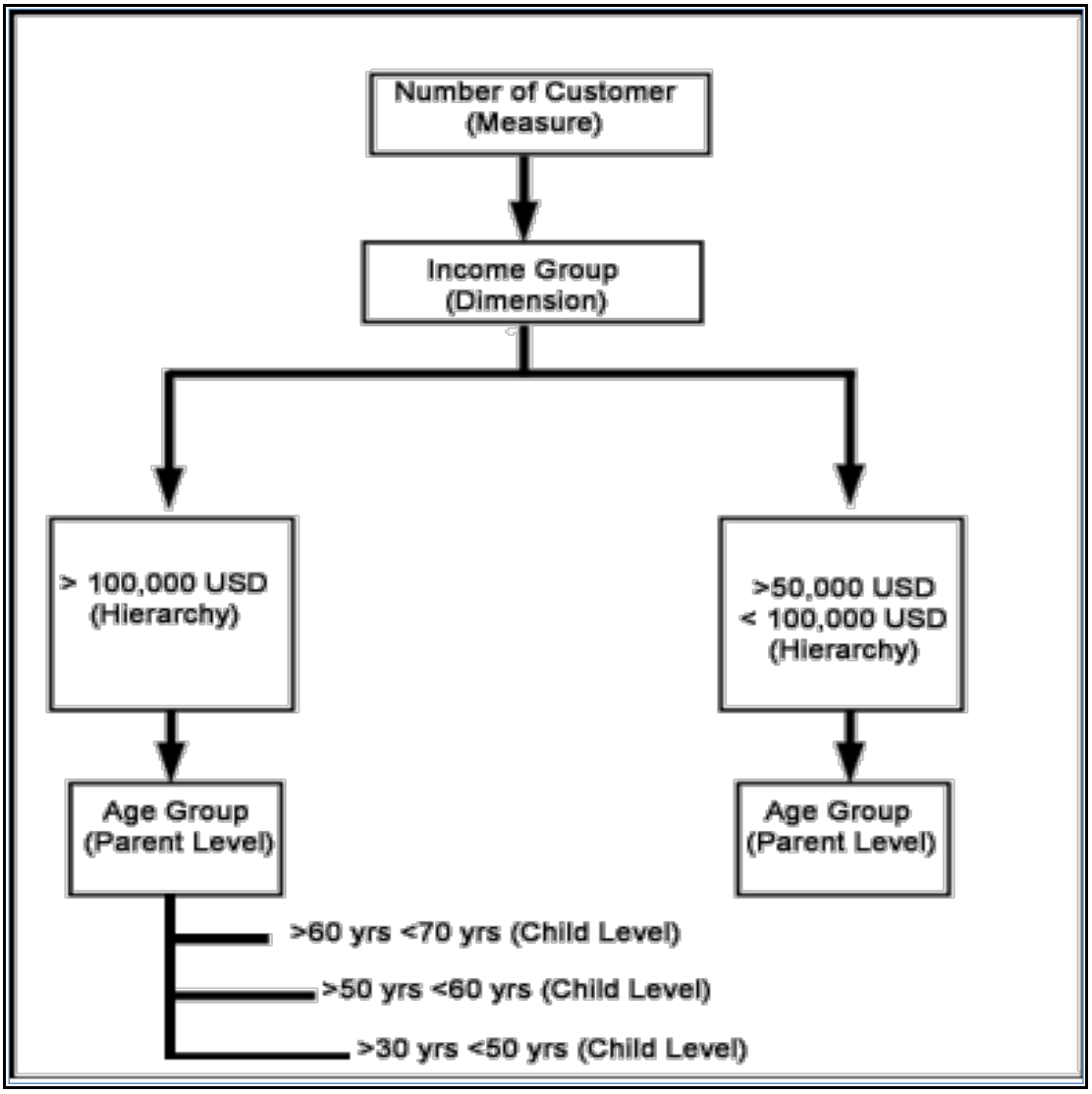
5.4.6 Build Hierarchy

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.

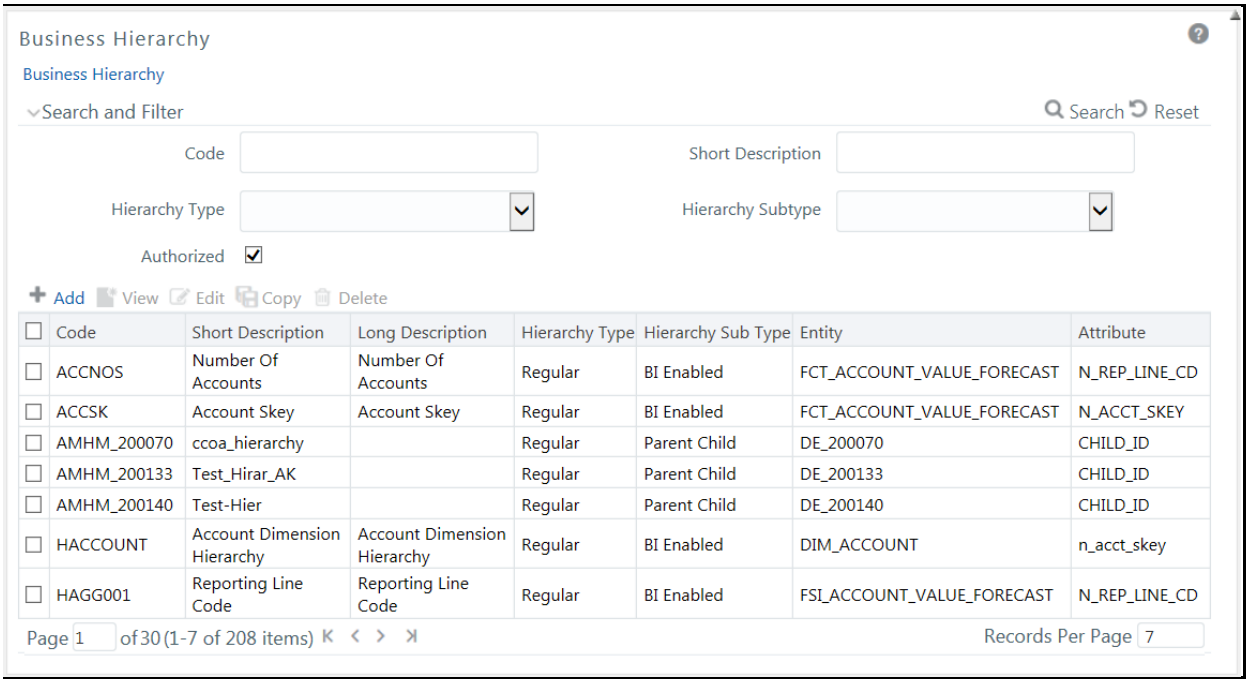
Based on the role that you are mapped to, you can access read, modify or authorize Build Hierarchy. For all the roles and descriptions, see Appendix A. The roles mapped to Business Hierarchy are as follows:

- BMM Hierarchy Access
- BMM Hierarchy Advanced
- BMM Hierarchy Authorize
- BMM Hierarchy Phantom
- BMM Hierarchy Read Only
- BMM Hierarchy Write

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.



The *Business Hierarchy* window 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 Sub-types, see Business Hierarchy Types.

> **NOTE** When an AMHM hierarchy is created, implicitly a UAM Business hierarchy also gets created and will be listed in the *Summary* window of Business Hierarchy. The Code of Implicitly populated UAM Hierarchy is system generated with length of 11 characters and prefixed with AMHM.

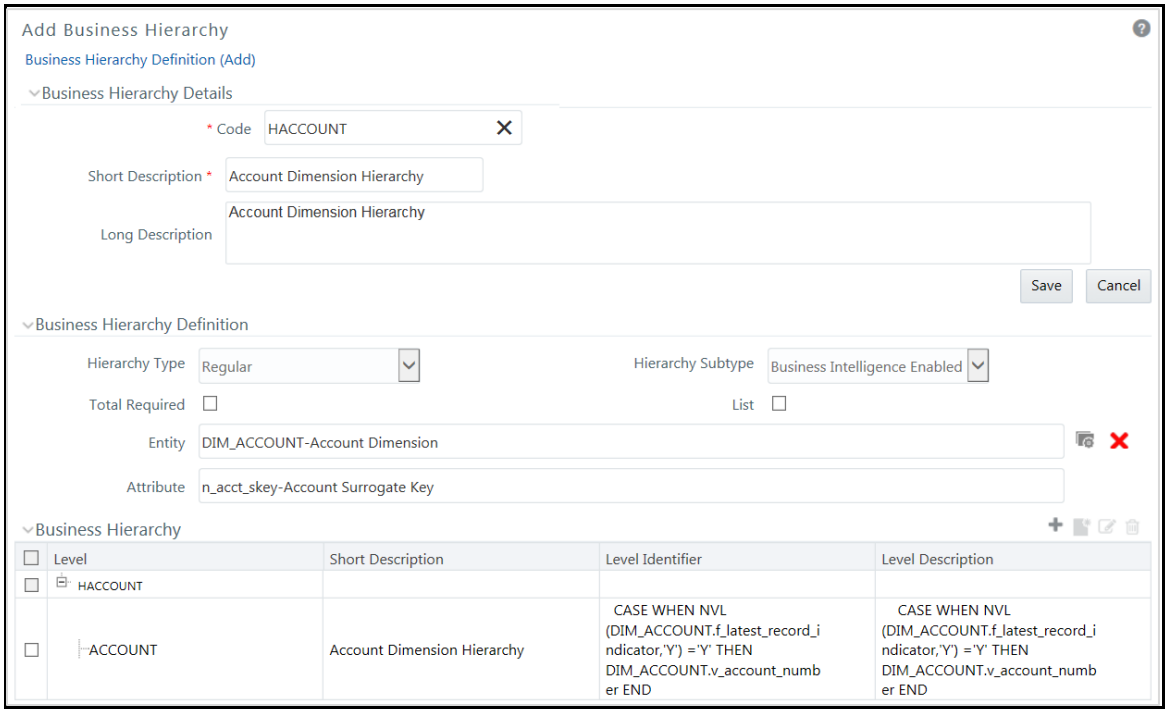
You can also search for a specific Business Hierarchy based on the Code, Short Description, Hierarchy Type, Hierarchy Sub Type, and Authorization status, or view the list of existing Business Hierarchies within the system.

5.4.6.1 Creating Business Hierarchy

You can create a Business Hierarchy by specifying the Hierarchy definition details and defining the required Hierarchies. You need to be mapped to the role BMM Hierarchy Write to add or create a business hierarchy.

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

1. Click ✚ **Add** button from the Business Hierarchy toolbar. The *Add Business Hierarchy* window 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 type/subject. Ensure that description is of a maximum of 100 characters in length.

3. 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, see Business Hierarchy Types.

<table>
<tr><th>Hierarchy Type</th><th>Description / Hierarchy Sub Type</th></tr>
<tr><td>Regular</td><td>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><td>Region (1)</td><td>State (2)</td><td>Place (3)</td></tr>
<tr><td>South</td><td>Tamil Nadu
Karnataka
Andhra Pradesh</td><td>Madras
Bangalore
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.</td></tr>
<tr><td>Measure</td><td>A Measure Hierarchy consists of the defined measure as nodes and has only the Non Business Intelligence Enabled as Hierarchy Sub Type.</td></tr>
<tr><td>Time</td><td>A Time Hierarchy consists of the levels/nodes of high time granularity and has only the Business Intelligence Enabled as Hierarchy Sub Type.</td></tr>
</table>

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, see Large Hierarchy.

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

4. Click **Save** in *Add Business Hierarchy* window and save the details.

5.4.6.2 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* window: You need to be mapped with the role BMM Hierarchy Read Only to view Business Hierarchy.

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

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

5.4.6.3 Modifying Business Hierarchy

You can update the existing Business Hierarchy definition details except for the Code and Hierarchy Type/Sub-Type. You need to be mapped with the role BMM Hierarchy Write to modify Business Hierarchy.

> **NOTE** You cannot modify the implicitly created Business Hierarchies for AMHM Hierarchies.

To update the required Business Hierarchy details in the *Business Hierarchy* window:

1. Select the checkbox adjacent to the required Business Hierarchy code.
2. Click **Edit** button from the Business Hierarchy tool bar. The *Edit Business Hierarchy* window is displayed.
3. Update the required details. For more information, see Create Business Hierarchy.
4. Click **Save** and update the changes.

5.4.6.4 Copying Business Hierarchy

You can copy the existing Business Hierarchy details to quickly create a new Business Hierarchy. You need to be mapped to the role BMM Hierarchy Write to copy Business Hierarchy. To copy an existing Business Hierarchy definition in the *Business Hierarchy* window:

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

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

5.4.6.5 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* window. Delete function permanently removes the Business Hierarchy details from the database. You need to be mapped with the role BMM Hierarchy Write to delete Business Hierarchy. Ensure that you have verified the details as indicated below:

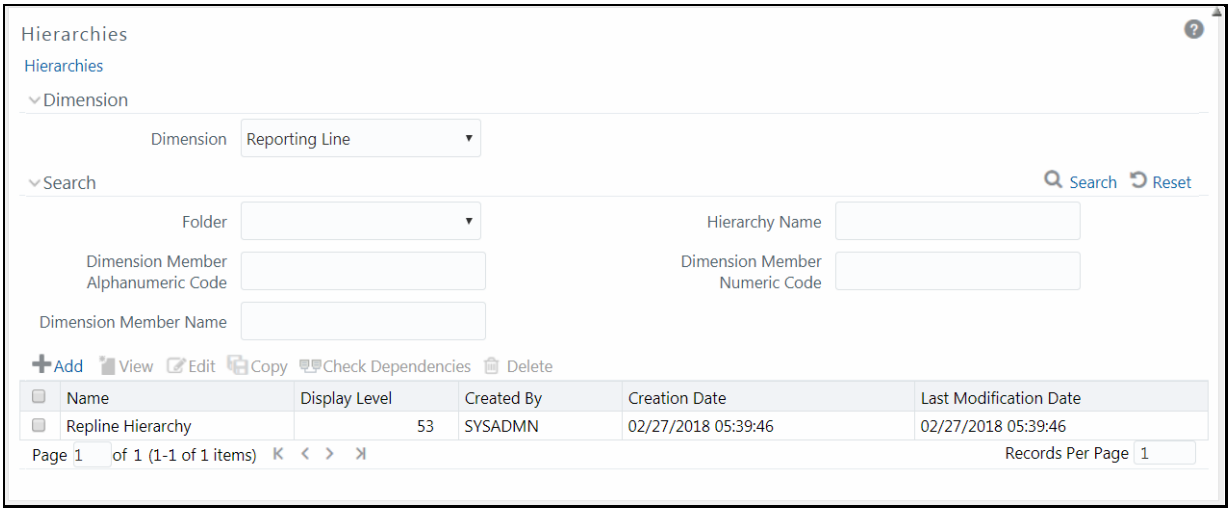
- A Business Hierarchy definition marked for deletion is not accessible for other users.
- Every delete action has to be **Authorized/Rejected** by the authorizer.
  - On Authorization, the Business Hierarchy details are removed.
  - On Rejection, the Business Hierarchy details are reverted back to authorized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

You can delete an implicitly created Business Hierarchy for an AMHM hierarchy, if it is not used in any higher objects. Once the Business Hierarchy is deleted, it will not be re-created if you resave AMHM hierarchy.

5.4.7 Hierarchy Maintenance

Hierarchies refer to dimension members that are arranged in levels, with each level representing the aggregated total of the data from the level below. One dimension type can have multiple hierarchies associated with it. Hierarchies are available within the Dimension Management section of Infrastructure system.

You can access *Hierarchies* window by expanding **Unified Analytical Metadata** and **Dimension Management** within the tree structure of LHS menu and selecting **Hierarchy Maintenance**.



The *Hierarchies* window displays the list of Hierarchies created in all public folders, shared folders to which you are mapped and private folders for which you are the owner, along with other details such as the Name, Display level, Created By, Creation Date, and Last Modification Date. For more information on how object access is restricted, see Object Security in AMHM module section.

You can also 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.

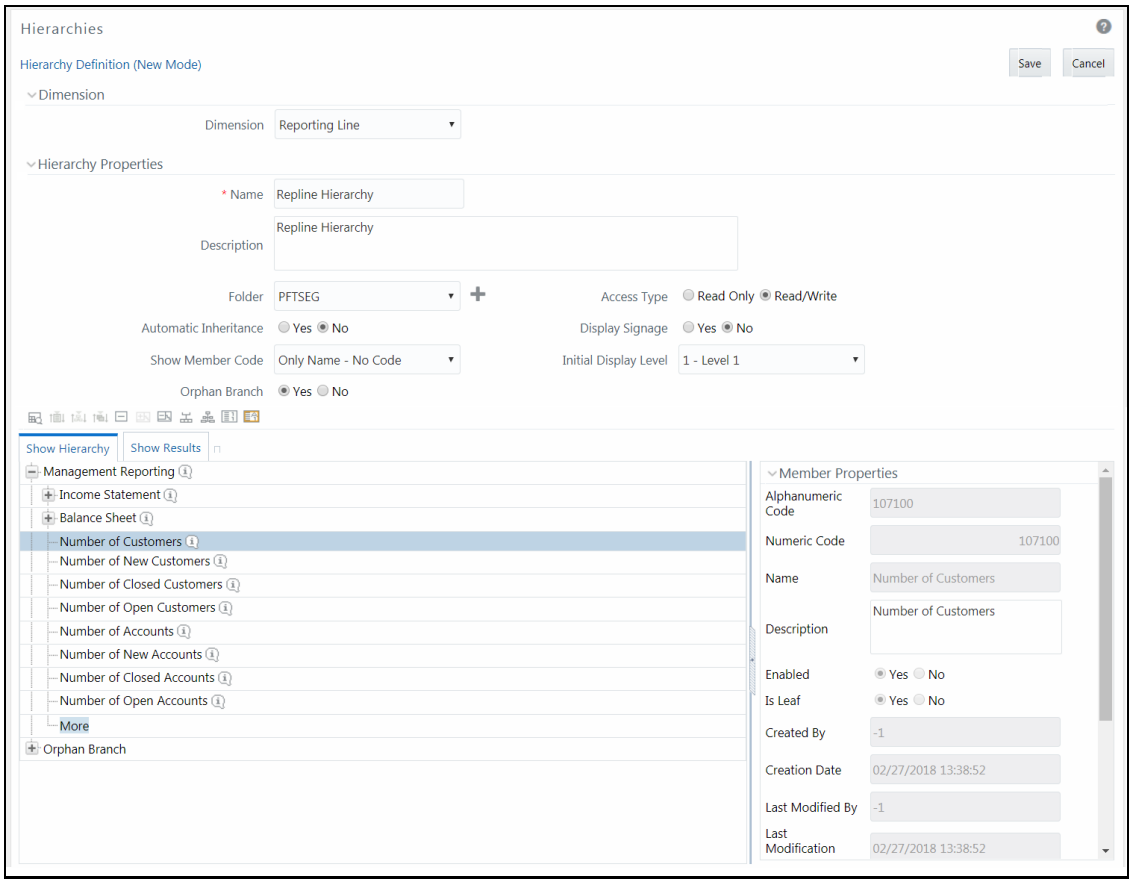
5.4.7.1 Adding Hierarchy Definition

In the *Hierarchies* window, you can create Hierarchy Definition up to 15 levels by default. The maximum permissible levels are up to 58 Hierarchies. To create a hierarchy, the Write role should be mapped to your user group.

> **NOTE** When an AMHM hierarchy is created, implicitly a UAM Business hierarchy also gets created and will be listed in the *Summary* window of Business Hierarchy.

To create a Hierarchy definition in the *Hierarchies* window:

1. Click ➕ **Add** button in the Hierarchies toolbar. The *New – Hierarchy Details* window is displayed.



2. Select **Dimension** from the drop-down list. The selected Dimension from the *New – Hierarchy Details* window 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. **Note**: The characters &' " are restricted.
Description	Enter the required **Description** for the Hierarchy. **Note**: The characters ~&+' " @ are restricted.
Folder	Select the folder where the hierarchy is to be stored from the drop-down list. The *Folder selector* window behavior is explained in User Scope section. Click to create a new private folder. The *Segment Maintenance* window is displayed. For more information, see Segment Maintenance. **Note**: You can select **Segment/Folder Type** as Private and the **Owner Code** as your user code only.
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. **Note**: A user with Phantom and Write role can modify or delete the hierarchy even though the access type is selected as Read-only. **Read/Write**: Select this option to give all users the access to view, modify (including Access Type), and delete the 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.
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**.

3. To add Child under the **Show Hierarchy** tab:
   a. Right-click in the Show Hierarchy tab.
   b. Select **Add Child** option and the *Add Member* window are displayed.

c. Select the required Member and click . The Member is displayed in the **Selected Members** panel. Click  to select all Members which are shown in the Show Members pane. Click  to select all nodes/ members in the server.

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.

d. Click **OK**. The selected Member is displayed as Child under **Show Hierarchy** panel in the *New – Hierarchy Details* window.

4. To add Sibling:

a. Right-click on the Child and select the option **Add Sibling**. The *Add Member* window is displayed.

b. Select the required Member and click . The Member is displayed in the **Selected Members** panel. You can click  to select all Members which are shown in the Show Members pane. Click  to select all nodes/ members in the server.

c. You can click to deselect a Member or click  to deselect all the Members. You can also Click  to search for the required member.

d. Click **Apply**. The selected Member is displayed as **Sibling** below the **Parent** under Show Hierarchy panel in the *New – Hierarchy Details* window.

5. To add Leaf under a Parent, Child, or Sibling:

a. Right-click the Parent or Child and select **Add Leaf**. The *Add Member* window is displayed.

b. Select the required Member and click . The Member is displayed in the **Selected Members** panel. You can click  to select all Members which are shown in the Show Members pane. Click  to select all nodes/ members in the server.

You can click to deselect a Member or click  to deselect all the Members. You can also Click  to search for the required member.

c. Click **Apply**. The selected Member is displayed as Leaf below the Parent or Sibling under **Show Hierarchy** panel in the *New – Hierarchy Details* window.

6. To define Level Properties:

a. Select **Level Properties** from the options under Parent, Child, Sibling or Leaf and the *Level Properties* window is displayed.

b. Enter the valid **Name** and **Description** in the respective fields.

c. Click **OK** and the Levels defined are displayed in the drop-down in **Initial Level Display** field in **Hierarchy Properties** grid in *New – Hierarchy Details* window.

7. To cut and paste Child or Sibling:

a. Right-click on any node and select **Cut**.

b. Right-click on any node and **Paste as Child** or **Paste as Sibling**.

8. To **Delete** and Undelete:

a. Right-click on the node to be deleted and select **Delete Node**.

The node deleted is stroked out.

b. Right-click and select **UnDelete** to cancel deletion of the node.

9. To add Child / Sibling / leaf:

a. Right-click on any node and select **Create and add Child**. The *New - Member Details* window is displayed. For more information, see Add Member Definition.

b. Right-click on any node and select **Create and add Sibling**.

c. Right-click on any node and select **Create and add leaf**.

10. To view the Member Properties and Member Attributes of a node in the Show Hierarchy panel:

a. Click **<** button and the Member Property grid is displayed.

b. 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* window you can also:

- Click  to 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 view the name of members right or left.
- Click  or  to view the Numeric code values of members right or left.
- Click  or  to show code or show name of the members.
- Click  button to view the Advanced Properties of the nodes.

11. Click **Save** in the New – *Hierarchy Details* window to validate and capture the entries.

The Audit Trail section at the bottom of the window 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.

5.4.7.2 Viewing Hierarchy Definition

You can view individual Hierarchy Definition details at any given point. To view the existing hierarchy Definition details in the *Hierarchies* window:

1. Select the checkbox adjacent to the Hierarchy Name.
2. Click **View** button in the Hierarchies tool bar. The **View** button is disabled if you have selected multiple Hierarchies.

   The *View – Hierarchy Details* window is displayed with all the hierarchy details.

   In the *View – Hierarchy Details* window you can click button to search for a member using the Alphanumeric Code, Numeric Code, or Member Name in the Search dialog.

> **NOTE** The search functionality of this button will not return any values if you search for a node in the Orphan Branch of the hierarchy.

5.4.7.3 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* window.

> **NOTE** When you modify a Hierarchy, the implicitly created UAM Business Hierarchy will also get updated.

1. Select the checkbox adjacent to the Hierarchy Name whose details are to be updated.
2. Click **Edit** button in the Hierarchies tool bar. **Edit** button is disabled if you have selected multiple Members. The *Edit – Hierarchy Details* window is displayed.

   In the *Edit – Hierarchy Details* window you can click button to search for a member using the Alphanumeric Code, Numeric Code, or Member Name in the Search dialog. Edit the Hierarchy details as required. For more information, see Add Hierarchy Definition.
3. Click **Save** and save the changes.

5.4.7.4 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* window:

1. Select the checkbox adjacent to the Hierarchy name whose details are to be duplicated.

2. Click **Copy** 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* window is displayed.

   In the *Copy – Hierarchy Details* window 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* window 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, see Add Hierarchy Definition. Click **Save**.

   The new Hierarchy definition details are displayed in the *Hierarchies* window.

5.4.7.5 Hierarchy Definition Dependencies

You can view the dependencies of Hierarchies. To view the dependency of hierarchy in the *Hierarchies* window:

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* window is displayed.

5.4.7.6 Deleting Hierarchy Definition

You can remove the Hierarchy Definitions which are not required in the system by deleting from the *Hierarchies* window.

> **NOTE** When you delete an AMHM Hierarchy, the implicitly created UAM Business Hierarchy will also get deleted, if it is not used in higher objects.

1. Select the checkbox adjacent to Hierarchy Name(s) whose details are to be removed.
2. Click **Delete** button in the Hierarchies tool bar.
3. Click **OK** in the information dialog to confirm deletion.

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

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.

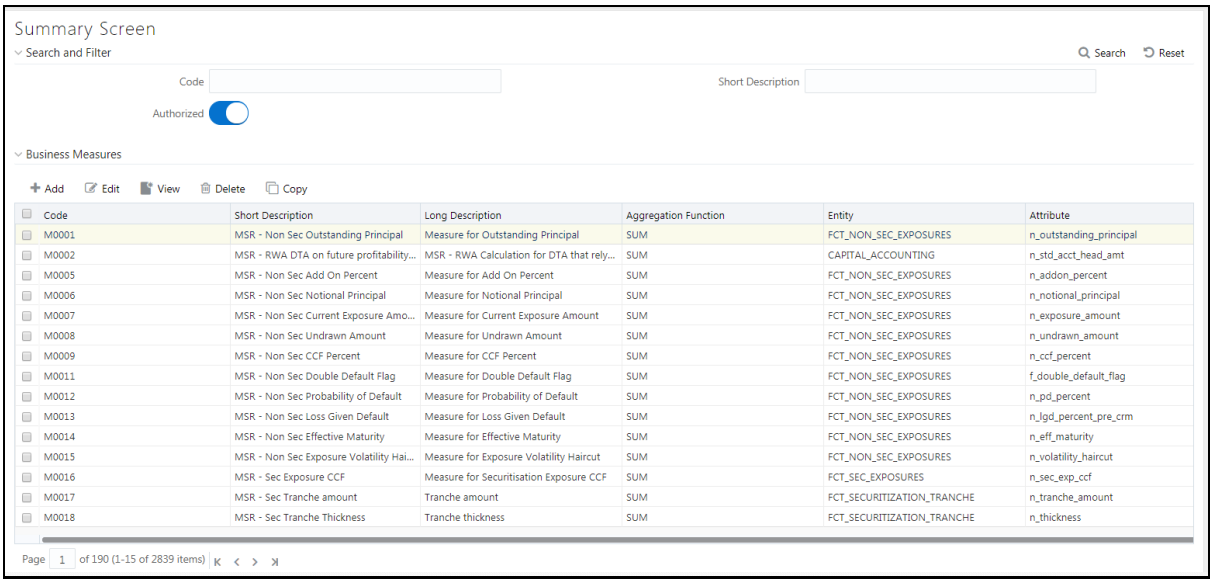
5.5 Measure

Business Measure refers to a uniquely named data element of relevance which can be used to define views within the data warehouse. It typically implies aggregated information as opposed to information at a detailed granular level that is available before adequate transformations.

Based on the role that you are mapped to, you can access read, modify or authorize Measure. For all the roles and descriptions, see Appendix A. The roles mapped to Measure are as follows:

- Measure Access
- Measure Advanced
- Measure Authorize
- Measure Phantom
- Measure Read Only
- Measure Write

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.



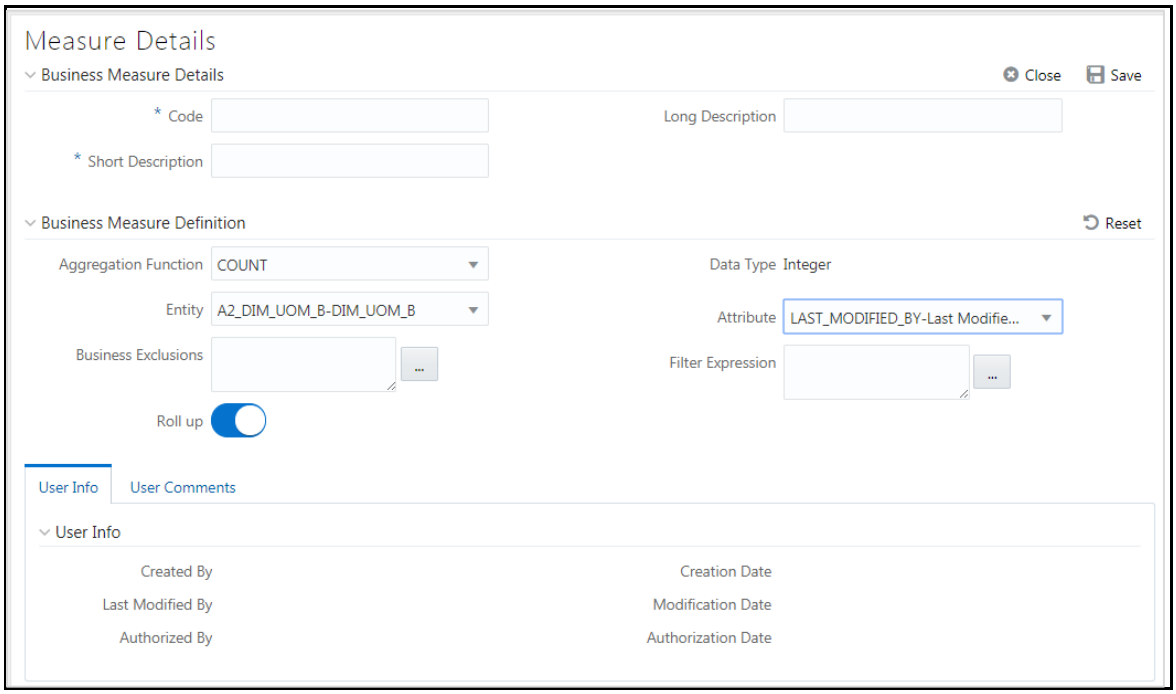
The *Business Measures* window displays the list of pre-defined Business Measures with their Code, Short Description, Long Description, Aggregation Function, Entity, and Attribute. You can add, view, edit, copy, and delete the required Business Measures. You can also search for a specific Business Measure based on the Code, Short Description, and Authorization status or view the list of existing Business Measures within the system.

5.5.1 Creating Business Measure

You can create a Business Measure by specifying the Business Measure Details and defining the Business Measure Definition. You can create a business measure if you mapped with the role Measure Write with the user group.

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

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



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.

3. Enter the details in the Business Measure Definition section.

   a. 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.
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.

   i. Select the **Entity** to load the data for the Measure from the drop-down list. The list displays all the entities in the information domain, to which your application is connected.

   ii. Select the required **Attribute** from the drop-down list. The list displays all the attributes in the selected entity.

   iii. Define the **Business Exclusions** rules for the base Measure. You can enter the expression or click ... button to define using the Expression Builder window.

   iv. Define **Filter Expression** to filter the aggregation process. You can enter the expression or click ... button to define using the Expression Builder window.

   v. Turn on the **Roll Up** toggle button to calculate the measure values and to display 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. Click **Save** to save the Business Measure details or click **Close** to discard the changes.

5.5.2 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* window: You can view the Business Measure if you are mapped with the role Measure Read Only with the user group.

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

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

5.5.3 Modifying Business Measure

You can modify the Business Measure if you are mapped with the role Measure Write with the user group.

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* window:

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

5.5.4 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 can copy Business Measure if you are mapped with the role Measure Write with the user group.

To copy an existing Business Measure definition in the *Business Measure* window:

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

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

5.5.5 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* window. To delete a Business Measure, you need to be mapped with the role Measure Write. 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* window:

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

5.6 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.

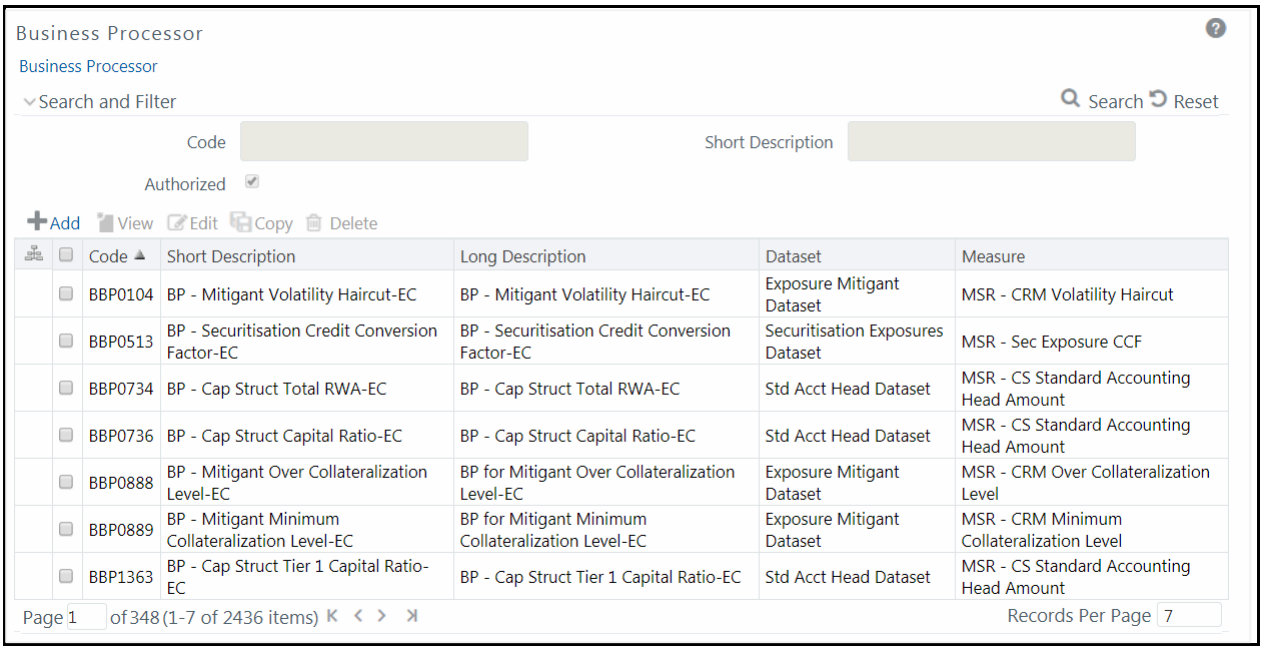
Business Processors are metadata constructs that are used in the definition of such complex rules. Business Processors are designed to update a measure with another computed value. When a rule that is defined with a Business Processor is processed, the newly computed value is updated on the defined target.

Based on the role that you are mapped to, you can access read, modify or authorize Business Processor. For all the roles and descriptions, see Appendix A. The roles mapped to Business Processor are as follows:

- BMM Processor Access
- BMM Processor Advanced
- BMM Processor Authorize

- BMM Processor Phantom
- BMM Processor Read Only
- BMM Processor Write

You can access *Business Processor* window by expanding **Unified Analytical Metadata** within the tree structure of LHS menu and selecting **Business Processor**.



Code	Short Description	Long Description	Dataset	Measure
BBP0104	BP - Mitigant Volatility Haircut-EC	BP - Mitigant Volatility Haircut-EC	Exposure Mitigant Dataset	MSR - CRM Volatility Haircut
BBP0513	BP - Securitisation Credit Conversion Factor-EC	BP - Securitisation Credit Conversion Factor-EC	Securitisation Exposures Dataset	MSR - Sec Exposure CCF
BBP0734	BP - Cap Struct Total RWA-EC	BP - Cap Struct Total RWA-EC	Std Acct Head Dataset	MSR - CS Standard Accounting Head Amount
BBP0736	BP - Cap Struct Capital Ratio-EC	BP - Cap Struct Capital Ratio-EC	Std Acct Head Dataset	MSR - CS Standard Accounting Head Amount
BBP0888	BP - Mitigant Over Collateralization Level-EC	BP for Mitigant Over Collateralization Level-EC	Exposure Mitigant Dataset	MSR - CRM Over Collateralization Level
BBP0889	BP - Mitigant Minimum Collateralization Level-EC	BP for Mitigant Minimum Collateralization Level-EC	Exposure Mitigant Dataset	MSR - CRM Minimum Collateralization Level
BBP1363	BP - Cap Struct Tier 1 Capital Ratio-EC	BP - Cap Struct Tier 1 Capital Ratio-EC	Std Acct Head Dataset	MSR - CS Standard Accounting Head Amount

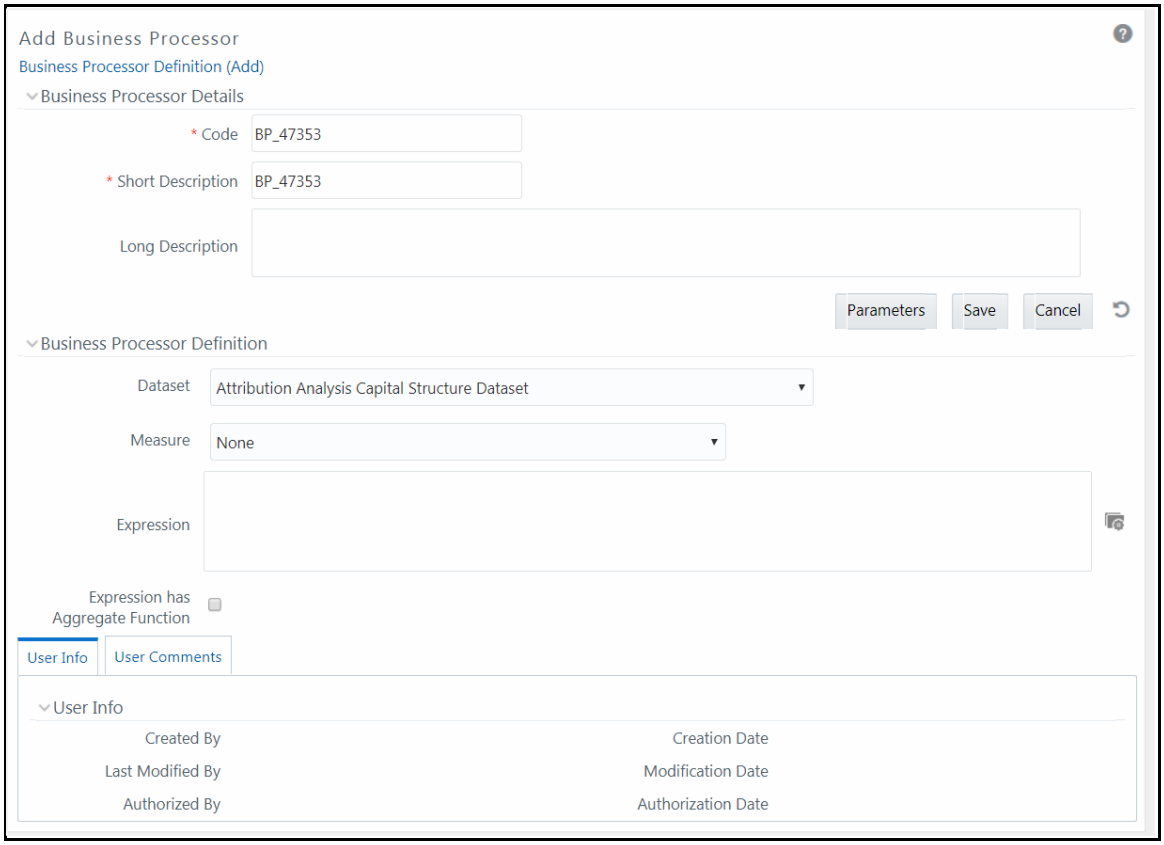
The *Business Processor* window displays the list of pre-defined Business Processors with their Code, Short Description, Long Description, Dataset, and Measure. The *Business Processor* window allows you to generate values that are functions of base measure values. Using the metadata abstraction of a business processor, power users have the ability to design rule-based transformation to the underlying data within the data warehouse / store. You can make use of Search and Filter option to search for specific Business Processors based on Code, Short Description, or Authorized status. The Pagination option helps you to manage the view of existing Business Processors within the system.

5.6.1 Adding Business Processor

You need to be mapped to the role group BMM Processor Write to add a Business Processor.

To create a Business Processor from the *Business Processor* window:

1. Click ➕ **Add** button. The *Add Business Processor* window 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.

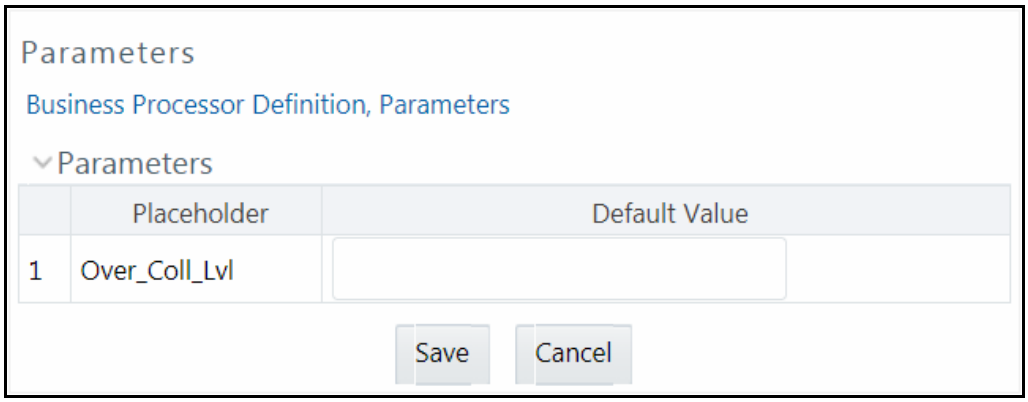
Field	Description
Short Description	Short description is useful in understanding the content of the Business Processor you are creating. It would help to enter a description based on the code. Note the following: It is mandatory to enter a Short Description. The Short Description should be of minimum 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.
Dataset	Select the Dataset from the drop-down list. The list of available Datasets for the selected Information Domain will appear in the drop-down. The Short Description of the Datasets as entered in the *Datasets* window under **Business Metadata Management** will be reflected in the drop-down.
Measure	Select the Measure from the drop-down list. All base measures that are defined on any of the tables present in the selected Dataset 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.
Expression	Click  button. The *Expression* window is displayed. For more details on creating an expression using entities, functions and operators, see 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.

Field	Description
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** to specify default values for any of the placeholders defined.

  The *Parameters* window is displayed.



vi. Enter a default value for the place holders defined along with the expression in the **Default Value** field.

vii. Click **Save** to save the default value for a Place Holder.

The User Info grid at the bottom of the window 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* window after validating the entries.

5.6.2 Viewing Business Processor

You need to be mapped with the role group BMM Processor Read Only to view a 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* window:

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

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

5.6.3 Editing Business Processor

You need to be mapped with the role group BMM Processor Write to edit 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* window:

1. Select the checkbox adjacent to the required Business Processor code.
2. Click **Edit** button from the Business Processor tool bar. The *Edit Business Processor* window is displayed.
3. Update the details as required. For more information see Add Business Processor.
4. Click **Save** and update the changes.

5.6.4 Copying Business Processor

You need to be mapped with the role group BMM Processor Write to copy 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* window:

1. Select the checkbox adjacent to the required Business Processor code in the list whose details are to be duplicated.
2. Click **Copy** button from the Business Processor tool bar. **Copy** button is disabled if you have selected multiple checkboxes. The *Copy Business Processor* window 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 see Add Business Processor.
4. Click **Save**. The defined Business Processor is displayed in the *Business Processor* window.

5.6.5 Deleting Business Processor

You need to be mapped with BMM Processor Write to delete business processor.

You can remove Business Processor definition(s) which are no longer required in the system by deleting from *Business Processor* window.

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

   The selected Business Processor definitions are removed.

5.7 Expression

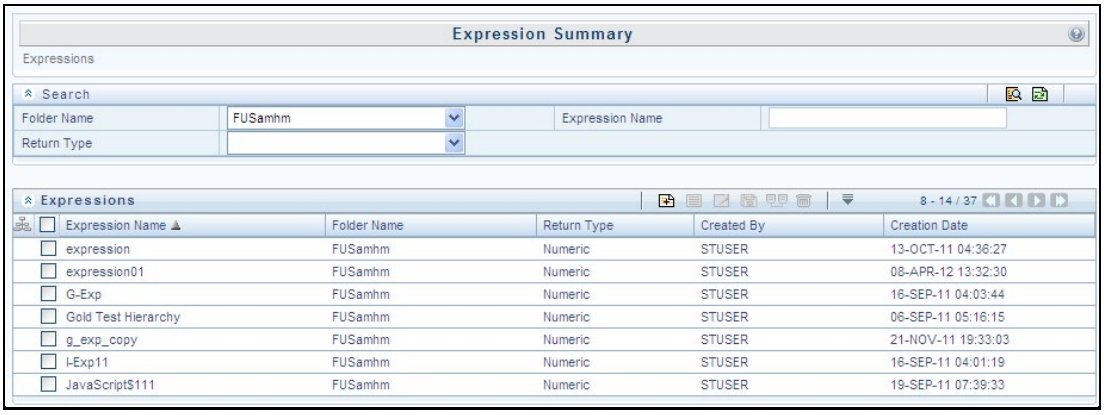
An Expression is a user-defined tool that supplements other IDs and enables to manipulate data flexibly. Expression has three different uses:

- 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.

Based on the role that you are mapped to, you can access read, modify or authorize *Expression* window. For all the roles and descriptions, see Appendix A. The roles mapped to Expression are as follows:

- Expression Access
- Expression Advanced
- Expression Authorize
- Expression Phantom
- Expression Read Only
- Expression Write



The *Expression Summary* window displays the list of pre-defined Expressions with other details such as the Expression Name, Folder Name, Return Type, Created By, and Creation Date. For more information on how object access is restricted, see Object Security in Dimension Management module section.

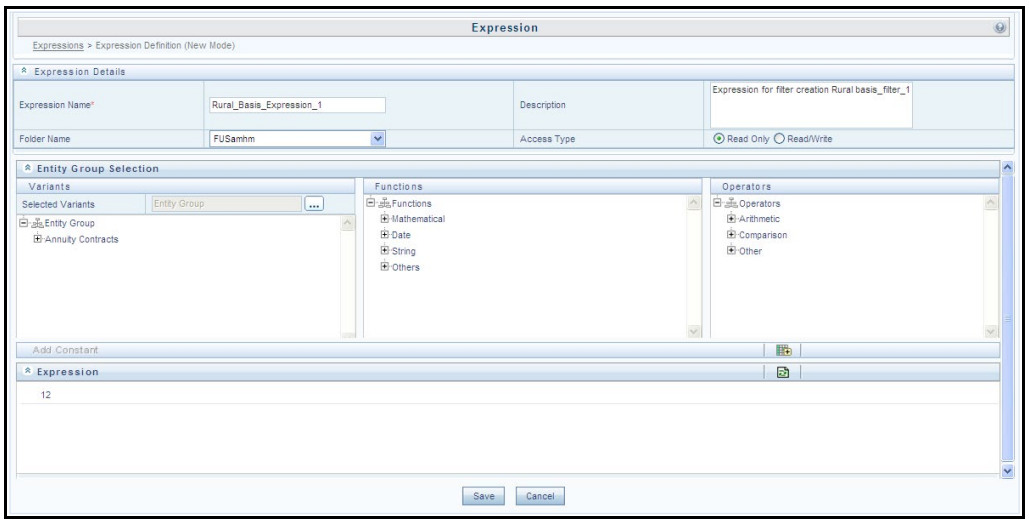
You can also search for a specific Expression definition based on Folder Name, Expression Name, or Return Type and view the list of existing definitions within the system.

5.7.1 Adding Expression Definition

This option allows you to add an expression definition using variables, functions, and operators. The Write role should be mapped to your user group.

To create a new Expression from the *Expressions Summary* window:

1. Click ➕ **Add** button in the Expressions Toolbar. The *New - Expression* window is displayed.



2. In the Expression Details grid:
   - Enter the **Expression Name** and the required **Description**.

> **NOTE** Expression Name: The characters &' " are restricted in the name field.
> Description: The characters ~&+' "@ are restricted in the description field.

   - Select the **Folder Name** from the drop-down list.
     - The *Folder selector* window behavior is explained in User Scope section.
     - Click ⊞ to create a new private folder. The *Segment Maintenance* window is displayed. For more information, see Segment Maintenance.

> **NOTE** You can select **Segment/Folder Type** as Private and the **Owner Code** as your user code only.

   - 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 expression.

> **NOTE** A user with Phantom and Write role can modify or delete the expression even though the access type is selected as Read-only.

- **Read/Write**: Select this option to give all users the access to view, modify (including Access Type) and delete the expression.

3. In the Entity Group Selection grid:
   - In the Variants section, click  button The *Variant Selection* window 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* window.
   - In the Variant's 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 see 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 see 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.

5.7.2 Viewing Expression

You can view individual Expression details at any given point. To view the existing Expression details the *Expression Summary* window:

1. Select the checkbox adjacent to the Expression Name.
2. Click  **View** button in the Expressions tool bar.

The *View Expression* window is displayed with the Expression details.

5.7.3 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 **Edit** button and the Edit – Expression window is displayed. Modify the required changes. For more information, see Add Expression Definition.
3. Click **Save** and upload the changes.

5.7.4 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* window:

1. Select the checkbox adjacent to the Expression Name which you want to create a copy.
2. Click **Copy** button in the Expressions tool bar. **Copy** button is disabled if you have selected multiple checkboxes. The *Copy – Expression* window is displayed.
3. In the *Copy – Expression* window 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, see Add Expression Definition. Click **Save.**

The new Expression details are displayed in the *Expression Summary* window.

5.7.5 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* window is displayed with Object id, Name, and id type of the dependent Objects.

5.7.6 Deleting Expression

You can delete an expression which has Read/Write Access Type. To delete an expression from the *Expression Summary* window:

1. Select the checkbox adjacent to the Expression Name(s) whose details are to be removed.
2. Click **Delete** in the Expressions tool bar.
3. Click **OK** in the information dialog to confirm deletion.

5.8 Filter

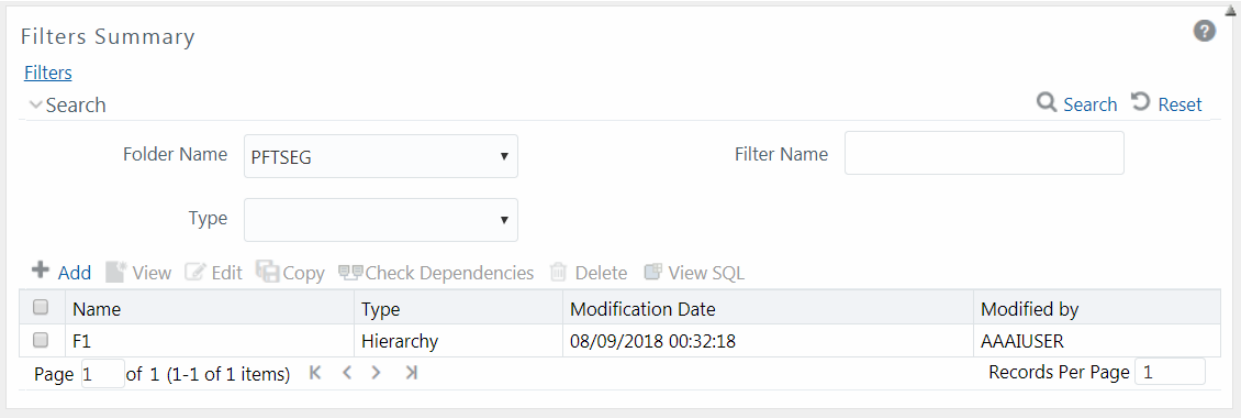
Filters in the Infrastructure system allows you to filter metadata using the defined expressions.

5.8.1 Navigating to Filters

You can access Filters by expanding **United Analytical Metadata** section within the tree structure of LHS menu and selecting **Filter**.

Based on the role that you are mapped to, you can access read, modify or authorize *Filters* window. For all the roles and descriptions, see Appendix A. The roles mapped to Filters are as follows:

- Filter Access
- Filter Advanced
- Filter Authorize
- Filter Phantom
- Filter Read Only
- Filter Write



The *Filters Summary* window displays the list of Filters created in all public folders, shared folders to which you are mapped and private folders for which you are the owner, along with the other details such as the Name, Type, Modification Date, and Modified By. For more information on how object access is restricted, see Object Security in Dimension Management module section.

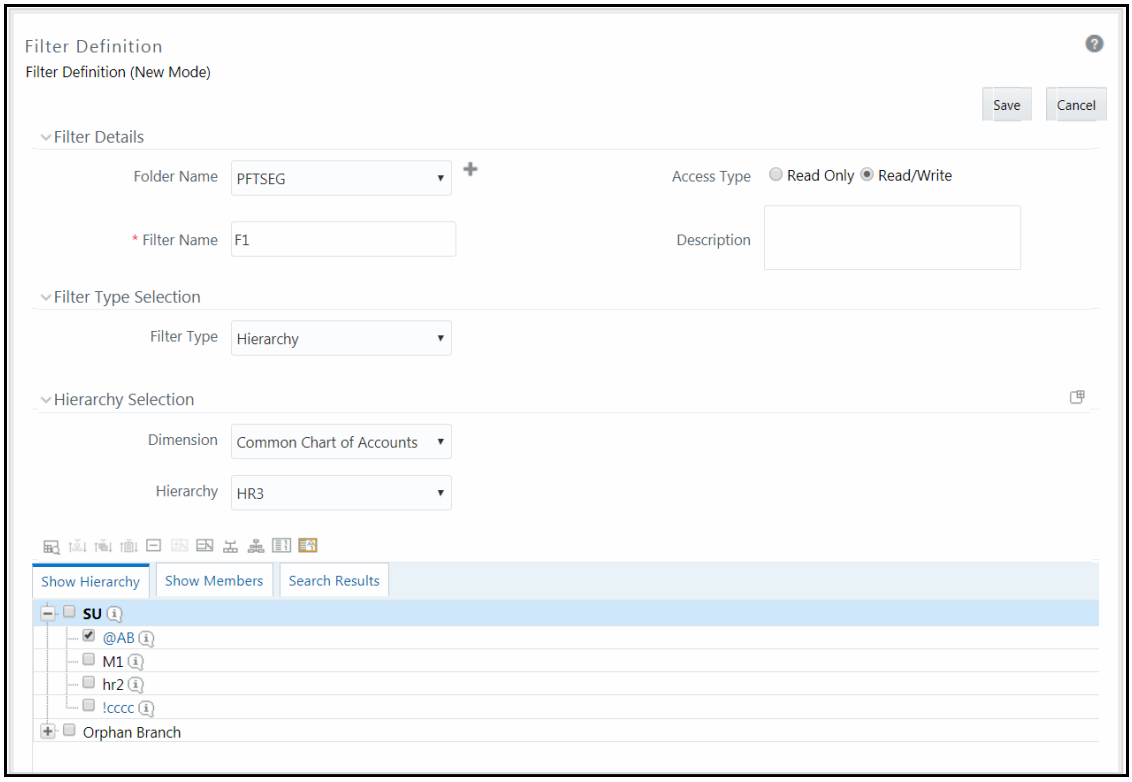
You can also search for a specific Filter definition based on Folder Name, Filter Name, or Type and view the list of existing definitions within the system. If you have selected Hierarchy from the Type drop-down list, the Dimension drop-down list is also displayed.

5.8.2 Adding Filter Definition

This option allows you to add a filter. Filter can be of 4 types namely, Data Element, Hierarchy, Group, and Attribute. To create filter definition, the Write role should be mapped to your user group.

To create a new filter from the *Filters Summary* window:

1. Click ➕ **Add** button in the Filters toolbar. The *Filter Definition* window is displayed.



2. Enter the Filter Details section details as tabulated:

Field	Description
Filter Details	
Folder Name	Select the Folder Name where the Filter is to be stored from the drop-down list. The *Folder selector* window behavior is explained in User Scope section. Click to create a new private folder. The *Segment Maintenance* window is displayed. For more information, see Segment Maintenance. **Note**: You can select **Segment/Folder Type** as Private and the **Owner Code** as your user code only.
Access Type	Select the Access Type as **Read Only** or **Read/Write.** **Read-Only**: Select this option to give other users the access to only view the filter definition. **Note**: A user with Phantom and Write role can modify or delete the filter even though the access type is selected as Read-only. **Read/Write**: Select this option to give all users the access to view, modify (including Access Type) and delete the filter definition.
Filter Name	Enter the filter name in the **Filter Name** field. **Note**: The characters &' " are restricted.
Description	Enter the description of the filter in the **Description** field. **Note**: The characters ~&+' " @ are restricted.

3. From the Filter Type Selection pane, select the **Filter Type** from the drop-down list.

   There are four different Filter Types available in the Filter Type Selection grid as tabulated. Click 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.

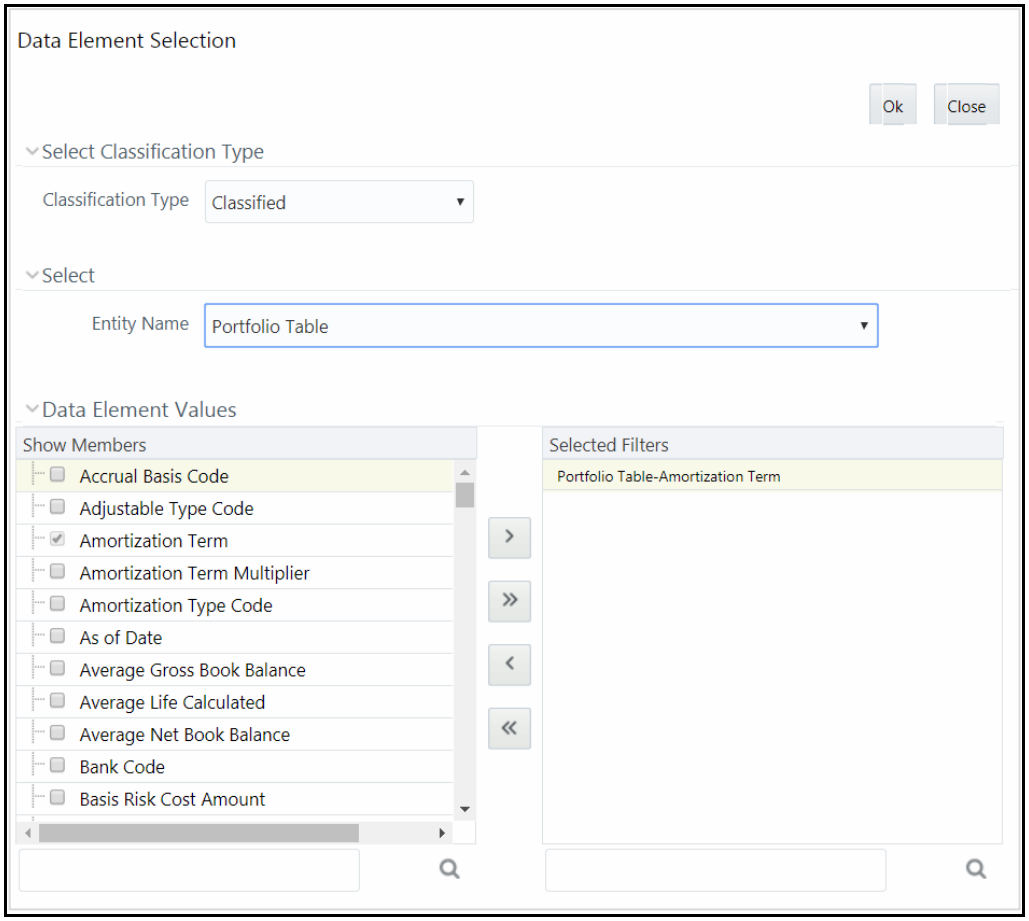
Filter	Description
Attribute	**Attribute Filters** are created using defined Attributes. Attribute filters facilitates you to filter on one or more Dimension Type Attributes. For each attribute, you can select one or more values. **Example**: Consider a filter that selects all records where the dimension Common Chart of Account member represents an attribute value Expense account, i.e., the attribute **"Account Type" = Expense**. Now, using Attribute Filters, you can specify complex criteria as given below: Common Chart of Accounts where the Account Type attribute is Earning Assets or Interest-bearing Liabilities, and the Accrual Basis attribute is Actual/Actual Also, You could further refine the filter by adding another condition for: Organizational Unit where the Offset Org ID is a specific Org member The Filter then saves these criteria rather than the member codes which meet the criteria at the time the Filter is saved. During execution, the engine dynamically selects all records from your processing table (e.g. Mortgages, Ledger, etc.), which meet the specified member attribute criteria.

Once the required filter conditions are defined, save the Filter definition.

5.8.2.1 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* window is displayed.

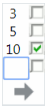


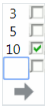
- Select any of the following Filter **Classification Type** from the drop-down list:
  - **Classified** - This is the default selection and displays all the classified EPM specific entities. If you are an EPM user, you need to select this option while defining Data Element Filter to list all the related 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.
- Select the required database table from the **Entity Name** drop-down list. 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 the **Add** button. Click adjacent to **Add** button to add 3, 5, 10 rows by selecting the checkbox adjacent to 3, 5, or 10 respectively. You can add custom number of rows by specifying the number in the text box provided, as shown and click .  To remove a row, select the checkbox and click **Delete**. 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.

Filter	Description
Ranges	**Ranges** are used to match a selected database column to a range of values or to ranges of values that you provide. You may either include or exclude Range values. Range Type is available for OFSA Datatype Term, Frequency, Leaf, Code, and Identity and Column Datatype Date, Numeric and Varchar. You can add additional values by clicking the **Add** button. Click adjacent to **Add** button to add 3, 5, 10 rows by selecting the checkbox adjacent to 3, 5, or 10 respectively. You can add custom number of rows by specifying the number in the text box provided, as shown and click .  To remove a row, select the checkbox and click **Delete**. If the Column Datatype is VARCHAR, provide Specific Values (alphanumeric) that are character strings. If the Column Datatype is DATE, provide Specific Values that are dates (the application displays a Calendar control). If the Column Datatype is Numeric, provide Specific Values that are numbers. If OFSA Datatype is LEAF, provide either numeric values or click to select the numeric member ids. If OFSA Datatype is CODE, provide either numeric values or click to select the numeric member ids. If OFSA Datatype is IDENTITY, provide specific numeric values. However, no validation is done during save to validate the input value for a valid identity code. Select **Include Values** or **Exclude Values** to include or exclude the selected values
Another Data Element	**Another Data Element** is used to match a selected database column to another database column. When constructing an Another Data Element Filter Method, you may only compare a column to other columns that you have already selected (the Data Element drop-down list box will only contain columns that you have already selected). 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.

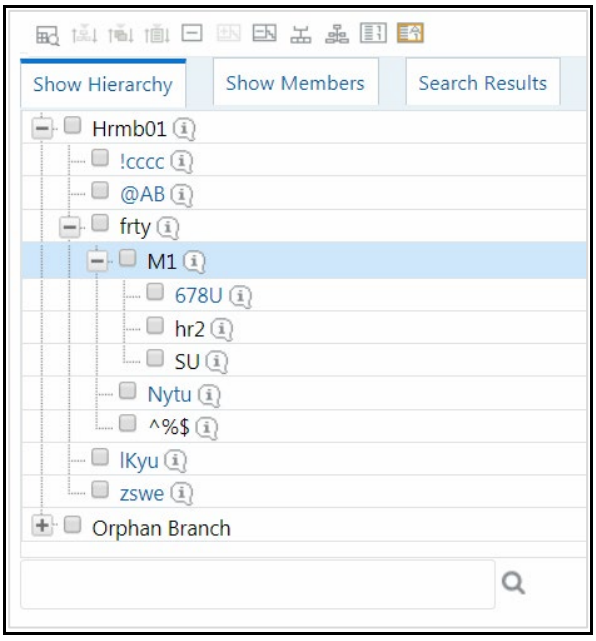
- Click ▲ or ▼ buttons to move a selected Filter Condition up or down.
- Click button to delete selected individual Filter Conditions records.

3. Click **Add** or **Edit** in the *Filter Definition* window if you are creating a new or updating an existing Filter definition.
4. Click **Save** to validate the entries and save the filter details.

5.8.2.2 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.



The Show Hierarchy tab displays the leaves in each node in ascending order of Members.

In order to sort the nodes alphabetically, HIERARCHY_IN_FILTER_SORT-$INFODOM$-$DIMENSION_ID$=$VALUE$ in the AMHMConfig.properties file present in the deployed location should be set as Y. You should add such entry for all the required Dimension IDs for the sort functionality to work for those dimensions.

For example:
HIERARCHY_IN_FILTER_SORT-OFSAAINFO-4345=Y

Restart servers after making any change in AMHMConfig.properties file for the change to take effect.

From this pane, 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. The search results are also displayed in the ascending order of Member Names.
- Click to collapse the members under a node.
- Click or to expand a branch or collapse a branch.
- Click or to view the name of members right or left.
- Click or to view the Numeric code values of members right or left.
- Click or to show code or show name of the members.
- Click or to focus or unfocus a selected node except the root node.

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

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

5.8.2.3 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:

1. 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**.
2. Click **Save** to validate the entries and save the filter details.

5.8.2.4 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:

1. Select the required **Dimension** from the drop-down list.
2. Select the associated **Attribute** from the drop-down list. The list consists of only Dimension Type attributes for selection.
3. Click button in the Attribute Values grid. The *Attribute Values* window is displayed.

   In the *Attribute Values* window, the **Dimension** field under Dimension grid is auto populated with the Dimension name with which the selected Attribute is defined and is non-editable. In the Search grid you can search for Attribute Values depending on Alphanumeric Code, Numeric Code, or Name.

4. 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.

5. Click **Add** button in the Attribute Values grid. The Filter Conditions grid is populated with the filter condition using all the Attribute values.

   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* window. Click button to view a long filter condition in View Condition dialog.

6. Click **Save**. The Attribute Filter definition is saved.

5.8.3 Viewing Filter Definition

You can view individual Filter details at any given point.

To view the existing Filter Definition details in the *Filters Summary* window:

1. Select the checkbox adjacent to the Filter Name.
2. Click **View** button in the Filter tool bar.

   The *View – Filter Details* window is displayed with the filter details.

5.8.4 Modifying Filter Definition

This option allows you to modify the details of Filters.

1. Select the checkbox adjacent to the Filter Name whose details are to be updated.
2. Click **Edit** button and the *Edit – Filter Details* window is displayed. Modify the required changes. For more information, see Add Filter Definition.
3. Click **Save** to save the changes.

5.8.5 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* window:

1. Select the checkbox adjacent to the Filter Name which you want to create a copy.
2. Click **Copy** button in the Filters tool bar. **Copy** button is disabled if you have selected multiple checkboxes. The *Copy – Filter Details* window is displayed.

3. In the *Copy – Filter Details* window 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, see Add Filter Definition. Click **Save.**

   The new filter definition details are displayed in the *Filters Summary* window.

5.8.6 Checking Dependencies

You can view the dependencies of a defined Filter. You can use filter in a Run definition. However, the Run definitions are not shown as dependent objects when you check dependency for a filter. This is a limitation.

To check the dependencies of a filter from the *Filters Summary* window:

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* window is displayed with Object ID, Name, and ID Type of the dependent Objects.

5.8.7 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* window:

1. Select the checkbox adjacent to the filter to view the SQL.
2. Click View SQL button. The SQL equivalent of the selected filter is displayed in the View SQL window.

5.8.8 Deleting Filter Definition

You can remove the Filter Definitions which are not required in the system by deleting from the *Filters Summary* window.

> **NOTE** A filter definition with dependency cannot be deleted. However, if the dependent object is a Run Definition, you are able to delete the filter definition. This is a limitation.

1. Select the checkbox adjacent to the Filter Name whose details are to be removed.
2. Click **Delete** in the Filters tool bar.
3. Click **OK** in the information dialog to confirm deletion.

5.9 Map Maintenance

The *Map Maintenance* window facilitates to control how dimension members are shared among users within an information domain. You can map multiple hierarchies to user groups available in OFSAAI so that the mapped members only can be viewed by the users belonging to that user group. You can set a mapper definition as the default Security mapper for an information domain. Based on the members mapped in a security mapper, the hierarchy browser window in OFSAAI framework displays the members of the hierarchy along with its descendants.

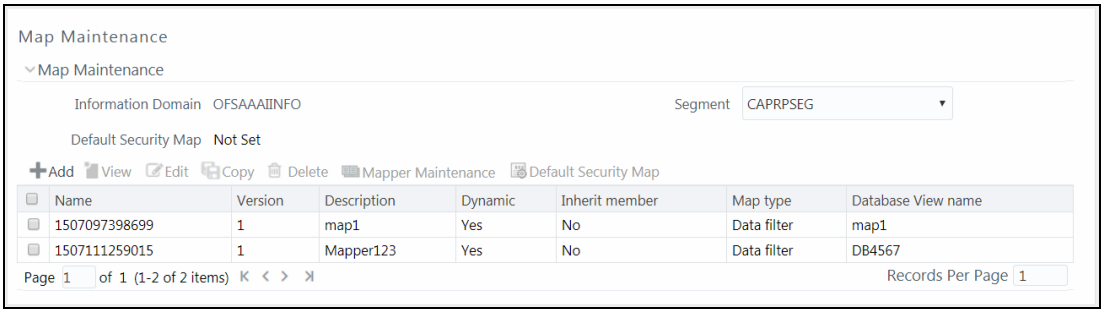
> **NOTE** Since a hierarchy's member security is maintained at user group level, the member maintenance related functions like add, edit, copy, and delete will be the same for all users across all the enabled members in the hierarchy maintenance window.

For understanding the Hierarchy Security feature, see Scenario to Understand Hierarchy Security section.

To access the *Map Maintenance* window, you should be mapped to Access role. To create, modify, and delete a mapper, you should be mapped to Write role.

Based on the role that you are mapped to, you can access, read, modify, or authorize Map Maintenance. For all the roles and descriptions, see Appendix A. The roles mapped to Map Maintenance are as follows:

- Mapper Access
- Mapper Advanced
- Mapper Authorize
- Mapper Phantom
- Mapper Read Only
- Mapper Write



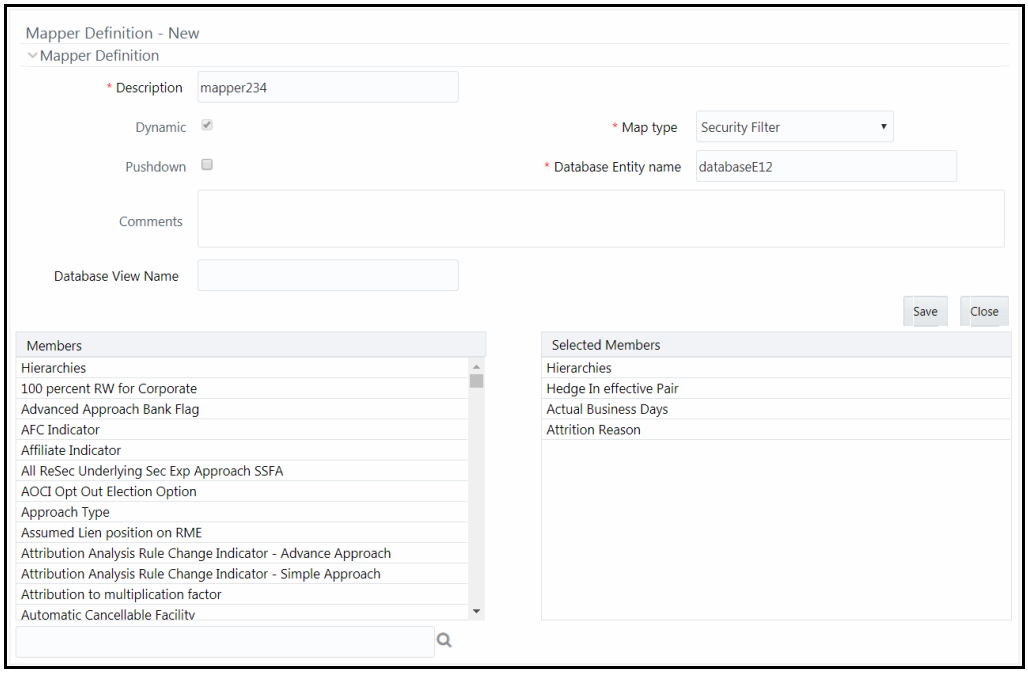
The *Map Maintenance* window displays the Name, Version, Description, Dynamic, Inherit Member, Map Type, and Database View name for the available mapper definitions created in the selected **Segment** and Infodom. Segments facilitate the classification of related metadata in a single segment. You have access to only those metadata objects that are mapped to the same segment to which you are mapped.

5.9.1 Creating a Mapper Definition

This option allows you to create a mapper definition by selecting the required hierarchies. You can create a data filter or security filter type mapper definition. For a security filter mapping, you should select the default user group hierarchy present in OFSAAI as a hierarchy. You can select up to 9 hierarchies in a mapper definition. You need to be mapped to the role Mapper Write to create mapper definition.

To create a new mapper definition from the *Map Maintenance* window:

1. Click ➕ **Create new Map** from the tool bar. The *Mapper Definition – New* window is displayed.



All hierarchies including the default user group hierarchy for the selected infodom are listed under the Members pane.

2. Enter the mapper definition details as tabulated:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Description	Enter a description for the map definition.
Dynamic	By default, the checkbox is selected and you do not have the option to deselect this. The dynamic attribute is associated with a mapper definition which facilitates the accommodation of latest members of a slowly changing dimension by leveraging the push down functionality.

Field	Description
Map Type	This drop-down list is enabled only if the **Dynamic** checkbox is selected. Otherwise, data filter is selected and this field is disabled. Select the Map type. The available options are: **Data Filter**: Select this option to define a data filter type mapping, which does not require a user group hierarchy to be selected among the participating hierarchies. **Security Filter**: Select this option to define a security filter type mapping, which can be used to restrict access to members of a hierarchy based on user groups. For a security filter, the user group hierarchy should be attached with the definition. You can add other hierarchies to this definition and will not have the option of saving the mapper definition without using a User Group hierarchy.
Pushdown	Select the checkbox if you want implicit push down of the mappings whenever mappings are modified and saved through the *Mapper Maintenance* window.
Database Entity Name	Enter the name for the table/entity to be created in the atomic schema that will be used to store the exploded mappings. The database entity name can be alpha numeric, however should not start with a numeric character.
Comments	Enter any additional information about the mapper definition.
Database View Name	Enter the Database View name to be created for the selected database entity. The View will be created in the atomic schema with Hierarchy code as the column name.

3. Click the required hierarchies from the Members pane. The selected hierarchies are displayed under the Selected Members pane.

NOTE

- User group hierarchy should be selected for a security mapper definition. If not selected then a validation message providing information about the User Group hierarchy to be selected is displayed back to the user during the save operation.
- The Hierarchies selected in the *Mapper Definition* window should not contain special characters "~" (Tilde) and "$" (Dollar) in their node descriptions.

4. Click **Save** to save the mapper definition details.

   The Mapper definition is saved with the version number as 1 in the authorized state and the same is displayed in the refreshed Mapper List grid in *Map Maintenance* window.

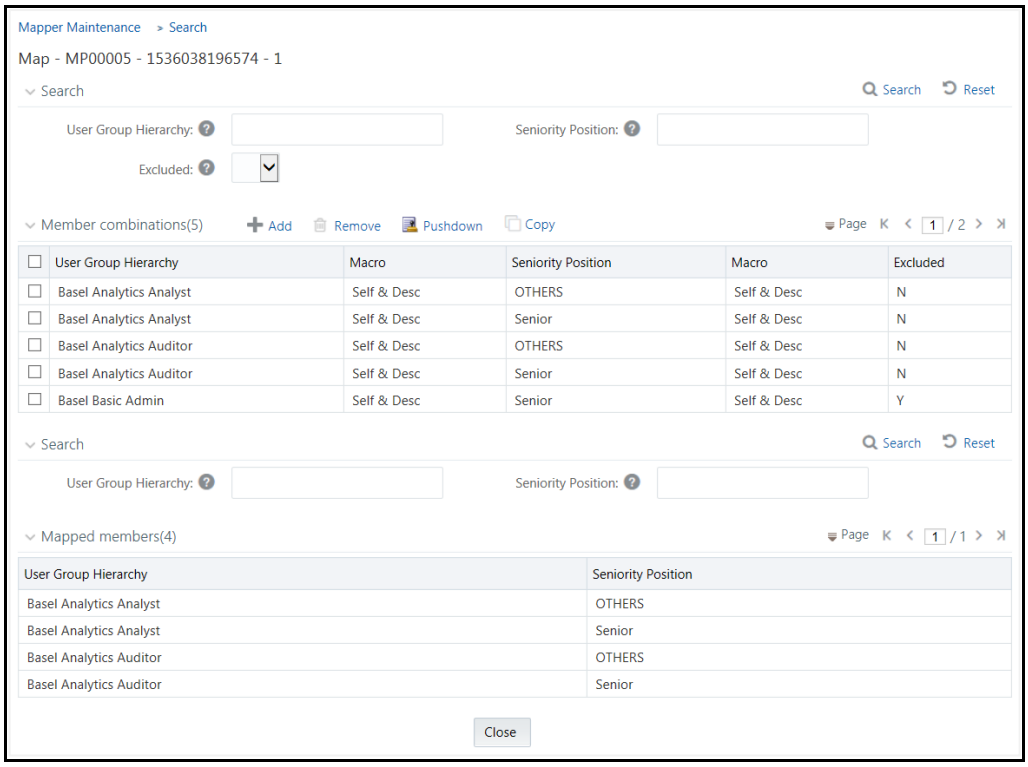
5.9.2 Mapper Maintenance

The Mapper Maintenance feature allows you to define the mappings among the participating hierarchies in the *Mapper Definition* window. You should select at least one member from each

hierarchy to define a mapping. You can add multiple mappings among the hierarchies. The mappings will be stored in the database entity/table you have created during the mapper definition for further processing i.e. push down operation. After defining all mappings, you can push down the mappings to be effective in the system (The push down will be implicit if the same was opted at the mapper definition time). You need to be mapped to the role Mapper Access to access the Mapper Maintenance feature.

To define the mappings:

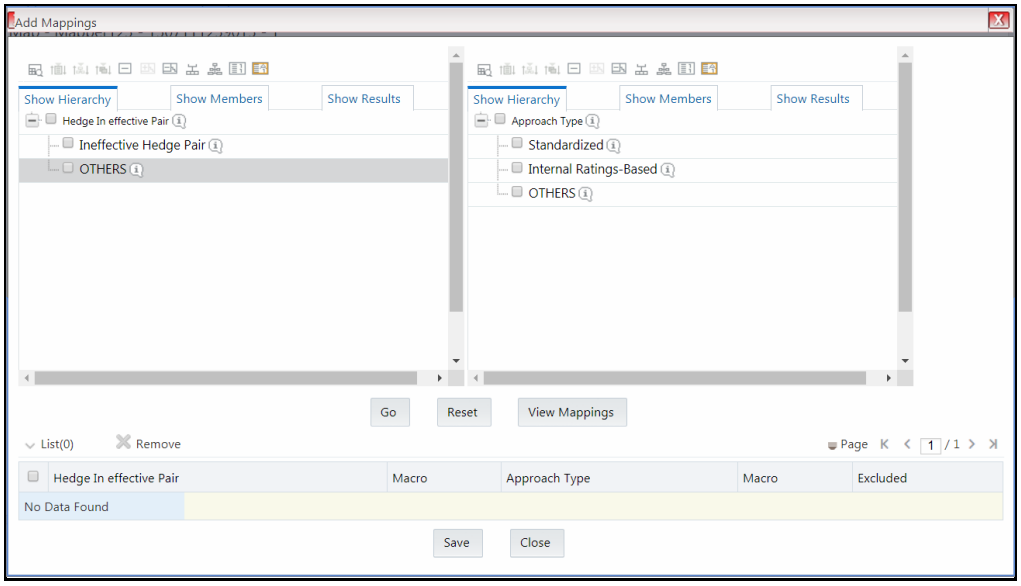
1. From the *Map Maintenance* window, select the mapper definition and click **Mapper Maintenance**. The *Map* window is displayed.



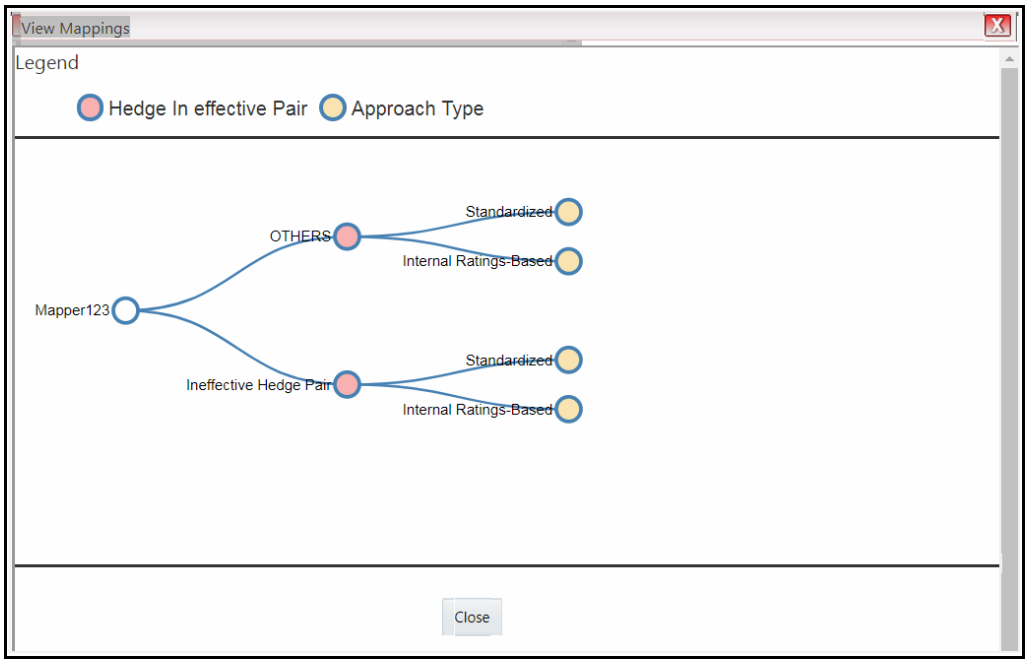
   Based on the hierarchies participating in the mapper definition, the search fields will be displayed.

2. Click **Add** on the Member Combinations toolbar.

   The hierarchies that were selected in the *Mapper Definition* window appear in the *Add Mappings* window, along with their members.



3. Select the required hierarchy members from each hierarchy and click **View Mappings** to view the already available mapping combinations with the selected hierarchy members. The *View Mappings* window is displayed.



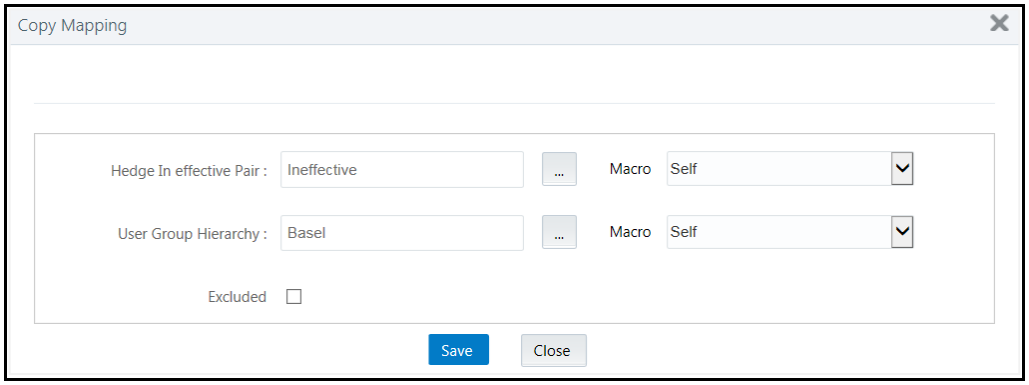
4. Click **Close**.
5. To add a new mapping from the *Add Mappings* window, select the required hierarchy members from each hierarchy and the corresponding user group to which you want to map in case of security mapper and click **Go**. Each mapping definition gets listed in the below grid. You should select at least one member from each hierarchy to obtain a complete mapping.

> **NOTE** If a child is mapped and parent is not mapped, the parent will be displayed as disabled in the hierarchy browser window.

6. Enter the mapping details as tabulated:

Field	Description
Macro	This drop-down list allows you to define conditions based on which the members will be mapped. The options are: **Self Only**: Select this option if you want only the selected member to be mapped. If this option is selected, the hierarchy browser will display the selected member in enabled mode. If it has any descendants, those will be displayed in disabled mode. **Self & Desc**: Select this option if you want the selected members along its descendants to be mapped.
Exclude	Select **Yes** if you want to exclude certain members from being mapped. For example, if you want to map a hierarchy to all user groups except one user group say UG1, then map the hierarchy to UG1 and select the **Exclude** option as **Yes**. This will ensure that all users belonging to user groups except UG1 can access all the members of the hierarchy.

7. Click **Save**. All the mappings will be listed in the Member Combinations grid.
8. You can use the copy functionality to copy an already created mapping and edit the required fields. To copy a mapping,
   a. Select the mapping you want to copy, from the Member Combinations grid and click **Copy**. The *Copy Mapping* window is displayed with all Hierarchies participating in the mapping.



   b. Select the **Macro** and **Excluded** information for the mapping and click **Save**. The copy of the mapping will appear in the Member Combinations grid.
9. Click **Pushdown** to refresh the mapping of participating hierarchies available in the system. A service will push down the mappings based on config schema data (used combinations having macros) in to the atomic schema (exploded mappings). The pushed down mapping i.e. the exploded mappings will be displayed in the Mapped members pane.

10. Select a mapping from the first panel and click **Remove** if you want to remove the mapping from the mapper. You should click **Pushdown** to effect these changes in the system.

5.9.3 Default Secure Map

This option allows you to set a mapper definition as the default security mapper at infodom level. You can have different security filter type mapper definitions but in OFSAAI platform, the default security mapper is used to provide hierarchy member security. If a mapper is not set as a default security mapper, hierarchy browser will display all the members of the hierarchy in enabled mode and hierarchy member security will not be available under such circumstances.

Click  **Default Security Map** button on the toolbar to set a mapper as a default secure mapper. Once selected, this information will be displayed in the *Mapper Summary* window. A delete icon will also be available adjacent to it to remove the default security map from the system.

> **NOTE** A Security Filter type mapper definition having the user group hierarchy (seeded by OFSAAI) in its definition can only be identified as a default security mapper and this validation will be performed by the application. When a mapper is set as the default security map in an information domain, it overrides the existing default security map if present in the infodom.

5.9.4 Modifying Mapper Definition

You can update only the **Comments** field and the pushdown option. You need to have Mapper Write role mapped to your user group to modify a Mapper definition.

To update the Map Maintenance details in the *Map Maintenance* window:

11. Select the checkbox adjacent to the required Mapper code.
12. Click **Edit Map** button from the tool bar. The *Mapper Definition* window is displayed.
13. Update the **Comments** field or the push down option as desired (The push down option will be available for edit, only in case of dynamic mapper definitions and this option will be disabled in case of non dynamic mapper definitions).
14. Click **Save** and update the changes.

5.9.5 Copying Mapper Definition

The Copy Mapper Definition allows you to quickly create a new Mapper Definition based on the existing hierarchies and mappings. You can then add more hierarchies and mappings as required.

Note the following points:

- When you copy a Mapper definition, all the existing hierarchies and mappings get preselected and copied to the new Mapper definition.
- You cannot remove the existing hierarchies from the new Mapper definition.

- You can add up to 9 hierarchies (including the existing ones) to the new Mapper definition.
- If you are copying a Mapper definition which has mappings (done through the *Mapper Maintenance* window), then
  - The parent node /default node of the new hierarchy will get mapped with existing hierarchy member combinations
  - You need to select a hierarchy that has default data. Otherwise, an alert message is displayed prompting you to select a hierarchy with default data.
- You cannot edit the fields **Dynamic** and **Map Type**.
- Pushdown will not happen automatically. You need to do the Pushdown operation of the new Mapper definition explicitly.

To copy an existing Mapper Definition in the *Map Maintenance* window:

1. Select the checkbox adjacent to the Mapper Name which you want to copy.
2. Click **Copy Map** button in the tool bar. The **Copy** button is disabled if you have selected multiple checkboxes. The *Mapper Definition- Copy* window is displayed.
3. Enter the required details in the **Description, Database Entity Name, Database View Name** and **Comments fields**. For more information, see Creating a Mapper Definition.
4. Select the **Pushdown** checkbox if you want implicit push down of the mappings whenever mappings are modified.
5. Select the required hierarchies from the Members pane. The selected hierarchies are displayed under the Selected Members pane. Click **Save.**

   The new Mapper definition details are displayed in the *Map Maintenance* window. Select the new Mapper and click **Mapper Maintenance** button in the tool bar to add mappings to the newly added hierarchies.

5.9.6 Deleting Mapper Definition

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* window. You need to have Mapper Write role mapped to your user group to delete a Mapper definition.

To delete a Mapper definition from the *Map Maintenance* window:

1. Select the checkbox adjacent to the required Mapper definition code.
2. Click **Delete Map** button from the tool bar. A confirmation dialog is displayed. If a default security map was selected for deletion, then the same will be indicated in the confirmation dialog. The mapper code will be followed by '(D)' to indicate that the default security map has also been selected for deletion.
3. Click **OK**. The Mapper definition details are deleted.

5.9.7 Non Dynamic Mapper definitions

The existing mapper definitions available in the system will be treated as non dynamic mapper definitions. You can continue to use such mapper definitions, that is, all functionalities supposed to be applicable for an existing mapper definition will be available to you.

5.10 Analytics Metadata

Analytics Metadata section consists of the following sections:

- Dimension
- Essbase Cube
- OLAP Cube
- Catalog

5.10.1 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 can access *Business Dimension* window by expanding **Unified Analytical Metadata** and **Analytics Metadata** within the tree structure of the LHS menu and selecting **Dimension**.

The dimension specific details are explained in the following table:

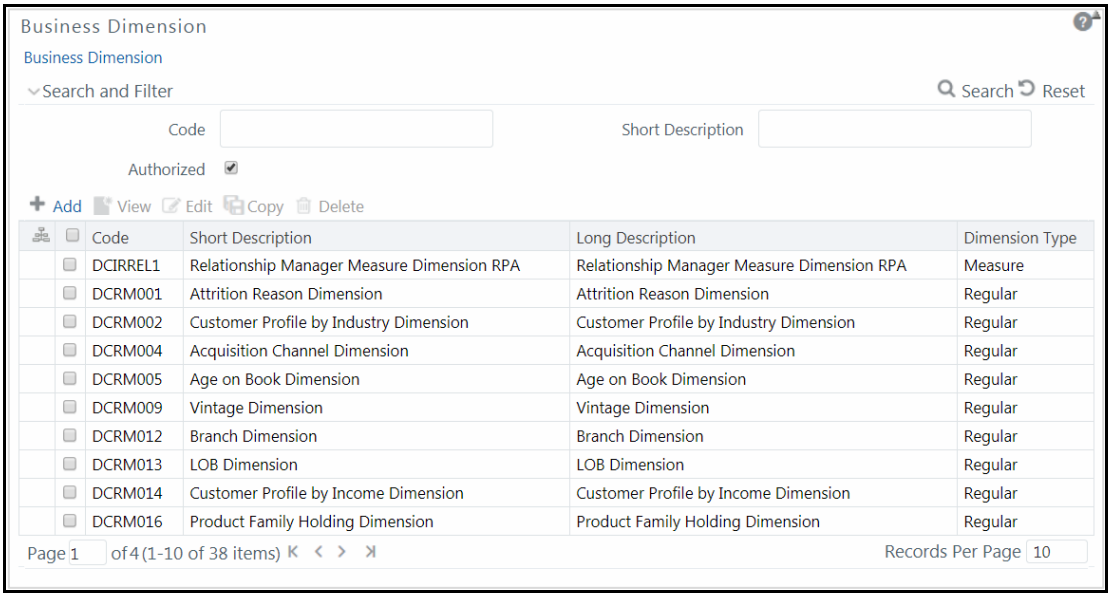
Field	Description
Dimension Properties	Displays the Dimension Type and Data Type of the selected dimension object.
Depends on	Displays the Hierarchy object which is used in creating the dimension. Click the object link to drill down for more details.
Used In	Displays the Essbase cube object in which the dimension is used. Click the object link to drill down for more details.
Applications	Displays the applications in which the dimension is used.

Based on the role that you are mapped to, you can access read, modify or authorize Dimension. For all the roles and descriptions, see Appendix A. The roles mapped to Business Dimension are as follows:

- Dimension Access
- Dimension Advanced
- Dimension Authorize
- Dimension Phantom
- Dimension Read Only

- Dimension Write

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* window displays the list of pre-defined Business Dimensions with their Code, Short Description, Long Description, and Dimension Type. In the *Business Dimension* window, 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.

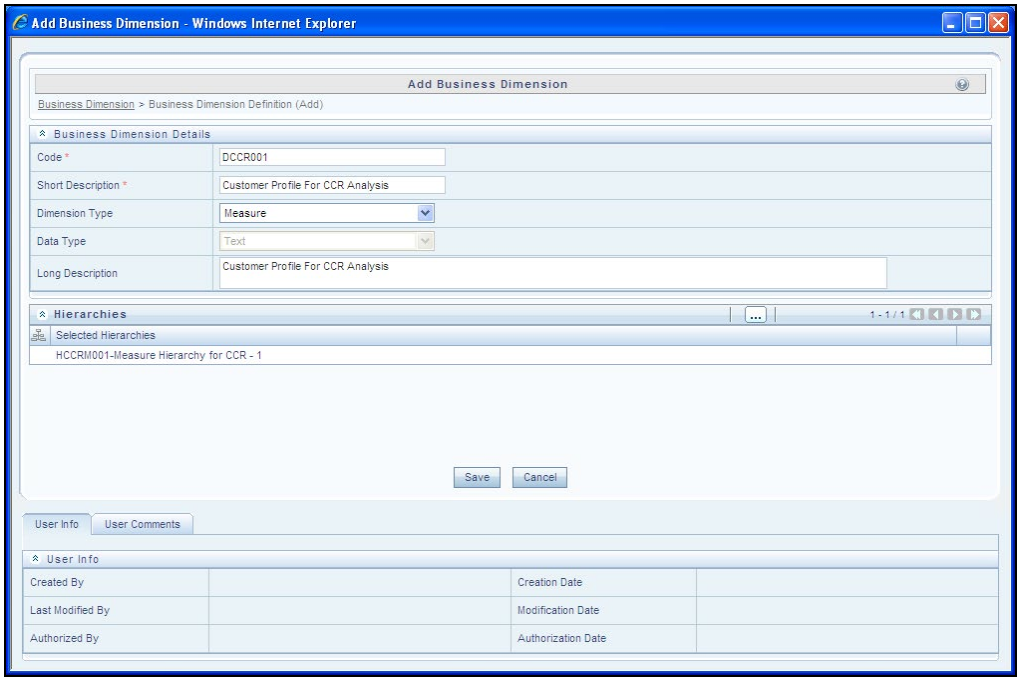
You can also make search for a specific business dimension based on the Code, Short Description, and Authorization status or view the list of existing business dimensions within the system.

5.10.1.1 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 Dimension Write role mapped in the Infrastructure system.

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

1. Click ➕ **Add** button from the Business Dimensions toolbar. The *Add Business Dimension* window 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: "$$$UNIVERSE$$$", "#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.

3. Click button in the Hierarchies grid. The *Hierarchy Browser* window 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 window displays the metadata information about the Business Dimension created along with the option to add comments.

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

5.10.1.2 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* window: You need to be mapped to the role Dimension Read Only to view Business Dimension.

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

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

5.10.1.3 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.

You need to be mapped to Dimension Write to modify Business Dimension.

To update the required Business Dimension details in the *Business Dimension* window:

1. Select the checkbox adjacent to the required Business Dimension code.
2. Click **Edit** button from the Business Dimension tool bar. The *Edit Business Dimension* window is displayed.
3. Update the required details. For more information, see Create Business Dimension.
4. Click **Save** and update the changes.

5.10.1.4 Copying Business Dimension

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

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

5.10.1.5 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* window. You need to have Dimension Write 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* window:

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

5.10.2 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, that is, 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.

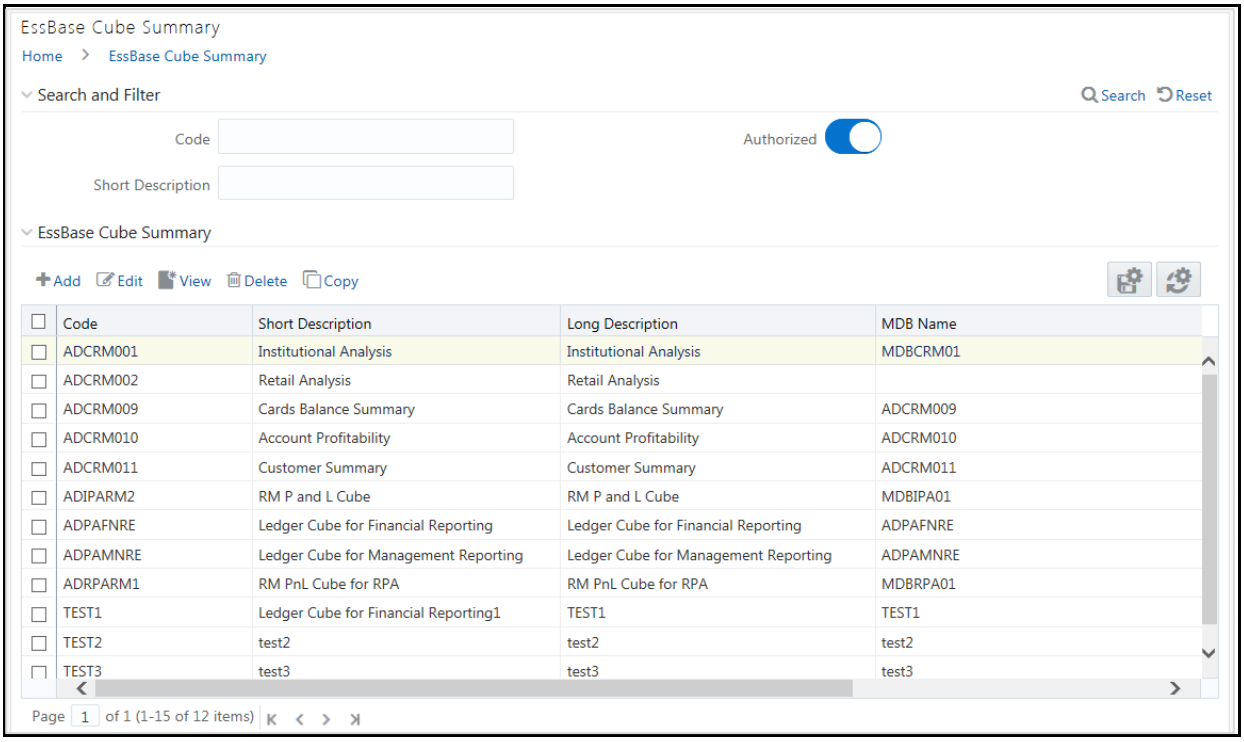
5.10.2.1 Essbase Cubes

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. This strategy addresses the what-if modeling and future-oriented questions that companies need answers today in order to see into the future.

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.

Based on the role that you are mapped to, you can access read, modify or authorize Essbase Cube. For all the roles and descriptions, see Appendix A. The roles mapped to Essbase cubes are as follows:

- Essbase Cube Access
- Essbase Cube Advanced
- Essbase Cube Authorize
- Essbase Cube Phantom
- Essbase Cube Read Only
- Essbase Cube Write



The *Essbase Cube Summary* window displays the list of pre-defined Essbase Cubes with their Code, Short Description, Long Description, and MDB Name. By clicking the Column header names, you can sort the column names in ascending or descending order. Click  if you want to retain your user preferences so that when you login next time, the column names will be sorted in the same way. To reset the user preferences, click  .

You can add, view, edit, copy, and delete an Essbase Cube. You can search for a specific Essbase Cube based on the Code, Short Description, and Authorization status.

5.10.2.1.1 Creating Essbase Cube

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. Your User Group should be mapped with the User Role 'Essbase Cube Write' to create or add an Essbase Cube.

Note the following:

NOTE

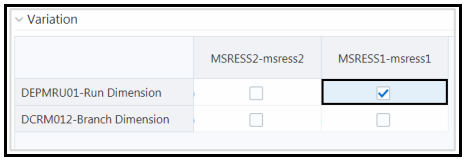
- Cube Build with OLAP type as Essbase – If there is a Business Intelligence (BI) hierarchy in the cube definition, cube build is supported only if the data length for BI Hierarchy processing is less than **50**.
- You must define at least two Business Dimensions. Else, an alert message is displayed.

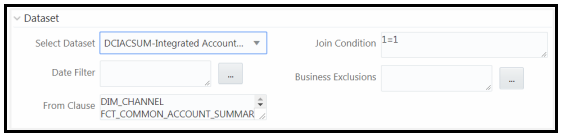
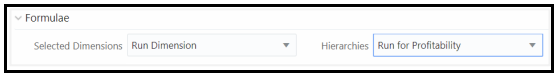
To create an Essbase Cube

1. From the *Essbase Cube Summary* window, click **+Add**. The *Essbase Cube Details* window is displayed.
2. Enter the Essbase 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.
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	Turn ON the toggle button if you wish to capture all incremental changes made to the database. The cube definitions with the **Is Build Incremental t**oggle button turned ON 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 Available 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. One dimension should be of Measure Dimension Type.
Variation	In the Variation tab, you can define the Variation by mapping the Dimension against the defined Measure.  To map a Dimension to a Measure, select the corresponding check box.
Intersection	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, see "Selecting Aggregation Function" in Business Measures section.  Select the required **Dimension** from the drop-down list corresponding to the Measure. **Note**: Mapped Intersection should be a subset of mapped Variation.

Dataset	In the Dataset 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 drop-down list. The selected **From Clause** and **Join Condition** for the selected Dataset are displayed. To define the **Date Filter**, click ... button. The *Expression Builder* window is displayed. Define the required expression by selecting the appropriate Entities, Functions, and Operator. Click **OK**. To define the **Business Exclusion**, click ... button. The *Expression Builder* window is displayed. Define the required expression by selecting the appropriate Entities, Functions, and Operator. Click **OK**.
Formulae	Note that the Formulae tab is specific to Essbase MOLAP. In the Formulae tab, you can apply filters to a hierarchy node.  When you select a Dimension from the Selected Dimensions drop-down list, the mapped Hierarchies will be listed out in the Hierarchies drop-down list. Click ... button adjacent to Node Formula. The *Expression Builder* window 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.  Turn ON the **Roll Off Required** toggle button. Click ... to specify the **Roll Off Period** value (in integer) 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.

4. Click **Save** and save the Essbase 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.

5.10.2.1.2 Viewing Essbase Cube Details

You can view the metadata of a selected Essbase Cube definition at any given point. You need to be mapped to the User Role Essbase Read Only to view Essbase Cube definition.

To view the existing Essbase Cube definition details:

1. From the *Essbase Cube Summary* window, select the Essbase Cube definition and click **View**. The *Essbase Cube Details* window is displayed.
   - The User Info tab displays the metadata properties such as Created By, Creation Date, Last Modified By, Modified Date, Authorized By, and Authorized Date.
   - The User Comments tab has a text field to enter additional information as comments about the created Cube definition.
   - Click **Close**.

5.10.2.1.3 Copying Essbase Cube Details

The Copy function is similar to "Save As" functionality and helps you to copy the pre-defined Essbase Cube details to quickly create another Essbase Cube. Your User Group should be mapped to 'Essbase Cube Write' User Role to copy the Cube details.

To copy Essbase Cube definition:

1. From the Essbase Cube Summary window, select the Essbase Cube definition and click Copy. The Essbase Cube Details window is displayed.
2. Enter the **Code, Short Description, Long Description** and **MDB Name**. For more information, see Create Essbase Cube section. You can also modify the cube components as required.
3. Click **Save** and save the updated details. A confirmation dialog is displayed.

5.10.2.1.4 Modifying Essbase Cube Details

1. From the *Essbase Cube Summary* window, select the Essbase Cube definition and click **Edit**. The *Essbase Cube Details* window is displayed.
2. Modify the Essbase Cube definition with the cube components details as required. For more information, see Create Essbase Cube section.
3. Click **Save** and save the updated details. A confirmation dialog is displayed.

5.10.2.1.5 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 *Essbase Cube Summary* window. You need to have Essbase Cube Write User Role mapped to delete an 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:

1. From the *Essbase Cube Summary* window, select the Essbase Cube definition you want to deleted and click **Delete**. A confirmation dialog is displayed.
2. Click **OK**. The Cube details are marked for delete authorization.

5.11 References

5.11.1 Scenario to Understand Dataset 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 Dataset allows you to collate all the tables with a valid join condition. The tables defined in the Dataset would form the FROM clause while aggregating for the Cube.

5.11.2 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

Type	Operator	Example
	<>	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.

5.11.3 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.

Function Type	Function Name	Notation	Description	Syntax	Example
	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(coefficient, 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.

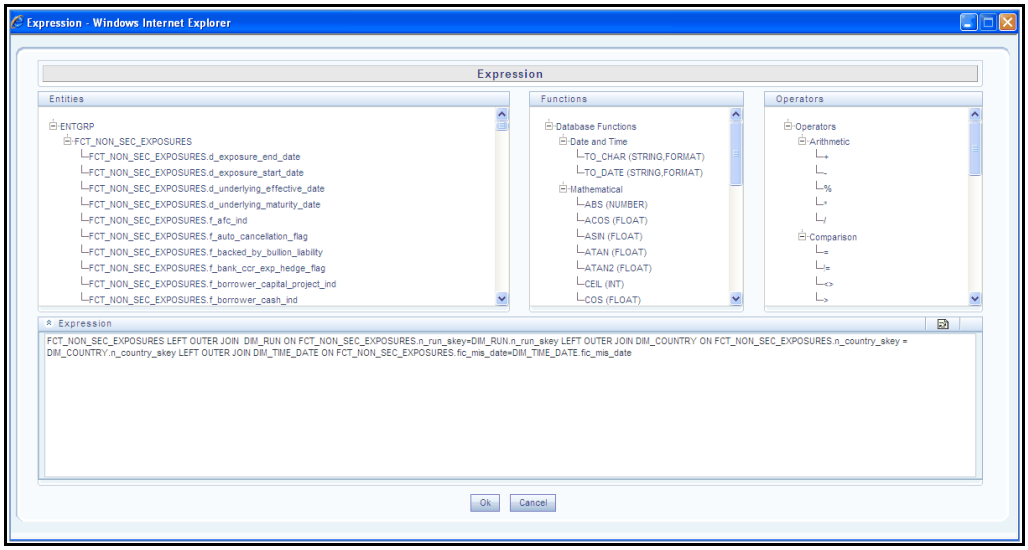
<table>
<tr><th>Function Type</th><th>Function Name</th><th>Notation</th><th>Description</th><th>Syntax</th><th>Example</th></tr>
<tr><td></td><td>Go Month</td><td>GoMonth(date,months)</td><td>Advances a date by x number of months. Go Month does not know the calendar. For example, it cannot predict the last day of a month. Typical functionality is illustrated in the following table:</td><td>GOMONTH(Date column, Number of months to advance)</td><td>GOMONTH(DEPOSITS.ORIGINATION_DATE,DEPOSITS.ORG_TERM)
Valid examples:
GOMONTH(F, F + R + C)
GOMONTH(F, R)
Invalid examples:
GOMONTH(F + (R + C), MAX)
GOMONTH((F * C), F)</td></tr>
<tr><td colspan="5">For Example:
<table>
<tr><th>Date Column</th><th>No of Months</th><th>GOMONTH</th><th>Comment</th></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></td></tr>
<tr><td></td><td>Year</td><td>Year(date)</td><td>Year(x) returns the data for year x.</td><td>Year(Column) returns the year in the column, where the column is a date column.</td><td>Year(Origination Date) returns the year of the origination date.</td></tr>
<tr><td></td><td>Month</td><td>Month(date)</td><td>Month(x) returns the month in x, where x is a numbered month.</td><td>Month(Column) returns the month in the column, where the column is a date column.</td><td>Month(9) returns September.
Month(Origination Date) returns the month of the origination date.</td></tr>
</table>

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)

5.11.4 Creating Expression

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



The *Expression* window 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.
5. Click **OK** and save the join condition details.

5.11.5 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.

5.11.6 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 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 Non Business Intelligence Enabled as Hierarchy Sub Type.
Time	A Time Hierarchy consists of the levels/nodes of high time granularity and has only the Business Intelligence Enabled as Hierarchy Sub Type.

You can select the required Business Hierarchy from the drop-down list and specify the Hierarchy Sub Type details. The window 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

5.11.6.1 Regular Hierarchy

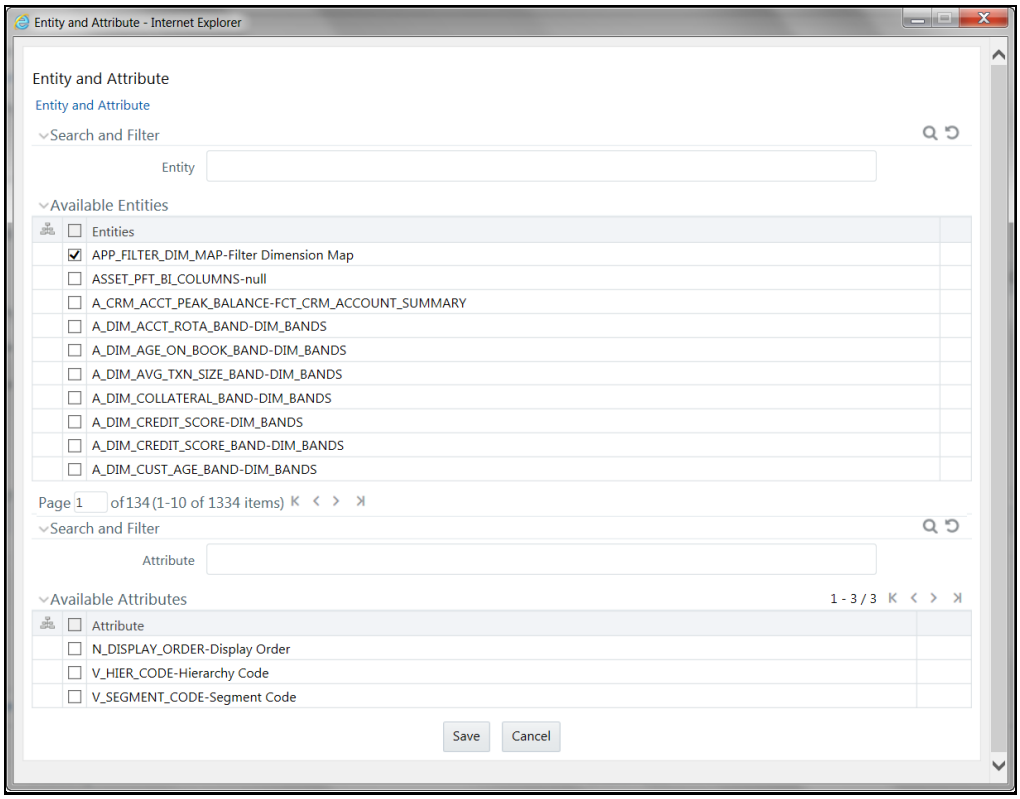
When you select Regular Hierarchy, you can define the Hierarchy Sub Type for Non Business Intelligence Enabled, Business Intelligence Enabled, and Parent Child Hierarchy. Select the required Hierarchy Sub Type from the drop-down list. Click on the following links to view the section in detail.

- Non Business Intelligence Enabled Hierarchy
- Business Intelligence Enabled Hierarchy
- Parent Child Hierarchy

5.11.6.1.1 Non Business Intelligence Enabled Hierarchy

When you have selected Regular - Non Business Intelligence Enabled Hierarchy option, do the following:

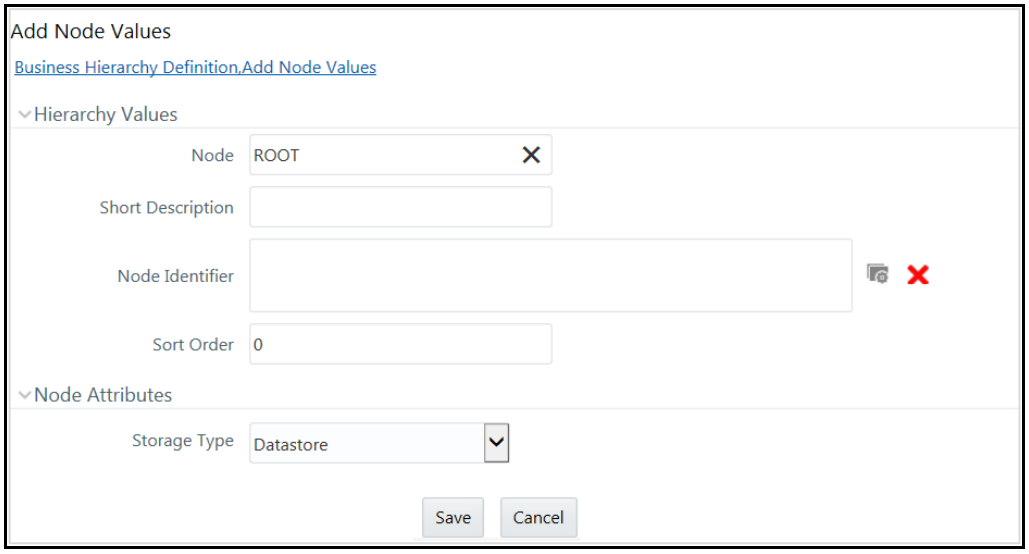
1. Click button in the **Entity** field. The *Entity and Attribute* window is displayed.



   - You can either search for a specific **Entity** using the Search and Filter pane 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 and Filter pane 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* window.

> **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* window 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 *Expression* window for the Node Identifier. For more information, see Create Expression.
Sort Order	Enter the Sort order in numeric value. **Note**: The sort order of the default (OTHERS) node should be greater than the rest of the nodes if this hierarchy is used in RRF Filter condition.

- From the Node Attributes grid, 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.
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.

Field	Description
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* window.

3. Click **Save** in the *Add Business Hierarchy* window and save the details.

   In the Business Hierarchy toolbar, 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 *Hierarchy Browser* window. 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.

5.11.6.1.2 Business Intelligence Enabled Hierarchy

When you have selected Regular - Business Intelligence Enabled Hierarchy option, do the following:

1. Select **Total Required** checkbox, if you want the total of all the nodes.
2. 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. See List hierarchy.

3. Click button in the **Entity** field. The *Entity and Attribute* window 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* window.

> **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* window 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 *Expression* window for the Level Identifier. For more information, see Create Expression.
Level Description	Click button and define an expression in the *Expression* window for the Level Description. For more information, see Create Expression.

   - Click **Save**. The Level details are displayed in *Add Business Hierarchy* window.

     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* window 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.

5.11.6.1.3 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* window 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* window.

> **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* window is displayed.
   - Click button adjacent to the required node field and define the expression in the *Expression* window. For more information, see Create Expression.
   - Click **Save**. The node details are displayed in *Add Business Hierarchy* window.
3. Click **Save** in the *Add Business Hierarchy* window and save the details.

NOTE

- 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.

5.11.6.2 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* window, do the following:

1. Click  button in the **Entity** field. The *Entity and Attribute* window 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* window.

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* window, select the Hierarchy Type as **Measure**.
3. Click button in the **Entity** field. The *Entity and Attribute* window 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 window 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* window 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, see 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* window.
5. Click **Save** in the *Add Business Hierarchy* window 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 *Hierarchy Browser* window. 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.

5.11.6.3 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* window, do the following:

1. Click  button in the **Entity** field. The *Entity and Attribute* window 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* window.

   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* window 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.

5.11.6.4 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 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.

5.11.6.5 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.

5.11.7 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.

5.11.7.1 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 window 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 window 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.

5.11.7.1.1 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

1. 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.

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.

5.11.7.1.2 Time-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.

5.11.7.1.3 Other (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**.

5.11.8 Read Only Selected in Mapper Window

3. After selecting the **Read Only** option in the *Mapper* window (New), click **Save**.

4. In the *Mapper List* window, the Read Only option against the created Map would appear as **Y**. Now select the defined Map and click  button. The *Mapper* window is displayed.
5. The **Save Mapping** and **Delete Mapping** options are disabled.
6. Select the Node and click on **View Mapping**. The *View mapping* window is displayed. The **Delete** button is inactive.
7. Click **Close** to exit the window.

6 Data Entries Forms and Queries

Data entry Forms and Queries (DEFQ) within the Infrastructure system facilitates you to design web based user-friendly *Data Entry* windows 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.

To access Data Entries Forms and Queries:

1. Login to OFSAA.
2. Click  from the header to display the applications in a Tiles menu.
3. Select the **Financial Services Enterprise Modeling** application from the Tiles menu. The Navigation list to the left is displayed.
4. Click **Common Tasks** to expand the list.
5. Click **Data Entries Forms and Queries** to expand the list further. The following links are displayed on the Navigation list:
   a. Excel Upload (Atomic)
   b. Forms Designer
   c. Forms Authorization
   d. Data Entry

6.1 Excel Upload (Atomic)

The *Atomic Schema Upload* window 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

6.1.1 Navigating to Excel Upload (Atomic)

You can access *Excel Upload* window by expanding **Data Entries Forms and Queries** from the Navigation list to the left and clicking **Excel Upload (Atomic)**.

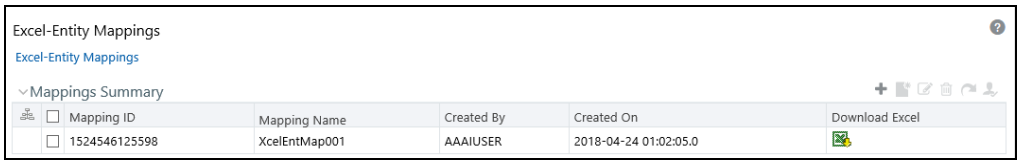
6.1.2 Excel-Entity Mappings

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.

6.1.3 Adding Excel-Entity Mappings

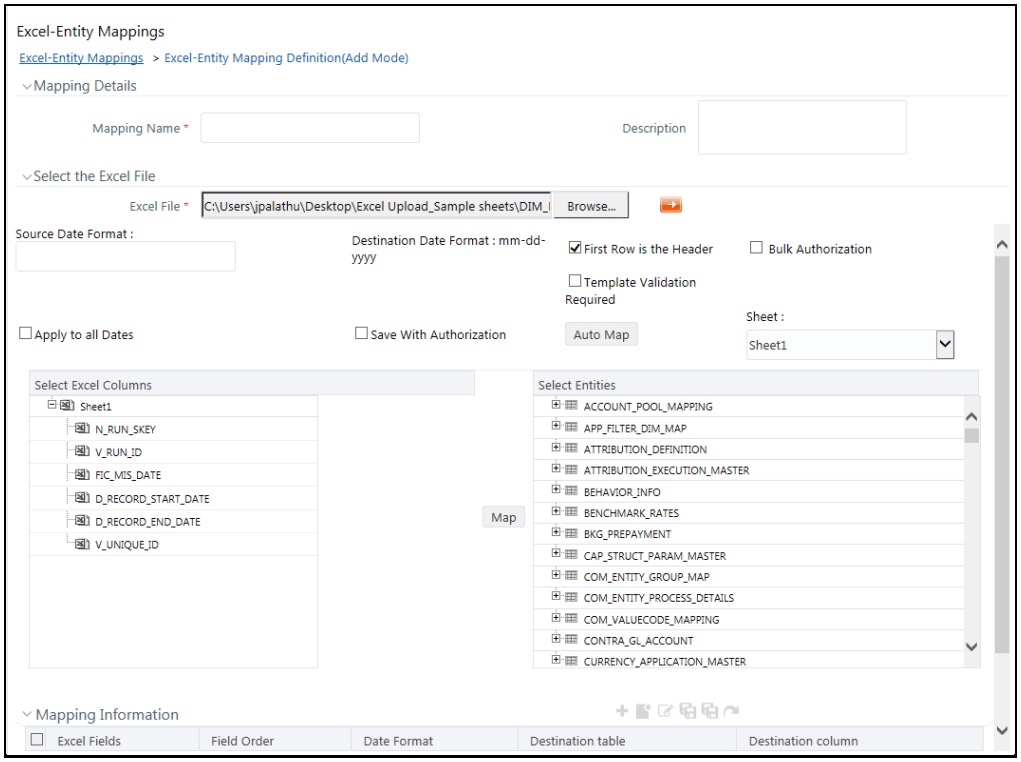
To define mapping in the *Excel-Entity Mappings* window:

1. From the LHS menu of *DEFQ- Excel Upload* window, click **Excel-Entity Mappings**. The *Excel-Entity Mappings* window is displayed.



2. Click ➕ button in the Mappings Summary toolbar. The *Add Excel-Entity Mappings* window 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.



6. Enter the format in which the dates are stored in the excel sheet in the **Source Date Format** field.
7. Select the **Apply to all Dates** checkbox if you want to apply the source date format to all date fields in the excel sheet.
8. Select the **First Row is the Header** checkbox, if your Excel template has a header row.
9. 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 window. 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.
10. 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* window displays the excel-database table mapping details.

    In the *Excel-Entity Mappings* window, 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.
    - Click  button to download the Excel template used in the mapping.

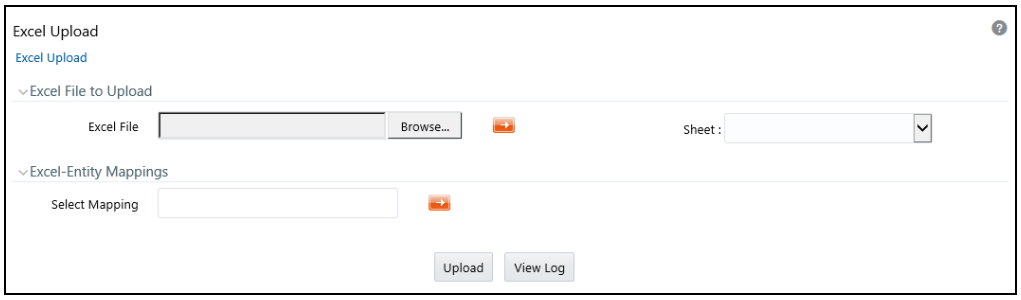
6.1.4 Excel Upload

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* window 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* window:

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 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**.

> **NOTE** You can download the Excel template used in the mapping by clicking button.

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.

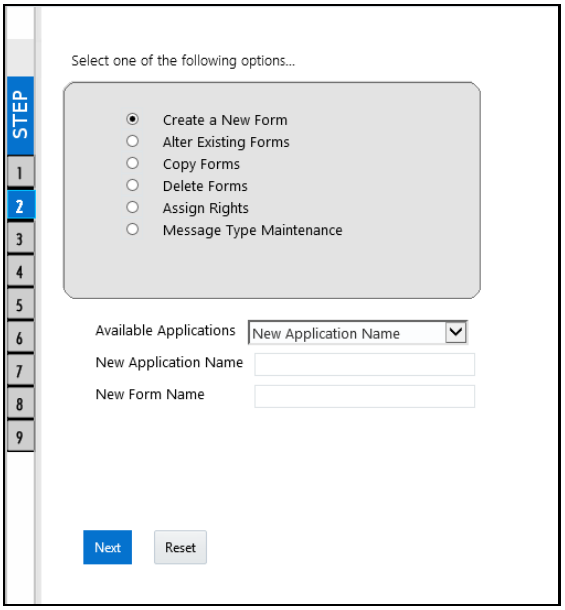
> NOTE You must be mapped to the **XLCNFADVNC** Role to download the logs when you click **View Log**.

6.2 Forms Designer

NOTE

1. This functionality doesn't work when CSRF is enabled. To disable CSRF, see the section Update General Details.
2. This functionality displays only on Microsoft Internet Explorer™ browser.

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 Management Framework** and **Data Entry Forms and Queries** within the tree structure of LHS menu and selecting **Forms Designer**.



The *DEFQ - Forms Designer* window 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

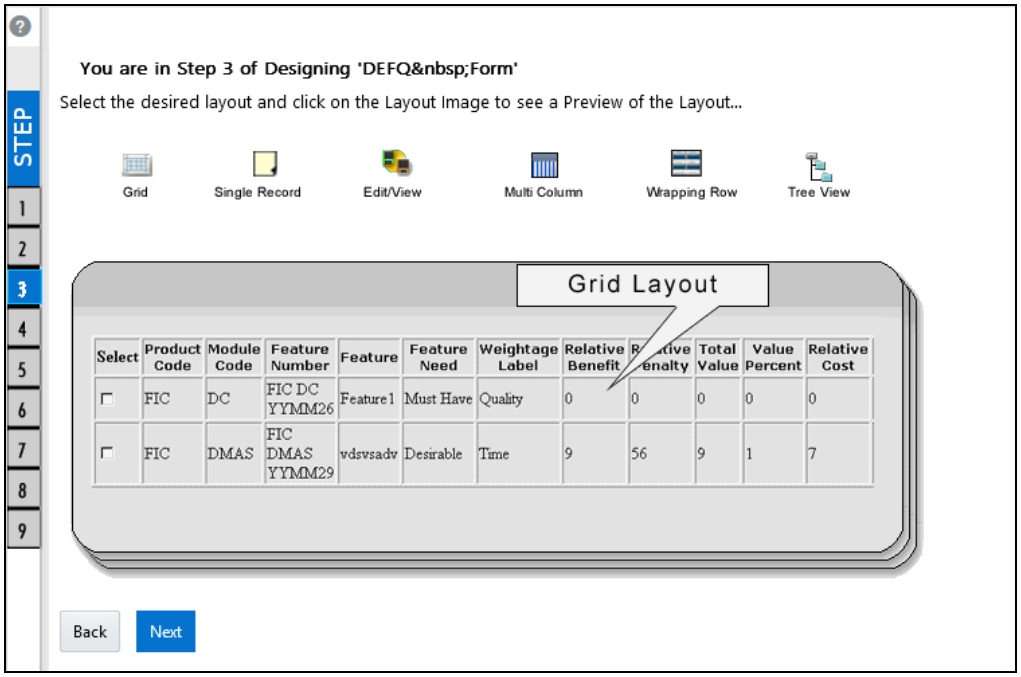
6.2.1 Creating a New Form

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

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* Window is displayed with the range of pre-defined layouts for you to choose.

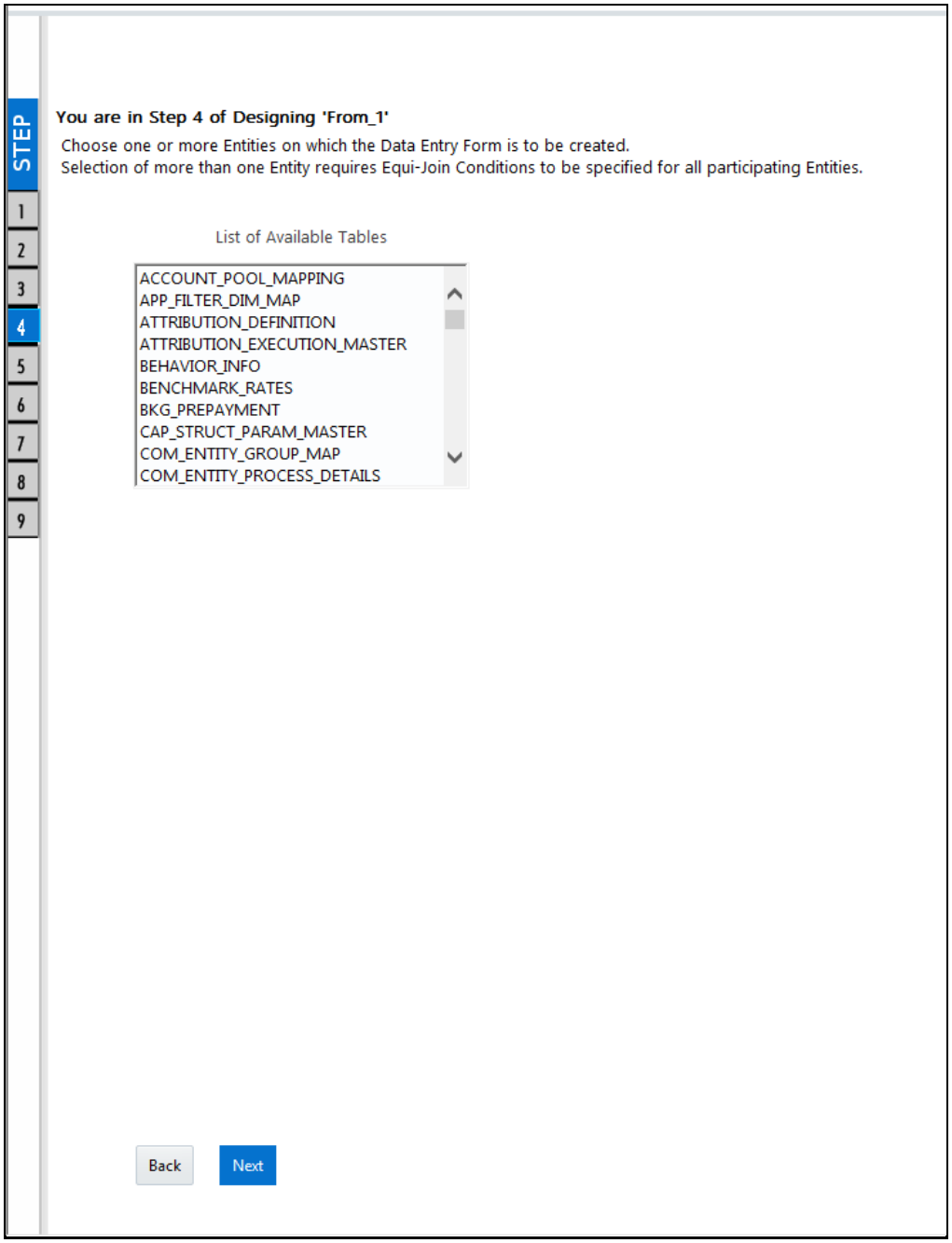


Refer to the following table for information.

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.
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.

Layout	Description
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.

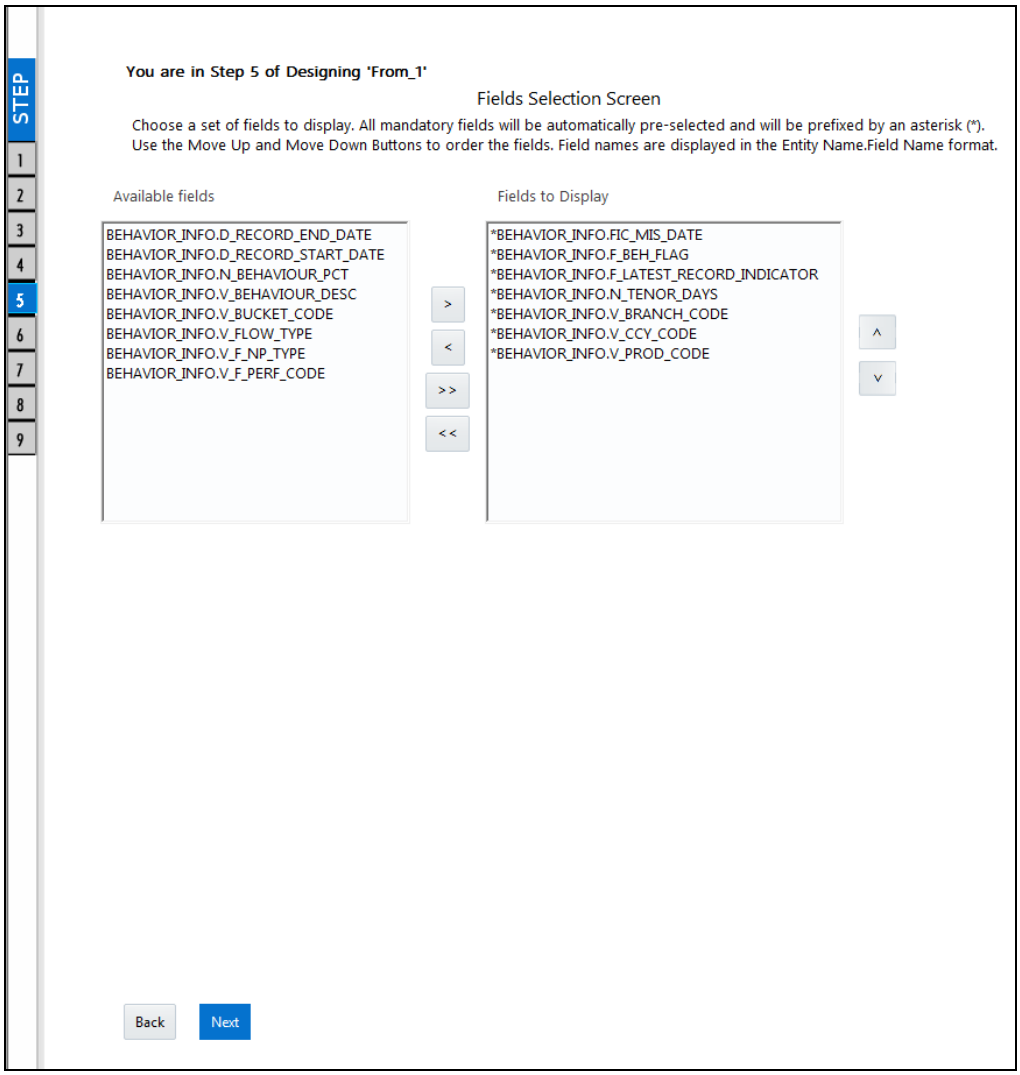


NOTE You should use tables with names not longer than 25 characters. This is a limitation.

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

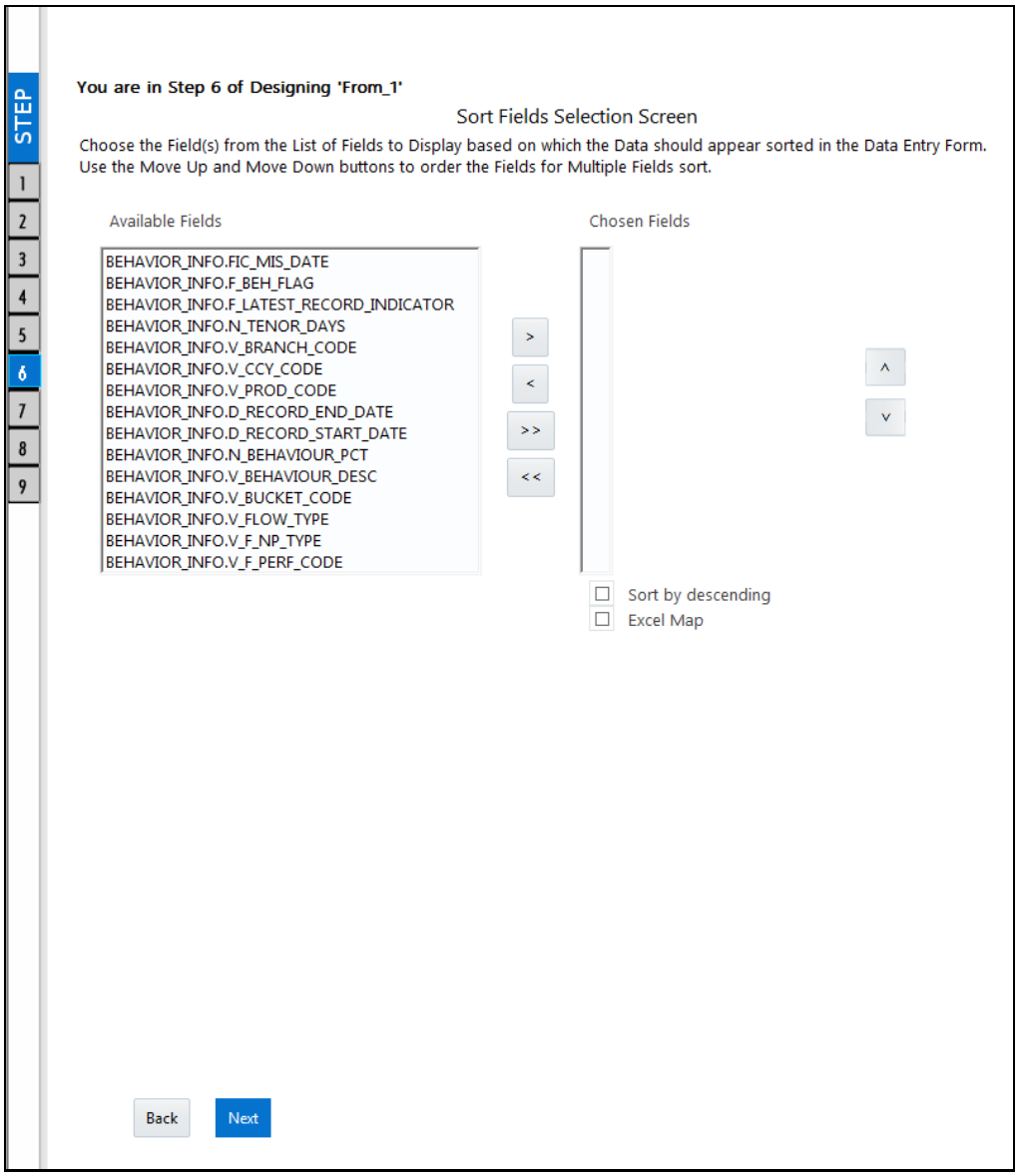
5. Select the fields to be joined from the **Available Fields** list and click ›. You can press **Ctrl** key for multiple selections and also click » to select all the listed fields. All mandatory fields are auto selected and are indicated on the window with an asterisk (*****).



NOTE You can click ^ or v 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.

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

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

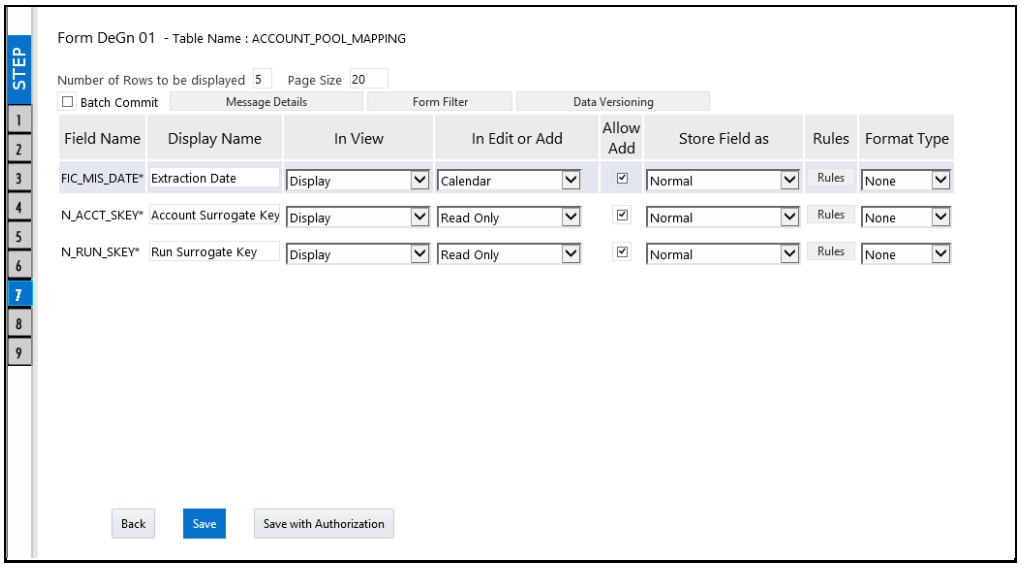


You can sort the fields in required order as intended to display in the Data Entry Form. Also the mandatory fields which needs user inputs are indicated in '*' symbol and are auto selected in the Selected Fields pane.

- 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* window. Only on selection, the "SelectExcelSheetName" list is displayed for authorizer in the *DEFQ - Data Entry* window.

7. Click **Next**. The *DEFQ Field Properties* window 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.

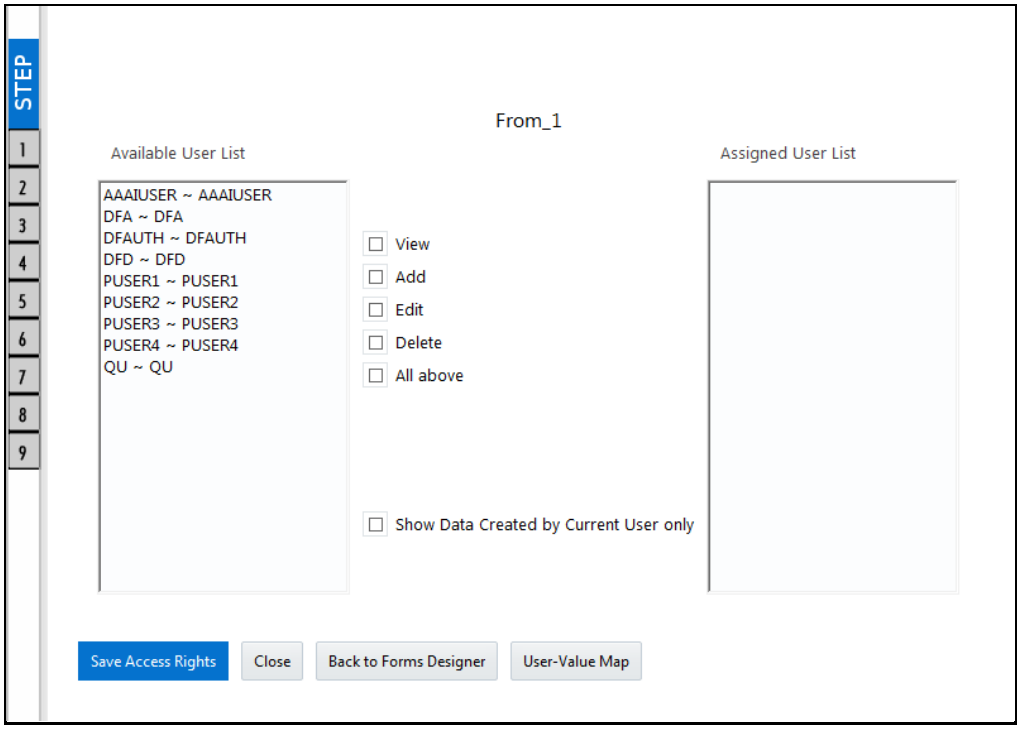


Specify the parameters for each field as tabulated.

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

Field	Description
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 field s 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 *Sort Fields Selection* window).
Rules	Click **Rules** and specify Rules and Expressions for the selected field in the *Specifying Rules and Expressions for Data - Validations* window. 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.
Message Details	Click **Message Details** to define the message type for Creator and Authorizer in the *Messaging Details for a Form* window. 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* window.
Data Versioning	Click **Data Versioning** to perform data versioning on an authorized Form. For more information, refer Form Data Versioning.

8. 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 Sometimes, 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* window is displayed which facilitates you to assign user rights to the Form. For more information, refer Assign Rights.

6.2.2 Altering Existing Forms

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

1. 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.
2. Click **Next**. The *Fields Selection* Window 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.

3. Click **Next**. The *Sort Fields Selection* Window 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 v 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* window. Only on selection, the "SelectExcelSheetName" list is displayed for authorizer in the *DEFQ - Data Entry* window.

4. Click **Next**. The *DEFQ Field Properties* window 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* window is displayed which facilitates you to assign user rights to the Form. For more information, refer Assign Rights.

6.2.3 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* window:

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.

6.2.4 Deleting Forms

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

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**.

6.2.5 Assigning Rights

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

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* window 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* window and not through *Excel Upload* window.

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* window, 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 Custom 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* window.

   The *User Value Map* window 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.**

6.2.6 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* window. Message Type details can be defined while creating a Form. For more information, refer Define Messaging Details.

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

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

   The *DEFQ - Message Type Maintenance* window 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.

6.3 Forms Authorization

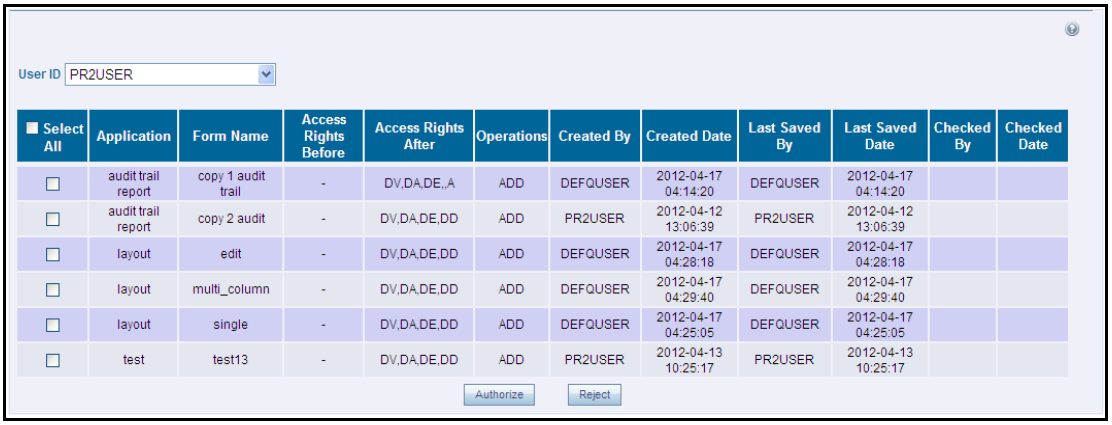
> **NOTE**
> 3. This functionality doesn't work when CSRF is enabled. To disable CSRF, see the section Update General Details.
> 4. This functionality displays only on Microsoft Internet Explorer™ browser.

Forms Authorization within the Data Entry Forms and Queries section 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* window.

> **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* window from the left hand side (LHS) menu of Infrastructure home page. Click "+" and expand the Data Model Management and select **Data Entry Forms and Queries**.



The *Forms Authorization* window 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* window 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* window 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
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* window:

1. Select the **User ID** from the drop-down box. 4B43BThe 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.

> **NOTE** Special chars are not allowed in DEFQ definitions except underscore (_).

6.4 Data Entry

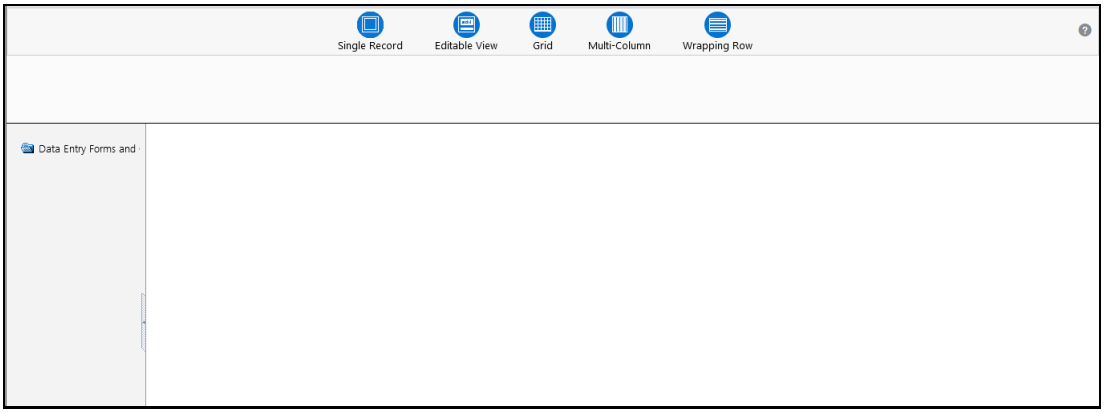
> **NOTE** This functionality doesn't work when CSRF is enabled. To disable CSRF, see the section Update General Details.
>
> This functionality displays only on Microsoft Internet Explorer™ browser.

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* window using the URL to search and update records simultaneously.

You can access DEFQ - Data Entry by expanding Data Entry Forms and Queries section of Data Model Management 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* window 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* window, 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

6.4.1 Viewing Form Details

The *DEFQ - Data Entry* window 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* window, 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.

6.4.2 Searching Records

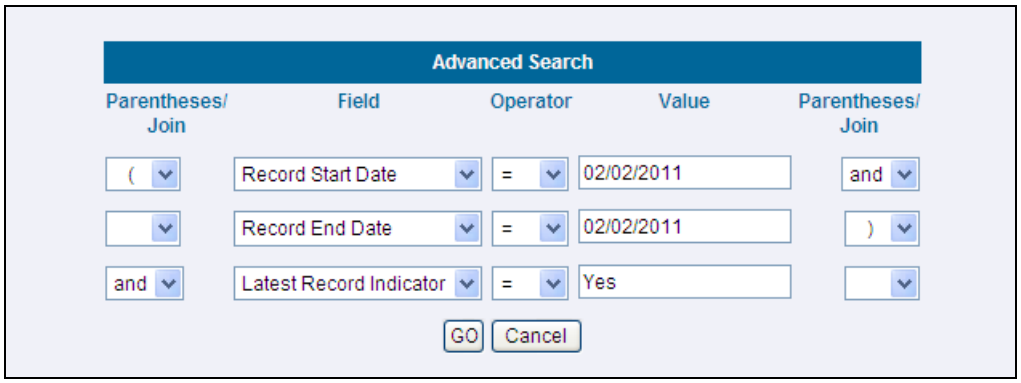
In the *DEFQ - Data Entry* window, you can Search for a record in the View, Edit, and Authorize modes. You can perform a quick **Search** to find a specific record or run an **Advanced Search** to further query the record for the required details.

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

1. Click Search. 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* window:

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



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.

6.4.3 Editing Form Details

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

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

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.

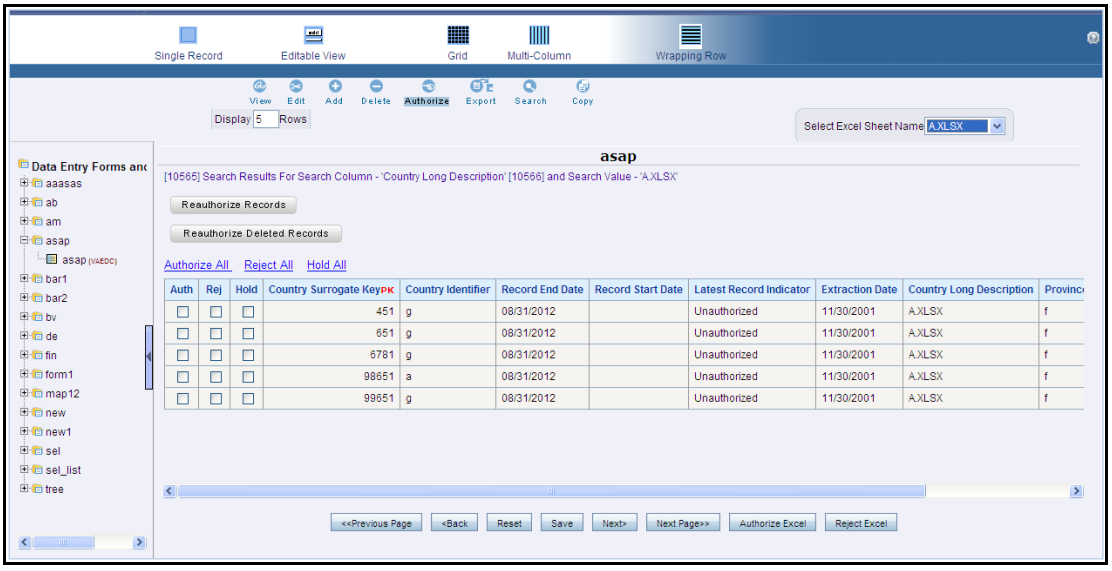
6.4.4 Adding Form Data

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

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

6.4.5 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* window. 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* window:

1. Open the required Form in view mode and click 

.

   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* window. Select the mapped Excel Name from the "SelectExcelSheetName" drop-down list. The *DEFQ - Data Entry* window 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* window. Select the mapped Excel Name from the "SelectExcelSheetName" drop-down list. The *DEFQ - Data Entry* window 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**.

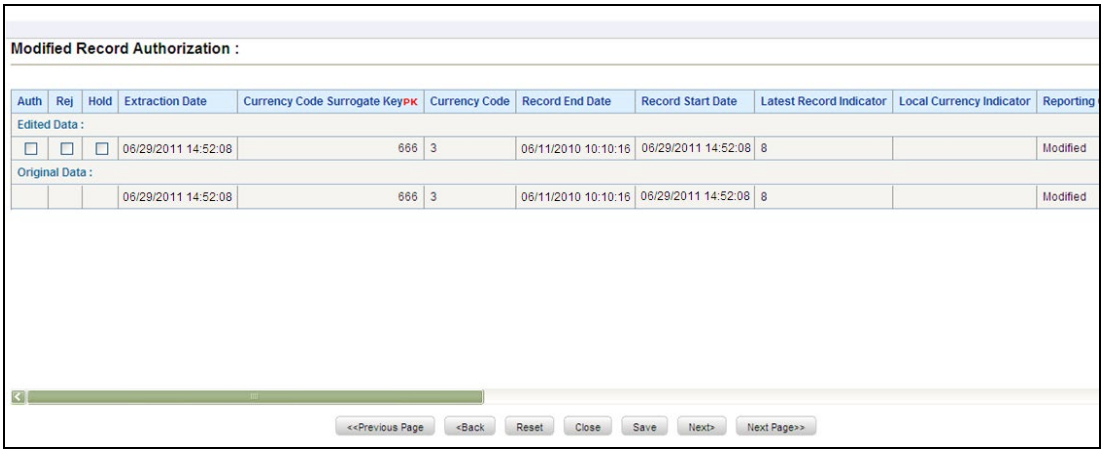
In the *DEFQ - Data Entry* window, you can also do the following:

- 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* window, a message is sent indicating that the records are authorized/rejected/put-on-hold.

6.4.5.1 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* window:

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

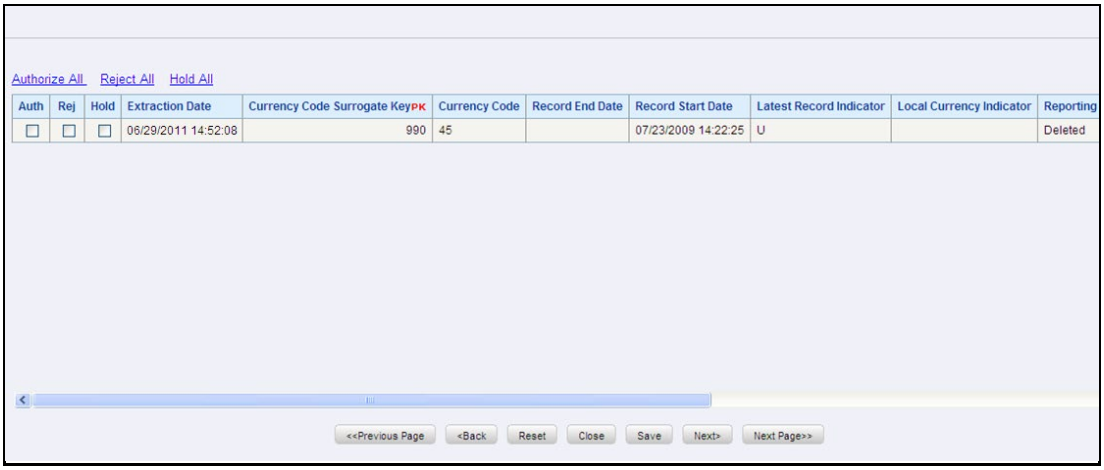
   The list of available records with the Authorization status is displayed. If there are "no records" for Authorization in the selected Information Domain, an alert message is displayed.

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.

6.4.5.2 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.



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

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.

6.4.6 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* window:

1. In the View mode, select the checkbox adjacent to the record(s) which you want export.
2. Click 

. 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.

6.4.7 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* window:

1. Open the required Form in view mode and click 

.

   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.

6.4.8 Deleting Form Details

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

1. In the View mode, select the checkbox adjacent to the record which you want to delete.
2. Click 

. An information dialog is displayed.
3. Click **OK** to confirm and delete the record.

6.4.9 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.

6.4.9.1 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.

6.4.9.2 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* window. On clicking **Next**, you need to provide the required details in the following windows:

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** window: Specify the required details. For more information, refer DEFQ Field Properties.

6.4.9.3 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* window. On clicking **Next**, you need to provide the required details in the following windows:

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 window**: Specify the required details. For more information, refer DEFQ Field Properties.

6.4.9.4 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* window:

1. Click **Rule** adjacent to the required field. The *Specifying Rules and Expressions for Data Validations* window 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.

6.4.9.5 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* window, you need to define the list of values in the *Select List* window. However, you do not need to define the values for foreign key fields and primary key fields.

In the *Select List* Window, 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:

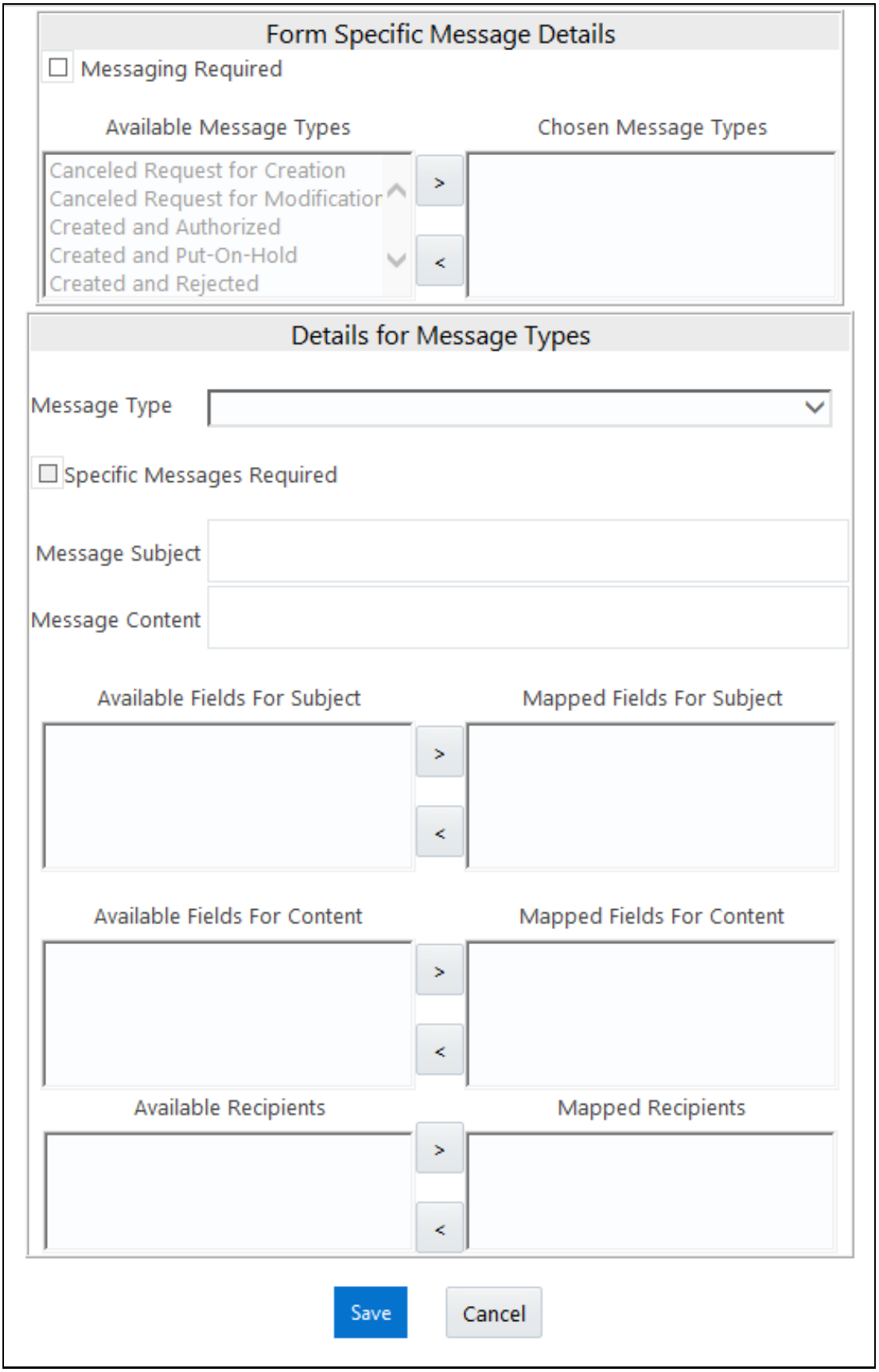
1. Enter the **List of Values** to be displayed.
2. Specify **Alternate Display Values** to be displayed.
3. Click **OK** and save the specified list of values.

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.

6.4.9.6 Defining Messaging Details

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


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

In the *Messaging Details for a Form* window:

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* window for the messages to be functional.

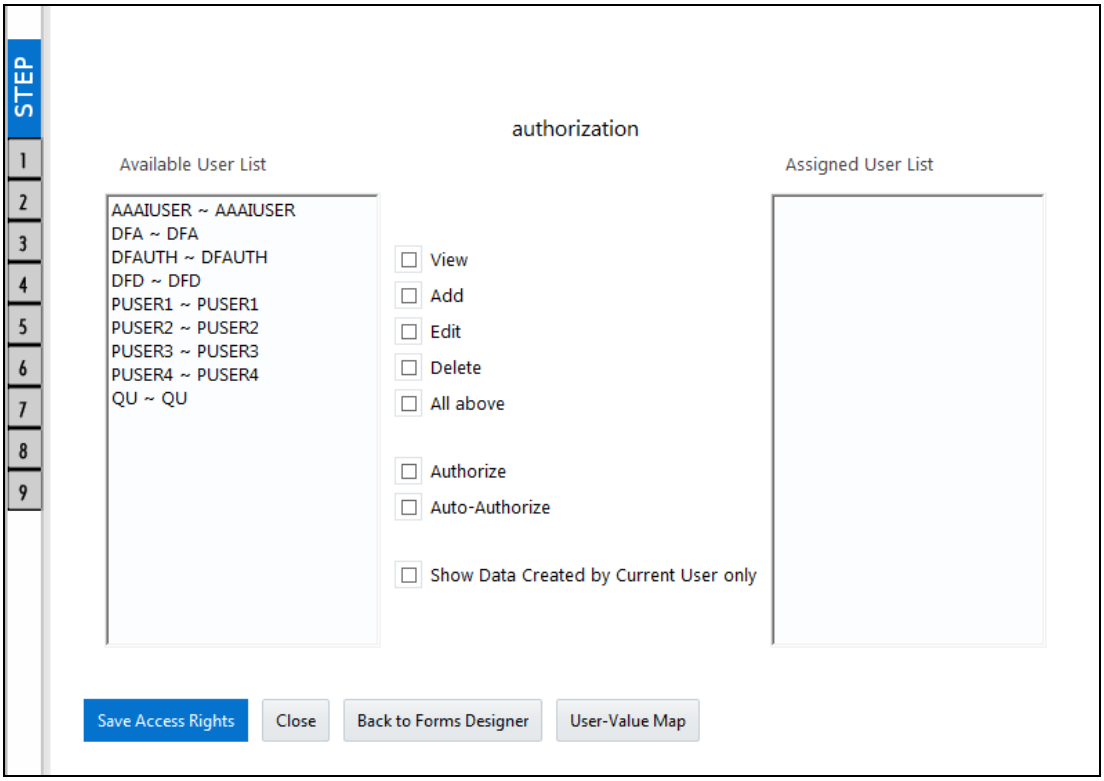
6.4.9.7 Form Data Versioning

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* window, 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.

6.4.9.8 Save with Authorization

The **Save with Authorization** feature in Forms Designer (*Sort Fields Selection* window) 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* window 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* window. Select the Form to open and authorize the records loaded.

7 Rule Run Framework

Financial institutions require constant monitoring and measurement of risk in order to conform to prevalent regulatory and 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 Run 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 Run 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.

See How Run Rule Framework is used in LLFP Application and How Run Rule Framework is used in LRM Application sections to know how RRF module is used in other applications.

Before you begin, do the following:

- Select the required **Application**: An Application is mapped to an Information Domain, which 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 Applications to which your user ID is mapped. Contact System Administrator for permissions to access a specific Application.
- 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 access only those metadata objects to which the segment and user roles have been mapped.

Object Security in RRF framework

- There are some seeded user groups and seeded user roles mapped to those user groups. If you are using the seeded user groups, the restriction on accessing objects based on user groups is explained in the OFSAA Seeded Security section.
- For creating/editing/copying/removing an object in RRF framework, you should be mapped to the folder in case of public or shared folder, or you should be the owner of the folder in case of private folder. Additionally, the WRITE role should be mapped to your user group. For more information, see Object Security in OFSAAI section.
- To access the link and the *Summary* window, your user group should have ACCESS role mapped. You can view all objects created in Public folders, Shared folders to which you are mapped and Private folders for which you are the owner.
- In the *Component Selector* window, you can view the RRF objects like Rule and Process created in Public or Shared folders to which you are mapped and Private folders for which you are the owner.

- The *Folder selector* window behavior is explained in User Scope section.

Hierarchy Member Security

- For each information domain, a default security mapper can be set. Based on this mapper definition, the *Hierarchy Browser* window will be displayed.
- In the *Hierarchy Browser* window, the members which are mapped to your user group are enabled and can be used. Those which are not mapped can be viewed, but you cannot use it since they are in disabled state.
- If a child hierarchy is mapped and the parent is not mapped to your user group, the parent will be displayed as a disabled node.
- For all AMHM hierarchies, corresponding Business Hierarchy is created implicitly. Thus you can view and use AMHM hierarchies in RRF framework, provided they are mapped to your user group.
- Hierarchy member security is applied only for Source hierarchies. No security is used for Target hierarchies, Rule Condition, Run Condition, and Process Condition.

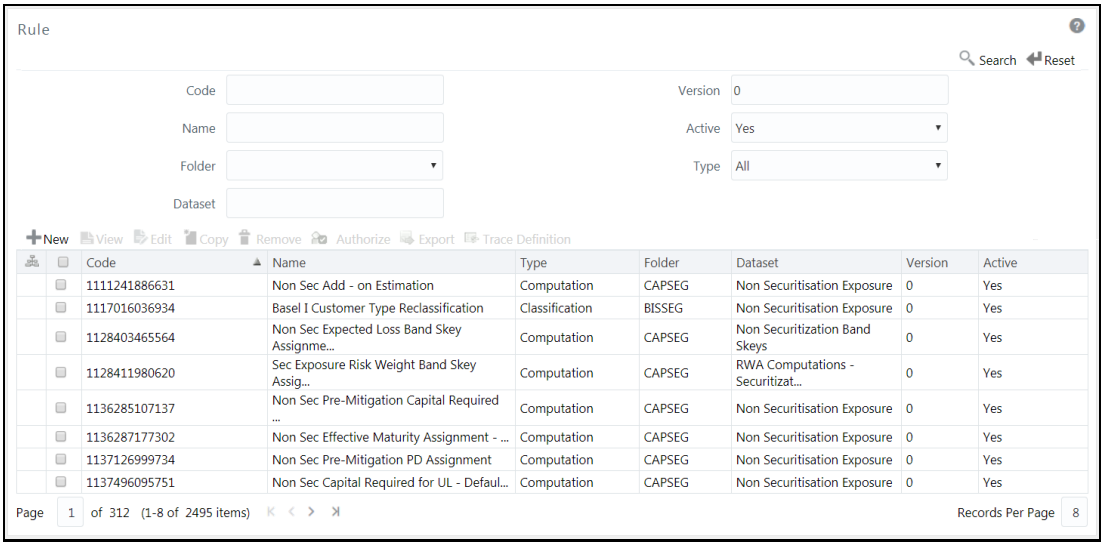
7.1 Components of Rules Run Framework

Rules Run Framework consists of the following sections. Click the links to view the section details.

- Rule
- Process
- Run
- Manage Run
- Utilities

7.2 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 Run 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. The definition, modification, copy, and deletion of a Rule must be approved by an authorizer for the action to be effective.

The *Rule* window 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. For more information on how object access is restricted, see Object Security section.

You can search for specific Rules based on Code, Name, Folder, Dataset, Version, Active status, or Type. The **Folder** drop-down list displays all Public folders, shared folders to which your user group is mapped and Private folders for which you are the owner. The Pagination option helps you to manage the view of existing Rules within the system. 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.

The Roles mapped for Rule module are: Rule Access, Rule Advanced, Rule Authorize, Rule Read Only, Rule Write and Rule Phantom. Based on the roles mapped to your user group, you can access various screens in Rule module. For more information, see Appendix A.

7.2.1 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.

Component	Description
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, see Defining Business Hierarchies in the Data Model Management section.

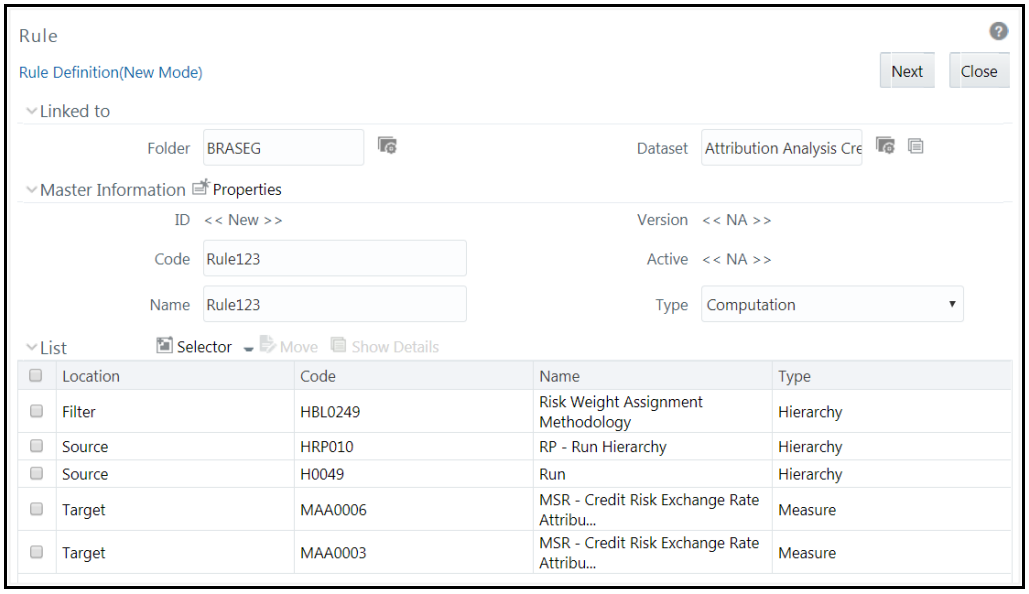
NOTE The hierarchies and their nodes/members which are displayed in the *Hierarchy Browser* window depend on the security mapper definition for the selected information domain. For more information, see Map Maintenance section.

7.2.2 Create Rule

You can create rule definitions using the existing metadata objects. The Write role should be mapped to your user group, from the *User Group Role Map* window.

To create a Rule definition:

1. Click **New** button from the toolbar in the *Rule* window. The R*ule Definition (New Mode)* window is displayed.

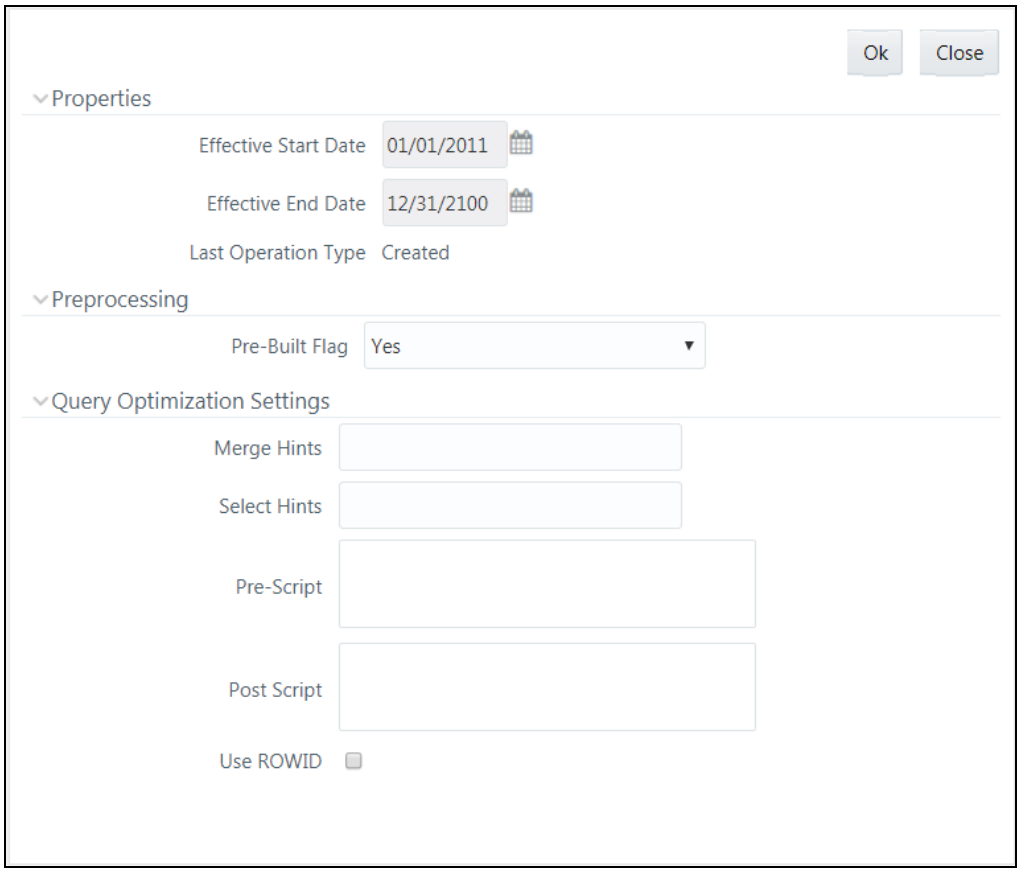


2. Click button adjacent to **Folder** in the Linked to grid. The Folder Selector dialog is displayed. The folders to which your user group is mapped are displayed.
   a. Select the checkbox adjacent to the required folder. Click **OK**.
   b. Click **New** from the List toolbar to create a new folder/segment. For more information, see Segment Maintenance.
   c. Search for a folder by specifying any keyword and clicking button.
3. 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 information domain.
   a. Select the checkbox adjacent to the required Dataset name and click **OK**.
   b. Search for a particular dataset by specifying any keyword and clicking button.
   c. View properties of the selected Dataset by clicking button.
4. Enter the details in the Master information grid as tabulated:

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 ~.

Field Name	Description
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, see 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**. Note:

5. Click button in the Master information grid to edit the properties of the Rule definition. The *Properties* window is displayed.



The data in Query Optimization Settings are derived from the global properties (if defined) in the Optimization tab of System Configuration > Configuration window. However, some options defined in Global Preferences precede the Rule level properties that you define here.

Field Name	Description
Properties	
Effective Start Date, Effective End Date	Effective Dating is not implemented for Rule definition.
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	
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, see 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 Optimization tab of System Configuration > Configuration window. 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 Optimization tab of System Configuration > Configuration window. 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 the Optimization tab of the Configuration window) 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 the Optimization tab of the Configuration window) 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 window) or Rule definition properties. If **Use ROWID** checkbox is not selected in either Global Parameters (defined in the Optimization tab of the Configuration window) or Rule definition properties, then the flag is set to "**N**" and Primary Keys are considered while creating in Merge Statements.

6. Click **OK**. The properties are saved for the current Rule definition.

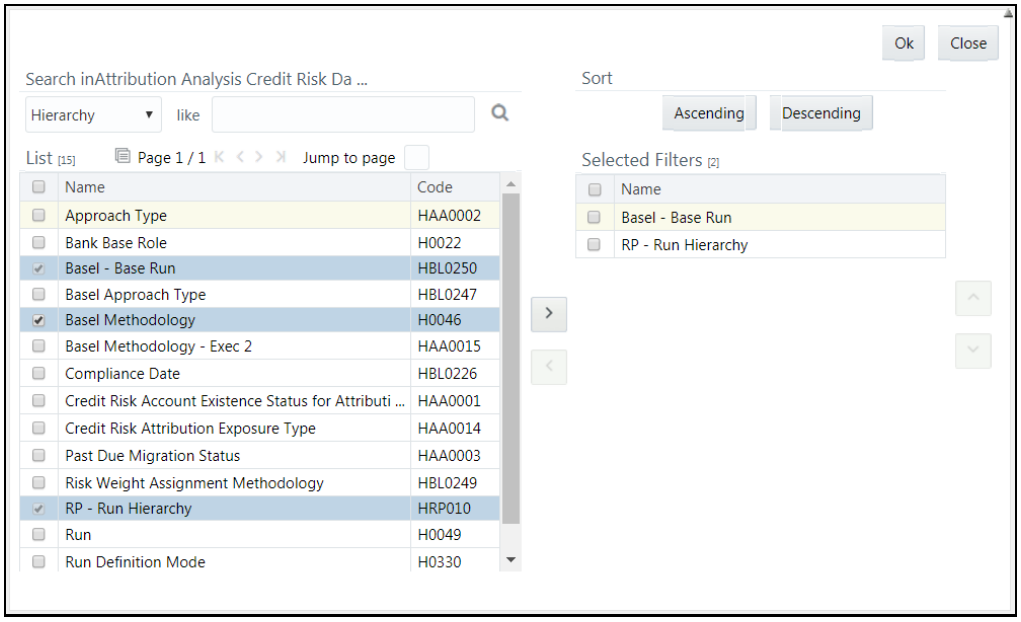
7.2.2.1 Add Members to Filter

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* window 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)* window:

1. Click **Selector** button from the List grid and select **Filter**. The *Filter Selector* window is displayed.



In case of Hierarchy and Data Element Filter, the List pane of the *Filter Selector* window displays all members based on the selected Information Domain and Dataset. Filtering based on Dataset is not supported for other Filters like Group, Hierarchy, and Attribute.

2. Select any of the following filters from the drop-down list in the Search in pane:

Member Type	Description
Hierarchy	**Hierarchy** refers to the defined Business Hierarchies and will list all the UAM Hierarchies (can be implicitly created UAM hierarchies for AMHM hierarchy) 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.
Filter-Group	**Group Filters** can be used to combine multiple Data Element Filters with a logical "AND".
Filter-Attribute	**Attribute Filters** are created using defined Attributes. Attribute filters facilitates you to filter on one or more Dimension Type Attributes.

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* window 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 by specifying the nearest keyword in the **like** field.
- Click button to view the details of a selected member.
- Click **Ascending** or **Descending** button to sort the selected components in Ascending or Descending alphabetical order.
- Click or button to re-arrange the selected list of members.

> **NOTE** The re-ordering of hierarchies does not affect the resulting SQL query.

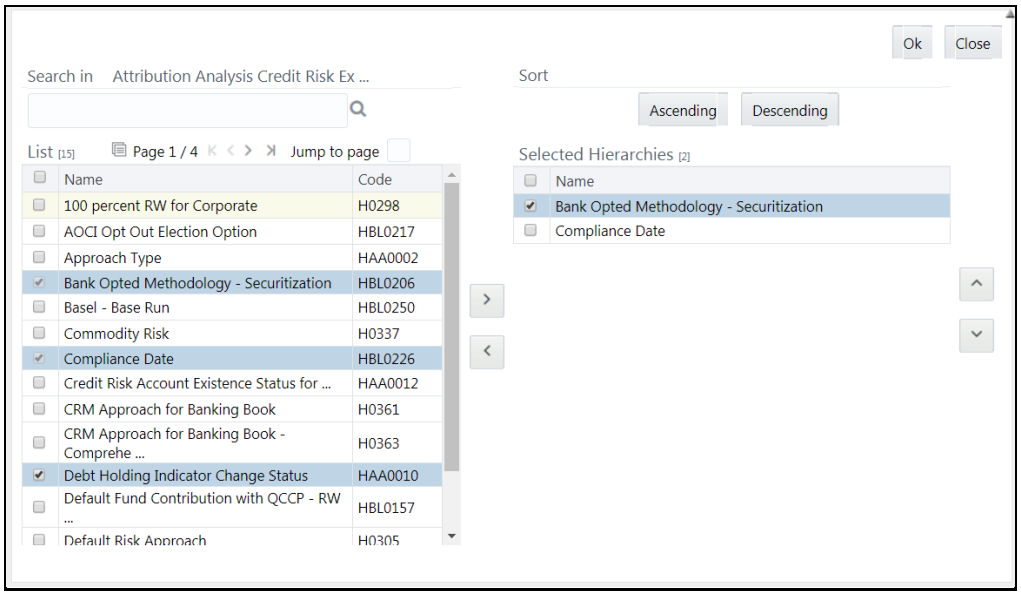
- Click to remove selected members from the Selected Filters pane.

5. Click **OK**. The selected filters are listed in the *Rule Definition (New Mode)* window.

7.2.2.2 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)* window:

1. Click **Selector** button from the List grid and select **Source**. The *Hierarchy Selector* window is displayed.



The LHS pane of the *Hierarchy Selector* window displays the available hierarchies under the selected Information Domain and Dataset.

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* window you can:

- Search for a member by specifying the nearest keyword and clicking  button.
- Click  button to view the details of a selected hierarchy.
- Click **Ascending** or **Descending** button to sort the selected components in Ascending or Descending alphabetical order.
- Select the hierarchy and click or button to re-arrange the order 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)* window.

7.2.2.3 Add Measures / Hierarchies to Target

To select the Target for a Rule in the *Rule Definition (New Mode)* window:

1. Click  **Selector** button from the List grid and select  **Target**. The *Measure Selector / Hierarchy Selector* window is displayed.

   The *Measure Selector* and *Hierarchy Selector* windows 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* window 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* window you can:

- Search for a member by specifying the nearest keyword and clicking  button.
- 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)* window.

In the List grid you can also:

- Click **Move** button to move a selected member between **Filter**, **Source**, or **Target**.
- Click **Show Details** button to view the selected member details.

Once all the necessary information in the first window of the Rule Definition (New Mode) is populated, click **Next** button to navigate to the concurrent procedures of defining a Rule.

7.2.2.4 Hierarchical Member Selection

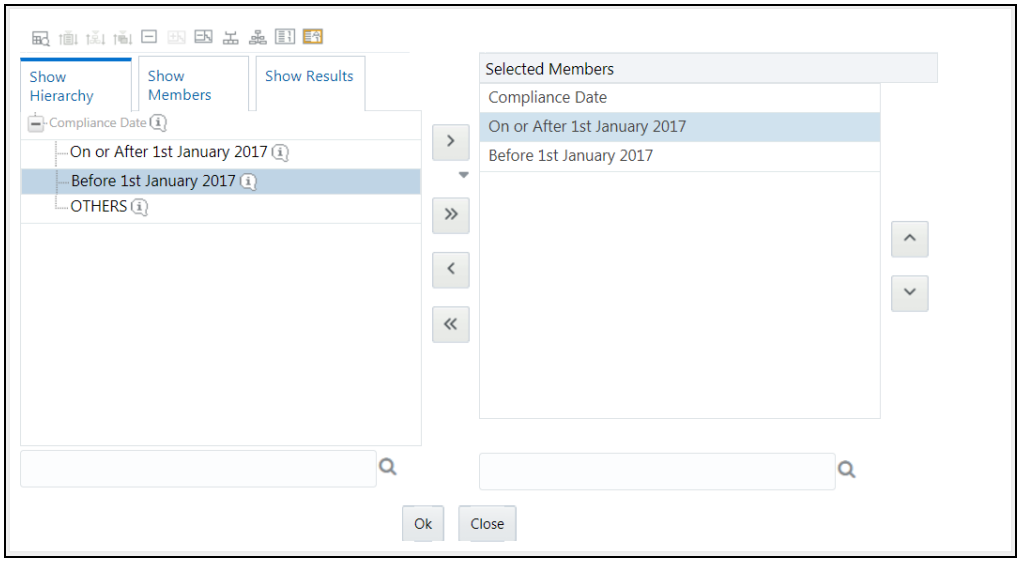
The second window of *Rule Definition (New Mode)* window displays all the information you have provided in the Linked to and Master info grids. You can view the filters you have selected in the Rule Condition grid.

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* window is displayed.



2. Click ⊞ and expand the members of the selected hierarchy.

3. Select a member/node and click › to select the same. Click ▾ to select the member as Self or Parent. For more information, see Hierarchical Member Selection Modes.

> **NOTE** You can add up to 1000 members or nodes in the Selected Members pane under the target hierarchy.

In the *Hierarchy Browser* window you can also:

- Click ↕ to sort members based on path.
- Click ↕ to sort hierarchy (top to bottom).
- Click ↕ to sort based on level.
- Click ⊟ to collapse the members under a node.
- Click ⊟ or ⊞ to expand a branch or collapse a branch.
- Click ⇤ or ⇥ to view the name of members right or left.
- Click ⇤ or ⇥ to view the code values of members right or left.
- Click 11 or A1 to show code or show name of the members.
- Click ^ or v 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  to launch the *Search* window. From the *Search* window, you can search based on **Member Unique Code**, **Member Name** or **Member Alphanumeric Code**. You can also find a member in the grid using  button.

4. Click  button adjacent to a filter details. The *Preview SQL Query* window is displayed with the resultant SQL query.

7.2.2.5 Select Hierarchy Members of Source Hierarchy and 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:

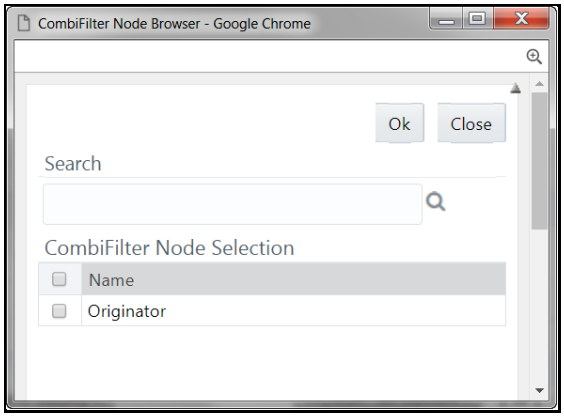
1. Click the Hierarchy member and drag it to the Slicer grid. The member is displayed under Slicer grid.
2. Click  button to select the members of a Hierarchy. The *Hierarchy Browser* window is displayed.

   Whenever a Source/ Target hierarchy is selected, by default the root node will appear in the Selected Members pane without checking hierarchy member security.

   > **NOTE** The Hierarchy members which are mapped to your user group are in enabled state and can be used; those which are not mapped will be in disabled state.

   For more information, see Hierarchy Browser.

3. Click  button. The *CombiFilter Node Browser* window is displayed.



4. Select the checkbox adjacent to the member name and click **OK**.

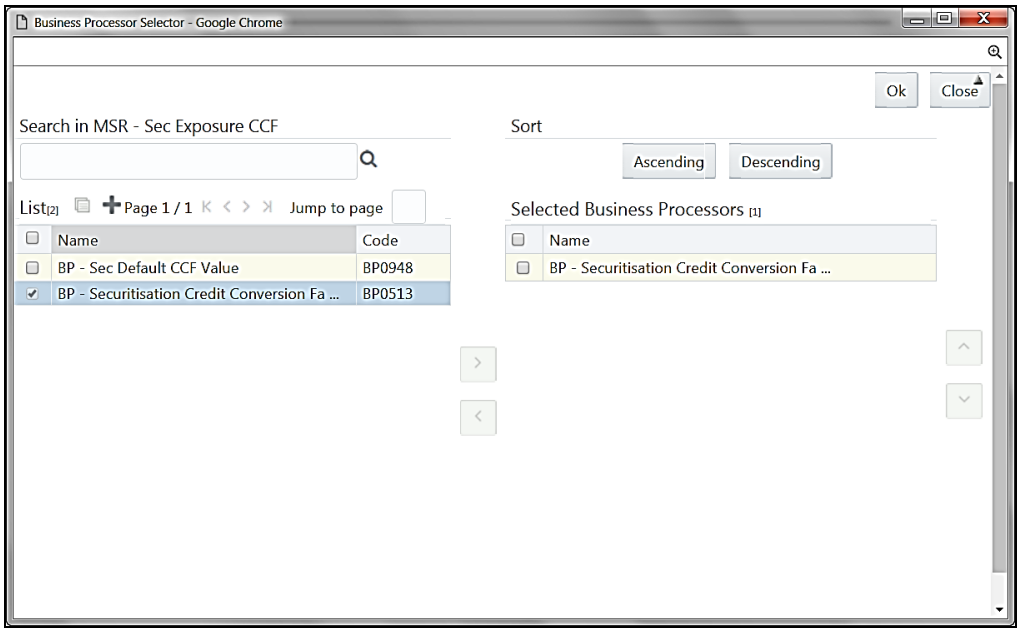
7.2.2.6 Select Business Processor as Target

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* window is displayed.



2. Select the checkbox adjacent to the Business Processor name and click .

   In *Business Processor Selector* window you can:

   - Search for a Business Processor by specifying the nearest keyword and clicking button.
   - Click button to view the details of a selected Business Processor.
   - Click button to define a new Business Processor. For more information see 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 **Filer** 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.

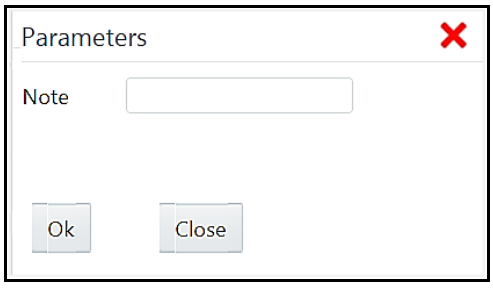
- You can set the selected Target member as default by clicking button on the header bar of required Business Processor and selecting **Default Member** checkbox.

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.

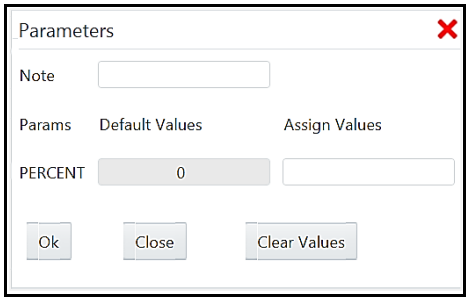
- You can specify parameters for the selected Business Processor. Select the checkbox(s) adjacent to the required Business Processor and click button adjacent to a checkbox selected. The Parameters pop-up is displayed.

> **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**.

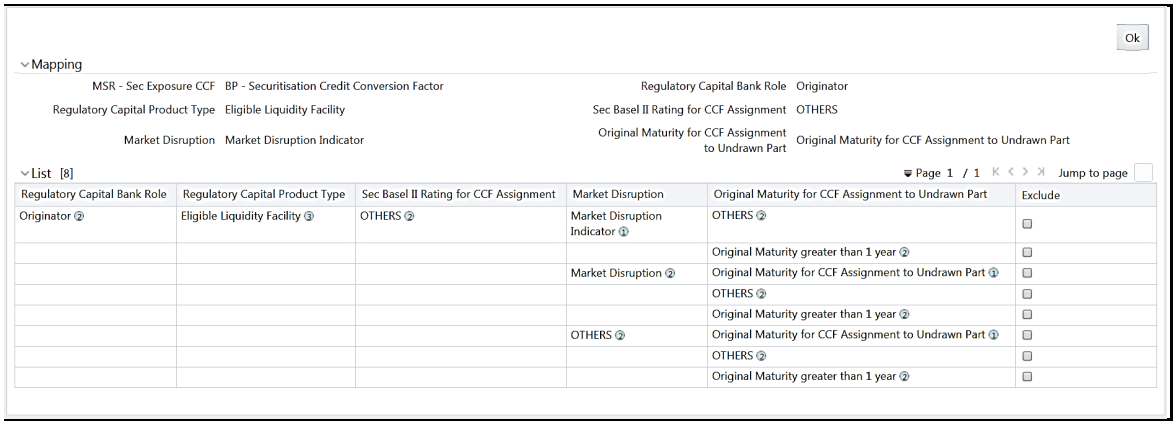


— For a Computation Rule with parameterized BP, the Parameters pop-up is as displayed. Enter the required note in the text field. The Parameter Default Value is fetched from the Business Processor definition and the Assign Value can be entered manually which is considered during Rule execution at Runtime. You can also clear the Assign Value field by clicking the **Clear Values** button. Click **OK**.



— 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* window 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* window 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* window.

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, see Rule Definition Versioning section.

The Audit Trail section at the bottom of *Rule Definition (New Mode)* window displays metadata information about the Rule definition created. The User Comments section facilitates you to add or update additional information as comments.

7.2.3 View Rule Definition

You can view individual rule definition details at any given point.

To view the existing rule definition details in the *Rule* window:

1. Select the checkbox adjacent to the rule **Code** whose details are to be viewed.
2. Click **View** button in the List toolbar.

The *Rule Definition (View Mode)* window 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)* window.

7.2.4 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.

> **NOTE** When a hierarchy which is part of the default security mapper is used as a Source in a Rule definition, you must open the *Hierarchy Browser* window (from the second window of Rule Definition) and resave the selection of nodes based on the latest accessible members in accordance with default security mapper definition. This will ensure that the rule definition is executed based on latest hierarchy member security available.

To modify an existing rule definition in the *Rule* window:

1. From the *Rule* window, select the checkbox adjacent to the Rule Code whose details are to be updated.
2. Click **Edit** in the List toolbar. The Edit button is disabled if you have selected multiple rules. The *Rule Definition (Edit Mode)* window is displayed.
3. Edit the rule details as required. For more information, see Create Rule.
4. Click **Save** to save the changes.

7.2.4.1 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* window). The version remains the same. Once the rule gets approved, its **Active** flag changes to **Y**.

NOTE

- 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**).

7.2.5 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* window, select the checkbox adjacent to the Rule Code whose details are to be duplicated.
2. Click **Copy** in the List toolbar. The *Rule Definition (Copy Mode)* window is displayed. Copy button is disabled if you have selected multiple Rules.

   In the *Rule Definition (Copy Mode)* window 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, see Create Rule. Click **Save**.

   The new Rule definition details are displayed in the *Rule* window. By default, version "0" is set if you have authorization rights, else the version is set to "-1".

7.2.6 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* window. To approve/ reject a rule in the *Rule* window, you need to have Authorize role mapped to your user group.

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 **Authorize** and select **Approve**.
   - To reject the selected rule definitions, click **Authorize** and select **Reject**.

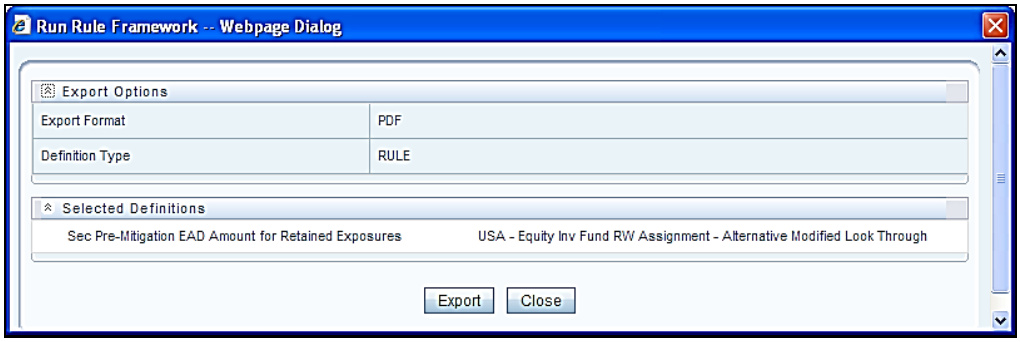
A rule is made available for use only after the approval. For a rejected definition a comment with the rejection details will be added.

7.2.7 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* window:

1. Select the checkbox(s) adjacent to the Rule Code(s) you want to export.
2. Click **Export** button in the toolbar and select **PDF**. The Export dialog is displayed.



The Export dialog displays the Export Format, Definition Type, and the names of the Selected Definitions.

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 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.

7.2.8 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* window:

1. Select the checkbox adjacent to the Rule Code whose details are to be traced.
2. Click **Trace Definition** button from the toolbar.

   The *Trace Definition* window 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* window you can also select individual Process or Run and click button to view the definition details.

7.2.9 Delete Rule Definition

You can remove rule definition(s) which are no longer required in the system by deleting from *Rule* window. However, it is a soft deletion only.

To delete rule definition:

1. Select the checkbox(s) adjacent to the Rule Code(s) which you want to delete.
2. Click **Remove** button from the 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.

7.3 Process

A set of rules collectively form a Process. A process definition is represented as a Process Tree. The Process option in the Rules Run 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.

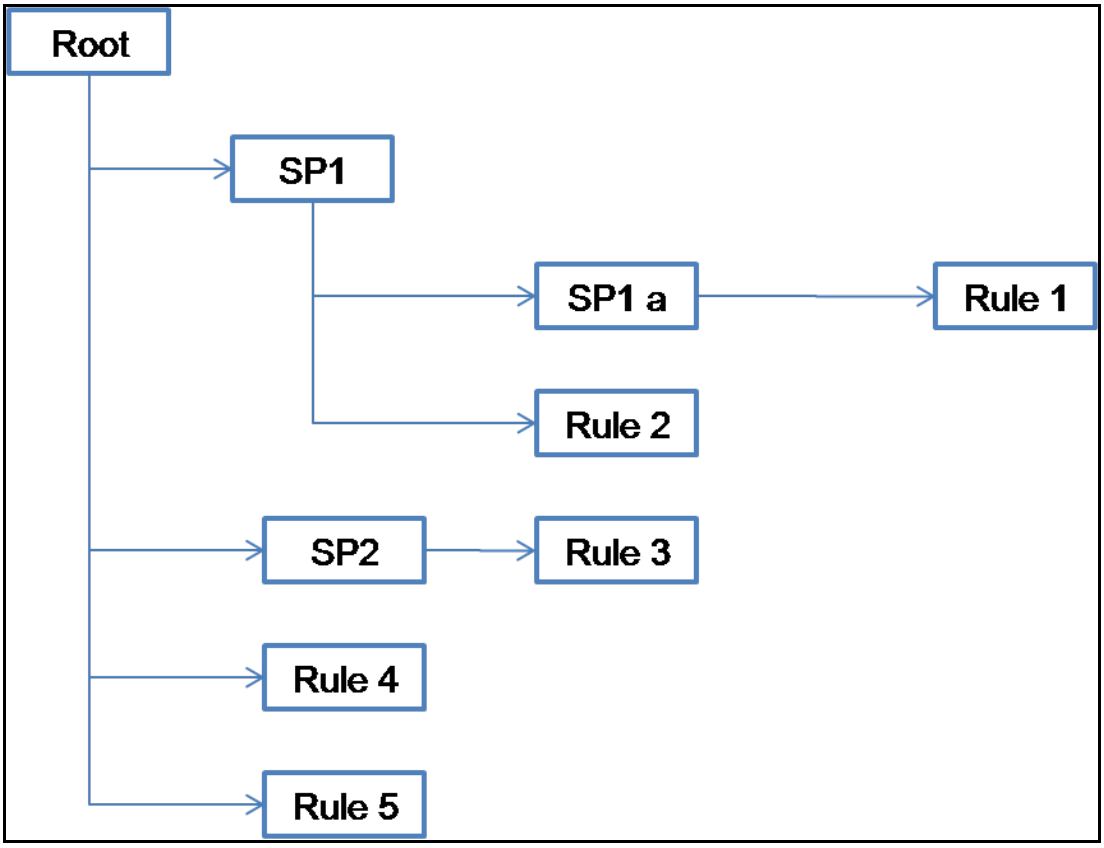
You can define a process with the existing metadata objects using a hierarchical structure which facilitates the construction of a process tree. Process tree can have many levels and one or many nodes within each level. Sub-processes are defined at level members and process hierarchy members form the leaf members of the tree. See 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.

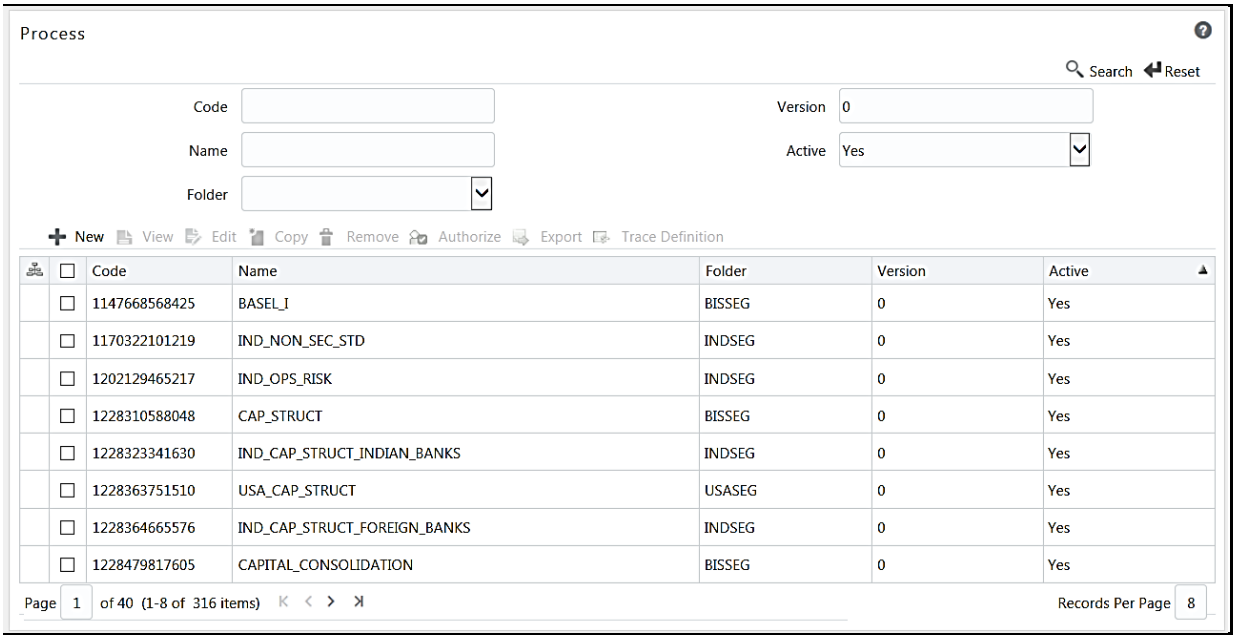
Concurrent Rule Execution

You can define a process to combine different computation/ classification rules for concurrent execution by marking the process or sub process as executable.

Conditions for execution

- Rules defined on different datasets cannot be combined together
- The executable process or sub process should update the same FACT table
- Aggregation rules will be merged as separate rules for execution

The Roles mapped for Process module are: Process Access, Process Advanced, Process Authorize, Process Read Only, Process Write and Process Phantom. Based on the roles mapped to your user group, you can access various screens in Process module. For more information on functions mapped to these roles, see Appendix A.



The *Process* window displays the processes created in the current Information Domain with the metadata details such as Code, Name, Folder, Version, and Active. For more information on how object access is restricted, see Object Security section.

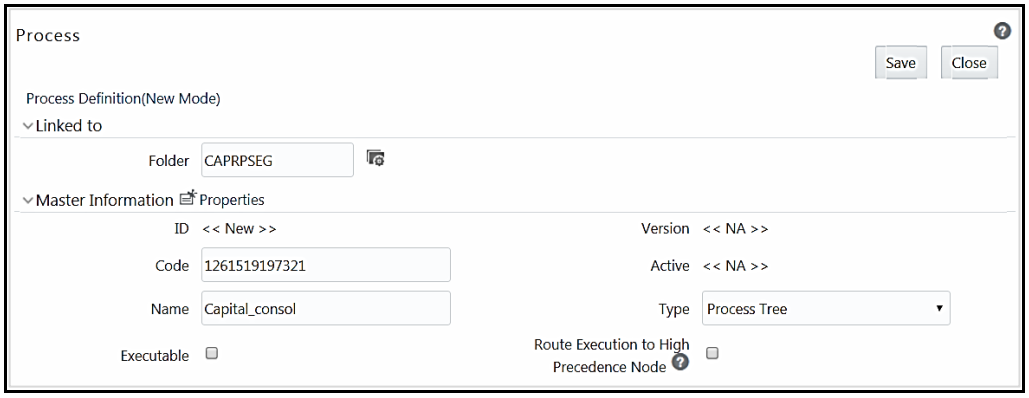
You can make search for specific Processes based on Code, Name, Folder, Version, or Active. The **Folder** drop-down list displays all Public folders, shared folders to which your user group is mapped and Private folders for which you are the owner. The Pagination option helps you to manage the view of existing Processes within the system.

7.3.1 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. The Write role should be mapped to your user group, from the *User Group Role Map* window.

To define a process in the *Process* window:

1. Click ➕ **New** button from the List toolbar. The *Process Definition (New Mode)* window is displayed.

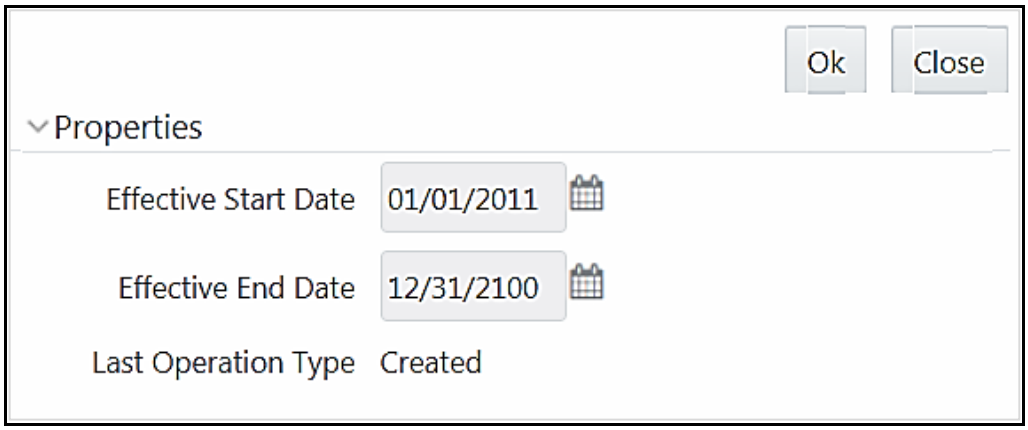


2. Click adjacent to the **Folder** field in the Linked to grid. The *Folder Selector* window is displayed. The folders to which your user group is mapped are displayed.
   a. Select the checkbox adjacent to the required folder. Click **OK**.
   b. Click **New** from the List toolbar to create a new folder/segment. For more information, see Segment Maintenance.
   c. Search for a folder by specifying any keyword and clicking button.
3. Enter the details of the Master information grid as tabulated:

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 ~.
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.
Executable	Select the checkbox if you want to bunch rule executions for concurrency. If you are selecting the checkbox, you can add only Computation or Classification Rules as Components. For more information, see Concurrent Rule Execution section.

Field Name	Description
Route Execution to High Precedence Node	Select the checkbox if you want to route the execution of this Process definition to the high precedence node set up in the AM server.

4. Click **Properties** in the Master Information grid. The *Properties* window is displayed.



You can edit the following tabulated details in the *Properties* window:

Field Name	Description
Effective Start Date, Effective End Date	Effective Dating is not implemented for process definition.
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**.

5. Click **OK**. The properties are saved for the current process definition.

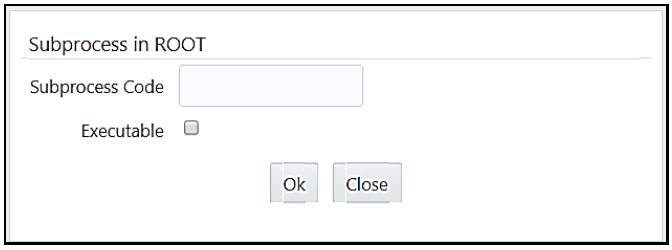
7.3.1.1 Define Sub Process to Root

You can define sub processes to the base process being created or for a pre-defined sub process under a base process.

This option will not be available if you have selected the base process as executable. A process can have multiple executable sub processes; however an executable sub process cannot have sub process within it. It can have only computation/ classification rule as components.

To create a sub process in the *Process Definition (New Mode)* window:

1. Click **Subprocess** button. The *Subprocess in ROOT* dialog is displayed.



2. Enter the **Subprocess Code**. You cannot enter any special characters except underscore "_".
3. Select the **Executable** checkbox to club the rules for concurrent execution. Executable sub process can have only Classification/ Computation Rules.
4. 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; however an executable sub process cannot have sub process within it.

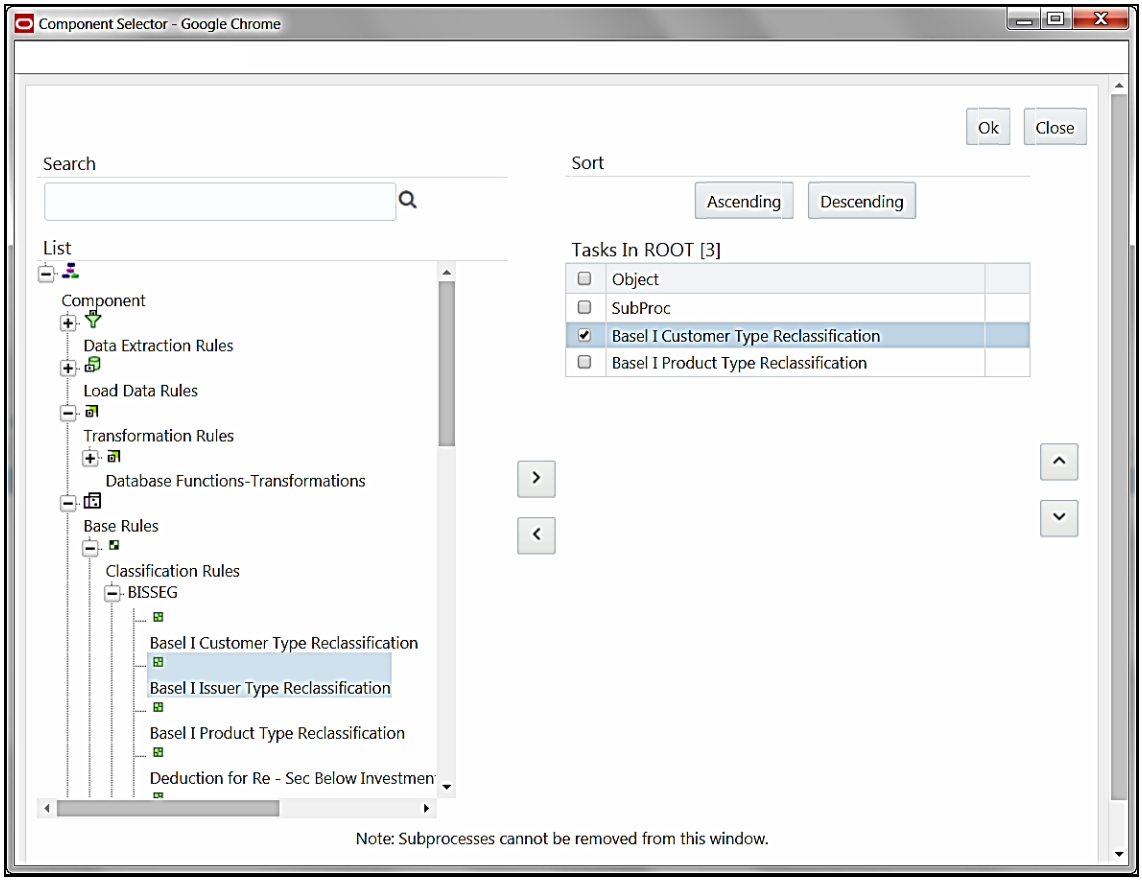
7.3.1.2 Add Component to Base Process / Sub Process

You can add process components to the base process as well as the sub processes. For concurrent rule execution, you should select only rules, which comes under Base Rules node. See Concurrent Rule Execution section for the conditions to select the rules.

To add the process components from the *Process Definition (New Mode)* window:

1. Select the process for which you want to add the component.
2. Click **Component** button.

   The *Component Selector* window is displayed.



On the List pane, click button to expand the members and view the process components. For more information, see Process Hierarchy Members.

3. Select a Process Component and click to move the component to the Tasks In <Process Name> pane.

   In *Component Selector* window you can also:

   - Search for a component by specifying the nearest keyword in the **Search** field 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 adjacent to the component name, 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. For example, "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.

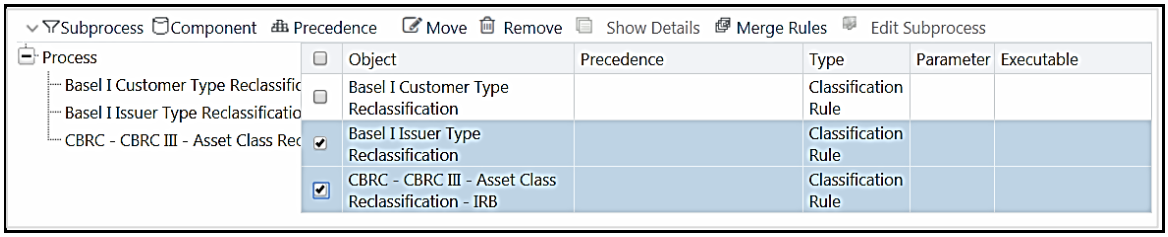
4. Click **OK**. The components are listed under the selected process.

7.3.1.3 Merging Rules for Concurrent Execution

After selecting Rules as components for concurrent execution, you can merge rules in a sub process to define that as a logical single rule.

To merge rules in a sub process:

1. From the *Component Selector* window, select the required rules.



2. Select the rules to be merged and click **Merge Rules**.

> **NOTE** You can merge only rules which are part of the same dataset.

3. Specify the sub process code. The **Executable** checkbox will be selected. You cannot modify it.
4. Click **Ok**. The merged rules will be placed under the new sub process.

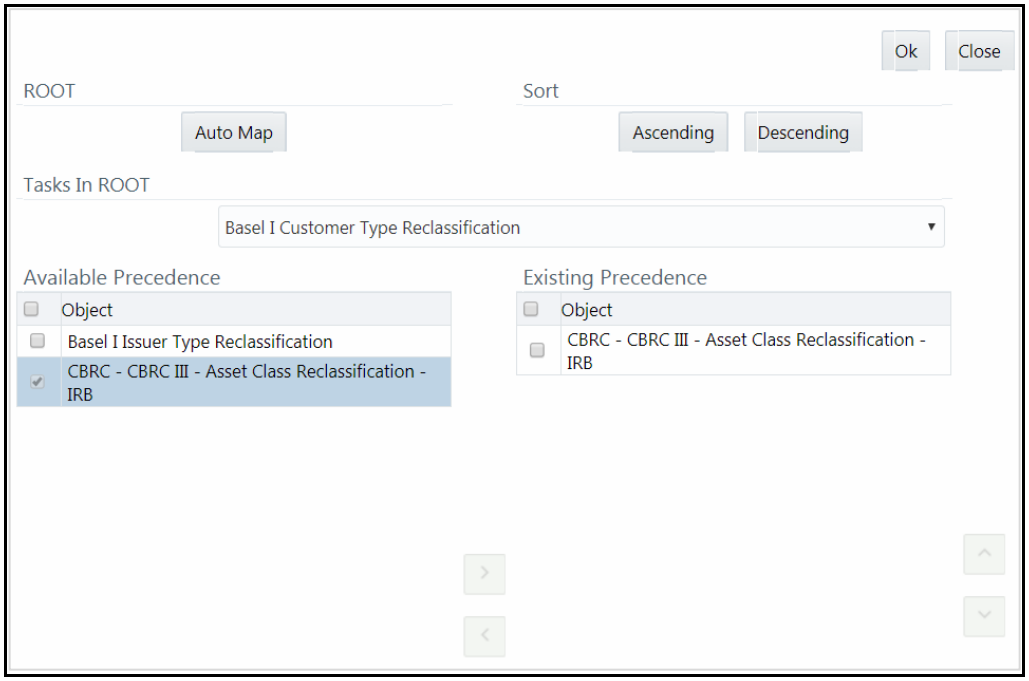
7.3.1.4 Add Precedence for Selected Components

You can add precedence for the selected components in the *Process Definition (New Mode)* window. Precedence can be defined to peer processes in a selected parent process.

> **NOTE** Precedence cannot be set for the executable sub processes.

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* window 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* window you can also:

- Click **Ascending** or **Descending** button to sort the selected tasks in Ascending or Descending order.
- Click ^ or v button to move up or move down the selected tasks.
- Click ‹ button to remove selected tasks from the **Existing Precedence** pane.

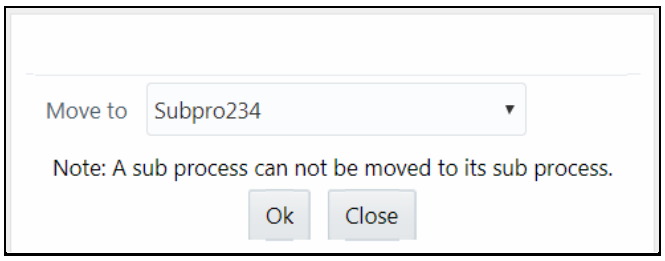
5. Click **OK**. The precedence is set for the tasks in the selected process.

7.3.1.5 Move Tasks among Processes

You can move the tasks which have no dependency, among different processes in the *Process Definition (New/ Edit Mode)* window.

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 dialog is displayed.



4. Select the process/ sub process to which you want to move the task.
5. Click **OK**. The window is refreshed and the task is displayed under the selected process.

7.3.1.6 Remove Tasks from a Process

You can remove/ delete the tasks which have no dependency, from the *Process Definition (New/ Edit Mode)* window.

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**. The Warning dialog is displayed.
4. Click **OK**. The selected tasks are removed from the process.

In the *Process Definition (New/ Edit Mode)* window, you can also view the details of a selected task by clicking **Show Details** button.

Click **Save**. The process definition is saved with the provided details and is displayed in the *Process* window.

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)* window displays metadata information about the Process definition created. The User Comments section facilitates you to add or update additional information as comments.

7.3.2 View Process Definition

You can view individual process definition details at any given point.

To view the existing process definition details in the *Process* window:

1. Select the checkbox adjacent to the Process Code whose details are to be viewed.
2. Click **View** button in the List tool bar.

   The *Process Definition (View Mode)* window is displayed with all the details of the selected Process.

7.3.3 Edit Process Definition

You can modify all the details except ID, Code, Version, Active status, Executable flag, 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* window:

1. Select the checkbox adjacent to the Process Code whose details are to be updated.
2. Click **Edit** button in the List tool bar. The Edit button is disabled if you have selected multiple Processes. The *Process Definition (Edit Mode)* window is displayed.
3. Modify the process details as required. For more information, see Create Process.
4. Click **Save** to save the changes.

7.3.3.1 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* window). The version remains the same. Once the process gets approved, its **Active** flag changes to **Y**.

NOTE

- 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**).

7.3.4 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* window:

1. Select the checkbox adjacent to the Process Code whose details are to be duplicated.
2. Click **Copy** button in the List toolbar to copy a selected process definition. The *Process Definition (Copy Mode)* window is displayed. The **Copy** button is disabled if you have selected multiple processes.

   In the *Process Definition (Copy Mode)* window 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, see Create Process. Click **Save**.

   The new process definition details are displayed in the *Process* window. By default, version **0** is set if you have authorization rights, else the version is set to **-1**.

7.3.5 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* window. To approve/ reject process(s) in the *Process* window, you need to have the Authorize role mapped to your user group. 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 **Authorize** and click **Approve** button.
   - To reject the selected process definitions, click **Authorize** and click **Reject** button.

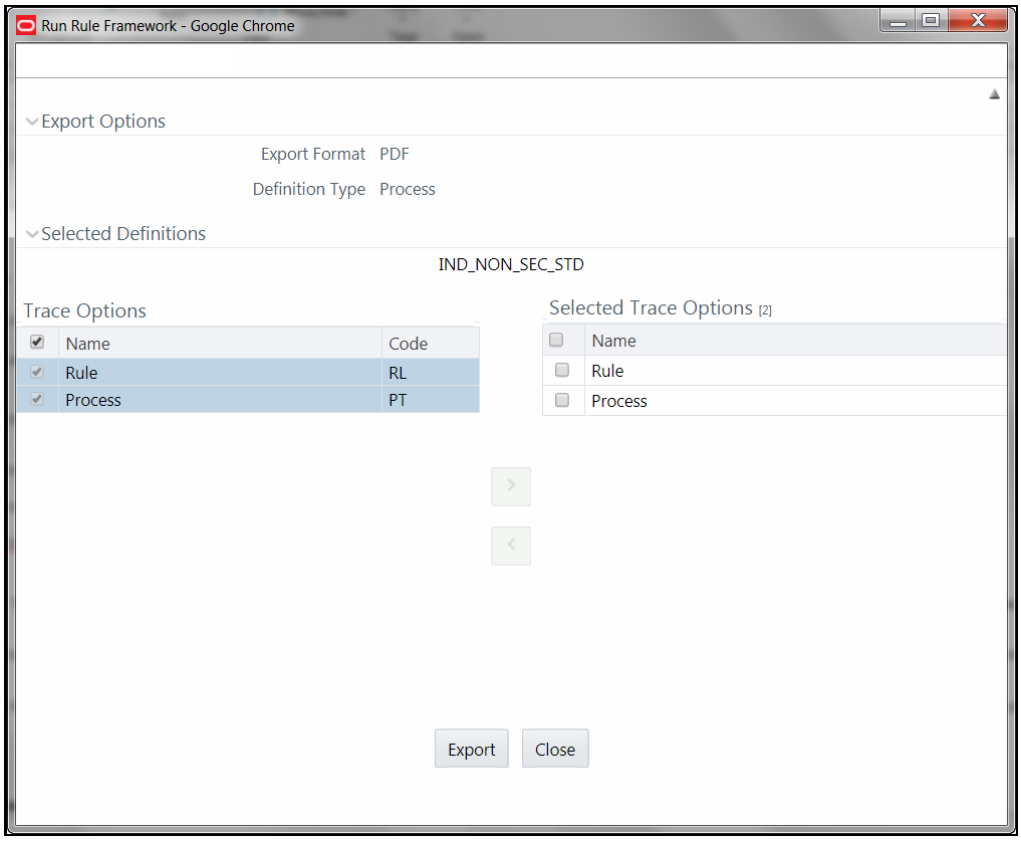
   A process is made available for use only after the approval. For a rejected definition a comment with the rejection details will be added.

7.3.6 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* window:

1. Select the checkbox(s) adjacent to the required Process Codes.
2. Click **Export** in the toolbar and click the **PDF**. A confirmation message is displayed.

3. Click **Yes** to confirm. *The Export Options* window is displayed.



The *Export Options* window displays the Export Format, Definition Type, the names of the Selected Definitions, and the Trace Options.

4. To select the Trace Options:
   - 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.
5. 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.

7.3.7 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* window:

1. Select the checkbox adjacent to the Process Code whose details are to be traced.

2. Click **Trace Definition** from the toolbar.

The *Trace Definition* window is displayed with the details such as Traced Object (Name and Definition Type), other Processes and Runs in which the selected Process is used. You can also select individual Process or Run and click **Show Details** to view the definition details.

7.3.8 Delete Process Definition

You can remove process definition(s) which are no longer required in the system by deleting from *Process* window. However, it is a soft deletion only.

To delete process definition:

1. Select the checkbox(s) adjacent to the Process Code(s) whose details are to be removed.
2. Click **Remove** from the toolbar.
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.

7.4 Run

The Run feature in the Rules Run 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.

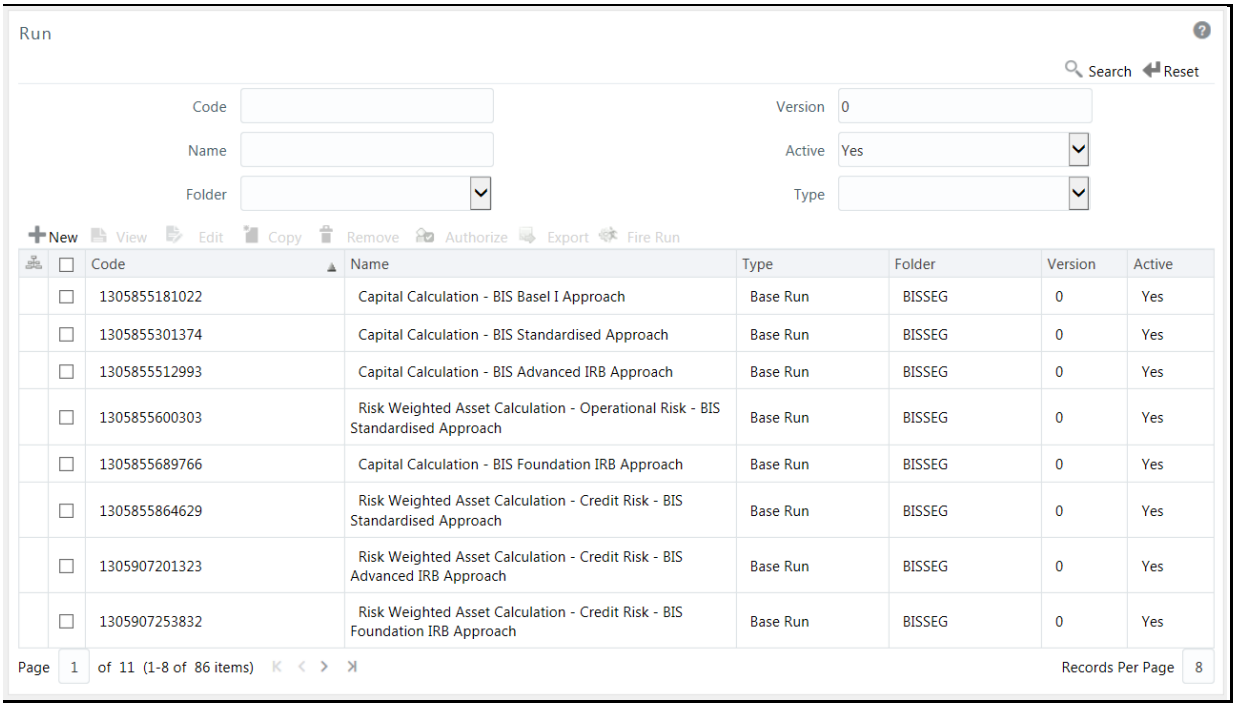
Base Run allows you to combine different rules and processes together as jobs and apply run conditions and job conditions.

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.

Instance Run allows you to combine Base Runs and Simulation Runs in addition to other components from multiple information domains as Jobs. This eliminates the need for having different Run definitions if some Jobs are available in Hive Information Domain and some are present in RDBMS Information Domain.

The Roles mapped for Run module are: Run Access, Run Advanced, Run Authorize, Run Read Only, Run Write and Run Phantom. Based on the roles mapped to your user group, you can access various screens in Run module. For more information on functions mapped to these roles, see Appendix A.

You can access *Run* window by expanding **Rule Run Framework** within the LHS menu and selecting **Run**.



The *Run* window displays the runs created in the current Information Domain with the metadata details such as Code, Name, Type, Folder, Version, and Active status. For more information on how object access is restricted, see Object Security section.

You can search for specific runs based on Code, Name, Folder, Version, Active status, or Type. The **Folder** drop-down list displays all Public folders, shared folders to which your user group is mapped, and Private folders for which you are the owner. The Pagination option helps you to manage the view of existing runs within the system.

7.4.1 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 Write role should be mapped to your user group, from the *User Group Role Map* window.

The following filter conditions can also be applied to a run definition:

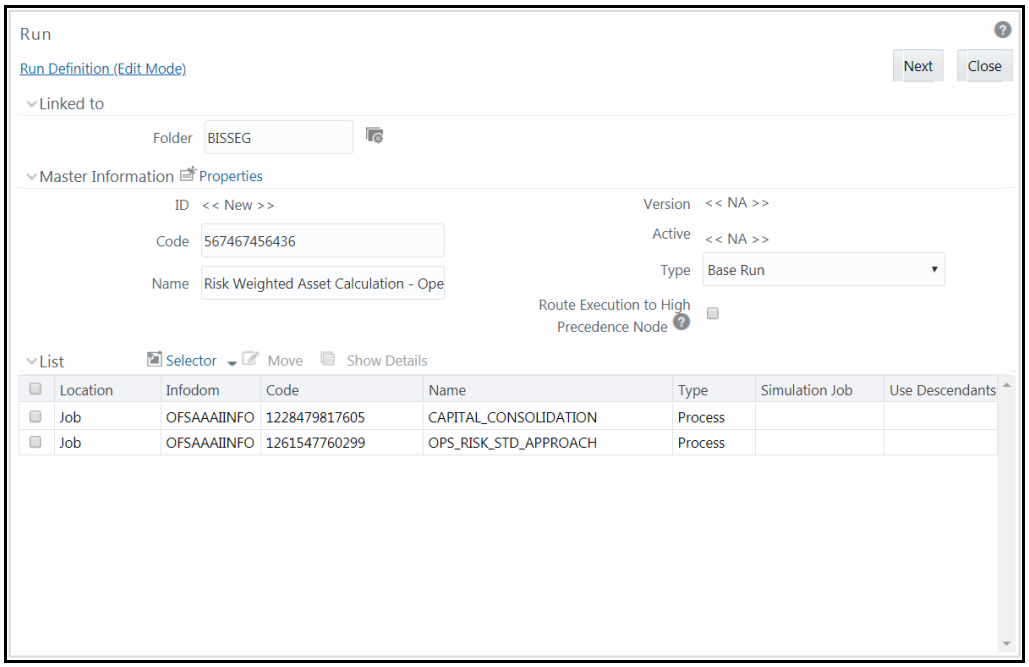
Condition Type	Description
Run Condition	A Run Condition is defined as a filter and all hierarchies (defined in the current information domain) are available for selection. You can select up to 9 run conditions. A Run condition is defined for all Jobs. But it will be applied to a Job only if the underlying target/destination entities of both Job and Hierarchy are common.

Condition Type	Description
Job Condition	A Job Condition is a further level of filter that 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 job. 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.

NOTE Filter conditions are not applicable for Instance Runs.

To create a run definition in the *Run* window:

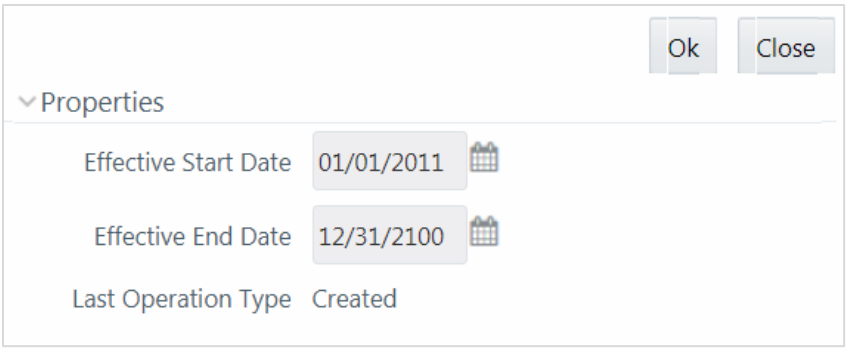
1. Click **New** from the toolbar. The *Run Definition (New Mode)* window is displayed.



2. Click button adjacent to the **Folder** field in the Linked to grid. The *Folder Selector* window is displayed. The folders to which your user group is mapped are displayed.
   a. Select the checkbox adjacent to the required folder. Click **OK**.
   b. Click **New** from the List toolbar to create a new folder/segment. For more information, see Segment Maintenance.
   c. Search for a folder by specifying any keyword and clicking button.
3. 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, see 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, Simulation Run** and **Instance Run**.
Route Execution to High Precedence Node	Select the checkbox if you want to route the execution of this Process definition to the high precedence node set up in the AM server.

4. Click **Properties** in the Master information grid. The *Properties* window is displayed.



You can edit the following tabulated details in the *Properties* window:

Field Name	Description
Effective Start Date, Effective End Date	Effective Dating is not implemented for Run definition.
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**.

5. Click **OK**. The properties are saved for the current Run definition.

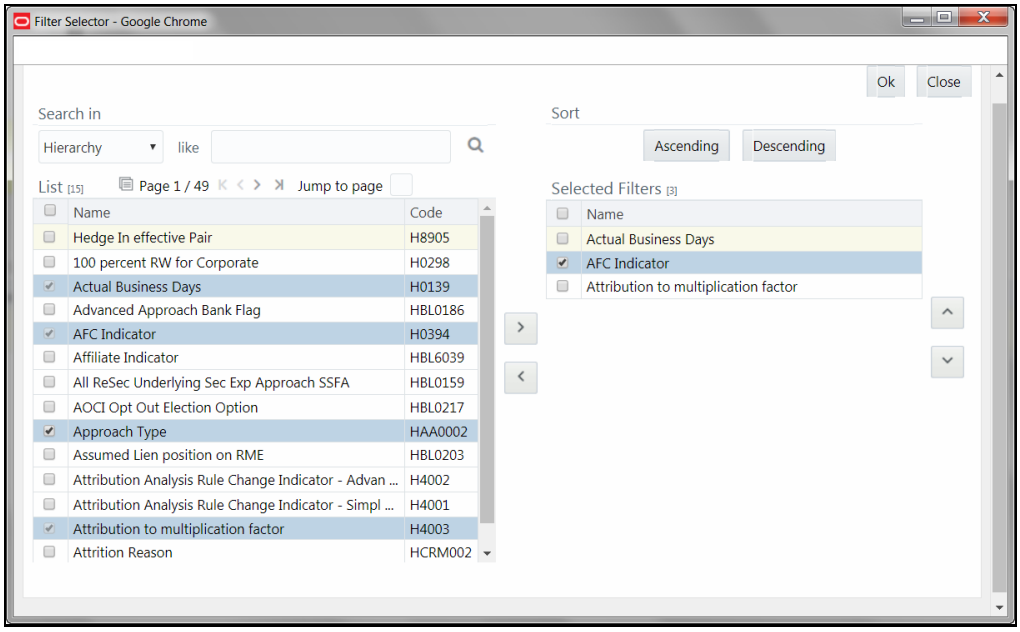
7.4.1.1 Select Run Condition for Run

You can select conditions to preset the initialization mechanism of a run definition.

> **NOTE** Run Condition is not applicable for Instance Run.

To select a condition for a run in the *Run Definition (New Mode)* window:

1. Click **Selector** from the List toolbar and select **Run Condition**. The *Filter Selector* window is displayed.



The List pane displays Hierarchies or Filters based on the option selected in the drop-down list in the Search in pane. The options are:

- Hierarchy- Displays all Business Hierarchies defined in the information domain.
- Filter-Data Element- Displays all Data Element Filters defined in the information domain.
- Filter-Hierarchy - Displays all Hierarchy Filters defined in the information domain.

- Filter-Group - Displays all Group Filters defined in the information domain.
- Filter-Attribute - Displays all Attribute Filters defined in the information domain.

2. Select the checkbox adjacent to the Hierarchy or Filter that you want to select as Run condition and click ›.

   To know about the operations you can do in this window, see Filter Selector Hierarchy_Selectorwindow.

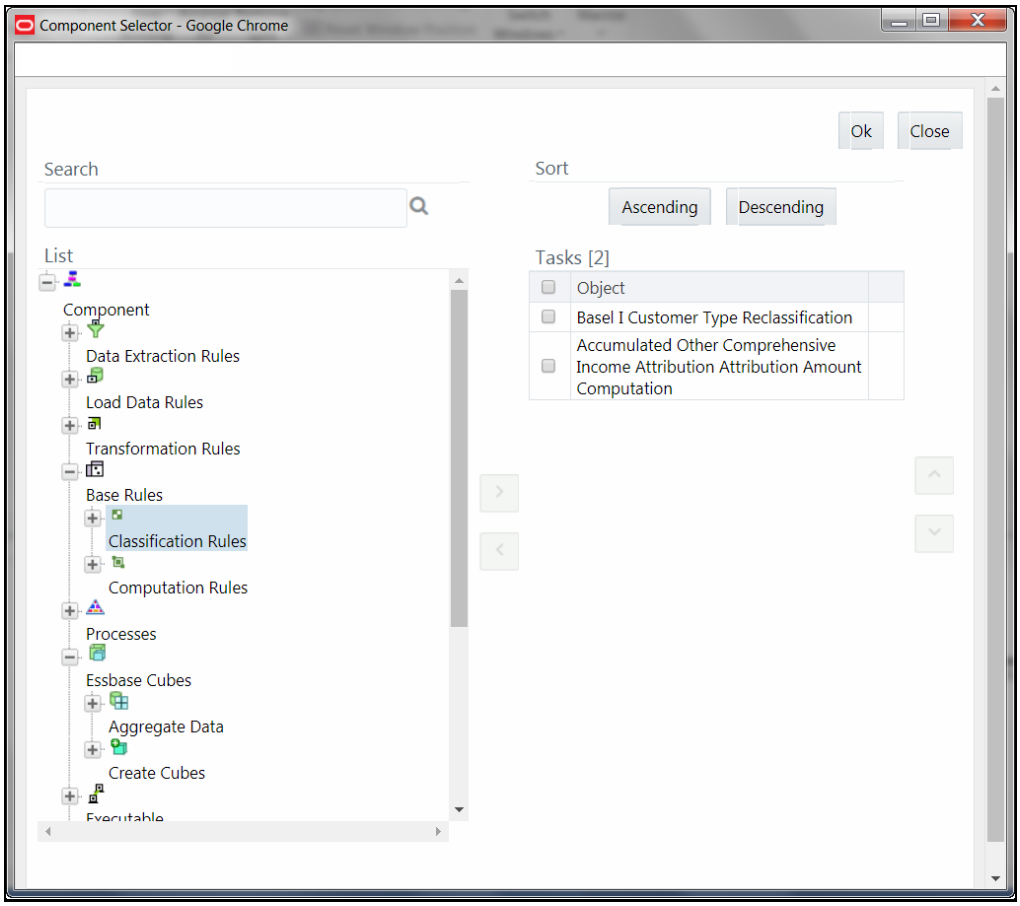
3. Click **OK**. The selected Hierarchies are listed in the *Run Definition (New Mode)* window.
4. If the selected Run condition is a Parent Child hierarchy, the **Use Descendants** checkbox is displayed. If the checkbox is selected for a hierarchy, the descendants will be automatically applied and need not be selected in node selection from hierarchy browser window.

7.4.1.2 Select Jobs for Run

You can select the required jobs for the run definition being created.

To select jobs for Base and Simulation Run:

1. Click **Selector** from the List toolbar and select **Job**. The *Component Selector* window is displayed.



On the **List** pane, you can click button to expand the members and view the job components. For more information, see 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* window 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.

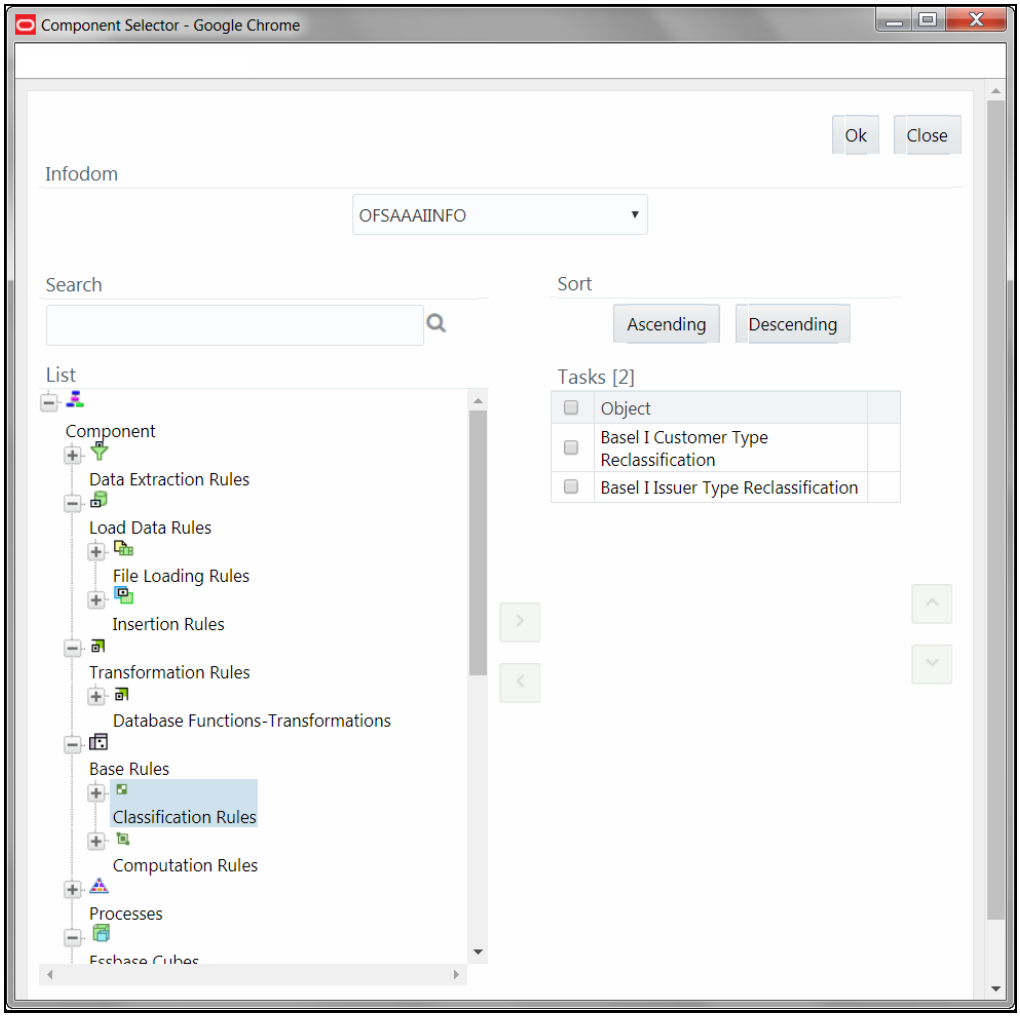
> **NOTE** Parameters can be given in the format "param1","param1VALUE" or "$PARAM2","param2VALUE". Single quotes should not be used.

- 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* window.

To select Jobs for Instance Run

1. Click **Selector** from the List toolbar and select **Job**. The *Component Selector* window is displayed.



For Instance Run, you can add Base Run and Simulation Run as Jobs.

2. Select the information domain in which the job component you want to add is present, from the **Infodom** drop-down list. By default, the selected Application's Information Domain is displayed. The drop-down list displays all information domains to which your user group is mapped except sandbox information domains.
3. Select a job component and click ›› to move the component to the Tasks pane.
   - If you want to add a job component from another information domain, select the required information domain from the drop-down list. The Component list refreshes and you can add the required Job components.
   - For more information see Job Selector section.
4. Click **OK**. The components are listed under the List pane in the *Run Definition* window.

7.4.1.3 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.
>
> Job Condition is not applicable for Instance Run.

To select the job condition for a run:

1. Click **Selector** from the List toolbar and select **Job Condition**. The *Filter Selector* window 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 window, see Filter Selector Hierarchy_Selectorwindow.

   > **NOTE** Ensure that you have selected only one Job Condition and the same hierarchy is not selected as both Run and Job conditions.

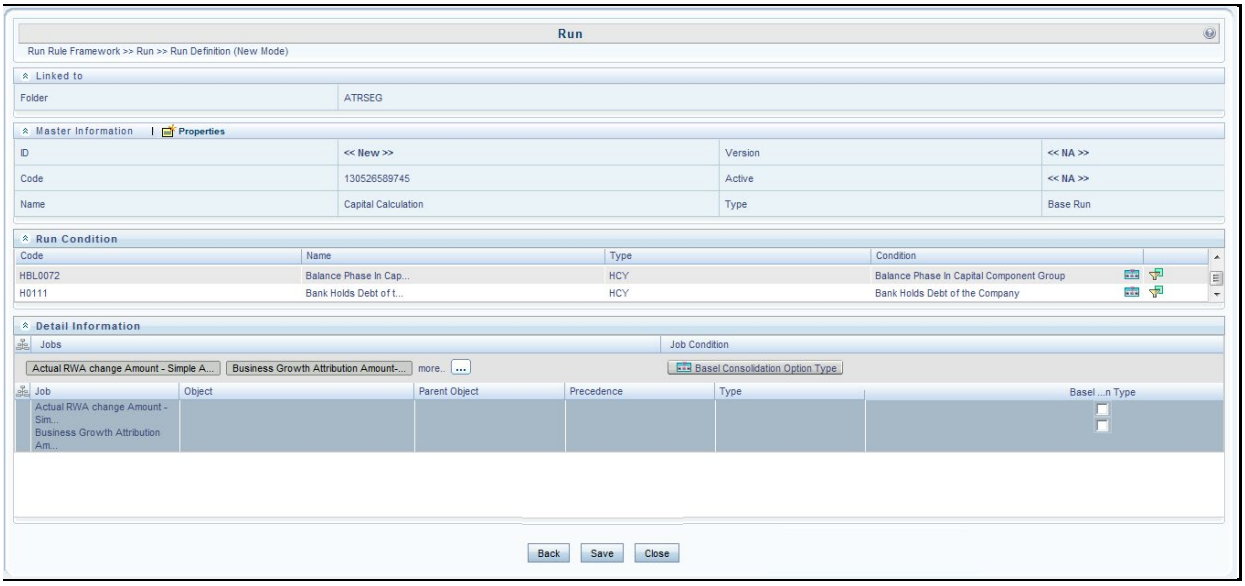
3. Click **OK**.

   From the List grid in the *Run Definition (New Mode)* window, you can also:

   - Click **Move** button to change a selected run condition to job condition and conversely.

     For Instance Run, the **Move** button is disabled.
   - Click **Show Details** button to view the metadata information of the selected member.
   - If the selected Job condition is a Parent Child hierarchy, the **Use Descendants** checkbox is displayed. If the checkbox is selected for a hierarchy, the descendants will be automatically applied and need not be selected in node selection from hierarchy browser window.

Once all the necessary information in the first window of the Run Definition (New Mode) is populated, click the **Next** button to navigate to the concurrent procedures of defining a Rule.



The second window of *Run Definition (New Mode)* window 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 in case of Base Run and Simulation Run. For Instance Run, only jobs will be displayed.

Expand a job which is a process, then the Object, Parent Object, Precedence and Type columns are populated.

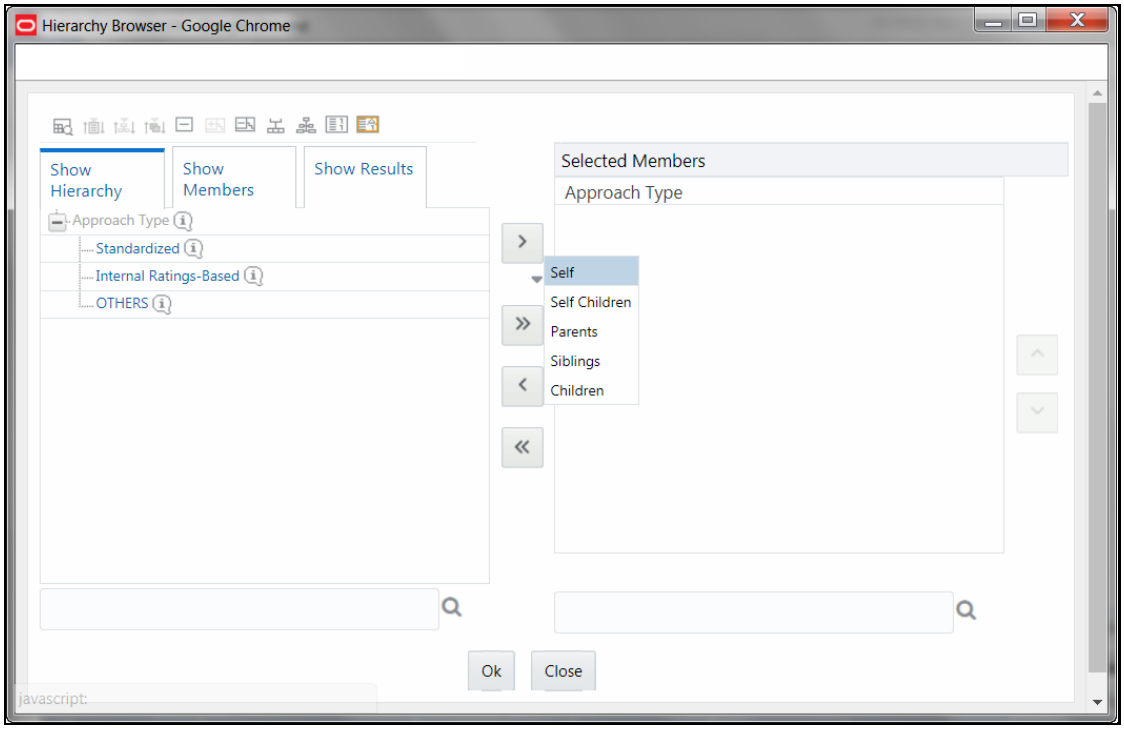
7.4.1.4 Hierarchical Member Selection

In the Run Condition grid, you can modify the run conditions by including hierarchical members.

> **NOTE** This option will be available only if you have selected Hierarchy as run condition.

To modify a run condition:

1. Click button corresponding to the run condition you want to modify. The *Hierarchy Browser* window is displayed.



2. Click ⊞ and expand the members of the selected hierarchy.

3. Select a member / node and click › to select the same. Click ▾ to select the member as Self, Self & Descendants, Self & Children, Parent, Siblings, Children, Descendants, or Last Descendants. For more information, see Hierarchical Member Selection Modes.

   In the *Hierarchy Browser* window you can also:

   - Click ↑↓ to sort members based on path.
   - Click ↑↓ to sort hierarchy (top to bottom).
   - Click ↑↓ to sort based on level.
   - Click ⊟ or ⊞ to expand or collapse the members under a node.
   - Click ⊟ or ⊞ to expand a branch or collapse a branch.
   - Click A1 or A1 to view the name of members right or left.
   - Click 1A or 1A to view the code values of members right or left.
   - Click 11 or A1 to show code or show name of the members.
   - Click ^ or v to re-arrange the members in the Selected Members pane.

- Click  to launch the Search window. From the *Search* window, you can search based on **Member Unique Code**, **Member Name** or **Member Alphanumeric Code**. You can also find a member in the grid using  button.

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* window 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. This option will be available only if Hierarchy is selected as Job condition.
   - 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* window displays the *Rule Definition (View Mode)* window.

   You can click **Back** button to navigate back to the first page of the *Run Definition (New Mode)* window 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)* window displays metadata information about the Run definition created. The User Comments section facilitates you to add or update additional information as comments.

7.4.2 View Run Definition

You can view individual run definition details at any given point. To view the existing Run definition details in the *Run* window:

1. Select the checkbox adjacent to the Run Code whose details are to be viewed.
2. Click  **View** in the List toolbar.

   The *Run Definition (View Mode)* window 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*) window.

7.4.3 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* window:

1. Select the checkbox adjacent to the Run Code whose details are to be updated.
2. Click  **Edit** in the List toolbar. Edit button is disabled if you have selected multiple Runs. The *Run Definition (Edit Mode)* window is displayed.

3. Edit the Run details as required. For more information, see Create Run.
4. Click **Save** to save the changes.

7.4.3.1 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* window). The version remains the same. Once the run gets approved, its **Active** flag changes to **Y**.

NOTE

- 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**).

7.4.4 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* window:

1. Select the checkbox adjacent to the Run Code whose details are to be duplicated.
2. Click **Copy** in the List toolbar to copy a selected Run definition. The *Run Definition (Copy Mode)* window is displayed. Copy button is disabled if you have selected multiple Runs.

   In the *Run Definition (Copy Mode)* window 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, see Create Run. Click **Save**.

The new Run definition details are displayed in the *Run* window. By default, version **0** is set if you have authorization rights, else the version is set to **-1**.

7.4.5 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* window. To approve/ reject run definitions in the *Process* window, you need to have the Authorize role mapped to your user group.

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 **Authorize** and select **Approve**.
   - To reject the selected run definitions, click **Authorize** and select **Reject**.

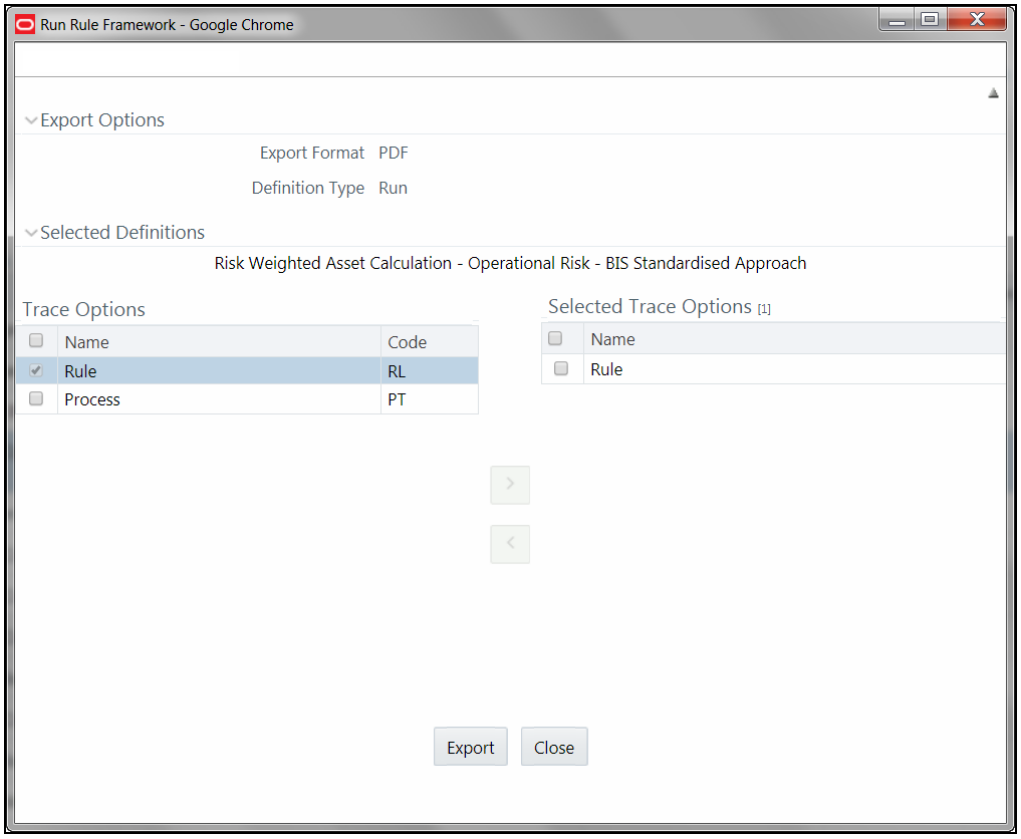
A run is made available for use only after the approval. For a rejected definition a comment with the rejection details will be added.

7.4.6 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. In case of Instance Run, you can select Runs that you want to export, apart from Rules and Processes.

To export the run definitions in the *Run* window:

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.



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.

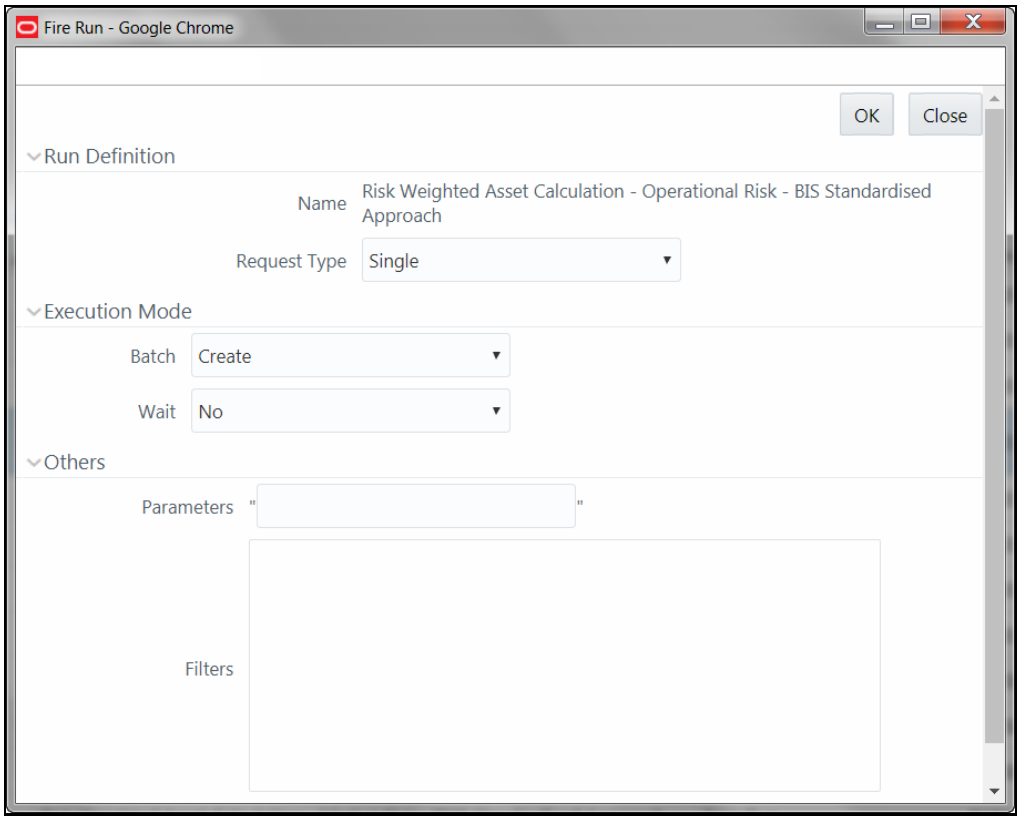
You can either save the file on the local machine or view the file contents in a PDF viewer. The downloaded PDF displays all the details such as Linked to, Properties, Master info, Audit Trail, List, and Comments of all the Run definitions selected.

7.4.7 Fire Run

This feature facilitates you to execute a previously created Run. You can execute the run definition as a batch from the Operations module.

To execute a run definition:

1. Select the checkbox adjacent to the Run Code which you want to execute and click  **Fire Run** in the List toolbar. The *Fire Run* window is displayed.



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 Request - You need to provide the MIS Date during Batch execution from the Operations module. Multiple Request - You can run the batch with the same MIS date multiple times from the Operations module.
Batch	Select the Batch either as Create or as Create & Execute from the drop-down list **Create**- The batch will be created and needs to be executed from the Operations module. **Create & Execute**- The batch will be created and executed. You can monitor it from the Operations module.

Field Name	Description
MIS Date	Click to display Calendar. 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. For information on runtime parameters supported during run execution, see Passing Runtime Parameters section.

7.4.8 Delete Run Definition

You can remove Run definition(s) which are no longer required in the system by deleting from *Run* window. However, it is a soft deletion only. An authorizer has to approve the deletion.

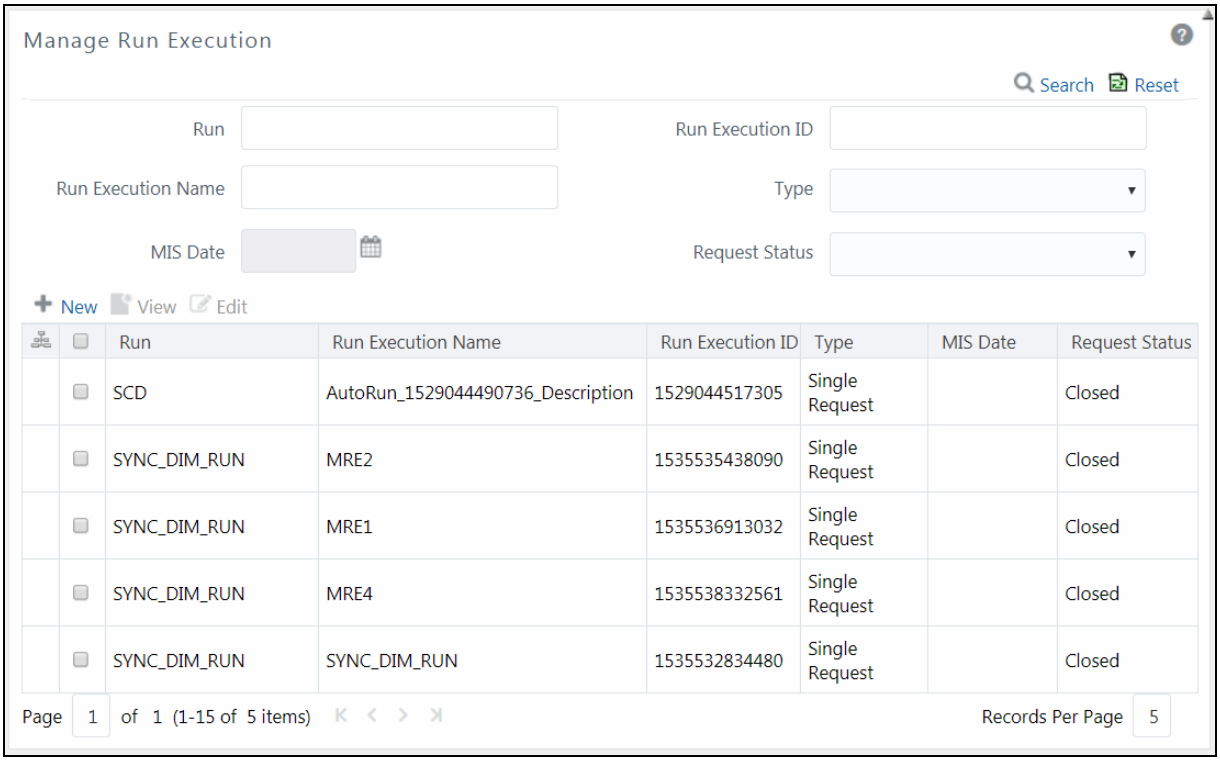
1. Select the checkbox(s) adjacent to the Run Codes whose details are to be removed.
2. Click **Remove** from the List toolbar.
3. Click **OK** in the information dialog to confirm deletion.

An information dialog is displayed confirming the deletion of the Run definitions and asking the authorization of the same.

7.5 Manage Run Execution

Manage Run execution enables you to have a work flow for Run execution. The predefined Run definitions can be executed in a unique batch depending on the Type of the Manage Run Execution defined. These batches can then be executed from the Operations module.

The Roles mapped for Mange Run Execution module are: Manage Run Access, Manage Run Advanced, Manage Run Authorize, Manage Run Read Only, Manage Run Write and Manage Run Phantom. Based on the roles mapped to your user group, you can access various screens in Mange Run Execution module. For more information on functions mapped to these roles, see Appendix A.



The *Manage Run Execution* window 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. If Object Security is implemented, see Object Security section to understand the behavior.

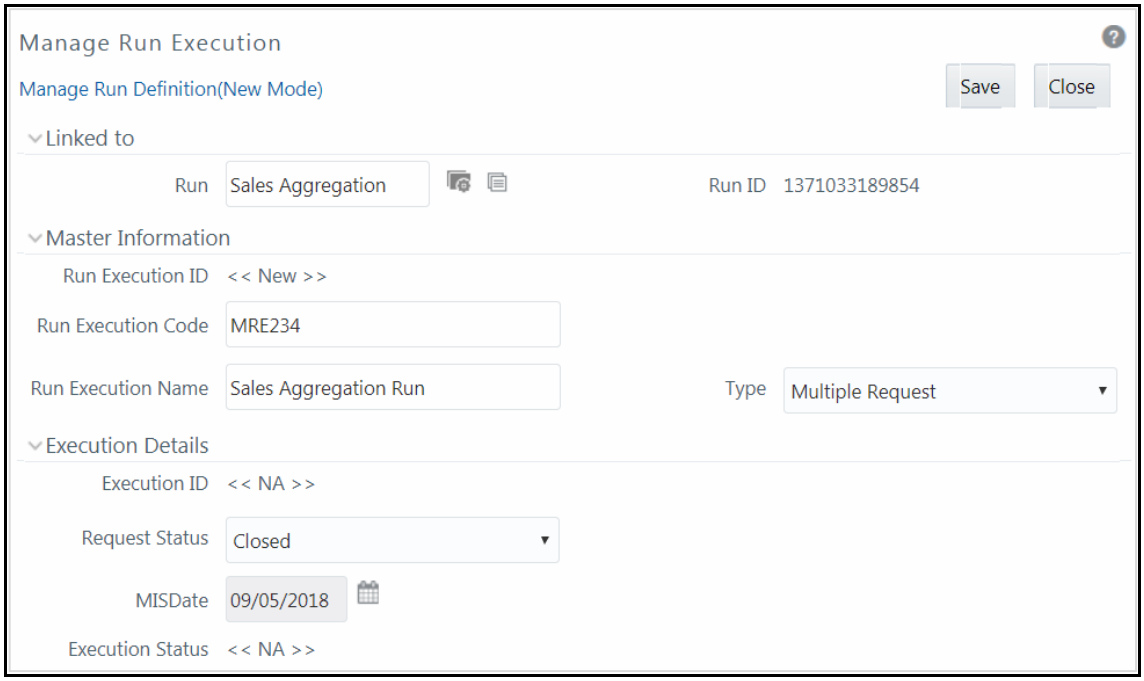
You can also search for specific Runs based on Run Name, Run Execution Description, MIS Date, Run Execution ID, Type, or Request Status. The Pagination option helps you to manage the view of existing Rules within the system.

7.5.1 Creating Manage Run Definition

You can create the Manage Run Definitions from the *Manage Run Execution* window. The Write role should be mapped to your user group, from the *User Group Role Map* window.

To create a Manage Run Definition:

1. Click ➕ **New** button from the List toolbar. The *Manage Run Definition (New Mode)* window is displayed.



2. Click adjacent to the **Run** field. The *Run Selector* window is displayed.
   a. Click to view the details of the selected Run definition.
   b. Search for a Run definition by specifying any keyword and clicking button.
   c. Select the checkbox adjacent to the Run definition you want to select and click **Ok**.
      The selected Run is displayed in the **Run** field, along with the Run ID.
3. Click adjacent to to view the details of the selected Run.
4. Enter the details in the Master Information 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 "_".
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 '.

Field Name	Description
Type	Select the type of the Run Execution either as **Single Request** or as **Multiple Request**. Single Request - You need to provide the MIS Date during Batch execution from the Operations module. Multiple Request - You can run the batch with the same MIS date multiple times from the Operations module.
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.
MISDate	This field is displayed only if you have selected Type as **Multiple Request**. MIS Date refers to the date with which the data for the execution would be filtered. Click  to display Calendar. You can select the MIS Date from the calendar.
Execution Status	The default Execution status of a newly created Run Execution is **<<NA >>**

5. Click **Save**. For information on runtime parameters supported during Manage Run Execution, see Passing Runtime Parameters section. The Run Execution is saved and a confirmation dialog is appeared.

The Audit Trail section at the bottom of *Manage Run Definition (New Mode)* window displays metadata information about the Manage Run definition created. The User Comments section facilitates you to add or update additional information as comments.

7.5.1.1 Passing Runtime Parameters

The following runtime parameters are supported during run execution:

- $RUNID
- $PHID
- $EXEID
- $RUNSK
- $MISDATE
- $BATCHRUNID

Values for the runtime parameters are implicitly passed while executing the Run definition.

7.5.2 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* window:

1. Select the checkbox adjacent to the Run Name whose details are to be viewed.
2. Click **View** in the List toolbar.

   The *Manage Run Execution Definition (View Mode)* window is displayed with all the details of the selected Manage Run Definition.

7.5.3 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* window:

1. Select the checkbox adjacent to the Manage Run Definition name whose details are to be updated.
2. Click **Edit** in the List toolbar. Edit button is disabled if you have selected multiple Manage Run Definitions. The *Manage Run Definition (Edit Mode)* window is displayed.
3. Edit the Manage Run definition details as required. For more information, see 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.
   - 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.

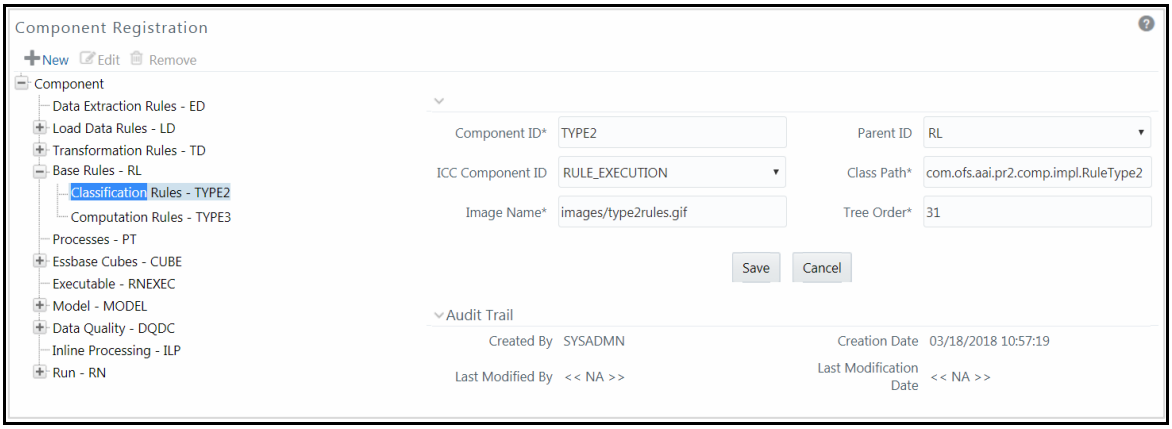
7.6 Utilities

This section consists of information related to the utilities available in Rules Run Framework module of OFSAAI.

7.6.1 Component Registration

The Component Registration section allows you to add components by defining certain parameters in the *Component Registration* window.

> **NOTE** Before you begin, ensure that you have registered all the required components within the Run Rule Framework (RRF). For detailed information, see OFSAAI Administration Guide.



The *Component Registration* window 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 window 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* window displays metadata information about the Component selected / created.

7.6.1.1 Registering Components

You can register new components from the *Component Registration* window.

To register a new component:

1. From the *Component Registration* window, click **New**. The fields in the right pane of the *Component Registration* window are reset.
2. Enter the details as tabulated below:

Field Name	Description
Component ID	Enter the Component ID.
Parent ID	Select the Parent ID from the drop-down list.
ICC Component ID	Select the ICC Component ID from the drop-down list.
Class Path	Key in the class path.
Image Name	Key in the image name which is allocated for the component.

Field Name	Description
Tree Order	Enter the tree order as numeric value.

3. Click **Save**. The fields are validated and the component is saved.

7.6.1.2 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* window:

> **NOTE** Seeded Components cannot be modified.

1. Select the Component from the left pane tree structure, whose details are to be updated.
2. Click **Edit** button. The fields of the selected component are editable.
3. Edit the Component details as required. For more information, see Create Component.
4. Click **Save** to save the changes.

7.6.1.3 Removing Component Definition

You can remove individual Component definitions which are no longer required in the system by deleting from *Component Registration* window.

> **NOTE** Seeded Components cannot be deleted.

1. Select the Component whose details are to be removed and click **Remove**.
2. Click **OK** in the warning dialog to confirm deletion.

   The *Component Registration* window confirms the deletion of the component definition.

7.7 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 see the following sections based on your need.

7.7.1 How Run Rule Framework is used in LLFP Application

7.7.1.1 Rules

The following two types of Rules are available in Run Rule Framework for Oracle Financial Services Loan Loss Forecasting and Provisioning (LLFP) Application:

- Classification Rules
- Computation Rules

Classification Rules

This type of Rules re-classify table records in the data model based on the criteria that include complex Group by Clauses and Sub Queries within the tables.

In LLFP, various methods are used for calculations (for example, provision matrix method, cash flow method, and so on). To determine a set of bank accounts that use one of these methods, you can use Run Rule Framework (RRF).

Example:

Consider a scenario to determine the required methods for Product Type and Customer Type and move data from Staging to FACT_ACCOUNT_DETAILS table using a T2T.

Here, two source and target hierarchies, one each for Product Type and Customer Type is used. Based on the values of this combination of Product Type and Customer Type, the target hierarchies are assigned. This target hierarchy represents the method such as provision matrix method and cash flow method.

That is, based on the satisfied combinations from source hierarchies (Product Type and Customer Type), the method SKey in the FACT_ACCOUNT_DETAILS table is updated.

Computation Rules

These Rules compute new values/matrices based on Simple Measures and update an identified set of records within the data model.

For example:

In LLFP, Expected Credit Loss (ECL) is calculated by creating Rules using the following formula:

ECL = Outstanding Amount x Probability of Default (PD) X Loss Given Default (LGD)

To calculate this, a DT is created using RRF, where necessary expressions are defined. The instructions to multiply values of all these three columns are encapsulated in the Rule.

7.7.1.2 Process and Run

After a Rule is created, it is assigned to a Process (which is a Batch in AAI). Multiple Rules can be assigned to a Process with pre-determined order of execution. Later these Batches are executed as Runs.

7.7.2 How Run Rule Framework is used in LRM Application

The process "LRM – BIS – Determining Revised Maturity for calculating the revised maturity dates" is created for the BIS regularizations requirement in LRM. This process is used to select assets and liabilities used for LCR computation.

This process is bifurcated into below five Computational Rules:

7.7.2.1 LRM - BIS Conservative Approach for Outflows

1. This Rule is created to update the revised maturity date for the outflows as First Call Date of the liability and the derivative products, with embedded options flag 'Y'.
2. The source hierarchies related to standard product type and the embedded options flag are considered.
3. The destination Measure of revised maturity date SKey is defined as the target in the Rule.
4. The Business Processor containing the First Call Date column is mapped with the destination Measure.
5. The relevant dataset LRM - Conservative Approach for Outflows is updated to fetch the relevant data from where the selection occurs based on the criteria. The Revised Maturity Date for Derivatives and liabilities for which embedded option flag is Y is updated with First Call Date.

7.7.2.2 LRM - BIS Conservative Approach for Inflows

1. This Rule is created to update the revised maturity date for the inflows of the asset and the derivative products based on the BIS regulations.
2. The source hierarchies related to standard product type, embedded options flag, and re-hypothecated flag are considered.
3. The destination Measure of revised maturity date SKey is defined as the target in the Rule.
4. The Business Processor containing the expression based on the BIS requirement is mapped to the destination Measure.
5. The relevant dataset LRM - Conservative Approach for Inflows is updated to fetch the relevant data from where the selection based on the criteria happens.

7.7.2.3 LRM - Updating Revised Maturity Date Surrogate Key With Maturity Date Surrogate Key

1. This Rule is created to update the revised maturity date for the assets and liability accounts, when the revised maturity date is absent.
2. The source hierarchies related to Date and Run are considered.
3. The destination Measure of revised maturity date SKey is defined as the target in the Rule.
4. The Business Processor containing the original maturity date associated with the account is mapped to the destination Measure.
5. The relevant dataset LRM - Updating the Revised Maturity Date Surrogate Key is updated to fetch the relevant data and match the Business Processor, hierarchies, Measures, and tables used in processing this Rule.

7.7.2.4 LRM - Updating Columns Using Revised Maturity Date

1. This Rule is created to update the respective residual maturity band SKeys (obtained from the preceding Rules) and the effective residual maturity band SKeys .
2. The source hierarchies related to Date and Run are considered.
3. The destination Measures of the residual maturity band SKey and effective residual maturity band maturity date SKey with the relevant time bucket SKeys are defined as the target in the Rule.
4. The Business Processors related to the destination Measures (Effective Residual Maturity Date SKey, Residual Maturity Band SKey, Residual Maturity Time Bucket SKey and Revised Maturity Time Bucket SKey) are mapped to the physical columns.
5. The relevant dataset LRM - Updating columns using Revised Maturity Date is updated to fetch the relevant data and match the Business Processor, hierarchies, Measures, and tables used in processing this Rule.

7.7.2.5 LRM - Residual Maturity Less Than Liquidity Horizon Flag Update

1. This Rule is created to update the accounts as 'Y', where the residual maturity date falls within the liquidity horizon.
2. The source hierarchy related to Run is considered.
3. The destination Measure is a flag which indicates if the residual maturity is less than the liquidity horizon, and is defined as the target in the Rule.
4. The business process containing the flag related to the residual maturity that is less than the liquidity horizon is mapped to the destination Measure.
5. The relevant dataset LRM - Residual Maturity Less Than Liquidity Horizon Flag Update is created and updated to fetch the relevant data and match the Business Processor, hierarchies, Measures, and tables used in processing this Rule.

After these Rules are created, they are added to the process 'LRM – BIS – Determining Revised Maturity', in the order mentioned above. This process is stitched to a Run which is used to process the LCR calculation related to the BIS regularizations in LRM.

7.7.3 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.

Component	Description
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 Run 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 Run Framework which have Active status as "**Yes**" and Version "**0**".
Processes	Display all the existing processes defined through Process Framework which have Active status as "**Yes**" and Version "**0**".
Essbase Cubes	Display all the Essbase cubes defined for the selected Information Domain in OFSAAI Data Model Management. **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 windows.
Stress Testing	Display all the existing stress testing definitions defined in the *Variable Shock Library*, *Scenario Management*, and *Stress Definition* windows.
Data Quality	Displays all data quality groups defined from the OFSAAI Data quality Framework. The DQ Rule framework is registered with RRF. While passing additional parameters during RRF execution, the additional parameters are passed differently (when compared to DQGroup execution). For example, if the additional parameters to be passed are : $REGION_CODE#V#US;$CREATION_DATE#D#07/06/1983;$ACCOUNT_BAL#N#10000.50, then they are passed as: "REGION_CODE","V","US","CREATION_DATE","D","07/06/1983", "ACCOUNT_BAL","N","100 00.50". In case the user wants to input threshold percentage (for example,: 50%), then the parameter string passed is as follows: "50","REGION_CODE","V","US","CREATION_DATE","D","07/06/1983","ACCOUNT_BAL","N", "10000.50". In the absence of the threshold parameter, it is assumed to be 100%, by default.

The parameters needed to execute all the listed components are explained in References > Seeded Component Parameters section.

7.7.4 Hierarchical Member Selection Modes

To aid the selection process, certain standard modes are offered through a drop-down. The available modes are **Self**, **Self & Descendants**, **Self & Children**, **Parent**, **Siblings**, **Children**, **Descendants**, and **Last Descendants**.

Based on the hierarchy member security applied, the nodes/members of the hierarchy are displayed in enabled or disabled mode. The members which are in enabled mode only can be selected. That is,

the members which are mapped to your user group only can be selected. For example, if you choose Self & Children, the immediate children of the selected hierarchy, which are mapped to your user group only will be moved to the RHS pane.

- 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.

7.7.5 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.

7.7.6 Seeded Component Parameters in RRF

Following are the seeded component parameters available within OFSAAI.

7.7.6.1 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

7.7.6.2 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	
Operation (User Defined)	It is a drop-down list with the following optional values - "ALL", "BUILDDB", "TUNEDB", "PROCESSDB", "DLRU", "ROLLUP", "VALIDATE", "DELDB", "OPTSTORE"	ALL

7.7.6.3 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.	

7.7.6.4 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
Data File Name (User Defined)	Name of the source file. If not specified, the source name provided in the definition will be used.	

7.7.6.5 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	

7.7.6.6 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
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	

7.7.6.7 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	

7.7.6.8 Modeling Framework - Pooling (MFPoolling)

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	

7.7.6.9 Process

Process component does not have any seeded parameters and are the same defined in the Process window.

7.7.6.10 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	
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

Parameter Name / (Type)	Description	Default Value
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	

7.7.6.11 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	

7.7.6.12 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	
Wait (System Defined)	This determines if the executable is Synchronous (Y) / Asynchronous (N)	Y

Parameter Name / (Type)	Description	Default Value
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.	

7.7.6.13 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.	

7.7.6.14 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	

Parameter Name / (Type)	Description	Default Value
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, <<ParameterList>>,"$RUNID=123","$PHID=234","$EXEID=345","$RUNSK=456" otherwise it will be only "$RUNID=123","$PHID=234","$EXEID=345","$RUNSK=456"	

7.7.6.15 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, <<ParameterList>>,"$RUNID=123","$PHID=234","$EXEID=345","$RUNSK=456" otherwise it will be only "$RUNID=123","$PHID=234","$EXEID=345","$RUNSK=456"	

7.7.6.16 Data Quality Groups (Run DQ)

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	
Data Quality Group Name	Name of the DQ group to be executed.	
Parameters	Comma separated parameters where first value is considered as the threshold percentage, followed by additional parameter which is a combination of three tokens. Example, "90","PARAM1","D","VALUE1","PARAM2","V","VALUE2". **Note:** Parameter 'Fail if threshold is breached" is defaulted to "Yes" for RRF executions.	
Optional Parameter	You can pass Run Surrogate Key (RUNSK) as filter. For example, $RUNSK=456	

> **NOTE** If you want to configure components other than the seeded components, see Component Registration section in OFSAAI Administration Guide.

8 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.

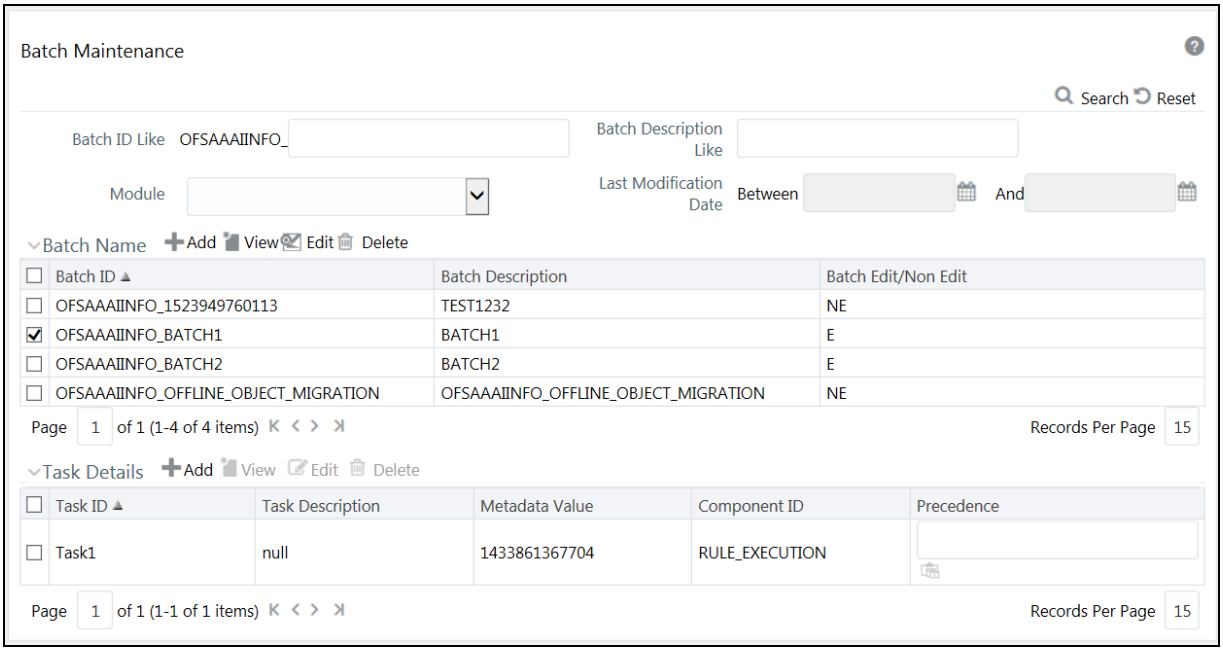
The roles mapped for Operations module are Batch Access, Batch Advanced, Batch Read Only, and Batch Write. For more details on roles and functions, see Appendix A.

The operation section discusses the following sections:

8.1 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 and applications such as Rules Run Framework and Enterprise Modeling respectively.

You should have Batch Write User Role mapped to your User Group to cancel a Batch. The *Batch Maintenance* window displays a list of Batches scheduled for maintenance with the other details such as Batch ID, Batch Description, and the editable state of the Batch.



In the *Batch Maintenance* window, 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 search for a specific Batch based on the Batch ID, Batch Description, Module, or Last Modified Date.

You can transfer batch ownership from one user to another user. For details, see Transferring Batch Ownership section in the OFSAAI Administration Guide.

8.1.1 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* window:

1. Click **+ Add** button from the Batch Name tool bar. The *Add Batch Definition* window 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.
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* window with the specified Batch ID.

   In the Batch Name tool bar of *Batch Maintenance* window, you can select the Batch ID and do the following:

   - Click **View** button and view the Batch Definition details.
   - Click **Edit** 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 **Delete** button to delete the Batch definition details.

8.1.2 Specify Task Details

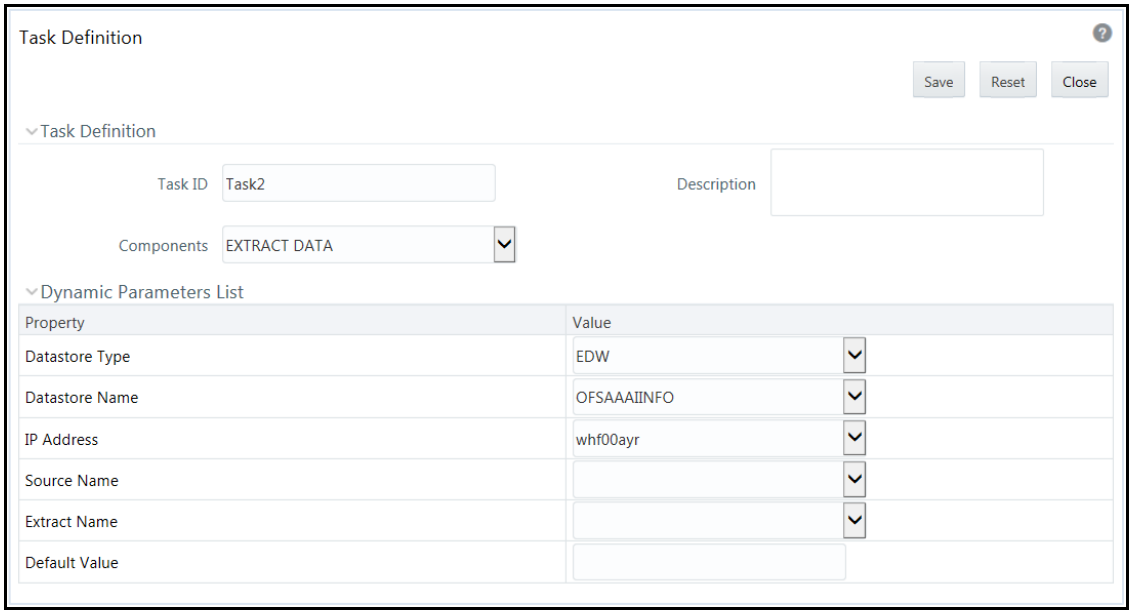
The Tasks Details section of *Batch Maintenance* window displays the list of tasks associated with a specific Batch definition. In the Task Details section you can do the following:

- 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.

8.1.2.1 Adding Task Details

To specify the task details in the *Batch Maintenance* window:

1. Click **Add** from the Task Details tool bar. The *Add Task Definition* window 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, see 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 CREATE CUBE EXTRACT DATA LOAD DATA MODEL PROCESS_EXECUTION RULE_EXECUTION RUN DQ RULE RUN EXECUTABLE SQL RULE TRANSFORM DATA VARIABLE SHOCK WORKFLOW EXECUTION
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. By default the Information Domain to which the selected Application is mapped, is selected. 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.
Primary IP For Runtime Processes	Refers to the IP Address of the primary machine for runtime processes. Select the IP address of the machine on which you want to execute the task, from the drop-down list.

3. Click **Save** to save the task definition details. The new task details are displayed in the Task Details of the *Batch Maintenance* window with the Task ID.

   In the Task Details tool bar of *Batch Maintenance* window you can select the Task ID and do the following:

   - Click **Add** button to add another Task.
   - Click **View** button and view the selected Task details.
   - Click **Edit** to modify the selected Task details.
   - Click **Delete** button to delete the selected Task details.

8.1.2.2 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* window:

1. Click button under the Precedence column of the task for which you want to add precedence task. The Task Precedence Mapping browser is displayed.

   NOTE Task Precedence option is disabled if a batch has only one task associated.

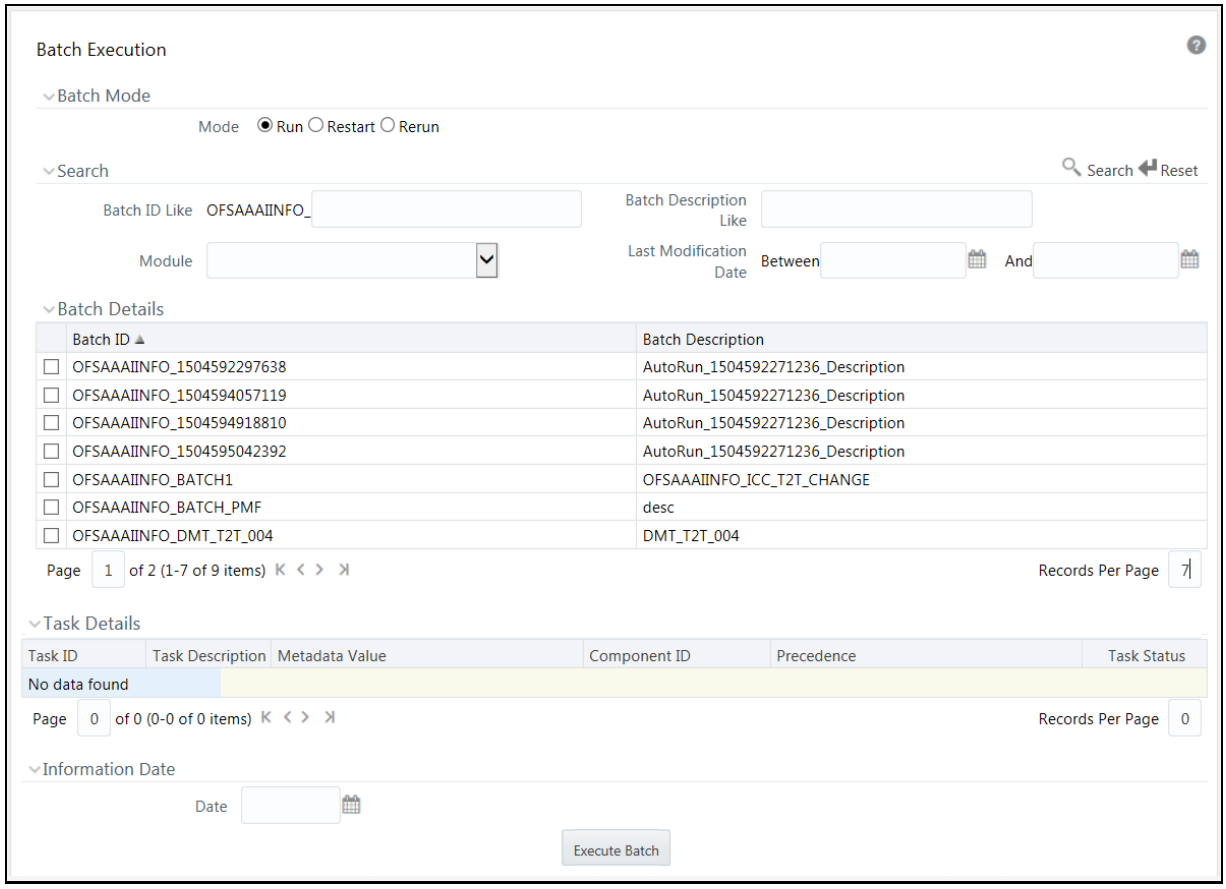
   - Select the required Task from the Task List and click ›. You can press **Ctrl** key for multiple selections.
   - To select all the listed Tasks, click ».
   - To remove a Task, select the task from Select Tasks pane and click ‹.
   - To remove all the selected Tasks, click «.

2. Click **OK** and update Task Precedence definition.

8.2 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 should have Batch Advanced User Role mapped to your User Group to execute a Batch.



The *Batch Execution* window 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* window 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 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.

8.2.1 Executing Batch

You can Run/Execute the Batches which are scheduled for execution in the *Batch Execution* window. You can also modify the pre-defined Batch schedule or define a new schedule using the Batch Scheduler. In the *Batch Execution* window you can execute a Batch in Run, Restart, or Rerun modes.

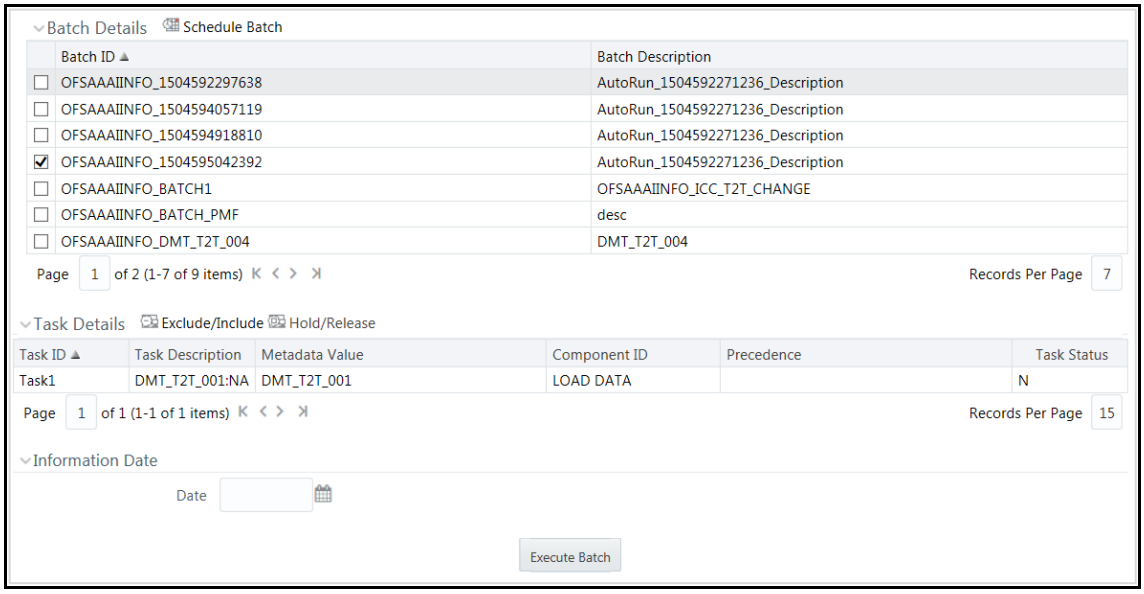
On completion of batch execution, if the batch fails, a notification mail is sent to all users mapped to the user group with the OPRMON role mapped to them.

8.2.1.1 Run/Execute Batch

You can Run/Execute Batch(s) which have been scheduled for execution in the *Batch Execution* window. 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, see External Scheduler Interface Component.

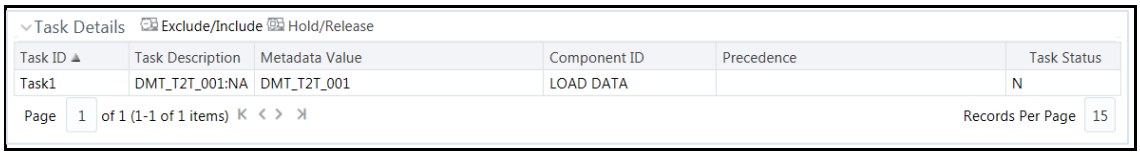
To execute a Batch in the *Batch Execution* window:

1. Select **Run** as **Mode** in the Batch Mode section. The list of Batches scheduled for 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.

   - In the Batch Details tool bar, click **Schedule Batch** button to define new or modify the pre-defined Batch Schedule. For more information, see Batch Scheduler.



- In the Task Details tool bar, click **Exclude/Include** button to Exclude/Include a task, or click **Hold/Release** button to hold or release a task before executing the Batch. For more information, see 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, see Specify Task Details.

4. Click **Execute Batch** button and select **OK** in the information dialog to confirm Batch Execution.

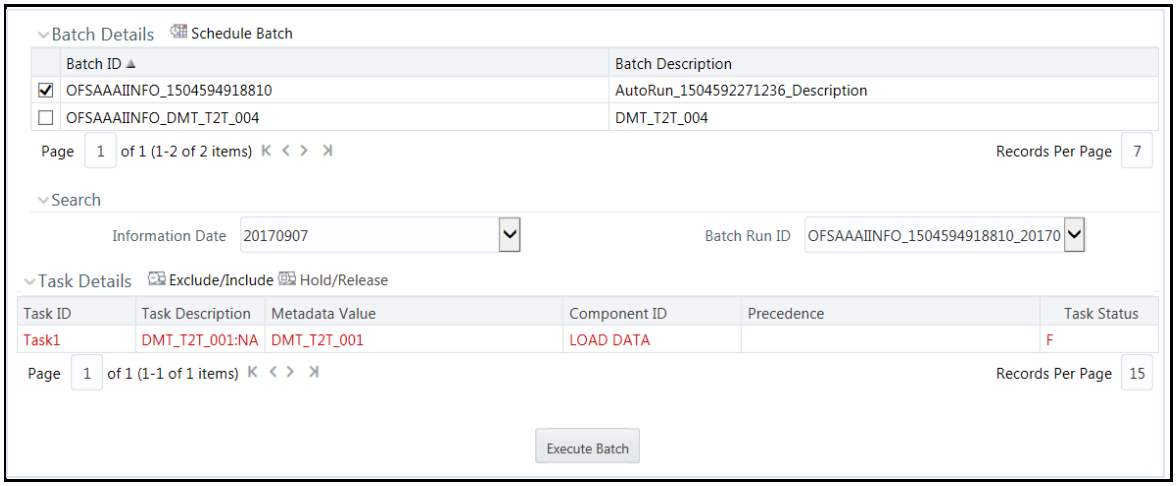
   An information dialog is displayed indicating that Batch Execution is triggered successfully.

8.2.1.2 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* window. 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* window:

1. Select **Restart** as **Mode** 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.

   - In the Batch Details tool bar, click **Schedule Batch** button to define new or modify the pre-defined Batch Schedule. For more information, see Batch Scheduler.

3. Select the **Information Date** from the drop-down list. This is a mandatory field.

4. Select the **Batch Run ID** (mandatory) from the drop-down list. This is a mandatory field.
   - In the Task Details tool bar, click **Exclude/Include** button to exclude or include a task, or click **Hold/Release** button to hold or release a task before executing the Batch. For more information, see 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 window 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.

8.2.1.3 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* window:

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.
   - In the Batch Details tool bar, click **Schedule Batch** button to define new or modify the pre-defined Batch Schedule. For more information, see Batch Scheduler.
3. Select the **Information Date** from the drop-down list. This is a mandatory field.
4. Select the **Batch Run ID** from the drop-down list. This is a mandatory field.
   - In the Task Details tool bar, click **Exclude/Include** button to exclude or include button a task, or click **Hold/Release** button to hold or release a task before executing the Batch. For more information, see 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, see 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.

8.2.2 Modifying Task Definitions of a Batch

You can modify the task definition state in the *Batch Execution* window 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* window, 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.

8.2.2.1 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* window:

1. Click **Exclude/Include** button in the Task Details tool bar.
2. In the *Task Mapping* window, 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* window.

   The Excluded Task(s) in the task details section are marked in "**Grey**" with the Task Status set to "**K**".

8.2.2.2 Include Excluded Task Definitions

To include an Excluded Task(s) in the in the *Batch Execution* window:

1. Click **Exclude/Include** button in the Task Details tool bar.
2. In the *Task Mapping* window, 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 exclude all tasks in the Set Tasks list, click «.

3. Click **OK** and return to the *Batch Execution* window.

8.2.2.3 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* window:

1. Click **Hold/Release** button in the Task Details tool bar.
2. In the *Task Mapping* window, 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* window.

   The Task(s) on Hold in the task details section are marked in "**Red**" with the Task Status set to "**H**".

8.2.2.4 Release Held Task Definitions

To Release Task(s) on Hold in the in the *Batch Execution* window:

1. Click **Hold/Release** button in the Task Details tool bar.
2. In the *Task Mapping* window, 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* window.

8.3 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.

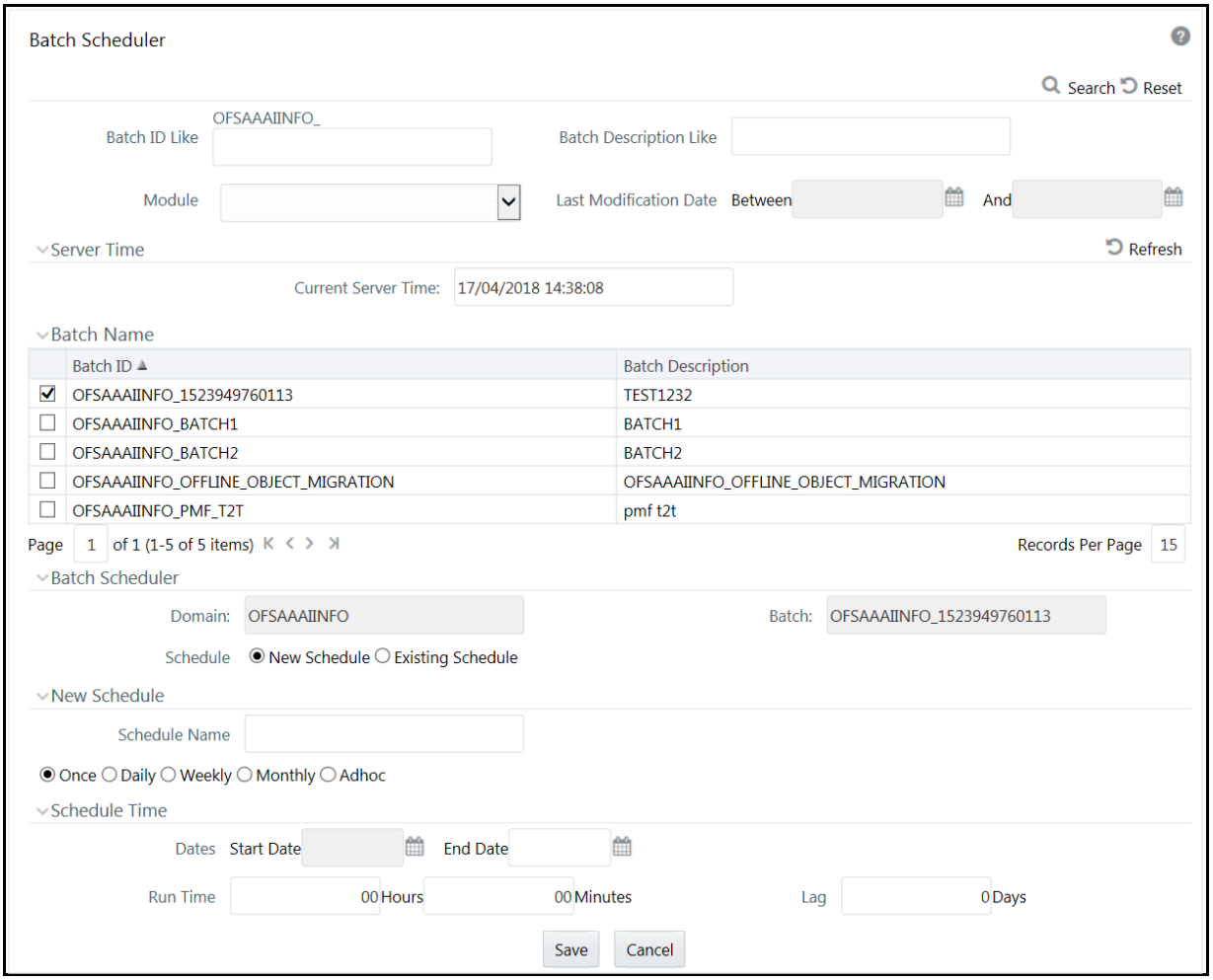
You should have Batch Advanced User Role mapped to your User Group to schedule a Batch. The *Batch Scheduler* window displays the list of Batches scheduled for execution with the other details such as Batch ID and Batch Description. When you select a Batch in the list, the Batch Scheduler options are displayed.

You can click **Refresh** button in the Server Time section to view the Current Sever Time while defining a Batch schedule. You can search for a specific Batch based on the Batch ID Like, Batch Description Like, Module, or Last Modified Date.

8.3.1 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.

> **NOTE** Any change made to the Server Time to accommodate for Daylight Savings Time will not be reflected automatically in the Batch Scheduler. All OFSAA services have to be restarted after the time has been changed in the server to reflect the change in time in the Batch Scheduler.



To create a schedule for Batch processing in the *Batch Scheduler* window:

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.
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.

Schedule Option	Schedule Task Details
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 Time tool bar.

4. Click **Save** to save the new Batch schedule details.

8.3.2 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* window:

1. Select the checkbox adjacent to the Batch ID whose details are to be updated. The various Batch schedule options are displayed.
2. In the Batch Scheduler section, select **Existing Schedule** as the **Schedule** type. The window is refreshed and displays the Existing Schedule options.
3. Select the Schedule name whose details you want to modify from the drop-down list.
4. Click ✎ button in the Existing Schedule toolbar. The details of the scheduled Batch are displayed in the Batch Scheduler pane.
5. Modify 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, see Creating 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* window:

- Click 📄 button to view details of the selected Batch schedule. ☰ and ▦ buttons are displayed.
- Click ☰ button to view **Task Logs**.
- Click ▦ button to view all the log details for the selected Batch.
- Click 🗑 button to delete the selected Batch schedule.
- Click ↺ button to reset the Batch scheduler details.

8.4 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 should have Batch Read Only User Role mapped to your User Group to monitor a Batch. The *Batch Monitor* window displays a list of Batches with the other details such as Batch ID and Batch Description.

You can 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.

8.4.1.1.1 Crash Handling of Backend Servers

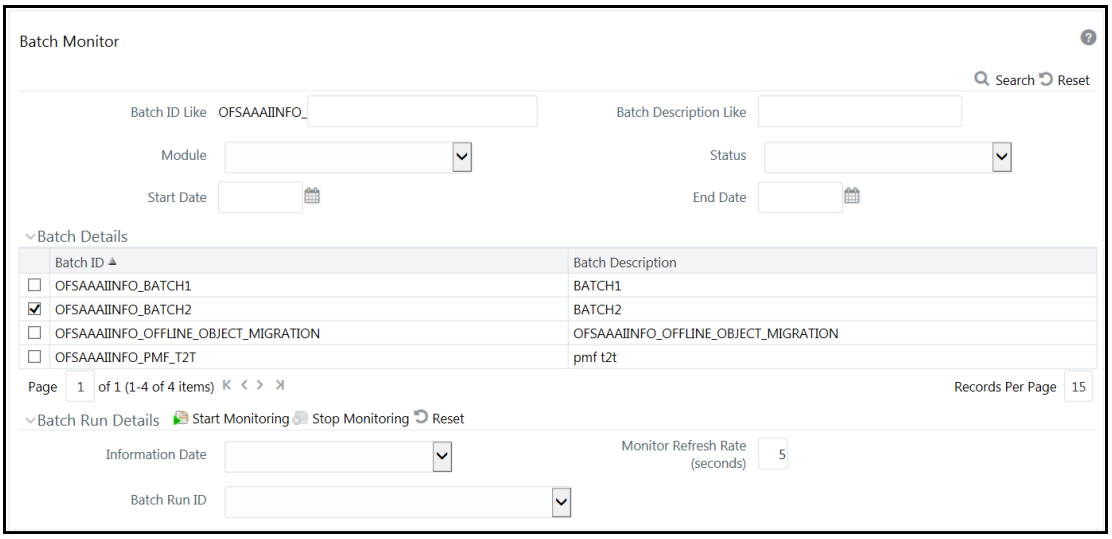
There are 3 different servers to execute a specific executable such as ICC, Router and Activation Manager (AM). Request from ICC goes to Router and get forwarded to Activation Manager (AM). Then AM executes the task and sends result back to Router which further gets forwarded to ICC.

If any of the server crashes while executing the batch and when recovery happens, the status is sent back to ICC server.

- **Router goes down**: When router goes down, the Task Status will become indeterminate and the Batch Status will become **Failed**.
- **AM goes down:** If AM goes down while executing a task, as soon as AM comes up, status of all tasks in the Batch will change to Indeterminate and the Batch Status will become **Failed**.
- **ICC goes down**: When ICC goes down, the status of the task will become interrupted and the Batch Status will become **Failed**.
  - ICC will mark all the task status as interrupted even though some of the tasks might have executed successfully.
  - You have to manually validate the data before you re-trigger the batch again.

8.4.2 Monitoring Batch

The Batch Details section in the *Batch Monitor* window lists all the Batches which are schedule or executed within the Infrastructure system.



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* window:

1. Select the checkbox adjacent to the Batch ID whose details are to be monitored.

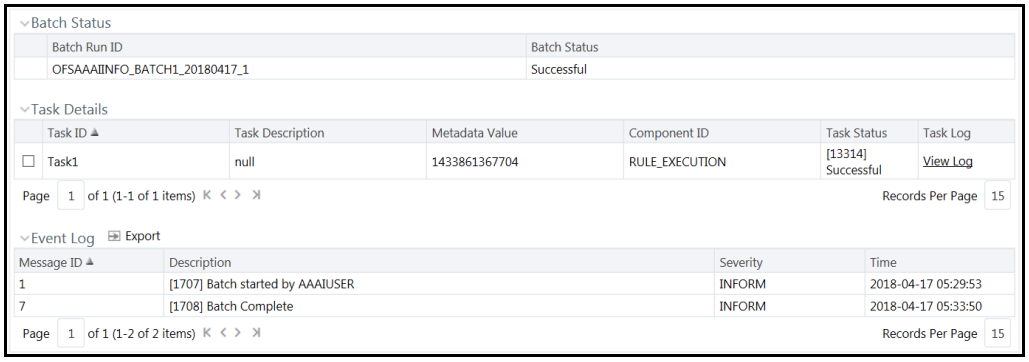
   You can also search for a specific Batch by using the Search option and filter the search results by selecting the required Status as Successful, Failed, Held, or Not Started in the drop-down list.

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 **Start Monitoring** button in the Batch Run Details tool bar.

   The state of the selected Batch is monitored and status is displayed in the following order:



- The **Batch Status** section displays the Batch Run ID with the Batch Status as Successful, Failed, Held, or Not Started.
  - Successful- Batch execution is successful.
  - Failed- Batch execution failed. A notification mail is sent to all users mapped to the user groups with the OPRMON role mapped to them. The mail will show the exact task status as Not Run, Excluded, Held, Interrupted, Indeterminate and Cancelled.
  - Held- Batch execution is put on hold.
  - Not Started- Batch execution has not started.
- The **Task Details** section displays the executed task details such as Task ID, Task Description, Metadata Value, Component ID, Task Status and Task Log. Click **View Log** link to view the *View Logger* window. 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.

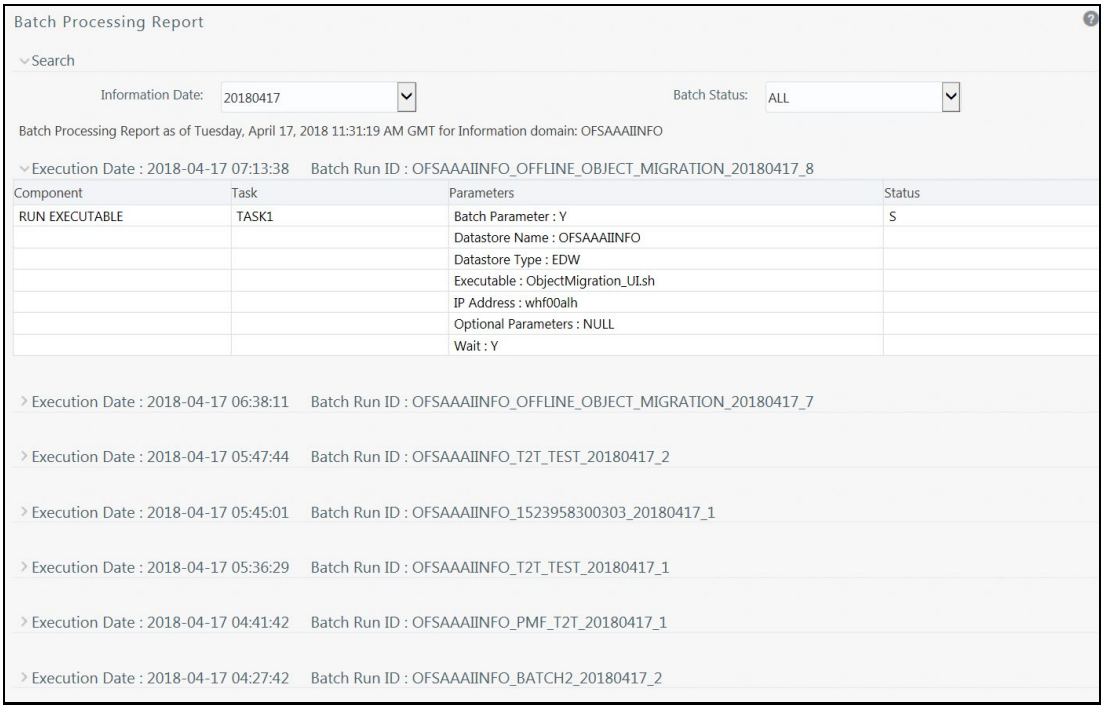
- The **Event Log** section displays the list of errors and events of the Batch being executed. The events are displayed in the ascending order with the latest event being displayed at the top. The Event log consists of:
  - Message ID, which is auto generated.
  - Description, which has the error details.
  - 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 **Export** button to export the event log details to Microsoft Excel file for reference.

8.5 Processing Report

Batch Processing Report in the Infrastructure system facilitates you to view the execution status of each task component defined in a Batch. The *Batch Processing Report* window displays the Batch execution details such as Component, Task, Parameters, and Status. By default, the details of the Latest Batch Run are displayed.

You should have Batch Read Only User Role mapped to your User Group to cancel a Batch.



To view the status of the required Batch, in the *Batch Processing Report* window:

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 window is refreshed and displays the status of each executed component of the selected Batch with the Task ID, defined Parameters, and the Status.

   See the following table to know the available Status Codes of the task and their description.

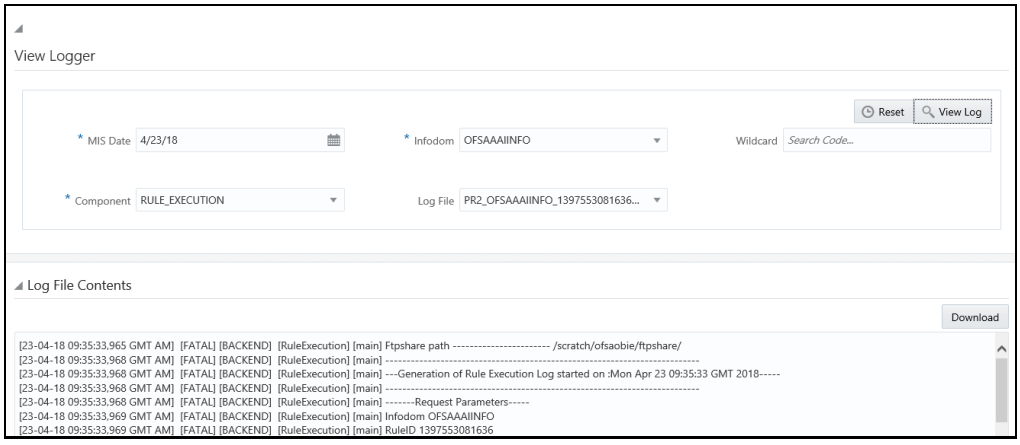
Status Code	Description
N	Not Run - Task has not been executed.
F	Failed- Task execution failed due to some error.
S	Success- Task has been successfully executed.
O	Ongoing - Task is being executed.

Status Code	Description
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 since ICC server was down.
Q	Task Cancelled - Task has been manually cancelled during execution.
D	Indeterminate – When Router or AM server goes down and is up again during task execution, the task status becomes Indeterminate.

8.6 Execution View Log

The Execution View Log feature allows to view, on the *View Logger* window, the log files generated in a batch execution.

1. Login to OFSAA.
2. Click  from the header to display the applications in a Tiles menu.
3. Select the **Financial Services Enterprise Modeling** application from the Tiles menu. The Navigation list to the left is displayed.
4. Click **Common Tasks** to expand the list.
5. Click **Operations** to expand the list further.
6. Click **Execution View** Log to display the *View Logger* window.



7. Enter the details on the window as instructed in the following:
   a. **MIS Date** (mandatory): Click and select the Management Information System date for the log from the Date Editor.
   b. **Infodom** (mandatory): Select the required Infodom from the drop-down list.
   c. **Wildcard** (optional): Enter any wildcard value to filter the search.

d. **Component** (mandatory): Select the required component from the drop-down list.

e. **Log File**: Select the required log file from the drop-down list.

8. Click **View Log** to run the log details in the Log File Contents pane. Click **Download** and download the log file if required. Click **Reset** to remove the selected data on the window.

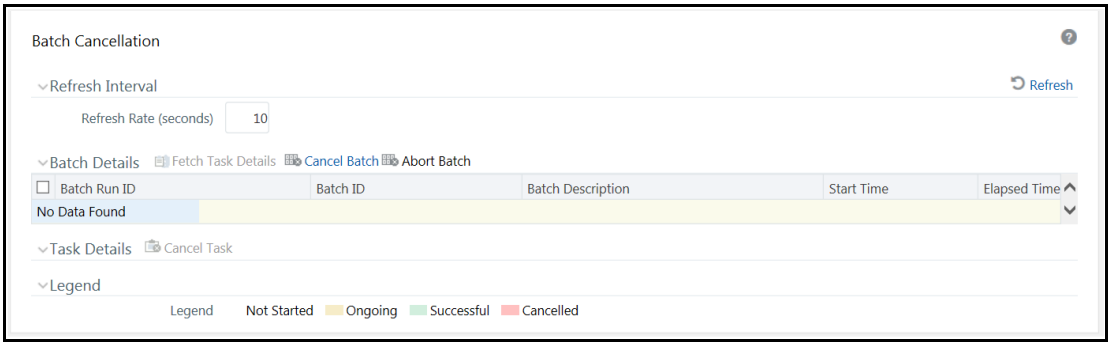
8.7 Batch Cancellation

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 should have Batch Advanced User Role mapped to your User Group to cancel a Batch. The *Batch Cancellation* window 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* window, 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 **Refresh** button to refresh the window and fetch the current status of Batches being executed.

- wIn 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

8.7.1 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* window:

1. Select the checkbox adjacent to the Batch Run ID which has to be cancelled.
2. Click **Cancel Batch** 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* window.

8.7.1.1 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 **Fetch Task Details** in the Batch Details tool bar. The defined Task(s) are displayed in the Task Details section.
3. Click **Cancel Task** in the Task Details tool bar.

> **NOTE** The **Cancel Task** button will be 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**.

8.7.2 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* window:

1. Select the checkbox adjacent to the Batch Run ID which has to be aborted.
2. Click **Abort Batch** 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.

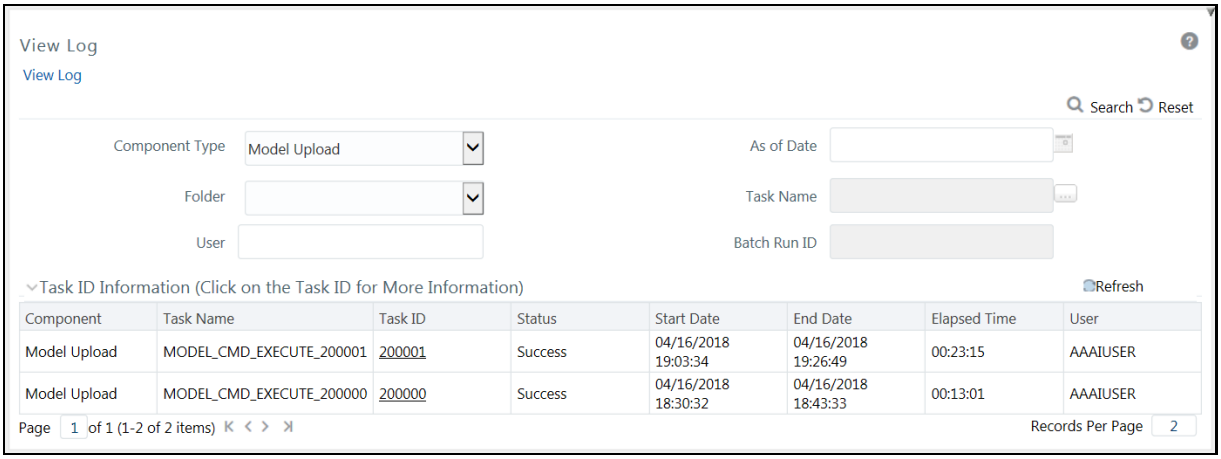
The Tasks associated with the cancelled Batch are also cancelled including the ongoing Tasks. The cancelled Batch can be viewed in Restart and Rerun Batch list within the *Batch Execution* window.

8.8 View Log

View Log in the Infrastructure system facilitates you to view the execution status of each task component defined in a Batch.

> **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.

You should have Batch Read Only User Role mapped to your User Group to cancel a Batch.



The *View Log* window 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.

8.8.1 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. **Note**: No Log records are displayed for some component types such as SQL Rules. This is a limitation.
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	This field is not applicable for some component types. Click button, the *Task Name Browser* window 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	This field is not applicable for some component types. Enter the user details.
Batch Run ID	This field is not applicable for some component types. Enter the Batch Run ID which has a unique ID (timestamp) and a short description for identification.

2. Click **Search**. The Task ID Information section displays the search results based on the specified parameters.

   You can click **Reset** to reset the search fields.

3. In the Task ID Information section, click the Task ID of the required component. The *View Log Details* window is displayed with additional information.

> **NOTE** There are differences in time stamp between View Log and FSI_MESSAGE_LOG.

8.9 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.

8.9.1 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.

> **NOTE** The FIRERUN Component in ICC is not supported.

8.9.1.1 Component: AGGREGATE DATA

Property	Description
Cube Parameter	Refers to the cube identifier as defined through the Business Metadata (Cube) menu option. Select the cube code from the drop-down list.
Operation	Select the operation to be performed from the drop-down list. 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".

8.9.1.2 Component: CREATE CUBE

Field	Description
Cube Parameter	Refers to the cube identifier as defined through the Business Metadata (Cube) menu option. Select the cube code from the drop-down list.
Operation	Refers to the operation to be performed. Select the required Operation from the drop-down list. The options are: • **ALL** – This option will execute BUILDDB and DLRU. • **BUILDDB** – 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 BUILDDB 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.

8.9.1.3 Component: EXTRACT DATA

Field	Description
Source Name	Select the source from which the extract you want to execute is derived, from the drop-down list. Sources defined from the *Source Designer* window of Data Management Tools are displayed in the drop-down list.
Extract Name	Select the required extract name from the drop-down list. The list displays the Data Mapping definitions (T2F and H2F) defined on the selected source, from the *Data Mapping* window.
Default Value	

8.9.1.4 Component: LOAD DATA

Field	Description
Load Mode	Select the load mode from the drop-down list. The options are **Table to Table** and **File to Table**. **Table to Table** should be selected for Data Mapping definitions such as T2T, T2H, H2T, H2H and L2H definitions. **File to Table** should be selected for Data Mapping definitions such as F2T and F2H definitions.
Source Name	Select the required source on which the Data Mapping or Data File Mapping definition you want to execute is defined, from the drop-down list. Based on the selection of Load Mode, the list displays the corresponding sources.
File Name	Select the Data Mapping or Data File Mapping definition you want to execute, from the drop-down list. Based on the selected **Load Mode** and **Source Name,** the list displays the corresponding definitions.
Data File Name	The data filename refers to the .dat file that exists in the database. Specifying Data File Name is mandatory for **Load Mode** selected as **File to Table** and optional for **Load Mode** selected as **File to Table**. If the file name or the .dat file name is incorrect, the task fails during execution. In case of L2H, you can specify the WebLog name.
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:

Field	Description
	• 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. • BATCHRUNID- Data type is String and can be mapped to VARCHAR2 **Note**: RUNID, PHID, EXEID, RUNSK, MISDATE and BATCHRUNID are implicitly passed through RRF. Rest must be explicitly passed. • EXEC_ENV_SOURCE- This parameter is used to replace an External Data source or Infodom based Data Source of the T2T, T2H, H2T or H2H definition during run time, provided the structure of the source in the mapping definition is same as that of the replacing source. Hence you can convert a T2T definition into H2T or T2H into H2H and so on. If the resultant definition is T2T, then T2Texecution using CPP engine is not supported. For external Data Source, prefix it with 'EXT.' and for Infodom based sources, prefix it with 'INF.'. For example, [EXEC_ENV_SOURCE]=EXT.<newSourceName> or [EXEC_ENV_SOURCE]=INF.<newSourceName> Additionally, Cluster properties of the current logged-in Infodom will be considered for the execution of the Data Mapping definition. • EXEC_ENV_SOURCE_OWNER_INFODOM –This parameter is used to specify the Infodom where the Data Source being replaced (<newSourceName>) was created, in case that Infodom is different from the current Infodom where the batch is executed. If this is not provided, it will look for the Data Source in the current Infodom and may result in failed execution. • EXEC_ENV_TARGET- This parameter is used to replace the target Infodom of the T2T, T2H, H2T or H2H definition during run time, provided the structure of the target in the mapping definition is same as that of the replacing target. Hence you can convert a T2T definition into T2H or H2T into H2H and so on. But if the resultant definition is T2T, then T2Texecution using CPP engine is not supported. For example, [EXEC_ENV_TARGET]=newTargetName Also, DMT Configurations and Cluster properties of the new target Infodom will be considered for the execution of the Data Mapping definition. **Note:** You can use both EXEC_ENV_SOURCE and EXEC_ENV_TARGET together as well. Only limitation is, if the resultant definition is T2T, execution using CPP engine is not supported. **Note**: If you are converting a mapping definition to T2H using EXEC_ENV_SOURCE/EXEC_ENV_TARGET, there is no provision in UI to specify the Split By Column/Generic Options. In such scenarios, execution via Sqoop may fail, when the split by column is defaulted to a string/date column. • EXECUTION_ENGINE_MODE- This parameter is used to execute H2H on Spark. For example, [EXECUTION_ENGINE_MODE]=SPARK

Field	Description
	• CLOSE_SPARK_SESSION- This parameter is used to close the Spark session after executing the last H2H-Spark task in the batch. In a batch execution, a new Spark session is created when the first H2H-Spark task is encountered, and the same Spark session is reused for the rest of the H2H-Spark tasks in the same run. For the Spark session to close at the end of the run, user needs to set the CLOSE_SPARK_SESSION to YES in the last H2H-spark task in the batch. For example, [CLOSE_SPARK_SESSION]=YES • SRCHINT- This parameter is used to provide Source Hints. For example, [SRCHINT]= FIRST_ROWS(2) Note that the value should not contain /*+ */. Only the content should be given. • SRCPRESCRIPT- This parameter is used to provide Source Prescript. **Note**: ALTER keyword is not supported. • TARGETHINT- This parameter is used to provide Target Hints. For example, [TARGETHINT]= FIRST_ROWS(2) Note that the value should not contain /*+ */. Only the content should be given. • TARGETPRESCRIPT- This parameter is used to provide Target Prescript. **Note**: ALTER keyword is not supported. Apart from these, L2H/H2H/T2H/H2T/F2H data mappings also support following additional default parameters. Values for these are implicitly passed from ICC/RRF. • $MISDT_YYYY-MM-DD - Data type is String and can be mapped to VARCHAR2. Value will be the MISDATE in 'yyyy-MM-dd' format. • $MISYEAR_YYYY - Data type is String and can be mapped to VARCHAR2. Value will be the year value in 'yyyy' format from MISDATE. • $MISMONTH_MM - Data type is String and can be mapped to VARCHAR2. Value will be the month value in 'MM' format from MISDATE. • $MISDAY_DD - Data type is String and can be mapped to VARCHAR2. Value will be the date value in 'dd' format from MISDATE. • $SYSDT_YYYY-MM-DD- Data type is String and can be mapped to VARCHAR2. Value will be the System date in 'yyyy-MM-dd' format. • $SYSHOUR_HH24 - Data type is String and can be mapped to VARCHAR2. Value will be the hour value in 'HH24' format from System date. **Note**: The aforementioned parameters are not supported for T2T and F2T. • 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. • 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

Field	Description
	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. Two additional parameters are now supported for L2H mappings: • [INCREMENTALLOAD] – Specify the value as TRUE/FALSE. If set to TRUE, historically loaded data files will not be loaded again (load history is checked against the definition name, source name, target infodom, target table name and the file name combination). If set to FALSE, the execution is similar to a snapshot load, and everything from the source folder/file will be loaded irrespective of load history. • [FOLDERNAME] – Value provided will be used to pick up the data folder to be loaded. ▪ For HDFS based Weblog source: Value will be suffixed to HDFS File Path specified during the source creation. ▪ For Local File System based Weblog source: By default the system will look for execution date folder (MISDATE: yyyymmdd) under STAGE/<source name>. If the user has specified the FOLDERNAME for this source, system will ignore the MISDATE folder and look for the directory provided as [FOLDERNAME].

8.9.1.5 Component: MODEL

Field	Description
Rule Name	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.
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.

8.9.1.6 Component: PROCESS_EXECUTION

This component will combine all the rules to create single or multiple merge queries. Only rules defined on the same dataset can be merged. For creation of queries the current order of the rules

inside the process or sub-process will be taken into consideration. Following validations are performed to determine single or multiple DMLs for merging Rules that is, validation on subsequent rules.

- For classification-classification or classification-computation rule combination, the target column of the prior classification rule must not be used in any of the subsequent rules as source hierarchies in the executable process or sub-process. Also the same target hierarchy must not be used as a target in the subsequent rule.
- For computation-computation rule combination, the target measures of the prior computation rule must not be used in any of the subsequent computation rules in the executable process or sub-process.

All the merge queries created after satisfying all the conditions will be executed in a single transaction.

NOTE

- RRF framework cannot validate the semantic correctness of the rules grouped for merge. It is left to the application developer/user to make a conscious choice.
- If the merge results in an ill-formed or runaway SQL, the framework will not be able to detect it at design time. This is again left to application developer/user to design the grouping that is syntactically valid.

Field	Description
Process Code	Display the codes of the RRF Processes defined under the selected Infodom. Select the required Process from the drop-down list.
Sub Process Code	Display the codes of the Sub Processes available under the selected Process. Select the required Sub Process from the drop-down list.
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.

8.9.1.7 Component: RULE_EXECUTION

Field	Description
Rule Code	Display the codes of the RRF Rules defined under the selected Infodom.
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.

8.9.1.8 Component: RUN DQ RULE

Property	Description
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%.
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.
Parameters	Comma separated parameters where first value is considered as the threshold percentage, followed by additional parameters which are a combination of three tokens. Example, "90","PARAM1","D","VALUE1","PARAM2","V","VALUE2". **Note**: Parameter 'Fail if threshold is breached" is defaulted to "Yes" for RRF executions.

Property	Description
Optional Parameter	For DQ Rule execution on Spark, specify EXECUTION_VENUE=Spark in this field. Note that, you should have registered a cluster from DMT *Configurations* > *Register Cluster* window with the following details: • **Name**- Enter name of the Hive information domain. • **Description**- Enter a description for the cluster. • **Livy Service URL**- Enter the Livy Service URL used to connect to Spark from OFSAA.

8.9.1.9 Component: RUN EXECUTABLE

Field	Description
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. To pass parameters like $RUNID, $PHID, $EXEID, $RUNSK to the RUN EXECUTABLE component, specify RRFOPT=Y or rrfopt=y along with other executable details.
Wait	When the file is being executed you have the choice to either wait till the execution is completed or proceed with the next task. Select **Y** (Yes) or **N** (No) from the drop-down list. • **Y-** Select this if you want to wait for the execution to be completed • **N**- Select this if you wish to proceed. If the task is using FICGEN/RUN EXECUTABLE component and there is no precedence set for this task, then the **WAIT** should always be set to **'N'**.

Batch Parameter	**Y**- Select **Yes** if you want to pass the Batch parameters to the shell script file being executed.
	• If **Wait** is selected as **Y** and **Batch Parameter** is selected as **Y**, following parameters are passed to the executable:
	`NIL <BatchExeRunID> <ComponentId> <Task> <Infodate> <Infodom> <DatstoreType> <IPAddress>`
	• If **Wait** is selected as **N** and **Batch Parameter** is selected as **Y**, following parameters are passed to the executable:
	`<BatchExeRunID> <ComponentId> <Task> <Infodate> <Infodom> <DatstoreType> <IPAddress>`
	N- Select **No** if the Batch parameters should not be passed to the shell script.

Field	Description
Optional Parameters	This field will be considered only if you have specified RRFOPT=Y or rrfopt=y in the **Executable** field. Specify the optional parameters that you want to pass to the executable. For example, $RUNID, $PHID, $EXEID, $RUNSK.

8.9.1.10 Component: SQLRULE

Field	Description
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.
SQL Rule Name	Refers to the defined SQL rule. Click the drop-down list in the Value column to select the SQL Rule.

8.9.1.11 Component: TRANSFORM DATA

Field	Description
Rule Name	Refers to the Data transformation name that was defined in the *Post Load Changes* window 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 (' '). **Note**: Commas are used as delimiters for parameter values internally by the ICC Batch component. Ensure that commas are not used in any of the parameter values, that is, "a, b, c" should not be a parameter value in the list of parameter values being passed to the TRANSFORM DATA task. For example, if the parameter values to this task are required to be passed as (val1, val2, (a, b, c), val4), the correct way would be to pass these values as (val1, val2, (a*b*c), val4). You can use any other character as a separator.

8.9.1.12 Component: VARIABLE SHOCK

Field	Description
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**.

Field	Description
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.

8.9.1.13 Component: Workflow Execution

Field	Description
Object ID	Enter an object ID of your choice. This ID will appear as Entity ID in the *Process Monitor* window.
Workflow	Select the workflow you want to execute from the drop-down list. It displays all the workflows defined in the *Process Modeller* window.
Optional Parameters	Enter the value you want to pass to the Dynamic Parameters of the Run Task during the execution of the workflow.

9 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.

9.1 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.

> **NOTE** To view the Meta data in the new metadata browser, we have to publish the metadata first. Publishing the metadata should be done through Command Line Utility to Publish Metadata.

9.1.1 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

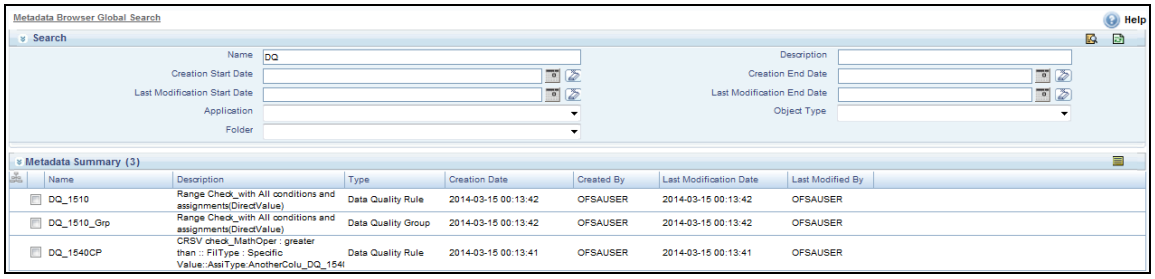
9.1.2 Searching Metadata

9.1.2.1 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.



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.
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.

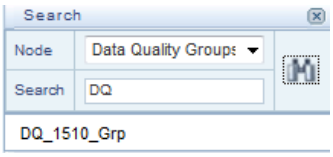
3. Click . The search results are displayed in the Metadata Summary grid.
4. Select an object and click to view the metadata details of the selected object. The details are displayed below the Metadata Summary grid.

> **NOTE** You can sort the columns in ascending or descending order by right-clicking the column heading and selecting **Sort Ascending** or **Sort Descending**.

9.1.2.2 Simple Search

You can quickly search for an object based on the object type and object name.

1. Click in the Object tab. The Search pane is displayed.



2. Select the metadata object type from the **Node** drop-down list.
3. Enter the name of the metadata object in the **Search** field.
4. Click to display the search results.
5. Click the metadata object link to view the details.

9.1.3 Exporting Metadata Details

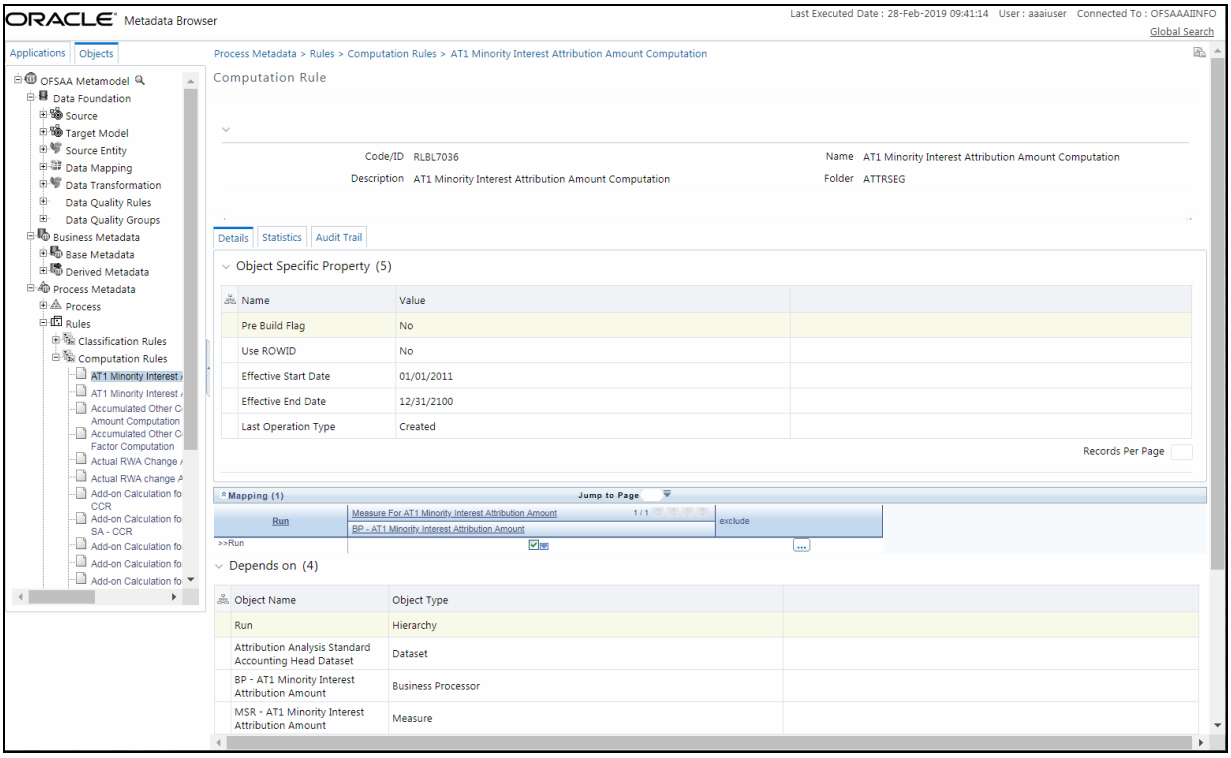
You can export metadata details to a PDF file. To export metadata details of a particular object, select the object from the Object tab and click on the top right corner. You will be prompted whether to open or save the file.

Limitation:

The Export to PDF option is not available for Variables, Variable Shocks, Scenarios, and Stress Definitions.

9.1.4 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 Data Mapping, Data File Mapping, 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.

9.1.5 Data Foundation Metadata

In Data Foundation, there are various metadata like Target Model, Source, Source Entity, Data Mapping, Data File Mapping, Data Transformation, Data Quality Rules, and Data Quality Groups.

9.1.5.1 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, Data Mapping, Data File Mapping and so on. Click the object link to drill down for more details.
Applications	Displays the applications in which the entity is used.

9.1.5.2 Source Metadata

From the Metadata Browser Object tab, expand **Data Foundation**> **Source** and click the required object.

The Source specific details are explained in the following table:

Field	Description
Source Properties	Displays the properties of the source such as Type, JDBC URL, Schema name, RAC status, Date Format and Database name.
Depends on	NA
Used In	Displays the objects and object types in which the Source is used. A source can be used in a Source Entity, Data Mapping, Data File Mapping, and Data Quality Rule. Click the object link to drill down for more details.
Applications	Displays the applications in which the Source is used.

9.1.5.3 Source Entity Metadata

From the Metadata Browser Object tab, expand **Data Foundation**> **Source Entity** and click the required object.

The Source Entity specific details are explained in the following table:

Field	Description
Properties	Displays the properties of the Source Entity such as Short Description and Long Description.
Source	Displays the name of the Database Source to which it belongs.

Field	Description
Attribute Details	Displays the attribute details of the Source Entity.
Depends on	Displays the name of the Database Source to which it belongs.
Used in	NA
Applications	Displays the applications in which the Source Entity is used.

9.1.5.4 Data Mapping Metadata

From the Metadata Browser Object tab, expand **Data Foundation** and then expand **Data Mapping** for T2T and T2F definitions. Click the required Data Mapping definition.

> **NOTE** If the properties of T2T/ T2F 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 or T2F).
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 Conditions and Filters	Displays the ANSI Join, Joins, and Filters that have been used in creating the Data Mapping definition.
Mapping Details	Displays the source table, source column, target table, target column and the User Defined Properties (UDPs) in case of T2T definition. • You can select the UDPs which need to be displayed in the Mapping Details table. ▪ Click  and select the checkboxes corresponding to the UDPs you want to choose. • Click  . Only the selected UDPs will be displayed. ▪ You can export the Data Mapping details along with the UDPs to Excel by clicking  button. Note that all UDPs will be exported.
Depends on	Displays the object and its type that is used in creating the Data Mapping definition. The objects can be Entity, Columns, Data Source, Source Entity, and so on. For Data Mapping definition with associated DQ rules, it displays the DQ Rules also under this grid. Click the object link to drill down for more details.

Field	Description
Used In	Displays the object name and object type in which the Data Mapping definition is used. It can be used in Run or Process. For Data Mapping definition with associated DQ rules, it displays the DQ Rules also under this grid. Click the object link to drill down for more details.
Applications	Displays the applications in which the Data Mapping definition is used.

9.1.5.5 Data File Mapping Metadata

From the Metadata Browser Object tab, expand **Data Foundation** and then expand **Data File Mapping**. Click the required Data File Mapping definition.

> **NOTE** If the properties of Data File Mapping definition have null values, then it will not be displayed in Metadata Browser.

The Data File Mapping specific details are explained in the following table:

Field	Description
Definition Details	Displays the Application Name and the Definition Load Type (F2T).
Properties	Displays various parameters and their value such as Data File, Edit Reload, Basis of Check Sum, Data File RevLocale, Information Date, and so on.
Join Conditions and Filters	Displays the ANSI Join, Joins, and Filters that have been used in creating the T2T/ T2F/ F2T definition.
Mapping Details	Displays the source table, source column, target table, target column and the User Defined Properties (UDPs). • You can select the UDPs which need to be displayed in the Mapping Details table. ▪ Click  and select the checkboxes corresponding to the UDPs you want to choose. ▪ Click  . Only the selected UDPs will be displayed. • You can export the Data File Mapping details along with the UDPs to Excel by clicking  button. Note that all UDPs will be exported.
Depends on	Displays the entity/ table and the columns that are used in creating the Data File Mapping definition. Click the entity or column link to drill down for more details.
Used In	Displays the object name and object type in which the Data File Mapping definition is used. It can be used in a Run or Process. Click the object link to drill down for more details.

Field	Description
Applications	Displays the applications in which the Data File Mapping definition is used.

9.1.5.6 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.

9.1.5.7 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.

Field	Description
Used In	Displays the data quality group in which the data quality rule is used. If the DQ rule is used in a Data Mapping definition, it displays the Data Mapping object under this grid. Click the object link to drill down for more details.
Applications	Displays the applications in which the data quality rule is used.

9.1.5.8 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.

9.1.6 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, Techniques, Variable Shocks, Scenarios, and Stress Definitions. The Derived metadata comprises of metadata like Dimensions, Business Processor, Derived Entities, Filters, Expressions, Catalogs, and Cubes.

9.1.6.1 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.

Field	Description
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.

9.1.6.2 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.

9.1.6.3 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.

9.1.6.4 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.

9.1.6.5 Variables Metadata

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.

9.1.6.6 Techniques Metadata

From the Metadata Browser Object tab, expand **Business Metadata**> **Base Metadata** and **Techniques**. Then click the required technique to view its metadata.

NOTE NAG techniques will not be displayed.

The Technique specific details are explained in the following table:

Field	Description
Technique Properties	Displays the Technique Class, and Based On (for Script based techniques and External Library based techniques). Additional properties like Provider Name and External Library Name are displayed for External Library based techniques.
Technique Inputs	This is displayed only for techniques based on Script. Displays the name and the type of Input Parameters used in the technique. The parameter types can be a variable or single value parameter.
Algorithm Details	This is displayed only for techniques based on External Library. Displays the Function Name, Return Type and Function Definition.
Technique Outputs	Displays the name of the configured outputs.
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.

9.1.6.7 Variable Shocks

From the Metadata Browser Object tab, expand **Business Metadata**> **Base Metadata** and **Variable Shocks**. Then click the required variable shock to view its metadata.

The Variable Shock specific details are explained in the following table:

Field	Description
Variable Shock Properties	Displays the Shock Type, Shock in Reference to, Shock Unit and Shock Curve.
Depends on	Displays the object and its type which are used in creating the variable shock. The objects can be Variable and Dataset. Click the object link to drill down for more details.
Used In	Displays the Scenario in which the variable shock is used. Click the object link to drill down for more details.
Applications	Displays the applications in which the variable shock is used.

9.1.6.8 Scenarios

From the Metadata Browser Object tab, expand **Business Metadata**> **Base Metadata** and **Scenarios**. Then click the required scenario to view its metadata.

The Scenario specific details are explained in the following table:

Field	Description
Depends on	Displays the Variable Shock used in creating the scenario. Click the object link to drill down for more details.
Used In	Displays the Stress Testing objects in which the scenario is used. Click the object link to drill down for more details.
Applications	Displays the applications in which the scenario is used.

9.1.6.9 Stress Definitions

From the Metadata Browser Object tab, expand **Business Metadata**> **Base Metadata** and **Stress Definitions**. Then click the required stress definition to view its metadata.

The Stress Definition specific details are explained in the following table:

Field	Description
Stress Testing Properties	Displays the Segment in which the stress definition object is defined.
Depends on	Displays the Scenario used in creating the stress definition. Click the object link to drill down for more details.
Used In	Displays the Models in which the stress definition is used. Click the object link to drill down for more details.
Applications	Displays the applications in which the stress definition is used.

9.1.6.10 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.

Field	Description
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.

9.1.6.11 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.

9.1.6.12 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.

Field	Description
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.

9.1.7 Process Metadata

The Process Metadata is classified into Process, Rules, and Models. The Rules metadata is again classified into Classification Rules and Computation Rules.

9.1.7.1 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.

9.1.7.2 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.

9.1.7.3 Models Metadata

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 not be displayed for models based on NAG techniques and R script.
Model Inputs	Displays the configured script variables and the selected variables.
Output Structures	Displays the Output Structure of the R based models (script based or R technique based).
Input/ Output Parameters	This grid is displayed only for NAG technique based models. Displays the input and output parameters defined for the NAG technique based models.
Model Parameters	This grid is displayed only for models based on External Library techniques. Displays the Configured Script Parameters and the Parameter values.

Field	Description
Script	Displays the script of the model for R based models (script based or R technique based).
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 models based on R techniques or External Library based techniques. 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.

10 Questionnaire

Questionnaire is an assessment tool, which presents a set of questions to users, and collects the answers for analysis and conclusion. It can be interfaced or plugged into OFSAA application packs. For example, Enterprise Modeling Framework (EMF) application pack. It is role and permission based, and you can create a library of questions and use the library to create a questionnaire.

> **NOTE** In the examples mentioned in this topic, we have assumed that the *Questionnaire* window is configured to appear in the **Application Builder Component** in **Common Tasks**.

The topics discussed in this guide are specific to end-users. However, if you are looking for information on configuring Questionnaire, see the Oracle Financial Services Analytical Applications Infrastructure Administration User Guide.

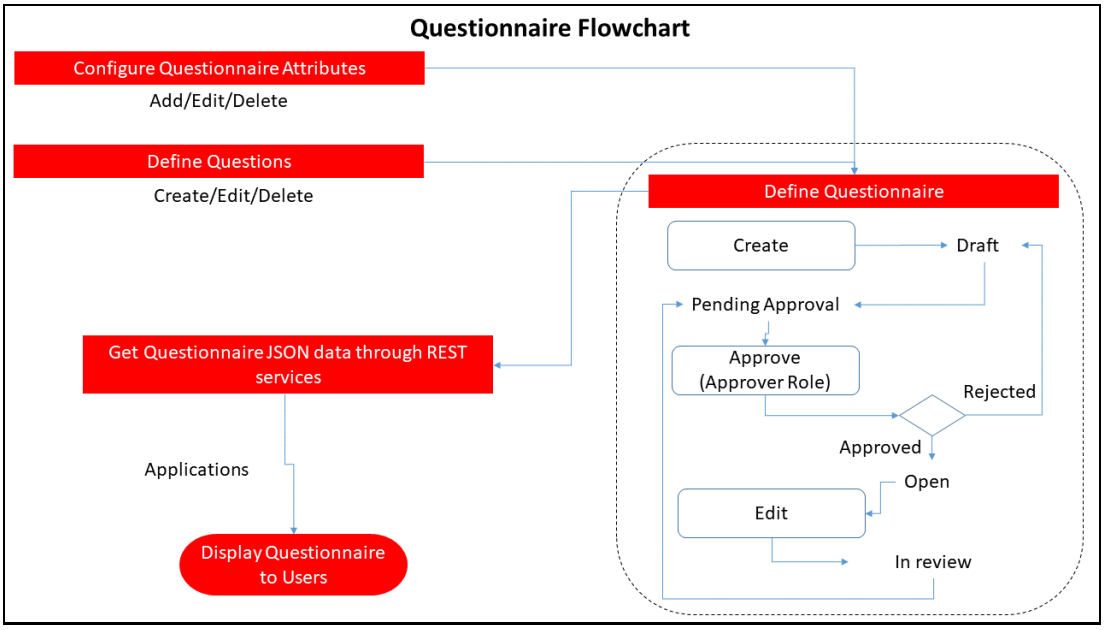
10.1 Knowing the Questionnaire Workflow

Questionnaire provides the following three functions on the OFSAA user-interface:

- Configuring Questionnaire Attributes
- Defining Questions
- Defining Questionnaires

The workflow for questionnaire starts with the configuration of the questionnaire attributes. You need to have the required user roles and permissions assigned to your profile to configure questionnaire attributes. After you or a user with the requisite access has configured the attributes, you can define and include questions in the questions library. You can combine questions and questionnaire attributes to create Questionnaires.

> **NOTE** Access to the Questionnaire menus is based on roles and permissions granted to users



10.2 Knowing the Types of Questionnaires

You can create the following types of Questionnaires in OFSAA to suit your requirement:

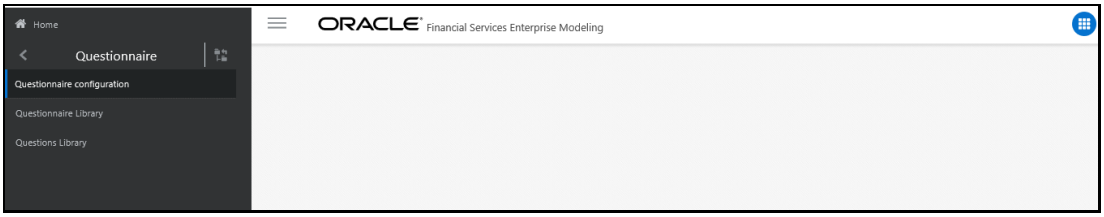
1. Basic – This Questionnaire type follows a linear sequence in the flow. For example, if there are 20 questions in the questionnaire, the questions start from 1 and end at 20.
2. Decisions Tree (DT) – This Questionnaire type displays the next question based on the answer selected for the current question. For example, a question, “Are you living in the US?”, might display the answer options “Yes” or “No”. If you select “Yes”, the next question displayed might be “Which State are you from?”. The list might display states in the US in a drop down selection. However, if you answer “No”, the next question displayed might be “Which Country are you from?”. For this question, the list might display countries in a drop down selection.
3. Score Based – In this Questionnaire type you assign a number value to a question for it to be considered in the set of questions. This could be used as a percentage of the set that the question adds value. For example, a question could be given a score of 20 out of 100, and this question would contribute to 20% of the score of the questionnaire. Score based questionnaires, by default, are of the type Basic. However, you can select branching logic on the UI and make a score based questionnaire of the type Decision Tree.

10.3 Configuring Questionnaire Attributes

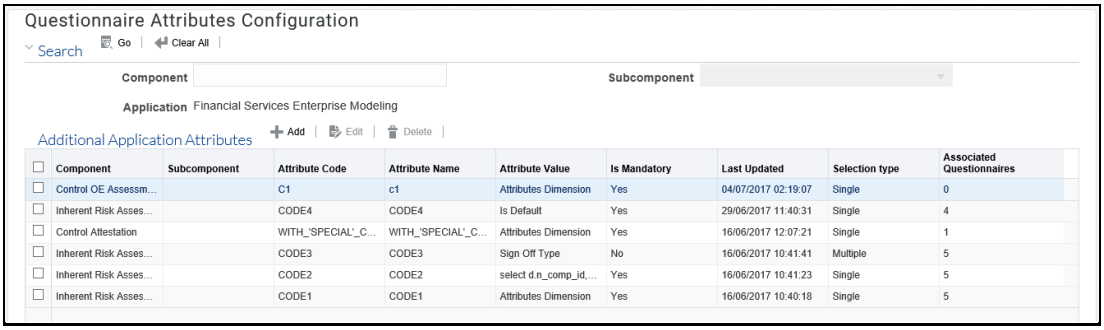
This feature allows you to configure Questionnaire Attributes, which uniquely identifies the Questionnaire that users use.

To access the *Questionnaire Configuration* window, expand the menu in the left pane where Questionnaire is configured and click **Questionnaire**. From the *Questionnaire* window, click **Questionnaire Configuration**.

NOTE You can configure the Questionnaire to appear in the menu of your choice based on your application's requirement. For information on how to configure Questionnaire menus, see the Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack Administration and Configuration Guide.



The window displays the list of defined Attributes. It also displays the OFSAA Application that is interfaced to the Questionnaire module. For example, Financial Services Enterprise Modeling. You can create, modify or delete Questionnaire Attributes from this window.



The following table provides description for the fields displayed on the Questionnaire *Attributes Configuration* window:

Field	Description
Component	Displays the type of questionnaire component configured in the system. Note: For information on configuring components, see the Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack Administration and Configuration Guide.
Subcomponent	Displays the subcomponent for the selected Component.
Attribute Code	Displays the code of the attribute as entered in the *Add Attribute* window. Once defined, this code cannot be edited.
Attribute Name	Displays the name of the attribute as entered in the *Add Attribute* window.
Attribute Value	Displays the condition executed at run time to display attribute values used on the *Create Questionnaire* window.
Is Mandatory	Displays whether the attribute is mandatory or not. The values are Yes and No.
Last Updated	Displays the last updated date and time details for the attribute.

Field	Description
Selection Type	Displays the Attribute Selection Type as entered in the *Add Attribute* window.
Associated Questionnaires	Displays the number of Questionnaires that are linked to the Attribute, and are in Open and Pending Approval status.

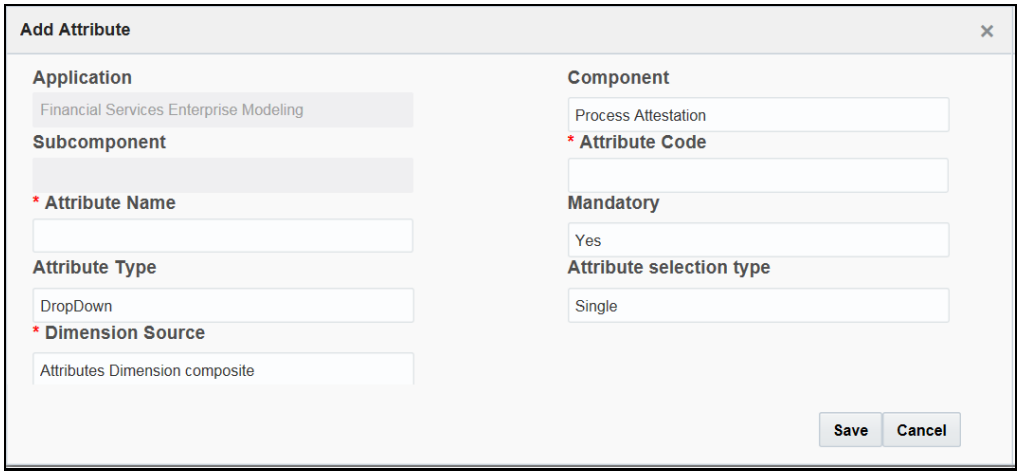
You can search for existing questionnaire attributes based on Component. For more information, see Using Search in Questionnaire section.

10.3.1 Adding Questionnaire Attributes

Use this option to create Questionnaire Attributes.

To add a Questionnaire Attribute:

1. Click the **Add** button from the *Questionnaire Configuration* window. The *Add Attribute* window is displayed.



2. Enter the details for the fields in the *Add Attribute* window as described in the following table:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Application	Displays the OFSAA name of the application that is interfaced to the Questionnaire module. For example, Financial Services Enterprise Modeling. This is a read-only field and is not editable.
Component	Select the Component from the drop-down list. Note: For information on configuring components, see the Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack Administration and Configuration Guide.
Subcomponent	Select the Subcomponent for the selected Component from the drop-down list. This field is enabled only if the selected Component is configured to have subcomponent(s).

Field	Description
Attribute Code	Enter the attribute code for the questionnaire attribute. This is a unique value. If the code exists in the system, a message displays "The Attribute Code exists in the system, enter another value".
Attribute Name	Enter a name for the questionnaire attribute. This is a unique value.
Mandatory	Select whether the attribute is mandatory or optional from the drop-down list. The options are **Yes** and **No**.
Attribute Type	Type of attribute that is displayed on the *Questionnaire Definition* window. For example, selecting drop-down displays a drop down questionnaire in the *Questionnaire Definition* window. Similarly, SQL Query displays data fetched from the query on the *Questionnaire Definition* window. Select the type of attribute from the drop-down list. The options are: DropDown- Select this if you want a drop-down list in the *Questionnaire Definition* window. • SQL Query • Hierarchy • External • Static Note: Selecting any of the above options results in the display of different headings for the field right below the Attribute Type field. The fields are also of different types based on the Attribute Type selection. For example, selecting DropDown results in display of a drop down in the field below and selecting SQL Query results in the display of a text field. The row '(Headings for the field below Attribute Type field.)' provides details for the different fields that appear on Attribute Type selection.
Attribute Selection Type	Select whether you want the attribute type to be a single-selection or multiple-selection type attribute.

Field	Description
(Headings for the field below Attribute Type field.)	Options displayed on the field below the attribute type field are dynamic and vary based on the selection of the attribute type. You can find the details in the following list. Select from the options displayed below: • DropDown - selecting this attribute type displays a drop-down Dimension Source with options that list dimension tables acting as a source for the attribute being created. Select from the following options: ▪ Attr Dim Single ▪ Attributes Dimension Composite **Note**: The preceding drop down is displayed on selection of drop down as dimension and it is configurable. For information on configuring dimension tables, see the Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack Administration and Configuration Guide. • SQL Query - selecting this attribute type displays a text field SQL Query where you have to enter a SQL Query to fetch the data for the attribute being created. Format for SQL queries has to be given here with an example. • Hierarchy- selecting this attribute type displays a drop down Hierarchy Source with options that list hierarchy code acting as a data source for the attribute being created. • External - selecting this attribute type displays a text field Web-Service URL where you have to enter a Web-Service URL to fetch data for the attribute being created. • Static - selecting this attribute type displays a drop down Static Type with options that list static types to fetch data for the attribute being created. Select from the following options: ▪ Is Default ▪ Sign Off Type ▪ Reassign Required ▪ Is Confidential **Note**: The preceding drop down is displayed on selection of Attribute Type as static and it is configurable. For information on how to configure it, see the Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack Administration and Configuration Guide.

Field	Description
Source Options	Additional options for the values selected in the Static Type drop down. This field is displayed when you select any of the following options from the Static Type drop down: • Sign Off Type • Reassign Required • Is Confidential Select the following options from the drop down: • Sign Off Type - details for the source options for this type is given below. ▪ Two Level Sign Off ▪ Single Sign Off ▪ No Sign Off • Reassign Required - details for the source options for this type is given below. ▪ No ▪ Yes • Is Confidential – d etails for the source options for this type is given below. ▪ No ▪ Yes

3. Click **Save** to save the questionnaire attribute or click **Cancel** to discard the changes and close the window.

10.3.2 Editing Questionnaire Attributes

> **NOTE** Attributes, which are linked to Questionnaires that are in Open or Pending Approval status and display a count greater than zero in the Associated Questionnaires column on the Questionnaire *Attributes Configuration* window, cannot be modified.

You can edit questionnaire attributes from this window. The following is the procedure to edit a questionnaire attribute:

1. Select an Attribute from the *Questionnaire Configuration* window that you want to edit.
2. Click the **Edit** button to display the *Edit Attribute* window.
3. Modify the details for the fields in the *Edit Attribute* window. You can refer to the field description table in Adding Questionnaire Attributes section for field details.

> **NOTE** The Application, Component, Subcomponent and Attribute Code fields are not editable.

4. Click **Save** to save the edited questionnaire attribute or click **Cancel** to discard the changes and close the window.

10.3.3 Deleting Questionnaire Attributes

You can delete questionnaire attributes from this window. However, you can delete only Questionnaire Attributes that do not have any Questionnaires linked to it.

You have to remove the Questionnaires linked to the Questionnaire Attributes before you can delete it. For more information on how to remove Associated Questionnaires, see Editing Questionnaire from the Library, where the field Component corresponds to Questionnaire Attributes. For information on how to delete a Questionnaire, see Deleting Questionnaire from the Library.

To delete a questionnaire attribute:

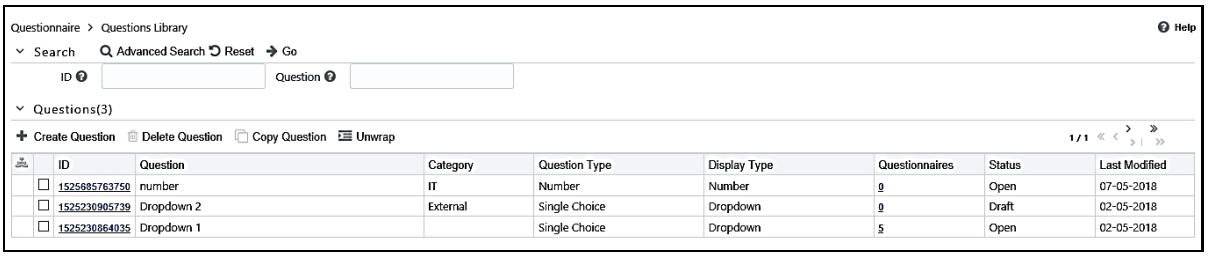
1. From the *Questionnaire Attributes Configuration* window, select the check box adjacent to the Attribute that you want to delete and click the **Delete** button. You can also select multiple rows to delete. A confirmation message is displayed.
2. Click **Delete** to delete the selected attribute(s) or click **Cancel** to discard the changes and close the window.

10.4 Defining Questions

You can define a library of questions from the Questions Library window that you can link to create a Questionnaire.

To access the *Questions Library* window, expand the menu in the left pane where Questionnaire is configured and click **Questionnaire**. From the *Questionnaire* window, click **Question Library**.

> **NOTE** You can configure the Questionnaire to appear in the menu of your choice based on your application's requirement. For information on how to configure Questionnaire menus, see the Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack Administration and Configuration Guide.



The window displays a list of defined Questions. You can create, modify, copy and delete Questions from this window.

The following table provides description for the fields displayed on the *Questions Library* window:

Field	Description
ID	Displays the system generated identifier for the question. This is a unique value.
Question	Displays the title of the question.
Category	Displays the category of classification for the question from the options: External, IT and Infrastructure.
Question Type	Displays the type of question from the options: Single Choice, Multiple Choice, Free Text, Number and Range.
Display Type	Displays the type of user-interface element that is displayed. For example, drop down, text field and so on. The options are available based on the Question Type selected.
Questionnaires	Displays the number of questionnaires associated to the question. For example, 7 indicates that there are seven questionnaires linked to the question. You can click the link to display the list of questionnaires linked in the *Associated Questionnaires* window.
Status	Displays the status of the question. For example, Draft, Open and so on.
Last Modified	Displays the date and time for the last update on the question.

You can search for existing questions based on ID and Question. For more information, see Using Search in Questionnaire section.

10.4.1 Creating Questions in the Library

You can create questions from this window. The following is the procedure to create a question:

1. Click the **Create Question** ➕ button from the *Questions Library* window to display the *Question Details* window.
2. Enter the details for the fields in the *Question Details* window as described in the following table:

Field	Description
ID	Displays the identification number of the question. This value is generated by the system during question creation and is unique.
Question	Enter the question in this field.
Description	Enter more details in the description for the question that you are creating.

Field	Description
Category	Select from the drop down the category of classification for the question that you are creating from the options: • External – the question is of external category. • IT – the question is under the IT category. • Infrastructure – the question is in the infrastructure category. **Note**: This field is optional and the above is an example from OR application. This field can be configured in the table AAI_ABC_DIM_QTN_CATEGORY and its MLS table.
Question Type	Select from the drop down the type of user-interface elements for the question that you are creating from the following options: • Single Choice – select to create a single choice type of question. • Multiple Choice – select to create a multiple choice type of question. • Free Text – select to create a free text type of question. • Number – select to create a type of question which requires a number input. • Range – select to create a type of question which requires an input in a defined range or a number input. Note: When you select a Question Type option, details for the question type is displayed on the window. The instructions to enter the details is described in the following subsections (scroll down to the subsections or click the links to jump to the subsections): • Selecting Question Type – Single Choice • Selecting Question Type – Multiple Choice • Selecting Question Type – Free Text • Selecting Question Type – Number • Selecting Question Type – Range

3. Click **Save Draft** to save the details, or click **Submit** if you have entered all details and are ready to submit. Click **Close** to discard the changes and close the window.

10.4.1.1 Selecting Question Type – Single Choice

Select Single Choice to create a question with a single-choice answer option. After you select this option, you can add details for the list of answers that would be available to users as either a drop down or a radio button. Users can select only one from the list configured by you. The following list shows the procedure to add the details:

1. Click the **Single Choice** button from Questions Type to display the Single Choice section in the *Question Details* window.
2. Enter the details for the fields in the *Question Details* window as described in the following table:

Field	Description
Display as Drop down	Select this option to display the answer choices in a drop down. Note: This option is selected by default.
Display as Radio Buttons	Select this option to display the answer choices in radio buttons.
Static	Select this option to make either the drop down or radio buttons display static answer choices. After you select this option, you have to enter the values that appear in the static fields. Enter these values in the Response Options form appearing below it. The following steps show the procedure to enter response options: • Click the **Add Option** ➕ button and enter the answer choice in the text field. To delete an option, select the check box on the option row that you want to delete and click the **Delete Option** 🗑 button. • Similarly, you can add more options. These options will appear in the choice of answers in either a drop down or radio button format as selected by you.
Dynamic	Select this option to make either the drop down or radio buttons display dynamic answer choices. After you select this option, you are presented with various text fields and conditions options. Enter these values as described in the following steps: 5. Enter the Primary Column from the database to fetch the answer from. This could be the key. 6. Enter the Display Column from the database to display the answer in the check box list or combo box. 7. Enter the table name where the Primary Column and the Display Column exist in Reference Table. 8. Enter the filter criteria to apply to the table data being fetched to display in Filter Condition. This step is optional. 9. Click the Validate button to validate the query formed by the above steps. On validation, the Preview Options drop down appears. 10. Enter the Option Type Column name in the Advanced section. The value entered here appears in the Option Type Column in the Conditions section. 11. Click the **Add** ➕ button in the Conditions section and enter a name for the answer choice in the Name text field. Select a condition from the Condition drop down. For example, Not Equal To. Enter required data in Option Value Type. Select either Static or Dynamic from the Scope drop down. If you select Dynamic, then you must enter a subquery to filter the options further. To delete a condition, select the check box on the condition row that you want to delete and click the **Delete** 🗑 button. 12. Similarly, you can add more conditions. These conditions will appear in the choice of answers in either a check box list or combo box as selected by you.

3. Click **Save Draft** to save the details or click **Submit** if you have entered all details and are ready to submit. Click **Close** to discard the changes and close the window.

10.4.1.2 Selecting Question Type – Multiple Choice

Select Multiple Choice to create a question with the option to choose multiple answers. After you select this option, you can details for the list of answers that would be available to users either as a check box or combo box. Users can select multiple answers from the list configured by you. The following list shows the procedure to add the details:

1. Click the **Multiple Choice** button from Questions Type to display the Multiple Choice section in the *Question Details* window.
2. Enter the details for the fields in the *Question Details* window as described in the following table:

Field	Description
Display as Check box List	Select this option to display the multiple choice answers in a list of check boxes. Note: This option is selected by default.
Display as a Combo Box	Select this option to display the multiple choice answers in a combo box list.
Static	Select this option to make either the check box list or combo box display static answer choices. After you select this option, you have to enter the values that appear in the static fields. Enter these values in the Response Options form appearing below it. The following steps show the procedure to enter response options: Click the **Add Option** button and enter the answer choice in the text field. To delete an option, select the check box on the option row that you want to delete and click the **Delete Option** button. Similarly, you can add more options. These options will appear in the choice of answers in either a check box list or check box format as selected by you.

Field	Description
Dynamic	Select this option to make the check box list or combo box display dynamic answer choices. After you select this option, you are presented with various text fields and conditions options. Enter these values as described in the following steps: Enter the Primary Column from the database to fetch the answer from. This could be the key. Enter the Display Column from the database to display the answer in the drop down or the radio buttons. Enter the table name where the Primary Column and the Display Column exist in Reference Table. Enter the filter criteria to apply to the table data being fetched to display in Filter Condition. This step is optional. Click the Validate button to validate the query formed by the above steps. On validation, the Preview Options drop down appears. Enter the Option Type Column name in the Advanced section. The value entered here appears in the Option Type Column in the Conditions section. 13. Click the **Add** button in the Conditions section and enter a name for the answer choice in the Name text field. Select a condition from the Condition drop down. For example, Not Equal To. Enter required data in Option Value Type. Select either Static or Dynamic from the Scope drop down. . If you select Dynamic, then you must enter a subquery to filter the options further. To delete a condition, select the check box on the condition row that you want to delete and click the **Delete** button. 14. Similarly, you can add more conditions. These conditions will appear in the choice of answers in either a drop down or radio button format as selected by you.

3. Click **Save Draft** to save the details or click **Submit** if you have entered all details and are ready to submit. Click **Close** to discard the changes and close the window.

10.4.1.3 Selecting Question Type – Free Text

Select Free Text to create a question with either a text field or text area as the answer input option for users. The following list shows the procedure to add the details:

1. Click the **Free Text** button from Questions Type to display the **Free Text** section in the *Question Details* window.
2. Enter the details for the fields in the Free Text section as described in the following table:

Field	Description
Display as Text Field	Select this option to input the answer in a text field. Note: This option is selected by default.
Display as Text Area	Select this option to input the answer in a text area.
Question to be used while defining DT Logic?	Select Yes or No to apply Decision Tree logic to the question.

3. Click **Save Draft** to save the details or click **Submit** if you have entered all details and are ready to submit. Click **Close** to discard the changes and close the window.

10.4.1.4 Selecting Question Type – Number

Select Number to create a question where users can input a numeric value as the response to the question. The following list shows the procedure to add the details:

1. Click the **Number** button from Questions Type to display the Number section in the *Question Details* window.
2. Enter the details for the fields in the Number section. For the **Question to be used while defining DT Logic?** field, select **Yes** or **No** to apply Decision Tree logic to the question.
3. Click **Save Draft** to save the details or click **Submit** if you have entered all details and are ready to submit. Click **Close** to discard the changes and close the window.

10.4.1.5 Selecting Question Type – Range

Select Range to define an upper limit and a lower limit numeric value, which is the range that users will use to respond to the question. After you select this option, you can add rows of upper and lower limit values for the user to select using either a radio button or a number field.

The rows of ranges defined need not be continuous, however, they shouldn't overlap. For example, you can define Range 1 from 0 to 100 and Range 2 from 200 to 300. This is an example of a non-continuous range, since Range 2 didn't start from 101. However, you cannot define Range 1 from 0 to 100 and Range 2 from 100 to 200, since the upper limit of Range 1 (100) overlaps with the lower limit of Range 2 (100).

The following list shows the procedure to add the details:

1. Click the **Range** button from Questions Type to display the **Range** section in the *Question Details* window.
2. Enter the details for the fields in the Range section as described in the following table:

Field	Description
Display as Range of Values	Select this option to display a drop down list of range values for the answer. Define the range in the Add Option Delete Option section. Note: This option is selected by default.

Field	Description
Display as a Number	Select this option to input the answer in number format.
Add Option/Delete Option for Range of Values	Add options in this section for the Range of Values that you want to be available as the list of answers for the question. The following steps show the procedure to enter range values: Click the **Add Option** button and enter the range in the Lower Limit and Upper Limit fields. To delete an option, select the check box on the option row that you want to delete and click the **Delete Option** button. Similarly, you can add more range value options. These options will appear in the choice of answers in a list of range values.

3. Click **Save Draft** to save the details or click **Submit** if you have entered all details and are ready to submit. Click **Close** to discard the changes and close the window.

10.4.2 Editing Questions from the Library

You can edit questions from the *Questions Library* window. The following steps describe the procedure to edit a question:

1. Click the **Question ID** hyperlink in the ID column in the *Questions Library* window to display the *Questions Details* window.
2. Click the **Edit** button to enable editing the question in the *Questions Details* window.
3. Enter the details for the fields in the *Question Details* window. You can refer to the field description table in Creating Questions in the Library section for field details.

> **NOTE** The ID field is read-only and is not editable

4. Click the **Update** button to save the modified question. Click **Submit** button after you are ready to submit the edited question. Click **Close** to discard the changes and close the window.

10.4.3 Creating Questions by Copying Existing Questions

You can copy an existing question from the library and create a new question. All the contents of the question are carried forward to the new question with a new ID. You can copy a question from the *Questions Library* window and also from the *Question Details* window.

> **NOTE** Associated Questionnaires are not copied over to the newly created question. You have to associate questionnaires separately.

The following steps describe the procedure to copy a question and to create a new question from the *Questions Library* window:

1. Click the **Select** check box to select a Question from the *Questions Library* window.
2. Click the **Copy Question** button. A message is displayed on successful execution of the copy operation.

10.4.4 Deleting Questions from the Library

You can delete questions from the *Question Library* window. The following is the procedure to delete a question:

1. Click the **Select** check box to select a Question in the *Questions Library* window that you want to delete.
2. Click the **Delete Question** button to display the delete confirmation popup.
3. Click **OK** to delete the question or click **Cancel** to discard and close the popup.

> **NOTE** You can delete a question only if it is in **Draft** status.

10.4.5 Viewing Associated Questionnaires

Questions are linked in Questionnaires (for more information, see Linking a Question to a Questionnaire) and you can view the details for the same on this window. The following is the procedure to view associated questionnaires:

1. Click the **Question ID** hyperlink on the ID column in the *Questions Library* window to display the *Questions Details* window.
2. Click the **Associated Questionnaires** tab to display the *Associated Questionnaires* window. You can view the associated Questionnaire details in this window. The following table provides description for the columns:

Field	Description
ID	Displays the unique identifier number for the questionnaire.
Name	Displays the title of the questionnaire.
Application	Displays the application interfaced to the questionnaire.
Component	Displays the purpose of use of the questionnaire.
Type	Displays the type of questionnaire from the options: Basic, Decision Tree and Score Based.
No of Questions	Displays the number of questions linked to the questionnaire.
Status	Displays the status of the questionnaire. For example, Draft, Open and so on.

Field	Description
Last Modified	Displays the date and time for the last modified action on the questionnaire.
Note: For more details on Questionnaire, see the section Defining Questionnaires.	

3. Click the **Details** tab to go back to the *Question Details* window.
4. Click **Close** to go back to the Questions Library.

10.4.6 Wrapping and Unwrapping Questions from the Library

You can wrap and unwrap questions from the library to collapse or expand the details entered in the fields.

The following steps describe the procedure to wrap and unwrap a question:

1. Click the **Select** check box to select a Question from the *Questions Library* window.
2. Click the **Unwrap** button to unwrap a question. If the question is unwrapped, you can click the **Wrap** button.

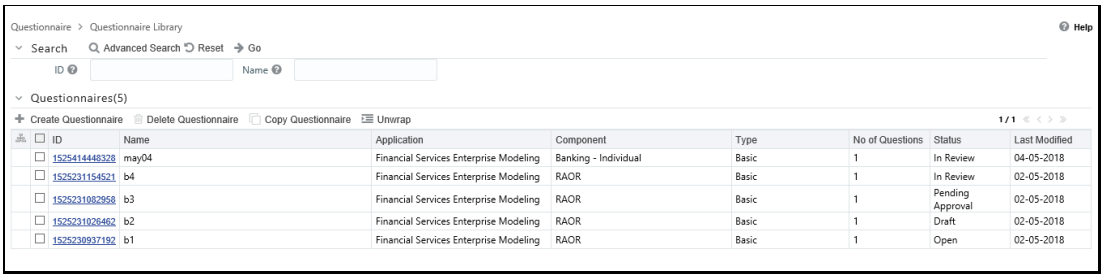
10.5 Defining Questionnaires

You can define Questionnaires from this window by combining defined attributes and questions.

To access the *Questionnaires Library* window, expand the menu in the left pane where Questionnaire is configured and click **Questionnaire**. From the *Questionnaire* window, click **Questionnaire Library**.

> **NOTE** You can configure the Questionnaire to appear in the menu of your choice based on your application's requirement. For information on how to configure Questionnaire menus, see the Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack Administration and Configuration Guide.

This window displays a list of existing Questionnaires. You can create, modify, copy and delete Questionnaires from this window.



The following table provides description for the fields displayed on the Questionnaire *Attributes Configuration* window:

Field	Description
ID	Displays the system generated identifier for the questionnaire. This is a unique value.
Name	Displays the name of the questionnaire.
Application	Displays the OFSAA application that is interfaced to the Questionnaire module. For example, Financial Services Enterprise Modeling.
Component	Displays the type of questionnaire component configured in the system. Note: For information on configuring components, see the Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack Administration and Configuration Guide.
Type	Displays the type of questionnaire from the options: Basic, Decision Tree and Score Based.
No. of Questions	Displays the number of questions linked at the time of creation of the questionnaire.
Status	Displays the status of the questionnaire. For example, Draft, Open, Pending and In Review.
Last Modified	Displays the date and time for the last update on the questionnaire.

You can search for existing questionnaires based on ID and Name. For more information, see Using Search in Questionnaire section.

10.5.1 Creating Questionnaire in the Library

You can create questionnaires from this window. The following is the procedure to create a questionnaire:

1. Click the Create Questionnaire ✚ button from the *Questionnaire Library* window to display the *Questionnaire Details* window.

> **NOTE** To edit a Questionnaire, see section Editing Questionnaire from the Library.

2. Enter the details for the fields in the *Questionnaire Details* window as described in the following table:

Field	Description
Name	Enter a relevant name for the questionnaire in this field.

Field	Description
ID	Displays the identification number of the questionnaire. This value is generated by the system during questionnaire creation and is unique.
Description	Enter a description for the questionnaire that you are creating.
Application	Displays the OFSAA application that is interfaced to the Questionnaire. For example, Financial Services Enterprise Modeling.
Type	Select from the drop down the type of questionnaire from the options: ▪ **Basic** – select to create a questionnaire with questions that are arranged sequentially. ▪ **Decision Tree** – select to create a questionnaire that would display the next set of questions based on the answer selected. **Note**: Selecting this field displays the Result Categories drop down. ▪ **Hybrid** – select to create a questionnaire that would display the next set of questions whether the answer was selected or not. This is a combination of Basic and Decision Tree Type. However, it doesn't make it mandatory to answer a question to display the next question, as required in Decision Tree. ▪ **Score Based** – select to create a questionnaire that can apply scores based on the answer selected. **Note**: Selecting this field displays the Enable Branching Logic check box.
Enable Branching Logic	Select this check box to enable a score based questionnaire to display the next set of questions based on the answer to the current question. **Note**: This field is displayed when you select Score Based from the Type drop down.
Component	Select the required type of questionnaire component from the drop down. **Note**: For information on configuring components, see the Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack Administration and Configuration Guide.
User defined attributes	Select User defined attribute values from the drop down. **Note**: For more information, see Adding Questionnaire Attributes.

3. Click **Save Draft** to create the Questionnaire and save the details.
4. After you have entered the details discussed in the preceding table, you must create sections and link questions to the sections. For simplicity, the topic is discussed in subsections within this section. Click **Edit** and see the following sections for instructions:
   - Creating a Section in a Questionnaire
   - Linking a Question to a Questionnaire
   - Configuring Questions in a Section
   - Rearranging the Sequence of Sections and Questions
   - Delinking a Question to a Questionnaire

- Attaching URLs to a Questionnaire Section
- Viewing Workflow History
- Editing a Section in a Questionnaire
- Deleting a Section in a Questionnaire
- Wrapping and Unwrapping Sections in a Questionnaire

5. Click **Submit** after you have entered all details and are ready to submit. Click **Close** to discard the changes and to close the window. The Questionnaire moves from **Draft** to **Pending Approval** status, and an approver has to approve to move it to **Open** status. For more information, see Approving Questionnaires.

10.5.1.1 Creating a Section in a Questionnaire

You can create a section for your questionnaire and this section appears in the heading when the questionnaire is displayed to users. For example, when you create sections "Your Profile" and "Your Education", the user of the questionnaire is displayed the headings: "Your Profile" and "Your Education", which will contain the relevant questions linked by you to these sections. The following is the description to create a section:

1. Enter a name for the section in the **Section Name** field.
2. Click the **Add** button. The section appears in the Sections and Questions section with subsections for **URL** and **Workflow History**. Similarly, you can add more sections to your questionnaire. You have to follow section creation with linking of questions. See the section, Linking a Question to a Questionnaire.

10.5.1.2 Linking a Question to a Questionnaire

You can link questions that you need to appear in the questionnaire from the *Questionnaire Details* window.

> **NOTE** You can link only Questions that are in Open status.

The following is the procedure to link a question:

1. Click the **Edit** button to enable editing the questionnaire in the *Questionnaire Details* window.
2. Click the **Link Question** button to display the *Link Questions* window. For more information on the fields displayed on this window, refer to the section Defining Questions.
3. Click the **Select** check box to select a Question from the *Link Questions* window.
4. Click the **Link** button to display a message popup. Click **OK** to link the question to the questionnaire. Click **Close** button to close the window.

10.5.1.3 Configuring Questions in a Section

On linking a question, the section displays the question. You can link as many number of questions to different sections that you have created and create a questionnaire. After you have linked a question to a section, you can change the question configuration.

1. Open the section on the *Questionnaire Details* window to view linked questions. Expand the section if it is collapsed, you can view the questions in line with the section name heading. The following table describes the various fields in the question linked to a section:

Field	Description
□ (check box)	Select and click the **Edit Linked Question** button to view and edit the **Response Options** in a linked question.
ID	Displays the system generated unique identifier for the question.
Question	Displays the title of the question.
Question Type	Displays the type of user-interface elements for the question from the following options: • Single Choice • Multiple Choice • Free Text • Number • Range **Note**: For more information, see the section Creating Questions in the Library.
Status	Displays the status of the question. For example, Open.
Last Modified	Displays the last modified date of the question.
Weightage	Enter the comparative value to apply weight function to the question. The sum of all the weight values should be 100. For example, if you have three questions A, B and C. You assign question 'A' a weight value of 35 and question 'B' a weight value of 45, then you will have to assign weight value of 20 to question 'C'. Note: This field is displayed if you have selected the Type as Score Based. This field cannot be edited if you have linked Questions where the Question Type is either Free Text or Number.
Is Question Mandatory?	Displays whether the question is mandatory. The default value is mandatory. However, you can disable it if required. Note: Removing the mandatory condition disables the Weightage field and removes values entered in it. Note: This field is not displayed if the Questionnaire Type is Decision Tree.

Field	Description
Is Comment Required?	Displays whether the question requires a comment for the answer. The default value is selected as required. You can remove the selection if required. Note: This field is not displayed if the Questionnaire Type is Decision Tree.
Is Document Required?	Displays whether the question requires any supporting documents. The default value is selected as not required.

2. Click the **Edit Linked Question** button to view and edit the **Response Options** for a question. The following table provides details for the fields:

Field	Description
□ (check box)	Select a response option from the list to perform various actions.
Response Options	
From	Enter the valid from range for the response. Note: This field is displayed only for Question Type – Range.
To	Enter the valid to range for the response. Note: This field is displayed only for Question Type – Range.
Score	Enter the score for the response. Note: This field is displayed only for Score Based questions.
Selected Logic	Click the button to display the *Show Logic* window.
Selected Result	Select from the options: Hard Stop and Soft Stop. Note: This field is displayed only for Score Based questions with branching and Decision Tree type questionnaires.
Comment Mandatory?	Select if you want a make it mandatory to enter a comment. Note: This field is not displayed for Decision Tree questions.
Legend	Select to enable a legend.

3. Click the **Save** button to save the entries, or click **Close** to close the response options section.

10.5.1.4 Rearranging the Sequence of Sections and Questions

You can rearrange the sequence of appearance of the questions in each section and also rearrange the sequence of sections in a Questionnaire. This allows you to restructure the sections in a questionnaire and the questions in the sections after you have linked them.

> **NOTE** To perform this function, the Questionnaire must be in draft status.

The following is the procedure to sequence sections and questions:

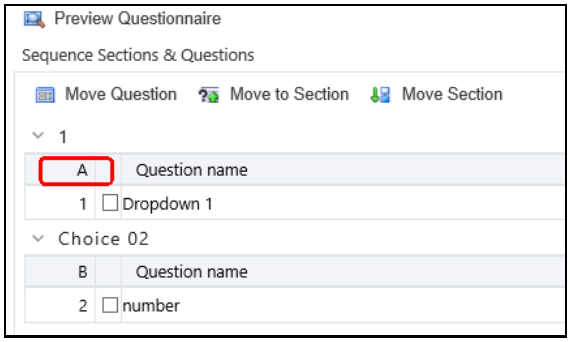
1. Click **Sequence Questions** to display the *Sequence Sections & Questions* window. You can change the sequence of sections and the sequence of questions in the sections from this window.

   To move the questions in a section, click **Move Question**. The **Change Question Number** field appears. In the **From** field, enter the number of the question that you want to move. In the **To** field, enter the number where you want to move the question to. Click **Change** to move the question or click **Close** to discard the change. Another option is to use the **Up** and **Down** buttons in the Sequence column. Click the buttons for the row that you want to move up or down.

   Also, you can move questions between sections. Select a question or a set of questions from a section that you want to move to another section. Click the **Move to Section** button. The **Move Selected Questions to** drop-down appears. Select the section from the drop-down where you want to move the questions to. Click **Change** to move the questions to the selected section or click **Cancel** to discard the change.

   To move sections, click **Move Section**. The **Change Section Number** field appears. In the **From** field, enter the number of the section that you want to move. In the **To** field, enter the number where you want to move the section to. Click **Change** to move the section or click **Close** to discard the change.

   > **NOTE** The section numbers are in the header rows below the section names as shown in the following illustration:

   Another option is to use the **Up** and **Down** buttons in the Sequence column. Click the buttons for the section that you want to move up or down.

2. Click **Save Sequence** to save the sequence rearrangement or click **Close** to discard and close the window.

10.5.1.5 Delinking a Question from a Questionnaire

You can delink a question from a questionnaire from the *Questionnaire Details* window. The following is the procedure to delink a question:

1. Click the **Edit** button to enable editing the questionnaire in the *Questionnaire Details* window.
2. Click the **Select** check box to select a Question from the section.
3. Click the **Delink Question** button to display the delink confirmation popup. Expand the section if it is collapsed, you can view the **Delink Question** button at the top.
4. Click **OK** to delink the question or click **Cancel** to discard and close the popup.

10.5.1.6 Attaching URLs to a Questionnaire Section

You can add or attach URLs using two options in the Questionnaire: from the top bar on the Sections & Questions section and from the URL section. Use the top bar in a section to add URLs to the Section and Questions section, and use the URL section to attach URLs to the Questionnaire.

The following is the procedure to add a URL to the Sections & Questions section using the Add URL button from the top bar:

1. Click the **Edit** button to enable editing the questionnaire in the *Questionnaire Details* window.
2. Click the **Add URL** button to display the Add URL popup. Expand the section if it is collapsed, you can view the **Add URL** button at the top.
3. Enter the details for the fields in the popup as described in the following table:

Field	Description
Component	Displays the name of the section. This is a read-only field.
Section	Displays the name of the section. This is a read-only field.
Entity Type	Select the type of entity that the URL is being linked to. The options are: Section Questions
Question	Select the Question that the URL is to be linked to. This drop down is enabled on selecting Question for Entity Type.
URL Name	Enter a common name for the URL.
URL	Enter the URL. For example, www.oracle.com.
URL Description	Enter a description for the URL.

4. Click **Save** to add the URL and repeat the process to add another URL. Click **Close** when done. The added URLs are displayed in the URL section. You can attach URLs to the questionnaire

here. Click the **Attach URL(s)** button to attach URLs to the Questionnaire. To delete a URL, select a URL check box and click the **Delete** button.

The following is the procedure to attach a URL to a Questionnaire using the **Attach URLs** button from the URL section:

1. Click the **Attach URL(s)** button from the URL section in the *Questionnaire Details* window. The Attach URL popup is displayed.
2. Enter the details for the fields in the popup as described in the following table:

Field	Description
Questionnaire Name	Displays the name of the questionnaire. This is a read-only field.
URL Name	Enter a common name for the URL.
URL	Enter the URL. For example, www.oracle.com.
URL Description	Enter a description for the URL.

3. Click **Save** to attach the URL and repeat the process to attach another URL. Click **Close** when done. The added URLs are displayed in the URL section in the *Questionnaire Details* window. To delete a URL, select a URL check box and click the **Delete** button.

10.5.1.7 Viewing Workflow History

You can view and compare the differences between the various modified versions of the Questionnaire from the Workflow History section. The following is the procedure to view workflow history of a questionnaire:

1. Click the **Select** check box to select versions of the Questionnaire from Workflow History section on the *Questionnaire Details* window.
2. Click the **Difference** button to display the workflow history popup. You can view and compare the differences between the selected versions of the Questionnaire.
3. Click **Close** to close the popup.

10.5.1.8 Editing a Section in a Questionnaire

You can edit sections in questionnaires from the *Questionnaire Details* window. The following steps describe the procedure to edit a questionnaire section:

1. Click the **Edit** button to enable editing the questionnaire in the *Questionnaire Details* window.
2. Click the **Edit Section** button. The section name field is active. Expand the section if it is collapsed, you can view the **Edit Section** button at the top.
3. Enter the change in the **Section Name** field and click the **Save Section** button to save the details.

4. Click the **Update** button to save the modified questionnaire. Click the **Submit** button after you are ready to submit the edited questionnaire. Click the **Close** button to discard the changes and close the window.

10.5.1.9 Deleting a Section in a Questionnaire

You can delete sections in a questionnaire from the *Questionnaire Details* window. The following is the procedure to delete a section:

1. Click the **Edit** button to enable editing the questionnaire in the *Questionnaire Details* window.
2. Click the **Delete Section** button to display the delete confirmation popup. Expand the section if it is collapsed, you can view the **Delete Section** button at the top.
3. Click **OK** to delete the question or click **Cancel** to discard and close the popup.

> **NOTE** You can delete a section only if the questionnaire is in **Draft** or in **In Review** status. If you choose to delete a section, any question that you have linked to the section is also deleted.

10.5.1.10 Wrapping and Unwrapping Sections in a Questionnaire

You can wrap and unwrap questionnaire from the library to collapse or expand the details entered in the fields.

The following steps describe the procedure to wrap and unwrap a questionnaire section:

1. Select the section to wrap or unwrap. Expand the section if it is collapsed, you can view the Wrap or Unwrap button at the top.
2. Click the **Unwrap** button to unwrap a questionnaire section. If the section is unwrapped, you can click the **Wrap** button.

10.5.2 Approving Questionnaires

Questionnaire is configured with an n-eyes system that enables the process of submission of a Questionnaire to be reviewed and approved by one or more level of supervisors or approvers. After approval, the Questionnaire moves into Open status and is active. However, before it can move into Open status, the Questionnaire can be moved through stages of reviews until the approver is satisfied with the Questionnaire and approves it.

The following is a description of the various statuses when the n-eyes functionality is enabled:

- Draft – Questionnaire created by user and not yet submitted.
- Pending Approval – Questionnaire submitted for approval to a supervisor.
- Open – Questionnaire approved and ready for use.
- In Review – Questionnaire in Open status that is edited by a user is moved to In Review. After the changes are done, the submitted Questionnaire moves to Pending Approval status again for

the supervisor's approval. For related topics, see Editing Questionnaires in Open Status – Review Questionnaire.

You (the approver) can approve Questionnaires that users have submitted and which are now in Pending Approval status. If there are changes to be made to the Questionnaire before you approve it, you can reject it after entering relevant comments. It moves back to Draft or In Review status and is assigned to the user for editing. The user can update for your comments and submit the Questionnaire again and move it to the Pending Approval status.

> **NOTE** You must be mapped to QLOCAUTHRL role to approve Questionnaires. For more information, see the Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack Administration and Configuration Guide.

The following steps describe the procedure to approve a questionnaire:

1. Log in to the system with approver role user ID.
2. Click **My Inbox** tab and then click **My Task** to display a list of tasks assigned to you.
3. Search Questionnaire in **Entity Type** to display the list of Questionnaires that are in **Pending Approval** status or search by the Questionnaire ID in **Entity Name**.
4. Click **Task ID** to open the Questionnaire and to review.
5. Click **Edit** and update the Questionnaire, if required. Click **Approve** to approve and move the Questionnaire to **Open** status. Click **Reject** if you have to recommend changes. The Questionnaire moves into **Draft** status and goes back to the user's view in the Questionnaire Library.

10.5.3 Editing Questionnaire from the Library

You can edit questionnaires in Draft and In Review statuses from the *Questionnaire Library* window.

10.5.3.1 Editing Questionnaires in Draft Status

The following steps describe the procedure to edit a Questionnaire in Draft status:

1. Click the **Questionnaire ID** hyperlink on the ID column in the *Questionnaires Library* window to display the Questionnaire Details window.
2. Click the **Edit** button to enable editing the questionnaire in the *Questionnaire Details* window.
3. Enter the details for the fields in the *Questionnaire Details* window. You can refer to the field description table in Creating Questionnaire in the Library section for field details.

> **NOTE** The ID field is read-only and is not editable.

4. Click the **Update** button to save the modified questionnaire. Click the **Submit** button after you are ready to submit the edited questionnaire. Click the **Close** button to discard the changes and close the window.

10.5.3.2 Editing Questionnaires in Open Status – Review Questionnaire

Questionnaires that are in Open status can only be edited using the Review Questionnaire feature.

The following steps describe the procedure to edit a Questionnaire in Open status:

1. Click the **Questionnaire ID** hyperlink on the ID column in the *Questionnaires Library* window to display the *Questionnaire Details* window.
2. Click **Review Questionnaire** to edit the Questionnaire in the *Questionnaire Details* window.
3. Edit the details as required. You can refer to the field description table in Creating Questionnaire in the Library section for field details.

> **NOTE** The ID field is read-only and is not editable.

4. Click the **Update** button to save the modified questionnaire. Click the **Submit** button after you are ready to submit the edited questionnaire. The Questionnaire moves to the Open status if there's no approval required. However, if approval is required, then the Questionnaire moves to Pending Approval status. See Approving Questionnaires for more details. Click the **Close** button to discard the changes and close the window.

10.5.4 Creating Questionnaire by Copying Existing Questionnaire

You can copy an existing questionnaire from the library and create a new questionnaire. All the contents of the questionnaire are carried forward to the new questionnaire with a new ID. You can copy a question from the *Questionnaire Library* window.

The following steps describe the procedure to copy a questionnaire and to create a new questionnaire from the *Questionnaire Library* window:

1. Click the **Select** check box to select a Questionnaire from the *Questionnaire Library* window.
2. Click the **Copy Questionnaire** button. A message is displayed on successful execution of the copy operation.

10.5.5 Deleting Questionnaire from the Library

You can delete questionnaires from the *Questionnaire Library* window. The following is the procedure to delete a questionnaire:

1. Click the **Select** check box to select a Questionnaire in the *Questionnaire Library* window that you want to delete.
2. Click the **Delete Questionnaire** button to display the delete confirmation popup.
3. Click **OK** to delete the question or click **Cancel** to discard and close the popup.

NOTE You can delete a questionnaire only if it is in **Draft** status.

10.5.6 Wrapping and Unwrapping Questionnaire from the Library

You can wrap and unwrap questionnaires from the library to collapse or expand the details entered in the fields.

The following steps describe the procedure to wrap and unwrap a questionnaire:

1. Click the **Select** check box to select a Questionnaire from the *Questionnaire Library* window.
2. Click the **Unwrap** button to unwrap a questionnaire. If the question is unwrapped, you can click the **Wrap** button.

10.6 Using Search in Questionnaire

You can search for existing questionnaire attributes from the *Questionnaire Attributes Configuration* window, search for existing questions from the *Questions Library* window, and search for existing questionnaires from the *Questionnaire Library* window. The respective windows display a Search section at the top. There are two types of search:

1. **Basic Search** – a simple form of search.
2. **Advanced Search** – a complex form of search with combinations to filter results.

10.6.1 Using Basic Search

The basic search is the default search. Enter the nearest matching keywords to search, and filter the results by entering information in the additional fields.

Click **Go** to start a search and click **Reset** to clear the Search fields.

10.6.2 Using Advanced Search

The Advanced Search option helps you find information faster and for specific combinations. Click **Advanced Search** from the Search toolbar to display the Advanced Search fields.

Click **Go** to start a search and click **Reset** to clear the Search fields.

10.6.3 Describing Search Fields

The search section provides fields to enter details and filter search results. The following table provides descriptions for the fields (both Basic and Advanced Search) on the various windows in Questionnaire:

Field	Description
Questionnaire Attributes Configuration	
Component	Select from the drop down the type of questionnaire component configured in the system.
Subcomponent	Select the subcomponent for the selected Component.
Questions Library	
ID	Enter the system generated identifier for the question. This is a unique value.
Question	Enter the title of the question.
Category	Select the category of classification for the question from the options: External, IT and Infrastructure.
Question Type	Select the type of question from the options: Single Choice, Multiple Choice, Free Text, Number and Range.
Display Type	Select the type of user-interface element that is displayed. For example, drop down, text field and so on. The options are available based on the Question Type selected.
Status	Select the status of the question. For example, Draft, Open and so on.
Last Modified From	Select the From date for the last update on the question to search in a date range.
Last Modified To	Select the To date for the last update on the question to search in a date range.
Questionnaire Library	
ID	Enter the system generated identifier for the questionnaire. This is a unique value.
Name	Enter the name of the questionnaire.
Component	Select the type of questionnaire component configured in the system.
Type	Select the type of questionnaire from the options: Basic, Decision Tree and Score Based.
Status	Select the status of the questionnaire. For example, Draft, Open, Pending and In Review.
Last Modified From	Select the From date for the last update on the questionnaire to search in a date range.
Last Modified To	Select the To date for the last update on the questionnaire to search in a date range.

11 System Configuration and Identity Management

System Configuration and Identity Management module is an integral part of Infrastructure administration process. It facilitates the System Administrators to provide security and operational framework required for Infrastructure.

System Configuration and Identity Management activities should be performed by the infrastructure administrator using the admin credentials.

This section consists of the following topics:

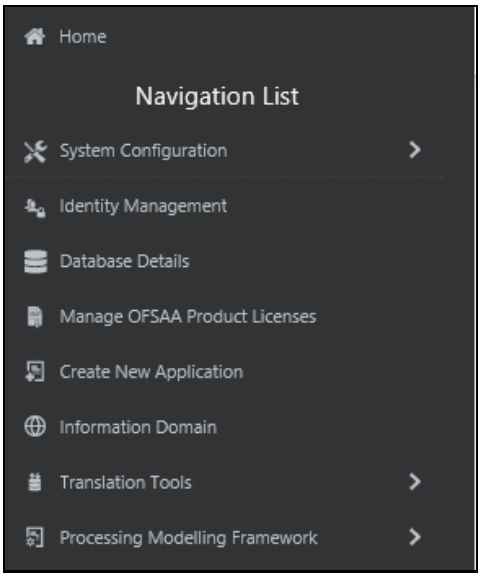
11.1 System Configuration

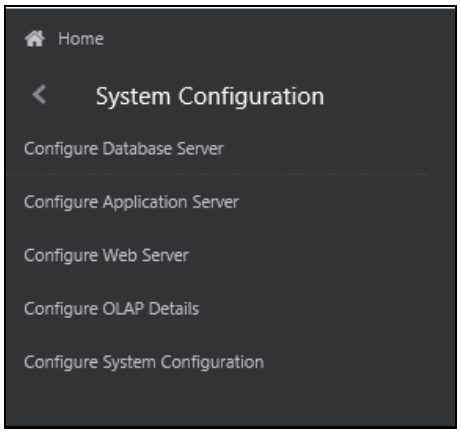
The Administration and Configuration section allows the System Administrators to configure the Server details, Database details, OLAP details, and Information Domain along with the other Configuration process such as segment and metadata mapping, and mapping segment to security. System Configuration is mostly a onetime activity which helps System administrator to make the Infrastructure system operational for usage.

11.1.1 Navigating to System Configuration

Click  from the header to display the Administration tools in Tiles menu. Click **System Configuration** from the Tiles menu to view a submenu list.

Note: After you have accessed a tool from the submenu, the options are also available in the Navigation List to the left. Click  button to access the Navigation List.





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.

11.1.2 Components of System Configuration

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

- Database Server
- Application Server
- Web Server
- Database Details
- OLAP Details
- Setup Access Token
- Information Domain
- Configuration
- Create Application

11.1.3 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 Details* window 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.

Click  from the header to display the Administration tools in Tiles menu. Click **System Configuration** from the Tiles menu to view a submenu list. Click **Configure Database Server** to view the *Database Server Details* window.

By default the *Database Server Details* window 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* window displays the pre-configured Database Server Details specified during OFSAA Infrastructure Installation.

11.1.3.1 Adding Database Sever 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* window. The window is refreshed and enables you to populate the required data in the fields.

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/LOCAL	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. LOCAL is selected to transfer files within the same server. 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 Radio Button LOCAL is available on OFSAAI 8.0.6.1.0 and later release versions.

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.

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.

11.1.3.2 Modifying Database Server Details

To update the existing database server details:

1. Select **Modify** button from the *Database Server Details* window. The window 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 information, see Add Database Server Details.
3. Click **Save** to save the changes.

11.1.4 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 Click **System Configuration** from the Tiles menu to view a submenu list. Click **Configure Application Server** to view the *Application Server Details* window.

By default the *Application Server Details (Server Master)* window displays the pre-configured application server details in the **View** mode.

The *Application Server Details* window 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 window is displayed in **View** mode providing option to only update the defined application server details.

11.1.4.1 Modifying Application Server Details

You can update the pre-defined Application Server details and FTP/SFTP/LOCAL details in the *Application Server Details* window. To update the existing application server details:

1. Select **Modify** button from the *Application Server Details* window. The window 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
Primary IP for Runtime Processes	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/LOCAL	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. LOCAL is selected to transfer files within the same server 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.
Authentication Type	Select the authentication type from the following: • Password Auth – login authentication through password entries. • PublicKey Auth – login authentication through public key authentication for enhanced security.

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.

Field	Description
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 SFTP user ID by the administrator. The password is represented by asterisk (*) for security reasons.

4. Click **Save** to save the changes.

11.1.5 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.

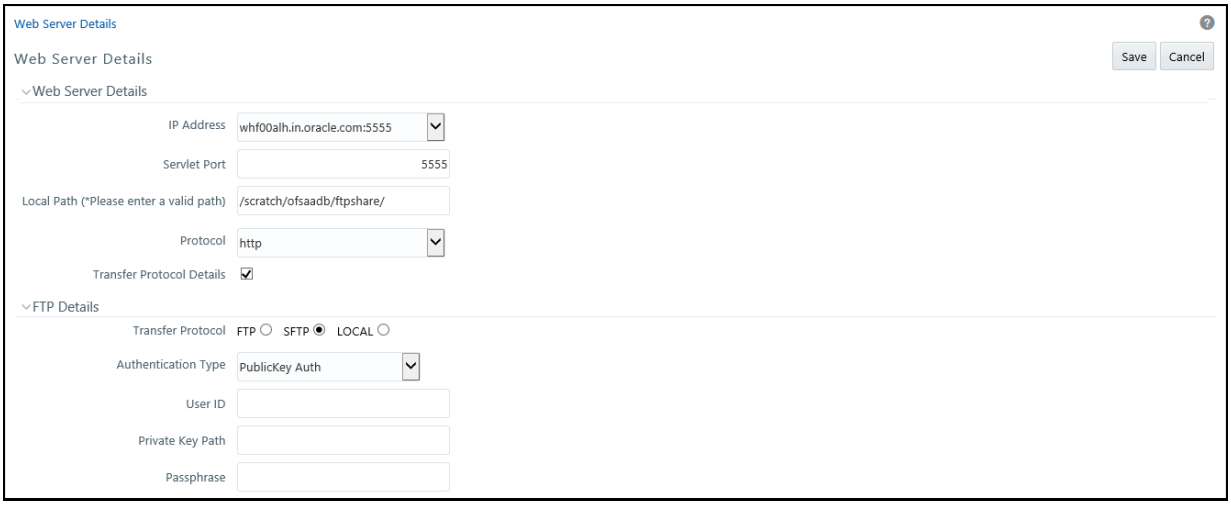
Web Sever within the System Configuration section of Infrastructure system facilitates you (System Administrator) to add and modify the Web Server set-up details. Click  from the header to display the Administration tools in Tiles menu. Click **System Configuration** from the Tiles menu to view a submenu list. Click **Configure Web Server** to view the *Web Server Details* window.

By default the *Web Server Details (Server Master)* window displays the pre-configured web server details in the **View** mode.

11.1.5.1 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/LOCAL Details in the *Web Server Details* window.



To add web server details:

1. Select **Add** button from the *Web Server Details* window. The window 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
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.
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.
Transfer Protocol Details	Select this checkbox to enter public key authentication details. On selecting, the FTP Details pane is displayed.

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, SFTP or LOCAL and enter the other details as tabulated.

Field	Description
FTP Details	
FTP/SFTP/LOCAL	Select either FTP, SFTP or LOCAL based on your web server requirement. Enter the details based on the option displayed for the selections on the *Application Server Details* window. The option displayed can be either Password Auth or PublicKey Auth.
Authentication Type	Select from the following: • Password Auth – Select to enter details for User ID and Password. • PublicKey Auth – Select to enter details for Private Key Path and Passphrase. This value is available only for SFTP. **Note**: This field is not available if you select LOCAL.
Password Auth	Enter details for User ID and Password.
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.
PublicKey Auth	Enter details for Private Key Path and Passphrase.
Private Key Path	Enter the Private Key Path that is used to perform the FTP/SFTP in the database server. This is a mandatory field.
Passphrase	Enter the passphrase to access the database server for FTP/SFTP.

4. Click **Save** to save the Web Server details.

11.1.5.2 Modifying Web Server Details

You can update the pre-defined Web Server details and FTP/SFTP Details in the *Web Server Details* window. To update the existing web server details:

1. Select **Modify** button from the *Web Server Details* window. The window 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 *Web Server Details* window. For more information, see Add Web Server Details.
3. Click **Save** to save the changes.

11.1.6 Database Details

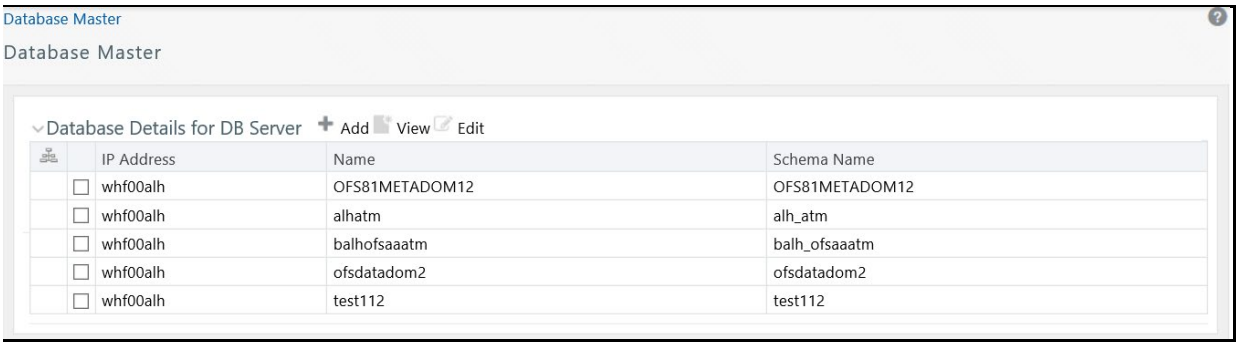
Database Details in the System Configuration section facilitates you to define the database setup details after you have configured the database server within the Infrastructure System. The

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.

OFSAAI supports heterogeneous databases such as Oracle and HDFS. Database authentication details are stored separately for each connection for reusability.

You (System Administrator) need to have SYSADM function role mapped to your role to access and modify the database details. Click from the header to display the Administration tools in Tiles menu. Click **Database Details** from the Tiles menu to view the *Database Master* window, or click button to access the Navigation List. Click **Database Details** to view the *Database Master* window.



You can view the various databases defined for the database server. The *Database Master* window allows you to add a new database and modify the existing ones.

11.1.6.1 Adding Database Details for DB Server

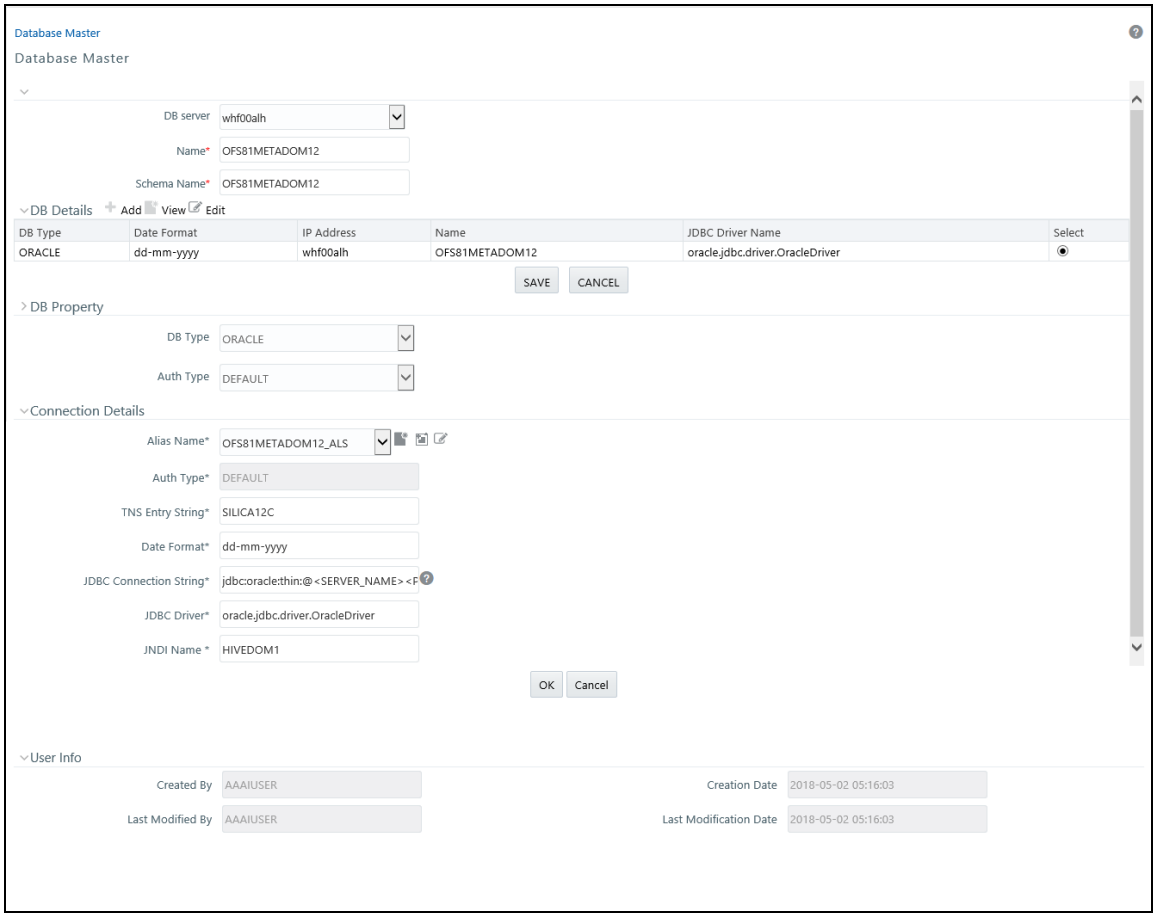
You can add a new database by specifying the name, Schema name, DB properties and connection details. Ensure that the Server Details are specified and the database is created before adding the database details.

You should not create Database details with Hive Server1 and Hive Server2 in the same setup since Hive Server 1 and Hive Server 2 drivers cannot run at the same time in the same JVM. Loading both drivers at the same time causes Hive Server 2 connection failure. This issue will be addressed in a future release of the Hive driver.

You cannot configure multiple Database details using different Hive Drivers in a single OFSAA setup. That is, multiple Data Sources using different Hive Drivers is not supported.

To add a new database:

1. Click ➕ button from the toolbar in the *Database Master* window.



2. Enter the Database details as tabulated.

Field	Description
DB Server	Select the Database IP Address from the drop-down list. This list displays the database server IP address defined during the set-up.
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. The Name should not exceed 20 characters.
Schema Name	Enter the Schema name for the database.
DB Type	The available options are ORACLE, MSSQL,DB2UDB, and HIVE. For Information Domain creation, only Oracle and Hive Database types are supported. For DI source creation, MSSQL and DB2UDB are also supported. You can create Hive Database instance for a single Hive server/ CDH. Multiple data sources pointing to different Hive servers are not supported.

Field	Description
Auth Type	Select the authentication type from the drop-down list. Based on the Database you have selected, the drop-down list displays the supported authentication mechanisms. Select **Default** for DB2UDB, ORACLE, and MSSQL databases. If DB Type is HIVE, then KERBEROS, KERBEROS_WITH_KEYTAB, LDAP, and Default are supported. If the Auth Type is configured as KERBEROS_WITH_KEYTAB for the Hive database, then you must use the Keytab file to login to Kerberos. The Keytab and Kerberos files should be copied to $FIC_HOME/conf and $FIC_WEB_HOME/webroot/conf of OFS AAAI Installation Directory.
Connection Details	
Alias Name	This field is not applicable for HIVE DB with Auth Type as Default. Select the Alias name (connection) used to access the database from the drop-down list. Click  to add a new database connection/atomic schema user. The *Alias Details* window is displayed. • **Auth Alias**- Enter a name for the database connection. • **User/Principal Name**- Enter the atomic schema User ID to access the database. The system authenticates the specified User ID before providing access. • **Auth String**- Enter the password required to access the database/schema. The system authenticates the specified password before providing access. The maximum length allowed is 30 characters. Special characters are not allowed. **Note**: If Authentication type is KERBEROS_WITH_KEYTAB, Auth String (Password) is not required. Since the Auth String is set as mandatory field, enter a dummy password.
Auth Type	Displays the Authentication Type. This field is read-only.
TNS Entry String	This field is applicable only for ORACLE DB with Auth Type as Default. TNS is the SQL*Net configuration file that defines database address to establish connection. Enter the TNSNAME created for the Information Domain.
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.

Field	Description
JDBC Connection String	The default JDBC Connection String is auto populated based on the database type selected. This is the JDBC (Java Database Connectivity) URL configured by the administrator to connect to the database. • For ORACLE DB type it is jdbc:oracle:thin:@<<DB Server Name>>:<<Port Number>>:<<Oracle SID>> • For MSSQL DB type it is jdbc:microsoft:sqlserver://<<DB Server Name>>:<<Port Number>> • For DB2 DB type it is jdbc:db2://<<DB Server Name>>:<<Port Number>>/<<Database Name>> • For HIVE DB type, it is jdbc:hive2://<<DB Server Name>>:10000/default 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.
JDBC Driver Name	The default JDBC Driver Name is auto populated based on the database type selected. • For ORACLE DB type it is oracle.jdbc.driver.OracleDriver. • For MSSQL DB type it is com.microsoft.jdbc.sqlserver.SQLServerDriver. • For DB2 DB type, it is com.ibm.db2.jcc.DB2Driver. • For Hive with Auth type as Kerberos with Keytab, it is com.cloudera.hive.jdbc4.HS2Driver. In case of modification, ensure that the specified driver name is valid since the system does not validate the Driver Name. Multiple data sources pointing to different Hive servers are not supported.
JNDI Name	This field is applicable and mandatory for ORACLE DB. Enter the JNDI Name. JNDI name should be entered if you want to create information domain for this DB schema. If the DB schema is for Data Sources, you can use any dummy data for this field.
Key Tab File Name	This field is applicable for Authentication Type selected as KERBEROS WITH KEYTAB. Enter the name of the Key Tab file.
REALM File Name	This field is applicable for Authentication Type selected as KERBEROS and KERBEROS WITH KEYTAB. Enter the name of the Kerberos Realm file.
KERBEROS KDC Name	This field is applicable for Authentication Type selected as KERBEROS. Enter the name of Kerberos Key Distribution Center (KDC).
KERBEROS REALM Name	This field is applicable for Authentication Type selected as KERBEROS. Enter the name of the Kerberos Realm file.
JAAS File Name	This field is applicable for Authentication Type selected as KERBEROS. Enter the name of the Java Authentication and Authorization Service (JAAS) file.

3. Click **Save** to save the Database Details for DB Server.

11.1.6.2 Modifying Database Details

You can modify the database details by selecting the required Database schema from the *Database Master* window. The fields like Name, Schema Name, DB Type and Auth Type are not editable. You can add a new Alias (database connection) or modify the details of the existing Alias. For example, the password for the database connection can be modified by clicking in the **Alias Name** field and entering new password in the **Auth String** field in the *Alias Details* window. For more information, see 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 DB. 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.

11.1.7 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.

You (System Administrator) need to have SYSADM function role mapped to your role to access and modify the OLAP details. Click from the header to display the Administration tools in Tiles menu. Click **System Configuration** from the Tiles menu to view a submenu list and click **Configure OLAP Details** to view the *OLAP Details* window, or click button to access the Navigation List, click **System Configuration**, and click **Configure OLAP Details** to view the *OLAP Details* window.

By default the *OLAP Details* window displays the pre-configured server details specified during the installation.

11.1.7.1 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* window. The window is refreshed and enables you to populate the required data in the fields.

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.

Field	Description
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 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.

11.1.7.2 Modifying OLAP Details

By default, the *OLAP Details* window 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, see Add OLAP Details.

Once you have updated all the required information, click **Save** to save the OLAP Details.

11.1.8 Configure Email Configuration

The Email Configuration feature helps you add email IDs and map their details in OFSAA. The configured email IDs receive notifications through network communication channels when any feature that is mapped to email notifications is triggered.

You must have the **SYSADM** function role mapped to your role to access and modify the Email Configuration details.

11.1.8.1 Add an Email Configuration

To add email configuration in OFSAA, follow these steps:

1. Log in as a User with **System Administrator** privileges.
2. Click the **Administrator** icon from the Header to display the **Administration** window.

   The **Administrator** tools are displayed in the **Tiles** menu.
3. Click **System Configuration** from the **Tiles** menu to display a submenu list.
4. Click **Configure Email Configuration** to view the **Email Configuration** window

   Alternatively, to access the **Email Configuration** window, follow these steps:
   a. Log in as a User with **System Administrator** privileges.
   b. Click the **Menu Navigation** icon and access the **Navigation** List.
   c. Click **System Configuration** and then click **Configure Email Configuration**.
5. In the **Email Configuration** window, to add an Email Configuration record, click **Add** and enter the details as given in the following:
   a. **Email Service Name:** Enter the name of the email service provider.

      For example, oracle
   b. **Protocol:** Enter the protocol of the email server.

      For example, SMTP, IMAP, or POP.
   c. **Host:** Enter the host name or the IP address of the email server.

      For example, 192.0.2.1 or example.com
   d. **Port:** Enter the port number of the email server.

      For example, 25.
   e. **Authentication:** Select **True** if you require authentication or select **False**.

      If you select **True**, then the **User Name** and **Password** fields are enabled.

      Username: Enter the email User ID.

      Password: Enter the password to access the email.

11.1.8.2 View an Email Configuration

In addition to adding an Email Configuration in the **Email Configuration** window, you can select a record and click **View** to view the Email Configuration details.

11.1.8.3 Edit an Email Configuration

To edit an Email Configuration, select the required record and click **Edit** in the **Email Configuration** window. The Email Configuration is displayed in **Edit Mode**. Update the fields as required. The **Email Service Name** field is not editable.

For information about the fields in the window, see the steps in the **Add an Email Configuration** section.

11.1.8.4 Delete an Email Configuration

To delete an Email Configuration, select the required record and click **Delete** in the **Email Configuration** window. Select **OK** in the **Confirmation** window to delete.

11.1.9 Instance Access Token

The Instance Access Token enables you to invoke RESTful APIs (from external systems) that are packaged in the OFSAA Applications.

To enable this use case, you have to register the external system through the configuration UI as explained in the following section.

> **NOTE** The **Instance Access Token** feature is available from OFS AAI v8.0.8.3.0 and later versions.

The **Instance Access Token** provides the following abilities:

- Mechanism to generate multiple **Unique Transaction Tokens** that can be used to invoke the RESTful endpoint.
- Unique combination of **OFSAA** instance and a given external system name.

> **NOTE**
> - The **OFSAA Administrator** user is responsible to generate the token (or tokens) and share it with the external systems.
> - Every external system invoking the RESTful endpoints on the OFSAA instance must generate a separate unique Instance Access Token.

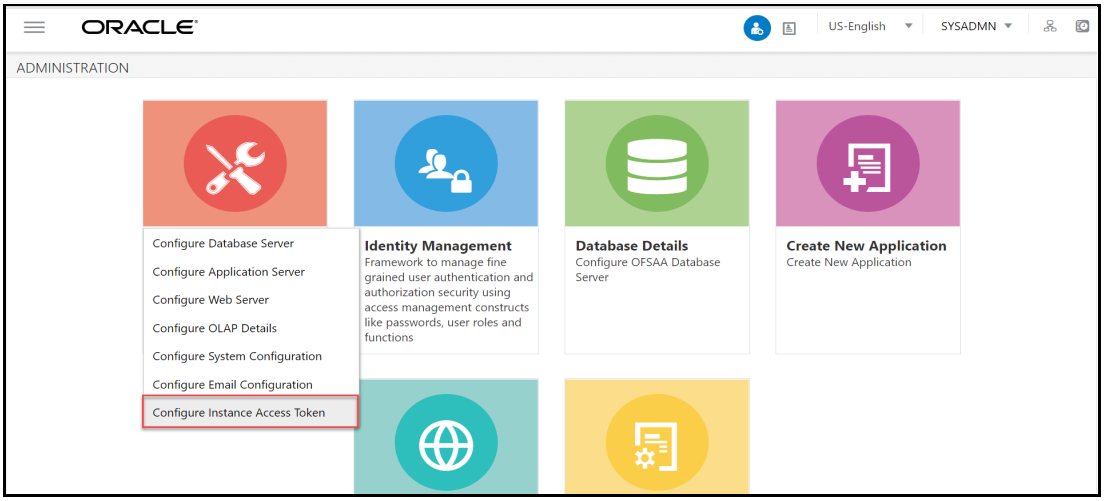
- Ability to generate the Instance Access Token multiple times, if previous token is misplaced or lost.
- Endpoint to generate the **Unique Transaction Token** requests based on the input of **Instance Name** and **Instance Access Token**.

11.1.9.1 Creating the Instance Access Token

As an **OFSAA Administrator** you can create the Instance Access Tokens and share it with the external systems for the RESTful endpoints access.

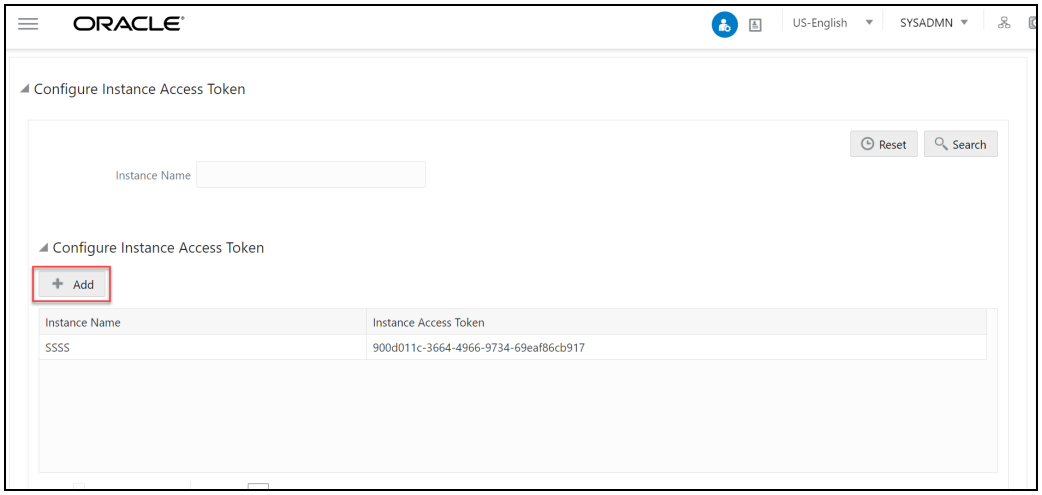
To create an Instance Access Token, perform the following steps:

1. Login as any user with System Administrator privileges and click **System Configuration**.
2. Select **Configure Instance Access Token** option from the **System Configuration** drop-down menu.

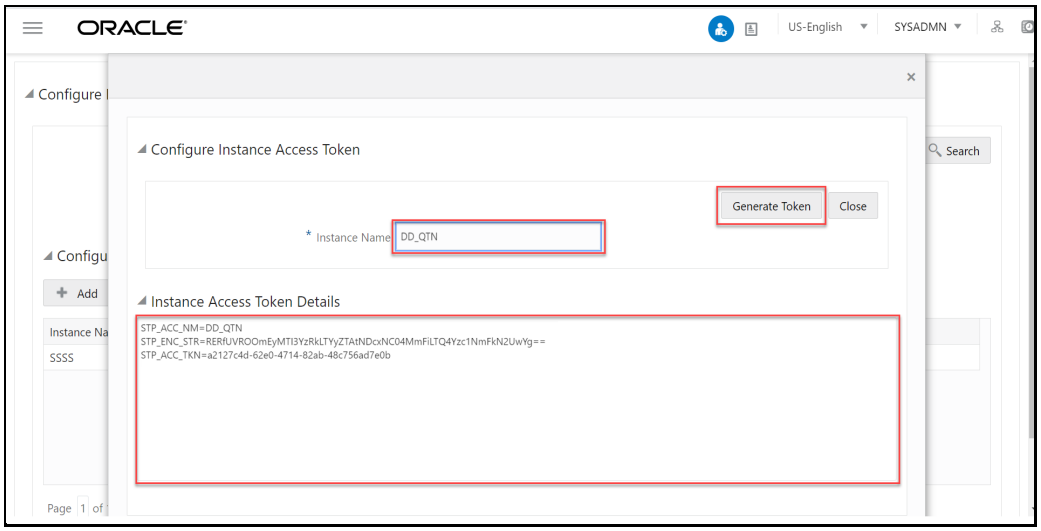


The **Configure Instance Access Token** page is displayed.

3. Click **+ Add**.



4. Specify the **Instance Name**.



5. Click **Generate Token**.

   The Instance Access Token is generated and displayed in the **Instance Access Token Details** pane.

6. Copy the text from the **Instance Access Token Details** pane to a text file and save it as xxxxxxx`.props` properties file.

The generated instance access token details should be used to further generate multiple Unique Transaction Tokens using GET API calls. For more information about generating the Generating Unique Transaction Tokens, see Generating Unique Transaction Tokens.

11.1.9.2 Generating Unique Transaction Tokens

You can use the following API to generate the One-Time Token:

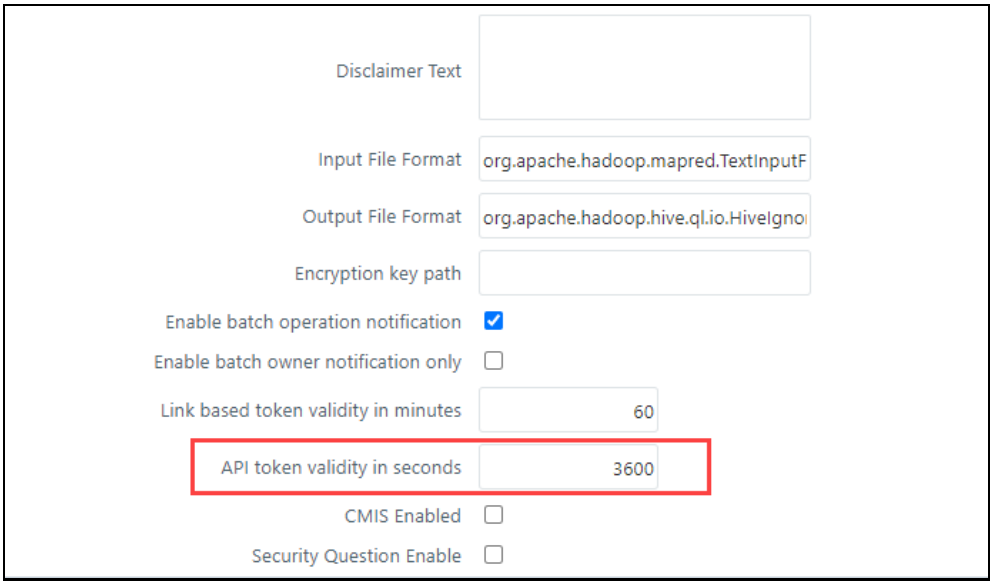
- **GET Method**
- **API**: /rest-api/auth/v1/token

For Authorization, use **BASIC AUTH** with the following values:

- **User Name**: Instance Name
- **Password**: Instance Access Token (**STP_ENC_STR**)

11.1.9.2.1 Token Expiry Configuration

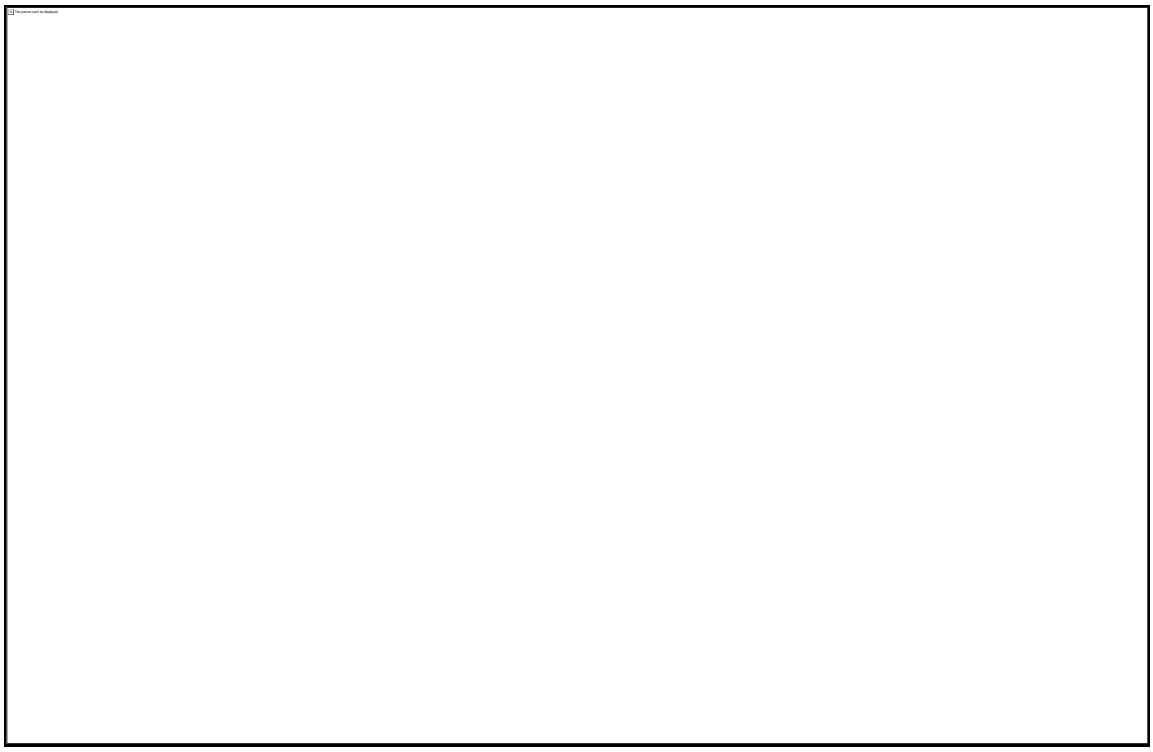
The token expiry time can be configured in the **Configuration UI**. Specify the expiry limit of the token in the **API token validity in seconds** field. By default, the One-Time Token validity is set to one hour.



11.1.9.2.2 Configuration for SSO enabled setups

For SSO enabled setups, additionally configure the following fields:

- SSO Enabled
- Enable native authentication for Rest API

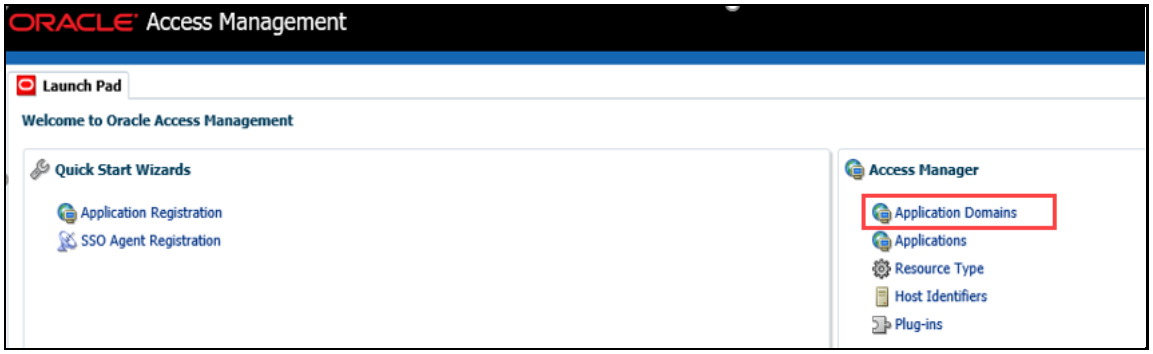


11.1.9.2.3 Authentication Policy Setting configuration on SSO Server

To set the authentication policy settings, perform the following steps:

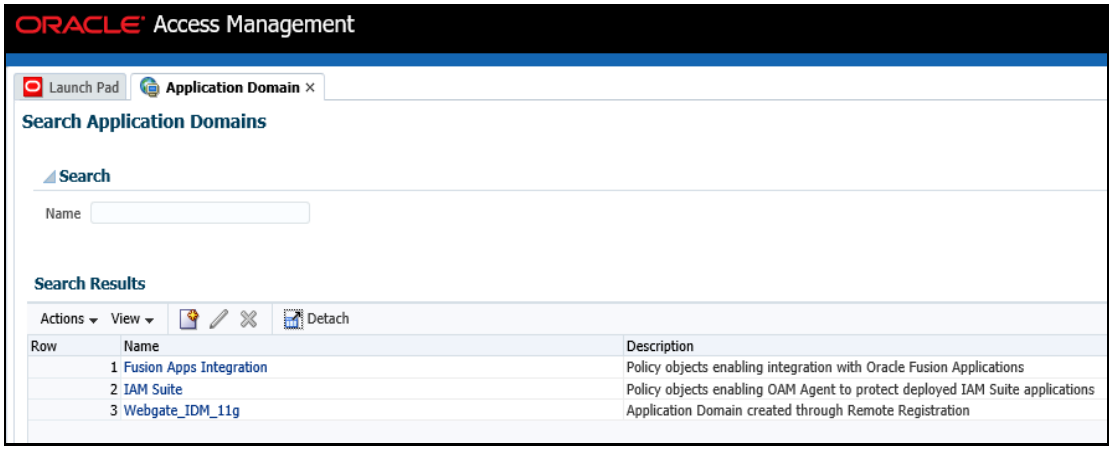
NOTE The following steps is an example, and it is applicable, if the SSO software is Oracle Identity Manager (IDM).

1. Login to the **OAM Administrator Console**.
2. On the **Launch Pad**, click **Application Domains** from the **Access Manager** widget.

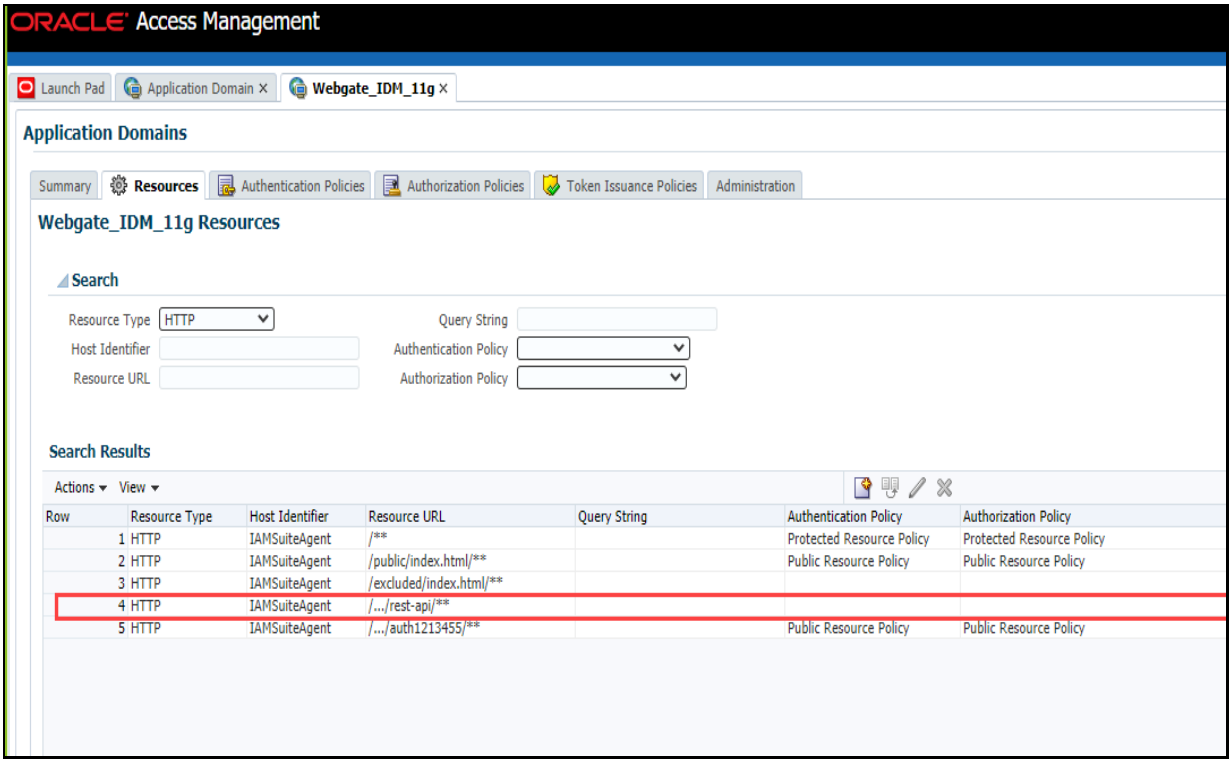


The *Application Domain* window is displayed.

3. Search for the required application domain for which you want to switch the authentication scheme, click **Name** from the search results to display the details for the application domain.

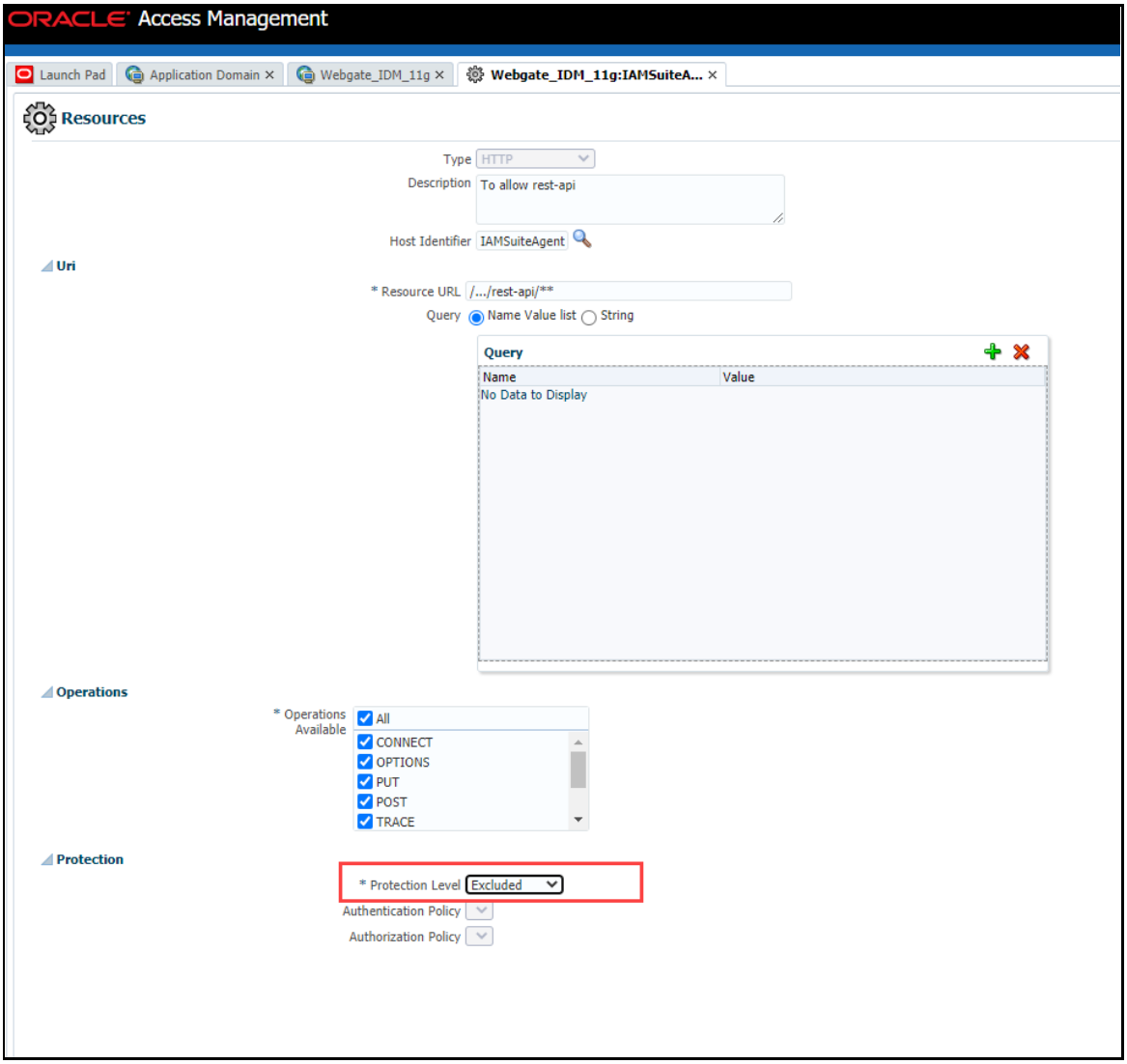


4. Click the **Webgate_IDM_11g** and click **Resource** tab.
5. Click the **Search** button.



The Search Results are displayed.The **REST APIs** required for **OFSAA** is highlighted as displayed in the figure.

6. Click the **Edit** icon.
7. Modify the **Protection Level** from **Protected** to **Excluded**.



To enable token based authentication for **REST APIs**, rather with basic authentication, you must change **Protection Level** from **Protected** to **Excluded**.

8. Click **Apply** to save.

11.1.9.2.4 API Response

The GET API generates a One-Time Access Token as response in the JSON format as follows:

API call: `/rest-api/auth/v1/token:`

Response:

```
{
    "token_type": "Bearer",
    "expires_in": 3600,
    "token":
"eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzI1NiJ9.eyJqdGkiOiI5ZDljZWU4YS0zOGJmLTRkMjMt
OTU1ZC1kMTU5ODA2YTk5NzciLCJpc3MiOiJSU19RVE4iLCJhdWQiOiJPRlNBQSIsInN1YiI6Il
```

```
JTX1FUTiIsImlhdCI6MTYwNDk4NzU1OCwiZXhwIjoxNjA0OTkxMTU4fQ.WcxtP3A0NJa4U5bjD
_D8GQzzMd77pI4woW2Of11bxNMXnGM8jJUEI6msD81wayfs7Oemimv6SR4PGgln6xT_ylLXIcL
5qgSBqHifY-
Jb325gvKEMwize97SDEmLNhxz9x9dB5xvUguKIZsXz7CGK1aY8HPTdM4IZBZLHHccJIvgf0arE
3EeZtURdaycT9RbPYZvyyFW-ODK-NKSWATnbCmLVb-
CDZjcaO5KToX_ZXQIOmerWz2Wcj0wS8khceNq_zw-2O5cSAFrH15W0uyDWNLJd-
giT7sAXBi3oChxQ4Ms1qM7IB9xdVw44t0VGWrZfr5C-Yq3BGpkH_qix8R_r_A"
}
```

11.1.9.2.5 Invoking REST API using Bearer Token

To invoke your REST API using the bearer token, refer to the following sample:

Curl Command for logging in the REST API access through bearer token

```
curl --location --request POST 'http://whf00pfs:8092/ofsa/rest-
api/idm/service/login' \
--header 'Authorization: Bearer
eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzI1NiJ9.eyJqdGkiOiI5ZDljZWU4YS0zOGJmLTRkMjMtO
TU1ZC1kMTU5ODA2YTk5NzciLCJpc3MiOiJSU19RVE4iLCJhdWQiOiJPRlNBQSIsInN1YiI6IlJ
TX1FUTiIsImlhdCI6MTYwNDk4NzU1OCwiZXhwIjoxNjA0OTkxMTU4fQ.WcxtP3A0NJa4U5bjD_
D8GQzzMd77pI4woW2Of11bxNMXnGM8jJUEI6msD81wayfs7Oemimv6SR4PGgln6xT_ylLXIcL5
qgSBqHifY-
Jb325gvKEMwize97SDEmLNhxz9x9dB5xvUguKIZsXz7CGK1aY8HPTdM4IZBZLHHccJIvgf0arE
3EeZtURdaycT9RbPYZvyyFW-ODK-NKSWATnbCmLVb-
CDZjcaO5KToX_ZXQIOmerWz2Wcj0wS8khceNq_zw-2O5cSAFrH15W0uyDWNLJd-
giT7sAXBi3oChxQ4Ms1qM7IB9xdVw44t0VGWrZfr5C-Yq3BGpkH_qix8R_r_A'
```

11.1.10 Information Domain

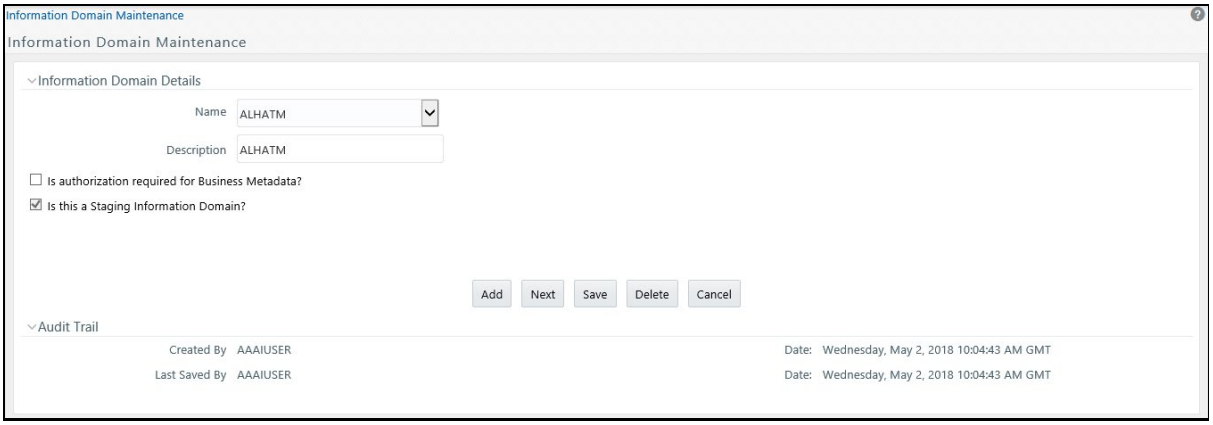
Information Domain within the Infrastructure system refers to a specific area of analysis which consists of stored data models with the related Technical and Business data definitions for processing. An Information Domain forms the backbone for all the data analysis. Information domain comprises of Metadom Schema and Datadom Schema. Metadom Schema holds all the Business data definitions and Datadom Schema consists of stored data models. For RDBMS infodom, Metadom and Datadom schemas can be pointed to the same database schema. For HDFS database, Metadom should mandatorily point to an RDBMS schema and Datadom schema should point to the Hive schema.

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* window 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. Click from the header to display the Administration tools in Tiles menu. Click **Information Domain** from the Tiles menu to view the *Information Domain Maintenance* window, or click button to access the Navigation List, click **Information Domain** to view the *Information Domain Maintenance* window.

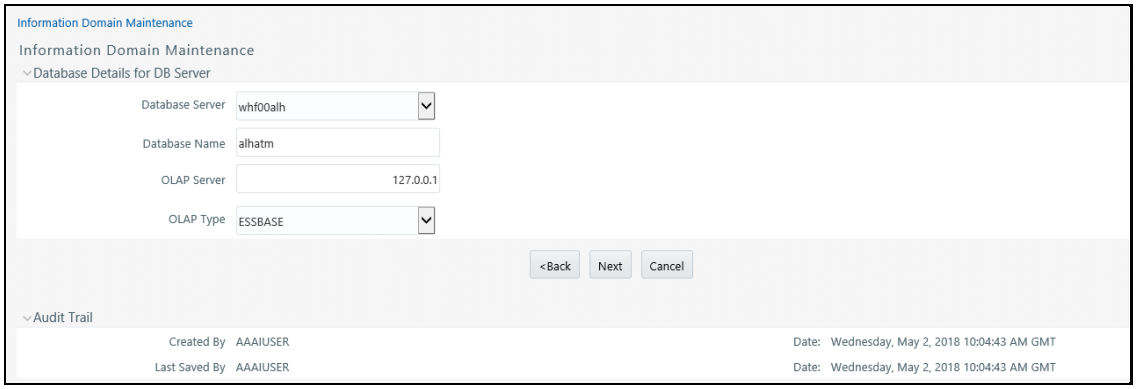


By default the *Information Domain Maintenance* window displays the pre-configured Information Domain details and allows you to add, modify, and delete Information Domains.

11.1.10.1 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* window. The window is refreshed and enables you to populate the required data in the fields.



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.
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.

4. Click **Next**.
5. Specify the file location path of **ERwin**, **Log**, and **Scripts** file on the application server. For example, 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.
6. 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.

7. Select the **Meta Database Server** from the drop-down list. This is the database server of the Metadom Schema.
8. Enter the Database Name of the Metadata Schema.
9. Click **Save** to save the Information Domain details.

   After creating Information Domain successfully, add persistence unit entry and replace the `$JNDI_KEY_FOR_SERVER_TYPE` in **GRCpersistence.xml** file present under `$FIC_WEB_HOME/webroot/WEB-INF/classes/META-INF` folder.

The value for `JNDI_KEY_FOR_SERVER_TYPE` will vary based on the webserver type.

Similarly add persistence unit entry to **persistence.xml** file present under `$FIC_DB_HOME/conf/META-INF` folder.

On creating an Information Domain a list of objects are created using the script files.

11.1.10.2 Modifying Information Domain

By default, the *Information Domain Maintenance* window 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 "Is authorization required for Business Metadata?"
- In **Generate BI hierarchy** section, you can change the option to 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, see Create Information Domain.

11.1.10.3 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 the **Name** drop-down list and click **Delete**.

> **NOTE** You need to manually drop the Atomic Schema/ objects in the schema upon deletion of INFODOM.

Perform the following actions:

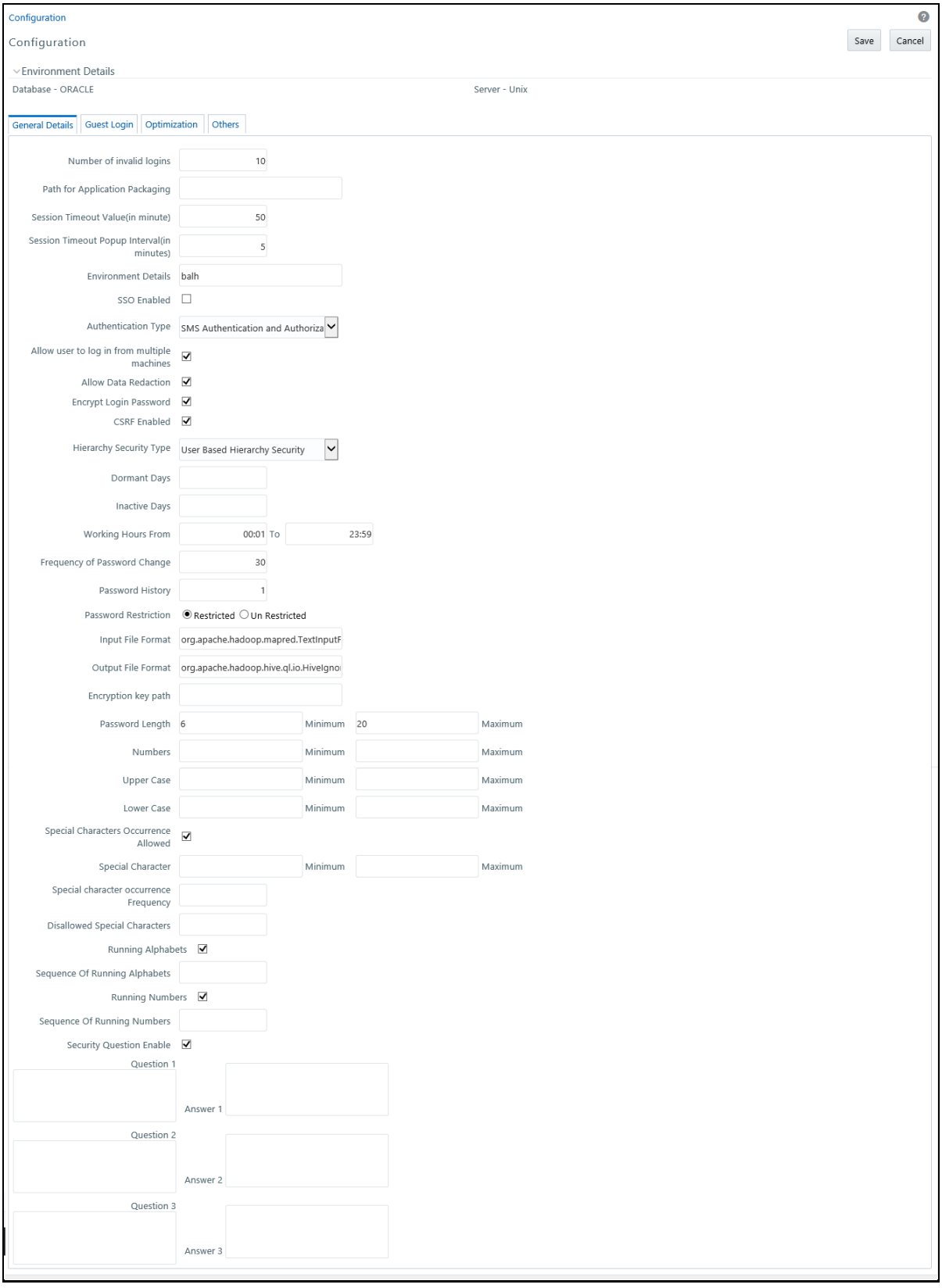
1. Login to the Websphere/ Weblogic Admin console.

2. Delete any Data Sources/ Connection Pool entries configured to the Atomic Schema of the INFODOM being deleted. For more information, see Appendix B in the OFS AAAI Application Pack Installation and Configuration Guide available in the OHC Documentation Library.
3. Navigate to `$FIC_HOME/ficweb/webroot/WEB-INF/` folder.
4. Edit the `web.xml` file and delete any <resource-ref> entries pointing to the same ATOMIC schema.
5. Navigate to the folder on your OFSAA instance identified as FTPSHARE.
6. Delete the folder with same name as the INFODOM being deleted.

11.1.11 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. Click  from the header to display the Administration tools in Tiles menu. Click **System Configuration** from the Tiles menu to view a submenu list and click **Configure System Configuration** to view the *Configuration* window, or click  button to access the Navigation List, click **System Configuration**, and click **Configure System Configuration** to view the *Configuration* window.


Configuration
Configuration
Save
Cancel
Environment Details
Database - ORACLE
Server - Unix
General Details
Guest Login
Optimization
Others
Number of invalid logins
10
Path for Application Packaging
Session Timeout Value(in minute)
50
Session Timeout Popup Interval(in minutes)
5
Environment Details
balh
SSO Enabled
Authentication Type
SMS Authentication and Authoriza
Allow user to log in from multiple machines
Allow Data Redaction
Encrypt Login Password
CSRF Enabled
Hierarchy Security Type
User Based Hierarchy Security
Dormant Days
Inactive Days
Working Hours From
00:01
To
23:59
Frequency of Password Change
30
Password History
1
Password Restriction
Restricted
Un Restricted
Input File Format
org.apache.hadoop.mapred.TextInputF
Output File Format
org.apache.hadoop.hive.ql.io.HiveIgno
Encryption key path
Password Length
6
Minimum
20
Maximum
Numbers
Upper Case
Lower Case
Special Characters Occurrence Allowed
Special Character
Special character occurrence Frequency
Disallowed Special Characters
Running Alphabets
Sequence Of Running Alphabets
Running Numbers
Sequence Of Running Numbers
Security Question Enable
Question 1
Answer 1
Question 2
Answer 2
Question 3
Answer 3

The *Configuration* window consists of four sections namely General Details, Guest Login Details, Optimization, and Others. By default the *General Details* window 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.

11.1.11.1 Update General Details

OFSAAI supports four 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. You can configure multiple LDAP servers. While logging in to OFSAA instance, you can select the appropriate LDAP Server to be authenticated against.
- **SSO Authentication & SMS Authorization**- Ensure SSO server is configured if you are selecting this option.
- **SSO Authentication (SAML) and SMS Authorization**

Specify the configuration details as tabulated:

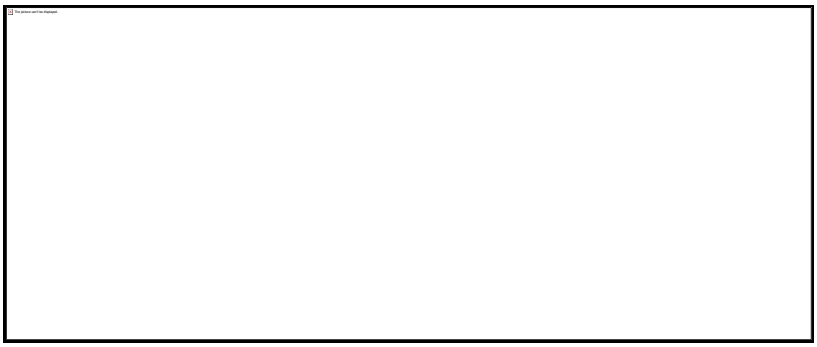
Field	Description
Number of invalid logins	This field is not applicable if you are selecting **SSO Enabled** check box. Enter the number of attempts permitted for the user to enter wrong passwords, after which the user account will be disabled.
Path for Application Packaging	Enter the Application Packaging path where the JSP's generated through DEFQ is saved.
Session Timeout Value (in minutes)	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 timeout value should be atleast or more than 10 minutes. • 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.
Session Timeout Popup Interval (in minutes)	Enter the time left in the session timeout at which a popup should appear and display a timer that shows time remaining for the session to end. For example, if you enter 50 minutes to the Session Timeout Value and enter 5 minutes to the Session Timeout Popup Interval, the popup appears on the screen after 45 minutes of inactivity and displays the timer (starts from 5 minutes and ends at 0) for the session timeout.
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.

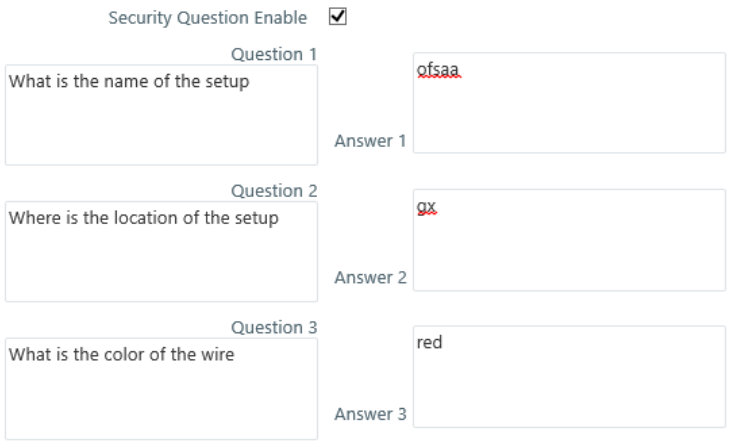
Field	Description	
SSO Enabled	Select this check box to enable SSO Authentication & SMS Authorization. **Note**: If SSO is enabled, then you need to configure SSO URL for referer header validation. For more informaton, see **Configure Referer Header Validation** from the Security Guide.	
If **SSO Enabled** checkbox is selected:	Authentication Type	The options displayed for **Authentication Type** are: • SSO Authentication & SMS Authorization • SSO Authentication(SAML) and SMS Authorization
	SSO Method	This field is displayed only if you have selected Authentication Type as **SSO Authentication and SMS Authorization**. 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	This field is displayed only if you have selected Authentication Type as **SSO Authentication and SMS Authorization**. Enter the URL of the page to invalidate SSO session.
	SSO Redirect URL	This field is displayed only if you have selected Authentication Type as **SSO Authentication and SMS Authorization**. Enter the URL of the page to which the user should be redirected after SSO session is invalidated.
	OFSAA as Service Provider	This field is displayed only if you have selected Authentication Type as **SSO Authentication (SAML) and SMS Authorization.** Select this checkbox if you want to register OFSAA as service provider. If the checkbox is not selected, OFSAA will act as Oneway SAML Authentication. That is, OFSAA will only assert the identity. For more details on how to register OFSAA as Service Provider, see SSO Authentication (SAML) Configuration section in OFSAAI Administration Guide.

Field	Description		
	Identity Provider URL	This field is displayed only if you have selected the **OFSAA as Service Provider** checkbox. Enter the IdP SingleSignOnService URL in the **Identity Provider URL** field. **Note**: • Enter the fully qualified domain URL used to access the **Identity Provider.** • This is optional field and only required if IDP URL for login and logout are different. In case this field is not configured then "Identity Provider URL" will be used for both login and logout requests.	
	Generate Logout Request	This field is displayed only if you have selected Authentication Type as **SSO Authentication (SAML) and SMS Authorization**. Select to generate a SAML request for logout. Deselect this field to direct users to the URL specified in the **SAML Logout URL** field for logout.	
	Sign Authentication Request	This field is displayed only if you have selected Authentication Type as **SSO Authentication (SAML) and SMS Authorization**. Select this field and the following fields appear, which provide capabilities to generate signed SAML requests: • Private Key • X509 Certificate • Signature Algorithm **Note:** We recommend that you use the `PKCS#8` format. Do not protect the key with any passphrase.	
		Private Key	Update this field with the private key used to sign the SAML request.
		X509 Certificate	Update this field with the certificate to sign the SAML request. Update the sp_metadata.xml file with the same certificate. For more information, see the SAML Service Provider Metadata Configuration with Certificate section in the OFSAAI Administration Guide.
		Signature Algorithm	Enter the URI of the algorithm. The following are a few examples from w3.org: • http://www.w3.org/2001/04/xmldsig-more#rsa-sha256 • http://www.w3.org/2001/04/xmldsig-more#rsa-sha224 • http://www.w3.org/2001/04/xmldsig-more#rsa-sha384 • http://www.w3.org/2001/04/xmldsig-more#rsa-sha512 **Note:** If you leave this field blank, the system applies the default signature **RSA-SHA256**.

Field	Description	
	SAML User Attribute	This field is displayed only if you have selected Authentication Type as **SSO Authentication (SAML) and SMS Authorization.** Enter the user attribute name, which is used to pass the User ID in SAMLResponse. If this parameter is not set, users are retrieved from attribute "Subject" by default.
	SAML Certificate Absolute Path	This field is displayed only if you have selected Authentication Type as **SSO Authentication (SAML) and SMS Authorization.** Enter the absolute path of the SAML Certificate from the Identity Provider. It is required for SAML Assertion. If this parameter is not set, signature from SAMLResponse will not be verified. **Note:** Ensure that the path is accessible to the OFSAA application and it includes the certificate name.
	SAML Logout URL	This field is displayed only if you have selected Authentication Type as **SSO Authentication (SAML) and SMS Authorization.** Enter the URL of the SAML logout page to be called on logout operation.
	SAML Request Binding	This field is displayed only if you have selected Authentication Type as **SSO Authentication (SAML) and SMS Authorization**. Select from the following options for the mechanism to transmit SAML messages: • HTTP POST - Select to send the SAML request using HTTP POST bind. • HTTP Redirect - Select to send the SAML request using HTTP Redirect bind. **Note:** The default option is HTTP POST bind.
Authentication Type	Select the required authentication type from the drop-down list. The options are : • SMS Authentication & Authorization • LDAP Authentication & SMS Authorization When you select Authentication Type as **LDAP Authentication & SMS Authorization,** the LDAP Server Details popup is displayed. For more details, see LDAP Server Details.	
Allow user to login from multiple machines	Select the checkbox to allow concurrent user login.	
Allow Data Redaction	Select the checkbox to enable Data Redaction. For more details, see the section Data Redaction in the OFS AAI Administration Guide.	
Encrypt Login Password	This field is not applicable if you have selected **SSO Enabled** check box. Select the checkbox to encrypt the login password for more protection. **Note**: For LDAP Authentication & SMS Authorization, this checkbox should not be selected.	
CSRF Enabled	Select this checkbox to enable protection for Cross Site Request Forgery (CSRF) in the application.	

Field	Description
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 window.
Dormant Days	This field is not applicable if you have selected **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 have selected **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.
Working Hours	This field is not applicable if you have selected **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 have selected **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 *Change Password* window.
Password History	This field is not applicable if you have selected **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 have selected **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.
Disclaimer Text	Enter any disclaimer information that you want to make available for the users of the application on the login window.

Field	Description
EMAIL NOTIFICATION	Email Notifications can be sent based on the following: • Enable batch operation notification: Notifications is sent to all users mapped to the batch monitor functionality. • Enable batch owner notification only: Notification to the user who executes the batch. 
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. • **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.

Field	Description
Security Question Enable	Select to enable security questions that users would have to answer before they can reset their passwords. This feature enhances user authenticity validation. Enter information for the following fields: • Question 1 – Enter the first question to be displayed on the password reset page. • Answer 1 – Enter the answer to the first question. • Question 2 - Enter the second question to be displayed on the password reset page. • Answer 2 – Enter the answer to the second question. • Question 3 - Enter the third question to be displayed on the password reset page. • Answer 3 – Enter the answer to the third question. The following illustration is an example: 

Click **Save** and save the general tab details.

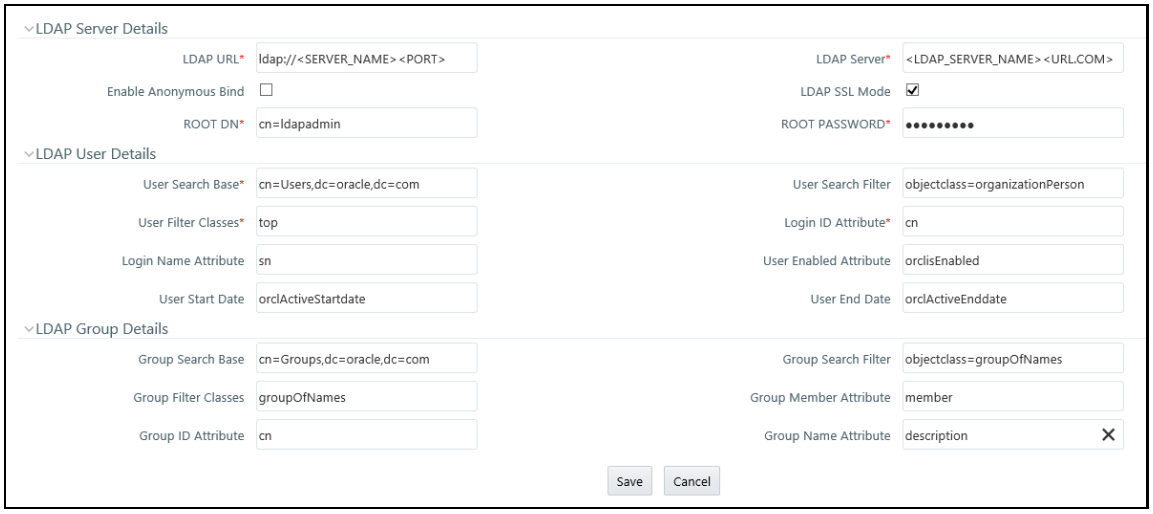
11.1.11.1.1 LDAP Server Details

This feature allows you to configure and maintain multiple LDAP servers in the OFSAA instance. You can add a new LDAP server, modify/ view LDAP server details, and delete an existing LDAP server.

The *LDAP Server Details* window displays the details such as ROOT Context, ROOT DN, LDAP URL, LDAP SSL Mode, and LDAP Server name.

To add a new LDAP Server

1. Select **LDAP Authentication & SMS Authorization** from the Authentication Type drop-down list in the General Details tab, the *LDAP Server Details* window is displayed.
2. Click ➕ button in the toolbar. The *LDAP Server Details* window is displayed.



3. Enter the details as tabulated:

Field	Description
Fields market with * are mandatory.	
LDAP Server Details	
LDAP URL	Enter the LDAP URL from which the system authenticates the user. For example, ldap://hostname:3060/.
LDAP Server	Enter the LDAP Server name. For example, ORCL1.in.oracle.com.
Enable Anonymous Bind	Select this option to login to the database anonymously and perform functions. This is useful when you are searching for a user in the system and cannot find the user. For example, you cannot find a cn due to a name change and you have to map the user to the correct dn. You can use a property such as email to search for the dn and map it correctly. **Note**: Selecting this field disables ROOT DN and ROOT Password fields.
LDAP SSL Mode	Select the checkbox to enable LDAP over SSL to ensure encryption of user credentials when transferred over a network.
ROOT DN	Enter the ROOT Distinguished Name. For example, cn=orcladmin,cn=Users,dc=oracle,dc=com.
ROOT Password	Enter the LDAP server root password for authentication.
LDAP User Details	
User Search Base	Enter the full path of the location of the active directory in the LDAP server from which to start the user search. This is a comma-delimited parameter. For example, cn=User,dc=oracle,dc=com
User Search Filter	Enter search filters to limit the user search for the results obtained from 'User Search Base'. For example, objectclass=organizationalPerson.
User Filter Classes	Enter a user search filter to include specific user groups. For example, enter 'top' for the search to access groups up to the top-level in the directory.

Field	Description
Login ID Attribute	Specify the login ID attribute (user name) to be used in the system for users. For example, enter 'cn' to use the common name as the login id attribute.
Login Name Attribute	Specify the attribute that maps to the Login ID. This is used for authentication purposes. For example, 'sn' maps to 'cn'.
User Enabled Attribute	Enter the attribute to enable or disable a user. For example, 'orclisEnabled' is to enable a user account in the LDAP server.
User Start Date	Enter the attribute that stores the user-account start-date information. For example, 'orcActiveStartdate' contains start dates of all users.
User End Date	Enter the attribute that stores the user-account end-date information. For example, 'orclActiveEndDate' contains start dates of all users.
LDAP Group Details	
Group Search Base	Enter the full path of the location of the active directory in the LDAP server from which to start the group search. This is a comma-delimited parameter. For example, cn=Groups,dc=oracle,dc=com
Group Search Filter	Enter search filters to limit the group search for the results obtained from 'Group Search Base'. For example, objectclass=groupOfNames.
Group Filter Classes	Enter a group search filter to include specific groups. For example, groupOfNames.
Group Member Attribute	Enter a member attribute listed for the Groups. For example, 'member'.
Group ID Attribute	Enter the attribute that identifies the group name. For example, 'cn'.
Group Name Attribute	Enter the attribute that specifies the full name of the group. For example, description

4. Click **Save**.

When a business user accesses OFSAA login window where multiple LDAP servers are configured in the OFSAA instance, the **LDAP Server** drop-down list is displayed. If the user selects an LDAP server, he will be authenticated only against the selected LDAP server. If the user does not select any LDAP server, he will be authenticated against the appropriate LDAP server.

NOTE SYSADMN/ SYSAUTH/ GUEST users need not select any LDAP server as they are always authenticated against SMS store. Additionally, if a specific user is marked as "SMS Auth Only" in the *User Maintenance* window, then that user is authenticated against the SMS store instead of the LDAP store even though the OFSAA instance is configured for LDAP authentication. The user has to enter password as per SMS store.

11.1.11.1.2 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.
- /<context-name>/login.jsp should be the only resource that is protected.
- The following URLs are there in the excluded URL list in SSO server:

1. `MAP_WSDL_LOCATION=$PROTOCOL$://$WEBSERVERHOST$:$WEBSERVERPORT$/$CONTEXT$/mdbObjAppMap?wsdl`
2. `MDBPUBLISH_EXECUTION_WSDL_LOCATION=$PROTOCOL$://$WEBSERVERHOST$:$WEBSERVERPORT$/$CONTEXT$/mdbPublishExecution?wsdl`
3. `Rest Service for Object Migration :- $PROTOCOL$://$WEBSERVERHOST$:$WEBSERVERPORT$/$CONTEXT$/rest-api/migrationrest/MigrationRESTService/invokeMigrationService`
4. `Rest Service for WSMRE :- $PROTOCOL$://$WEBSERVERHOST$:$WEBSERVERPORT$/$CONTEXT$/rest-api/rrfmrerest/RestfulMREService/RestfulMREInvoke`
5. `Data Redaction = $PROTOCOL$://$WEBSERVERHOST$:$WEBSERVERPORT$/$CONTEXT$/rest-api/redaction/redact/summary`
6. `$PROTOCOL$://$WEBSERVERHOST$:$WEBSERVERPORT$/$CONTEXT$/servlet/com.iflex.fic.ficml.FICMaster`
7. `$PROTOCOL$://$WEBSERVERHOST$:$WEBSERVERPORT$/$CONTEXT$/servlet/com.iflex.fic.icc.iccwl.ICCComm`
8. `$PROTOCOL$://$WEBSERVERHOST$:$WEBSERVERPORT$/$CONTEXT$/help.jsp`
9. `$PROTOCOL$://$WEBSERVERHOST$:$WEBSERVERPORT$/$CONTEXT$/help/*`

> **NOTE** The place holders such as $PROTOCOL$, $WEBSERVERHOST$, $WEBSERVERPORT$, and $CONTEXT$ in the URLs should be updated appropriately

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.

11.1.11.2 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:

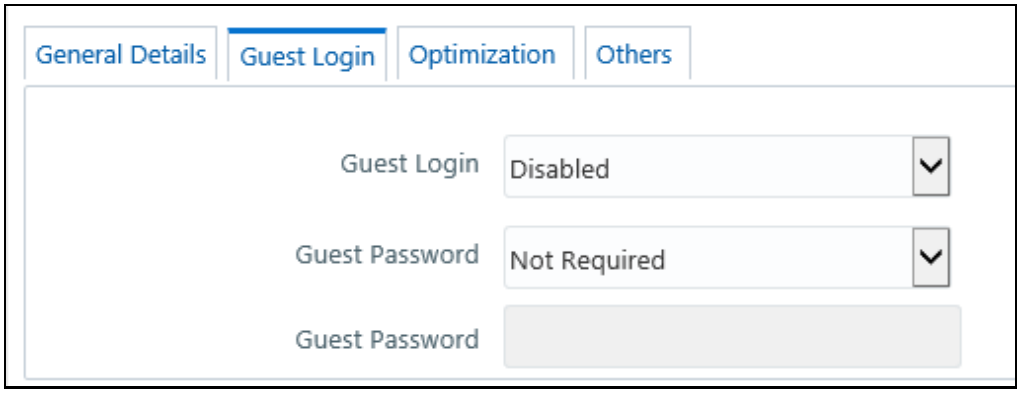
- Functions and Roles should be mapped appropriately for tracking the guest user activities on the system.

  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:

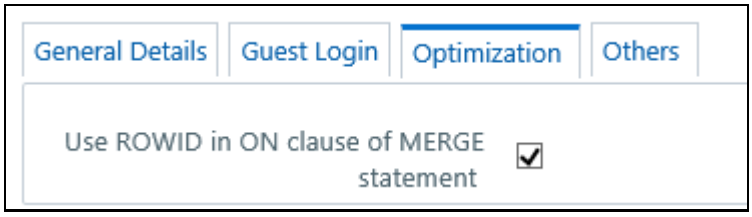


Field	Description
Guest Login	Select one of the following option from the drop-down list: ENABLED - To enable guest users and allow them to login to the system. DISABLED - To restrict access to guest users.
Guest Password	You can select the Guest Password as one of the following from the drop-down list 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.

11.1.11.3 Update Optimization Details

1. Select Optimization Details tab and update the details as tabulated:



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.

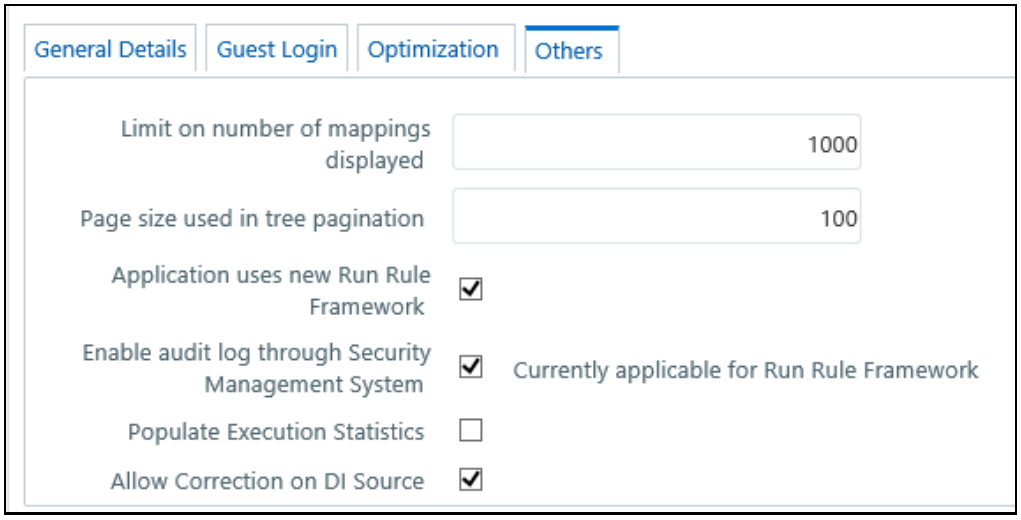
Field	Description
Hint used for MERGE statement	Specify the SQL Hint that can be used to optimize Merge Query. For example, "/*+ ALL_ROWS */" In a Rule Execution, Merge Query formed using definition level Merge Hint precede over the Global Merge Hint Parameters defined here. In case the definition level Merge Hint is empty / null, Global Merge Hint (if defined here) is included in the query.

Field	Description
Hint used for SELECT statement	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 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.
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.

11.1.11.4 Updating Others Tab

1. Select the Others tab and update the details as tabulated:



You can modify the Others tab details as tabulated below:

Field	Description
Limit on number of mappings displayed	Specify the number of mappings which are to be displayed in *Rule Definition* window. 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 *Process Component Selector* window. 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 *Metadata Browser* and *Enterprise Modeling* windows.
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, see Populate Execution Statistics in References section.
Allow Correction on DI Source	Select the checkbox to allow data correction on the data source. This enables the data correction to be executed along with data quality checks. If the checkbox is not selected, data corrections will be done with T2T (LOAD DATA) executions, that is while loading the data to the target table. By default, the checkbox is selected.

2. Click **Save** and save the Others tab changes.

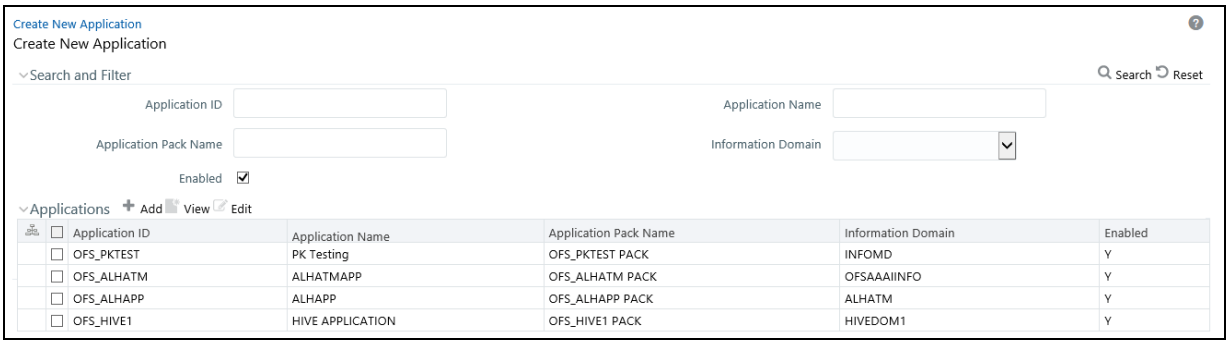
11.1.12 Application

Once an application pack is installed, you can use only the Production or Sandbox information domain, created during the installation process. Though there is an option to create a new Information Domain, there is no menu to work with the frameworks on the newly created information domain. This information domain then created acts only as a Sandbox Infodom.

The Create New Application feature allows you (System Administrator) to create a new Application other than the standard OFSAA Applications and associate the standard/default platform framework menu with it, thereby enabling the new application for usage. The standard platform framework menu is seeded and rendered.

Click from the header to display the Administration tools in Tiles menu. Click **Create New Application** from the Tiles menu to view the *Create New Application* window, or click button to access the Navigation List, and click **Create New Application** to view the *Create New Application* window.

After you create an Application, a new Role is created as <APP_CODE>ACC. This role needs to be mapped to the user group and the users mapped to that user group will get the new Application listed in the Tiles menu that appears on clicking from the header. Only Enabled applications are listed in this menu.



The *Create New Application* window displays the existing Applications with the metadata details such as Application ID, Application Name, Application Pack Name, Information Domain, and Enabled status.

You can make use of Search and Filter option to search for specific Application based on ID, Name, Application Pack Name, Information Domain, and Enabled status.

11.1.12.1 Creating a New Application

This option allows you (System Administrator) to create a new Application by providing ID, Name, and Description. You need to select the information domain which you want to map to the newly created Application. You also have an option to enable or disable the Application.

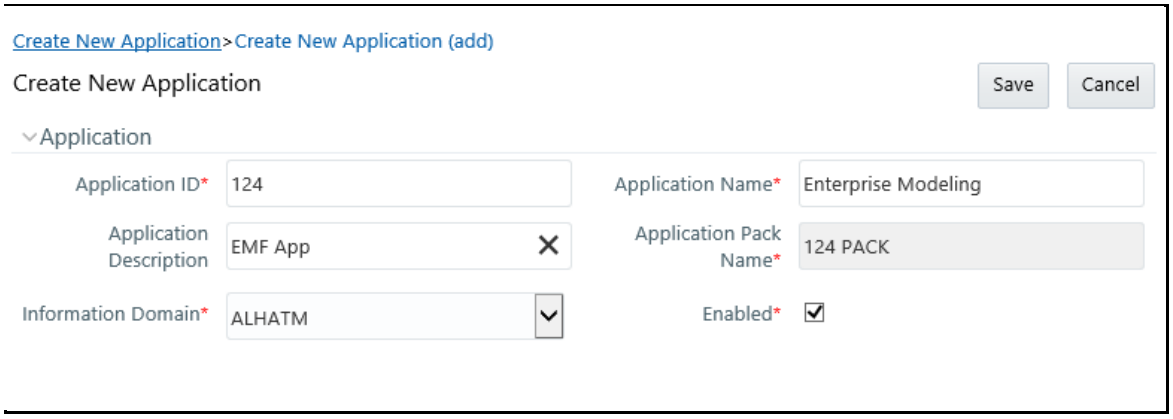
Note the following points:

- At least one Information domain should be present. For more information on creating an Information Domain, see the Creating Information Domain section.
- Mapping the same information domain to different Applications is allowed.

- The menu to the new Application will be the complete set of platform framework menus including Enterprise Modeling and Inline Processing Engine menus that work on DATADOM schema. Access to the menus is controlled using the User Group-Role mappings.

To create an Application

1. Click from the header to display the Administration tools in Tiles menu. Click **Create New Application** from the Tiles menu to view the *Create New Application* window, or click button to access the Navigation List, and click **Create New Application** to view the *Create New Application* window.
2. Click from the Applications toolbar. The *Create New Application* window is displayed.



3. Enter the details as tabulated:

Field	Description
Application ID	Enter the Application ID.
Application Name	Enter the name of the Application. Maximum of six characters is supported.
Application Description	Enter the description of the Application.
Application Pack Name	This field is automatically populated after you enter the Application ID. The Application pack name will be <Application ID>PACK.
Information Domain	Select the Information Domain which you want to map to the Application from the drop-down list. The information domains to which your user group is mapped are displayed in the list.
Enabled	Select the checkbox to enable the Application for usage.

4. Click **Save.**

   The new Application gets created and it appears in the *Summary* window. A new User Role is created as <APP_CODE>ACC. You need to map this User Role to the required User Groups from the User Group Role Map window. Once the System Authorizer authorizes the User Group- Role Map, the new Application will be listed in the **Select Applications** drop-down from the Applications tab for the User Group.

11.1.12.2 Modifying an Application

This option allows you to edit an existing Application. Only Application Name and Description can be modified.

To modify an Application

1. Click from the header to display the Administration tools in Tiles menu. Click **Create New Application** from the Tiles menu to view the *Create New Application* window, or click button to access the Navigation List, and click **Create New Application** to view the *Create New Application* window.
2. Click from the Applications toolbar. The *Create New Application (Edit)* window is displayed.
3. Modify the required fields. You can edit the Application Name and Application Description.
4. Click **Save**.

11.2 Identity Management

Identity 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.

11.2.1 Navigating to Identity Management

Click from the header to display the Administration tools in Tiles menu. Click **Identity Management** from the Tiles menu to view the *Security Management* window, or click button to access the Navigation List, and click **Identity Management** to view the *Security Management* window.

11.2.2 Components of Identity 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
- Enable User

11.2.3 Mappings in Identity Management

User- User Group Mappings

- A user is mapped to a single or multiple user groups
- A user group can have multiple users
- User to user group mapping is many to many

Function- Role Mappings

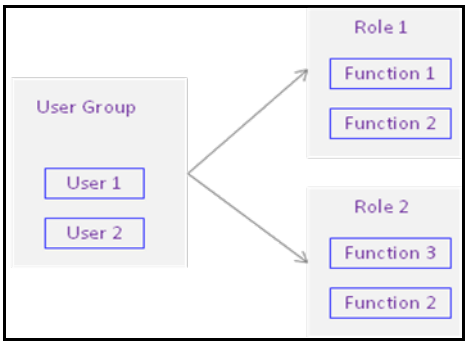
- A function is mapped to multiple roles
- A role can have many functions
- Function to role mapping is many to many

Folder/Segment- Domain Mappings

- A folder/segment is mapped to an information domain
- An information domain can have many folders/segments
- Folder/segment to information domain mapping is one to one, that is, a folder can be mapped to a single domain

User Group Role Mapping

- A user group is mapped to multiple roles and each role will have multiple functions mapped to it.
- All users belonging to a user group can do all functions associated with the roles to which the user group is mapped.



11.2.4 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 user groups, 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
- User Group Maintenance
- User User Group Map
- Profile Maintenance
- User Authorization
- User Group Authorization
- User Group Folder Authorization
- User Group Domain Map
- User Group Role Map
- User Group Folder Role Map
- Reinstating Deleted Users

11.2.4.1 User Maintenance

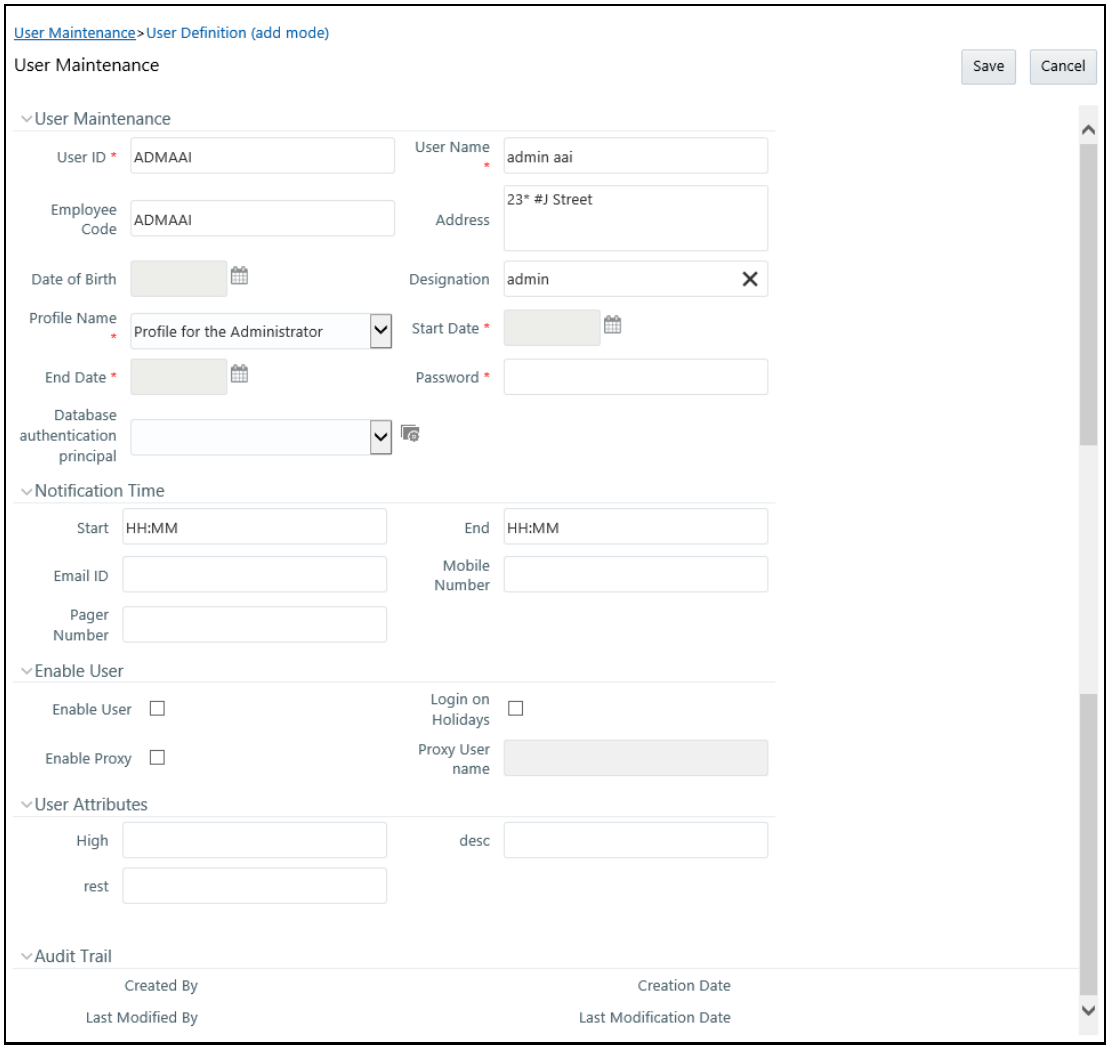
User Maintenance facilitates you to create user definitions, view, manage, modify, and delete user information. You can access User Maintenance by expanding **User Administrator** section within the tree structure of Navigation List to the left.

The *User Maintenance* window 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 search for a specific user or view list of existing users within the system.

11.2.4.1.1 Adding User

To add a user definition in the *User Maintenance* window:

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* window 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 window. Ensure that the User Name does not contain any special characters except “–”, “” and “.”.
Employee Code	Enter the employee code. Ensure that the Employee Code does not contain any special characters or spaces except “.”, “@”, “-”, and “_”. If employee code is not provided, user ID will be taken as employee code.
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 ".", "#", "-", ",".

Field	Description
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.
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.
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 *Configuration* window). To enable access, enter a new password here.
Database Authentication Principal	Select the Database Principal name from the drop-down list. The list displays the Principal names for HDFS Kerberos connection. Click to create a new Database Principal by entering the Principal name and password in the **DbAuth Principal** and **DbAuth String** fields respectively.
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.
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.
SMS Auth Only	This field is displayed only if the **LDAP Authentication & SMS Authorization** or **SSO Authentication & SMS Authorization** is selected from the *Configuration* window. Select the checkbox to authenticate the user through SMS even though the LDAP Authentication or SSO Authentication is enabled. This feature can be used to bypass LDAP or SSO authentication for selected users.
Enable Proxy	Select the checkbox if you want to enable proxy user for database connection.

Field	Description
Proxy User name	Enter the Proxy user name for the OFSAAI user, which will be used for database connection.

3. Click **Save** to upload the user details.

The new User details are populated in the User Authorization window which has to be authorized by System Authorizers. Once authorized, the **User** details are displayed in *User Maintenance* window and can then be mapped to the required user group in the User - User Group Map window.

11.2.4.1.2 Viewing User Details

You can view individual user details at any given point. To view the existing function details in the *User Maintenance* window:

1. Select the checkbox adjacent to the User ID.
2. Click button in the User Maintenance tool bar.

The *View User Details* window 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* window also displays the notifications details and status if enable to access the system on holidays.

11.2.4.1.3 Modifying User Details

To update the existing user details in the *User Maintenance* window:

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* window is displayed.
3. Update the required information. For more details, see 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.

11.2.4.1.4 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* window.

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.

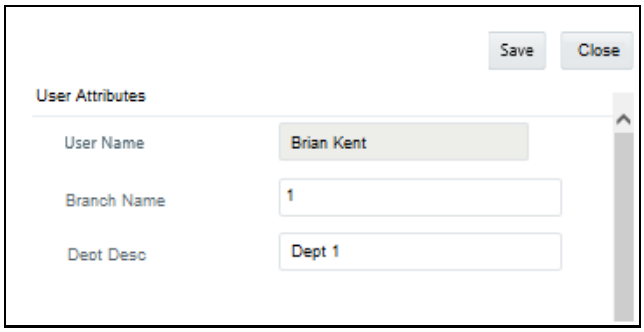
> **NOTE** User can access the application until the delete request is authorized.

11.2.4.1.5 Adding User Attributes

This option allows you to input additional user attributes that are configured for a user. Ensure that the required user attributes are present in the CSSMS_ATTRIB_MAST table. For more information about how to add additional user attributes, see Setting up User Attribute Master section.

To add attributes to a user in the *User Maintenance* window:

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 Attribute* window is displayed.



   The user attributes present in the CSSMS_ATTRIB_MAST table are displayed in this window.
3. Enter appropriate information or select the required value from the drop-down list, for the displayed user attributes.
4. Click **Save** to upload the changes.

11.2.4.2 Setting up User Attribute Master

OFSAAI captures some of the common user attributes such as Address, Designation, Date of Birth, Employee Code and so on. Additionally if you want to capture user details such as Branch Code or Department Name, you can capture them by configuring User Attribute Master (CSSMS_ATTRIB_MAST) table.

You have to upload the CSSMS_ATTRIB_MAST table after entering the required information on the table. You should have **Config Excel Advanced** user role mapped to your user group. Note that this role is not available to SYSADMN user.

1. Download the `CSSMS_ATTRIB_MAST` table. For more information on how to download a table from Config Schema, see Config Schema Download section. You need to select `CSSMS_ATTRIB_MAST` from the **Select the table** drop-down list.
2. Open the downloaded file in MS Excel 2003/ 2007. The excel file will have columns `ATTRIBUTE_ID`, `ATTRIBUTE_DESC`, `ALLOWED_VALUES`, and `TYPE`.

3. Add data as shown in the following table:

ATTRIBUTE_ID	ATTRIBUTE_DESC	ALLOWED_VALUES	TYPE
BRANCH_CODE	Branch Code		0
BRANCH_NAME	Branch Name	New York, Dallas	1
DEPT_CODE	Department Code		0
DEPT_NAME	Department Name		0

TYPE – Enter **Type** as 1 if you want to give a list of values from which the user has to select the attribute value. In the ALLOWED_VALUES column, give the required values for the attribute. Enter Type as 0 if the attribute value has to be entered in a text field.

4. Save the file.
5. Upload the modified CSSMS_ATTRIB_MAST table. For more information on how to upload a table to Config Schema, see Config Schema Upload section. Note that you need to select CSSMS_ATTRIB_MAST from the **Select the table** drop-down list and **Upload Type** as **Complete**.

An appropriate message based on the success or failure status is displayed.

11.2.4.3 User Group Maintenance

User Group Maintenance facilitates you to create, view, edit, and delete user groups. You can maintain and modify the user group information within the *User Group Maintenance* window.

You can access User Group Maintenance by expanding **User Administrator** section within the tree structure of Navigation List to the left.

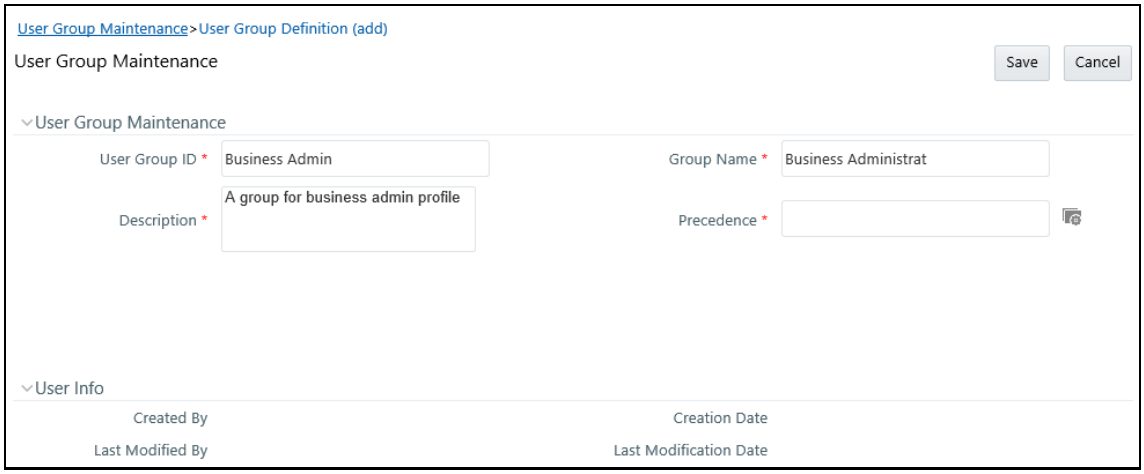
User Group Maintenance window displays details such as User Group ID, Group Name, Description, Precedence, and the number of Mapped Users.

You can search for a user group based on User Group ID, Group Name, and Description.

11.2.4.3.1 Adding User Group

To add a User Group in the *User Group Maintenance* window:

1. Select + from the User Group tool bar. **Add** button is disabled if you have selected any User Group ID in the grid. The *User Group Maintenance* window 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.
Group Name	Enter a name for the user group.
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* window.

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. Before user group authorization, you need to map an information domain and role to the user group.

11.2.4.3.2 Viewing User Group Details

You can view individual user group details at any given point. To view the existing user group details in the *User Group Maintenance* window:

1. Select the checkbox adjacent to the User Group ID.
2. Click button in the User Group tool bar.

   The *View User Group Details* window is displayed with the details such as User Group ID, Group Name, Description, and Precedence value.

11.2.4.3.3 Modifying User Group

To update the existing user group details in the *User Group Maintenance* window:

1. Select the user group 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 User Group ID which is not editable. For more information see Add User Group.
4. Click **Save** to upload changes.

11.2.4.3.4 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 *User Group Maintenance* window.

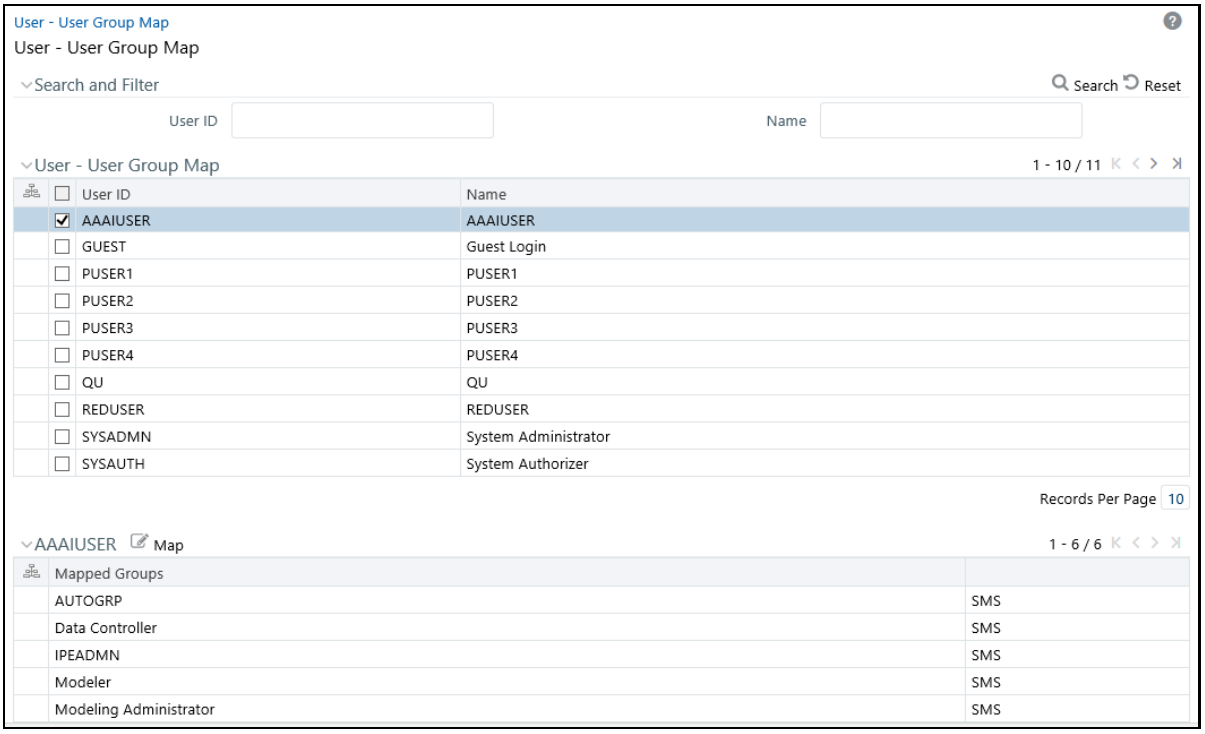
1. Select the checkbox adjacent to the user group ID(s) whose details are to be removed.
2. Click  button in the User Group tool bar.
3. Click **OK** in the information dialog to confirm deletion.

> **NOTE** User Groups cannot be deleted if any requests (Domain map/unmap and Role map/unmap) are pending for authorization or any users are mapped to it.

11.2.4.4 User - User Group Map

User - User Group Map facilitates you to map user(s) to specific user group which in turn is mapped to a specific Information Domain and role. Every User - User Group mapping

needs to be authorized by the System authorizer. If you have enabled auto authorization, then the user- user group mapping gets authorized automatically. To enable auto authorization, see the SMS Auto Authorization section.



User - User Group Map window displays details such as User ID, Name, and the corresponding Mapped Groups. You can view and modify the existing mappings within the *User - User Group Map* window.

You can access *User - User Group Map* window by expanding User Administrator section within the tree structure of Navigation List to the left. You can also search for specific users based on User ID and Name.

11.2.4.4.1 Viewing Mapped Groups

This option allows you to view the user groups mapped to a user.

To view the mapped User Groups of a user

- From the *User-User Group Map* window, select the checkbox adjacent to the User ID. The list of user group(s) to which the selected user has been mapped is displayed under Mapped Groups grid.

11.2.4.4.2 Mapping/Unmapping Users

This option facilitates you to map a user to specific user groups.

To map/unmap user in *User-User Group Map* window:

1. Select the checkbox adjacent to the User ID.
2. Click  button in the Mapped Groups grid. The *User - User Group Mapping* window is displayed.
    - To map a user group, select the User Group and click . You can press **Ctrl** key for multiple selections.

- To map all the User Groups to a user, click ».
- To remove a User Group mapping for a user, select the User Group from Select Members pane and click ‹.
- To remove all the group mappings of a user, click «.

In the *User - User Group Mapping* window, you can search for a User Group using the **Search** field.

3. Click **OK** to save the mappings and return to *User-User Group Map* window.

> **NOTE** The newly created user- user group mapping needs to be authorized by the system authorizer. Once it is authorized, it will be visible in the *User - User Group Mapping* window. If you have enabled auto authorization, then the user- user group mapping gets authorized automatically.
> User Group is displayed in the *User - User Group Mapping* window only if it is mapped to at least one Domain and Role.

11.2.4.5 Profile Maintenance

> **NOTE** This feature will not be available if **Authentication Type** is selected as **SSO Authentication and SMS Authorization** from the Configuration window.

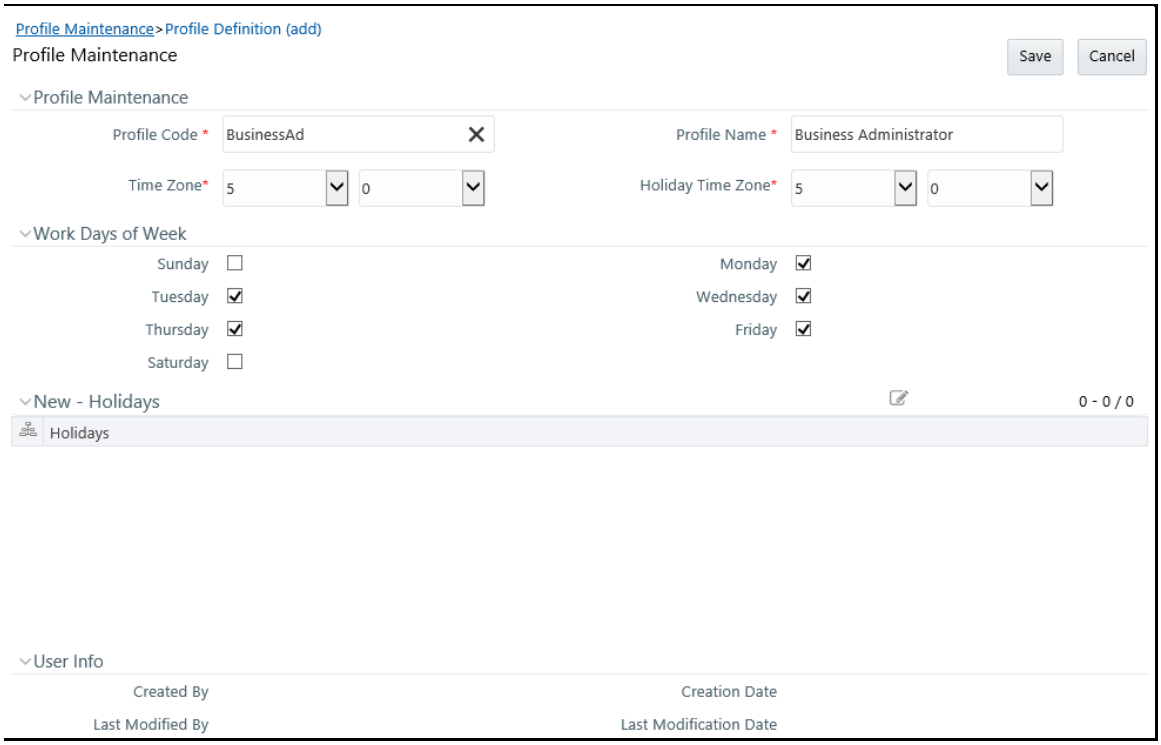
Profile Maintenance facilitates you to create profiles, specify the time zones, specify the working days of the week and map holiday's schedule. *Profile Maintenance* window displays the existing profiles with details such as the Profile Code, Profile Name, Time Zone, Workdays of Week, Holiday Time Zone, and mapped Holidays. In the *Profile Maintenance* window 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 Navigation List to the left. You can also search for specific profile or view the list of existing profiles within the system.

11.2.4.6 Adding Profile

To add a profile in the *Profile Maintenance* window:

1. Select ➕ from the Profile Maintenance tool bar. **Add** button is disabled if you have selected any Profile Code checkbox in the grid.



2. The *New Profile* window 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.

11.2.4.7 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* window must be checked.

1. Click button in the New Holidays grid. *Holiday Mapping* window is displayed.

   The *Holiday Mapping* window 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.

11.2.4.8 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* window:

1. Select the checkbox adjacent to the Profile Code.
2. Click button in the Profile Maintenance tool bar.

   The *Profile Maintenance* window displays profile of the user with the holiday mapping details.

11.2.4.9 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* window:

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 see Add Profile.
4. Click **Save** to upload changes.

11.2.4.10 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* window.

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.

11.2.4.11 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.

- 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* window by expanding **User Administrator** and selecting **User Authorization** within the tree structure of Navigation List to the left.

The *User Authorization* window displays a list of available users for Authorization. By default, the users will be displayed in alphabetical order of the User IDs with the other details such as User ID, Name, User Start Date, and User Expiration Date. You can also search for specific users.

11.2.4.11.1 Authorizing or Rejecting User(s)

In the *User Authorization* window, do the following:

1. Select User ID which has to be authorized. The window is refreshed and the user 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.

11.2.4.12 User Group Authorization

User Group Authorization function facilitates system authorizers to authorize or reject the user groups mapped to a user. This authorization is required if user groups are mapped to Public folders.

- As a system Authorizer, you can:
  - View the list of mapped/unmapped user(s) to be authorized
  - View the list of mapped/ unmapped roles to be authorized
  - View the list of mapped/ unmapped domains to be authorized

- Authorize or reject mapping/unmapping of user group(s) to a role or a domain

You can access *User Group Authorization* window by expanding **User Administrator** section within the tree structure of Navigation List to the left and selecting **User Group Authorization**.

The *User Group Authorization* window displays a list of available user groups for authorization. When you select a user group, the details such as Mapped/Unmapped Users, Mapped/Unmapped Roles, and Mapped/Unmapped Domains are displayed. You can search for specific user group based on Group Code and Group Name.

> **NOTE** After creating a user group, you need to map an information domain and role to the user group. Then only the user group will be visible for authorization in the *User Group Authorization* window.

11.2.4.12.1 Authorizing or Rejecting User Group(s)

In the *User Group Authorization* window, do the following:

1. Select the required **User Group ID** for authorization.

   The Mapped/Unmapped Users, Mapped/Unmapped Roles, and Mapped/Unmapped Domains corresponding to the selected User Group are displayed in the respective grids.
2. Select the checkbox adjacent to the mapped or unmapped group/user/role/domain and
   - Click (authorize) button to authorize it.
   - Click (reject) button to reject it.
3. Click **OK** in the information dialog to confirm authorization or rejection. On processing, a system message is displayed.

11.2.4.13 Authorization for User Group Folder Mapping

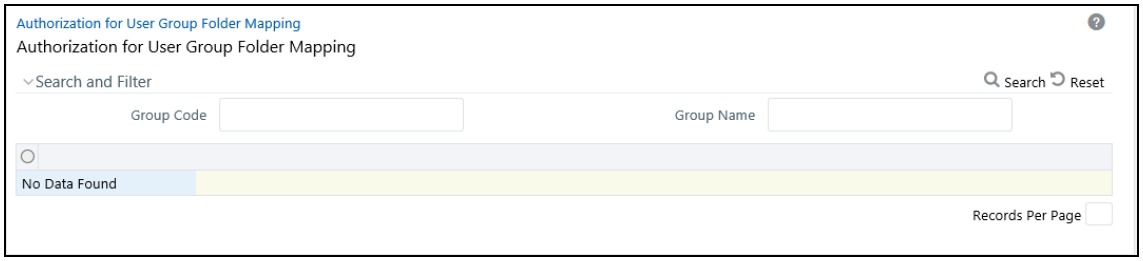
User Group Folder Mapping Authorization facilitates system authorizers to authorize or reject mapping and unmapping of roles to folders, done from the *User Group Role Map* window. This authorization is required for mapping of user groups to Shared folders.

As a system authorizer, you can view the list of mapped/unmapped user roles to be authorized for a selected user group. Once the mapping/unmapping is authorized, then the changes will be in effective.

You can access Authorization for *User Group Folder Mapping* window by expanding **User Administrator** section within the tree structure of Navigation List to the left and clicking **Authorization for User Group Folder Mapping**.

To authorize mapping of roles to folder

1. Click **Authorization for User Group Folder Mapping** under **User Administrator** in the **Security Management** menu. The *Authorization for User Group Folder Mapping* window is displayed.



2. Select the user group and the folder. The Mapped/Unmapped Roles corresponding to the selected User Group which requires authorization are displayed in the respective grids.
3. Select the checkbox adjacent to the mapped or unmapped roles and
   - Click (authorize) button to authorize it.
   - Click (reject) button to reject it.
4. Click **OK** in the information dialog to confirm authorization or rejection. On processing, a system message is displayed.

11.2.4.14 User Group Domain Map

User Group 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 *User Group Domain Map* window by expanding **User Administrator** section within the tree structure of Navigation List to the left.

The *User Group Domain Map* window displays a list of available user groups in alphabetical order with the User Group ID, Group Name, and Description. On selecting a user group, the list of available mapped domains are displayed.

> **NOTE** It is mandatory to map at least one information domain to a user group.

You can search for specific user group based on User Group ID, Group Name, and Description.

To map a user group to a domain, do the following:

1. Select the checkbox adjacent to the required User Group ID. The *User Group Domain Map* window is refreshed to display the existing mapped domains.
2. Click button in the Mapped Domains section tool bar. The *User Group Domain Map* window is displayed.
   - 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 User Group, click <<.

In the *User Group Domain Map* window, you can search for a Domain using the **Search** field.

3. Click **OK** to save the mappings and return to *User Group Domain Map* window.

   Mapping/unmapping of User Groups to Domain should be authorized by the System Authorizer. If you have enabled auto authorization, then the User Group-Domain mapping/unmapping gets authorized automatically. To enable auto authorization, see the SMS Auto Authorization section.

11.2.4.15 User Group Role Map

User Group 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 *User Group Role Map* window by expanding **User Administrator** section within the tree structure of Navigation List to the left.

The *User Group Role Map* window 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 search for specific user group or view the list of existing user groups within the system.

To map a Role to User Group, do the following:

1. Select the checkbox adjacent to the required User Group ID. The *User Group Role Map* window is refreshed to display the existing mapped roles.
2. Click button in the Mapped Roles section tool bar. The *User Group Role Map* window is displayed.
3. In the *User Group Role Map* window, 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 *User Group Role Map* window.

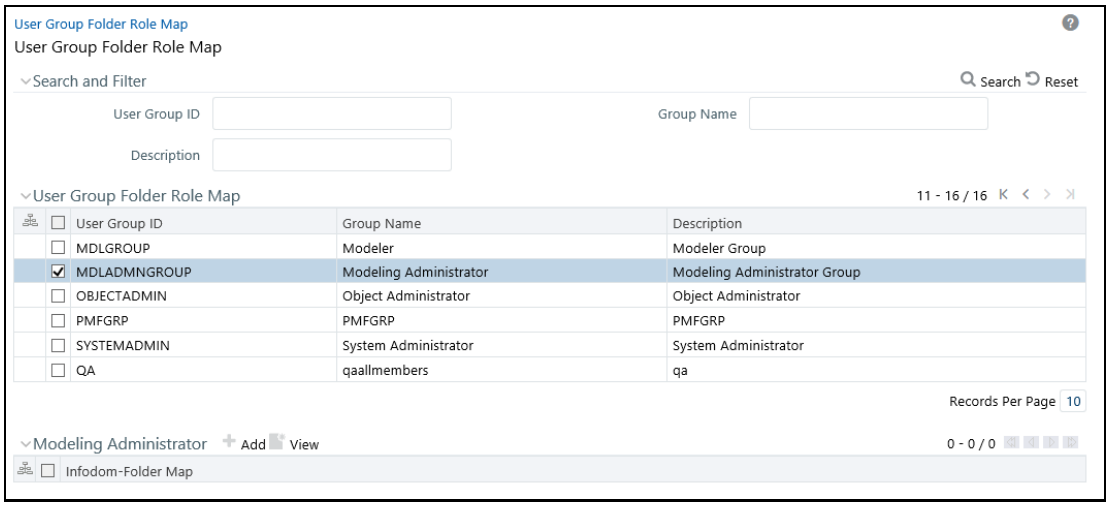
   Mapping/unmapping of User Roles to a User Group should be authorized by the System Authorizer. If you have enabled auto authorization, then the User Group-Role mapping/unmapping gets authorized automatically. To enable auto authorization, see the SMS Auto Authorization section.

11.2.4.16 User Group Folder Role Map

User Group Folder Role Map facilitates System Administrators to map role(s) to specific user group(s), which are mapped to shared folders. This mapping is used to give access rights to a user on objects belonging to Shared folder/segment.

To map user group-folder-role

1. Click **User Group Folder Role Map** under **User Administrator** in the **Security Management** menu. The *User Group Folder Role Map* window is displayed.



2. Select the user group from the User Group Folder Role Map grid. All shared folders are displayed in the Infodom-Folder Map grid.
3. Select the shared folder to which you want to map roles and click .
4. Select the required roles and click > or click >> to map all the roles. To remove mapping of a role, select the role and click <. To remove all mapped roles, click <<.
5. Click **Ok**.

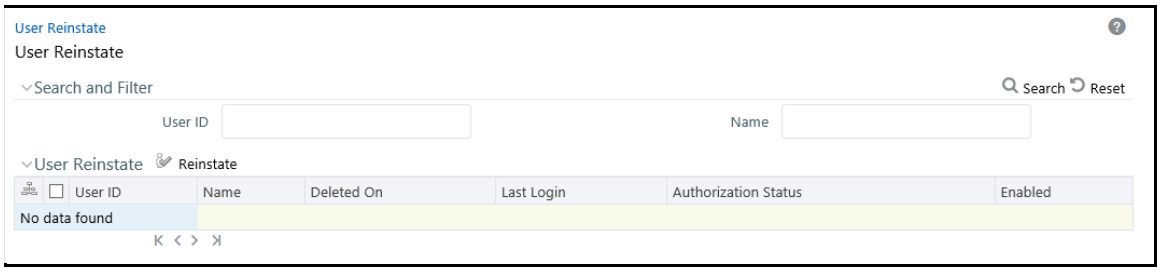
   User Group-Folder-Role mapping/unmapping should be authorized by the System Authorizer. If you have enabled auto authorization, then the mapping/unmapping gets authorized automatically. To enable auto authorization, see the SMS Auto Authorization section.

11.2.4.17 Reinstating Deleted Users

User Reinstate feature allows the System Administrators to reinstate deleted users. After reinstating, you should map the users to the required user groups.

To reinstate deleted users

1. Click **Reinstate User** under **User Administrator** in the **Security Management** menu. The *User Reinstate* window is displayed.



   All deleted users are displayed in the User Reinstate grid.

2. Select the user you want to reinstate and click . A confirmation message is displayed.
3. Click **Ok**.

   The reinstated user(s) will have the same user id and the password will be reset as “password0”.

11.2.5 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 Navigation List to the left of Security Management. The options available under System Administrator are:

- Function Maintenance
- Role Maintenance
- Function - Role Map
- Segment Maintenance
- Holiday Maintenance
- Restricted Passwords

11.2.5.1 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 Navigation List to the left. The *Function Maintenance* window displays the function details such as Function Code, Function Name, Description, and the number of Roles Mapped to the function. The *Function Maintenance* window 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.

11.2.5.1.1 Creating Function

To create function in the *Function Maintenance* window:

1. Select ➕ from the Function Maintenance tool bar. **Add** button is disabled if you have selected any function in the grid. The *New Function* window is displayed.

2. Enter the function details as tabulated. You can also see 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* window display metadata information about the function created.

11.2.5.1.2 Viewing Function

You can view individual function details at any given point. To view the existing user details in the *Function Maintenance* window:

1. Select the checkbox adjacent to the Function Code.
2. Click button in the Function Maintenance tool bar.

   The *View Function Details* window is displayed with the details such as Function Code, Function Name, and Function Description.

11.2.5.1.3 Modifying Function

To update the existing function details (other than system generated functions) in the *Function Maintenance* window:

1. Select the checkbox adjacent to the required Function Code.
2. Click button in the Function Maintenance tool bar. The *Edit Function Details* window is displayed.
3. Update the required information. For more details, see Create Function.

> **NOTE** Function Code cannot be edited.

4. Click **Save** to upload the changes.

11.2.5.1.4 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* window.

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.

11.2.5.2 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 Navigation List to the left. The *Role Maintenance* window displays the role details such as Role Code, Role Name, Role Description, and the number of Users Mapped to the role. The *Role Maintenance* window also facilitates you to view, create, modify, and delete roles within the system.

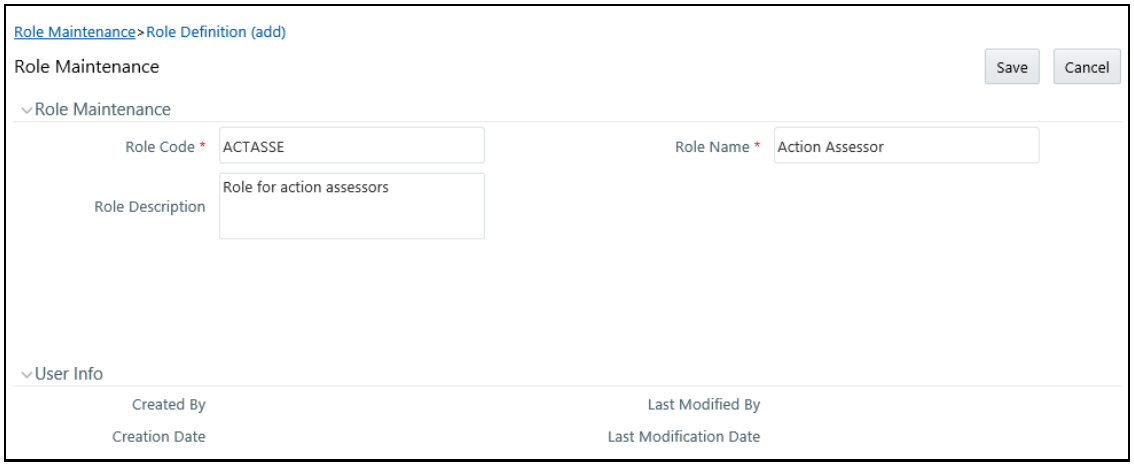
You can also make use of Search and Pagination options to search for a specific role or view the list of existing roles within the system.

To view the default roles defined within the Infrastructure application, see Role Mapping Codes.

11.2.5.2.1 Creating Role

To create role in the *Role Maintenance* window:

1. Select ➕ from the Role Maintenance tool bar. **Add** button is disabled if you have selected any role in the grid. The *New Role* window is displayed.



2. Enter the role details as tabulated. You can also see 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.
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.

3. Click **Save** to upload the role details. The User Info grid at the bottom of *Role Maintenance* window display metadata information about the role created.

11.2.5.2.2 Viewing Role

You can view individual role details at any given point. To view the existing role details in the *Role Maintenance* window:

1. Select the checkbox adjacent to the Role Code.
2. Click button in the Role Maintenance tool bar.

   The *View Role Details* window is displayed with the details such as Role Code, Role Name, and Role Description.

11.2.5.2.3 Modifying Role

To update the existing role details in the *Role Maintenance* window:

1. Select the checkbox adjacent to the required Role Code.
2. Click  button in the Role Maintenance tool bar. The *Edit Role Details* window is displayed.
3. Update the required information. For more details, see Create Role.

> **NOTE** Role Code and Role Name cannot be edited.

4. Click **Save** to upload the changes.

11.2.5.2.4 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* window.

1. Select the checkbox adjacent to the Role Code whose details are to be removed.
2. Click  button in the Role Maintenance tool bar.
3. Click **OK** in the information dialog to confirm deletion.

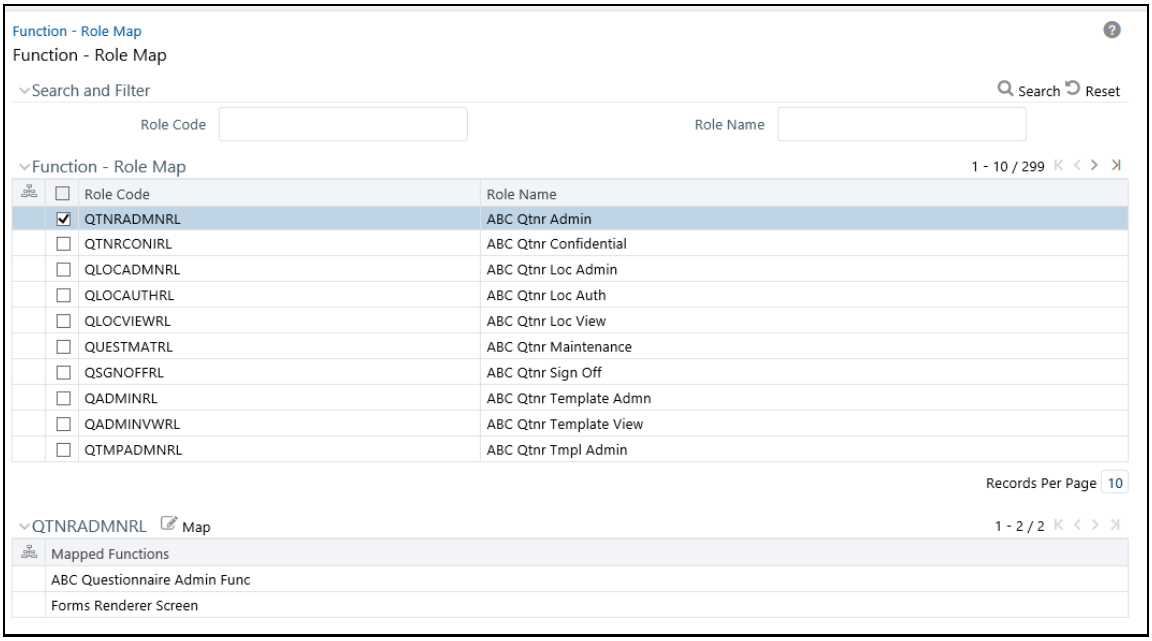
11.2.5.3 Function - Role Map

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 Navigation List to the left. The *Function – Role Map* window 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* window.

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.

To view the default Function – Role mapping defined within the Infrastructure application, see Function Role Mapping.



To map a role to a function in the *Function – Role Map* window, do the following:

1. Select the checkbox adjacent to the required Role Code. The *Function – Role Map* window is refreshed to display the existing mapped functions.
2. Click button in the Mapped Functions section tool bar. The *Function Role Mapping* window is displayed.
3. In the *Function Role Mapping* window, 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* window.

11.2.5.4 Segment Maintenance

Segment is used to control access rights on a defined list of objects. It is mapped to an information domain.

Segment Maintenance in the Infrastructure system facilitates you to create segments and assign access rights. You can have different segments for different Information Domains or same segments for different Information Domains.

User scope is controlled by segment/ folder types with which the object is associated.

- Objects contained in a public folder will be displayed irrespective of any user.

- Objects contained in a shared folder will be displayed if user belongs to a user group which is mapped to an access type role with the corresponding folder.
- Objects contained in a private folder will be displayed only to the associated owner.

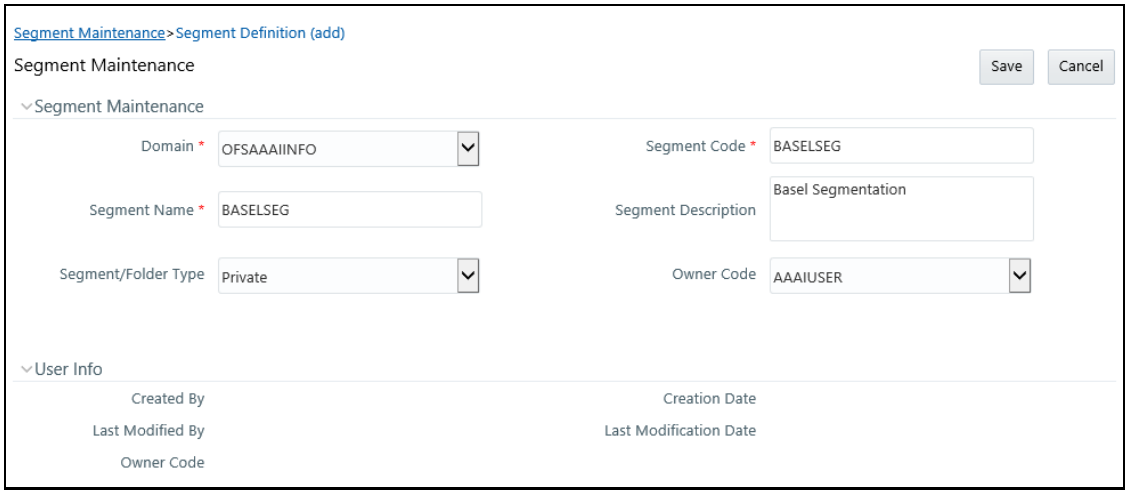
You can access Segment Maintenance by expanding System Administrator section within the tree structure of Navigation List to the left. The *Segment Maintenance* window displays a list of available segments with details such Domain, Segment Code, Segment Name, Segment Description, Segment/Folder Type, Owner Code, and the number of Users Mapped to the segment. You can view, create, modify, and delete segments within the *Segment Maintenance* window.

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.

11.2.5.4.1 Creating Segment

To create segment in the *Segment Maintenance* window:

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* window is displayed.



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 except underscore or extra spaces.
Segment Name	Enter a unique name for the segment. Ensure that there are no special characters in the name entered.
Segment Description	Enter the segment description. Ensure that there are no special characters in the description entered except spaces, “(“, “)”, “_”, “-“, and “.”.

Field	Description
Segment/Folder Type	Select the type of the segment/folder from the drop-down list. The options are Public, Private, and Shared.
Owner Code	Select the owner code from the drop-down list.

3. Click **Save** to upload the segment details.

   The User Info grid at the bottom of *Segment Maintenance* window displays metadata information about the segment created.

11.2.5.4.2 Viewing Segment

You can view individual segment information at any given point. To view the existing segment details in the *Segment Maintenance* window:

1. Select the checkbox adjacent to the required segment.
2. Click button in the Segment Maintenance tool bar.

   The *View Segment Details* window is displayed with the details such Domain, Segment Code, Segment Name, Segment Description, Segment /Folder Type, and Owner Code.

11.2.5.4.3 Modifying Segment

To update the existing segment details in the *Segment Maintenance* window:

1. Select the checkbox adjacent to the segment.
2. Click button in the Segment Maintenance tool bar. The *Edit Segment Details* window is displayed.
3. Update the Segment Description, Segment/Folder Type, and Owner Code. The others fields are view only and are not editable. For more details, see Create Segment.
4. Click **Save** to upload the changes.

11.2.5.4.4 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* window.

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.

11.2.5.5 Holiday Maintenance

> **NOTE** 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* window.

You can access Holiday Maintenance by expanding **System Administrator** section within the tree structure of Navigation List to the left. The *Holiday Maintenance* window displays a list of holidays in ascending order. In the *Holiday Maintenance* window you can create and delete holidays.

11.2.5.5.1 Adding Holiday

To add holiday date in the *Holiday Maintenance* window:

1. Select ➕ from the Holiday Maintenance tool bar. Add button is disabled if you have selected any checkbox in the grid. The *New Holiday* window is displayed.
2. Click  button and specify date using the calendar.

   For more information on selecting a date, see Calendar section.
3. Click **Save** to upload changes.

11.2.5.5.2 Deleting Holiday(s)

You can remove a holiday entry by deleting from the *Holiday Maintenance* window.

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.

11.2.5.6 Restricted Passwords

> **NOTE** 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 Navigation List to the left. The *Restricted Passwords* window 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.

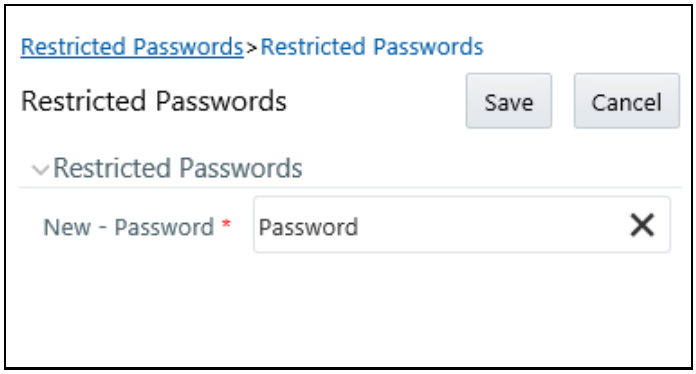
> **NOTE** While searching for any pre defined restricted password, you have to key in the entire password.

11.2.5.6.1 Adding Restricted Password

To add restricted password in the *Restricted Passwords* window:

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* window 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.

11.2.5.6.2 Deleting Restricted Password(s)

You can de-restrict a password by deleting from the *Restrict Passwords* window.

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.

11.2.6 User Activity Report

User Activity Report 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 from the Security Management Navigation List to the left. The *User Activity Report* window facilitates you to generate reports of the currently logged in users, disabled users, deleted users, unauthorized users, and idle users. Additionally, you can generate Role Master report, User ID Population report and UAM Admin Activity report.

The table below lists each user type within the *User Activity Report* window with other details.

Report Type	Description
Currently logged in users	This window displays the list of current users accessing the Infrastructure system with details such as; User ID, User Name, and Last Login Date information.
Disabled Users	This window 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 window 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 window displays the User ID, and User Name of all the users which are not authorized.
Idle Users	This window 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.
Role Master Report	This window displays all OFSAA Roles and the corresponding Functions/ rights mapped to the role. That is, if a Function/Right is assigned to a particular role, then the corresponding check box will be in selected state.
User ID Population Report	To generate this report, enter the User ID of the user whose report you want to generate and click  . The report displays various user details such as User ID, User Name, Employee Code, Profiles, Status of the Profiles, Creation Date, Last Password Changed Date, Last log in Date, Maker ID, Maker Date, Checker ID, Checker Date, and Profile End Date.
UAM Admin Activity Report	To generate this report, enter the User ID of the user whose report you want to generate and the duration and then click  . The report displays the new and old values for User ID, User Name, Employee Code, Profile Name, Activity, Maker ID, Checker ID, Marker Date, and Checker Date. It also displays the list of Admin activities performed on the User within the specified duration such as User Details modified, User Access rights modified, User Mappings modified, and so on.

For User Activity Reports such as Currently logged in users, Disabled users, Deleted users, Unauthorized users, and Idle users, 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.

For User Activity Reports such as Role Master Report, User ID Population Report and UAM Admin Activity Report, you can:

- Click to save or open report in Excel format.
- Click to save or open report in PDF format.

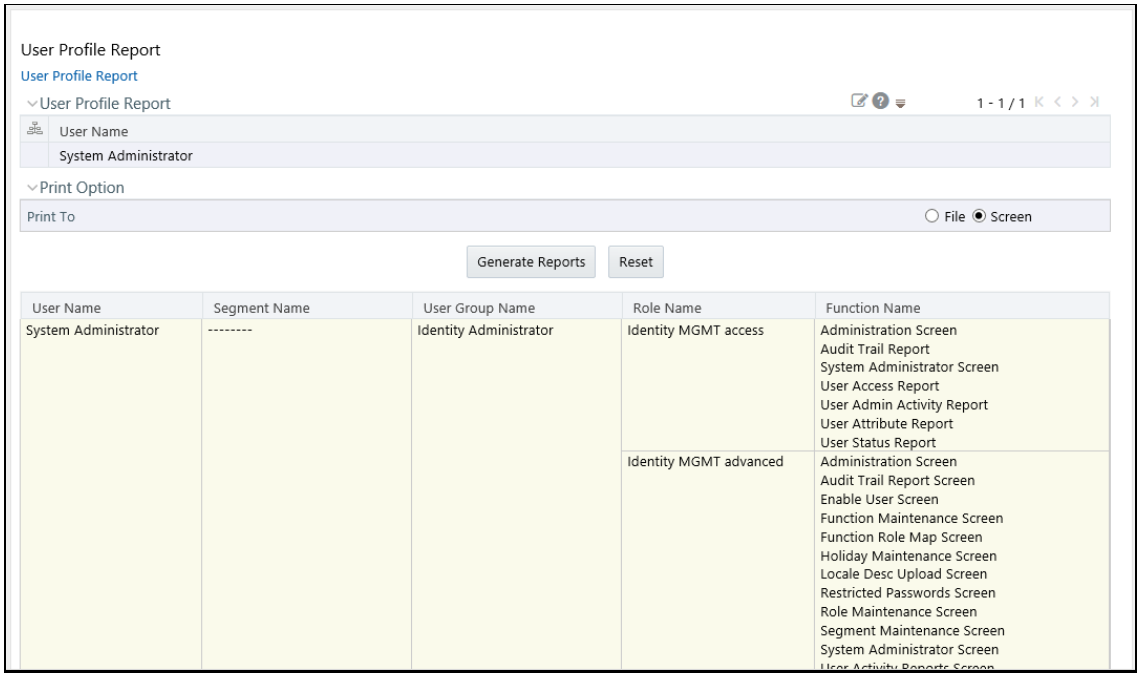
11.2.7 User Profile Report

User Profile Reports in the Infrastructure system provides information about the Segment Name, User Group Name, Role Name, and Function Name to which a user is mapped.

You can access User Profile Report in Security Management Navigation List to the left.. The *User Profile Report* window facilitates you to generate user profile reports. You can make use of Pagination option to view the list of users within the system.

11.2.7.1 Generate User Profile Report

1. Select in the User Profile Report tool bar. The *User Mapping* window is displayed.
2. In the *User Mapping* window, 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* window.
4. Select **Generate Reports** in the *User Profile Report* window and view the report.



> **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* window.

You can also select **Reset** to refresh the selections in the *User Profile Report* window.

11.2.8 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* window, 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* window 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* window:

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 window displays the metadata about the changes.

11.3 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 see the following sections based on your need.

11.3.1 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.

11.3.2 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* window the same will be configured for authentication.

For example, ldap://iflexop-241:389

11.3.3 Populating Execution Statistics

This feature allows you 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* window, an insert query is generated and executed just before the merge statement of the rule is executed. This in turn 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.

11.3.3.1 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.

11.3.4 SMS Auto Authorization

If auto authorization is enabled, the system authorizer needs not to manually authorize the user- user group mapping, user group-domain mapping, user group-role mapping and user group-role-folder mapping. The mappings get authorized automatically.

To enable auto authorization

1. Execute the following query in the Configuration Schema:

   ```
   UPDATE CONFIGURATION SET PARAMVALUE ='TRUE' WHERE
   PARAMNAME='SMS_AUTOAUTH_REQD'
   ```

2. Restart the OFSAA server.

12 Reports

Reports for user status, user activity, audit trail and so on is available to users and supports export of the data generated in PDF and MS Excel formats.

The following user reports are available in the application:

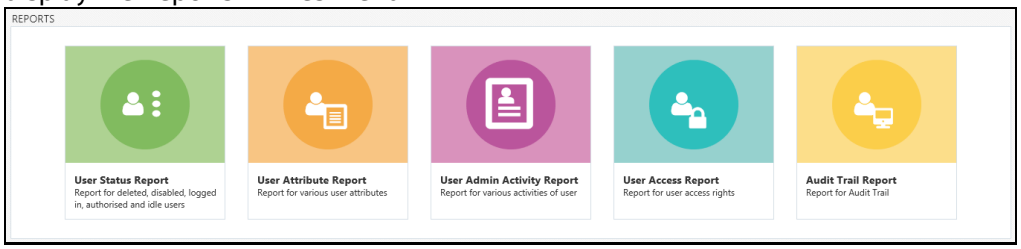
- User Status Report
- User Attribute Report
- User Admin Activity Report
- User Access Report
- Audit Trail Report

12.1 Accessing Reports

The following instruction is the description for the procedure to access reports:

1. Log in to the application to display the OFSAA landing page.

   You can access Audit Trail Report from Reports on the header. Click from the header to display the Reports in Tiles menu.



2. Click any of the reports to display the respective Search and Filter windows.

NOTE You can access reports from the Tiles menu, or by clicking the button to view the Navigation List.

12.2 Creating User Status Report

The User Status Report provides information for deleted, disabled, logged in, authorized and idle users.

The following is the procedure to create User Status Reports:

1. From the **Reports** Tiles menu, click **User Status Reports** to display the *User Status Report* window.
2. In the Search and Filter section, enter in the fields as described in the following table:

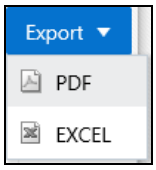
Field	Description
User ID	Click the **User ID** field to display a drop-down list of User IDs. Select **All** to display the report for all users in the system, or select a specific User ID to display the report for the selected User ID.
User Name	Click the **User Name** field to display a drop-down list of User Names. Select **All** to display the report for all users in the system, or select a specific User name to display the report for the selected User Name.
Note: You can select either User ID, or User Name. You cannot use a combination of both fields to generate the report.	
Disabled Users	Select the checkbox to filter the report for disabled users.
Deleted Users	Select the checkbox to filter for deleted users.
Currently Logged in Users	Select the checkbox to filter for currently logged in users.
Note: You can use a combination of the preceding checkboxes to filter your reports.	

3. Click **Search** to generate the report and display the result in the section following the Search and Filter section, or click **Reset** to clear all values from the Search and Filter section and enter new criteria to search. The following table provides description for the columns in the report:

Field	Description
User ID	Displays the unique User ID of the user.
User Name	Displays the unique User Name of the user.
Last Successful Login	Displays the date and time of the last successful login by the user.
Last Failed Login	Displays the date and time of the last failed login by the user.
Enabled	Displays whether the user is enabled in the system or not. The values are: **Y** - Yes **N** - No
Deleted	Displays whether the user is deleted from the system or not. The values are: **Y** - Yes **N** - No
Authorized	Displays whether the user authorized in the system or not. The values are: **Y** - Yes **N** - No **Note:** The authorization of created users is done by administrators with user authorization privileges.
Currently Logged In	Displays whether the user is currently logged into the system or not. The values are: **Y** - Yes **N** - No

Field	Description
Idle Days	Displays the number of days that the user is idle in the system.
Resize and Sort Columns	See Resizing and Sorting Reports.

4. To export the report, click the Export button and select either **PDF**, or **Excel**.



12.3 Creating User Attribute Report

The User Attribute Report provides information for various user attributes in the application such as User ID and employee name.

The following is the procedure to create User Attribute Reports:

1. From the **Reports** Tiles menu, click **User Attributes Reports** to display the *User Attribute Report* window.
2. In the Search and Filter section, enter in the fields as described in the following table:

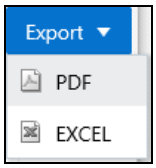
Field	Description
User ID	Click the **User ID** field to display a drop-down list of User IDs. Select **All** to display the report for all users in the system, or select a specific User ID to display the report for the selected User ID.
User Name	Click the **User Name** field to display a drop-down list of User Names. Select **All** to display the report for all users in the system, or select a specific User name to display the report for the selected User Name.
Note: You can select either User ID, or User Name. You cannot use a combination of both fields to generate the report.	

3. Click **Search** to generate the report and display the result in the section following the Search and Filter section, or click **Reset** to clear all values from the Search and Filter section and enter new criteria to search. The following table provides description for the columns in the report:

Field	Description
User ID	Displays the unique User ID of the user.
User Name	Displays the unique User Name of the user.
Employee ID	Displays the Employee ID of the user.

Field	Description
Resize and Sort Columns	See Resizing and Sorting Reports.

4. To export the report, click the Export button and select either **PDF**, or **Excel**.



12.4 Creating User Admin Activity Report

The User Admin Activity Report provides information for various activities of users.

The following is the procedure to create User Admin Activity Reports:

1. From the **Reports** Tiles menu, click **User Admin Activity Reports** to display the *User Admin Activity Report* window.
2. In the Search and Filter section, enter in the fields as described in the following table:

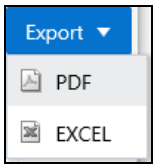
Field	Description
User ID	Click the **User ID** field to display a drop-down list of User IDs. Select **All** to display the report for all users in the system, or select a specific User ID to display the report for the selected User ID.
User Name	Click the **User Name** field to display a drop-down list of User Names. Select **All** to display the report for all users in the system, or select a specific User name to display the report for the selected User Name.
Note: You can select either User ID, or User Name. You cannot use a combination of both fields to generate the report.	
From Date	Select the start date for the report from the Date editor.
To Date	Select the end date for the report from the Date editor.

3. Click **Search** to generate the report and display the result in the section following the Search and Filter section, or click **Reset** to clear all values from the Search and Filter section and enter new criteria to search. The following table provides description for the columns in the report:

Field	Description
User ID	Displays the unique User ID of the user.
User Name	Displays the unique User Name of the user.
Profile Name	Displays the name of the profile for the user.

Field	Description
Activity	Displays the type of activity performed on the user by the administrator.
Maker ID	Displays the User ID of the administrator performing the activity for the user.
Checker ID	Displays the User ID of the administrator performing the checker activity.
Maker Date	Displays the date and time of performing the activity by the maker.
Resize and Sort Columns	See Resizing and Sorting Reports.

4. To export the report, click the Export button and select either **PDF**, or **Excel**.



12.5 Creating User Access Report

The User Access Report provides information for the access rights of the user based on role and group mapping.

The following is the procedure to create User Access Reports:

1. From the **Reports** Tiles menu, click **User Access Reports** to display the User *Access Report* window.
2. In the Search and Filter section, enter in the fields as described in the following table:

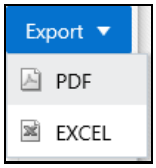
Field	Description
User ID	Click the **User ID** field to display a drop-down list of User IDs. Select **All** to display the report for all users in the system, or select a specific User ID to display the report for the selected User ID.
User Name	Click the **User Name** field to display a drop-down list of User Names. Select **All** to display the report for all users in the system, or select a specific User name to display the report for the selected User Name.
Note: You can select either User ID, or User Name. You cannot use a combination of both fields to generate the report.	

3. Click **Search** to generate the report and display the result in the section following the Search and Filter section, or click **Reset** to clear all values from the Search and Filter section and enter new criteria to search. The following table provides description for the columns in the report:

Field	Description
User ID	Displays the unique User ID of the user.

Field	Description
User Name	Displays the unique User Name of the user.
Group Name	Displays the group name that the user is mapped to.
DSN ID	Displays the data source name (DSN).
Segment Code	Displays the segment code.
Role Name	Displays the role name that the user is mapped to.
Function Name	Displays the function that the user can access.
Resize and Sort Columns	See Resizing and Sorting Reports.

4. To export the report, click the Export button and select either **PDF**, or **Excel**.



12.6 Creating Audit Trail Report

The Audit Trail Report provides details for the user activities in the application such as login and add action, status of the action and the machine name.

The following is the procedure to create Audit Trail Reports:

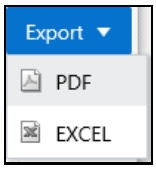
1. From the **Reports** Tiles menu, click **Audit Trail Reports** to display the *Audit Trail Report* window.
2. In the Search and Filter section, enter in the fields as described in the following table:

Field	Description
User Name	Click the **User Name** field to display a drop-down list of User Names. Select **All** to display the report for all users in the system, or select a specific User name to display the report for the selected User Name.
Action	Click the **Action** field to display a drop-down list of actions in the application that users can perform. Select **All** to display the report for all actions in the system, or select a specific action to display the report for the selected action.
From Date	Select the start date for the report from the Date editor.
To Date	Select the end date for the report from the Date editor.
Action Detail	Enter a few characters to search for a user name and select the required name.

3. Click **Search** to generate the report and display the result in the section following the Search and Filter section, or click **Reset** to clear all values from the Search and Filter section and enter new criteria to search. The following table provides description for the columns in the report:

Field	Description
User ID	Displays the unique User ID of the user.
Action Code	Displays the type of action performed by the user.
Action Subtype	Displays the sub type of the action.
Status	Displays the status of the action. The values are successful or failure.
Action Details	Displays the details for the action performed.
Operation Time	Displays the date and time for the action performed.
Workstation	Displays the IP address of the machine from which the action was performed.
Resize and Sort Columns	See Resizing and Sorting Reports.

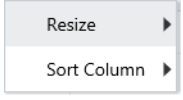
4. To export the report, click the Export button and select either **PDF**, or **Excel**.



12.7 Resizing and Sorting Reports

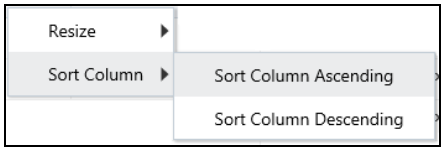
The reports generated displays data in the section following the Search and Filter section. You can resize the columns and sort the data in the columns. The following list describes the procedure to use these features:

1. Access any of the reports. See Accessing Reports for more information.
2. Select and enter data in the fields, and click **Search** to generate the report. The results displays in the section following the Search and Filter section.
3. To resize the columns, right-click to view the **Resize** and **Sort Column** option.



4. Select and click **Resize** to view the options for Resize. Select **Resize Width**.

5. Similarly, to Sort Columns, right-click to view the **Resize** and **Sort Column** option.
6. Select and click **Sort Columns** to view the options: **Sort Column Ascending** and **Sort Column Descending**. Select the required sorting system.



7. You can also sort the columns in ascending or descending order by clicking on the column headers.

13 Object Administration

Object 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.

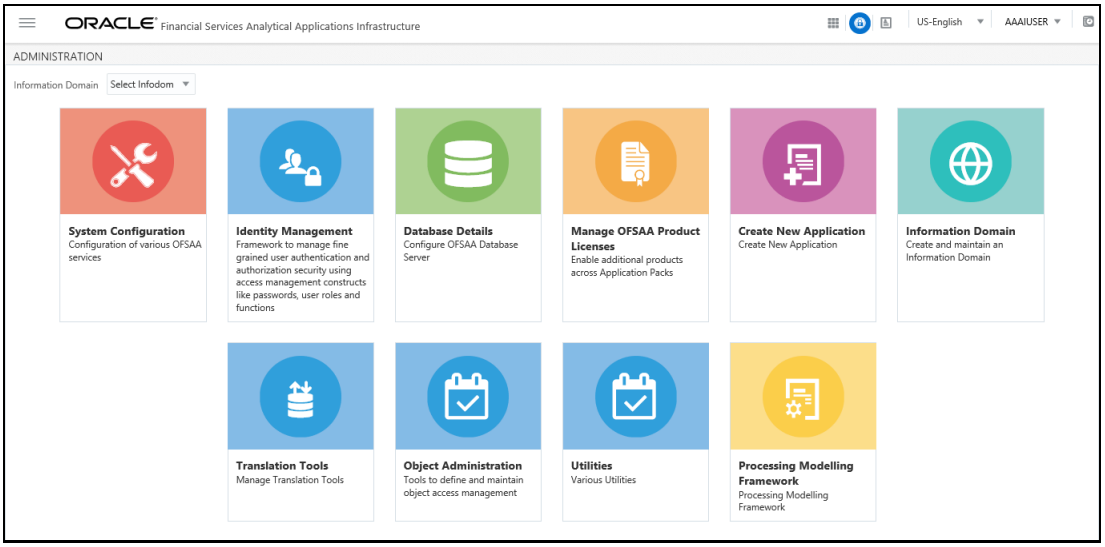
You (System Administrator/System Authorizer) need to have SYSATH, SYSADM, and METAAUTH function roles mapped to access the Object Administration framework within the Infrastructure system.

Object Administration consists of the following sections. Click the links to view the sections in detail.

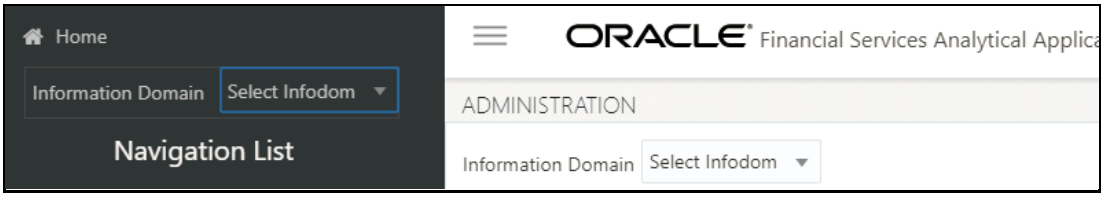
- Object Security
- Object Migration
- Translation Tools
- Utilities

13.1 Access Object Administration and Utilities based on Information Domain

Access to Object Administration and Utilities tile menu items on the *Administration* window is role-based. System Administrators must have the required permissions to access Object Administration and Utilities. Select an Information Domain from the drop-down list and then click on Object Administration or Utilities to access the submenu. The following illustration shows the menu items and the Information Domain drop-down:



Alternatively, the Information Domain drop-down list is also available at the top of the Navigation List. Click on the Hamburger icon to access the Navigation List. The following illustration shows the Information Domain drop-down on the Navigation List:



13.2 Object Security Concept in OFSAAI

Object Security framework is based on a waterfall model for determining user's rights to perform an action on an object in the system. That is, if you do not haves the top level of object access type, there is no need to check the second level, whereas if you have the top level, then the next level down is checked. The security levels are as follows:

- User Group Authorization
- User Group Scope
- User Group Access Right
- Object Access Type

For Segment/Folder based objects, security will be impacted by the type of the object's associated folder.

13.2.1 User Group Authorization

User authorization is derived by the user being mapped to the User Group, having a Role with access rights for the module for a specific information domain. Mapping between User Group-Role(s) and mapping between User Group-Domain (Infodom/Folder) in the system is used to achieve this. The Access role enables access to the module/object's main menu link and visibility of the object summary page.

> **NOTE** Objects to be displayed in the *Summary* window for a specific user will be decided by the type of the folder to which the object belongs.

13.2.2 User Group Scope

This is applicable to Folder-based object types. It governs visibility of object definitions in Summary pages and in selectable object definitions within parent objects. For Folder-based object types, user scope is controlled by segment/ folder types with which the object is associated. Folder types are Public, Shared, and Private:

- Objects contained in a Public folder will be displayed in *Summary* window and in object selection lists to all users, irrespective of user group mapping. No mapping is required.
- Objects contained in a Shared folder will be displayed in *Summary* window and in object selection lists, to users belonging to the user groups, which are mapped to the corresponding folder. The mapping is done from the User Group Folder Role Map window.

- Objects contained in a Private folder will be displayed only to the associated owner (an individual user).

Consumption within Higher Objects

- A user can consume objects associated to Public Folders in another higher object provided the Read Only role is mapped to the user group in that folder. This mapping is done through User Group Role Map window. For objects in shared folders also, the Read Only role should be mapped. This mapping is done through the User Group Folder Role Map window.

  For example, consider a Run definition in which a Classification Rule is used. Suppose the classification rule, say X is created in a Public folder called Y and the user belongs to user group UG. Then for the user to use X rule in the Run definition, the user group UG should have mapped to the "Rule Read Only" role. But if X rule is created in a Shared folder Z, the user group UG should have mapped to the folder Z and to the "Rule Read Only" role.

Folder Selector Behavior

The folders displayed in the *Folder Selector* window launched from the *Object definition* window are:

- All Public and Shared folders which are mapped to the user group and on which the user group has Write role. Mappings should be done for Public folders through the User Group Role Map window and User Group Domain Map window. Mappings should be done for Shared folders through User Group Folder Role Map window.
- All Private folders for which you are the owner.

13.2.3 User Group Access Right

This governs actions that can be performed on an object type. For objects which do not have Folder concept, User Group–Role mappings govern object access and actions that can be performed on the object.

For objects having Folder concept, the actions that you can do depend on the type of the folder/ segment with which the object definition is associated. Folder types are Public, Shared, and Private:

- For an object contained in a Public folder, the actions which can be performed by the user depend on the mapping between user group and folder-infodom and mapping between user group and function- roles. For visibility in selection lists in parent objects, the User Group must have at least Read access for the selected object type. For mapping a user group to domain, see User Group Domain Map and for mapping a user group to a role, see User Group Role Map.
- For an object contained in a Shared folder, the actions which can be performed by the user depend on User Group Folder Role mapping, which is done from the User Group Folder Role Map window.
- For an object contained in a Private folder, the user who has been assigned as the owner of the folder can do all actions except Add action.

13.2.4 Object Access Type

Object Access Type derives the special functionalities which can be performed on object definitions by a user. It determines whether a user can do operations such as create, view, update, or delete for an object definition.

OFSAAI supports two access types:

1. Read only

   User who creates the object sets this property at object definition level, which will restrict other users to perform Create/Update/Delete operations on the object. Other users can only view the object details.

2. Read/Write

   User who creates the object set this property at object level, which will allow other users to perform Create/Read/Update/Delete operations on the object.

Since single user maintenance of an object is too restrictive, an override option is provided through Phantom role type. If the user group to which the user belongs is mapped to the Phantom role type, then the user will be able to perform CRUD operations irrespective of the object access type. Both Phantom and Write roles should be mapped to the user group.

Phantom role can be applied at 2 different levels.

- User Group-Infodom level (applicable to Public Folders)

  Map the user group to infodom-folder from *User Group Domain Map* window and map the user group to the Phantom role for the required function from the *User Group Role Map* window. For example, for a user to override object access type, his user group should be mapped to the folder in which the object is created and should have been mapped to the Phantom role, provided the folder in which the object is created is a Public folder. For information on how to do the mapping, see User Group Domain Map and User Group Role Map sections.

- User Group-Folder-Role level (applicable to Shared Folders)

  Map the user group to infodom-folder and then map it to the Phantom role for the required function from the *User Group Folder Role Map* window if the folder in which the object is created is a Shared folder. For information on how to do the mapping, see User Group Folder Role Map section.

13.3 OFSAA Seeded Security

OFSAA provides various predefined security data such as seeded User Groups, Roles, and the Functions mapped to those Roles.

13.3.1 OFSAA Seeded User Groups

OFSAA provides the following predefined User Groups and associated Roles for use with various Infrastructure modules. Users mapped to these User Groups will have access as described below, for objects in Public folders:

Seeded User Group Name	Description	Mapped Roles
Guest	Users belonging to this user group will have access to the LHS menu and the associated summary pages.	Access

Seeded User Group Name	Description	Mapped Roles
Business User	Users belonging to this user group will have access to LHS menu and associated Summary page, and view object definitions.	Access
		Read Only
Business Owner	Users belonging to this user group will have access to LHS menu and associated Summary page, and do CRUD (Create/ Read/ Update/ Delete) operations on the objects.	Access
		Read Only
		Write
Business Authorizer	Users belonging to this user group will have access to LHS menu and associated Summary page; and authorize the CRUD operations (authority to Approve or Reject objects which require authorization).	Access
		Read Only
		Authorize
Business Administrator	Users belonging to this user group will have access to LHS menu and associated Summary page; do and authorize the CRUD operations; execute and export definition.	Access
		Read Only
		Write
		Authorize
		Advanced
Administrator	Users belonging to this group will have full access to the system.	Access
		Read Only
		Write
		Authorize
		Advanced
		Phantom

NOTE

- The behavior is relevant for Public folders only.
- For shared folders, irrespective of OFSAAI seeded user groups to which you are mapped, your user group should be mapped to the corresponding roles through the User Group Folder Role Map window to do particular actions.
- For example, consider a user belongs to Business Owner user group. As per the above table, he has Access, Read Only, and Write roles mapped to him by default. That means, he is assigned the functions such as Link, Summary, View, Add, Edit, Copy, Remove and so on. For a Public folder, he can do all the mentioned functions. However for a Shared folder, he cannot do an action such as Add or Edit unless he is mapped to Write role from the *User Group Folder Role Map* window.
- It is mandatory to do the required mapping of Roles to the folder and user group from the *User Group Folder Role Map* window in case of Shared folders.

13.3.2 OFSAA Seeded Roles

OFSAAI seeds the following predefined Roles for each object types, which are mapped to the corresponding Functions as described below:

Seeded Role Name	Role Type	Mapped Functions
Access	Access	Link
		Summary
Read Only	Action	Summary
		View
		Trace
		Compare
		Publish
Write	Action	Add
		Edit
		Copy
		Remove
		MAKE_LATEST
Authorize	Action	Authorize
Advanced	Action	Execute

Seeded Role Name	Role Type	Mapped Functions
		Export
		Archive
		Restore
		Advanced
Phantom	Phantom	Ignore Access Type

For Administrative type of roles, additional roles are seeded from Security Management Systems (SMS) module.

13.3.3 OFSAA Seeded Actions and Functions

Action is derived as a user event which triggers a function for a specific object type. Each action and object type combination will give a function.

OFSAA will seed the following actions which shall be used by different object types to define its functions.

Seeded Action Name	Description of behavior for resulting function
LINK	Access to the LHS menu link
SUMMARY	Access to Summary page
VIEW	Access to view definition page of the object
TRACE	Access to trace definition page of the object.
ADD	Privilege to create an object.
EDIT	Privilege to edit the definition page of the object.
COPY	Privilege to Copy the object definition.
REMOVE	Privilege to remove the object from the system.
PURGE	Privilege to purge the object data from the system.
APPROVE	Privilege to authorize an object by approving the same after any action has been performed.
REJECT	Privilege to authorize an object by rejecting the same after any action has been performed.
EXECUTE	Privilege to execute the object definition.
EXPORT	Privilege to export definition out of the system.
ARCHIVE	Privilege to archive a definition.
RESTORE	Privilege to restore any archived definition.
COMPARE	Privilege to compare any definition with another.
PUBLISH	Privilege to publish any definition to MDB.

Seeded Action Name	Description of behavior for resulting function
LATEST	Privilege to make any authorized version definition of the definition latest.
IGNOREACCESS	Privilege to ignore the access right given by a user.
ADVANCED	Access to object specific special functionality.

13.4 Object Security

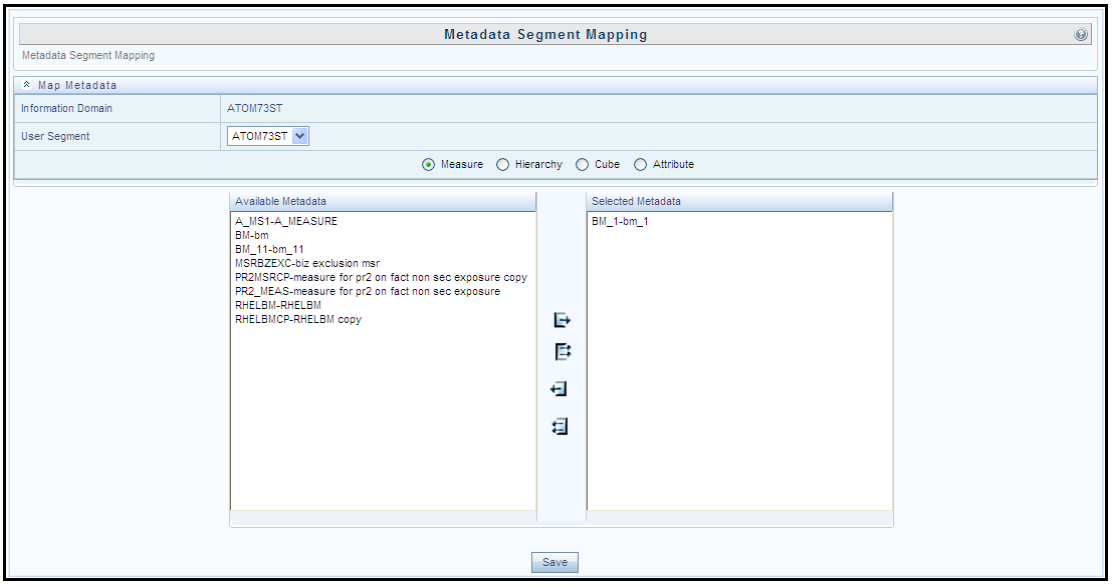
Object Security sub module consists of the following sections. Click the links to view the sections in detail.

- Metadata Segment Mapping
- Map Segment Mapping
- Batch Execution Rights
- Object to Application Mapping

13.4.1 Metadata Segment Mapping

Segment refers to a logically divided part of the whole object based on specific requirement. Metadata Segment Mapping 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.

To access *Metadata Segment Mapping* window, select the **Object Administration** tab and expand **Object Security** from the LHS menu and select **Metadata Segment Mapping**.



You (System Administrator) need to have SYSADM function role mapped to your role to access *Metadata Segment Mapping* window. By default this window displays the Information Domain Name to which you are connected along with the metadata details of Measure.

13.4.1.1 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 window 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.

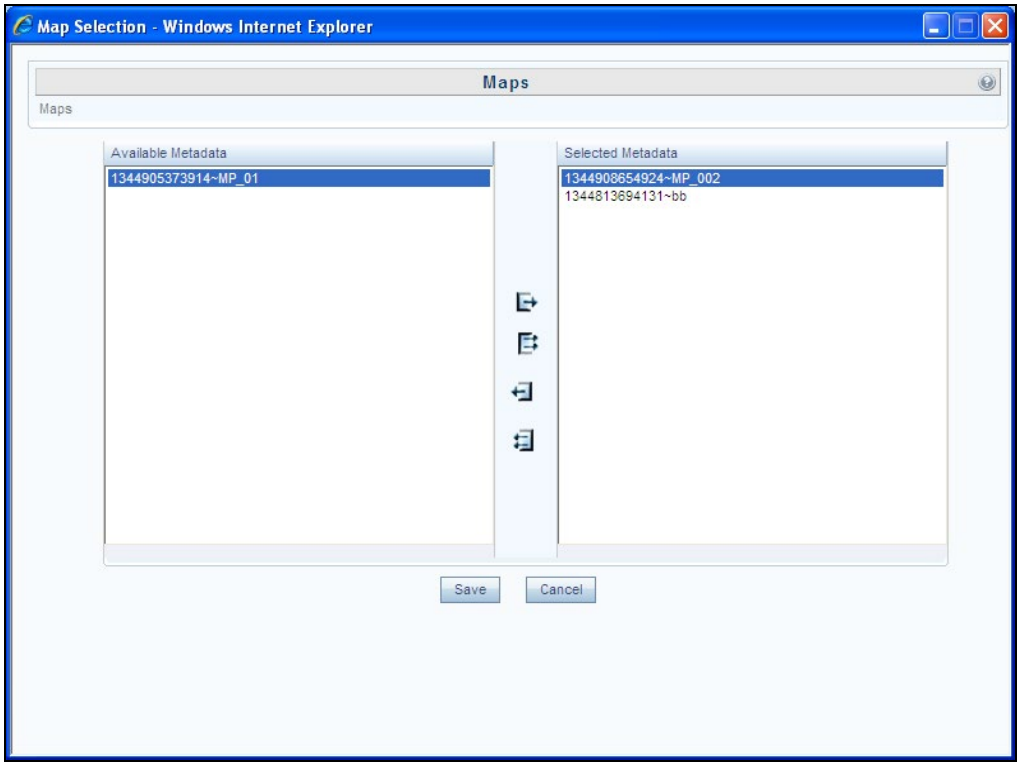
13.4.2 Map Segment Mapping

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. To access *Segment Map Security* window, go to **Object Administration** tab, expand **object Security** in the LHS menu and select **Map Segment Mapping**. In this window, 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* window, 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** form the drop-down list to which the Map definition needs to be mapped.
3. Click **Maps**. The *Map Selection* window is displayed with Available and Selected Map definitions for the selected Information Domain.



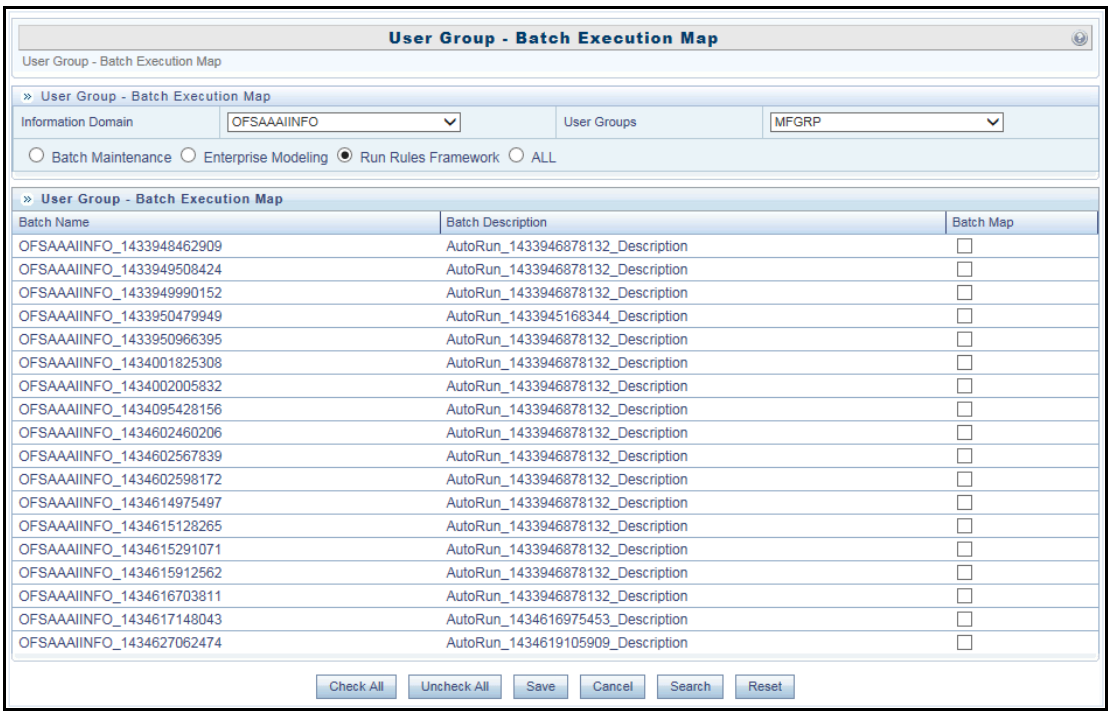
4. Map/Unmap the required map definitions by doing the following:
   - To map a map definition, select the required map from the Available Metadata list and click button. The metadata is added to the Selected Metadata pane. You can press **Ctrl** key for multiple selections.
   - To map all the map definitions, 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 window is refreshed displaying the mapping results.
6. Click **Show Details** to view the results in detail.

13.4.3 Batch Execution Rights

Batch Execution Rights facilitates you to map the required User Group to the defined Batch(s) before you execute them from *Batch Execution* or *Batch Scheduler* window. You can map multiple user groups in an Information Domain to different batches. If a user is mapped to multiple User Groups, the combined list of batches mapped to these user groups is available in *the Batch Execution* or *Batch Scheduler* window for execution.

The default User Group of a user who has created the batch has the maximum Precedence Value among the other User Groups and is automatically mapped for execution. An explicit mapping of this User Group to the Batch is not required.

You (System Administrator) need to have SYSADM function role mapped to access the User Group-Batch Execution Map. To access *User Group-Batch Execution Map* window, go to **Object Administration** tab, expand **object Security** in the LHS menu and select **Batch Execution Rights**.



The *User Group-Batch Execution Map* window 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, Enterprise Modeling, or in Rules Run Framework. By default the list displays the batches defined in the *Batch Maintenance* window.

To map User Group to the required Batch in the *User Group-Batch Execution Map* window:

1. Select the Information **Domain** from the drop-down list. By default, the window displays the Information Domain to which you are connected.
2. Select the **User Group** to which you want to map the Batches, from the drop-down list.

   The list consists of all the User Groups mapped to the selected Information Domain. The window 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 *Search for Group* window. Click **OK**.
3. Select **Batch Maintenance** (default), **Enterprise Modeling**, or **Run 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 User Group to Batch(s) by doing the following:
   - To map batch(s) to the selected User Group, select **Batch Map** checkbox.
   - To map all the batches to the selected User Group, click **CheckAll**.

   You can also click **UnCheckAll** to remove all the mapping.

5. Click **Save** to save the User Group-Batch mapping details.

13.4.4 Object to Application Mapping

The Object To Application Mapping 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.

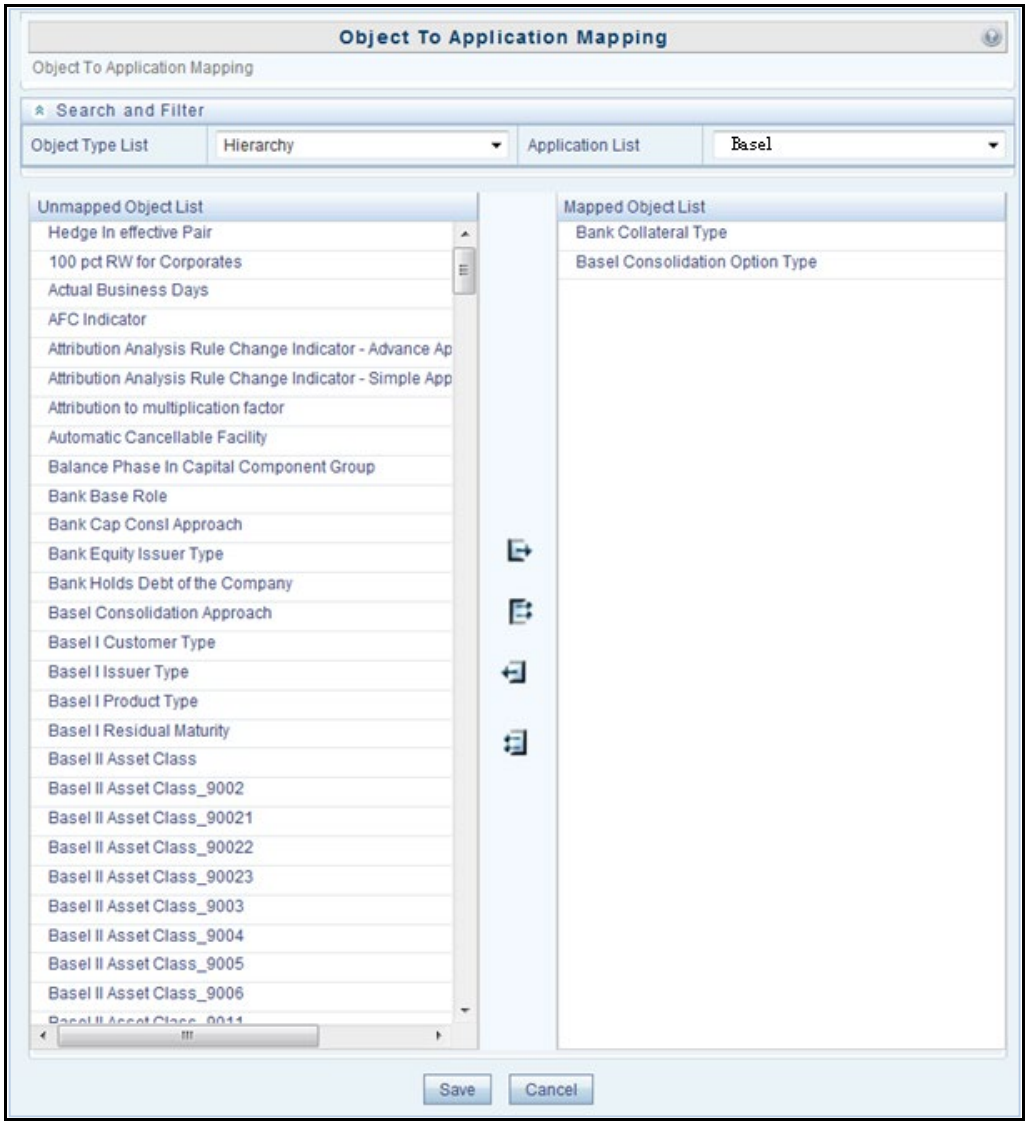
Mapping of metadata object will implicitly map its dependent objects to the selected application recursively. You can also remove the mapping of objects from applications. However, it will not remove the mapping of its dependent objects.

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, see Function - Role Map.

You have a command line utility for object application mapping. For more information, see Command Line Utility for Object Application mapping.

To add or remove the object application mapping:

1. From the **Object Administration** tab, expand **object Security** in the LHS menu and select **Object To Application Mapping**. The *Object To Application Mapping* window 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 Infodom 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.

13.5 Object Migration

There are three approaches available for object migration namely Command Line Object Migration Utility, Object Migration (UI based), and Offline Object Migration (UI Based). 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.

This module consists of the following sections:

- Export Objects
- Import Objects
- Object Migration (UI Based)

13.5.1 Offline Object Migration (UI Based)

OFSAAI has introduced a UI to migrate objects using ObjectMigration.sh file. That is, this approach is based on the Command Line Utility for Object Migration. You can migrate (export/ import) Infrastructure metadata objects across different information domains or setups from OFSAAI releases 8.0 and above. For the list of objects that can be migrated, see the Objects Supported for Command Line Migration section.

> **NOTE** The REST authentication is done against the Service Account user mentioned under OFSAA_SRVC_ACC parameter in the CONFIGURATION table. This user should be created with "SMS Auth Only" attribute from the *User Maintenance* window. By default, OFSAA_SRVC_ACC parameter is set as SYSADMN.

13.5.1.1 Prerequisites

- Folders (segments) and user groups 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.

- Before migrating a DQ Group, ensure the DQ Rules present in that DQ Group are unmapped from all other groups in the target. That is, if a DQ Rule is mapped to one or more DQ Groups in the target, then it has to be unmapped from all the groups before migration.
- 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

- All objects that generate new ID after migrating to a different information domain and all components which are registered through the *Component Registration* window, which will be used in the RRF, must be manually entered in AAI_OBJ_REF_UPDATE table in the Configuration Schema. The attributes present in the table are:
  - `V_OBJECT_TYPE`- EPM Object Type
  - `V_RRF_OBJECT_TYPE`– `RRF` object Type. The ID can be referred from pr2_component_master table
  - `V_ICC_OBJECT_TYP`E- ICC object type, can be referred from component_master table.
  - `F_IS_FILTER`- Is the object to be migrated as a filter/not?
  - `N_BATCH_PARAMETER_ORDER`- the order of parameter in task (if used in a batch).

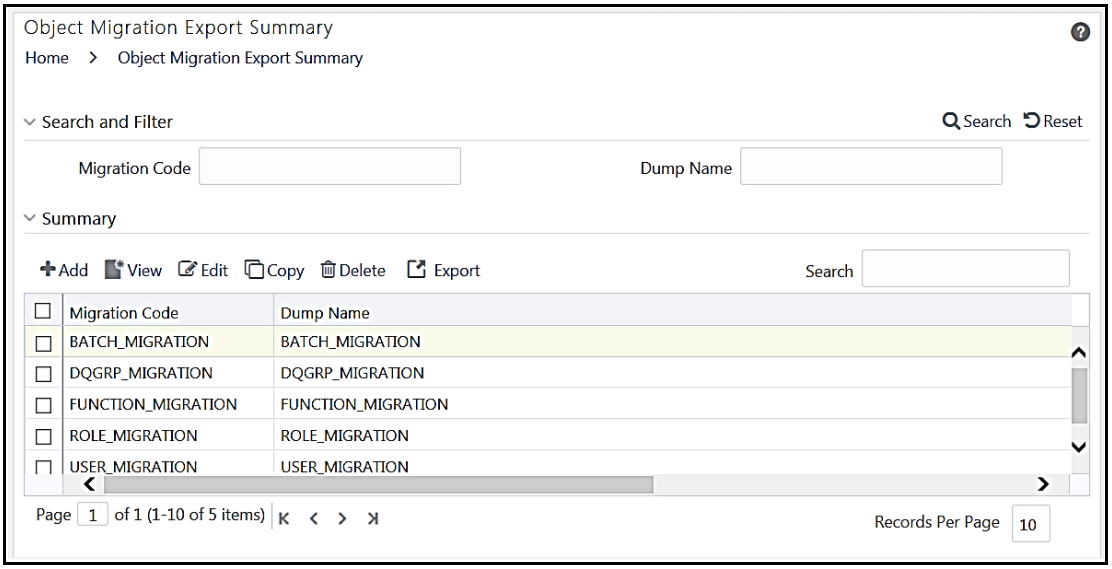
13.5.1.2 Exporting Objects

This feature allows you to export 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 the same along with or without the dependent objects.

The roles mapped to Object Migration Export are as follows:

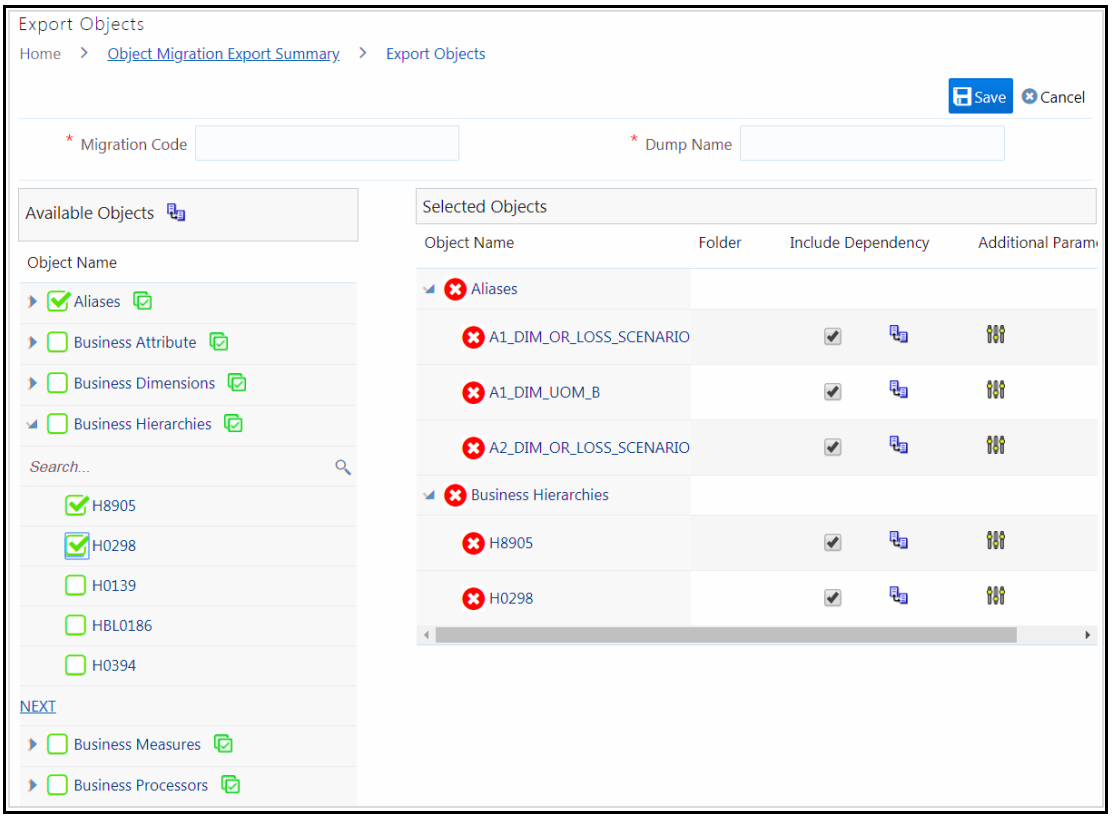
- OMEXREAD
- OMEXWRITE
- OMEXADVND
- OMEXPHTM

For all the roles, functions and descriptions, see Appendix A.



The *Object Migration Export Summary* window displays the list of pre-defined Export Definitions with their Migration Code and Dump Name. By clicking the Column header names, you can sort the column names in ascending or descending order. You can add, view, edit, copy, export, and delete Export Definition. You can search for a specific Export Definition based on the Migration Code or Dump Name.

13.5.1.2.1 Creating Export Definition



To export objects, perform the following steps:

1. From the *Object Migration Export Summary* window, click **Add.** The *Export Objects* window is displayed.
2. Enter a unique **Migration Code** to identify the status of the migration process. For example: 8860
3. Enter the name to be given to the dump file in the **Dump Name** field.
4. Select the objects you want to export from the Available Objects pane.
   - The Available Objects pane lists the Object types which are supported for migration in the alphabetical order. Mouse over **Object Name** and click or to sort the Object types in ascending or descending alphabetical order.
   - Click adjacent to an Object Type to display the available Objects. Only 5 objects are displayed at a time.
     - To view the next set of objects, click **NEXT**.
     - Search for an object by providing a part of the object name in the **Search** field and clicking .
     - To do advanced search, click icon adjacent to Available Objects. The *Filter and Search* window is displayed. You can search for an Object based on Object Type, Name, Created Date, Last Modified Date, Created by, and Last Modified by.
     - To select all objects displayed in the page, click icon adjacent to the Object Name. For example, Function.
     - If the Object Name is too long, only first 30 characters will be displayed. The tooltip will display the full object name.
     - Tooltip of Object name displays the full Object Name and Object ID. Additionally, it displays the Object Sub Type ID in case of Filters and AMHM Hierarchy.
   - Click icon corresponding to the Object Type to export all available objects in the setup. For example, if you click icon corresponding to Business Hierarchies, all available Business Hierarchies will be exported.

     A confirmation message is displayed. Click **OK** to confirm or **Cancel** to skip.
   - All the selected Objects will be displayed under Selected Objects pane.
   - Click icon corresponding to the Object Type Name to remove all selected objects of that type. Click icon corresponding to an Object Name to remove that object.
   - check box under **Include Dependency** indicates dependent objects also will be exported. Deselect the check box to export the selected objects without the dependent objects. Click icon to display the dependent objects.
   - Click icon to display the additional parameters. Enter/Select the additional parameters if it is required for the selected object type.

Field	Description
Sandbox Infodom	Enter the Sandbox Information Domain name to export Sandbox.
With Models	Select the checkbox if you want to export all models present in the Sandbox Infodom along with the Sandbox. Deselect the check box if you want to export only the Sandbox.
Is Response Data Required	This is applicable only for Questionnaire migration. Select the checkbox if you want to export the responses for Questionnaire. Deselect the check box if you want to skip it.
Application Code	This is applicable only for Questionnaire migration. Enter the application code for which you want to export the Questionnaire data. For example, to migrate KYC related Questionnaire data, specify the application code **OFS_KYC**. Similarly, you can specify the application code for other applications and migrate the related Questionnaire data.
Include Instances	This is applicable only for PMF migration. Select the checkbox if you want to export Questionnaire related workflow instance data. Deselect the check box if you want to skip it.

5. Click **Save**. The input files, migration.properties file and export_input.csv are generated in the /ftpshare/ObjectMigration/conf folder. The Export definition will be available in the *Object Migration Export Summary* window.
6. Select the definition and click **Export** to execute ObjectMigration.sh.
7. A confirmation message is displayed. Click **Ok** to trigger the export process.
8. A batch will be generated and automatically executed. The dump file will be created in /ftpshare/ObjectMigration/metadata/archive folder. You can view the logs from /ftpshare/logs/<ExecutionDate>/<Infodom Name>/RUN EXECUTABLE folder.

13.5.1.2.2 Viewing an Export Definition

You can view individual Export definition details at any given point.

To view an existing Export definition:

1. From the *Object Migration Export Summary* window, select the Export definition that you want to view and click **View**. The *Export Objects* window is displayed.

   The *Export Objects* window displays the details of the selected Export definition like Migration Code, Dump Name and the objects selected for exporting.

13.5.1.2.3 Editing an Export Definition

You can update the existing Export definition details except the Migration Code.

You can add more objects for exporting or removing the existing objects.

To modify the Export definition:

1. From the *Object Migration Export Summary* window, select the Export definition that you want to view and click **Edit**. The *Export Objects* window is displayed.
2. Update the required details. For more information, see Creating Export Definition.
3. Click **Save** and update the changes.

13.5.1.2.4 Copying an Export Definition

This option allows you to quickly create a new Export definition based on an existing Export definition. You need to provide a new Migration Code and can modify other required details.

To copy an existing Export definition:

1. From the *Object Migration Export Summary* window, select the Export definition that you want to view and click **Copy**. The *Export Objects* window is displayed.
2. Enter a unique migration code to identify the status of the migration process.
3. Update other details if required. For more information, see Creating Export Definition.
4. Click **Save**.

13.5.1.2.5 Deleting an Export Definition

To delete an Export definition

1. From the *Object Migration Export Summary* window, select the Export definition that you want to view and click **Delete**.
2. A confirmation message is displayed. Click **Yes**. The definition gets deleted.

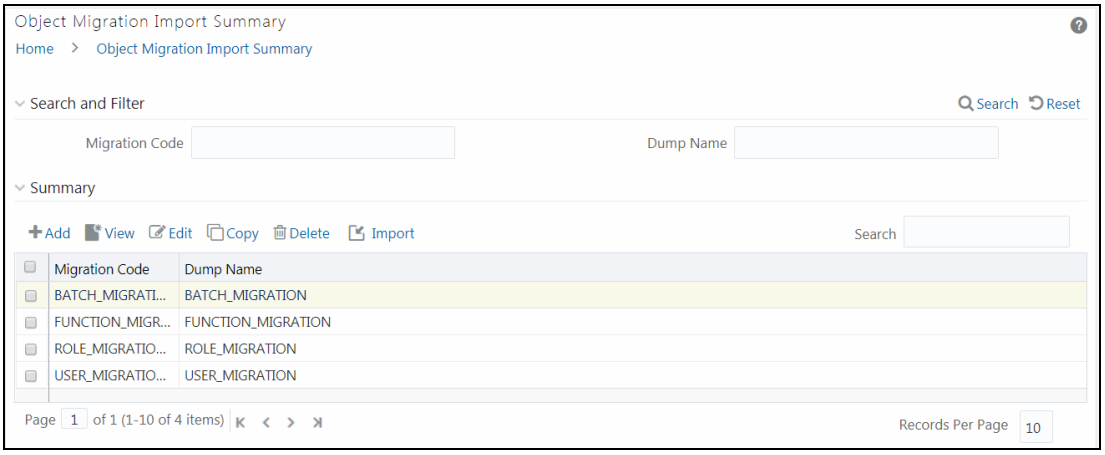
13.5.1.3 Importing Objects

This feature allows you to import objects to your target environment from the archived dump file. The dump file from source environment should be downloaded and moved into /ftpshare/ObjectMigration/metadata/restore folder in the target system. This folder structure needs to be created manually.

The roles mapped to Object Migration Export are as follows:

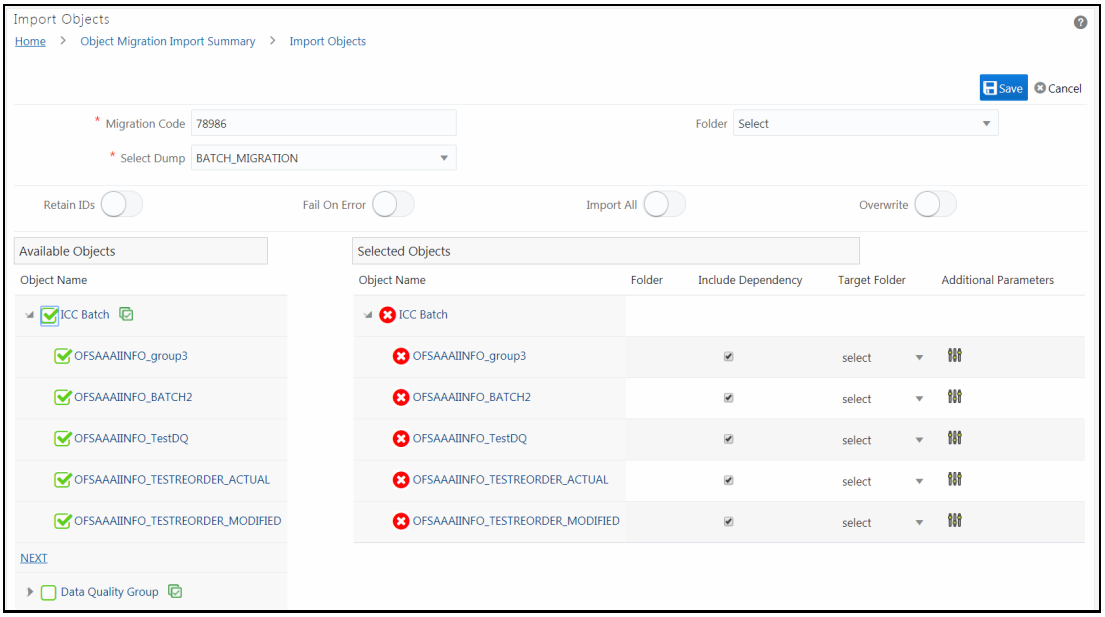
- OMIMREAD
- OMIMWRITE
- OMIMADVND
- OMIMPHTM

For all the roles, functions and descriptions, see Appendix A.



The *Object Migration Import Summary* window displays the list of pre-defined Import Definitions with their Migration Code and Dump Name. By clicking the Column header names, you can sort the column names in ascending or descending order. You can add, view, edit, copy, and delete Import Definition. You can search for a specific Import Definition based on the Migration Code and Dump Name.

13.5.1.3.1 Creating Import Definition



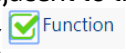
To import objects, perform the following steps:

1. From the *Import Objects* window, enter a unique migration code to identify the status of the migration process in the **Migration Code** field.
2. Select the dump file from the drop-down list. It displays the dump files in the `/ftpshare/ObjectMigration/metadata/restore` folder. The objects in the dump file will be displayed in the Available Objects pane.
3. Select the required **Folder** from the drop-down list. This is the default target folder if object specific Folder is not provided. However, if both Folders are not specified, then source folder available in the exported dump file will be considered as target folder.

4. Turn ON the **Retain IDs** toggle button to retain the source AMHM objects after migration.

   If it is turned ON, different scenarios and the behaviors are as follows:

   - Object and ID does not exist in Target- the object is created in target environment with same ID as that in source.
   - Object exists in Target with different ID- object is migrated and the ID in the target is retained.
   - ID already exists in Target with different object- then the object is migrated to target environment and a new ID is generated.
   - Same object and ID exists in Target- In this case, the behavior depends on the OVERWRITE flag.

5. Turn ON the **Fail On Error** toggle button to stop the import process if there is any error. If it is set OFF, the import process will continue with the next object even if there is an error.
6. Turn ON the **Import All** toggle button to import all objects in the dump file to the target environment.
7. Turn ON the **Overwrite** toggle button to overwrite any existing metadata. If it is turned OFF, it will not overwrite the object and continue migrating the next object.
8. Select the objects you want to import from the Available Objects pane.
   - The Available Objects pane lists the Object types which are available in the dump file in the alphabetical order. Mouse over **Object Name** and click  or to sort the Object types in ascending or descending alphabetical order.
   - Click  to expand and list the Objects available. Only 5 objects are displayed at a time. To view the next set of objects, click **NEXT**. You can search for an object by providing a part of the object name in the **Search** field and clicking  . To select all objects displayed in the page, click  icon adjacent to the Object Name. For example, If you select the check box adjacent to Function (

), all the displayed objects will be selected.
   - Click  icon corresponding to the Object Type to import all available objects of the selected Object Type in the dump file. For example, if you click  icon corresponding to Business Hierarchies, all available Business Hierarchies will be imported.

     A confirmation message is displayed. Click **OK** to confirm or **Cancel** to skip.
   - All the selected Objects will be displayed under Selected Objects pane.
   - Click  icon corresponding to the Object Type Name to remove all selected objects of that type. Click  icon corresponding to an Object Name to remove that object.
   - Select the target **Folder** if you want to import a particular object to a specific folder from the drop-down list. If this is not specified, the object will be imported to the selected default **Folder**. If you have not selected the default **Folder** also, then the source folder in the dump file will be taken as target folder. For Catalog Publish object, the target folder is mandatory.
   -  checkbox under **Include Dependency** indicates dependent objects also will be imported. Deselect the check box to import the selected objects without the dependent objects.

- Click icon to display the additional parameters. Enter/Select the additional parameters if it is required for the selected object type.

Field Name	Description
Sandbox Infodom	Enter the Sandbox Information Domain name to import Sandbox.
With Models	Select the checkbox if you want to import all models present in the Sandbox Infodom along with the Sandbox. Deselect the check box if you want to import only the Sandbox.
Is Response Data Required	This is applicable only for Questionnaire migration. Select the checkbox if you want to import the responses for Questionnaire. Deselect the check box if you want to skip it.
Application Code	This is applicable only for Questionnaire migration. Enter the application code for which you want to import the Questionnaire data. For example, to migrate KYC related Questionnaire data, specify the application code **OFS_KYC**. Similarly, you can specify the application code for other applications and migrate the related Questionnaire data.
Include Instances	This is applicable only for PMF migration. Select the checkbox if you want to import Questionnaire related workflow instance data. Deselect the check box if you want to skip it.

9. Click **Save**. The migration.properties and import_input.csv files are generated in the `/ftpshare/ObjectMigration/conf` folder. The Import definition will be available in the *Object Migration Import Summary* window.
10. Select the definition and click **Import** to execute ObjectMigration.sh.
11. A confirmation message is displayed. Click **Ok** to trigger the import process.
12. A batch will be generated and automatically executed. You can view the logs from `/ftpshare/logs/<ExecutionDate>/<Infodom Name>/RUN EXECUTABLE` folder.
13. Once executed, you can view the related log files from the `$FIC_HOME/utility/Migration/logs` location.

13.5.1.3.2 Viewing an Import Definition

You can view individual Import definition details at any given point.

To view an existing Import definition:

1. From the *Object Migration Import Summary* window, select the Import definition that you want to view and click **View**. The *Import Objects* window is displayed.
2. The *Import Objects* window displays the details of the selected Import definition like Migration Code, Dump Name and the objects selected for importing.

13.5.1.3.3 Editing an Import Definition

You can update the existing Import definition details except the Migration Code.

You can add more objects for importing or removing the existing objects.

To modify the Import definition:

1. From the *Object Migration Import Summary* window, select the Import definition that you want to view and click **Edit**. The *Import Objects* window is displayed.
2. Update the required details. For more information, see Creating Export Definition.
3. Click **Save** and update the changes.

13.5.1.3.4 Copying an Import Definition

This option allows you to quickly create a new Import definition based on an existing Import definition. You need to provide a new Migration Code and can modify other required details.

To copy an existing Import definition:

1. From the *Object Migration Import Summary* window, select the Import definition that you want to view and click **Copy**. The *Import Objects* window is displayed.
2. Enter a unique migration code to identify the status of the migration process.
3. Update other details if required. For more information, see Creating Export Definition.
4. Click **Save**.

13.5.1.3.5 Deleting an Import Definition

This option allows you to delete an Import definition.

To delete an Import definition

1. From the *Object Migration Import Summary* window, select the Import definition that you want to view and click **Delete**.
2. A confirmation message is displayed. Click **Yes**. The definition gets deleted.

13.5.1.4 Objects Supported for Migration and their Dependent Objects

13.5.1.5 Dependent Objects

The following table lists the objects that are supported for implicit dependency and the dependent objects:

Base Object Name	Dependent Objects
DATA QUALITY RULE	DERIVED ENTITY
DATA QUALITY GROUP	DATA QUALITY RULE
DATA TRANSFORMATION	NA

Base Object Name	Dependent Objects
ETL	DATA QUALITY RULE- This is not implemented.
DATA ENTRY FORMS AND QUERIES (DEFQ)	NA
ALIAS	NA
DERIVED ENTITY	DATASET
	BUSINESS MEASURE
	BUSINESS HIERARCHY
	BUSINESS PROCESSOR
BUSINESS MEASURE	ALIAS
	DERIVED ENTITY
BUSINESS DIMENSION	BUSINESS HIERARCHY
BUSINESS HIERARCHY	DERIVED ENTITY
	BUSINESS MEASURE
DATASET	ALIAS
	DERIVED ENTITY
BUSINESS PROCESSOR	DATASET
	BUSINESS MEASURE
	BUSINESS PROCESSOR
ESSBASE CUBE	DATASET
	BUSINESS MEASURE
	BUSINESS DIMENSION
ORACLE CUBE	NA
MAPPER	Hierarchies
FORMS FRAMEWORK	Child Forms
FORMS MENU	FORMS and LAYOUTS
FORMS LAYOUT	Forms
FORMS TAB	NA
FORMS PAGE	FORMS and LAYOUTS
RULE	DATASET
	MEASURE
	HIERARCHY
	BUSINESS PROCESSOR
	DATA ELEMENT FILTER
	GROUP FILTER

Base Object Name	Dependent Objects
	ATTRIBUTE FILTER
	HIERARCHY FILTER
PROCESS	EXTRACT DATA
	LOAD DATA
	TRANFORM DATA
	RULE
	PROCESS
	CUBE
	DATA QUALITY GROUP
	VARIABLE SHOCK
	MODEL
RUN	EXTRACT DATA
	LOAD DATA
	TRANFORM DATA
	RULE
	PROCESS
	RUN
	CUBE
	DATA QUALITY GROUP
	VARIABLE SHOCK
	MODEL
	DATA ELEMENT FILTER
	GROUP FILTER
	ATTRIBUTE FILTER
	HIERARCHY FILTER
BATCH	Not implemented
DIMENSION	MEMBERS
	ATTRIBUTES
FILTER	BUSINESS HIERARCHY
	ATTRIBUTES
	FILTER
EXPRESSION	EXPRESSION
AMHM HIERARCHY	Members

Base Object Name	Dependent Objects
SANDBOX **2**	NA
VARIABLE	BUSINESS HIERARCHY
	BUSINESS MEASURE
	BUSINESS PROCESSOR
	DATASET
TECHNIQUE	NA
VARIABLE SHOCK	VARIABLE
	DATASET
	BUSINESS HIERARCHY
SCENARIO	VARIABLE SHOCK
MODEL	TECHNIQUE
	VARIABLE
	DATASET
	BUSINESS HIERARCHY
	DataElement Filter
STRESS	RUN
	SCENARIO
CATALOG PUBLISH	NA
USER	PROFILE
USER GROUP	USER
ROLE	FUNCTION
FUNCTION	NA
PROFILE	NA
PMF PROCESS	NA

13.5.1.5.1 Filter SubTypes

Object Name	Object SubType ID
DataElement Filter	4
Hierarchy Filter	8
Group Filter	21
Attribute Filter	25

13.5.2 Object Migration (UI Based)

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 UAM 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 Offline Object Migration (UI Based) 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.
- 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.

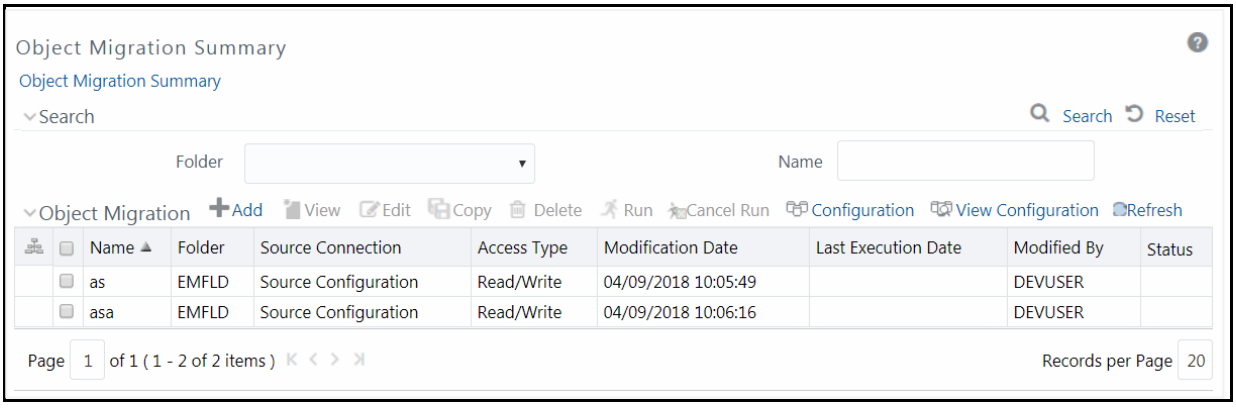
  For example, if you want to migrate a Data Element Filter based on "Table A" and "Table B" in the Source, those two tables should exist in the Target.
- The key processing Dimensions should be the same in both the Source and Target environments.
- For member migration, the dimension type should have 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 UAM 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 UAM objects from the source, you need to import the SSL certificate of Source in to the Target. For information on importing SSL certificate, see 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.
- Before migrating a DQ Group, ensure the DQ Rules present in that DQ Group are unmapped from all other groups in the target. That is, if a DQ Rule is mapped to one or more DQ Groups in the target, then it has to be unmapped from all the groups before migration.
- 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.



The *Object Migration Summary* window displays the list of pre-defined Object Migration rules with the other details such as Name, Folder, Source Infodom, 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.

In the *Object Migration Summary* window 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

13.5.2.1 Defining Source Configuration

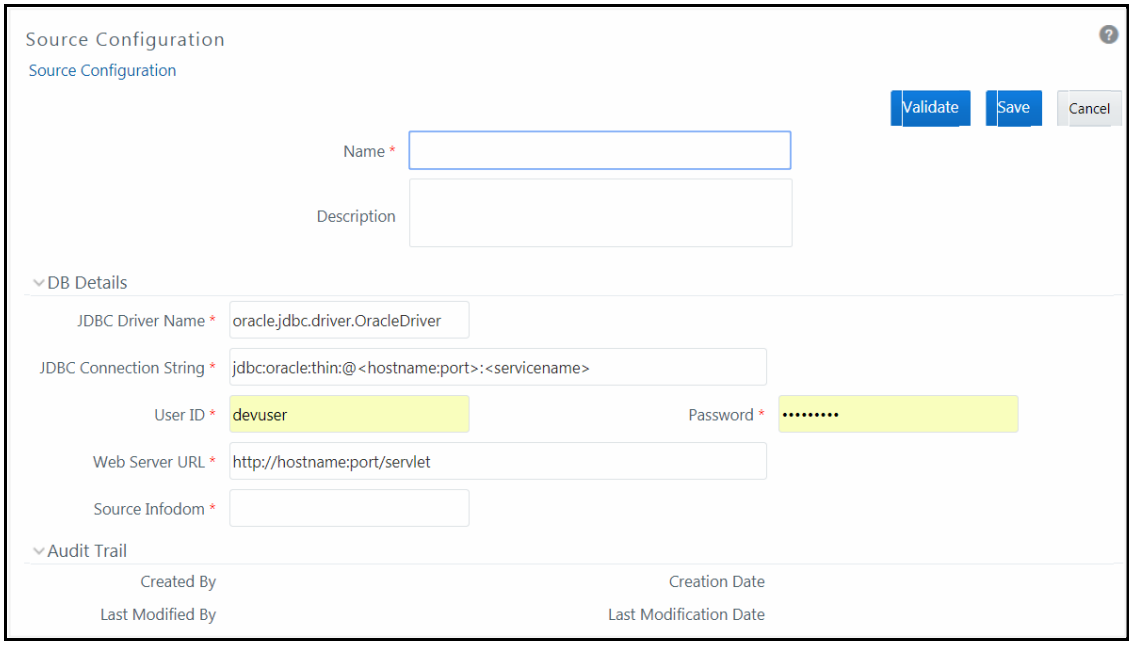
You can define a source configuration by specifying the database connection details and user credentials to access the database. You can also edit a pre-defined Source configuration.

To define a Source Configuration in the *Object Migration Summary* window:

1. Click **Configuration** from the Object Migration tool bar. The *Source Configuration* window is displayed with the pre-configured database details.

   You can also click **View Configuration** to view the pre-configured database details.

2. Click + adjacent to the **Name** field. The window 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 user ID required to access the database.
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* window 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**.

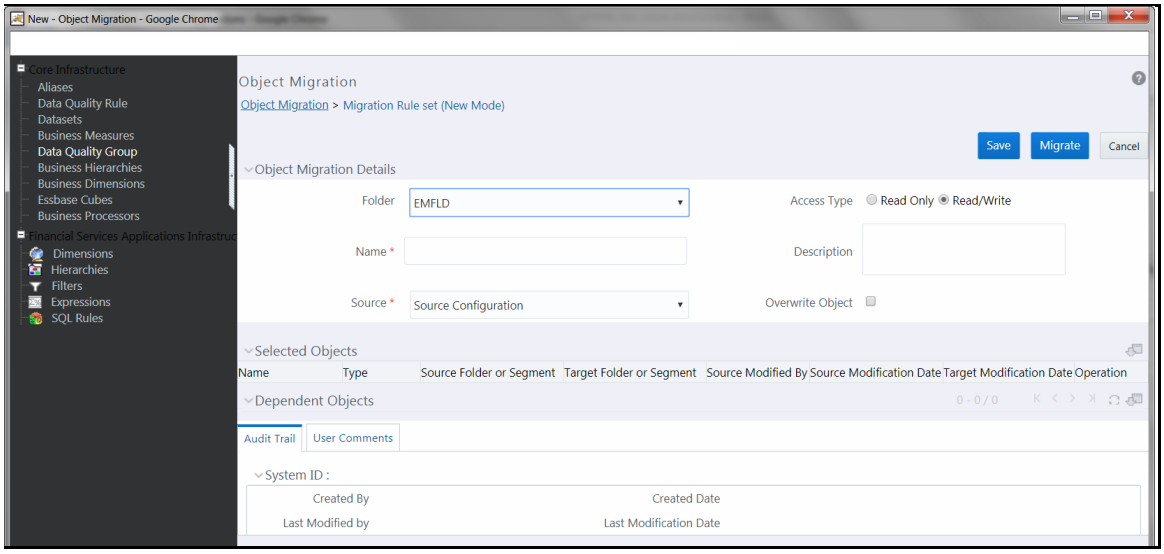
13.5.2.2 Creating Object Migration Definition

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* window.
- 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 **Add** button from the Object Migration tool bar. The *New - Object Migration* window is displayed.



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 window.
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:	

Field	Description
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. • 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* window. Use Reset button to clear the search criteria. • Use the 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.
4. 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.
5. The Dependent Objects grid shows all objects which are automatically migrated due to a dependency in a parent object.
6. 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* window.

   You can also toggle the view of Parent / Child dependency information by selecting **Parent** or **Child** in the Dependency Information grid.
7. 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.
8. 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, see 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* window 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.

13.5.2.3 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 **View** button in the Object Migration tool bar. The *View - Object Migration* window is displayed.
3. Click button from the Selected Objects tool bar to refresh the properties.
4. Click button from the Dependent Objects tool bar to display the dependencies of the selected Object.
5. To view all dependencies of an object, click the object Name. The parent / child dependencies are displayed in the *Parent / Child Dependency Information* window.

13.5.2.4 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 **Edit** in the Object Migration tool bar. The *Edit - Object Migration* window is displayed.
3. Edit the required details. For more information, see Creating Object Migration Definition.

> **NOTE** You cannot edit the Source details.

4. Click **Save** and save the changes.

   In the *Object Migration Summary* window, you can also click **Delete** button to delete the Object Migration Definition details.

13.5.2.5 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 **Copy** 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, see 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.

13.5.2.6 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 **Run** 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* window.

   You can also interrupt the ongoing migration process by selecting the object rule definition and clicking **Cancel Run** button.

13.5.2.7 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* window 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.

13.6 Translation Tools

13.6.1 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* window 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* window has restricted access and you should have **Config Excel Advanced** user role mapped to your user group 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.

13.6.2 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.

To navigate to this screen, go to the **Objects Administration** tab, expand **Translation Tools** and click **Config Schema Upload** from the LHS menu.

The *Config Schema Upload* window 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 inserting the new data, the selected database object (table) will be reverted back to its original state.

The *Config Schema Upload* window has restricted access and you should have **Config Excel Advanced** user role mapped to your user group 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 window 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).

13.7 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.

To access various utilities, go to the Object Administration tab and click **Utilities**.

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

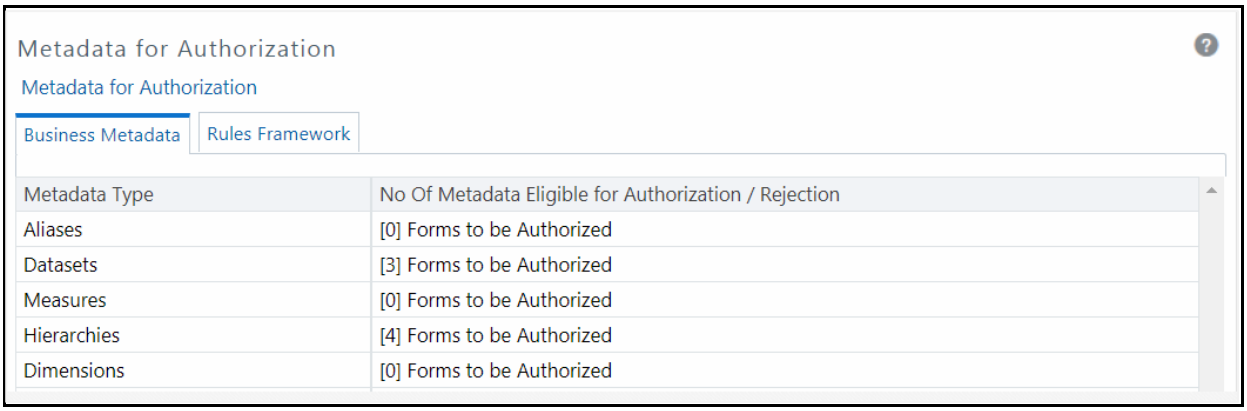
- Metadata Authorization
- Metadata Difference
- Save Metadata
- Write-Protected Batch
- Component Registration
- Transfer Document Ownership
- Object Migration

- Patch Information
- Restructure

13.7.1 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.

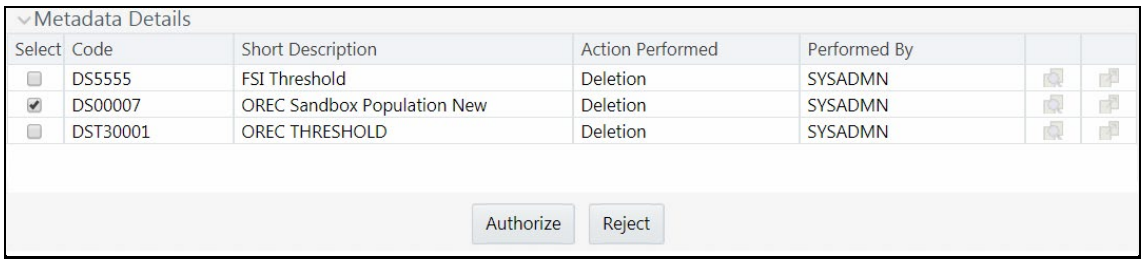
You need to have SYSADM and METAAUTH function roles mapped to access the Metadata Authorization within the Administration framework of the Infrastructure system. The *Metadata for Authorization* window displays the list of modified Metadata Type and the total number of eligible metadata for authorization in the Business Metadata tab (Default).



13.7.1.1 Authorize / Reject Metadata

To Authorize or Reject Metadata Types in the *Metadata for Authorization* window:

1. Select the Module tab as Business Metadata (default) or Rules Run Framework. The list of Metadata Type eligible for authorization is displayed.
2. Select the required **Metadata Type** by clicking the 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.

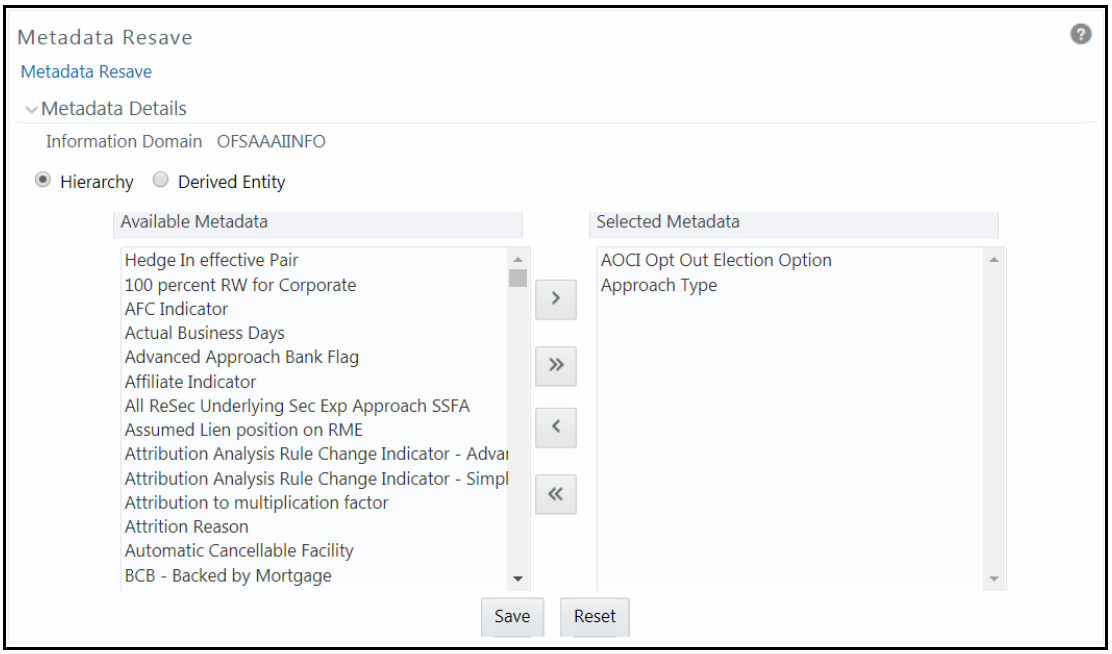
3. Select the checkbox adjacent to the required version of the selected metadata and do one of the following:

- Click **Authorize** to accept the metadata changes of the selected version.
- Click **Reject** to ignore the metadata changes and delete the selected version.

The window is refreshed on every action and the updates are displayed in the respective tab of the *Metadata for Authorization* window.

13.7.2 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 Resave* window. The *Metadata Resave* window displays the list of Available Metadata for Hierarchy (default) for the selected Information Domain.

> **NOTE** If there are hierarchies and derived entities with duplicate short description, use the Resave utilty to save those derived entities and hierarchies..

To resave metadata in the *Metadata Resave* window:

1. Filter the metadata type by selecting Hierarchy or Derived Entity. 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 form multiple selection.
   - To select all the Available Metadata, click » button.

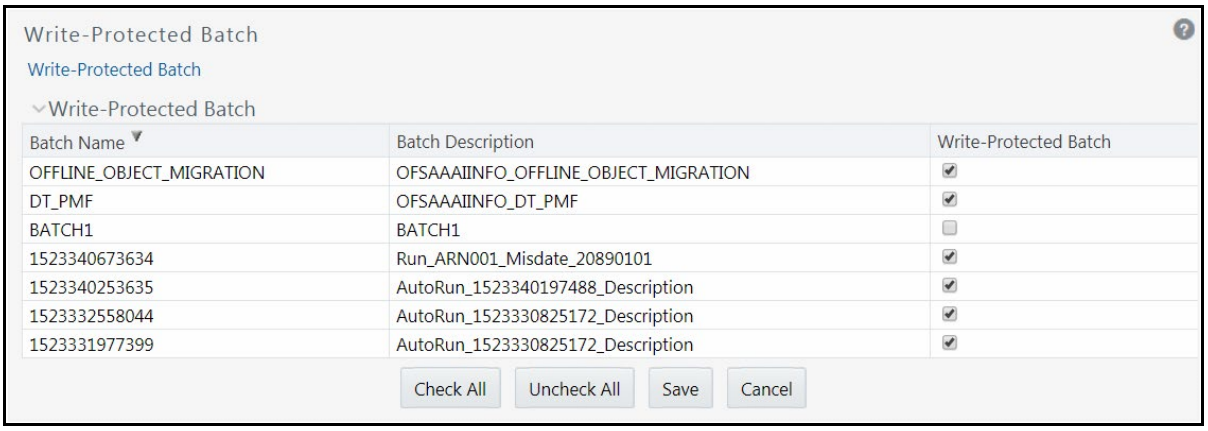
You can also deselect a metadata by selecting from the Selected Metadata list and clicking < button or deselect all the selected metadata by clicking « button.

2. Click **Save** and update the metadata changes. Status of operation is displayed.

13.7.3 Write-Protected Batch

Write-Protected Batch facilitates you to change the Editable State of Batches defined in the *Batch Maintenance* window 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* window 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* window, 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* window.
- 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* window.
- 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.

13.7.4 Metadata Difference

Metadata Difference within the Infrastructure system facilitates you to view the difference between two versions of a Metadata 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 Data Model Management and Rules Run Framework modules of the selected Information Domain.

   NOTE Metadata Difference feature is not supported for RRF metadata

2. Select the required metadata by expanding the required node. Click **OK**.
3. Click button adjacent to **From Version**.

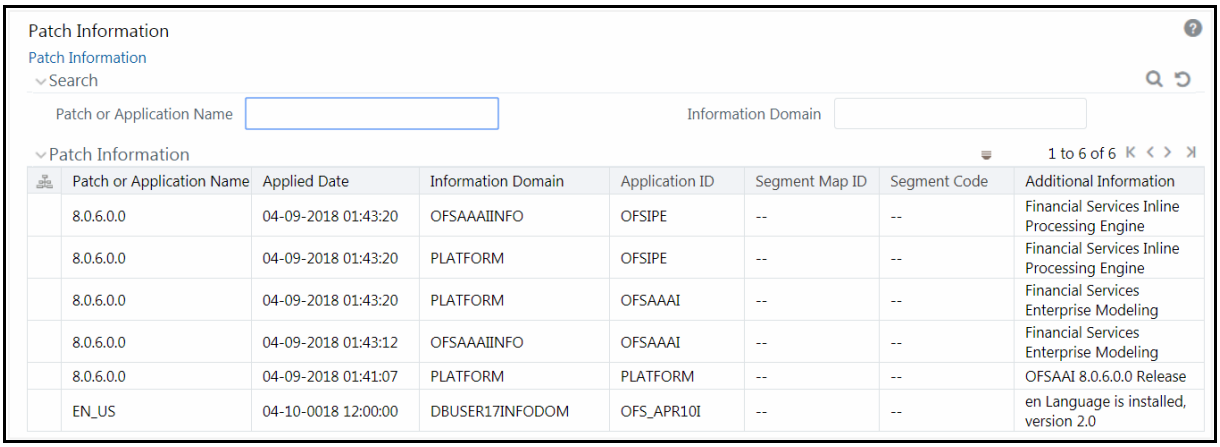
   The Version Tree dialog is displayed with the list of available version for the selected metadata.
4. Select the required version by expanding the required node. Click **OK**.
5. Click button adjacent to **To Version**. The Version Tree dialog is displayed.
6. Select the required version by expanding 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.

13.7.5 Patch Information

The *Patch Information* window 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* window within the **Utilities** section of the Infrastructure.



Patch or Application Name	Applied Date	Information Domain	Application ID	Segment Map ID	Segment Code	Additional Information
8.0.6.0.0	04-09-2018 01:43:20	OFSAAAIINFO	OFSIPE	--	--	Financial Services Inline Processing Engine
8.0.6.0.0	04-09-2018 01:43:20	PLATFORM	OFSIPE	--	--	Financial Services Inline Processing Engine
8.0.6.0.0	04-09-2018 01:43:20	PLATFORM	OFSAAAI	--	--	Financial Services Enterprise Modeling
8.0.6.0.0	04-09-2018 01:43:12	OFSAAAIINFO	OFSAAAI	--	--	Financial Services Enterprise Modeling
8.0.6.0.0	04-09-2018 01:41:07	PLATFORM	PLATFORM	--	--	OFSAAI 8.0.6.0.0 Release
EN_US	04-10-0018 12:00:00	DBUSER17INFODOM	OFS_APR10I	--	--	en Language is installed, version 2.0

The *Patch Information* window 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 search for a specific patch/application installation based on Patch/Application Name or Information Domain.

13.7.6 Transfer Documents Ownership

This feature allows you to transfer the ownership of the uploaded documents to another user or user group. When a user or user group is deleted, the uploaded documents will be orphaned. This feature can be used to transfer the ownership of the documents before a user or user group is deleted.

The Transfer Document Ownership link is displayed when the user is mapped to any one of the following roles:

- Document MGMT advanced
- Document MGMT authorize
- Document MGMT phantom
- Document MGMT write

For more details regarding Role and Functions, see Appedix A

13.7.6.1 Transferring Document Ownership to User

To transfer document ownership to user:

1. From the *Transfer Documents Ownership* window, select the user whose document ownership you want to transfer from the **User** drop-down list.

   The uploaded documents by the selected user are displayed under the Available Documents pane.
2. Select the user to whom you want to transfer the document ownership from the **Destination User** drop-down list.
3. Select the documents from Available Documents whose ownership you want to transfer by clicking  button. The documents will be moved to the Selected Documents pane. You can click  to select all documents.
4. Click **Save**.

13.7.6.2 Transferring Document Ownership to User Group

To transfer document ownership to user group

1. From the *Transfer Documents Ownership* window, select the **User Groups** option.
2. Select the user group whose document ownership you want to transfer, from the **Group** drop-down list.

   The uploaded documents by the selected user group are displayed under the Available Documents pane.
3. Select the group to which you want to transfer the document ownership from the Destination **Group** drop-down list.

4. Select the documents from Available Documents whose ownership you want to transfer by clicking  button. The documents will be moved to the Selected Documents pane. You can click  to select all documents.
5. Click **Save**.

13.7.7 Business Restructure

Business Re-structuring in the corporate management is the act of reorganizing Ownership, Operational or other structures of the company for making it more profitable or better organized for its present needs. Other reason for restructuring is demerger or a response to major change in the business such as repositioning or buyout.

Business restructuring operations can be:

- **Merge**- Two dimension nodes are merging into one. Here the source nodes are many and the target node will be one. The entities can be copied from the source to target or else can be moved to the target without retaining them in the source. In this scenario, the existing source mapping needs to be deleted and the new mappings should be created for the target.
- **Split**- A dimension node is splitting into two. Here the source node will be one and the target node will be many. The entities can be copied from the source to target or can be moved to the target without retaining them in the source. In this scenario, the existing source mapping needs to be deleted and the new mappings should be created for the target.
- **Add**- A new dimension node is getting added. Here the source node can be many and the target node will be one. The entities are copied from the source to the target. In this scenario, new mappings should be created for the target. Workflow will be called only for the target.
- **Close**- A dimension node is getting closed. In this scenario, the existing mappings should be deleted. The source node can be many or one. Workflow will be called only for the source.

Based on the role that you are mapped to, you can access, read, modify, or authorize the Business Restructure definitions. For all the roles and descriptions see Appendix A. The roles mapped to Business Restructure are as follows:

- RESTRACC- Restructure Access
- RESTRMOD- Restructure Edit
- RESTREXEC- Restructure Execute
- RESTRREAD- Restructure Read
- RESTRSUMM- Restructure Summary
- RESTRWRITE- Restructure Write

To access Business Restructure, navigate to Object Administration tab and click **Utilities**. In the *Utilities* window, click **Restructure**.

13.7.7.1 Metadata Reload

For the first time when you use this utility, you need to do Restructure Metadata Reload. Afterwards when a change in model or map definitions happens, then only you have to reload the metadata.

Navigate to the *Restructure* window and click **Metadata Reload**. From the *Metadata Reload* window, click **Initiate Reload**. A message is displayed indicating the status of the metadata reload.

13.7.7.2 Configuration

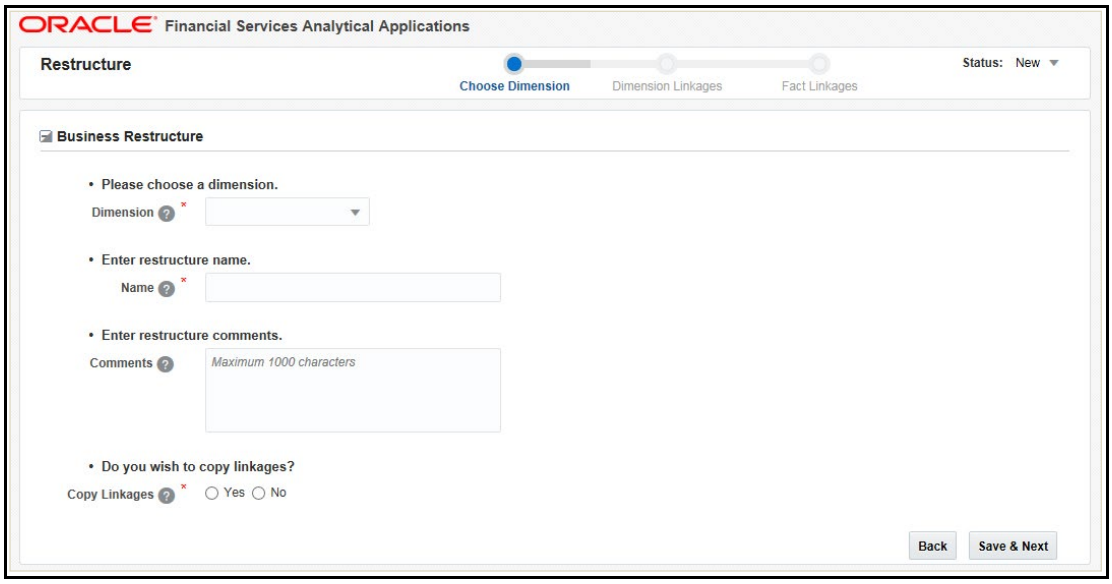
This feature allows you to define and manage the Dimension for which you are doing the business restructuring. In the Configuration, you need to select the Dimension and Fact tables which will be participating in the restructuring process. Additionally, you have to specify what kind of entity operation you want to do, that is, Move or Copy operation.

13.7.7.2.1 Creating a new Configuration

This option allows the administrators to create a new configuration for business restructuring. You should be mapped to the role RESTRWRITE to create configuration.

To create a new configuration

1. From the *Restructure* window, click **Configuration**. The Configuration Summary window is displayed.
2. Click **Create** from the Restructure Configuration Summary toolbar. The *Business Restructure* window is displayed.

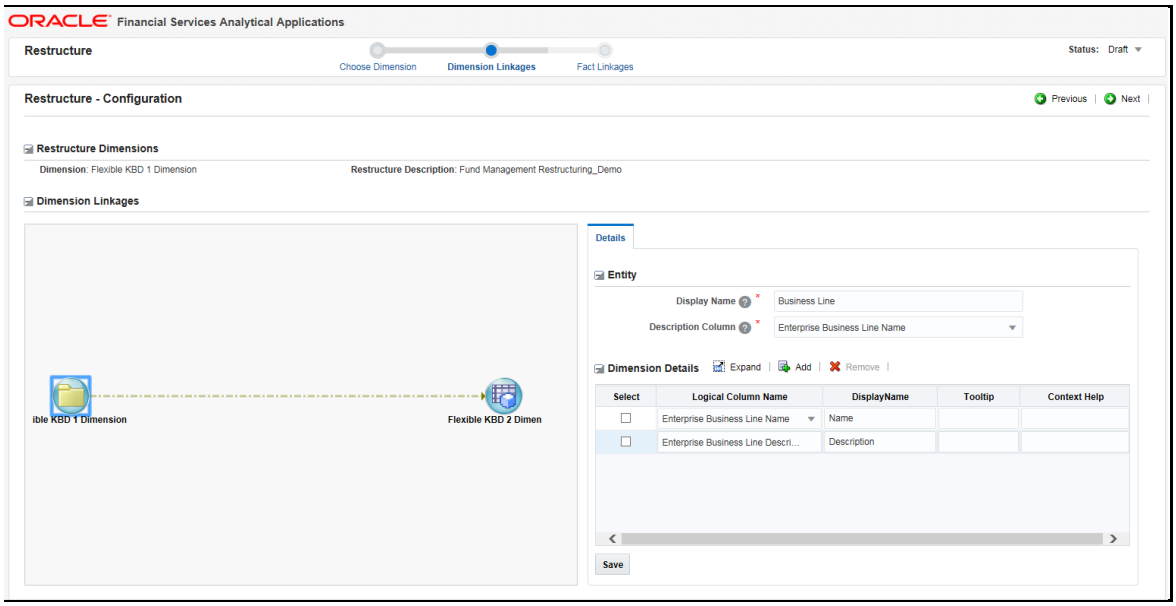


3. Enter the details as shown in the following table:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Dimension	Select the dimension to be configured for the business restructure, from the drop-down list. The list displays all the Business Dimensions scoped for restructuring.
Name	Enter the name of the configuration.
Comments	Enter any additional information if any.

Field	Description
Copy Linkages	Select **Yes** to copy the linkages of the Fact tables related to the selected dimensions.

4. Click **Save & Next**. The "Save Successful" message is displayed and the status is changed to Draft.
5. Click **OK**. The *Restructure Configuration* window is displayed.



The Dimension Linkages pane shows the linkages of the selected dimension to other dimensions. The Dimension names displayed are the logical names used in the Data Model.

You can right-click a node from the Dimension Linkages pane and click **Delete** to remove it. Click **Reset** to undo the delete operation(s). If you have deleted 2 nodes and then click **Reset**, both nodes will be reverted back. You need to enter the Entity details again.

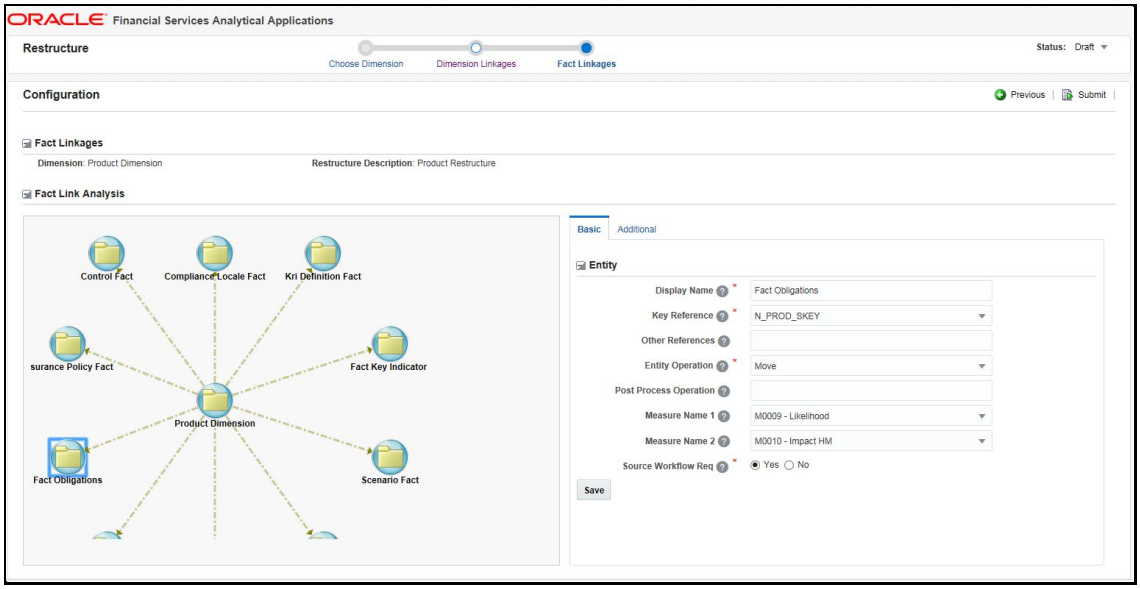
> **NOTE** You can do Delete and Reset of nodes if the Configuration is in the Draft status.

6. Click the Dimension whose details you want to add/ edit, from the Dimension Linkage pane. The Entity and Dimension details are displayed in the Details pane.
7. Enter a **Display Name** for the Dimension. This name will be displayed instead of the actual Dimension name in the Manage Restructure screens.
8. Select the **Description Column** of the Dimension, from the drop-down list. The list displays all columns in the Dimension table.
9. Click **Add** in the Dimension Details grid.

10. Select a column from the **Logical Column Name** drop-down list and enter a Display Name, Tooltip and Context Help for the selected column. The drop-down list displays the logical name given to the columns present in the selected Dimension table.
11. Click **Save**.

> **NOTE** You need to complete the details for all the dimension nodes in the Dimension Linkages pane to move to the next step.

12. Click **Next**. The *Configuration* window is displayed.



The Fact Link Analysis pane shows various Fact tables related to the selected dimension.

Right-click a Fact table and click **View Mapping** to view the linkages of the selected Fact table to other Fact tables.

You can right-click a node from the Fact Link Analysis pane and click **Delete** to remove it from participating in restructuring. Click **Reset** to undo the delete operation(s). If you have deleted 2 nodes and then click **Reset**, both nodes will be reverted back. You need to enter the Entity details again.

13. Click a Fact table. The Basic tab displays the details of the selected Fact table.
14. Enter the details in the Entity pane as given below:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Display Name	Specify a name for the selected Fact table which will be displayed in the Managing screens.
Key Reference	Select the key reference column for the selected Fact table, from the drop-down list.

Field	Description
Other References	Click the field. All reference columns of the selected entity (Fact table) are displayed. Select the required references.
Entity Operation	Select the entity operation you want to do for the selected Fact table. The options are **Move** and **Copy**.
Post Process Operation	Specify the Class that implements the Post Processing Operation for the entity.
Measure Name 1	Select the first Measure Name that will be calculated and summarized in the manage restructure list of the entity.
Measure Name 2	Specify the second Measure Name that will be calculated and summarized in the manage restructure list of the entity.
Source Workflow Req	Click **Yes** if source workflow call is required.

15. Click the **Additional** tab. You can provide additional details for the columns of the selected Fact table.
16. Click **Add** and a row is displayed inside the Entity Details grid.
17. Select a column from the **Logical Column Name** drop-down list. The list displays all the columns of the selected Fact table. The already added columns are disabled.
    - Enter a Display Name.
    - Set whether it is a **User Column** or not.
    - Select the **Default User** if it is a user column, from the drop-down list.
    - Select the **Hierarchy Description** of the column from the drop-down list. This is required if the selected Dimension is a part of the security mapper definition.
    - Enter the **Tooltip** and **Context Help** displayed for the selected column.
18. Click **Submit**. If it is submitted successfully, the status is changed to Submit. You cannot modify any fields once it is submitted.

13.7.7.2.2 Modifying a Configuration

This option allows you to modify configurations which are in Draft status.

To modify a configuration

1. From the *Restructure* window, click **Configuration**. The *Configuration Summary* window is displayed.
2. Click the configuration ID. The *Restructure- Configuration* window is displayed. For more information, see Creating a new Configuration.

13.7.7.2.3 Closing a Configuration

This option allows you to close a configuration which is in the Submit status and is no more in use. You cannot close a configuration which is in Draft status; you will be prompted to delete it.

To close a configuration

1. From the *Restructure* window, click **Configuration**. The *Configuration Summary* window is displayed.
2. Select the checkbox corresponding to the configuration you want to close and click **Close**. The status of the configuration will be changed to Closed.

13.7.7.2.4 Deleting a Configuration

This option allows you to delete a configuration which is in the Draft status. Once deleted, it is removed from the Summary grid.

To delete a configuration

1. From the *Restructure* window, click **Configuration**. The *Configuration Summary* window is displayed.
2. Select the checkbox corresponding to the configuration you want to delete and click **Delete**.

13.7.7.3 Managing Business Restructure

This feature allows the business users to manage and execute business restructuring. The stages involved are:

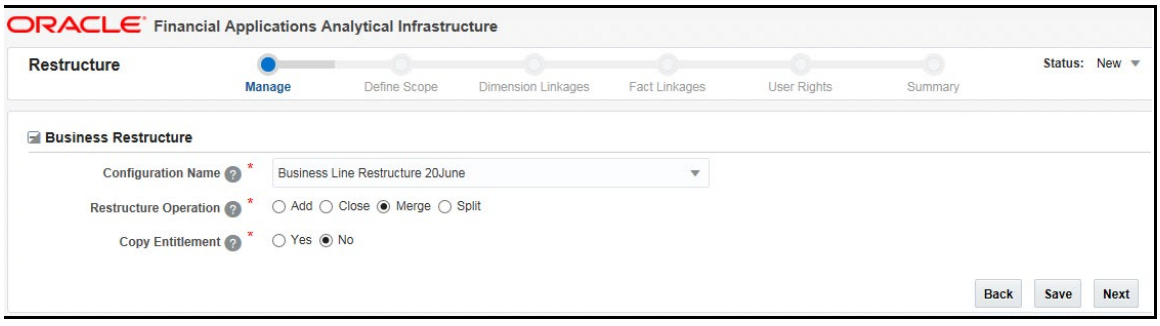
- Creating a new Business Restructure
- Defining Scope
- Submitting the Business Restructure
- Executing Business Restructure

13.7.7.3.1 Creating a new Business Restructure

This option allows you to create a new business restructure based on a selected configuration. You can select only those configurations which are in the Submit status. You should be mapped to the role RESTRWRITE to create Business Restructure.

To create Business Restructure

1. From the *Restructure* window, click **Management**. The Manage Restructure Summary window is displayed.
2. Click **Create** from the Manage Restructure Summary toolbar. The *Business Restructure* window is displayed.



3. Enter the details as shown in the following table:

Field	Description
Fields marked in red asterisk (*) are mandatory.	
Configuration Name	Select the configuration defined for the business restructure, from the drop-down list. The list displays all the Configurations in the Submit status.
Restructure Operation	Select the required restructure operation. The options are **Add**, **Close**, **Merge** and **Split**. For more information, see Restructuring Operations.
Copy Entitlement	This option is enabled if the selected dimension is part of the Security Mapper definition. Click **Yes**, then the source mappings will be done based on the Restructure Operation. If **No** is selected, no mappings will be copied. Then you need to do the mappings freshly after executing the Restructure operation.

4. Click **Next**. The "Save Successful" message is displayed and the status is changed to Draft. The *Business Restructure- Scope* window is displayed.

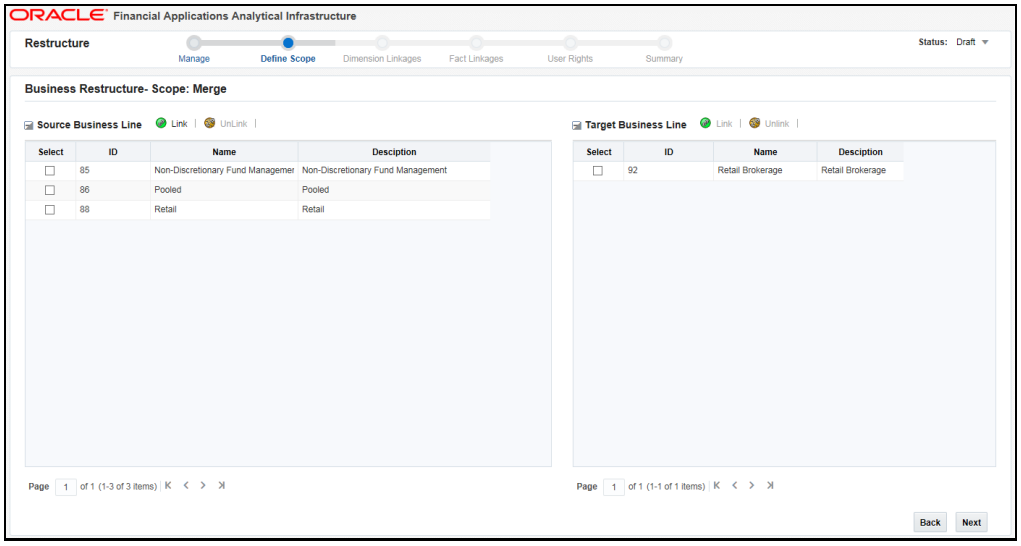
13.7.7.3.2 Defining Scope

This option allows you to select the required nodes in the source Dimension which will be copied/ moved to the target node(s). The behavior is explained for each restructure operation:

- **Merge** – You can select multiple source nodes, but you are restricted to select only one target node, since you are merging multiple nodes into a single one. It performs copy/move operation based on the selected configuration.
- **Split** – You are restricted to select only one source node, but allowed to select multiple target nodes, since you are splitting a single node into multiple. It performs copy/move operations based on the selected configuration.
- **Add** – You can select multiple source nodes, but allowed to select only a single target. It performs only copy operation.
- **Close** – You can select single or multiple source nodes. The target node will be same as the source node. No provision will be provided to select target.

To define scope of the Business Restructure:

1. From the *Restructure* window, click **Define Scope** from the path. The *Business Restructure- Scope* window is displayed.



The names of the source and target dimensions and their nodes are displayed as per the Display Names given in the Configuration.

2. Click **Link** from the Source pane.
3. Select the required nodes in the source Dimension(s) for which the restructuring is done and click **Ok**.

> **NOTE** You can select a linked node and click **Unlink** to remove it.

4. Click **Link** from the Target pane and select the required target node(s).
5. Click **Next**. The status will become In Progress. The workflow tasks will be sent to the App business users.

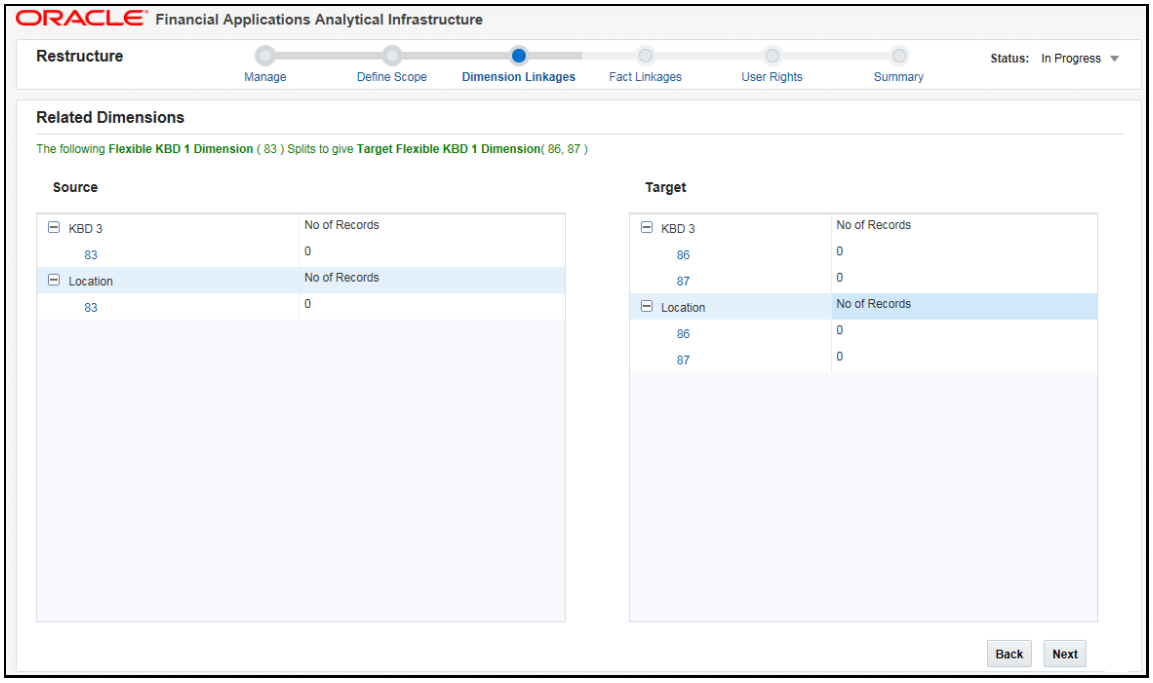
13.7.7.3.3 Submitting the Business Restructure

This option allows you to view and analyze the dimension and fact tables which are affected by the business restructure. After reviewing, you need to submit it. If multiple applications are using the selected Dimension, one of the users from each application needs to submit the Restructure.

Once the restructure scope is defined, all app users will get a task in their Inbox. Click the hyperlink under the EntityName column. The Manage Restructure Summary window is displayed. You need to select the Business Restructure which is in the In Progress status.

To submit the Business Restructure

1. From the *Restructure* window, click **Dimension Linkages** from the path. The *Business Restructure- Related Dimensions* window is displayed.



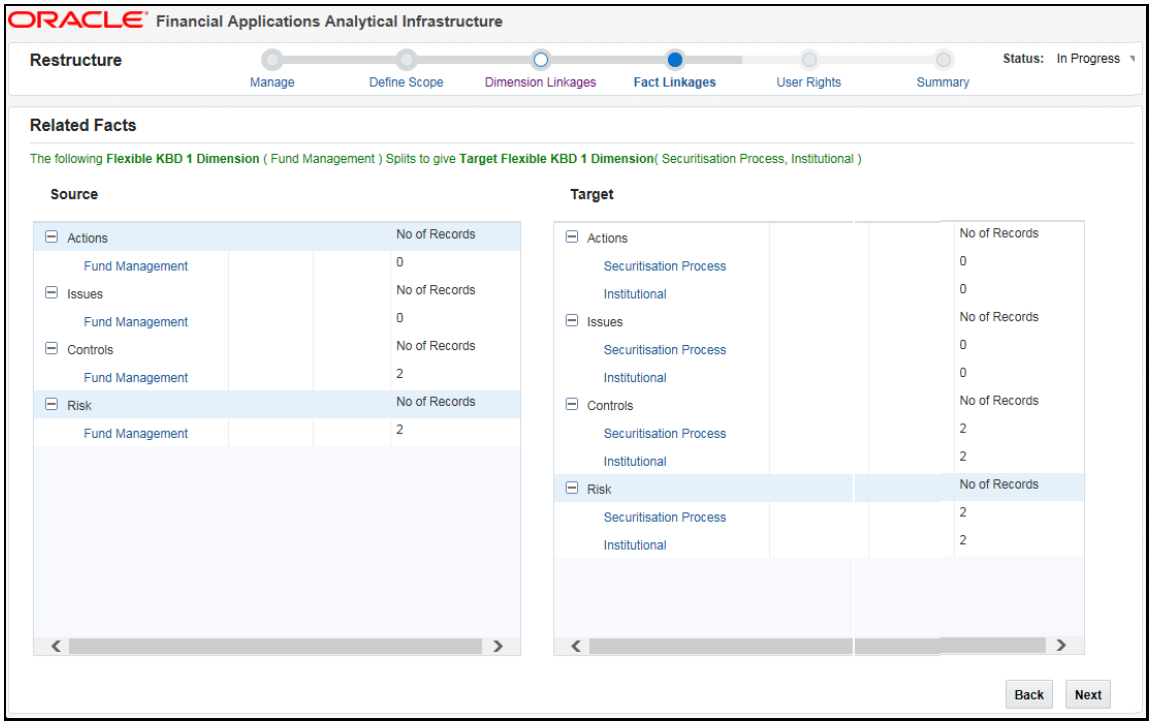
You can view the source and the target Dimensions along with their nodes, which are getting affected by the restructuring under the Source and the Target pane respectively. On expanding the source dimension, you can view the count of nodes getting impacted.

2. Click the node hyperlink in the Source pane. The Source Records grid displays the records in the node entity.
3. Review the details and click **Ok**.
4. Similarly, expand the Target dimension and click the node hyperlink in the Target pane. The *Target <Dimension Name>-<Node Name>* window is displayed.

   The Linked Records grid displays the records which are linked to the Target dimension.
5. Select a record and click **Unlink** to remove it.
6. From the Unlinked Records grid, select a record and click **Link** to link it to the target dimension.

> **NOTE** You can only link or unlink the existing/ system generated nodes; you cannot add a new link.

7. Click **Next**. The *Related Facts* window is displayed.

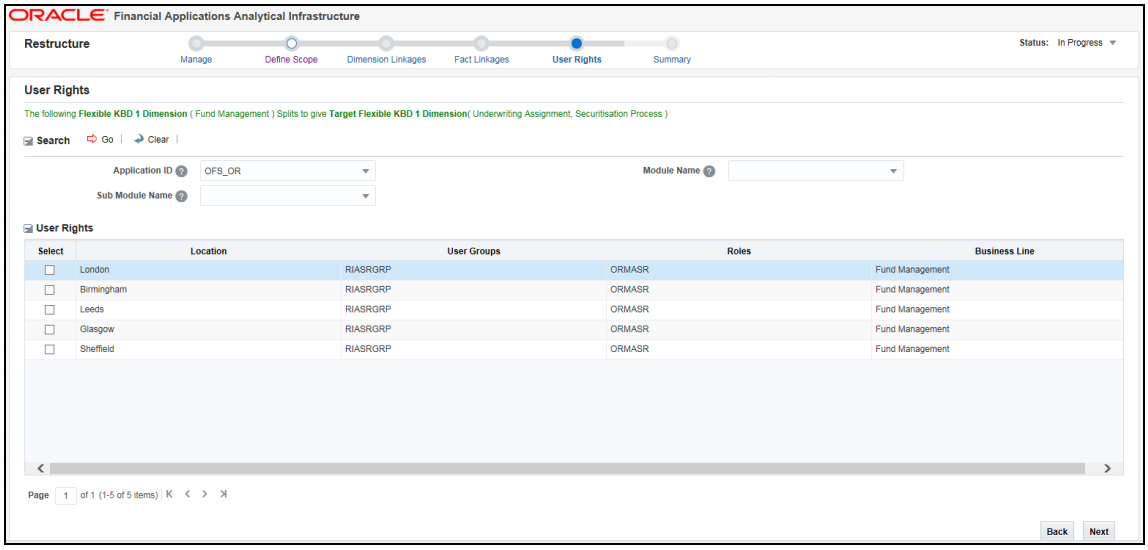


You can view the number of records getting impacted by restructuring, for the selected Fact tables.

8. Click the node hyperlink in the Source pane to display the impacted records. Review the details and click OK.
9. Similarly, click the node hyperlink in the Target pane. You can view the linked and unlinked records.
10. Select a record and click **Unlink** to remove it.
11. From the Unlinked Records grid, select a record and click **Link** to link it to the target dimension.

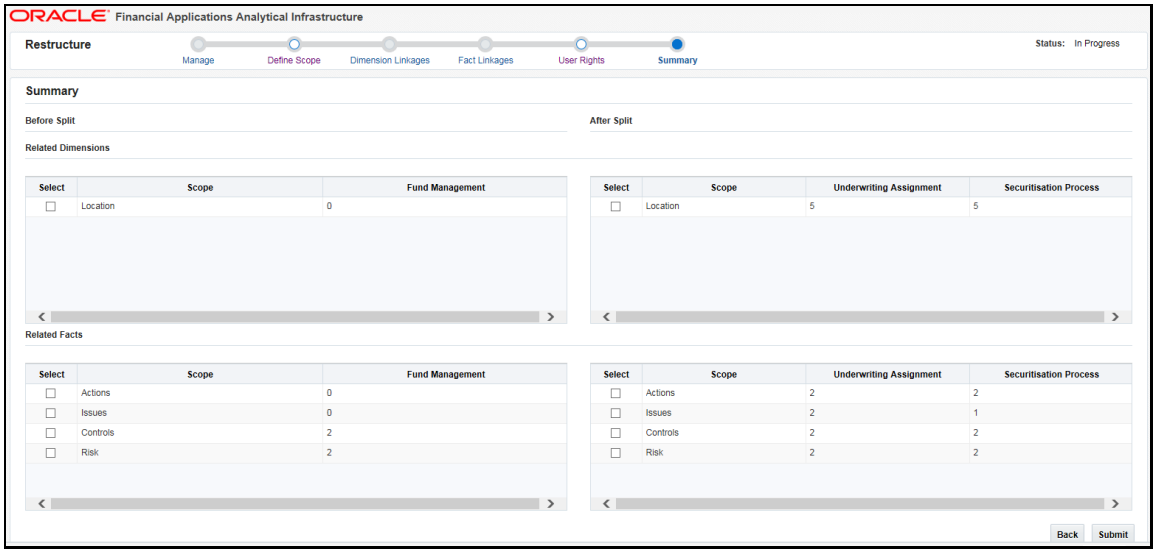
> **NOTE** You can only link or unlink the existing/ system generated nodes; you cannot add a new link.

12. Click **Next**. The *User Rights* window is displayed.



You can view the user roles and user groups mapped to the source dimension(s).

13. Click **Next**. The Summary page is displayed.



You can view the summary of Source/ Target Dimensions and Facts/entities before and after the Business restructuring.

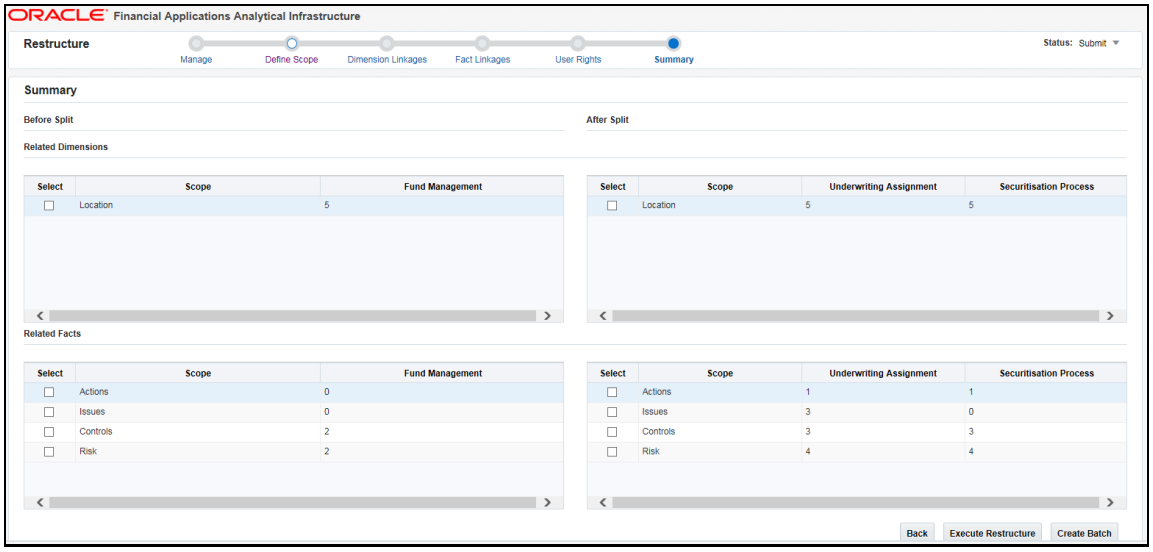
14. Click **Submit**. If multiple applications are using the selected Dimension, a user from each application needs to submit the Restructure. Then only the status will be changed to Submit.

13.7.7.3.4 Executing Business Restructure

You can execute a Business Restructure if it is in the Submit status. You should be mapped to the user role RESTREXEC (Restructure Execute) to do the execution. You can either execute it from the utility itself or create a batch and execute it later from the Operations module.

To execute the Business Restructure:

1. From the *Restructure* window, click **Summary** from the path.



2. Click **Execute Restructure** to create a batch and fire execution immediately. The status will be changed to Execution Initiated. After execution, the status will be changed to Executed if it is successful or Failed if execution is failed.
3. Click **Create Batch** to create a batch and execute it later from the Operations module. The status will be changed to Batch Created.

13.7.7.3.5 Deleting Business Restructure

This option allows you to delete a Business Restructure which is in Draft status.

To delete a Business Restructure

1. From the *Restructure* window, click **Management**. The *Manage Restructure Summary* window is displayed.
2. Select the checkbox corresponding to the Business Restructure you want to delete and click **Delete**.

13.7.8 Key Business Dimension Preference

Key Business Dimension (KBD) Preference facilitates you to configure/map Key Business Dimensions to an application flexibly. The Key Business Dimensions, that are part of the Mapper definitions in your application, can be configured to be visible/ available in your application in module/Submodule level.

13.7.8.1 Prerequisites

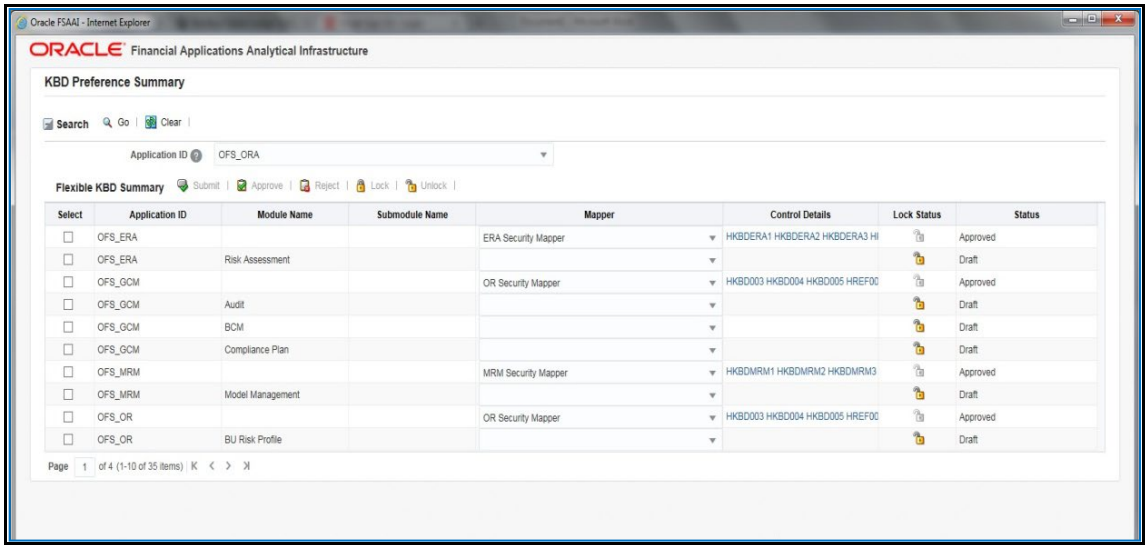
- The table `flexkbd_config_params` should have been seeded with the application specific data. This table contains the columns `config_params_id`, `group_hierarchy_code`, `role_hierarchy_code`, and `application_code`. Mappers should have been created for the same `group_hierarchy_code` and `role_hierarchy_code` by the application team.

- Configuration to enable Key Business Dimension Preference link should have been done. For more information, see Flexible KBD Configurations section in OFSAAI Administration Guide.

13.7.8.2 Adding KBD Preference

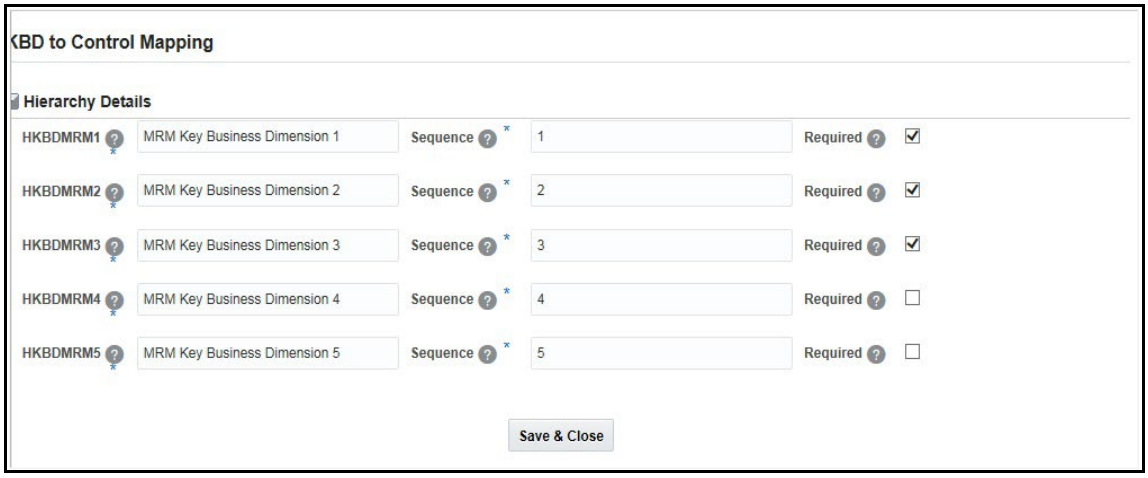
To add KBDs to your application, follow these steps:

1. From the **Object Administration** tab, expand **Utilities** and click **Key Business Dimension Preference**. The *KBD Preference Summary* window is displayed.



2. Select the Application for that you want to configure KBDs, from the **Application ID** drop-down list. This list displays the Application IDs of all the enabled applications. Click **Go** from the Search toolbar. The Modules and Submodules related to that particular Application get listed in the Flexible KBD Summary table. You can configure KBDs in application, module or Submodule level.
3. Select the checkbox corresponding to the record that has the Module/ Submodule for which you want to configure Flexible KBDs.
4. Select the Mapper definition that you want to map to the application, from the **Mapper** drop-down list.

   This list displays all the Security Mapper definitions that have the same User Group Hierarchy or User Role Hierarchy as seeded in the group_hierarchy_code column of `flexkbd_config_params` table. For more information on Mappers, see Map Maintenance section. The KBDs that are part of the selected Mapper definition are displayed in the **Control Details** column.
5. Click the **Control Details** column. The *KBD to Control Mapping* window is displayed.



6. In the Hierarchy Details list, select the **Required** checkbox corresponding to the KBDs that you want to make visible in your Application/ Module/ Sub module.
7. Enter the order in which you want to display the selected KBDs, in the **Sequence** text box.
8. Click **Save & Close.** The details are saved and the status will be Draft.

13.7.8.3 Submitting KBD Preference

This option allows you to submit the KBD Preference for approval. Only records in Draft status can be submitted.

To submit KBD preference, follow this step:

1. From the *KBD Preference Summary* window, select the record that you want to submit and click **Submit**. The status changes to Pending Approval.

> **NOTE** Users with Approval rights can directly click **Approve** without clicking **Submit**. In this case, the status changes to Approved.

13.7.8.4 Approving/Rejecting KBD Preference

This option allows the approver to approve or reject the KBD preference. The records that are in Pending Approval status can only be approved. Your user group should be mapped to Flex KBD Authorize (F_KBDAUTH) role to have the approval rights.

To approve or reject KBD preference, follow this step:

1. From the *KBD Preference Summary* window, select the record that you want to approve and click **Approve**. The status changes to Approved.
   Or
   From the *KBD Preference Summary* window, select the record that you want to approve and click **Reject** if you want to reject the KBD preference. The status changes to Draft.

13.7.8.5 Lock/Unlock KBD Preference

This option allows you to lock/unlock the configured flexible KBDs for a particular module/ Submodule to restrict altering the KBDs by other users. To lock/unlock, your user group should be mapped to LCK_F_KBD function role.

To lock KBD preference, follow this step:

- From the *KBD Preference Summary* window, select the record that you want to lock and click **Lock**. The Lock status column of the corresponding record changes to  .

To unlock KBD preference, follow this step:

- From the *KBD Preference Summary* window, select the record that you want to unlock and click **Unlock**. The Lock Status column of the corresponding record changes to  .

13.8 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 see the following sections based on your need.

13.8.1 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 window, 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.

13.8.2 Role Mapping Codes

By default, the following roles are defined within the Infrastructure application. See Appendix A.

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

Role Code	Role Name	Role Description
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
SYSAMHMUAM	Fusion AMHM UAM Map Admin	Fusion UAM Maintenance Admin Role
SYSATH	System Authorizer	System Authorizer Role
SYSBAU	Business Analyst	Business Analyst Role
SYSEXPN	Fusion Expressions Admin	Fusion Expressions Admin Role
SYSFILTERS	Fusion Filters Admin	Fusion Filters Admin Role
SYSOBJMIG	Object Migration Admin	Object Migration Maintenance Admin Role
SYSOPC	Data Centre Manager	Operator Console Role
SYSSQLRULE	SQL Rule Admin	SQL Rule Administrator Role

13.8.3 Function Role Mapping

The default roles are mapped to the following functions within the Infrastructure application.

Roles	Function Mappings	
Business Analyst	Add Alias Add Attributes Add Business Processor Add Computed Measure Add Cube Add Dataset Add Derived Entities Add Dimension Add Hierarchy	MDB Window Model Calibration Model Definition Model Deployment Model Execution Model Make Champion Model Outputs Modify Alias Modify Attributes

Roles	Function Mappings	
	Add Measure	Modify Business Processor
	Add RDM	Modify Computed Measure
	Alias Admin	Modify Cube
	Authorize Hierarchy	Modify Dataset
	Authorize Attributes	Modify Derived Entities
	Authorize Dataset	Modify Dimension
	Authorize Dimension	Modify Hierarchy
	Authorize Measure	Modify Measure
	Business Analyst User Window	Modify RDM
	Call Remote Web Services	Optimizer Add
	Cash Flow Equation Definition	Optimizer Delete
	Computed Measure Advanced	Pooling Add
	Defi Administrator	Pooling Delete
	Defi User	Refresh Hierarchies
	Defq Administrator	Remote SMS Access
	Defq User	Result of own request only
	Delete Alias	Result of Request and Status of all
	Delete Attributes	Rule Shock Definition
	Delete Business Processor	Sandbox Creation
	Delete Computed Measure	Sandbox Maintenance
	Delete Cube	Scenario Definition
	Delete Dataset	Stress Definition
	Delete Derived Entities	Variable Definition
	Delete Dimension	Variable Shock Definition
	Delete Hierarchy	View Alias
	Delete Measure	View Attributes
	Delete RDM	View Business Processor
	Design RDM	View Computed Measures
	Document management Access	View Cube
	Excel Admin	View Dataset
	Excel User	View Derived Entities
	Execute Runs and Rules	View Dimension
	Export Metadata	View Hierarchy
	GMV Definition	View Measure
	Hierarchy Attributes	View Metadata
	Import Business Model	View RDM
	Import Metadata	
CWS Administrator	Call Remote Web Services	Remote SMS Access
	Document Management Access	Remote UAM Access
	Execute Runs - Rules	Result of own request only
	Refresh Hierarchies	Result of request - Status of all

Roles	Function Mappings	
Data Centre Manager	Batch Cancellation Batch Processing Create Batch Delete Batch	Execute Batch Operator Console View log
DEFQ Manager	DeFi Excel Defq User Defq Administrator	Excel Admin Excel User
DQ Rule Admin	Data Quality Authorization Rule Data Quality Add Rule Data Quality Add Rule Group Data Quality Copy Rule Data Quality Copy Rule Group Data Quality Delete Rule	Data Quality Delete Rule Group Data Quality Edit Rule Data Quality Edit Rule Group Data Quality Execute Rule Group Data Quality View Rule Group Data Quality View Rule
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 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 UAM Map Admin	Fusion Hierarchies to UAM 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
Infrastructure Administrator	Configuration Database Details Database Server	Metadata Segment Map Operator Console Infrastructure Administrator

Roles	Function Mappings	
	Hierarchy Security Information Domain	Infrastructure Administrator Window
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 Oracle Cube Authorize Pages Authorize Process Tree Authorize RDM Authorize Reports Authorize Rule Authorize Run	Authorize Technique Authorize Templates Authorize Views Metadata Authorize Window 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 Oracle Cube 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 Home Page	Object Migration Delete Migration Ruleset Object Migration Edit Migration Ruleset 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 Business Analyst User Window Delete Oracle Cube Modify Dataset	Modify Dimension Modify Hierarchy Modify Measure Modify Oracle Cube View Alias View Dataset View Dimension View Hierarchy View Measure

Roles	Function Mappings	
		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 Windows View Process View Rule View Run
SQL Rule Admin	SQL Rule Edit SQL Rule View SQL Rule Add SQL Rule Run SQL Rule Delete SQL Rule Copy	
System Administrator	Administration Window Application Server Window Audit Trail Report Window Batch Cancellation Batch Monitor Configuration Database Details Database Server Design OFSAAI Menu Window Enable User Window Function Maintenance Window Function Role Map Window Global Preferences View Hierarchy Security Holiday Maintenance Window Information Domain Locale Desc Upload Window Metadata Difference Window Metadata Segment Map OLAP Details Window Operator Console	Restricted Passwords Window Role Maintenance Window Rules Setup Configuration Window Save Metadata Window Segment Maintenance Window System Administrator System Administrator Window User Activity Reports Window User Attribute Upload Window User Group Domain Map Window User Group Maintenance Window User Group Role Map Window User Group User Map Window User Maintenance Window User Profile Report Window User-Batch Execution Mapping Window View log Web Server Window Write-Protected Batch Window
System Authorizer	Administration Window Infrastructure Administrator Window Profile Maintenance Window System Administrator Window	

Roles	Function Mappings
	System Authorizer User Authorization Window

NOTE To access an object, the respective Group or Role needs to be mapped instead of functions. See Appendix A.

14 Command Line Utilities

The following command line utilities are introduced in OFSAAI.

14.1 Command Line Utility to Migrate Objects

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.

You can choose from where the object migration utility reads the data, that is, from CSV files or OBJECTMIGRATION.xml file. For migrating objects using CSV files, see Migrating Objects using CSV Files. For migrating objects using OBJECTMIGRATION.xml file, see Migrating Objects using OBJECTMIGRATION.xml File.

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 Object Migration UI, or manually recreate them in the target environment.

> **NOTE** The REST authentication is done against the Service Account user mentioned under OFSAA_SRVC_ACC parameter in the CONFIGURATION table. This user should be created with "SMS Auth Only" attribute from the *User Maintenance* window. By default, OFSAA_SRVC_ACC parameter is set as SYSADMN.

14.1.1 Prerequisites

- You must have access and execution rights in the $FIC_HOME/utility/Migration/ directory in both the source and target environment.

- Folders (segments) and user groups that are designated for the import should be present in the target.
- The source and target environment should have the same installed locales.
- 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.
- Underlying tables of the objects being migrated should 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.

- All objects that generate new ID after migrating to a different information domain and all components which are registered through the *Component Registration* window, which will be used in the RRF, must be manually entered in AAI_OBJ_REF_UPDATE table in the Configuration Schema. The implicit migration of dependent objects is not supported. They should be migrated explicitly. The attributes present in the table are:
  - `V_OBJECT_TYPE`- EPM Object Type
  - `V_RRF_OBJECT_TYPE`- RRF object Type. The ID can be referred from pr2_component_master table
  - `V_ICC_OBJECT_TYPE`- ICC object type, can be referred from component_master table.
  - `F_IS_FILTER`- Is the object to be migrated as a filter/not?
  - `N_BATCH_PARAMETER_ORDER`- the order of parameter in task (if used in a batch).

14.1.2 Migrating Objects Using OBJECTMIGRATION.xml File

This section explains how to migrate objects using OBJECTMIGRATION.xml file. In this case, you have to populate `migration.properties` file and OBJECTMIGRATION.xml file. These files are present in the `$FIC_HOME/utility/Migration/conf` folder. You do not have to make any entries in the `export_input.csv` and `import_input.csv` files, present in the same folder.

To migrate objects using OBJECTMIGRATION.xml file, perform the following steps:

1. Navigate to the `$FIC_HOME/utility/Migration/conf` folder.
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. For example: EXPORTIMPORT_BASEPATH= /oracle/rhelapp/ofs73app/utility/Migration
FIC_HOME	OFSAAI installation directory. For example: FIC_HOME=/oracle/rhelapp/ofs73app
READ_FROM_CSV	Set this as **N**. Then the utility reads from OBJECTMIGRATION.xml file.

> **NOTE** The remaining entries in the migration.properties file is not required when you migrate objects using OBJECTMIGRATION.xml file.

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.

> **NOTE** Any updates done are available in the OBJECTMIGRATION_template.xml. Before invoking the command line utility, ensure that the updates available in the OBJECTMIGRATION_template.xml file is available in the OBJECTMIGRATION.xml file that you are using to migrate objects.

14.1.2.1 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. **Note**: The User ID or Service accounts are "SMS Auth Only" in case of SSO and LDAP configured setups.
LOCALE		Set this as en_US.
INFODOM		Specify the Information Domain from where objects need to be exported. The information domain name should be provided in capital letters.
FOLDER		Not Applicable, only used for importing.
MODE		Set the mode of the operation as **EXPORT**.
FILE		Specify the name of the dump file which will be created under $FIC_HOME/utility/Migration/metadata/archive folder as a .DMP file.
FAILONERROR		Not Applicable, only used for importing.
OVERWRITE		Not Applicable, only used for importing.
RETAIN_IDS		Not Applicable, only used for importing.
MIGRATION_CODE		Enter the unique migration code to identify the status of the migration process. For example: **8860**

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. Note: Object Code is case sensitive. 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: <OBJECTS> <OBJECT Code="*" Type="112" /> </OBJECTS> 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: <OBJECTS> <OBJECT Code="Rule Code_1" Type="112" /> <OBJECT Code="Rule Code_2" Type="112" /> <OBJECT Code="Rule Code_3" Type="112" /> </OBJECTS> To export ETL objects, the format is Data Mapping Code followed by Type="122". For example, <OBJECT Code="FCTPRODUCT" Type="122" /> **Note**: Only the latest version will be archived and it will be restored as new version. To export Enterprise Modeling Objects which supports versioning, the version of the object should be a part of the Code attribute. <OBJECTS> <OBJECT Code="ModelID_Version" Type="1305" /> </OBJECTS>
Object	Type	Specify the Type ID of the required metadata objects to be exported. Refer to the Objects Supported for Command Line Migration section.

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, <OBJECTS> <OBJECT Code=”200265" Type="1" SubType=”21”/> </OBJECTS>

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.

14.1.2.2 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. **Note**: The User ID or Service accounts are “SMS Auth Only” in case of SSO and LDAP configured setups.
LOCALE		Set this as en_US.
INFODOM		Specify the Information Domain where objects need to be imported. The information domain name should be provided in capital letters.
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 this release, see Limitations section.
MODE		Set the Mode of the operation as **IMPORT**.

Tag Name	Attribute	Description
FILE		Specify the name of the file to be imported, which is present under $FIC_HOME/utility/Migration/metadata/restore folder.
IMPORTALL		**Y** indicates that all exported objects in the .DMP file (dump) will be imported (regardless of any specific OBJECT entries in the OBJECTMIGRATION.XML file). Example: <IMPORTALL TARGETFOLDER="BASEG">Y</IMPORTALL> **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). **Note:** When migrating Sandbox, IMPORTALL should be **N**.
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.
RETAIN_IDS		Specify whether to retain the source AMHM objects after migration. Y – To retain the Source AMHM objects' System IDs. N – Not to retain the Source AMHM objects' System IDs. If 'Y' is selected, different scenarios and the behaviors are as follows: Object and ID does not exist in Target- the object is created in target environment with same ID as that in source. Object exists in Target with different ID- object is migrated and the ID in the target is retained. ID already exists in Target with different object- then the object is migrated to target environment and a new ID is generated. Same object and ID exists in Target- In this case, the behavior depends on the OVERWRITE flag.
MIGRATION_CODE		Enter the unique migration code to identify the status of the migration process. For example: **8860**

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.
		Note: Object Code is case sensitive.
		You can specify the **Code** value as wildcard "*" if you are importing all objects of that **Type**.
		For example:
		`<OBJECTS>`
		`<OBJECT Code="*" Type="112" />`
		`</OBJECTS>`
		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:
		`<OBJECTS>`
		`<OBJECT Code="Rule Code_1" Type="112" />`
		`<OBJECT Code="Rule Code_2" Type="112" />`
		`<OBJECT Code="Rule Code_3" Type="112" />`
		`</OBJECTS>`
		Note: Specify only those Codes that are present in the exported dump file.
		To import Enterprise Modeling Objects which supports versioning, the version of the object should be a part of the Code attribute.
		`<OBJECTS>`
		`<OBJECT Code="ModelID_Version" Type="1305" />`
		`</OBJECTS>`.

	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,
		`<OBJECTS>`
		`<OBJECT Code= "200265" Type="1" SubType="21"/>`
		`</OBJECTS>`

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:
		`<OBJECTS TargetFolder="FSGBSEG">`
		`<OBJECT Code="200143" Type="14"/>`
		`</OBJECTS>`
		`<OBJECTS TargetFolder="BASEG">`
		`<OBJECT Code="M0001NW" Type="101"/>`
		`<OBJECT Code="H0002CRP" Type="103"/>`
		`</OBJECTS>`
		Note the following:
		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 Catalog Publish object, the TargetFolder is mandatory.
		For behavior in this 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.

14.1.3 Migrating Objects Using CSV Files

This section explains how to migrate objects using `export_input.csv` file and `import_input.csv` file. These files are present in `$FIC_HOME/utility/Migration/conf` folder. This folder also contains `migration.properties` file and `OBJECTMIGRATION.xml` file. You need not make any entry in the `OBJECTMIGRATION.xml` file.

To migrate objects, perform the following steps:

1. Navigate to the `$FIC_HOME/utility/Migration/conf` folder
2. Populate the migration.properties file with appropriate values as explained in the following table.

   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. For example: EXPORTIMPORT_BASEPATH= `/scratch/ofsaaweb/OFSAAI/utility/Migration`
FIC_HOME	OFSAAI installation directory. For example: `FIC_HOME /scratch/ofsaaweb/OFSAAI`
READ_FROM_CSV	Specify whether to read the inputs from CSV files or `OBJECTMIGRATION.xml` file. Set this as **Y**. Then the utility reads from `export_input.csv` file for exporting objects or from `import_input.csv` file for importing objects.
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. **Note**: The User ID or Service accounts are "SMS Auth Only" in case of SSO and LDAP configured setups.
LOCALE	Set this as en_US.
INFODOM	Specify the Information Domain from where objects need to be exported/ imported. The information domain name should be provided in capital letters.
FOLDER	This is applicable only for importing. Specify the Code of the folder /segment to which you need to import objects. The folder value should be provided in capital letters. If IMPORTALL_TARGET_FOLDER is not specified in case of IMPORTALL=Y, then the objects are imported to this FOLDER.

Name	Description
MODE	Set the mode of the operation as: **EXPORT -** for exporting objects **IMPORT** for importing objects
DUMP_FILE_NAME	For exporting, specify the name of the file to be exported which will be created under `$FIC_HOME/utility/Migration/metadata/archive` folder as a .DMP file. For importing, specify the name of the file to be imported, which is present under `$FIC_HOME/utility/Migration/metadata/restore folder.`
IMPORTALL	**Y** indicates that all exported objects in the .DMP file (dump) will be imported (regardless of any specific OBJECT entries in the `import_input.csv` or `OBJECTMIGRATION.XML` file). **N** indicates that only objects explicitly specified in the `import_input.csv` or `OBJECTMIGRATION.XML` file will be imported (provided they are already exported and available in the dump file). **Note:** When migrating Sandbox, IMPORTALL should be **N**.
IMPORTALL_TARGET_FOLDER	Specify the target folder to which you want to import objects when you specify **IMPORTALL** as **Y**. If this is not specified, it imports the objects to FOLDER.
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.
RETAIN_IDS	Specify whether to retain the source AMHM objects after migration. **Y** – Retain the Source AMHM object IDs. **N** – Will not retain the Source AMHM object IDs. If you have chosen the value '**Y**' for RETAIN_ID and the Target system does not consume the object ID of the Source object, the ID will be retained while migration. If the object in the Target system consumes the object ID of the Source, the ID will not be retained while migration. Instead, it will generate a new ID.
MIGRATION_CODE	Enter the unique migration code to identify the status of the migration process. For example: **8860**

3. Update `import_input.csv` or `export_input.csv` files based on whether you want to import or export objects as explained in the following tables:

> **NOTE** Any updates done are available in the `export_input_template.csv` and `import_input_template.csv` files. Before invoking the command line utility, ensure that the updates available in the templates files are available in the `export_input.csv` and `import_input.csv` files.

14.1.3.1 For Exporting Objects

Following are the entries in the `export_input.csv` file:

Column Name	Description
Object Code	Specify the object Code which should be a unique identifier of the definition based on the Object Type. It 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 the code is user defined or system generated. You can specify the object Code value as wildcard "*" if you are migrating all objects of that Object Type.
Object Type	Specify the Type ID of the required metadata objects to be exported. Refer to the Objects Supported for Command Line Migration section.
Object Sub Type	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.
Sandbox Infodom	Specify the Sandbox Information Domain name to export Sandbox.
With Models	Specify **Y** if you want to export all models present in the Sandbox Infodom along with the Sandbox. Specify **N** if you want to export only the Sandbox.
Include Dependency	Specify **Y** if you want to export all dependent objects along with the base objects. Specify **N** if you want to export only the mentioned object.
Include Instances	This is applicable only for PMF migration. Specify **Y** if you want to export Questionnaire related workflow instance data.
Is Response Data Required	This is applicable only for Questionnaire migration. Specify **Y** if you want to export the responses for Questionnaire. Specify **N** if you want to skip it.

Column Name	Description
Application Code	This is applicable only for Questionnaire migration. Specify the application code for which you want to export the Questionnaire data. For example, to migrate KYC related Questionnaire data, specify the application code **OFS_KYC**. Similarly, you can specify the application code for other applications and migrate the related Questionnaire data.

4. After entering the required details of the objects you want to export in the `export_input.csv` file, navigate to `$FIC_HOME/utility/Migration/bin` path and execute ObjectMigration.sh. The dump file will be created, which will have an `import_input.csv` with list of all objects (including dependent ones) that are being exported.
5. Once executed, you can view the related log files from the `$FIC_HOME/utility/Migration/logs` location.

14.1.3.2 For Importing Objects

Following are the entries in the `import_input.csv` file:

Column Name	Description
Object Code	Specify the object Code which should be a unique identifier of the definition based on the Object Type. It 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 the code is user defined or system generated. You can specify the Object Code value as wildcard "*" if you are importing all objects of that Object Type. **Note**: Specify only those Codes that are present in the exported dump file.
Object Type	Specify the Type ID of the required metadata objects to be imported. See the Objects Supported for Command Line Migration section for Object Type IDs.
Object Sub Type	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.
Sandbox Infodom	Specify the Sandbox Information Domain name to import Sandbox.
With Models	Specify **Y** if you want to import all models present in the Sandbox Infodom along with the Sandbox. Specify **N** if you want to import only the Sandbox.
Include Dependency	Specify **Y** if you want to import all dependent objects along with the base objects. Specify **N** if you want to import only the mentioned object.

Column Name	Description
Is Base Object	This attribute is for information and is not read while processing the input. This will be set as **Y** if the exported object is a base object and will be **N** for all the exported dependent objects.
Object Group and Object Group Target Folder	Specify a unique ID to the **Object Group** and the folder to which you want to import all the objects in that Object Group. If Object Group is not specified, by default it takes the object group ID of the preceding entry with Object Group. If the object group ID for the first entry is not explicitly entered, it is assigned the value as '1'. If object Group ID is specified and Object Group Target Folder is kept blank, the objects of that Object Group will be imported to the folder mentioned in the FOLDER tag in the `migration.properties f`ile. If that is also not mentioned, it will be imported to the source folder mentioned in the dump file. Note: An object with an Object Group ID different from the preceding object will go to a new group. Hence, enter all the objects which you want to import to the same folder successively.
Include Instances	This is applicable only for PMF migration. Specify **Y** if you want to import questionnaire related workflow instance data.

1. 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 `$FIC_HOME/utility/Migration/bin` path and execute `ObjectMigration.sh`**.**
2. Once executed, you can view the related log files from the `$FIC_HOME/utility/Migration/logs` location.

Sample import_input.csv

Object Code	Object Type	Object Sub Type	Sandbox Infodom	With Models	Include Dependency	Is Base Object	Object Group	Object Group Target Folder	Include Instances	ApplicationCode	IsResponseDataRequired
mig_group_001	1003				Y	Y	1	EMFLD			
mig_group_002	1003				Y	Y					
mig_group_003	1003				Y	Y	2	IPEFLD			
mig_group_004	1003				Y	Y	2				
mig_group_005	1003				Y	Y	3				
mig_group_006	1003				Y	Y	1				

mig_group_001 and mig_group_002 belong to Group 1 and they will be imported to folder EMFLD.

mig_group_003 and mig_group_004 belong to group 2 and they will be imported to folder IPEFLD.

mig_group_005 will be imported to the default folder set under <FOLDER> tag.

mig_group_006 will be imported to the default folder set under <FOLDER> tag even though the Object Group ID is same as that of mig_group_001. If you want mig_group_006 to be imported to the same folder (EMFLD), then either you have to explicitly give the Object Group Target Folder along with

Object Group or mig_group_006 entry should be inserted before a change in the User Group ID. That is, in the previous example, before the entry for mig_group_003.

> **NOTE** If nothing is specified for **Include Dependency** column, all the dependent objects are exported.

14.1.4 Limitations

- 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.

14.1.5 Objects Supported for Command Line Migration

Object Name	Object Type ID	Support for Wildcard Select ALL Option	Object Code	Location of Object Code	
				From UI	From Backend
DATA QUALITY RULE	120	Yes	System generated code	In the Audit Trail pane, Object Code is displayed as **System ID**.	`DQ_CHECK_MASTER->N_RULE_SYS_ID`
DATA QUALITY GROUP	1003	Yes	User defined unique code	Object Code is displayed as "**Name**" in the *Data Quality Groups Summary* window.	
DATA TRANSFORMATION[1]	121	No	User defined unique code	Object Code is displayed as "**Code**" in the *Post Load Changes Summary* window.	
ETL	122	No	User defined unique code	Object Code is displayed as "**Code**" in the *Data Mapping Summary* window.	
DATA ENTRY FORMS AND QUERIES (DEFQ)	124	Yes	User defined unique code		
ALIAS	54	Yes	User defined unique code	In the *Alias Summary* window, select the Entity and Code is displayed as "**Alias**".	
DERIVED ENTITY	128	Yes	User defined unique code	Object Code is displayed as "**Code**" in the *Derived Entity Summary* window.	

1 Data Transformation objects, that is, Post Load Changes definitions based on Stored Procedures only are supported for migration.

Object Name	Object Type ID	Support for Wildcard Select ALL Option	Object Code	Location of Object Code	
				From UI	From Backend
BUSINESS MEASURE	101	Yes	User defined unique code	Object Code is displayed as "**Code**" in the *Business Measures Summary* window.	
BUSINESS DIMENSION	102	Yes	User defined unique code	Object Code is displayed as "**Code**" in the *Business Dimension Summary* window.	
BUSINESS HIERARCHY	103	Yes	User defined unique code	Object Code is displayed as "**Code**" in the Business Hierarchy Summary window.	
DATASET	104	Yes	User defined unique code	Object Code is displayed as "**Code**" in the Datasets Summary window.	
BUSINESS PROCESSOR	105	Yes	User defined unique code	Object Code is displayed as "**Code**" in the Business Processor Summary window.	
ESSBASE CUBE	106	Yes	User defined unique code	Object Code is displayed as "**Code**" in the Business Processor Summary window.	
ORACLE CUBE	133	Yes	User defined unique code	NA	
MAPPER	136	Yes	System generated code	Object Code is displayed as "**Name**" in the Map Maintenance window.	
FORMS FRAMEWORK	126	Yes	User defined unique code		`FORMS_MASTER > FORM_CODE`

Object Name	Object Type ID	Support for Wildcard Select ALL Option	Object Code	Location of Object Code	
				From UI	From Backend
FORMS MENU	125	Yes	User defined unique code		MENU_ITEMS> MENU_ID
FORMS TAB	1125	Yes	User defined unique code		TAB_MASTER> TAB_ID
FORMS PAGE	1127	Yes	User defined unique code		JSP_CONFIG_DETAILS > JSP_ID
FORMS LAYOUT/ TEMPLATE	1126	Yes	User defined unique code		TEMPLATE_MASTER > TEMPLATE_ID
RULE	112	Yes	System generated code	Object Code is displayed as "**Code**" in the *Rule Summary* window.	
PROCESS	111	Yes	System generated code	Object Code is displayed as "**Code**" in the *Process Summary* window.	
RUN	110	Yes	System generated code	Object Code is displayed as "**Code**" in the *Run Summary* window.	
BATCH	123	Yes	System generated code	Object Code is displayed as "**Batch ID**" in the *Batch Maintenance* window.	
DIMENSION	12	Yes	System generated code		REV_DIMENSIONS_B > DIMENSION_ID
FILTER	1	Yes	System generated code	In the *Audit Trail* pane, Object Code is displayed as **System ID**.	
EXPRESSION	14	Yes	System generated code	In the *Audit Trail* pane, Object Code is displayed as **System ID**.	

Object Name	Object Type ID	Support for Wildcard Select ALL Option	Object Code	Location of Object Code	
				From UI	From Backend
AMHM HIERARCHY	5	Yes	System generated code	In the *Audit Trail* pane, Object Code is displayed as **System ID**.	
SANDBOX[2]	1300	No	System generated code	Object Code is displayed as "**Sandbox ID**" in the *Sandbox Maintenance* window in the Production Infodom.	
VARIABLE	1301	Yes	System generated code	Object Code is displayed as "**Variable ID**" in the *Variable Management* window in the Production Infodom.	
TECHNIQUE	1302	Yes	System generated code	Object Code is displayed as "**Technique ID**" in the *Technique Registration* window in the Production Infodom.	
VARIABLE SHOCK	1303	Yes	System generated code with '_' and Version number	NA	
SCENARIO	1304	Yes	System generated code with '_' and Version number	NA	

2 You can specify the name of the sandbox infodom which you want to migrate for SANDBOXINFODOM attribute and Y for WITHMODELS attribute to migrate the models along with the sandbox.

Object Name	Object Type ID	Support for Wildcard Select ALL Option	Object Code	Location of Object Code	
				From UI	From Backend
MODEL	1305	Yes	System generated code with '_' and Version number	Object Code is displayed as "**Model ID**" and version number as "**Version**" in the *Model Management* window in the Sandbox Infodom.	
STRESS	1306	Yes	System generated code	Object Code is displayed as "**Stress ID**" in the *Stress Definition* window in the Production Infodom.	
CATALOG PUBLISH	1307	Yes	System generated code	NA	
User	2000	Yes	User defined unique code	Object Code is displayed as "**User ID**" in the *User Maintenance* window.	CSSMS_USR_PROFILE > V_USR_ID
User Group	2001	Yes	User defined unique code	Object Code is displayed as "**User Group ID**" in the User *Group Maintenance* window.	CSSMS_GROUP_MAST > V_GROUP_CODE
Role	2002	Yes	User defined unique code	Object Code is displayed as "**Role Code**" in the *Role Maintenance* window.	CSSMS_ROLE_MAST > V_ROLE_CODE
Function	2003	Yes	User defined unique code	Object Code is displayed as "**Function Code**" in the *Function Maintenance* window.	CSSMS_FUNCTION_MAST > V_FUNCTION_CODE
Profile	2004	Yes	User defined unique code	Object Code is displayed as "**Profile Code**" in the *Profile Maintenance* window.	CSSMS_PROFILE_MAST > V_PROFILE_CODE

Object Name	Object Type ID	Support for Wildcard Select ALL Option	Object Code	Location of Object Code	
				From UI	From Backend
PMF Process	8000	Yes	User defined unique code	In the *Process Modeller* window, Object Code to be used is displayed as **Process ID**.	AAI_WF_PROCESS_B > V_PROCESS_ID
Questionnaire Configuration Attributes	8001	Yes	User defined code		
Question Definitions	8002	Yes	System generated code		
Questionnaire Definitions	8003	Yes	System generated code		

Filter SubTypes

Object Name	Object SubType ID
DataElement Filter	4
Hierarchy Filter	8
Group Filter	21
Attribute Filter	25

14.1.6 Dependent Objects

The following table lists the objects that are supported for implicit dependency and the dependent objects:

Base Object Name	Base Object Type ID	Dependent Objects	Dependent Object Type ID
DATA QUALITY RULE	120	DERIVED ENTITY	128
DATA QUALITY GROUP	1003	DATA QUALITY RULE	120
DATA TRANSFORMATION	121	NA	NA
ETL	122	DATA QUALITY RULE- This is not implemented.	
DATA ENTRY FORMS AND QUERIES (DEFQ)	124	NA	NA
ALIAS	54	NA	NA
DERIVED ENTITY	128	DATASET	104
		BUSINESS MEASURE	101
		BUSINESS HIERARCHY	103
		BUSINESS PROCESSOR	105
BUSINESS MEASURE	101	ALIAS	54
		DERIVED ENTITY	128
BUSINESS DIMENSION	102	BUSINESS HIERARCHY	103
BUSINESS HIERARCHY	103	DERIVED ENTITY	128
		BUSINESS MEASURE	101
DATASET	104	ALIAS	54
		DERIVED ENTITY	128
BUSINESS PROCESSOR	105	DATASET	104
		BUSINESS MEASURE	101

Base Object Name	Base Object Type ID	Dependent Objects	Dependent Object Type ID
		BUSINESS PROCESSOR	105
ESSBASE CUBE	106	DATASET	104
		BUSINESS MEASURE	101
		BUSINESS DIMENSION	102
ORACLE CUBE	133	NA	
MAPPER	136	Hierarchies	103
FORMS FRAMEWORK	126	Child Forms	126
FORMS MENU	125	FORMS and LAYOUTS	
FORMS LAYOUT	1126	Forms	126
FORMS TAB	36494	NA	NA
FORMS PAGE	1127	FORMS and LAYOUTS	126, 1126
RULE	112	DATASET	104
		MEASURE	101
		HIERARCHY	103
		BUSINESS PROCESSOR	105
		DATA ELEMENT FILTER	4
		GROUP FILTER	21
		ATTRIBUTE FILTER	25
		HIERARCHY FILTER	8
PROCESS	111	EXTRACT DATA	122
		LOAD DATA	122
		TRANFORM DATA	121
		RULE	112
		PROCESS	111
		CUBE	106
		DATA QUALITY GROUP	1003
		VARIABLE SHOCK	1303
		MODEL	1305
RUN	110	EXTRACT DATA	122
		LOAD DATA	122
		TRANFORM DATA	121
		RULE	112

Base Object Name	Base Object Type ID	Dependent Objects	Dependent Object Type ID
		PROCESS	111
		RUN	110
		CUBE	106
		DATA QUALITY GROUP	1003
		VARIABLE SHOCK	1303
		MODEL	1305
		DATA ELEMENT FILTER	4
		GROUP FILTER	21
		ATTRIBUTE FILTER	25
		HIERARCHY FILTER	8
BATCH	123	Not implemented	
DIMENSION	12	MEMBERS	NA
		ATTRIBUTES	NA
FILTER	1	BUSINESS HIERARCHY	103
		ATTRIBUTES	NA
		FILTER	1
EXPRESSION	14	EXPRESSION	14
AMHM HIERARCHY	5	Members	NA
SANDBOX **2**	1300	NA	NA
VARIABLE	1301	BUSINESS HIERARCHY	103
		BUSINESS MEASURE	101
		BUSINESS PROCESSOR	105
		DATASET	104
TECHNIQUE	1302	NA	NA
VARIABLE SHOCK	1303	VARIABLE	1301
		DATASET	104
		BUSINESS HIERARCHY	103
SCENARIO	1304	VARIABLE SHOCK	1303
MODEL	1305	TECHNIQUE	1302
		VARIABLE	1301
		DATASET	104
		BUSINESS HIERARCHY	103

Base Object Name	Base Object Type ID	Dependent Objects	Dependent Object Type ID
		DataElement Filter	4
STRESS	1306	RUN	110
		SCENARIO	1304
CATALOG PUBLISH	1307	NA	NA
USER	2000	PROFILE	2004
USER GROUP	2001	USER	2000
ROLE	2002	FUNCTION	2003
FUNCTION	2003	NA	NA
PROFILE	2004	NA	NA
PMF PROCESS	8000	NA	NA
Questionnaire Configuration Attributes	8001	NA	NA
Question Definitions	8002	NA	NA
Questionnaire Definitions	8003	Questionnaire Configuration Attributes	8001
		Question Definitions	8002

14.1.7 Migrating Security Management System (SMS) Objects

The Security Management System (Administration) objects such as Users, User Groups, Roles, Functions, and Profiles can be migrated using Command Line Utility.

The Command Line Utility enables migration of following SMS objects along with the mappings:

- Users along with the User-User Group Mapping, User-Profile Mapping, and User-Attribute Mapping
- User Groups along with the User Group-Role Mapping and User Group-Folder-Role Mapping
- Roles along with the Role-Function Mapping
- Functions
- Profiles along with the Profile-Holiday Mapping

14.1.7.1 Pre-requisites

To ensure successful migration of all mappings, you must import the SMS objects in the following order:

- Functions
- Roles

- User Group
- User

For example: If you want to import User-User Group mapping, then you must migrate the User Group first followed by User.

For more information on migrating object, see Migrating Objects section.

14.1.7.2 Object specific Migration

This section provides the information about the Prerequisites, Object Type IDs, Dependent Objects, Limitations, Dependencies, and so on about the object specific migration.

This section includes the following topics:

- Object Name: USERS
- Object Name: USERGROUP
- Object Name: ROLES
- Object Name: FUNCTION
- Object Name: PROFILE

14.1.7.3 Object Name: USERS

- Type ID: 2000
- **Dependency**: The dependent objects should be migrated to the Target system, before migration of the object. If the dependent objects are not available in the Target system, then only the objects definitions are migrated and not the mappings.
- **Dependent Objects**: User Group, Profile

14.1.7.4 Object Name: USERGROUP

- Type ID: 2001
- Dependency:
  - The dependent objects should be migrated to the Target system, before migration of the object. If the dependent objects are not available in the Target system, then only the objects definitions are migrated and not the mappings.
  - For User Group-Folder-Role mapping, the shared folder type should be available in the Target system with the same name as in the Source and should be mapped to a domain in the Target with the same name as in the Source. Also, the roles should be available in the Target.
- Dependent Objects: Roles

14.1.7.5 Object Name: ROLES

- Type ID: 2002

- **Dependency**: The dependent objects should be migrated to the Target system, before migration of the object. If the dependent objects are not available in the Target system, then only the objects definitions are migrated and not the mappings.
- Dependent Objects: Function

14.1.7.6 Object Name: FUNCTION

- Type ID: 2003

14.1.7.7 Object Name: PROFILE

- Type ID: 2004

> **NOTE** While importing Profile-Holiday mapping, if the holiday is not defined in the target system; a new holiday is created.

14.2 Command Line Utilities to Execute RRF Definitions

RRF Rule definitions can be executed through the following command line utilities:

- Command Line Utility for Rule Execution
- Command Line Utility for Run Execution

14.2.1 Command Line Utility 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) along with the required arguments such as <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.

Arguments	Description
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.
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=,$EXEID=,$RUNSK='
```

3. 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_home/ftpshare/logs.

14.2.2 Command Line Utility for Fire Run Service\ Manage Run Execution

Manage Run Execution utility can be used to execute Run definitions through RESTful Web Services call. To achieve this, RESTful Service, Client and Shell script are available.

> **NOTE** The REST authentication is done against the Service Account user mentioned under OFSAA_SRVC_ACC parameter in the CONFIGURATION table. This user should be created with "SMS Auth Only" attribute from the *User Maintenance* window. By default, OFSAA_SRVC_ACC parameter is set as SYSADMN.

Following are the pre-requisites before executing this utility:

1. Ensure that JAVA_HOME is pointing to JAVA bin installation directory.
2. Ensure FIC_HOME is pointing to application installation directory.
3. Set the PATH variable as $ICC_HOME/bin.

To execute this utility, do the following:

1. Navigate to $FIC_HOME/ficapp/icc/bin of OFSAAI APP tier.
2. Provide the following parameters in the command line.

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. **Note**: The User ID or Service accounts are "SMS Auth Only" in case of SSO and LDAP configured setups.
MISDATE	Refers to the date with which the data for the execution would be filtered.

3. Execute WSMRERequest.sh <Run Code> <Infodom> <Segment/Folder Code> <Run Execution Description> <Username> <MIS Date <yyyyMMdd>>.

   For example,

   ```
   ./WSMRERequest.sh "1305855689766" "APP" "APPSEG" "App approach"
   "APPUSER" "20001231"
   ```

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 location ficapp/icc/mre which contains the Batch ID created for that particular Run. The text file has the following format:

   `INFODOM_RUNID_MISDATE.mre`

14.3 Command Line Utility for DMT Migration

This is a standalone utility which can be used to migrate the DMT metadata stored in XML files into corresponding tables in the database. This utility can be executed from the command line. This utility supports migration of metadata for metadata types Data Mapping, Data File Mapping, Table based Data Sources, Post Load Changes (DT), and DMT Big Data related XMLs (`ETLLoader.properties`, `Cluster.XML`). This utility has four modes of operation with various sub modes.

14.3.1 Prerequisites

- All the required XML files like TFM XML, ETL Repository XML, Definition XML, Properties XML, Mapping XML must be present in the standard paths. (relative to the `ftpshare` folder)
- Table AAI_ETL_SOURCE must be present in the Config schema, with all appropriate information.
- Ensure the `DMTUpgradeUtility_806.sh` file is present in `$FIC_HOME/utility/DMT/Migration/bin` folder.

- Ensure aai-dmt-migration.jar must be present in `$FIC_HOME/utility/DMT/Migration/lib`. (This jar and other dependent OFSAA jars are available in the aforementioned path. The `DMTUpgradeUtility_806.sh` file contains the list of such jars.)
- Ensure the Clusters.XML file is present in the `$FIC_HOME/conf` directory.
- Ensure the ETLLoader.properties file is present in the `$FIC_HOME/ficdb/conf` directory.

To run the utility directly from the console:

1. Navigate to `$FIC_HOME/utility/DMT/Migration/bin` folder.
2. Execute `./DMTUpgradeUtility_806.sh` with the following arguments:

Argument Name	Description	Value
MIGRATION TYPE	Specify the mode of operation	• `UPGRADE` (recommended mode) • `ONLY_DEFINITION` (recommended mode) • `UPGRADE_AS_VERSION` • `ONLY_DEFINITION_AS_VERSION` For more information, see Modes of Operation section.
METADATA TYPE	Specify the metadata type that you want to migrate.	• ALL- to migrate all metadata types • Enter the specific metadata type that you want to migrate. The available metadata types are `DMT_SRC`, `DMT_PLC`, `DMT_DM` (to migrate F2T, T2T, and T2F), `CLUSTERINFO` (to migrate Cluster information), `ETLPROPINFO` (to migrate `ETLLoader.properties`) **Note:** `DMT_SRC` Metadata Type is supported only for Migration Type set as `UPGRADE` and `ONLY_DEFINITION`. Data Sources based on Table and WebLog are only supported for migration.
INFODOM NAME	Specify the information domain name. This argument is applicable only for `MIGRATION TYPE` as `ONLY_DEFINITION` and `ONLY_DEFINITION_AS_VERSION`.	• `ALL`- to migrate metadata from all information domains. • Enter the specific information domain name if you want to migrate metadata of a particular information domain only.

Argument Name	Description	Value
DEFINITION NAME	Specify the definition name that you want to migrate. This argument is applicable only for MIGRATION TYPE as ONLY_DEFINITION and ONLY_DEFINITION_AS_VERSION.	• ALL- to migrate all definitions • Enter the specific definition name that you want to migrate. • For DMT_SRC metadata type, specify as <Source Name 1>~<Infodom 1>,<Source Name 2>~<Infodom 2>,<Source Name3>~<Infodom 3>. That is, list of source and corresponding Infodom combination separated by comma. • For DMT_DM metadata type, specify as <Application Name>~<Source Name>~<Definition Name>. • For DMT_PLC metadata type, specify the definition name.

14.3.2 Modes of Operation

Based on the value specified for the argument MIGRATION TYPE, the utility can be operated in different modes:

> **NOTE** Recommended modes are UPGRADE and ONLY_ DEFINITION.

MIGRATION TYPE set as UPGRADE

```
./DMTUpgradeUtility_806.sh UPGRADE <METADATA_TYPE>
```

In this scenario, the utility will check for the value set for METADATA TYPE. If it is set as ALL, the XML data of all metadata types will be migrated to the corresponding tables. If METADATA TYPE is set to a specific metadata, then the XML data of only that specific metadata will be migrated.

For example,

```
./DMTUpgradeUtility_806.sh UPGRADE DMT_DM
```

Note that INFODOM NAME and DEFINITION NAME will be implicitly set to ALL, irrespective of what the user sets.

If metadata type is not set, it is implicitly set as ALL. For example, if you execute the following command, all metadata types will be migrated:

```
./DMTUpgradeUtility_806.sh UPGRADE
```

In case of rerun of the migration utility, if a metadata is already present in the target environment, that metadata will be skipped.

MIGRATION TYPE set as UPGRADE_AS_VERSION

```
./DMTUpgradeUtility_806.sh UPGRADE_AS_VERSION <METADATA_TYPE>
```

In this scenario, the specified metadata type will be migrated to the corresponding tables by incrementing the version if the definition already exists in the target environment. If <METADATA_TYPE> is set as ALL, all metadata types will be migrated.

For example,

```
./DMTUpgradeUtility_806.sh UPGRADE_AS_VERSION DMT_PLC
```

Note that INFODOM NAME and DEFINITION NAME will be implicitly set to ALL, irrespective of what the user sets.

If metadata type is not set, it is implicitly set as ALL. For example, if you execute the following command, all metadata will be migrated:

```
./DMTUpgradeUtility_806.sh UPGRADE_AS_VERSION
```

MIGRATION TYPE set as ONLY_DEFINITION

```
./DMTUpgradeUtility_806.sh ONLY_DEFINITION <Metadata type> <information
domain name> <Definition name>
```

This mode is used to migrate XML data of a particular definition to the corresponding tables. In this mode, it is mandatory to set METADATA TYPE, INFODOM NAME and DEFINITION NAME arguments. Otherwise, the utility execution will fail.

For example,

```
./DMTUpgradeUtility_806.sh ONLY_DEFINITION DMT_DM OFSAAINFO <Application
Name>~<Source Name>~<Definition Name>
```

```
./DMTUpgradeUtility_806.sh ONLY_DEFINITION DMT_DRC <Source Name 1>~<Infodom
1>,<Source Name 2>~<Infodom 2>,<SourceName3>~<Infodom3>
```

> **NOTE** The Metadata Type DMT_SRC is supported only for table based sources in ONLY_DEFINITION mode.
> For Metadata Type DMT_DM, <information domain name> should be a valid Infodom name, but the definition will not be migrated to the specified Infodom name. It will be migrated to all its mapped Information Domains, which are listed in the ETLrepository.xml file.

In case of rerun of the migration utility, if a metadata definition is already present in the target environment, that definition will be skipped.

MIGRATION TYPE set as ONLY_DEFINITION_AS_VERSION

```
./DMTUpgradeUtility_806.sh ONLY_DEFINITION_AS_VERSION <Metadata type>
<information domain name> <Definition name>
```

This mode is used to migrate XML data of a particular definition to the corresponding tables by incrementing the version if the definition already exists in the target environment. In this mode, it is mandatory to set METADATA TYPE, INFODOM NAME and DEFINITION NAME arguments. Otherwise, the utility execution will fail.

For example,

```
./DMTUpgradeUtility_806.sh ONLY_DEFINITION_AS_VERSION DMT_DM OFSAAINFO
F2Tdefinition1
```

For Metadata Type DMT_DM, <information domain name> should be a valid Infodom name, but the definition is not migrated to the specified Infodom name. It will be migrated to all its mapped Information Domains, which are listed in the ETLrepository.xml file.

14.3.3 Few Important Pointers

1. To reflect the migration changes, OFSAA services should be restarted.
2. All metadata should have a Metadata Code of maximum length of 250 characters. Old XML based DMT definitions had only a name. So after migration, the existing name will be used as Code. If name exceeds 250 characters, migration of that metadata will be skipped.
3. DMT_SRC is supported only for table based source in ONLY_DEFINITION mode.
4. While migrating a Data Mapping metadata (T2T, T2F), the underlying table based source will also be migrated.
5. While migrating a Data File Mapping metadata (F2T) there are some assumptions that we need to make, as the File based Sources have undergone a design change in the 8.0.6 version.
   a. Each existing data file mapping definition (F2T) has a unique file based source.
   b. The File based Source will be migrated implicitly by the utility when the F2T definition is being migrated.
   c. The source properties of the existing F2T definition will be set as the Properties of the File Based Source.
   d. If there are more than one F2T definition mapped to a single File Based source, then a new unique File Based Source will be created for each F2T. Name of the new source will be <Source Name>_ <Definition Name>. All references to the Source Name for this F2T in ICC and RRF tables will be updated by the migration utility.
6. The new 806 table structure does not support a definition with the same name to be present in more than one source. For such definitions the 2nd occurrence of the definition will be made unique by appending the source name to the definition.
   a. Modified Definition Name : <Definition Name >_ <Source Name>
   b. All references of the definition name in ICC and RRF will be modified by the migration utility.
7. There have been a few modifications to properties names that are present in the ETLLoader.properties file, which are being migrated to the AAI_DMT_CONFIG Table. Following are the old property codes and the corresponding new ones.
   - T2TMode -> T2T_MODE
   - T2HMode -> T2H_MODE
   - H2TMode -> H2T_MODE
   - H2HMode -> H2H_MODE
   - F2HMode -> F2H_MODE
   - KEEP_WEBLOG_PROCESSED_FILES -> KEEP_WEBLOG_PROCESSED_FILE
   - ISHIVELOCAL -> IS_HIVE_LOCAL
   - SQOOPURL -> SQOOP_URL

8. The following properties have been changed and will not be migrated from the ETLLoader.properties file into the AAI_DMT_DB_CLUSTER_PROPERTY table. The user must manually update the AAI_DMT_DB_CLUSTER_PROPERTY table with the new values, or use the *DMT Configurations* window to update these values. The values must go into source or target clusters as required.
   - SQOOPSERVER_NAME -> SSH_HOST_NAME
   - SQOOPSERVER_SSH_PORT -> SSH_PORT
   - SQOOPSERVER_SSH_USERID -> SSH_USERID
   - SQOOPSERVER_SSH_PASSWORD -> SSH_PASSWORD
9. In case of PLC Migration, ensure the function defined for the Stored Procedure in the <Infodom name>_TFM.XML is same as the actual function in the Atomic Schema. In case of mismatch, in the Edit mode of the PLC definition, the actual function in the Atomic Schema is replaced by the function in the <Infodom name>_TFM.XML. If the SQL in Transformation has compilation errors, modification of PLC definition will fail.

14.3.4 Logs

The following logs will be created in $FIC_HOME/utility/DMT/Migration/log folder:

- `DMTMigrationUtility.log`- This is a debug log. All parsing related information will be available in this log file.
- `DMTMigrationUtilityReport.log` - This log file gives the status of all metadata that have been migrated.

For errors during metadata save, see `<Deployed Path>/webroot/logs/OFSAA.log`.

14.3.5 Troubleshooting

In case of unsuccessful migration, refer the following logs for further debugging:

1. Make a note of failed T2Ts if any, from the report log (DMTMigrationUtilityReport.log). If migration failed due to seeded xml errors, it will be logged in detailed migration log (DMTMigrationUtility.log). Search this log with the Definition code to find the exact error.
2. If this doesn't give sufficient information, see `$ftpshare/logs/Migration/DMT/DMTMigrationService.log` for further details. Search this log with the Definition code to find the exact error.

> **NOTE** For FAQs and use cases related to DMT Metadata Migration Utility, see FAQ section in OFSAA DMT Metadata Migration Guide.

14.4 Command Line Utility for File Encryption

This is a standalone utility which is used to encrypt and decrypt data files. This utility supports generation of symmetric encryption key in AES 256 bit format.

This utility does not have dependency on OFSAA or DMT module. However, running this utility requires `log4j-core*.jar` and `log4j-api*.jar` files.

Use Cases:

- If the user has opted for File Encryption from the *DMT Configurations* window:
  - In case of T2F or H2F, the output file will be an encrypted file. To decrypt the data file, user needs to use this utility.
  - In case of F2Tor F2H, the input file should be an encrypted file. To encrypt the data file, user needs to use this utility.

14.4.1 Prerequisites

- Ensure the following files are present in `$FIC_HOME/utility/DMT/encryption/bin` folder.
  - `dmtfileencryption.sh`
  - `aai-dmt-encryption.jar`
  - `log4j-core*.jar`
  - `log4j-api*.jar`
- Since the utility uses AES 256 bit encryption, it is mandatory to apply policy files. Perform the following instructions to apply policy files:
  a. Download the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files from Oracle. Be sure to download the correct policy file updates for your version of Java (Java 7 or 8).
  b. Uncompress and extract the downloaded file. The download includes a Readme.txt and two .jar files with the same names as the existing policy files.
  c. Locate the two existing policy files inside the folder `<java-jre-home>/lib/security/`.
    - `local_policy.jar`
    - `US_export_policy.jar`
  d. Replace the existing policy files with the unlimited strength policy files you extracted.

To run the utility directly from the console:

1. Navigate to `$FIC_HOME/utility/DMT/encryption/bin` folder.
2. Execute `./dmtfileencryption.sh` with the following arguments:

Argument Name	Description	Value
MODE	Specify the mode of operation	• genkey • encrypt_file • decrypt_file For more information, see Modes of Operation section.
KEYFILE	Absolute path of key file with key file name.	
INPUTFILE	Absolute path of input file with input file name.	
OUTPUTFILE	Absolute path of output file with output file name.	

14.4.2 Modes of Operation

Based on the value specified for the argument MODE, the utility can be operated in different modes:

MODE set as genkey

```
./dmtfileencryption.sh genkey <KEYFILE>
```

In this mode, utility takes the absolute path to which key has to be written as input. Creates a 256 bit AES key and writes to the location given in <KEYFILE> attribute.

MODE set as encrypt_file

```
./dmtfileencryption.sh encrypt_file <INPUTFILE> <OUTPUTFILE> <KEYFILE>
```

In this mode, utility takes input file path, output file path and key file path as inputs. Using the 256 bit AES key in the given key path, input file is encrypted and written into given output file path.

MODE set as decrypt_file

```
./dmtfileencryption.sh decrypt_file <INPUTFILE> <OUTPUTFILE> <KEYFILE>
```

In this mode, utility takes input file path, output file path and key file path as inputs. Using the 256 bit AES key in the given key path, input file is decrypted and written into given output file path.

> **NOTE** Input and output file absolute paths should be different.

14.4.3 Logs

The `DMTFileEncryption.log` file will be created in `$FIC_HOME/utility/DMT/encryption/log` folder.

14.5 Command Line Utility to Publish Metadata in Metadata Browser

A command line utility MDBPublishExecution.sh is available 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_HOM/lib` directory.

   `aai-wsclient-mdbpublish.jar,aai-wsmdbpublishservice.jar`
4. Ensure that `MDBPublishExecution.properties` file is present in `$FIC_DB_HOME/conf` folder.

   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.

> **NOTE** Metadata definitions of length more than 200 characters are not supported for MDB Publish.

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 log information is present in the `MDBPublish.log` file available at the `<DEPLOYED LOCATION>/<Context>.ear/<Context>.war/logs` folder.

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. Enter Metadata Value as mentioned in the example.

   For Example:

   Component ID: RUN EXECUTABLE

   Metadata Value (Executable) like:

```
 MDBPublishExecution.sh,LANG611INFO
(where LANG611INFO is the Infodom)
 Batch = Y
```

14.6 Command Line Utility for Object Application Mapping in Metadata Browser

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_HOM/lib` directory.

   `aai-wsclient-mdbpublish.jar, aai-wsmdbpublishservice.jar`
3. Ensure that `ObjAppMap.properties` file is present in $`FIC_DB_HOME/conf` folder.

   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.

14.7 Command Line Utility for Resaving UAM Hierarchy Objects

OFSAAI has facilitated a utility called RUNIT.sh to resave UAM Hierarchy Objects. This file resides under ficdb/bin area.

14.7.1 Executing RUNIT.sh from Console

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.

> **NOTE** The User ID or Service accounts are "SMS Auth Only" in case of SSO and LDAP configured setups.

   - HIERARCHY Code- Specify the hierarchy codes separated by tilde "~" or caret "^" to resave only those hierarchies. Specify the hierarchy codes separated by exclamation mark "!" to exclude those hierarchies from resaving.
   - Asynchronous Mode- Specify whether you want to save the hierarchy in synchronous manner or not. No indicates saving of hierarchies will happen only after the population of the REV_BIHIER and REV_LOCALE_HIER tables in the atomic schema. This is an optional parameter and if it is not mentioned, it will be in asynchronous mode.

```
./RUNIT.sh INFODOM USERID HIERARCHY_CODE1^HIERARCHY_Code2 OPTIONAL
PARAMETER
```

Exampel 1:

```
./RUNIT.sh OFSAAINFO AAAIUSER HR01^HR02 NO
```

Or

```
./RUNIT.sh OFSAAINFO AAAIUSER HR01~HR02 NO
```

This will resave the hierarchies HR01and HR02 in the OFSAAINFO information domain.

Example 2:

```
./RUNIT.sh OFSAAINFO AAAIUSER HIE001!HIE002 NO
```

This will resave all the hierarchies in the OFSAAINFO information domain except the hierarchies HIE001 and HIE002.

> **NOTE** If you want to exclude only one hierarchy, it should be preceded with "!".

14.7.2 Executing RUNIT.sh from Operations Module (ICC)

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 as mentioned in the **Executable** field:
   a. To resave all the available hierarchy objects, use the following command:

      ```
      ./RUNIT.sh
      ```

   b. To resave particularly some hierarchy objects, use the following command:

      ```
      ./RUNIT.sh,INFODOM,USERID,HIERARCHY_code1^HIERARCHY_code2,No
      ```

   Example 1:

   ```
   ./RUNIT.sh,OFSAAINFO,USERID,Hier01^Hier02^Hier03,No
   ```

   This will resave the hierarchies Hier01, Hier02, and Hier03 in the OFSAAINFO information domain.

   Example 2:

   ```
   ./RUNIT.sh,OFSAAINFO,AAAIUSER,HIE001!HIE002
   ```

   This will resave all the hierarchies in the OFSAAINFO information domain except the hierarchies HIE001 and HIE002. That is, specify the hierarchy codes separated by exclamation mark "!" to exclude those hierarchies from resaving.

   If you want to exclude only one hierarchy, it should be preceded with "!".
4. After saving the Batch Definition, execute the batch to resave the UAM Hierarchy Objects.

14.7.3 Executing RUNIT.sh from RRF Module

To run the utility through the RRF module:

1. Navigate to the RRF module and define a Run with Job as Executable:
2. Click button adjacent to the component name and specify the parameters in the following format:

   To resave all the available hierarchy objects:

   ```
   "./RUNIT.sh"
   ```

To resave particularly some hierarchy objects:

```
"./RUNIT.sh","INFODOM","USERID","HIERARCHY_code1^HIERARCHY_code2","No
"
```

Example 1:

```
"./RUNIT.sh","OFSAAINFO","USERID","Hier01^Hier02^Hier03","No"
```

This will resave the hierarchies Hier01, Hier02, and Hier03 in the OFSAAINFO information domain.

Example 2:

```
"./RUNIT.sh","OFSAAINFO","AAAIUSER","HIE001!HIE002"
```

This will resave all the hierarchies in the OFSAAINFO information domain except the hierarchies HIE001 and HIE002. That is, specify the hierarchy codes separated by exclamation mark "!" to exclude those hierarchies from resaving.

If you want to exclude only one hierarchy, it should be preceded with "!".

3. After saving the Run Definition, execute it to resave the UAM Hierarchy Objects.

14.7.4 Utility Status Information

You can view the status of the utility and the hierarchies that are saved from the following tables:

- AAI_UTILS_AUDIT table - This table is for Utility run status such as utility execution started, completed and/or failed. A transaction ID for each run is generated and is stored here.
- AAI_UTILS_AUDIT_DETAILS table - This table is mapped to each transaction ID generated in AAI_UTILS_AUDIT, which will store status of each hierarchy (success/exception/completed). This table also stores Data save and Metadata save status (success/exception/completed) for each hierarchy.

14.8 Command Line Utility for Resaving Derived Entities and Essbase Cubes

OFSAAI has facilitated a utility called MetadataReSave.sh to resave Derived Entity objects and Essbase Cubes. This file resides under ficdb/bin area. In case of resaving Derived Entities, you can use additional runtime filters dynamically to refresh only selected records in the Derived entities.

To run the utility directly from the console:

1. Navigate to `$FIC_DB_HOME/bin` of OFSAAI FIC DB tier.
2. Execute `MetadataReSave.sh` (UNIX) with proper parameters:
   - INFODOM- Specify the information domain name.
   - USERID- Specify the user id.

> **NOTE** The User ID or Service accounts are "SMS Auth Only" in case of SSO and LDAP configured setups.

- Metadata Service Type – 856 for Derived Entity and 5 for Essbase Cube
- Derived Entity Code for resaving Derived Entities- Specify the derived entity codes separated by tilde "~"
  Or
  Essbase Cube Code for resaving Essbase cubes- Specify the Essbase Cube code.
- Runtime filter- In case of derived entity, specify the runtime filter to refresh only a selected set of records.

For example,

For resaving Derived Entities:

```
./MetadataReSave.sh,INFODOM,USERID,856,<Derived Entity code1>~<Derived Entity code2>
```

For resaving Derived Entities with Runtime Filters:

./MetadataReSave.sh OFSAAAIINFO AAAIUSER 856 DE006 3^4 -f "DIM_ACCOUNT.f_Latest_Record_Indicator = 'Y'"

For resaving Essbase Cube:

```
./MetadataReSave.sh,INFODOM,USERID,5,<Essbase Code>
```

> **NOTE** ~ is not supported for Essbase Cubes. Only one Essbase Cube can be resaved at a time.

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 as following in the **Executable** field:

   For resaving Derived Entities:

   ```
   ./MetadataReSave.sh,INFODOM,USERID,856,<Derived Entity code1>~<Derived Entity code2>
   ```

   For resaving Derived Entities with Runtime Filters:

   ```
   ./MetadataReSave.sh,OFSAAAIINFO,AAAIUSER,856,DE006,4^5,-f,DIM_STANDARD_ACCT_HEAD.V_STD_ACCT_HEAD_ID='CAP622'
   ```

   For resaving Essbase Cube:

   ```
   ./MetadataReSave.sh,INFODOM,USERID,5,<Essbase Code>
   ```

4. Select Yes or No for the **Wait** and **Batch Parameter** drop-down lists. For more information, see Component: RUN EXECUTABLE section.

After saving the Batch Definition, execute the batch to resave Derived Entity Objects or Essbase Cubes.

You can find the logs in `$FIC_DB_HOME/log/MetadataReSave.log`.

14.8.1 Command Line Utility for Resave, Refresh and Delete Partitions

A command line utility called `RefreshByPartition.sh` is available to resave, refresh and delete partitions.

To run the utility directly from the console:

1. Navigate to `$FIC_DB_HOME/bin` of OFSAAI FIC DB tier.
2. Execute `RefreshByPartition.sh` with proper parameters:

```
./RefreshByPartition.sh <DSNNAME> <USERNAME> <METADATA SERVICE TYPE>
[<METADATACODE>] <ADD_or_REFRESH_PARTITIONS(SEPARATED BY "^")>
<DELETE_PARTITION(SEPARATED BY "^")>
```

   - `<DSNNAME>` – Information Domain name
   - `<USERNAME>` – User Name of the logged in user
   - `<METADATA SERVICE TYPE>` – 856 for Derived Entity
   - `[<METADATACODE>]`– Derived Entity Code for which you want to refresh, add or delete partitions
   - `<ADD_or_REFRESH_PARTITIONS>` – Specify the Partitions which needs to be added or refreshed, separated by ^
   - `<DELETE_PARTITION>` – Specify the Partitions which needs to be deleted, separated by ^

   For example:

```
./RefreshByPartition.sh TESTCHEF TESTUSER 856 DE003 1^2^3^4^5^6 2^4
```

   Consider 1, 2, 3, 4 are already existing. Then in this case, 1 and 3 will be refreshed, 5 and 6 will be added and 2 and 4 will be deleted.

NOTE

- Deleting partitions happens before adding partitions.
- Existing partitions will continue to exist if they are not mentioned in the parameter list.

14.9 Command Line Utility for Mapper Pushdown

OFSAAI has facilitated a utility called MapPushDown which is used for push down operation of mapper definitions. This utility is meant to refresh the mapping maintained in the atomic table based on the latest members available in the hierarchy and the available macros already defined for the mapper definition. This utility 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, where the utility is present.
2. Execute the following command:

```
./MapPushDown.sh <INFODOM>
```

where <INFODOM> is a mandatory parameter which represents the information domain in which the utility will be run.

This command will push down all the mapper definitions in the specified infodom.

3. Provide the Mapper Codes separated by tilde "~" if you want to pushdown specifically some mapper definitions:

   Command:

   ```
   ./MapPushDown.sh <INFODOM> <Mapper code1~ Mapper code2>
   ```

   For example,

   ```
   ./MapPushDown.sh BASEL 1099999999~1099999998~1099999997
   ```

To run the utility as an executable component from RRF:

1. Navigate to the **RRF** module.
   - Define a Process definition with component as Executable.
   - Pass parameters as required and add the Process into a Run to be fired.

   Or

   - Define a Run definition with component as Executable.
   - Pass parameters as required and fire the Run definition.

   Sample data for creating a Process with Executable component:

   ```
   "MapPushDown.sh","BASEL","1099999998"
   ```

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. Pass parameters as required.
4. Under Dynamic Parameter List panel, specify `./MapPushDown.sh <INFODOM>` or `./MapPushDown.sh <INFODOM> <Mapper code1~ Mapper code2>` in the **Executable** field.

   Sample Data for executing through ICC:

   ```
   ./MapPushDown.sh BASEL 1099999998
   ```

14.10 Command Line Utility for Downloading Metadata Objects in PDF Format

A command line utility called MDBPDFDownloadExecution.sh is available to download the details of published metadata objects in PDF format. This utility is present at `$FIC_DB_HOME/bin` folder.

To execute MDBPDFDownloadExecution utility:

1. Navigate to `$FIC_DB_HOME/bin` of OFSAAI FIC DB tier.

2. Execute `MDBPDFDownloadExecution.sh` with proper arguments.

   ```
   ./MDBPDFDownloadExecution.sh infodom=<INFODOM> objCodes=[<LIST OF OBJECT CODES>] folderName=[<Folder Name>]
   ```

   - infodom=<INFODOM> – Specify the Infodom name where the metadata objects you want to download is present.
   - objCodes=[<LIST OF OBJECT CODES>] – Specify the object codes of the metadata objects separated by comma. This is an optional parameter. If this is not given, all objects belonging to the specified Infodom will be downloaded.
   - folderName=[<Folder Name>] – Specify fully qualified folder name where downloaded PDFs should be placed. This is an optional parameter. If this is not given, PDFs will be stored at ftpSharepath.

   For example, `./MDBPDFDownloadExecution.sh infodom=OFSAAIINFO objCodes=HCY001,DIM001 folderName=/scratch/ofsaobie/ofsaa806`

   The parameters for the utility such as infodom , objCodes, folderName are case sensitive.

3. You can find the related logs in the following locations:
   - `$FIC_DB_HOME/log/MDBPDFDownload.log`
   - `<DEPLOYED LOCATION>/<Context>.ear/<Context>.war/logs/MDB.log`

14.11 Command Line Utility for LDAP Migration

OFSAAI has facilitated a command line utility called LDAP Migration utility to migrate:

- users registered in LDAP server to OFSAA
- users in LDAP to a user group mapping in OFSAA
- user groups in OFSAA to LDAP server

This utility is present at `$FIC_DB_HOME/bin` folder.

To run the utility directly from the console:

1. Navigate to `$FIC_DB_HOME/bin` of OFSAAI FIC DB tier, where the utility is present.
2. To migrate users from LDAP server to OFSAA, execute the following command:

   ```
   ldapmigration.sh <user> <password> LDAPTOSMS user <ldap_server> <user_search_filter> <user_base>
   ```

3. To migrate users in a particular user group in LDAP server to OFSAA, execute the following command:

   ```
   ldapmigration.sh <user> <password> LDAPTOSMS groupmember <ldap_server> <group_search_filter> <group_base>
   ```

> **NOTE** This migration assumes the same user group exists in OFSAA.

4. To migrate only user-user group mapping from LDAP server to OFSAA, execute the following command:

   ```
   ldapmigration.sh <user> <password> LDAPTOSMS usergroupmap <ldap_server>
   <group_search_filter> <group_base>
   ```

   NOTE This migration assumes the same user group exists in OFSAA.

5. To migrate user groups from OFSAA to LDAP server, execute the following command:

   ```
   ldapmigration.sh <user> <password> SMSTOLDAP group <ldap_server>
   <group_search_filter>
   ```

   where

   <user>- Specify SYSADMN as the user name.

   <password>- Specify SYSADMN password.

   <ldap_server>- Specify the LDAP server name. For example, ORCL1.in.oracle.com.

   <user_search_filter>- Specify filter condition for user search.

   <user_base>- Specify user context base.

   <group_search_filter>- Specify filter condition for user group search.

   <group_base>- Specify group context base.

   For example,

   ```
   ldapmigration.sh SYSADMN password1 SMSTOLDAP group ORCL1.in.oracle.com
   OFSAAGRP
   ```

   ```
   ldapmigration.sh SYSADMN password1 LDAPTOSMS user ORCL1.in.oracle.com
   objectclass=organizationalPerson cn=Users,dc=oracle,dc=com
   ```

14.12 Model Upload Utility

The Model Upload Utility uploads the Data Model through the command line parameter by executing a shell script file. It is used to upload Models that are huge in size. The ERwin file that contains the Data Model information must be placed at <ftpshare>/<infodom>/erwin/erwinXML. The Upload.sh file is a shell script which is required to run the utility, and it is present at $FIC_HOME/ficapp/common/FICServer/bin location.

Following are the pre-requisites before executing this utility:

1. Ensure that JAVA_HOME in the .profile is pointing to JAVA bin installation directory.
2. Set the FIC_HOME path in the user .profile.
3. Ensure that the following jar file is present in $FIC_HOME/ficapp/common/FICServer/lib directory

datamodel.jar

- FICServer.jar

- dateent.jar

14.12.1 Run the Model Upload Utility

4. Navigate to $FIC_HOME/ficapp/common/FICServer/bin location.
5. Open Upload.sh and enter the following arguments in the file:
   - <infodom> – Refers to the DSN name. The information domain to where the model upload to be done.
   - <entire file path> – Refers to the entire file path of the Erwin XML. For example, $FTP_SHARE/$INFODOM/erwin/erwinXML/PFT_model.xml. Set this as Null for DB Catalog and Data Model Descriptor options.
   - <username> – Refers to the username of the OFSAA application.

> **NOTE** The User ID or Service accounts are "SMS Auth Only" in case of SSO and LDAP configured setups.

   - <uploadmode N/R/AM/AP> - Refers to the Upload Choice Code.
     - N - Refers to the New Model Upload.
     - R - Refers to the Complete Model Rebuild Upload.
     - AM - Refers to the Incremental Model Upload.
     - AP - Refers to the Sliced Model Upload.
   - <modelUploadType E/C> - Refers to the Model Upload type.
     - E - Erwin upload
     - C - Catalog Generation
     - Set this as Null for Data Model Descriptor option.
   - <startsFilter> - This argument should be given only for Catalog generation.

     For example,

     For Catalog - dim_test

     For Erwin and Data Model Descriptor options- Null
   - <constainsFilter> - This argument should be given only for Catalog generation.

     For example,

     For Catalog - dim_test

     For Erwin and Data Model Descriptor options– null
   - <endsFilter> - This argument should be given only for Catalog generation.

     For example,

     For Catalog - dim_test

For Erwin and Data Model Descriptor options - Null

> **NOTE** Do not alter the filter conditions startsFilter, constainsFilter and endsFilter.

- `<runscriptsFlag>` - Set this as TRUE or FALSE.
  - TRUE - Updates the database/schema with the Model changes.
  - FALSE - Does not update the database/schema with Model changes. If this is set to FALSE, you should execute the SQL scripts generated as part of OFSAAI model upload process in a correct sequence, in order to make the Infodom Schema to be consistent with the DATABASE.xml. For more information, see Sequence of Execution of Scripts section.
- <`constraintNOVALIDATEFlag`> - Refers to give an option to enable or disable constraints in to alter constraint in NOVALIDATE state. During Incremental and Sliced Model upload, the constraint validation is based on the value provided to this flag.
  - TRUE - Enables constraints in NOVALIDATE state and does not check the existing data for the integrity constraint violation.
  - FALSE - Does not enable constraints in NOVALIDATE state and checks the existing data for the integrity constraint violation.
- `considerCustomization` - If customization is allowed on columns, set it as TRUE, else set it as FALSE.
- `DatabaseXMLflag`- Set this as TRUE if model upload option is selected as Data Model Descriptor, else set this as FALSE.
- `ScriptsMigratedFlag`- Set this as TRUE or FALSE.
  - FALSE - To resume the model upload process from script generation. That is, if you have copied only database xml file to your target environment, set this as FALSE.
  - TRUE - To resume the model upload process from script execution. That is, if you have copied only database xml file and DB scripts to your target environment, set this as TRUE.
- `DDL Logs Flag`- Set this as TRUE to print execution audit logs for Scripts. The logs can be found at ftpshare/<infodom>/executelogs/<infodom>_DDLLOG_<last data model version>_<MM.DD.YYYY>-<HH.MM.SS>.log.
- `Refresh Params` – Set this as TRUE to use Database session parameters during model upload process, else set this as FALSE.
- `Object Registration Mode` – Set it as F for full Object Registration or I for incremental object registration.

> **NOTE** Incremental object registration should be opted only if the object registration on the base environment was incremental. Full Object Registration can be performed irrespective of mode opted in the base environment.

The various parameters to be passed for different modes are shown in the following matrix:

Start point	Object Registration status	DatabaseXMLFlag	ScriptsMigratedFlag	ObjectRegistrationflag
Script generation	Full Object Registration	True	False	F
	Incremental Object registration	True	False	I
Script Execution	Full Object Registration	True	True	F
	Incremental Object registration	True	True	I

1. Execute the script using the command:

   ```
   ./upload.sh
   ```

> **NOTE** Ensure that you are provided with the execute permission.

2. Logs are updated in regular Model Upload log at `ftpshare/<infodom>/logs/<infodom>_LOG_<last data model version>_<MM.DD.YYYY>-<HH.MM.SS>.log`

> **NOTE** During incremental model upload, when the uploadmode is set as AM, some of mappings done in Data Integrator may get invalidated.
>
> You are required to save these mappings again.

14.12.2 Model Upload Details

Some Java settings need to be configured while uploading the data model with various sizes of xml files. This can be done by:

- Picking from the server
- Model Upload Utility
- Browsing the file in the local computer.

These Java settings differ depending on the availability of RAM. You have to ensure that the Default and Temporary table-space assigned to Oracle user is allocated with required space. The below table consists of the Java settings done on both client and server machines:

Model Upload Options	Size of Data Model XML File	X_ARGS_APP ENV Variable in OFSAAI APP Layer
Pick from Server	106 MB	"-Xms1024m -Xmx1024m
	36 MB	"-Xms2048m -Xmx2048m
	815 MB	"-Xms4096m -Xmx4096m
	1243 MB	"-Xms6144m -Xmx6144m
Model Upload Utility	106 MB	"-Xms1024m -Xmx1024m
	336 MB	"-Xms2048m -Xmx2048m
	815 MB	"-Xms4096m -Xmx4096m
	1243 MB	"-Xms6144m -Xmx6144m
Save New Erwin File In Server	106 MB	"-Xms1024m -Xmx1024m
	336 MB	"-Xms2048m -Xmx2048m
	815 MB	"-Xms4096m -Xmx4096m
	1243 MB	"-Xms6144m -Xmx6144m

14.13 Command Line Utility for Object Registration

The RegisterObjects Utility is used to do the object registration separately if it failed during model upload process. You can execute the shell script file `RegisterObjects.sh` from the command line. This utility is present at `$FIC_HOME/ficapp/common/FICServer/bin` location.

To run the utility directly from the console:

1. Navigate to `$FIC_HOME/ficapp/common/FICServer/bin`.
2. Open `RegisterObjects.sh` and enter the following arguments in the file:
   - <`infodom`> - Refers to the DSN name.
3. Execute the script using the command:

   `./RegisterObjects.sh`

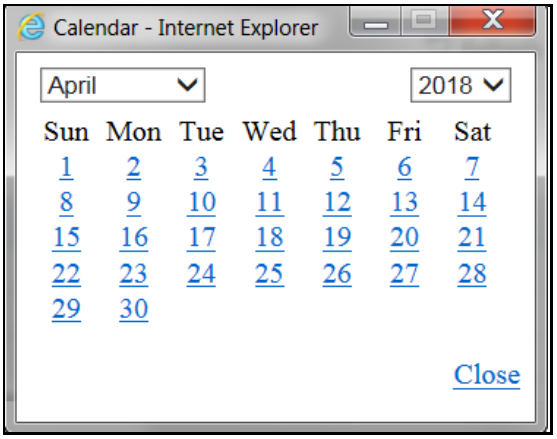
> **NOTE** Ensure that you are provided with the execute permission.
>
> Log file in ftpshare folder is empty. The logs are printed in the console only.

15 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.

15.1 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 select the specific month and year using the drop-down lists. When you click the required date the details are auto updated in the date field.



15.2 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. See Appendix A.

15.3 External Scheduler Interface Component

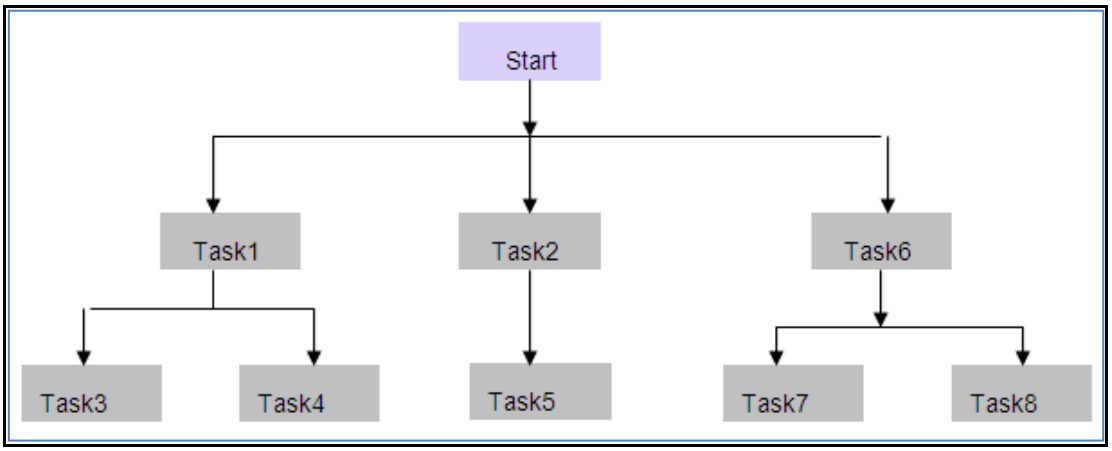
ESIC (External Scheduler Interface Component) is an external command line executable which integrates with the Infrastructure system to run or execute a Batch definition. This integration is achieved by the Run Executable component.

The Operations module (ICC - Information Command Center) within the infrastructure system manages the execution of all components within OFSAAI. 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.



15.3.1 Architecture

The ES executes a component named "External Scheduler Interface Component" (ESIC) and passes the suitable parameters. For more information about these parameters see 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.

15.3.2 Scope of Integration

The Integration of External Scheduler (ES) with OFSAAI facilitates with the following capabilities:

15.3.2.1 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

15.3.2.2 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.

15.3.2.3 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.

15.3.2.4 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.

15.3.2.5 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.

15.3.3 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

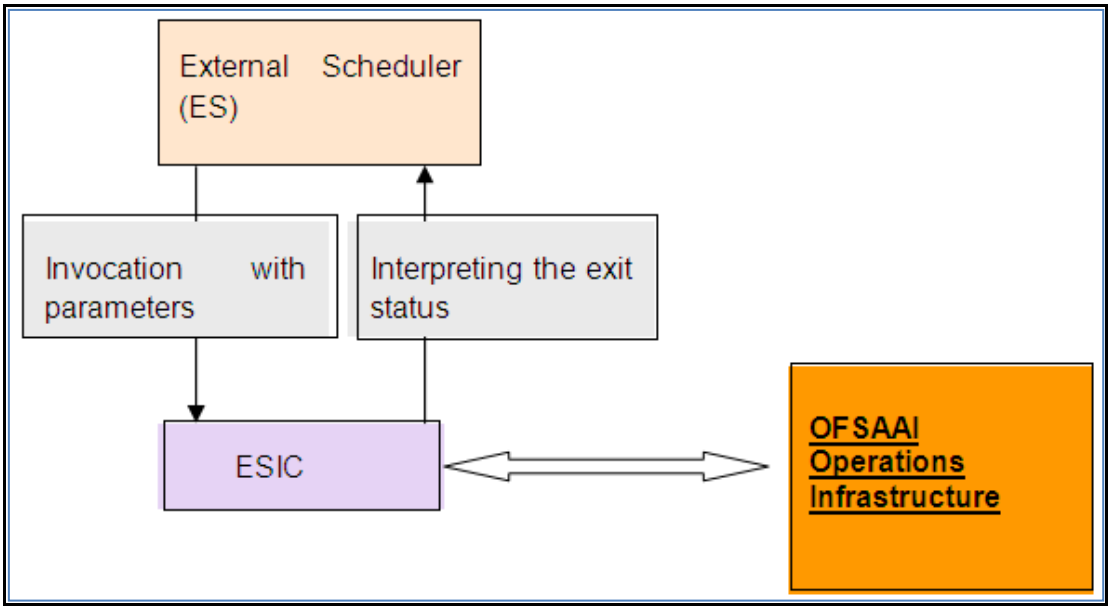
In case of an exception, ESIC logs appropriately and exits with an appropriate exit status that can be used by the ES.

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.

NOTE When a Batch is initialized for execution through ES, ESIC captures the OFSAAI user ID and password as parameters and authenticates the same. If the user is already logged in through UI, and **Allow user to log in from multiple machines** checkbox from the *Configuration* window is not selected, it will show the error message "User Already Logged in". Hence initialization of batch will fail.



For more details of ESIC exit status, see Exit Status Specifications section. and for other miscellaneous information of ESIC, see Additional Information on ESIC section.

15.3.4 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* window of Operations module, the Batch is called as **EXTBATCH** and the Information Domain in which this Batch is defined is called as **INFODOM**. Hence **INFODOM_EXTBATCH** becomes the Batch ID.

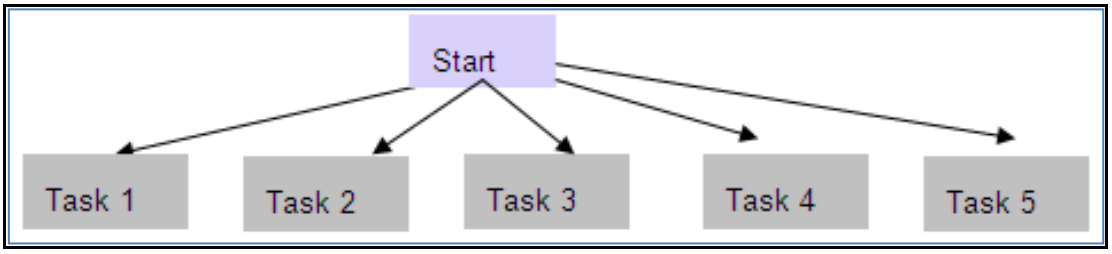
Consider a scenario, to run the following tasks in this Batch.

- 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 **Data Model 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, see OFSAAI Standard XML.

```
<BATCH BATCHID="INFODOM_EXTBATCH" NOOFTASKS="5" SYSTEMLOCALE="+5:30 GMT"
INFODOMAIN="INFODOM" REVUSER="OPERADMIN" DEFTYPE="DEF">
<RUNINFO REVUID="" EXTUID="" BATCHSTATUS="" INFODATE="" LAG=""/>
<TASK TASKID="Task1" COMPONENTID="LOAD DATA" TASKSTATUS="N" FILTER="N">
     <PRECEDENCE>
        <ONSUCCESSOF>
             <TASKID/>
        </ONSUCCESSOF>
        <ONFAILUREOF>
             <TASKID/>
        </ONFAILUREOF>
     </PRECEDENCE>
</TASK>
<TASK TASKID="Task2" COMPONENTID="CUBE CREATE" TASKSTATUS="N" FILTER="N">
     <PRECEDENCE>
        <ONSUCCESSOF>
             <TASKID/>
```

```
        </ONSUCCESSOF>
        <ONFAILUREOF>
             <TASKID/>
        </ONFAILUREOF>
     </PRECEDENCE>
</TASK>
<TASK TASKID="Task3" COMPONENTID="RUN EXECUTABLE" TASKSTATUS="N" FILTER="N">
     <PRECEDENCE>
        <ONSUCCESSOF>
             <TASKID/>
        </ONSUCCESSOF>
        <ONFAILUREOF>
             <TASKID/>
        </ONFAILUREOF>
     </PRECEDENCE>
</TASK>
<TASK TASKID="Task4" COMPONENTID="EXTRACT DATA" TASKSTATUS="N" FILTER="N">
     <PRECEDENCE>
        <ONSUCCESSOF>
             <TASKID/>
        </ONSUCCESSOF>
        <ONFAILUREOF>
             <TASKID/>
        </ONFAILUREOF>
     </PRECEDENCE>
</TASK>
<TASK TASKID="Task5" COMPONENTID=" TRANSFORM DATA" TASKSTATUS="N"
FILTER="N">
     <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:

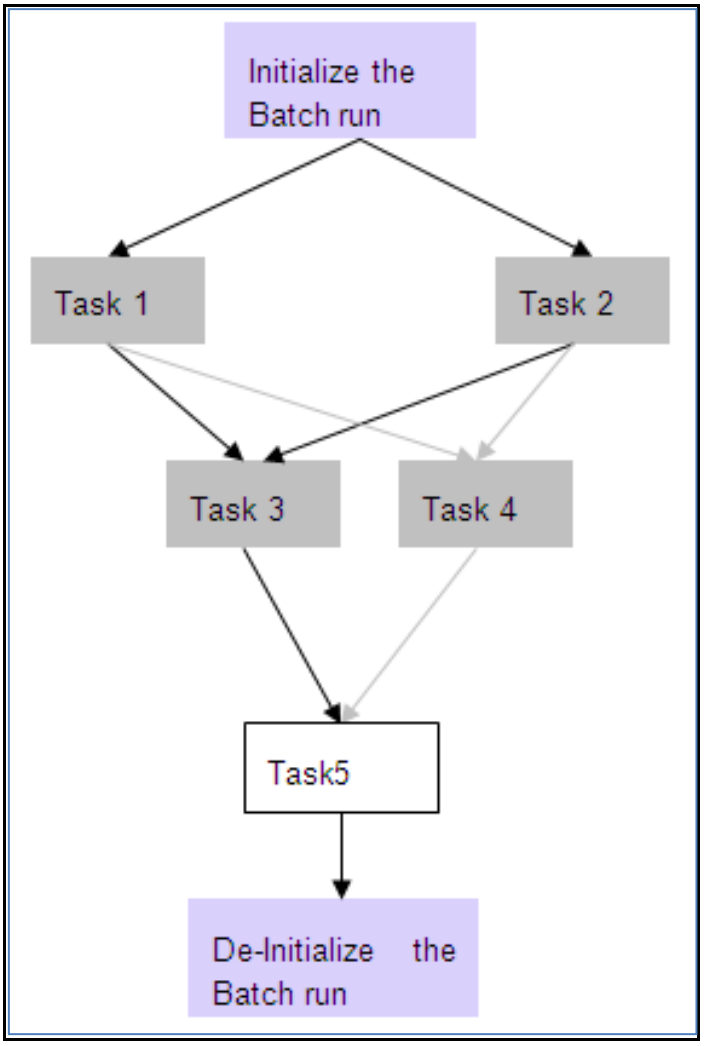
Batch Status	Value
N	Not Started
O	On Going
R	For Restart
C	Complete

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 see ESIC Command Line Parameters and Job Types.

The ES needs to provide the **'Ext Unique ID**'. In this case it is **MAESTRO_INFODOM_EXTBATCH _20031001_1**.

To Initialize the Batch Run:

```
esic -JI -Urevuser -Ppassword -RMAESTRO_INFODOM_EXTBATCH _20031001_1 -
IINFODOM -BEXTBATCH -D20031001 -F/tmp/INFODOM
```

Task 1:

```
esic -JXT -Urevuser -Ppassword -RMAESTRO_ INFODOM_EXTBATCH_20031001_1 -
IINFODOM -WC -TTask1
```

Task 2:

```
esic -JXT -Urevuser -Ppassword -RMAESTRO_ INFODOM_EXTBATCH_20031001_1 -
IINFODOM -WC -TTask2
```

Task 3:

```
esic -JXT -Urevuser –Ppassword -RMAESTRO_ INFODOM_EXTBATCH_20031001_1 -
IINFODOM -WC –TTask3
```

Task 4:

```
esic -JXT -Urevuser –Ppassword -RMAESTRO_ INFODOM_EXTBATCH_20031001_1 -
IINFODOM -WC –TTask4
```

Task 5:

```
esic -JXT -Urevuser –Ppassword -RMAESTRO_ INFODOM_EXTBATCH_20031001_1 -
IINFODOM -WC –TTask5
```

De-initialize:

```
esic -JD -Urevuser –Ppassword -RMAESTRO_ INFODOM_EXTBATCH_20031001_1 -
IINFODOM -BINFODOM_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.

15.3.5 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**.

15.3.6 Batch Monitoring

The *Batch Monitoring* window 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.

15.3.7 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, see 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.

15.3.8 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="O" FILTER="H">
     <PRECEDENCE>
        <ONSUCCESSOF>
             <TASKID></TASKID>
        </ONSUCCESSOF>
        <ONFAILUREOF>
             <TASKID/>
        </ONFAILUREOF>
     </PRECEDENCE>
</TASK>
<TASK TASKID="Task2" COMPONENTID="RUN EXECUTABLE" TASKSTATUS="O" FILTER="H">
     <PRECEDENCE>
        <ONSUCCESSOF>
```

```
            <TASKID></TASKID>
        </ONSUCCESSOF>
        <ONFAILUREOF>
            <TASKID></TASKID>
        </ONFAILUREOF>
    </PRECEDENCE>
</TASK>
<TASK TASKID="Task3" COMPONENTID="EXTRACT DATA" TASKSTATUS="O" FILTER="N">
    <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

15.3.9 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

Exit Status	Interpretation
-4	Unable to Initialize Batch
-5	Unable to De-Initialize Batch
-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

15.3.10 ESIC Operations using Wrapper Scripts

OFSAAI has been enhanced to provide standardized wrapper scripts to perform ESIC batch operations.

15.3.10.1 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)

15.3.10.2 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

15.3.10.3 Execute a Batch

3. Navigate to the `$ES_HOME > bin` folder.
4. 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

15.3.10.4 Execute a Task

5. Navigate to the `$ES_HOME > bin` folder.
6. 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

15.3.10.5 De-initializing a Batch

7. Navigate to the `$ES_HOME > bin` folder.
8. 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

15.3.10.6 View Logs for Individual Batch Run

```
$ES_HOME/log/ESIC_<batchrunid>.log
```

15.3.11 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:

15.3.11.1 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
User ID	Enter the User ID used for initializing the Batch execution.
Password	Enter the password for initializing the Batch execution. This password is validated against the **V_PASSWORD** column in the **CSSMS_USR_PROFILE** table. An encrypted password is expected, so if the password is given as clear text, a warning message is displayed, but it proceeds further for validation.
Ext Unique ID	Enter a unique ID against a batch execution. It is the responsibility of the External Scheduler/calling program to supply the unique id to ESIC. The value of this against OFSAAI batch execution id mapping is stored in the table **EXT_BATCH_RUN_ID_MAPPING**.
Info Dom	Enter the information domain against which the batch is getting executed.
Batch Name	Enter the Batch name.
Info Date	Enter the MIS Date for Batch execution.
Temp Directory Name	This can be any value chosen by the user.

15.3.11.2 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>
```

15.3.11.3 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>. 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>
```

```
-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.

15.3.11.4 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>
```

15.3.11.5 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

15.3.11.6 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

15.3.11.7 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.

```
-JP –U<User ID> -P<Password> -I<Info Dom> -B<Batch Name> -S<Start Date> -
E<End Date> [<Y>]
```

<Y>- Additional parameter introduced to purge the data from the View Logs table. You need to specify **-B<Batch Name>** along with <Y> to purge the data from the View Logs table for the specified start and end date.

15.3.11.8 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.

15.3.11.9 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{sy
smsg}
```

If no message format string is supplied, then the log generated will be in the above format, with each value separated by a tab.

15.3.11.10 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<Ext Unique 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< Ext Unique 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.

15.3.12 Additional Information on ESIC

This section includes the information regarding the miscellaneous details, dependencies, and error logging details for ESIC.

15.3.12.1 Miscellaneous Details and Dependencies

- ESIC resides on App Layer of OFSAAI.
- 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.
- The following processes are Java processes in platform, which contains environment variables as JVM parameters.
  - FIC Server
  - ICC Server
  - Model Upload
  - Rule Execution

Only these processes can be tracked using JVM commands like jcmd and jps.

15.3.12.2 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 see 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.

15.4 File Upload Requirements

When uploading the file to the Filesystem (windows), the Filesystem does not allow the following characters in file name:

- **<** (less than)
- **>** (greater than)
- **:** (colon)
- **"** (double quote)
- **/** (forward slash)

- **** (backslash)
- **|** (vertical bar or pipe)
- **?** (question mark)
- ***** (asterisk)

In addition, following characters are also restricted in filename and not supported by OFSAA:

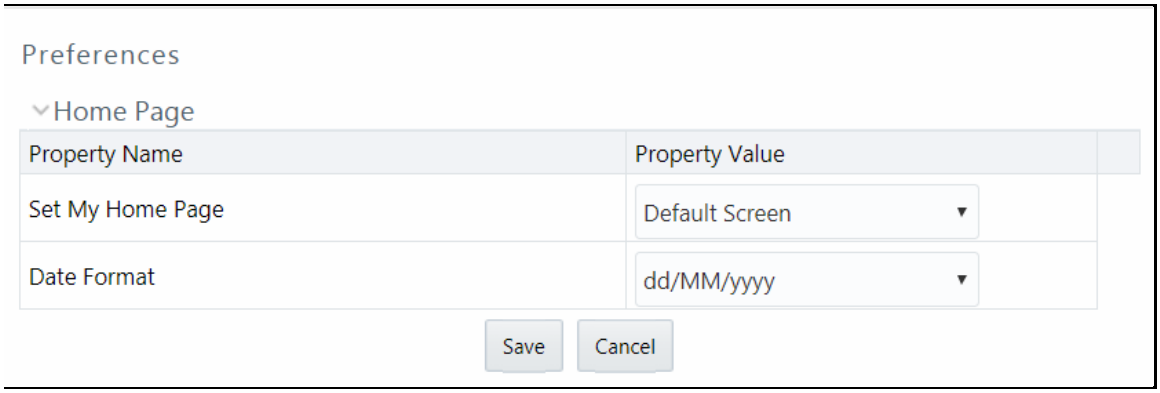
- **,** (Comma)
- **{** (Opening curly brace)
- **}** (Closing curly brace)
- Trailing space characters in file names. For example, **abc, .txt**

16 Preferences

The preferences section enables you to set your OFSAA Home Page and the Date Format in which all Date fields should be displayed, throughout the application where OJET screens are used. This is the configuration to set the Date Format at user level.

To set the user preferences:

1. Click the logged in user name and select **Preferences** from the drop-down menu. The *Preferences* window is displayed.



2. Select the application which you want to display as your Home Page from the **Set My Home Page** drop-down list.

> **NOTE** Whenever you install a new application, the related value for that application is found in the drop-down list.

3. Select the required **Date Format** in which the Date fields in all OJET screens in your application to be displayed. The options are dd/MM/yyyy and MM/dd/yyyy.
4. Click **Save** to save your preference.

16.1.1 Setting Date Format

You can set the Date Format in which the Date fields in all OJET screens in your application to be displayed at user-level, application-level and control-level. The first preference is user-level, and then to application-level. If both are not set, it goes by the Date Format set at control-level.

User Level Preference for Date Format- See the Preferences section.

Application Level Preference for Date Format- If user has not set **Date Format** at user level, then system checks for the value for 'DEFAULT_DATEFORMAT_REQ' parameter in the configuration table. If it is set as TRUE, then the Date fields in all OJET screens in your application will be displayed in the format given in 'DEFAULT_DATEFORMAT' parameter in the configuration table. If it is set as FALSE, it takes the Date Format set at control-level. By default, the value for 'DEFAULT_DATEFORMAT_REQ' parameter is set as FALSE.

17 Appendix A

17.1 OFS Analytical Applications Infrastructure User Groups and Entitlements

The following User Groups and Entitlements are part of the OFSAA 8.0 AAAI Application Pack release.

User Group Name	User Group Description
Business Administrator	User mapped to this group will have access to all the menu items and actions for advanced operations of metadata objects.
Business Authorizer	User mapped to this group will have access to all the menu items and actions for authorization of changes to metadata objects.
Business Owner	User mapped to this group will have access to all the menu items and actions for read and write of metadata objects
Business User	User mapped to this group will have access to all the menu items and actions for access and read of metadata objects.
Guest	User mapped to this group will have access to certain menu items with only access privileges.
Identity Administrator	User mapped to this group will have access to all the menu items for managing User entitlements, User Group Entitlements and Access Management configurations.
Identity Authorizer	User mapped to this group will have access to all the menu items for authorizing User entitlements, User Group Entitlements and Access Management configurations.
Object Administrator	User mapped to this group will have access to all menu items for managing object migration and metadata traceability using metadata browser.
System Administrator	User mapped to this group will have access to all menu items for managing the setup configurations.
WorkFlow Delegation Admin	User mapped to this group will have access to workflow delegation.

17.2 OFS Analytical Applications Infrastructure User Roles

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
ALIAS_ACSS	Alias Access	Alias Access
ALIAS_ADVN	Alias Advanced	Alias Advanced
ALIAS_AUTH	Alias Authorize	Alias Authorize
ALIAS_PHNT	Alias Phantom	Alias Phantom
ALIAS_ROLY	Alias Read Only	Alias Read Only

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
ALIAS_WRIT	Alias Write	Alias Write
AUDITROLE	Audit Trail Report Role	Audit Trail Report Role
BATCH_ACSS	Batch Access	Batch Access
BATCH_ADVN	Batch Advanced	Batch Advanced
BATCH_AUTH	Batch Authorize	Batch Authorize
BATCH_PHNT	Batch Phantom	Batch Phantom
BATCH_READ	Batch Read Only	Batch Read Only
BATCH_WRIT	Batch Write	Batch Write
BPROC_ACSS	BMM Processor Access	Business Processor Access
BPROC_ADVN	BMM Processor Advanced	Business Processor Advanced
BPROC_AUTH	BMM Processor Authorize	Business Processor Authorize
BPROC_PHNT	BMM Processor Phantom	Business Processor Phantom
BPROC_ROLY	BMM Processor Read Only	Business Processor Read Only
BPROC_WRIT	BMM Processor Write	Business Processor Write
BUDIM_ACSS	Dimension Access	Dimension Access
BUDIM_ADVN	Dimension Advanced	Dimension Advanced
BUDIM_AUTH	Dimension Authorize	Dimension Authorize
BUDIM_PHNT	Dimension Phantom	Dimension Phantom
BUDIM_ROLY	Dimension Read Only	Dimension Read Only
BUDIM_WRIT	Dimension Write	Dimension Write
BUHCY_ACSS	BMM Hierarchy Access	BMM Hierarchy Access
BUHCY_ADVN	BMM Hierarchy Advanced	BMM Hierarchy Advanced
BUHCY_AUTH	BMM Hierarchy Authorize	BMM Hierarchy Authorize
BUHCY_PHNT	BMM Hierarchy Phantom	BMM Hierarchy Phantom
BUHCY_ROLY	BMM Hierarchy Read Only	BMM Hierarchy Read Only
BUHCY_WRIT	BMM Hierarchy Write	BMM Hierarchy Write
BUMSR_ACSS	Measure Access	Measure Access

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
BUMSR_ADVN	Measure Advanced	Measure Advanced
BUMSR_AUTH	Measure Authorize	Measure Authorize
BUMSR_PHNT	Measure Phantom	Measure Phantom
BUMSR_ROLY	Measure Read Only	Measure Read Only
BUMSR_WRIT	Measure Write	Measure Write
DATASECURITY	Data Security Role	Role to access un-redacted data
DATASECURITYADMIN	Data Security Admin	Data security admin role for executing redaction policies
DEFQACCESS	DEFQ access	Data Entry Forms and Queries access
DEFQADVNC	DEFQ advanced	Data Entry Forms and Queries advanced
DEFQAUTH	DEFQ authorize	Data Entry Forms and Queries authorize
DEFQMAN	DEFQ Manager	Data Entry Forma and Query Manager Role
DEFQPHTM	DEFQ phantom	Data Entry Forms and Queries phantom
DEFQREAD	DEFQ read	Data Entry Forms and Queries read
DEFQWRITE	DEFQ write	Data Entry Forms and Queries write
DIADV	DI Advanced	DI Advanced Role
DI_ACCESS	DI Access	Data Ingestion Access Role
DI_PHANTOM	DI Phantom	Data Ingestion Phantom Role
DI_READ	DI Read	Data Ingestion Read-only Role
DI_WRITE	DI Write	Data Ingestion Write Role
DMACCESS	Data Mapping UI Access	User Group mapped will have access to Link and Summary
DMADV	Data Mapping Advanced	Data Mapping Advanced Role
DMAUTH	Data Mapping Authorize	User Group mapped will have access to authorize the Data Mapping
DMMACC	DMM Access	Data Model Maintenance Access Role
DMMADVND	DMM Advanced	Data Model Maintenance Advanced Role
DMMAUTH	DMM Authorize	Data Model Maintenance Authorize Role
DMMFILEUPLDR	Model Xml Upload Role	Model Xml File Upload Role
DMMPHTM	DMM Phantom	Data Model Maintenance Role
DMMREAD	DMM Read	Data Model Maintenance Read-only Role
DMMWRITE	DMM Write	Data Model Maintenance Write Role
DMPHANTOM	Data Mapping Phantom	Data Mapping Phantom Role.

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
DMREAD	Data Mapping Read Only	User Group mapped will have access to View Definition.
DMTADMIN	Data Management Admin	Data Management Administrator Role
DMTDFMACSS	Data File Mapping Access	Data File Mapping Access
DMTDMACSS	Data Mapping Access	Data Mapping Access
DMTSRCACSS	Data Sources Access	Data Sources Access
DMTUDFACSS	UDF Screen Access	UDF Screen Access
DMWRITE	Data Mapping Write	User Group mapped will have access to add, edit, copy and delete PLC.
DOCMGMTACC	Document MGMT access	Document management access
DOCMGMTADV	Document MGMT advanced	Document management advanced
DOCMGMTAUT	Document MGMT authorize	Document management authorize
DOCMGMTPHT	Document MGMT phantom	Document management phantom
DOCMGMTRD	Document MGMT read	Document management read
DOCMGMTWR	Document MGMT write	Document management write
DQACC	DQ Access	Data Quality Rule Access Role
DQADVND	DQ Advanced	Data Quality Rule Advanced Role
DQAUTH	DQ Authorize	Data Quality Rule Authorize Role
DQPHTM	DQ Phantom	Data Quality Rule Phantom Role
DQQRYVIEWR	DQ View Query Role	Data Quality View Query Role
DQREAD	DQ Read	Data Quality Rule Read-only Role
DQWRITE	DQ Write	Data Quality Rule Write Role
DRENT_ACSS	Derived Entity Access	Derived Entity Access
DRENT_ADVN	Derived Entity Advanced	Derived Entity Advanced
DRENT_AUTH	Derived Entity Authorize	Derived Entity Authorize
DRENT_PHNT	Derived Entity Phantom	Derived Entity Phantom

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
DRENT_ROLY	Derived Entity Read Only	Derived Entity Read Only
DRENT_WRIT	Derived Entity Write	Derived Entity Write
DTSET_ACSS	Dataset Access	Dataset Access
DTSET_ADVN	Dataset Advanced	Dataset Advanced
DTSET_AUTH	Dataset Authorize	Dataset Authorize
DTSET_PHNT	Dataset Phantom	Dataset Phantom
DTSET_ROLY	Dataset Read Only	Dataset Read Only
DTSET_WRIT	Dataset Write	Dataset Write
DT_ACCESS	DT Access	Data Transformation Access Role
DT_PHANTOM	DT Phantom	Data Transformation Phantom Role
DT_READ	DT Read	Data Transformation Read-only Role
DT_WRITE	DT Write	Data Transformation Write Role
DTADV	DT Advanced	DT Advanced Role
ESCUB_ACSS	Essbase Cube Access	Essbase Cube Access
ESCUB_ADVN	Essbase Cube Advanced	Essbase Cube Advanced
ESCUB_AUTH	Essbase Cube Authorize	Essbase Cube Authorize
ESCUB_PHNT	Essbase Cube Phantom	Essbase Cube Phantom
ESCUB_ROLY	Essbase Cube Read Only	Essbase Cube Read Only
ESCUB_WRIT	Essbase Cube Write	Essbase Cube Write
ETLADM	ETL Analyst	ETL Analyst Role
EXPACC	Expression Access	Expression Access Role
EXPADVND	Expression Advanced	Expression Advanced Role
EXPAUTH	Expression Authorize	Expression Authorize Role
EXPPHTM	Expression Phantom	Expression Phantom
EXPREAD	Expression Read Only	Expression Read Only Role
EXPWRITE	Expression Write	Expression Write Role
FFWACCESS	Forms Renderer access	Forms Renderer access
FFWADVNC	Forms Renderer advanced	Forms Renderer advanced

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
FFWAUTH	Forms Renderer authorize	Forms Renderer authorize
FFWPHTM	Forms Renderer phantom	Forms Renderer phantom
FFWREAD	Forms Renderer read	Forms Renderer read
FFWWRITE	Forms Renderer write	Forms Renderer write
FILACC	Filter Access	Filter Access Role
FILADVND	Filter Advanced	Filter Advanced Role
FILAUTH	Filter Authorize	Filter Authorize Role
FILPHTM	Filter Phantom	Filter Phantom
FILREAD	Filter Read Only	Filter Read Only Role
FILWRITE	Filter Write	Filter Write Role
FMCACCESS	Forms Conf access	Forms Configuration access
FMCADVNC	Forms Conf advanced	Forms Configuration advanced
FMCAUTH	Forms Conf authorize	Forms Configuration authorize
FMCPHTM	Forms Conf phantom	Forms Configuration phantom
FMCREAD	Forms Configuration read	Forms Configuration read
FMCWRITE	Forms Configuration write	Forms Configuration write
HBRACC	Hier Browser Access	Hier Browser Access Role
HBRADVND	Hier Browser Advanced	Hier Browser Advanced Role
HBRAUTH	Hier Browser Authorize	Hier Browser Authorize Role
HBRPHTM	Hier Browser Phantom	Hier Browser Phantom
HBRREAD	Hier Browser Read Only	Hier Browser Read Only Role
HBRWRITE	Hier Browser Write	Hier Browser Write Role
HIERACC	Hierarchy Access	Hierarchy Access Role
HIERADVND	Hierarchy Advanced	Hierarchy Advanced Role
HIERAUTH	Hierarchy Authorize	Hierarchy Authorize Role
HIERPHTM	Hierarchy Phantom	Hierarchy Phantom
HIERREAD	Hierarchy Read Only	Hierarchy Read Only Role
HIERWRITE	Hierarchy Write	Hierarchy Write Role
IDMGMTACC	Identity MGMT access	Identity management access

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
IDMGMTADVN	Identity MGMT advanced	Identity management advanced
IDMGMTAUTH	Identity MGMT authorize	Identity management authorize
IDMGMTPHTM	Identity MGMT phantom	Identity management phantom
IDMGMTREAD	Identity MGMT read	Identity management read
IDMGMTWRIT	Identity MGMT write	Identity management write
INBOXACC	Inbox Access	Inbox Access
MAPPR_ACSS	Mapper Access	Mapper Access
MAPPR_ADVN	Mapper Advanced	Mapper Advanced
MAPPR_AUTH	Mapper Authorize	Mapper Authorize
MAPPR_PHNT	Mapper Phantom	Mapper Phantom
MAPPR_ROLY	Mapper Read Only	Mapper Read Only
MAPPR_WRIT	Mapper Write	Mapper Write
MDBACCESS	MDB Access	Metadata Browser Access
MDBREAD	MDB Read	Metadata Browser Read-only
MDBWRITE	MDB Write	Metadata Browser Write
METADMIN	Publish Metadata	Publish Metadata Role
MIGACC	Obj Migration Access	Object Migration Access Role
MIGADVND	Obj Migration Advanced	Object Migration Advanced Role
MIGAUTH	Obj Migration Authorize	Object Migration Authorize Role
MIGPHTM	Obj Migration Phantom	Object Migration Phantom Role
MIGREAD	Obj Migration Read	Object Migration Read-only Role
MIGWRITE	Obj Migration Write	Object Migration Write Role
MREACC	Manage Run Access	Manage Run Access Role
MREADVND	Manage Run Advanced	Manage Run Advanced Role
MREAUTH	Manage Run Authorize	Manage Run Authorize Role
MREPHTM	Manage Run Phantom	Manage Run Phantom
MREREAD	Manage Run Read Only	Manage Run Read Only Role

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
MREWRITE	Manage Run Write	Manage Run Write Role
OBJADMADV	ObjectAdmin advanced	ObjectAdmin advanced access
OJFFACC	OJFF Access	OJFF Access
OMEXADVND	Migration Export Advanced	Migration Export Advanced Role
OMEXPHTM	Migration Export Phantom	Migration Export Phantom Role
OMEXREAD	Migration Export Read	Migration Export Read-only Role
OMEXWRITE	Migration Export Write	Migration Export Write Role
OMIMADVND	Migration Import Advanced	Migration Import Advanced Role
OMIMPHTM	Migration Import Phantom	Migration Import Phantom Role
OMIMREAD	Migration Import Read	Migration Import Read-only Role
OMIMWRITE	Migration Import Write	Migration Import Write Role
PLCACCESS	PLC Access	User Group mapped will have access to Link and Summary
PLCADV	PLC Advanced	PLC Advanced Role
PLCAUTH	PLC Authorize	User Group mapped will have access to authorize the PLC
PLCPHANTOM	PLC Phantom	PLC Phantom Role
PLCREAD	PLC Read Only	User Group mapped will have access to View Definition.
PLCWRITE	PLC Write	User Group mapped will have access to add, edit, copy and delete PLC.
PTACC	Process Access	Process Access Role
PTADVND	Process Advanced	Process Advanced Role
PTAUTH	Process Authorize	Process Authorize Role
PTPHTM	Process Phantom	Process Phantom
PTREAD	Process Read Only	Process Read Only Role
PTWRITE	Process Write	Process Write Role
QADMINRL	ABC Qtnr Template Admn	ABC Qtnr Template Admn
QADMINVWRL	ABC Qtnr Template View	ABC Qtnr Template View
QLOCADMNRL	ABC Qtnr Loc Admin	ABC Qtnr Localized Admin

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
QLOCAUTHRL	ABC Qtnr Loc Auth	ABC Qtnr Localized Authorizer
QLOCVIEWRL	ABC Qtnr Loc View	ABC Qtnr Localized View
QSGNOFFRL	ABC Qtnr Sign Off	ABC Qtnr Sign Off
QTMPADMNRL	ABC Qtnr Tmpl Admin	ABC Qtnr Template Admin
QTMPVIEWRL	ABC Qtnr Tmpl View	ABC Qtnr Template View
QTNRADMNRL	ABC Qtnr Admin	ABC Qtnr Admin
QTNRCONFRL	QtnrConfiguration Execute	QtnrConfiguration Execute
QTNRCONIRL	ABC Qtnr Confidential	ABC Qtnr Confidential
QUESTMATRL	ABC Qtnr Maintenance	ABC Qtnr Maintenance
READLOG	READ LOG	Excution View Log Reader
RESTRACC	Restructure Access	Restructure Access
RESTREXEC	Restructure Execute	Restructure Execute
RESTRMOD	Restructure Edit	Restructure Edit
RESTRREAD	Restructure Read	Restructure Read
RESTRSUMM	Restructure Summary	Restructure Summary
RESTRWRITE	Restructure Write	Restructure Write
RLACC	Rule Access	Rule Access Role
RLADVND	Rule Advanced	Rule Advanced Role
RLAUTH	Rule Authorize	Rule Authorize Role
RLPHTM	Rule Phantom	Rule Phantom
RLREAD	Rule Read Only	Rule Read Only Role
RLWRITE	Rule Write	Rule Write Role
RNACC	Run Access	Run Access Role
RNADVND	Run Advanced	Run Advanced Role
RNAUTH	Run Authorize	Run Authorize Role
RNPHTM	Run Phantom	Run Phantom
RNREAD	Run Read Only	Run Read Only Role
RNWRITE	Run Write	Run Write Role
ROLREPACC	User Role Report Screen	User Role Report Screen Access
RTIADMIN	IPE Write	IPE Write
SCDACCESS	SCD Access	User Group mapped will have access to SCD Link and Summary

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
SCDADV	SCD Advanced	SCD Advanced Role
SCDAUTH	SCD Authorize	User Group mapped will have access to authorize the SCD
SCDPHANTOM	SCD Phantom	SCD Phantom
SCDREAD	SCD Read Only	User Group mapped will have access to View SCD
SCDWRITE	SCD Write	User Group mapped will have access to add, edit, copy and delete SCD.
SRCACCESS	Data Source Access	User Group mapped will have access to Link and Summary
SRCADV	Data Source Advanced	Data Source Advanced Role
SRCAUTH	Data Source Authorize	User Group mapped will have access to authorize the Data Source
SRCPHANTOM	Data Source Phantom	Data Source Phantom
SRCREAD	Data Source Read Only	User Group mapped will have access to View Definition.
SRCWRITE	Data Source Write	User Group mapped will have access to add, edit, copy and delete Data Source.
STFACC	STF Access	Stress Testing Framework Access Role
STFADVND	STF Advanced	Stress Testing Framework Advanced Role
STFAUTH	STF Authorize	Stress Testing Framework Authorize Role
STFPHTM	STF Phantom	Stress Testing Framework Phantom Role
STFREAD	STF Read	Stress Testing Framework Read-only Role
STFWRITE	STF Write	Stress Testing Framework Write Role
SYSADMNACC	System admin access	Identity management access
SYSADMNADV	System admin advanced	System administration advanced
SYSADMNAU	System admin authorize	System configuration authorize
SYSADMNPHT	System admin phantom	System administration phantom
SYSADMNRD	System admin read	System administration read
SYSADMNWR	System admin write	System administration write
SYSAMHM	Fusion AMHM Admin	Fusion Dimension Maintenance Admin Role
SYSAMHMUMM	Fusion AMHM UMM Map Admin	Fusion UMM Maintenance Admin Role
SYSEXPN	Fusion Expressions Admin	Fusion Expressions Admin Role

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
SYSFILTERS	Fusion Filters Admin	Fusion Filters Admin Role
UAMADMNACC	UAM AdminActivity Report	UAM AdminActivity Report Screen Access
UDFACCESS	UDF Access	User Group mapped will have access to UDF Link and Summary
UDFADV	UDF Advanced	UDF Advanced Role
UDFAUTH	UDF Authorize	User Group mapped will have access to authorize the UDF
UDFPHANTOM	UDF Phantom	UDF Phantom
UDFREAD	UDF Read Only	User Group mapped will have access to View UDF.
UDFWRITE	UDF Write	User Group mapped will have access to add, edit, copy and delete UDF.
USRPOPACC	User Id Population Report	User Id Population Report Screen Access
WFACC	Workflow Access	Workflow Access
WFADMINACC	Process Admin User	Process Admin User
WFADV	Workflow Advanced	Workflow Advanced
WFAUTH	Workflow Authorize	Workflow Authorize
WFDELACC	Process Delegation User	Process Delegation User
WFDELGADM	Workflow Delegation Admin	Workflow Delegation Admin
WFMACC	Workflow Monitor Access	Workflow Monitor Access
WFMWRITE	Manage Workflow Monitor	Manage Workflow Monitors
WFREAD	Workflow Read	Workflow Read
WFWRITE	Workflow Write	Workflow Write
XLATMACCES	Atomic excel access	Atomic schema excel upload access
XLATMADVNC	Atomic excel advanced	Atomic schema excel upload advanced
XLATMAUTH	Atomic excel authorize	Atomic schema excel upload authorize
XLATMPHTM	Atomic excel phantom	Atomic schema excel upload phantom
XLATMREAD	Atomic excel upload read	Atomic schema excel upload read
XLATMWRITE	Atomic excel upload write	Atomic schema excel upload write

V_ROLE_CODE	V_ROLE_NAME	V_ROLE_DESC
XLCNFADVNC	Config excel advanced	Configuration schema excel upload and download access

17.3 OFS Analytical Applications Infrastructure Functions

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
ACCPURGE	Purge Access	Function For Purge Access
ADAPTERS	Run Adapters	The user mapped to this function will have rights to run reveleus adapters
ADDMRE	Add Manage Run	The user mapped to this function can add the request for run execution
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
ADD_F_KBD	Add Flexible KBD	The user mapped to this function can add Flexible KBD
ADD_RESTR	Add Restructure	The user mapped to this function can add Restructure
ADD_WF	Add Workflow and Process Definitions	The user mapped to this function can Create New Workflow and Process definitions
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
ALDLINK	Essbase Cube Link	Essbase Cube Link
ALDMOD	Modify Cube	The user mapped to this function can modify cubes
ALDSUMM	Essbase Cube Summary	Essbase Cube Summary
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

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
ALSLINK	Alias Link	Alias Link
ALSMOD	Modify Alias	The user mapped to this function can modify Alias
ALSSUMM	Alias Summary	Alias Summary
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
ARCPROCES	Archive Process	The user mapped to this function can archive the process tree
ARCRULE	Archive Rule	The user mapped to this function can archive the Rule
ARCRUN	Archive Run	The user mapped to this function can archive the Run
ATHPROCESS	Authorize Process Tree	The user mapped to this function can authorize Process Tree
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
ATH_F_KBD	Authorize Flexible KBD	The user mapped to this function can authorize Flexible KBD
AUDTR	Audit Trail Report	This function displays Report for audit summary
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
AUTH_WF	Authorize Access to Workflow and Process	The user mapped to this function can Authorize the Workflow and Process Definition
BATPRO	Batch Processing	The user mapped to this function will have rights to process batch
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 Exceute 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

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
BPROCDEL	Delete Business Processor	The user mapped to this function can delete business processors
BPROCLINK	Business Processor Link	Business Processor Link
BPROCMOD	Modify Business Processor	The user mapped to this function can modify business processors
BPROCSUMM	Business Processor Summary	Business Processor Summary
BPROCVIW	View Business Processor	The user mapped to this function can view business processors
CATADD	Add Catalog	This function gives access to add a Catalog.
CATARCH	Archive Catalog	This function gives access to archive a Catalog.
CATAUTH	Authorize Catalog	This function gives access to authorize a Catalog.
CATCOMP	Compare Catalog	This function gives access to compare a Catalog.
CATCOPY	Copy Catalog	This function gives access to copy a Catalog.
CATDWN	Download Catalog	This function gives access to download a Catalog.
CATEDIT	Edit Catalog	This function gives access to edit a Catalog.
CATEXP	Export Catalog	This function gives access to export a Catalog.
CATGEN	Generate Catalog	This function gives access to generate a Catalog.
CATIGNACC	Ignore Catalog Access	This function gives access to ignore a Catalog access.
CATIGNLCK	Ignore Catalog Lock	This function gives access to ignore a Catalog lock.
CATLAT	Latest Catalog	This function gives access to make a Catalog latest.
CATLINK	Catalog Link	This Function gives user access to the LHS link.
CATLOCK	Lock Catalog	This function gives access to lock a Catalog.
CATPUB	Publish Catalog	This function gives access to publish a Catalog.
CATPURGE	Purge Catalog	This function gives access to purge a Catalog.
CATREM	Remove Catalog	This function gives access to remove a Catalog.
CATREST	Restore Catalog	This function gives access to restore a Catalog.
CATSUM	Catalog Summary	This function gives summary page access to the mapped user.
CATTOKEN	Catalog Token	This function gives access to tokens of a Catalog.
CATTRACE	Trace Catalog	This function gives access to trace a Catalog.
CATVIEW	View Catalog	This function gives access to view a Catalog.
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

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
CMPPROCESS	Compare Process	The user mapped to this function can compare the process tree
CMPRULE	Compare Rule	The user mapped to this function can compare the rules
CMPRUN	Compare Run	The user mapped to this function can compare the run
CONFXLADMN	Config ExcelUpload	The user mapped to this funciton can upload data to Config schema tables
CPYPROCESS	Copy Process Tree	The user mapped to this function can copy Process Tree
CPYRULE	Copy Rule	The user mapped to this function can copy Rule
CPYRUN	Copy Run	The user mapped to this function can copy Run
CRTMAPADV	Create Map Advanced	The user mapped to this function will have rights to the advanced options of map maintenance
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
DATASEC	Data Security	Function to see non-redacted data
DATASECADV	Data Security Advanced	Function to execute the redaction policy batch
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
DATLINK	Dataset Link	Dataset Link
DATMOD	Modify Dataset	The user mapped to this function can modify datasets
DATSUMM	Dataset Summary	Dataset Summary

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
DATVIW	View Dataset	The user mapped to this function can view datasets
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
DCLSADD	Add Data Cluster	This function gives access to add a Data Cluster
DCLSCOPY	Copy Data Cluster	This function gives access to copy a Data Cluster
DCLSEDIT	Edit PData Cluster	This function gives access to edit a Data Cluster
DCLSPURGE	Purge Data Cluster	This function gives access to purge a Data Cluster
DCLSVIEW	View Data Cluster	This function gives access to view a Data Cluster
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
DEELINK	Derived Entity Link	Derived Entity Link
DEEMOD	Modify Derived Entities	The user mapped to this function can modify derived entities
DEESUMM	Derived Entity Summary	Derived Entity Summary
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
DEFAUTH	Forms Autorization	The user mapped to this function will have rights to authorize the DEFQ forms
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
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

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
DEL_MAP	Delete Map	The user mapped to this function can DELETE Map definitions
DEL_WF	Delete Workflow and Process Definitions	The user mapped to this function can Delete Workflow and Process definitions
DEPRE_ACC	Dummy Menu	Dummy Menu
DIMADD	Add Dimension	The user mapped to this function can add dimensions
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
DIMLINK	Business Dimension Link	Business Dimension Link
DIMMOD	Modify Dimension	The user mapped to this function can modify dimensions
DIMSUMM	Business Dimension Summary	Business Dimension Summary
DIMVIW	View Dimension	The user mapped to this function can view dimensions
DMADD	Add Data Mapping	This function gives access to add a Data Mapping
DMAUTH	Authorize Data Mapping	This function gives access to authorize a Data Mapping
DMCONFEDIT	Data Management Configuration Edit	This Function gives user access to add/edit a DMT Configuration Property.
DMCONFSUMM	Data Management Configuration	This Function gives user access to the DMT Configuration Summary.
DMCOPY	Copy Data Mapping	This function gives access to copy a Data Mapping
DMDEL	Delete Data Mapping	This function gives access to delete a Data Mapping
DMEDIT	Edit PData Mapping	This function gives access to edit a Data Mapping
DMLAT	Make Latest Data Mapping	This function gives access to make latest a Data Mapping
DMMFILEUPL	Model Xml Upload	The user mapped to this function can upload Erwin Model File for Model Upload
DMPURGE	Purge Data Mapping	This function gives access to purge a Data Mapping
DMSUMM	Data Mapping Summary	This Function gives user access to the Data Mapping Summary and LHS Link.
DMTDFM	Data File Mapping Screen	The user mapped to this function can access the Data File Mapping Screen
DMTDM	Data Mapping Screen	The user mapped to this function can access the Data Mapping Screen

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
DMTSRC	Data Sources Screen	The user mapped to this function can access the Data Sources Screen
DMTUDF	UDF Screen	The user mapped to this function can access the UDF Screen
DMVIEW	View Data Mapping	This function gives access to view a Data Mapping
DMVIEWSQL	View SQL Data Mapping	This function gives access to view/validate a Data Mapping/File Mapping SQL
DPPDEL	**Delete DMT Performance Params**	**This function gives access to delete a DMT Performance Parameters**
DPPEDIT	**Edit DMT Performance Params**	**This function gives access to edit a DMT Performance Parameters**
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 Authorisation Rule	The user mapped to this function can authorise 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_LNK_ACC	Data Quality Link Access	The user mapped to this function can access the DQ Links
DQ_QRY_VIW	Data Quality View Query	The user mapped to this function can generate the rule query and view the generated query.
DQ_SUMM	Data Quality Summary Access	The user mapped to this function can access the DQ Summary Pages
DQ_VIW	Data Quality View Rule	The user mapped to this function can view DQ Rule
EDIT_WF	Edit Workflow and Process Definitions	The user mapped to this function can Edit Workflow and Process definitions

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
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
ETLUSR	DI User	The user mapped to this function will be a Data Integrator user
EXEC_RESTR	Execute Restructure	The user mapped to this function can execute Restructure Process
EXEPROCESS	Exexute Process	The user mapped to this function can execute process tree
EXERULE	Exexute Rule	The user mapped to this function can execute rules
EXERUN	Exexute Run	The user mapped to this function can execute run
EXEVIEWLOG	Execution Log Viewer	Screen For execution view log
EXPMD	Export Metadata	The user mapped to this function can Export Metadata
EXTPROCESS	Export Process	The user mapped to this function can export process tree
EXTRULE	Export Rule	The user mapped to this function can export Rule
EXTRUN	Export Run	The user mapped to this function can export Run
FFWSCREEN	Forms Renderer Screen	Forms Renderer Screen
FILTERRULE	Filters in Rule	The user mapped to this function can apply filters to the rules
FLOCADMFN	ABC Questionnaire Localised Admin	ABC Questionnaire Localised Admin
FLOCAUTHFN	ABC Questionnaire Loc Auth	ABC Questionnaire Loc Auth
FLOCVIEWFN	ABC Questionnaire Loc View	ABC Questionnaire Loc View
FRMMGR	Forms Manager	The user mapped to this function can use Forms Manager
FTMPLADMFN	ABC Questionnaire Template Admin	ABC Questionnaire Template Admin
FTMPLVIEWF	ABC Questionnaire Template View	ABC Questionnaire Template View
FUNCMAINT	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

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
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 Expns Home Page	The user mapped to this function can view Expressions Home Page
FU_EXP_IGN	Fusion Expression Ignore Access	The user mapped to this function can ignore the access type for Expression
FU_EXP_LNK	Fusion Expressions Link	The user mapped to this function can view Expression Summary Page in LHS Menu
FU_EXP_VIW	Fusion View Expressions	The user mapped to this function can View Expressions
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_IGN	Fusion Filters Ignore Access	The user mapped to this function can ignore the access type for Filters
FU_FIL_LNK	Fusion Filters Link	The user mapped to this function can access Fusion Filters Summary Link

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
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_GP_VIW	Global Preferences View	The user mapped to this function can view Global Preferences
FU_HBR_ADD	Fusion Hier Browser Add	The user mapped to this function can add member in AMHM Hierarchy Browser
FU_HBR_DEL	Fusion Hier Browser Delete	The user mapped to this function can delete member in AMHM Hierarchy Browser
FU_HBR_EDT	Fusion Hier Browser Edit	The user mapped to this function can edit in AMHM Hierarchy Browser
FU_HBR_SMY	Fusion Hier Browser Summary	The user mapped to this function can use shared folder in AMHM Hierarchy Browser
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_IGN	Fusion Hierarchy Ignore Access	The user mapped to this function can ignore the access type for Hierarchies
FU_HIE_LNK	Fusion Hierarchy Link	The user mapped to this function can view Hierarchy Summary Page Link in LHS Menu
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
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

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
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 RulesetCopy 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_SUM	Object Migration Summary Page	The user mapped to this function can view ruleset summary
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
F_KBD_LINK	Flexible KBD Link	The user mapped to this function can see the Flexible KBD Link
F_KBD_SUM	Flexible KBD Summary	The user mapped to this function can view summary of Flexible KBD
GMVDEF	GMV Definition	The user mapped to this function can view/add the General Market Variable definitions
GSTMNU	Menu for Guest User	Menu for Guest User
HCYADD	Add Hierarchy	The user mapped to this function can add hierarchies

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
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
HCYLINK	Business Hierarchy Link	Business Hierarchy Link
HCYMOD	Modify Hierarchy	The user mapped to this function can modify hierarchies
HCYSUMM	Business Hierarchy Summary	Business Hierarchy Summary
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
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
INBOXLINK	Link Access to Inbox	The user mapped to this function can open Inbox
IND	Information Domain	The user mapped to this function will have access to information domain details
LCKPROCESS	Lock Process	The user mapped to this function can lock process tree
LCKRULE	Lock Rule	The user mapped to this function can lock rules
LCKRUN	Lock Run	The user mapped to this function can lock run
LCK_F_KBD	Lock Flexible KBD	The user mapped to this function can lock Flexible KBD
LCK_RESTR	Lock Restructure	The user mapped to this function can lock Restructure
LINK_WF	Link Access to Workflow and Process Definitions	The user mapped to this function can See the Workflow and Process Orachestration Link
LOCDESC	Locale Desc Upload Screen	The user mapped to this function can access the Locale Desc Upload Screen
MAN_WF_M	Manage Workflow and Process Monitor	The user mapped to this function can Manage Workflow and Process Monitor
MAPLINK	Map Maintenance Link	Map Maintenance Link
MAPSUMM	Map Maintenance Summary	Map Maintenance Summary
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

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
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
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
METMAP	Map Metadata	The user mapped to this function can Map Metadata to Application
METPUB	Metadata Publish	The user mapped to this function can publish metadata
METVIW	View Metadata	The user mapped to this function can access metadata browser
MLPROCESS	Make Latest Process	The user mapped to this function can make latest Process
MLRULE	Make Latest Rule	The user mapped to this function can make latest rule
MLRUN	Make Latest Run	The user mapped to this function can make latest run
MODMRE	Modify Manage Run	The user mapped to this function can modify the request for run execution
MODPROCESS	Modify Process Tree	The user mapped to this function can modify Process Tree
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_F_KBD	Edit Flexible KBD	The user mapped to this function can edit Flexible KBD
MOD_MAP	Modify Map	The user mapped to this function can SAVE Map definitions
MOD_RESTR	Edit Restructure	The user mapped to this function can edit Restructure
MRELINK	Manage Run Link	The user mapped to this function can view the manage run link
MRESUM	Manage Run Summary	The user mapped to this function can view the manage run summary
MSRADD	Add Measure	The user mapped to this function can add measures
MSRATH	Authorize Measure	The user mapped to this function can authorize measures

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
MSRDEL	Delete Measure	The user mapped to this function will have rights to delete measures
MSRLINK	Business Measure Link	Business Measure Link
MSRMOD	Modify Measure	The user mapped to this function can modify measures
MSRSUMM	Business Measure Summary	Business Measure Summary
MSRVIW	View Measure	The user mapped to this function can view measures
OBJMGR_EXP	Export Objects	The user mapped to this function can Export Objects
OBJMGR_IMP	Import Objects	The user mapped to this function can Import Objects
OFSAAAI	FS Enterprise Modeling Access Code	The user mapped to this function can access Financial Services Enterprise Modeling Application
OFSIPE	FS Inline Processing Engine Access Code	The user mapped to this function can access Financial Services Inline Processing Engine Application
OJFFLINK	Access to OJET Forms Framework	The user mapped to this function can access OJET Forms Framework
OJFF_MASK	Access to OJET Forms Framework Masking	The user mapped to this function can access OJET Forms Framework Masking Screen
OLAPDETS	OLAP Details Screen	The user mapped to this function can access the OLAP Details Screen
OM_EX_ADD	Add Export Definitions	The user mapped to this function can add export definitions
OM_EX_COPY	Copy Export Definitions	The user mapped to this function can copy export definitions
OM_EX_DLTE	Delete Export Definitions	The user mapped to this function can delete export definitions
OM_EX_EDIT	Edit Export Definitions	The user mapped to this function can edit export definitions
OM_EX_TRGR	Trigger Export Definitions	The user mapped to this function can trigger export definitions
OM_EX_VIEW	View Export Definitions	The user mapped to this function can view export definitions
OM_IM_ADD	Add Import Definitions	The user mapped to this function can add import definitions
OM_IM_COPY	Copy Import Definitions	The user mapped to this function can copy import definitions
OM_IM_DLTE	Delete Import Definitions	The user mapped to this function can delete import definitions
OM_IM_EDIT	Edit Import Definitions	The user mapped to this function can edit import definitions

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
OM_IM_TRGR	Trigger Import Definitions	The user mapped to this function can trigger import definitions
OM_IM_VIEW	View Import Definitions	The user mapped to this function can view import definitions
OPRABORT	Batch Abort	The user mapped to this function can Abort Batch
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
OPRLINK	Batch Link	This function gives access to the LHS Link for Operations.
OPRMON	Batch Monitor	The user mapped to this function will have rights to monitor batches
OPRSCHEDUL	Schedule Batch	The user mapped to this function can schedule batches
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
ORACLINK	Oracle Cube Link	Oracle Cube Link
ORACSUMM	Oracle Cube Summary	Oracle Cube Summary
PATCHINFO	View Patch Information	The user mapped to this function can view list of all fixes/ patches applied
PBLPROCESS	Publish Process	The user mapped to this function can publish the process tree
PBLRULE	Publish Rule	The user mapped to this function can publish the rules
PBLRUN	Publish Run	The user mapped to this function can publish the run
PLCADD	Add Post Load Changes	This function gives access to add a PLC
PLCAUTH	Authorize Post Load Changes	This function gives access to authorize a PLC
PLCCOPY	Copy Post Load Changes	This function gives access to copy a PLC

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
PLCDEL	Delete Post Load Changes	This function gives access to delete a PLC
PLCEDIT	Edit Post Load Changes	This function gives access to edit a PLC
PLCGENLOG	Generate DT Logic	This function gives access to Generate the DT Logic
PLCLAT	Make Latest Post Load Changes	This function gives access to make latest a PLC
PLCPURGE	Purge Post Load Changes	This function gives access to purge a PLC
PLCSUMM	PLC Summary	This Function gives user access to the PLC Summary.
PLCVIEW	View Post Load Changes	This function gives access to view a PLC
PR2SCREEN	PR2 Screens	The user mapped to this function can access PR2 screens
PRGPROCESS	Purge Process	The user mapped to this function can purge the process tree
PRGRULE	Purge Rule	The user mapped to this function can purge the rules
PRGRUN	Purge Run	The user mapped to this function can purge the run
PROFMAINT	Profile Maintenance Screen	The user mapped to this function can access the Profile Maintenance Screen
PTIGNACC	Process Ignore Access	If Mapped the user will be able to add or remove access type restrictions on process object
PTIGNLCK	Process Ignore Lock	If mapped the user will be able to add of remove lock on process object
PTLINK	Process Link	The user mapped to this function can view the process link
PTSUM	Process Summary	The user mapped to this function can view the process summary
QADMINFN	ABC Questionnaire Template Admin Func	ABC Questionnaire Template Admin Func
QADMINVWFN	ABC Questionnaire Template View Func	ABC Questionnaire Template View Func
QCODMNUFN	ABC Qstnaire Coordn menu	Questionaire Co ordintor Menu
QCONFIDNFN	ABC Qtnr Confidential Func	ABC Questionnaire Confidential Function
QLOCADMFN	ABC Questionnaire Localised Admin Func	ABC Questionnaire Localised Admin Func
QLOCAUTFN	ABC Questionnaire Localised Auth Func	ABC Questionnaire Localised Auth Func

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
QLOCVIWFN	ABC Questionnaire Localised View Func	ABC Questionnaire Localised View Func
QSIGNOFFFN	ABC Questionnaire Signoff Func	ABC Questionnaire Signoff Func
QTNRADMFN	ABC Questionnaire Admin Func	ABC Questionnaire Admin Func
QTNRCONFFN	Configure Questionnaire Attributes	The user mapped to this function can execute QtnrConfiguration Process
REGRRFCOMP	Component Registration	The user mapped to this function can register Components for Rules Framework
RESTPASS	Restricted Passwords Screen	The user mapped to this function can access the Restricted Passwords Screen
RESTR_LINK	Restructure Link	The user mapped to this function can see the Restructure Link
RESTR_SUM	Restructure Summary	The user mapped to this function can view summary of Restructure
RLIGNACC	Rule Ignore Access	If Mapped the user will be able to add or remove access type restrictions on rule object
RLIGNLCK	Rule Ignore Lock	If mapped the user will be able to add of remove lock on rule object
RLLINK	Rule Link	The user mapped to this function can view the rule link
RLSETCFG	Rules Setup Configuration Screen	The user mapped to this function can access the Rules Setup Configuration Screen
RLSUM	Rule Summary	The user mapped to this function can view the rule summary
RNIGNACC	Run Ignore Access	If Mapped the user will be able to add or remove access type restrictions on run object
RNIGNLCK	Run Ignore Lock	If mapped the user will be able to add of remove lock on run object
RNLINK	Run Link	The user mapped to this function can view the run link
RNSUM	Run Summary	The user mapped to this function can view the run summary
ROLEMAINT	Role Maintenance Screen	The user mapped to this function can access the Role Maintenance Screen
RRFSCREEN	Rules Framework Screens	The user mapped to this function can access Rules Framework screens
RSTPROCESS	Restore Process	The user mapped to this function can restore the process tree
RSTRULE	Restore Rule	The user mapped to this function can restore the Rule

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
RSTRUN	Restore Run	The user mapped to this function can restore the Run
RTIACC	Real Time Infrastructure Function	Real Time Infrastructure Function
RTIASS	Real Time Assessment Access	Real Time Assessment Access
RTIEVAL	Real Time Evaluation Access	Real Time Evaluation Access
RTIPROF	Real Time Profile Access	Real Time Profile Access
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
SAVEMD	Save Metadata Screen	The user mapped to this function can access the Save Metadata Screen
SCDADD	Add SCD	This function gives access to add a Slowly Changing Dimension
SCDAUTH	Authorize SCD	This function gives access to authorize a Slowly Changing Dimension
SCDCOPY	Copy SCD	This function gives access to copy a Slowly Changing Dimension
SCDDEL	Delete SCD	This function gives access to delete a Slowly Changing Dimension
SCDEDIT	Edit SCD	This function gives access to edit a Slowly Changing Dimension
SCDLAT	Make Latest SCD	This function gives access to make latest a User Defined Function
SCDPURGE	Purge SCD	This function gives access to purge a Slowly Changing Dimension
SCDSUMM	SCD Summary	This Function gives user access to the Slowly Changing Dimension Summary
SCDVIEW	View SCD	This function gives access to view a Slowly Changing Dimension
SCNDEF	Scenario Definition	The user mapped to this function can define the scenarios
SCROPC	Operator Console	The user mapped to this function will have access to the operator console

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
SCRSAU	System Administrator Screen	The user mapped to this function can access system administrator screens
SCR_MDB	MDB Screen	The user mapped to this function can access the MDB screen
SEGMAINT	Segment Maintenance Screen	The user mapped to this function can access the Segment Maintenance Screen
SRCADD	Add Data Source	This function gives access to add a Data Source
SRCAUTH	Authorize Data Source	This function gives access to authorize a Data Source
SRCCOPY	Copy Data Source	This function gives access to copy a Data Source
SRCDEL	Delete Data Source	This function gives access to delete Data Source
SRCEDIT	Edit Data Source	This function gives access to edit a Data Source
SRCLAT	Make Latest Data Source	This function gives access to make latest a Data Source
SRCPURGE	Purge Data Source	This function gives access to purge a Data Source
SRCSUMM	Source Summary	This Function gives user access to the Data Source Summary
SRCVIEW	View Data Source	This function gives access to view a Data Source
STRESSDEF	Stress Definition	The user mapped to this function can define the stress
SUM_WF	Summary Access to Workflow and Process Definitions	The user mapped to this function can View Summary of Workflow and Process definitions
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
TASKCANCEL	Cancel Task	The user mapped to this function can Cancel Task
TECHAUTH	Authorize Technique	The user mapped to this function can authorize techniques
TECHDEF	Add Technique	The user mapped to this function can define techniques
TRANS_DOC	Access to Transfer Documents Ownership	The User mapped to this function will have access to Transfer Documents Ownership
TRCPROCESS	Trace Process	The user mapped to this function can trace process tree
TRCRULE	Trace Rule	The user mapped to this function can trace Rule
TRCRUN	Trace Run	The user mapped to this function can trace Run
UACCR	User Access Report	This function displays Report for user access rights
UADAR	User Admin Activity Report	This function displays Report for various activities of user

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
UAMADMNREP	UAM AdminActivity Reports Screen	The user mapped to this function can access the UAM AdminActivity Reports Screen
UATTR	User Attribute Report	This function displays Report for various user attributes
UDFADD	Add UDF	This function gives access to add an User Defined Function
UDFAUTH	Authorize UDF	This function gives access to authorize an User Defined Function
UDFCOPY	Copy UDF	This function gives access to copy an User Defined Function
UDFDEL	Delete UDF	This function gives access to delete an User Defined Function
UDFEDIT	Edit DUDF	This function gives access to edit an User Defined Function
UDFLAT	Make Latest UDF	This function gives access to make latest a User Defined Function
UDFPURGE	Purge UDF	This function gives access to purge an User Defined Function
UDFSUMM	UDF Summary	This Function gives user access to the User Defined Function Summary
UDFVIEW	View UDF	This function gives access to view an User Defined Function
UGDOMMAP	User Group Domain Map Screen	The user mapped to this function can access the User Group Domain Map Screen
UGFLROLMAP	User Group Folder Role Map Screen	The user mapped to this function can access the User Group Folder Role 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
UGROLMAP	User Group Role Map Screen	The user mapped to this function can access the User Group Role Map Screen
UPLOADSCN	Upload Scenario	The user mapped to this function can upload the scenario data
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

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
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
USRPOPREP	User Id Population Reports Screen	The user mapped to this function can access the User Id Population Reports Screen
USRPROFREP	User Profile Report Screen	The user mapped to this function can access the User Profile Report Screen
USRROLREP	User Role Reports Screen	The user mapped to this function can access the User Role Report Screen
USTATR	User Status Report	This function displays Report for deleted, disabled, logged in, authorised and idle users
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
VEU_MAP	View Map	The user mapped to this function can VIEW Map definitions
VIEWLOG	View log	The user mapped to this function will have rights to view log
VIEWMRE	View Manage Run	The user mapped to this function can view the request for run execution
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_F_KBD	View Flexible KBD	The user mapped to this function can view summary of Flexible KBD
VIEW_HOME	View APP landing home ccreen from Forms Framework	View APP landing home ccreen from Forms Framework
VIEW_RESTR	View Restructure	The user mapped to this function can view summary of Restructure
VIEW_WF	View Workflow and Process Definitions	The user mapped to this function can View Workflow and Process definitions
VIEW_WF_M	View Workflow and Process Monitor	The user mapped to this function can View Workflow and Process Monitor
WEBSRVR	Web Server Screen	The user mapped to this function can access the Web Server Screen

V_FUNCTION_CODE	V_FUNCTION_NAME	V_FUNCTION_DESC
WFADMLINK	Link Access to Process Admin	The user mapped to this function will have rights to open Process Admin
WFDELLINK	Link Access to Process Delegation	The user mapped to this function will have rights to open Process Delegation
WF_DLG_ADM	Delegation Admin	The user mapped to this function will have rights to be delegation admin
WRTPR_BAT	Write-Protected Batch Screen	The user mapped to this function can access the Write-Protected Batch Screen
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

17.4 OFS Analytical Applications Infrastructure Group - Role Mapping

GROUP NAME	ROLE CODE
Business Administrator	ALIAS_ACSS
Business Administrator	ALIAS_ADVN
Business Administrator	ALIAS_AUTH
Business Administrator	ALIAS_ROLY
Business Administrator	ALIAS_WRIT
Business Administrator	BATCH_ACSS
Business Administrator	BATCH_ADVN
Business Administrator	BATCH_AUTH
Business Administrator	BATCH_READ
Business Administrator	BATCH_WRIT
Business Administrator	BPROC_ACSS
Business Administrator	BPROC_ADVN
Business Administrator	BPROC_AUTH
Business Administrator	BPROC_ROLY
Business Administrator	BPROC_WRIT
Business Administrator	BUDIM_ACSS
Business Administrator	BUDIM_ADVN
Business Administrator	BUDIM_AUTH

GROUP NAME	ROLE CODE
Business Administrator	BUDIM_ROLY
Business Administrator	BUDIM_WRIT
Business Administrator	BUHCY_ACSS
Business Administrator	BUHCY_ADVN
Business Administrator	BUHCY_AUTH
Business Administrator	BUHCY_ROLY
Business Administrator	BUHCY_WRIT
Business Administrator	BUMSR_ACSS
Business Administrator	BUMSR_ADVN
Business Administrator	BUMSR_AUTH
Business Administrator	BUMSR_ROLY
Business Administrator	BUMSR_WRIT
Business Administrator	CATACC
Business Administrator	CATADV
Business Administrator	CATAUTH
Business Administrator	CATREAD
Business Administrator	CATWRITE
Business Administrator	DEFQACCESS
Business Administrator	DEFQREAD
Business Administrator	DEFQWRITE
Business Administrator	DI_ACCESS
Business Administrator	DI_READ
Business Administrator	DI_WRITE
Business Administrator	DMMACC
Business Administrator	DMMADVND
Business Administrator	DMMAUTH
Business Administrator	DMMREAD
Business Administrator	DMMWRITE
Business Administrator	DOCMGMTACC
Business Administrator	DOCMGMTADV
Business Administrator	DOCMGMTRD
Business Administrator	DOCMGMTWR
Business Administrator	DQACC

GROUP NAME	ROLE CODE
Business Administrator	DQADVND
Business Administrator	DQAUTH
Business Administrator	DQREAD
Business Administrator	DQWRITE
Business Administrator	DRENT_ACSS
Business Administrator	DRENT_ADVN
Business Administrator	DRENT_AUTH
Business Administrator	DRENT_ROLY
Business Administrator	DRENT_WRIT
Business Administrator	DTSET_ACSS
Business Administrator	DTSET_ADVN
Business Administrator	DTSET_AUTH
Business Administrator	DTSET_ROLY
Business Administrator	DTSET_WRIT
Business Administrator	DT_ACCESS
Business Administrator	DT_READ
Business Administrator	DT_WRITE
Business Administrator	ESCUB_ACSS
Business Administrator	ESCUB_ADVN
Business Administrator	ESCUB_AUTH
Business Administrator	ESCUB_ROLY
Business Administrator	ESCUB_WRIT
Business Administrator	EXPACC
Business Administrator	EXPREAD
Business Administrator	EXPWRITE
Business Administrator	FFWACCESS
Business Administrator	FFWREAD
Business Administrator	FFWWRITE
Business Administrator	FILACC
Business Administrator	FILREAD
Business Administrator	FILWRITE
Business Administrator	FMCACCESS
Business Administrator	FMCREAD

GROUP NAME	ROLE CODE
Business Administrator	FMCWRITE
Business Administrator	F_KBDACC
Business Administrator	F_KBDAUTH
Business Administrator	F_KBDREAD
Business Administrator	F_KBDWRITE
Business Administrator	HBRACC
Business Administrator	HBRREAD
Business Administrator	HBRWRITE
Business Administrator	HIERACC
Business Administrator	HIERREAD
Business Administrator	HIERWRITE
Business Administrator	MAPPR_ACSS
Business Administrator	MAPPR_ADVN
Business Administrator	MAPPR_AUTH
Business Administrator	MAPPR_ROLY
Business Administrator	MAPPR_WRIT
Business Administrator	MDBACCESS
Business Administrator	MDBREAD
Business Administrator	MDBWRITE
Business Administrator	MIGACC
Business Administrator	MIGADVND
Business Administrator	MIGAUTH
Business Administrator	MIGREAD
Business Administrator	MIGWRITE
Business Administrator	MREACC
Business Administrator	MREADVND
Business Administrator	MREAUTH
Business Administrator	MREREAD
Business Administrator	MREWRITE
Business Administrator	ORCUB_ACSS
Business Administrator	ORCUB_ADVN
Business Administrator	ORCUB_AUTH
Business Administrator	ORCUB_ROLY

GROUP NAME	ROLE CODE
Business Administrator	ORCUB_WRIT
Business Administrator	PTACC
Business Administrator	PTADVND
Business Administrator	PTAUTH
Business Administrator	PTREAD
Business Administrator	PTWRITE
Business Administrator	RESTRACC
Business Administrator	RESTREXEC
Business Administrator	RESTRMOD
Business Administrator	RESTRREAD
Business Administrator	RESTRSUMM
Business Administrator	RESTRWRITE
Business Administrator	RLACC
Business Administrator	RLADVND
Business Administrator	RLAUTH
Business Administrator	RLREAD
Business Administrator	RLWRITE
Business Administrator	RNACC
Business Administrator	RNADVND
Business Administrator	RNAUTH
Business Administrator	RNREAD
Business Administrator	RNWRITE
Business Administrator	WFACC
Business Administrator	WFMACC
Business Administrator	WFMWRITE
Business Administrator	WFREAD
Business Administrator	WFWRITE
Business Administrator	XLATMACCES
Business Administrator	XLATMREAD
Business Administrator	XLATMWRITE
Business Administrator	XLCNFADVNC
Business Authorizer	ALIAS_ACSS
Business Authorizer	ALIAS_AUTH

GROUP NAME	ROLE CODE
Business Authorizer	ALIAS_ROLY
Business Authorizer	BATCH_ACSS
Business Authorizer	BATCH_AUTH
Business Authorizer	BATCH_READ
Business Authorizer	BPROC_ACSS
Business Authorizer	BPROC_AUTH
Business Authorizer	BPROC_ROLY
Business Authorizer	BUDIM_ACSS
Business Authorizer	BUDIM_AUTH
Business Authorizer	BUDIM_ROLY
Business Authorizer	BUHCY_ACSS
Business Authorizer	BUHCY_AUTH
Business Authorizer	BUHCY_ROLY
Business Authorizer	BUMSR_ACSS
Business Authorizer	BUMSR_AUTH
Business Authorizer	BUMSR_ROLY
Business Authorizer	CATACC
Business Authorizer	CATAUTH
Business Authorizer	CATREAD
Business Authorizer	DEFQAUTH
Business Authorizer	DI_ACCESS
Business Authorizer	DI_READ
Business Authorizer	DMMACC
Business Authorizer	DMMAUTH
Business Authorizer	DMMREAD
Business Authorizer	DOCMGMTAUT
Business Authorizer	DQACC
Business Authorizer	DQAUTH
Business Authorizer	DQREAD
Business Authorizer	DRENT_ACSS
Business Authorizer	DRENT_AUTH
Business Authorizer	DRENT_ROLY
Business Authorizer	DTSET_ACSS

GROUP NAME	ROLE CODE
Business Authorizer	DTSET_AUTH
Business Authorizer	DTSET_ROLY
Business Authorizer	DT_ACCESS
Business Authorizer	DT_READ
Business Authorizer	ESCUB_ACSS
Business Authorizer	ESCUB_AUTH
Business Authorizer	ESCUB_ROLY
Business Authorizer	EXPACC
Business Authorizer	EXPREAD
Business Authorizer	FFWAUTH
Business Authorizer	FILACC
Business Authorizer	FILREAD
Business Authorizer	FMCAUTH
Business Authorizer	F_KBDACC
Business Authorizer	F_KBDAUTH
Business Authorizer	F_KBDREAD
Business Authorizer	HBRACC
Business Authorizer	HBRREAD
Business Authorizer	HIERACC
Business Authorizer	HIERREAD
Business Authorizer	MAPPR_ACSS
Business Authorizer	MAPPR_AUTH
Business Authorizer	MAPPR_ROLY
Business Authorizer	MIGACC
Business Authorizer	MIGAUTH
Business Authorizer	MIGREAD
Business Authorizer	MREACC
Business Authorizer	MREAUTH
Business Authorizer	MREREAD
Business Authorizer	ORCUB_ACSS
Business Authorizer	ORCUB_AUTH
Business Authorizer	ORCUB_ROLY
Business Authorizer	PTACC

GROUP NAME	ROLE CODE
Business Authorizer	PTAUTH
Business Authorizer	PTREAD
Business Authorizer	RESTRACC
Business Authorizer	RESTREXEC
Business Authorizer	RESTRREAD
Business Authorizer	RESTRSUMM
Business Authorizer	RLACC
Business Authorizer	RLAUTH
Business Authorizer	RLREAD
Business Authorizer	RNACC
Business Authorizer	RNAUTH
Business Authorizer	RNREAD
Business Authorizer	WFACC
Business Authorizer	WFAUTH
Business Authorizer	WFREAD
Business Authorizer	XLATMAUTH
Business Owner	ALIAS_ACSS
Business Owner	ALIAS_ROLY
Business Owner	ALIAS_WRIT
Business Owner	BATCH_ACSS
Business Owner	BATCH_READ
Business Owner	BATCH_WRIT
Business Owner	BPROC_ACSS
Business Owner	BPROC_ROLY
Business Owner	BPROC_WRIT
Business Owner	BUDIM_ACSS
Business Owner	BUDIM_ROLY
Business Owner	BUDIM_WRIT
Business Owner	BUHCY_ACSS
Business Owner	BUHCY_ROLY
Business Owner	BUHCY_WRIT
Business Owner	BUMSR_ACSS
Business Owner	BUMSR_ROLY

GROUP NAME	ROLE CODE
Business Owner	BUMSR_WRIT
Business Owner	CATACC
Business Owner	CATREAD
Business Owner	CATWRITE
Business Owner	DEFQACCESS
Business Owner	DEFQREAD
Business Owner	DEFQWRITE
Business Owner	DI_ACCESS
Business Owner	DI_READ
Business Owner	DI_WRITE
Business Owner	DMMACC
Business Owner	DMMREAD
Business Owner	DMMWRITE
Business Owner	DOCMGMTACC
Business Owner	DOCMGMTRD
Business Owner	DOCMGMTWR
Business Owner	DQACC
Business Owner	DQREAD
Business Owner	DQWRITE
Business Owner	DRENT_ACSS
Business Owner	DRENT_ROLY
Business Owner	DRENT_WRIT
Business Owner	DTSET_ACSS
Business Owner	DTSET_ROLY
Business Owner	DTSET_WRIT
Business Owner	DT_ACCESS
Business Owner	DT_READ
Business Owner	DT_WRITE
Business Owner	ESCUB_ACSS
Business Owner	ESCUB_ROLY
Business Owner	ESCUB_WRIT
Business Owner	EXPACC
Business Owner	EXPREAD

GROUP NAME	ROLE CODE
Business Owner	EXPWRITE
Business Owner	FFWACCESS
Business Owner	FFWREAD
Business Owner	FFWWRITE
Business Owner	FILACC
Business Owner	FILREAD
Business Owner	FILWRITE
Business Owner	FMCACCESS
Business Owner	FMCREAD
Business Owner	FMCWRITE
Business Owner	F_KBDACC
Business Owner	F_KBDREAD
Business Owner	F_KBDWRITE
Business Owner	HBRACC
Business Owner	HBRREAD
Business Owner	HBRWRITE
Business Owner	HIERACC
Business Owner	HIERREAD
Business Owner	HIERWRITE
Business Owner	MAPPR_ACSS
Business Owner	MAPPR_ROLY
Business Owner	MAPPR_WRIT
Business Owner	MDBACCESS
Business Owner	MDBREAD
Business Owner	MDBWRITE
Business Owner	MIGACC
Business Owner	MIGREAD
Business Owner	MIGWRITE
Business Owner	MREACC
Business Owner	MREREAD
Business Owner	MREWRITE
Business Owner	ORCUB_ACSS
Business Owner	ORCUB_ROLY

GROUP NAME	ROLE CODE
Business Owner	ORCUB_WRIT
Business Owner	PTACC
Business Owner	PTREAD
Business Owner	PTWRITE
Business Owner	RESTRACC
Business Owner	RESTRREAD
Business Owner	RESTRSUMM
Business Owner	RESTRWRITE
Business Owner	RLACC
Business Owner	RLREAD
Business Owner	RLWRITE
Business Owner	RNACC
Business Owner	RNREAD
Business Owner	RNWRITE
Business Owner	WFACC
Business Owner	WFMACC
Business Owner	WFMWRITE
Business Owner	WFREAD
Business Owner	WFWRITE
Business Owner	XLATMACCES
Business Owner	XLATMREAD
Business Owner	XLATMWRITE
Business Owner	XLCNFADVNC
Business User	ALIAS_ACSS
Business User	ALIAS_ROLY
Business User	BATCH_ACSS
Business User	BATCH_READ
Business User	BPROC_ACSS
Business User	BPROC_ROLY
Business User	BUDIM_ACSS
Business User	BUDIM_ROLY
Business User	BUHCY_ACSS
Business User	BUHCY_ROLY

GROUP NAME	ROLE CODE
Business User	BUMSR_ACSS
Business User	BUMSR_ROLY
Business User	CATACC
Business User	CATREAD
Business User	DEFQACCESS
Business User	DEFQREAD
Business User	DI_ACCESS
Business User	DI_READ
Business User	DMMACC
Business User	DMMREAD
Business User	DOCMGMTACC
Business User	DOCMGMTRD
Business User	DQACC
Business User	DQREAD
Business User	DRENT_ACSS
Business User	DRENT_ROLY
Business User	DTSET_ACSS
Business User	DTSET_ROLY
Business User	DT_ACCESS
Business User	DT_READ
Business User	ESCUB_ACSS
Business User	ESCUB_ROLY
Business User	EXPACC
Business User	EXPREAD
Business User	FFWACCESS
Business User	FFWREAD
Business User	FILACC
Business User	FILREAD
Business User	FMCACCESS
Business User	FMCREAD
Business User	F_KBDACC
Business User	F_KBDREAD
Business User	HBRACC

GROUP NAME	ROLE CODE
Business User	HBRREAD
Business User	HIERACC
Business User	HIERREAD
Business User	MAPPR_ACSS
Business User	MAPPR_ROLY
Business User	MDBACCESS
Business User	MDBREAD
Business User	MIGACC
Business User	MIGREAD
Business User	MREACC
Business User	MREREAD
Business User	ORCUB_ACSS
Business User	ORCUB_ROLY
Business User	PTACC
Business User	PTREAD
Business User	RESTRACC
Business User	RESTRMOD
Business User	RESTRREAD
Business User	RESTRSUMM
Business User	RLACC
Business User	RLREAD
Business User	RNACC
Business User	RNREAD
Business User	WFACC
Business User	WFREAD
Business User	WFWRITE
Business User	XLATMACCES
Business User	XLATMREAD
Data Controller	ALIAS_ACSS
Data Controller	ALIAS_ADVN
Data Controller	ALIAS_AUTH
Data Controller	ALIAS_PHNT
Data Controller	ALIAS_ROLY

GROUP NAME	ROLE CODE
Data Controller	ALIAS_WRIT
Data Controller	BATCH_ACSS
Data Controller	BATCH_ADVN
Data Controller	BATCH_AUTH
Data Controller	BATCH_PHNT
Data Controller	BATCH_READ
Data Controller	BATCH_WRIT
Data Controller	BPROC_ACSS
Data Controller	BPROC_ADVN
Data Controller	BPROC_AUTH
Data Controller	BPROC_PHNT
Data Controller	BPROC_ROLY
Data Controller	BPROC_WRIT
Data Controller	BUDIM_ACSS
Data Controller	BUDIM_ADVN
Data Controller	BUDIM_AUTH
Data Controller	BUDIM_PHNT
Data Controller	BUDIM_ROLY
Data Controller	BUDIM_WRIT
Data Controller	BUHCY_ACSS
Data Controller	BUHCY_ADVN
Data Controller	BUHCY_AUTH
Data Controller	BUHCY_PHNT
Data Controller	BUHCY_ROLY
Data Controller	BUHCY_WRIT
Data Controller	BUMSR_ACSS
Data Controller	BUMSR_ADVN
Data Controller	BUMSR_AUTH
Data Controller	BUMSR_PHNT
Data Controller	BUMSR_ROLY
Data Controller	BUMSR_WRIT
Data Controller	CATACC
Data Controller	CATADV

GROUP NAME	ROLE CODE
Data Controller	CATAUTH
Data Controller	CATPHAN
Data Controller	CATREAD
Data Controller	CATWRITE
Data Controller	DATASECURITYADMIN
Data Controller	DEFQACCESS
Data Controller	DEFQADVNC
Data Controller	DEFQAUTH
Data Controller	DEFQMAN
Data Controller	DEFQPHTM
Data Controller	DEFQREAD
Data Controller	DEFQWRITE
Data Controller	DI_ACCESS
Data Controller	DI_PHANTOM
Data Controller	DI_READ
Data Controller	DI_WRITE
Data Controller	DMMACC
Data Controller	DMMADVND
Data Controller	DMMAUTH
Data Controller	DMMPHTM
Data Controller	DMMREAD
Data Controller	DMMWRITE
Data Controller	DMTDFMACSS
Data Controller	DMTDMACSS
Data Controller	DMTSRCACSS
Data Controller	DMTUDFACSS
Data Controller	DOCMGMTACC
Data Controller	DOCMGMTADV
Data Controller	DOCMGMTAUT
Data Controller	DOCMGMTPHT
Data Controller	DOCMGMTRD
Data Controller	DOCMGMTWR
Data Controller	DQACC

GROUP NAME	ROLE CODE
Data Controller	DQADVND
Data Controller	DQAUTH
Data Controller	DQPHTM
Data Controller	DQREAD
Data Controller	DQWRITE
Data Controller	DRENT_ACSS
Data Controller	DRENT_ADVN
Data Controller	DRENT_AUTH
Data Controller	DRENT_PHNT
Data Controller	DRENT_ROLY
Data Controller	DRENT_WRIT
Data Controller	DTSET_ACSS
Data Controller	DTSET_ADVN
Data Controller	DTSET_AUTH
Data Controller	DTSET_PHNT
Data Controller	DTSET_ROLY
Data Controller	DTSET_WRIT
Data Controller	DT_ACCESS
Data Controller	DT_PHANTOM
Data Controller	DT_READ
Data Controller	DT_WRITE
Data Controller	ESCUB_ACSS
Data Controller	ESCUB_ADVN
Data Controller	ESCUB_AUTH
Data Controller	ESCUB_PHNT
Data Controller	ESCUB_ROLY
Data Controller	ESCUB_WRIT
Data Controller	ETLADM
Data Controller	EXPACC
Data Controller	EXPADVND
Data Controller	EXPAUTH
Data Controller	EXPPHTM
Data Controller	EXPREAD

GROUP NAME	ROLE CODE
Data Controller	EXPWRITE
Data Controller	FFWACCESS
Data Controller	FFWADVNC
Data Controller	FFWAUTH
Data Controller	FFWPHTM
Data Controller	FFWREAD
Data Controller	FFWWRITE
Data Controller	FILACC
Data Controller	FILADVND
Data Controller	FILAUTH
Data Controller	FILPHTM
Data Controller	FILREAD
Data Controller	FILWRITE
Data Controller	FMCACCESS
Data Controller	FMCADVNC
Data Controller	FMCAUTH
Data Controller	FMCPHTM
Data Controller	FMCREAD
Data Controller	FMCWRITE
Data Controller	F_KBDACC
Data Controller	F_KBDAUTH
Data Controller	F_KBDREAD
Data Controller	F_KBDWRITE
Data Controller	HBRACC
Data Controller	HBRADVND
Data Controller	HBRAUTH
Data Controller	HBRPHTM
Data Controller	HBRREAD
Data Controller	HBRWRITE
Data Controller	HIERACC
Data Controller	HIERADVND
Data Controller	HIERAUTH
Data Controller	HIERPHTM

GROUP NAME	ROLE CODE
Data Controller	HIERREAD
Data Controller	HIERWRITE
Data Controller	IDMGMTACC
Data Controller	IDMGMTADVN
Data Controller	IDMGMTAUTH
Data Controller	IDMGMTPHTM
Data Controller	IDMGMTREAD
Data Controller	IDMGMTWRIT
Data Controller	INBOXACC
Data Controller	MAPPR_ACSS
Data Controller	MAPPR_ADVN
Data Controller	MAPPR_AUTH
Data Controller	MAPPR_PHNT
Data Controller	MAPPR_ROLY
Data Controller	MAPPR_WRIT
Data Controller	MDBACCESS
Data Controller	MDBREAD
Data Controller	MDBWRITE
Data Controller	METADMIN
Data Controller	MFACC
Data Controller	MFADVND
Data Controller	MFAUTH
Data Controller	MFPHTM
Data Controller	MFREAD
Data Controller	MFWRITE
Data Controller	MIGACC
Data Controller	MIGADVND
Data Controller	MIGAUTH
Data Controller	MIGPHTM
Data Controller	MIGREAD
Data Controller	MIGWRITE
Data Controller	MREACC
Data Controller	MREADVND

GROUP NAME	ROLE CODE
Data Controller	MREAUTH
Data Controller	MREPHTM
Data Controller	MREREAD
Data Controller	MREWRITE
Data Controller	OBJADMADV
Data Controller	OJFFACC
Data Controller	ORCUB_ACSS
Data Controller	ORCUB_ADVN
Data Controller	ORCUB_AUTH
Data Controller	ORCUB_PHNT
Data Controller	ORCUB_ROLY
Data Controller	ORCUB_WRIT
Data Controller	PR2ADM
Data Controller	PTACC
Data Controller	PTADVND
Data Controller	PTAUTH
Data Controller	PTPHTM
Data Controller	PTREAD
Data Controller	PTWRITE
Data Controller	QADMINRL
Data Controller	QADMINVWRL
Data Controller	QLOCADMNRL
Data Controller	QLOCAUTHRL
Data Controller	QLOCVIEWRL
Data Controller	QSGNOFFRL
Data Controller	QTMPADMNRL
Data Controller	QTMPVIEWRL
Data Controller	QTNRADMNRL
Data Controller	QTNRCONFRL
Data Controller	QTNRCONIRL
Data Controller	QUESTMATRL
Data Controller	RESTRACC
Data Controller	RESTREXEC

GROUP NAME	ROLE CODE
Data Controller	RESTRMOD
Data Controller	RESTRREAD
Data Controller	RESTRSUMM
Data Controller	RESTRWRITE
Data Controller	RLACC
Data Controller	RLADVND
Data Controller	RLAUTH
Data Controller	RLPHTM
Data Controller	RLREAD
Data Controller	RLWRITE
Data Controller	RNACC
Data Controller	RNADVND
Data Controller	RNAUTH
Data Controller	RNPHTM
Data Controller	RNREAD
Data Controller	RNWRITE
Data Controller	ROLREPACC
Data Controller	RTIADMIN
Data Controller	STFACC
Data Controller	STFADVND
Data Controller	STFAUTH
Data Controller	STFPHTM
Data Controller	STFREAD
Data Controller	STFWRITE
Data Controller	SYSADMNACC
Data Controller	SYSADMNADV
Data Controller	SYSADMNAU
Data Controller	SYSADMNPHT
Data Controller	SYSADMNRD
Data Controller	SYSADMNWR
Data Controller	SYSAMHM
Data Controller	SYSAMHMUMM
Data Controller	SYSEXPN

GROUP NAME	ROLE CODE
Data Controller	SYSFILTERS
Data Controller	UAMADMNACC
Data Controller	USRPOPACC
Data Controller	WFACC
Data Controller	WFADMINACC
Data Controller	WFADV
Data Controller	WFAUTH
Data Controller	WFDELACC
Data Controller	WFDELGADM
Data Controller	WFMACC
Data Controller	WFMWRITE
Data Controller	WFREAD
Data Controller	WFWRITE
Data Controller	XLATMACCES
Data Controller	XLATMADVNC
Data Controller	XLATMAUTH
Data Controller	XLATMPHTM
Data Controller	XLATMREAD
Data Controller	XLATMWRITE
Data Controller	XLCNFADVNC
Guest	HBRACC
Guest	HIERACC
Guest	MAPPR_ACSS
Guest	MDBACCESS
Guest	MIGACC
Guest	MREACC
Guest	ORCUB_ACSS
Guest	PTACC
Guest	RESTRACC
Guest	RESTRSUMM
Guest	RLACC
Guest	RNACC
Guest	WFACC

GROUP NAME	ROLE CODE
Guest	WFREAD
Guest	XLATMACCES
Guest	ALIAS_ACSS
Guest	BATCH_ACSS
Guest	BPROC_ACSS
Guest	BUDIM_ACSS
Guest	BUHCY_ACSS
Guest	BUMSR_ACSS
Guest	CATACC
Guest	DEFQACCESS
Guest	DI_ACCESS
Guest	DMMACC
Guest	DOCMGMTACC
Guest	DQACC
Guest	DRENT_ACSS
Guest	DTSET_ACSS
Guest	DT_ACCESS
Guest	ESCUB_ACSS
Guest	EXPACC
Guest	FFWACCESS
Guest	FILACC
Guest	FMCACCESS
Guest	F_KBDACC
Identity Administrator	IDMGMTACC
Identity Administrator	IDMGMTADVN
Identity Administrator	IDMGMTPHTM
Identity Administrator	IDMGMTREAD
Identity Administrator	IDMGMTWRIT
Object Administrator	ALIAS_ACSS
Object Administrator	ALIAS_ADVN
Object Administrator	ALIAS_AUTH
Object Administrator	ALIAS_PHNT
Object Administrator	ALIAS_ROLY

GROUP NAME	ROLE CODE
Object Administrator	ALIAS_WRIT
Object Administrator	BATCH_ACSS
Object Administrator	BATCH_AUTH
Object Administrator	BATCH_PHNT
Object Administrator	BATCH_READ
Object Administrator	BATCH_WRIT
Object Administrator	BPROC_ACSS
Object Administrator	BPROC_ADVN
Object Administrator	BPROC_AUTH
Object Administrator	BPROC_PHNT
Object Administrator	BPROC_ROLY
Object Administrator	BPROC_WRIT
Object Administrator	BUDIM_ACSS
Object Administrator	BUDIM_ADVN
Object Administrator	BUDIM_AUTH
Object Administrator	BUDIM_PHNT
Object Administrator	BUDIM_ROLY
Object Administrator	BUDIM_WRIT
Object Administrator	BUHCY_ACSS
Object Administrator	BUHCY_ADVN
Object Administrator	BUHCY_AUTH
Object Administrator	BUHCY_PHNT
Object Administrator	BUHCY_ROLY
Object Administrator	BUHCY_WRIT
Object Administrator	BUMSR_ACSS
Object Administrator	BUMSR_ADVN
Object Administrator	BUMSR_AUTH
Object Administrator	BUMSR_PHNT
Object Administrator	BUMSR_ROLY
Object Administrator	BUMSR_WRIT
Object Administrator	CATACC
Object Administrator	CATADV
Object Administrator	CATAUTH

GROUP NAME	ROLE CODE
Object Administrator	CATPHAN
Object Administrator	CATREAD
Object Administrator	CATWRITE
Object Administrator	DEFQACCESS
Object Administrator	DEFQADVNC
Object Administrator	DEFQPHTM
Object Administrator	DEFQREAD
Object Administrator	DEFQWRITE
Object Administrator	DI_ACCESS
Object Administrator	DI_PHANTOM
Object Administrator	DI_READ
Object Administrator	DI_WRITE
Object Administrator	DMMACC
Object Administrator	DMMADVND
Object Administrator	DMMAUTH
Object Administrator	DMMPHTM
Object Administrator	DMMREAD
Object Administrator	DMMWRITE
Object Administrator	DOCMGMTACC
Object Administrator	DOCMGMTADV
Object Administrator	DOCMGMTPHT
Object Administrator	DOCMGMTRD
Object Administrator	DOCMGMTWR
Object Administrator	DQACC
Object Administrator	DQADVND
Object Administrator	DQAUTH
Object Administrator	DQPHTM
Object Administrator	DQREAD
Object Administrator	DQWRITE
Object Administrator	DRENT_ACSS
Object Administrator	DRENT_ADVN
Object Administrator	DRENT_AUTH
Object Administrator	DRENT_PHNT

GROUP NAME	ROLE CODE
Object Administrator	DRENT_ROLY
Object Administrator	DRENT_WRIT
Object Administrator	DTSET_ACSS
Object Administrator	DTSET_ADVN
Object Administrator	DTSET_AUTH
Object Administrator	DTSET_PHNT
Object Administrator	DTSET_ROLY
Object Administrator	DTSET_WRIT
Object Administrator	DT_ACCESS
Object Administrator	DT_PHANTOM
Object Administrator	DT_READ
Object Administrator	DT_WRITE
Object Administrator	ESCUB_ACSS
Object Administrator	ESCUB_ADVN
Object Administrator	ESCUB_AUTH
Object Administrator	ESCUB_PHNT
Object Administrator	ESCUB_ROLY
Object Administrator	ESCUB_WRIT
Object Administrator	EXPACC
Object Administrator	EXPPHTM
Object Administrator	EXPREAD
Object Administrator	EXPWRITE
Object Administrator	FFWACCESS
Object Administrator	FFWADVNC
Object Administrator	FFWPHTM
Object Administrator	FFWREAD
Object Administrator	FFWWRITE
Object Administrator	FILACC
Object Administrator	FILPHTM
Object Administrator	FILREAD
Object Administrator	FILWRITE
Object Administrator	FMCACCESS
Object Administrator	FMCADVNC

GROUP NAME	ROLE CODE
Object Administrator	FMCPHTM
Object Administrator	FMCREAD
Object Administrator	FMCWRITE
Object Administrator	HBRACC
Object Administrator	HBRREAD
Object Administrator	HBRWRITE
Object Administrator	HIERACC
Object Administrator	HIERPHTM
Object Administrator	HIERREAD
Object Administrator	HIERWRITE
Object Administrator	MAPPR_ACSS
Object Administrator	MAPPR_ADVN
Object Administrator	MAPPR_AUTH
Object Administrator	MAPPR_PHNT
Object Administrator	MAPPR_ROLY
Object Administrator	MAPPR_WRIT
Object Administrator	MDBACCESS
Object Administrator	MDBREAD
Object Administrator	MDBWRITE
Object Administrator	MIGACC
Object Administrator	MIGADVND
Object Administrator	MIGAUTH
Object Administrator	MIGPHTM
Object Administrator	MIGREAD
Object Administrator	MIGWRITE
Object Administrator	MREACC
Object Administrator	MREADVND
Object Administrator	MREAUTH
Object Administrator	MREPHTM
Object Administrator	MREREAD
Object Administrator	MREWRITE
Object Administrator	OBJADMADV
Object Administrator	ORCUB_ACSS

GROUP NAME	ROLE CODE
Object Administrator	ORCUB_ADVN
Object Administrator	ORCUB_AUTH
Object Administrator	ORCUB_PHNT
Object Administrator	ORCUB_ROLY
Object Administrator	ORCUB_WRIT
Object Administrator	PTACC
Object Administrator	PTADVND
Object Administrator	PTAUTH
Object Administrator	PTPHTM
Object Administrator	PTREAD
Object Administrator	PTWRITE
Object Administrator	RLACC
Object Administrator	RLADVND
Object Administrator	RLAUTH
Object Administrator	RLPHTM
Object Administrator	RLREAD
Object Administrator	RLWRITE
Object Administrator	RNACC
Object Administrator	RNADVND
Object Administrator	RNAUTH
Object Administrator	RNPHTM
Object Administrator	RNREAD
Object Administrator	RNWRITE
Object Administrator	XLATMACCES
Object Administrator	XLATMADVNC
Object Administrator	XLATMPHTM
Object Administrator	XLATMREAD
Object Administrator	XLATMWRITE
Object Administrator	XLCNFADVNC
System Administrator	SYSADMNACC
System Administrator	SYSADMNADV
System Administrator	SYSADMNAU
System Administrator	SYSADMNPHT

GROUP NAME	ROLE CODE
System Administrator	SYSADMNRD
System Administrator	SYSADMNWR
System Administrator	WFACC
System Administrator	WFMACC
System Administrator	WFMWRITE
System Administrator	WFREAD
System Administrator	WFWRITE
WorkFlow Delegation Admin	WFDELGADM

18 Appendix B: Frequently Asked Questions

1. **After upgrading to 8.0.8.0.0 version, why am I not able to view the option to upload Erwin XML file from client machine to server location?**

   For uploading Erwin XML file from client machine to server location, you should be mapped to DMMFILEUPLR User Role (function is DMMFILEUPL). For more information on mapping User Roles to User Groups, see User Group Role Map section.

   To upload Erwin XML file after mapping DMMFILEUPLR User Role to your User Group:

   a. From the *Business Model Upload* window, select **Erwin** as the **Upload Option**.

   b. Click **Save New ERwin File in Server**. The Save Erwin File dialog is displayed. Click **Choose File** and navigate to the location of the file and select the ERwin XML file.

   c. 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. For more details, see Model Upload Using Erwin section.

2. **After upgrading to 8.0.8.0.0 version, why am I not able to view the Generate Query button in New- DQ Definition window?**

   For generating and viewing the SQL Query of the Data Quality Rule, your user group should be mapped to DQQRYVIEWR User Role (function is DQ_QRY_VIW).

   To generate and view the Query after mapping DQQRYVIEWR User Role to your User Group:

   a. From the *New- DQ Definition* window, define the DQ Rule. For more information, see Data Quality Rule section.

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

   c. Click **Save**.

3. **After upgrading to 8.0.8.0.0 version, why am I not able to view the button to view the SQL Query of the Data Mapping definition?**

   For validating and viewing the SQL Query of the Data Mapping definition, you should be mapped to DI Advanced User Role DIADV (function is DMVIEWSQL). For more information on mapping User Roles to User Groups, see User Group Role Map section.

   To view and validate the Data Mapping definition, after mapping DIADV User Role to your User Group:

   a. From the *Data Mapping* window, specify the Data Mapping details and select the required Entities. For more information, see Define Data Mapping to Table section.

   b. Click button to define Expressions, Join conditions, or Filters on Source. In the *Expression* window, click **Show Advanced Options**.

   c. 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.

   d. Click button to view SQL, which acts as print command for the complete query.

> **NOTE** The Definition Query in case of RDBMS will be validated on save irrespective of this flag. However the SQL errors, if any, will not be shown in the UI.

4. **After upgrading to 8.0.8.0.0 version, why am I not able to view the button to generate Logic and view the SQL Query of the Post Load Changes definition?**

   For generating Logic and viewing the SQL Query of the Post Load Changes definition, you should be mapped User Role DTAdvanced DTADV (function is DTGENLOG). For more information on mapping User Roles to User Groups, see User Group Role Map section.

   To generate logic and view SQL query of the Post Load Changes definition, after mapping DTADV User Role to your User Group:

   a. From the *Post Load Changes* window, click **Expression Generator** after defining Transformation details and parameters.

   b. In the Expression Generator grid:

   — 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.

   For more information, see Post Load Changes section.

   For FAQs related to DMT Metadata Migration Utility, see FAQ section in OFSAA DMT Metadata Migration Guide.

5. **While executing T2T in Direct mode, I am getting the following error:**

   ```
   Error Msg :-> ORA-00913: too many values
   ```

   What shall I do?

   In T2T Direct mode, in case of indexed tables and no duplicate data in source, there will be an ORA error (`ORA-00913`) in the logs which can be ignored.