



INDIA INTERNATIONAL BULLION
EXCHANGE IFSC LTD

Application Programming Interface *for* **Central Trading System**

Market Segment - Commodity Futures

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Release Notes

1. New Heartbeat Message on Interactive (TCP) Channel
 - a. Message Type Id: HEARTBEAT

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1. Glossary

Sr#	Term	Description
1	TPS	Third Party Software e.g. CTCL Solution / Algo Solution
2	CTS	Central Trading System
3	IEC	IIBX Exchange Connector. A CTS component which TPS would connect to over TCP & UDP/Multicast channel.

2. Introduction

This document describes the API specifications for communicating with IIBX Exchange Connector. API specifications are based on the proprietary protocol and cover transaction handling & market data broadcast only. IIBX Exchange Connector currently provides for translation of proprietary messages only and does not provide the complete functionality provided by a Central Trading System.

The exchange requires that the vendor/exchange's member undergo a conformance test upon completing development of the interface. The vendor/exchange's member must contact the exchange to schedule an appropriate period for testing.

The vendor/exchange's member may contact the Information Technology Division of the exchange to seek clarification at:

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4. Type of Communication between TPS & CTS

There are typically two types of communication that would take place between TPS & CTS. Please find them below:

- **Interactive Messages**

Communication is initiated by TPS by sending the message and in fulfillment to that, CTS would send response message(s). Communication of these messages would take place over the TCP Connection.

Example: Add Order, Modify Order, Download Pending Orders etc.

- **Notification Messages**

No communication is originated by TPS. CTS would send notification message on occurrence of respective events in the system.

- Unicast Message

These messages are sent to specific dealers only (not the entire market). These messages are sent over the TCP connection.

Example: Trade Notification, Stoploss Order Conversion etc.

- Broadcast Message

These messages are sent to the entire market. These messages are disseminated over UDP/Multicast channel.

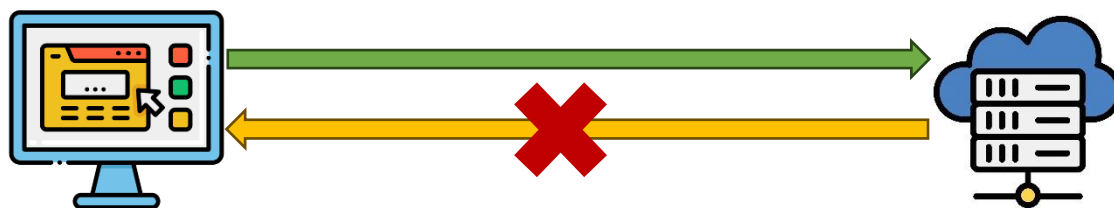
Example: Market Picture Broadcast, Trade, Market Session Change etc.

Note:

Any message - TPS to CTS or CTS to TPS - must contain first two bytes as Message Length. The message length in these two bytes will be binary encoded in little endian format. This is not applicable to **IEC Lookup Service Response Message** and the **FIRST MESSAGE**.

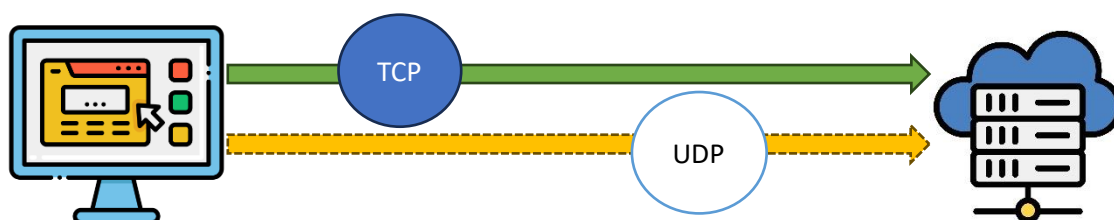
5. Sequence of Operations

Step 1: IEC Lookup



TPS initiates the IEC Lookup activity. TPS sends open TCP Client Socket request at IEC Lookup Service. IEC Lookup Service checks the validity of the TPS IP Address and responds accordingly over the same TCP socket connection. After the response is sent, the TCP Socket is immediately closed. If the request passes through successfully, the response will contain IP Address & Port details for both TCP & UDP/Multicast Group and Exchange published encryption key segment. TPS shall use the same for making connection to IEC.

Step 2: Establish Connections with IEC Host



TPS shall open two connections with the IEC:

- TCP: for Interactive and Unicast Notification Messages
- UDP/Multicast: for Market Data & Other Information Broadcast Notification Messages

Step 3: Logon to CTS



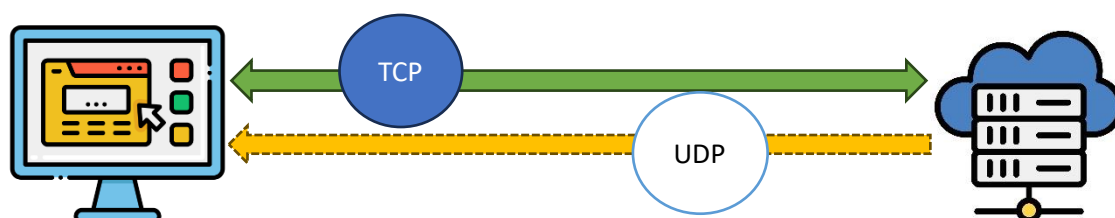
TPS shall initiate the Logon operation by sending the Login Message Packet to IEC over the TCP channel.

Step 4: Execute Download Queries



Execute various download queries.

Step 5: Continuous Session for Trading Activities



TPS user can now continue trading activities like Order Placement, Order Modify etc. TPS will keep receiving notification from the CTS.

IEC Lookup Service Response Message Structure

IEC Lookup service response message is a binary array bearing the following structure. Please note that Integer values are in Little Endian byte order.

Sr#	Field Name	Type & Max Len	Start Index	Description
1	Message Type	Integer	0	Value: 1
2	Message Tag	Integer	4	Message Sequence No
3	Response Code	Integer	8	0 – Success > 0 - Failure
4	Response Details	Text (100)	12	
5	IEC Service IP	Text (15)	112	- TCP Connection For Interactive and Unicast Notification Messaging - Multicast Connection For Broadcast Notification Messaging
6	IEC Service Port	Integer	127	
7	Multicast Group IP	Text (15)	131	
8	Multicast Port	Integer	146	
9	Encryption Segment	Key Text (8)	151	Use this to generate AES Key for encryption and decryption of messages

*Values in Filed #5 to Filed #9 will be populated only in case when Response Code = 0

IEC Lookup Service Response List

Response Code	Response Text	Description
0	IEC Lookup Successful	
1	Reject: Dealer is not active	
2	Reject: Invalid IP Address	Originating IP Address (of TPS Machine) is not registered in the CTS
3	Reject: Couldn't locate IEC Machine	No Machine matching the IEC Lookup Request found
4	Reject: Couldn't locate IEC Instance	No related IEC instance found for the requesting IP Address

TCP connection with IEC- Response Message Structure

On opening the TCP connection from TPS with the designated IEC (received IP Address & Port during IEC Lookup activity), IEC would send the Connection Response Message to TPS. This should be considered as the FIRST MESSAGE. The FIRST MESSAGE is in text format and the structure of the same is as described below:

IEC Connection Response					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	Value in the Request Message will be echoed here
2	API Version No	Text (10)	1.0.4	Compulsory	
3	Message Type	Text (30)	CONN_REQ_STATUS	Compulsory	
4	Response Code	Integer		Compulsory	0 - Success > 0 - Failure
5	Response Details	Text (100)		Compulsory	

IEC Response List

Response Code	Response Text	Description
0	IEC Connection Successful	
1	Connection Failed. Invalid Originating IP Address	
2	Connection Failed. Invalid Key	
3	Connection Failed. Unknown Issue (Remove)	
4	Connection Failed. Unknown Issue (Add)	
5	Terminal Type is not a CTCL Terminal	

6. List of Messages

[Interactive Messages]

Sr#	Message Id	Description
1	LOGON	Logon request to IEC
2	LOGOFF	Logoff request to IEC
3	CHANGEPASS	Change Password
4	ORDER_ADD	Add Order Request
5	ORDER_MOD	Modify Order Request
6	ORDER_DEL	Delete Order Request
7	DL_PRODUCT	Download Product List
8	DL_CONTRACT	Download Contract List
9	DL_PENDING_ORDERS	Download Pending Orders (Limit & Stoploss Converted)
10	DL_TRADE_BOOK	Download Trades
11	DL_PENDING_SL_ORDERS	Download Stoploss Orders (Yet to Trigger)
12	DL_RETURN_ORDERS	Download Returned Orders
13	DL_RETURN_SL_ORDERS	Download Returned Stoploss Orders
14	DL_MARKET_SUMMARY	Download Market Summary
15	DL_CLIENTWISE_MARGIN_MTM	Download Client-wise Margin & MTM
16	DL_CLIENTWISE_OPEN_POSITION	Download Client-wise Open Position
17	DL_MARKET_PICT	Download Market Picture

[Unicast Notification Messages]

Sr#	Message Id	Description
1	N_TRADE_EXECUTED	On execution of Trade
2	N_STOPLOSS_CONVERTED	On Stoploss Order Trigger
3	N_LIMIT_VIOLATION	On Limit Violation
4	N_KILL_ORDER	On IOC Order Kill
5	N_ORDRET_STPC	Order Return – Due to Self-Match Trade Prevention
6	N_MEMBER_ACTION	On Member put under suspension/square off mode
7	N_CLIENT_ACTION	On Client put under suspension/square off mode

[Broadcast Notification Messages]

Sr#	Message Id	Description
1	BC_TRADE	On Execution of Trade
2	BC_CONTRACT_DPR_HIT	On DPR Hit
3	BC_CONTRACT_DPR_RELAXED	On DPR relaxation
4	BC_SESSION_CHANGE	On change in Market Session
5	BC_MARKET_PICTURE	On change in Order Book
6	BC_TIME	CTS Time Dissemination
7	BC_CONTRACT_ACTION	On Contract Action
8	BC_MKTRESM_ORDRET	Orders returned on Market Resume

7. Interactive Messages

Message Header

Request Message Header					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version No	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	{Request Type}	Compulsory	e.g. LOGON
4	Message Echo	Integer	Numeric Sequence of the Message	Compulsory	
5	Clearing Member Code	Text (10)		Compulsory	Optional in case of Logon Message
6	Trading Member Code	Text (10)		Compulsory	
7	Dealer Code	Text (10)		Compulsory	
8	CTCL Terminal Id	Text (20)		Optional	Required only in case of Order Messages
Response Message Header					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	Value in the Request Message will be echoed here
2	API Version No	Text (10)	1.0.4	Compulsory	
3	Message Type	Text (30)	{Response Type}	Compulsory	e.g. LOGON_R
4	Message Echo	Integer		Compulsory	Value in the Request Message will be echoed here
5	Clearing Member Code	Text (10)			
6	Trading Member Code	Text (10)		Compulsory	
7	Dealer Code	Text (10)		Compulsory	
8	CTCL Terminal Id	Text (20)		Compulsory	

9	Response Code	Integer		Compulsory	0 - Success > 0 - Failure
10	Response Details	Text (100)		Compulsory	

Heartbeat Message

Request (Message Type: HEARTBEAT)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: HEARTBEAT_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				

Logon Message

Request (Message Type: LOGON)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				
9	Password	Text (15)		Compulsory	

Response (Message Type: LOGON_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
11	Current Mkt Session	Text (20)		Compulsory	Current Market Session
12	Clearing Member Code	Text (10)		Compulsory	
13	Server Time	Text (10)	Time Format (HH:MM:SS)	Compulsory	Current Time of the Trading System Server
14	Exchange Name	Text (50)		Compulsory	
15	Dealer Type	Text (20)	Values: CTCL_TERM CTCL_CLNT_TERM	Compulsory	Values: CTCL_TERM = Normal CTCL Terminal CTCL_CLNT_TERM = Client Specific CTCL Terminal
16	Client Code	Text (25)		Optional	Only when Dealer Type = CTCL_CLNT_TERM

Logoff Message

Request (Message Type: LOGOFF)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				
9	Password	Text (15)		Compulsory	

Response (Message Type: LOGOFF_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				

Change Password Message

Request (Message Type: CHANGEPASS)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				
9	Old Password	Text (15)		Compulsory	
10	New Password	Text (15)		Compulsory	

Response (Message Type: CHANGEPASS_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				

Add Order Message

Request (Message Type: ORDER_ADD)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				
9	Contract Symbol	Text (20)		Compulsory	
10	Order Qty	Integer		Compulsory	
11	Order Price	Decimal		Compulsory	Must be 0 in case of Market Order
12	Trigger Price	Decimal		Compulsory	> 0 Only in case of Stoploss Order. Otherwise pass 0
13	Client Code	Text (25)		Compulsory	
14	Client Type	Text (1)		Compulsory	O = Own/Proprietary, N = Normal

15	Order Type	Text (1)		Compulsory	L = Limit, S = Stoploss, M= Market
16	Order Retention	Text (3)		Compulsory	GFD, GTC, GTD, IOC Only IOC is allowed in case of Market Order
17	Order Days	Integer		Compulsory	> 1 in case of GTD Order
18	Buy/Sell	Text (1)		Compulsory	B = Buy, S = Sell
19	Algo Id	Text (20)			- Compulsory for Algo Terminals - Unique Algo Id provided by the Exchange

Response (Message Type: ORDER_ADD_R)

Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
11	Contract Symbol	Text(20)		Compulsory	
12	Order Id	Text(25)		Compulsory	
13	Order Time	Text(8)		Compulsory	Time format : HH24:MM:SS
14	Order Qty	Integer		Compulsory	

Modify Order Message

Request (Message Type: ORDER_MOD)

Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				
9	Contract Symbol	Text (20)		Compulsory	
10	Order Qty	Integer		Compulsory	Difference from Original Order Qty e.g. If Original order Qty is 5 and wants to modify the quantity to 3, -2 shall be passed here.
11	Order Price	Decimal		Compulsory	Must be 0 in case of Market Order
12	Trigger Price	Decimal		Compulsory	> 0 Only in case of Stoploss Order. Otherwise pass 0
13	Order Id	Text (25)		Compulsory	
14	Client Code	Text (25)		Compulsory	
15	Client Type	Text (1)		Compulsory	O = Own/Proprietary, N = Normal
16	Order Type	Text (1)		Compulsory	L = Limit, S = Stoploss

17	Order Retention	Text (3)		Compulsory	GFD, GTC, GTD
18	Order Days	Integer		Compulsory	> 1 in case of GTD Order
19	Buy/Sell	Text (1)		Compulsory	B = Buy, S = Sell

Response (Message Type: ORDER_MOD_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
11	Contract Symbol	Text (20)		Compulsory	
12	Order Id	Text (25)		Compulsory	
13	Order Time	Text (8)		Compulsory	Time format : HH24:MM:SS
14	Pending Order Qty	Integer		Compulsory	
15	New Order Qty	Integer		Compulsory	
16	New Order Price	Number (18,4)		Compulsory	

Delete Order Message

Request (Message Type: ORDER_DEL)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				
9	Contract Symbol	Text (20)		Compulsory	
10	Order Id	Text (25)		Compulsory	
11	Order Type	Text (1)		Compulsory	L = Limit, S = Stoploss
12	Buy/Sell	Text (1)		Compulsory	B = Buy, S = Sell

Response (Message Type: ORDER_DEL_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
11	Contract Symbol	Text (20)		Compulsory	
12	Order Id	Text (25)		Compulsory	
13	Affected Qty	Integer		Compulsory	

Download Product Message

Request (Message Type: DL_PRODUCT)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: DL_PRODUCT_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
	REPEAT STRUCTURE				
1	Completion Flag	Char (1)		Compulsory	Y = Service to Request Completed
2	Product Symbol	Text (20)		Compulsory	
3	Underlying Asset Symbol	Text (20)		Compulsory	
4	Multiplier	Decimal		Compulsory	
5	Settlement Type	Text (1)		Compulsory	D = Delivery Settled, C = Cash Settled

Download Contract Message

Request (Message Type: DL_CONTRACT)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: DL_CONTRACT_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
	REPEAT STRUCTURE				
1	Completion Flag	Char (1)		Compulsory	Y = Service to Request Completed
2	Product Symbol	Text (20)		Compulsory	
3	Contract Symbol	Text (20)		Compulsory	
4	Contract Name	Text (100)		Compulsory	
5	Multiplier	Decimal		Compulsory	
6	Start Date	Text (10)		Compulsory	Date format DD/MM/YYYY

7	Expiry Date	Text (10)		Compulsory	Date format DD/MM/YYYY
8	Base Price	Decimal		Compulsory	
9	Tick Size	Integer		Compulsory	
10	Fractional Part Length	Integer		Compulsory	Number of digits after decimal point in Price
11	DPR High	Decimal	Percentage	Compulsory	
12	DPR Low	Decimal	Percentage	Compulsory	
13	SOL Qty	Integer		Compulsory	Max. Single Order Qty

Download Pending Order Message

Request (Message Type: DL_PENDING_ORDERS)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: DL_PENDING_ORDERS_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
	REPEAT STRUCTURE				
1	Completion Flag	Char (1)		Compulsory	Y = Service to Request Completed
2	Contract Symbol	Text (20)		Compulsory	
3	Original Order Quantity	Integer		Compulsory	
4	Pending Order Quantity	Integer		Compulsory	
5	Order Price	Decimal		Compulsory	
6	Buy/Sell	Text (1)		Compulsory	B=Buy, S= Sell
7	Order Type	Text (3)		Compulsory	L = Limit, M= Market
8	Order Id	Text (25)		Compulsory	
9	Order Timestamp	Text (20)		Compulsory	DD/MM/YYYY HH24:MM:SS
10	Order Retention	Text (3)		Compulsory	GFD, GTC, GTD, IOC
11	Order Retention Days	Integer		Compulsory	
12	Client Code	Text (25)		Compulsory	

13	Client Type	Text (1)		Compulsory	O = Own/Proprietary, N = Normal
14	CTCL Terminal Id	Text (20)		Optional	Only in case of Order through CTCL Terminal

Download Stoploss Order Message

Request (Message Type: DL_PENDING_SL_ORDERS)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: DL_PENDING_SL_ORDERS_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
	REPEAT STRUCTURE				
1	Completion Flag	Char (1)		Compulsory	Y = Service to Request Completed
2	Contract Symbol	Text (20)		Compulsory	
3	Original Order Quantity	Integer		Compulsory	
4	Pending Order Quantity	Integer		Compulsory	
5	Order Price	Decimal		Compulsory	
6	Trigger Price	Decimal		Compulsory	
7	Buy/Sell	Text (1)		Compulsory	B=Buy, S= Sell
8	Order Type	Text (3)		Compulsory	S = Stoploss
9	Order Id	Text (25)		Compulsory	
10	Order Timestamp	Text (20)		Compulsory	DD/MM/YYYY HH24:MM:SS
11	Order Retention	Text (3)		Compulsory	GFD, GTC, GTD, IOC
12	Order Retention Days	Integer		Compulsory	
13	Client Code	Text (25)		Compulsory	
14	Client Type	Text (1)		Compulsory	
15	CTCL Terminal Id	Text (20)		Optional	Only in case of Order through CTCL Terminal

Download Trade Message

Request (Message Type: DL_TRADE_BOOK)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: DL_TRADE_BOOK_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
	REPEAT STRUCTURE				
1	Completion Flag	Char (1)		Compulsory	Y = Service to Request Completed
2	Contract Symbol	Text (20)		Compulsory	
3	Trade Id	Text (25)		Compulsory	
4	Trade Time	Text (10)		Compulsory	HH24:MM:SS
5	Quantity	Integer		Compulsory	
6	Price	Decimal		Compulsory	
7	Order Id	Text (25)		Compulsory	
8	Order Timestamp	Text (20)		Compulsory	DD/MM/YYYY HH24:MM:SS
9	Client Code	Text (25)		Compulsory	
10	Client Type	Text (1)		Compulsory	O = Own/Proprietary, N = Normal
11	Buy/Sell	Text (1)		Compulsory	B=Buy, S= Sell

Download Returned Orders Message

Request (Message Type: DL_RETURN_ORDERS)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: DL_RETURN_ORDERS_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
	REPEAT STRUCTURE				
1	Completion Flag	Char (1)		Compulsory	Y = Service to Request Completed
2	Contract Symbol	Text(20)		Compulsory	
3	Original Order Quantity	Integer		Compulsory	
4	Pending Order Quantity	Integer		Compulsory	
5	Order Price	Decimal		Compulsory	
6	Buy/Sell	Text(1)		Compulsory	B=Buy, S= Sell
7	Order Type	Text(3)		Compulsory	L = Limit, S = Stoploss, M= Market
8	Order Id	Text(25)		Compulsory	
9	Order Timestamp	Text(20)		Compulsory	DD/MM/YYYY HH24:MM:SS
10	Order Retention	Text(3)		Compulsory	GFD, GTC, GTD, IOC
11	Client Code	Text(25)		Compulsory	
12	Client Type	Text(1)		Compulsory	
13	Reason	Text(50)		Compulsory	
14	CTCL Terminal Id	Text(20)		Optional	Only in case of Order through CTCL Terminal

Download Returned Stoploss Order Message

Request (Message Type: DL_RETURN_SL_ORDERS)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: DL_RETURN_SL_ORDERS_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
	REPEAT STRUCTURE				
1	Completion Flag	Char (1)		Compulsory	Y = Service to Request Completed
2	Contract Symbol	Text(20)		Compulsory	
3	Original Order Quantity	Integer		Compulsory	
4	Pending Order Quantity	Integer		Compulsory	
5	Order Price	Number(18,4)		Compulsory	
6	Buy/Sell	Text(1)		Compulsory	B=Buy, S= Sell
7	Order Type	Text(1)		Compulsory	
8	Order Id	Text(25)		Compulsory	
9	Order Timestamp	Text(20)		Compulsory	DD/MM/YYYY HH24:MM:SS
10	Order Retention	Text(3)		Compulsory	
11	Client Code	Text(25)		Compulsory	
12	Client Type	Text(1)		Compulsory	
13	Reason	Text(50)		Compulsory	
14	CTCL Terminal Id	Text(20)		Optional	Only in case of Order through CTCL Terminal

Download Market Summary Message

Request (Message Type: DL_MARKET_SUMMARY)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: DL_MARKET_SUMMARY_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
	REPEAT STRUCTURE				
1	Completion Flag	Char (1)		Compulsory	Y = Service to Request Completed
2	Contract Symbol	Text(20)		Compulsory	
3	Total Quantity	Integer		Compulsory	
4	Total Value	Decimal		Compulsory	
5	Open Interest	Integer		Compulsory	
6	Previous Open Interest	Integer		Compulsory	
7	Total Trades	Integer		Compulsory	
8	Previous Close Price	Decimal		Compulsory	
9	Day High Price	Decimal		Compulsory	
10	Day Low Price	Decimal		Compulsory	
11	Close Price	Decimal		Compulsory	

Download Client-wise Margin/MTM Message

Request (Message Type: DL_CLIENTWISE_MARGIN_MTM)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: DL_CLIENTWISE_MARGIN_MTM_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
	REPEAT STRUCTURE				
1	Completion Flag	Char (1)		Compulsory	Y = Service to Request Completed
2	Client Code	Text (25)		Compulsory	
3	Client Type	Text (1)		Compulsory	
4	Contract Symbol	Text (20)		Compulsory	
5	Close Price	Decimal		Compulsory	
6	Open Position	Integer		Compulsory	
7	Open Position Value	Decimal		Compulsory	
8	Total Margin	Decimal		Compulsory	
9	IM Amount	Decimal		Compulsory	
10	EL Amount	Decimal		Compulsory	
11	AM Amount	Decimal		Compulsory	
12	SM Amount	Decimal		Compulsory	
13	DM Amount	Decimal		Compulsory	
14	CM Amount	Decimal		Compulsory	
15	OM Amount	Decimal		Compulsory	
16	Notional MTM	Decimal		Compulsory	
17	Crystallized MTM	Decimal		Compulsory	
18	Total MTM	Decimal		Compulsory	

Download Client-wise Open Position Message

Request (Message Type: DL_CLIENTWISE_OPEN_POSITION)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: DL_CLIENTWISE_OPEN_POSITION_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
	REPEAT STRUCTURE				
1	Completion Flag	Char (1)		Compulsory	Y = Service to Request Completed
2	Contract Symbol	Text (20)		Compulsory	
3	Total Buy Qty	Integer		Compulsory	
4	Today's Buy Qty	Integer		Compulsory	
5	Total Sell Qty	Integer		Compulsory	
6	Today's Sell Qty	Integer		Compulsory	
7	Client Code	Text (25)		Compulsory	
8	Client Type	Text (1)		Compulsory	

Download Market Picture (with BBO) Message

Request (Message Type: DL_MARKET_PICT)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..8	Request Message Header				

Response (Message Type: DL_MARKET_PICT_R)					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1..10	Response Message Header				
	REPEAT STRUCTURE				
1	Completion Flag	Char (1)		Compulsory	Y = Service to Request Completed
2	Contract Symbol	Text (20)		Compulsory	

3	Last Trade Price	Decimal		Compulsory	
4	Last Trade Qty	Integer		Compulsory	
5	Day High Price	Decimal		Compulsory	
6	Day Low Price	Decimal		Compulsory	
7	Open Price	Decimal		Compulsory	
8	Close Price	Decimal		Compulsory	
9	Base Price	Decimal		Compulsory	
10	Total Trades	Integer		Compulsory	
11	Total Value	Decimal		Compulsory	
12	Prev. Open Interest	Integer		Compulsory	
13	Open Interest	Integer		Compulsory	
14	Best Bid	Decimal		Compulsory	
15	Best Bid Qty	Integer		Compulsory	
16	Total Bids	Integer		Compulsory	
17	Buy Depth	Integer		Compulsory	
18	Buy Average Price	Decimal		Compulsory	
19	Bid Stream	Text	2199.87,2198.00, 2190.65	Compulsory	Comma Separated Bids
20	Bid Qty Stream	Text	5,8,1	Compulsory	Comma Separated Bid Qty
21	Best Offer	Decimal		Compulsory	
22	Best Offer Qty	Integer		Compulsory	
23	Total Offers	Integer		Compulsory	
24	Sell Depth	Integer		Compulsory	
25	Sell Average Price	Decimal		Compulsory	
26	Offer Stream	Text	2201.90,2202.00,2203.50,2203.70	Compulsory	Comma Separated Offers
27	Offer Qty Stream	Text	9,8,3,8	Compulsory	Comma Separated Offer Qty

8. Unicast Notification Messages

Trade Notification Message

Trade Notification Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	N_TRADE_EXECUTED	Compulsory	
4	Contract Symbol	Text (20)		Compulsory	
5	Buy/Sell	Text (1)		Compulsory	B=Buy, S= Sell
6	Order Id	Text (25)		Compulsory	
7	Trade Id	Text (25)		Compulsory	
8	Trade Time	Text (10)		Compulsory	HH24:MM:SS
9	Quantity	Integer		Compulsory	
10	Price	Decimal		Compulsory	

Stoploss Order Converted Notification Message

Stoploss Order Converted Notification Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	N_STOPLOSS_CONVERTED	Compulsory	
4	Contract Symbol	Text (20)		Compulsory	
5	Order Id	Text (25)		Compulsory	
6	Price	Decimal		Compulsory	
7	Status	Text (1)		Compulsory	Y = Converted successfully, N = Rejected.
8	Reason for Rejection	Text (100)		Compulsory	

Limit Violation Notification Message

Limit Violation Notification Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	N_LIMIT_VIOLATION	Compulsory	
4	Limit Violation Level	Integer	1,2,3,4	Compulsory	1 = CM entered RRM 2 = CM entered LVM 3 = TM entered RRM 4 = TM entered LVM
5	Order Returned Flag	Text (1)		Compulsory	Y = All Orders Returned, N = Orders not returned
6	Violation Description	Text (150)		Compulsory	

IOC Order Kill Notification Message

IOC Order Kill Notification Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	N_KILL_ORDER	Compulsory	
4	Contract Symbol	Text (20)		Compulsory	
5	Killed Order Qty	Integer		Compulsory	
6	Order Id	Text (25)		Compulsory	
7	Order Type	Text (1)			L=Limit, M=Market

Order Returned due to Self-match Trade Prevention Notification Message

Order Returned due to Self-match Trade Prevention Notification Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	N_ORDRET_STPC	Compulsory	
4	Contract Symbol	Text (20)		Compulsory	
5	Order Id	Text (25)		Compulsory	
6	Order Qty	Integer		Compulsory	
7	Returned Qty	Integer		Compulsory	

Member Action Notification Message

- a. It will be notified on following three actions on member
 - i. Member Suspended
 - ii. Member put under Square off mode
 - iii. Subsequent revocation of Member to Active Status
- b. When any member is suspended or put under square off mode by the Exchange, the Trading system returns all the pending orders (Limit & Stoploss) for the member under action. Hence, on receipt of this message, TPS shall also mark all the pending orders (for the member under action) as returned.

Member Action Notification Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	N_MEMBER_ACTION	Compulsory	
4	Action	Text (1)		Compulsory	1=Revoked/Active 2=Suspended 3=Square Off Mode

Client Action Notification Message

- a. It will be notified on following two actions on client
 - i) Client Suspended
 - ii) Client put under Square off mode
 - iii) Subsequent revocation of Client to Active Status
- b. When any client is suspended or put under square off mode by the Exchange, the Trading system returns all the pending orders (Limit & Stoploss) for the client under action. Hence, on receipt of this message, TPS shall also mark all the pending orders (for the client under action) as returned.

Client Action Notification Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	N_CLIENT_ACTION	Compulsory	
4	Client Code	Text (25)		Compulsory	
5	Action	Text (1)		Compulsory	1=Revoked/Active 2=Suspended 3=Square Off Mode

9. Broadcast Notification Messages

Trade Notification Broadcast Message

Trade Notification Broadcast Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	BC_TRADE	Compulsory	
4	Contract Symbol	Text (20)		Compulsory	
5	Trade Qty	Integer		Compulsory	
6	Trade Price	Decimal		Compulsory	

DPR Hit Notification Broadcast Message

DPR Hit Notification Broadcast Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	BC_CONTRACT_DPR_HIT	Compulsory	
4	Contract Symbol	Text (20)		Compulsory	
5	DPR High/Low	Text (1)		Compulsory	H=High, L = Low
6	Relaxation	Text (1)		Compulsory	Y = Yes, N = No
7	Cooling Minutes	Integer		Compulsory	0 = Immediately

DPR Relaxed Notification Broadcast Message

DPR Relaxed Notification Broadcast Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	BC_CONTRACT_DPR_RELAXED	Compulsory	
4	Contract Symbol	Text (20)		Compulsory	
5	DPR High	Decimal	Percentage	Compulsory	
6	DPR Low	Decimal	Percentage	Compulsory	

Session Change Notification Broadcast Message

Session Change Notification Broadcast Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	BC_SESSION_CHANGE	Compulsory	
4	Session	Text (15)		Compulsory	
5	Status	Text (1)		Compulsory	R= Running, B = Begins, E = Ends

CTS Time Broadcast Message

CTS Time Broadcast Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	BC_TIME	Compulsory	
4	Time	Text (10)		Compulsory	HH24:MM:SS

Contract Action Broadcast Message

- It will be broadcasted on contract suspension & subsequent revocation
- When any contract is suspended by the Exchange, the Trading system returns all the pending orders (Limit & Stoploss) for the suspended contract. Hence, on receipt of this message, TPS shall also mark all the pending orders (for the suspended contract) as returned.

Contract Action Broadcast Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	BC_CONTRACT_ACTION	Compulsory	
4	Contract Symbol	Text (20)		Compulsory	
5	Action	Text (1)		Compulsory	A=Active S=Suspend

Orders returned on Market Resume Broadcast Message

- It will be broadcasted on Market resumed from Halt with Order Return
- Sometime while resuming the market from halt, the Exchange may, although not always, decide to return all the pending orders (Limit & Stoploss) in all the contracts.
- Only in case the Exchange decides to return all the pending orders, TPS will receive this message. TPS shall return all the pending orders in all the contracts on receipt of this message.

Orders returned on Market Resume Broadcast Message					
Sr#	Tag	Type	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	BC_MKTRESM_ORDRET	Compulsory	

Market Picture Broadcast Message

Market Picture Broadcast Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	BC_MARKET_PICTURE	Compulsory	
4	Contract Symbol	Text (20)		Compulsory	
5	Last Trade Price	Decimal		Compulsory	
6	Last Trade Qty	Integer		Compulsory	
7	Day High Price	Decimal		Compulsory	
8	Day Low Price	Decimal		Compulsory	
9	Open Price	Decimal		Compulsory	
10	Close Price	Decimal		Compulsory	
11	Base Price	Decimal		Compulsory	
12	Total Trades	Integer		Compulsory	

13	Total Value	Decimal		Compulsory		
14	Prev. Open Interest	Integer		Compulsory		
15	Open Interest	Integer		Compulsory		
16	Best Bid	Decimal		Compulsory		
17	Best Bid Qty	Integer		Compulsory		
18	Total Bids	Integer		Compulsory		
19	Buy Depth	Integer		Compulsory		
20	Buy Average Price	Decimal		Compulsory		
21	Bid Stream	Text	2199.87,2198.00, 2190.65	Compulsory	Comma Separated Bids	
22	Bid Qty Stream	Text	5,8,1	Compulsory	Comma Separated Bid Qty	
23	Best Offer	Decimal		Compulsory		
24	Best Offer Qty	Integer		Compulsory		
25	Total Offers	Integer		Compulsory		
26	Sell Depth	Integer		Compulsory		
27	Sell Average Price	Decimal		Compulsory		
28	Offer Stream	Text	2201.90,2202.00, 2203.50, 2203.70	Compulsory	Comma Separated Offers	
29	Offer Qty Stream	Text	9,8,3,8	Compulsory	Comma Separated Offer Qty	

10. Encryption of Data-In-Motion

All the messages between TPS and CTS over the TCP channel must be in encrypted form. The IIBX CTS has implemented AES 128-bit encryption. To encrypt any message in AES 128 bit, it requires **Key [KEY]** and **Initialization Vector [IV]**. Both the KEY and IV are fixed length - 16 characters in length.

How to build the [KEY]

[KEY] = First 8 Characters of the Password + Encryption Key Segment*

How to build [IV]

[IV] = First 16 characters of (Password + Password)

Example:

Password: Reset.123

Encryption Key Segment: 12345678

[KEY] = Reset.1212345678

[IV] = First 16 Characters of (Reset.123Reset.123) = Reset.123Reset.1

**Encryption Key Segment will be supplied as a part of IEC Service Lookup Response Message*

*Please note that **IEC Service Lookup Response Message** and **IEC Connection Response Message** are NOT encrypted.*

11. Technical Validation

Interactive Messages (Request) from TPS would go through Technical Validation and then Business Validation. The business validation failure will be notified by response message of the respective request message. However, in case of technical validation failure will be notified by single message structure which is described as below:

Technical Validation Failure Message

Trade Notification Message					
Sr#	Tag	Type (Max. Length)	Value	Nature	Description
1	API Name	Text (20)	IIBX_EXCH_CTCL	Compulsory	As issued by IIBX
2	API Version	Text (10)	1.0.4	Compulsory	As issued by IIBX
3	Message Type	Text (30)	MSG_FAILURE	Compulsory	
4	Message Echo	Integer			
5	Failure Reason	Text (500)		Compulsory	

Failure Reasons

Sr#	Failure Reason	Description
1	Dealer is not Logged on	When Dealer is not logged on and TPS is sending messages other than LOGON Message
2	CM/TM/Dealer Mismatch	CM Code, TM Code & Dealer Code combination in the TPS Message is invalid
3	Message Type not implemented: <Message Type>	Message Type in the Request message is invalid