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

Order entry and Execution
FIX Specification

Programming Reference

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1   Introduction

1.1   Supported FIX Versions

HSFX FIX Gateway currently supports the FIX Protocol Version 4.2. *Note, however, that the values of tags 39, 150, and 102 are actually those of FIX Protocol Version 4.4.*

1.2   Hours of Operation

All times are represented in Eastern Time (ET), which uses EST (UTC-05) during fall/winter and EDT (UTC-04) during spring/summer months when daylight saving time is observed. The window between disconnect and restart is approximate and is subject to change.

	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	5:02 PM	5:02 PM	5:02 PM	5:02 PM	N/A	N/A	5:00 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 Hotspot FX source IP addresses for all servers that will be establishing connectivity to Hotspot FX. Hotspot FX's connectivity team will help our clients establish connectivity through a standard on-boarding process.

1.4   Security and Encryption

HSFX FIX Gateway supports secure socket layer (SSL) over the Internet and through VPN. We recommend using SSL for any client that chooses to connect to HSFX FIX Gateway 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
> 9 = OrderCancelReject
> A = Logon
> D = NewOrderSingle
> F = OrderCancelRequest
> G = OrderCancelReplaceRequest
> H = OrderStatusRequest

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	
Price Offset	Price Offset: 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 9 = OrderCancelReject A = Logon D = NewOrderSingle F = OrderCancelRequest G = OrderCancelReplaceRequest H = OrderStatusRequest
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)
50	SenderSubID	User1 User2	HSFX User ID *or* The same content as SenderSubID if OnBehalfOfSubID is present (See section 10 for details)
56	TargetCompID	BIGFUND SMALLFUND HSFX	Target Company ID (MMID of message receiver)
116*	OnBehalfOfSubID	User1 User2	HSFX User ID (See section 10 for details)
43*	PossDupFlag		Indicates possible retransmission of this seq num
97*	PossResend		Indicates possible retransmission of msg under a New sequence number
52	SendingTime		GMT Date/Time Message was sent. This value should ideally contain milliseconds. It must be within 2 minutes of system time on the FIX Proxy in order for the message not to be rejected. Since the FIX Proxy is NTP synched, any sender should probably be NTP synched as well.

* = Optional.

2.2 Standard Trailer

TAG	FieldName	Contents	Comments
10	CheckSum		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		Hotspot username (or Hotspot collat)
554	Password		Password for id in tag#553
98	EncryptMethod	0	None
108	HeartBtInt		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 other than on initial daily logon.* 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 5), HSFX 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 Hotspot

TAG	FieldName	Contents	Comments
35	MsgType	A	(Contained in header)
98	EncryptMethod	0	None
108	HeartBtInt	60	Clients should use a 30 second Heartbeat Interval.

3.3 HeartBeat - From Hotspot 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 Hotspot and Client

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

3.5 Resend - From Hotspot and Client

Clients should NEVER resend previously sent messages, including old prices, in response to a resend request. A GapFill message should be used instead.

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

3.6 Reject - From Hotspot and Client

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

* = Optional.

3.7 SequenceReset/GapFill - From Hotspot and Client

TAG	FieldName	Contents	Comments
35	MsgType	4	(Contained in header)
36	NewSeqNo		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 Hotspot and Client

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

* = Optional.

4 Order Entry Messages

4.1 New Order Single - From Client

TAG	FieldName	Contents	Comments
1*	Account	Alphanumeric characters and underscores	Alphanumeric field meant to contain 3rd-party account ID. This will be returned with any ExecutionReport generated by this order.
35	MsgType	D	(Contained in header)
11	ClOrdID	Client ID	Client Order ID Alphanumeric and Unique within a trading day. '|', single-quote, and double-quote characters cannot be used. Validation is case insensitive, so reusing an ID differing in case only will cause a rejection. ClOrdID is case sensitive, so the same case must be used to cancel an order.
18*	ExecInst	MultipleValueString	Only used with pegged orders to specify peg type. Supported values: P = Market Peg R = Primary Peg
21	HandlInst	1	Required by FIX 4.2 but not used. Example val 2
15*	Currency		This represents the denomination of the quantity field For example, to sell 1M USD against EUR: 55=EUR/USD, 54=1, 15=USD, 38=1000000
38	OrderQty		Qty of currency 1
210*	MaxShow		Default to order qty. Other minimum value of this field depends on account setting
110*	MinQty		Minimum trade quantity. Must be at most the OrderQty. If the OrderQty drops below this quantity due to a fill, the order will be automatically cancelled.
44	Price	1.51234	See Data Types for Maximum Precision Price is ignored for market orders (OrdType=1/C). This also serves as a limit for pegged orders
54	Side		1 = Buy 2 = Sell
55	Symbol	EUR/USD USD/JPY EUR/JPY	The symbol is defined by CCY1/CCY2
40	OrdType		1 = Market (Market orders must have TimeInForce = 3) 2 = Limit C = Market (same as '1') F = Limit (same as '2') P = Pegged
59*	TimeInForce		0 = Day, Good through normal Market Hours. (5:30pm EST to 17:00 ET) (Default if Unspecified) 3 = Immediate Or Cancel
60*	TransactTime		Time Order was Initiated
211*	PegDifference	Price	Difference (signed) in units of currency CCY1 *added* to best price in market. Added to *Best Offer* on Peg Market Buys and Peg Primary Sells. Added to *Best Bid* on Peg Primary Buys and Peg Market Sells. Default value is 0.00.

* = Optional.

4.1.1 Day or IOC Orders

In order to submit a Day or IOC order, set tag 40 to either 2 or F and set tag 59 to either 0 or 3, depending on whether the order is meant to be a Day or IOC order, respectively. Tag 99 will be ignored if supplied.

4.1.2 Pegged Orders

Pegged orders are placed by supplying P in OrderType (40), either P or R in ExecInst (18) and an offset price in PegDifference (211). TimeInForce (59) must be DAY. If a nonzero Price (44) is

submitted, the pegged price will not exceed this price. Note that pegged orders cannot be modified via OrderCancelReplaceRequests.

4.2 Execution Report – GENERIC EXECUTION REPORT From Hotspot

All possible fields that could be sent to the Client in an Execution Report. Not all fields are sent on all messages. Extra fields on all FIX messages should be ignored. The presence of fields beyond this API should not cause message rejects. New fields may be added to the API, and unnecessary fields may be removed from the API. For trades not initiated by the client, i.e. manual adjustment trades, tag 11 will be set to 0.

TAG	FieldName	Contents	Comments
1*	Account	Alphanumeric characters and underscores	Alphanueric text field meant to contain 3rd-party account ID.
35	MsgType	8	(Contained in header)
11	ClOrdID	Client ID	See "4.1 New Order Single" for specs. For trades not directly initiated by the client (manual adjustment trades, etc) the field may be set to 0.
17	ExecID	ECN Execution ID	[a-zA-Z0-9_]
18*	ExecInst	MultipleValueString	Only used with pegged orders to specify peg type. Supported values: P = Market Peg R = Primary Peg
20	ExecTransType	Execution Report Type	0 = New 1 = Cancel (used to indicate cancel acknowledgements) 3 = Status
37	OrderID	ECN OrderId	Exchange Generated OrderID In response to a Cancel Request: ClOrdId of the order being cancelled, i.e. the same value as OrigClOrdID
39	OrdStatus	Current Order Status (FIX 4.4 usage)	0 = New 1 = Partially Filled 2 = Filled 4 = Canceled 5 = Replaced 6 = Pending Cancel 8 = Rejected C = Expired (Deviation from FIX 4.4 – populated on IOC misses) E = Pending Replace
41	OrigClOrdID	ClOrdId	In response to a Cancel Request: Original ClOrdID of the Initial Order. See "4.1 New Order Single" for specs, ClOrdID field.
38*	OrderQty		Order Quantity
44	Price/Rate		Limit Price specified
59	TimeInForce		See "4.1 New Order Single" for specs.
15*	Currency		Currency of Qty
54	Side		See "4.1 New Order Single" for specs.
55	Symbol	CCY1/CCY2	See "4.1 New Order Single" for specs.
76	ExecBroker	Y | N	Y – Indicates aggressive trade N – Indicates passive trade HSFX - otherwise
151	LeavesQty		0 for canceled, expired or rejected. Otherwise it is OrderQty-CumQty
14	CumQty		# of qty filled
110*	MinQty		See "4.1 New Order Single" for specs.
192	OrderQty2		Amount of contra currency
64	FutSetlDate	YYYYMMDD	
75	TradeDate	YYYYMMDD	
119	SettlCurrAmount		Equivalent amount in USD
120	SettleCurrency	USD	Always in USD
167	SecurityType	FOR	
210*	MaxShow		See "4.1 New Order Single" for specs.
150	ExecType	Execution Type (FIX 4.4 usage)	0 = New 4 = Canceled

TAG	FieldName	Contents	Comments
			5 = Replaced
			6 = Pending Cancel
			8 = Rejected
			C = Expired (Deviation from FIX 4.4 – populated on IOC misses)
			E = Pending Replace
			F = Trade
			I = Status
6	AvgPx		Avg executed price (decimal portion has the same precision as tag 31)
32*	LastShares	ExeQty	Executed CCY or Cancelled CCY
31	LastPx	ExePrice	Executed Price
382	NoContraBrokers	1,2	Value usually is 1, can occasionally be 2 to indicate an extra ContraBroker field
375	ContraBroker	Contra	Set to Clearing Conuterparty for bank connections, "Not Available" otherwise. If this is a second ContraBroker field, it contains a numeric representation of counterparty collateral id, and is used to indicate that the counterparty collateral is the same as the trading collateral.
58	Text		Rejection reason
60	TransactTime		Time Order was Initiated

* = Optional.

4.3   Execution Report - New Order or Cancel/Replace - From Hotspot

Generated As a result of a New Order Placement or Cancel/Replace Request Placement

TAG	FieldName	Contents	Comments
35	MsgType	8	(Contained in header)
11	ClOrdID	Client ID	See "4.1 New Order Single" for specs.
41	OrigClOrdID		
37	OrderID	ECN OrderId	See "4.2 Execution Report" for specs.
17	ExecID	"None"	See "4.2 Execution Report" for specs.
18*	ExecInst	MultipleValueString	Only used with pegged orders to specify peg type. Supported values: P = Market Peg R = Primary Peg
20	ExecTransType	0	0 = New
150	ExecType	0	0 = New 5 = Replace 8 = Rejected C = Expired (Deviation from FIX 4.4 – populated on IOC misses) E = Pending Replace
39	OrdStatus	Current Order Status	0 = New 2 = Filled 5 = Replaced 8 = Rejected C = Expired (Deviation from FIX 4.4 – populated on IOC misses) D = Accepted for Bidding E = Pending Replace
119	SettlCurrAmount		Equivalent amount in USD
120	SettlCurrency	USD	Always in USD
167	SecurityType		FOR
192*	OrderQty2		Optional
382	NoContraBrokers		1
375	ContraBroker		Set to clearing contra for bank connections
15*	Currency	USD	Currency of tag #38
55	Symbol		See "4.1 New Order Single" for specs.
54	Side		See "4.1 New Order Single" for specs.
38*	OrderQty	Total	Order Quantity
210*	MaxShow		See "4.1 New Order Single" for specs.
110*	MinQty		See "4.1 New Order Single" for specs.
44	Price		Limit Price specified
59*	TimeInForce		See "4.2 Execution Report" for specs.
151	LeavesQty	Total	0 for canceled, expired, or rejected
14	CumQty	0	# of Shares Filled
6	AvgPx	0	Avg executed price (decimal portion has the same precision as tag 31)

TAG	FieldName	Contents	Comments
32*	LastShares	ExeQty	Executed Shares
31	LastPx	ExePrice	Executed Price
58*	Text		Textual description - rejection reason
60	TransactTime		GMT Date/Time of Execution
76*	ExecBroker		Y – Indicates aggressive trade N – Indicates passive trade HSFX - otherwise

* = Optional.

4.4 Execution Report - Filling Status From Hotspot

TAG	FieldName	Contents	Comments
35	MsgType	8	(Contained in header)
11	ClOrdID	Client ID	See "4.1 New Order Single" for specs. In response to a Cancel Request: ClOrdId of the Cancel Request ClOrdId of the Original order For trades not directly initiated by the client (manual adjustment trades, etc) the field may be set to 0.
37	OrderID	ECN OrderId	See "4.2 Execution Report" for specs.
41*	OrigClOrdID	ClOrdID of Order	See "4.2 Execution Report" for specs.
17	ExecID	ECN Execution ID	See "4.2 Execution Report" for specs.
20	ExecTransType	0	0 = New
150	ExecType	Execution Type	0 = New 4 = Canceled 5 = Replace 6 = Pending Cancel 8 = Rejected C = Expired D = Accepted for Bidding E = Pending Replace F = Trade
39	OrdStatus	Current Order Status	1 = Partially Filled 2 = Filled 4 = Canceled 5 = Replaced C = Expired E = Pending Replace
1*	Account	Alphanumeric characters and underscores	Alphanumeric text field meant to contain 3rd-party account ID. This will be returned with any ExecutionReport generated by this order.
55	Symbol		See "4.1 New Order Single" for specs.
54	Side		See "4.1 New Order Single" for specs.
64	FutSetlDate	YYYYMMDD	
75	TradeDate	YYYYMMDD	
76*	ExecBroker		Y – Indicates aggressive trade N – Indicates passive trade HSFX - otherwise
119*	SettlCurrAmount		Equivalent amount in USD
120*	SettlCurrency		Always in USD
38*	OrderQty	Total	Order Quantity
210*	MaxShow		See "4.1 New Order Single" for specs.
110*	MinQty		See "4.1 New Order Single" for specs.
44	Price		Limit Price specified
59	TimeInForce		See "4.2 Execution Report" for specs.
126*	ExpireTime	GMT Date / Time of Order Expiration	See "4.2 Execution Report" for specs.
151	LeavesQty	Total	0 for canceled, expired, or rejected
14	CumQty	0	# of Shares Filled
32*	LastShares	0	
15*	Currency		
6	AvgPx	0	Avg executed price (decimal portion has the same precision as tag 31)
31	LastPx	0 or value	Last exec price
167	SecurityType	FOR	
192	OrderQty2		Amount of contra currency
382	NoContraBrokers	1	Always set to 1
375	ContraBroker		Set to clearing contra for bank connections
58	Text		Rejection reason
60	TransactTime		GMT Date/Time of Execution

* = Optional.

4.5 Execution Report - Order Status from Hotspot

As a Result of Order Status Request

TAG	FieldName	Contents	Comments
1*	Account	Alphanumeric characters and underscores	Alphanumeric text field meant to contain 3rd-party account ID. This will be returned with any ExecutionReport generated by this order.
35	MsgType	8	(Contained in header)
11	ClOrdId	Client ID	See "4.1 New Order Single" for specs.
37	OrderID	ECN OrderId	See "4.2 Execution Report" for specs.
41*	OrigClOrdID	ClOrdID of Order	See "4.2 Execution Report" for specs.
17	ExecID	ECN Execution ID	See "4.2 Execution Report" for specs.
20	ExecTransType	3	Status
39	OrdStatus	Current Order Status	0 = New 1 = Partially Filled 2 = Filled 4 = Canceled 5 = Replaced 6 = Pending Cancel 8 = Rejected C = Expired E = Pending Replace
150	ExecType	Execution Type	I = Status
38*	OrderQty	Total	Order Quantity
210*	MaxShow		See "4.1 New Order Single" for specs.
110*	MinQty		See "4.1 New Order Single" for specs.
54	Side		See "4.1 New Order Single" for specs.
55	Symbol		See "4.1 New Order Single" for specs.
151	LeavesQty	Total	0 for canceled, expired, or rejected
14	CumQty	0	# of Shares Filled
32*	LastShares	0	
15*	Currency		
6	AvgPx	0	Avg executed price (decimal portion has the same precision as tag 31)
31	LastPx	0 or value	Last exec price
382*	NoContraBrokers	1	
375*	ContraBroker	Contra MMID	
44	Price		Limit Price specified
59	TimeInForce		See "4.2 Execution Report" for specs.
58	Text		Rejection reason
60	TransactTime		GMT Date/Time of Execution

* = Optional.

5   Trade Confirmation

Since the FIX protocol (when sequence numbers and resend requests are used correctly[1])
already guarantees the delivery of all trade messages to clients, by default the FIX Order
Gateway automatically sends a trade acknowledgement to the HSFX ECN immediately after it
sends a client an Execution Report for a trade.

However, as an extra protective feature, HSFX offers clients the option to generate this ECN
acknowledgement themselves. Clients who want to confirm trades themselves must be
configured by HSFX to do so. If not configured, all trades a client receives will be acknowledged
automatically by the HSFX FIX Order Gateway.

In order to send trade confirmation messages manually, simply send the FIX Order Gateway an
identical copy of the execution report it sent for each trade. This must be done within a short
amount of time (please contact HSFX production support for the specific time amount).

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[1] See http://fixprotocol.org/documents/374/fix-42-with_errata_20010501_pdf.zip for details
concerning managing sequence numbers and handling resend requests correctly. Registration with
fixprotocol.org is required. *Correct resequencing behavior is required for successful FIX Proxy
certification.*

6   Averaging Trades Request

6.1   Averaging Trades Request – From Client

TAG	FieldName	Contents	Comments
35	MsgType	D	(Contained in header)
11	ClOrdID	Client ID	Client Order ID Alphanumeric and Unique within a trading day. ':' character cannot be used. Validation is case insensitive, so reusing an ID differing in case only will cause a rejection. ClOrdID is case sensitive, so the same case must be used to cancel an order.
21	HandlInst	1	Required by FIX 4.2 but not used.
38	OrderQty	0	Required by FIX 4.2 but not used.
40	OrderType	1	Required by FIX 4.2 but not used.
44	Price	0	Required by FIX 4.2 but not used.
54	Side	1	'1' – BID, '2' – OFFER
55	Symbol	CCY1/CCY2	See "4.1 New Order Single" for specs.
59	TimeInForce	0	0 = Day, Good through normal Market Hours
60	TransactTime	UTC	Time when the Order was Initiated
820	TradeLinkIDs	String	Array of trade IDs to be averaged. Comma separator. Example value: '66284,66278,66274' or 'TRD_66284, TRD_66278, TRD_66274' The original Trade ID is reported in Tag 17 (ExecID).

6.2   Execution Report – From Hotspot

6.2.1   Averaging Trades Request Acknowledgement

TAG	FieldName	Contents	Comments
35	MsgType	8	(Contained in header)
6	AvgPx	0	
11	ClOrdID	Client orderId	See "4.1 New Order Single" for specs.
14	CumQty	0	
17	ExecID	64979a	The Average ID. Example values: '64979a' for multiple average or '64979' for single average
20	ExecTransType	0	0 = New
37	OrderID	ECN OrderId	The Average ID. Example values: '64979a' for multiple average or '64979' for single average
39	OrdStatus	0	0 = New
54	Side		'1' - buy or '2' - sell
55	Symbol	CCY1/CCY2	See "4.1 New Order Single" for specs.
58	Text	String	"Averaging request received"
59	TimeInForce	0	See "4.2 Execution Report" for specs.
60	TransactTime	UTC	Time when the Order was Initiated
76	ExecBroker	String	"HSFX"
150	ExecType	0	0 = New
151	LeavesQty	0	Required by FIX 4.2 but not used.
167	SecurityType	String	"FOR"
192	OrderQty2	0	
820	TradeLinkIDs	String	Array of trade IDs to be averaged. Comma separator. Example value: '66284,66278,66274' or 'TRD_66284, TRD_66278, TRD_66274' The original Trade ID is reported in Tag 17 (ExecID).

6.2.2 Averaging Trades Request Reject

TAG	FieldName	Contents	Comments
35	MsgType	8	(Contained in header)
6	AvgPx	0	
11	ClOrdID	Client ID	See "4.1 New Order Single" for specs.
14	CumQty	0	
17	ExecID	64979a	The Average ID. Example values: '64979a' for multiple average or '64979' for single average
20	ExecTransType	0	0 = New
37	OrderID	ECN OrderId	The Average ID. Example values: '64979a' for multiple average or '64979' for single average
39	OrdStatus	8	8 = Rejected
54	Side		'1' - buy or '2' - sell
55	Symbol	CCY1/CCY2	See "4.1 New Order Single" for specs.
58	Text	String	Reason for rejection
59	TimeInForce	0	See "4.2 Execution Report" for specs.
60	TransactTime	UTC	Time when the Order was Initiated
76	ExecBroker	String	"HSFX"
150	ExecType	8	8 = Rejected
151	LeavesQty	0	Required by FIX 4.2 but not used.
167	SecurityType	String	"FOR"
192	OrderQty2	0	
820	TradeLinkIDs	String	Array of trade IDs to be averaged. Comma separator. Example value: '66284,66278,66274' or 'TRD_66284, TRD_66278, TRD_66274' The original Trade ID is reported in Tag 17 (ExecID).

6.2.3 Averaging Trades Response

TAG	FieldName	Contents	Comments
35	MsgType	8	(Contained in header)
6	AvgPx	1.23456	Average Price (considered to be accurate)
11	ClOrdID	Client ID	See "4.1 New Order Single" for specs.
14	CumQty		Total quantity of the deal currency
17	ExecID	64979a	The Average ID. Example values: '64979a' for multiple average or '64979' for single average
20	ExecTransType	0	0 = New
37	OrderID	ECN OrderId	The Average ID. Example values: '64979a' for multiple average or '64979' for single average
39	OrdStatus	3	3 = Done For Day
54	Side		'1' - buy or '2' - sell
55	Symbol	CCY1/CCY2	See "4.1 New Order Single" for specs.
58	Text	String	"average request was processed successfully"
59	TimeInForce	0	See "4.2 Execution Report" for specs.
60	TransactTime	UTC	Time when the Order was Initiated
76	ExecBroker	String	"HSFX"
150	ExecType	3	3 = Done For Day
151	LeavesQty	0	Required by FIX 4.2 but not used.
167	SecurityType	String	"FOR"
192	OrderQty2		Total quantity of the counter currency
820	TradeLinkIDs	String	Array of trade IDs to be averaged. Comma separator. Example value: '66284,66278,66274' or 'TRD_66284, TRD_66278, TRD_66274' The original Trade ID is reported in Tag 17 (ExecID).

7   Order Cancel Messages

The HSFX FIX Gateway supports mass order cancellation requests. The two rules for mass cancel requests are as follows:

1. To cancel all orders for all ccypairs for a trader.
   You need to set tags 41=0 and 55=CANCEL
2. To cancel all orders for a single ccypair for a trader.
   You need to set tags 41=0 and 55=CCY1/CCY2

7.1   Order Cancel – From Client

TAG	FieldName	Contents	Comments
1*	Account	Alphanumeric characters and underscores	Alphanumeric text field meant to contain 3rd-party account ID. This will be returned with any ExecutionReport generated by this request.
35	MsgType	F	
11	ClOrdID	Client ID	Client Order ID of the Cancel Request. Must be unique amongst all ClOrdId for the trading day.
41	OrigClOrdID		Original Client Order ID of the Initial Order. Must be unique within a trading day.
55	Symbol		Required for Confirmation. Must match the original order. See "4.1 New Order Single" for specs.
54*	Side		See "4.1 New Order Single" for specs.
60*	TransactTime		GMT Date/Time Order was initiated
15*	Currency		

* = Optional.

7.2   Order Cancel Replace Request – From Client

Order Cancel Replace Request is used to change parameters of a pre-existing order. The three parameters which can currently be changed are OrderQty, Price, and MaxShow.

Note that an OrderCancelReject message sent in response to an OrderCancelReplaceRequest does not indicate that the original order is cancelled, only that the attempted replacement was rejected. If the original order is cancelled as a side-effect of a cancel-replace rejection, an unsolicited cancel notification in the form of an ExecutionReport will be sent as well.

TAG	FieldName	Contents	Comments
1*	Account	Alphanumeric characters and underscores	Alphanumeric text field meant to contain 3rd-party account ID. This will be returned with any ExecutionReport generated by this request.
35	MsgType	G	
11	ClOrdID	ClientID	See "7.1 Order Cancel" for specs.
41	OrigClOrdID		See "7.1 Order Cancel" for specs.
21	HandlInst	1	
38	OrderQty	Qty	Total Order Quantity desired, including the part already executed.
210*	MaxShow		If not supplied, MaxShow specified by a previous New Order Single or Order Cancel Replace Request is assumed.
110*	MinQty		Minimum trade quantity. Must be at most the OrderQty. If the OrderQty drops below this quantity due to a fil, the order will be automatically cancelled. If not supplied, MinQty specified by a previous New Order Single or Order Cancel Replace Request is assumed.
44	Price	Price	New Limit Price.
55*	Symbol		See "4.1 New Order Single" for specs.
40*	OrdType		See "4.1 New Order Single" for specs.
54*	Side		
60*	TransactTime		GMT Date/Time Order was initiated

* = Optional.

Hotspot FX FIX Specification for Orders

7.3 Order Cancel Reject - From Hotspot

TAG	FieldName	Contents	Comments
1*	Account	Alphanumeric characters and underscores	Alphanumeric text field meant to contain 3rd-party account ID.
35	MsgType	9	
11	ClOrdID		See "5.1 Order Cancel" for specs.
37	OrderID	ECN OrderId	Exchange Generated OrderID In response to a Cancel Request: OrderId of the Original order 20 chars maximum length.
41	OrigClOrdID		See "7.1 Order Cancel" for specs.
55	Symbol		See "4.1 New Order Single" for specs.
434	CxlRejResponseTo	Reject Response to	1 = Order Cancel Request 2 = Order Cancel/Replace Request
102*	CxlRejReason	Predefined Reason	0 = Too Late 1 = Unknown Order 3 = Order Already in Pending Cancel or Pending Replace Status 6 = Duplicate ClOrdID Received 99 = Other
58*	Text	String	Textual description

* = Optional.

8   Informative Messages

8.1   Order Status Request – From Client

TAG	FieldName	Contents	Comments
1*	Account	Alphanumeric characters and underscores	Alphanumeric text field meant to contain 3rd-party account ID
11	ClOrdID		See "4.1 New Order Single" for specs.
55*	Symbol		See "4.1 New Order Single" for specs.
54*	Side		1 = Buy 2 = Sell
60*	TransactTime		GMT Time Status Request was initiated

* = Optional.

9   Operational Sequence

9.1 Logon Process

1. The client establishes a TCP connection to Hotspot on specified TCP port
2. The client should send a FIX-Login Message that includes their Company/CollatId in the SenderCompID field, HSFX in the TargetCompID field, Login/userId in the SenderSubID and Username fields, their password in the Password field.
3. HotspotFX 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 Hotspot. Hotspot 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, HotspotFX will send a Sequence Resend Request for the missed messages. The Client should never resend old messages. If the Client Sends a Resend Request, their request is processed by HotspotFX.
5. Hotspot 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)

9.2   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 Hotspot will disregard the most recently received message and issue a Resend Request from the MsgSeqNum Hotspot was expecting to infinity (0 in FIX 4.2). The Client is advised not to resend old messages, but use a Gap Fill instead. When Hotspot 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.

9.3   Logout Process

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

>   When the Hotspot System comes down for maintenance, once daily after market close, Hotspot will initiate the Logout process: A Logout message will be sent and the client will be given 10 minutes to resynchronize and send a confirming Logout message. The connection will be terminated when a confirming logout has been received, or if 10 minutes or more has passed.

9.4 Cancel / Replace Logic

OrderQty in a C/R request should be the total quantity desired on the order including any previously executed quantity. The OrderQty or the Price is required on all Cancel Replace requests.

The response to a C/R request is a Pending Replace Execution Report with ExecType=PendingReplace and OrdStatus=PendingReplace. The Pending Replace Execution Report will have all the order information from the original order, including Price, OrderQty, LastShares, and CumQty. Once the order is replaced, a Replacement Execution Report will be sent with the replacement information taking into account the already executed quantity. If the OrderQty <= CumQty, the CumQty is used on the Execution Reports returning to the client, with OrdStatus = Filled, ExecType = Replace.

If an execution is pending when a C/R request is received and the original order is filled the C/R request will be rejected (tag #39=8) with CumQty and OrderQty equal to the executed quantity if this is greater than the C/R request quantity.

10 Migration Guide

This section is only for those clients migrating from the old HSFX Fix Bridge. Clients not migrating from the old HSFX FIX Bridge may also find it valuable.

10.1 Single User/Connection Setup

10.1.1 All Messages

The old HSFX FIX Bridge required that users send the HSFX userid in OnBehalfOfSubID. The new HSFX FIX Order Gateway uses the SenderSubID field to contain this information. To successfully migrate, do not send OnBehalfOfSubID – use SenderSubID to send the HSFX userid instead. SenderSubID **must** be present in all messages sent to the new HSFX FIX Order Gateway, including Logon. OnBehalfOfSubID will be ignored.

10.1.2 Logon Messages

The old HSFX FIX Bridge allowed users to supply any valid HSFX user in the Username field. Usually, clients were instructed to populate this field with a "collateral level" logon, and populate the Password field with the corresponding password. The new HSFX FIX Order Gateway requires that Username be populated with the same value that SenderSubID has, and that Password be populated with the password for the user indicated by SenderSubID.

10.1.3 Examples

Below are examples of Logon and NewOrderSingle messages sent by a client, using 'user1', a user under collateral 'collat1'. Note also that user1 has password 'password1', and that the TargetCompID in this case is 'FixServer'. These examples demonstrate the fields required by the new HSFX FIX Order Gateway, **not** the old HSFX FIX Bridge.

```
8=FIX.4.2 9=125 35=A 34=1 49=collat1 50=user1 52=20080523-
13:21:41.443 56=FixServer 98=0 108=30 553=user1 554=password1 10=197

8=FIX.4.2 9=147 35=D 34=2 49=collat1 50=user1 52=20080523-
13:22:05.036 56=FixServer 11=1211548924787 15=SGD 21=1 38=1000000 40=F 44=1 54=
1 55=USD/SGD 59=0 10=214
```

10.2 Multiple User/Connection Setup

10.2.1 All Messages

Unlike the single-user/connection setup, the multiple user/connection setup requires that the HSFX userid be placed in OnBehalfOfSubID.

10.2.2 Logon Messages

The old HSFX FIX Bridge allowed users to supply any valid HSFX user in the Username field. In the multiple user/connection setup, Username should be populated with the same value as SenderCompID. The Password field should contain the password for the user indicated by SenderCompID.

10.2.3 Examples

Below are examples of Logon and NewOrderSingle messages sent by a client, using 'user1', a user under collateral 'collat1'. Note also that collat1 has password 'password1', and that the TargetCompID in this case is 'FixServer'. These examples demonstrate the fields required by the new HSFX FIX Order Gateway, **not** the old HSFX FIX Bridge.

```
8=FIX.4.2 9=125 35=A 34=1 49=collat1 116=user1 52=20080523-
13:21:41.443 56=FixServer 98=0 108=30 553=collat1 554=password1 10=197


8=FIX.4.2 9=147 35=D 34=2 49=collat1 116=user1 52=20080523-
13:22:05.036 56=FixServer 11=1211548924787 15=SGD 21=1 38=1000000 40=F 44=1 54=
1 55=USD/SGD 59=0 10=214
```

11 FIX Conversation Examples

All of the following conversations are for a single user/connection setup. As noted above, the only difference in a multiple-user/connection setup would be that tag 116 would contain the trader's userid.

Key:
"<<" means client sends the following message
">>" means client receives the following message

11.1 Login

```
<< 8=FIX.4.2 9=106 35=A 34=1 49=U1par 50=U1fix 52=20090206-
21:13:36.887 56=FixServer 98=0 108=30 141=Y 553=U1fix 554=hotspot 10=06
1

>> 8=FIX.4.2 9=84 35=A 34=1 49=FixServer 52=20090206-
21:13:37.293 56=U1par 57=U1fix 98=0 108=30 141=Y 10=087
```

11.2 Logoff

```
<< 8=FIX.4.2 9=102 35=5 34=861 49=U1par 56=HSFX-FIX-BRIDGE 52=20090209-
14:20:41.234 50=U1fix 369=880 58=Shutdown request 10=192

>> 8=FIX.4.2 9=74 35=5 34=880 49=HSFX-FIX-BRIDGE 52=20090209-
14:20:41.247 56=U1par 57=U1fix 10=244
```

11.3 NewOrderSingle

```
<< 8=FIX.4.2 9=138 35=D 34=2 49=U1par 50=U1fix 52=20090206-
21:13:59.324 56=FixServer 11=1233954839232 15=EUR 21=1 38=10000 40=F 44
=1.25 54=1 55=EUR/USD 59=0 10=054

>> 8=FIX.4.2 9=302 35=8 34=2 49=FixServer 52=20090206-
21:13:59.356 56=U1par 57=U1fix 6=0 11=1233954839232 14=0 15=EUR 17=1630
09101_REQID_ACK_302 20=0 31=0 32=0 37=163009101 38=10000 39=D 44=1.25 5
4=1 55=EUR/USD 58=bid/offer request was processed
successfully 59=0 60=20090206-
21:13:59.356 76=HSFX 150=0 151=10000 167=FOR 10=067
```

11.4 OrderCancelRequest

```
<< 8=FIX.4.2 9=145 35=F 34=4 49=U1par 50=U1fix 52=20090206-
21:14:17.590 56=FixServer 11=1233954857593 38=10000 41=1233954851045 55
=EUR/USD 60=20090206-21:14:17.590 10=241

>> 8=FIX.4.2 9=281 35=8 34=5 49=FixServer 52=20090206-
21:14:17.606 56=U1par 57=U1fix 6=0 11=1233954857593 14=0 15=EUR 17=1233
954857593_ClOrdID_C_ER_6 20=0 32=0 37=1233954857593 38=0 39=6 41=123395
4851045 54=1 55=EUR/USD 58=cancel pending 59=0 60=20090206-
21:14:17.606 76=HSFX 150=6 151=10000 167=FOR 10=141

>> 8=FIX.4.2 9=332 35=8 34=6 49=FixServer 52=20090206-
21:14:17.637 56=U1par 57=U1fix 6=0 11=1233954851045 14=0 15=EUR 17=1630
09102_REQID_C_302 20=1 31=0 32=0 37=163009102 38=10000 39=4 44=1.25005
54=1 55=EUR/USD 58=cancel request was processed
successfully 59=0 60=20090206-
21:14:17.637 64=20081125 76=HSFX 119=0 120=USD 150=4 151=10000 167=FOR
192=0 10=065
```

11.5 OrderCancelReplaceRequest

```
<< 8=FIX.4.2 9=176 35=G 34=3 49=U1par 50=U1fix 52=20090206-
21:14:11.043 56=FixServer 11=1233954851045 21=1 38=10000 40=F 41=123395
4839232 44=1.25005 54=1 55=EUR/USD 59=0 60=20090206-
21:14:11.043 10=064

>> 8=FIX.4.2 9=295 35=8 34=3 49=FixServer 52=20090206-
21:14:11.074 56=U1par 57=U1fix 6=0 11=1233954851045 14=0 15=EUR 17=1233
954851045_ClOrdID_CR_ER_E 20=0 32=0 37=1233954851045 38=10000 39=E 41=1
233954839232 44=1.25 54=1 55=EUR/USD 58=replace
pending 59=0 60=20090206-
21:14:11.074 76=HSFX 150=E 151=10000 167=FOR 10=126

>> 8=FIX.4.2 9=324 35=8 34=4 49=FixServer 52=20090206-
21:14:11.106 56=U1par 57=U1fix 6=0 11=1233954851045 14=0 15=EUR 17=1630
09102_REQID_CR_1 20=0 31=0 32=0 37=163009102 38=10000 39=0 41=123395483
9232 44=1.25005 54=1 55=EUR/USD 58=Cancel/Replace request was processed
successfully 59=0 60=20090206-
21:14:11.106 76=HSFX 150=5 151=10000 167=FOR 10=021
```

11.6 OrderStatusRequest

```
<< 8=FIX.4.2 9=102 35=H 34=16 49=U1par 52=20090206-
21:40:06.767 56=FixServer 11=ORD0822115 54=1 60=20090206-
21:40:06.767 10=114

>> 8=FIX.4.2 9=294 35=8 34=21 49=FixServer 52=20090206-
21:40:06.767 56=U1par 57=U1fix 6=0 11=ORD0822115 14=0 15=EUR 17=0 20=3
31=0 32=0 37=1630010120 38=1000000 39=4 44=1.56445 54=2 55=EUR/USD 58=s
tatus of order ORD0822115 59=0 60=20090206-
21:40:06.767 64=20081125 76=HSFX 119=0 120=USD 150=I 151=0 167=FOR 192=
0 10=030
```

11.7 Averaging Trades Request

```
8=FIX.4.2 9=602 35=D 49=U1par 50=U1fix 56=HSFX-FIX-
BRIDGE 34=4443 52=20090209-
17:03:41 115=47758 11=200902081000000Y 21=3 55=EUR/USD 54=1 38=0 210=0
60=20090209-
17:03:41 40=F 44=0 59=0 820=TRD_14696320,TRD_14696346,TRD_14696376,TRD_
14696380,TRD_14696406,TRD_14696440,TRD_14696462,TRD_14696474,TRD_146964
84,TRD_14696490,TRD_14696542,TRD_14696546,TRD_14696548,TRD_14696566,TRD
_14696592,TRD_14696596,TRD_14696622,TRD_14696628,TRD_14696670,TRD_14696
672,TRD_14696688,TRD_14696690,TRD_14696700,TRD_14696714,TRD_14696758,TR
D_14696776,TRD_14696806,TRD_14696814,TRD_14696830,TRD_14696902,TRD_1469
6916,TRD_14696954,TRD_14696984 10=062

8=FIX.4.2 9=683 35=8 34=4494 49=HSFX-FIX-BRIDGE 52=20090209-
17:03:40.983 56=U1par 57=U1fix 6=0 11=200902081000000Y 14=0 17=14696320
a 20=0 37=14696320a 39=0 54=1 55=EUR/USD 58=Averaging request
received 59=0 60=20090209-
17:03:40.983 76=HSFX 150=0 151=0 167=FOR 192=0 820=TRD_14696320,TRD_146
96346,TRD_14696376,TRD_14696380,TRD_14696406,TRD_14696440,TRD_14696462,
TRD_14696474,TRD_14696484,TRD_14696490,TRD_14696542,TRD_14696546,TRD_14
696548,TRD_14696566,TRD_14696592,TRD_14696596,TRD_14696622,TRD_14696628
,TRD_14696670,TRD_14696672,TRD_14696688,TRD_14696690,TRD_14696700,TRD_1
4696714,TRD_14696758,TRD_14696776,TRD_14696806,TRD_14696814,TRD_1469683
0,TRD_14696902,TRD_14696916,TRD_14696954,TRD_14696984 10=139

8=FIX.4.2 9=725 35=8 34=4495 49=HSFX-FIX-BRIDGE 52=20090209-
17:03:41.561 56=U1par 57=U1fix 6=1.3064719231 11=200902081000000Y 14=26
000000 17=14696320a 20=0 37=14696320a 39=3 54=1 55=EUR/USD 58=average
request was processed successfully. 59=0 60=20090209-
17:03:41.561 76=HSFX 150=3 151=0 167=FOR 192=33968270 820=TRD_14696320,
TRD_14696346,TRD_14696376,TRD_14696380,TRD_14696406,TRD_14696440,TRD_14
696462,TRD_14696474,TRD_14696484,TRD_14696490,TRD_14696542,TRD_14696546
,TRD_14696548,TRD_14696566,TRD_14696592,TRD_14696596,TRD_14696622,TRD_1
4696628,TRD_14696670,TRD_14696672,TRD_14696688,TRD_14696690,TRD_1469670
0,TRD_14696714,TRD_14696758,TRD_14696776,TRD_14696806,TRD_14696814,TRD_
14696830,TRD_14696902,TRD_14696916,TRD_14696954,TRD_14696984 10=040
```

11.8 Trade

```
>> 8=FIX.4.2 9=351 35=8 34=171550 49=HSFX-FIX-BRIDGE 52=20090209-
15:46:09.648 56=U1par 57=U1fix 6=1.30695 11=h69RZE 14=306027 15=EUR 17=
TRD_14695554 20=0 31=1.30695 32=306027 37=4923456801 38=306027 39=2 44=
1.30695 54=1 55=EUR/USD 59=3 60=20090209-
15:46:09.648 64=20090211 75=20090209 76=Y 119=399961.99 120=USD 150=F 1
51=0 167=FOR 192=399961.99 382=1 375=Not Available 10=235
```

12 Revision History

2008-03-25 – Internal corrections prior to publishing first version
2008-05-22 – Added Migration Guide, performed various cleanup and proofreading
2008-06-09 – Sketched out Averaging section
2008-06-10 – Completed the Averaging section
2008-06-16 – Revised Migration Guide to disambiguate setup of single user/connection from multiple user/connection.
2008-06-26 – Revised handling of Account (1) tag
2008-07-01 – Removed any mention of Market orders from the spec
2008-07-03 – Removed ClOrdId / OrigClOrdId length restrictions
2008-07-03 – Clarified ExecBroker's meaning
2008-08-13 – Fixed various typos
2008-08-22 – Fixed OrderStatus Execution Report's tag 150 – only valid value is "I"
2008-08-29 – Fixed NewOrderSingle MinQty – there is no restriction either upper or lower.
2008-09-08 – Fixed CxlRejReason values, as well as various typos and errors
2008-09-09 – OrdType should not be in any ExecutionReports
2008-09-09 – Removed all references to tag 103 from ExecutionReports – it is not sent.
2008-10-03 – Clarified the case when 20=1
2008-10-10 – Clarified MinQty behavior
2008-10-16 – Updated possible values for tags 39 and 150
2008-11-06 – Updated illegal characters in tag 11
2008-11-11 – Clarified value of SendingTime in FIX header
2008-11-25 – Clarified tags needed for cancel operations
2008-12-03 – Added OrdType=1 to Averaging Requests to make it FIX 4.2 compliant.
2008-12-05 – Explained tags 119 and 120
2008-12-18 – Clarified section 5 with regard to trade confirmation mechanism.
2008-12-22 – Clarified meaning of Tag 31
2008-12-23 – Clarified use of 141=Y
2009-01-07 – Indicated that Tag 102 is FIX 4.4, not 4.2
2009-01-28 – Corrected MinQty behavior
2009-02-04 – Added "Rejected" to OrdStatus ExecutionReport
2009-03-24 – Added Market order type to New Order Single
2009-04-02 – Removed erroneous references to test requests from section 9.1
2009-04-02 – Indicated that MinQty may cause auto-cancellation
2009-05-08 – Added descriptions for LMT/IOC and PEG order in section 4.1
2009-06-08 – Added text describing Cancel/Replace rejections' role in OrderCancelReplace operations to section 7.2
2009-06-19 – Indicated that Account (Tag 1) can only contain alphanumeric characters or underscores
2009-08-13 – Fixed typo in section 7.2 concerning tags 11 and 41.
2010-03-01 – Corrected example for tag 15 (Currency) in NewOrderSingle section
2010-10-25 – 150 can be "C", i.e. expired, for IOC misses
2011-10-18 – Explained tag 210 MaxShow
2011-11-14 – Revised semantics of tags 382/375 in Section 4.2
2012-03-01 – Changed FXi to FX
2012-03-27 – updated hours of operation in section 1.2
2012-03-30 – added clarification regarding Resend requests
2012-05-15 – added clarification for 11=0