



Cboe FX ECN ITCH Protocol-v1.68

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## 1 Itch Session Management Protocol

The Session Management Protocol provides login / logout and authentication facilities, as well as sequenced packet functionality which provides order information from the Cboe FX ECN book. Clients receive missing data (e.g. after a disconnect/reconnect) via a market data snapshot payload in the Sequenced Data Packet message.

### 1.1 Data Types

Name	Description
Integer	ASCII coded integer. Integer fields are right justified and left padded with spaces.
Character	1 ASCII coded character. Must not be LF (0x0A) or ETX (0x03).
String	Multiple ASCII coded characters. Must not contain LF (0x0A) or ETX (0x03).

### 1.2 Server to Client Messages

#### 1.2.1 Login Accepted Packet

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'A' (0x41)
Sequence Number	1	10	Integer (Reserved field, currently set to 1).
TLF	11	1	ASCII LF (0x0A)

#### 1.2.2 Login Rejected Packet

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'J' (0x4A)
Reason	1	20	String
TLF	21	1	ASCII LF (0x0A)

#### 1.2.3 Sequenced Data Packet

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'S' (0x53)
Time	1	9	String (HHMMSSmmm)
Payload	10	variable	String
TLF	variable	1	ASCII LF (0x0A)

The payload contains a single message defined in 2. Cboe FX Book Protocol.

#### 1.2.5 Server Heartbeat Packet

Sent to the connected client once every second.

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'H' (0x48)
TLF	1	1	ASCII LF (0x0A)

#### 1.2.5 End of Session

A session is closed with a zero-length sequenced data packet (0x53 0x0A). No more sequenced data packets may be sent after the session is closed. A client that receives such a packet may disconnect knowing that there are no more messages in that particular session.

### 1.2.6 Error Notification Packet

Indicates an error condition in response to an invalid request from the connected client.

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'E' (0x45)
Error explanation	1	100	String
TLF	101	1	ASCII LF (0x0A)

### 1.2.7 Instrument Directory Message

Lists currency pairs supported by the server. Requested by sending an Instrument Directory Request Packet (1.3.9).

Field Name	Offset	Size	Type	Comment
Message Type	0	1	ASCII 'R' (0x52)	
Number of Currency Pairs	1	4	Integer	
Currency Pair	5	7	String	This field is repeated the number of times indicated by the preceding field.
TLF	variable	1	ASCII LF (0x0A)	

## 1.3 Client to Server Messages

### 1.3.1 Login Request Packet

Login Name and Password fields are left justified and right-padded with spaces. The Reserved field is right justified and left-padded with spaces. When the Market Data Unsubscribe field is set to True ('T'), upon logging in the client will not be subscribed to market data for any currency pairs. The client then needs to subscribe to either specific currency pairs or to the entire market by sending one or more of the Market Data Subscribe Request Packet (1.3.7). The default behavior with an uninitialized Market Data Unsubscribe field is to subscribe to all currency pairs.

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'L' (0x4C)
Login Name	1	40	String
Password	41	40	String
Market Data Unsubscribe	81	1	Character ASCII 'T' (0x54) or ASCII 'F' (0x46)
Protocol Mode	82	1	ASCII space(0x20) for default, 1(0x31) for additional features configured in the remaining 8 bytes
Reserved	83	7	String (all space characters 0x20)
Price Modify Support	90	1	Price modify requires Protocol Mode set to 1 in addition to setting this field to 1. Price Modify message: ASCII 1 (0x31) Cancel/New message: ASCII 0 (0x30)
TLF	91	1	ASCII LF (0x0A)

### 1.3.2 Logout Request Packet

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'O' (0x4F)
TLF	1	1	ASCII LF (0x0A)

### 1.3.3 Client Heartbeat Packet

This message should be sent once every second. If the server does not receive a heartbeat or any other message in 15 seconds, the client is disconnected by the server.

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'R' (0x52)
TLF	1	1	ASCII LF (0x0A)

### 1.3.4 Market Snapshot Request Packet

This message is sent to the server in order to request the missing market data in the form of a Market Snapshot Message (2.2.4) either for a specific currency pair, or for all currency pairs relevant to the user. Currency Pair field is left justified and right-padded with spaces. If a request is made for all currency pairs at once, the Currency Pair field should be set to "ALL" without quotes. The Market Snapshot in response to this packet will not contain currency pairs which the client is not subscribed to.

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'M' (0x4D)
Currency Pair	1	7	String
TLF	8	1	ASCII LF (0x0A)

### 1.3.5 Ticker Subscribe Request Packet

This message is sent to the server in order to turn on ticker data for either a specific currency pair, or for all currency pairs at once. To subscribe to all currency pairs, the Currency Pair field should be set to "ALL" without quotes. To subscribe only to certain currency pairs, multiple request packets should be sent, one for each desired currency pair. Ticker subscriptions are not maintained across sessions. Ticker data is off by default and must be explicitly subscribed to.

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'T' (0x54)
Currency Pair	1	7	String
TLF	8	1	ASCII LF (0x0A)

### 1.3.6 Ticker Unsubscribe Request Packet

This message is sent to the server in order to turn off previously enabled ticker data for either a specific currency pair, or for all currency pairs at once. To unsubscribe from all currency pairs, the Currency Pair field should be set to "ALL" without quotes. To unsubscribe only from certain currency pairs, multiple request packets should be sent, one for each desired currency pair. Ticker subscriptions are not maintained across sessions. Ticker data is off by default and must be explicitly subscribed to.

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'U' (0x55)
Currency Pair	1	7	String
TLF	8	1	ASCII LF (0x0A)

### 1.3.7 Market Data Subscribe Request Packet

Turns ON subscription to the entire market or to a specific currency pair. For subscription to the entire market, the Currency Pair field must be set to “ALL” without quotes. For subscription to specific currency pairs, multiple requests packets must be sent, one for each currency pair. Market data subscriptions are not maintained across sessions. By default, the client is subscribed to all currency pairs unless logging in with the Market Data Unsubscribe field in the Login Request Packet set to true.

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'A' (0x41)
Currency Pair	1	7	String
TLF	8	1	ASCII LF (0x0A)

### 1.3.8 Market Data Unsubscribe Request Packet

Turns OFF subscription to the entire market or to a specific currency pair. To disable subscription to the entire market, the Currency Pair field must be set to “ALL” without quotes. To disable subscription for specific currency pairs, multiple requests packets must be sent, one for each currency pair. Market data subscriptions are not maintained across sessions. By default, the client is subscribed to all currency pairs unless logging in with the Market Data Unsubscribe field in the Login Request Packet set to true.

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'B' (0x42)
Currency Pair	1	7	String
TLF	8	1	ASCII LF (0x0A)

### 1.3.9 Instrument Directory/Dictionary Request Packet

Requests a list of supported instruments from the server in the form of an Instrument Directory message (1.2.7)

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'I' (0x49)
TLF	1	1	ASCII LF (0x0A)

## 1.4 Session Limitations

Within each session, certain limitations are in place. The goal of these limitations is to provide reliable service for all connected clients. If a session breaches a certain limiting condition, an action will occur depending on the condition. See table below for further details.

Condition	Action
Login attempt frequency, more than 3 times within any 5 minutes window	Disconnect & Disabled Account
Sending a "Market Snapshot Request Packet" for the same currency pair(including "ALL") more than one time during a session	Disconnect & Disabled Account
Sending a "Market Data Unsubscribe Request Packet" for the same currency pair(including "ALL") more than once during a session	Disconnect

Sending a "Ticker Subscribe Request Packet" for the same currency pair(including "ALL") more than once during a session	Disconnect
Sending a "Ticker Unsubscribe Request Packet" for the same currency pair(including "ALL") more than once during a session	Disconnect
Sending a "Instrument Directory/Dictionary Request Packet" more than once during a session	Disconnect
Too many incoming msgs, 500 in 1 second, or 1000 in 5 seconds	Disconnect & Disabled Account

## 2 Cboe FX Book Protocol

Book Protocol messages carry information about the Cboe FX ECN book.

To receive the Cboe FX ECN book feed, the client connects to the Cboe FX ECN Book Server using the ITCH Session Management protocol. Each Book Protocol message will be carried inside the payload field of a Session Management Protocol sequenced data packet, which is described in section 1.2.3.

### 2.1 Data Types

Name	Description
Integer	ASCII coded integer. Right justified and left-padded with spaces.
Character	1 ASCII coded character.
String	Multiple ASCII coded characters. Left justified, right-padded with spaces.
Double	ASCII coded decimalized number. Left justified, right-padded with spaces.

### 2.2 Messages

#### 2.2.1 New Order Message

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'N' (0x4E)
Buy or Sell Indicator	1	1	Character Buy is ASCII 'B' (0x42) Sell is ASCII 'S' (0x53)
Currency Pair	2	7	String
Order ID	9	15	String
Price	24	10	Double
Amount	34	16	Double
Minqty(optional)	50	16	Double
Lotsize(optional)	66	16	Double

Price is presented as a decimal number in ASCII format, i.e. 123.456

Order ID is unique per currency pair.

Lotsize and Minqty restrictions are supplied to clients on a special port until all clients support these fields. Either '0', '0.0' or empty fields indicate no effective quantity restriction.

#### 2.2.2 Modify Order Message

For users who are configured to see price modifies(see section 1.3.1 on how to configure for price modify), they will only use section 2.2.2.2, all others will refer to section 2.2.2.1.

### 2.2.2.1 Modify Order Message - Amount Only

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'M' (0x4D)
Currency Pair	1	7	String
Order ID	8	15	String
Amount	23	16	Double
Minqty(optional)	39	16	Double
Lotsize(optional)	55	16	Double

### 2.2.2.2 Modify Order Message - Price and/or Amount

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'M' (0x4D)
Currency Pair	1	7	String
Order ID Active	8	15	String This field replaces the order ID specified in "Order ID Replaced" if populated. Otherwise, it replaces itself.
Price	23	10	Double (spaces if no price modify)
Amount	33	16	Double
Order ID Replaced	49	15	String This field is only populated if there is a price modify.
Minqty(optional)	64	16	Double
Lotsize(optional)	80	16	Double

Lotsize and Minqty fields – reference section 2.2.1

### 2.2.3 Cancel Order Message

Field Name	Offset	Size	Type
Message Type	0	1	ASCII 'X' (0x58)
Currency Pair	1	7	String
Order ID	8	15	String

### 2.2.4 Market Snapshot Message

Field Name	Offset	Size	Type	Comment
Message Type	0	1	ASCII 'S' (0x53)	
Length of Message	1	6	Integer	Length of market snapshot in bytes, starting with Number of Currency Pairs and incorporating all subsequent fields.
Number of Currency Pairs	7	4	Integer	
Currency Pair	11	7	String	This and all following fields are repeated the number of times indicated by the preceding field.
Number of bid prices	variable	4	Integer	



Bid Price	variable	10	Double	This and all fields up to Number of Offer Prices is repeated the number of times indicated by the preceding field.
Number of Bid Orders	variable	4	Integer	
Amount	variable	16	Double	These fields are repeated the number of times indicated by the preceding field.
Minqty(optional)	variable	16	Double	
Lotsize(optional)	variable	16	Double	
Order ID	variable	15	String	
Number of Offer Prices	variable	4	Integer	
Offer Price	variable	10	Double	This and all following fields are repeated the number of times indicated by the preceding field.
Number of Offer Orders	variable	4	Integer	
Amount	variable	16	Double	These fields are repeated the number of times indicated by the preceding field.
Minqty(optional)	variable	16	Double	
Lotsize(optional)	variable	16	Double	
Order ID	variable	15	String	

Lotsize and Minqty fields – reference section 2.2.1.

In case of a blank market snapshot in response to a Market Snapshot Request(section 1.3.4), the message payload comprises only two fields: a Message Type field of value ‘S’ and a Length of Message field of value ‘0’. Since such blank snapshots do not contain Currency Pair information, please match the response to the original request, as all responses are issued in the same sequence as the requests.

For users who are configured to receive Summary Depth, Number of Bid Orders and Number of Offer Orders will be equal to ‘3’, subject to availability.

For users who are configured to receive Summary Depth and connect to the Cboe FX Top Feed, Number of Bid Orders and Number of Offer Orders will be equal to ‘1’, subject to availability.

## 2.2.5 Ticker Message

Ticker data is off by default and must be explicitly subscribed to as indicated in section 1.3.5. Only Ticker Message Basic is available unless FX Prints and/or FX Snap have been purchased.

### 2.2.5.1 Ticker Message Basic

Sent 1 second delayed from execution.

Field Name	Offset	Size	Type
Message Type	0	1	ASCII ‘T’ (0x54)
Aggressor Buy or Sell Indicator	1	1	Character Buy is ASCII ‘B’ (0x42) Sell is ASCII ‘S’ (0x53)
Currency Pair	2	7	String
Price	9	10	Double



0000	48 0a	H.
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**End Of Session Message (1.2.5)**

0000	53 0a	S.
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**Error Notification Packet (1.2.6)**

Error message in response to a Ticker Subscription Request for an invalid currency pair.

0000	45 49 6e 76 61 6c 69 64 20 63 75 72 72 65 6e 63	EInvalid currenc
0010	79 20 70 61 69 72 20 72 65 71 75 65 73 74 65 64	y pair requested
0020	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	
0030	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	
0040	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	
0050	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	
0060	20 20 20 20 20 0a	.

**Instrument Directory Message (1.2.7)**

Instrument Directory with 52 supported currency pairs.

0000	52 20 20 35 32 5a 41 52 2f 4a 50 59 47 42 50 2f	R 52ZAR/JPYGBP/
0010	4a 50 59 41 55 44 2f 43 41 44 55 53 44 2f 43 41	JPYAUD/CADUSD/CA
0020	44 45 55 52 2f 48 55 46 41 55 44 2f 55 53 44 41	DEUR/HUFAUD/USDA
0030	55 44 2f 4a 50 59 55 53 44 2f 4a 50 59 55 53 44	UD/JPYUSD/JPYUSD
0040	2f 4e 4f 4b 58 41 55 2f 55 53 44 41 55 44 2f 48	/NOKXAU/USDAUD/H
0050	4b 44 45 55 52 2f 43 41 44 55 53 44 2f 48 4b 44	KDEUR/CADUSD/HKD
0060	55 53 44 2f 5a 41 52 55 53 44 2f 53 47 44 45 55	USD/ZARUSD/SGDEU
0070	52 2f 55 53 44 45 55 52 2f 4a 50 59 45 55 52 2f	R/USDEUR/JPYEUR/
0080	4e 4f 4b 55 53 44 2f 4d 58 4e 45 55 52 2f 47 42	NOKUSD/MXNEUR/GB
0090	50 45 55 52 2f 48 4b 44 45 55 52 2f 5a 41 52 47	PEUR/HKDEUR/ZARG
00a0	42 50 2f 4e 5a 44 55 53 44 2f 44 4b 4b 41 55 44	BP/NZDUSD/DKKAUD
00b0	2f 4e 5a 44 47 42 50 2f 43 48 46 47 42 50 2f 41	/NZDGBP/CHFGBP/A
00c0	55 44 4e 5a 44 2f 55 53 44 4e 5a 44 2f 4a 50 59	UDNZD/USDNZD/JPY
00d0	47 42 50 2f 43 5a 4b 41 55 44 2f 43 48 46 55 53	GBP/CZKAUD/CHFUS
00e0	44 2f 43 48 46 45 55 52 2f 44 4b 4b 47 42 50 2f	D/CHF EUR/DKKGBP/
00f0	50 4c 4e 45 55 52 2f 4e 5a 44 43 41 44 2f 4a 50	PLNEUR/NZDCAD/JP
0100	59 55 53 44 2f 43 5a 4b 55 53 44 2f 53 45 4b 4e	YUSD/CZKUSD/SEKN
0110	4f 4b 2f 53 45 4b 47 42 50 2f 48 55 46 43 48 46	OK/SEKGBP/HUFCHF
0120	2f 4a 50 59 55 53 44 2f 50 4c 4e 45 55 52 2f 43	/JPYUSD/PLNEUR/C
0130	48 46 45 55 52 2f 41 55 44 55 53 44 2f 48 55 46	HFEUR/AUDUSD/HUF
0140	48 4b 44 2f 4a 50 59 47 42 50 2f 43 41 44 45 55	HKD/JPYGBP/CADEU
0150	52 2f 43 5a 4b 45 55 52 2f 53 45 4b 58 41 47 2f	R/CZKEUR/SEKXAG/
0160	55 53 44 47 42 50 2f 55 53 44 45 55 52 2f 50 4c	USDGBP/USDEUR/PL
0170	4e 0a	N.

**Session Management Messages. Client to Server.****Login Request (1.3.1)**

UserID: test

Password: hotspot

Market Data Unsubscribe: True

Price Modify: False

0000	4c 74 65 73 74 20 20 20 20 20 20 20 20 20 20	Ltest	
0010	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20		
0020	20 20 20 20 20 20 20 20 20 20 68 6f 74 73 70 6f 74		hotspot
0030	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20		
0040	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20		
0050	20 54 20 20 20 20 20 20 20 20 20 30 0a	T	0.

UserID: test

Password: hotspot

Market Data Unsubscribe: True

Price Modify: True

0000	4c 74 65 73 74 20 20 20 20 20 20 20 20 20 20	Ltest	
0010	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20		
0020	20 20 20 20 20 20 20 20 20 20 68 6f 74 73 70 6f 74		hotspot
0030	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20		
0040	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20		
0050	20 54 31 20 20 20 20 20 20 20 20 31 0a	T1	1.

### Logout Request (1.3.2)

0000	4f 0a	0.
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### Client Heartbeat (1.3.3)

0000	52 0a	R.
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### Market Snapshot Request (1.3.4)

Market Snapshot Request for currency pair GBP/JPY.

0000	4d 47 42 50 2f 4a 50 59 0a	MGBP/JPY.
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### Ticker Subscribe Request (1.3.5) Ticker subscribe request for all currency pairs.

0000	54 41 4c 4c 20 20 20 20 0a	TALL .
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### Ticker Unsubscribe Request (1.3.6)

Ticker unsubscribe request for all currency pairs.

0000	55 41 4c 4c 20 20 20 20 0a	UALL .
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### Market Data Subscribe Request (1.3.7)

Market data subscribe request for currency pair USD/CAD.

0000	41 55 53 44 2f 43 41 44 0a	AUSD/CAD.
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### Market Data Unsubscribe Request (1.3.8)

Market data unsubscribe request for currency pair EUR/USD.

0000	42 45 55 52 2f 55 53 44 0a	BEUR/USD.
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**Instrument Directory Request (1.3.9)**

0000	49 0a	I.
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**Book Protocol Messages****New Order Message (2.2.1)**

Time: 14:24:09.777

Side: Buy

Currency Pair: EUR/USD

Order ID: 1

Price: 122.073

Quantity: 5,000,000

Note – this example does not contain quantity restriction fields

0000	53 31 34 32 34 30 39 37 37 37 4e 42 45 55 52 2f	S142409777NBEUR/
0010	4a 50 59 31 20 20 20 20 20 20 20 20 20 20 20	JPY1
0020	20 20 31 32 32 2e 30 37 33 20 20 20 35 30 30 30	122.073 5000
0030	30 30 30 20 20 20 20 20 20 20 20 20 0a	000 .

**Modify Order Message (2.2.2)**

Time: 14:37:34.930

Currency Pair: EUR/USD

Order ID: 6

Quantity: 3,000,000

Note – this example does not contain quantity restriction fields

0000	53 31 34 33 37 33 34 39 33 30 4d 45 55 52 2f 55	S143734930MEUR/U
0010	53 44 36 20 20 20 20 20 20 20 20 20 20 20 20	SD6
0020	20 33 30 30 30 30 30 30 20 20 20 20 20 20 20	3000000
0030	20 0a	.

**Cancel Order Message (2.2.3)**

Time: 14:24:10.543

Currency Pair: EUR/JPY

Order ID: 1

0000	53 31 34 32 34 31 30 35 34 33 58 45 55 52 2f 4a	S142410543XEUR/J
0010	50 59 31 20 20 20 20 20 20 20 20 20 20 20 20	PY1
0020	20 0a	.

**Market Snapshot Message (2.2.4)** Time: 11:20:39.800

Payload Length: 305 bytes

Number of Currency Pairs: 3

Currency Pair: GBP/USD

Bid Price Levels: 0

Offer Price Levels: 1

Price Level: 1.50200

Orders at Price Level: 1

Amount: 6,500,000 OrderID: 1

Currency Pair: USD/JPY

Bid Price Levels: 1

Price Level: 96.500

Orders at Price Level: 1

Amount: 500,000 OrderID: 2

Offer Price Levels: 1

Price Level: 96.515

Orders at Price Level: 1

Amount: 2,000,000 OrderID: 4

Currency Pair: EUR/USD

Bid Price Levels: 0

Offer Price Levels: 2

Price Level: 1.26515

Orders at Price Level: 2

Amount: 1,500,000 OrderID: 8

Amount: 5,000,000 OrderID: 2

Price Level: 1.26525

Orders at Price Level: 1

Amount: 10,000,000 OrderID: 10

Note – this example does not contain quantity restriction fields

Extracted orders:

Offer 6,500,000 GBP/USD @ 1.50200, OrderID: 1

Bid 500,000 USD/JPY @ 96.500, OrderID: 2

Offer 2,000,000 USD/JPY @ 96.515, OrderID: 4

Offer 1,500,000 EUR/USD @ 1.26515, OrderID: 8

Offer 5,000,000 EUR/USD @ 1.26515, OrderID: 2

Offer 10,000,000 EUR/USD @ 1.26525, OrderID: 10

0000	53 31 31 32 30 33 39 38 30 30 53 20 20 20 33 30	S112039800S	30
0010	35 20 20 20 33 47 42 50 2f 55 53 44 20 20 20 30	5 3GBP/USD	0
0020	20 20 20 31 31 2e 35 30 32 30 30 20 20 20 20 20	11.50200	
0030	20 31 36 35 30 30 30 30 30 20 20 20 20 20 20 20	16500000	
0040	20 20 31 20 20 20 20 20 20 20 20 20 20 20 20 20	1	
0050	20 55 53 44 2f 4a 50 59 20 20 20 31 39 36 2e 35	USD/JPY	196.5
0060	30 30 20 20 20 20 20 20 20 20 31 35 30 30 30 30 30	00	1500000
0070	20 20 20 20 20 20 20 20 20 20 20 32 20 20 20 20 20		2
0080	20 20 20 20 20 20 20 20 20 20 20 20 31 39 36 2e		196.
0090	35 31 35 20 20 20 20 20 20 20 20 31 32 30 30 30 30	515	120000
00a0	30 30 20 20 20 20 20 20 20 20 20 20 34 20 20 20 20	00	4
00b0	20 20 20 20 20 20 20 20 20 20 20 45 55 52 2f 55 53		EUR/US
00c0	44 20 20 20 30 20 20 20 32 31 2e 32 36 35 31 35	D 0	21.26515
00d0	20 20 20 20 20 20 32 31 35 30 30 30 30 30 20 20		21500000
00e0	20 20 20 20 20 20 20 38 20 20 20 20 20 20 20 20		8
00f0	20 20 20 20 20 20 35 30 30 30 30 30 30 20 20 20		5000000
0100	20 20 20 20 20 20 32 20 20 20 20 20 20 20 20 20		2
0110	20 20 20 20 20 31 2e 32 36 35 32 35 20 20 20 20		1.26525
0120	20 20 31 31 30 30 30 30 30 30 30 20 20 20 20 20	110000000	
0130	20 20 20 31 30 20 20 20 20 20 20 20 20 20 20 20		10
0140	20 20 0a		.

**Ticker Message Basic (2.2.5.1)**

Message Time: 15:13:14.408

Side: Sell

Currency Pair: GBP/USD

Price: 1.46295

Transaction Date: 02/05/2009

Transaction Time: 15:13:13

0000	53 31 35 31 33 31 34 34 30 38 54 53 47 42 50 2f	S151314408TSGBP/	
0010	55 53 44 31 2e 34 36 32 39 35 20 20 20 32 30 30	USD1.46295	200
0020	39 30 32 30 35 31 35 31 33 31 33 0a		90205151313.

**Ticker Message Detailed (2.2.5.2)**

Message Time: 15:14:13.408

Side: Sell

Currency Pair: GBP/USD

Price: 1.46295

Amount: 1,000,000

Transaction Date: 02/05/2009

Transaction Time: 15:13:13.408

0000	53 31 35 31 34 31 33 34 30 38 54 53 47 42 50 2f	S151413408TSGBP/	
0010	55 53 44 31 2e 34 36 32 39 35 20 20 20 31 30 30	USD1.46295	100
0020	30 30 30 30 20 20 20 20 20 20 20 20 32 30 30	0000	200
0030	39 30 32 30 35 31 35 31 33 31 33 34 30 38 0a		90205151313408.

**Ticker Message Volume Snapshot (2.2.5.3)**

Message Time: 15:13:14.408

Currency Pair: GBP/USD

5 Second Volume: 1,000,000

All Day Volume: 225,300,000

0000	53	31	35	31	33	31	34	34	30	38	56	47	42	50	2f	55	S151314408VGBP/U
0010	53	44	31	30	30	30	30	30	30	20	20	20	20	20	20	20	SD1000000
0020	20	20	32	32	35	33	30	30	30	30	30	20	20	20	20	20	225300000
0030	20	20	2e														.



## 4 Revision History

1.00 (2007-10-08)

Initial Revision

1.01 (2007-12-05)

Reversed order of 'Amount' and 'Order ID' in Market Snapshot Message for Bid Orders.

1.02 (2007-12-07)

Changed bid/offer character in New Order Message.

1.10 (2007-12-12)

Added Ticker Subscribe Packet, Ticker Unsubscribe Packet, Error Notification Packet, and Ticker Message.

1.11 (2007-12-17)

Changed time format in Sequenced Data Packet.

1.12 (2008-01-03)

Changed order of fields in New Order Message.

Added 'Length of Message' field to Market Snapshot Message

Changed field sizes in Market Snapshot Message

1.20 (2008-04-04)

Changed Login Request Packet

Added Instrument Directory Request Packet, Instrument Directory Message, Market Data Subscribe Request Packet, and Market Data Unsubscribe Request Packet

1.30 (2009-01-22)

Added lotsize and minqty fields in New Order, Reduced Order, and Market Snapshot Messages

1.31 (2009-02-06)

Added sample messages section.

1.40 (2009-12-08)

Added binary protocol messages.

1.41 (2010-05-27)

Added a disclaimer for Binary Sequence Message.

1.50 (2011-02-01)

Added aggregated sessions.

1.51 (2011-06-13)

Clarified some data types.

1.52 (2011-10-05)

Fixed incorrect ASCII codes.

1.53 (2011-12-15)

Removed support for binary.

- 1.54 (2011-12-20)
  - Removed support for aggregated sessions.
- 1.55 (2012-01-12)
  - Typo correction in 1.3.9
- 1.56 (2012-01-24)
  - Added note to section 2.2.4
- 1.57 (2012-01-30)
  - Added note to section 1.2.3
- 1.58 (2012-12-18)
  - Typo correction in 1.2.1
- 1.59 (2014-01-31)
  - Added comment to 1.2.1 Login Accepted Message.
- 1.60 (2017-01-20)
  - Added Session Limitations section
- 1.61 (2017-06-13)
  - Update for price modify.
- 1.62 (2017-07-14)
  - Added more descriptive usage for price modify.
- 1.63 (2017-08-02)
  - Adjusted text for price modify support in section 1.3.1.
- 1.64 (2017-09-21)
  - Changed summary depth to 3 levels. Added text for Itch Top Feed.
- 1.65 (2017-09-26)
  - Added ticker subscribe to session limitations.
- 1.66 (2018-01-12)
  - Updated ticker section, added detailed ticker.
- 1.67 (2018-03-14)
  - Updated text regarding Order ID.
- 1.68 (2018-03-27)
  - Updates Ticker Message Detailed, add Ticker Message Volume Snapshot, and add example messages.
- 1.69 (2018-06-21)
  - Fix typo of 4th Field offset in section 2.2.5.3, Ticker Message Volume Snapshot.