

Oracle Financial Services Model Management and Governance

User Guide

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February 2021

ORACLE
Financial Services

OFS Model Management and Governance User Guide

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1 Preface

This preface provides information for the Oracle Financial Services Model Management and Governance application (OFS MMG) User Guide.

Topics:

- [Access to Oracle Support](#)
- [Audience](#)
- [Additional Resources](#)
- [Conventions Used](#)

1.1 Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit:

- <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info>
- <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

1.2 Audience

This document is intended for the system administrators and users configuring the sandbox and models in OFS MMG.

1.3 Additional Resources

This section identifies additional resources for the OFS MMG Application Pack. You can access the online documentation for the OFS AAI 8.0.8.0.0 from the [Oracle Help Center \(OHC\)](#).

- OFS Advanced Analytical Applications Infrastructure (OFS AAI) Application Pack Installation and Configuration Guide
- OFS Analytical Applications Infrastructure Administration Guide
- OFS Model Management and Governance Release Notes
- OFS Model Management and Governance Installation Guide

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

1.4 Conventions Used

The following table lists the conventions used in this guide.

Table 1: Conventions Used in this Guide

| Convention | Meaning |
|----------------|--|
| <i>Italics</i> | <ul style="list-style-type: none">• Names of books, chapters, and sections as references• Emphasis |
| Bold | <ul style="list-style-type: none">• The object of an action (menu names, field names, options, button names) in a step-by-step procedure• Commands typed at a prompt• User input |
| Monospace | <ul style="list-style-type: none">• Directories and subdirectories• File names and extensions• Process names• Code sample, including keywords and variables within the text and as separate paragraphs, and user-defined program elements within the text |
| <Variable> | Substitute input value |

2 Getting Started

This section gives an introduction to Model Management and Governance and the requirements to use the application.

Topics:

- [About this Guide](#)
- [Acronyms](#)
- [About Oracle Financial Services Model Management and Governance](#)
- [Oracle Financial Services Model Management and Governance Workflow](#)
- [Components of Oracle Financial Services Model Management and Governance](#)
- [Mapping User Groups](#)
- [Signing into the Oracle Financial Services Model Management and Governance Application](#)
- [Using the Application UI Features](#)
- [Using the OFS MMG Data Studio Application](#)

2.1 About this Guide

This guide has information about configuring and publishing sandboxes using the as OFS Model Management and Governance application. The further sections in this guide provide information for the creation and deployment of models into production. Use it for information about sandbox and model management or help with the processes in the application. For other products such as OFS AAI, see the [Additional Resources](#) section.

2.2 Acronyms

The following table describes the acronyms commonly used in this application.

Table 2: Acronyms and its description

| Acronyms | Description |
|---|---|
| BA | Business Analysts |
| Infodom | Information Domain |
| Navigation Tree Menu or Navigation Menu | Left-hand side menu |
| OFS AAI | Oracle Financial Services Analytical Application Infrastructure |
| OFSAA | Oracle Financial Services Analytical Applications |
| OFS MMG | Oracle Financial Services Model Management and Governance |
| Production Infodom | Production Information Domain |
| Sandbox Infodom | Sandbox Information Domain |
| SA | System Administrator |

| Acronyms | Description |
|----------|--------------------------|
| URL | Uniform Resource Locator |
| UI | User Interface |

2.3 About Oracle Financial Services Model Management and Governance

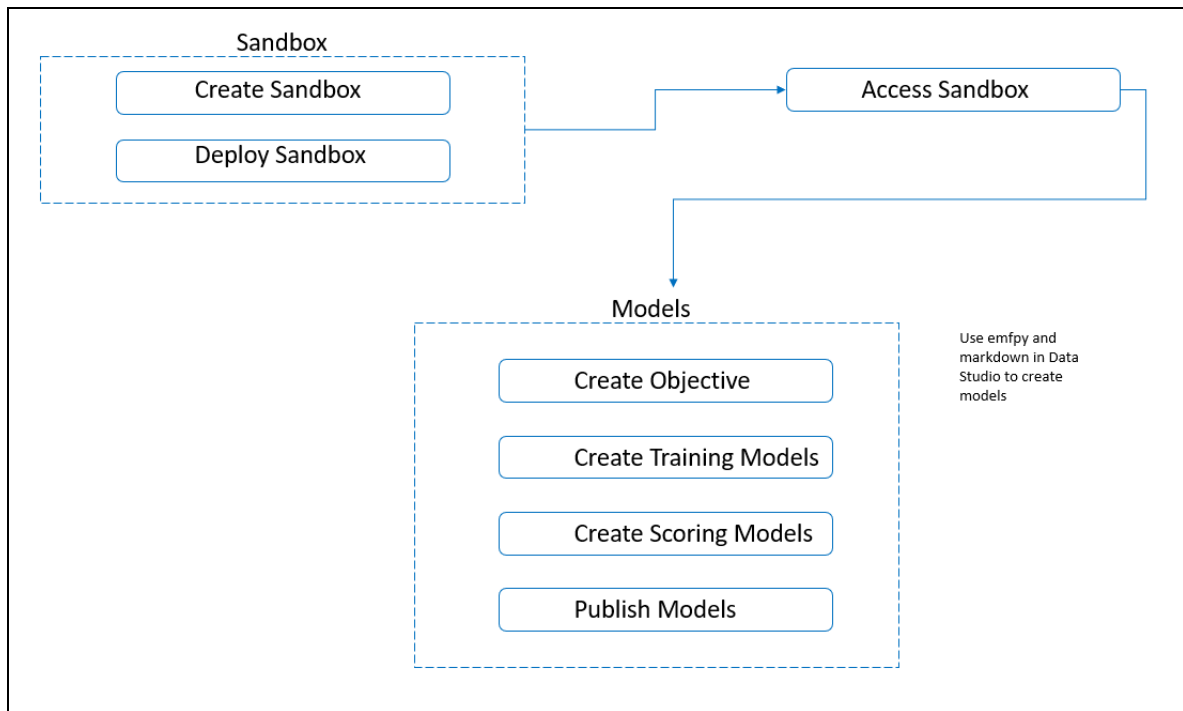
Financial institutions require models that work on traditional statistical techniques, modern machine-learning methods, computational and simulation models. Oracle Financial Services Model Management and Governance leverage the Data Studio environment to develop, deploy, and manage models at the enterprise level.

The OFS Model Management and Governance application enables institutions to implement their IT policies while providing flexibility and freedom that Data Scientists and Statistical Modelers desire. OFS MMG's design facilitates financial institutions to manage external regulatory and internal governance policies by building testing models in a sandbox environment. A sandbox is provisioned and authorized for use (usually by an administrator) before making it available to modelers. Administrative users grant analysts and modelers access to sandboxes along with a subset of production data to build models. Validated and approved models can then be promoted from sandboxes to the enterprise model repository. Models in the repository can then be woven into analytical application flows crafted by mixing data management tasks, model execution, and deterministic business logic.

2.4 Oracle Financial Services Model Management and Governance Workflow

The workflow involves the creation of Sandboxes and the creation of Models mapped to the Sandboxes. Models are then configured as training models that you can use to perform model visualizations and test for the outcomes. You can then publish a model into production and make it available to users after you have determined that the models and the parameters used to construct the models meet the requirements of your business logic.

Figure 1: Oracle Financial Services Model Management and Governance Workflow



2.5 Components of Oracle Financial Services Model Management and Governance

The following are the components of Oracle Financial Services Model Management and Governance application:

- [Sandbox Management](#)
- [Model Management](#)

2.5.1 Sandbox Management

Sandbox Management is where the Sandbox Administrators define datasets and make them available to modelers in Oracle Financial Services Model Management and Governance. It is an environment where the data is prepared for modelers to use in their modeling creation activity.

Sandboxes are provisioned with the data required for modeling by administrators, who configure sandboxes with subsets of production data. The data in the sandbox is made available to modelers using datasets, who then build models with the dataset without any exposure being provided to the physical data tables and columns in the database. In effect, the data is ready for the modelers and they do not have to undergo the arduous task of accessing and querying the database. See the [Using Sandbox Management](#) section for information on how to use Sandbox Management in the application.

2.5.2 Model Management

Modeling refers to the process of designing a prototype based on a structured data model, for statistical analysis and to simulate real events and processes. Models in a sandbox can be created or

modified by a user with access to the sandbox. Model versions are preserved in the sandbox along with execution and output histories. Once a model has been validated in the sandbox and considered fit for use, modelers can request to push the model into the production environment.

[Use Model Management](#) to create models from pre-defined models to predict business trends and validate the existing models with the help of Data Studio.

2.6 Mapping User Groups

Users must be mapped to User Groups that are mapped to the required roles to access OFS MMG. The following subsections provide information about the user groups and roles required in addition to the information about configuring the user groups.

Topics:

- [User Groups](#)
- [User Group - Role Mapping](#)

2.6.1 User Groups

The following table gives details about the User Groups in the Oracle Financial Services Model Management and Governance application. See the [Oracle Financial Services Analytical Applications Infrastructure Administration Guide](#) for more information.

Table 2: User Groups

| User Group Name | User Group Description |
|-----------------|---|
| SANDBOXADM | The Sandbox Administrator Group. Users mapped to this group have access to all the menu items in the OFS MMG application. Additionally, they have authorization rights to create and populate sandboxes. |
| MDLUSR | The Modeling User Group. Users mapped to this group have access to all the menu items in the OFS MMG application that is related to model creation. |
| MDLREV | The Modeling Reviewer Group. Users mapped to this group have access to the menu items in the OFS MMG application that are related to model review activities. |
| MDLAPPR | The Modeling Approver Group. Users mapped to this group have the rights to approve models created by the users. |

2.6.2 User Group - Role Mapping

Map the user groups in the application to the roles in the following table to enable access to the OFS MMG application.

NOTE Map the MMGACC role to the User Groups so that the OFS MMG application tile is accessible to users.

Table 3: User Group to Role Mapping

| Group Name | Role Name |
|------------|---------------------------|
| SANDBOXADM | Sandbox Admin |
| MDLUSR | Alias Access |
| MDLUSR | Alias Read Only |
| MDLUSR | Alias Write |
| MDLUSR | Atomic excel upload write |
| MDLUSR | BMM Hierarchy Access |
| MDLUSR | BMM Hierarchy Read Only |
| MDLUSR | BMM Hierarchy Write |
| MDLUSR | BMM Processor Access |
| MDLUSR | BMM Processor Read Only |
| MDLUSR | BMM Processor Write |
| MDLUSR | Batch Access |
| MDLUSR | Batch Read Only |
| MDLUSR | Batch Write |
| MDLUSR | Config excel advanced |
| MDLUSR | DEFQ Manager |
| MDLUSR | DEFQ write |
| MDLUSR | DI Write |
| MDLUSR | DMM Write |
| MDLUSR | DQ Access |
| MDLUSR | DQ Advanced |
| MDLUSR | DQ Read |
| MDLUSR | DQ Write |
| MDLUSR | DT Write |
| MDLUSR | Dataset Access |
| MDLUSR | Dataset Read Only |
| MDLUSR | Dataset Write |
| MDLUSR | Derived Entity Access |
| MDLUSR | Derived Entity Read Only |

| Group Name | Role Name |
|------------|------------------------|
| MDLUSR | Derived Entity Write |
| MDLUSR | Dimension Access |
| MDLUSR | Dimension Read Only |
| MDLUSR | Dimension Write |
| MDLUSR | ETL Analyst |
| MDLUSR | Essbase Cube Access |
| MDLUSR | Essbase Cube Read Only |
| MDLUSR | Essbase Cube Write |
| MDLUSR | MDB Write |
| MDLUSR | Manage Run Access |
| MDLUSR | Manage Run Read Only |
| MDLUSR | Manage Run Write |
| MDLUSR | Measure Access |
| MDLUSR | Measure Read Only |
| MDLUSR | Measure Write |
| MDLUSR | Model Access |
| MDLUSR | Model Read |
| MDLUSR | Model Write |
| MDLUSR | Obj Migration Access |
| MDLUSR | Obj Migration Read |
| MDLUSR | ObjectAdmin advanced |
| MDLUSR | Oracle Cube Access |
| MDLUSR | Oracle Cube Read Only |
| MDLUSR | Oracle Cube Write |
| MDLUSR | Process Access |
| MDLUSR | Process Read Only |
| MDLUSR | Process Write |
| MDLUSR | Rule Access |
| MDLUSR | Rule Read Only |
| MDLUSR | Rule Write |
| MDLUSR | Run Access |
| MDLUSR | Run Read Only |
| MDLUSR | Run Write |

| Group Name | Role Name |
|------------|---------------------------|
| MDLUSR | Workflow Access |
| MDLUSR | Workflow Monitor Access |
| MDLUSR | Workflow Read |
| MDLUSR | Workflow Write |
| MDLREV | Model Access |
| MDLREV | Model Read |
| MDLREV | Model Review |
| MDLAPPR | Alias Access |
| MDLAPPR | Alias Authorize |
| MDLAPPR | Alias Read Only |
| MDLAPPR | Alias Write |
| MDLAPPR | Atomic excel advanced |
| MDLAPPR | Atomic excel upload write |
| MDLAPPR | BMM Hierarchy Access |
| MDLAPPR | BMM Hierarchy Authorize |
| MDLAPPR | BMM Hierarchy Read Only |
| MDLAPPR | BMM Hierarchy Write |
| MDLAPPR | BMM Processor Access |
| MDLAPPR | BMM Processor Authorize |
| MDLAPPR | BMM Processor Read Only |
| MDLAPPR | BMM Processor Write |
| MDLAPPR | Batch Access |
| MDLAPPR | Batch Advanced |
| MDLAPPR | Batch Authorize |
| MDLAPPR | Batch Phantom |
| MDLAPPR | Batch Read Only |
| MDLAPPR | Config excel advanced |
| MDLAPPR | DEFQ Manager |
| MDLAPPR | DEFQ access |
| MDLAPPR | DEFQ advanced |
| MDLAPPR | DEFQ authorize |
| MDLAPPR | DI Write |
| MDLAPPR | DMM Write |

| Group Name | Role Name |
|------------|--------------------------|
| MDLAPPR | DQ Access |
| MDLAPPR | DQ Advanced |
| MDLAPPR | DQ Authorize |
| MDLAPPR | DQ Read |
| MDLAPPR | DQ Write |
| MDLAPPR | DT Write |
| MDLAPPR | Dataset Access |
| MDLAPPR | Dataset Authorize |
| MDLAPPR | Dataset Read Only |
| MDLAPPR | Dataset Write |
| MDLAPPR | Derived Entity Access |
| MDLAPPR | Derived Entity Authorize |
| MDLAPPR | Derived Entity Read Only |
| MDLAPPR | Derived Entity Write |
| MDLAPPR | Dimension Access |
| MDLAPPR | Dimension Authorize |
| MDLAPPR | Dimension Read Only |
| MDLAPPR | Dimension Write |
| MDLAPPR | ETL Analyst |
| MDLAPPR | Essbase Cube Access |
| MDLAPPR | Essbase Cube Authorize |
| MDLAPPR | Essbase Cube Read Only |
| MDLAPPR | Essbase Cube Write |
| MDLAPPR | MDB Write |
| MDLAPPR | Manage Run Access |
| MDLAPPR | Manage Run Read Only |
| MDLAPPR | Manage Run Write |
| MDLAPPR | Measure Access |
| MDLAPPR | Measure Authorize |
| MDLAPPR | Measure Read Only |
| MDLAPPR | Measure Write |
| MDLAPPR | Model Access |
| MDLAPPR | Model Authorize |

| Group Name | Role Name |
|------------|---------------------------|
| MDLAPPR | Model Deployment |
| MDLAPPR | Model Read |
| MDLAPPR | Obj Migration Access |
| MDLAPPR | Obj Migration Advanced |
| MDLAPPR | Obj Migration Read |
| MDLAPPR | Obj Migration Write |
| MDLAPPR | ObjectAdmin advanced |
| MDLAPPR | Oracle Cube Access |
| MDLAPPR | Oracle Cube Authorize |
| MDLAPPR | Oracle Cube Write |
| MDLAPPR | PR2 Administrator |
| MDLAPPR | Process Access |
| MDLAPPR | Process Advanced |
| MDLAPPR | Process Authorize |
| MDLAPPR | Process Read Only |
| MDLAPPR | Process Write |
| MDLAPPR | Publish Metadata |
| MDLAPPR | Rule Access |
| MDLAPPR | Rule Advanced |
| MDLAPPR | Rule Authorize |
| MDLAPPR | Rule Read Only |
| MDLAPPR | Rule Write |
| MDLAPPR | Run Access |
| MDLAPPR | Run Advanced |
| MDLAPPR | Run Authorize |
| MDLAPPR | Run Read Only |
| MDLAPPR | Run Write |
| MDLAPPR | Workflow Access |
| MDLAPPR | Workflow Advanced |
| MDLAPPR | Workflow Authorize |
| MDLAPPR | Workflow Delegation Admin |
| MDLAPPR | Workflow Monitor Access |
| MDLAPPR | Workflow Read |

| Group Name | Role Name |
|------------|----------------|
| MDLAPPR | Workflow Write |

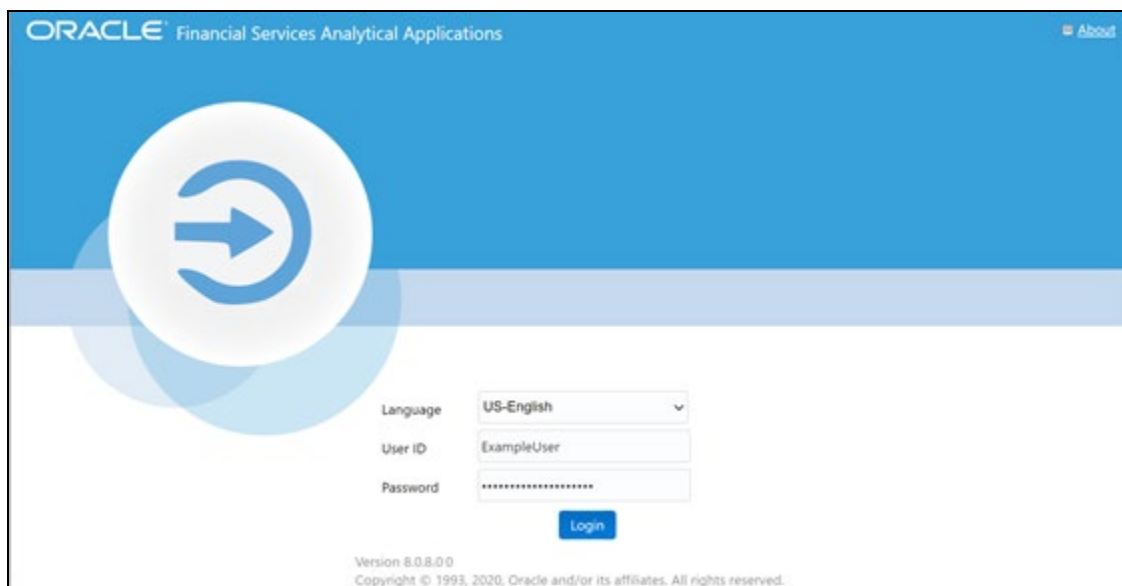
2.7 Signing into the Oracle Financial Services Model Management and Governance Application

After the application is installed and configured, you can access the Oracle Financial Services Model Management and Governance application.

To access Oracle Financial Services Model Management and Governance, follow these steps:

1. Enter the OFSAAI URL in your browser. The **Login** page is displayed.

Figure 2: OFS Model Management and Governance Application Login Page




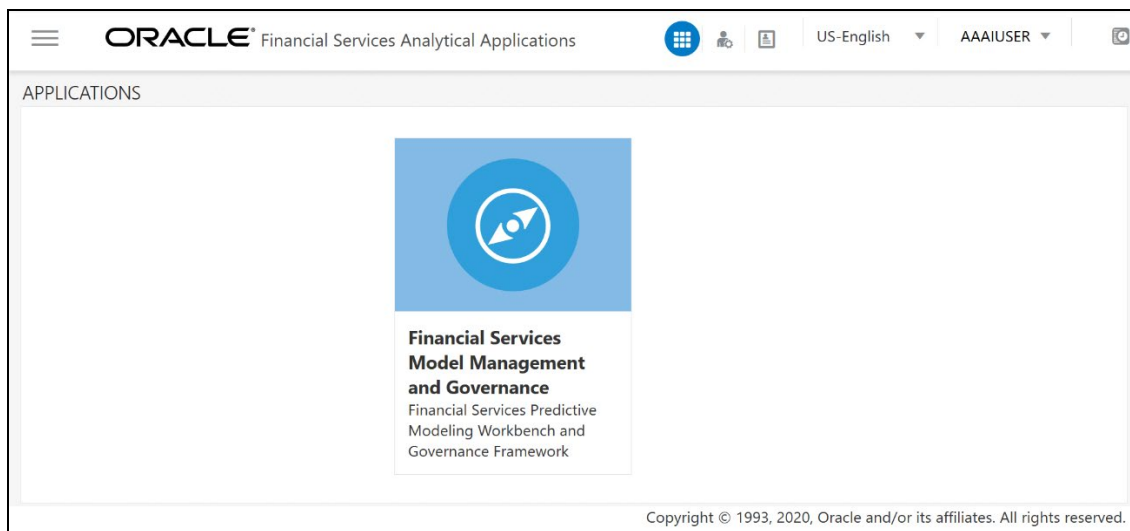
2. Select **Language**.
3. Enter your **User ID** and **Password**.
4. Click **Login**.
5. Click **Applications**  from the **Header** to display the applications in a Tiles menu.

Figure 3: Model Management and Governance Application Selection



6. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page.

2.7.1 Changing Password

The first time you log in to the application, the **Change Password** page is displayed. Alternatively, you can also choose to change the password at any time, but Oracle recommends that you change the password after the first login

To change a password, follow these steps:

1. Click the **User Name** drop down and select **Change Password** from the **Header** at the top to display the **Change Password** page.

Figure 4: Change Password Page

2. Enter the **User ID**.
3. Enter the **Old Password**.

4. Enter **New Password** and re-enter in the **Confirm Password** field.
5. Click **OK**.

2.8 Using the Application UI Features

This section describes the user-interface of the Oracle Financial Services Model Management and Governance application. These are the common features that are found across the modules of Oracle Financial Services Model Management and Governance. It describes the organization of the user interface and provides step-by-step instructions for navigating through the application.

Topics:

- [Home Page Components](#)
- [OFS MMG Data Studio UI](#)

2.8.1 Home Page Components

The Home Page contains the following sections:

- Header
- Applications
- Administration
- Navigation Tree List
- Tab Bar

Figure 5: Home Page

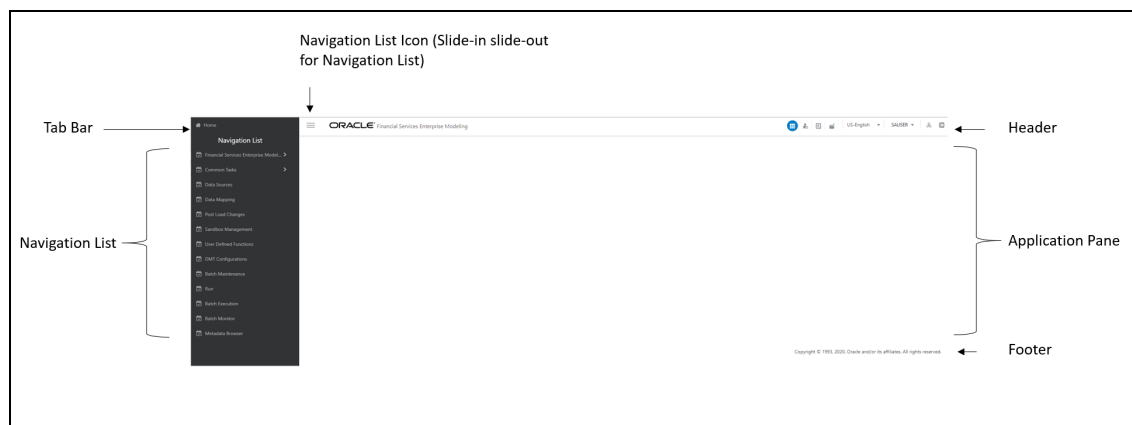
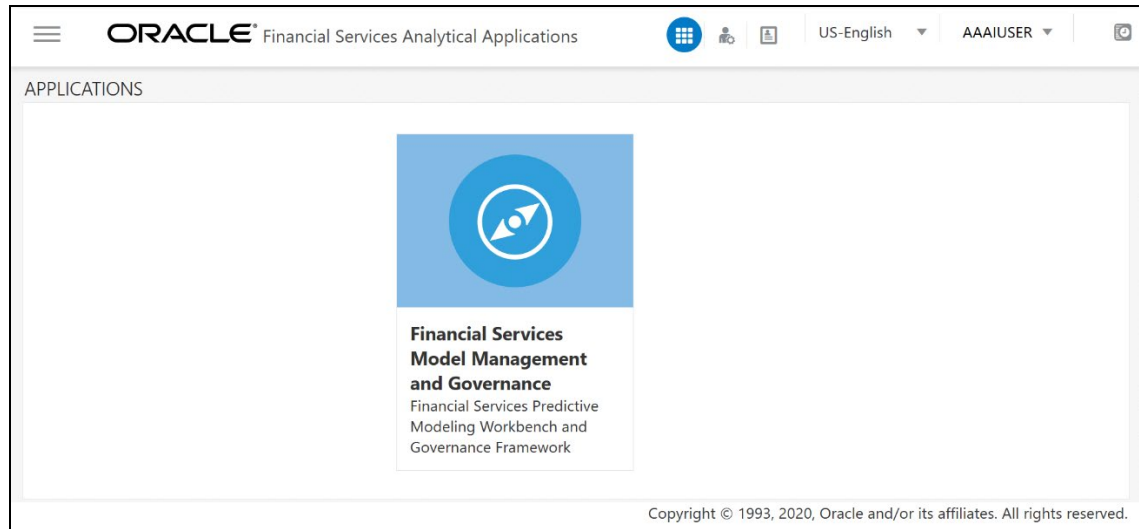




Figure 6: Alternate View of Home Page



2.8.1.1 Header

The Header displays icons, buttons, and text for generic information and access to the OFSAA application's features. The following user-interface elements are displayed for OFS MMG:

- **Applications** : Click this icon to display applications in a Tiles menu on the content page.
- **Administration** : Click this icon to display administration tools in a Tiles menu on the content page.
- **Language:** Displays the selected language. Click to select from the options in the drop-down list.
- **User Name:** Displays the logged-in user name. Click to select from the following options in the drop down list:
 - **Preferences:** Select to set the Home page.
 - **About:** Select to view the copyrights and third-party information.
 - **Change Password:** Select to change the password in the **Change Password** page.
 - **Logout:** Select to log out of the application.
- **Last login date and time, and last failed login date and time:** Click to view the last login date and time, and the last failed login date and time.
- **Discover/Explore OFSAA Apps:** Click to view the OFSAA applications web page for more details.

2.8.1.2 Applications

The applications available are displayed in a Tiles menu on the content page. Click the **Tiles** to open the selected application. For more information on other applications, see the [Oracle Financial Services Analytical Applications Infrastructure User Guide](#).

2.8.1.3 Administration

The administration feature displays in the **Tiles** menu. Click the Tiles to navigate further. For more information, see the [Oracle Financial Services Analytical Applications Guides](#).

2.8.1.4 Navigation Tree List

The Navigation Tree List is a slide-in slide-out UI element that appears on clicking the **Menu** (three lines) icon. This element displays a list of links in a menu based on the application selected from the Applications menu and the access rights assigned to the logged-in user. Click on the various links in the list to navigate further and open in the content page. For more details, see the [Oracle Financial Services Analytical Application Infrastructure User Guide](#).

2.8.1.5 Tab Bar

The Tab bar contains icons and text to navigate to specific OFSAA application modules. Click the **Home** button in Tabs to navigate to the Applications page on the content page. The elements displayed in Tabs are dependent on the OFSAA application logged into and the access roles assigned to the user.

2.8.2 OFS MMG Data Studio UI

The model creation uses the Notebook scripting interface from OFS MMG Data Studio, which is based on the OFS FCC Studio application. See the [OFS FCC Studio User Guides](#) for details.

2.9 Using the OFS MMG Data Studio Application

The OFS MMG application displays windows and pages that are interconnected to the OFS AAI and Data Studio. Primarily, you will create Sandboxes and deploy them. Within these Sandboxes, you will create models, compare them for the best fit, and promote one to production.

Use the information in the following topics to create the sandboxes and models:

- [Using Sandbox Management](#)
- [Using Model Management](#)

2.9.1 Prerequisites

The prerequisites for OFS MMG are as follows:

- To create a sandbox, your user profile must be mapped to the Sandbox Administrator role. For more information, see the [User Groups](#) section.
- To use a sandbox to create models, your user profile must be mapped to the Sandbox User role (such as a modeler). For more information, see the [User Group - Role Mapping](#) section.

3 Using Sandbox Management

Sandbox management allows you to create and manage sandboxes in the Financial Services Model Management and Governance application.

Sandboxes can be in the production environment (deployed) or they can exist in a separate instance on their own (on local for testing purposes) with a copy of data that comes from the desired data source (production or external data source).

Topics:

- [Accessing the Sandbox Summary Window](#)
- [Create and Deploy A Sandbox](#)
- [Launch A Sandbox Workspace](#)
- [Populate A Sandbox](#)
- [Delete A Sandbox](#)

3.1 Accessing the Sandbox Summary Page

The Sandbox Summary page gives access to the various sandbox functions such as create and delete.

NOTE Users Groups must be mapped to the SBADMIN role to access the Sandbox Summary page.

To access the Sandbox Summary page, follow these steps:


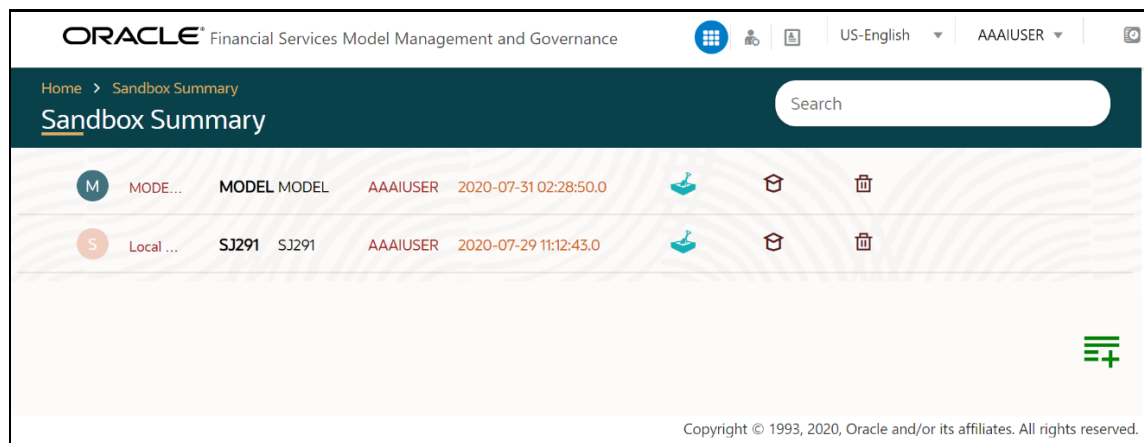




1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.

Figure 7: Sandbox Summary Page



The following table provides descriptions for the fields and icons on the **Sandbox Summary** page.

| Field or Icon | Description |
|------------------|---|
| Search | The field to search for sandboxes. Enter specific terms in the field for which you want to search and press Enter on the keyboard to display the results. |
| Sandbox | The name of the sandbox. |
| Description | The description for the sandbox |
| Infodom | The name of the infodomain where the sandbox is deployed. |
| Created User | The user ID of the user who created the sandbox. |
| Created Date | The date on which the sandbox was created. |
| Launch Sandbox | Select  to display the Sandbox Workspace window with application configuration and model creation menu. See the Launch a Sandbox Workspace section for more information. |
| Populate Sandbox | Select  to populate the sandbox with dataset data. See the Populate a Sandbox section for more information. |
| Delete Sandbox | Select  to delete the sandbox. See the Delete A Sandbox section for more information. |
| Sandbox Creation | Select  to create a sandbox. See the Create and Deploy a Sandbox section for more information. |

3.2 Create and Deploy a Sandbox

The Sandbox creation requires entry of the source of dataset, validation, and deployment. In addition, the OFS MMG application may require users of different function groups to create and approve a sandbox. In other words, a user associated with the modeler function group creates a sandbox and the approval and deployment are done by a user associated with the modeling administrator function group. See the [Mapping User Groups](#) section for more information.

To create and deploy a Sandbox, follow these steps:



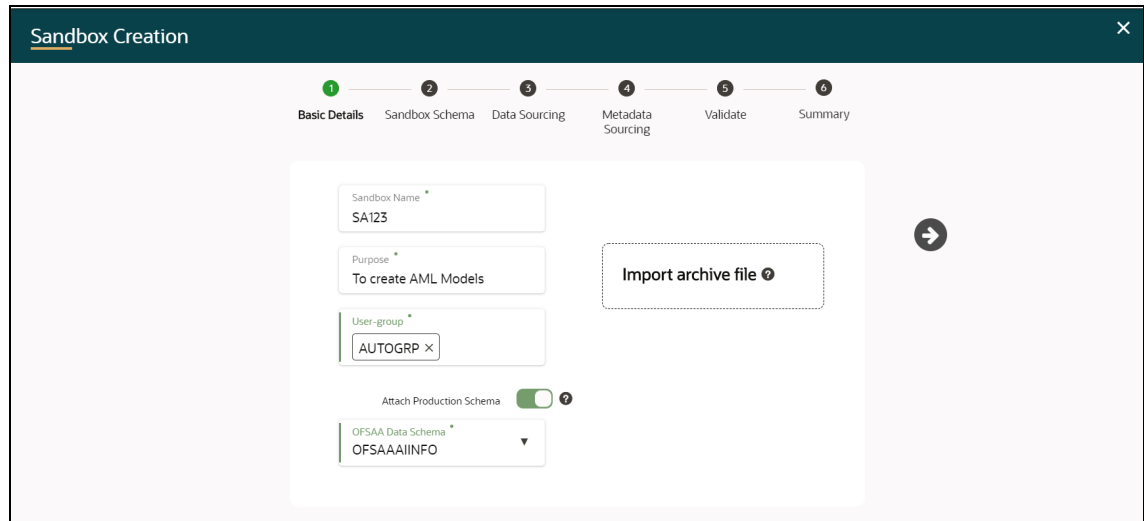


1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application. The Navigation Tree displays a menu.
3. Click **Sandbox Management** to display the **Sandbox Summary** page. The page displays sandbox records in a table.
4. Select  to create a sandbox in the **Sandbox Creation** window.

Figure 8: Sandbox Creation Window



The window displays a progress indicator at the top that indicates the active window where you are entering details. Click **Previous**  to go back a step and click **Next**  to go to the next step.

The following steps show the various phases from sandbox creation to deployment:

- a. [Configure Basic Details](#)
- b. [Configure Sandbox Schema](#)
- c. [Configure Data Sourcing](#)
- d. [Configure Metadata Sourcing](#)
- e. [Validate Sandbox](#)
- f. [Display Summary of Deployment](#)
- g. [Configure Resource Reference for Data Population](#)

NOTE You may require approval from an approver to validate and deploy the sandbox.

3.2.1.1 Configure Basic Details

Enter basic configuration details in this window.


Figure 9: Configure Basic Details

The screenshot shows a configuration interface with a progress bar at the top containing six steps: 1. Basic Details, 2. Sandbox Schema, 3. Data Sourcing, 4. Metadata Sourcing, 5. Validate, and 6. Summary. The 'Basic Details' step is active. The configuration fields are: Sandbox Name (SA123), Purpose (To create AML Models), User-group (AUTOGRP), Attach Production Schema (toggle on), and Infodom (OFSAAIINFO). An 'Import archive file' button is located to the right of the main configuration area. A right-pointing arrow button is also visible on the right side of the configuration area.

To configure the basic details for the sandbox, follow these steps:

1. Enter the required details in the **Basic Details** pane as shown in the following table.

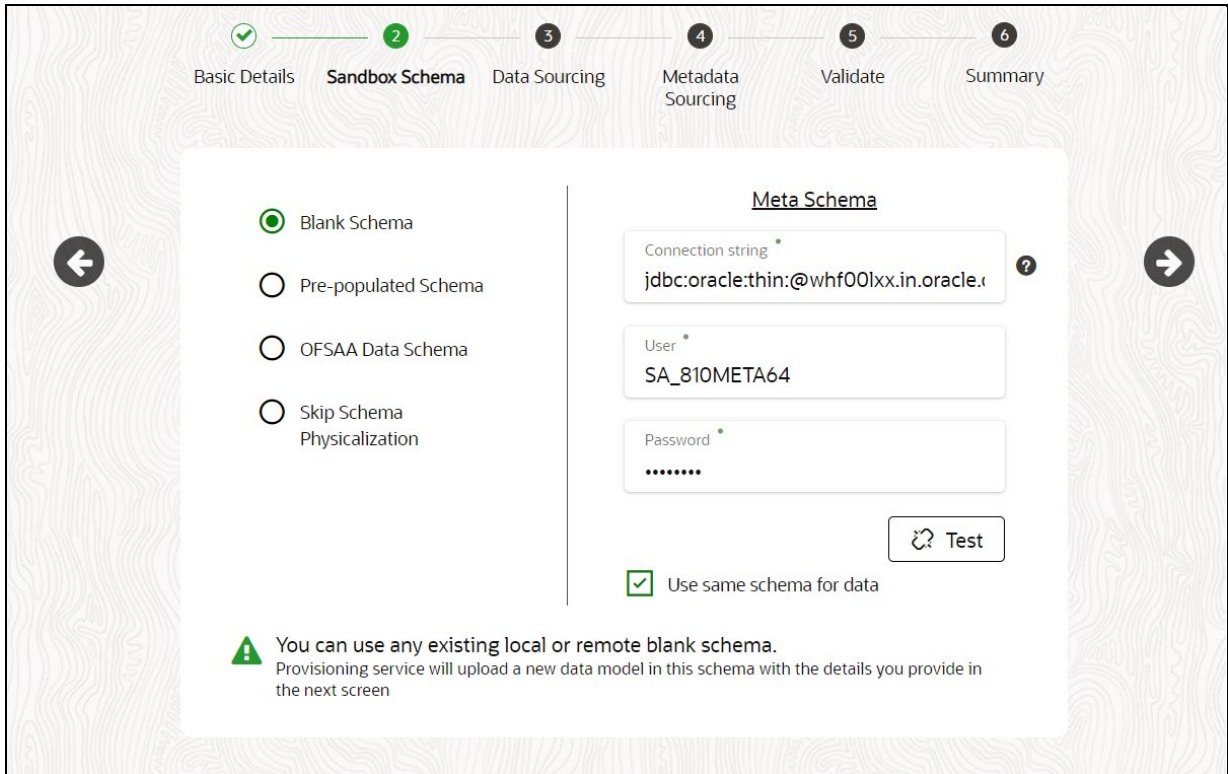
| Field | Description |
|---------------------------|---|
| Sandbox Name | Enter the name of the sandbox. This field is limited to five characters. |
| Purpose | Enter the purpose for the creation of the sandbox. |
| User-group | Click on this field to display a list of User-group values. Select the required value. |
| Attach Production Infodom | Move the toggle switch to the right to enable this option. Enabling it attaches the production infodom, which selects the Sandbox being created for automatic model promotion. Based on the selection of the OFSAA Schema, the model is promoted to the environment. |
| Infodom | Select the required production infodom to attach from the drop-down list. This list is enabled when you enable Attach Production Infodom. |
| Import archive file | Enter the archived file to import for basic details. If you use this feature, the other fields described in the preceding rows are auto-populated. Click on the box to open the file selector dialog and select the required configuration file or drag the file from its directory and drop it in the box. |

2. Click  to go to the next step.

3.2.1.2 Configure Sandbox Schema

Select the schema operation and enter connection details.

Figure 10: Sandbox Schema




To configure the sandbox schema, follow these steps:

1. Select one from the options and enter the required details in the **Sandbox Schema** pane as shown in the following table.

| Field | Description |
|--------------------------|---|
| Blank Schema | Select this option to upload a new data model with details you provide in the Data Sourcing pane. |
| Meta Schema | |
| Connection string | Enter the connection URL to the database for the meta schema. |
| User | Enter the user ID to connect to the database. |
| Password | Enter the password to connect to the database. |
| Use same schema for data | Select this check box to use the meta schema for the data schema. |
| Data Schema | This option is enabled when you deselect the Use same schema for data check box. |
| Connection string | Enter the connection URL to the database for the data schema. |
| User | Enter the user ID to connect to the database. |
| Password | Enter the password to connect to the database. |

| Field | Description |
|------------------------------------|--|
| | |
| Pre-populated Schema | Select this option to reuse an existing schema. NOTE: Data Sourcing does not apply to this option. Metadata Sourcing is optional. |
| Meta Schema | |
| Connection string | Enter the connection URL to the database for the meta schema. |
| User | Enter the user ID to connect to the database. |
| Password | Enter the password to connect to the database. |
| Use the same schema for data | Select this check box to use the meta schema for the data schema. |
| Data Schema | This option is enabled when you deselect the Use same schema for data check box. |
| Connection string | Enter the connection URL to the database for the data schema. |
| User | Enter the user ID to connect to the database. |
| Password | Enter the password to connect to the database. |
| | |
| OFSAA Data Schema | Select this option to use the data in an existing OFSAA infodom to create the sandbox. NOTE: Data model upload, infodom creation, segment creation, and so on will be skipped. OFS MMG features will be available in the selected infodom. |
| Data Schema | Select the required Infodom from the drop-down list. |
| | |
| Skip Schema Physicalization | Select this option to generate and store DDLs in the sandbox.cfg file. A system administrator will create the sandbox using this file as a template. |

2. Click  to go to the next step.

NOTE

Click  to check the connection. A success message is displayed.

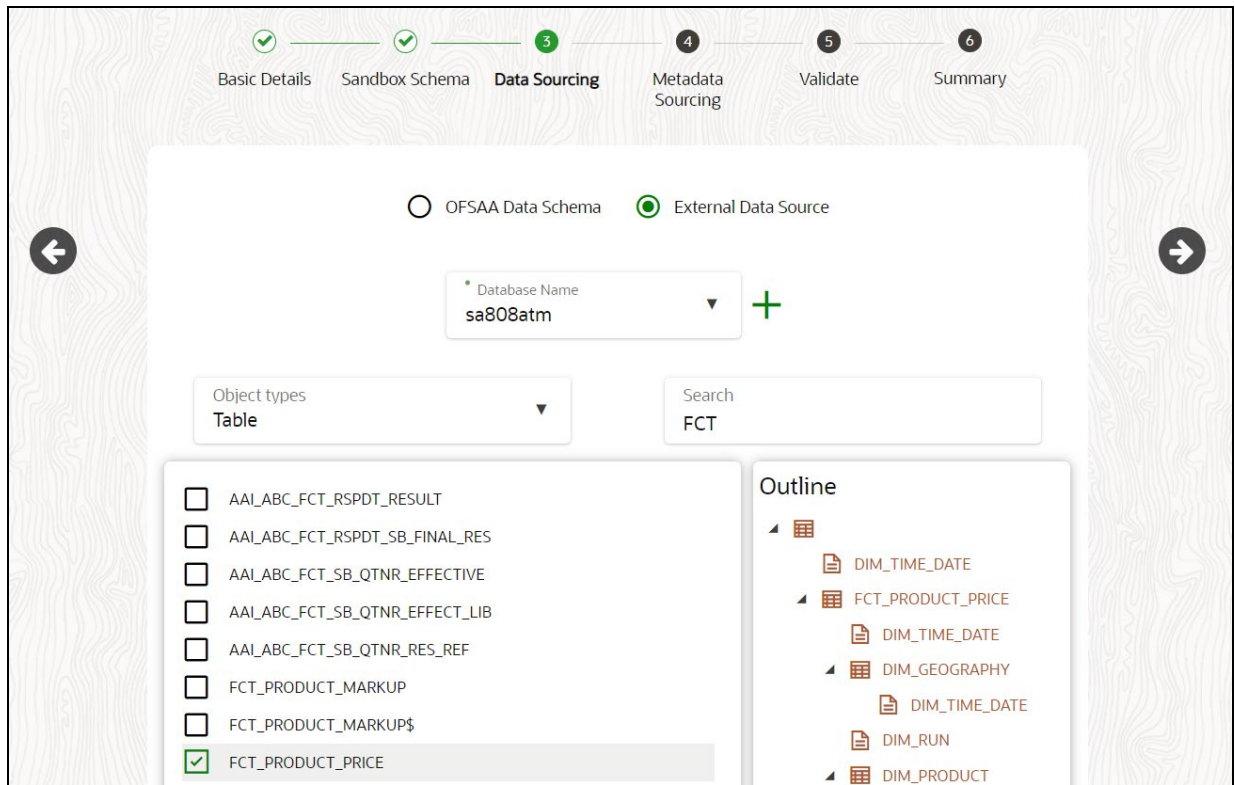
3.2.1.3 Configure Data Sourcing

The schema type selected in the previous step requires the definition of database objects to be used for model creation. Enter the details in this window.

NOTE

This step does not apply to the prepopulated schema and OFSAA Infodom options in [Sandbox Schema](#).




Figure 11: Data Sourcing - External Data Source




To configure Data Sourcing, follow these steps:

1. Enter the required details in the **Data Sourcing** pane as shown in the following table.

| Field | Description |
|-----------------------------|--|
| OFSAA Data Schema | Select this option to use an OFSAA Data Schema from your local system. |
| Data Schema | Select the required schema from the drop-down list. |
| Datasets | Select the required datasets from the drop-down list. |
| | |
| External Data Source | Select this option to connect to an external source and use its dataset. |

| Field | Description |
|---|--|
| Database Name | <p>Select the source of data from the drop-down list.</p> <p>Or click  to display a context window where you can add the details for a new data source as follows:</p> <ol style="list-style-type: none"> 1. Enter a name for the database in Database Name. 2. Select the type of database from Database Type. 3. Select the type of authentication for the connection from Authentication Type. 4. Enter the connection URL to the database for the external data source in Connection String. 5. Enter the user ID to connect to the database in User. 6. Enter the password to connect to the database in Password. 7. Enter a name for the schema in Schema Name. 8. Click  to save the details entered in the context window. |
| Object Types | <p>Select the type of objects to be displayed in the pane following the drop-down list from the following options:</p> <ul style="list-style-type: none"> • Table • View • Synonym |
| Search | Enter the search term to apply to the object types and further refine the entries being displayed. |
|  | Select the required dataset parameters and the selected items are displayed in the Outline pane. |

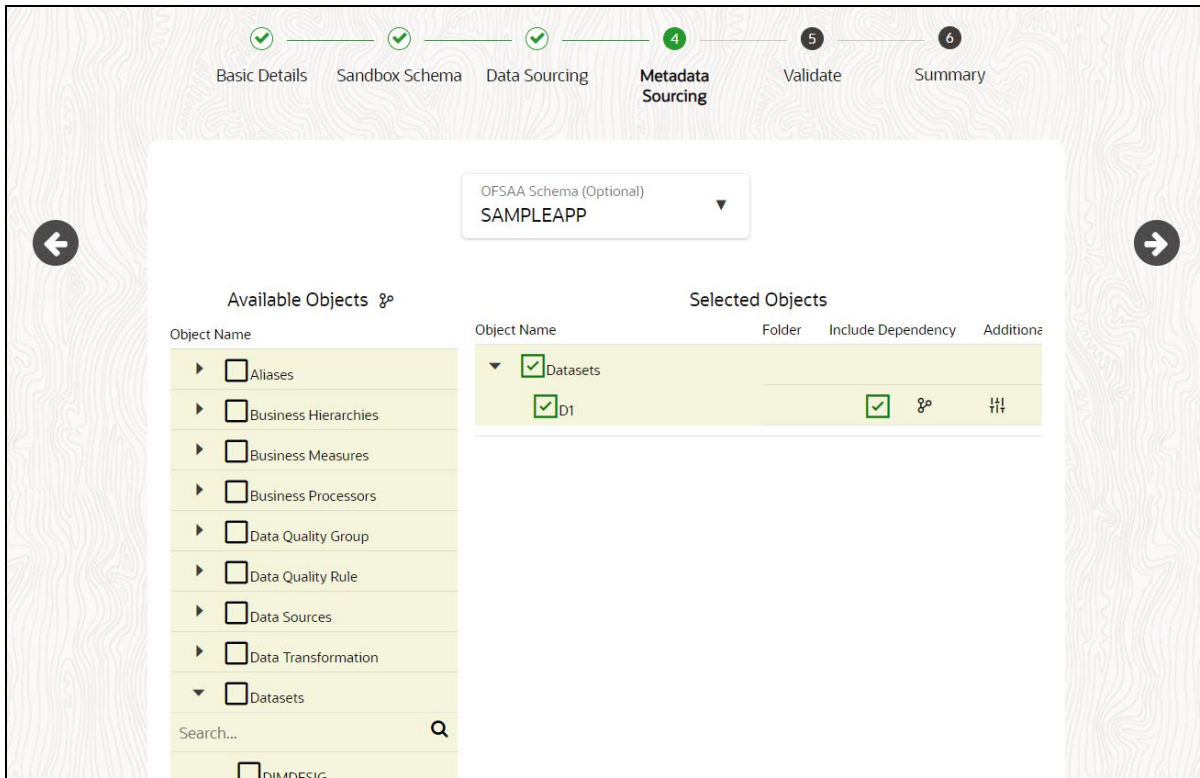
2. Click  to go to the next step.

3.2.1.4 Configure Metadata Sourcing

The database objects selected in the previous step can be added with metadata for selected objects.

NOTE This step is optional.

Figure 12: Configure Metadata Sourcing



To configure Metadata Sourcing, follow these steps:

1. Select the required schema from the **OFSAA Schema (Optional)** drop-down list. The **Available Objects** and **Selected Objects** pane is displayed.
2. Select **Object Name** from **Available Objects** or use the **Filter Search Criteria** to filter and select.




To use the **Filter Search Criteria**, follow these steps:

- a. Click  from **Available Objects** to display the **Filter Search Criteria** dialog box.

Figure 13: Filter Search Criteria Dialog box

Enter the required details in the **Filter Search Criteria** dialog box as shown in the following table.

| Field | Description |
|--------------------|---|
| Object Types | Enter the object types to search. |
| Name | Enter the name of the object to filter the search. |
| Created Date | In the date editor, select a date range (From and To) to search the object from the created date. |
| Last Modified Date | In the date editor, select a date range (From and To) to search the object from the last modified date. |
| Created By | Enter the user ID to search for objects created by a user. |
| Last Modified By | Enter the user ID to search for objects last modified by a user. |

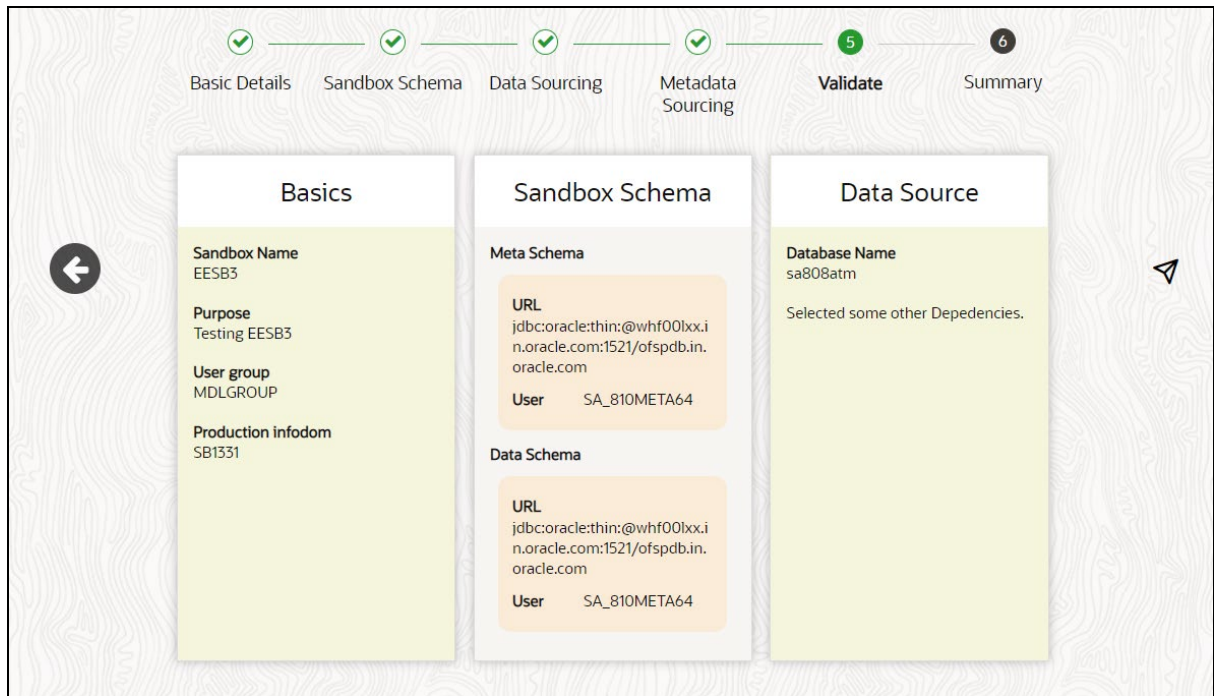
- b. Click **Apply** to search. To remove entered values, click **Clear**. To close the dialog box, click **Close**.
3. Move the selected objects from **Available Objects** to **Selected Objects**. Click  to view the associated dependencies for the selected objects. Click  to view additional parameters.
4. Click  to go to the next step.

3.2.1.5 Validate Sandbox



The **Validate** pane displays a preview of the configuration values entered in the previous panes.

NOTE You may require approval from an approver to deploy a sandbox or only a user with modeling administrator function role can deploy.

Figure 14: Validate Sandbox



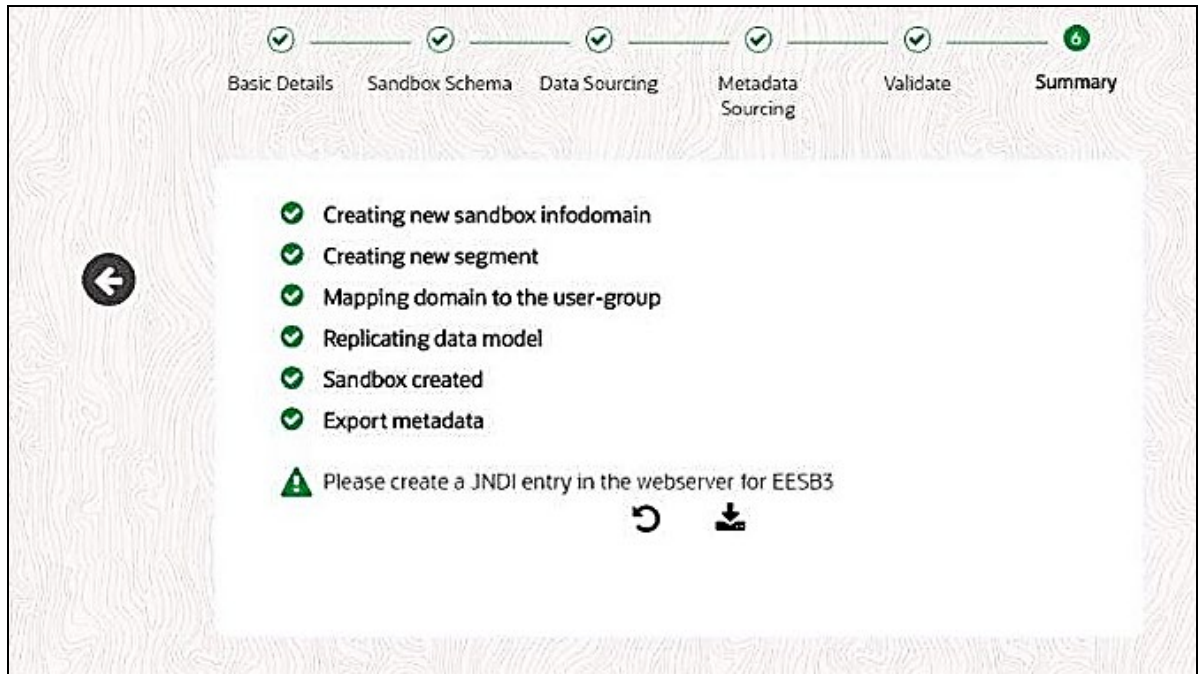
To validate the sandbox and deploy, follow these steps:



1. Review the details in the **Validate** pane.
2. Click **Deploy**  to deploy the Sandbox.
3. Click  to go to the next step.

3.2.1.6 Display Summary of Deployment

The **Summary** pane displays the status of the sandbox creation.

Figure 15: Sandbox Deployment Summary



- Click  on the **Summary** window to roll back the creation of the Sandbox.
- Click  to download the deployment report.

3.2.1.7 Configure Resource Reference for Data Population

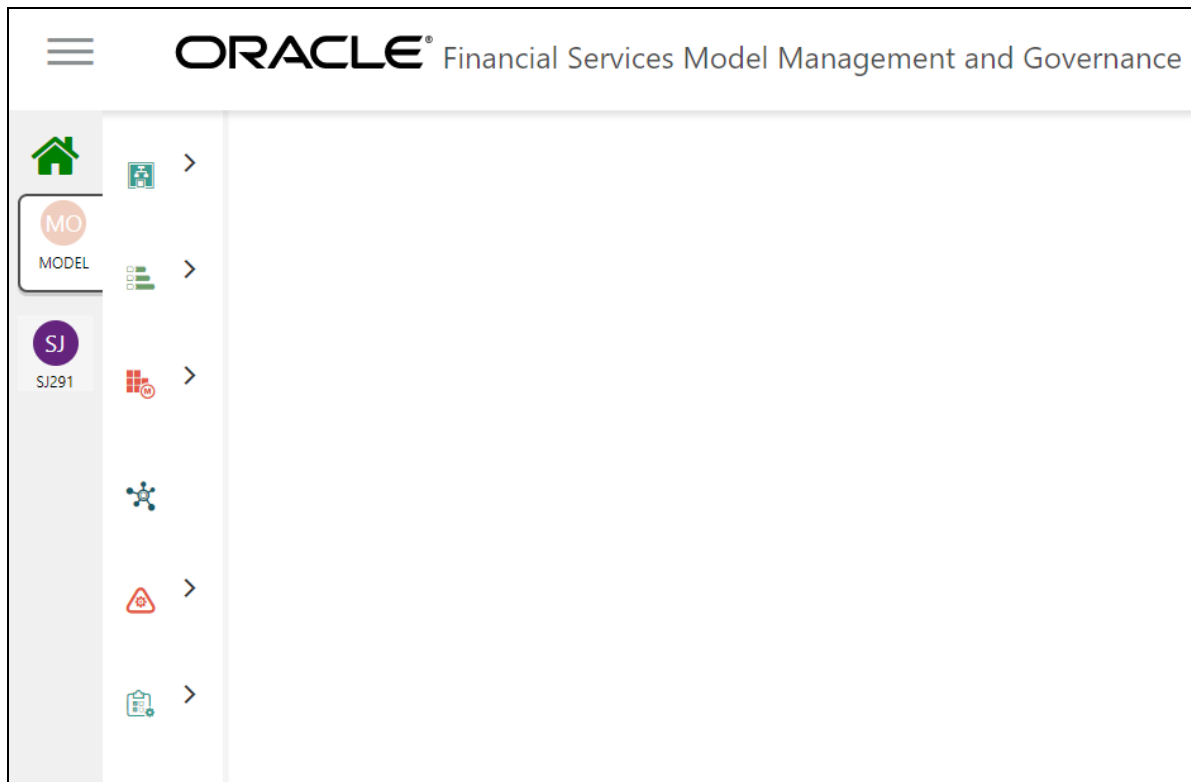
After the Sandbox deployment, create a JNDI entry in the webserver. See the *Configuring Resource Reference in Web Application Servers* section in the [OFS MMG Installation Guide](#) for details.

3.3 Launch a Sandbox Workspace

The launching of the Sandbox displays the **Sandbox Workspace** window. The workspace displays a menu for Sandboxes and an application configuration and model creation submenu as shown in the following list:

- Data Model Maintenance
- Data Management Framework
- Unified Analytical Metadata
- Model Management
- Process ManagementOperations

Figure 16: Sandbox Workspace Window

**NOTE**

For information on how to use the features in the submenus other than Model Management, see the [OFS AAI User Guide](#). For information on how to use Model Management, see the [Using Model Management](#) section in this guide.

3.4 Populate a Sandbox

The sandbox is populated with data from the datasets in OFS AAI.

To populate the sandbox, follow these steps:



1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select  to populate the sandbox with data from a dataset data in the **Populate Sandbox** window.

Figure 17: Populate Sandbox Window

The following table provides descriptions for the fields in the **Populate Sandbox window**.

| Field | Description |
|----------------------------|--|
| Sandbox Name | The name of the sandbox. |
| Sandbox Description | The description for the sandbox. |
| Sandbox Creation Date | The date on which the sandbox was created. |
| Remarks | Enter a description or reason for the populate request. |
| Request Action for Sandbox | The type of sandbox population. Select from the following options: <ul style="list-style-type: none"> Complete Incremental |


4. Click **Create Batch** to start the process. Click **OK** on the confirmation dialog box to confirm or click **Cancel** to cancel.

NOTE

You may require approval from an approver to create a batch to populate the sandbox.

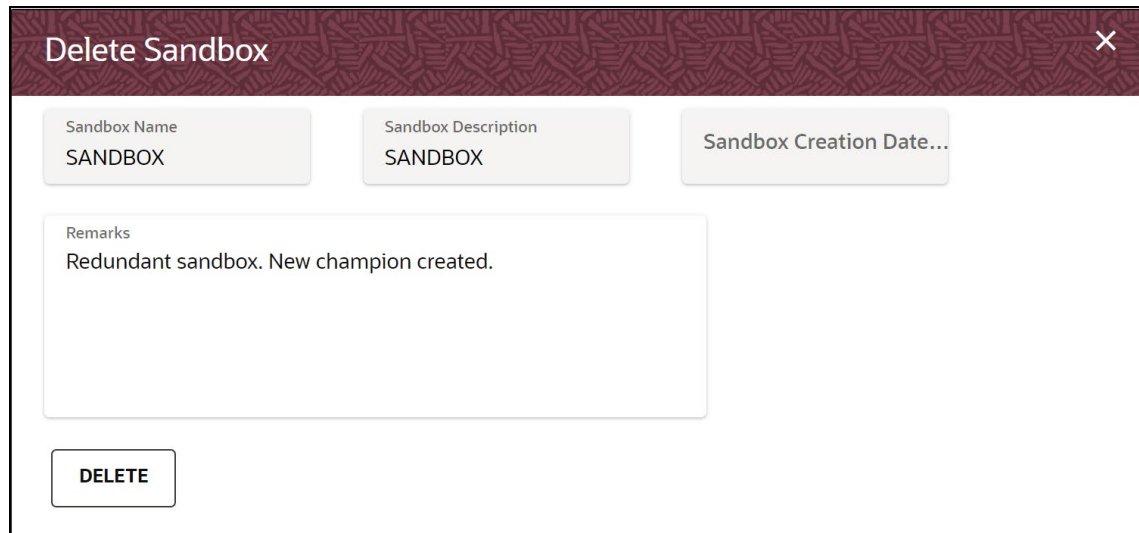
3.5 Delete a Sandbox

To delete a Sandbox, follow these steps:

1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application. The Navigation Tree displays a menu.

3. Click **Sandbox Management** to display the **Sandbox Summary** page. The page displays sandbox records in a table.
4. Select  to delete the sandbox in the **Delete Sandbox** window.

Figure 18: Delete Sandbox Window



The following table provides descriptions for the fields in the **Delete Sandbox** window.

| Field | Description |
|-----------------------|--|
| Sandbox Name | The name of the sandbox. |
| Sandbox Description | The description for the sandbox. |
| Sandbox Creation Date | The date on which the sandbox was created. |
| Remarks | Enter a description or reason to delete the sandbox. |

5. Click **Delete**. Click **OK** on the confirmation dialog box to confirm or click **Cancel** to cancel.

NOTE

You may require approval from an approver to delete a sandbox.

4 Using Model Management

Model management allows you to create and publish models based on the sandboxes created from datasets in the database. The published models are then deployed in production to be consumed by users. Modelers create models by using the Notebooks in the Data Studio. The Notebooks are used to create training models and the iterations of comparison between various models lead to the elimination of undesired models and filters a few robust ones that can be considered for deployment in production. Modelers then use their better judgement to consolidate their choice and fix on one model - the champion model. The champion model is also called the scoring model or the actual model in this document.

Topics:

- [Prerequisites](#)
- [Access the Model Management Window](#)
- [Create, Review, Approve, and Deploy a Model](#)
- [Execute Models in the OFSAA Environment](#)
- [Import a Sandbox Model Data into a New Model](#)
- [Use the Model Audit Window](#)
- [Use Scope](#)
- [Use View Models](#)
- [Edit Models](#)
- [Delete Objectives and Models](#)

4.1 Prerequisites


The prerequisites for model management are as follows:

- To create a model, your user profile must be mapped to the Modeler Group. For more information, see the [Mapping User Groups](#) section.
- To create a model, a Sandbox must be deployed. See the [Create and Deploy a Sandbox](#) Section for more information.
- To approve and deploy a model, your user profile must be mapped to the Modeling Administrator Group. For more information, see the [Mapping User Groups](#) section.

4.2 Access the Model Management Window

The Model Management window allows you to create and publish models.

To access the Model Management window, follow these steps:

1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.



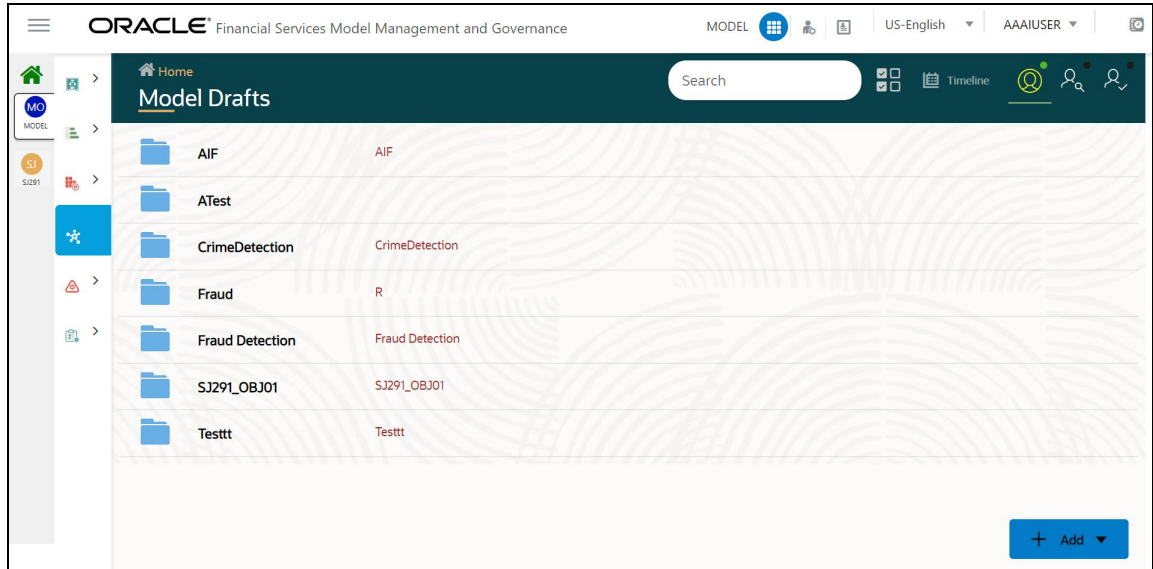
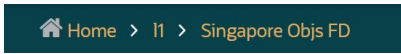












3. Select the required Sandbox and click  to display the **Sandbox Workspace** window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.



Figure 19: Model Management Page



The following table provides descriptions for the fields and icons on the **Model Management** page.




| Field or Icon | Description |
|-------------------------------------|---|
| Model Management Page Header | The header that follows the global header in the application. |
| Breadcrumbs | Indicates the position of the current page in the Model Management hierarchy. Use breadcrumbs locator links to navigate back to higher levels in the hierarchy after you have drilled-down through levels of functions.  |
| Show Check Box and Hide Check Box | Click  to show or hide the Multi Compare  and Multi Delete  buttons. See the Compare Models and Delete Objectives and Models Sections for more information. |
| Timeline | Select a Model and click  to view the time of the various actions performed on the model in the Model Audit window. See the Use the Model Audit Window Section for more information. |

| Field or Icon | Description |
|------------------------------------|---|
| Requester | <p>Displays that the logged-in user has the Requester privileges when the status is green.</p>  <p>You can create a model. However, to approve and publish, the model must be reviewed by a user with reviewer privileges and approved by a user with approver privileges.</p> |
| Reviewer | <p>Displays that the logged-in user has the Reviewer privileges when the status is green.</p>  <p>You can review models. However, to approve and publish, the model must be approved by a user with approver privileges.</p> |
| Approver | <p>Displays that the logged-in user has the Approver privileges when the status is green.</p>  <p>You can approve models that are created and reviewed.</p> |
| | |
| Model Management Page Table | The table displays the objective and model records on the page. |
| Objective and Model | <p>Displays the name of the Objective</p>  <p>Or Model.</p>  |
| Description | Displays the description for the Objective or Model. |
| Created User | Displays the user ID of the user who created the Model. This information does not display for an Objective. |
| Tags | <p>Displays the tags associated with the Objective or Model.</p>  <p>This information does not display for an Objective.</p> |
| Show Versions | <p>Click  to view the various versions of the model. See the Show Model Versions section for more information.</p> <p>This information does not display for an Objective.</p> |
| Edit Model | <p>Select  to edit the models in Data Studio. See the Edit Models Section for more information.</p> <p>This information does not display for an Objective.</p> |

| Field or Icon | Description |
|------------------------------|--|
| Delete Model | Select  to delete the model from the Confirmation dialog box. Click OK to process or click Cancel to cancel. This information does not display for an Objective. |
| Create Objectives and Models | Select  to display a list with the following options: <ul style="list-style-type: none"> • Draft • Objective To create Models, select Draft. To create Objectives, select Objective. See the Create Objective (Folders) and Create Draft Models (Training) sections for more information. However, if you want to know about the cycle of model creation, see the Create, Review, Approve, and Deploy a Model Section. |

4.3 Create, Review, Approve, and Deploy a Model

Model creation and deployment undergoes a workflow of Model Governance where the following types of users in the system have privileges that restrict the activities they can do in the model creation and deployment workflow.

| Field or Icon | Description |
|---|--|
| Requester  | You can create a model. However, to approve and publish, the model must be reviewed by a user with reviewer privileges and approved by a user with approver privileges. <ul style="list-style-type: none"> • Model Acceptance • Make Champion – Local NOTE: User Groups must be mapped to the MDLDEPLOY role to access Requester functions. |
| Reviewer  | You can review models. However, to approve and publish, the model must be approved by a user with approver privileges. <ul style="list-style-type: none"> • Model Acceptance • Model Acceptance + Promote to Production • Promote to Production NOTE: User Groups must be mapped to the MDLREVIEW role to access Reviewer functions. |
| Approver  | You can approve models that are created and reviewed. You can then promote to production and make the model the champion in the production. <ul style="list-style-type: none"> • Promote to Production • Make Champion – Global NOTE: User Groups must be mapped to the MDLAUTH role to access Approver functions. |

The following sections in this topic provide details for the cycle of creation of a model, review, approval, and deployment:

1. [Create Objective \(Folders\)](#)
2. [Create Draft Models \(Training\)](#)
3. [Publish Models \(Scoring\)](#)
4. [Show Model Versions](#)
5. [Compare Models](#)
6. [Understand Model Governance](#)
7. [Request Model Acceptance](#)
8. [Review Models and Move to Approve or Reject](#)
9. [Approve Models and Promote to Production](#)
10. [Deploy Models in Production and Make it a Global Champion](#)

4.3.1 Create Objective (Folders)

Create folders called Objectives within which you can create Models.

To create an Objective, follow these steps:




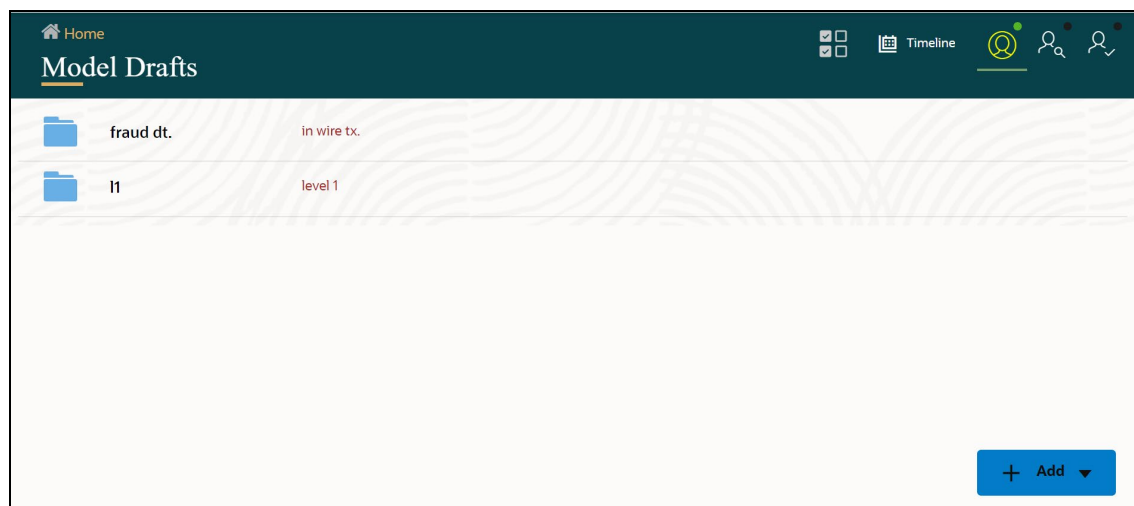
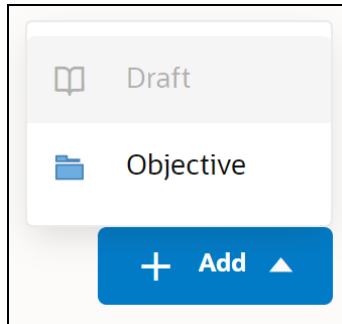
1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.

Figure 20: Create Model Objectives



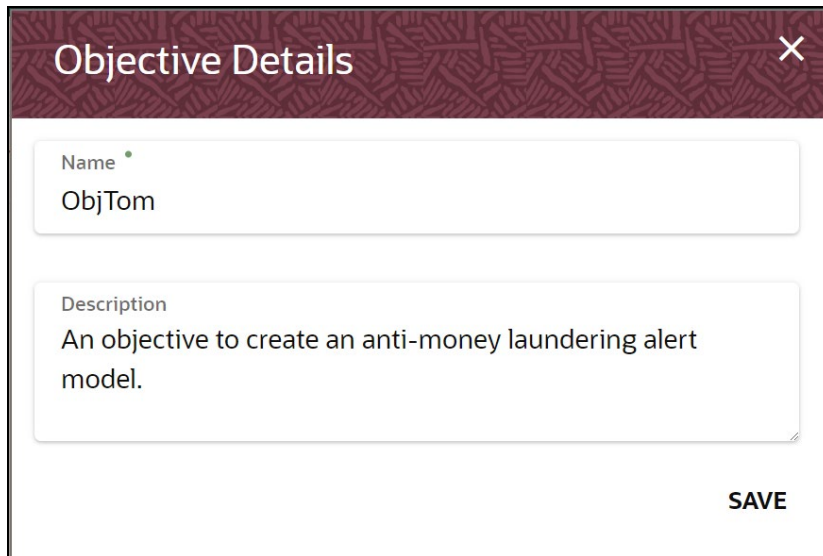
- Click **Add** and select **Objective** from the list to display the **Objective Details** dialog box.

Figure 21: Select Objective from Add



- Enter details for **Name** and **Description** fields in the **Objective Details** dialog box.

Figure 22: Objective Details Dialog box





- Click **SAVE**.

4.3.2 Create Draft Models (Training)

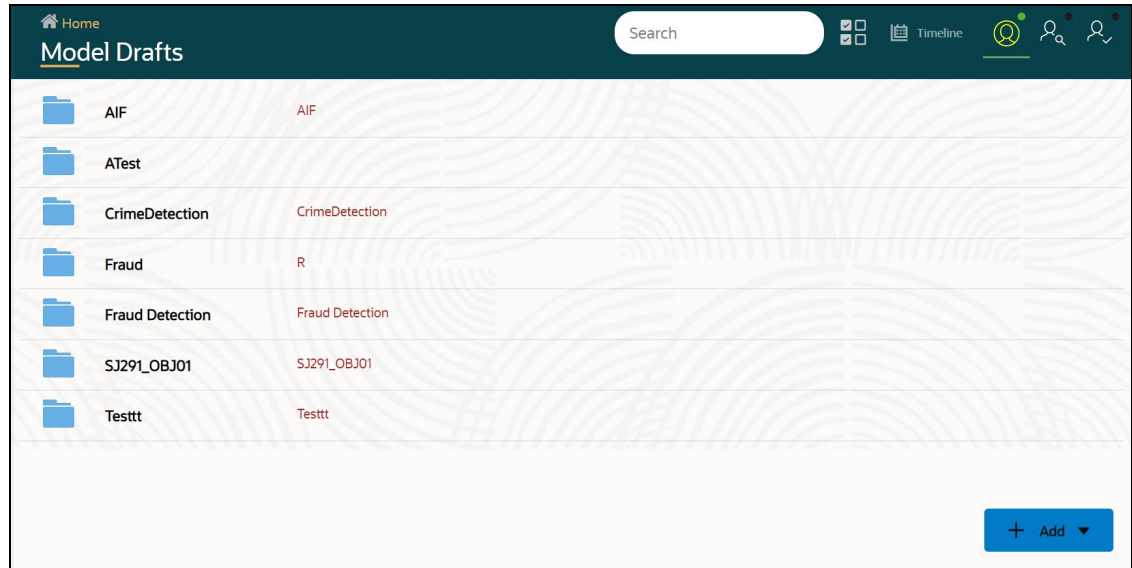
Create Models that are classified as training models. These models will be reviewed before being sent for Scoring.

To create a Model, follow these steps:

- Click **Applications**  from the **Header** to display the applications in the Tiles menu.
- Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
- Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.

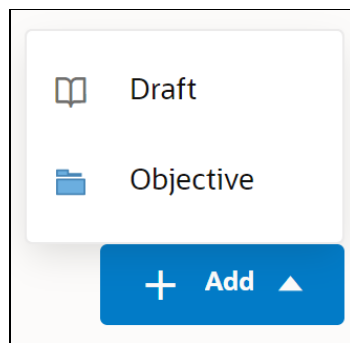
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.

Figure 23: Create Training Model



5. Click an Objective to open it.
6. Click **Add** and select **Draft** from the list to display the **Objective Details** dialog box.

Figure 24: Create Training Model - Draft

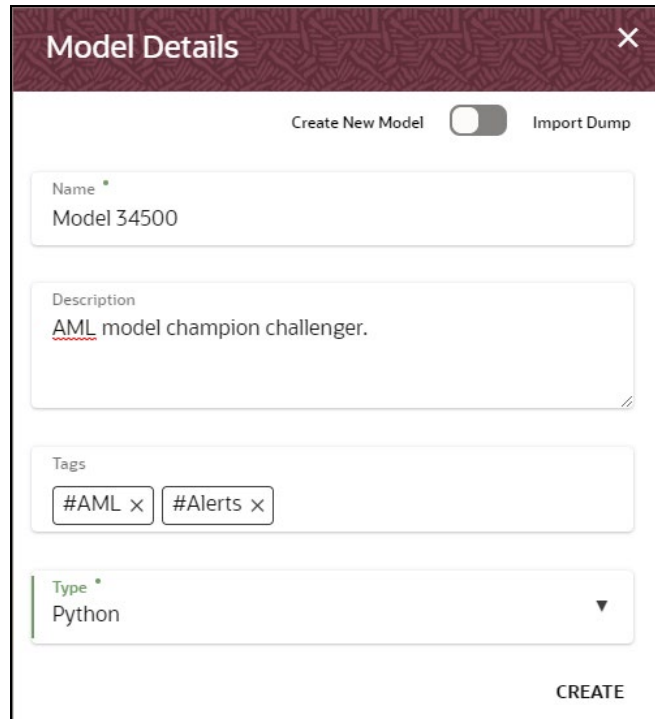


7. **Create New Model** is the default setting in the **Model Details** dialog box. Drag the toggle button to select **Import Dump**. Use Create New Model to start from a blank Notebook in Data Studio. Import Dump lets you drag and drop an existing file with model data and modify it. To import a model data dump from another model, see the [Import a Sandbox Model Data into a New Model](#) section.

To create a new model, follow these steps:

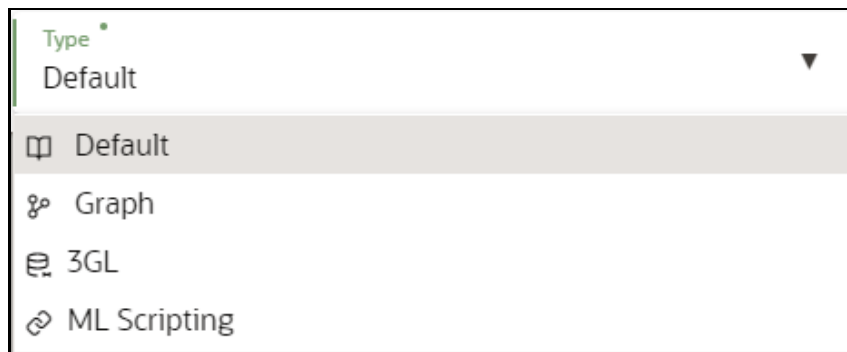
- a. Enter details for **Name** and **Description**.

Figure 25: Model Details - Create New Model



- b. Enter a tag and press the **Enter** key to add it in the **Tags** field.
- c. Select **Default** as the type of scripting language to create the Model in the Data Studio from the options available.

Figure 26: Create New Model - Scripting Language Type




- d. Click **CREATE** to display to launch the Data Studio window for model creation. For more details, see the [Create Paragraphs in Data Studio Notebooks](#) section.

4.3.2.1 Create Paragraphs in Data Studio Notebooks

After creating the Models in the SandBox, create Paragraphs in the Data Studio window. To create Paragraphs, you must have a working knowledge of scripting and Python.

The following types of paragraph creation are supported for model creation:

- Add empty Paragraph:  To create Model building scripts in Python.


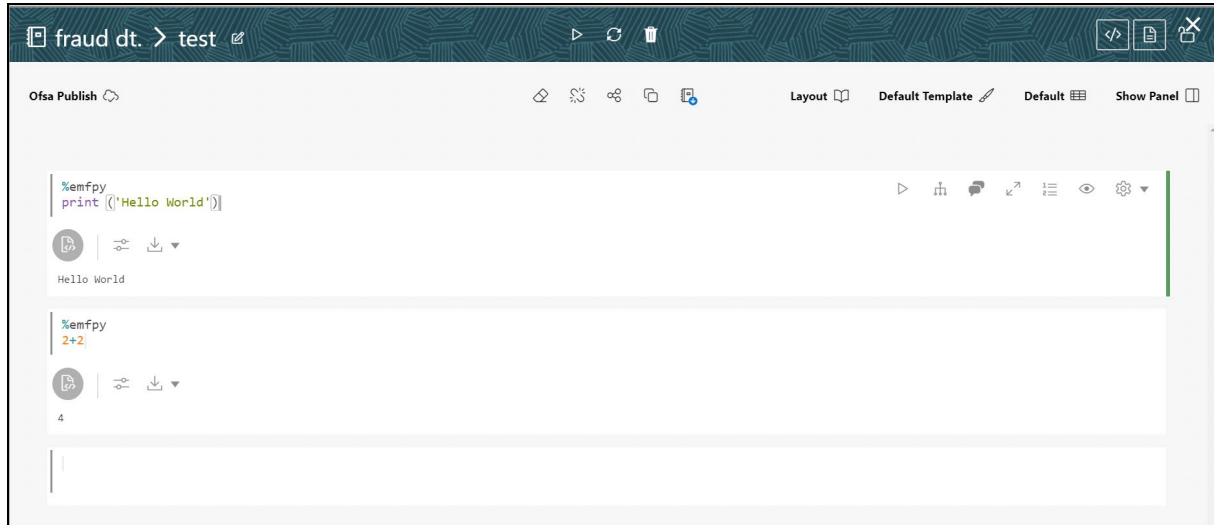

- Add Markdown Paragraph:  - To add documentation to provide information for the Python scripts.

Figure 27: Create Training Models in Data Studio Notebooks




To create Paragraphs in the Data Studio Notebooks, follow these steps:

1. Open Data Studio in OFS MMG. Follow the instructions in the [Create Draft Models \(Training\)](#) section to open it.


2. Click  in Data Studio to add a Paragraph in the Notebook and add the following format scripting instruction to load datasets:


```
ds=ofs.listDatasets()
ds
```

Click  to run the script and display the list of datasets.

3. Click  in Data Studio to add a Paragraph in the Notebook and add the following format scripting instruction to load variables from the selected datasets:

```
va=ofs.listVariables('Sales System Dataset')
va
```

Click  to run the script and display the list of variables.

4. Click  in Data Studio to add a Paragraph in the Notebook and add the following format scripting instruction to load dataframes from the selected variables:

```
x=ofs.as.dataframe("Sales System
Dataset", ["Product_Code", "Product_Key"])
```


After the Training Models are created, publish the Notebooks to create Scoring Models. See the [Publish Models \(Scoring\)](#) section for more information.

4.3.3 Publish Models (Scoring)

After creating the Training Models, publish the Notebooks which have the Model script.

To create a Scoring Model, follow these steps:

1. Create a Training Model. See the [Create Draft Models \(Training\)](#) section for more information.

2. Click  in the Data Studio Notebooks page to display the **Publish** dialog box.

3. Enter the details as shown in the following table.

| Field or Icon | Description |
|-------------------|--|
| Model Name | The field displays the name of the Model. Modify the name if required. |
| Objective Name | The field displays the name of the Objective under which the Model exists. Click the drop-down to display a list of Objectives in the application and select another Objective if required. The Model will be published in the selected Objective. |
| Model Description | The field displays the description for the Model. Enter or modify the description if required. |
| Technique | Enter the registered technique to use. |

| Field or Icon | Description |
|------------------|--|
| Run Version | Select a rub version. |
| Variable Mapping | The table displays the OFSAA variables and datasets used in the creation of the Training Model. |
| Script | The table displays the Paragraphs created in the Training Model. Select the Paragraphs that you want to use to create the Scoring Model. Track Output - Select this to track the output of the paragraph. |

4. Click **Publish**.

4.3.4 Show Model Versions

Show model versions displays information for deployed models, models that require approval, and so on.

To show model versions, follow these steps:





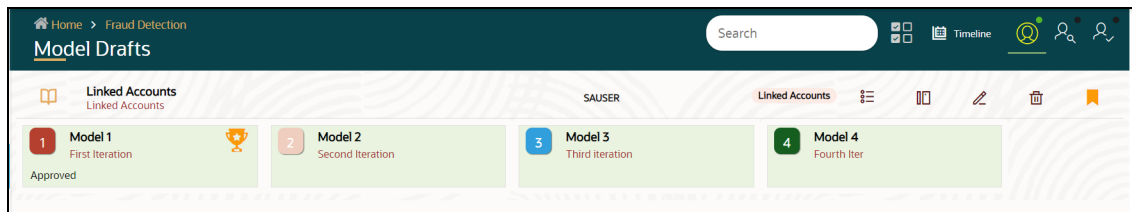
1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.
5. Click  and the record expands to display information for the versions and current status of the model.

Figure 28: Expand to Display Models and their Current Status










- The  icon in the model record in the Show Versions draw-down indicates that the model is deployed in production.
 - The  icon indicates that Model 1 is the champion
6. Hover the mouse over the model records to view the various icons.

Figure 29: Mouse Over the Model



The icon actions are listed in the following:

- a.  Download Model Data. See the [Import a Sandbox Model Data into a New Model](#) section for more details.
- b.  View Model Details - Opens the model scripts in the OFS MMG Data Studio. See the [Use View Models](#) section for more details.
- c.  View Scope Details - Opens the details for the scope of the model in OFS MMG. See the [Use Scope](#) section for more details.
- d.  Delete Model. See the [Delete Objectives and Models](#) section for more details.
- e.  Compares Models (By default, compares with the Champion model if available, or with a model selected by you). See the [Compare Models](#) section for more details.

4.3.5 Compare Models

Compare models that exist within an objective and review the attributes to promote or dissociate a deployed model.

To compare models, follow these steps:







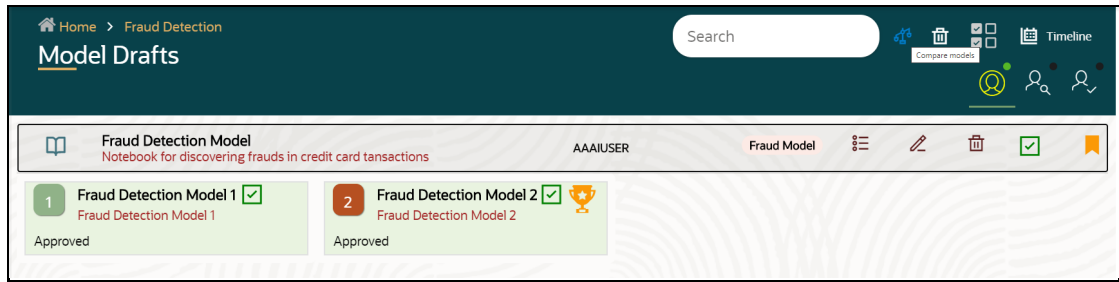
1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.
5. Click **Show Check Box**  to show the **Multi Compare**  button.
6. Select two or more models from the records in the objective to compare. If a model is a champion, the  icon is displayed on it.

Figure 30: Select Records to Compare




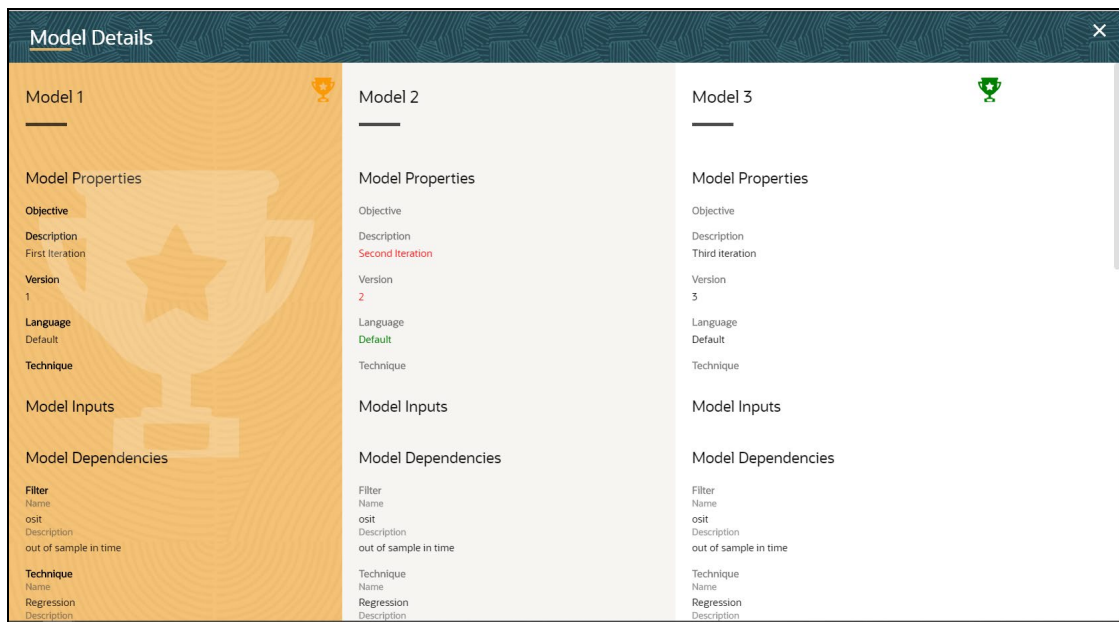
7. Click  from the header to display the **Models Details** window with details for the selected models in side-by-side comparison mode.


Figure 31: Compare Models in Model Details Window



NOTE

To make a model a champion from this window, place the mouse in the selected model columns. and click



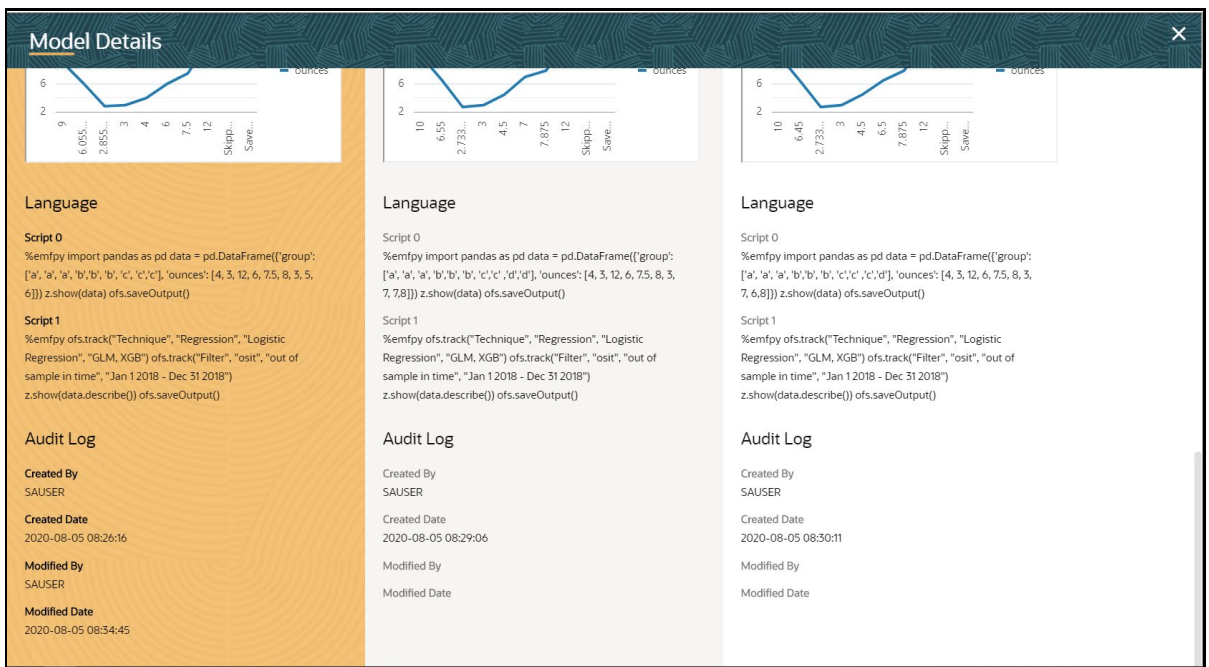
If a model is a champion model, the  icon is displayed.

Click **X** to close the window.

Figure 32: Compare Models in Model Details Window - Graphs



Figure 33: Compare Models in Model Details Window - More Details



8. Compare the models and if required, select a new champion. If you select a new champion, the model.

4.3.6 Understand Model Governance

After [comparing models](#), you must understand the Model Governance system in OFS MMG. The Model Governance has an impact on how the application functions with the various user types and the requests they can place from the Model Details window. You require to understand Model Governance before you request model acceptance, review models, or approve models for production.

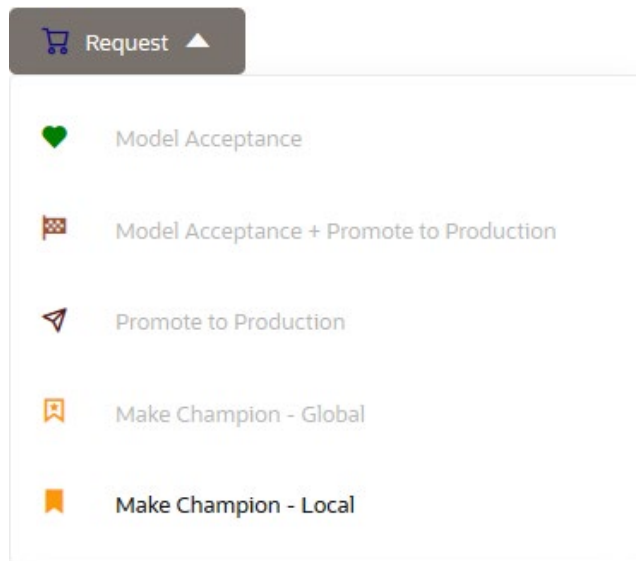
As discussed earlier, the users are of three types:

1. Requester
2. Reviewer
3. Approver

The request consists of the following phases in the Request drop-down (see the [Request Model Acceptance](#) section for how to access the drop-down in the Model Details window):

1. Model Acceptance
2. Model Acceptance + Promote to Production
3. Promote to Production
4. Make - Champion - Global
5. Make - Champion - Local

Figure 34: The Request Drop-down



The values in the drop-down are active based on the type of user (Requester, Reviewer, or Approver) and the phase that the model is in (accepted, promoted to production, global champion, and so on). Let us look at these with a few examples.

Example 1:

Assume that you are a user with Requester privileges and you create a model. Now you can request for the model to be accepted on the Model Details window from the **Request** drop-down. The values enabled for selection are **Model Acceptance** and **Model Acceptance + Promote to Production**. Let us proceed and assume that you select Model Acceptance, then a user with Reviewer privileges forwards your model to a user with Approver privileges. At this stage, the Approver can choose to reject or accept your model acceptance request. A reject would bring the model back to with comments on the updates required before it can be requested for acceptance again. However, if the Approver accepts your model, then the **Make Champion - Local** selection is enabled when you log in. You can create many models and send them for acceptance. After acceptance, any model that is accepted can be made the champion on your local sandbox at any time replacing the earlier local champion.

Example 2:

Assume that in the previous example, you selected **Model Acceptance + Promote to Production**, then a Reviewer forwards it to the Approver. The Approver, at this stage, chooses to promote the model to production by selecting **Promote to Production**. The model is now available in the production environment and the Approver can choose at any time to select a model from these models in production and select **Make Champion - Global**. If there exists a Champion model in the production environment, then it will be replaced by the new global champion. However, the earlier champion will still be available in the production environment along with other models and the Approver can choose to make it the global champion again at any time or select any of the other models and make one of them the global champion.

4.3.7 Request Model Acceptance

After comparing models, move the selected models to acceptance. Only a user with either Requester or Reviewer roles can request for model acceptance. The model moved to acceptance is then available to users with the Approver role, who can promote to production. See the [Understand Model Governance](#) section before you start here.

To request a model to promote to production, follow these steps:










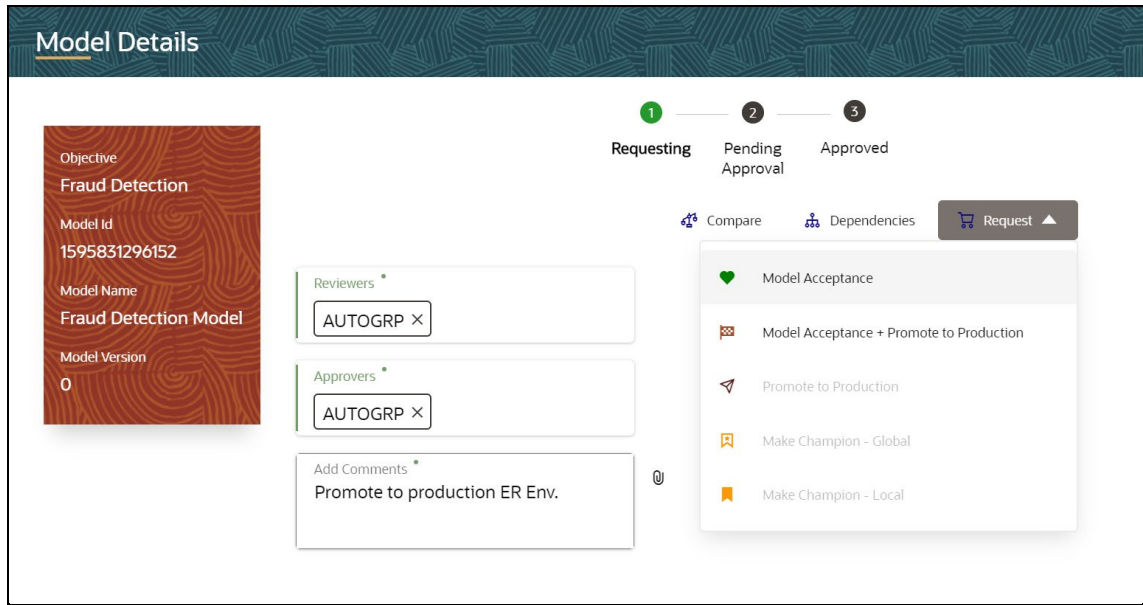
1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.
5. Click **Show Check Box**  to show the **Multi Compare**  button.
6. Select two or more models from the records in the objective to compare. If a model is a champion, the  icon is displayed on it.
7. Click  from the header to display the **Models Details** window with details for the selected models in side-by-side comparison mode.
8. To make a model a champion from this window, place the mouse in the selected model columns. and click  to display the **Model Details** window. If a model is a champion model, the  icon is displayed.

Figure 35: Model Details Window




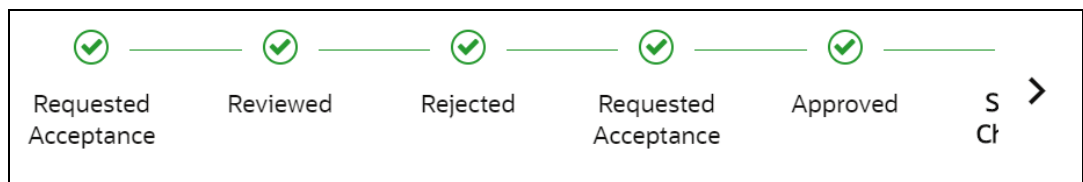



9. Select the reviewer group from the **Reviewers** drop-down.
10. Select the reviewer group from the **Reviewers** drop-down.
11. Enter comments in **Add Comments** and click  to attach files supporting the comments.
12. Use the following features on the window to perform additional actions.
 - View the model status change in the progress indicator. The Progress Indicator displays the various states of progress that the model has been through. Accordingly, you must request, review, or approve models.

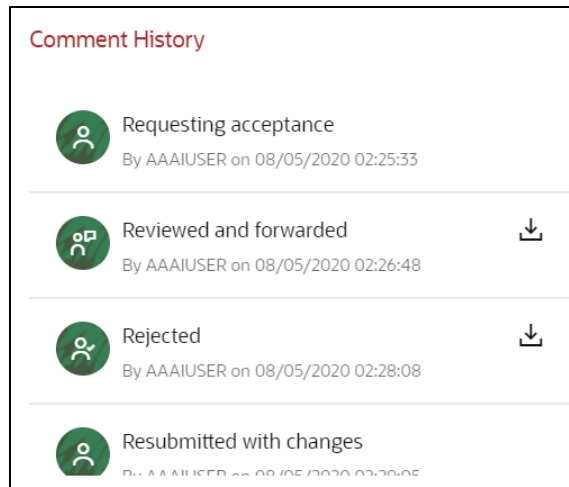
Figure 36: Model Approval Progress Indicator



- Click to  compare with the champion model.
- Click  to view the dependencies associated with the model.
- Click  to select a type of request from the drop-down:
 - Model Acceptance: To review and accept the model creation.
 - Model Acceptance + Promote to Production: To review and promote the model to production.
 - Make Champion - Local: If the model is not the champion model, select to make it the local champion.
 - Promote to Production:

- **Comment History:** A record of comments entered in the cycle of model creation and approval with the feature to download attachments.

Figure 37: Comment History Pane



The model sent for acceptance or for promotion to production is now displayed to a Reviewer when signed in, who must either accept the request or reject it.

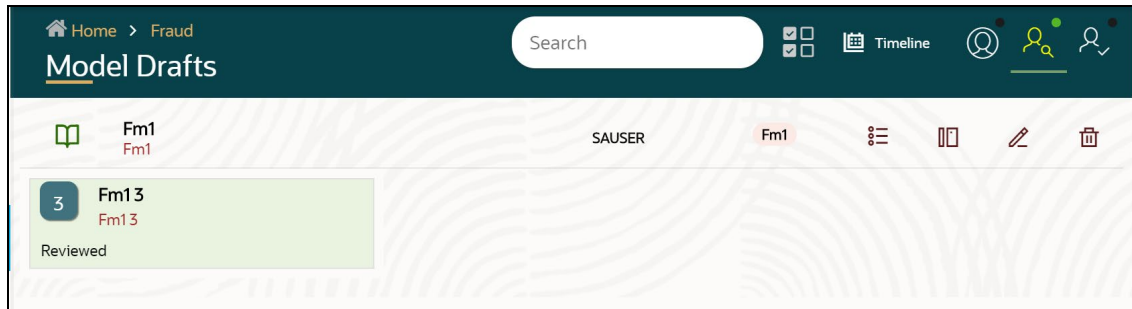
4.3.8 Review Models and Move to Approve or Reject


The Reviewer must either accept or reject the request with comments describing the action. If rejected, the model goes back to the Requester to make changes or to delete it. If approved, the model moves further in the workflow and is displayed to an approver. See the [Understand Model Governance](#) section before you start here.

To review a model, follow these steps:

1. Click **Applications** from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click to display the **Model Management** window. The window displays folders that contain models and model records in a table.
5. Click and the record expands to display information for the versions and current status of the model.

Figure 38: Models in the Reviewer View








6. Click  to display the Model Details Window.
7. Review the details and send it back to the Requester for modifications or send it to an Approver.

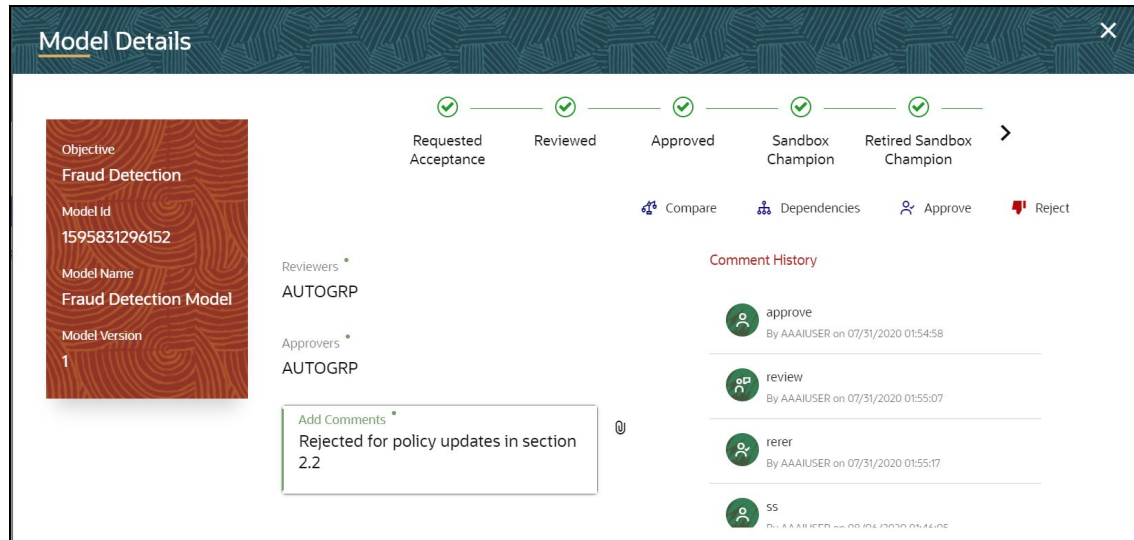
4.3.9 Approve Models and Promote to Production

The models reviewed and set to promote to production by either the Requester or Reviewer is displayed to the Approver when signed in. The Approver has to either reject the model and send it back to the requester with supporting comments or approve it for pushing to production. See the [Understand Model Governance](#) section before you start here.

To approve or reject models, follow these steps:

1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.
5. Select a model from the records in the objective.
6. Click  and the record expands to display information for the versions and current status of the model.
7. Click  to display the Model Details Window.

Approver - Approve or Reject Models



8. Click Approve or Reject with appropriate comments.

4.3.10 Deploy Models in Production and Make it a Global Champion

After approving the models, deploy it to the production environment. You must have an Approver function role and privileges to do this activity.

To deploy Models in production, follow these steps:






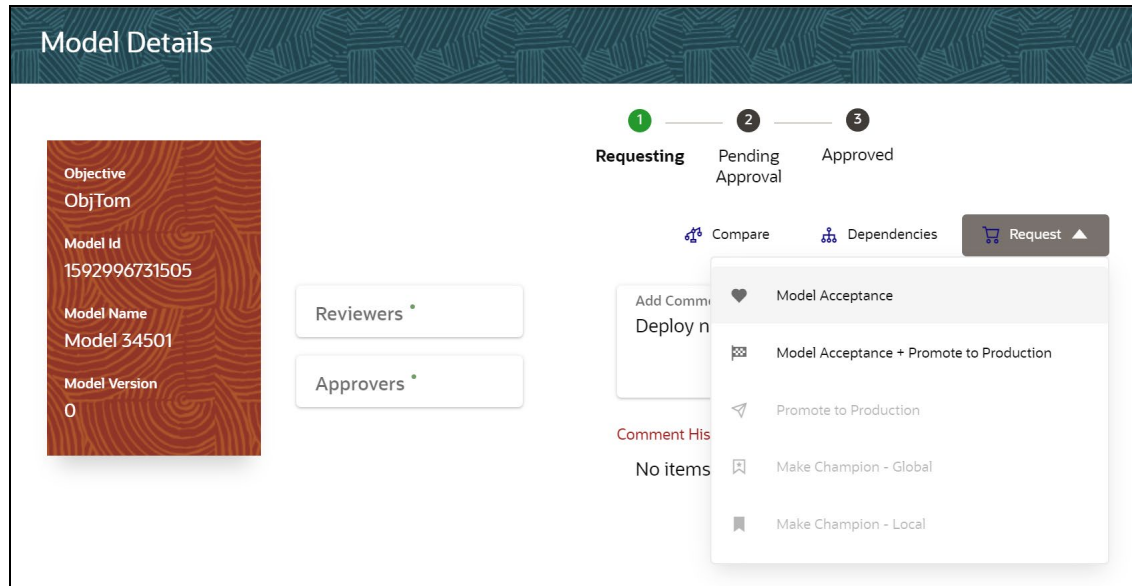
1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.
5. Select a model from the records in the objective.
6. Select the model to deploy and click  to display the details of the model. If a model is a champion, the  icon is displayed.

Figure 39: Options in the Request Drop-down



4.4 Execute Models in the OFSAA Environment

The models that you have created require that they are executed in the OFSAA Environment before they can be available to the users of OFSAA applications. This is accomplished through the Operations and Process Management features in OFSAA. The information in this section describes the execution methods specific to OFS MMG. For more information on how these features function in the OFSAA environment, see the [OFS Analytical Applications Infrastructure User Guide](#).

The following model execution processes are available for OFS MMG:

1. [Model Execution in OFSAA using Process Modeller Framework \(PMF\)](#)
2. [Model Execution in Data Studio using Operations \(ICC\)](#)

4.4.1 Model Execution in OFSAA using Process Modeller Framework (PMF)

The model execution process is run in OFSAA using the PMF, which has an OFSAA Widget built specifically for this purpose. For more details on PMF, see the [OFSAA Process Modelling Framework Orchestration Guide](#).

To access the Process Modeling Framework, follow these steps:


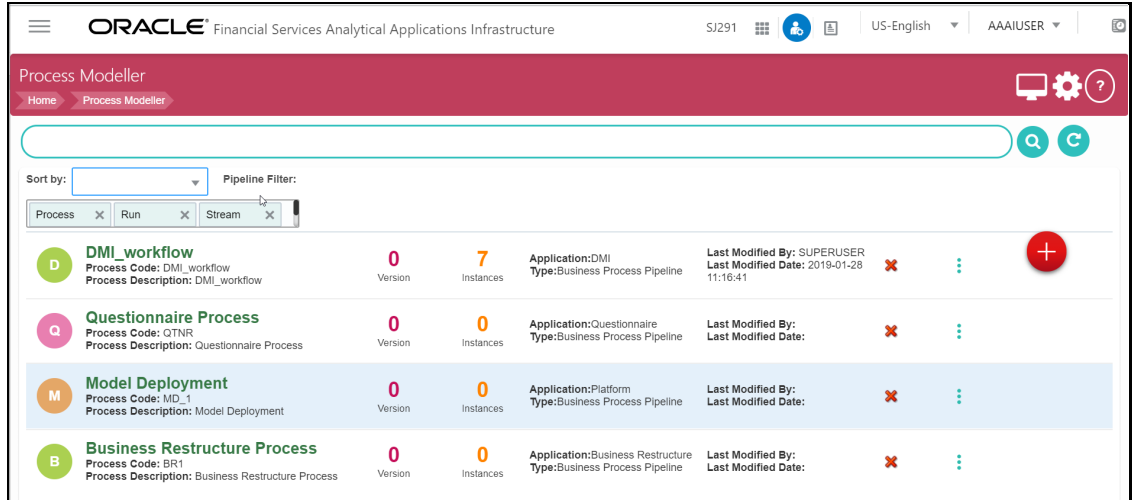
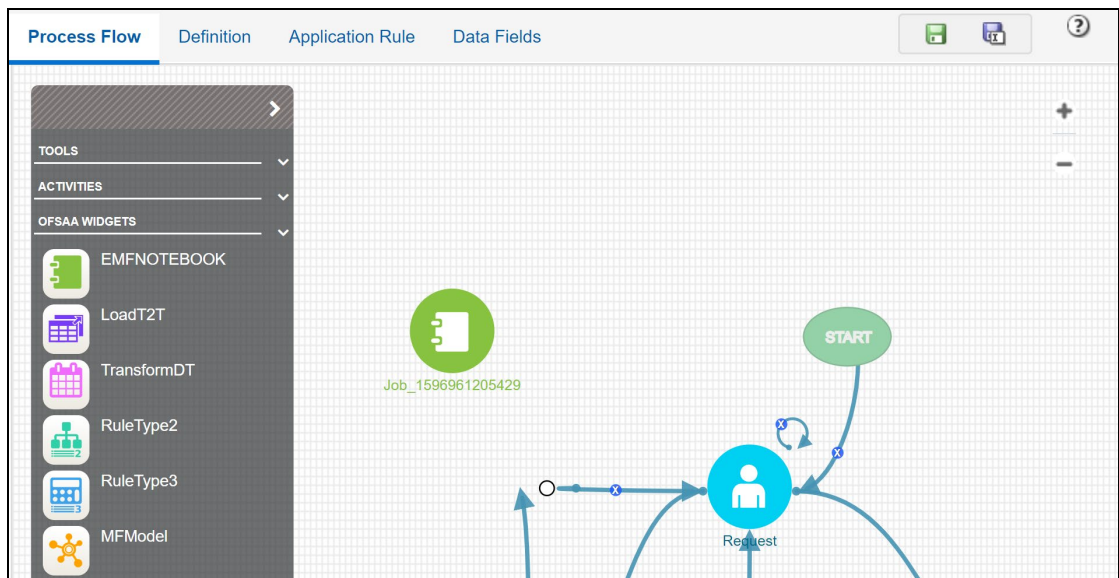
1. Log in to the OFSAA Application.
2. Click **Administration**  from the **Header** to display the administration tasks in the Tiles menu.
3. Select the required **Information Domain** from the drop-down.
4. Select **Process Modeling Framework** to display a submenu.
5. Select **Process Modeler** from the submenu to display the **Process Modeler** window.

Figure 40: The Process Modeler Window



6. Select the **Model Deployment** Process from the list to display the PMF Canvas.
7. Select **OFSAA WIDGETS** from the Navigation Tree to expand the menu.
8. Click **EMFNOTEBOOK** from the menu to display the graphical representation of the process on the canvas.

Figure 41: The PMF Canvas



9. Double-click anywhere on the canvas to display the **Job** icon.
10. Double-click the **Job** icon to display the Activity Details dialog box.

Figure 42: The Activity Details Dialog box

The screenshot shows a configuration form for an activity. At the top, there are three icons: a refresh icon, a undo icon, and a warning icon. Below these are the following fields:

- Activity Id**: Job_1596961205429
- Activity Name**: Job_1596961205429
- Activity Desc**: To execute the Model in PMF
- Exclude Task**: No
- Dynamic Parameters for EMFNOTEBOOK**:
 - Datastore Name**: MODEL
 - Objectives**: Fraud Detection
 - Models**: CHAMPION

11. Select the required **Datastore Name**.
12. Select the required Objective from the **Objectives** drop-down.
13. Select the required model to execute from the **Models** drop-down.


All the models for the selected Objective are displayed in the drop-down with the values of CHAMPION and ALL_CHAMPION as shown in the example in the following illustration.

Figure 43: The Models Drop-down in Activity

This close-up shows the 'Objectives' and 'Models' fields. The 'Objectives' dropdown is set to 'Fraud/Cards'. The 'Models' dropdown is open, displaying a list of options: 'CHAMPION' (highlighted), 'CHAMPION', 'ALL_CHAMPIONS', and 'fraudmodel1_1'.

Let us understand how the selection works by elaborating more on the illustration in the preceding example. There are two objectives: Fraud and Cards. Cards is a child objective of the Fraud objective. There may be models in the Fraud objective and the Cards objective. All the models are displayed in the Models drop-down with the addition of the CHAMPION and ALL_CHAMPION model selections. Consider that the Fraud objective has a champion model and other models. Similarly, the Cards objective might have a champion model and other models in it.

In the preceding example, if you select the CHAMPION value, the champion model for Cards objective is executed (if you had selected only Frauds in the Objective drop-down, then the champion model for Frauds would have been executed). If you select the fraudmodel1_1 value, the fraudmodel1_1 model (Models that are not champion models from both the objectives are listed) is executed. If you select ALL_CHAMPIONS, the champion models in both the Fraud and Cards objectives are executed.

14. Click anywhere on the canvas and click  to save the definition.
15. Execute the model from the PMF Summary window. For more details on PMF Process Execution (Test Process Flow and Execute Run), see the [OFSAA Process Modelling Framework Orchestration Guide](#).

4.4.2 Model Execution in Data Studio using Operations (ICC)

The model execution is also available from the Data Studio integrated with OFSAA. This is possible using the Operations feature in OFSAA that is integrated with OFS MMG.

To access the Operations feature in OFS MMG and execute a model, follow these steps:





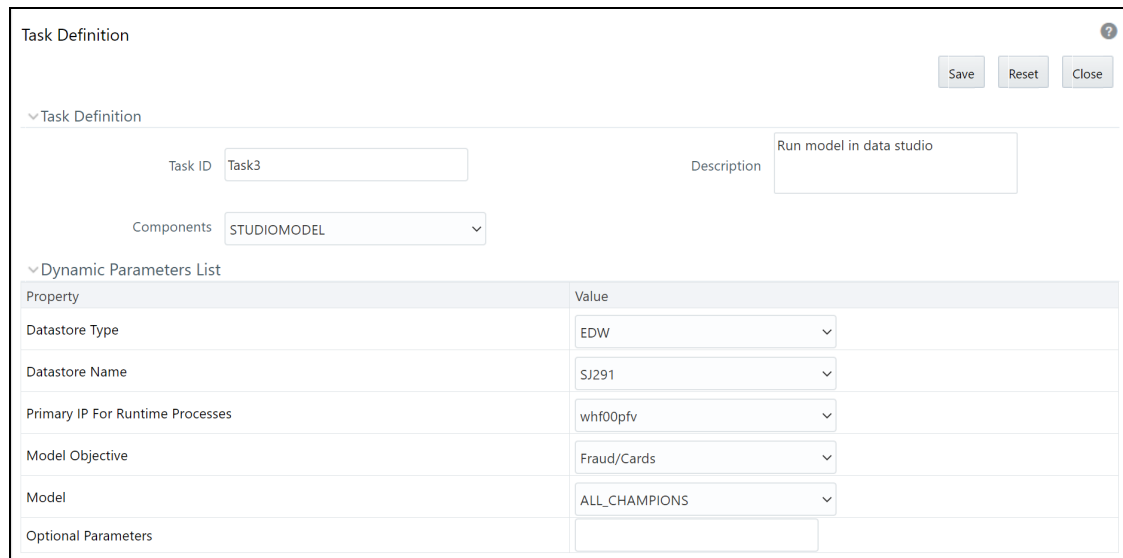
1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the Operations menu.
5. Select **Batch Maintenance** to display the Batch Maintenance window.
6. Select the required batch from the **Batch Name** pane to display the **Task Details** pane.
7. Click  **Add** to display the **Task Definition** window.

Figure 44: The Task Definition Window



| Property | Value |
|----------------------------------|---------------|
| Datastore Type | EDW |
| Datastore Name | SJ291 |
| Primary IP For Runtime Processes | whf00pfv |
| Model Objective | Fraud/Cards |
| Model | ALL_CHAMPIONS |
| Optional Parameters | |

8. The Task ID is an automatically generated and system assigned value. Enter appropriate comments in the Description field.
9. Select **STUDIOMODEL** from the **Components** drop-down to display the Dynamic Parameters List pane.



10. Select the required **Datastore Type** from the drop-down.
11. Select the required **Datastore Name** from the drop-down.
12. Select the appropriate **Primary IP Runtime Processes** from the drop-down.
13. Select the required objective that contains the models from the **Model Objective** drop-down.
14. Select the required model to be executed from the **Model** drop-down.
15. All the models for the selected Objective are displayed in the drop-down with the values of CHAMPION and ALL_CHAMPION as shown in the example in the following illustration.

Figure 45: The Models Drop-down in Dynamic Parameters List

| | |
|--------------------------------------|--|
| Model Objective | Fraud/Cards |
| Model | |
| Optional Parameters | CHAMPION ALL_CHAMPIONS fraudmodel1_1 |
| <input type="checkbox"/> Audit Panel | |

Let us understand how the selection works by elaborating more on the illustration in the preceding example. There are two objectives: Fraud and Cards. Cards is a child objective of the Fraud objective. There may be models in the Fraud objective and the Cards objective. All the models are displayed in the Models drop-down with the addition of the CHAMPION and ALL_CHAMPION model selections. Consider that the Fraud objective has a champion model and other models. Similarly, the Cards objective might have a champion model and other models in it.

In the preceding example, if you select the CHAMPION value, the champion model for Cards objective is executed (if you had selected only Frauds in the Objective drop-down, then the champion model for Frauds would have been executed). If you select the fraudmodel1_1 value, the fraudmodel1_1 model (Models that are not champion models from both the objectives are listed) is executed. If you select ALL_CHAMPIONS, the champion models in both the Fraud and Cards objectives are executed.

16. Click **Save** to save the model definition.
17. Click  to display the Operations menu.
18. Select **Batch Execution** to display the Batch Execution window.
19. Select the batch from the Batch Details pane and click **Execute**. All the tasks configured in the batch are executed. To monitor, click  to display the Operations menu. Select **Batch Monitor** to display the Batch Monitor window.

4.5 Import a Sandbox Model Data into a New Model

The model data from existing models in OFS MMG in .dmp format and the existing model data in Data Studio in .dsnb can be imported during the creation of a new model. The import of model data lets you reuse and extend on model creation. This topic is part of the procedure of creating Training

Models and after creating a new model using this method, see the [Create Draft Models \(Training\)](#) section for instructions on how to proceed further.

To import model data, follow these steps:





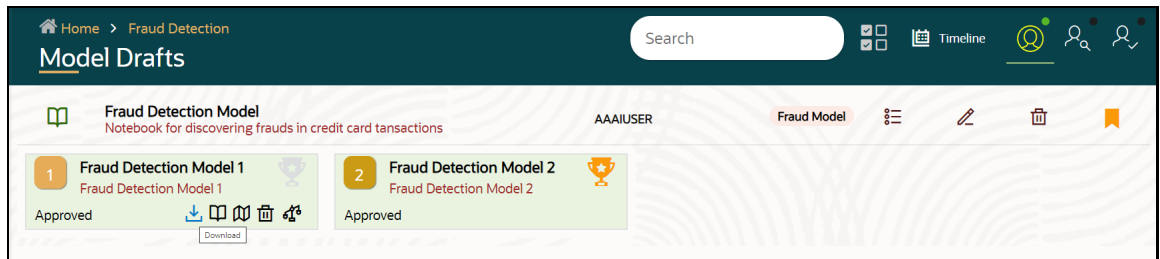
1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.
5. Select an Objective.
6. Select a model and click  to display the model versions in the expanded display.

Figure 46: Model Versions






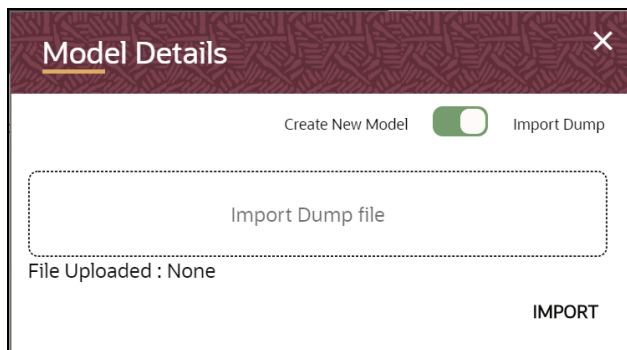
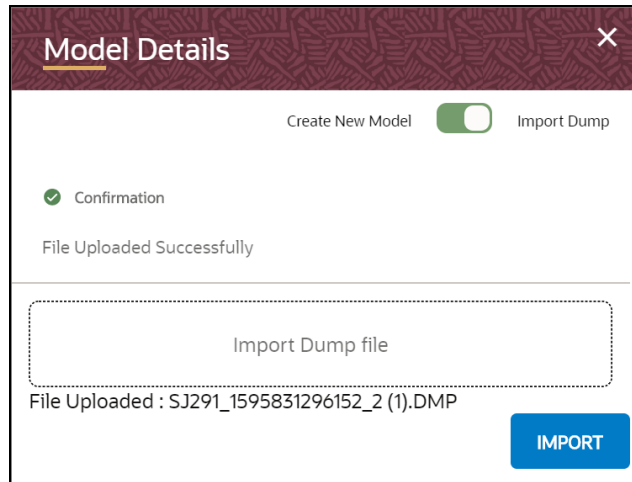
7. Hover the mouse over a model and click  to download the model data dump.
8. Click  and  Drafts to display the **Model Details** dialog box for the creation of a new model.

Figure 47: Model Details - Import Dump



9. Drag the toggle switch to select **Import Dump**.
10. Drag and drop the file into the **Import Dump File** field or click in the box to open the file selector dialog and select a file.



11. Click **IMPORT**. A new model is created by importing the model data dump of another model.

4.6 Use the Model Audit Window

At any time, you can audit models from the Model Audit window. The sequence of actions performed in the model lifecycle is listed in the table view and the timeline view (graphical representation).

To audit models, follow these steps:





1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.
5. Select a Model and click  to view the time of the various actions performed on the model in the **Model Audit** window.

Figure 48: Model Audit Window

| Model Name | Status | User | Description | Date |
|-------------------------|--|---------|---|--------------|
| Fraud Detection Model 2 | Approved | AAAUSER | Model Fraud Detection Model 2 (2) was Approved ... | Aug 05, 2020 |
| Fraud Detection Model 1 | Request for retirement of Local Champion | AAAUSER | Model Fraud Detection Model 1 (1) was Request_re... | Aug 05, 2020 |
| Fraud Detection Model 2 | Request for Local Champion | AAAUSER | Model Fraud Detection Model 2 (2) was Request_c... | Aug 05, 2020 |
| Fraud Detection Model 2 | Request for Model Acceptance | AAAUSER | Model Fraud Detection Model 2 (2) was Request_... | Aug 05, 2020 |
| Fraud Detection Model 2 | Rejected | AAAUSER | Model Fraud Detection Model 2 (2) was Rejected b... | Aug 05, 2020 |
| Fraud Detection Model 2 | Reviewed | AAAUSER | Model Fraud Detection Model 2 (2) was Reviewed ... | Aug 05, 2020 |
| Fraud Detection Model 2 | Request for Model Acceptance | AAAUSER | Model Fraud Detection Model 2 (2) was Request_... | Aug 05, 2020 |
| Fraud Detection Model 2 | Created | AAAUSER | Model Fraud Detection Model 2 (2) was Added by ... | Jul 31, 2020 |
| Fraud Detection Model 1 | Approved | AAAUSER | Model Fraud Detection Model 1 (1) was Approved b... | Jul 31, 2020 |



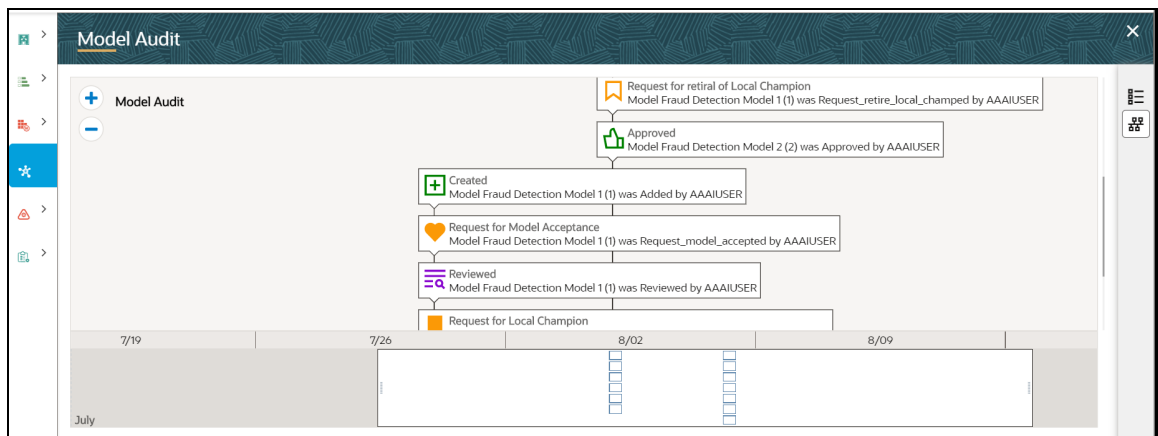
6. Click  for Timeline View. Click  to switch to the regular view. Click **X** to close the window.




Figure 49: Model Audit Window Timeline View with Horizontal Time Axis



4.7 Use Scope

The Scope provides a detailed view of the components of the model in the Scope Details window. The window displays a scrollable system.

To access the Scope Details window, follow these steps:

1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.


5. Click  and the record expands to display information for the versions and current status of the model.
6. Hover the mouse over the model records to view the various icons available for the model.

Figure 50: Mouse Over the Model to View Scope Icon




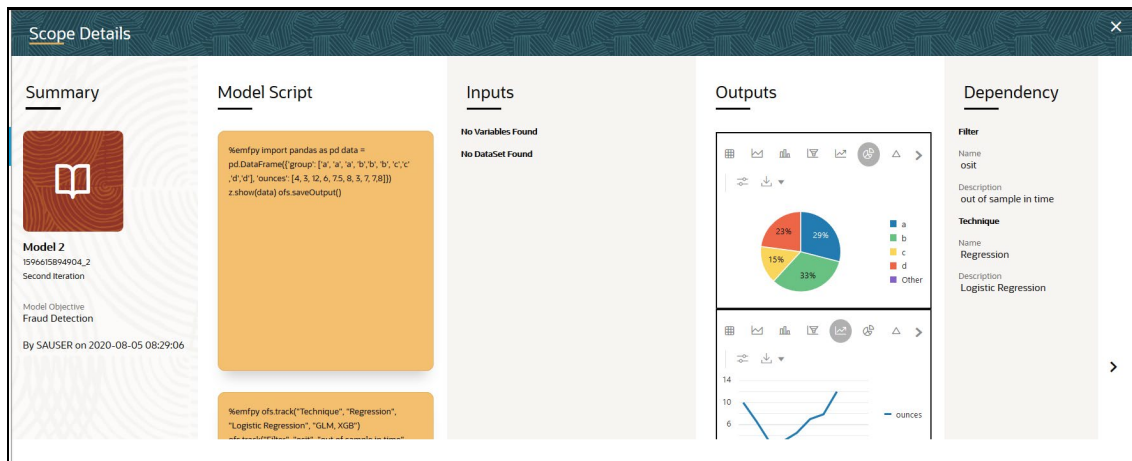
7. Click  to display the Scope Details window.

Figure 51: Mouse Over the Model to View Scope Details window






Use the vertical and horizontal scroll to view the details that make up the model.

4.8 Use View Models

The View Models feature launches the OFS MMG Data Studio window. You can edit models on this window.

To use View Models, follow these steps:

1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.



5. Click  and the record expands to display information for the versions and current status of the model. Hover the mouse over the model records to view the various icons available for the model.

Figure 52: Mouse Over the Model to View Scope Icon







6. Click  to display the OFS MMG Data Studio window.
Use the vertical and horizontal scroll to view the details that make up the model. Also, see the [Edit Models](#) section for another option to edit models. See the [Create Paragraphs in Data Studio Notebooks](#) section for details on how to use the OFS MMG Data Studio.

4.9 Edit Models



The editing of models created versions that are different from the previously saved model and the cycle of [Model Governance](#) applies to any edited model. You can edit models from the OFS MMG Data Studio window using Python scripting language.

To edit a model, follow these steps:

1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.
4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.
5. Select  to edit the models in Data Studio. Also, see the [Use View Models](#) Section, which provides another option to edit models in OFS MMG Data Studio. See the [Create Paragraphs in Data Studio Notebooks](#) section for details on how to use the OFS MMG Data Studio.

4.10 Delete Objectives and Models

To delete Objectives and Models that exist in the Objectives, follow these steps:

1. Click **Applications**  from the **Header** to display the applications in the Tiles menu.
2. Select the **Financial Services Model Management and Governance** application to display the **Sandbox Summary** page. The page displays sandbox records in a table.
3. Select the required Sandbox and click  to display the Sandbox Workspace window with application configuration and model creation menu.




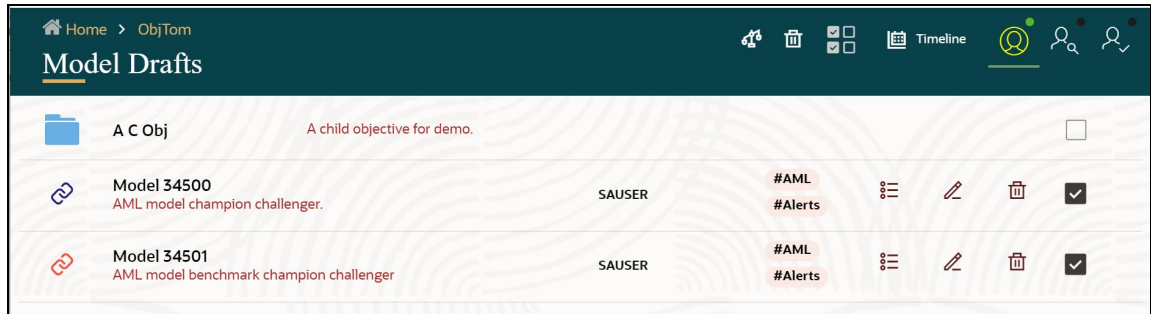

4. Click  to display the **Model Management** window. The window displays folders that contain models and model records in a table.
5. Click **Show Check Box**  to show the **Multi Delete**  button.
6. Select two or more objectives or models from the records.

Figure 53: Delete Multiple Objectives or Models



7. Click  to display the **Confirmation** dialog box.
8. Click **OK** to delete or click **Cancel** to cancel.

OFSAA Support

Raise a Service Request (SR) in [My Oracle Support \(MOS\)](#) for queries related to the OFSAA applications.

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