Trade Feed FIX Specification

Programming Reference

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1 Introduction

1.1 Supported FIX Versions

HSFXi Trade Feed currently supports the FIX Protocol Version 4.2. Note, however, that the values of tags 39 and 150 are actually those of FIX Protocol Version 4.4.

1.2 Hours of Operation

All times are represented in Eastern Standard Time (EST).

	Monday	*Tuesday*	*Wednesday*	*Thursday*	*Friday*	*Saturday*	*Sunday*
Disconnect	5:00 PM	5:00 PM	5:00 PM	5:00 PM	5:00 PM	N/A	N/A
Restart	5:05 PM	5:05 PM	5:05 PM	5:05 PM	N/A	N/A	4:35 PM

1.3 Network Connection

Hotspot FX supports a number of connectivity options including the Internet, leased lines, VPN, and third party networks.

Third party networks include Radianz, GuavaTech, Yipes, and TNS. The client should be prepared to provide Cboe FX source IP addresses for all servers that will be establishing connectivity to Cboe FX. Cboe FX's connectivity team will help our clients establish connectivity through a standard on-boarding process.

1.4 Security and Encryption

The HSFXi Trade Feed supports secure socket layer (SSL) over the Internet and through VPN. We recommend using SSL for any client that chooses to connect to HSFXi FIX Trade Feed through the Internet.

1.5 Message Types

The Following FIX messages are understood by the system

- 0 = HeartBeat
- 1 = TestRequest
- 2 = ResendRequest
- 3 = Reject
- 4 = SequenceReset
- 5 = Logout
- 8 = ExecutionReport
- A = Logon

1.6 Data types used in all FIX messages

Type	Format	Example
Int	Integer	99999
Float	Numeric digits with optional decimal point and sign character.	-2000.00000000000 -2000 -2000.
Qty	Quantity: see float	
Price	Price: see float	
Amt	Amount: see float	
Char		
Boolean	Single Character ‘Y’ or ‘N’	
String	Case Sensitive Alphanumeric characters with no terminating character	
UTC Date/Time	GMT Date/Time: YYYYMMDD-HH:MM:SS	20010101-22:30:00
UTC Date	GMT Date: YYYYMMDD	20010101
UTC Time	GMT Time: HH:MM:SS	22:30:00

2 General FIX Message Structure

The Standard Header and Standard Trailer are required on all FIX messages. MsgType (FIX 35) is part of the header.

2.1 Standard Header

TAG	FieldName	Contents	Comments
8	BeginString	FIX.4.2(.X)	Protocol Version,
9	BodyLength	99999	Length of Message Body
35	MsgType	Accepted Message Types	0 = HeartBeat 1 = TestRequest 2 = ResendRequest 3 = Reject 4 = SequenceReset 5 = Logout 8 = ExecutionReport A = Logon
34	MsgSeqNum	<Int>	Message Sequence Number (Resets to 1 at the start of each trading day)
49	SenderCompID	FIX-TRADE-FEED	Sender Company ID (MMID of message sender)
56	TargetCompID	<String>	Target Company ID (MMID of message receiver)
43*	PossDupFlag		Indicates possible retransmission of this seq num
97*	PossResend		Indicates possible retransmission of msg under a New sequence number
52	SendingTime	<UTC Date/Time>	GMT Date/Time Message was sent

- = Optional.

2.2 Standard Trailer

TAG	FieldName	Contents	Comments
10	CheckSum	<Int>	Integer byte count of message length without the CheckSum field

3 Administrative Messages

3.1 Logon – From Client

TAG	FieldName	Contents	Comments
35	MsgType	A	(Contained in header)
553	Username	<String>	Hotspot username (or Hotspot collat)
554	Password	<String>	Password for id in tag#553
98	EncryptMethod	0	None
108	HeartBtInt	<Int>	Client Hearbeat Interval (In seconds)
141 *	ResetSeqNumFlag	N	Indicates the intention to reset sequence numbers on both sides of the connection. Setting this field will prevent resequencing from occurring. *Client Logon messages with 141=Y are* **HIGHLY discouraged**. The reason is that it's possible for trades to be sent to but never received by a client during a network outage. If a client does not choose to manually ack trades (see section 4.2), Cboe FX will assume that those trades have been received by the client. If, in this scenario, a client resequences correctly on logon, they will be resent the missed trades. *However, if the client's logon message contains 141=Y, resequencing will not occur and the missed trades will not be sent.*

- = Optional.

3.2 Logon – Response From Cboe FX

TAG	FieldName	Contents	Comments
35	MsgType	A	(Contained in header)
98	EncryptMethod	0	None
108	HeartBtInt	<Int>	Clients should use a 30 second Heartbeat Interval.

3.3 HeartBeat – From Cboe FX and Client

TAG	FieldName	Contents	Comments
35	MsgType	0	(Contained in header)
112*	TestReqID		Required in response to a Test Request

- = Optional.

3.4 TestRequest – From Cboe FX and Client

TAG	FieldName	Contents	Comments
35	MsgType	1	(Contained in header)
112	TestReqID		Auto-Generated Request ID

3.5 Resend – From Cboe FX and Client

TAG	FieldName	Contents	Comments
35	MsgType	2	(Contained in header)
7	BeginSeqNo	<Int>	
16	EndSeqNo	<Int>	0 means +infinity

3.6 Reject – From Cboe FX and Client

TAG	FieldName	Contents	Comments
35	MsgType	3	(Contained in header)
45	RefSeqNum	<Int>	MsgSeqNo of Rejected Message
371*	RefTagID	<Int>	
372*	RefMsgType	<Char>	
373*	SessionRejectReason		
58*	Text	<String>	

- = Optional.

3.7 SequenceReset/GapFill – From Cboe FX and Client

TAG	FieldName	Contents	Comments
35	MsgType	4	(Contained in header)
36	NewSeqNo	<Int>	Next expected Sequence Number
123*	GapFillFlag	'Y' or 'N' ('Y' is required)	The use of 'Y' is required for common resequencing. 'N' is not recommended, and should only be used in emergency situations that require manual intervention. 'N' causes the SeqNo of the SequenceReset message to be ignored, creating a high possibility of message loss.

- = Optional.

3.8 Logout – From Cboe FX and Client

TAG	FieldName	Contents	Comments
35	MsgType	5	(Contained in header)
58*	Text	<String>	Indicates reason for logout

- = Optional.

4 Trade Messages

4.1 Trade Execution Report – Filling Status From Cboe FX

The following is a template of the trade Execution Report sent by the Trade Feed application containing a drop-copy.

TAG	FieldName	Contents	Comments
35	MsgType	8	(Contained in header)
1*	Account	Alphanumeric characters and underscores	Alphanumeric text field meant to contain 3rd-party account ID.
37	OrderID	<String>	HSFX-assigned order ID
17	ExecID	<String>	TRD_HSFX-assigned Trade ID Example: TRD_32566718
11	ClOrdID	Client ID	Client Order ID
20	ExecTransType	0	0 = New
150	ExecType	F	F = Trade
39	OrdStatus	2	2 = Filled
55	Symbol	XXX/YYY	Currency pair CC1/CC2. e.g. EUR/USD, NZD/JPY, etc.
54	Side	<Int>	1 = Buy/Bid 2 = Sell/Offer
64	FutSetlDate	< Date>	
75	TradeDate	< Date>	
76	ExecBroker	HSFX	
119	SettlCurrAmount	<Qty>	Always USD qty of fill
120	SettlCurrency	USD	Always 'USD'
38	OrderQty	Total	Order Quantity (Amount for CC1)
44	Price	<Price>	Limit Price specified
59	TimeInForce	<Int>	0 = Day
151	LeavesQty	0	0 for canceled, expired, or rejected
14	CumQty	<Qty>	# of Shares Filled
32	LastShares	<Qty>	
15	Currency	XXX	Always either XXX or YYY from Symbol
6	AvgPx	<Price>	Avg executed price
31	LastPx	<Price>	Last exec price
167	SecurityType	FOR	
192	OrderQty2	<Qty>	Amount of contra currency (Amount of CC2)
382	NoContraBrokers	1	Always set to 1
375	ContraBroker	<String>	For PB and direct client, it is set to clearing contra bank; For regular client, it is set to its Prime Broke bank
58	Text	<String>	
60	TransactTime	<UTC Date/Time>	UTC Date/Time of Execution
6980	HSFXAggressiveFlag	<Char>	A = Aggressive P = Passive
6997	HSFXCollateralID	<String>	Collateral ID
6998	HSFXUserID	<String>	User ID
820	TradeLinkID	<String>	0 -- regular trade None 0 -- to link the spreading or all-in-price trades.

* = Optional.

4.2 *Forward & NDF Trade Execution Report – Filling Status from Cboe FX*

The following is a template of the trade Execution Report sent by the Trade Feed application containing a drop-copy.

TAG	FieldName	Contents	Comments
35	MsgType	8	(Contained in header)
1*	Account	Alphanumeric characters and underscores	Alphanumeric text field meant to contain 3rd-party account ID.
37	OrderID	<String>	HSFX-assigned order ID
17	ExecID	<String>	TRD_HSFX-assigned Trade ID Example: TRD_32566718
11	ClOrdID	Client ID	Client Order ID
20	ExecTransType	0	0 = New
150	ExecType	F	F = Trade
39	OrdStatus	2	2 = Filled
22	SecurityIDSource	2	2 = Exchange
48	SecurityID	XXXYYY_Tenor	Security traded e.g. EURUSD_1M,USDJPY_IMM1
55	Symbol	XXX/YYY	Currency pair CC1/CC2. e.g. EUR/USD, NZD/JPY, etc.
54	Side	<Int>	1 = Buy/Bid 2 = Sell/Offer
64	FutSetlDate	< Date>	
75	TradeDate	< Date>	
76	ExecBroker	HSFX	
119	SettlCurrAmount	<Qty>	Always USD qty of fill
120	SettlCurrency	USD	Always 'USD'
38	OrderQty	Total	Order Quantity (Amount for CC1)
44	Price	<Price>	Limit Price specified
59	TimeInForce	<Int>	0 = Day
151	LeavesQty	0	0 for canceled, expired, or rejected
14	CumQty	<Qty>	# of Shares Filled
32	LastShares	<Qty>	
15	Currency	XXX	Always either XXX or YYY from Symbol
6	AvgPx	<Price>	Avg executed price
31	LastPx	<Price>	Last exec price
167	SecurityType	[FORWARD, NDF]	
192	OrderQty2	<Qty>	Amount of contra currency (Amount of CC2)
382	NoContraBrokers	1	Always set to 1
375	ContraBroker	<String>	For PB and direct client, it is set to clearing contra bank; For regular client, it is set to its Prime Broke bank
58	Text	<String>	
60	TransactTime	<UTC Date/Time>	UTC Date/Time of Execution
6980	HSFXAggressiveFlag	<Char>	A = Aggressive P = Passive
6997	HSFXCollateralID	<String>	Collateral ID
6998	HSFXUserID	<String>	User ID
820	TradeLinkID	<String>	0 -- regular trade None 0 -- to link the spreading or all-in-price trades.
9008	SettlMethod	<Int>	1 = Physical 2 = Cash Settlement method.
9009	PriceQuoteMethod	1	1 = Outright Indicates if the quote is in terms of an outright.
9010	ProductComplex	1	1 = FX Forward 3 = FX NDF
9020	FixingDate*	UTC Date	YYYYMMDD fixing date of instrument. **Provided only for NDFs.**
9030	UTI	<String>	Unique Trade Identifier
9031	USI*	<String>	Unique Swap Identifier. **Only applicable for FX NDFs.**
9032	ReportingParty	Y = Yes N = No	Indicates if the execution report recipient is the reporting party. Follows GFMA FX reporting rules.

* = Optional.

4.3 Averaging Trades Execution Report – Filling Status From Cboe FX

The following is a template of the averaging trade Execution Report sent by the Trade Feed application containing a drop-copy.

TAG	FieldName	Contents	Comments
35	MsgType	8	(Contained in header)
1*	Account	Alphanumeric characters and underscores	Alphanumeric text field meant to contain 3rd-party account ID.
37	OrderID	<String>	HSFX-assigned order ID
17	ExecID	<String>	AVG_HSFX-assigned Trade ID Example: AVG_32571902a – ends with "a", an average trade
11	ClOrdID	Client ID	Client Order ID
20	ExecTransType	0	0 = New
150	ExecType	F	F = Trade
39	OrdStatus	2	2 = Filled
55	Symbol	XXX/YYY	CC1/CC2. e.g. EUR/USD, NZD/JPY, etc.
54	Side	<Int>	1 = Buy/Bid 2 = Sell/Offer
64	FutSetlDate	< Date>	
75	TradeDate	< Date>	
76	ExecBroker	HSFX	
119	SettlCurrAmount	<Qty>	Always USD qty of fill
120	SettlCurrency	USD	Always 'USD'
38	OrderQty	Total	Order Quantity (Amount of CC1)
44	Price	<Price>	Limit Price specified
59	TimeInForce	<Int>	0 = Day 3 = Immediate or Cancel (IOC)
151	LeavesQty	0	0 for canceled, expired, or rejected
14	CumQty	<Qty>	# of Shares Filled
32	LastShares	<Qty>	
15	Currency	XXX	Always either XXX or YYY from Symbol
6	AvgPx	<Price>	Avg executed price
167	SecurityType	FOR	
192	OrderQty2	<Qty>	Amount of contra currency (Amount of CC2)
382	NoContraBrokers	1	Always set to 1
375	ContraBroker	<String>	For PB and direct client, it is set to clearing contra bank; For regular client, it is set to its Prime Broke bank.
58	Text	<String>	Always 'AVERAGE' – to use for average trade message.
60	TransactTime	<UTC Date/Time>	UTC Date/Time of Execution
6997	HSFXCollateralID	<String>	Collateral ID
6998	HSFXUserID	<String>	User ID
820	TradeLinkID	<String>	A list of trade Ids – to list all trade Ids in an average trade message. Example: TRD_32571900, TRD_32571902
66*	ListID	<String>	e.g. jennifer:0.75:79.44025,vincent:2.25:238.320

* = Optional.

4.4 Execution Report – Ack from client (Trade Confirmation)

This functionality is optional. Clients who would like to use it must be configured to use it. If it is not configured, there is no ACK from the client side.

Trade Confirmation message is simply an identical copy of the execution report sent to the client for a trade (i.e. an execution report containing 150=F).

5 Operational Sequence

5.1 Logon Process

1. The client establishes a TCP connection to Cboe FX on a specified TCP port.
2. The client should send a FIX-Login Message that includes their Company/CollatId in the SenderCompID field, FIX-TRADE-FEED in the TargetCompID field, Login/userId in the Username field, and their password in the Password field.
3. Cboe FX will Respond immediately with a confirming Login Message if the client Authenticates. If the Client fails to Authenticate a Logout Message will be sent with a Text field indicating the Reason the Client was rejected and the Connection will be terminated immediately by Cboe FX. Cboe FX will Reject Incoming Logins with MsgSeqNum less than expected: This means that if there had been a previously established and terminated FIX connection and the client tries to re-establish a connection, it must do so with a MsgSeqNum > than the last MsgSeqNum that it had sent out. (Sequence Numbers return to 1 at the start of each day.)
4. At this point both the Client and server should synchronize, if necessary. If the MsgSeqNum of the Logon Message was greater than expected, Cboe FX will send a Sequence Resend Request for the missed messages. If the Client Sends a Resend Request, their request is processed by Cboe FX.
5. Cboe FX will send any executions that occurred while the client was not connected to the system. (This will occur as soon as a heartbeat with the generated TestReqID is received)

5.2 Regular FIX Communications

Whenever a message cannot be understood a Reject Message is sent with a description of the problem in the Text Field. (I.e. Invalid Checksum or Missing Field)

Notes about Gap Fills:

Whenever a gap is detected Cboe FX will disregard the most recently received message and issue a Resend Request from the MsgSeqNum Cboe FX was expecting to infinity (0 in FIX 4.2).

When Cboe FX receives a ResendRequest, it processes the requests and sends the response all at once.

Notes about StatusRequest Responses:

The Result of Issuing a status request for any filled or partially filled order will be a retransmission a single execution report.

5.3 Logout Process

A client that wishes to terminate their FIX connection should send a Logout message to Cboe FX. Cboe FX will first try to synchronize if it is missing any messages and then it will send a confirming Logout, Cboe FX will then terminate the connection.

Revision History

2008-08-28 – Initial version
2008-10-01 – version 1.1
2008-10-10 – version 1.2
2008-12-02 – version 1.3
2009-01-29 – version 1.4
2009-03-10 -- version 1.5
2009-04-02 -- version 1.6: Add the comment for tag 141, tag 17.
2009-04-06 -- version 1.7: Change the start time on Sunday
2009-05-14 – version 1.8: Add tag 11 as client order ID.
2009-07-08 – version 1.9: Add tag 1 for free text
2009-07-17 – version 2.0: Clarify tag 820 for linking the spreading trades or all-in-price trades
2010-05-10 – Added average trade functionality
2010-09-10 – version 2.2: create 4.2 section for averaging trades.
2011-10-15 – version 2.3: add tag 66 to average report.
2011-11-08—version 2.4: add explanation for tag 38 and 192
2016-07-06 – version 2.5: add forwards trade message
2016-08-08 – version 2.6: add 9032 as reporting party on forwards trade
2017-03-21 – version 2.7: add NDF as a value for 167, add 9031 as USI for NDF trades
2017-10-09 – version 2.8: add NDF fixing date in tag 9020