545 Washington Boulevard, Jersey City, N.J. 07310

FIX Specification for MarketData
(FIX BookFeed)

Programming Reference

Version 3.3

Disclaimer

All data concerning Hotspot FX's FIX specification is provided solely for informational purposes to help authorized Hotspot FX clients, prospective clients and technology partners to develop systems to interact with Hotspot FX's marketplace via FIX. This specification is proprietary to Hotspot FX. Hotspot FX reserves the right to withdraw, modify, or replace the specification at any time, without notice. No obligation is made by Hotspot FX regarding the level, scope, or timing of Hotspot FX's implementation of the functions or features discussed in this specification. The specification is "as is" and Hotspot FX makes no warranties, and disclaims all warranties, expressed, implied, or statutory related to the specifications. Hotspot FX, and its affiliated companies, are not liable for any incompleteness or inaccuracies and additionally are not liable for any consequential, incidental, or indirect damages relating to the specifications or their use. It is further agreed that you agree not to copy, reproduce, or permit access to the information about Hotspot FX's FIX specification, including, but not limited to, the information contained in the specification, except to those with a need to know for the purpose noted above. Confidential.

Document Revisions

Version	Primary Author(s)	Description of Version	Date Completed
2.0	HSFX FIX Team	Initial Document	8/29/2006
2.1		Update for BookFeed	4/30/2007
2.1.2		Ticker message format update	5/23/2007
3.2		Clarified tags 272 and 273	5/23/2012
3.3		Update for Resend request	7/31/2012

Hotspot FX FIX Specification for Market Data

1. TABLE OF CONTENTS

2. INTRODUCTION

The Hotspot FX ECN is an e-financial marketplace where buyers and sellers worldwide can trade foreign exchange directly and anonymously, gain price improvements, and lower their overall trading costs. The Hotspot FX BookFeed gateway provides an interface to access the Hotspot FX ECN via an industry standard protocol, FIX, which has been adopted by financial institutions around the world.

There are two HSFX FIX Gateways that Hotspot FX supports, one for orders and the other the BookFeed for market data. A client who wishes to receive streaming rates as well as routing orders to the Hotspot FX marketplace will need to establish two network connections.

This document detail how to consume marketdata via FIX.

2.1.   UAT and Production Environments

Hotspot FX supports two environments; User Acceptance Testing (UAT) and Production. After network connectivity has been established, the client will receive FIX session and logon information. The following is an example of the information for establishing a FIX session in the UAT environment:

Session Information

Connection Information	Description	Example
IP address	The IP of HotSpot FX's FIX Gateway	64.94.190.176
Port number	The Port of HotSpot FX's FIX Gateway	8001
SenderCompID	Hotspot FX assigned value used to identify the firm sending the message	DATA_FIX_<companyid>
TargetCompID	Hotspot FX assigned value used to identify the firm receiving the message	HSFX-FIX-BRIDGE
User ID	User ID used for the logon message.	hotspotcollatid
Password	Password used for the logon	hotspot

		message		

Hotspot's production support staff is responsible for generating a user id and password for the UAT environment. For production, the prime broker or HSFX's Liquidity department will create and distribute these fields directly to the client. Please see Logon message for more details.

2.2. Data types used in all FIX messages

Type	Format	Example
Int	Integer	99999
Data	Raw data with no format or content restrictions. Data fields are always immediately preceded by a length field.	
Float	Numeric digits with optional decimal point and sign character.	-2000.00000000000 -2000 -2000.
Qty	Quantity: see float	5000000.00
Price	Price: see float	1.56343
Price Offset	Price Offset: see float	
Amt	Amount: see float	
Char	Character	'A'
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

2.3. General FIX Message Structure

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

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 A - Logon V – MarketData request W = Snapshot/Full refresh X – Incremental refresh
34	MsgSeqNum		Message Sequence Number (Resets to 1 at the start of each trading day)
49	SenderCompID	BIGFUND SMALLFUND HSFX	Sender Company ID (MMID of message sender)
56	TargetCompID	BIGFUND SMALLFUND HSFX	Target Company ID (MMID of message receiver)
52	SendingTime		GMT Date/Time Message was sent

Hotspot FX FIX Specification for Market Data

Standard Trailer

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

3. FIX Message Types and Message Flow

The HSFX FIX Gateway Market Data interface accepts the following inbound message types:

- Logon (MsgType = 'A')
- Market Data Request (MsgType = 'V')
- Heartbeat – response to Test Request – must echo the value in tag 112(MsgType = '0')
- Reject – this message can be sent by the client to report a session level rule violation (MsgType = '3')
- Resend (MsgType = '2')

Other message types will be ignored; hence, a reject message will not be sent back to the client application.

The HSFX FIX Gateway Market Data interface sends the following outbound message types:

- Logon Response (MsgType = 'A')
- Market Data - Snapshot/Full Refresh (MsgType = 'W')
- Market Data - Incremental Refresh (MsgType = 'X')
- Test Request – the response from the client must echo the value of the Test Request ID field (tag 112) (MsgType = '1')
- Reject – this message is sent by the FIX Gateway to report a session level rule violation (MsgType = '3')
- Sequence Reset (MsgType = '4'), as a response to Resend.

As of right now, no market data request message is required, once the client establishes a FIX market data connection the client starts to receive a stream of market data snapshot messages. The first message is always a market data incremental snapshot, which contains the list of tradable currency pairs with an associated price precision.

Any message type not discussed in subsequent sections conforms to the FIX 4.2 standard.

3.1.   Logon from client

The logon message must be the first message sent by the client application to initiate a FIX session. Upon receipt of the logon message, HSFX FIX Gateway authenticates the client's session by validating the sender comp ID and username contained in the message. The FIX Gateway responds with a type 'A' message of its own, indicating to the client that the connection has been established.

There are two ways to pass the username and password to the HSFX FIX Gateway. By default, HSFX will look for username and password in the RawData field tag 96; if the RawData is not present, the FIX session will use the Username (tag 553) and Password (tag 554) fields to authenticate the FIX session. Either tags 95/96 must be present or tags 553/554.

TAG	FieldName	Contents	Comments
35	MsgType	Char	'A'
553	Username	String	Hotspot username (or Hotspot collat)
554	Password	String	Password for id in tag#553
98	EncryptMethod	Integer	None
108	HeartBtInt	Integer	Client Hearbeat Interval (In seconds) - clients should use a 30 second Heartbeat Interval.
95	RawDataLength	Length	Length of raw data field

Hotspot FX FIX Specification for Market Data

96	RawData	Data	In the format of username:passowrd Required if fields #553 and #554 are null

3.2. Logon Response from Hotspot

TAG	FieldName	Contents	Comments
35	MsgType	Char	'A'
98	EncryptMethod	Integer	None
108	HeartBtInt	Integer	This is the echoed heartbeat interval from the client logon.

3.3. Market Data Request – from client

A successful Market Data Request returns a Market Data Snapshot message for each requested currency pair, and each contains one or more Market Data Entries. The MDEntryType field (tag 269) in the 'V' message is ignored (subscription to the currency means the client will receive bid/offer/ticker information). The number of currencies in the 'V' message is specified in tag 146.

We categorize market data update messages into "Book" and "Ticker". Ticker updates provide only the last traded price with a quantity equal to '0' (for better preservation of anonymity). Book data provides bids and offers with the client requested market depth. Market Depth (tag 264) in the 'V' message is used to request the desired depth of book (0 for full depth of book or an integer indicating the number of requested levels). This setting affects all pairs a client subscribes to.

If a client doesn't send any Market Data Request (type 'V') messages, then by default they are subscribed to all currency pairs for either the top of the book or the full book, depending on which FIX gateway the client connects to.

The very first Market Data Request message from client after logon will automatically unsubscribe the client from all currency pairs, before the requested pairs in this message are processed. Subsequent Market Data Request messages during the same FIX session will enable the client to subscribe to or unsubscribe from the pairs that are specified in these individual messages, with no effect on previous subscriptions.

FOREX Conventions
Symbol: The foreign exchange Symbol field (tag 55) is defined by the format:
- "CCY1/CCY2", e.g. "GBP/USD", where CCY1 and CCY2 are ISO currency codes.

Once the client establishes a FIX market data connection, they start receiving a stream of market data snapshot messages. The first message is always a market data incremental snapshot, which contains the list of tradable currency pairs with an associated price precision.

TAG	FieldName	Contents	Comments
35	MsgType	Char	'V'
262	MDReqIDt	String	client request Id
263	SubscriptionReqType	Char	1 for subscribe, 2 for unsubscribe
264	MarketDepth	Integer	0 for full depth, affect all pairs
267	NoMDEntryTypes	Integer	ignored
269	MDEntryType	Char	ignored
146	NoRelatedSym	Integer	Number of currencies in the message.
55	Symbol	String	This field repeats NoRelatedSym times. One for each pair.

3.4. Market Data Snapshot – from Hotspot

The Market Data Snapshot message is used to provide book and ticker information (in separate 'W' messages) to the client. The MDEntryDate (tag 272) and MDEntryTime (Tag 273) fields specify the transaction time. The TickDirection (tag 274) field indicates whether the trade was a buy or sell ('0' – bought, '2' – sold) in a ticker message. The bought or sold status indicates the action of the aggressor in the trade. The NumberOfOrders field (tag 346) indicates the number of orders at each price level in the non ticker messages.

Market Book Update

TAG	FieldName	Contents	Comments
35	MsgType	Char	'W'
55	Symbol	String	Currency pair.
268	NoMDEntries	Integer	Number of prices in the message.
269	MDEntryType	Char	This group repeats NoMDEntries times. Tag 269 can only be '0' or '1' for non-ticker market update messages.
270	MDEntryPx	Double	
271	MDEntrySize	Double	
346	NumberOfOrders	Integer	

Market Ticker Update

TAG	FieldName	Contents	Comments
35	MsgType	Char	'W'
55	Symbol	String	Currency pair.
268	NoMDEntries	Integer	Number of prices in the message.
269	MDEntryType	Char	This group repeats NoMDEntries times. Tag 269 can only be '2' for ticker market update messages. Tag 271 is always 0.0 for ticker messages. Tag 274 is '0' when bought and '2' when sold.
270	MDEntryPx	Double	
271	MDEntrySize	Double	
272	MDEntryDate	UTCDate	MDEntryDate denotes trade date, which is defined as 5pm previous day to 5pm current calendar day in New York time. MDEntryTime denotes New York time.
273	MDEntryTime	UTCTimeOnly	
274	TickDirection	Char	

3.5. Market Data Snapshot Incremental Refresh

This message is sent before sending any 'W' messages to a client after log on. This message contains the list of available currency pairs sent at the beginning of a market data session.

TAG	FieldName	Contents	Comments
35	MsgType	Char	'X'
268	NoMDEntries	Integer	Number of currencies in the message.
55	Symbol	String	This group repeats NoMDEntries times. TickBandNoDecPlaces is the # of decimal places in the price value.
279	MDUpdateAction	Char	
5071	TickBandNoDecPlaces	Integer	

3.6. Resend from client

A Sequence Reset message is sent back as a response to the Resend request. However, no market data will be sent back.

TAG	FieldName	Contents	Comments
123	GapFillFlag	Boolean	Y
36	NewSeqNo	Integer	New sequence number

Hotspot FX FIX Specification for Market Data