Clear Corp FX-₹etail Trading

Platform

Participant Interface API

for Banks

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# About this document

This document provides the API specifications for banks to integrate with FX-Retail Participant Interface for upload (Customer approval, Limits, Mark-ups, Swap quotes) & download (Trades) data in real-time. For trade download, the existing CSV/FIX file interface will also be supported.

# Terms

|  |  |  |
| --- | --- | --- |
| **#** | **Term** | **Description** |
| 1 | PI | Participant Interface |
| 2 | Hub | Component which routes the API calls flowing between the PI and the applications(CBS/ERP) with the banks. |
| 3 | Admin Message | Messages where the sender will not be expecting an acknowledgement from the receiver. |
| 4 | BIS | Customer Application(CBS/ERP) |
| 5 | CBS | Core Banking Solution Software |
| 6 | ERP | Enterprise Resource Planning Software |

# New features

## ‘Hub’ to connect multiple applications with PI

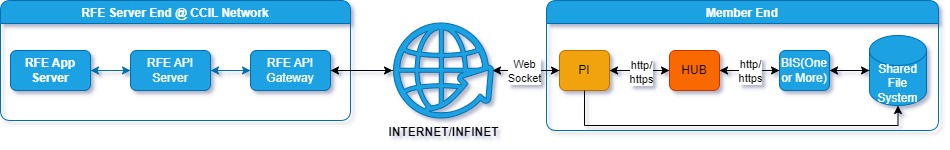
Hub is a component, which allows the PI to connect with multiple applications (CBS/ERP) within the bank/other customers. It acts as intermediate to route the API calls flowing between PI and different applications.

## Identifying the source and destination application of Customer

The application to which a message needs to be sent or received is identified using a unique combination of an **API Key, IP address and Port number**. This takes care of a case when even multiple applications are hosted in the same server.

**Note:** HUB is mandatory to be installed even to connect to a single application.

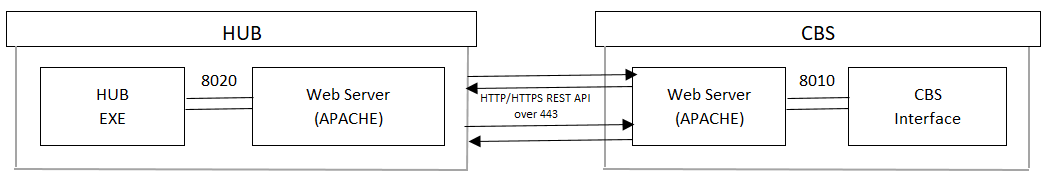
## Proposed Architecture



# Communication protocol

## REST API between HUB and CBS

Communication between the Bank/Customer Internal System (BIS) and the HUB are REST calls that contain structured messages. POST method exposed by HUB is used to push the message from BIS to HUB and POST method exposed by BIS will be used to push the message from HUB to the BIS.



The following sections provides a summary of the protocols for the above two types – first for communications going from the BIS to the HUB, and later for those from the HUB to the BIS.

## BIS to HUB

### REST API

Each message is packed as per the message structure by the BIS and is sent to the HUB using a REST POST call. The response is an acknowledgement message. BIS should send the next message only after receiving the acknowledgement message for previously sent message.

For further details on how Hub handles rejections, please refer to the section on [Rejections](#_Rejections).

## HUB to BIS

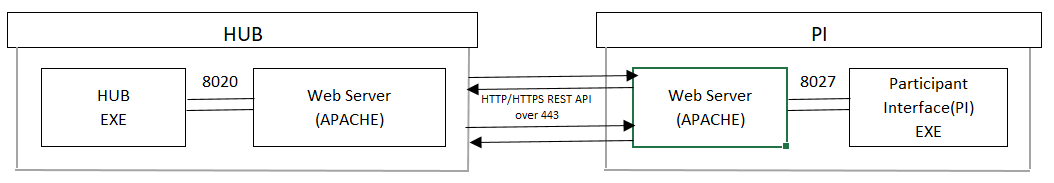
### REST API

All messages from the HUB are pushed into BIS through another REST POST API exposed by BIS. There after the BIS unpacks the message for further processing.

Each message is packed as per the message structure by the HUB and is sent to the BIS using a REST POST call. The response is an acknowledgement message. HUB will send the next message only after receiving the acknowledgement for the previously sent message.

## REST API between PI and HUB

Communication between the Participant Interface(PI) and the HUB are REST calls that contain structured messages. POST method exposed by HUB is used to push the message from PI to HUB and POST method exposed by PI is used to push the message from HUB to the PI.



The following sections provides a summary of the protocols for the above two types – first for communications going from the HUB to the PI, and later for those from the PI to the HUB.

## HUB to PI

### REST API

Each message is packed as per the message structure by the HUB and is sent to the PI using a REST POST call. The response is an acknowledgement message. HUB will send the next message only after receiving the acknowledgement message for previously sent message.

For further details on how PI handles rejections, please refer to the section on [Rejections](#_Rejections).

## PI to HUB

### REST API

All messages from the PI are pushed into HUB through another REST POST API exposed by HUB. There after the HUB unpacks the message for further processing.

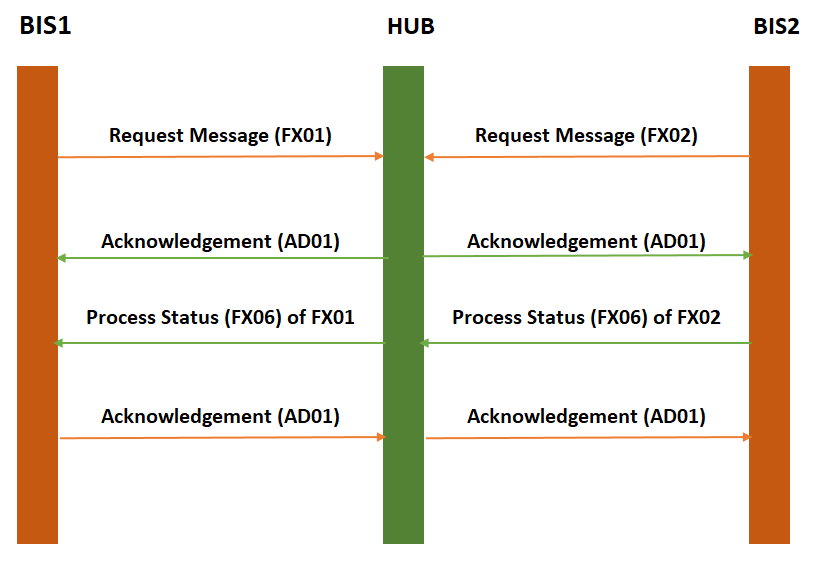
Each message is packed as per the message structure by the PI and is sent to the HUB using a REST POST call. The response is an acknowledgement message. PI will send the next message only after receiving the acknowledgement for the previously sent message.

# Message Flow

The below timeline diagrams provides the sequence of messages exchanged between the systems.

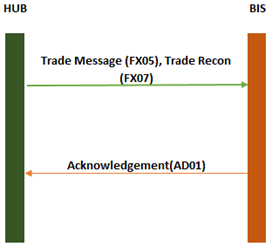
## BIS to HUB

Multiple BIS systems can be connected to HUB. Each BIS can be configured to send a particular message type or multiple message types.

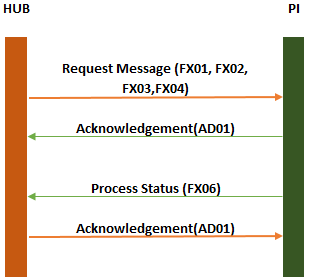


## HUB to BIS

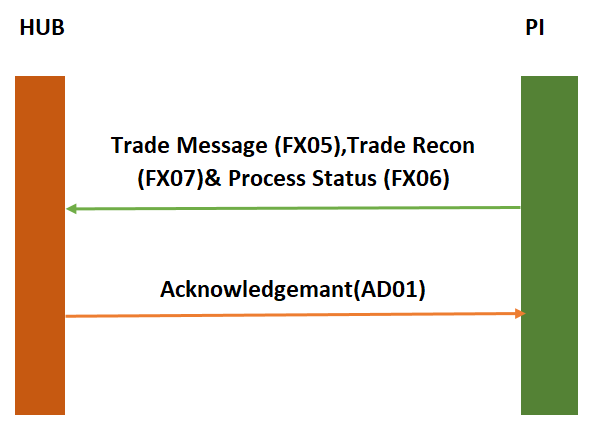
The BIS configured to receive Trade data will receive Trade message and Trade recon message.



## HUB to PI



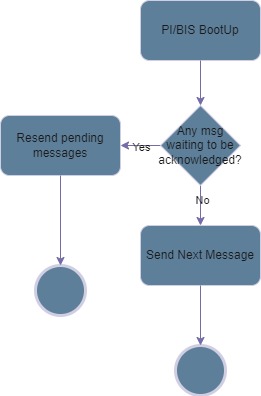
## PI to HUB



# Boot-Up

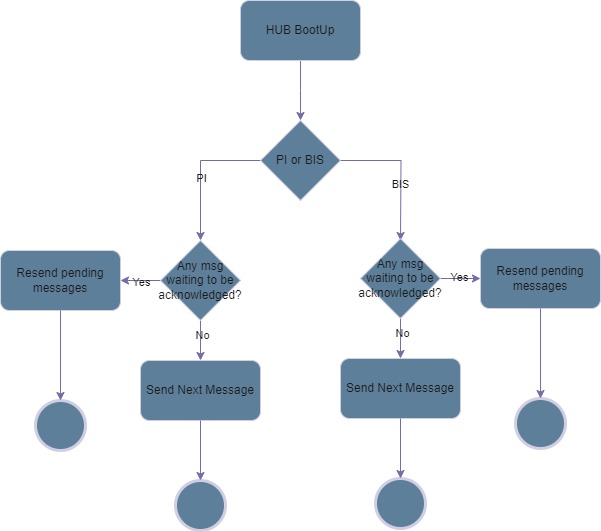
The below flow charts give an overview of the actions to be taken by HUB, PI and BIS on boot-up and during send/receive messages. This also handles the recovery on abnormal shutdown of HUB, PI or BIS process. Apart from the below mentioned flow, if required, “Resend messages after timestamp” can be used by either BIS or PI to get all the messages given a timestamp. Kindly refer Message Structure section for formats and structures of “Resend messages after timestamp”.

## PI and BIS

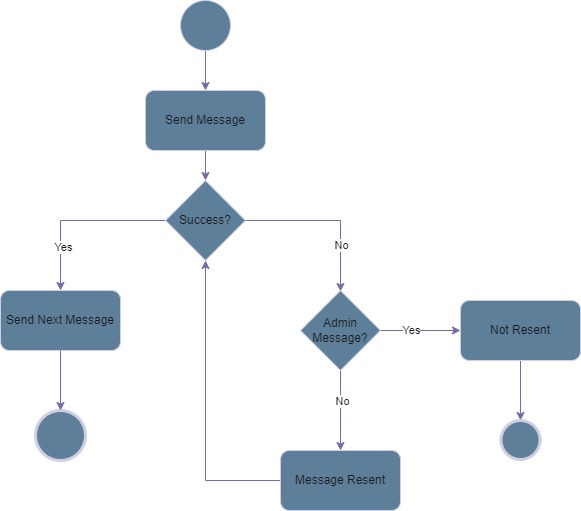


## Hub

As Hub is connected to PI and multiple BIS systems, on boot-up both PI and BIS systems actions should be handled.



## Send Message Flow

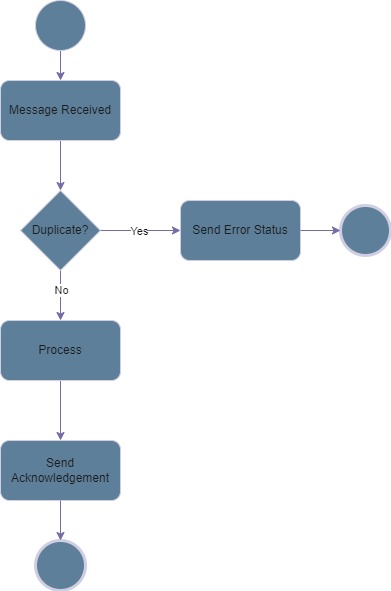


**Note:**

‘Admin Message’ refers to those messages where the sender will not be expecting an acknowledgement from the receiver. There are 2 admin messages – 1. Acknowledgment Message 2. Resend message after a given timestamp.

Resend message after a given timestamp – Upon this message request received, the sender will be sending all the messages available after the given timestamp for the day. This is an additional recovery provision in case of any downtime.

## Receive Message Flow

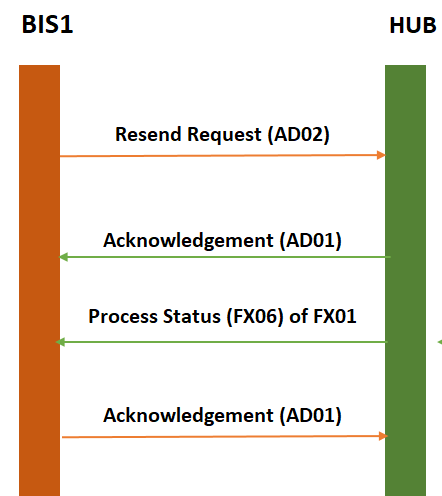


# Recovery Process

## BIS Down

Given a particular BIS went down after receiving the acknowledgment but before receiving the process status, When the BIS comes up, it can send a Resend request (AD02) message to HUB to fetch the missed out data. On receipt of this, HUB will send all the process status and/or trade responses from the time asked for that particular BIS.

Refer the timeline diagram given below to understand the sequence of messages received from a BIS which is configured for Customer registration message type (FX01).



## HUB Down

Given HUB is intermediate between PI and multiple BIS systems, when HUB is down, recovery will be applicable for both PI and BIS systems.

### BIS message processing

The message logs for multiple BIS systems are to be maintained separately at the HUB’s system. So that when the HUB goes down, the HUB can start processing the pending messages by accessing the message logs for individual BIS systems on recovery. Thereby, no other special action or process is required from the HUB side.

**Note:**

In case of changing the message destination from BIS 1 to BIS 2, the pending messages for BIS 1 will not be automatically routed to BIS 2.

### PI message processing

Like BIS message processing, the message logs for PI are also to be maintained separately at the HUB’s system. So that when the HUB goes down, the HUB can start processing the pending messages by accessing the message logs for PI on recovery. Thereby, no other special action or process is required from the HUB side.

### PI Down

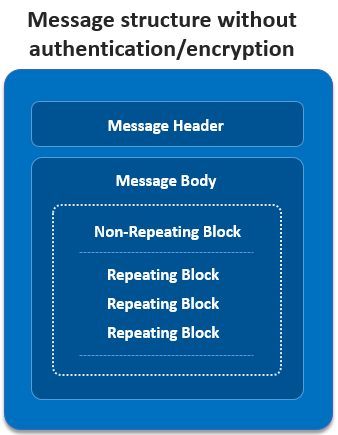
It is assumed that, the high availability (HA) setup will be done for the PI implementation at the member’s end wherein, the message logs are to be stored at the shared file system. So that when the PI primary goes down, the PI secondary can start processing the pending messages by accessing the message logs. Thereby, no other special action or process is required from the PI side.

# Message Structure Overview

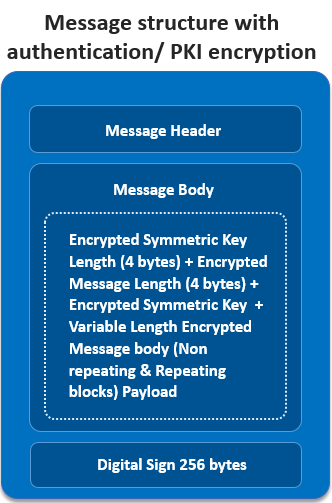
Each message contains a header (H), body (B) and an optional digital signature (D) sections. The body contains multiple blocks, some of which may be non-repeating, while some may be repeating.

A configuration setting is provided as part of the PI configuration & installation to enable/disable the authentication & encryption process for the message transmission between BIS and PI. The setting can be done by the member bank and it is applicable for all the messages as listed in [Message List](#_Messages_List) section.

The diagram below represents the generic message structure without authentication & encryption process.



If the bank opts to enable the authentication & encryption process, then the generic message structure will be as shown below.



## Message Header

The message header starts with “{H:” and ends with “}”. The header fields do not use a tag-value format. Instead, each field in the header is of fixed length and is concatenated without spaces. Therefore, the header itself is of fixed length. The message header is a common structure for all messages. Even though the header does not have a tag for every field as part of the message, each field is given a tag number internally, which is used to form the error codes while reporting errors in a particular header field.

## Message Body

The message body starts with “{B:” and ends with “}” and can hold a variable length payload. The payload consists of multiple blocks nested within the body section, each of which starts with “{cc:”, and ends with “}“, where cc is the block type. The format specification for this block type is 2!c. Each of the repeating blocks also have a block reference number, which starts from 1 in each message and increments uniformly until the last repeating block.

Typically, every record occupies one block. In a message, therefore, each block would represent a record. In the case of admin messages like Acknowledgement there are no repeating blocks, and all the information is contained in a non-repeating block. The block types in a message are required to be in the same order as that mentioned in the message structure and the block reference numbers should start from 1 for the first repeating block and increase uniformly throughout the body covering every repeating block.

Even though the message specifications provide for multiple repeating blocks of different types in a single message, in the current API specification, the body of messages contains 0 to many repeating blocks of the same block type. The maximum allowed repeating blocks in a message can be up to 100.

As mentioned earlier, each block type is identified by a 2-digit alpha-numeric code (00 to ZZ). They are defined in the context of each message.

* For instance, for a swap quotes message, there will be two blocks in the message body,
  + Block 00 is a non-repeating block that has the business date, bank membership id, the total count of records presents in the repeating blocks and FX Retail login user name.
  + Block 01 is a repeating block with one record per block.

Within a block, there are many fields. Each field is formatted as a tag^value pair delimited by ^.Tags have the following characteristics

* Tags are 4 alpha numeric characters long. The format specification for the tag is 4!c.
* Tag values are in the range from 0100 to ZZZZ.
* Each field starts in a new line and with no line breaks in between. To get the new line both Carriage Return (\r) and Line Feed (\n) must be used as \r\n.
* Depending on the message, the tag may be mandatory or optional.
* When a tag is optional, it may not appear in the message at all. If the tag is present, the system will expect the tag to contain valid values.
* The tags must appear in the same order as described in the message specification

## Digital Signature

The digital signature starts with “{D:” and ends with “}” and contains a 256-byte digital signature. This is an optional section.

### PKI Requirements

1. Class 3 Server Certificate for both PI and BIS for both digital signing and encrypting the 32 byte randomly generated symmetric key.
2. The certificates (Hub private key file & BIS public key files) are to be kept in the configured file path.

### Authentication& Encryption Process

1. As mentioned in the message structure diagram above, messages between BIS and PI will have the following blocks and the below actions has to be taken before sending a message:
2. **Header:**This will contain the Header as specified in the [message header](#_Message_Header) section. The header is not encrypted.
3. **Body:** This in turn has 4 parts
   1. ***Encrypted Symmetric Key Length*** – The first 4 bytes represents the length of the encrypted symmetric key.
   2. ***Encrypted Message Body Length*** – From 5th to 8th byte represents the length of the encrypted message body
   3. ***Encrypted Symmetric Key*** – From 9th byte till the length given in the symmetric key length represents the actual encrypted symmetric key. This symmetric key is a 32-bytekey, randomly generated for every message and is encrypted using the public key of the receiver.
   4. ***Encrypted Message Body*** – The rest represents the encrypted message body. This is the actual message body containing the non-repeating and repeating blocks. This message body is encrypted using the symmetric key with the Rijndael algorithm
4. **Digital Signature:** All of the above sections of the message (Header and Encrypted Body) are digitally signed by a SHA 256 hash employing the sender’s private key. On receipt of the message, the following action has to be taken to process the message:
   1. The receiver extracts the message header and encrypted body, generate SHA 256 hash and verify it with the digital signature received by employing the sender’s public key.
   2. If the digital sign is valid, the receiver extracts the symmetric key by decrypting it using the receiver’s private key. Using this symmetric key, the body is decrypted further and the message is taken up for processing.
5. If the participant has a DR site, they will use the same certificates in that environment, as in the production environment.

## Unique Identifiers

The system uses the following unique identifiers

1. **Message Reference Number (MRN):** Each message passing through platform has a 25-character unique reference number which should be formatted as Sender Participant Code (12-character bank membership id) + Sender identifier (When BIS sends the message, it should be always defaulted to **B** while for the receiving messages, it will be either **A** or **P** or **H**)+Timestamp (YYMMDD) + An unique number which is 6 digits (it should get incremented. Eg:000001, 000002,… etc.). The timestamp is the date of origination of the message from the originating customer’s BIS. The unique number is also issued by the originating customer’s BIS system. BIS will ensure that no two messages will have same MRN.
2. **Block Reference Number (BRN):** Each repeating block within the message body, usually a record, has a reference number that is unique within that message. The BRN is a sequential number starting from 1 within each message. If there are 10 records in a message, the block numbers will go from 1 to 10 in that message – one block for each record.

## Sample Message Text

A sample messagetext is given below

{H:0025001FX04CCBPUTIB0028A19070800000120190216131410BIS1\_HUB } *//Header section*

{B: *//Body Start Identifier (Body section)*

{00: *//Non-Repeating Block Start Identifier*

1001^20190216 *//Tag-Value Pair for business data within non-repeating block*

1002^CCBPUTIB0028 *//Tag-Value pair for bank membership id*

1003^2 *//Tag-Value pair number of records*

} *//Non-Repeating Block End Identifier*

{01: *//Repeating Block Start Identifier*

1004^1 *//Tag-Value pair for BRN*

… *//Other fields in the record*

} *//Repeating Block End Identifier*

{01: *//Repeating Block Start Identifier*

1004^2 *//Tag-Value pair for BRN*

… *//Other fields in the record*

} *//Repeating Block End Identifier*

} *//Body End Identifier*

{D: 256 bytes’ digital signature} *//Digital signature section*

# Messages

The messages are split into two categories – business messages and administrative messages. Business messages are related to records to be uploaded/downloaded from FX Retail platform while the administrative message facilitate and ensure reliability in communication between the communication nodes.

As the API messages are proprietary in nature, the participants are required to build conversion logic at their end for achieving STP.

## Messages List

The table below lists the implemented messages along with their message types and descriptions.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Message Code | Message Name | Message Description | Source | Destination |
| Business Messages | | | | |
| FX01 | Customer on boarding approval | To approve /reject the customer on boarding application. | BIS | HUB |
| FX02 | Limits | To upload the customer wise limits into FX Retail platform | BIS | HUB |
| FX03 | Mark up | Mark up data to be uploaded to FX Retail platform | BIS | HUB |
| FX04 | Swap quotes | Swap quotes data to be uploaded to the FX Retail platform | BIS | HUB |
| FX05 | Trade response | Real time trade response message received from FX Retail platform | HUB | BIS |
| FX06 | Process Status | Validation and process status of message sent from FX Retail platform to BIS. | HUB | BIS |
| FX07 | Trade Reconciliation | Total no. of trades executed for the day received from FX Retail platform. | HUB | BIS |
| Administrative Messages | | | | |
| AD01 | Acknowledgement | This is an acknowledge message for each business message. | BIS\PI\HUB | PI\BIS\HUB |
| AD02 | Resend Messages After Timestamp | This is a query message which can be used to fetch the list of business messages got processed after a specified time. On receipt of this message from BIS, PI will push all the processed messages (Process status & Trade Response) after the requested timestamp. The same process for resend messages requested by PI to BIS. | BIS | HUB |

The Resend messages are used mainly for recovery. The BIS can use this message, to get old messages from the PI through HUB, in case of failures at its end. Only messages of the current date and particular BIS are covered by these requests. Only business messages are resent from a given timestamp one by one as it was sent originally. After sending these messages, normal messages are sent.

## Message Structures

The Excel file “FXRetail\_Message\_Structures”embedded below has,

1. The lookup (static) data that would be required to implement the API.
2. The structure summary for each business & administrative message
3. Message level rejection codes
4. Field format description



### Message Header

This describes the structure of the message header.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Field Description** | **Internal Tag** | **Format** | **Mandatory** | **Sample** | **Validation** | **Rejection Code** | **Rejection Reason** |
| Message Length | Total length of message including both header and body. | 0001 | 5!n | Yes | 00250 | Should be as per the format specified | 0001001 | Format not as per specification |
| Channel | The channel through which the message is sent. Can be either REST or TCP/IP. | 0002 | 2!c | Yes | 01 | Should be one of the pre-defined channels | 0002001 | Invalid Channel |
| Message Type | The type of the message. | 0003 | 4!c | Yes | FX01 | Should be one of the pre-defined message types | 0003001 | Invalid Message Type |
| Message Reference Number (MRN) | The message reference number (MRN) of the message. Format: Customer ID + Sender Identifier + Date (YYMMDD) + a unique number which is 6 digits (For heartbeat, it should be always 000000) | 0004 | 25!c | Yes | CCBPUTIB00281B90708000001 | Should be as per the format specified | 0004002 | Format not as per specification |
| Originating Timestamp | Time at message creation (YYYYMMDDHHMMSS). | 0005 | 14!n | Yes | 20180216131410 | Should be a valid time stamp | 0005001 | Invalid Time Stamp |
| Source and Destination | Source from which message is received and Destination to which message is sent | 0006 | 15!c | Yes | BIS1\_HUB | Should be a valid combination of source and destination between BIS/HUB/PI. In case of HUB to BIS, combination of HUB and API Key should be present | 0006001 | Invalid Source and Destination |

### FX01-Customer On boarding Approval

This message is to approve or reject the customer on boarding application.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Field Description** | **Internal Tag** | **Format** | **Mandatory** | **Sample** | **Validation** | **Rejection Code** | **Rejection Reason** |
| **Non-Repeating Block 00 - Starts with {00: and ends with }.** | | | | | | | | |
| Business Date | Date of message generation | 1001 | 8!n | Yes | 20180216 | Tag is mandatory | 1001001 | Mandatory tag <No.> not present |
| Should be as per the format YYYYMMDD | 1001002 | Format not as per specification |
| Date should be current date | 1001003 | record date must be current date |
| Date should not fall on a holiday | 1001004 | record date should not fall on a holiday |
| Bank Membership ID | CCIL membership id | 1002 | 12!c | Yes | CCBPUTIB0028 | Should be a valid membership id belong to current bank | 1002001 | Invalid membership id |
| Number of Records | The number of records present in the Repeating Block. It cannot be more than 100. | 1003 | 3n | Yes | 1 | Tag is mandatory | 1003001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1003002 | Format not as per specification |
| Number of records in this message exceeds the maximum allowed | 1003003 | Number of records cannot be more than 100. |
| Number of records should be equal to total records in the repeating block | 1003004 | Number of records should be equal to total records in the repeating block |
| Number of records should be greater than zero | 1003005 | Number of record should be greater than zero |
| **Repeating Block 01 - Starts with {01: and ends with }.** | | | | | | | | |
| Block Reference Number (BRN) | The BRN is a sequential number starting from 1 and is unique within the message | 1004 | 3n | Yes | 1 | Tag is mandatory | 1004001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1004002 | Format not as per specification |
| Should not exceed 100 | 1004003 | Number of blocks in a message cannot exceed 100. |
| Should be sequential, unique and incremented by 1 | 1004004 | BRN within a message must be sequential and unique |
| Should be greater than zero | 1004005 | Block reference number should be greater than zero |
| PAN# | This field contains the PAN number of the customer | 1005 | 10!c | Yes | ADFOA4091A | Tag is mandatory | 1005001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1005002 | Format not as per specification |
| Invalid PAN | 1005003 | Invalid PAN |
| Home Branch IFSC | Home Branch IFSC | 1008 | 11c | No | UTIB0000111 | Invalid value | 1008001 | Invalid Home Branch IFSC |
| Should be as per the format specified | 1008002 | Format not as per specification |
| Trading Branch IFSC | Trading branch IFSC/SWIFT Code which is to be assigned for the customer. It can be of branch IFSC Code (11 chars) or SWIFT code (8 chars). It is mandatory when Action type is "01" | 1009 | 11c | Yes | UTIB0000109 | Tag is mandatory when Action Type is 'Approve' | 1009001 | Mandatory tag <No.> not present |
| Should be a valid branch ifsc/swift code | 1009002 | Invalid branch code |
| Should be as per the format specified | 1009003 | Format not as per specification |
| Trading Branch Name | Trading Branch Name | 1010 | 100x | No | TULSIANI CHMBRS - NARIMAN PT | Invalid value | 1010001 | Invalid Trading Branch Name |
| Should be as per the format specified | 1010002 | Format not as per specification |
| Customer Ref No | Customer Ref No | 1011 | 20x | No | CRR/IN/000001-1 | Invalid value | 1011001 | Invalid Customer Ref No |
| Should be as per the format specified | 1011002 | Format not as per specification |
| Customer Type | Customer Type code of the customer | 1012 | 3a | No | NR | Invalid value | 1012001 | Invalid Customer Type |
| Should be as per the format specified | 1012002 | Format not as per specification |
| Entity Name | Entity Name of the customer | 1013 | 100x | No |  | Invalid value | 1013001 | Invalid Entity Name |
| Should be as per the format specified | 1013002 | Format not as per specification |
| First Name | First Name of the customer | 1014 | 100x | No | Ram | Invalid value | 1014001 | Invalid First Name |
| Should be as per the format specified | 1014002 | Format not as per specification |
| Last Name | Last Name of the customer | 1015 | 100x | No | Prasad | Invalid value | 1015001 | Invalid Last Name |
| Should be as per the format specified | 1015002 | Format not as per specification |
| LEI Number | LEI Number of the customer | 1016 | 30c | No |  | Invalid value | 1016001 | Invalid LEI Number |
| Should be as per the format specified | 1016002 | Format not as per specification |
| Expiry Date | Expiry Date. Date format is YYYYMMDD | 1017 | 8!n | No | 20230109 | Invalid value | 1017001 | Invalid Expiry Date |
| Should be as per the format specified | 1017002 | Format not as per specification |
| GSTIN | GSTIN | 1019 | 30c | No |  | Invalid value | 1019001 | Invalid GSTIN |
| Should be as per the format specified | 1019002 | Format not as per specification |
| Account Number | Account Number of the customer | 1022 | 30n | No | 6016017897 | Invalid value | 1022001 | Invalid Account Number |
| Should be as per the format specified | 1022002 | Format not as per specification |
| Mark-up Type | This field contains the mark-up type. The possible values can be either 01 or 02. Where 01 indicates Paisa and 02 indicates Percentage. | 1038 | 2!c | Yes | 01 | Tag is mandatory when Action Type is 'Approve' | 1038001 | Mandatory tag <No.> not present |
| Should be one of the predefined mark-up type | 1038002 | Invalid mark-up type |
| Should be as per the format specified | 1038003 | Format not as per specification |
| Mark-up value | This field contains the mark-up Value.  If entered in Paisa,Maximum value is 999.  If entered in percentage, Maximum value is 100  It cannot be in negative. | 1039 | 19d | Yes | 25 | Should be as per the format specified | 1039001 | Format not as per specification |
| Should be a valid value within the maximum value | 1039002 | Invalid mark-up value |
| Should not be in negative value. | 1039003 | Mark-up value cannot be in negative. |
| Tag is mandatory when Action Type is 'Approve' | 1039004 | Mandatory tag <No.> not present |
| Tax On Mark-up (%) | This field contains the tax on mark-up. Maximum Value is 100 | 1040 | 19d | No | 18 | Should be as per the format specified | 1040001 | Format not as per specification |
| Should be a valid value within the maximum value | 1040002 | Invalid tax on mark-up |
| Should not be in negative value. | 1040003 | Tax on mark-up value cannot be in negative. |
| RO/ED Applicability | Indicates the mark-up applicability for rollover & early delivery. The values can be either 01 or 02.  01 - Both legs  02 - Only Rebooking leg | 1062 | 2!c | Yes | 01 | Tag is mandatory when Action Type is 'Approve' | 1062001 | Mandatory tag <No.> not present |
| Should be one of the predefined method | 1062002 | Invalid RO/ED applicability |
| Should be as per the format specified | 1062003 | Format not as per specification |
| Request Type | This field specifies the customer request type. Possible values can be either 01 or 02.Where, 01 indicates Add bank and 02 indicates Remove Bank. | 1023 | 2!c | Yes | 1 | Tag is mandatory | 1023001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1023002 | Format not as per specification |
| Invalid value | 1023003 | Invalid request type |
| Action Type | This field specifies the bank action type on the request. Possible values can be either 01 or 02.Where, 01 indicates Approve and 02 indicates Reject. | 1024 | 2!c | Yes | 1 | Tag is mandatory | 1024001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1024002 | Format not as per specification |
| Invalid value | 1024003 | Invalid action type |
| Remarks | This field specifies the remarks of the input data. | 1025 | 256x | Yes | Invalid PAN | Tag is mandatory when Action Type is 'Reject' | 1025001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1025002 | Format not as per specification |

### FX02-Limits

This message is to upload the customer wise limits into FX Retail platform.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Field Description** | **Internal Tag** | **Format** | **Mandatory** | **Sample** | **Validation** | **Rejection Code** | **Rejection Reason** |
| **Non-Repeating Block 00 - Starts with {00: and ends with }.** | | | | | | | | |
| Business Date | Date of message generation | 1001 | 8!n | Yes | 20180216 | Tag is mandatory | 1001001 | Mandatory tag <No.> not present |
| Should be as per the format YYYYMMDD | 1001002 | Format not as per specification |
| Date should be current date | 1001003 | record date must be current date |
| Date should not fall on a holiday | 1001004 | record date should not fall on a holiday |
| Bank Membership ID | CCIL membership id | 1002 | 12!c | Yes | CCBPUTIB0028 | Should be a valid membership id belong to current bank | 1002001 | Invalid membership id |
| Number of Records | The number of records present in the Repeating Block. It cannot be more than 100. | 1003 | 3n | Yes | 1 | Tag is mandatory | 1003001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1003002 | Format not as per specification |
| Number of records in this message exceeds the maximum allowed | 1003003 | Number of records cannot be more than 100. |
| Number of records should be equal to total records in the repeating block | 1003004 | Number of records should be equal to total records in the repeating block |
| Number of records should be greater than zero | 1003005 | Number of record should be greater than zero |
| **Repeating Block 01 - Starts with {01: and ends with }.** | | | | | | | | |
| Block Reference Number (BRN) | The BRN is a sequential number starting from 1 and is unique within the message | 1004 | 3n | Yes | 1 | Tag is mandatory | 1004001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1004002 | Format not as per specification |
| Should not exceed 100 | 1004003 | Number of blocks in a message cannot exceed 100. |
| Should be sequential, unique and incremented by 1 | 1004004 | BRN within a message must be sequential and unique |
| Should be greater than zero | 1004005 | Block reference number should be greater than zero |
| Trading Branch IFSC | Branch IFSC/SWIFT Code of which the customer has relationship. It can be of branch IFSC Code (11 chars) or SWIFT code(8 chars) | 1009 | 11c | Yes | UTIB0000109 | Tag is mandatory | 1009001 | Mandatory tag <No.> not present |
| Should be a valid branch ifsc/swift code | 1009002 | Invalid branch code |
| Should be as per the format specified | 1009003 | Format not as per specification |
| PAN# | This field contains the PAN number of the customer | 1005 | 10!c | Yes | ADFOA4091A | Tag is mandatory | 1005001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1005002 | Format not as per specification |
| Invalid PAN | 1005003 | Invalid PAN |
| Invalid customer relationship | 1005004 | Invalid customer relationship |
| Email | Registered email id of customer | 1006 | 100c | No | [someone@gmail.com](mailto:someone@gmail.com) | Should be as per the format specified | 1006002 | Format not as per specification |
| Invalid Email | 1006003 | Invalid Value |
| Mobile | Registered mobile number of customer | 1007 | 15n | No | 9500902256 | Should be as per the format specified | 1007002 | Format not as per specification |
| Invalid Mobile | 1007003 | Invalid Value |
| Trading Branch Name | Trading Branch Name | 1010 | 100x | No | TULSIANI CHMBRS - NARIMAN PT | Invalid value | 1010003 | Invalid Trading Branch Name |
| Should be as per the format specified | 1010002 | Format not as per specification |
| Customer ID | ID of the customer | 1026 | 50c | No | INPM85000001 | Should be as per the format specified | 1026002 | Format not as per specification |
| Invalid value | 1026003 | Invalid Customer ID |
| Operation Type | This field is to specify the limits given is for operation  01 - ADD  02 - EDIT  03 - RESET TO ALL  04 - RESET TO SPOT  05 - RESET TO FORWARD | 1054 | 2!c | Yes | 01 | Tag is mandatory | 1054001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1054002 | Format not as per specification |
| Should be one of the predefined options | 1054003 | Invalid Operation Type |
| Limit Settings Option | This fields is to specify instrument group for which the limits to be assigned.  01 - Indicates, the limits to be assigned for CASH, TOM, SPOT OR UptoSPOT separately.  02- Indicates, the limits to be assigned for Forward separately.  03 - Indicates, the limits to be assigned for all instruments put together. | 1055 | 2!c | Yes | 01 | Tag is mandatory | 1055001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1055002 | Format not as per specification |
| Should be one of the predefined limit settings option | 1055003 | Invalid limit settingsoption |
| Limit Type | This field contains the limit type.  01 - Gross Buy  02- Gross Sell  03- Global Gross  04- Net | 1027 | 2!c | Yes | 4 | Tag is mandatory | 1027001 | Mandatory tag <No.> not present |
| Should be one of the predefined limit type | 1027002 | Invalid limit type |
| Should be as per the format specified | 1027003 | Format not as per specification |
| Limit Currency Code | This field contains the limit currency in which the limit is defined. Possible values are INR/USD | 1028 | 3!a | Yes | USD | Should be a mandatory value | 1028001 | The mandatory value is not present |
| Should be a valid limit currency | 1028002 | Invalid limit currency |
| Should be as per the format specified | 1028003 | Format not as per specification |
| Cash Limit Amount | This field contains the CASH Limit Amount. If it is left blank, it is taken as not defined. Maximum value is 999,999,999,999.99 | 1029 | 14d | No | 100000 | Should be as per the format specified | 1029002 | Format not as per specification |
| Should be a valid value within the maximum value | 1029003 | Invalid cash limit |
| Tom Limit Amount | This field contains the TOM Limit Amount. If it is left blank, it is taken as not defined. Maximum value is 999,999,999,999.99 | 1030 | 14d | No | 100000 | Should be as per the format specified | 1030002 | Format not as per specification |
| Should be a valid value within the maximum value | 1030003 | Invalid tom limit <Amount> |
| Spot Limit Amount | This field contains the SPOT Limit Amount. If it is left blank, it is taken as not defined Maximum value is 999,999,999,999.99 | 1031 | 14d | No | 100000 | Should be as per the format specified | 1031002 | Format not as per specification |
| Should be a valid value within the maximum value | 1031003 | Invalid spot limit <Amount> |
| Upto Spot Limit Amount | This field contains the Limit Amount for CASH/TOM/SPOT instruments put together. If it is left blank, it is taken as not defined. Maximum value is 999,999,999,999.99 | 1056 | 14d | No | 100000 | Should be as per the format specified | 1056002 | Format not as per specification |
| Should be a valid value within the maximum value | 1056003 | Invalid upto spot limit <Amount> |
| Forward Limit Amount | This field specifies the limit amount to be applied FORWARD instruments together. If the individual instrument is specified, this field should be left blank. The maximum value is 999,999,999,999.99. | 1057 | 14d | No | 100000 | Should be as per the format specified | 1057002 | Format not as per specification |
| Should be a valid value within the maximum value | 1057003 | Invalid forward limit <Amount> |
| All Instrument Limit Amount | This field specifies the limit amount to be applied across all instruments together. If the individual instrument is specified, this field should be left blank. The maximum value is 999,999,999,999.99 | 1032 | 19d | No | 2500000 | Should be as per the format specified | 1032002 | Format not as per specification |
| Should be a valid value within the maximum value | 1032003 | Invalid all instrument limit <Amount> |
| Effective To Date | This field contains the effective to date. Date format is YYYYMMDD | 1033 | 8!n | Yes | 20180216 | Tag is mandatory | 1033001 | Mandatory tag <No.> not present |
| Should be as per the format YYYYMMDD | 1033002 | Format not as per specification |
| If Limit effective to date < Business date | 1033003 | Invalid limit effective to date |
|  |  |  |  |  |  | Tag is mandatory | 1035001 | Mandatory tag <No.> not present |
| Limit reinstate method | This field specifies which limit reinstate method to be used. The possible values can be either 01, 02, 03, Where  01 - Not Applicable (no method to be followed)  02 - Daily  03- Settled Trades. | 1035 | 2!c | Yes | 02 | Should be as per the format specified | 1035002 | Format not as per specification |
| Should be one of the predefined methods | 1035003 | Invalid limit reinstate method |
| Limit on Tenors Type | This field specifies the limit on tenor types. Should be always "01" for Limit settings option "01".  01 - Not Applicable (no method to be followed)  02 - Maximum Tenor | 1058 | 2!c | Yes | 01 | Tag is mandatory | 1058001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1058002 | Format not as per specification |
| Should be one of the predefined methods | 1058003 | Invalid limits on tenor type |
| Maximum Tenor Type | Applicable only when the "Limit on Tenors Type" is = 02. else should be left blank. This field indicates the value associated to the maximum tenor type.  01 - Days  02 - Months | 1059 | 2!c | No | 02 | Should be as per the format specified | 1059001 | Format not as per specification |
| Should be one of the predefined methods | 1059002 | Invalid maximum tenor type |
| Maximum Tenor Value | Applicable only when the "Limit on Tenors Type" is = 02, else should be left blank. This field indicates the value associated to the maximum tenor type. | 1060 | 3n | No | 13 | Should be as per the format specified | 1060001 | Format not as per specification |
| Should be a valid value within the maximum value | 1060002 | Invalid maximum tenor value <Value> |
| Should be a valid value with the config | 1060003 | Maximum tenor value should be lesser than or equal to no. of active days/months for standard tenor |
| Maximum value date | Applicable only when the "Limit on Tenors Type" is = 03, else should be left blank.  This fields is to specify the value date till which the Forward orders should be allowed. | 1061 | 8!n | No | 20211216 | Should be as per the format YYYYMMDD | 1061001 | Format not as per specification |
| Should be a valid value within the maximum value | 1061002 | Invalid maximum value date |
| Should be greater than SPOT settlement date | 1061003 | Maximum value date should be greater than SPOT settlement date |
| Should be lesser than last tenor settlement date | 1061004 | Maximum value date should be lesser than last tenor settlement date |
| Effective From Date | This field contains the effective from date. Date format is YYYYMMDD | 1036 | 8!n | Yes | 20180213 | Should be as per the format YYYYMMDD | 1036001 | Format not as per specification |
| If Limit effective from date < Business date | 1036002 | Invalid limit effective from date |
| User Login Name | User login name who approves the limit | 1037 | 100c | No | Raj | Should be as per the format YYYYMMDD | 1037001 | Format not as per specification |
| User should be in proper status | 1037002 | User status is not active. Current status is <> |
| Invalid value | 1037003 | Invalid User Login Name |
| The bank user should have appropriate role to update or create limit. | 1037004 | Access denied. Given user has no appropriate role. |
| The branch user should have appropriate role to update or create limit. | 1037005 | Access denied. Given user has no appropriate role. |
| Remarks | This field specifies the remarks of the input data. | 1025 | 256x | No | Invalid PAN | Should be as per the format specified | 1025002 | Format not as per specification |

### FX03-Markup

This message is to upload the customer wise Mark-up settings into FX Retail platform.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Field Description** | **Internal Tag** | **Format** | **Mandatory** | **Sample** | **Validation** | **Rejection Code** | **Rejection Reason** |
| **Non-Repeating Block 00 - Starts with {00: and ends with }.** | | | | | | | | |
| Business Date | Date of message generation | 1001 | 8!n | Yes | 20180216 | Tag is mandatory | 1001001 | Mandatory tag <No.> not present |
| Should be as per the format YYYYMMDD | 1001002 | Format not as per specification |
| Date should be current date | 1001003 | record date must be current date |
| Date should not fall on a holiday | 1001004 | record date should not fall on a holiday |
| Bank Membership ID | CCIL membership id | 1002 | 12!c | Yes | CCBPUTIB0028 | Should be a valid membership id belong to current bank | 1002001 | Invalid membership id |
| Number of Records | The number of records present in the Repeating Block. It cannot be more than 100. | 1003 | 3n | Yes | 1 | Tag is mandatory | 1003001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1003002 | Format not as per specification |
| Number of records in this message exceeds the maximum allowed | 1003003 | Number of records cannot be more than 100. |
| Number of records should be equal to total records in the repeating block | 1003004 | Number of records should be equal to total records in the repeating block |
| Number of records should be greater than zero | 1003005 | Number of record should be greater than zero |
| **Repeating Block 01 - Starts with {01: and ends with }.** | | | | | | | | |
| Block Reference Number (BRN) | The BRN is a sequential number starting from 1 and is unique within the message | 1004 | 3n | Yes | 1 | Tag is mandatory | 1004001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1004002 | Format not as per specification |
| Should not exceed 100 | 1004003 | Number of blocks in a message cannot exceed 100. |
| Should be sequential, unique and incremented by 1 | 1004004 | BRN within a message must be sequential and unique |
| Should be greater than zero | 1004005 | Block reference number should be greater than zero |
| Trading Branch IFSC | Branch IFSC Code of which the customer has relationship. It can be of branch IFSC Code (11 chars) or SWIFT code(8 chars) | 1009 | 11c | Yes | UTIB0000109 | Tag is mandatory | 1009001 | Mandatory tag <No.> not present |
| Should be a valid branch IFSC/SWIFT code | 1009002 | Invalid branch |
| Format not as per specification. | 1009003 | Invalid format |
| PAN# | This field contains the PAN number of the customer | 1005 | 10!c | Yes | ADFOA4091A | Tag is mandatory | 1005001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1005002 | Format not as per specification |
| Invalid PAN | 1005003 | Invalid PAN |
| Invalid customer relationship | 1005004 | Invalid customer relationship |
| Trading Branch Name | Trading Branch Name | 1010 | 100x | No | TULSIANI CHMBRS - NARIMAN PT | Should be as per the format specified | 1010002 | Format not as per specification |
| Invalid value | 1010003 | Invalid Trading Branch Name |
| Customer ID | ID of the customer | 1026 | 50c | No | INPM85000001 | Should be as per the format specified | 1026002 | Format not as per specification |
| Invalid value | 1026003 | Invalid Customer ID |
| Mark-up Type | This field contains the mark-up type. The possible values can be either 01 or 02. Where 01 indicates Paise and 02 indicates Percentage. | 1038 | 2!c | Yes | 1 | Tag is mandatory | 1038001 | Mandatory tag <No.> not present |
| Should be one of the predefined mark-up type | 1038002 | Invalid mark-up type |
| Should be as per the format specified | 1038003 | Format not as per specification |
| Mark-up Value | This field contains the mark-up Value. If it is not specified, taken as null. | 1039 | 19d | No | 25 | Should be as per the format specified | 1039001 | Format not as per specification |
| If entered in Paise, . Maximum value is 999. |
| If entered in percentage, Maximum value is 100 | Should be a valid value within the maximum value | 1039002 | Invalid mark-up value |
| It cannot be in negative | Should not be in negative value. | 1039003 | Mark-up value cannot be in negative. |
| Tax On Mark-up (%) | This field contains the tax on mark-up. If it is not specified, taken as null. Maximum Value is 100 | 1040 | 19d | No | 18 | Should be as per the format specified | 1040001 | Format not as per specification |
| Should be a valid value within the maximum value | 1040002 | Invalid tax on mark-up |
| Should not be in negative value. | 1040003 | Tax on mark-up value cannot be in negative. |
| RO/ED Applicability | Indicates the markup applicability for rollover & early delivery. The values can be either 01 or 02.  01 - Both legs  02 - Only Rebooking leg | 1062 | 2!c | Yes | 01 | Tag is mandatory | 1062001 | Mandatory tag <No.> not present |
| Should be one of the predefined method | 1062002 | Invalid RO/ED applicability |
| Should be as per the format specified | 1062003 | Format not as per specification |
| Remarks | This field specifies the remarks of the input data. | 1025 | 256x | No | Invalid PAN | Should be as per the format specified | 1025002 | Format not as per specification |

### FX04-Swap Quotes

This message is to upload Swap quotes data into the FX Retail platform.

Please note that, the member banks can upload swap quotes only for the standard tenors as above. Banks cannot upload quotes for broken dates.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Field Description** | **Internal Tag** | **Format** | **Mandatory** | **Sample** | **Validation** | **Rejection Code** | **Rejection Reason** |
| **Non-Repeating Block 00 - Starts with {00: and ends with }.** | | | | | | | | |
| Business Date | Date of message generation | 1001 | 8!n | Yes | 20180216 | Tag is mandatory | 1001001 | Mandatory tag <No.> not present |
| Should be as per the format YYYYMMDD | 1001002 | Format not as per specification |
| Date should be current date | 1001003 | record date must be current date |
| Date should not fall on a holiday | 1001004 | record date should not fall on a holiday |
| Bank Membership ID | CCIL membership id | 1002 | 12!c | Yes | CCBPUTIB0028 | Should be a valid membership id belong to current bank | 1002001 | Invalid membership id |
| Number of Records | The number of records present in the Repeating Block. It cannot be more than 100. | 1003 | 3n | Yes | 1 | Tag is mandatory | 1003001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1003002 | Format not as per specification |
| Number of records in this message exceeds the maximum allowed | 1003003 | Number of records cannot be more than 100. |
| Number of records should be equal to total records in the repeating block | 1003004 | Number of records should be equal to total records in the repeating block |
| Number of records should be greater than zero | 1003005 | Number of record should be greater than zero |
| **Repeating Block 01 - Starts with {01: and ends with }.** | | | | | | | | |
| Block Reference Number (BRN) | The BRN is a sequential number starting from 1 and is unique within the message | 1004 | 3n | Yes | 1 | Tag is mandatory | 1004001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1004002 | Format not as per specification |
| Should not exceed 100 | 1004003 | Number of blocks in a message cannot exceed 100 |
| Should be sequential, unique and incremented by 1 | 1004004 | BRN within a message must be sequential and unique |
| Should be greater than zero | 1004005 | Block reference number should be greater than zero |
| Instrument | Instrument for which the swap quote is being updated.  For CASH, it should be **CASHSPOT**  For TOM, it should be **TOMSPOT**  For Forward instruments, it should be denoted with the Standard tenor short name like **BegAug20, MidAug20, EndAug20, etc.** | 1041 | 15!a | Yes | CASHSPOT | Tag is mandatory | 1041001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1041002 | Format not as per specification |
| Invalid value | 1041003 | Invalid instrument |
| Bid Spread | Bid spread. It can be of blank, 0, +ve , -ve values.  If it is 0, Orders are permitted with 0 spread.  To provide a blank value, this tag should be excluded in the message. | 1042 | 19d | No | 1.5 | Should be as per the format specified | 1042001 | Format not as per specification |
| Should be of valid tick size | 1042002 | Invalid tick size |
| Should not exceed maximum value | 1042003 | It should be between - 999.75 and +999.75 |
| Offer Spread | Offer spread. It can be of blank, 0, +ve , -ve values.  If it is 0, Orders are permitted with 0 spread.  To provide a blank value, this tag should be excluded in the message. | 1043 | 19d | No | 1.5 | Should be as per the format specified | 1043001 | Format not as per specification |
| Should be of valid tick size | 1043002 | Invalid tick size |
| Should not exceed maximum value | 1043003 | It should be between - 999.75 and +999.75 |
| Remarks | This field specifies the remarks of the input data. | 1025 | 256x | No | Invalid PAN | Should be as per the format specified | 1025002 | Format not as per specification |

### FX05-Trade Response

This is the real time trade response message received from FX Retail platform

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field Name** | **Field Description** | **Internal Tag** | **Format** | **Mandatory** | **Sample** |
| **Non-Repeating Block 00 - Starts with {00: and ends with }.** | | | | | |
| Business Date | Date of message generation | 1001 | 8!n | Yes | 20180216 |
|
|
|
| Bank Membership Id | CCIL membership id | 1002 | 12!c | Yes | CCBPUTIB0028 |
| FIX Trade Response Message | Trade Response message in FIX format with FIX header, body and trailer. | 1044 | 900x | Yes | 8=FIX.4.4 9=393 35=8 49=CCIL 56=TJSB 57=D000001 34=3 52=20220309-10:34:56.343 37=202203090000006 55=USD/INR 48=FRWD 22=8 880=202203090000002SC 11=0 17=0 150=F 39=1 54=2 40=2 44=70.0000 59=0 31=70.1000 32=1000.00 151=0 14=0 6=0.0000 38=0 60=20220309-10:34:54.286 15=USD 120=INR 63=4 64=31-Oct-2019 119=70100.00 20020=COM 20021=CUST 20022=danisha danish 20023=IN54PS000003 20024=APBL0000005R 797=Y 194=69.7750 195=0.2250 12=0.100 20031=- 20032=- 193=01-Oct-2019 10=064 |

### FX06-Process Status

Validation and process status of message sent from FX Retail platform to BIS.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Field Description** | **Internal Tag** | **Format** | **Mandatory** | **Sample** | **Validation** | **Rejection Code** | **Rejection Reason** |
| **Non-Repeating Block 00 - Starts with {00: and ends with }.** | | | | | | | | |
| Business Date | Date of message generation | 1001 | 8!n | Yes | 20180216 | Tag is mandatory | 1001001 | Mandatory tag <No.> not present |
| Should be as per the format YYYYMMDD | 1001002 | Format not as per specification |
| Date should be current date | 1001003 | record date must be current date |
| Date should not fall on a holiday | 1001004 | record date should not fall on a holiday |
| Bank Membership ID | CCIL membership id | 1002 | 12!c | Yes | CCBPUTIB0028 | Should be a valid membership id belong to current bank | 1002001 | Invalid membership id |
| Rejection Level | Level of rejection (M - Message level, B - Block level). If "M", CBS should understand that the whole message is rejected. If "B", CBS should understand that one or more record in repeating block is rejected, whereas others records are processed successfully. | 1045 | 1!a | Yes | B | Tag is mandatory | 1045001 | Mandatory tag <No.> not present |
| Invalid value | 1045002 | Invalid rejection level |
| Number of Records | The number of records present in the Repeating Block. It cannot be more than 100. | 1003 | 3n | Yes | 1 | Tag is mandatory | 1003001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1003002 | Format not as per specification |
| Number of records in this message exceeds the maximum allowed | 1003003 | Number of records cannot be more than 100. |
| Number of records should be equal to total records in the repeating block | 1003004 | Number of records should be equal to total records in the repeating block |
| Number of records should be greater than zero | 1003005 | Number of record should be greater than zero |
| **Repeating Block 01 - Starts with {01: and ends with }.** | | | | | | | | |
| Block Reference Number (BRN) | The BRN is a sequential number starting from 1 and is unique within the message | 1004 | 3n | Yes | 1 | Tag is mandatory | 1004001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1004002 | Format not as per specification |
| Should not exceed 100 | 1004003 | Number of blocks in a message cannot exceed 100. |
| Should be sequential, unique and incremented by 1 | 1004004 | BRN within a message must be sequential and unique |
| Should be greater than zero | 1004005 | Block reference number should be greater than zero |
| MRN of Source Message | MRN of the message that is being notified | 1046 | 24!c | Yes | CCBPUTIB0028190708000001 | Tag is mandatory | 1046001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1046002 | Format not as per specification |
| Should match with the source message MRN | 1046003 | No such transaction. Invalid source MRN |
| BRN of Source Message | The block reference number of record sent | 1047 | 5n | Yes | 1 | Tag is mandatory | 1047001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1047002 | Format not as per specification |
| Is Success | Status of record processing. Y - success, N - failure | 1048 | 1a | Yes | N | Tag is mandatory | 1048001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1048002 | Format not as per specification |
| Rejection Code | Rejection Code | 1049 | 7!n | No | 1041003 | Should be as per the format specified | 1049001 | Format not as per specification |
| Reason Code should be valid Delivery Failure Rejection Codes | 1049002 | Must be a valid rejection code |
| Rejection Reason | This field contains the rejection reason | 1050 | 200x | No | Invalid instrument pair | Should be as per the format specified | 1050001 | Format not as per specification |
| Specified reason should match with the rejection code | 1050002 | Invalid rejected reason |

### FX07-Trade Reconciliation

Total no. of trades executed for the day received from FX Retail platform. This message is pushed automatically from PI to BIS on receipt of Retail Spot session close.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field Name** | **Field Description** | **Internal Tag** | **Format** | **Mandatory** | **Sample** |
| **Non-Repeating Block 00 - Starts with {00: and ends with}.** | | | | | |
| Business Date | Date of message generation | 1001 | 8!n | Yes | 20180216 |
| Bank Membership ID | CCIL membership id | 1002 | 12!c | Yes | CCBPUTIB0028 |
| Trade Date | Current Business Date when trades are executed. | 1051 | 8!n | Yes | 20180216 |
| FIX Total Trade Count Message | Trade Reconciliation details in FIX format with FIX header, body and trailer. | 1052 | 200x | Yes | 8=FIX.4 49=90 35=DR 34=28 49=CCIL 52=20180420-05:01:00.278 56=KVMD 75=20180420 20030=13 10=086 |

### AD01-Acknowledgement

This is an acknowledge message for each business message.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Field Description** | **Internal Tag** | **Format** | **Mandatory** | **Sample** | **Validation** | **Rejection Code** | **Rejection Reason** |
| **Non-Repeating Block 00 - Starts with {00: and ends with}.** | | | | | | | | |
| Business Date | Date of message generation | 1001 | 8!n | Yes | 20180216 | Tag is mandatory | 1001001 | Mandatory tag <No.> not present |
| Should be as per the format YYYYMMDD | 1001002 | Format not as per specification |
| Date should be current date | 1001003 | record date must be current date |
| Date should not fall on a holiday | 1001004 | record date should not fall on a holiday |
| Bank Membership ID | CCIL membership id | 1002 | 12!c | Yes | CCBPUTIB0028 | Should be a valid membership id belong to current bank | 1002001 | Invalid membership id |
| MRN of Source Message | MRN of the message that is being notified | 1046 | 25!c | Yes | CCBPUTIB0028B190708000001 | Tag is mandatory | 1046001 | Mandatory tag <No.> not present |
| Should be as per the format specified | 1046002 | Format not as per specification |
| Should match with the source message MRN | 1046003 | No such transaction. Invalid source MRN |

### AD02-Resend Messages After Timestamp

This is a query message which can be used to fetch the list of business messages got processed after a specified time. On receipt of this message from BIS, PI will send all the processed messages (Process status & Trade Response) after the requested timestamp.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Field Description** | **Internal Tag** | **Format** | **Mandatory** | **Sample** | **Validation** | **Rejection Code** | **Rejection Reason** |
| **Non-Repeating Block 00 - Starts with {00: and ends with }.** | | | | | | | | |
| Business Date | Date of message generation | 1001 | 8!n | Yes | 20180216 | Tag is mandatory | 1001001 | Mandatory tag <No.> not present |
| Should be as per the format YYYYMMDD | 1001002 | Format not as per specification |
| Date should be current date | 1001003 | record date must be current date |
| Date should not fall on a holiday | 1001004 | record date should not fall on a holiday |
| Bank Membership ID | CCIL membership id | 1002 | 12!c | Yes | CCBPUTIB0028 | Should be a valid membership id belong to current bank | 1002001 | Invalid membership id |
| Time Stamp | The timestamp from which all the messages has to be sent | 1053 | 14!n | Yes | 20180216151030 | Tag is mandatory | 1053001 | Mandatory tag <No.> not present |
| Should be a valid time stamp | 1053002 | Invalid Timestamp |

## Generate Sample Messages

The embedded excel helps to generate the sample messages for both business and administrative messages as described above.



## Rejections

### Rejections by PI

Messages received by FX Retail platform via PI are validated at 2 levels.

* First level, the format and structure of message will be validated in PI itself. In this level, the full message itself gets rejected, even though one record is invalid.
* Second level, all the functional\business validations are done in the service running at CCIL premises. Here, the records which are successfully validated will be processed and the erroneous records alone will be rejected.
* In both the rejections the Process Status message will be sent back to HUB from PI.
* In Process Status message,
  + The rejection level field indicates the level of rejection (M - Message level, B - Block level). "M “indicates the whole message got rejected. "B" indicates that one or more record in the repeating block is rejected.
  + The field rejection codes a 7-characteralphanumeric code that describes the error.
    1. The first 4 character of the rejection code indicates the message tag identifier followed by 3-character error code. The tag values of the message fields ranges from 1000 to ZZZZ.
    2. There are other error codes that ranges from 0020 to 00ZZ which indicates the error specific to header/body/whole message. For details, refer the Message structure section.
* On receipt of process status message by HUB, it will send the message to BIS which can identify the error, rectify and POST the new message back to HUB with new message reference number (MRN) which will be routed to PI. Same MRN cannot be re-used.

### Rejections by HUB

Messages received by HUB from various BIS systems are validated at 2 levels.

* First level, the format and structure of message will be validated in HUB itself. In this level, the full message itself gets rejected, even though one record is invalid.
* Second level, Duplicate MRN number check and identification of whether the message type is sent from configured application.
* In both the rejections the Process Status message will be sent back to BIS from HUB.

# Initial Setup

While setting up the BIS for the first time, the following are required to be done

1. Setup all lookup data (Channel Types, Message codes, Instrument code, etc.). Refer the Message structure excel sheet for the list of lookup data.
2. Setup error codes (Refer Message structure excel sheet for possible error codes and description).

**Note:**

The PI, Hub and the BIS should be in the same network for the message to be exchanged. In case if the BIS and Hub are in different network and has to be connected via Internet, the Hub has to be publicly hosted.

# Infra Requirements

## Hardware & software

| S.No. | Server Type | No. of Servers | Configuration |
| --- | --- | --- | --- |
| Data Centre | | | |
| 1 | Participant Interface Client | 1 | Hardware Configuration  Quad core Xeon 2.66 GHz or higher  8 GB RAM or higher  300 GB HDD or higher  Software Configuration  Windows Server 2012 R2 Standard Edition or higher  JRE 8 update 211 or higher  Apache Server 2.4.39 or higher |
| 2 | HUB | 1(Same or different server that of PI) | Hardware Configuration  Quad core Xeon 2.66 GHz or higher  8 GB RAM or higher  300 GB HDD or higher  Software Configuration  Windows Server 2012 R2 Standard Edition or higher  JRE 8 update 211 or higher  Apache Server 2.4.39 or higher |
| 3 | Internet Bandwidth |  | 2 to 8 mbps dedicated internet bandwidth. Based on load (larger or smaller participants) this might vary. |

**Note**:

1. Both the PI and Hub can be hosted in the same server with http connection.

2. High availability (HA) setup can be done for the PI implementation at the member’s end wherein, the message logs are to be stored at the shared file system. In such cases, **two servers** shall be used, primary and secondary.