Development Workbench- Screen Development II Oracle FLEXCUBE Universal Banking

Release 14.4.0.1.0

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1 Preface

This document describes the generation, deployment and release of units from Oracle FLEXCUBE Development Workbench for Universal Banking. This document explains the process of generating and deploying files from Development Workbench for a function id

1.1 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:

| 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 & SQL Language | Self Acquired |
| Working knowledge of XML files | Self Acquired |
| Working Knowledge of Development Workbench for Universal Banking | User Manuals |

1.2 Related Documents

04-Development_WorkBench _ Screen_Development-I.docx

<u>07-Development_WorkBench_Notifications.docx</u>

2 Introduction

This document gives information on the following topics:

- <u>Chapter 2 , "Introduction"</u>
- <u>Chapter 3</u>, "Generated Files"
- <u>Chapter 4 , "Deployment"</u>
- Chapter 5 , "Release"

3 Generated Files

Development Workbench generates following files as shown in the figure below. This screen

can be launched by clicking on icon from the function generation screen. This has to be done after design of screen is completed. Refer <u>04-Development_WorkBench</u> <u>Screen_Development-I.docx</u> for detailed explanation on screen development

| ۲. | nt Workbench for Universal Banking | | | | DI Windows Option | EMOU Sign |
|---------------------------|---|--|---|--|--|--------------|
| Generation . | | | | | Q & 1 | - 77 |
| | | | | | 14 A 1 | |
| Front-End Files | System Packages | Hook Packages | | Meta Deta | Others | * |
| soa. ven Xmi Jem JS | 2 Main Package Spec 2 Main Package Body - Notetachen Togorn 2 Upload Package Spec 2 Upload Package Body | Kennel Package Spec Kennel Package Body Cluster Package Body | Menu Detais Datascurce Details D Lord Details M Lock Details M Screen Details M Amendoable Details M Amendoable Details M Summary Details M Summary Details | Cabel Details Clock PK Columns Fundon Calif Forma Cateway Details Notication Details Fundon Parameters Purge Details | IZ Xada IZ Sozean Himi IZ Upoat Table Toger IZ Upoat Table Cefendon I Anthive Table Definition | |
| SUNo | | File Name | File Ty | 2007 | Status | - |
| | | | | | | |
| | | | | | Generate | |

Fig 3.1: File Generation Screen

For action New , Workbench automatically selects the all files as shown in figure. If function ID has been loaded .then hook packages will not be checked

Click on Generate button to generated the files selected

| - | | | | | | | | | m 7 g |
|---------------------------|----------|--------------------------------|--------------|--|--------|--|---------------------------|-------|----------|
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| Frank End | Piles . | formation | × | | Meta D | | Dear | 18.5 | |
| i postale Noralen Xmil | | F CONTRACTOR CONTRACTOR | | C Menu Dolalis | | Label Details Block PK Columns | 2 Vada 2 Screan Html | | |
| Destern JD | | Error Description | Error Code * | ELOV Details | | Function Call Forms | Upload Table Trigger | | |
| | | Request successfully Processed | RD-SAVE-007 | E Block Datate | | Galeway Detalls | 2 Upload Tables Detroiton | | |
| | | | | 20 Donnen Cretaitz 22 Amondable Detaitz | | Noblecation Details Function Parameters | Archive Table Datestion | | |
| | | | | Call form Datalia | | Purction Parameters Purge Dotalis | | | |
| | | | | 2 Dummary Details | | | | | |
| | | | | | | | | | - |
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| | FTDTROM | CVD_STOP_PYINT_TAIL_HEADER.MM | | | HTML | | Dannelden - | | |
| | | CVS_STOP_PYINT_TAB_MARLhtm | | | HTML | | Generale · | | |
| | FTDTRONL | CVB_STOP_PYMINT_TAB_FOOTER NOW | | | HTML | | Omeranit | | - |
| | | | | | | | | | |
| | | | | | | | | Gener | ato Exit |

Fig 3.2: Files Generated message

3.1 Front-End Files

These files need to be copied to application server in respective folders.

RADXML → This file contains the Data Used to Design screen. Radxml is Input to Workbench.

File Name : <Function_ID>_RAD.xml

• Screen Xml → This file is an XML markup of presentation details, for the designed Function ID specific to a language. XSL Transformation is applied to this XML file by linking it to an XSL file. This results in HTML Markup which is displayed by the browser.

File name : <Function_ID>.xml

- **System JS** → This JavaScript file mainly contains a list of declared variables used by FLEXCUBE Infra.
 - o msgxml: This variable is used by the system to build FCUBS Request XML
 - o dataSrcLocationArray: This variable is an array of DATA BLOCKS
 - relationArray:-This array contains relation and relation type details of blocks.This is used for data binding
 - o retflds and bndFlds:- These arrays contains LOV information

- CallFormArray, CallFormRelat, CallRelatType:- These arrays contains callform details, call form relation and relation type
- actionsAmmendArray: This array contains information for enabling fields based on actions

File name : <Function_ID>_SYS.js

• Release Specific JS →

Note: Release Specific JavaScript File will not be generated by Workbench. This file, if required, has to be created by developer.

This JavaScript file allows 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 KERNEL release would add functions based on two categories:

- Functions triggered by screen loading events
 Eg: fnPreLoad_KERNEL(),fnPostLoad_KERNEL()
- Functions triggered by screen action events
 Eg: fnPreNew_KERNEL (), fnPostNew_KERNEL ()

A developer working in CLUSTER release would add functions based on two categories:

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

In case if any function in KERNEL JavaScript file has to be modified, this can be achieved by overriding the function in CLUSTER JavaScript file.

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

- Functions triggered by screen loading events
 Eg: fnPreLoad_CUSTOM(),fnPostLoad_CUSTOM()
- Functions triggered by screen action events Eg: fnPreNew_CUSTOM (),fnPostNew_CUSTOM ()

In case if any function either in KERNEL JavaScript file or CLUSTER JavaScript file has to be modified, this can be achieved by overriding the respective function in CUSTOM JavaScript file

File name : <Function_ID>_<RELEASE_TYPE>.js

3.2 System Packages

• Main Package Specification: The Main Package Spec Contains all the Declarations.

• Main Package Body:

Main Package would contain the all the business logic and persistence code for the functioned. It will also contain call to hook packages .Different flavors of main Package generated are

- 1) Maintenance FunctionId
- 2) Transaction FunctionId
- 3) Others Category FunctionId
- 4) Report Parameter Screen
- 5) Notification
- 6) Purge Entity

The main package has the below stages in case of a maintenance function:

- Converting Ts to PL/SQL Composite Type
- o Checking for mandatory fields
- o Defaulting and validating the data
- o Writing into Database
- Querying the Data from database
- o Converting the Modified Composite Type again to TS

Each of these stages has a 'Pre' and 'Post' hooks in the Release Specific Packages.

Note : Main Package has the system-generated code and should not be modified by the developer.

- Upload Package Specification
- Upload Package Body

Upload Packages would support adapter upload flow of any Function ID. The package will contain code to convert upload table data to function id specific PL/SQL composite type. The main package of the functioned would be called to upload the data

• Notification Triggers

This will be generated only for notification trigger screens. Refer <u>07-</u> <u>Development_WorkBench_Notifications.docx</u> for further reference

3.3 Hook Packages

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.

- Kernel Package Spec
- Kernel Package Body

The Kernel package is solely for the Kernel Team to modify. The Main package has designated calls to the Kernel package for executing any functional checks or validations included in the Kernel Package.

All the user level validations and conditional operations should be included in Fn_Post_Default_and_Validate. This function is called from the Main Package after the execution of Fn_Default_and_Validate. User should avoid putting validations or code in any other function.

In case user needs to add a separate function, the existing Workbench generated structure should not be changed. Instead the user can create a new package e.g. <MODULE>PKS_<FID>_UTILS package. The desired function can be included in this package and the call can be made from the Kernel Package.

- Cluster Package Spec
- Cluster Package Body

The Cluster package is available to the Cluster Team to add any validations or Checks specific to the Cluster Team over and above the Kernel Team. The Kernel Team or the Custom Team should not modify the contents of this package.

- Custom Package Spec
- Custom Package Body

The Custom package is available to the Custom Team only to add any validations or Checks over and above those already present in the Kernel and Cluster Packages.

3.4 Meta Data

Workbench generates **INC** files which contains insert scripts. These are static data required for the functioning of the function id. Developer needs to deploy generated INC's in FLEXCUBE schema.

• Menu Details → Under menu Details below 4 table entry Insert Scripts will get generated.

SMTB_MENU SMTB_FUNCTION_DESCRIPTION SMTB_ROLE_DETAIL SMTB_FCC_FCJ_MAPPING

If any one of table entry missing while designing new function ID, FLEXCUBE won't allow launching function ID.

• **Data source Details** → Generates INC for CSTB_FID_DATA_SOURCES. This data is required for uploading data to FLEXCUBE for the function id through excel.

- Lov Details → Generates INC for CSTB_LOV_INFO. FLEXCUBE will be using this information to get data for List of values provided in the screen
- **Block Details** → Generates INC for CSTB_FID_DATA_BLOCKS. This data is required for uploading data to FLEXCUBE for the function id through excel.
- Screen Details → Generates INC for CSTB_FID_SCREENS.
- Amendable details → Generates INC for below table. These scripts provides information regarding the amendable fields in the screen .Entry has to be present for the required field in these tables in order to make that field amendable through FLEXCUBE and gateway operation.

GWTM_AMEND_MASTER GWTM_AMEND_NODES GWTB_AMEND_NODES GWTB_AMEND_FIELDS

- **Call form Details** → Generates INC for CSTB_CALL_FORM_NODES. These will be generated only if the screen is a Call Form. It is required for attaching the particular Call form to any other function id.
- Summary Details → Generates INC for CSTB_SUMMARY_INFO. Dat in this table is required for fetching records in the summary screen of the particular function id .
- Label Details → Generates INC for CSTB_FIELD_LABELS and CSTB_OTHER_LABELS. Labels can be used for Language translation of screens. These scripts provides information regarding the label codes attached to each field. These are useful while developing language packs for FLEXCUBE

CSTB_FIELD_LABELS \rightarrow Contains Field Label details.

CSTB_OTHER_LABELS → Contains SCREEN, TAB, FIELDSET, BLOCK etc label details.

Note that Workbench does not generate scripts for CSTB_LABELS. Data in CSTB_LABELS is maintenance required for the Tool.

- Block Pk Columns → Generates INC for STTB_AUDIT_PK_COLS.
- **Function Call Forms** → Generates INC for CSTB_FID_CALLFORMS. This data is required for uploading data to FLEXCUBE for the function id through excel.
- Gateway Details → Generates INC for below tables.
 Data in these tables are required for gateway operations (web services) for the particular screen

GWTM_FCJ_FUNCTIONS

GWTM_OPERATIONS_MASTER

• Notification Details → Generates INC for below tables. Notification INCs will get generated only for Notification screens

GWTM_NOTIFICATION_TRIGGERS GWTM_NOTIFICATIONS_MASTER • Function parameters → Generates INC for below tables. This INC gets generates only for Reports screens (i.e. Function Category – Report).

AETB_FUNC_MASTER

AETB_FUNC_DETAIL

• **Purge Details** → Generates INC for below tables . These scripts will be generated only for Purge Entity Definitions screens

STTM_PURGE_MASTER STTM_PURGE_TBL_DETAILS STTM_PURGE_FILTERS

3.5 Others

- Xsds → The XSD files are used for the creation of xmls, which are in turn used during the execution of operations through Gateway.
- Screen html → The HTML files are used to take screen shots by converting them to images, which in turn used for Document preparation.
- **Upload Table Trigger** → Trigger will be generated for inserting records into adapter upload process tables (CSTB_EXT_CONTRACT_STAT ,STTB_UPLOAD_MASTER) from upload tables.
- **Upload Table definition** → DDL for upload tables would be generated. If existing upload tables are being re used , the generated DDL's can ignored
- Archive Table definition → DDL for archival tables would be generated for Purge Entity Radxml. Synonyms for the tables would also be generated.

Note: For new screen all file options will be checked automatically. For modification only system generated files will be checked, based on user requirement can opt for other file generation.

4 Deployment

Workbench generated files can be deployed directly to the application server and schema. Front-end files get copied to desired location which user has maintained while adding environment details. Database files get compiled to FLEXCUBE schema which is specified in the working environment.

4.1 Prerequisites:

The below maintenance is required to use the deploy option.

In environment user has two options to copy files based on the operating system FLEXCUBE application is running.

- Windows : File Copy / FileManager
- Unix : FileManager

FileManager Servlet needs to deploy in application server where FLEXCUBE is running. Refer File manager section in <u>02-Development_WorkBench_Administration.docx</u> to get more details about file manager.

| - | pment Workbench for Universal | Danning | | | DEMOUSE |
|---|-------------------------------|-------------------|-----------------------|----------------------------------|---------|
| Browser - | | | | Windows | |
| Administration | Environment Master | | | | _ × _ |
| 🗄 🛄 Release | | | | 📄 🛛 📰 🐹 🗖 🗴 | 7 6 |
| Environment | - Environment Details | | - Application Details | | |
| Detailed | | | | - H (H | |
| Summary | | FCUBS_12.2_MODELB | Application | | |
| 🗉 🛄 User | | FCUBS_12.2_MODELB | Application IP Ad | dress localhost | |
| Function Generation Screen Customizer | Language Code * | ENG | Application 1 | Name | |
| Tracking Changes | Description | FCUBS_12.2_MODELB | Applicatio | on OS Unix 🔻 | |
| Notification Triggers | - JNDI name | | Application Transfer | r Type File Manager | |
| Notifications | | | JS Directory | | |
| Bulk Generation | JNDI Name * | JDBC/FC114MDBANK | ULXML Directory | | |
| Excel Template Generation | - Database Details | | | y i dui | - |
| Refresh | Database Instance | ORCL | Server User N | | |
| Web Sevices | | 1521 | Server Pass | | |
| Block Detail Upload | Database Port | localhost | Server Filemanager | r URL http://10.184.74.143;775 | |
| Test Case Definition Runchart Definition | Database IP Address | | File Manager User N | Name | |
| Runchart Definition Test Case Data Upload | Database Host Name | localhost | File Manager Pass | sword | |
| Create Request | Database Name | FC114 | | Test Environment | |
| Test Case Execution | Database Password | | | l'est Environment | |
| Runchart Execution | Modification Numb | 2 | Maker Id RADTOOL | Maker Date Stamp 2013-02-15 15:2 | 4-10 |
| Test Case Data Bulk Upload | Modification Numb | er 3 | Makerid RADTOOL | Maker Date Stamp 2013-02-15 15:2 | 4.19 |
| Execution Report | | | | | |
| Purge Generation | | | | Clo | ose |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Fig 4.1: The Environment Details

In environment creation below details are mandatory to use deploy option.

- **Application Operating System** → Unix/Windows
- Application Transfer Type → Windows → File Copy/FileManager
 UNIX → FileManager
- **JS Directory Path :** Enter the shared path of JS files.
- **Uixml Directory Path:** Enter Shared path of Language Xml files. **Note:** If appliaction server is windows user can enter absolute path.

4.2 Deploy Files:

Click Deploy button as shown in below image.

| VSer - | Development Workbench for U | Jniversal Banking | | | DEMO Windows Options Sig | JSER n Out |
|-----------------------------------|---|---|--|--|---|---------------|
| lon Generation | | | | | | " × |
| Front-End Files | System Packages | Hook Packages | Me | eta Data | Others | * |
| RadXML Screen Xml System JS | Main Package Spec Main Package Body Notification Triggers Upload Package Spec Upload Package Body | Kernel Package Spec Kernel Package Body Cluster Package Body Cluster Package Body Custom Package Spec Custom Package Body | Menu Details Datasource Details Datasource Details LoV Details Second Details Screen Details Amendable Details Call form Details Summary Details | Label Details Label Details Dock PK Columns Function Call Forms Gateway Details Notification Details Function Parameters Purge Details | Xeds Xsd With Annotations Screen Html Upload Table Trigger Upload Tables Definition Archive Table Definition | Ŧ |
| SI.No | Fi | le Name | File Type | | Status | * |
| | | | | | | |

4.2: The deployment Screen

Select required files to deploy .Click deploy button. On success full deployment user will get status as Deployed.

| ACLE | FLEXCUBE Development Workbench for Universal | Banking | | | | DEMO | US | |
|--------|---|-------------------------|--|---|------------------------------|-------------|------|--|
| vser | | | | | Windows | Options Sig | gn C | |
| oon Ge | eneration | | | | | 7 | 1 | |
| matio | n | | × Merte | a Data | | Others | | |
| ! | Error Description Request successfully Processed | Error Code ARD-SAVE-007 | Jenu Details Dalasource Details .OV Delails Block Details | Label Details Eliock PK Columns Function Call Forms Gateway Details | Xada Xad With Screen H | Iml | | |
| | | | Screen Defails kmendable Defails Dali form Cretails Summary Defails | Notification Details C Function Parameters Purge Details | Upload Tables Definition | | | |
| | | | | File Type | SI | atus | | |
| | | - | SPC | | Deployed | ¥ | | |
| | | Ok | SPC | | Deployed | - | | |
| | | | SQL | | Deployed | - | | |
| | | | SQL. | | Deployed | - | | |
| | CST8_FIELD_LABELSFTDTRONLINC | | INC | | Cleployed | • | | |
| | CSTB_OTHER_LABELSFTOTRONL INC | | INC | | Deployed | v | | |
| | CST8_FID_CALLFORMSFTDTRONLINC | | INC | | Clepicyed | • | | |
| | CSTB_LOV_INFOFTDTRONLINC | | INC | | Deployed | - | | |
| | CST8_SUMMARY_INFOFTDTRONLINC | | INC | | Deployed | - | | |
| 0 | CSTB_FID_DATA_BLOCKSFTDTRONLINC | | INC | | Deployed | - | | |
| 1 | CST8_FID_DATA_SOURCESFTDTRONLINC | | INC | | Deployed | - | | |
| 2 | CSTB_FID_SCR_TABSFTDTRONLINC | | INC | | Deployed | - | | |

Fig 4.3: Deployment of selected files

5 Release

Release feature of Workbench is applicable only for developers within Oracle Financials. It involves the integration the Tool with other in house tools (repository/version control tools)

Oracle FLEXCUBE Development Workbench is integrated with SVN.

5.1 SVN Integration

Now, Workbench provides an interface to release the units generated to SVN

The following prerequisite should be adhered to before attempting to release units to SVN

 SVN Repository URL should be provided in the Preferences Node of Function Id against field SVN Repository URL. Path till the module name has to be given. *Example:- For an FT module RADXML path can be given as* Z:\FCUBS_11.3.0\Soft\MAIN\FT

| | t Workbench for Universal Banking - W | /indows Internet Explo | rer | | NI | | |
|---|---|------------------------------|----------|---|---------|-------------|--------------------|
| Browser - | pment Workbench for Universal Banking | | | | Windows | | NOUSEF Sign Out |
| Function Generation | | | | | Windows | Options | Sign Out |
| | | | | | | × = | 77 🧃 🗧 |
| Action Load Function Id FTDTRONL Save XML Path FTDTRONL_F | Function Type Parent Function BROWSE Parent Xm | n | | Function Category Header Template Footer Template | None 🔻 | ▼ | |
| Search | Preferences | | | | | | b |
| Preferences DataSource DataSourc | Head Office Fun Logging Require Auto Authorizatio Tank Modificatio Field Log Require Multi Branch Acc Excel Export Rec | ed in ns red ess | | FT Funds Transfer 100 BLK_CONTRACT | DETAILS | • • | |
| | | 1 | | | | | Control Str |
| | Function Id | | Module * | | | e Descripti | on |
| | FTDTRONL | FT | | Funds Trar | ister | | |
| | | | | | | | |

Fig 5.2.1: Preferences Screen highlighting SVN Repository URL

The following files can be released to SVN through Development Workbench:

- 1) RADXML
- 2) Main Package(spc and sql)

From the release screen check on the units to be released to SVN and click OK .SVN credentials has to be provided in the screen. SFR number has to be provided if it is not a simple check in. If checked in successfully, status will be displayed as released.



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