

Oracle FLEXCUBE Direct Banking

Internationalization Overview
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Internationalization Overview
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1 Preface

1.1 Intended Audience

This document is intended for the following audience:

- Architecture and Design Teams within Oracle FLEXCUBE Direct Banking
- Development Teams
- Implementation Teams
- Implementation Partners

The document assumes a good knowledge of the following

- Oracle FLEXCUBE Direct Banking

This document is for internal Oracle Financial Services reference only and is not to be shared with customers.

1.2 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>.

1.3 Access to OFSS Support

<https://support.us.oracle.com>

1.4 Structure

This manual is organized into the following categories:

Preface gives information on the intended audience. It also describes the overall structure of the document

Abbreviations give information on the abbreviations used within the document

Overview provides brief information on the Internationalization guidelines with respect to Oracle FLEXCUBE Direct Banking

Chapters post Overview are dedicated to individual Internationalization guideline and its adherence details or necessary configurations

1.5 Related Information Sources

For more information on Oracle FLEXCUBE Direct Banking Release 12.0.3.0.0, refer to the following documents:

- Oracle_FLEXCUBE_Direct_Banking_NID_Translation_Guide.pdf

-
- [Oracle_FLEXCUBE_Direct_Banking_Translation_Framework.pdf](#)

2 Abbreviations

The following abbreviations may be used within the document.

FCDB	Oracle FLEXCUBE Direct Banking
LDB	Local Database
DNT	DO NOT Translate
MS	Microsoft
PMG	Product Management Group
GUI	Graphical User Interface
XSL	Extensible Stylesheet Language
QT	Qualification Testing
SQA	Software Quality Assurance
VSS	Visual Source Safe

3 Overview

Internationalization is the process of designing a software application so that it can be adapted to various languages and regions without engineering changes.

Oracle FLEXCUBE Direct Banking, the multi channel solution, for direct customer touch points like Internet and Mobile devices addresses key Internationalization guidelines recommended by Oracle.

This document provides overview on what all guidelines and how these guidelines are addressed by Oracle FLEXCUBE Direct Banking, out of the many recommended Internationalization guidelines by Oracle.

The document will cover following aspects of Internationalization guidelines recommended by Oracle

- Language Handling
- Translatability
- Locale
- Bi-directional (BIDI)

4 Language Handling

Oracle FLEXCUBE Direct Banking provides support for handling for multiple languages. The same can be achieved through below configurations on application

- Adding New Language
- Adding New Language-Entity-User Type Mappings
- Creating Language CSS
- Adding Language Text
- Adding Locale and Display Formatting Information

4.1 Adding New Language

Details of the new language is required to be maintained in the MSTLANG table

	IDLANG	DESCRIPTION	XSLENCODING	ISO_LANG	ISO_COUNTRY
▶ 1	eng	English	UTF-8	en	US

Sample entry of English language in MSTLANG table

The details to be maintained are listed below

- Language Id (IDLANG) – ISO 639-2 three letter language code
- Description (DESCRIPTION) – Description of the language
- XSL Encoding (XSLENCODING)– Encoding for the language to be used in XSLs
- ISO Code of Language (ISO_LANG) – ISO 639-1 two letter language code
- ISO Code of Country (ISO_COUNTRY) – ISO 3166 two letter country code

4.2 Adding New Language-Entity-User Type Mappings

The mappings between language-entity-usertype are required to be maintained in the MSTENTITYUSERTYPELANG table for the newly added language.

	ID_ENTITY	TYPEUSER	IDLANG
1	B001	CA1	eng
2	B001	CA2	eng
▶ 3	B001	EC1	eng

Sample entries of English language in MSTENTITYUSERTYPELANG table

The details to be maintained are listed below

- Entity Id (ID_ENTITY) – Application defined four letter entity id
- User Type (TYPEUSER)– Application defined three letter usertype
- Language Id (IDLANG)– ISO 639-2 three letter language code

4.3 Creating Language CSS

CSS for the newly added language are required to be created. Only language specific CSS changes need to be added in this CSS file.

The convention for Language CSS files names are

- CSS folder within Web archive - <Language Id>_<Channel Id>.css
Example: eng_01.css

4.4 Adding Language Text

Text of screen labels, drop downs, status and error messages in the newly added language are required to be added into the application. These texts in the newly added language are to be maintained into below two (2) tables

- APPLDATA – This table contains
 - Partial business data (menu string, options in drop downs) that are displayed to the user

IDAPP	DATANAME	DATAVALUE	IDLANG	IDDEVICE	VALUESTRING
A1	TXN_DESC	OAT	eng	**	Own Account Transfer

Sample entry of partial business data in English language in APPLDATA table

- Screen or UI labels that are displayed to the user

IDAPP	DATANAME	DATAVALUE	IDLANG	ID	VALUESTRING
RR	XSL_TEMPLATE	K_SIDetails	eng	**	Standing Instruction Details
RR	XSL_TEMPLATE	K_SIREFERENCENO	eng	**	Standing Instruction Reference
RR	XSL_TEMPLATE	K_DESTINATIONACCOU	eng	**	Destination Account

Sample entry of Screen or UI labels in English language in APPLDATA table

- Column VALUESTRING – This column holds language specific text.
- Column IDLANG – This column specifies the language id of the text

- APPLICATIONMESSAGE – This table contains the messages (warning, error or success).

IDAPP	IDMESSAGE	IDLANG	IDDEVICE	TXTMESSAGE
A1	920058	eng	**	Please enter the redemption amount
A1	920059	eng	**	Please enter the number of units to be redeemed
A1	920060	eng	**	Please enter the switch amount

Sample entry of English language in APPLICATIONMESSAGE table

- Column TXTMESSAGE - This column holds language specific text.
- Column IDLANG – This column specifies the language id of the text

4.5 Adding Locale and Display Formatting Information

Locale and Display formatting information for Date, Currency (Amount and Number) and any other Special for the newly added language are required to be added on the application. This information should be configured in MSTFORMATS table.

NAMFORMAT	TYPEFO	TYPEPATTERN	NAMLO	IDLANG	TYPEINPPATTERN
LIMITSDATE	D	dd-MM-yyyy	US	eng	dd-MM-yyyy HH:mm:ss
TRANSFERDATE	D	yyyy-MM-dd	US	eng	dd/MM/yyyy

Sample entry of date formats in English language in MSTFORMATS table

The details to be maintained are listed below

- Format Name (NAMFORMAT)– Name of the display format
- Format Type (TYPEFORMAT) – Type of the Format. Supported Formats are Date (D), Currency (C) and Special (X)
- Output Pattern (TYPEPATTERN) – Output pattern for the format
- Locale Name (NAMLOCALE)– ISO 3166 two letter country code
- Language Id (IDLANG)– ISO 639-2 three letter language code
- Input Pattern (TYPEINPATTERN) – Input pattern for the format

Currency type of format supports both Amount formatting based on Currency codes as well as Number formatting independent of Currency codes for fields like Interest Rate, Exchange Rate, etc

5 Translatability

Translatability refers that all UI descriptive text (i.e. all messages types and field labels) should be translatable.

Oracle FLEXCUBE Direct Banking adheres to Translatability guidelines. All UI translatable strings of Oracle FLEXCUBE Direct Banking are maintained into below two (2) tables

- APPLDATA – This table contains
 - Partial business data (menu string, options in drop downs) that are displayed to the user

IDAPP	DATANAME	DATAVALUE	IDLANG	IDDEVICE	VALUESTRING
A1	TXN_DESC	OAT	eng	**	Own Account Transfer

Sample entry of partial business data in English language in APPLDATA table

- Screen or UI labels that are displayed to the user

IDAPP	DATANAME	DATAVALUE	IDLANG	ID	VALUESTRING
RR	XSL_TEMPLAT	K_SIDetails	eng	**	Standing Instruction Details
RR	XSL_TEMPLAT	K_SIREFERENCENO	eng	**	Standing Instruction Reference
RR	XSL_TEMPLAT	K_DESTINATIONACCOUN	eng	**	Destination Account

Sample entry of Screen or UI labels in English language in APPLDATA table

- Column VALUESTRING – This column holds language specific text.
- Column IDLANG – This column specifies the language id of the text

- APPLICATIONMESSAGE – This table contains the messages (warning, error or success).

IDAPP	IDMESSAGE	IDLANG	IDDEVICE	TXTMESSAGE
A1	920058	eng	**	Please enter the redemption amount
A1	920059	eng	**	Please enter the number of units to be redeemed
A1	920060	eng	**	Please enter the switch amount

Sample entry of English language in APPLICATIONMESSAGE table

- Column TXTMESSAGE - This column holds language specific text.
- Column IDLANG – This column specifies the language id of the text

The extract of these two (2) tables can be used to translate the UI of Oracle FLEXCUBE Direct into any target language.

Currently supported formats for extracts of UI translatable strings for translation are

- MS Excel
- XLIFF

The translation is currently being done by External Translation Vendors, contracted, coordinated and managed by Product Management.

Translation is currently planned for only Screen or UI labels, partial business data (menu string, options in drop downs) and the messages (warning, error or success) that are displayed to the user.

Other artifacts are currently not planned for Translation, namely

- Product Documentation
 - User Manuals
 - Installation Manuals
 - Operational Manuals
 - Miscellaneous Documents
 - Training Manuals
- Online Help
- Installer

6 Locale

Locale refers to a set of parameters that defines the user's language, country and any special variant preferences that the user wants to see in their user interface. Usually a locale identifier consists of at least a language identifier and a region identifier.

Oracle FLEXCUBE Direct Banking supports display formatting information for Date, Amount and Number based on Locale. The display formatting information based on Locale can be configured in MSTFORMATS table.

NAMFORMAT	TYPEFO	TYPEPATTERN	NAMLO	IDLANG	TYPEINPPATTERN
LIMITSDATE	D	dd-MM-yyyy	US	eng	dd-MM-yyyy HH:mm:ss
TRANSFERDATE	D	yyyy-MM-dd	US	eng	dd/MM/yyyy

Sample entry of date formats in English language in MSTFORMATS table

The details to be maintained are listed below

- Format Name (NAMFORMAT)– Name of the display format
- Format Type (TYPEFORMAT) – Type of the Format. Supported Formats are Date (D), Currency (C) and Special (X)
- Output Pattern (TYPEPATTERN) – Output pattern for the format
- Locale Name (NAMLOCALE)– ISO 3166 two letter country code
- Language Id (IDLANG)– ISO 639-2 three letter language code
- Input Pattern (TYPEINPPATTERN) – Input pattern for the format

Currency type of format supports both Amount formatting based on Currency codes as well as Number

Formatting independent of Currency codes for fields like Interest Rate, Exchange Rate, etc

6.1 Date and Time

Date and Time formatting based on Locale can be achieved by appropriate configuration in MSTFORMATS table.

Guidelines for configuring Date and Time formatting based on locale in MSTFORMATS table

- Value of column Format Type for Date and Time formatting should be D.
- Values of columns Local Name and Language Id specify the Locale information.
- Value of column Output Pattern specifies the output Date and Time format. The pattern should follow the ISO 8601 standard.
- Value of column Input Pattern specifies the input Date and Time format. The pattern should follow the ISO 8601 standard.

	NAMFORMAT	TYPEFORMAT	TYPEPATTERN	NAMLOCALE	IDLANG	TYPEINPPATTERN
1	B001_ASOFDT	D	yyyy-dd-MM	AE	ara	dd-MM-yyyy HH:mm:ss
2	B001_ASOFDT	D	dd-MM-yyyy HH:mm:ss 'GMT' Z	US	eng	dd-MM-yyyy HH:mm:ss

Sample entry of date formats for two different Locale (US-eng and AE-ara) in MSTFORMATS table

Refer [Locale_Date_Time_Display_Formatting_FCDB_Settings_Screenshots.xlsx](#) for Date and Time Display format settings based on Locale on Oracle FLEXCUBE Direct Banking.



Locale_Date_Time_Di
splay_Formatting_FC

6.2 Amount and Number

Amount and Number formatting based on Locale can be achieved by appropriate configuration in MSTFORMATS table.

Guidelines for configuring Amount and Number formatting based on locale in MSTFORMATS table

- Value of column Format Type for Amount and Number formatting should be C.
- Values of columns Local Name and Language Id specify the Locale information.
- Value of column Output Pattern Type specifies the output Amount or Number format.
- Value of column Input Pattern Type specifies the input Amount or Number format.
- Value of column Format Name should be three-letter Currency Code for Amount formatting based on Currency.
- Value of column Format Name should be different from the three-letter Currency Code for Number formatting independent of Currency codes. Example of Number fields are Interest Rate, Exchange Rate, Percentage, etc

	NAMFORMAT	TYPEFORMAT	TYPEPATTERN	NAMLOCALE	IDLANG	TYPEINPPATTERN
1	RATE	C	##0.0	AE	ara	##.##00
2	RATE	C	##0.00	US	eng	##.##00
3	USD	C	#,##0.00	AE	ara	
4	USD	C	#,##0.00	US	eng	

Refer [Locale_Amount_Number_Display_Formatting_FCDB_Settings_Screenshots.xlsx](#) for Amount and Number Display format settings based on Locale on Oracle FLEXCUBE Direct Banking.



Locale_Amount_Num
ber_Display_Formatti

6.3 Validation

Validation is one of the Core Services in the Business Tier of Oracle FLEXCUBE Direct Banking. It provides support for request and data field validations to be put in place for any requests that are processed as a part of business integration services offered by Oracle FLEXCUBE Direct Banking. It allows definition of Data Types to be used for validations. All data elements should be defined as part of a Data Dictionary with an appropriate Data Type association.

Step 1: Define a data type (DATA_DICTIONARY_TYPES table)

Validation engine allows defining new /configure data types that are used to build data. This forms the basic building block of a data.

DATA_DICTIONARY_TYPES table is used to define new/configure a data type.

- Column DATATYPE is the data type code used to identify the defined data type.
- Column DATATYPE_VALIDATOR specifies fully qualified path of the java implementation of the data type.

▶ DATATYPE	P	
DATATYPE_DESC	Pattern	...
DATATYPE_VALIDATOR	com.iflex.fcat.services.apps.validators.PatternValidator	...
POOLSIZE	3	
COMMENTS	This data type caters to values depends on the Pattern	...
BASE_TYPE	string	

Sample configuration for data type P for Pattern based validation

Step 2: Create a data category using the created data type (DATA_DICTIONARY table)

After defining a data type, use the data type to create a data category. The data category configuration is to add additional properties to it.

DATA_DICTIONARY table is used to define a data category.

- Column FIELDNAME is name for the data category.
- Column FIELDTYPE is the data type of the category.
- Columns MINLENGTH, MAXLENGTH, FIELDFORMAT are additional properties.

▶ FIELDNAME	NICKNAMES	...
FIELDDESC	nickName	...
FIELDTYPE	P	
MINLENGTH	1	
MAXLENGTH	20	
FIELDFORMAT	[a-zA-Z0-9][a-zA-Z0-9]*	...
COMMENTS		...

Sample configuration for data category NICKNAMES with data type as P for Pattern based validation

Step 3: Define request field data (TXN_DATA table)

After defining a data category, it is used to define the request field data.

TXN_DATA table is used to define the request data.

- Column IDREQUEST is request identifier.
- Column FIELDNAME is name of the data category.
- Column REFFIELDNAME is name of request field.

▶ IDREQUEST	BILLPAYMENTSERVICEINTERFACE.BILLPAYMENTSERVICE	...
FIELDNAME	NICKNAMES	...
REFFIELDNAME	billerNickName	...
FIELDFORMAT		...
VAL_ENUM		...
DEFAULT_VALUE		...
CUSTOM_VALIDATOR		...
ISREQUESTFLD	Y	
VALIDATION_REQUIRED	Y	
ISMANDATORY	Y	
ERRORCODE	990012	...

Sample configuration for a request data billerNickName based on the data category NICKNAMES with data type as P for Pattern based validation.

Refer Locale_Validation_FCDB_Settings_Screenshots.xlsx for modification of Validation settings based on Locale on Oracle FLEXCUBE Direct Banking.



Locale_Validation_FC
DB_Settings_Screens

7 Bi-Directional

Bi-Directional (BIDI) refers that the page layout of objects such as tabs, buttons, text boxes, checkbox, radio button, etc. should be displayed base on the directionality of the session language. It refers to the ability of an application to handle both text that is written from the left-to-right (LTR) and right-to-left (RTL).

Bi-Directional (BIDI) is supported by Oracle FLEXCUBE Direct Banking. Oracle FLEXCUBE Direct Banking Screens are associated with CSS and these CSS are associated based on Language Id and Channel Id. Specific language CSS need to be modified to support right-to-left (RTL) direction.

Default direction is the left-to-right (LTR). Hence direction attribute has to be specifically set in CSS of languages for which right-to-left (RTL) direction is required.

Find sample CSS below with direction attribute set to RTL (**direction:rtl;**)

```
{  
    FONT-FAMILY: Verdana, Arial, sans-serif;  
    font-size: 11px;  
    overflow:auto;  
    padding:5px;  
    background:#FFFFFF !important;  
    direction:rtl;  
}
```

Refer Bi-Directional_FCDB_Settings_Screenshots.xlsx for Bi-Directional (BIDI) settings on Oracle FLEXCUBE Direct Banking.



Bi-Directional_FCDB_
Settings_Screenshots