Oracle® Banking Treasury Management

Development of Maintenance Form

Release 14.8.1.0.0
G45880-01
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ORACLE

Oracle Banking Treasury Management Development of Maintenance Form, Release 14.8.1.0.0

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Contents

Preface

This document describes the steps to develop the notification XML and notification trigger using Oracle FLEXCUBE Development Workbench.

Purpose

This manual is designed to help FLEXCUBE Application developers/users to familiarize with ORACLE FLEXCUBE Development Workbench.

Audience

This document is intended for FLEXCUBE Application developers/users that use Development Workbench to develop various FLEXCUBE components.

To Use this manual, you need conceptual and working knowledge of the below:

Table 1 Proficiency and Resources

Proficiency	Resources
FLEXCUBE Functional Architecture	Training programs from Oracle Financial Software Services.
FLEXCUBE Technical Architecture	Training programs from Oracle Financial Software Services.
FLEXCUBE Object Naming Conventions	Development Overview Guide
Working knowledge of Web based Applications	Self-Acquired
Working knowledge of Oracle Database	Oracle Documentations
Working knowledge of PLSQL developer	Respective vendor documents

Table 1 (Cont.) Proficiency and Resources

Proficiency	Resources
Working knowledge of PLSQL and SQL Language	Self-Acquired
Working knowledge of XML files	Self-Acquired

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Critical Patches

Oracle advises customers to get all their security vulnerability information from the Oracle Critical Patch Update Advisory, which is available at Critical Patches, Security Alerts and Bulletins. All critical patches should be applied in a timely manner to ensure effective security, as strongly recommended by Oracle Software Security Assurance.

Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

Conventions

The following text conventions are used in this document:

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

Screenshot Disclaimer

Personal information used in the interface or documents is dummy and does not exist in the real world. It is only for reference purposes.

Prerequisite

Specify **User ID** and **Password**, and log in to **Home Screen**.

Related Resources

The functions of ORACLE FLEXCUBE Development Workbench for Investor Servicing system is organized into various guides, each discussing a component.

For more information, see these Open Development Tool documents:

- *Open Development Tool Installation*
- *Development Workbench - Getting Started*
- *Development Workbench - Administration*
- *Development Workbench - Screen Development I*
- *Development Workbench - Screen Development II*
- *Development Workbench - Screen Customizer*
- *Development Workbench - Notifications*
- *Development Workbench - Bulk Generation*
- *Development Workbench - Source Upgrade*
- *Development Workbench - Tracking Changes*
- *Child and Screen Childs - Concept and Design*
- *Development of Online Form*
- *Development of Call Form*
- *Development of Launch Forms and Other Screens*
- *Development of Dashboard Form*
- *Development Workbench Service XML Development*
- *Development Workbench Performance Tuning Enhancements*
- *Development Workbench - Rest Services Development*

1

Overview of Maintenance Screen

This topic provides an overview of the Maintenance Screen.

Maintenance function IDs are used for storing maintenance data which are required for processing any contracts, batches, or for any other maintenance which are dependent on this.

Business logic for a maintenance function id would be provided by the Development Workbench generated files. In most cases, system-provided logic would be sufficient. Extra validations can be coded in the hook packages by the developer.

Example 1-1 Customer Maintenance Screen

If any customer wants to use the service of a bank, details about the customer will have to be maintained in the system. This will be maintenance data which will be required for other maintenances (creating an account for the customer) as well as for transaction processing (debiting of customer account).

2

Screen Development

This topic provides an overview of maintenance screen development.

The design and development of a Maintenance function id are similar to any other function Ids.

This topic briefs the steps in designing the Maintenance screen. **UTDFNDRL** is the sample function id used for demonstration in this document. For a detailed explanation, refer to the topic **Development WorkBench - Screen Development I**.

This topic contains the following sub-topics:

- Header Information
  This topic describes about defining the header information for Maintenance Forms.
- Preferences
  This topic describes about defining the preferences for Maintenance Forms.
- Data Sources
  This topic provides the systematic instructions to create Data Sources for Maintenance screens.
- Data Blocks
  This topic provides systematic instructions to create Data Block.
- Screens
  This topic provides systematic instructions to create a new screen.
- Field Sets
  This topic provides systematic instructions to create a new Fieldset.
- List Of Values
  This topic provides systematic instructions to define LOVs.
- Add Call Forms
  This topic provides systematic instructions to attach Call Forms.
- Add Summary
  This topic provides systematic instructions to Add Summary.
- Maintain Amendable fields
  This topic provides systematic instructions to maintain amendable fields.

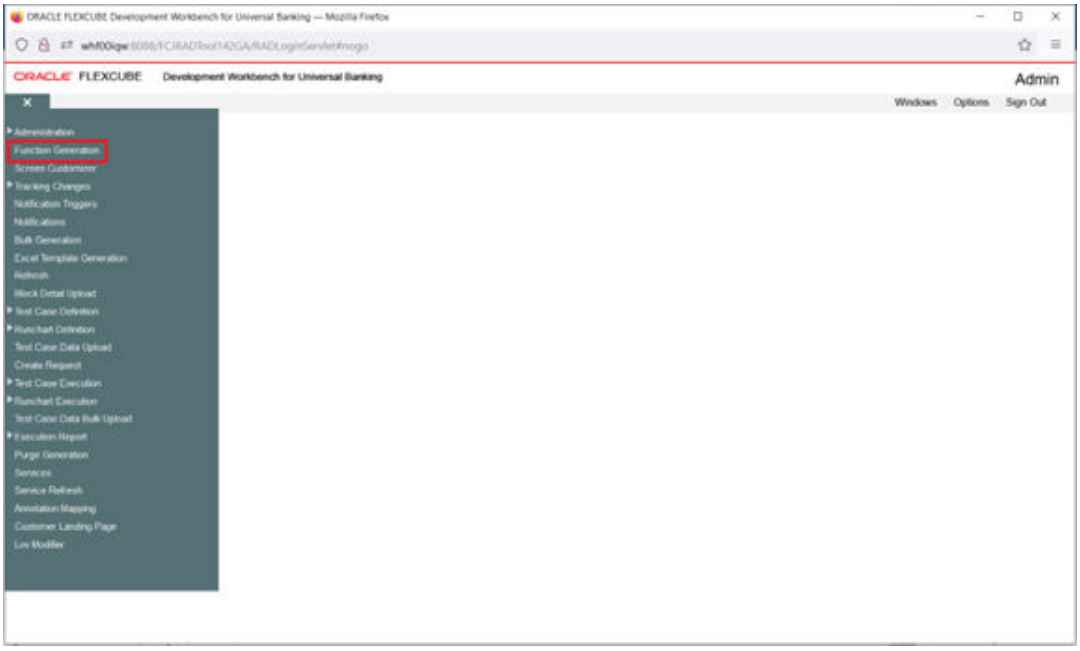
2.1 Header Information

This topic describes about defining the header information for Maintenance Forms.

1. On **Expand Menu** of the Development Workbench for Universal Banking, click **Function Generation** node.

   The **Function Generation** screen displays.

Figure 2-1 Function Generation



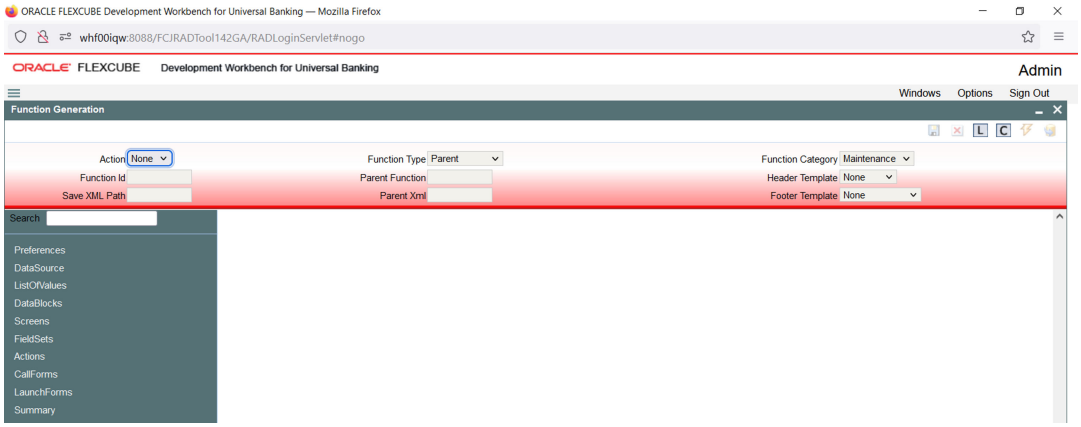
2. On the **Function Generation** screen, right-click the **Header Information** and select **Add** option to create the new data block.

   For more information on fields, refer to the field description table.

Table 2-1 Function Generation - Field Description

Field	Description
Function ID	It is the name of the Maintenance Form. The third letter of the function id has to be **D**. Ideally the function id name should have 8 characters. Example: UTDFNDRL
Function Category	It is the Maintenance Form Category. It has to be **Maintenance**.
Function Type	Parent
Parent Function Id	None
Parent Xml	None
Header Template	None (Only for Process flow screens)
Footer Template	Select the footer template from the drop-down list. • **None** • **Maint Audit** • **Maint Process** • **Process** For Maintenance Screen, footer template should be selected as **Maint Audit**. Make sure that the master data source has the audit columns if footer template is provided as Maint log

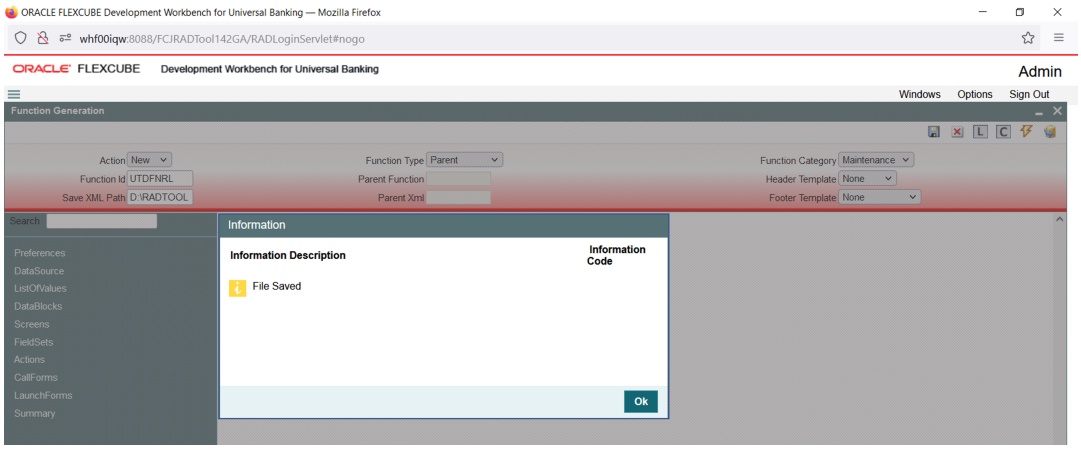
Figure 2-2 Header Information for Maintenance Screen



3. You can save your work at any time by clicking the **Save** icon. Select the **Action** as **Load** to load the radxml file from the required path.

   The **Information Window** is displayed.

Figure 2-3 Information Window



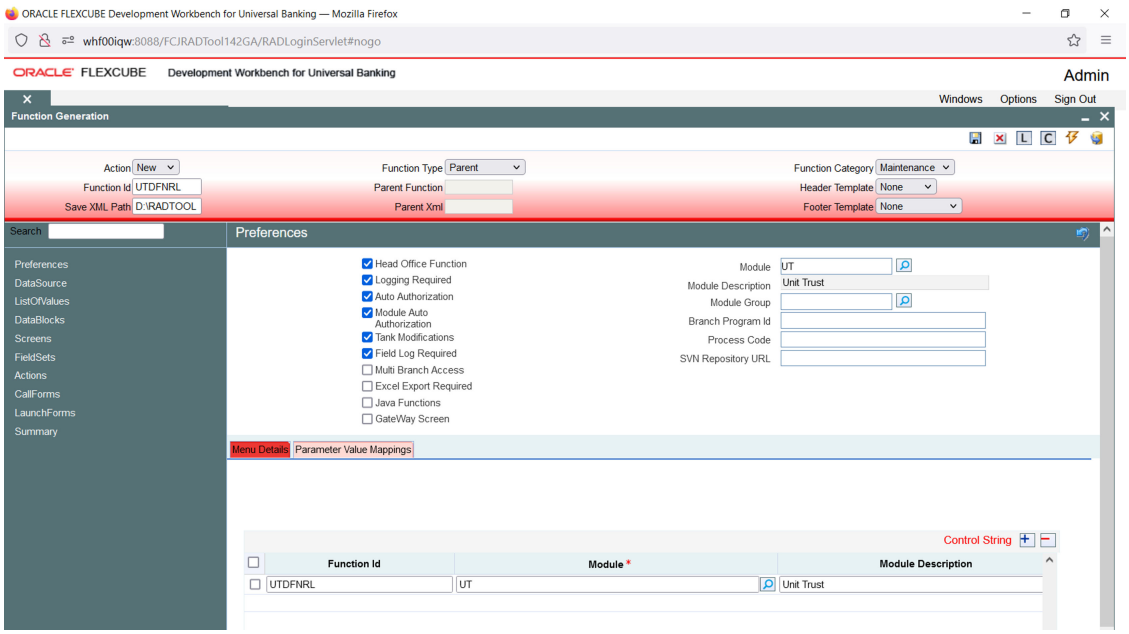
2.2 Preferences

This topic describes about defining the preferences for Maintenance Forms.

Details entered in **Preferences** screen are used in generating INCS for **SMTB_MENU**, **SMTB_FUNCTION_DESCRIPTION** and **SMTB_ROLE_DETAILS**.

In the **Control String** field, the developer needs to select the actions which should be available for **Preferences** screen in the FLEXCUBE.

Figure 2-4 Preferences for Maintenance Screen



Note the following points while providing details in the Preferences screen

1. **Control String**: **REVERSE**, **ROLLOVER**, **CONFIRM**, **LIQUIDATE**, **HOLD** operations are not applicable for maintenance screens.
2. **Defining Browser Menu Tree**: **Browser** menu tree will be defined in the script generated for **smtb_function_description**.

The following labels has to be maintained for generation of proper script:

- Main Menu: **LBL_{function id}_MAIN_MENU**
- Sub Menu 1: **LBL_{function id}_SUB_MENU_1**
- Sub Menu 2: **LBL_{function id}_SUB_MENU_2**
- Description: **LBL_{function id}_DESC**

Refer *Development WorkBench - Screen Development I* for the detailed explanation on preferences.

Example 2-1 UTDFNDRL

For UTDFNDRL, following labels has to be maintained

- **LBL_UTDFNDRL_MAIN_MENU**
- **LBL_UTDFNDRL_SUB_MENU_1**
- **LBL_UTDFNDRL_SUB_MENU_2**
- **LBL_UTDFNDRL_DESC**

2.3 Data Sources

This topic provides the systematic instructions to create Data Sources for Maintenance screens.

1. On the **Function Generation** screen, right-click the **Data Source** node and select the **Add** option to create a new Data Source.

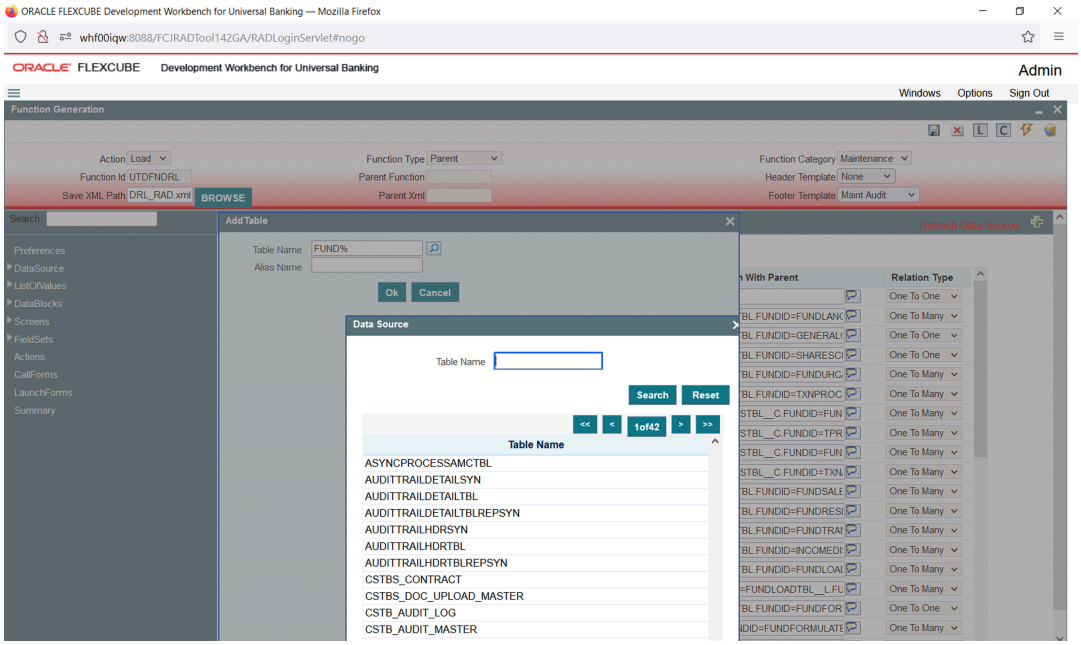
   The **AddTable** window displays.

2. On the **AddTable** window, select the **Table Name** from the list of values to get the list of tables available and select the required table from the list.

   If the user knows the exact **Table Name**, the user can specify the name directly.

   The **Data Source** window is displayed.

Figure 2-5 Add Table_Data Source



3. Select **Master** as **Yes** if the added data source is Master Data Source for the screen.

   Every function id should have one master data source.

4. Verify **Primary Key columns** and **Primary Types** fields are populated and if its not entered then specify the **Pk Cols** and **Pk Types** fields.

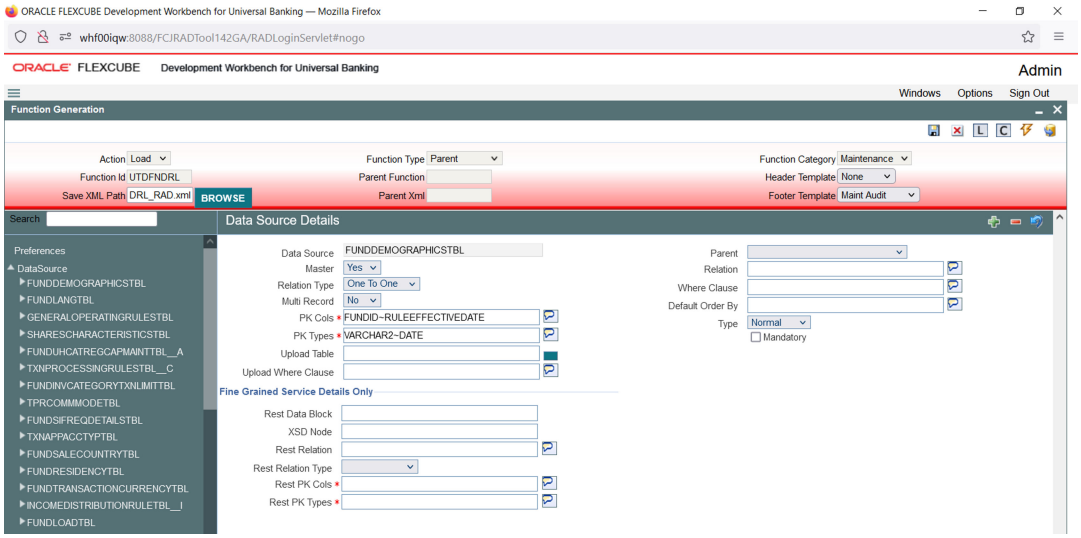
   Primary Key columns (i.e. **Pk Cols**) and Primary Types (i.e. **Pk Types**) are mandatory. If it is already maintained in user schema in **STTB_PK_COLS** it will populate automatically otherwise the user needs to enter values without fail. If the user misses **Pk Cols** and **Pk Types** package generation will fail.

> **Note**
>
> Master Data Source cannot have any parent.

5. Click the **Save** icon at the top right of the screen.

   The **Data Source Details** screen displays.

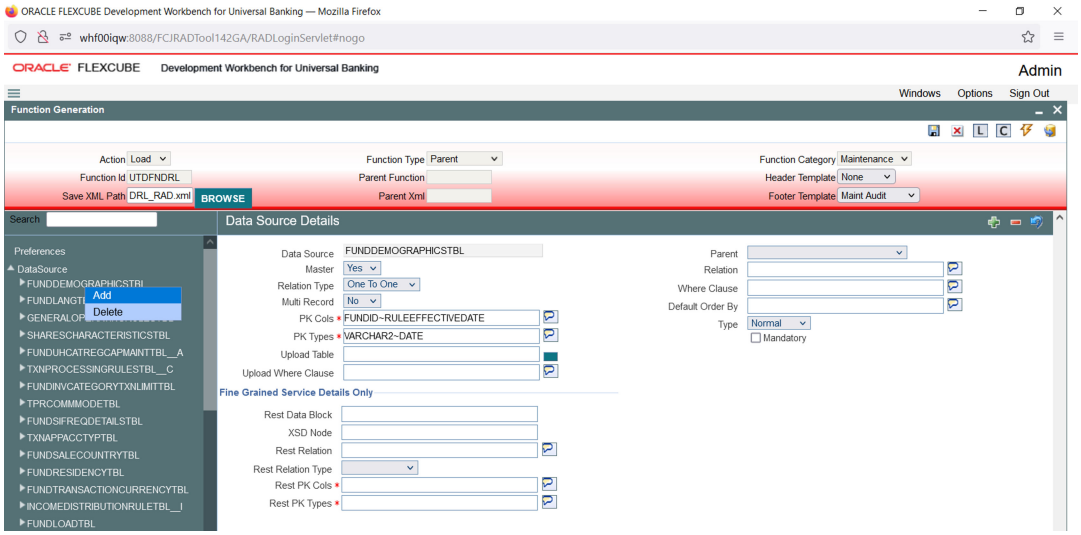
Figure 2-6 Providing master Data Source Properties



6. Under the **DataSource** node, right-click the added table (**STTM_CUSTOMER**) to add fields to the table.

   The **Data Source Details** screen displays with added table.

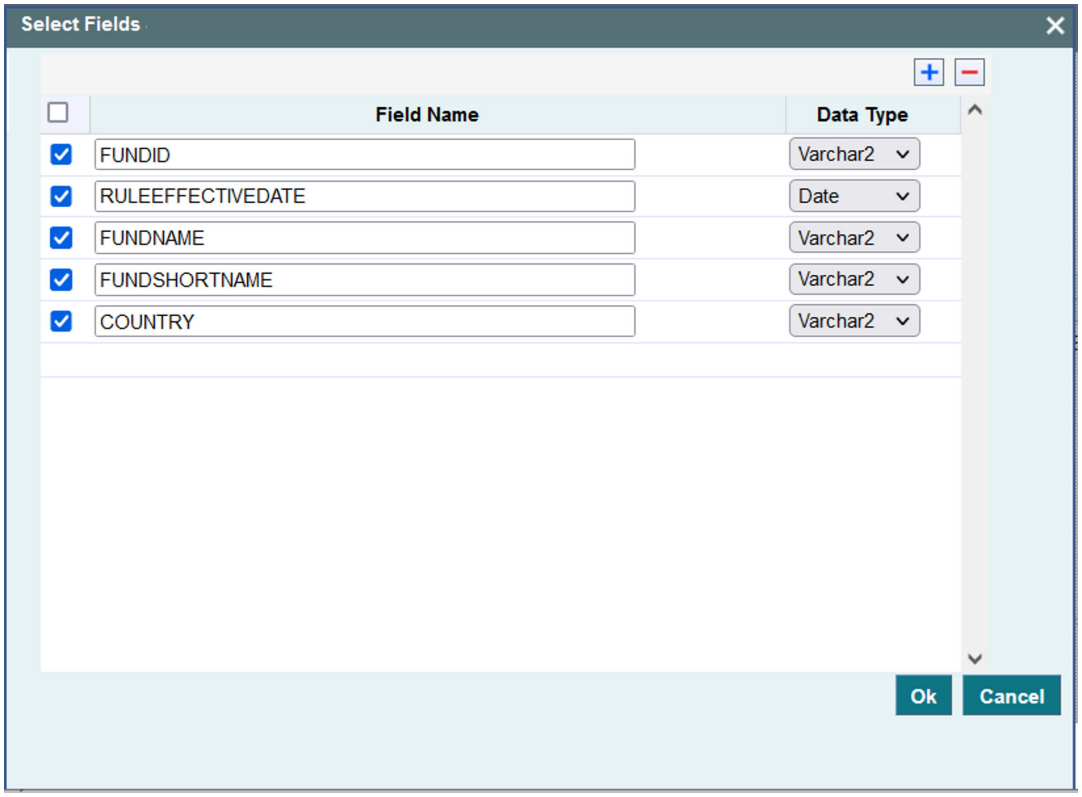
Figure 2-7 Including Data Source Fields for the Data Source



7. Select the **Add** option to add fields to the table.

   The **Select Fields** window displays.

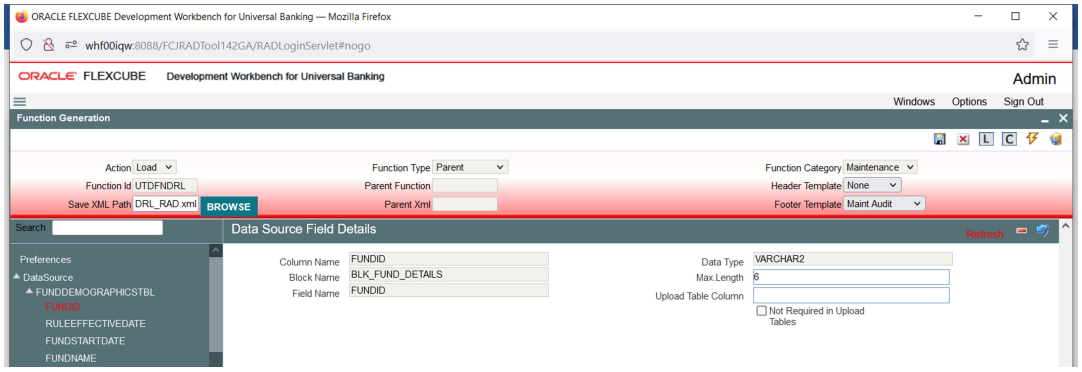
Figure 2-8 Select Fields



8. Select the required fields and click **Ok** button.

   The selected fields will get added to the Data Source Tree.
   Provide **Data Source Field Properties**: Only maximum length can be modified by the developer in **Data Source Field Properties**. Rest will have defaulted from the table definition.

Figure 2-9 Data Source Field Details



The data model of a single function id would include multiple tables. All the tables need to add to the function id. Note the following while adding child data sources.

9. To add Child Data Source, follow the below steps:

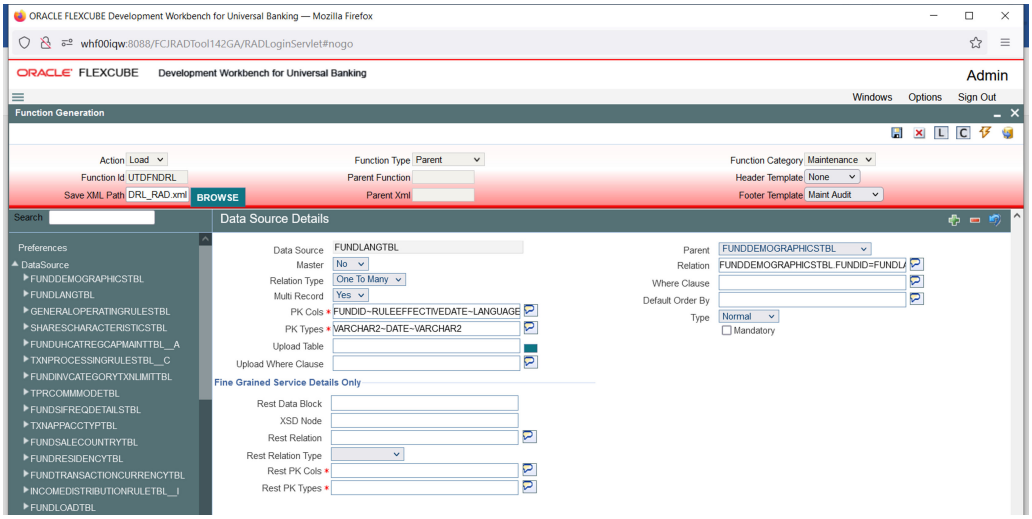
   a. In **Data Source Details** screen, select **Multi Record** value as **Yes** if the child data source is Multi record table.

b. Child Data sources should always be associated with a parent.

c. Relation is mandatory between parent and child. While giving relation, the parent data source should come on the left side of the relation.

> **Note**
>
> A data source cannot be the parent to itself.

Figure 2-10 Providing properties for Child Data Source



10. Note the following while adding data sources:

- If the data source is designed with relation type as 1: N with its parent, then it should have at least one more **Pk Col** than its parent (assuming the relationship is based on **Pk Cols**).
- Master data source needs to have the audit columns if footer template is **Maint audit**, but those should not be added to data source fields as the system will handle it.

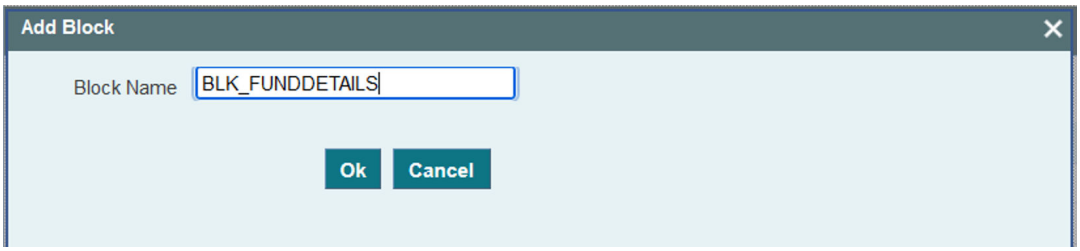
2.4 Data Blocks

This topic provides systematic instructions to create Data Block.

1. Under **Function Generation** screen, right-click the **Data Block** and select **Add** option to create the new data block.

   The **Add Block** window displays.

Figure 2-11 Add Block

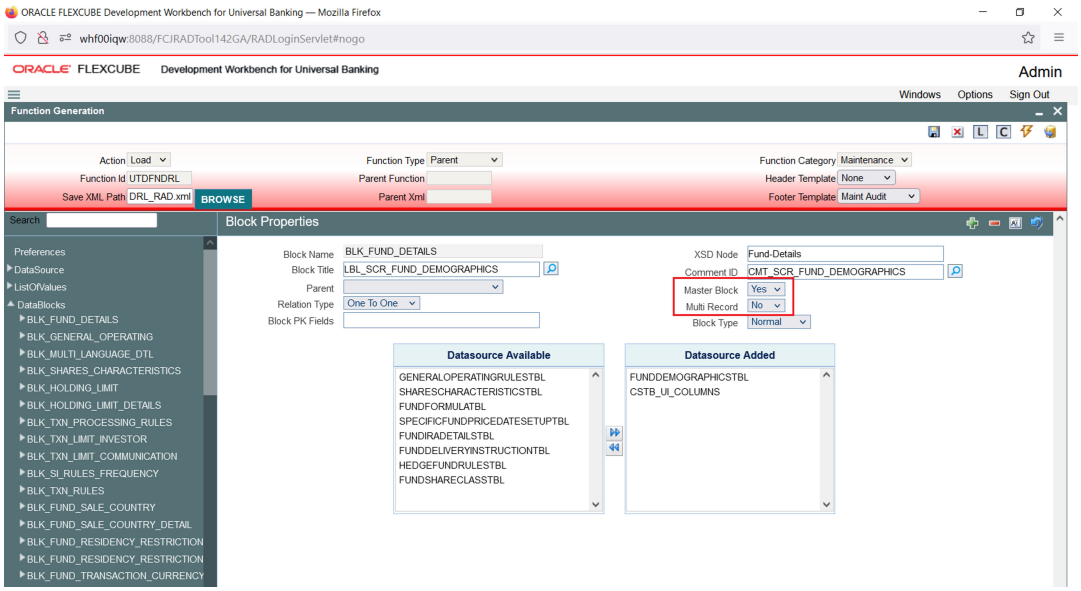


2. Specify the **Block Name** field and click **Ok**.

   Block Name should start with **BLK_**. The **Block Name** should be short and equivalent to a data source but not the same as **DataSource Name**.

   The new DataBlock gets created and **Block Properties** screen displays.

Figure 2-12 Providing properties for Data Block

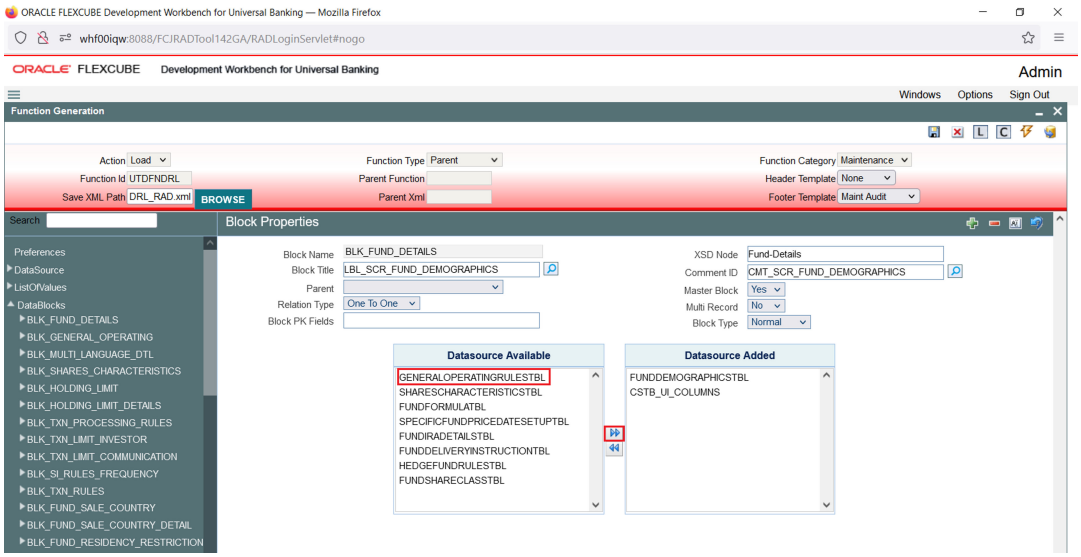


3. Select **Parent** block if added block is not **Master Block**.
4. Select **Multi Record** field as **Yes/No** based on **Master Block** value.

   Available data sources displays in the **DataSource Available** text area.
5. Select the required data source and click the **Move** button to attach Data Source to the Block.

   The selected Data sources gets attached to the Block.

Figure 2-13 Attaching Data Sources to Data Block



6. Select **Multi Record** as **Yes** in the data **Block Properties** screen to add multi record data source to data block.

   Multi Data Source once used to one block won't be available for reuse whereas a single record data source can be used in multiple blocks.

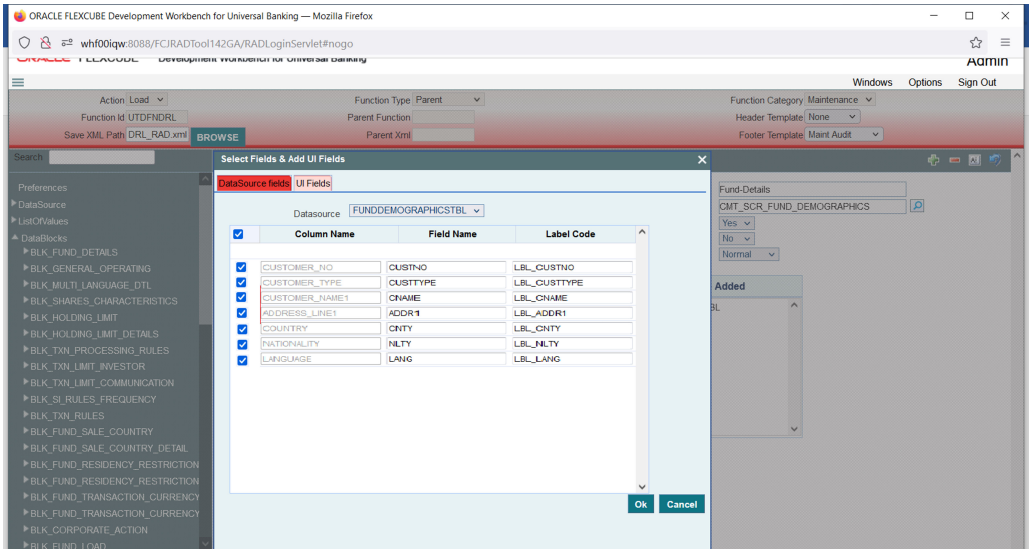
   All the data sources with **Multi Record** as **Yes** will be populated.

7. Select Block Fields as follows:

   a. Right-click the newly added block.

      The **Select Fields & Add UI Fields** window displays.

Figure 2-14 Select Fields & Add UI Fields



   b. Check the right side check boxes to add the required fields.

   c. Verify the **Field Name** and **Label Code** details and click the **OK** button.

      The **Field Name** should not be the same as the column name. Special characters are also not allowed in the **Field Name** (including underscore and space). **Label Code** will be automatically populated based on the **Field Name**.

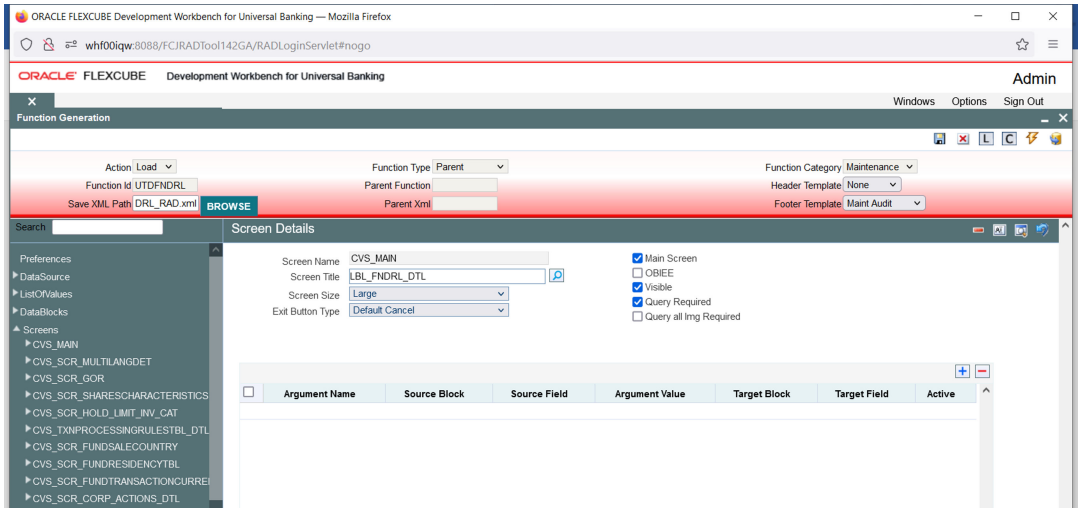
2.5 Screens

This topic provides systematic instructions to create a new screen.

1. On the **Function Generation** screen, right-click on the **Screens** node and select **Add** option.

   The **Add Screen** window displays.

Figure 2-15 Providing properties to new Screen



2. Specify the **Screen Name** field.

   The **Screen Name** should start with **CVS_<Name>**.

   The **Screen Details** screen displays.

3. Specify the **Screen Details** and click the **Save** icon to create a new screen.

   A new screen gets created and displays under the **Screen** node.

Figure 2-16 Screen Details- New Screen

By default screens are divided into 3 parts:

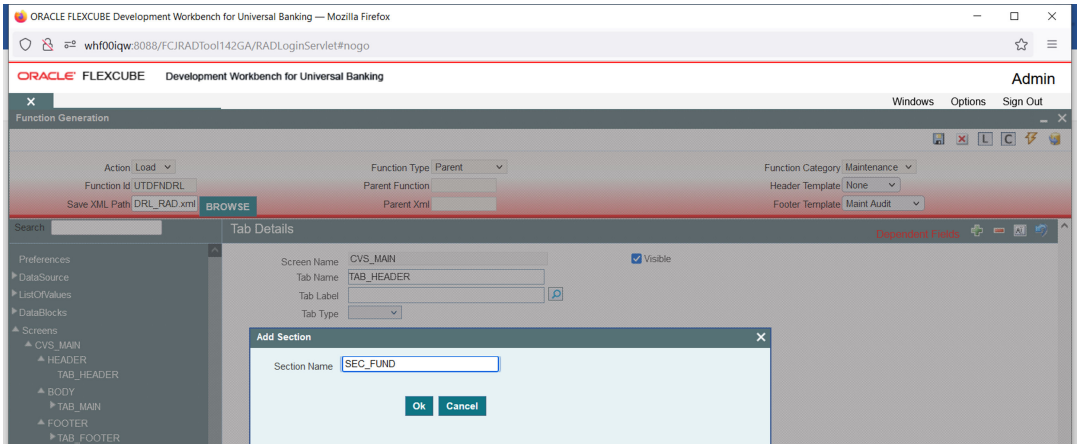
- **Header**
- **Body**
- **Footer**

One Main Screen is Mandatory and **Tabs** can be defined on any of the screen portions as required. User can add **Sections** to **Tabs**. Each section can be divided into **Partitions**.

4. To add a new **Section** to **Tab**, right-click the **Tab** and then select **Add** option.

   The **Add Section** screen displays.

Figure 2-17 Creating new section



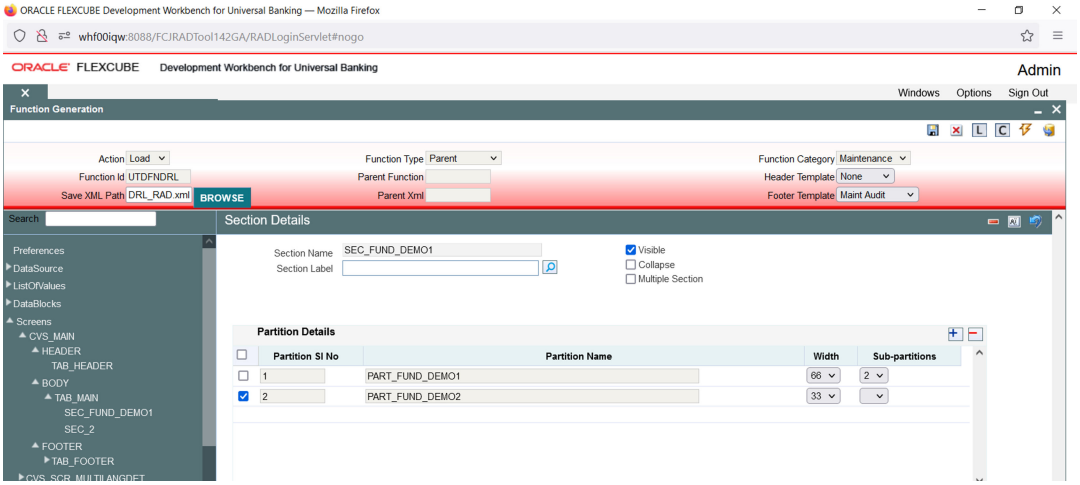
5. On the **Add Section** screen, specify the **Section Name** field and click the **OK** button.

   A new **Section** gets created and displays under the respective **Tab**.

6. User can divide each section into required partitions.

   The **Partition Details** window displays and the user can specify details.

Figure 2-18 Defining partitions for the Section



2.6 Field Sets

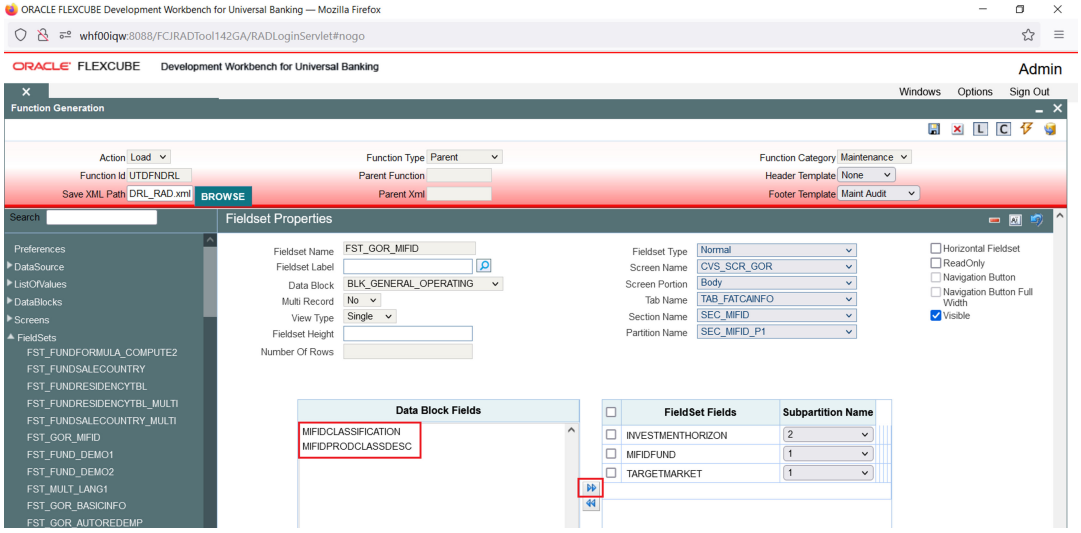
This topic provides systematic instructions to create a new Fieldset.

A group of fields can be grouped in a Fieldset which can be placed together on the screen. FieldSet Name should start with **FST_<>**.

1. On the **Fieldset Properties** screen, select the block adding to field set.

   All fields available to the block displays in the **Data Block** fields text area.

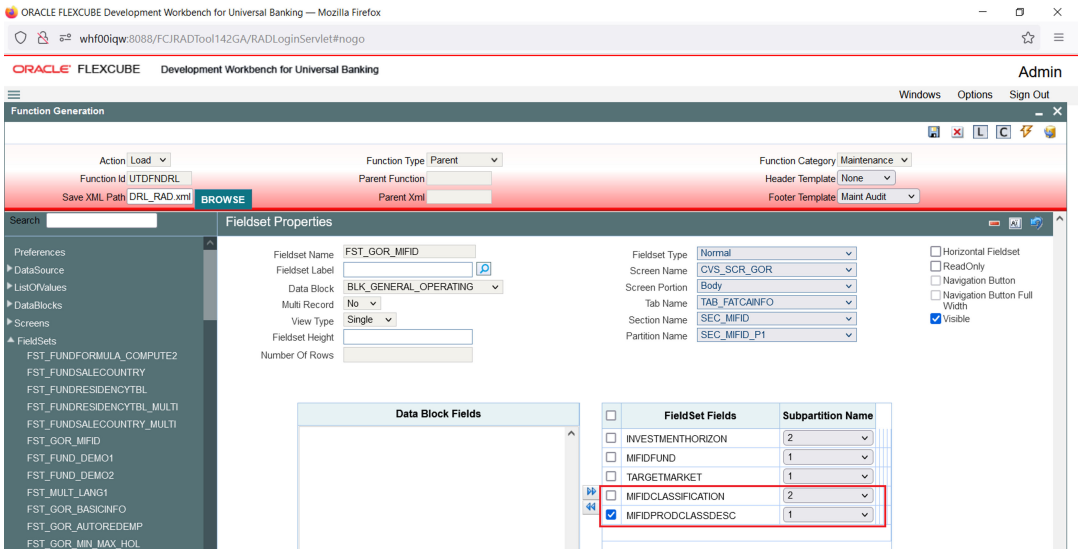
Figure 2-19 Attaching Fields to a Field set



2. Move fields from **Data Block Fields** to **FieldSet Fields**.

   All fields available to the block displays in the **FieldSet Fields** text area. The order of fields in field set fields will reflect in the screen as well.

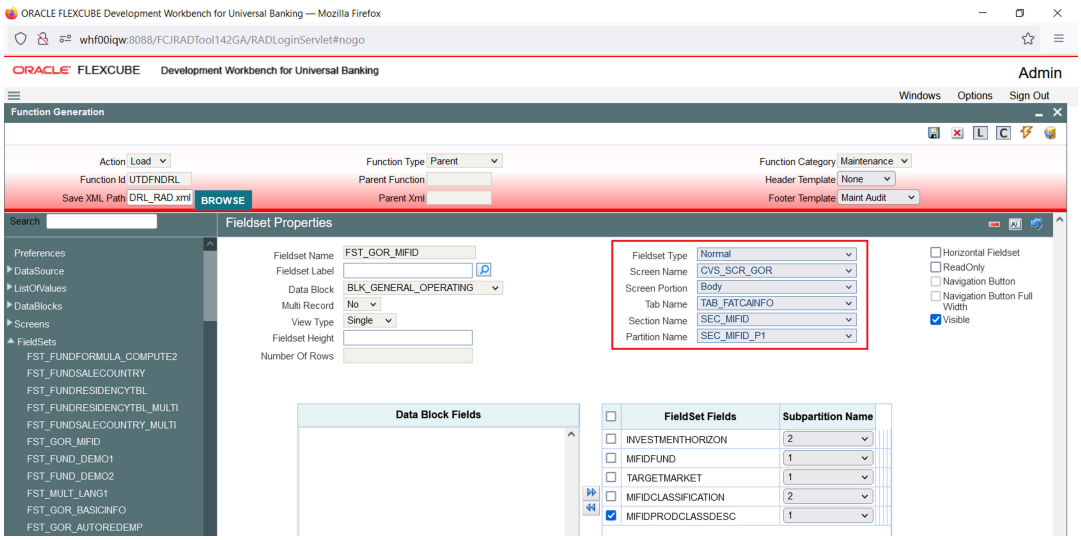
Figure 2-20 Fieldset Properties- FieldSet Fields



3. Select the screen portion (**Header**/**Body**/**Footer**) where this fieldset has to be placed.
4. Select remaining details like **Tab**, **Section**, and **Partition**.

   Once fields are added to the fieldset, the developer can check the preview of the designed screen.

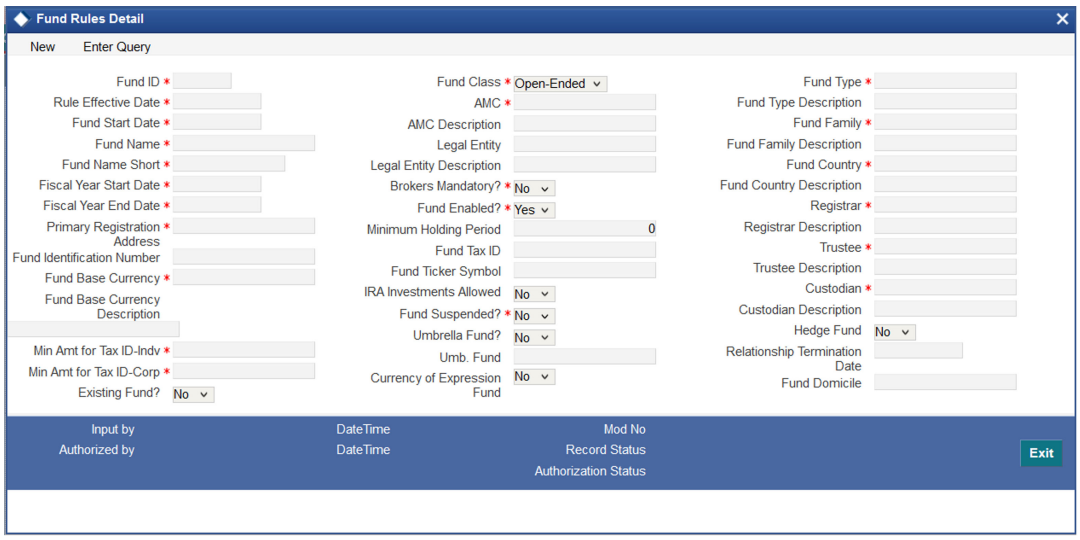
Figure 2-21 Providing details where Field Set has to be placed



5. Right-click the screen name and click on the **Preview** option.

   The preview of the designed screen displays.

Figure 2-22 Preview of the designed Screen

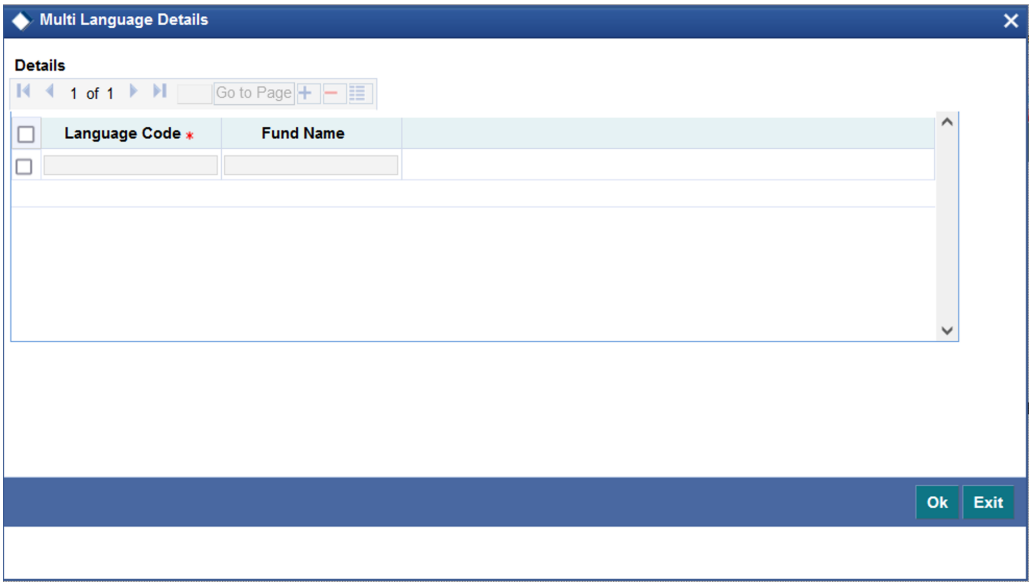


6. For adding Multi entry block to the fieldset, follow the below-given steps:

   a. On the **Fieldset Properties** screen, select **Multi Record** field as **Yes**.

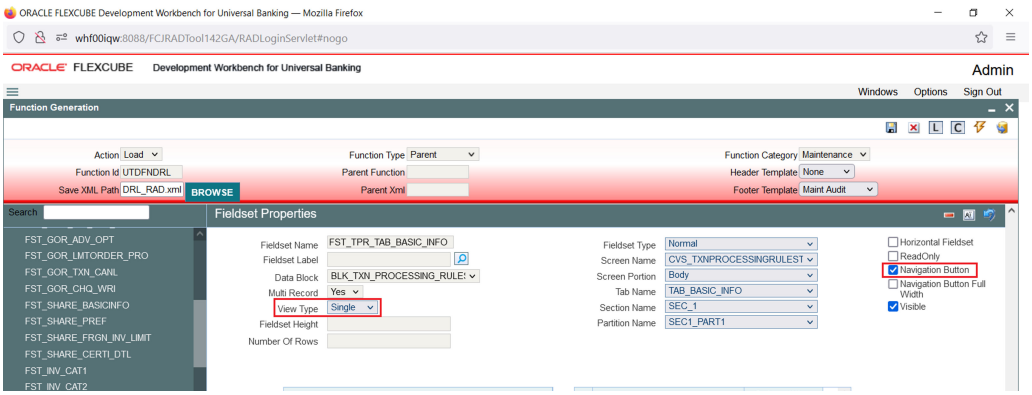
      In the case of Multi records, the **View Type** can be either **Single** or **Multiple** (By Default).

Figure 2-23 Preview - Multiple view multi-record Fieldset



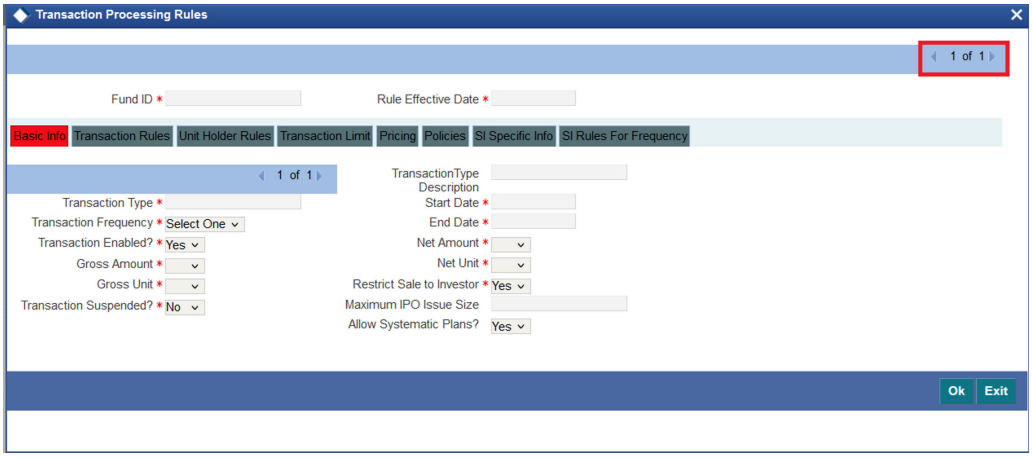
b. Select the **Navigation Button** field for multi-record single view.

Figure 2-24 Fieldset Properties - Single view multi-record Fieldset



Below figure shows the preview of a single view multi-record fieldset:

Figure 2-25 Preview - Single view multi-record Fieldset



2.7 List Of Values

This topic provides systematic instructions to define LOVs.

1. To add **LOV**, right-click the **List Of Values** node and select **Add** option from the right-click menu.

   List Of values can be defined for the function id using **LOV** node

   LOV window displays.

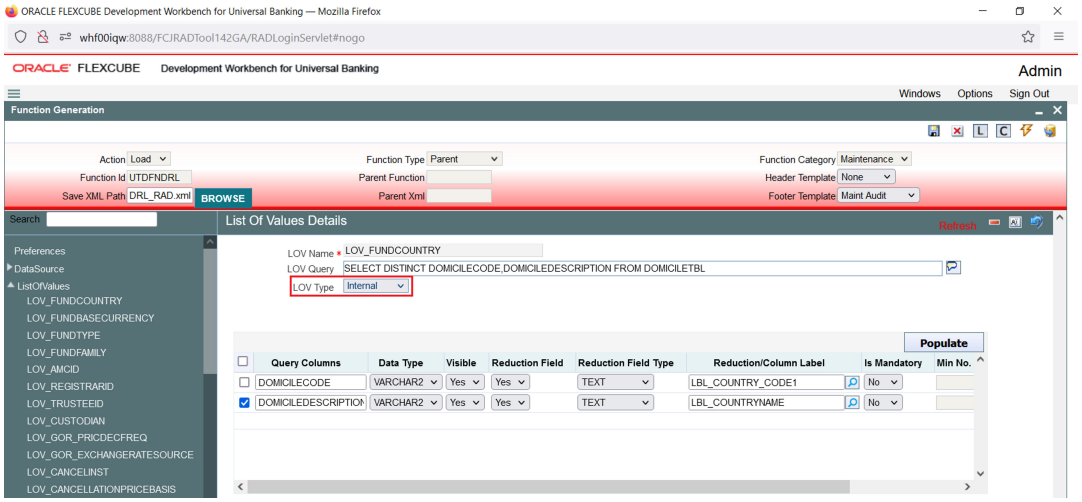
2. Specify the **LOV Name** field and then click **Ok** button.

   LOV name should start with **LOV_<name>**.

   For Example: **LOV_COUNTRY**

   The **List Of Values Details** screen displays.

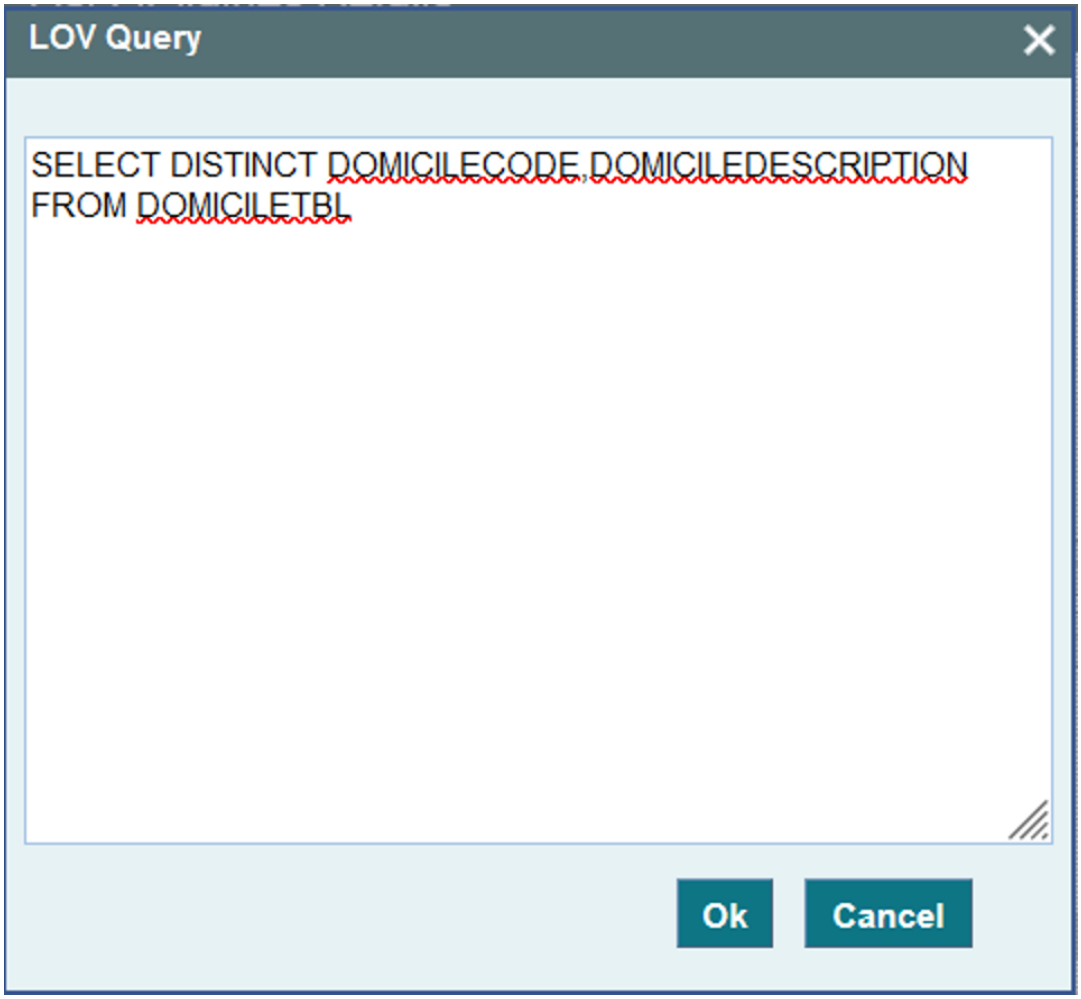
Figure 2-26 List Of Values Details



3. Specify the fields in the **List Of Values Details** screen.
4. Enter a valid query and click the **Populate** button.

   The **LOV Query** window displays.

Figure 2-27 LOV Query



5. Click the **OK** button.

> **Note**
>
> **Reduction/Column Label** are mandatory. If the user won't provide **Reduction/ Column Label** field, an error displays on click of the **LOV** button after deployment in FLEXCUBE.

6. After defining LOV, go to block and the corresponding field where the LOV has to be attached.
7. For Block Field Properties to attach LOV to the field, follow the steps as follows:
   a. Select **Display Type** as **LOV**.
   b. Select the required **LOV Name** from the list of all defined LOV's.
   c. Click the **Return Fields** tab.

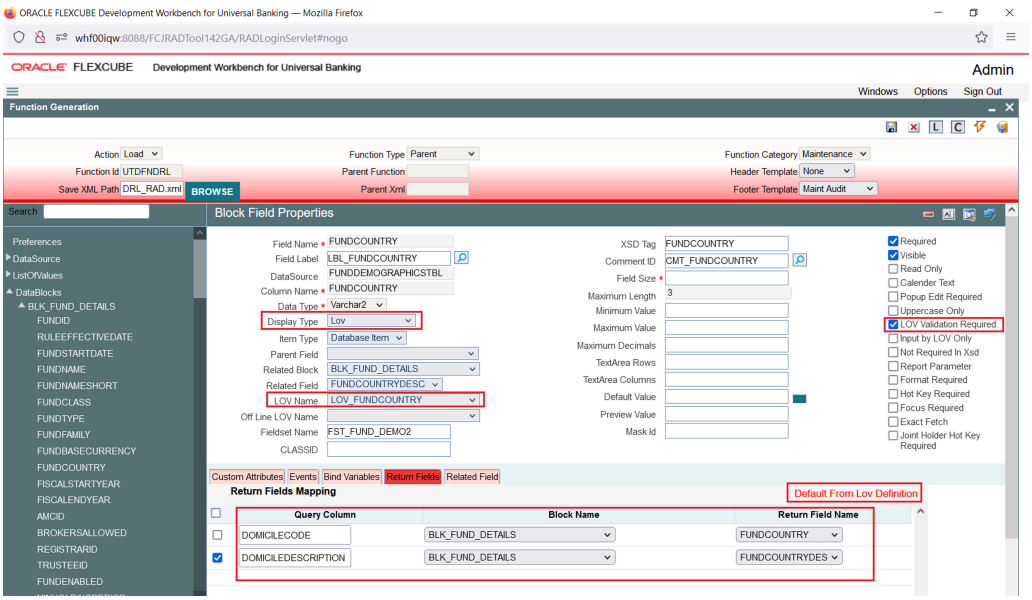
      Return Fields Mapping tab opens.
   d. Click on **Default from Lov Definition** button.

      The result fields maintained in the LOV query gets populated.

e. Select the desired field (and its block) to which the result of the LOV query should have defaulted.

If the return field is not required to have defaulted to any field in the screen, the return field value can be left blank.

Figure 2-28 Attaching LOV to a block Field



Use of Bind Variable: If the list of values should be based on any other field value from the screen, bind variables can be used.

For Example: Define Lov as shown in below query; where clause should contain condition with **?**.

```
SELECT cust_ac_no, branch_code, ccy
from sttms_cust_account
where cust_no = ?
and record_stat = 'O'
and once_auth = 'Y'
and ac_stat_de_post = 'Y'
```

f. In the block field, after selecting **Return Fields**, click the **Bind Variables** tab.

Bind Variables Mapping tab opens.

g. Click the **Default From Lov Definition** button.

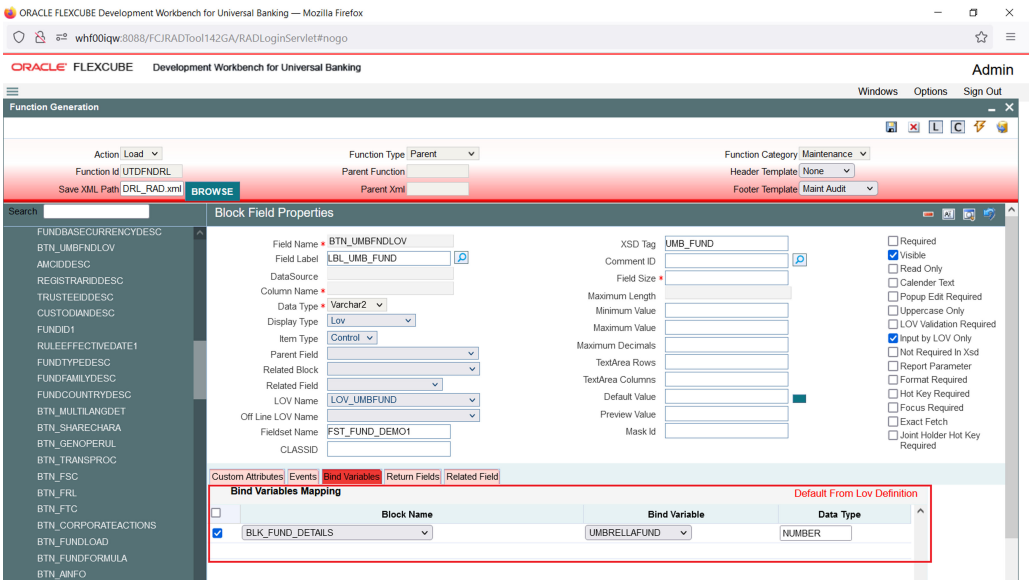
New rows will be created depending on the number of bind variables provided in the LOV query.

h. Select the bind filed in the screen (and its block) for the LOV.

i. Select the **Data Type** of the field.

The **Block Field Properties_Bind Variables Mapping** screen displays.

Figure 2-29 Defining bind variable for the LOV



2.8 Add Call Forms

This topic provides systematic instructions to attach Call Forms.

Maintenance Call forms can be attached to a maintenance screen.

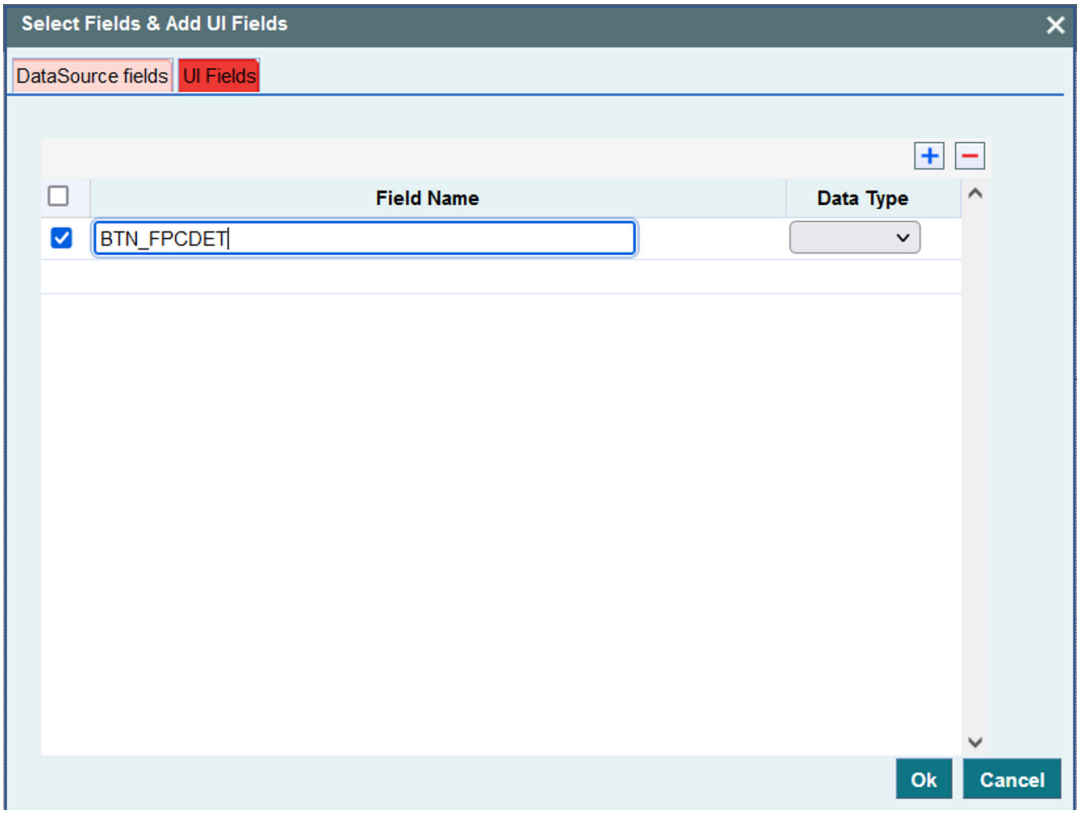
Refer to the topic *Development of Call Form* for developing call forms.

For attaching Call forms follow the below given instructions:

1. Add button to block to launch Call form on button click.
2. Right-click the **Block** and select **Add Fields** option.

   The **Select Fields and Add UI fields** window displays.

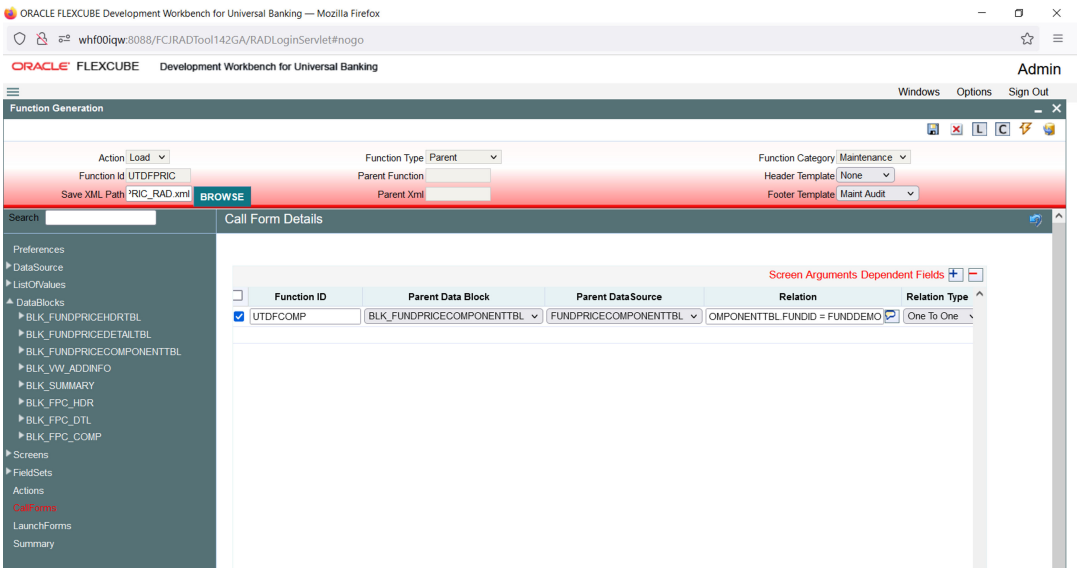
Figure 2-30 Defining Button field



3. Select **UI Fields** tab and click on **Add (+)** to add a row.
4. Enter button name and click the **Ok** button.
5. Select **Data Type** as a button and enter **Field Label**.
6. Add Call form details to the **Call Form** node.

   The **Call Form Details** screen displays.

Figure 2-31 Call Form Details

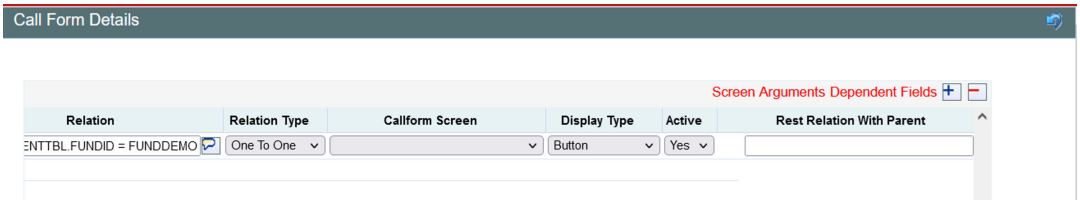


Add event to the button: On If the user needs to place the button position in the desired place on the screen, the **Event Type** should be **Normal**. The user has to write code in release specific JavaScript file to launch the screen.

Figure 2-32 Block Field Properties - Events

7. Define the Call form details to be attached in call form node.

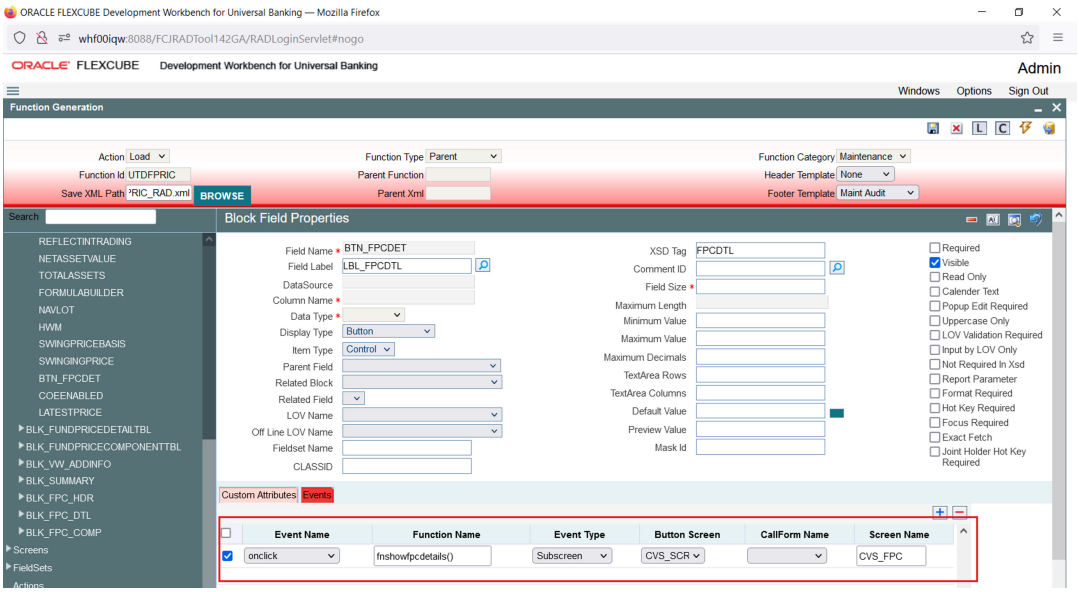
Figure 2-33 Call Form Details_Call Form Node



8. Add event to the button. Select event type as **Call Form** or **Launch Form** or **Sub Screen**, button will be displayed on the bottom of the screen.

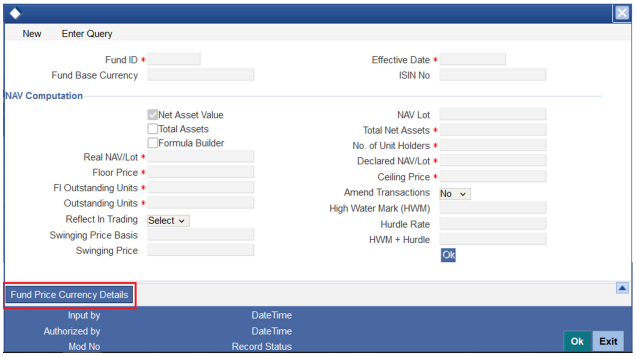
   If user needs to place button position in desired place on the screen, event type should be Normal .User has to write code in release specific JavaScript file to launch the screen.

Figure 2-34 Defining event to the button



9. Check the preview of the screen with call form buttons.

Figure 2-35 Preview of the screen with the Call Form button



2.9 Add Summary

This topic provides systematic instructions to Add Summary.

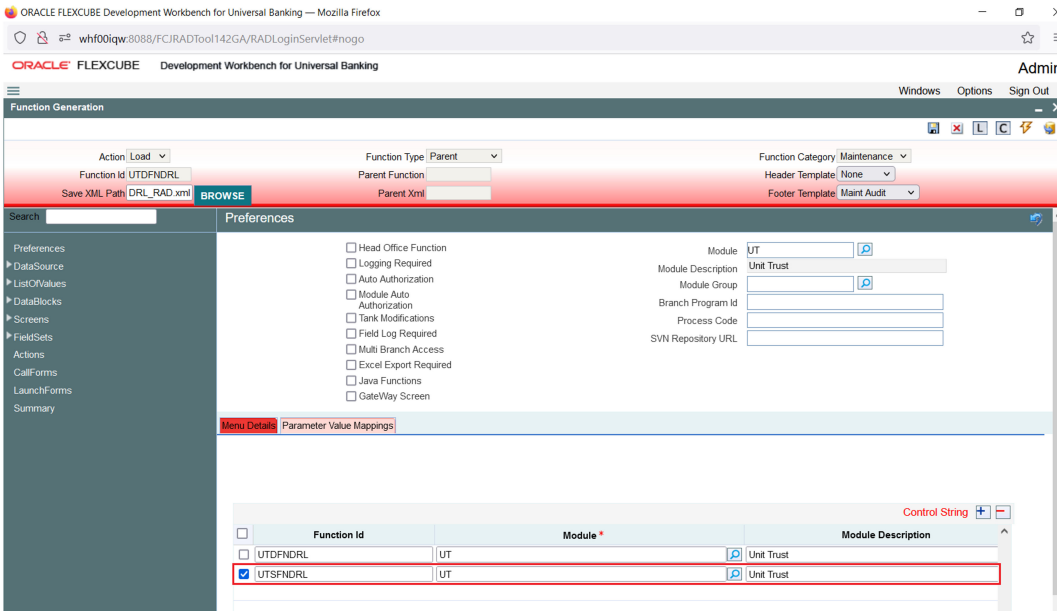
1. On the **Function Generation** screen, click the **Preferences** node.

   The **Preferences** screen displays.

2. In **Preferences** screen, add entry for the summary screen.

   Preferences screen displays with **Menu Details**.

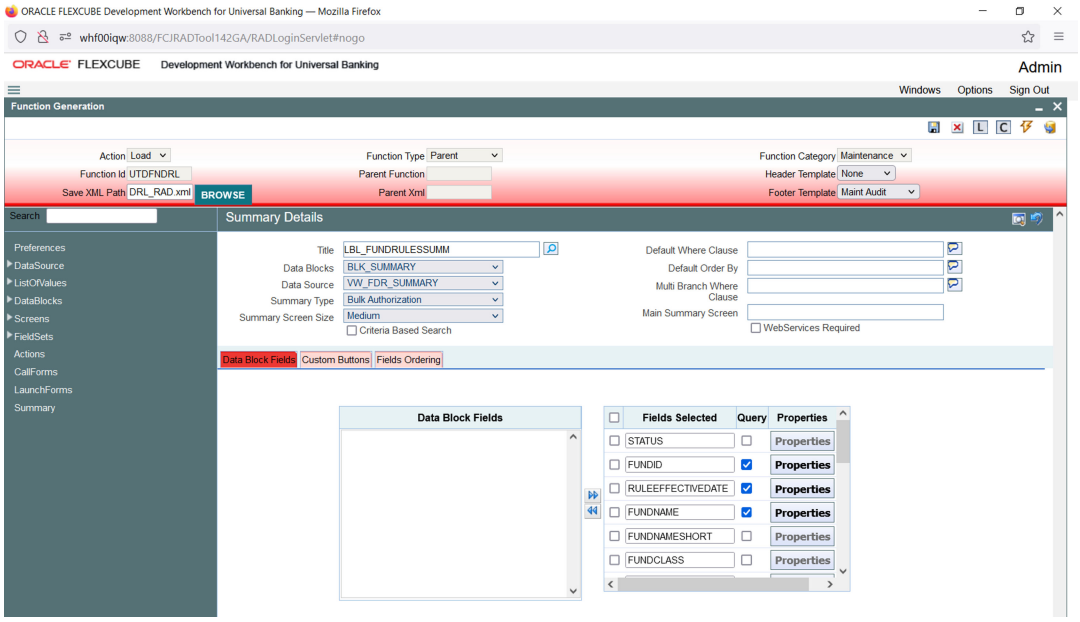
Figure 2-36 Adding Summary screen details in Preferences node



3. Click the **Summary** Node.

The **Summary Details** screen displays.

Figure 2-37 Providing Properties for Summary Screen



4. On the **Summary Details** screen, specify the fields.

Table 2-2 Summary Details

Field	Description
Title	Enter the Summary title. Select label code from LOV.
Data Blocks	Select Data Block master block and summary blocks will be displayed. Select a required block from the drop-down list.
Data Source	Select Data Source for summary.
Summary Type	Select Summary Type.
Summary Screen Size	Select Summary Screen size.
Default Where Clause	Enter if any where clause is required.
Default Order By	Enter Default order by if required.
Multi Branch Where Clause	Enter Multi Branch where clause if required.

5. Attach the fields required in the summary result grid.

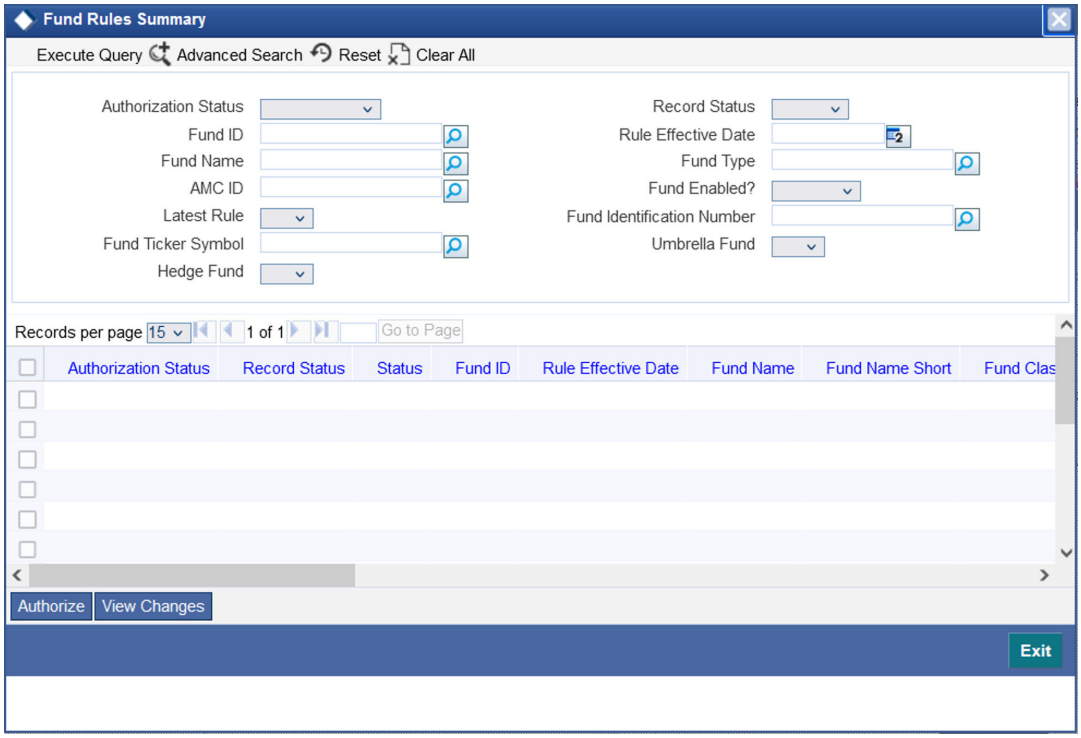
   If the field is required as part of filtering, the query has to be checked for the particular field.

6. Provide the position of fields in the **Result** grid and **Summary Query** set.

7. For summary preview, right-click the **Summary** node and click the **Preview**.

   The Preview of the designed summary screen displays.

Figure 2-38 Preview of the designed summary screen



2.10 Maintain Amendable fields

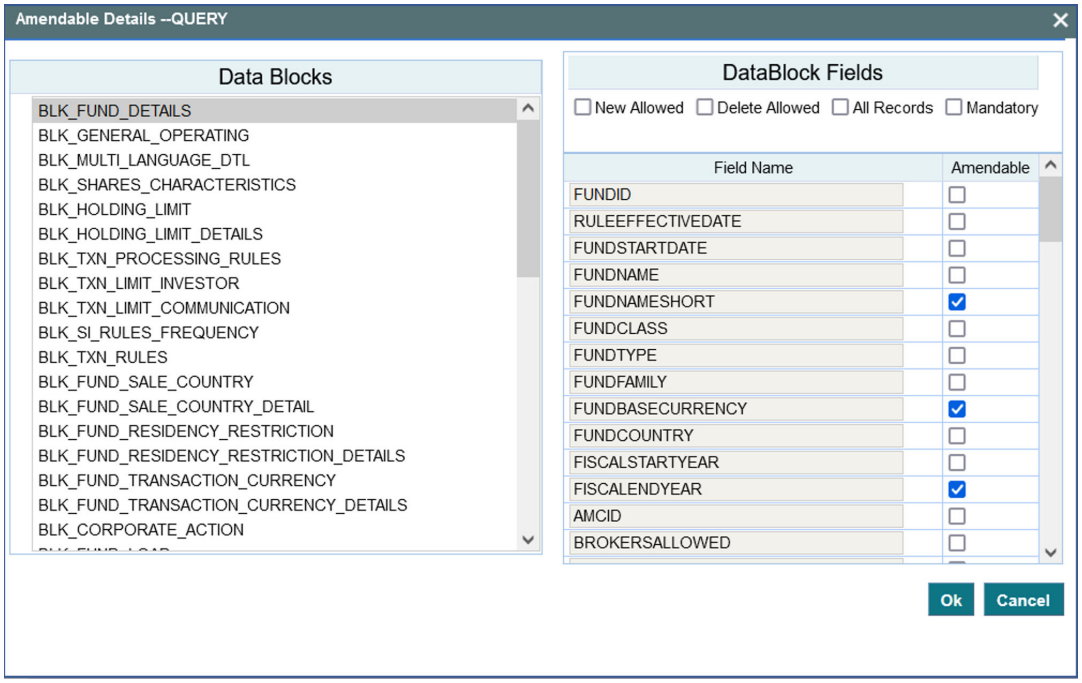
This topic provides systematic instructions to maintain amendable fields.

Amendable Fields: If the user needs to modify data of a particular field on unlock in workbench, the developer has to maintain fields as amendable.

1. Click the **Action** node.

   The **Amendable Details - QUERY** screen displays.

Figure 2-39 Amendable Details - QUERY



2. Click the **Amendable** button next to the action for which the field has to be made amendable.
3. Select the fields in each block which user can modify for the selected action.
4. Click the **Ok** button.

3

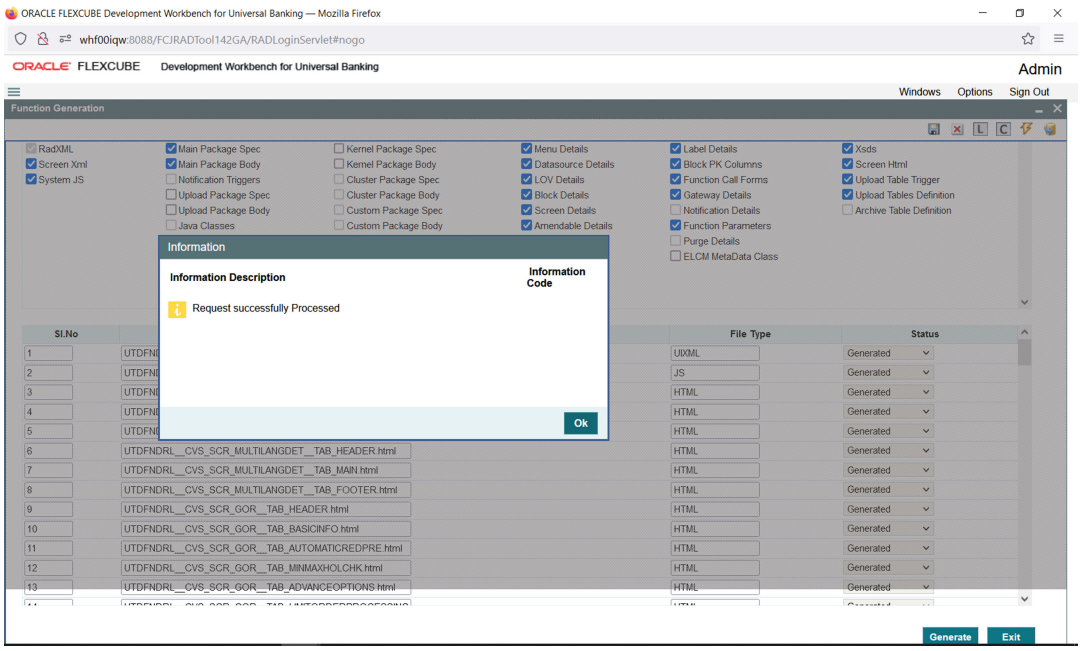
Generate and Deploy Files

This topic provides systematic instructions to generate and deploy Files.

1. Select the required files and click the **Generate** button to generate files.

   The **Information** window displays with the status.

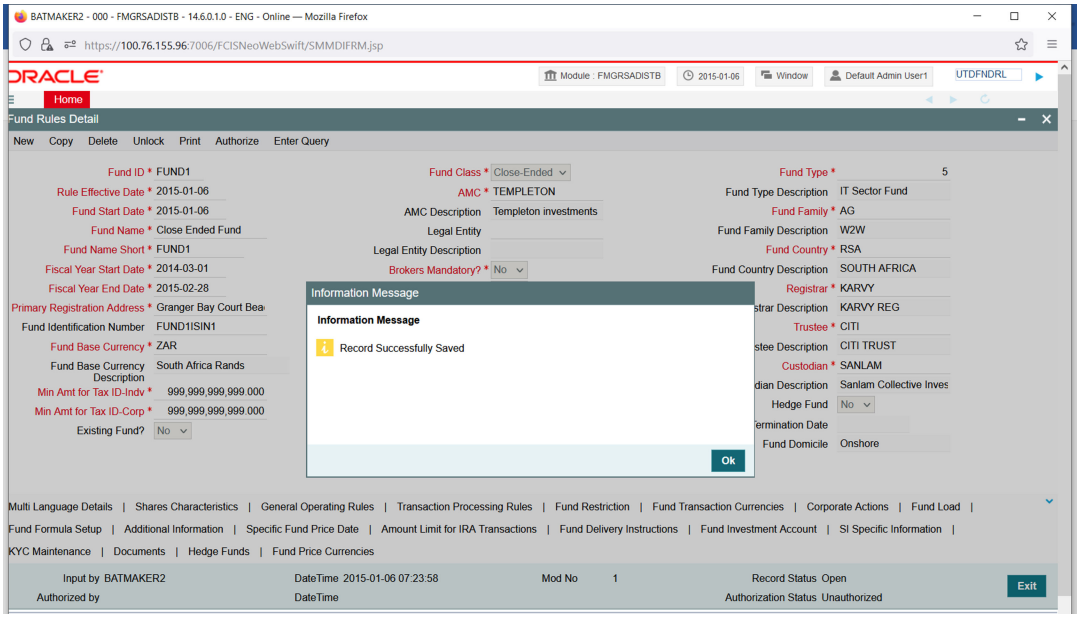
Figure 3-1 Generate Files



2. Select the required files to be deployed to the server and then click the **Deploy** button.
3. Click **Ok** on successful deployment.
4. For testing, start the screen from FLEXCUBE and try sample operations (**New**, **Modify**, **Query**, etc.) on the screen.

   On Successful deployment, save the record.

Figure 3-2 Saving Record for the function id in FLEXCUBE



4

Generated Units

This topic provides an overview of generated units for a Maintenance screen.

The following units will be generated for a Maintenance screen.

Refer to the topic *Development WorkBench - ScreenDevelopment -II* for a detailed explanation on the same.

- Front End Units
  This topic provides an overview of the Front End Units.
- Data Base Units
  This topic provides an overview of the Data Base Units.
- Other Units
  This topic provides an overview of the Other Units.

4.1 Front End Units

This topic provides an overview of the Front End Units.

Table 4-1 Front End Units

Front End Units	Description
Language XML	This file is an XML markup of presentation details, for the designed Call Form specific to a language.
SYS JavaScript File	This JavaScript file mainly contains a list of declared variables required for the functioning of the screen.
Release Type Specific JavaScript File	This file won't be generated by the Tool. It has to be manually written by the developer if he has to write any code specifically in that release.

4.2 Data Base Units

This topic provides an overview of the Data Base Units.

Table 4-2 Data Base Units

Data Base Units	Description
Static Scripts	The following static scripts generated are required for the proper functioning of a **Call Form** screen. Refer document on generated units for a detailed explanation. 1. Menu Details Scripts for **SMTB_MENU** and **SMTB_FCC_FCJ_MAPPING**, **SMTB_ROLE_DETAIL**, **SMTB_FCC_GCJ_MAPPING** are required for the functioning of Maintenance screen. 2. Lov Details 3. Amendable Details 4. Label Details 5. Screen Details 6. Block Details 7. Data Source Details 8. Call form Details 9. Summary Details
System Packages	The Main Package contains the basic validations and backend logic for the Maintenance function id. The main package contains the mandatory checks required. It will also contain function calls to the other packages generated by Workbench. The main package has the below stages for a maintenance form: • Converting Ts to PL/SQL Composite Type • Checking for mandatory fields • Defaulting and validating the data • Writing into Database • Querying the Data from the database • Converting the Modified Composite Type again to TS Each of these stages has **Pre** and **Post** hooks in the Kernel, Cluster, and Custom Packages. And these Hooks are called from the Main Package itself. Main Package has the system-generated code and should not be modified by the developer. Kernel, Cluster, and Custom Packages are the packages where the respective team can add business logic in appropriate functions using the Pre and Post hooks available.

Table 4-2 (Cont.) Data Base Units

Data Base Units	Description
Hook Packages	Release-specific packages will be generated based on the release type (KERNEL, CLUSTER or CUSTOM). The developer can add his code in the release-specific hook package. The Main Package has designated calls to these Hook Packages for executing any functional checks and Business validations added by the user. The structure for all the Hook Packages are the same, like: • **Fn_Post_Build_Type_Structure** • **Fn_Pre_Check_Mandatory** • **Fn_Post_Check_Mandatory** • **Fn_Pre_Default_and_Validate** • **Fn_Post_Default_and_Validate** • **Fn_Pre_Upload_Db** • **Fn_Post_Upload_Db** • **Fn_Pre_Query** • **Fn_Post_Query** These functions are called from the Main package using the **Pre** and **Post** Hooks available in the Main Package. The 3 Hook Packages namely Kernel, Cluster, and Custom Packages have a similar structure and are for the respective teams to work on.

4.3 Other Units

This topic provides an overview of the Other Units.

XSD: XSD's will be generated if gateway operations are required for the particular function id. Maintenance for the same has to be done in the **Actions** node.

5

Extensible Development

This topic provides an overview of Extensible Development.

This topics contains following sub-topics:

- Extensibility in JavaScript Coding
  This topic provides an overview of extensibility in JavaScript Coding.
- Extensibility in Backend Coding
  This topic provides an overview of extensibility in backend coding for the Hook Packages.

5.1 Extensibility in JavaScript Coding

This topic provides an overview of extensibility in JavaScript Coding.

The developer can add code in hook packages and release specific JavaScript files.

For release-specific JavaScript coding, code has to be written in release specific JavaScript file. It follows the naming convention as **(Function Id)_(Release Type).js**.

For Example: Code in **STDCIFD_CLUSTER.js** is exclusive to cluster release.

This JavaScript file allows the developer to add functional code and is specific to release.

The functions in this file are generally triggered by screen events. A developer working in cluster release would add functions based on two categories:

- Functions triggered by screen loading events
  Example: fnPreLoad_CLUSTER(), fnPostLoad_CLUSTER()
- Functions triggered by screen action events
  Example: fnPreNew_ CLUSTER (), fnPostNew_ CLUSTER ()

5.2 Extensibility in Backend Coding

This topic provides an overview of extensibility in backend coding for the Hook Packages.

Release-specific code has to be written in the Hook Packages generated.

This topic contains following sub-topics:

- Functions in Hook Packages
  This topic provides an overview of Functions in Hook Packages.
- Flow of control through Hook Packages
  This topic provides an overview of Flow of control through Hook Packages.
- Bypass Base Release Functionality
  This topic offers an overview of how to bypass Base Release Functionality.

5.2.1 Functions in Hook Packages

This topic provides an overview of Functions in Hook Packages.

Different functions available in the Hook Package of a Maintenance Form are:

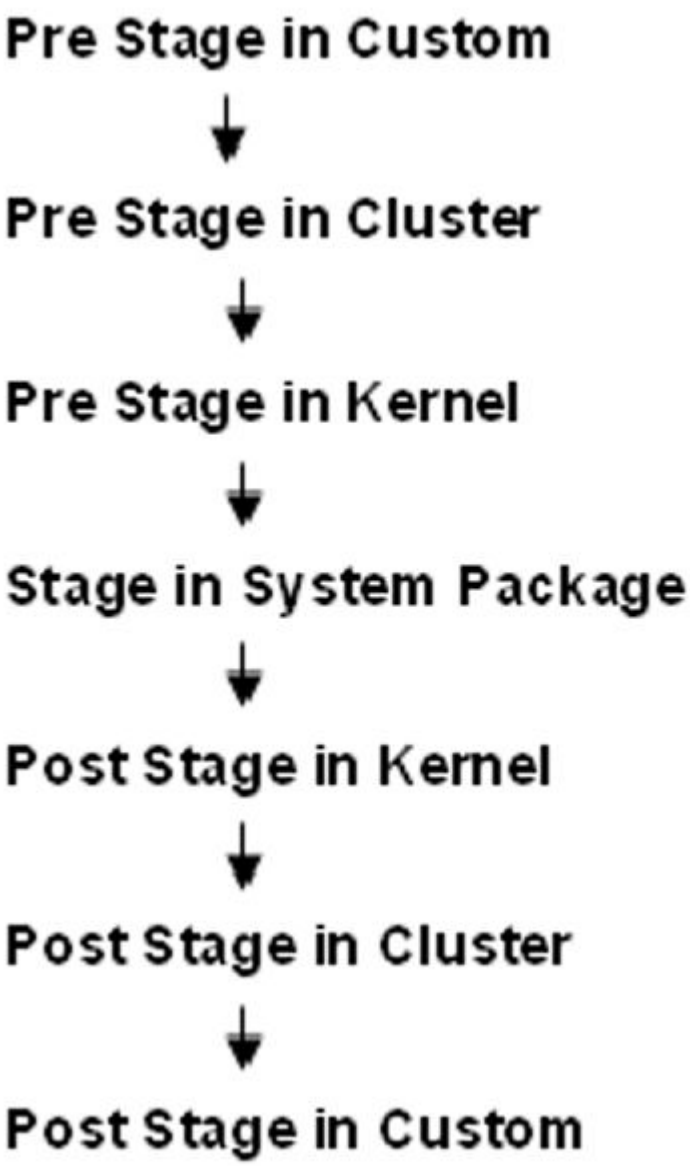
1. **Skip Handler**: **Pr_Skip_Handler**
   This can be used to skip the logic written in another release. For Example: logic written in KERNEL release can be skipped in CLUSTER release.
2. **Fn_post_bulid_type_structure**
   If any change has to be made in the field values obtained from the form before the start of processing, code can be written here.
3. **Fn_pre_check_mandatory**
4. **Fn_post_check_mandatory**
   Any extra mandatory checks on the field values from the screen can be written here.
5. **Fn_pre_query**
6. **Fn_post_query**
   Any specific logic while querying can be written in these functions. It is called from **fn_query** of the main package.
7. **Fn_pre_upload_db**
8. **Fn_post_upload_db**
   Any logic while uploading data to tables can be written here.
9. **Fn_pre_default_and_validate**
10. **Fn_post_default_and_validate**
    Any release-specific logic for defaulting and validation can be written here. It is called from the **fn_default_and_validate** in the main package.

5.2.2 Flow of control through Hook Packages

This topic provides an overview of Flow of control through Hook Packages.

The flow of control through the Hook Packages for a particular stage is as explained in the below example:

Figure 5-1 Flow of control through Hook Packages



Example: For **Fn_check_mandatory**, flow will be as:

```
UTPKS_ UTDFNDRL_MAIN. Fn_Check_Mandatory
UTPKS_UTDFNDRL_CUSTOM.Fn_Pre_Check_Mandatory
UTPKS_UTDFNDRL_CLUSTER.Fn_Pre_Check_Mandatory
UTPKS_UTDFNDRL_KERNEL.Fn_Pre_Check_Mandatory
UTPKS_UTDFNDRL_MAIN .Fn_Sys_Check_Mandatory
UTPKS_UTDFNDRL_KERNEL.Fn_Check_Mandatory
UTPKS_UTDFNDRL_CLUSTER.Fn_Check_Mandatory
UTPKS_UTDFNDRL_CUSTOM.Fn_Check_Mandatory
```

5.2.3 Bypass Base Release Functionality

This topic offers an overview of how to bypass Base Release Functionality.

There are auto-generated functions like **FN_SKIP_<RELEAE_TYPE>** which would determine whether or not a particular hook needs to be called.

The developer also has an option to bypass the base release hook if need be.

For example, if the validations are written in **UTPKS_UTDFNDRL_KERNEL.FN_PRE_CHECK_MANDATORY** are not required or not suitable for the Cluster release, the system provides an option to bypass the code written by the Kernel team.

Similarly, a Custom release can also bypass the code written by Kernel and Custom Releases. This can be achieved by calling procedures **PR_SET_SKIP_<RELEASE_TYPE>** and **PR_SET_ACTIVATE_<RELEASETYPE>**.

These procedures will be made available in the main package and the development teams of Customization teams can use these procedures to skip and reactivate the hooks of parent release.

The developer should refrain from adding validations or checks in the Pre Stage of any function, such as **Fn_Pre_Check_Mandatory**, and instead focus on implementing all validations in the **Fn_Post_Default_and_Validate** stage.

For Example: The flow for the Mandatory Stage for STDCIFD:

Figure 5-2 Flow of control explaining skip logic in packages