

FIX Order Entry Certification Procedures

Forwards Outright
SPOT - ECN & Full Amount Market Making

November 30, 2016

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1 Scheduling

The HotspotFX test environment is available from Sunday 5pm to Friday 5pm ET. In limited circumstances, the test environment will be unavailable during required maintenance and upgrades.

HotspotFX FIX order entry follows the following versions for each platform:

- Outright Forwards: FIX 4.4
- SPOT ECN: FIX 4.2
- SPOT Full Amount: FIX 4.4

Please contact HotspotFX Production Support desk:

- Phone: (201) 356-1789
- Email: prodsupport@hotspotfx.com

2 Pre-Certification Process

This is done by the subscriber in the Test Environment, prior to scheduling a certification session, without the assistance of a HotspotFX Production Support staff.

Prior to scheduling a certification session with HotspotFX, please perform the following:

- Login to the certification ECN
- Send orders, both BUY and SELL, if applicable.
- Cancel orders, both BUY and SELL, if applicable.
- Stay connected for a length of time to observe heartbeats.

3 General Test Cases (SPOT-ECN)

Clients are encouraged to independently complete as many of these as possible prior to scheduling with HotspotFX Production Support.

1. Session Layer Tests (required)

- (a) Network Connectivity, done by the customer's NOC and HotspotFX Client Services
- (b) Login Procedure.
- (c) Automatic reconnection upon disconnection.
- (d) ECN also supports auto canceling of orders once the connection is down.
- (e) Heartbeats and Test Requests
- (f) Receive SecurityListMessage after logon for all available Forwards Instruments.

2. Ordering (required)

- (a) New Order, BUY
- (b) Cancel of a New Order, BUY
- (c) New Order, SELL
- (d) Cancel of a New Order, SELL
- (e) New Order, any side, of a non-existent instrument. Client should expect a reject message.

3. Executions (required)

- (a) DAY: Send LMT Day Order. Day orders are open for trading between 17:00 ET - 16:59 ET (next day) and will timeout at 16:59 ET.
- (b) IOC: Client sends an immediate or cancel order that gets completely filled. Client verbally reports the quantity and price of the IOC execution.
- (c) IOC: Client sends an immediate or cancel order that does not fill.
- (d) Partial Execution and Cancel: a 1M SELL immediate or cancel order is partially filled upon entry, then canceled by the server. Client verbally reports the quantity and price of the IOC execution.
- (e) Partial Execution and Cancel Remaining Order: a 1M SELL day order is partially filled by HotspotFX and placed on the book. The client cancels the remainder of the order.

4. Cancel/Replace (required)

- (a) Send order changing the price and raising quantity.
- (b) Send order raising the buy price, C/L cancel results.
- (c) Send order raising the buy price, immediate execution, C/L cancel remainder.
- (d) Send order lowering the quantity to that already filled.
- (e) Send order raising the quantity.

5. Order Status Request (optional)

- (a) Send DAY order, then send status request for the order
- (b) Send DAY order, Cancel/Replace the order, then send status request for both the original order and the replacement order.
- (c) Send IOC order, then send status request for the order.

6. Resequencing (required)

Please note that HotspotFX greatly discourages the use of GapFill messages with the GapFill flag set to 'N'.

Client Logon messages with 141=Y are also HIGHLY discouraged other than on initial daily logon. The reason is that it is 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 acknowledge trades, HotspotFX 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.

- (a) HotspotFX forces a server side resequence message, client resequences using GapFill Flag set to 'Y'. This should be the default way of resequencing. Elicit a server-side resequence message by performing the following steps.
 - i. Client logs off.
 - ii. Adjust the client's incoming sequence number to be at least lower than the sequence number of the last order, cancel, etc, that the client sent.
 - iii. Client logs on.
 - iv. Confirm that the messages were resent from the client to us.
- (b) HotspotFX forces a client side resequence message, server resequences. Elicit a client-side resequence message by performing the following steps:
 - i. Client logs off.
 - ii. Have the client adjust their incoming sequence number (our outgoing sequence number) so that it is at most lower than the last Execution Report sent to them.
 - iii. client logs on.
 - iv. Confirm with the client that messages were sent from us to them.
 - v. HotspotFX forces a client and server side resequence message, both should resequence.

4 Forwards Test Cases

These should be verified in addition to the General Test Cases.

1. Session Layer Tests (only on FIX market data)

- (a) Receive SecurityListMessage after logon for all available Forwards Instruments.

2. Ordering (required)

- (a) New Limit Order, BUY, in an IMM instrument
- (b) Cancel of a New Order, BUY
- (c) New Limit Order, BUY, in a rolling instrument, like 1W or 1M
- (d) Cancel of a New Order, BUY
- (e) New Limit Order, SELL, in an IMM instrument
- (f) Cancel of a New Order, SELL
- (g) New Limit Order, SELL, in a rolling instrument, like 1W or 1M
- (h) Cancel of a New Order, SELL
- (i) New IOC Order, BUY and SELL, in rolling instrument, like 1W or 1M
- (j) New IOC Order, BUY and SELL, in IMM instrument
- (k) New Order, any side, of a non-existent instrument. Client should expect a reject message.
- (l) New Order, any side, of an existing instrument but a mismatched settlement date against the instrument defined by the last SecurityListMessage. Client should expect a reject message.

3. Security List Messages (optional)

- (a) Send SecurityListRequest message for an existing instrument.
- (b) Send SecurityListRequest message for a non-existent instrument.

5 Full Amount Market Making Test Cases

1. Non-persistent RFQ (if supported)

- (a) Wait for a Quote Request message. Reject the quote request.
- (b) Wait for a Quote Request message. Start streaming quotes. Wait for Quote Response message ending the stream. Verify stream stops quoting.
- (c) Wait for a Quote Request message. Start streaming quotes. Wait for a NewOrderSingle message in deal currency. Send a trade. Verify trade direction and price. Confirm receipt of trade ack from Hotspot.
- (d) Wait for a Quote Request message. Start streaming quotes. Wait for a NewOrderSingle message in terms currency. Send a trade. Verify trade direction and price. Confirm receipt of trade ack from Hotspot.
- (e) Wait for a Quote Request message. Start streaming quotes. Wait for a NewOrderSingle message. Send a rejection.
- (f) (If supported) Wait for a Quote Request message. Start streaming quotes. Wait for a NewOrderSingle message. Respond with a malformed trade message (wrong quantity or price). Confirm receipt of trade rejection.
- (g) (If supported) Wait for a Quote Request message. Start streaming quotes. Wait for a NewOrderSingle message. Delay trade message by a few seconds. Confirm receipt of a timeout message.
- (h) Wait for a Quote Request message. Start streaming quotes. Cancel quotes by issuing a QuoteCancel message. Confirm quotes are pulled off.

2. Persistent Streaming (if supported)

- (a) Wait for persistent Quote Request messages. Start streaming quotes.
- (b) Wait for a NewOrderSingle message in deal currency. Send a trade. Verify tier, trade direction and price. Confirm receipt of trade ack from Hotspot.
- (c) Wait for a NewOrderSingle message in terms currency. Send a trade. Verify tier, trade direction and price. Confirm receipt of trade ack from Hotspot.
- (d) Wait for a NewOrderSingle message. Send a rejection.
- (e) (If supported) Wait for a NewOrderSingle message. Respond with a malformed trade message (wrong quantity or price). Confirm receipt of trade rejection.
- (f) (If supported) Wait for a NewOrderSingle message. Delay trade message by a few seconds. Confirm receipt of a timeout message.
- (g) Pull off quotes by issuing a QuoteCancel message. Confirm quotes are pulled off.
- (h) (If supported) Allow for unsolicited orders. Wait for a NewOrderSingle message with empty quoteID. Send a trade, Verify tier, trade direction and price. Confirm receipt of trade ack from Hotspot.