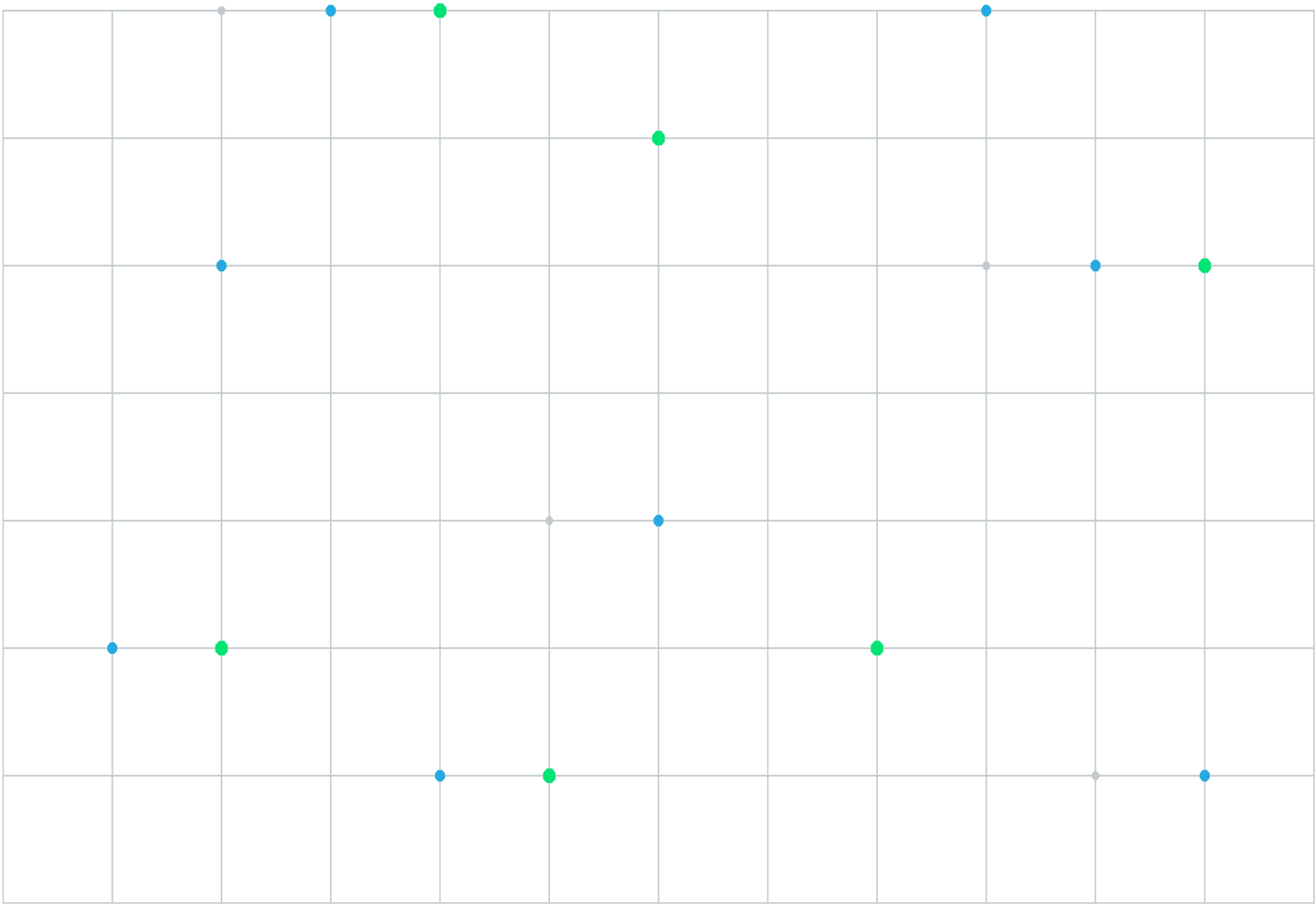
AutoCert+ MDP 3.0 with Market by Order
User Manual

22 September 2016



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Getting Started

The AutoCert+ tool is an automated testing tool for validating application functionality. It provides an easy-to-use web interface for walking through CME Group certification scenarios.

To facilitate the process of connecting a customer application, CME Group provides a dedicated certification environment to allow customers to test their systems before they complete certification.

This Help system accompanies the AutoCert+ MDP 3.0 with Market by Order test suite to validate the dissemination of individual orders and quotes at prices levels for a given instrument.

For additional information see: CME Market Data Platform - MDP 3.0 - Market by Order - Book Management

To run and navigate AutoCert+:

1. Log into the automated certification tool.
2. Review general AutoCert+ test suite navigation and general interview information.
3. Complete the Interview for this test suite.
4. Complete applicable test cases.
5. Complete the certification process from the Post Certification tab.

What's New

The list below illustrates the updates made to the AutoCert+ MDP 3.0 with Market by Order Help system.

Date	Author	Topic	Description

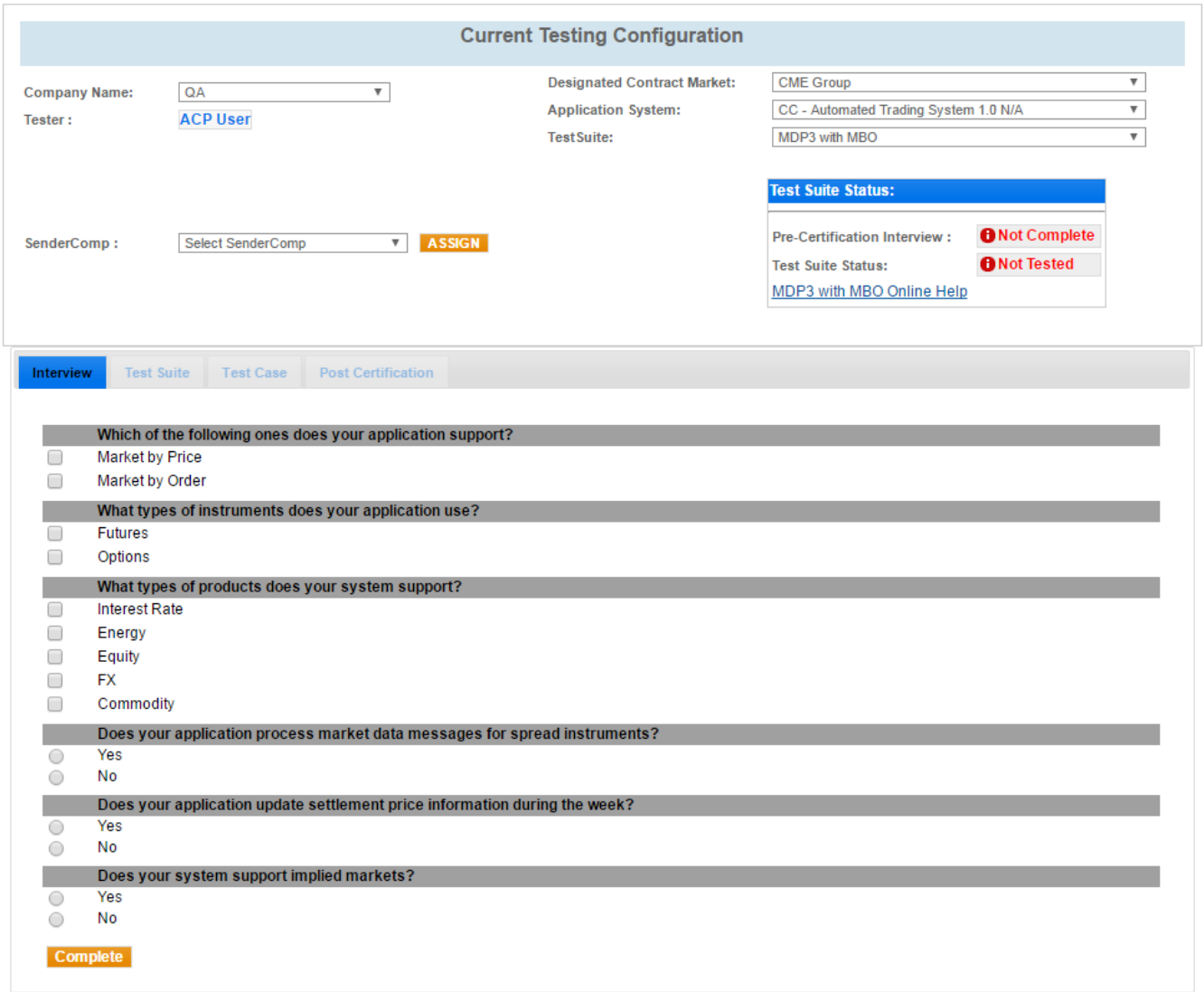
Interview

The interview consists of a series of questions about your trading application. Based on your responses, certain tests are required and others are optional. You must complete the pre-certification interview before running the test cases.

To complete the interview:

Answer each question and click **Complete** when finished.

> **Note:** The items selected in the Interview will determine what types of instruments are tested.



Certification Tests

The AutoCert+ MDP 3.0 with Market by Order certification tests consist of the following:

- Security Definition Messages
- UDS Instrument Deletion
- Request for Quote Message for Options Instruments
- Book Management Messages
- Recovery
- ChannelReset
- Statistic Messages
- Market State Message
- Complex Book Management

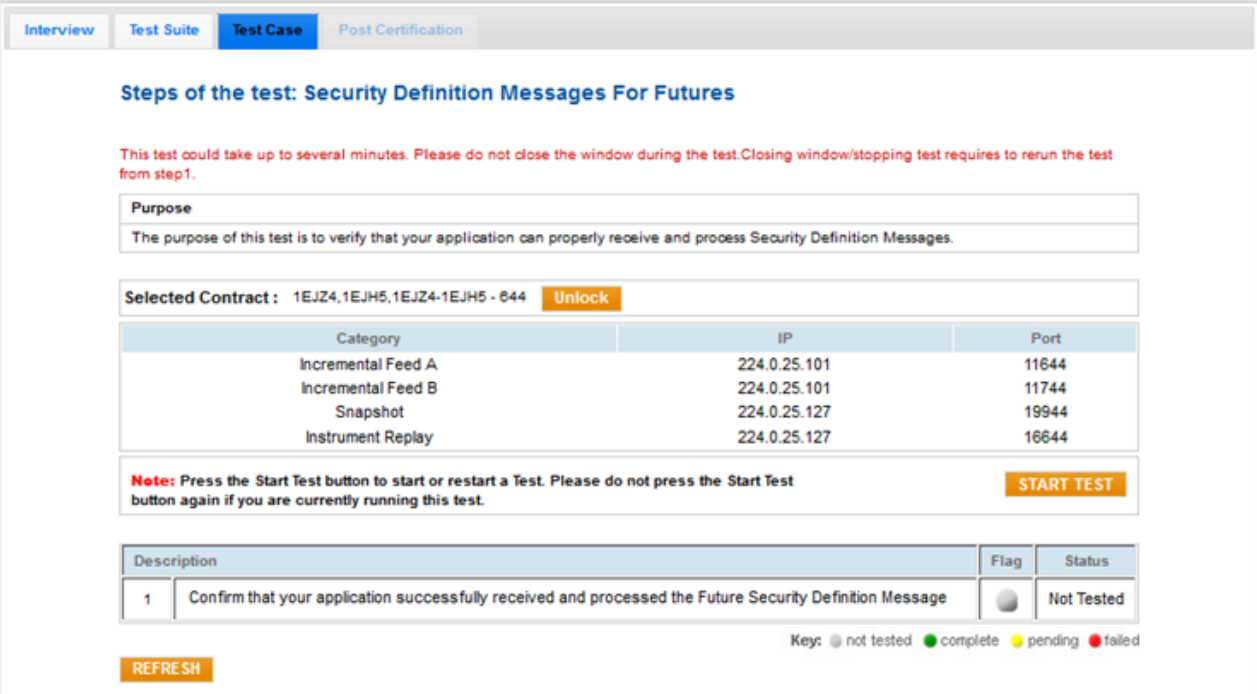
Security Definition Messages

The Security Definition Messages tests consist of the following:

- Security Definition Messages for Futures
- Security Definition Messages for Futures and Spreads
- Security Definition Messages for Options
- Security Definition Messages for Options and Spreads

Security Definition Messages for Futures

This test verifies that your application can properly receive and process Security Definition (tag 35-MsgType=d) messages for futures instruments.

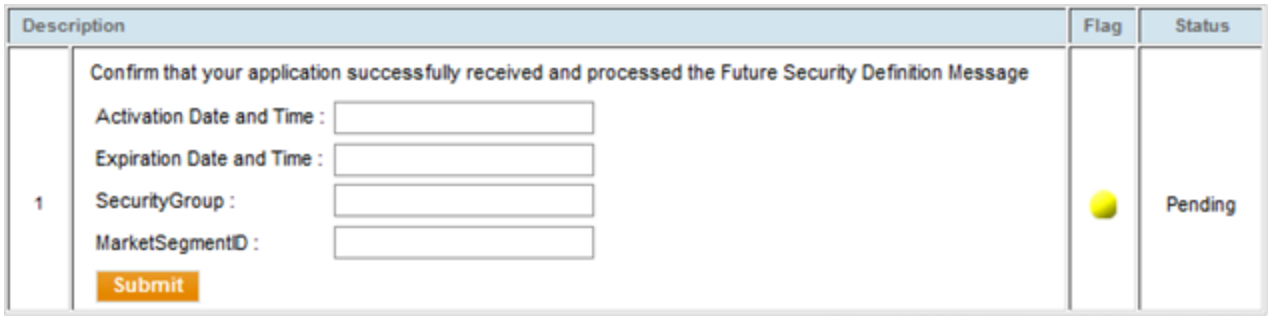


To run the Security Definition Messages for Futures test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Enter the following tag values from the Security Definition (35=d) message for a futures instrument that your application received:
   - tag 1145-EventTime, when tag 865-EventType=5 (Activation)

     Note: in **YYYYMMDD hhmm** format
   - tag 1145-EventTime, when tag 865-EventType=7 (Last eligible trade date)

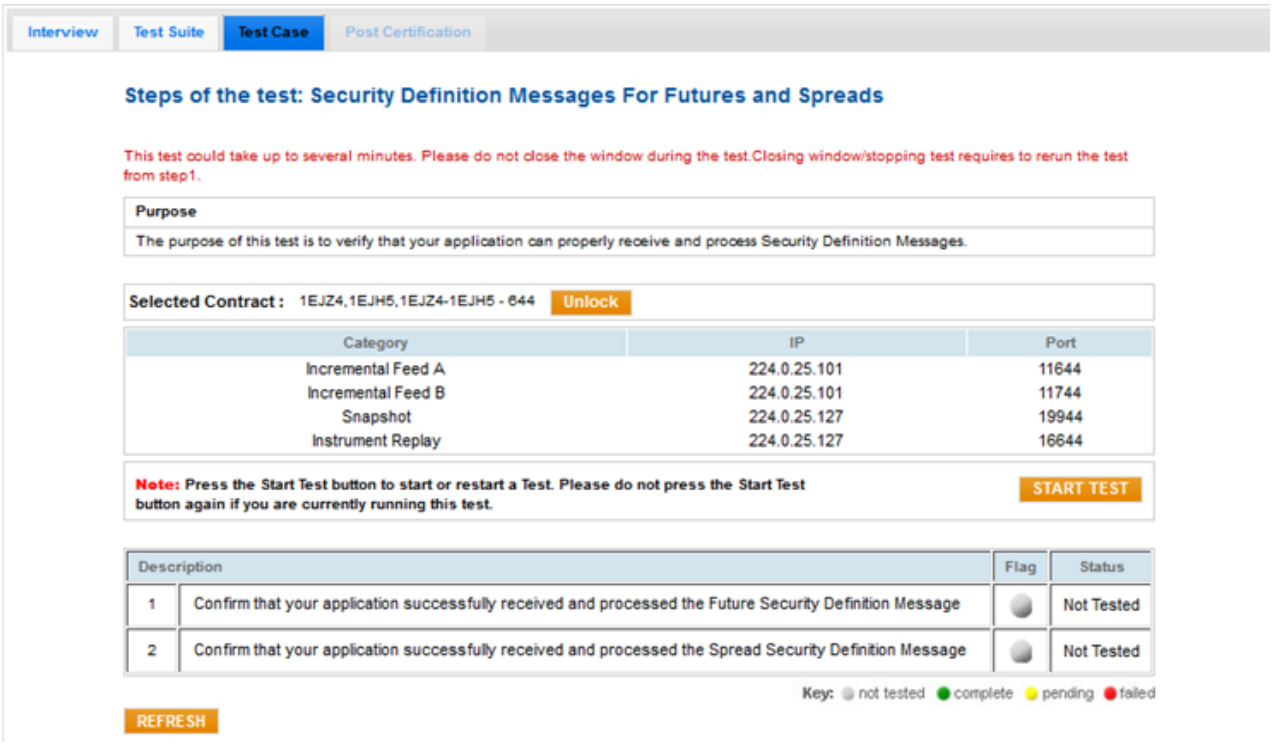
     Note: in **YYYYMMDD hhmm** format
   - tag 1151-SecurityGroup
   - tag 1300-MarketSegmentID



Click **Submit**.

Security Definition Messages for Futures and Spreads

This test verifies that your application can properly receive and process Security Definition (tag 35-MsgType=d) messages for futures and futures spread instruments.



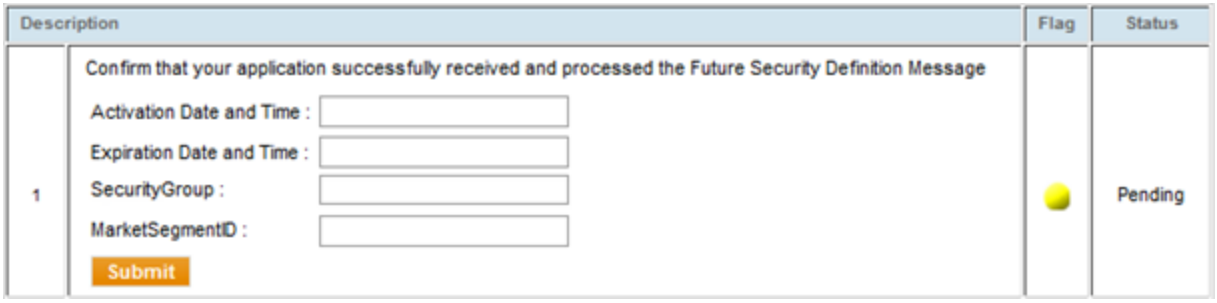
To run the Security Definition Messages for Futures and Spreads test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Enter the following tag values from the Security Definition (35=d) message for a futures instrument that your application received:
   - tag 1145-EventTime, when tag 865-EventType=5 (Activation)

     Note: in **YYYYMMDD hhmm** format
   - tag 1145-EventTime, when tag 865-EventType=7 (Last eligible trade date)

     Note: in **YYYYMMDD hhmm** format

- tag 1151-SecurityGroup
- tag 1300-MarketSegmentID

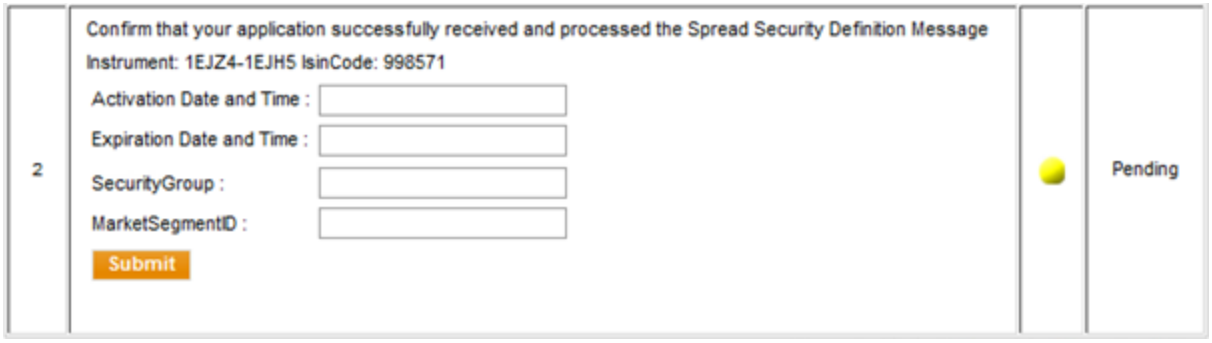


Click **Submit**.

4. Enter the following tag values from the Security Definition (35=d) message for a futures spread instrument that your application received:
   - tag 1145-EventTime, when tag 865-EventType=5 (Activation)

     Note: in **YYYYMMDD hhmm** format
   - tag 1145-EventTime, when tag 865-EventType=7 (Last eligible trade date)

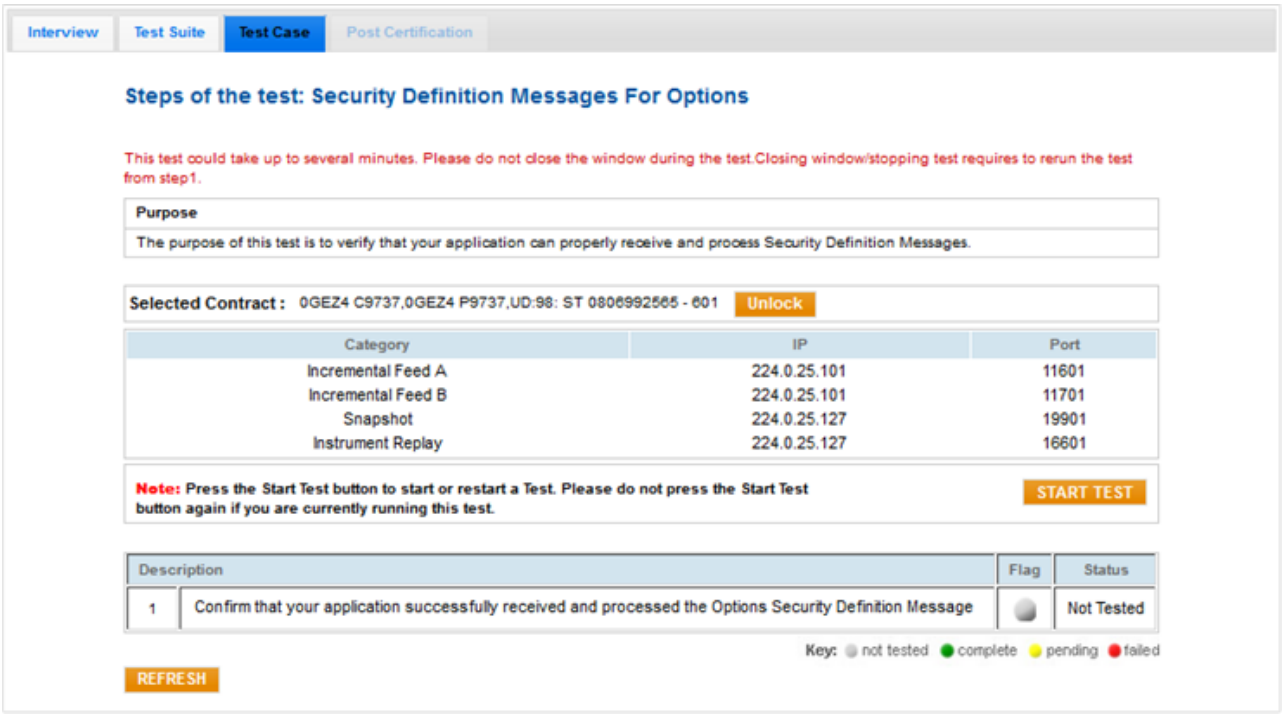
     Note: in **YYYYMMDD hhmm** format
   - tag 1151-SecurityGroup
   - tag 1300-MarketSegmentID



Click **Submit**.

Security Definition Messages for Options

This test verifies that your application can properly receive and process Security Definition (tag 35-MsgType=d) messages for options instruments.

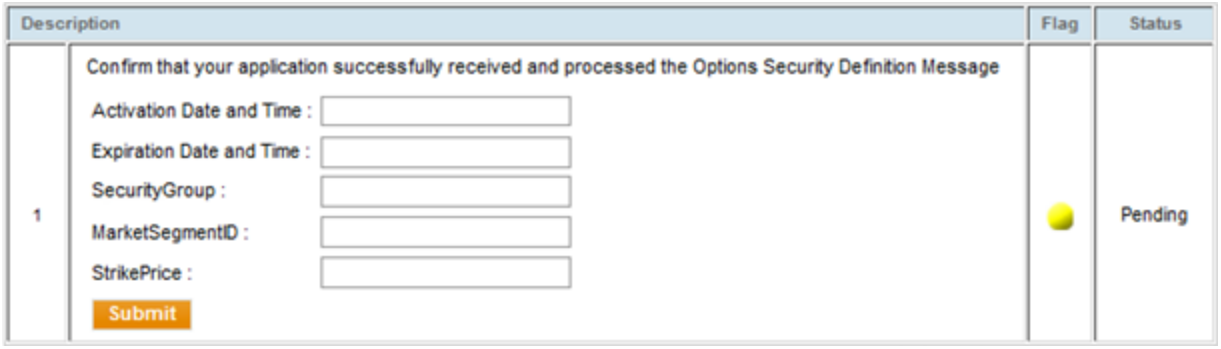


To run the Security Definition Messages for Options test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Enter the following tag values from the Security Definition (35=d) message for an options instrument that your application received:
   - tag 1145-EventTime, when tag 865-EventType=5 (Activation)

     Note: in **YYYYMMDD hhmm** format
   - tag 1145-EventTime, when tag 865-EventType=7 (Last eligible trade date)

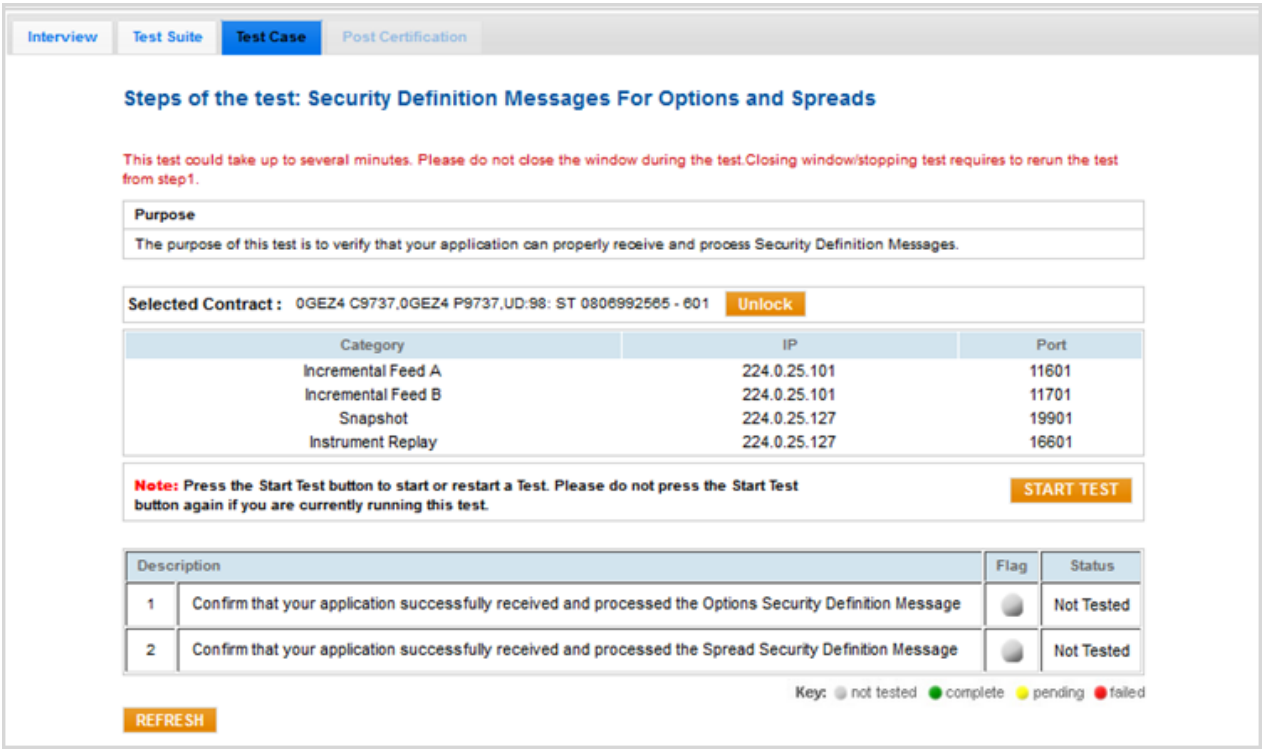
     Note: in **YYYYMMDD hhmm** format
   - tag 1151-SecurityGroup
   - tag 1300-MarketSegmentID



Click **Submit**.

Security Definition Messages for Options and Spreads

This test verifies that your application can properly receive and process Security Definition (tag 35-MsgType=d) messages for options and options spread contracts.

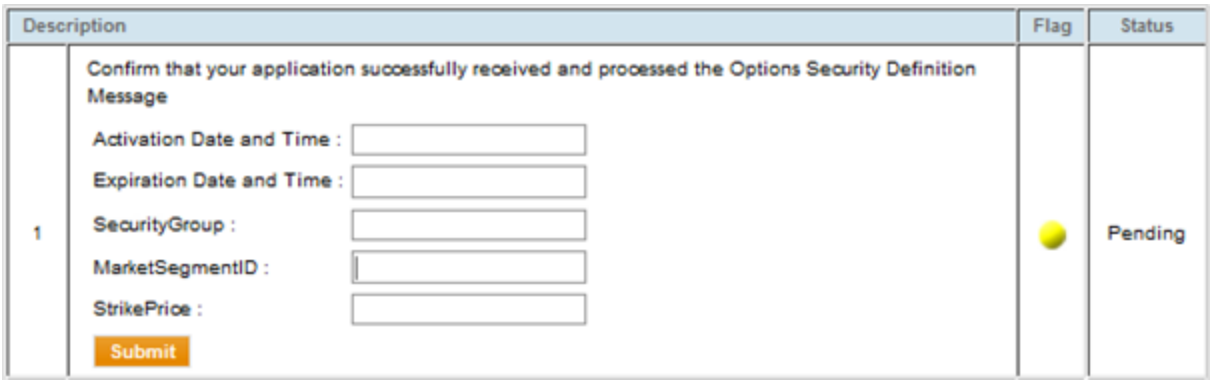


To run the Security Definition Messages for Options and Spreads test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Enter the following tag values from the Security Definition (35=d) message for an options instrument that your application received:
   - tag 1145-EventTime, when tag 865-EventType=5 (Activation)

     Note: in **YYYYMMDD hhmm** format
   - tag 1145-EventTime, when tag 865-EventType=7 (Last eligible trade date)

     Note: in **YYYYMMDD hhmm** format
   - tag 1151-SecurityGroup
   - tag 1300-MarketSegmentID
   - tag 202-StrikePrice



Click **Submit**.

4. Enter the following tag values from the Security Definition (35=d) message for an options spread instrument that your application received:

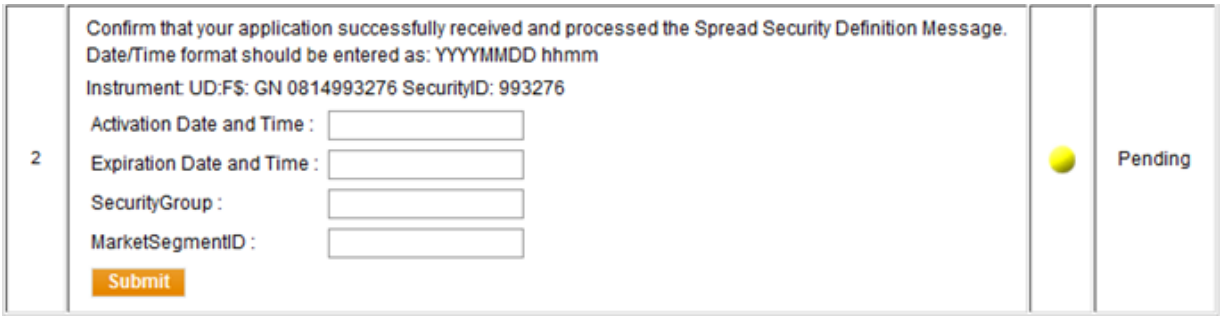
   - tag 1145-EventTime, when tag 865-EventType=5 (Activation)

     Note: in **YYYYMMDD hhmm** format

   - tag 1145-EventTime, when tag 865-EventType=7 (Last eligible trade date)

     Note: in **YYYYMMDD hhmm** format

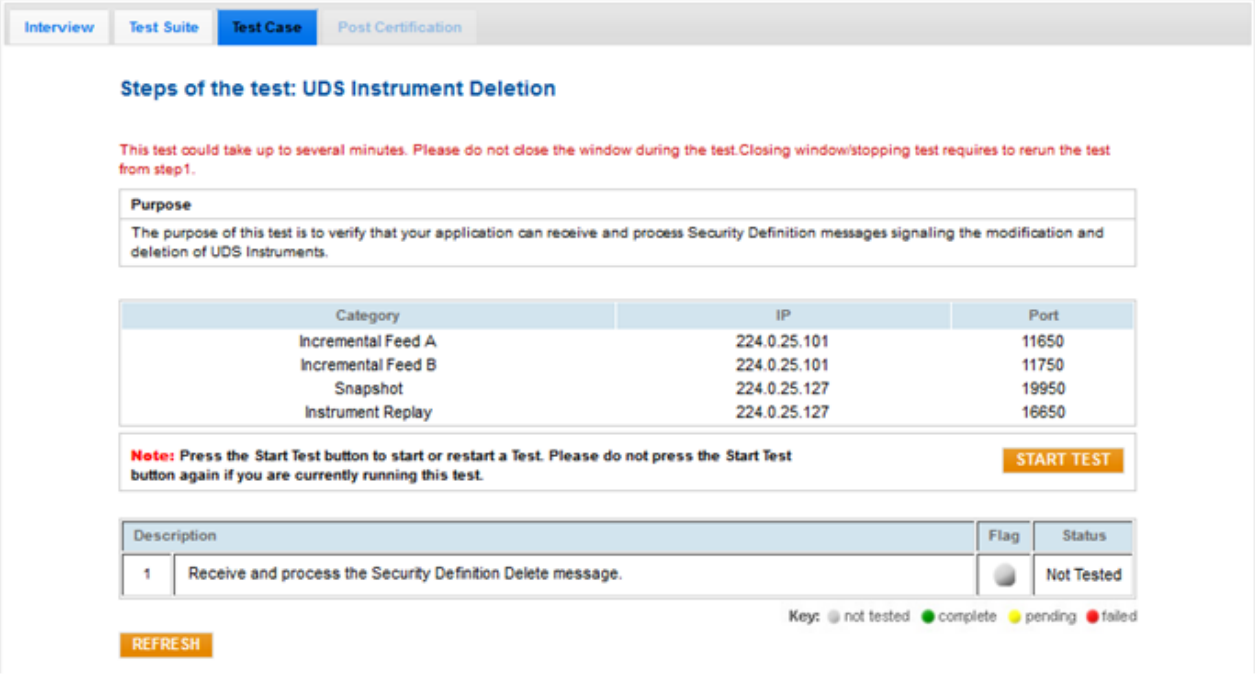
   - tag 1151-SecurityGroup
   - tag 1300-MarketSegmentID



Click **Submit**.

UDS Instrument Deletion

This test verifies that your application can receive and process Security Definition (tag 35-MsgType=d) messages signaling the modification and deletion of UDS instruments.



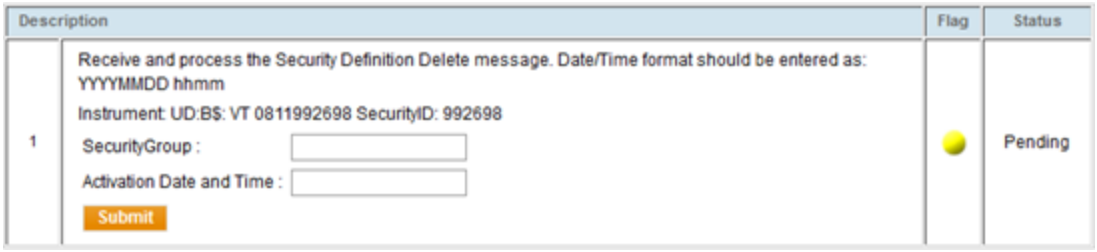
To run the UDS Instrument Deletion test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Receive and process the Security Definition - Delete [35=d, tag 980-SecurityUpdateAction=D (Delete)] message.

   Enter the following tag values:

   - tag 1151-SecurityGroup
   - tag 1145-EventTime, when tag 865-EventType=5 (Activation)

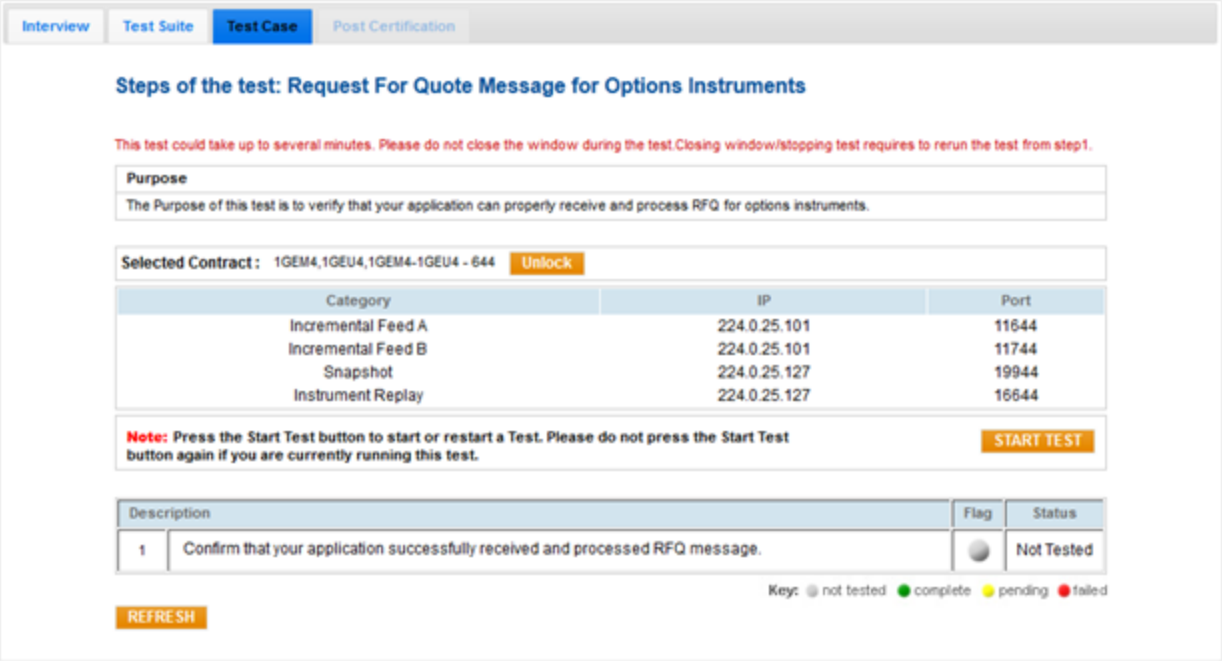
     Note: in **YYYYMMDD hhmm** format



   Click **Submit**.

Request for Quote Message for Options Instruments

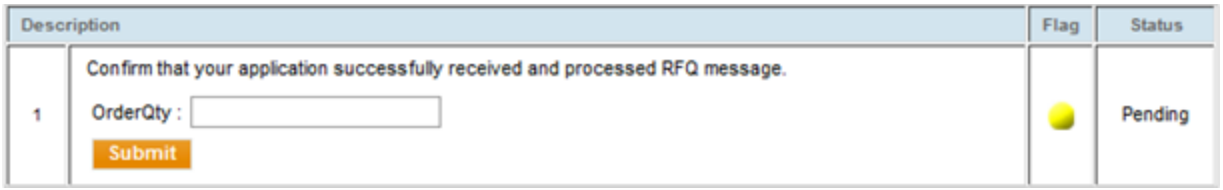
This test verifies that your application can properly receive and process a Request for Quote (RFQ) (tag 35-MsgType=R) message for Options instruments.



To run the Request for Quote Message for Options Instruments test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Confirm that your application successfully received and processed an RFQ message.

   Enter the tag 38-OrderQty value from the RFQ message.



   Click **Submit**.

Book Management Messages

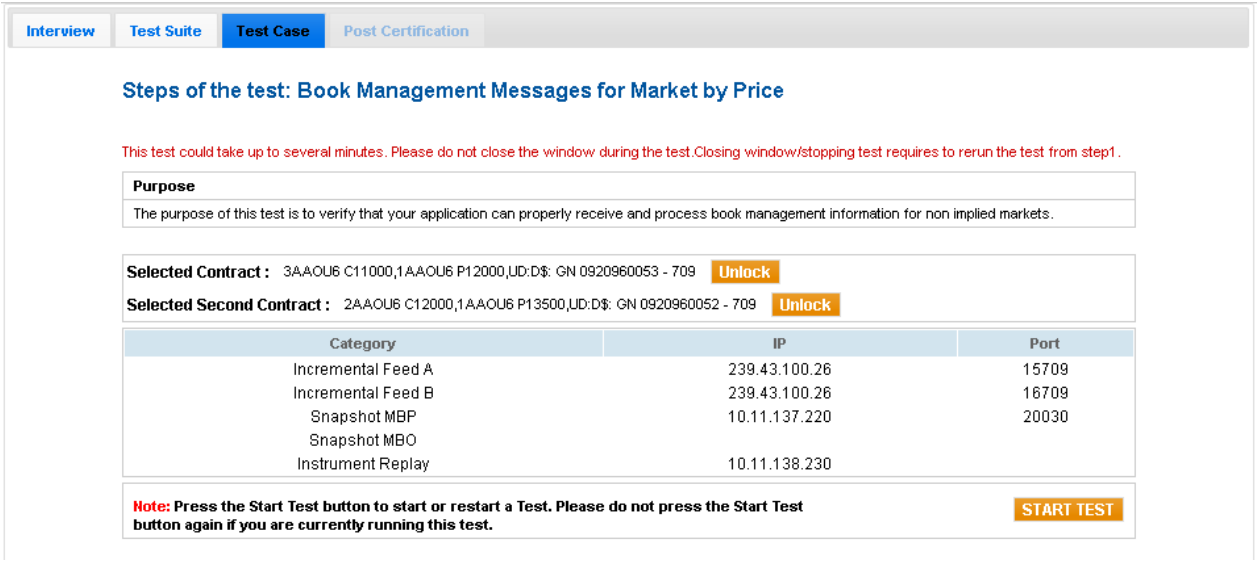
Book Management Messages tests include the following:

- Book Management Messages for MBP (Outright Only)
- Consolidated Book Management Messages for MBP (Implied)
- Book Management Messages for MBO
- Book Management Messages for Implied MBO

Book Management Messages for MBO (Outright Only)

This test verifies that your application can properly receive and process book management information sent in Market Data Incremental Refresh (tag 35-MsgType=X) messages for outright markets.

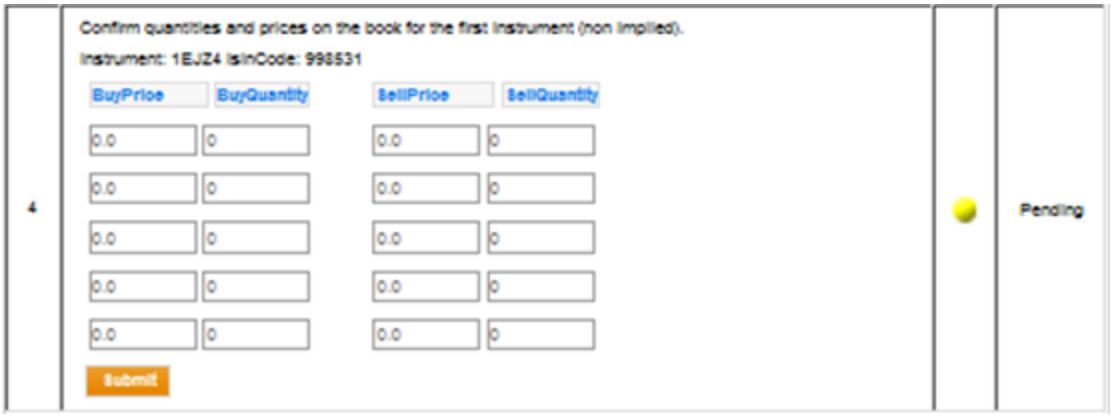
1. From the **Contract** drop-down, select the desired contracts if the contracts are not already locked.
2. Click **START TEST**.



To run the Consolidated Book Management Messages (Outright Only) test:

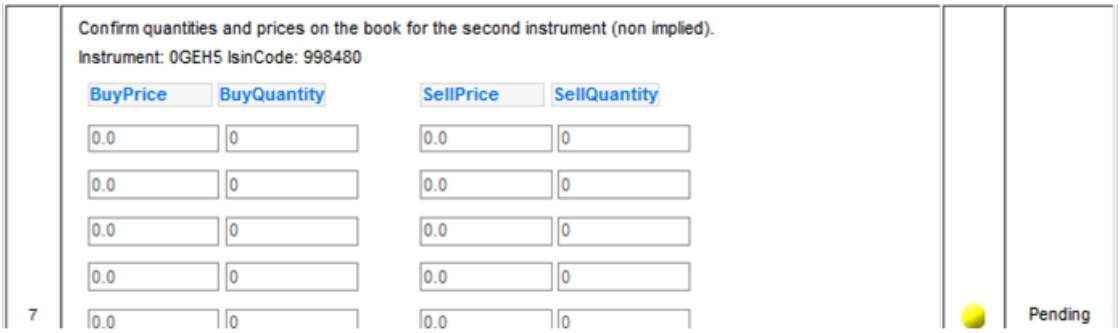
1. Confirm that the books are empty for the selected instruments.

   Click **Yes** or **No**.
2. Receive a set of orders for the **first** instrument.
3. Receive cancellations for orders.
4. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book for the **first** instrument.



Click **Submit**.

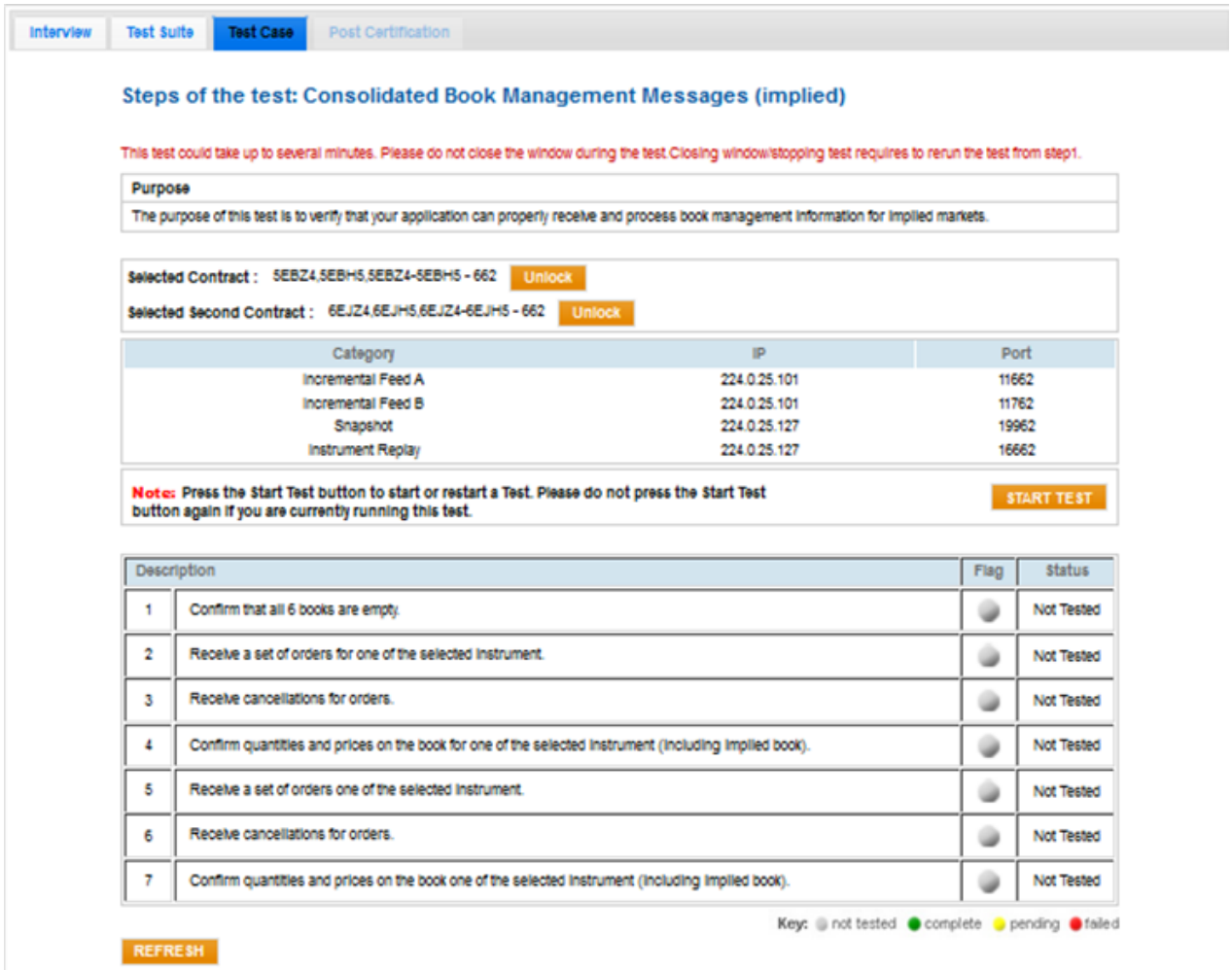
5. Receive a set of orders for the **second** instrument.
6. Receive cancellations for orders.
7. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book for the **second** instrument.



Click **Submit**.

Consolidated Book Management Messages for MDP (Implied)

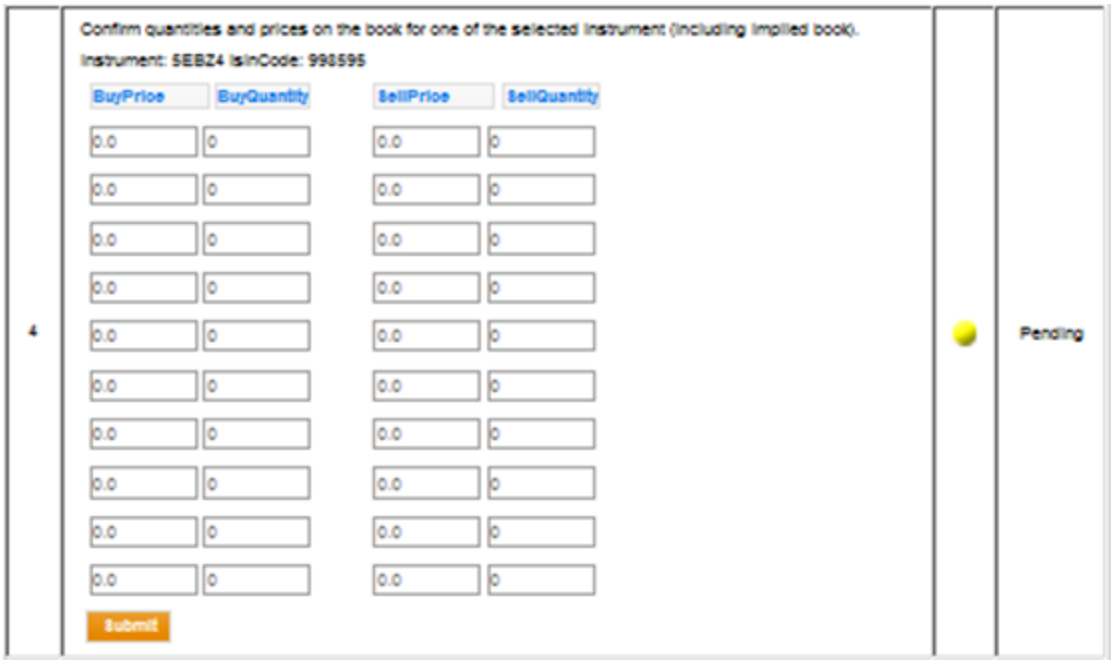
This test verifies that your application can properly receive and process book management information Market Data Incremental Refresh (tag 35-MsgType=X) messages for implied markets.



To run the Book Management Messages (Implied) test:

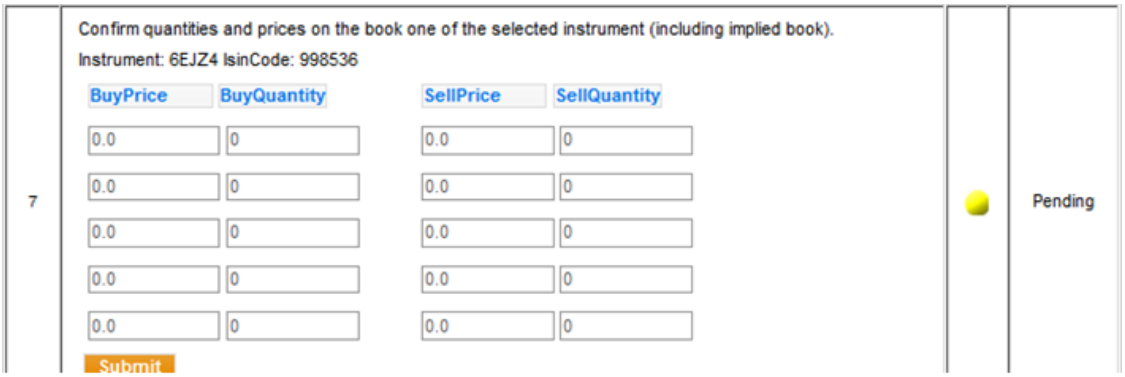
1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Confirm that the books are empty.

   Click **Yes** or **No**.
4. Receive a set of orders for one of the selected instruments.
5. Receive cancellations for orders.
6. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book for the selected instrument (including implied book).



Click **Submit**.

7. Receive a set of orders for the selected instrument.
8. Receive cancellations for orders.
9. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book for the selected instrument (including implied book).



Click **Submit**.

Book Management Messages for MBO

This test verifies that your application can properly receive and process market by order book management information.

To run the Book Management Messages for Market by Order test:

1. From the **Contract** drop-down, select the desired contracts if the contracts are not already locked.
2. Click **START TEST**.

Steps of the test: Book Management Messages for Market by Order

This test could take up to several minutes. Please do not close the window during the test.Closing window/stopping test requires to rerun the test from step1.

Purpose
The purpose of this test is to verify that your application can properly receive and process book management information for non implied markets.

Selected Contract : 0ZCN7,0ZCN8,0ZCN7-0ZCN8 - 701 Unlock

Category	IP	Port
Incremental Feed A	239.43.1.65	15701
Incremental Feed B	224.0.29.126	16701
Snapshot MBP	224.0.25.126	19942
Snapshot MBO		
Instrument Replay	224.0.25.126	16942

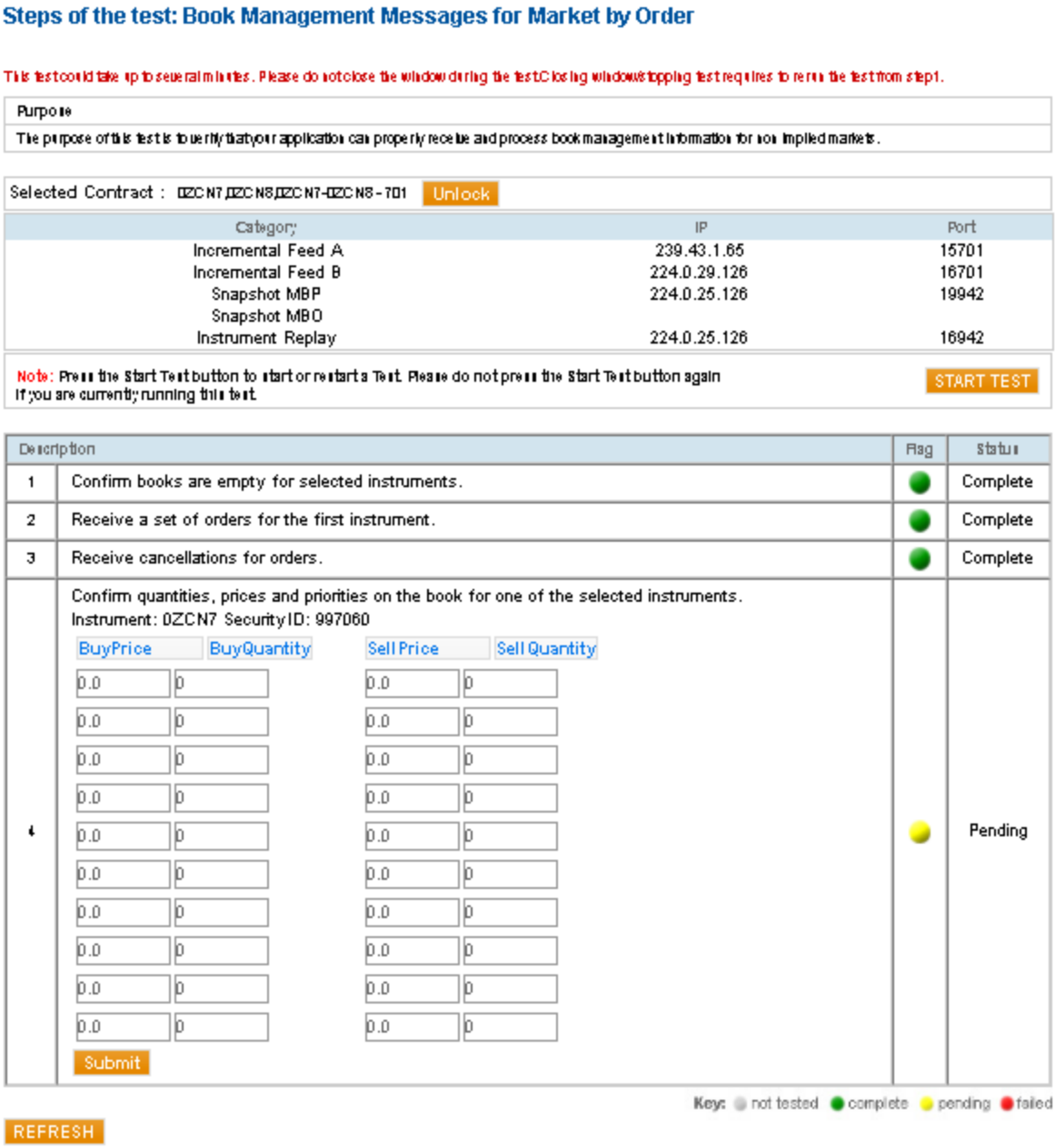
Note: Press the Start Test button to start or restart a Test. Please do not press the Start Test button again if you are currently running this test. START TEST

	Description	Flag	Status
1	Confirm books are empty for selected instruments.		Not Tested
2	Receive a set of orders for the first instrument.		Not Tested
3	Receive cancellations for orders.		Not Tested
4	Confirm quantities, prices and priorities on the book for one of the selected instruments.		Not Tested

Key: not tested complete pending failed

REFRESH

3. Confirm that the books are empty for the selected instruments.



Click **Yes** or **No**.

4. Receive cancellations for orders.
5. Confirm quantities and prices in the proper book priority for one of the selected instruments.

   Click **Submit**.
6. Receive additional book updates.
7. Confirm quantities and prices in the proper book priority for one of the selected instruments

   Click **Submit**.

Implied Book Management Messages for MBO

This test verifies that your application can properly receive and process book management information Market Data Incremental Refresh (tag 35-MsgType=X) messages for implied markets for MBO.

To run the Implied Book Management Messages for MBO test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Confirm that the books are empty.

   Click **Yes** or **No**.
4. Receive a set of orders for one of the selected instruments.
5. Confirm quantities and prices in the proper book priority for one of the selected instruments.
6. Confirm the implied quantities and prices on the book for the same instrument.

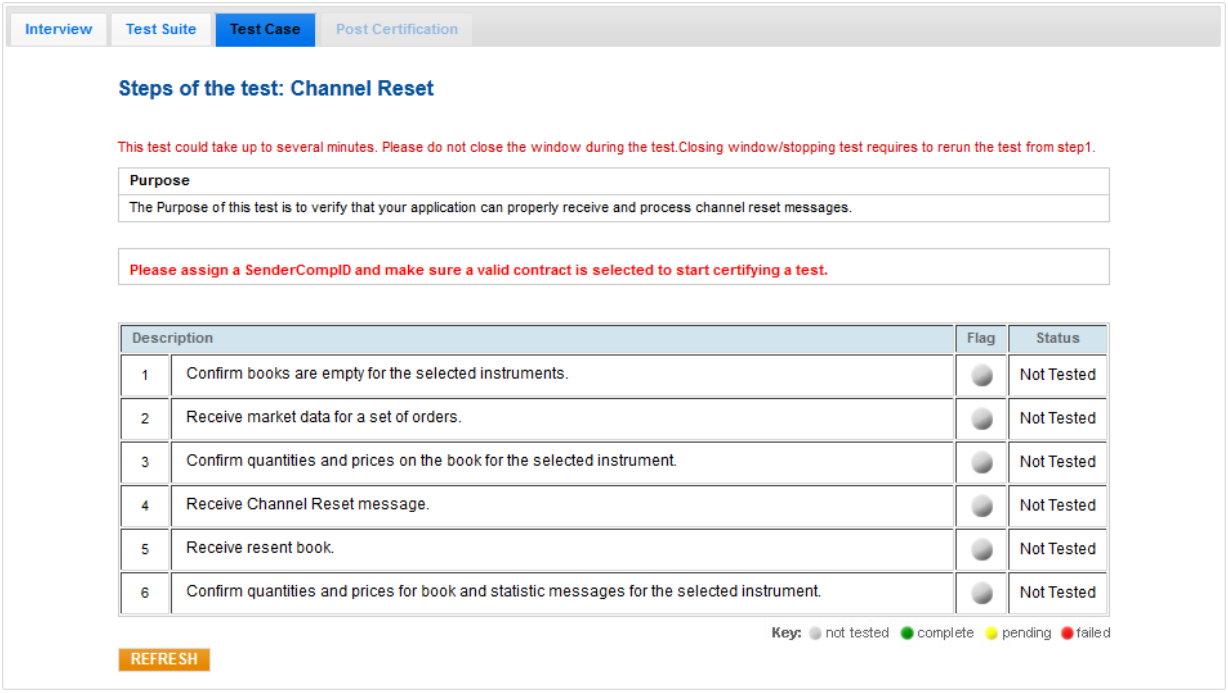
ChannelReset

Channel Reset topics include:

- Channel Reset MBP
- Channell Reset MBO

Channel Reset for MBP

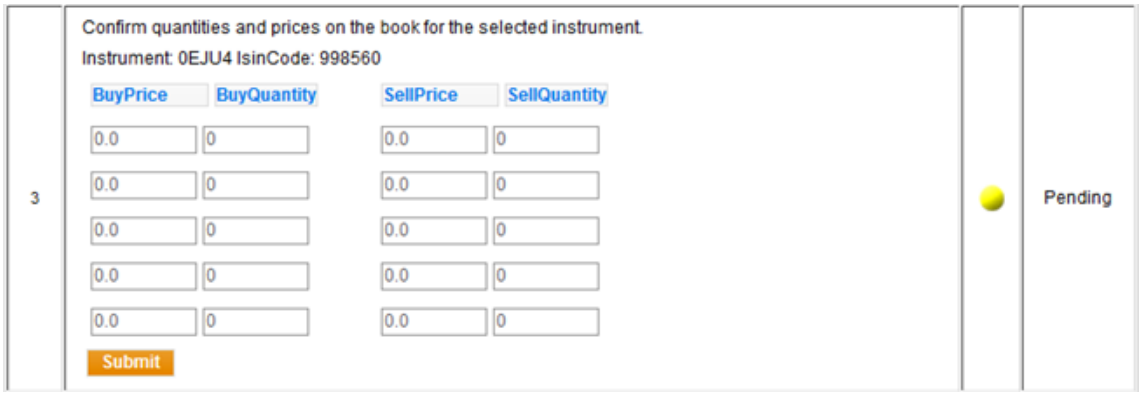
This test verifies that your application can properly receive and process Channel Reset [Market Data Incremental Refresh (tag 35-MsgType=X)] messages.



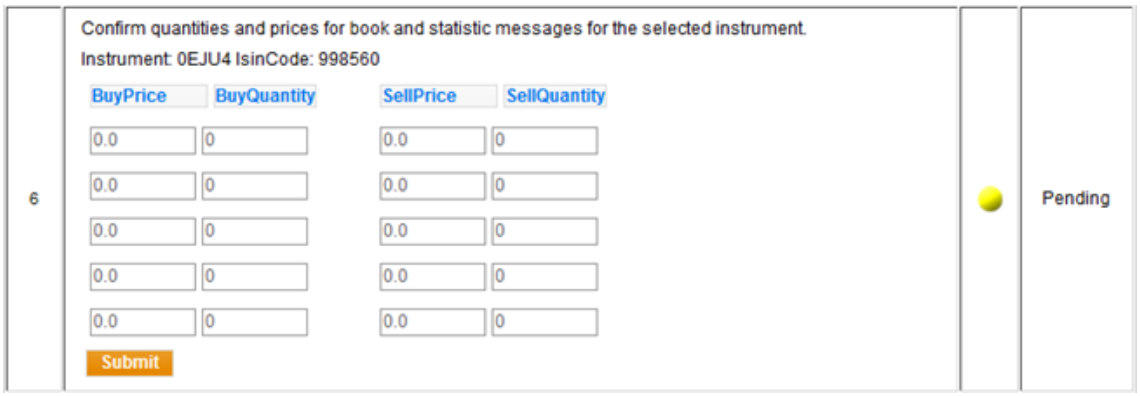
To run the Channel Reset test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Confirm that the books are empty.

   Click **Yes** or **No**.
4. Receive market data for a set of orders.
5. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book for the selected instrument.



6. Receive a Channel Reset [tag 35-MsgType=X, 269-MDEntryType=J (Empty Book)] message
7. Receive resent book and statistics messages.
8. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) from the book for the selected instrument.



Channel Reset for MBO

This test verifies that your Market by Order application can properly receive and process Channel Reset [Market Data Incremental Refresh (tag 35-MsgType=X)] messages.

Steps of the test: Channel Reset for Market by Order

This test could take up to several minutes. Please do not close the window during the test.Closing window/stopping test requires to rerun the test from step1 .

Purpose
The Purpose of this test is to verify that your application can properly receive and process channel reset messages.

Selected Contract : 0ZCN7,0ZCN8,0ZCN7-0ZCN8 - 701 Unlock

Category	IP	Port
Incremental Feed A	239.43.1.65	15701
Incremental Feed B	224.0.29.126	16701
Snapshot MBP	224.0.25.126	19942
Snapshot MBO		
Instrument Replay	224.0.25.126	16942

Note: Press the Start Test button to start or restart a Test. Please do not press the Start Test button again if you are currently running this test. START TEST

	Description	Flag	Status
1	Confirm books are empty for the selected instruments.		Not Tested
2	Receive market data for a set of orders.		Not Tested
3	Confirm quantities and prices on the book for the selected instrument.		Not Tested
4	Receive Channel Reset message.		Not Tested
5	Receive resent book.		Not Tested
6	Confirm quantities and prices for book and statistic messages for the selected instrument.		Not Tested

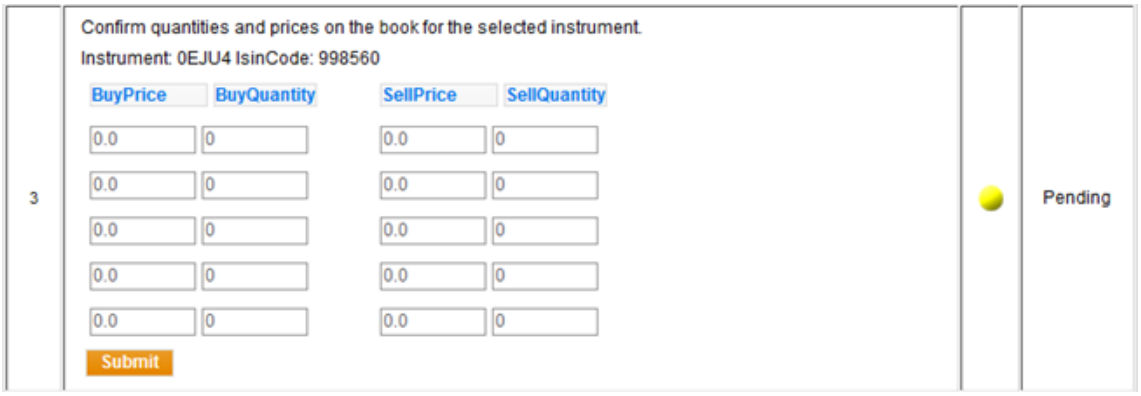
Key: not tested complete pending failed

REFRESH

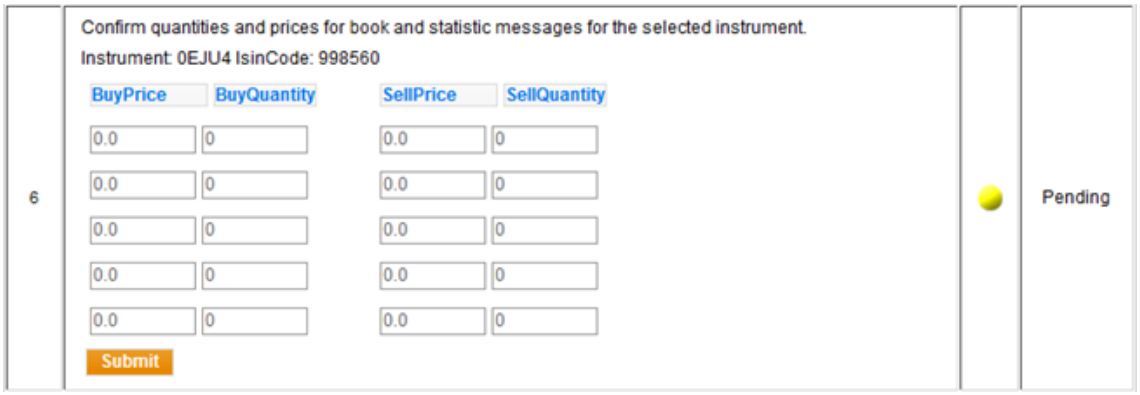
To run the Channel Reset for Market by Order test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Confirm that the books are empty.

   Click **Yes** or **No**.
4. Receive market data for a set of orders.
5. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book for the selected instrument.



6. Receive a Channel Reset [tag 35-MsgType=X, 269-MDEntryType=J (Empty Book)] message
7. Receive resent book and statistics messages.
8. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) from the book for the selected instrument.



Recovery

Recovery tests include the following:

- Recovery (Outright Only)
- Consolidated Recovery (Implied)
- Recovery for Market by Order
- Implied Recovery for Market by Order

Recovery (Outright Only)

This test verifies that your application can perform a recovery test for outright books.

Steps of the test: Recovery Test for Market by Price

This test could take up to several minutes. Please do not close the window during the test.Closing window/stopping test requires to rerun the test from step1.

Purpose

The purpose of this test is to verify that your application can perform a recovery test for non-implied books. For example, if a user does not receive all messages from the system during a trading session, it will be necessary to perform recovery to update the books.

Selected Contract : 0ZCN7,0ZCN8,0ZCN7-0ZCN8 - 701 Unlock

Category	IP	Port
Incremental Feed A	239.43.1.65	15701
Incremental Feed B	224.0.29.126	16701
Snapshot MBP	224.0.25.126	19942
Snapshot MBO		
Instrument Replay	224.0.25.126	16942

Note: Press the Start Test button to start or restart a Test. Please do not press the Start Test button again if you are currently running this test. START TEST

	Description	Flag	Status
1	Confirm books are empty for selected instruments.		Not Tested
2	Receive market data for a set of orders and cancels for the instrument.		Not Tested
3	Miss market data for a set of orders and cancels.		Not Tested
4	Receive market data for a set of orders and cancels for the recovery instrument.		Not Tested
5	Confirm quantities and prices on the book for the selected instrument (non implied).		Not Tested
6	Miss security definition message for the recovery instrument.		Not Tested
7	Receive market data for a set of orders for the recovery instrument.		Not Tested
8	Confirm quantities and prices on the book for the recovery instrument (non implied).		Not Tested

Key: not tested complete pending failed

REFRESH

To run the Recovery (Outright Only) test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Confirm that the books are empty.

   Click **Yes** or **No**.
4. Receive market data for a set of orders and cancels for the instrument.
5. Miss market data for a set of orders and cancels.
6. Receive market data for a set of orders and cancels for the recovery instrument.
7. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book for the selected instrument.

	Description	Flag	Status
1	Confirm books are empty for selected instruments.		Complete
2	Receive market data for a set of orders and cancels for the instrument.		Complete
3	Miss market data for a set of orders and cancels.		Complete
4	Receive market data for a set of orders and cancels for the recovery instrument.		Complete
5	Confirm quantities and prices on the book for the selected instrument (non implied). Instrument: 0ZCN7 SecurityID: 997060 BuyPrice / BuyQuantity / SellPrice / SellQuantity 0.0 / 0 / 0.0 / 0 0.0 / 0 / 0.0 / 0 0.0 / 0 / 0.0 / 0 0.0 / 0 / 0.0 / 0 0.0 / 0 / 0.0 / 0 Submit		Pending
6	Miss security definition message for the recovery instrument.		Not Tested
7	Receive market data for a set of orders for the recovery instrument.		Not Tested
8	Confirm quantities and prices on the book for the recovery instrument (non implied).		Not Tested

Key: not tested complete pending failed

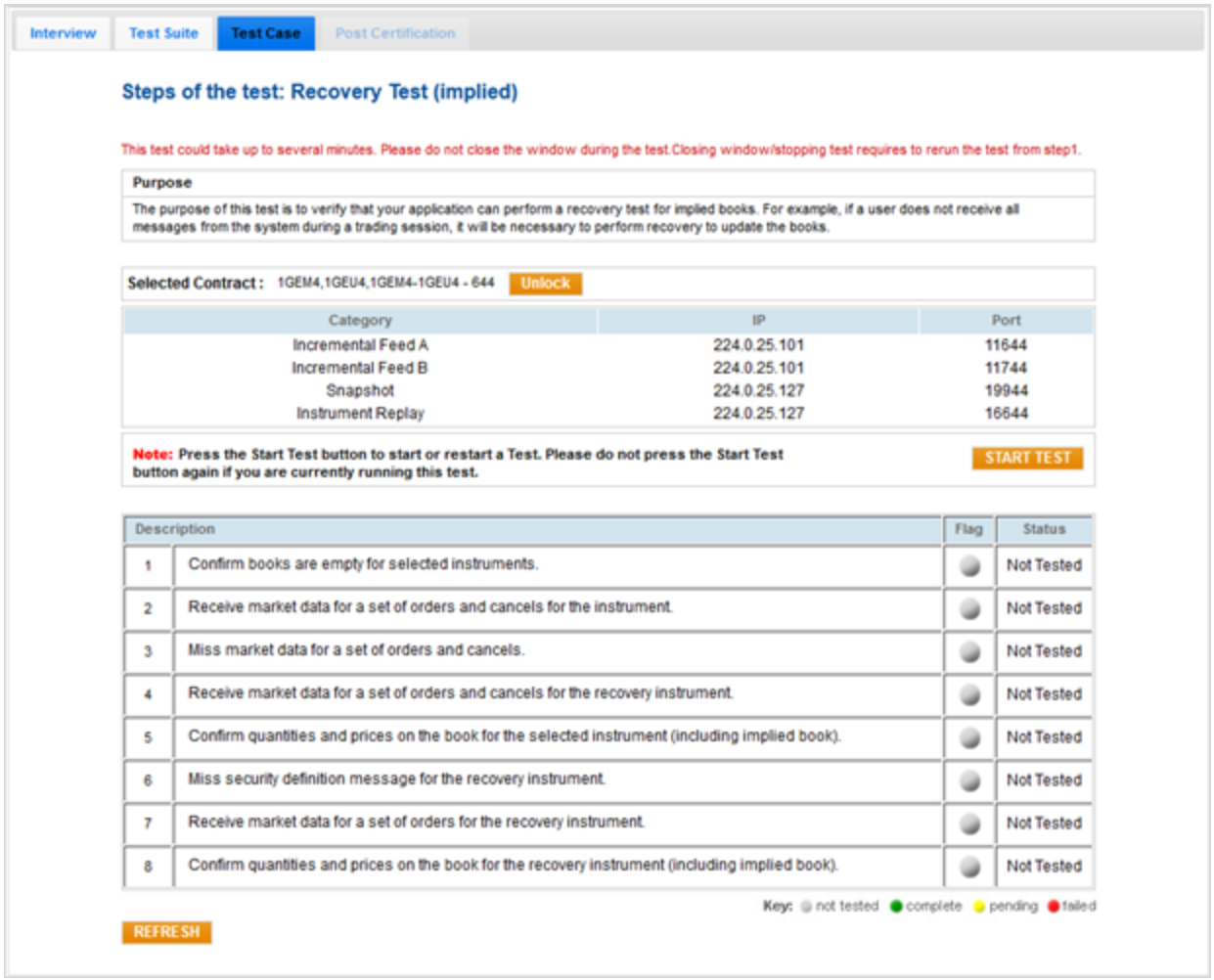
REFRESH

   Click **Submit**.
8. Miss a Security Definition (tag 35-MsgType=d) message for the recovery instrument.
9. Receive market data for a set of orders for the recovery instrument.
10. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book for the recovery instrument.

    Click **Submit**.

Consolidated Recovery (Implied)

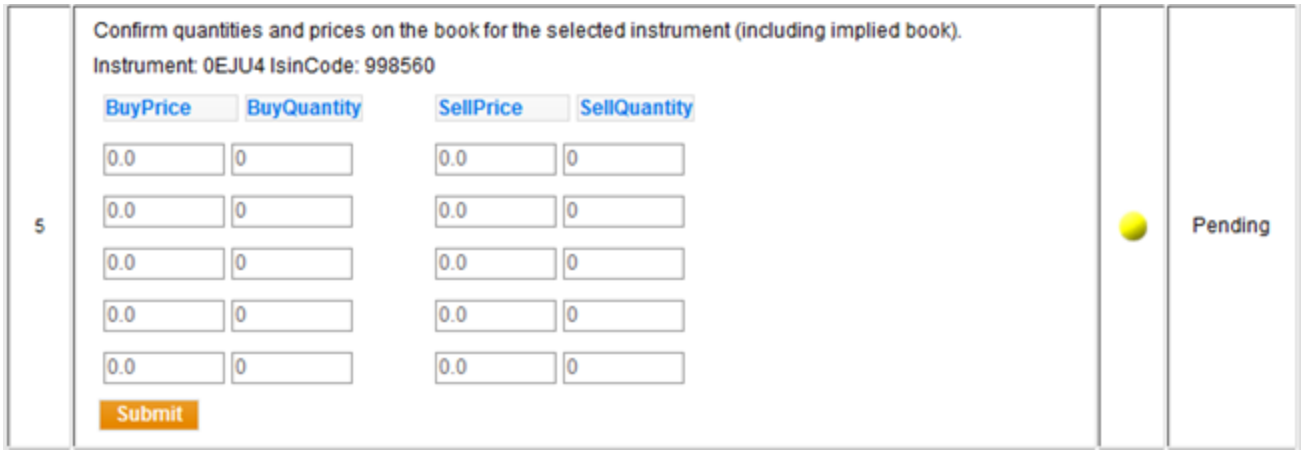
This test verifies that your application can perform a recovery test for implied books.



To run the Recovery (Implied) test:

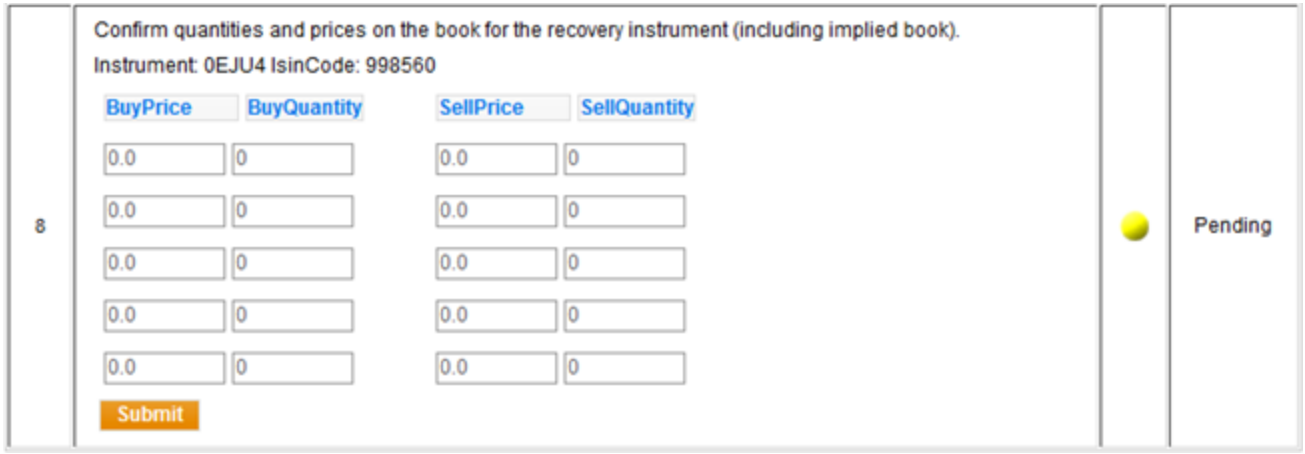
1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Confirm that the books are empty.

   Click **Yes** or **No**.
4. Receive market data for a set of orders and cancels for the instrument.
5. Miss market data for a set of orders and cancels.
6. Receive market data for a set of orders and cancels for the recovery instrument.
7. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book for the selected instrument.



Click **Submit**.

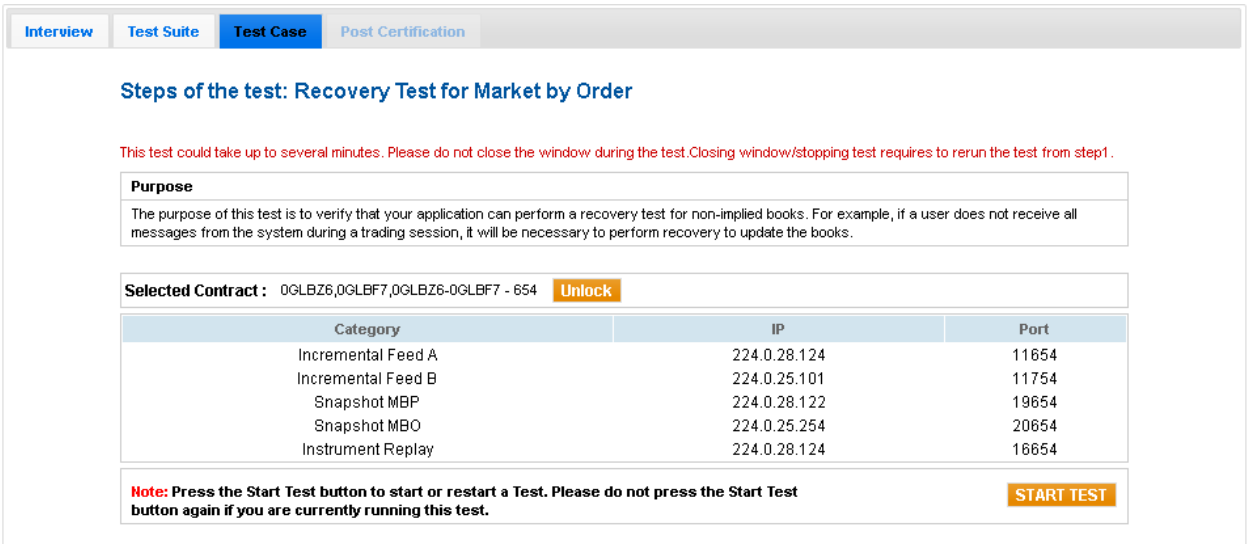
8. Miss Security Definition message for the recovery instrument.
9. Receive market data for a set of orders for the recovery instrument.
10. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book for the recovery instrument.



Click **Submit**.

Recovery for Market by Order

This test verifies that your application can perform a Market by Order recovery for futures and/or options instruments. For example, if a user does not receive all messages from the system during a trading session, it will be necessary to perform a recovery to update the books.



To run the Recovery for Market by Order test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.

Selected Contract : 0GLBZ6,0GLBF7,0GLBZ6-0GLBF7 - 654 **Unlock**

Category	IP	Port
Incremental Feed A	224.0.28.124	11654
Incremental Feed B	224.0.25.101	11754
Snapshot MBP	224.0.28.122	19654
Snapshot MBO	224.0.25.254	20654
Instrument Replay	224.0.28.124	16654

Note: Press the Start Test button to start or restart a Test. Please do not press the Start Test button again if you are currently running this test. **START TEST**

Description		Flag	Status
1	Confirm books are empty for selected instruments.		Not Tested
2	Receive market data for a set of orders and cancels for the instrument.		Not Tested
3	Miss market data for a set of orders and cancels.		Not Tested
4	Receive market data for a set of orders and cancels for the selected instrument.		Not Tested
5	Confirm quantities, prices and order priority on the book for the selected instruments.		Not Tested
6	Miss security definition message for the recovery instrument.		Not Tested
7	Receive market data for a set of orders for the recovery instrument.		Not Tested
8	Confirm quantities, prices and order priority on the book for the recovery instrument.		Not Tested

Key: not tested complete pending failed

REFRESH

3. Confirm that the books are empty.

   Click **Yes** or **No**.

4. Receive market data for a set of orders and cancels for the instrument.
5. Miss market data for a set of orders and cancels.

	Description	Flag	Status
1	Confirm books are empty for selected instruments.		Complete
2	Receive market data for a set of orders and cancels for the instrument.		Complete
3	Miss market data for a set of orders and cancels.		Complete
4	Receive market data for a set of orders and cancels for the selected instrument.		Complete
5	Confirm quantities, prices and order priority on the book for the selected instruments. Instrument: 0GLBZ6 SecurityID: 998170 BuyPrice / BuyQuantity / SellPrice / SellQuantity 0.0 / 0 / 0.0 / 0 (5 rows) Submit		Pending
6	Miss security definition message for the recovery instrument.		Not Tested
7	Receive market data for a set of orders for the recovery instrument.		Not Tested
8	Confirm quantities, prices and order priority on the book for the recovery instrument.		Not Tested

6. Recover the book for one of the selected instruments.
7. Confirm quantities and prices in the proper book priority for one of the selected instruments.
8. Miss a Security Definition (tag 35-MsgType=d) message for the recovery instrument.
9. Recover the missed instrument and receive market data consisting of a set of orders for the missed instrument.
10. Confirm quantities and prices in the proper book priority for the recovered instrument.

    Click **Submit**.

Implied Recovery for Market by Order

This test verifies that your application can perform a recovery test for implied books for Market by Order.

To run the Implied Recovery for Market by Order test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Confirm that the books are empty.

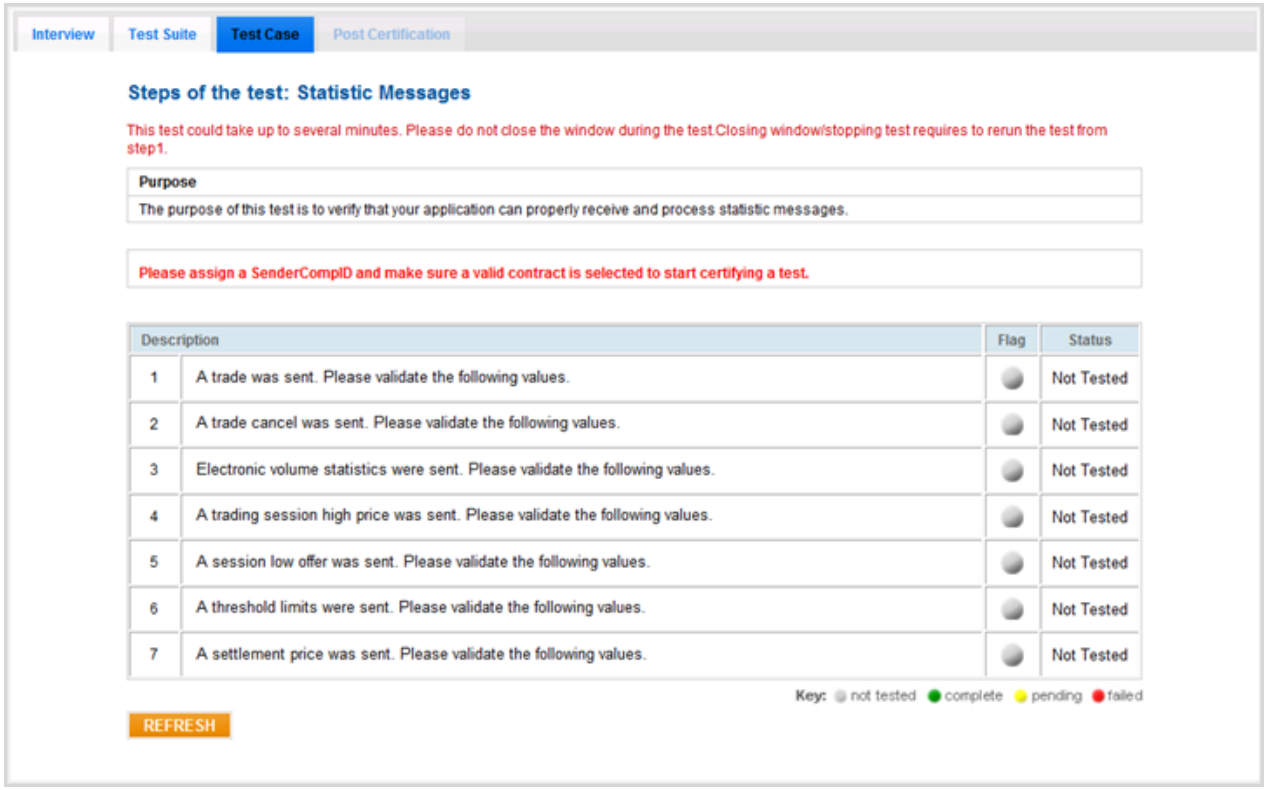
Click **Yes** or **No**.

4. Receive market data for a set of orders and cancels for the instrument.
5. Miss market data for a set of orders and cancels.
6. Receive market data for a set of orders and cancels for the recovery instrument.
7. Confirm implied quantities and prices on the book for the selected instrument.

   Click **Submit**.

Statistic Messages

This test verifies that your application can properly process statistics received in Market Data Incremental Refresh (tag 35-MsgType=X) messages.



To run the Statistic Messages test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Enter the trade statistics that your application received.
   - tag 270-MDEntryPx
   - tag 271-MDEntrySize

   Click **Submit**.
4. Enter the trade cancel statistics that your application received:
   - tag 270-MDEntryPx
   - tag 271-MDEntrySize

Click **Submit**.

5. Enter the tag 271-MDEntrySize value from the Electronic Volume statistics that your application received.

Click **Submit**.

6. Enter the trading session high price (tag 270-MDEntryPx, when tag 269-MDEntry=7) that your application received.

Click **Submit**.

7. Enter the trading session low price (tag 270-MDEntryPx, when tag 269-MDEntry=8) that your application received.

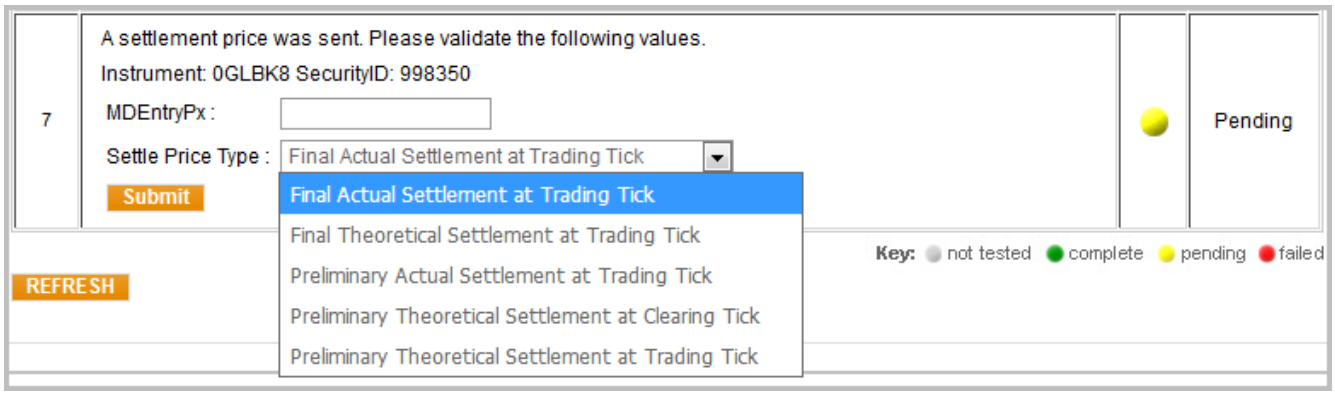
Click **Submit**.

8. Enter the following tag values from the statistic message that your application received:
   - tag 1149-HighLimitPrice
   - tag 1148-LowLimitPrice

Click **Submit**.

9. Enter the following tag values for the settlement price that your application received.

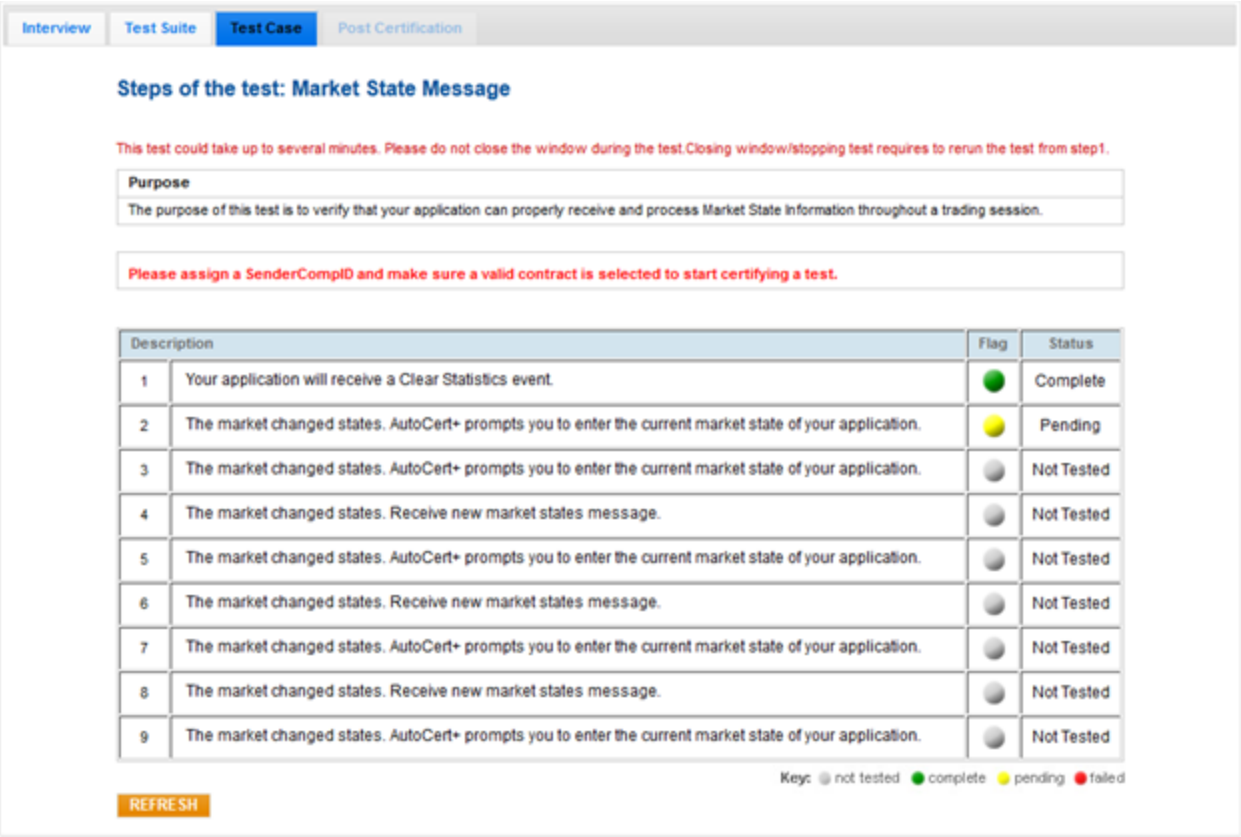
- tag 270-MDEntryPx
- tag 731-SettlPriceType (choose one option below)
  - Final Actual Settlement at Trading Tick
  - Final Theoretical Settlement at Trading Tick
  - Preliminary Actual Settlement at Trading Tick
  - Preliminary Theoretical Settlement at Clearing Tick
  - Preliminary Theoretical Settlement at Trading Tick



Click **Submit**.

Market State Message

This test verifies that your application can properly receive and process market state information sent in Market Data Security Status (tag 35-MsgType=f) messages throughout a trading session.



To run the Market State Message test:

1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Receive a Clear Statistics event (35=f, tag 1174-SecurityTradingEvent=4) message.
4. For the remaining steps of the test:

   Select the current market state from the SecurityTradingStatus drop-down and click **Submit**:

   - Implied OFF
   - Pre-Open
   - Trading Halt
   - Close - Final
   - Ready to Trade
   - End of Session (Not Final Close)
   - Opening (New Price Indication)
   - No Cancel
   - Implied ON

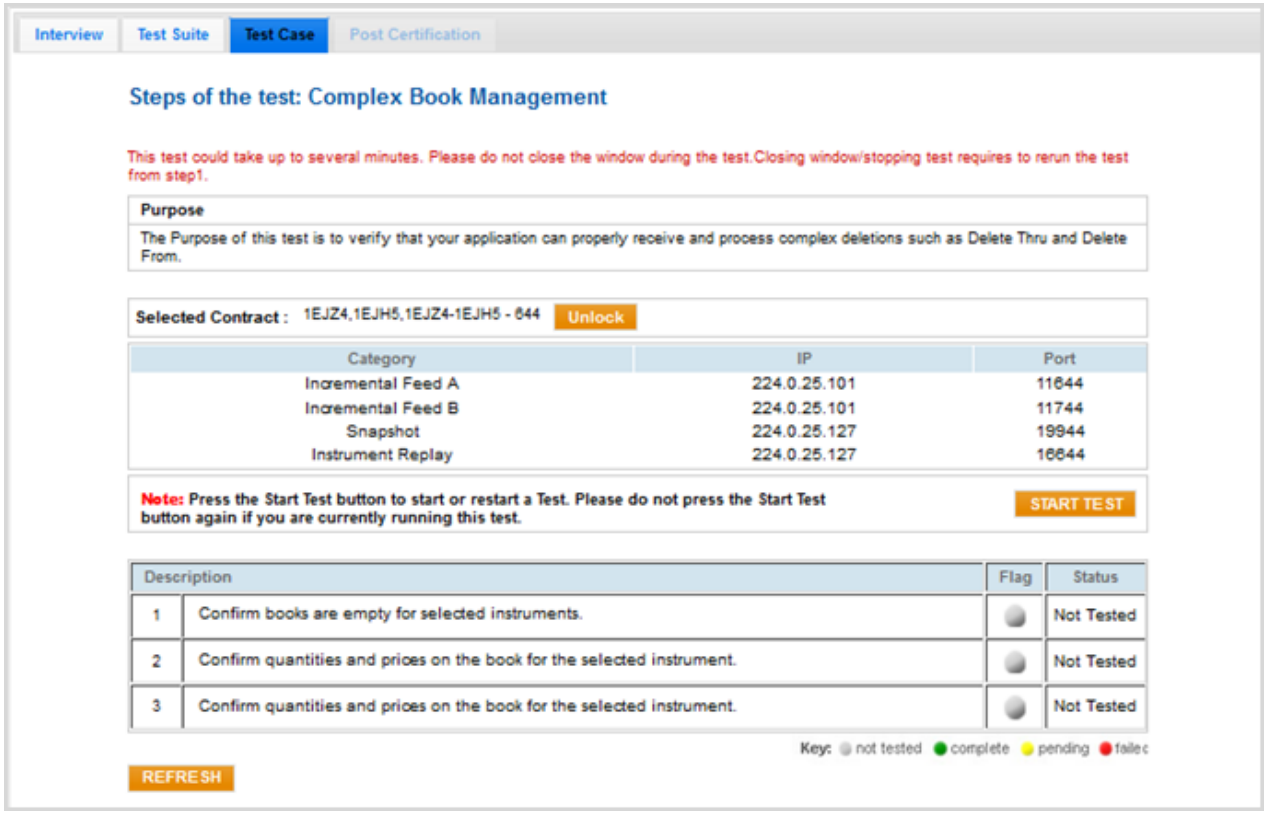
- Auction
- Pre-Open (No Cancel)

OR

Receive a new Market State (35=f) message.

Complex Book Management

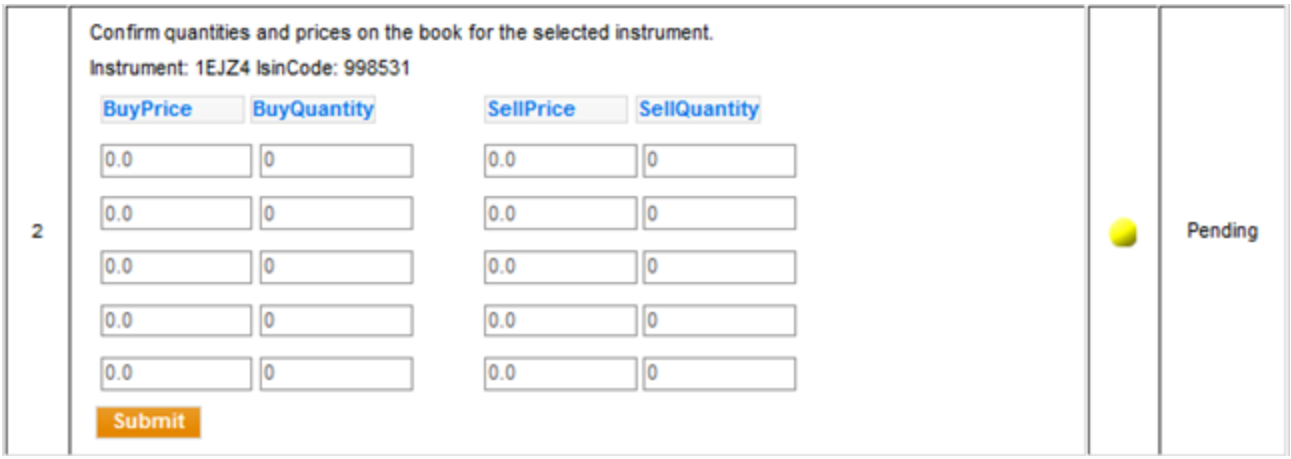
This test verifies that your application can properly receive and process complex deletions [Market Data Incremental Refresh (tag 35-MsgType=X)] such as Delete Thru and Delete From.



To run the Complex Book Management test:

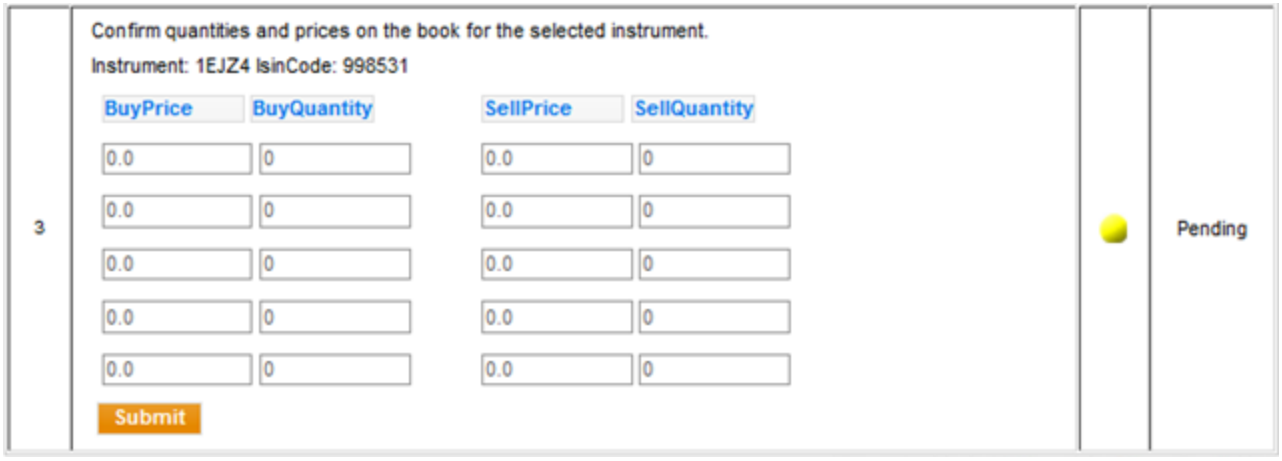
1. From the **Contract** drop-down, select the desired contract if the contract is not already locked.
2. Click **START TEST**.
3. Confirm that the books are empty for the selected instrument.

   Click **Yes** or **No**
4. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book.



Click **Submit**.

5. Enter the quantities (tag 271-MDEntrySize) and prices (tag 270-MDEntryPx) on the book.



Click **Submit**.