

Clearing Interface

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1. About this Manual

1.1 Introduction

This manual is designed to help acquaint you with the interface between Oracle FLEXCUBE and the relevant clearing networks.

This manual provides you extensive explanations about the various maintenances required for the smooth exchange of data between Oracle FLEXCUBE and the networks applicable. It also gives you an insight into the processes involved in the actual exchange of data. Besides this User Manual, while maintaining the interface related details, you can invoke the context sensitive help available for each field. This help encapsulates the purpose of each field within a screen. Placing the cursor on the relevant field and striking the <F1> key on the keyboard can obtain information specific to a particular field.

1.2 Audience

This manual is intended for the following User/User Roles:

Role	Function
Back office data entry Clerks	Input functions for maintenance related to the interface
Back office Managers/Officers	Authorization functions

1.3 Acronyms and Abbreviations

Abbreviation	Description
System	Unless and otherwise specified, it shall always refer to Oracle FLEXCUBE system
UDF	User Defined Fields
ACH	Automated Clearing House

1.4 Organization

This document talks about the maintenance required for data exchange between Oracle FLEXCUBE and the relevant clearing networks. This includes the following

- Maintaining Clearing Message Types
- Maintaining File Formats
- Maintaining Clearing Message Groups
- Derived and Rejection UDF Maintenance
- Message Status Browser

The manual also talks about the following processes:

- Message hand-off to the clearing network
- Message upload into Oracle FLEXCUBE
- Online message processing

1.5 Conventions Used in this Manual

Important information is preceded with the  symbol.

1.6 Glossary of Icons

This User Manual may refer to all or some of the following icons.

Icons	Function
	New
	Copy
	Save
	Delete
	Unlock
	Print
	Close
	Re-open
	Reverse
	Template
	Roll-over
	Hold
	Authorize
	Liquidate
	Exit
	Sign-off
	Help
	Add
	Delete

Refer the Procedures User Manual for further details about the icons.

1.7 Related Documents

You can refer to the XML Interface document, which outlines the details of the interface mechanism between Oracle FLEXCUBE and an External System.

2. The ASCII Clearing Interface

2.1 Introduction

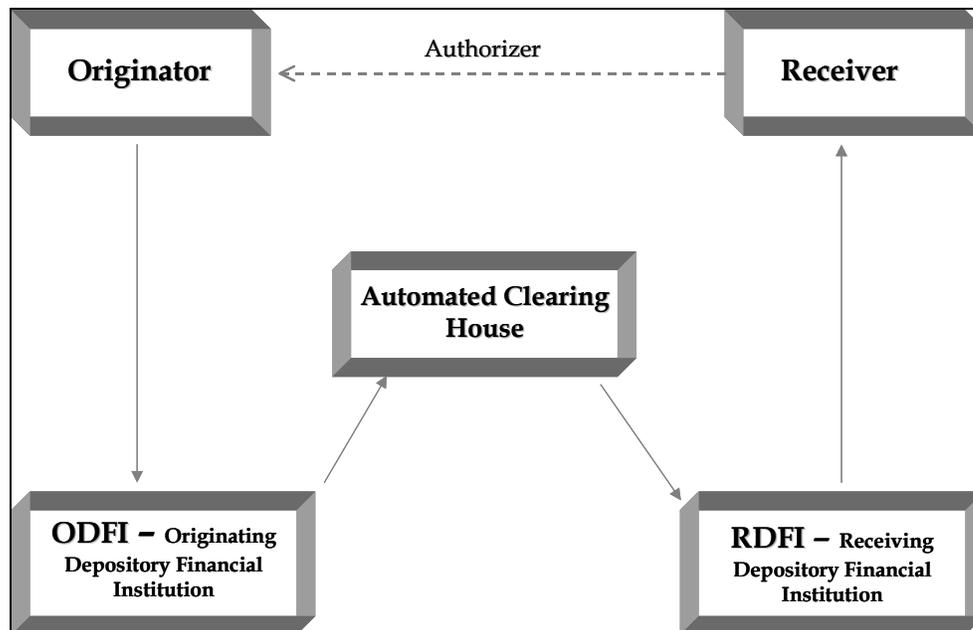
The Local Payments module supports the local clearing of payments. The Oracle FLEXCUBE Clearing Gateway is the common channel for data exchange between Oracle FLEXCUBE and the local clearing networks applicable.

The ACH Network is an electronic payments network used by individuals, businesses, financial institutions and government organizations. Electronic ACH payments provide better cash management capabilities and lower costs than traditional paper payments. Both funds and information may be exchanged between financial institutions on behalf of companies and individuals utilizing electronic payments.

The ACH Network allows funds to be electronically credited or debited to a Company or individual's deposit account. Currently these deposit accounts include checking, savings, loan and financial institution general ledger accounts. The following information can be transmitted through ACH transactions:

- the name of the account holder
- the financial institution's routing number
- the account number involved in the transaction
- the party initiating the transaction and the amount
- the date of the transaction

A Data Diagram which illustrates the work-flow



The data exchange of messages will be in the form of ASCII file formats.

For the interface to function effectively, you need to maintain certain basic information in Oracle FLEXCUBE. This includes the following:

- Maintaining Clearing Transaction Types
- Maintaining Interface hand-off file formats for individual transaction types
- Maintaining Clearing Transaction Groups for transaction type

2.1.1 **Maintaining Clearing Transaction Types**

A Clearing Transaction/Message Type is a Payment Order belonging to a Transfer Category. These Clearing Message Types / Categories will be specific to the Network (example BankGiro etc).

You can maintain the clearing message Type/Category details through the 'Clearing Message Type' maintenance screen. You can invoke this screen by typing 'IFDTXNTY' in the field at the top right corner of the Application tool bar and clicking the adjoining arrow button.

In this screen you can capture the following attributes about the clearing message Type/Category:

- Network ID – a valid network code from a pre-defined set of Network Codes. For instance you can define a network code called INTERPAY.
- Clearing Message Type – a valid name to identify the clearing message type which is to be associated with the Network ID. You can also capture a brief description to identify the clearing message type.
- Process Direction – specify whether the payment order which you are defining belongs to the Incoming transfer order or whether it belongs to the Outgoing transfer category.
- Product Category/Product Restriction – If the process direction of the transaction type, which you are defining, is Incoming, you will associate existing PC Product Categories with each transaction type. Conversely, if the process direction is Outgoing, you will need to associate existing PC Products with each transaction type. You can specify product category/product restrictions in the form of allowed lists or disallowed lists.

2.1.2 Maintaining derived UDFs

As part of maintenance, you have to establish a mapping between the Local Payments module of Oracle FLEXCUBE to fields that are required by the clearing network. In other words, Oracle FLEXCUBE tags are mapped to the corresponding external system tags. Sometimes, you may not find a direct relationship between an external system tag and the Oracle FLEXCUBE tags.

For such tags, with no corresponding tags in Oracle FLEXCUBE, you can define a UDF (User Defined Field) and obtain a value by writing derivation logic. Likewise, you can also write rejection logic. If a particular contract in the hand-off message satisfies the rejection criteria, the system will reject the entire contract. The rejection logic will filter the contracts within the message that is being handed-off.

During mapping, you can map the external tag with the corresponding UDF name.

Example

The external system may have a tag called – Account Type. A corresponding tag does not exist in Oracle FLEXCUBE. Instead, Oracle FLEXCUBE has a tag called 'Account_No'. Therefore, to obtain a value for 'Account Type', you can derive a logic such that if the first character of the Account No. is 'C', the Account Type would be 'Normal' else it will be considered as a 'Special' account. Therefore, when you actually hand-off a message, the Account Type would be associated with the value 'Normal' or 'Special' as the case may be.

You can maintain the UDFs in the 'Derived UDF Maintenance' screen. You can invoke this screen by typing 'IFDCLDUD' in the field at the top right corner of the Application tool bar and clicking the adjoining arrow button.

The screenshot shows the 'Derived UDF Maintenance' window. At the top, there are fields for 'UDF Name' and 'UDF Description'. Below these are 'UDF Type' (radio buttons for 'Derivation' and 'Rejection') and 'Network' (with a search icon). To the right is 'In coming/Out going' (radio buttons for 'In' and 'Out'). A large text area labeled 'Rule' is in the center. At the bottom, there are fields for 'Input By', 'Date & Time', 'Auth By', 'Date & Time', and 'Mod No', along with checkboxes for 'Authorised' and 'Open'.

In this screen, you have to specify the following details:

UDF Name and UDF Description

You can specify a unique name to identify the UDF. A brief description can also be provided in the adjacent field.

UDF Type

Additionally, you should also specify the type of the UDF being defined – whether you are writing a logic to derive a tag value or for filtering the transactions (in a message file) based on a rejection criteria.

Network

Specify the network for which you are writing the derivation/rejection logic.

To execute the logic, click on the 'X' button. If you encounter any error during execution, you can view the same by clicking on the 'E' button. Make the necessary corrections before you re-execute the logic.

The UDFs defined through this screen will be available in the drop-down menu of the 'Derive Type' field in the 'Clearing Message Type'/Group Details Maintenance' screen. This is discussed in the section that follows.



You can maintain only 25 derived logics (UDFs) for all the networks that are applicable for data exchange with Oracle FLEXCUBE. Likewise, you can maintain only one rejection logic per network.

2.1.3 Maintaining Transaction Type hand-off file formats

Each network and clearing message type/category has a fixed format that needs to be handed off from or uploaded into Oracle FLEXCUBE. Therefore you will need to specify the format in which data is to be uploaded and handed-off. You can do this through the 'Clearing Message Type/Group details maintenance' screen. You can invoke this screen by typing 'IFDTXNDT' in the field at the top right corner of the Application tool bar and clicking the adjoining arrow button.

External Tags	Flexcube Tags	Mand	Default Value	Translation	DataType	Start Pos.	Data Len.	Derive Type	Sys. Elmnts
RECORD_TYPE_CD		✓		No Translation	CHAR	1	1		
PRIORITY_CODE		✓		No Translation	NUMBER	2	2		
IMMEDIATE_DESTIN		✓		No Translation	CHAR	4	10		
IMMEDIATE_ORIGIN		✓		No Translation	CHAR	14	10		
FILE_CREATION_D		✓		No Translation	DATE	24	6		
FILE_CREATION_T		✓		No Translation	TIME	30	4		
FILE_ID_MODIFIER	TMP10	✓		No Translation	CHAR	34	1		
RECORD_SIZE	TMP11	✓		No Translation	CHAR	35	3		
BLOCKING_FACTOR	TMP12	✓		No Translation	CHAR	38	2		
FORMAT_CODE	TMP13	✓		Derivation	CHAR	40	1	DUDF1	

Through this screen you can establish a mapping between the Local Payments module of Oracle FLEXCUBE to fields that are required by the network. A predefined set of Clearing Message Types will be shipped along with the software. You can change the default attributes of these message types to suit the requirements of your bank.

Network ID

The Oracle FLEXCUBE Clearing Gateway is a common channel for data exchange between Oracle FLEXCUBE and the local clearing networks applicable. The details of the applicable local clearing networks are maintained in Oracle FLEXCUBE. You can define the process direction for each of these clearing networks, through the 'Clearing Message Type Maintenance' screen

You can select the ID assigned to the Network whose tag names need to correspond with those maintained in Oracle FLEXCUBE.

On selection of the network from the available option-list, the description gets defaulted alongside.

Process Direction

The format for hand-off from Oracle FLEXCUBE is different from the format for upload into Oracle FLEXCUBE. Therefore, you need to indicate the process direction for which the format is being defined.

The options are:

- Incoming (for upload into Oracle FLEXCUBE)
- Outgoing (for hand-off from Oracle FLEXCUBE)

Clearing Message Group / Type

Incoming message (uploads) formats are defined for a Clearing Message Group. When you select the 'Incoming' option, the set of Clearing Message Groups supported in Oracle FLEXCUBE are made available to you in the option-list provided. Select the appropriate Group from the list. The format will be applicable to all product categories belonging to the transaction types linked to the selected Message Group.

Likewise, outgoing message (hand-offs) formats are defined for a Clearing Message Type. On selection of the 'Outgoing' option, all the Clearing Message Types supported in Oracle FLEXCUBE become available in the option-list provided. The outgoing message format defined in Oracle FLEXCUBE will be applicable to all products that fall within the selected Clearing Message Type.

Number Padding/Direction

The messages that are uploaded to or handed-off from Oracle FLEXCUBE consists of fields of a specific length. Most often, the maximum field length is not utilized when you capture the actual field values. Therefore, you need to specify a padding character to fill the gaps.

You also need to indicate the direction of the padding characters – whether you would like to pad to the left of the actual field value or to its right. Normally, for numeric fields, you would choose to pad to the left of the numeric value.

Example

Assume that the length of a numeric field, say 'Amount' is 10 and the actual field value is '100', consisting of only 3 digits. Further, you select '0' (zero) as the padding character and choose to pad to the left of the field value.

If the message consists of this numeric field, zero will be used to fill the gaps and the value will be displayed as: '0000000100'.

Alpha Padding/Direction

Similarly, you have to select the padding character for the alphanumeric fields in Oracle FLEXCUBE. You also need to indicate the padding direction for the same. Normally, for alphanumeric fields, you would choose to pad to the right of the actual value.

Oracle FLEXCUBE Nodes

Just like in Oracle FLEXCUBE, the clearing network too may have a set of its own Tag definitions. Consequently, it becomes necessary to maintain a mapping between the information tags within Oracle FLEXCUBE with those required by the clearing network.

The Oracle FLEXCUBE node represents a set of tags grouped together. It is known as the parent node/record from which the sub records/sub nodes (tags) are derived for mapping to the external tags.

Format Type

As stated earlier, the messages that are handed off and uploaded into Oracle FLEXCUBE are in the ASCII file format. An ASCII file consists of the following sections (in the order specified):

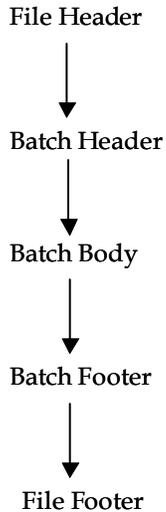
1. File Header
2. Batch Header
3. Batch Body
4. Batch Footer
5. File Footer

You can maintain a format for each section of the ASCII file.

The file header marks the beginning of a file. Every batch begins with a batch header and ends with the batch footer. The batch body is the actual content of the message that is being handed off or uploaded. The file footer marks the end of the file. A file can consist of several file headers, file footers, batch footers and so on. You can maintain a format for each occurrence of a format type within the ASCII file.

Format Seq. No

The format of an ASCII file is as shown below:



To recall, a file can consist of multiple file headers, batch headers, file footers and so on. The sequence number determines the manner in which multiple formats (of the same format type) appear in the ASCII file.

Oracle FLEXCUBE automatically sequences these formats for you. If you are maintaining more than one file header format for a combination of Clearing Network and Oracle FLEXCUBE Node, the sequence number will start with one and get incremented by one for each subsequent file header format.

External Node

Just as the Oracle FLEXCUBE node represents a set of tags grouped together, the external node is a unique name for identifying the set of tags belonging to the external system (clearing network in this case). You will need to map each tag identified by the external node to the corresponding tag belonging to the selected Oracle FLEXCUBE node.

You can enter a brief description of the external node in the adjacent field.

External Node Counter

Multiple occurrences of the same 'External Node' for a network and format type combination are tracked by means of an external tag counter. This is required if a single external tag has to hold multiple columns of data when mapped to the corresponding Oracle FLEXCUBE tag.

The following example will illustrate this concept:

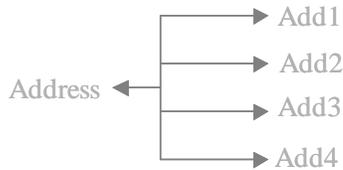
In the Oracle FLEXCUBE node 'Cust_Add', the following child tags represent the address details:

- Add1
- Add2
- Add3
- Add4

The value for each tag is required to upload or handoff the complete customer address details.

The External Node '211' consists of maintenance required for customer address details. It consists of a single tag 'Address'.

In order for the external system tag 'Address' to hold multiple columns of data (from the corresponding Oracle FLEXCUBE tags Add1, Add2, Add3 and Add4), you need to map 'Address' with each of the Oracle FLEXCUBE tags.



To achieve this, you need to create a new record in the Clearing Msg Type/Group Details Maintenance for each mapping, for the same combination of:

- Clearing Network,
- External Node,
- Oracle FLEXCUBE Node, and
- Format Type

The external node counter will track each occurrence of the above combination. The count starts from one and gets incremented by one for every new record.



The Format Sequence Number will also get incremented by one for the same combination of Clearing Network, Format Type and Oracle FLEXCUBE Node.

IS Optional

On occasion you may need to send additional payment information with an ACH payment by using extended record formats called addenda. Addenda may include payment related information such as Customer Addresses or Reject Codes. While maintaining Clearing Message Group/Type maintenance record for addenda you can indicate whether the record is optional or mandatory. Check the option box to indicate that the format you are maintained is an optional one. Leave the box unchecked to indicate that it is a mandatory record.

Length check required

You have the option to indicate whether you want to calculate the length of each line in the file. If you specify that line check is required, you can maintain line attributes such as start position and length for the clearing message group in the 'Clearing Msg Group Maintenance' screen explained later in this manual.

Date and Time Format

For date related fields, you need to identify the format in which the date value will be sent from and received into Oracle FLEXCUBE. By default, Oracle FLEXCUBE sends all date fields in 'RRRRMMDD' format.

Similarly, for time related fields you have to identify the format in which the time value is to be sent from and received into Oracle FLEXCUBE. For instance, you can maintain a format like HHMMSS. This format will continue to apply for the entire line of the message format.

Value Translation

For each Oracle FLEXCUBE Node and External Tag combination, you have to indicate whether translations should be performed for all tag values associated with the tag names. A value translation is required only if the values sent by Oracle FLEXCUBE do not match with the external system specifications and vice versa.

Example

Assume that Oracle FLEXCUBE recognizes only USD (for US Dollars). The external system requires the value of US dollars as Dollar. When you upload into Oracle FLEXCUBE, if the value of the tag 'CCY' is Dollar, it gets translated to USD. Likewise, during handoff, USD gets translated to Dollar. However, it takes place only if translation is set for the external system and Oracle FLEXCUBE tag combination.

2.1.4 Mapping sub-nodes with the corresponding nodes in the External System

As part of the format maintenance, you need to ensure that each child tag defined in the External Node corresponds to a pre-defined tag in Oracle FLEXCUBE.

Step I

After capturing the name of the 'External Tag' of the clearing network, identify the corresponding 'Oracle FLEXCUBE Node'.

Step II

After you select the Oracle FLEXCUBE node, the sub-nodes/child nodes (also called child tags) linked to the selected node will be displayed in the drop-down list available for the 'Oracle FLEXCUBE Tags'. You can key in the appropriate external sub-node (belonging to the External Node specified earlier) and map it to the corresponding Oracle FLEXCUBE sub-node/tag.

Example

Assume that the External Node is '10' and consists of the following tags:

- RECORD CODE
- CONTRACT_NUM
- BRANCH
- CUSTOMER

The corresponding Oracle FLEXCUBE node is PAYMENTS_COLLECTIONS and the following are the Oracle FLEXCUBE tags that belong to it:

- CONTRACT_REF_NO
- BRANCH_OF_INPUT
- CUSTNO
- CPTY_NO
- CUST_AC_NO

Therefore, you need to maintain the following mappings:

CONTRACT_NUM	-	CONTRACT_REF_NO
BRANCH	-	BRANCH_OF_INPUT
CUSTOMER	-	CUSTNO



If for an external tag, there is no corresponding Oracle FLEXCUBE tag, you can use the derivation logic to obtain a value for such tags, if required.

Indicating whether data pertaining to a specific tag should be made Mandatory

You have the option of specifying whether the data pertaining to a specific information tag should necessarily be made available in the incoming/outgoing message. Check the box available under the column head titled Mandatory.

Specifying the Default Value

You can associate a default value with each information tag.

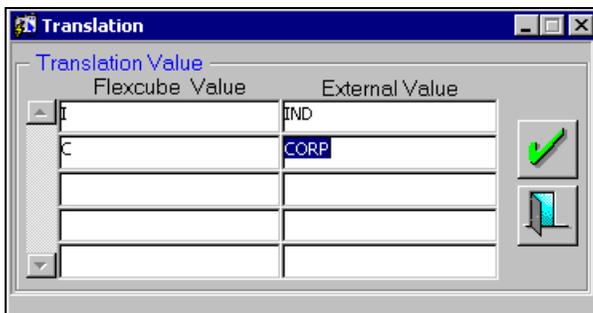
While uploading or handing off messages suppose an information tag within the incoming/outgoing message does not have a value associated with it, the system automatically appends the default value with the particular information tag only if the translation type is set up for it.

Translation details for the specific Oracle FLEXCUBE and external tag combinations

If you have indicated that 'Value Translation' is required for all Oracle FLEXCUBE and external tag combinations, this specification will be defaulted to all the tag mappings within the Oracle FLEXCUBE and external node combination. However, you have the option of changing this for individual tag mappings by choosing the appropriate translation option from the available list. The seven options available are:

1. No Translation
2. Translate, null returns error
3. Null returns default, else no translation
4. Null returns default, else translate
5. Null returns Null, else translate
6. Derivation Logic
7. System Elements

 If you select any other option apart from **No Translation**, **NULL return default, else no translation**, **Derivation Logic** and **System Element**, you will have to capture the Oracle FLEXCUBE Value and the corresponding External Value in the 'Translation Values' screen.



Flexcube Value	External Value
I	IND
C	CORP

Let us assume, that you are maintaining the translation details for an information tag called CCY (currency). The value of this tag in Oracle FLEXCUBE is USD. But the external system uses Dollar for the same.

In the 'Translation Values' screen, the information that you capture will look as follows:

Oracle FLEXCUBE Value	External Value
USD	Dollar

The example given below illustrates the manner in which the system will behave when you choose any one of the Translation options:

Example

We have specified the following parameters for the External Tag named CCY (currency).

- The Translation Value for:
 - Oracle FLEXCUBE – USD
 - External System - Dollar
- The Default Value is GBP, which is the local currency.

Case I

If you select the option **No Translation**, the system will not perform any translation.

As a result, if the message involves the tag 'CCY' with value USD, both the incoming and the outgoing messages will retain the value USD.

Case II

If you select the option:

Translate, null returns error

Condition

The tag value will be translated based on your maintenance in the 'Translation' screen. If you fail to send the corresponding value to the system (i.e. if the value of the tag is null), an error message will be displayed informing you of the same.



Suppose you had failed to associate a corresponding Oracle FLEXCUBE value (USD) for the External Value (Dollar) in the 'Translation' screen, the system would have displayed an error message informing you of the same. You would have been allowed to maintain the record only after having maintained the corresponding translation value.

Case III

If you select the option:

Null returns default, else no translation.

Condition

If the tag value is null, the system will not translate it. However, the default value associated with the tag will be used.

Result

As stated earlier the Tag Value associated with the external system is Dollar and the corresponding tag value in Oracle FLEXCUBE is USD. Let us assume that the Tag Value associated with the Tag Name 'CCY' is Null. In such a case, the system will use the default value GBP.

Case IV

If you select the option:

Null returns default, else translate.

Condition

If the tag value is null the default value associated with the tag will be used else the value will be translated based on your maintenance in the 'Translation' screen.

Result

If the tag value in the external tag is 'Dollar', during upload, the system will translate this value to USD. Similarly, or hand-off, USD will get translated to Dollar.

If the Tag Value is Null, the default value GBP will be used.

Case V

If you select the option:

Null returns Null, else translate

Condition

If the tag value is Null, the Tag Value will be retained as Null. If the value is present, it will be translated.

Result

Since the Tag Value is Dollar, it will be translated to USD for upload. For hand-off, the tag value will be translated to Dollar.

Suppose the Tag Value is Null, it will be retained as null.

Case VI

If you select the option:

Derivation Logic

To recall, you use a derivation logic if for an external tag, there is no corresponding tag in Oracle FLEXCUBE. The logic is identified by a unique UDF (User Defined Field). You will need to map the name of the corresponding UDF, to the external tag. During handoff, the system will associate the value obtained from the derivation logic maintained for the associated UDF.

Case VII

If you select the option

System Element

The external tag will inherit the value of the system element to which it is mapped.

Data Type

In addition to mapping the Oracle FLEXCUBE tags with the external tags, you should also specify the type of data for each tag. The Data Type indicates the nature of the data – whether it is numeric or a character format.

The following options are available:

- CHAR.
- NUMBER
- DATE, and
- TIME

Start Position and Data Length

To differentiate the data of one tag from another, you will need to indicate the position from where a particular tag begins. The length of the data within the tag should also be captured.

For instance let us assume that you have specified the following details:

- Tag 1
 - Start Position – 1
 - Data Length – 10
- Tag 2
 - Start Position – 11
 - Data Length - 10

As a result, while processing data, the system will identify the first 10 characters as Tag 1 and the next 10 characters (11 to 20) for Tag 2.

Derive Type

For an external tag, if you choose the translation option as 'Derivation Logic' you have to map it to the corresponding UDF name. You would have already maintained the UDF in the 'Derived UDF Maintenance' screen. The external tag will get the value based on the logic that you have maintained for the selected UDF.

All the UDFs that you maintain in Oracle FLEXCUBE will be available in the drop-down list. You can select the appropriate one from the list.

System Elements

If you need to hand-off the system (Oracle FLEXCUBE) derived values, you have to select the translation option **System Element**. Further, you are also required to map the external tag with a system element.

The set of system elements are available in the drop-down menu. You can select the appropriate element to map to the external tag.

For instance, the clearing network may want you to hand-off transactions that were entered in Oracle FLEXCUBE on a specific calendar date (System Date - the current date as shown in your machine). The Oracle FLEXCUBE date may be different from the current system date. Therefore, you will need to map the external tag say 'Date' to the system element – SYSDATE. The hand-off file will contain the actual date of the transactions.

2.1.5 Maintaining Clearing Msg Group

Transaction types having common attributes should be grouped together into Clearing Message Groups for ease of processing. For each clearing message group that you maintain you will need to define a set of uniquely identifying specifications. These specifications will determine the parameters for the manner in which contracts (also referred to as records) are arranged within ASCII files.

Invoke the 'Clearing Msg Group Maintenance' screen from the Application Browser to group transaction types into clearing message groups. You can invoke the 'Clearing Msg Group Maintenance' screen by typing 'IFDTXNGR' in the field at the top right corner of the Application tool bar and clicking the adjoining arrow button.

Indicating the Network ID

In the 'Clearing Networks' screen, you can maintain the networks (such as INTERPAY and HLAYOUT) through which you communicate with other banks and financial institutions for local currency funds transfers. You can identify the Network ID for which you are grouping transaction types.

When you select the relevant Network ID from the available option list, the associated description will be defaulted to the adjacent field.

Identifying the Clearing Message Group

You will have to uniquely identify each clearing message group that you define with an appropriate name. Additionally, you can also specify a brief description to identify the group.

Specifying the Key Start Position and Key Length

The ASCII file consists of multiple lines of messages. A unique 'key' identifies each line of data within a message. You have to indicate the start position of the key and the length of the key. This will help you in identifying the key in the message, and subsequently in deciphering the data that follows.



The key actually denotes an External Node. The values that appear after the key are assigned to the external tags, as per the format maintained for that external node in the **Clearing Message Type/Group Details Maintenance** screen.

Consider the sample shown below:

```
210 0012207729369000190406453
211 0000000304002087157000400000546
212 00148810 00022000      14042 002
213          00000000000000
```

Here, '210', '211', '212', and '213' are the keys (or external nodes). Each key is used to identify the line of data that follows. The external tag values will be picked up from the data as per the specifications in the 'Clearing Message Type'/Group Details Maintenance' screen.

Identify the Record Separator

The details of each contract are displayed as separate records within an ASCII file. To differentiate the details of one contract (record) from another within the file, you will need to identify the key (external node) that would be used to indicate the beginning of a new record within the ASCII file.

For instance let us assume that you have specified the following details:

- Key Start Position – 1
- Key Length – 3
- Record Separator - 210

Consequently, while processing data the system will differentiate between one record and the next only after verifying whether the first three characters of the record is three characters in length and is 210.

Given below is a sample of how record separators are used to distinguish between details of one contract and another.

```
210 0012207729369000190406453
211 0000000304002087157000400000546
212 00148810 00022000      14042 002
213          00000000000000
22000000000      1404204 093807401TG
224EUREUR 0000000066993 000000030400
225 AKBANK INTERNATIONAL NV
226 C. MAMAK
235 PATER BLEIJSSTRAAT 57
236 5348 AM OSS
210 0012207729369000117721603
211 0000005000002087057000400000546
212 00216610 00022000      12362 002
213          00000000000000
22000000000      1236204 034240501TG
224EUREUR 0000001101855 000000500000
225 AKBANK INTERNATIONAL NV
226 DEMIR HOLLAND BV
235 VENRAYSEWEG 120 B
236 5928 RH VENLO
240 BEYDGLU LTD. MERSIN T*RKEI
210 0012207729369000628729561
```

Going by our example, in the sample shown above, the details from line 1 to line 10 are construed to be details of a single record or contract. The details available from line 11 to 21 will be treated as a second record/contract and so on.

Specifying the Masks and other attributes of the File

The File Mask is the nomenclature in which the external system names the ASCII file. You will need to capture the corresponding Process File Mask, which is the format in which you have named the file in Oracle FLEXCUBE.

Example

File Mask: BETOPD04

Process File Mask: BETOPD%d%t### (d is the date, t denotes the time and ### indicates a running serial number)

If you check the 'Use Process File Mask' box, the external system will name the ASCII file based on the file mask specified for Oracle FLEXCUBE.

File Extension

In addition to specifying the file masks you have to indicate the manner in which each file is to be stored. Typically, you can store these files with a 'btc' extension. However, you have the choice of specifying any extension you wish to generate these files in.

File Path

The file path is the directory or area in your system where the ASCII files are to be stored.

Field Separator

You have the option of using delimiters to separate data within a file. The options available are:

- \$ S – indicating that a space needs to be used as a delimiter.
- S T – indicating that a tab needs to be used as a delimiter.

Alternatively, you can also choose to have a comma, a semi-colon, a hyphen etc.

Clearing Message Type Separator

To recall, in this screen you are grouping clearing transaction/message types which share similar attributes. You have the option of differentiating messages within a group with delimiters.

Session Timeout

The session timeout is the maximum time limit that Oracle FLEXCUBE will wait for a response to a request sent to the external system. You can indicate in terms of minutes, the time within which an outgoing file should be processed by the External System and sent back to Oracle FLEXCUBE. Each time the external system fails to send a response to a request sent by Oracle FLEXCUBE, within the maximum time limit maintained, Oracle FLEXCUBE will recreate the message and send it to the external system again. You can maintain a count for the number of times a message can be resent.

Resend Count

An outgoing message can be resent any number of times. You have to indicate the resend count in this field. As a result, all messages for the given Network ID and Clearing Message Group combination can be resent only the specified number of times. For instance, you have indicated 3 as the resend count. A specific message has failed to parse through all three times. Since the resend count has been busted you will not be able to send the message one more time. The message will be logged as an error message.

Specifying the Handoff Parameters

Since a single hand-off file can have multiple batches you can indicate the number of batches that should be sent in a single file. Similarly, you have to indicate the number of transactions/messages types, which should be sent within a batch.

Additionally, you can also specify manner in which message/transaction types are to be sorted. The options available are:

1. By Clearing Message Type
2. By Account Number

If you select the second option, the transactions/messages will be sorted by the Account Number involved in the transaction. Else, the sorting will be based on the transactions themselves. For instance, assume there are 12 transactions within a file. Out of these 12 transactions four involve the same account number and the other eight involve a different account number. For the given Clearing Group you have indicated that messages should be sorted as per the Account Number. As a result the details of eight messages involving the same account will be listed first and the details of the other four messages will be listed subsequently.

Restricting specific Clearing Transaction Type from a group

A list of all the transaction types you have maintained in the system are displayed in the Available column. For each Clearing Group that you define you can choose to restrict or allow specific transaction types in the form of allowed or disallowed lists.

Indicating the Process Direction and the related attributes

A Message Group can be defined to group transaction types maintained for the upload of messages into Oracle FLEXCUBE (Incoming) or for the hand-off of messages from Oracle FLEXCUBE (Outgoing). You have to indicate the process direction of the message group. You will need to specify the process attributes depending upon the process direction that you specify.

Outgoing attributes:

If you are maintaining the details of an outgoing message group you have to specify the attributes of the batch hand-off file that is sent. These include:

- Include/Reject – indicates whether the details of the rejected contracts need to be part of the outgoing file.
- Block Enabled – indicates whether the outgoing file needs to be block enabled.
- Line Length – indicate the length of a line within a block.
- Block Filler – specifies the identifier, which should be used to identify the block.
- Block Factor - specifies the factor by which the line length should be multiplied. This in turn will provide the total number of characters in the block.

Incoming attributes:

Automatic Auth – if enabled indicates that the incoming file should be automatically authorized upon receipt.

Transaction Basis – specifies the basis on which transactions are grouped in an incoming file. The options available are:

- Record Based

➤ Batch Based

If the records are batch based you have to capture the Batch Key Start position and the Batch Key Length to uniquely identify the batch.

Length Attributes

- Length Check Required

If you have opted for this facility in 'Clearing Message Type' screen and also check this box here, the system will calculate the length of the particular line and subsequently writes the calculated value from the length starting position maintained for the particular message group.

- Starting Position

This field indicates the position from which the calculated value has to be written into.

- Length

This indicates the length for the line.

Example:

Let us assume that the length of the transaction line is about 300. The line attributes indicated are:

- Start position - 6
- Length of position – 5

The calculated value will be 300 and positions 6 to 10 will denote the length of the line.

Oracle FLEXCUBE automatically writes the calculated value from position 6 to 10 as 00300.

2.2 Message Handoff

For the actual message hand-off, you have to manually trigger the event from Oracle FLEXCUBE. You also need to specify the network and the clearing message group for which the hand-off file has to be created. This file (in ASCII format) is eventually handed-off by Oracle FLEXCUBE.

You can trigger the message hand-off event through the 'Dispatch Details' screen invoked from the Application Browser. You can invoke the 'Dispatch Details' screen by typing 'IFHFDETS' in the field at the top right corner of the Application tool bar and clicking the adjoining arrow button.

For message hand-off, you need to select the network and the clearing message group as mandatory information.

Additionally, you can also specify one or all of the following options for hand-off:

- **Single Branch** – if you want to hand-off messages from a specific branch for the selected network and message group combination. You can select the branch from the option-list available.
- **Single Customer** – if you want to hand-off transactions for a specific customer, for the selected network and message group combination, choose the name of the customer from the option-list provided. Transactions involving all the accounts of the selected customer will be handed-off.
- **Single Account** – select this option if you want to hand-off transactions involving a specific customer account, for the selected network and message group combination. You can select the account from the option-list provided.
- **Single Contract** – will hand-off details of a specific contract.

 If you select only the network and message group, the system will hand-off all the contracts (irrespective of the branches, customers, and accounts involved) for the selected combination.

For hand-off, you should also specify the following:

File Path

You can also specify the path for storing the hand-off file. When you trigger the process, the hand-off file will be picked up from the path you specify here. If you do not specify a path, the file will be picked up from the path specified for the selected message group.

 At the time of implementation of Oracle FLEXCUBE, the implementer will create the following five folders in the file path that you specify in the Handoff of 'Clearing Details' screen (if not specified, the folders will be created in the path maintained for selected message group):

- **in** folder
- **out** folder
- **wip** folder (work in progress)

- **fccarea** folder (for Internal logging)
- **debug** folder

Handoff Grouping

You also have the option of grouping the transactions within the hand-off file. The following options are available for grouping:

- By Clearing Message Type – if you select this option, the transactions will be grouped as batches of different clearing message types that are allowed for the selected clearing message group.
- By Account Type – this option will do the grouping based on the customer accounts involved in the transactions. All contracts involving a specific customer account will be grouped under a single batch file.

After you trigger the hand-off process, the system will pick up the relevant tag values for all the transactions from the database table and display the contents of the hand-off file in the Outgoing Message Browser ('Dispatch Details' screen). The contracts that are rejected or have encountered an error will be highlighted in RED.

Contract Ref No	Product Code	Cust No	Cust Ac No	Cust Ac Brn	Fcy Amount	Txn Amount	Exchange Rate	Cpty Ac No	Cpty Name
000ICDD993360011	ICDE	MICHUS23	000001	PCT		2		000000000	flex
000ICRF993360002	ICRE	MICHUS23	000001	PCT		10		3	test
000ICRF993360003	ICRE	MICHUS23	000001	PCT		13		3	www
000ICRF993360004	ICRE	MICHUS23	000001	PCT		12		3	www
000ICRF993360005	ICRE	MICHUS23	000001	PCT		9		3	www
000ICRF993360007	ICRE	MICHUS23	000001	PCT		5		3	www
000ICRF993360008	ICRE	MICHUS23	000001	PCT		6		3	test
000ICRF993360010	ICRE	MICHUS23	000001	PCT		7		3	www
000ICRF993360001		MICHUS23	000001	PCT		13		3	www
000ICRF993360002		MICHUS23	000001	PCT		12		3	www

Amount Total: 10000
Account Total: 100000000

The following details will also be available:

- Network – the name of the network to which the file is hand-off is triggered
- Transaction Group – the clearing message group for which the hand-off is taking place
- File Name – The name of the hand-off file (in ASCII format)
- Amount Total – the sum total of the amount involved in all the transactions that are handed off
- Account Total – the sum total of all the accounts in the transactions. The account number is a numeric value. The system will add the account numbers involved in each transaction to display this value.

On confirmation (click the 'Ok' button) of the details displayed in the 'Dispatch' screen, the upload file gets created in the path specified. The system will then move the file from the 'wip area' to the 'out' folder. Prior to moving the file, it will retain a copy of the hand-off file in the 'fcc'- area as backup. This marks the successful completion of the hand-off process.

At this stage if you want to cancel the hand-off process, click on 'Exit' or 'Cancel' button.

2.3 Message Upload

Just like the hand-off process, the upload process too needs to be manually triggered from Oracle FLEXCUBE.

You can trigger the message upload event through the Incoming 'Incoming File Details' screen invoked from the Application Browser. You can invoke the 'Incoming File Details' screen by typing 'IFINDETS' in the field at the top right corner of the Application tool bar and clicking the adjoining arrow button.

In this screen, you need to identify the network and the message group for which the message needs to be uploaded. If you do not want to use the file path specified for the Message Group, you can enter a different path here. This path will take precedence over the one maintained for the Message Group.



The five folders (mentioned earlier) will be created in the file path specified in this screen.

After you trigger the upload process, the system will pick up the ASCII file from the 'in' folder and move it to the 'wip' area. It retains a copy of the file in the 'fcc' -area as backup.

Once in the 'wip' area, the contents are resolved and the database gets populated with the actual values. Subsequently, the details of all the contracts are displayed in the 'Dispatch Details' screen). You can invoke the 'Dispatch Details' screen by typing 'IFCLRBWR' in the field at the top right corner of the Application tool bar and clicking the adjoining arrow button.

Contract Ref No	Product Code	Cust No	Cust Ac No	Cust Ac Bm	Fcy Amount	Tm Amount	Exchange Rate	Cpty Ac No	Cpty Name
000ICDD993360011	ICDE	MICHUS23	000001	PCT		2		0000000000	Flex
000ICRF993360002	ICRE	MICHUS23	000001	PCT		10		3	test
000ICRF993360003	ICRE	MICHUS23	000001	PCT		13		3	www
000ICRF993360004	ICRE	MICHUS23	000001	PCT		12		3	www
000ICRF993360005	ICRE	MICHUS23	000001	PCT		9		3	www
000ICRF993360007	ICRE	MICHUS23	000001	PCT		5		3	www
000ICRF993360008	ICRE	MICHUS23	000001	PCT		6		3	test
000ICRF993360010	ICRE	MICHUS23	000001	PCT		7		3	www
000ICRF993360001		MICHUS23	000001	PCT		13		3	www
000ICRF993360002		MICHUS23	000001	PCT		12		3	www

2.3.1 Viewing the details of Files that were Handed-off

You can view the details of all files that were handed-off through the 'Status Browser' screen. You can invoke the 'Status Browser' screen by typing 'IFCLRBWR' in the field at the top right corner of the Application tool bar and clicking the adjoining arrow button.

Network	File Name	Branch	Contract	Stat Dir	File Seq	Transaction Group	Date Time	Cust Acct No	Cust No	Batch Count	Msg Count
TERPAY	BETOPD01%1			M	0	GROUP1	01-DEC-1999			0	0
INTERP#	BETOPD01%1			D	0	GROUP1	01-DEC-1999			0	0
INTERP#	BETOPD01%1			E	0	GROUP1	01-DEC-1999			0	0
INTERP#	BETOPD01%1			P	0	GROUP1	01-DEC-1999			0	0
INTERP#	BOOK_DISPA			P	1	GROUP1				5	5

You can either choose to view the details of files with a particular status or view the details of all files that were handed-off. The details of each file within a network will be displayed in a different color depending on its status. For instance, a file with errors will be displayed in red.

Double click on a file to view the details of contracts included in it.

Contract Ref No	Product Code	Cust No	Cust Ac No	Cust Ac Brn	Fcy Amount	Trn Amount	Exchange Rate	Cpty Ac No	Cpty Name	Cust LCF Ac No
333CRIA9934200	RIBA	NAGA01	NAGAA	333		401		000000000786AIR	AIRTE	000000000786NA
333CRIA9934200	RIBA	NAGA01	NAGAA	333		404		000000000786AIR	AIRTE	000000000786NA
333CRIA9934200	RIBA	NATR01	NATRA	333		500		000000000786AIR	AIRTE	000000000786NA
333CRIA9934200	RIBA	NATR01	NATRA	333		555		000000000786AIR	AIRTE	000000000786NA
333CRIA9934200	RIBA	NATR01	NATRA	333		556		000000000786AIR	AIRTE	000000000786NA
333CRIA9934200	RIBA	NATR01	NATRA	333		557		000000000786AIR	AIRTE	000000000786NA
333CRIA9934200	RIBA	NATR01	NATRA	333		558		000000000786AIR	AIRTE	000000000786NA
333CRIA9934200	RIBA	NATR01	NATRA	333		1001		000000000786AIR	AIRTE	000000000786NA
333CRIJ9934200	RIBJ	JOHN01	JOHNN	333		2001		000000000786AIR	AIRTE	000000000786JO
333CRIN9934200	RIBN	NAGA01	NAGAA	333		401		000000000786AIR	AIRTE	000000000786NA

2.4 Processing for the Interface

The interface can either be Online or in a Batch format. For the online mode each contract in Oracle FLEXCUBE will be handed off as a separate file.

2.4.1 Incoming Message Processing

While processing incoming messages, contracts are uploaded using the following process stages:

- You will initiate the process of uploading files.
- The system checks if any recovery operation is required. If required, it is handled first.
- The file name is logged into the log table before the contents of the file are processed. The file name can be used for recovery and reporting.
- After this, the entire file is read into memory in chunks.
- The key identifier for the message is derived from the position and the number of characters maintained at the file level. For the Identifier thus derived, the subsequent details are picked from the message maintenance.
- Next, the system processes each line and populates it into a row type. Whenever the beginning of a new contract is found, the system inserts the row type into the corresponding table with a particular flag. This process goes on till the end of file is reached.
- The following totals will be kept for each file (driven by a flag)
 - Total for Debits
 - Total for Credits
 - Total for Accounts
 - Total of Amounts
 - No of Records in the Message
- After processing all the records, the file is moved into the 'fcc'-area.
- All the status for the contracts uploaded will be changed for booking and these data are processed using a batch function.

2.4.2 Outgoing Message Processing

While processing outgoing messages, the following stages are involved in the creation of Clearing files:

- You will have to specify the File / Clearing Message Type that needs to be created
- On initiation, the system first checks if there is any recovery operation is required. If required, it is handled first.
- For the given clearing message type, all products for which the file needs to be created will be picked up from the Product Mapping- Clearing Message Type maintenance.
- Since it is possible for the file to have a batch grouped on an account too, the system will pick up the corresponding flag for the file.
- The system will select the relevant records from the Message Maintenance for a given message type.
- The file level attributes that are maintained will be picked up from File/Clearing Message Type. These are:
 - File Name
 - File Extension

- File Path
- Session Timeout
- Number of Resends
- Number of Transactions in a file
- Number of Transaction in a Batch
- Contracts pertaining to each product selected from the Product Mapping- Clearing Message Type maintenance will be picked up for processing for the Clearing File.
- The sequence that is followed during the processing is:
 - File Header Records (FH)
 - Message Header Records (MH)
 - Message Records (MR)
 - Message Footer Records (MF)
 - File Trailer Records (FF)
- The following batch totals are assumed for the trailer records:
 - Total for Accounts
 - Total of Amounts
 - No of Records in the Message
- Each record is locked before the data in the record is processed.
- If the record is locked successfully, then the details of the record are passed on to the Business Rule layer to update the record to the dispatch status.
- Based on the flag passed from the Business layer, the message is formatted on the basis of the maintenance done.
- A preset number of contracts is processed and committed and written to the file based on the maintenance done.
- After all the contracts are processed the file is moved to the area specified in the maintenance.

The above processes are also responsible for converting the data formats and tag formats from the Oracle FLEXCUBE standard format to the formats as required by the external systems. The above set of processes also translates the fields that require a translation as per the maintenance for the particular interface.

2.5 **Triggering the IC Clearing Batch Process**

The IC Clearing Batch Process is triggered after the IC End of Day batch process has been executed. During the Clearing batch process the system picks up all interest liquidation accounting entries for the IC module for an IC bridge account and uploads them as Outgoing Payments in the PC module.

You can trigger the IC Clearing batch process through the IC 'Clearing Batch Process' screen. You can invoke the 'Clearing Batch Process' screen by typing 'IFICBAT' in the field at the top right corner of the Application tool bar and clicking the adjoining arrow button.



In addition to creating Outgoing Payments for all interest liquidation entries this process also handles principal and interest liquidation to CASA accounts.



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