# Oracle FLEXCUBE Universal Banking ® Release 12.1.0.0.0 Development of Maintenance Form



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## 1. Preface

This document describes Maintenance Screens in FLEXCUBE and the process of designing a simple Maintenance form using Oracle FLEXCUBE Development Workbench for Universal Banking

## 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 Screen Development	04-Development_WorkBench
	_Screen_Development-I.docx
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

## **1.2** Related Documents

<u>04-Development\_WorkBench\_Screen\_Development-I.docx</u> <u>05-Development\_WorkBench\_Screen\_Development-II.docx</u>

# 2. Introduction

## 2.1 How to use this Guide

The information in this document includes:

- Chapter 2, "Introduction"
- Chapter 3, "Overview of Call Form"
- Chapter 4, "Screen Development"
- Chapter 5 , "Generated Units"
- <u>Chapter 5</u>, "Extensible Development"

## 3. Overview of Maintenance Screen

Maintenance Function Id's are used for storing maintenance data which are required for processing of any contracts, batches or for any other maintenance which are dependent on this

Example: 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 account for the customer) as well as for transaction processing (debiting of customer account)

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

## 4. Screen Development

Design and development of a Maintenance function id is similar to any other function Ids. This section briefs the steps in designing a Maintenance screen. STDCINF is sample function id used for demonstration in this document

For detailed explanation, refer the document: <u>4-Development\_WorkBench</u> <u>Screen\_Development-I.docx</u>

#### 4.1 Header Information

Provide the header information as shown in the figure.

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Action None	Function Type Parent +	Function Category Maintenance -	
Function Id	Parent Function	Header Template None -	
Save XML Path	Parent Xml	Footer Temptate None ~	
LotaSource     LitOfValues     DataBlocks     Screens     FieldSets     Actions     CaliForms     LaunchForms     LaunchForms     Summary			

Fig 12.1: Providing Header Information for Maintenance Screen

- For new screen select action As New.
- Enter Function ID  $\rightarrow$  STDCIFD
- Function Type  $\rightarrow$  Parent
- Function Category  $\rightarrow$  Maintenance
- Parent Function Id  $\rightarrow$  None
- Parent Xml  $\rightarrow$  None
- Header Template  $\rightarrow$  None (Only for Process flow screens)
- Footer Template → Maint Audit

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Action New   Function Id STDC/FD Save XML Path D1RADTOOL	Function Type Parent  Parent  Parent Function Parent Xml	Function Category Maintenance  Function Category Maintenance  Foundate Template None  Footer Template None  F
arch Preferences DataSource ListOVAtues DataBlocks Servens FieldSets CaliForms LaunchForms Surrmary		

Fig 12.2: Save icon used for saving the radxml

User can save work at any point in time. Click the save icon on top right for the same .In order to work again with it select action as Load and load radxml from the hard disk path

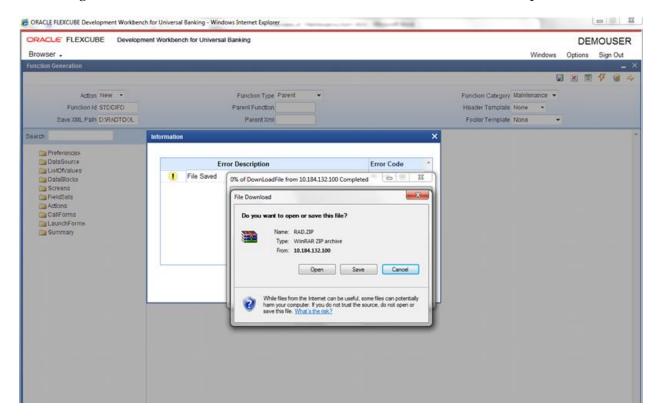


Fig 12.3: Saved File Information page

Note the following while providing header information for Maintenance screen

- i) **Naming Convention**: The third letter of the function id has to be D. Ideally the function id name should have 8 characters.
- ii) Footer Template Make sure that the master data source has the audit columns if footer template is provided as Maint log.

Refer <u>04-Development\_WorkBench \_Screen\_Development-I.docx</u> for detailed explanation

## 4.2 Preferences

- Details entered in Preferences are used in generating INCS for SMTB\_MENU, SMTB\_FUNCTION\_DESCRIPTION and SMTB\_ROLE\_DETAILS.
- **Control String** → Developer needs to select the actions which should be available for this screen in FLEXCUBE.

	Browser -	opment Workbench	for Universal Banking					Windows		MOUS	
Action New       Function Type Parent       Function Type Parent       Function Category Maintenance         Function I STDCIFD       Parent Function       Header Template None       Header Template None         Save XML Path DVRADTOOL       Parent Xmt       Footer Template None       Footer Template None         Search       Preferences       Footer Template None       Footer Template None         DataSource       Logping Required       Module       Static Maintenance         DataSource       Auto Authorization       Branch Program Id       Static Maintenance         DataBlocks       Auto Authorization       Branch Program Id       Footes Fleid Log Required         FieldSets       Tank Modifications       Process Code       Name         Catiforms       Excel Export Required       Transaction Block       Name         Summary       Excel Export Required       Transaction Field       Name	CAN DE CONTRACTOR AND							windows	Options	Sign O	UT
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Function Id Module * Module Description	DataSource ListOfValues DataBlocks Screens FieldSets Califorms Califorms LaunchForms		Logging Re     Log Auto Author     Tank Modifie     Field Log R     Multi Branch	quired zation cations equired h Access		Module Description Branch Program Id Process Code SVN Repository URL Transaction Block Name Transaction Field	Static Maintenance Choose Block Choose Field	•	] ]	+-	
			Function Id		Module *		Module	Description			
STDCIFD BT P3 Static Maintenance		STDC#	D	βī		1	Static Maintenance				

Note the following points while providing details in Preferences screen

i) Control String REVERSE, ROLLOVER, CONFIRM, LIQUIDATE, HOLD operations are not applicable for maintenance screens.

# 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 Example: For STDCIFD, following labels has to be maintained LBL\_STDCIFD\_MAIN\_MENU, LBL\_STDCIFD\_SUB\_MENU\_1, LBL\_STDCIFD\_SUB\_MENU\_2, LBL\_STDCIFD\_SUB\_MENU\_2, LBL\_STDCIFD\_SUB\_MENU\_1,

Refer <u>Development\_WorkBench\_Screen\_Development-I.docx</u> for detailed explanation on preferences

## 4.3 Data Sources

- Right Click on Data Sources; click on Add. Add table window gets opened.
- If user knows the exact table name, he can enter name directly; else go to List Of values to get the list of tables available. Select the required table from the list.

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Search	AddTable	×	÷ 1
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	STTM_CUSTOMER_PRE_IMAGE STTM_CUSTOMER_SOURCE_DETAILS		
	STTM_CUSTOMER_SRC_DETAILS STTM_CUSTOMER_SRNO STTM_CUSTOMER_UNUSED		
	STTM_CUSTOMER_VW		
			-

Fig 12.5: Adding Data Sources for the Function id

- Select Master as Yes if added data source is Master Data Source for the screen. Every function id should have one master data source..
- **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 populated automatically otherwise user needs to enter values without fail. If user misses Pk cols and Pk Types package generation will fail. *Note: Master Data Source cannot have any parent.*

Development of Maintenance Form

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Function Id STDCIFD	Parent Function		Header Template None -				
Save XML Path D/RADTOOL	Parent Xml		Footer Template None	•			
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<ul> <li>Preferences</li> <li>DataSource</li> <li>STTM_CUSTOMER</li> <li>ListOVAlues</li> <li>DataBlocks</li> <li>Screens</li> <li>FieldSets</li> <li>Actions</li> <li>CallForms</li> <li>LaunchForms</li> <li>Summary</li> </ul>	Data Source STTM_CUSTOMER Master Yes • Relation Type One To One • Multi Record No • PK Cols • CUSTOMER_NO PK Types • Upload Table		Normal  Mandatory	000			

Fig 12.6: Providing master Data Source Properties

• Right Click on Added Table (STTM\_CUSTOMER) to add fields to the table. Popup window gets opened with available columns in data source. Select the required fields and click ok. Selected will get added to the Data Source Tree.

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Fig 12.7: Including Data Source Fields for the Data Source

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CaliForms	ADDRESS_LINE3	VARCHAR2					
a LaunchForms	ADDRESS_LINE2	VARCHAR2					
Summary	ADDRESS_LINE4	VARCHAR2					
	COUNTRY	VARCHAR2					
	SHORT_NAME	VARCHAR2					
	V NATIONALITY	VARCHAR2	E				
	V LANGUAGE	VARCHAR2					
			07.1				
		Ok Cancel					

Fig 12.7: Selecting Data Source Fields for the Data Source

#### **Data Source Field Properties:**

Only max length can be modified by the developer in data source field properties. Rest will be defaulted from table definition

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earch	Data Source Field	Details					Re	fresh 🔸	- 9	
Preferences Prefe	Column Name Block Name Field Name	CUSTNIC		Data Type Max Length Upload Table Column	VARCHAR2					

Data model of a single function id would include multiple tables .All the tables needs to added in the function id. Note the following while adding child data sources

#### Adding Child Data Source:

- Select Multi Record value as Yes if child data source is Multi record table.
- Child Data Source should always be associated with a parent.
- Relation is mandatory between parent and child. While giving relation, parent data source should come in left side of the relation.

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Preferences  ContaSource  Cont	Data Source Master Relation Type Multi Record PK Cols PK Cols Upload Table		0.0.0		

Fig 12.7: Providing properties for Child Data Source

#### Note: A data source cannot be parent to itself.

Note the following while adding data sources:

- i) 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 relationship is based on Pk cols).
- ii) 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 system will handle it

Refer <u>Development\_WorkBench\_Screen\_Development-I.docx</u> for detailed explanation on data sources

## 4.4 Data Blocks

• Block Name should start with BLK\_<short Name equivalent to data source but not exactly same as Data Source name>.

Add Block		×
Block Name	BLK_CUSTOMER	
	Ok Cancel	
Fig 12.8	: Creating a new Data Block	

- Select Parent block if added block is not Master Block.
- Select Multi Record (Yes/No) based on this value, available data sources will displayed in data source available text area.

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Search	Block Properties					- 🔊
<ul> <li>Preferences</li> <li>DataSource</li> <li>STTM_CUSTOMER</li> <li>STTM_CUST_GROUP</li> <li>ListOfValues</li> <li>DataBlocks</li> <li>BLK_CUSTOMER</li> <li>Screens</li> <li>FieldSets</li> <li>Actions</li> <li>CallForms</li> <li>Summary</li> </ul>	Block Title	CUSTOMER	XSD Node Annotation Master Block Yes Multi Record No	▼ mal ▼		
	Fig 12.9: P	Providing properties f	or Data Block			

• Select the required data source and click move button to attach Data Source to the block

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<ul> <li>Preferences</li> <li>DataSource</li> <li>STTM_CUSTOMER</li> <li>STTM_CUST_GROUP</li> <li>ListOfValues</li> <li>DataBlocks</li> <li>BLK_CUSTOMER</li> <li>Screens</li> <li>FieldSets</li> <li>Actions</li> <li>CallForms</li> <li>LaunchForms</li> <li>Summary</li> </ul>	Block Title	One To One  Datasource ISTIM CUSTOMER	e Available		XSD Node XSD Node Annotation Master Block Multi Record Block Type Datasourc STTM_CUSTOMER	Customer Yes • No • Normal •					

Fig 12.10: Attaching Data Sources to Data Block

#### Adding multi record data source to data block:

User on selecting Multi record Yes in data block properties all the data sources with multi record Yes will be populated. *Multi Data Source once used to one block won't available for reuse where as single record data source can be used in multiple blocks* 

#### **Select Block Fields:**

- Right click on added block. Select Fields window will get opened. Developer needs to check the right side check box to add the required fields.
- **Field Name**: It should not be the same as column name .Special characters are also not allowed in the field name (including underscore and space)
- Label Code: It will be automatically populated based on field name.

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STTM_CUST_GROUP	Column Name	Field Name	Label Code	*	• •		
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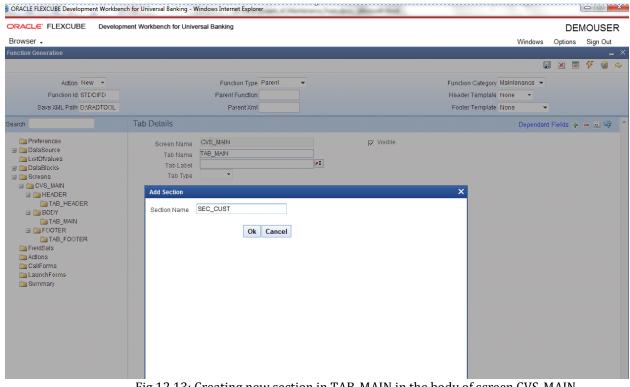
Fig 12.11: Adding Block Fields to Data Block

Refer <u>Development\_WorkBench\_Screen\_Development-I.docx</u> for detailed explanation on data blocks and block field properties

## 4.5 Screens

- Right click on Screens node to add a new screen
- Screen Name should start with CVS\_<Name>...
- By default screen are divided into 3 parts.
- One Main Screen is Mandatory.
- 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.

Fig 12.12: Providing properties to new Screen



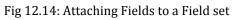
CRACLE FLEXCUBE Development Workbench for Universal Banking Browser  Function Generation  Action New  Function Type Parent Function Id STDCIFD Parent Function Save XML Path D:RADTOOL Parent Xml Search Section Details	DEMOUSER
Function Generation       Action New       Function Type       Parent Function       Save XML Path       D:RADTOOL   Parent Xml	
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a TAB_MAIN	50 -
TAB_FOOTER FieldSets CallForms LaunchForms Summary Fig 12.14: Defining partitions for the Section	

## 4.6 Field Sets

A group of fields can be grouped together in a Field set which can be placed together in the screen

- Field Set Name should start with FST\_<>.
- Select the Block adding to field set.
- All fields available to the block will be displayed in to the data block fields text area. Move fields from data block fields to Field set fields.
- The order of fields in *field set fields* will reflect in the screen as well

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arch	Fieldset Properties			- 🛛 🌍
<ul> <li>Preferences</li> <li>DataSource</li> <li>ListOVAlues</li> <li>DataBlocks</li> <li>Screens</li> <li>FieldSets</li> <li>FST_CUST1</li> <li>Actions</li> <li>CallForms</li> <li>LaunchForms</li> <li>Summary</li> </ul>	Fieldset Name FST_CUST1 Fieldset Label PE Data Block BLK_CUSTOMER  Multi Record No  View Type Fieldset Height CUSTNOP CUSTTYPE CUSTNOP CUSTTYPE CNAME ADDR1 ONY NLTY LANG	Screen Name CVS_M Screen Portion Tab Name Section Name Partition Name Number Of Rows	IAIN • • • • • • • • • • • • • • • •	<ul> <li>☐ Horizontal Fieldset</li> <li>☐ ReadOnly</li> <li>☐ Navigation Button</li> <li>☑ Visible</li> </ul>



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Action New  Function Id STDCIFD Save XML Path D:RADTOOL arch	Function Type Parent  Parent Function Parent Xml Fieldset Properties	Function Category Maintenance - Header Template None - Footer Template None -
Preferences DataSource ListOfValues DataBlocks DistofValues FieldSets FieldSets Actions CaliForms LaunchForms Summary	Fieldset Name       FST_CUST1         Fieldset Label       ##         Data Block       BLK_CUSTOMER         Multi Record       No ~         View Type       Single ~         Fieldset Height	Screen Name Screen Portion Tab Name Partition Name Visible Vi

• Select the screen portion (Header/Body/Footer) where this field set has to be placed. Select remaining details like tab, section and partition.

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🚞 Summary	CNTY NLTY		CUSTNO		
	LANG		CNAME	· · · ·	
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		44			

Fig 12.15: Providing details where Field Set has to be placed

Once fields are added to field set, developer can check the preview of the designed screen. Right click on Screen Name and click on Preview.

🔶 Main		
🖹 New 🦻 Enter Query		
Customer No		
Name		
Туре		
Address		
Maker	Date Time:	
Checker		
	Date Time:	Exit
Mod No	Record Status	
	Authorization Status	

Fig 12.16: Preview of the designed Screen

Adding Multi entry block to field set.

- On selecting a multiple block, Multi Record Property will be defaulted to Yes..
- In case of Multi record, View type can be either Single or Multiple (By Default).

◆ Main		×
🖹 New 🦻 Enter Query		
Customer No Name Type Address		
I	Go to Page	+ - ==
Group Id	Customer No Relation	·
•	m	
Maker	Date Time:	
Checker Mod No	Date Time: Record Status Authorization Status	Exit

Below image shows a multiple view multi record field set



• For multi record single view navigation button should be checked.

RACLE FLEXCUBE Develop	ment Workbench for Unive	rsal Banking								IOUSE
rowser 🗸							Wind		ptions	
iction Generation							VIIId	ws 0	puons	Sign Ou
									× =	
								Land to	<u> </u>	V 🥑
Action Load -		Function Type Parent 👻				Functio	n Category Maintenance	-		
Function Id STDCIFD		Parent Function				Heade	r Template None 👻			
Save XML Path STDCIFD_RAI	BROWSE	Parent Xml				Foote	r Template Maint Audit	•		
arch	Fieldset Properties	;								- R 🗳
Preferences	Fieldset Name	FST_CUST2			Name	CVS_MAIN	<b>.</b>	- H	Horizontal	Fieldent
DataSource		×1	-			Body			ReadOnly	
STTM_CUSTOMER	Fieldset Label Data Block	BLK GROUP -	50		Portion	TAB_MAIN	· ·	· · · · ·	Vavigation	
CUSTOMER_NO	Multi Record	Yes -			Name	SEC_GROUP	- -		vavigation /isible	Dutton
CUSTOMER_TYPE CUSTOMER_NAME1		Single -			Name	PART1		V V	ristole	
ADDRESS_LINE1		Single			Name	FARTI	-			
COUNTRY	Fieldset Height		Num	ber O	fRows					
DI NATIONALITY										
🛅 LANGUAGE				_	_					
STTM_CUST_GROUP GROUP_ID		Data Block Fields				eldSet Fields	Subpartition Name			
CUSTOMER_NO					GROUP_	ID				
					CUST_N	0	<b>•</b>			
ListOfValues					RELATIO	N	•			
DataBlocks			ĐĐ							
BLK_CUSTOMER								_		
BLK_GROUP			44							
Screens CVS_MAIN										
🖃 🚞 TAB_MAIN										
EC_CUST										
SEC_GROUP										
FOOTER										
🛭 🧰 FieldSets										
FST_CUST1										

Below figure shows the preview of a single view multi record field set

🔶 Main		×
🗗 New 🔄 Enter Query		
Customer No Name Type Address Group Id Customer No Relation		1 of 1 ▶
Maker Checker	Date Time: Date Time:	
Mod No	Record Status Authorization Status	Exit

Fig 12.18: Preview for Single View Multi Record Field set

## 4.7 LOV

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

- To add LOV right click on List of Values Node. LOV Name should start with LOV\_<name>. *Example: LOV\_COUNTRY.*
- Enter valid query and click on populate button

Function Generation					-	. ×
			🖬 🗶 🛙	<b>I V</b>	9	⇔
Action Load 👻	Function Type Parent	- Function Cate	gory Maintenance 👻			
Function Id STDCIFD	Parent Function	Header Temp	olate None 🔻			
Save XML Path STDCIFD_RAI	BROWSE Parent Xml	Footer Temp	olate Maint Audit 👻			
Search	List Of Values Details			<b>—</b> Ai	] 🌍	-
Preferences  STM_CUSTOMER  STM_CUST_GROUP  LISTOVAlues  LUCV_OCUNTRY	LOV Name + LOV_OCUNTRY LOV Query select country_code, description from	n sttm_country where auth_stat = 'A' and record_stat = 'O'		Populat	e	
DataBlocks     Screens     Screens     Actions     CallForms     LaunchForms     Summary	Query Columns Data Type Vis	ble Reduction Field Reduction Field Type	Reduction/Column Label		A.	

#### Fig 12.19: Defining new LOV

LOV	Query	×
	select country_code,description from sttm_country where auth_stat = 'A' and record_stat = 'O'	
	Ok Cancel	

Fig 12.20: Providing LOV query

Function Generation								_ >
					<b>:</b>	×	V	🧐 🌩
Action Load  Function Id STDCIFD Save XML Path STDCIFD_RAI	Function Ty Parent Functi BROWSE Parent X	on		Head	ion Category Maintenance v ler Template None v ter Template Maint Audit v			
Search	List Of Values Details						<b>—</b> A(	] 🌍 👘
□ Preferences □ DataSource 0 □ STTM_CUSTOMER 0 □ STTM_CUST_GROUP 0 □ ListONalues 0 □ COUNTRY	LOV Name * LOV_OCUNTRY LOV Query select country_cod	e,description from sttm_co	ountry where auth_stat =	'A' and record_stat = 'O'		F	opulat	te
DataBlocks	Query Columns D	ata Type Visible	Reduction Field	Reduction Field Type	Reduction/Column La	bel		~
Dereens     FieldSets     Actions     CallForms     LaunchForms     Summary		CHAR2 • Yes • CHAR2 • Yes •	Yes • Yes •	TEXT •	LBL_CNTRY LBL_COUNTRYCD	×1 ×1		~

Fig 12.21: Providing LOV details

- Redn/Col Labels are mandatory. If user won't provide will get error on click of LOV button after deployment in FLEXCUBE
- After defining LOV go to block and corresponding field where the LOV has to be attached.

#### Block Field Properties to attach LOV to the field

- **Display Type:** Select display type as Lov.
- Lov Name: Select the required Lov name from the list of all defined LOV's.
- Click on return fields tab. The result fields maintained in the LOV query will be populated on click of *Default from Lov Definition* button
- Select the desired field ( and its block )to which the result of the LOV query should be defaulted

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

Function Generation				_ ×
				🗄 🗶 🗏 🌮 🧐 🧇
Action Load -	Function Type	Parent 👻	Function Category Maintenance -	
Function Id STDCIFD	Parent Function		Header Template None 👻	
Save XML Path STDCIFD_RAL	BROWSE Parent Xml		Footer Template Maint Audit	•
Search	Block Field Properties			- A 🗔 🗐 🔺
Preferences	OUTY			- Deviced
DataSource	Field Name * CNTY	XSD Tag	CNTY	Required
DataSource     STTM_CUSTOMER	Field Label LBL_CNTY	XSD Annotation		Visible
B STTM_CUST_GROUP	DataSource STTM_CUSTOMER	Field Size *	•	Read Only
🖃 🚞 ListOfValues	Column Name * COUNTRY	Maximum Length	3	Calender Text
LOV_COUNRTY	Data Type * Varchar2 👻	Minimum Value		Popup Edit Required
🖃 🚞 DataBlocks	Display Type	Maximum Value		Uppercase Only
BLK_CUSTOMER	Item Type Database Item 👻	Maximum Decimals		LOV Validation
	Parent Field	TextArea Rows		Required
CUSTTYPE	Related Block	<ul> <li>TextArea Columns</li> </ul>		Input by LOV Only
		Default Value	×=	Not Required In Xsd
	Related Field	Preview Value		Report Parameter
	LOV Name	✓ MaskId	×=	
🔁 LANG	Off Line LOV Name			
III 🚞 BLK_GROUP	Fieldset Name			
🗄 🚞 Screens	Custom Attributes Events Bind Variables	Return Fields Related Field		
⊞ ieldSets	Return Fields Mapping		Default From	n Lov Definition
Carlos Carlos				
CallForms	Query Column	Block Name	Return Field Nam	ne ^
Summary	COUNTRY_CODE	BLK_CUSTOMER -	CNTY -	
	DESCRIPTION	BLK_CUSTOMER -	•	
	Fig 12 22. At	taching LOV to a block Fi	eld	
	115 12.22.11	acting DOV to a DIOCK I I	uu .	

#### 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.

#### 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'

In the block field, after selecting return fields, click on bind variables tab. Click on **Default from Lov Definition** button. New rows will be created depending on the number of bind variable provided in the LOV query. Select the bind filed in the screen (and its block) for the LOV. Data type of the field has also to be selected.

Action Lood -	Function Type Parent	14	Function Category III	mtercance -		
Function Id STDCHF	Parent Function		Header Template No	ne 💌		
Save XIII, Path D'R4DTOOLV	Parent Xmi		Footer Template Ha	int Audit 🛩		
irch	Block Field Properties					- 1
Preterences     DataSource     Losy_CountRy     Losy_CountRy     DotaStors     DataStors     DataStors     DotaStors     CountRy     DotaLt     CountRy     DotaChit     CountRy     DitLADORLH1     COUNTRY     LING     TESTT     CUSTNO     CUSTNO	Field Name, CUSTNO     Field Label LBL_CUSTNO     XSD Tag CUSTNO     XSD Tag CUSTNO     Display Type, Text     Mem Type Database film      Parent Field     Related Field     Related Field     Textires Rows     Min Val     Max.Decimats     LOV Name, LOV_ACCOUNT Fieldset Name, FST_GROUP		Opta Type     Varchar2     DataSource     STIKE_CUST     Max Length     Field Size     Column Name     CUSTOMER_N     Default value     Preview Value     Accessivey Code     TextArea Cols     Max Val     Mask Id     Off Line LOV Name     Image Source		Popup Edit Regd Required Valible Input by LOV Only Calender Text Select Multiple Uppercase Only CLOV Validation Regd Not Reg th Nat Report Parameter Read Only	
a caron Callforma 2 Launchforma 3 Summary	Custom Attributes Events End Variables Bind Variables Mapping Block Name BLK_CUSTOMER	Ratum Fields	Bind Vaniable Crustneo	Default from LoV definit Defatype STRING		

## 4.8 Attaching Call forms

Maintenance Call forms can be attached to a maintenance screen. Refer the document <u>14-</u> <u>Development of Call Form.docx</u> for developing call forms

#### Attaching Call forms

- Add button to block to launch call form on button click.
  - Right click on Block
  - Select Add fields. Select fields and Add UI field's window will be launched
  - Select UI Fields tab. Click add row button. Enter button name and click ok.
  - Select display type as button and enter field label.

Se	elect F	ields & Add	Ul Fields					×
1	DataS	ource fields	UI Fields					
							+-	
				Field Name		Data Type	^	
	1	BTM_MIS				-		
					 		~	
							Ok C	ancel

Fig 12.24: Defining Button field

• Add Call form details to Call form node

						🔚 🗶	E 7 🧐
Action Load 👻		Function Type Parent	~	Funct	on Category Mair	ntenance 👻	
Function Id STDCIFD		Parent Function		Head	er Template Non	e 🔻	
Save XML Path STDCIFD_RAI	BROWSE	Parent Xml		Fool	er Template Mair	nt Audit 👻	
rch	Call Form Details						C
Preferences DataSource							
STTM_CUSTOMER     Description		1	1	1	creen Arguments		Fields <mark>+ -</mark>
ListOfValues	Function ID	Parent Data Block	Parent DataSource	Relation	Relation Type	Callform Screen	Display 1 ^
LOV_COUNRTY	MICCUSTM	BLK_CUSTOMER -	STTM_CUSTOMER -	TTM_CUSTOMER.COSTOMER_NO =	One To One 🔻	•	Button
CNAME ADDR1 ADDR1 CNTY NLTY LANG BTM_MIS BLK_GROUP Screens FieldSets Actions CallForms LaunchForms Summary							

Fig 12.25: Defining details of the Call form to be attached in call form node

- Add event to button.
  - On selecting event type as call form or launch form or sub screen button will be displayed on 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

Function Generation					-
					🖫 🗵 🗏 🚱 🧐
Action Load -		Function Type Parent 👻		Function Category	Maintenance 🔻
Function Id STDCIFD		Parent Function		Header Template	None -
Save XML Path STDCIFD_RA	BROWSE	Parent Xml		Footer Template	Maint Audit 🔻
Search	Block Field Properties				- 🗷 🗔 🌍
Preferences Preferences STM_CUSTOMER  STM_CUSTOMER  STM_CUST_GROUP ListofValues Dot_COUNRTY DataBlocks DataBlocks CUSTNV CUSTNVE CUSTNVE CUSTNVE CUSTNVE ADDR1	Field Name * BTM Field Label DataSource Column Name * Data Type * Tex Display Type Item Type Parent Field Related Block Related Field	MIS PE	XSD Tag XSD Annotation Field Size * Maximum Length Minimum Value Maximum Value Maximum Decimals TextArea Rows TextArea Columns Default Value		<ul> <li>□ Required</li> <li>□ Visible</li> <li>□ Read Only</li> <li>□ Calender Text</li> <li>□ Popup Edit Required</li> <li>□ Uppercase Only</li> <li>□ LOV Validation Required</li> <li>□ Input by LOV Only</li> <li>□ Not Required In Xsd</li> </ul>
CNTY ANG ANG BTM_MIS CROUP CONT Screens CVS_MAIN B HEADER	LOV Name Off Line LOV Name Fieldset Name Custom Attributes Events Event Name	Related Field	Preview Value Mask Id	ton Screen CallForm Na	Report Parameter
BODY     TAB_MAIN     SEC_CUST     SEC_CROUP     FieldSets     Actions     CaliForms     LaunchForms     Summary	onunioad V			MAIN - MICCUSTM	

• Check the preview.

🔶 Main				×
🖹 New 🔄 <u>Enter Query</u>				
Customer No Name				
Туре				
Address				
l≪ 1 of 1 ▶ ▶	Go to Page		+ - =	
Group Id	Customer No	Relation	·	
			-	
•			•	
MIS)  Change Log				<b></b>
Maker	1	Date Time:		
Checker		Date Time:	_	
			E	xit
Mod No		cord Status		
	Authoriza	tion Status		

Fig 12.27: Preview of the screen with the Call Form button

# 4.9 Adding Summary

1) Add entry in Preferences node for Summary screen

						×		ų.
Action Load 👻		Function Typ	e Parent 👻		Function Category Maintenance 🔻			
Function Id STDCIFD		Parent Function	n		Header Template None 👻			
Save XML Path STDCIFD_RAI	BROWSE	Parent Xr	nl		Footer Template Maint Audit 🔹	]		
earch	Preferenc	es						9
Deferences		Fead Office Fun	ction	Module	ST			
DataSource     STTM CUSTOMER		Logging Require	ed	Module Description	Static Maintenance			
STIM_CUSTOMER      STIM_CUST_GROUP		Auto Authorizatio	in	Branch Program Id				
∃ 📴 ListOfValues		🔽 Tank Modificatio	ns	Process Code				
DataBlocks		🔽 Field Log Requi	red	SVN Repository URL				
BLK_CUSTOMER BLK_CUSTOMER CUSTNO		🔲 Multi Branch Acc	ess	Transaction Block Name	Choose Block -			
		Excel Export Rei	quired	Transaction Field	Choose Field 👻			
				Name				
ADDR1								
CNTY NLTY								_
LANG					Co	ontrol Strin	ig + -	4
BTM_MIS		Function Id		Module *	Module Description			~
BLK_GROUP     Screens	STDC	NFD	ST	21	Static Maintenance			
CVS_MAIN	V STSC	IFD	ST	1	Static Maintenance			
🗉 🚞 FieldSets							-	-
Actions								
CallForms								
i Summary								

- 2) Click on Summary Node.
  - Enter Summary title .Select label code from lov.
  - Select Data Block master block and summary blocks will be displayed. Select required block from drop down list.
  - Select Data Source for summary.
  - Select Summary Type.
  - Select Summary Screen size.
  - Enter if any where clause is required.
  - Enter Default order by if required.
  - Enter Multi Branch where clause if required.
  - Attach the fields required in the summary result grid
  - If the field is required as part of filtering, query has to be checked for the particular field
  - Provide the position of fields in Result grid and Summary Query set .

										×	V	
Action Load 👻			Function Type Parent	-			Function	Category Maintenance	-			
Function Id STDCIFD			Parent Function				Header	Template None 👻				
Save XML Path STDCIFD_RAL	BROWSE		Parent Xml				Footer	Template Maint Audit	•			
rch	Summary	Details										9
🗀 Preferences		Title				Default Where Clause			2			
DataSource	Da	ta Blocks	BLK CUSTOMER	•		Default Order By			2			
STTM_CUSTOMER		a Source	STTM_CUSTOMER	•		Multi Branch Where						
B DSTTM_CUST_GROUP			Summary	-		Clause						
i 🛅 ListOfValues		nary Type				Main Summary Screen						
🛅 DataBlocks 😑 🛅 BLK_CUSTOMER	Summary Sc	reen Size	Medium	•		indir Carinary Corcorr	WebSen	vices				
CUSTNO							Require					
CUSTTYPE	Data Block I		ustom Buttons   Fields Ordering									
	Data Block I	-ieids Cl	Istom Buttons    Fleids Ordering									
ADDR1												
NLTY			Data Block Fields			Fields Selected	Query	LOV Name				
🚞 LANG							-	Lov Humo				
DTM_MIS						CUSTNO			•			
BLK_GROUP						CNAME			Ŧ			
) 🛅 Screens						CUSTTYPE			Ŧ			
FieldSets					ÞÞ	ADDR1			-			
Carlons Carlons					44	CNTY			Ŧ			
CallForms LaunchForms						NLTY			Ŧ			
Summary						LANG			Ŧ			
	[											

#### **Summary Preview**

Right click on summary node and click on preview.

	auto Quesu C <b>t</b> Advence	d Search O Dec	et D Clear All							×
E Exe	Advance Authorization Status Customer No	ed Search  +-j Res			Reco	ord Status	•			
Reco	rds per page 15 👻 📊	🛯 1 of 1 🕨 🔰		3						
	Authorization Status	Record Status	Customer No	Name	Туре	Address	Country	Nationality	Language	
										E
										-
									Þ	
									Exit	

Fig 12.29: Summary Screen Preview

## 4.10 Amendable fields Maintenance

#### Amendable Fields

If user needs to modify data of a particular field on unlock, in Workbench developer has to maintain fields as amendable.

- Click ACTIONS node.
- Click on Amendables button next to the action for which the field has to be made amendable
- Select the fields in each block which user can modify for the selected action.

Amendable DetailsQUERY		×
Data Blocks	DataBlock Fields	
BLK_CUSTOMER BLK_GROUP	New Allowed Delete Allowed All Records	Mandatory
	Field Name	Amendable
	CUSTNO	
	CUSTTYPE	
	CNAME	<b>v</b>
	ADDR1	
	CNTY	
	NLTY	
	LANG	
	BTM_MIS	
		Ok Cancel
	L	

Fig 12.30: Maintaining amendable fields

# 5. Generation and Deployment of files

#### **Generate Files**

• Click on generate button select the required files to generate and click on Generate button.

ation		×		Vela Data	Others
Error Description           I         Request successfully Processed		Error Code RD-SAVE-007	Henu Details     Dalasource Details     Double Details     Bick Details     Screen Details 4.132.100 Completed	Label Details     Block PK Columns     Function Call Forms     Gateway Details     Notification Details     Actification Parameters	Xsds  Xsd With Annotations  Screen Html  Upload Table Trigger  Upload Tables Definition  Archive Table Definition
		File Download		rge Details	
Do you want to open or sav			ile Type	Status	
		Type: WinRAF From: 10.184.1			Generated * Generaled *
			Open Save Cancel		Generaled *
	STDCIFDCVS_MAINTAB_F0IOTER html slpks_std0ld_main.spc	While files from the Int	ternet can be useful, some files can potent f you do not trust the source, do not open of	ially or	Generaled *
	stpks_sldcifd_kernel.spc		une hisk <u>y</u>		Generated 👻
	stplos_stdold_main.sql		SQI		Generaled *
	stpks_sldclfd_kernel.sql		SO		Generated 👻
	CST0_FIELD_LABELSSTOCIFD.INC		INC		Generaled *
	CSTB_OTHER_LABELSSTDCIFD INC		INC		Generated 👻
	OSTB_FID_CALLFORMSSTOCIFD.INC		INC		Generaled *

Fig 12.30: Generation of Files

## **Deploy files**

• Click on deploy button select the required files to deployed to server and click on deploy. On successful deployment status will be displayed as Deployed.

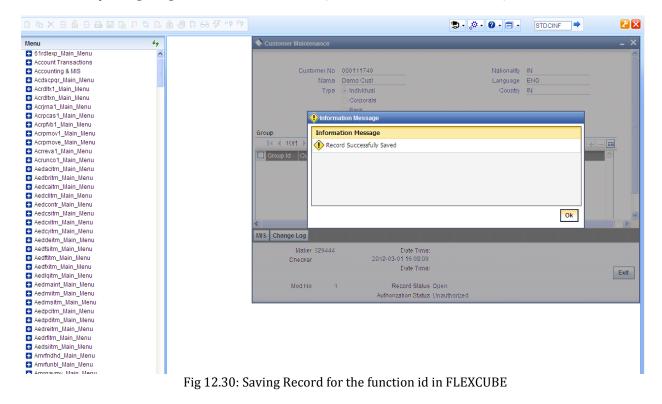
Front-End Files	System Packages	Hook Packages	M	leta Data		Others	*
☐ Rad/ML V Screen Xml V System JS	Main Package Spec     Main Package Body     Notification Triggers     Upload Package Spec     Upload Package Body	Kernel Package Spec Kernel Package Body Custer Package Spec Custer Package Body Custom Package Body Custom Package Body	Menu Details     Datasource Details     LOV Details     Block Details     Screen Details     Amendable Details     Call form Details     Summary Details	Label Details     Jelock PK Colur     Function Call F     Gateway Detail     Notification Det     Function Paran     Purge Details	orms Screen Htn s Upload Tal ails Upload Tal	nl ble Trigger bles Definition	Ţ
3	CSTB_FIELD_LABELSSTDCIFD.INC		INC		Deployed	¥	*
L C	CSTB_OTHER_LABELSSTDCIFD.INC		INC		Deployed	<b>v</b>	
5 0	CSTB_SUMMARY_INFOSTDCIFD.INC		INC		Deployed	-	
6 5	STTB_AUDIT_PK_COLSSTDCIFD.INC		INC		Deployed	Ŧ	
7 (	CSTB_FID_DATA_BLOCKSSTDCIFD.INC		INC		Deployed	T	
3	CSTB_FID_DATA_SOURCESSTDCIFD.INC		INC		Deployed	-	
	CSTB_FID_SCR_TABSSTDCIFD.INC		INC		Deployed	Ŧ	=
10	CSTB_FID_SCREENSSTDCIFD.INC		INC		Deployed	w	
11 8	SMTB_MENUSTDCIFD.INC		INC		Deployed	Ŧ	
12 8	MTB_ROLE_DETAILSTDCIFD.INC		INC		Deployed	-	
13 8	MTB_FUNCTION_DESCRIPTIONSTDCIFD.INC		INC		Deployed	<b>~</b>	
14 \$	SMTB_FCC_FCJ_MAPPINGSTDCIFD.INC		INC		Deployed	<b>v</b>	
15 5	STDCIFD_RAD.xml		RAD	XMI	Generated	~	-

Fig 12.30: Deployment of Files

#### Testing

•

- Launch the screen from FLEXCUBE
- Try sample operations on the screen (NEW, MODIFY, QUERY etc)



# 6. Generated Units

The following units will be generated for a Maintenance screen.

Refer document <u>Development\_WorkBench\_Screen\_Development-II.docx</u> for detailed explanation on the same

## 6.1 Front End Units

#### 6.1.1 Language xml

This file is an XML markup of presentation details, for the designed Call Form specific to a language.

#### 6.1.2 SYS JavaScript File

This JavaScript file mainly contains a list of declared variables required for the functioning of the screen

#### 6.1.3 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 specific in that release

## 6.2 Data Base Units

#### 6.2.1 Static Scripts

The following static scripts generated are required for the proper functioning of a Call Form screen. Refer document on generated units for detailed explanation

i) 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

- ii) Lov Details
- iii) Amendable Details
- iv) Label details
- v) Screen Details
- vi) Block details
- vii) Data Source Details
- viii) Call form details
- ix) Summary Details

#### 6.2.2 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 database

• Converting the Modified Composite Type again to TS

Each of these stages has a '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

## 6.2.3 Hook Packages

Release specific packages will be generated based on the release type (KERNEL.CLUSTER or CUSTOM). 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 similar structure and are for the respective teams to work on.

## 6.3 Other Units

## 6.3.1 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 *Actions* node

# 7. Extensible Development

Developer can add his code in hook packages and release specific JavaScript file.

## 7.1 Extensibility in JavaScript Coding

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 *Example: Code in STDCIFD\_CLUSTER.js is exclusive to cluster release* 

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 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 ()*

## 7.2 Extensibility in Backend Coding

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

## 7.2.1 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. *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 befor 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\_dbAny 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

#### 7.2.2 Flow of control through Hook packages

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

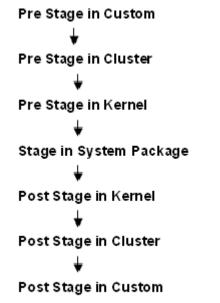
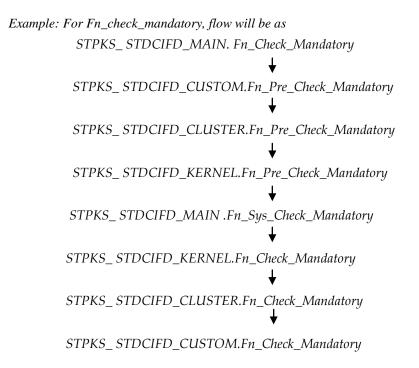


Fig 12.31: Flow of control through Hook Packages



#### 7.2.3 By passing Base Release Functionality

There are auto generated functions like FN\_SKIP\_<RELEAE\_TYPE> which would determine whether or not a particular hooks needs to be called.

Developer also has an option to bypass the base release hook if need be. For example if the validations written in *STPKS\_STDCINF\_KERNEL.FN\_PRE\_CHECK\_MANDATORY* are not required or not suitable for the Cluster release, system provides an option to bypass the code written by 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 re-activate the hooks of parent release.

The Developer should avoid adding validations or Checks in the Pre Stage of any function, like Fn\_Pre\_Check\_Mandatory, etc and should aim to add all the validations in the Fn\_Post\_Default\_and\_Validate.

For Example let us see the flow for the Mandatory Stage for STDCIFD:

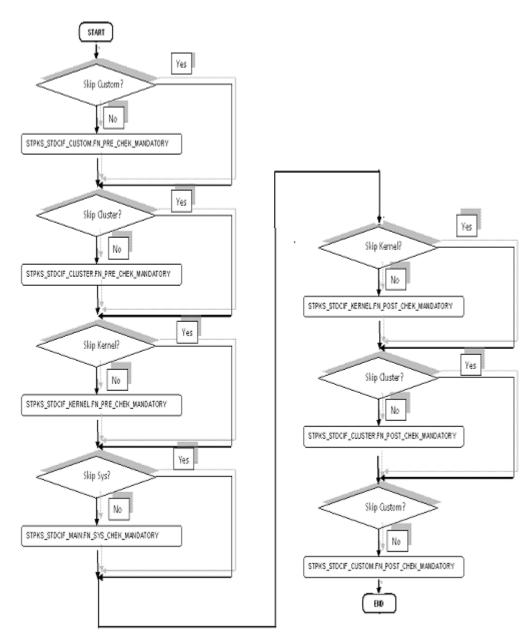


Fig 12.31: Flow of control explaining skip logic in pacakges



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