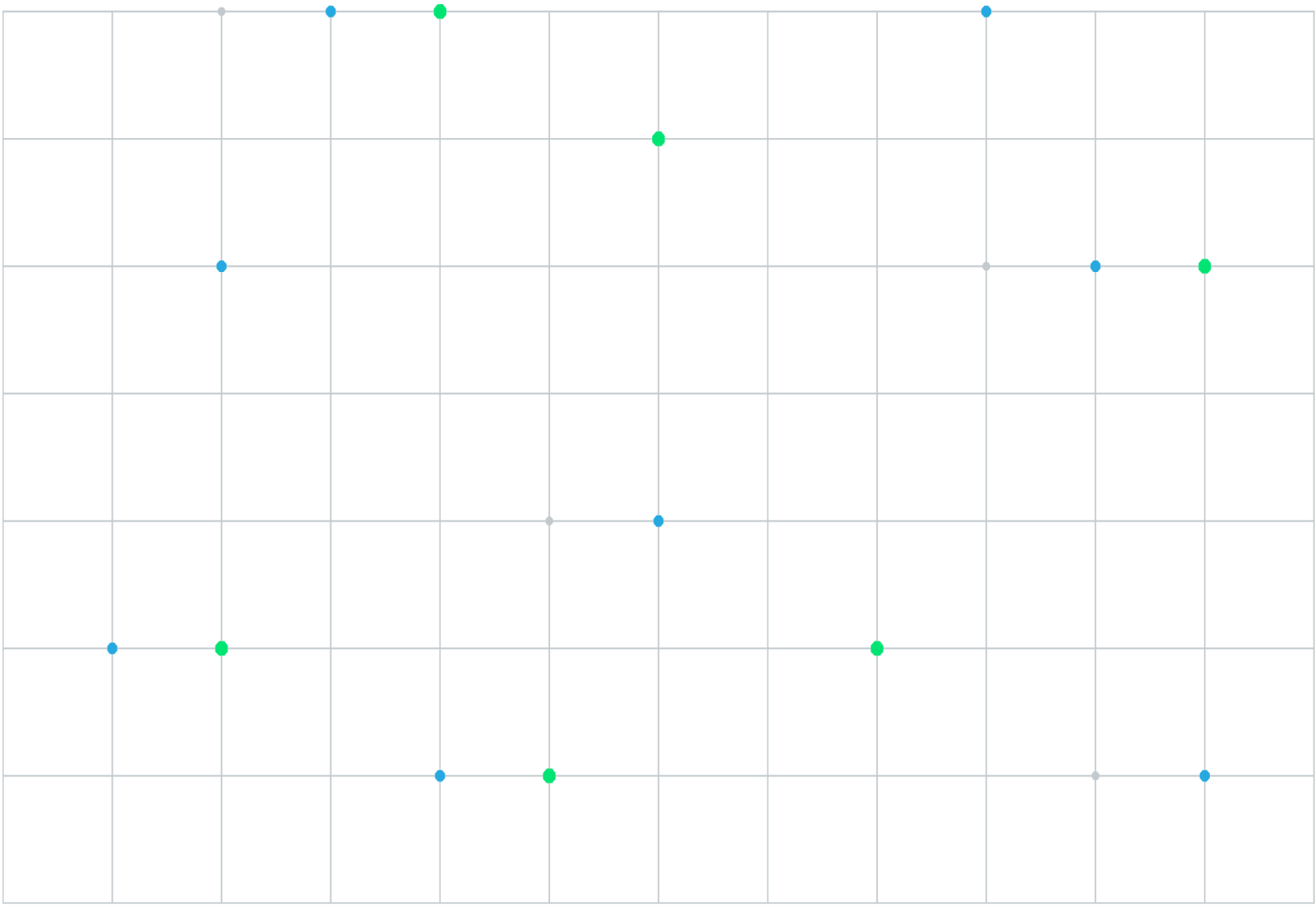
CME Group

AutoCert+ EBS Direct 2.0 - Maker API User Manual

February 28, 2023



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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.

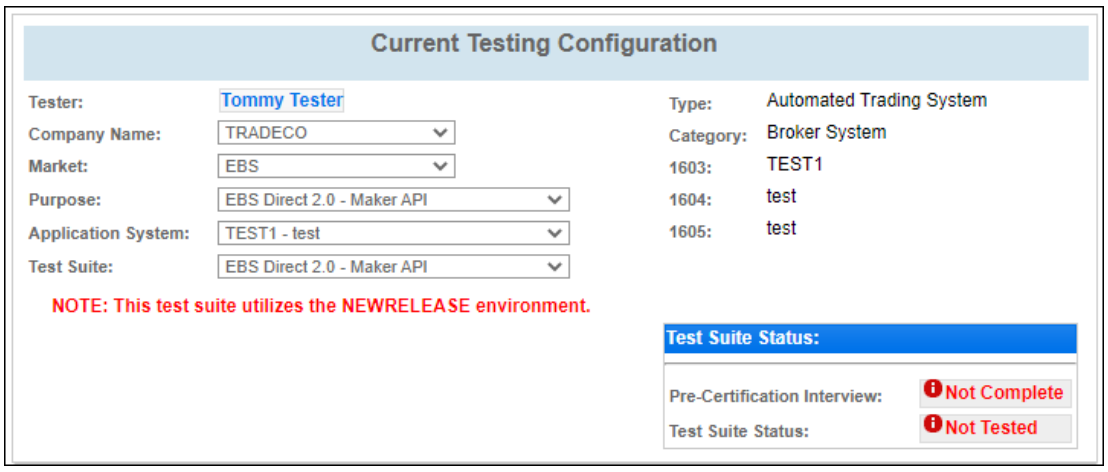
Certification session details will be assigned and forwarded to the customer, including certification target locations and firm / user Identifiers.

This Help system accompanies the AutoCert+ EBS Direct 2.0 - Maker API test suite.

EBS Direct 2.0 is a low latency relationship based trading platform and is backwards compatible with the existing 1.0 platform. This document represents a FIX 4.4 compliant specification for market makers to provide liquidity to EBS clients.

To run and navigate AutoCert+:

1. Log into the automated certification tool.
2. Review general AutoCert+ test suite navigation and general interview information.
3. Navigate to the AutoCert+ EBS Direct 2.0 - Maker API test suite.



   a. Select a *Company Name*.
   b. For **Market**, select *EBS*.
   c. For **Purpose**, select *EBS Direct 2.0 - Maker API*.
   d. Select an *Application System*.
   e. For **Test Suite**, select *EBS Direct 2.0 - Maker API*.
4. (if applicable) Select an **Identifier** and select **ASSIGN**.
5. Complete the Interview for this test suite.

   Available test cases are determined by interview question responses.

> For the initial EBS Direct Maker API certification period:
> - AutoCert+ test cases will appear in read-only format.
> - To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

6. Complete applicable test cases.
7. Complete the certification process from the Post Certification tab.

What's New

The list below illustrates the updates made to the AutoCert+ EBS Direct 2.0 - Maker API Help system.

Date	Topic	Description
February 28, 2023	All	initial release

Interview

The interview consists of a series of questions about your trading application.

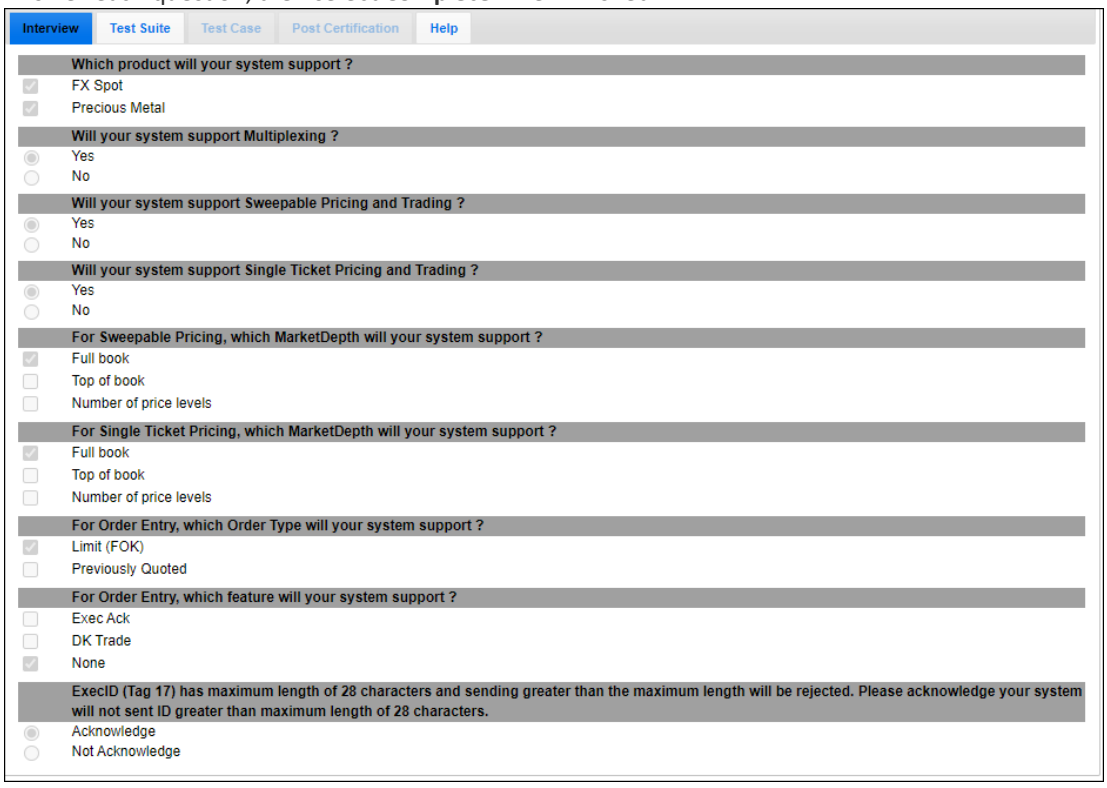
Based on your responses, certain tests are required and others are optional.

The pre-certification interview must be completed before running the test cases.

For the initial EBS Direct Maker API certification period:
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)
- AutoCert+ test cases will appear in read-only format.

To complete the interview:

Answer each question, then select **Complete** when finished.



Session Layer Tests

This section contains information on the EBS Direct 2.0 Maker API - Session Layer tests.

Market Data / Order Session Logon Tests

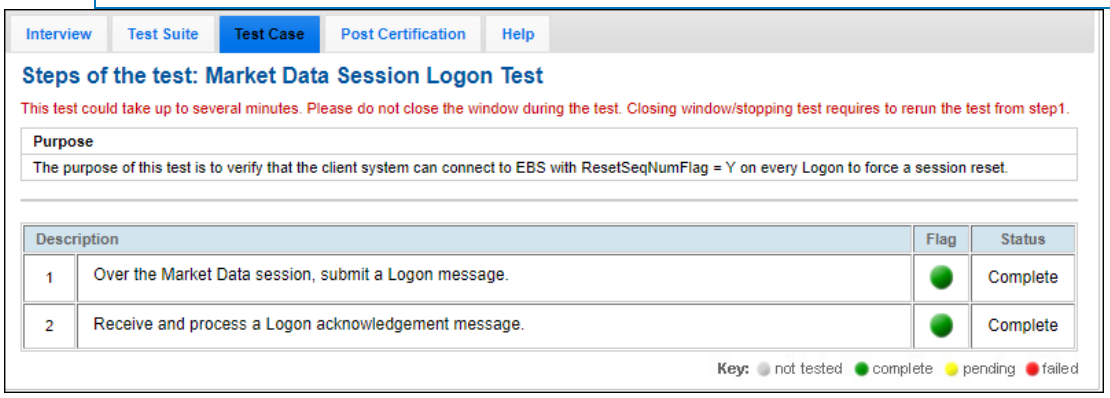
The purpose of this test is to verify that the client system can connect to EBS with ResetSeqNumFlag = Y on every Logon to force a session reset.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET).

To select the test:

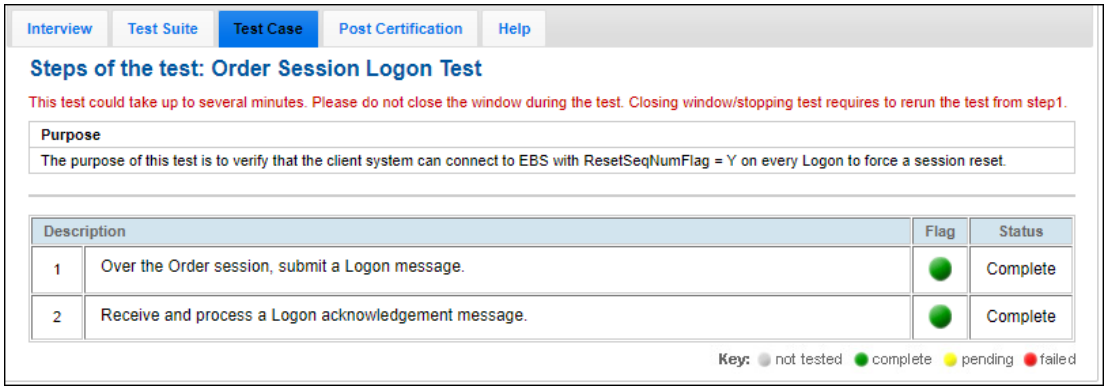
1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

Note:DO NOT select the START TEST button once the test is in progress.
If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.



Note: This test is used for both *Market Data*Market Data Session Logon Test or *Order Session*Order Session Logon Test formats. The above image shows the Market Data format version of the test.

View Order Session test screen



To run a Market Data or Order Session Logon Test:

1. Over the Market Data / Order session, submit a Logon (35=A) message.
2. Receive and process a Logon acknowledgement message.

Market Data/Order Session Verify Test Request Procedure/Methodology

The purpose of this test is to verify that the client system reacts correctly in case of an interruption of communication with EBS.

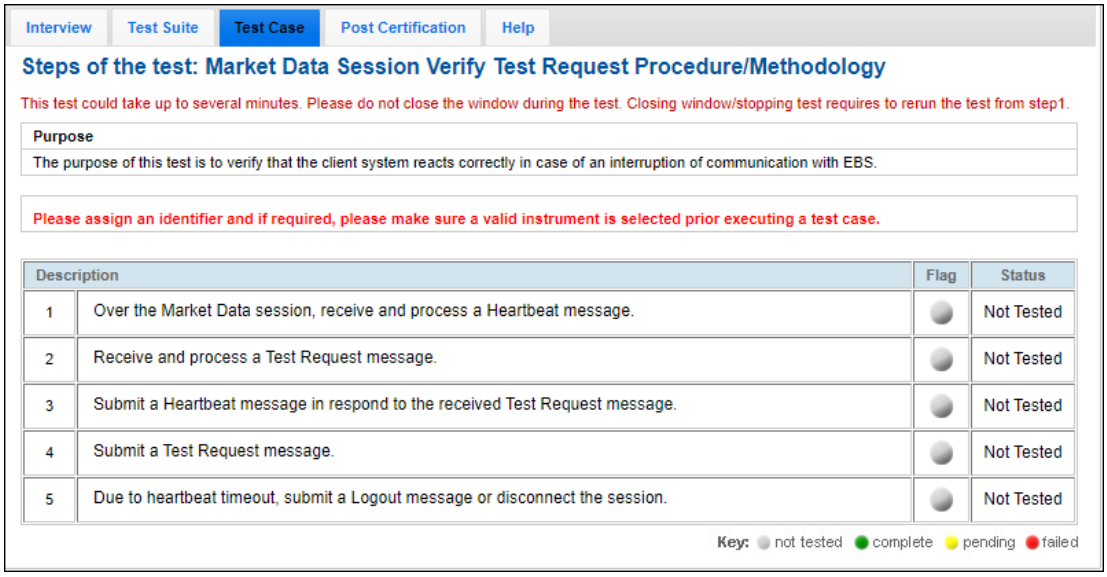
For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET).

To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

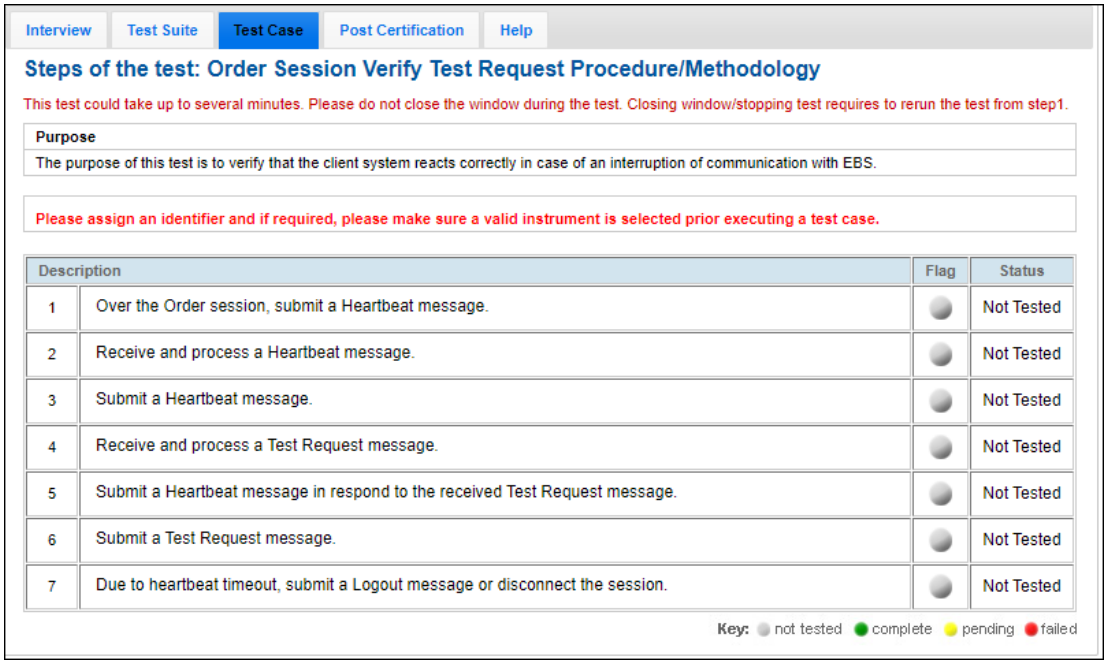
> **Note**:DO NOT select the START TEST button once the test is in progress.
> If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

To run a Market Data Session Verify Test Request Procedure/Methodology test:



1. Over the Market Data session, receive and process a Heartbeat message.
2. Receive and process a Test Request (35=1) message.
3. Submit a Heartbeat (35=0) message in respond to the received Test Request message.
4. Submit a Test Request (35=1) message.
5. Due to heartbeat timeout, submit a Logout (35=5) message or disconnect the session.

To run an Order Session Verify Test Request Procedure/Methodology test:



1. Over the Order session, submit a Heartbeat (35=0) message.
2. Receive and process a Heartbeat message.
3. Submit a Heartbeat (35=0) message.
4. Receive and process a Test Request (35=1) message.
5. Submit a Heartbeat (35=0) message in response to the received Test Request message.
6. Submit a Test Request (35=1) message.
7. Due to heartbeat timeout, submit a Logout (35=5) message or disconnect the session.

Market Data / Order Session Hard Disconnection Test

The purpose of this test is to verify that the client system reacts correctly in case of hard disconnection with EBS.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET).

To select the test:

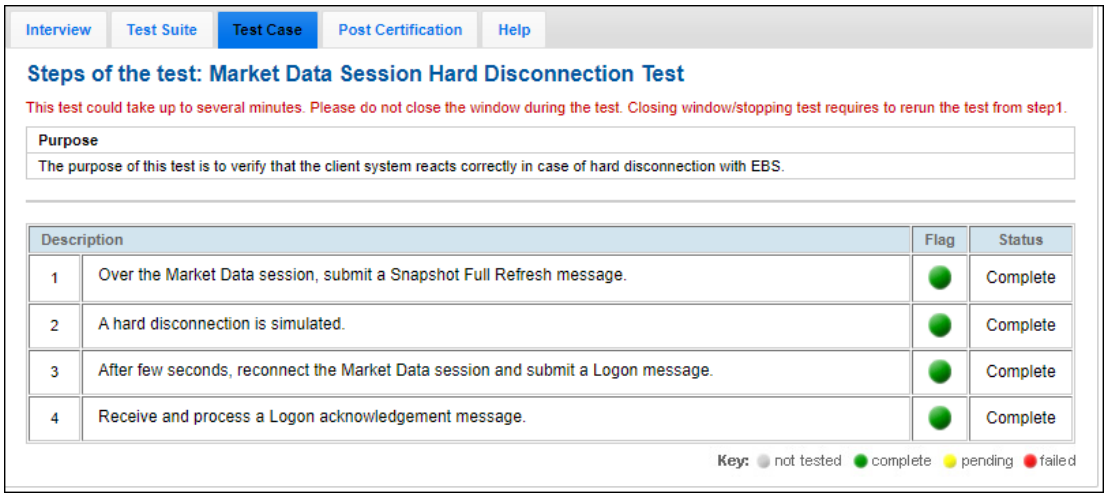
1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

   Note:DO NOT select the START TEST button once the test is in progress.
   If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

4. Select from available tests:

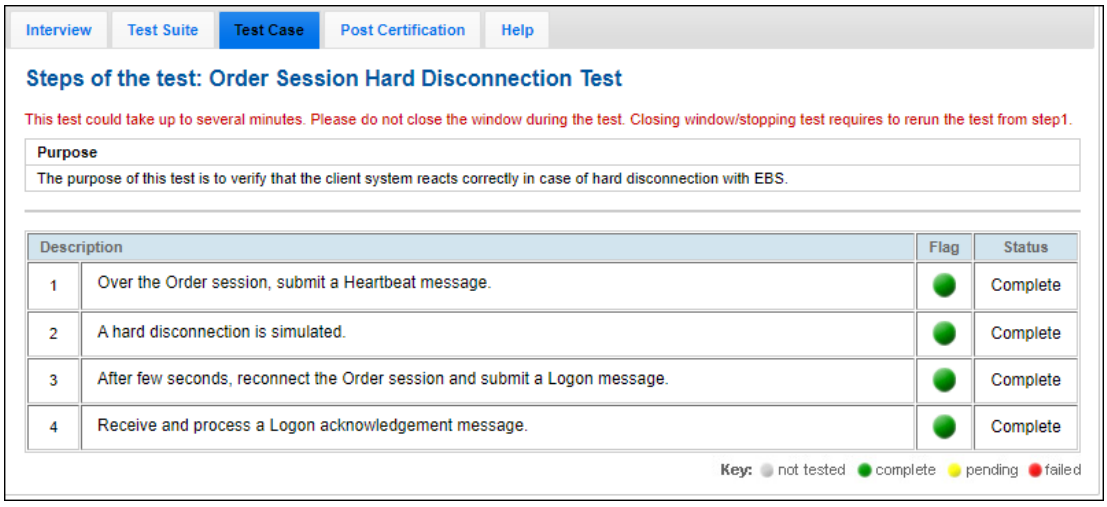
- Market Data Session Hard Disconnection Test
- Order Session Hard Disconnection Test

To run a Market Data Session Hard Disconnection Test:



5. Over the Market Data session, submit a Snapshot Full Refresh (35=W) message.
6. A hard disconnection is simulated.
7. After few seconds, reconnect the Market Data session and submit a Logon (35=A) message.
8. Receive and process a Logon acknowledgement message.

To run an Order Session Hard Disconnection Test:



5. Over the Order session, submit a Heartbeat (35=0) message.
6. A hard disconnection is simulated.
7. After few seconds, reconnect the Order session and submit a Logon (35=A) message.
8. Receive and process a Logon acknowledgement message.

Market Data / Order Session Graceful Disconnection Test

The purpose of this test is to verify that the client system reacts correctly in case of graceful disconnection logout from EBS.

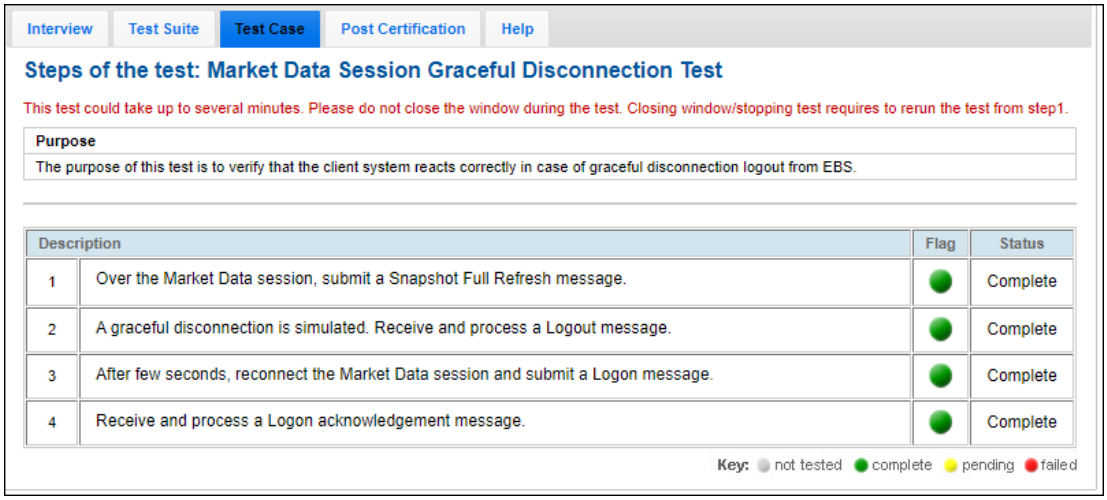
For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET).

To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

> **Note**:DO NOT select the START TEST button once the test is in progress.
> If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

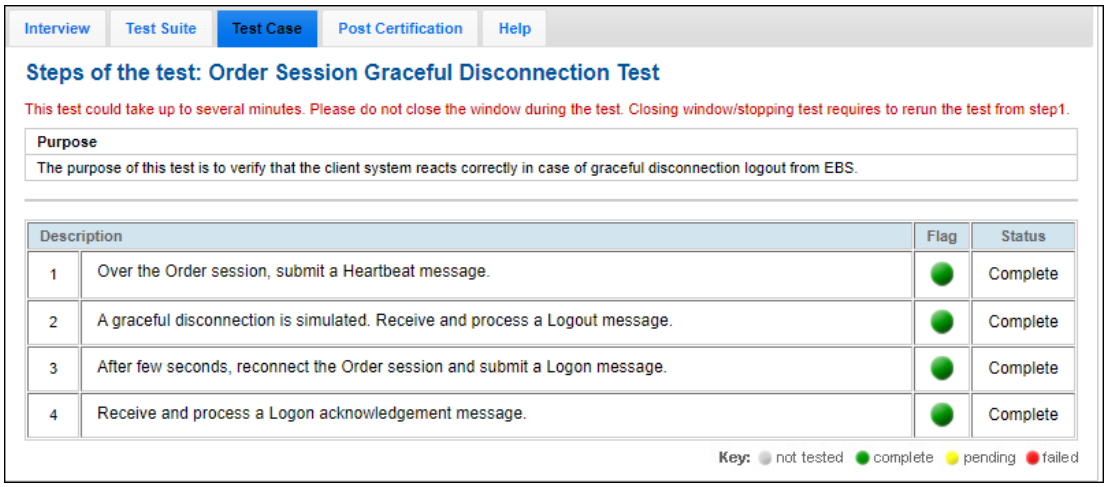
To run a Market Data Graceful Disconnection Test:



1. Over the Market Data session, submit a Snapshot Full Refresh (35=W) message.

   A graceful disconnection is simulated.
2. Receive and process a Logout (35=5) message.
3. After few seconds, reconnect the Market Data session and submit a Logon (35=A) message.
4. Receive and process a Logon acknowledgement message.

To run an Order Session Graceful Disconnection Test:



1. Over the Order session, submit a Heartbeat (35=0) message.

   A graceful disconnection is simulated.
2. Receive and process a Logout (35=5)message.
3. After few seconds, reconnect the Order session and submit a Logon (35=A) message.
4. Receive and process a Logon acknowledgement message.

Market Data / Order Session Logout Test

The purpose of this test is to verify that the client system logout with good practice.

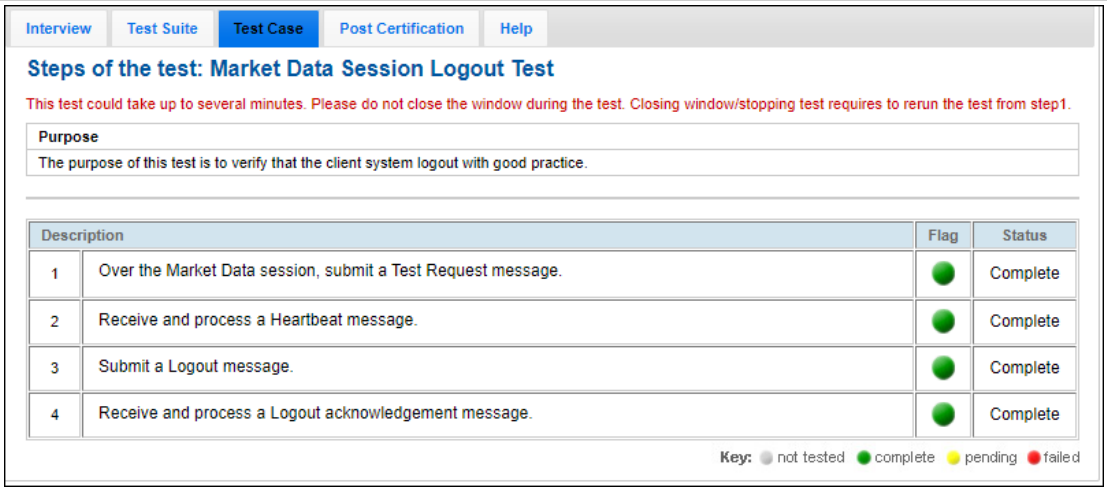
For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET).

To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

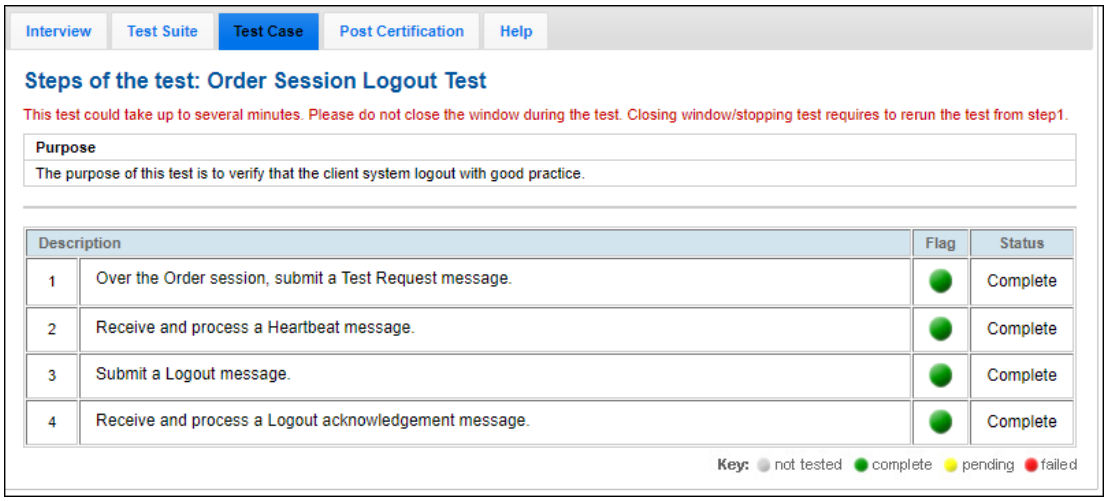
   Note:DO NOT select the START TEST button once the test is in progress.
   If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

To run a Market Data / Order Session Logout Test:



Note: This test is used for both *Market Data*Market Data Session Logout Test or *Order Session*Order Session Logout Test formats. The above image shows the Market Data format version of the test.

View Order Session test screen



1. Over the Market Data / Order session, submit a Test Request (35=1) message.
2. Receive and process a Heartbeat message.
3. Submit a Logout (35=5) message.
4. Receive and process a Logout acknowledgement message.

Market Data / Order Session Request and Order IDs Test

The purpose of this test is to confirm client system's *Message Identifier* (ExecId) / *Order Identifier* (OrderID) / *Test Request Identifier* (TestReqId) don't contain special characters.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET).

To select the test:

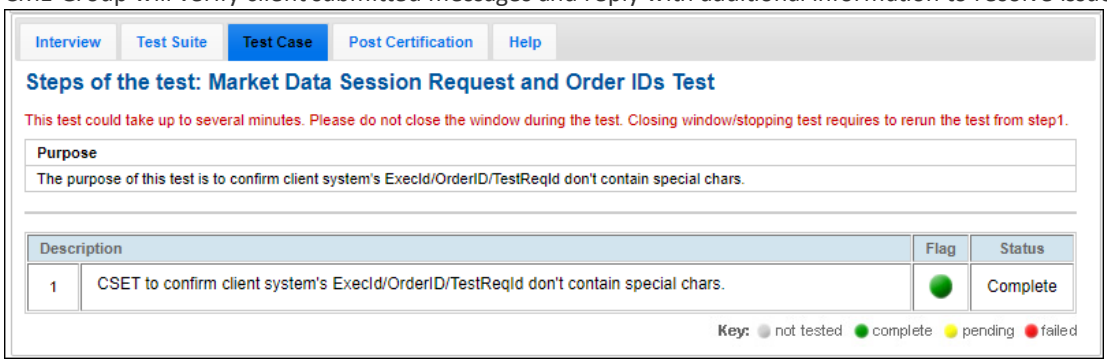
1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.

2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

> **Note**:DO NOT select the START TEST button once the test is in progress.
> If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

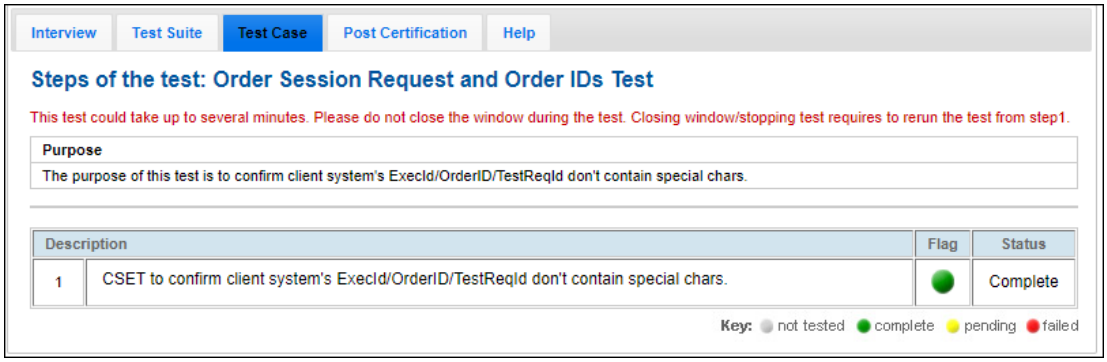
To run a Market Data / Order Session Order IDs Test:

CME Group will verify client submitted messages and reply with additional information to resolve issues (if applicable).



> **Note**: This test is used for both *Market DataMarket Data Session Order IDsTest or Order SessionOrder Session Order IDs Test* formats. The above image shows the Market Data format version of the test.

View Order Session test screen



Market Data / Order Session Heartbeat Interval Test

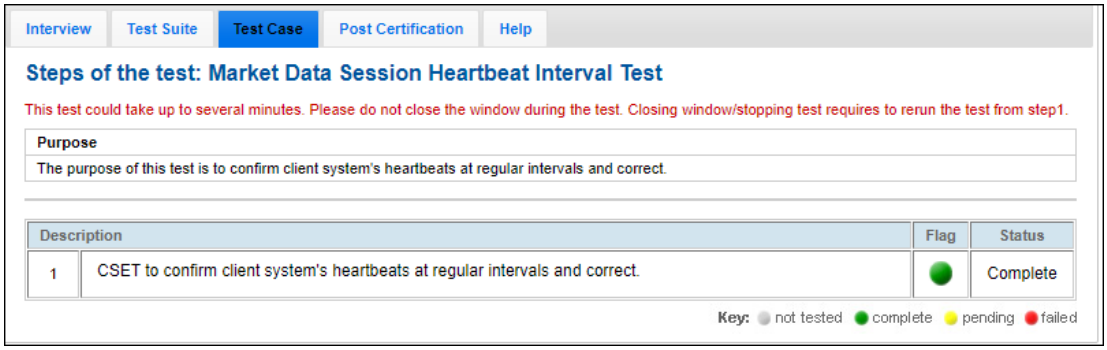
The purpose of this test is to confirm client system's heartbeats at regular intervals (greater than 0) and correct.

> For the initial EBS Direct Maker API certification period:
> - AutoCert+ test cases will appear in read-only format.
> - To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET).

To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

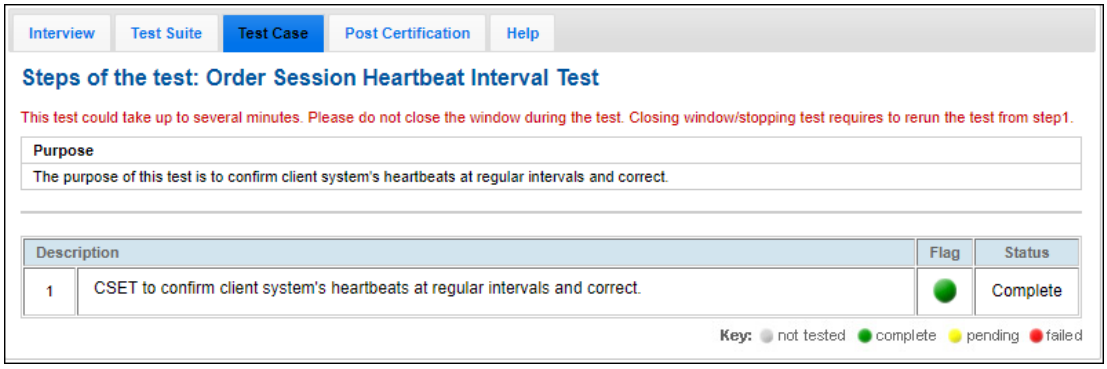
Note:DO NOT select the START TEST button once the test is in progress.
If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.



CME Group will verify client systems heartbeat intervals and reply with additional information to resolve issues (if applicable).

Note: This test is used for both *Market Data*Market Data Heartbeat Interval or *Order Session*Order Session Heartbeat Interval formats. The above image shows the Market Data format version of the test.

View Order Session test screen



Market Data / Order Session FIX version Tests

The purpose of this test is to confirm client system's is sending FIX version 4.4.

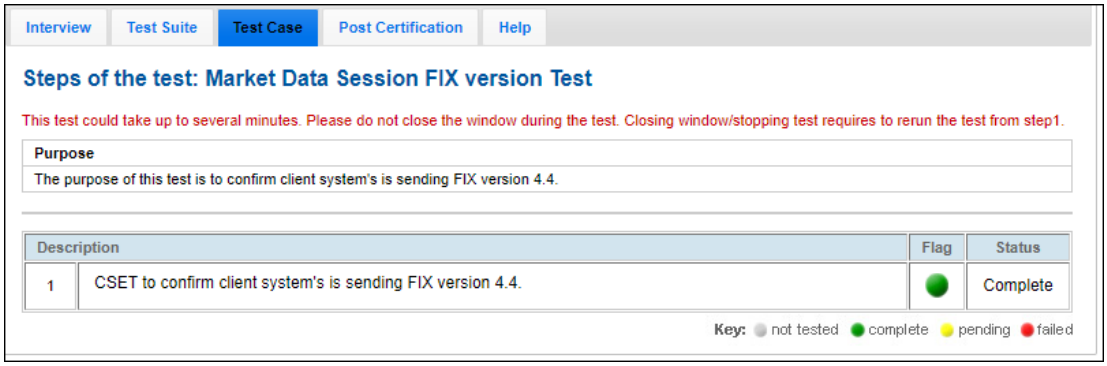
Note: For additional information, see EBS Direct 2.0 - Maker API Development Considerations - FIX Version.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

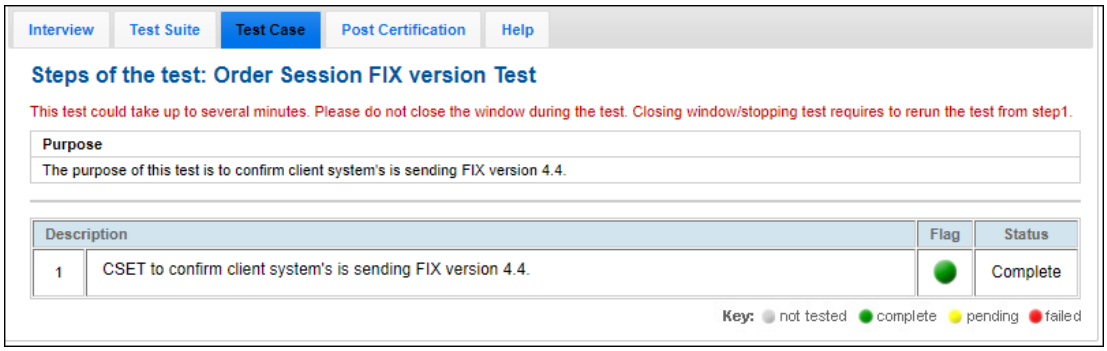
Note:DO NOT select the START TEST button once the test is in progress.
If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.



CME Group will verify client submitted messages and reply with additional information to resolve issues (if applicable).

Note: This test is used for both Market Data *or* Order Session Test formats. The above image shows the Market Data format version of the test.

View Order Session test screen



Market Data / Order Session Tag 97-PossResend Verification Tests

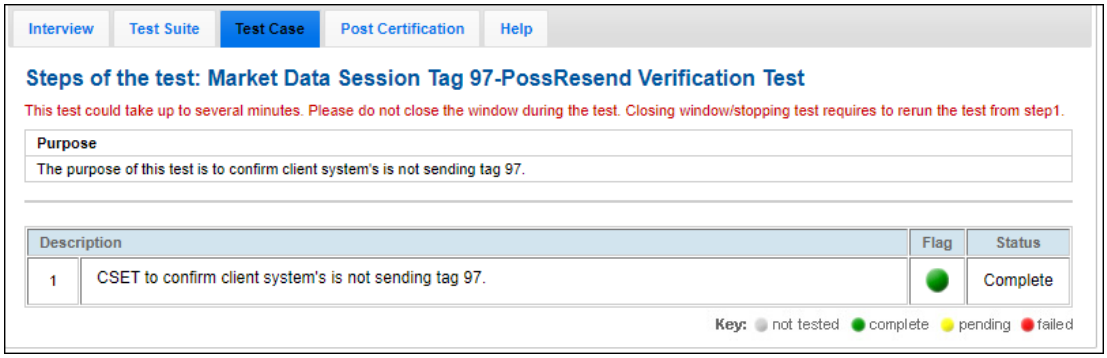
The purpose of this test is to confirm client submitted messages do not contain tag 97-PossResend, a standard header message that indicates that the message is a possible resend of a previously transmitted message.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET).

To select the Test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

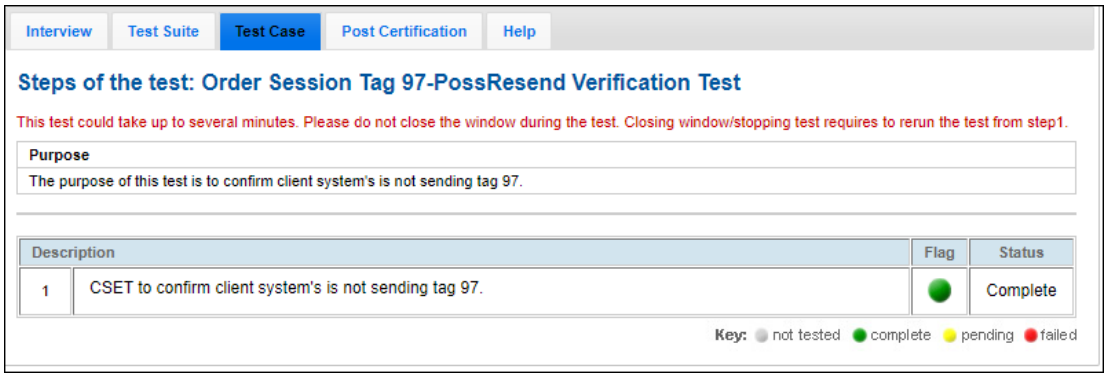
Note:DO NOT select the START TEST button once the test is in progress.
If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.



CME Group will verify client submitted messages and reply with additional information to resolve issues (if applicable).

Note: This test is used for both *Market Data Tag 97-PossResend Verification* or *Order Session Tag 97-PossResend Verification* formats. The above image shows the Market Data format version of the test.

View Order Session test screen



Market Data / Order Session Timestamp Verification Test

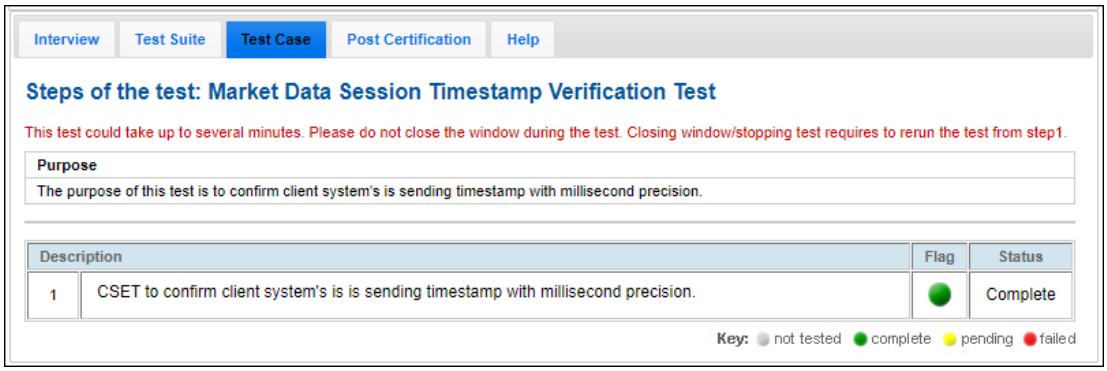
The purpose of this test is to confirm client system's is sending timestamp with millisecond precision.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET).

To select the Test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

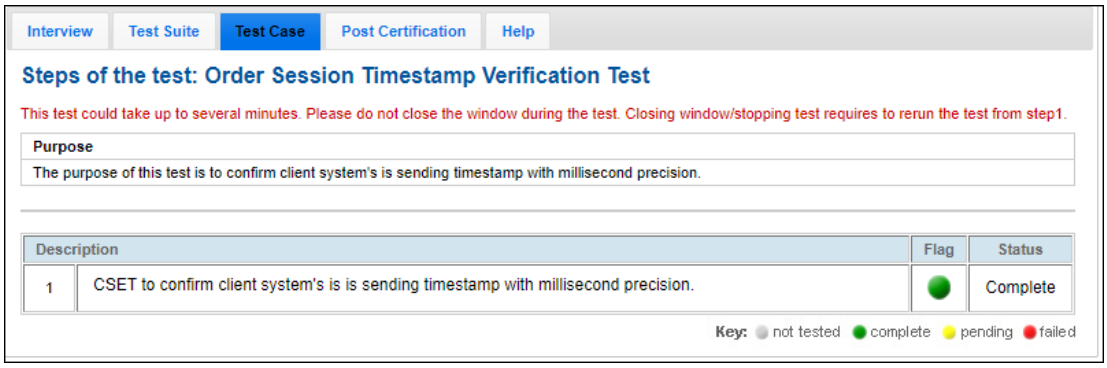
Note:DO NOT select the START TEST button once the test is in progress.
If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.



CME Group will verify client submitted messages and reply with additional information to resolve issues (if applicable).

Note: This test is used for both *Market Data Timestamp Verification* or *Order Session Timestamp Verification* formats. The above image shows the Market Data format version of the test.

View Order Session test screen



Business Layer Tests

This section contains information on the EBS Direct 2.0 Maker API - Session Layer tests.

Market Data Sweepable Pricing Tests

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET).

To select the Test:

(missing or bad snippet)

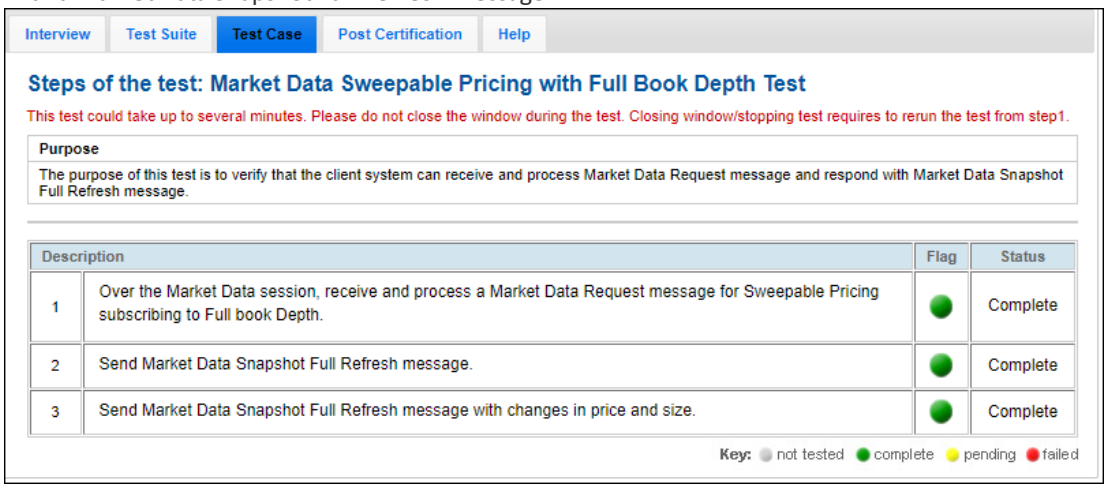
4. Select from available tests to continue:

- Market Data Sweepable Pricing with Full Book Depth Test
- Market Data Sweepable Pricing with Top of Book Test
- Market Data Sweepable Pricing with Number of Price Levels Test
- Market Data Sweepable Pricing with Full Book Depth Test for Previously Quoted Model
- Market Data Sweepable Pricing with Top of Book Test for Previously Quoted Model

- Market Data Sweepable Pricing with Number of Price Levels Test for Previously Quoted Model
- Market Data Sweepable Pricing Reject Subscription Test

Market Data Sweepable Pricing with Full Book Depth Test

The purpose of this test is to verify that the client system can receive and process Market Data Request message and respond with a Market Data Snapshot Full Refresh message.



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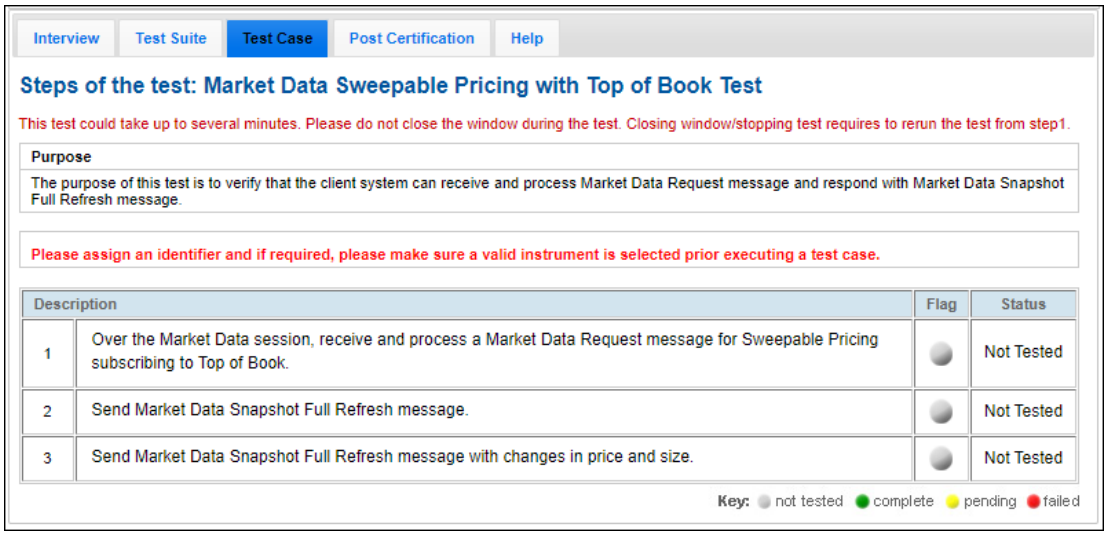
5. Over the Market Data session, receive and process a Market Data Request (35=V) message for Sweepable Pricing subscribing to Full book Depth (tag 264-MarketDepth=0).
6. Send Market Data Snapshot Full Refresh (35=W) message.
7. Send Market Data Snapshot Full Refresh (35=W) message with changes in price and size (→270-MDEntryPx, →271-MDEntrySize).

Market Data Sweepable Pricing with Top of Book Test



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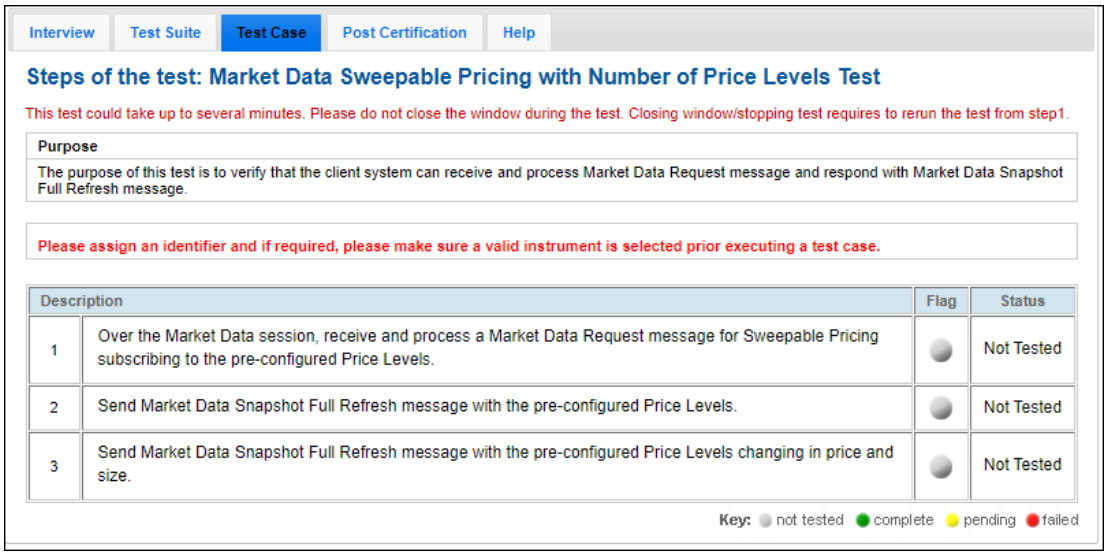
5. Over the Market Data session, receive and process a Market Data Request (35=V) message for Sweepable Pricing subscribing to Top of Book (tag 264-MarketDepth=1).
6. Send Market Data Snapshot Full Refresh (35=W) message.

7. Send Market Data Snapshot Full Refresh (35=W) message with changes in price and size (→270-MDEntryPx, →271-MDEntrySize).

Market Data Sweepable Pricing with Number of Price Levels Test



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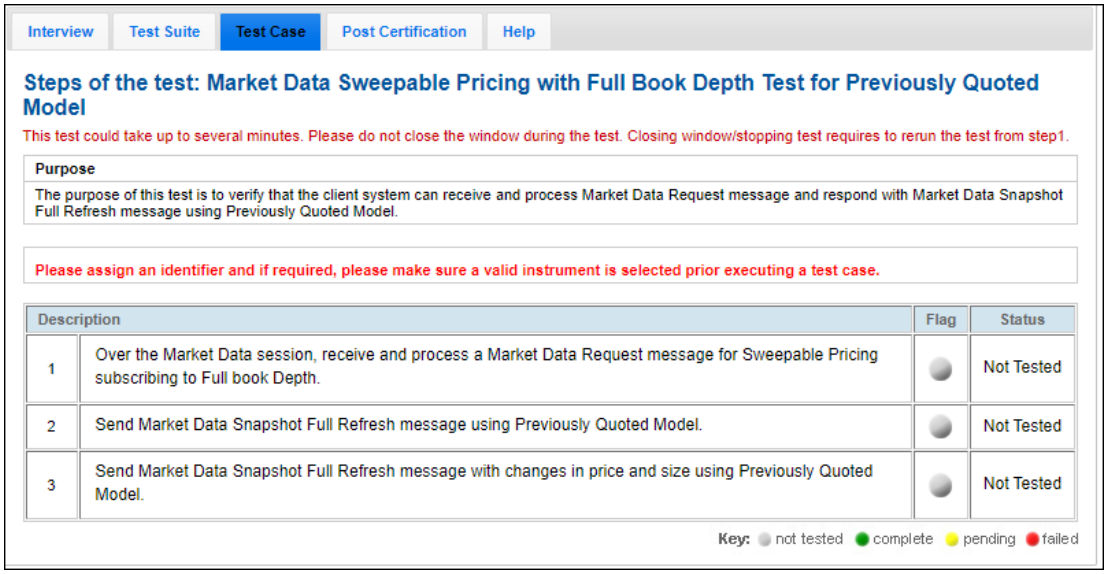
5. Over the Market Data session, receive and process a Market Data Request (35=V) message for Sweepable Pricing subscribing to the pre-configured Price Levels (tag 264-MarketDepth).
6. Send Market Data Snapshot Full Refresh (35=W) message with the pre-configured Price Levels.
7. Send Market Data Snapshot Full Refresh (35=W) message with the pre-configured Price Levels changing price and size (→270-MDEntryPx, →271-MDEntrySize).

Market Data Sweepable Pricing - Previously Quoted Tests

The purpose of this test is to verify that the client system can receive and process Market Data Request message and respond with Market Data Snapshot Full Refresh message using the Previously Quoted Model.

Market Data Sweepable Pricing with Full Book Depth Test for Previously Quoted Model



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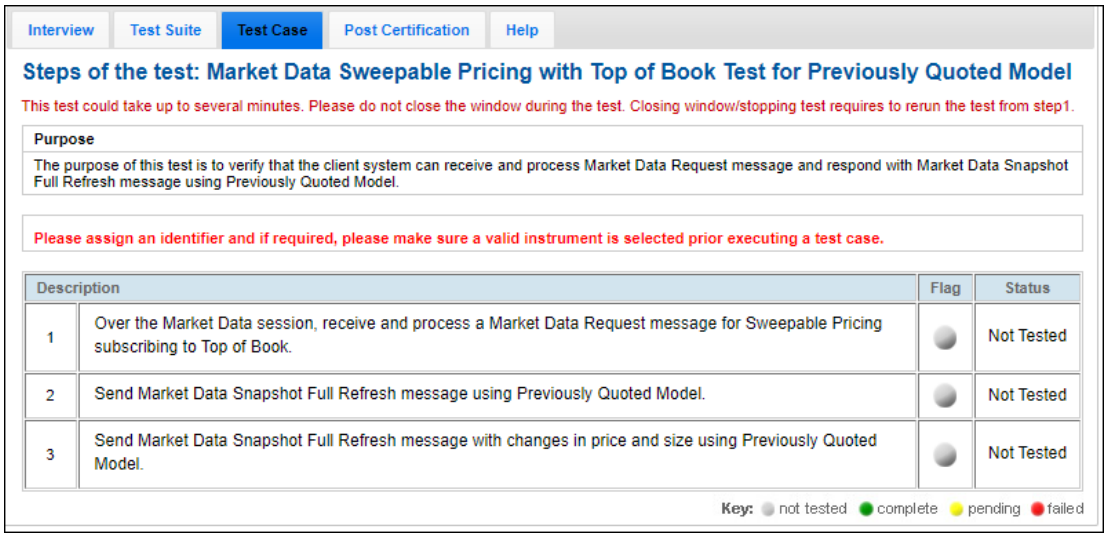
5. Over the Market Data session, receive and process a Market Data Request (35=V) message for Sweepable Pricing subscribing to Full book Depth (tag 264-MarketDepth=0).
6. Send Market Data Snapshot Full Refresh (35=W) message using Previously Quoted Model.
7. Send Market Data Snapshot Full Refresh (35=W) message with changes in price and size using Previously Quoted Model (→299-QuoteEntryID, →270-MDEntryPx, →271-MDEntrySize).

Market Data Sweepable Pricing with Top of Book Test for Previously Quoted Model



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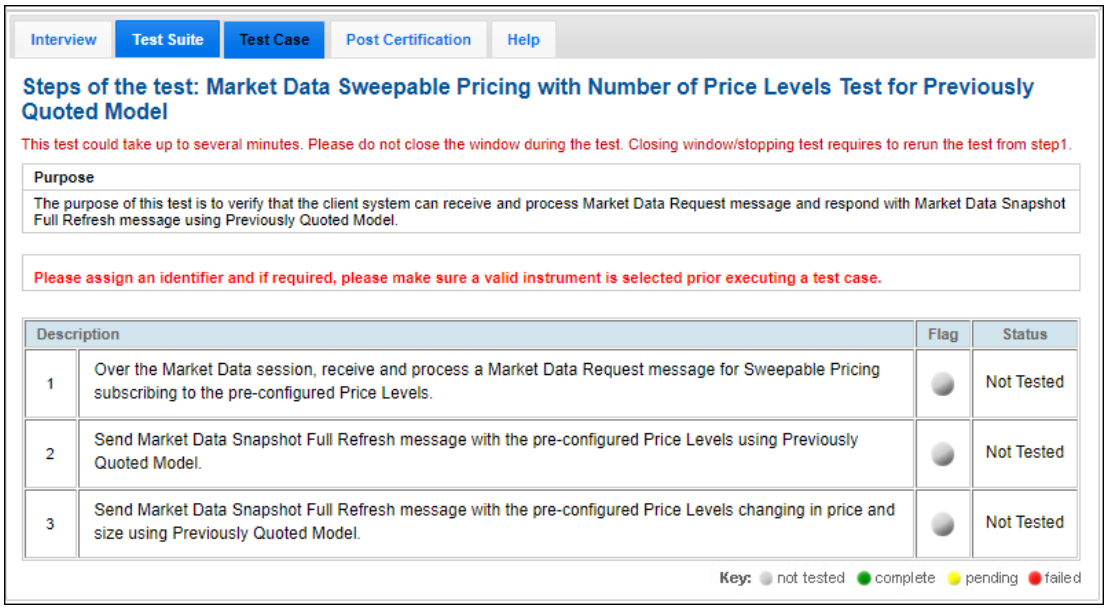
5. Over the Market Data session, receive and process a Market Data Request (35=V) message for Sweepable Pricing subscribing to Top of Book (tag 264-MarketDepth=1).
6. Send Market Data Snapshot Full Refresh (35=W) message using Previously Quoted Model.
7. Send Market Data Snapshot Full Refresh (35=W) message with changes in price and size using the Previously Quoted Model (→299-QuoteEntryID, →270-MDEntryPx, →271-MDEntrySize).

Market Data Sweepable Pricing with Number of Price Levels Test for Previously Quoted Model



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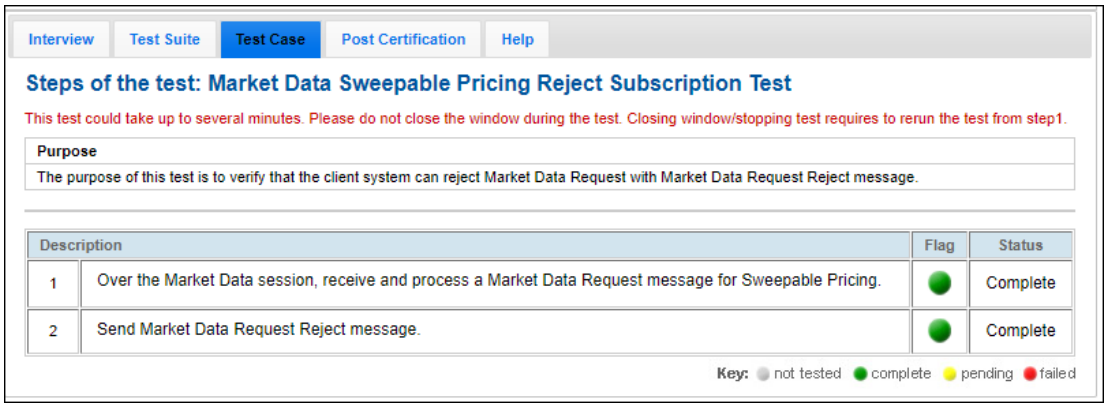
5. Over the Market Data session, receive and process a Market Data Request (35=V) message for Sweepable Pricing subscribing to the pre-configured Price Levels (tag 264-MarketDepth).
6. Send Market Data Snapshot Full Refresh (35=W) message with the pre-configured Price Levels using Previously Quoted Model.
7. Send Market Data Snapshot Full Refresh (35=W) message with the pre-configured Price Levels changing in price and size using the Previously Quoted Model (→299-QuoteEntryID, →270-MDEntryPx, →271-MDEntrySize).

Market Data Sweepable Pricing Reject Subscription Test

The purpose of this test is to verify that the client system can reject Market Data Request with Market Data Request Reject message.

Market Data Sweepable Pricing Reject Subscription Test



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5. Over the Market Data session, receive and process a Market Data Request (35=V) message for Sweepable Pricing.
6. Send Market Data Request Reject (35=Y) message.

Market Data Single Ticket Pricing

The purpose of this test is to verify that the client system can receive and process Market Data Request message and respond with Market Data Snapshot Full Refresh message.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

To select the test:

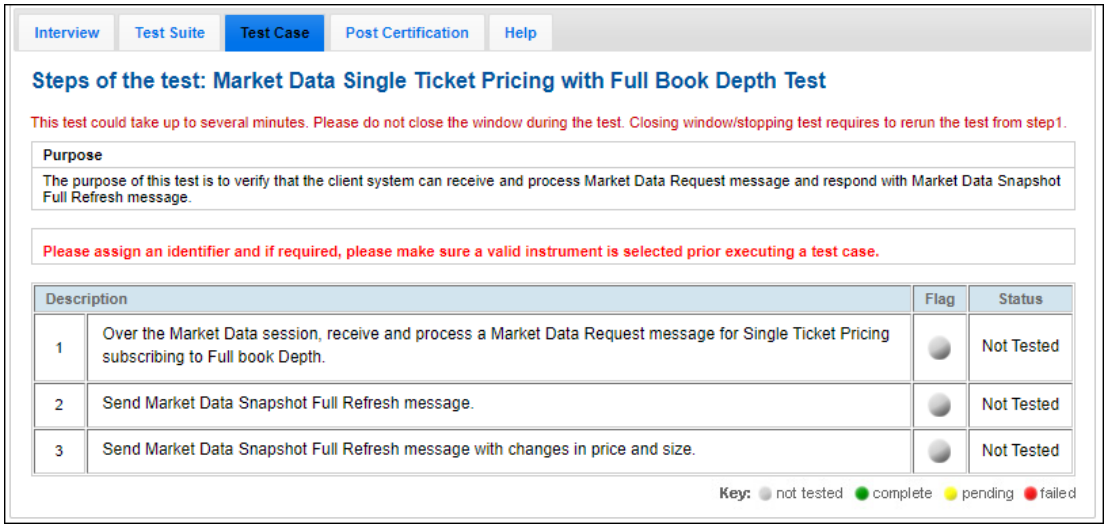
1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

   Note:DO NOT select the START TEST button once the test is in progress.
   If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

4. Select from available tests to continue:

- Market Data Single Ticket Pricing with Full Book Depth Test
- Market Data Single Ticket Pricing with Top of Book Test
- Market Data Single Ticket Pricing with Number of Price Levels Test
- Market Data Single Ticket Pricing with Full Book Depth Test for Previously Quoted Model
- Market Data Single Ticket Pricing with Top of Book Test for Previously Quoted Model
- Market Data Single Ticket Pricing with Number of Price Levels Test for Previously Quoted Model
- Market Data Single Ticket Pricing Reject Subscription Test

Market Data Single Ticket Pricing with Full Book Depth Test



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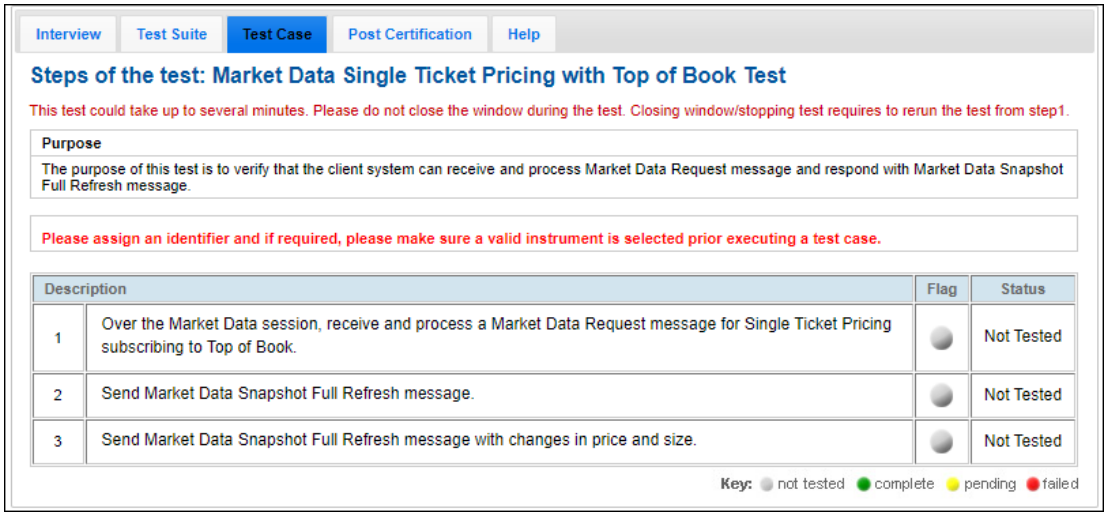
1. Over the Market Data session, receive and process a Market Data Request (35=V) message for Single Ticket Pricing subscribing to Full book Depth (tag 264-MarketDepth=0).
2. Send a Market Data Snapshot Full Refresh (35=W) message.
3. Send a Market Data Snapshot Full Refresh (35=W) message with changes in price and size (→270-MDEntryPx, →271-MDEntrySize).

Market Data Single Ticket Pricing with Top of Book Test



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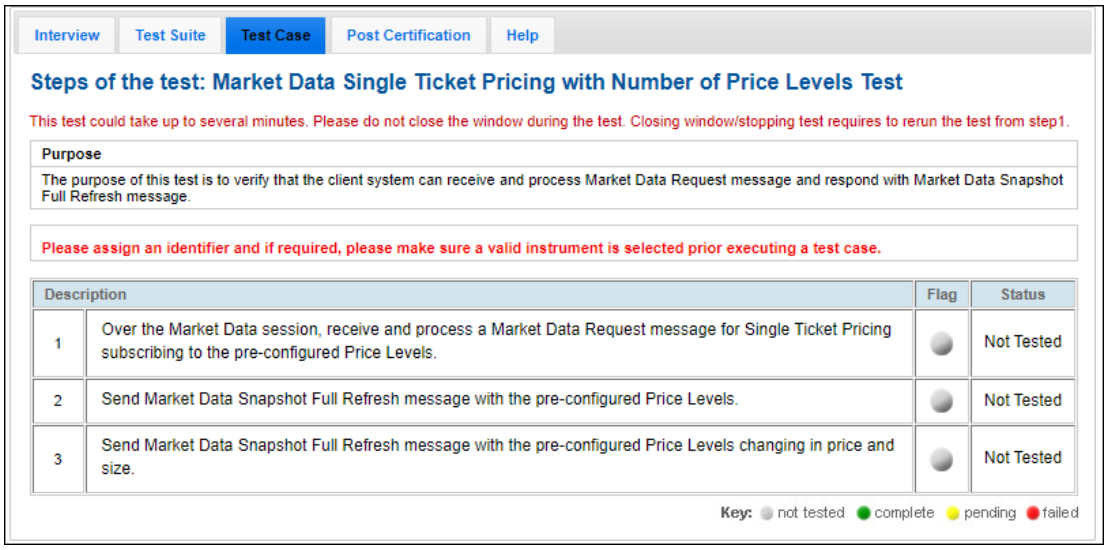
1. Over the Market Data session, receive and process a Market Data Request (35=V) message for Single Ticket Pricing subscribing to Top of Book (tag 264-MarketDepth=1).
2. Send a Market Data Snapshot Full Refresh (35=W) message.
3. Send a Market Data Snapshot Full Refresh (35=W) message with changes in price and size (→270-MDEntryPx, →271-MDEntrySize).

Market Data Single Ticket Pricing with Number of Price Levels Test



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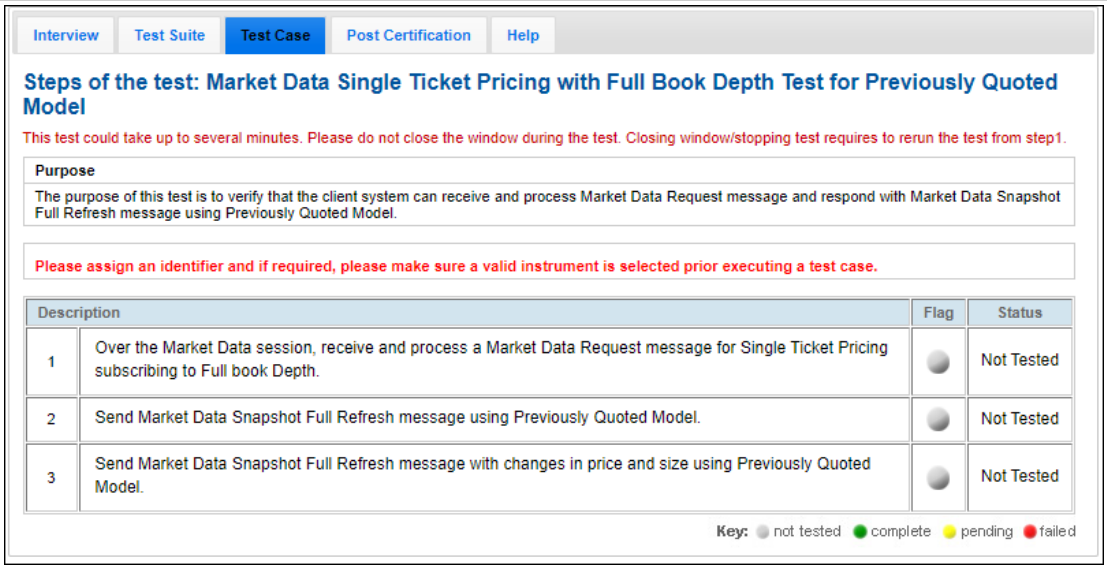
1. Over the Market Data session, receive and process a Market Data Request (35=V) message for Single Ticket Pricing subscribing to the pre-configured Price Levels (tag 264-MarketDepth).
2. Send a Market Data Snapshot Full Refresh (35=W) message with the pre-configured Price Levels using Previously Quoted Model.
3. Send a Market Data Snapshot Full Refresh (35=W) message with the pre-configured Price Levels changing in price and size (→270-MDEntryPx, →271-MDEntrySize) using Previously Quoted Model (→299-QuoteEntryID).

Market Data Single Ticket Pricing with Full Book Depth Test for Previously Quoted Model

The purpose of this test is to verify that the client system can receive and process Market Data Request message and respond with Market Data Snapshot Full Refresh message using Previously Quoted Model.



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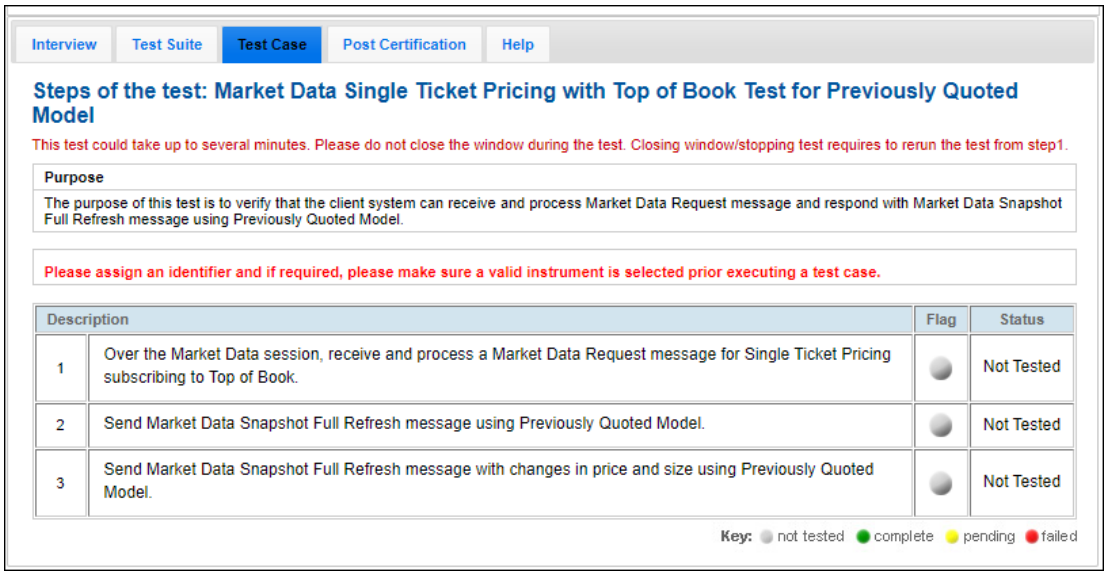
1. Over the Market Data session, receive and process a Market Data Request (35=V) message for Single Ticket Pricing subscribing to Full book Depth (tag 264-MarketDepth=0).
2. Send a Market Data Snapshot Full Refresh (35=W) message using Previously Quoted Model (→299-QuoteEntryID).
3. Send a Market Data Snapshot Full Refresh (35=W) message with changes in price and size (→270-MDEntryPx, →271-MDEntrySize) using Previously Quoted Model (→299-QuoteEntryID).

Market Data Single Ticket Pricing with Top of Book Test for Previously Quoted Model



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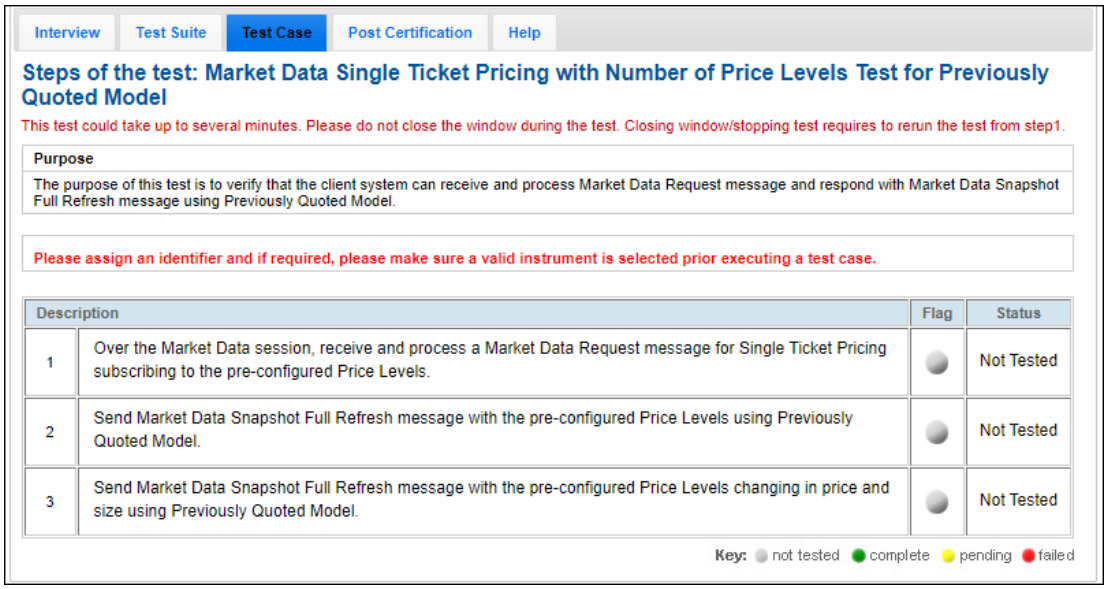
1. Over the Market Data session, receive and process a Market Data Request (35=V) message for Single Ticket Pricing subscribing to Top of Book (tag 264-MarketDepth=1).
2. Send a Market Data Snapshot Full Refresh (35=W) message using Previously Quoted Model.
3. Send a Market Data Snapshot Full Refresh (35=W) message with changes in price and size (→270-MDEntryPx, →271-MDEntrySize) using Previously Quoted Model (→299-QuoteEntryID),

Market Data Single Ticket Pricing with Number of Price Levels Test for Previously Quoted Model



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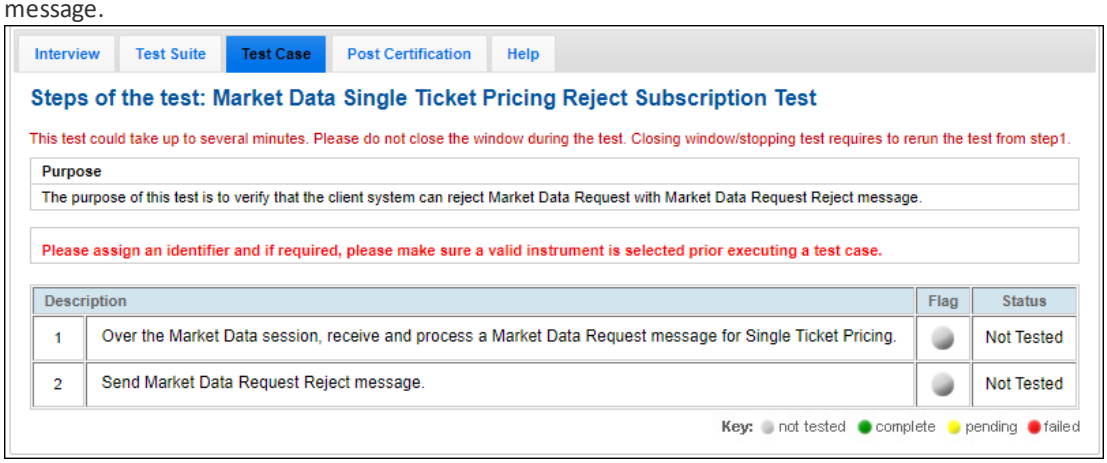
1. Over the Market Data session, receive and process a Market Data Request (35=V) message for Single Ticket Pricing subscribing to the pre-configured Price Levels (tag 264-MarketDepth).
2. Send a Market Data Snapshot Full Refresh (35=W) message with the pre-configured Price Levels using Previously Quoted Model.
3. Send a Market Data Snapshot Full Refresh (35=W) message with the pre-configured Price Levels changing in price and size (→270-MDEntryPx, →271-MDEntrySize) using Previously Quoted Model (→299-QuoteEntryID).

Market Data Single Ticket Pricing Reject Subscription Test

The purpose of this test is to verify that the client system can reject Market Data Request with Market Data Request Reject message.



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5. Over the Market Data session, receive and process a Market Data Request (35=V) message for Single Ticket Pricing.
6. Send Market Data Request Reject (35=Y) message.

Market Data Multiplex Pricing / Pull prices Test

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

To select the test:

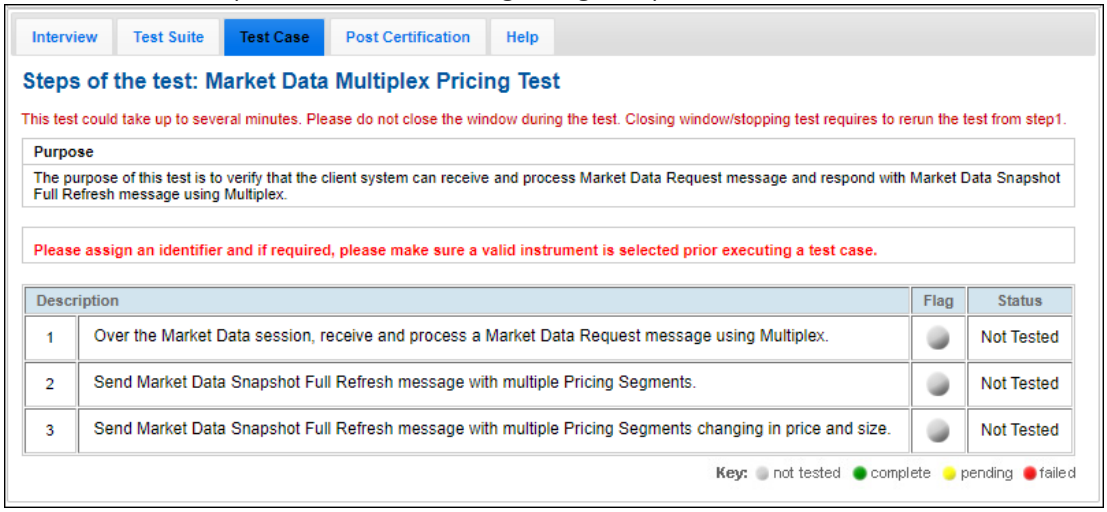
1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

   Note:DO NOT select the START TEST button once the test is in progress.
   If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

4. Select from available tests to continue:
   - Market Data Multiplex Pricing Test
   - Market Data Multiplex Pricing Pull prices Test

Market Data Multiplex Pricing Test

The purpose of this test is to verify that the client system can receive and process Market Data Request message and respond with Market Data Snapshot Full Refresh message using Multiplex.



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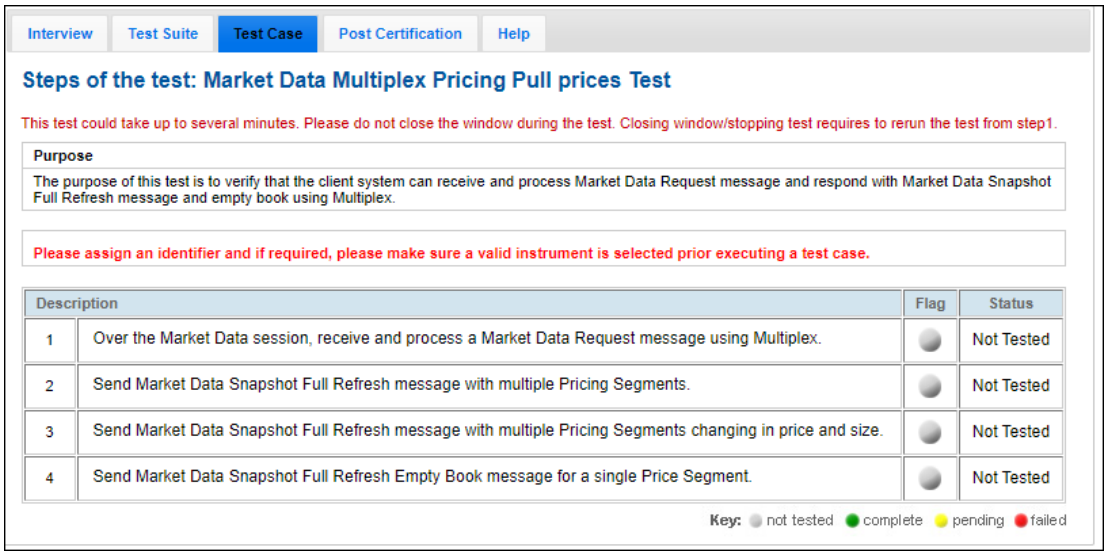
5. Over the Market Data session, receive and process a Market Data Request (35=V) message using Multiplex.
6. Send Market Data Snapshot Full Refresh (35=W) message with multiple Pricing Segments (tag 1500-MDStreamID).
7. Send Market Data Snapshot Full Refresh (35=W) message with multiple Pricing Segments (tag 1500-MDStreamID) changing in price and size (→270-MDEntryPx, →271-MDEntrySize).

Market Data Multiplex Pricing Pull prices Test

The purpose of this test is to verify that the client system can receive and process Market Data Request message and respond with Market Data Snapshot Full Refresh message and empty book using Multiplex.



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5. Over the Market Data session, receive and process a Market Data Request (35=V) message using Multiplex.
6. Send Market Data Snapshot Full Refresh (35=W) message with multiple Pricing Segments (tag 1500-MDStreamID).
7. Send Market Data Snapshot Full Refresh (35=W) message with multiple Pricing Segments (tag 1500-MDStreamID) changing in price and size (→270-MDEntryPx, →271-MDEntrySize).
8. Send Market Data Snapshot Full Refresh (35=W) Empty Book (→269-MDEntryType=J) message for a single Price Segment (tag 1500-MDStreamID).

Market Data No pricing on Subscription Test

The purpose of this test is to verify that the client system can recognize pricing is unavailable and should send Market Data Snapshot Full Refresh Empty Book message.

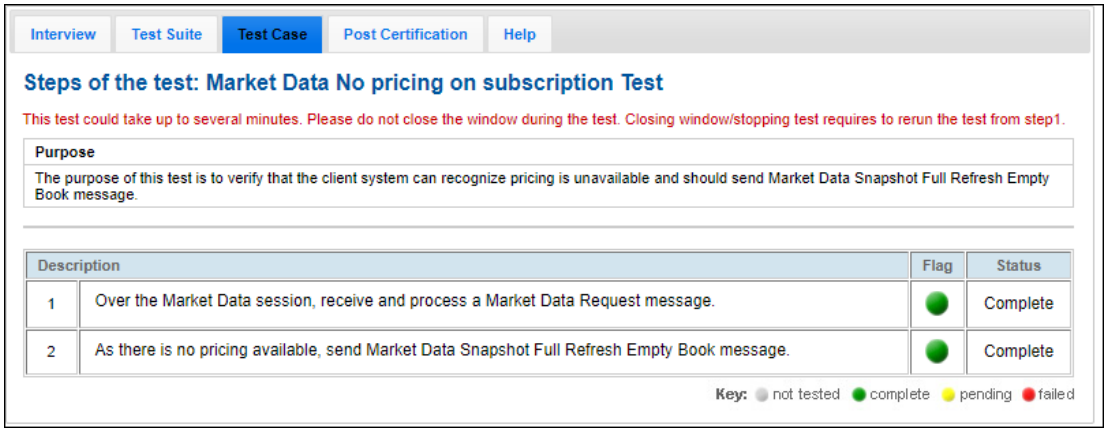
For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

Note:DO NOT select the START TEST button once the test is in progress.
If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

To run the Market Data No pricing on Subscription Test:



1. Over the Market Data session, receive and process a Market Data Request (35=V) message.
2. As there is no pricing available, send a Market Data Snapshot Full Refresh (35=W) Empty Book message (→269-MDEntryType=J).

Market Data Pull Prices Test

The purpose of this test is to verify that the client system can receive and process Market Data Request message and respond with Market Data Snapshot Full Refresh message and empty book.

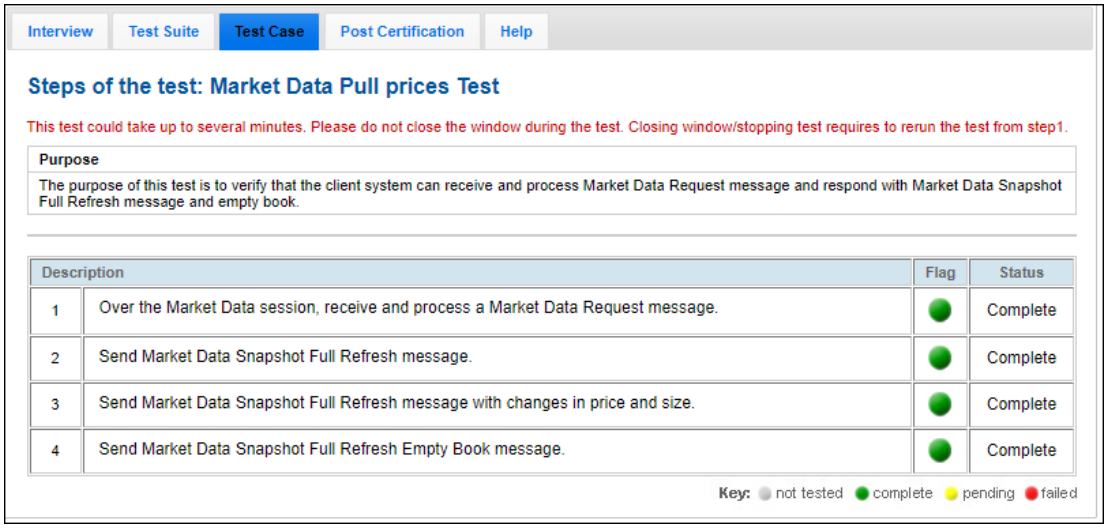
For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

Note:DO NOT select the START TEST button once the test is in progress.
If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

Market Data Pull Prices Test:



4. Over the Market Data session, receive and process a Market Data Request (35=V) message.
5. Send Market Data Snapshot Full Refresh (35=W) message.
6. Send Market Data Snapshot Full Refresh (35=W) message with changes in price and size (→270-MDEntryPx, →271-MDEntrySize).
7. Send Market Data Snapshot Full Refresh (35=W) Empty Book message (→269-MDEntryType=J).

Market Data Unsubscription Test

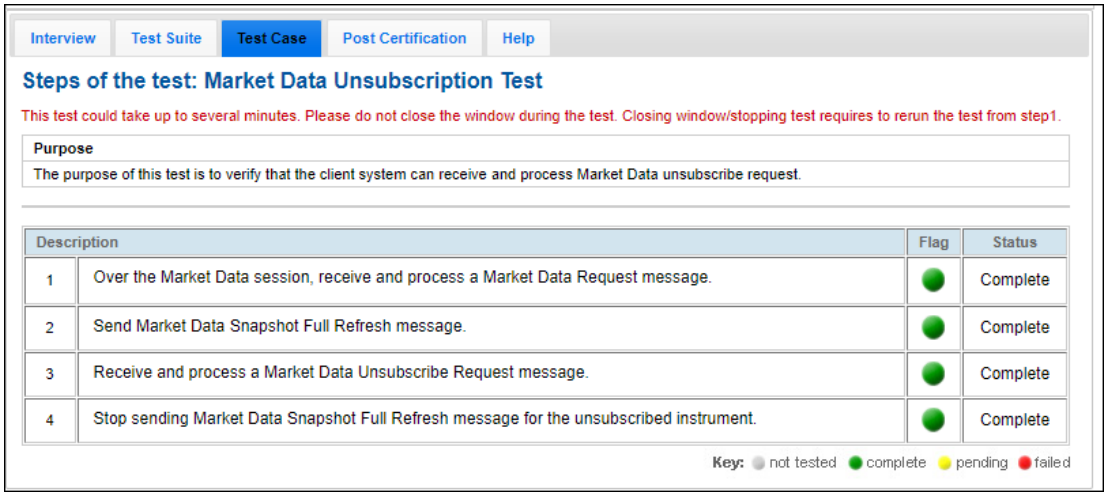
The purpose of this test is to verify that the client system can receive and process Market Data unsubscribe request.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

To run the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

   Note:DO NOT select the START TEST button once the test is in progress.
   If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.



4. Over the Market Data session, receive and process a Market Data Request (35=V) message.
5. Send Market Data Snapshot Full Refresh (35=W) message.
6. Receive and process a Market Data Unsubscribe Request [35=V (tag 263-SubscriptionRequestType=2, tag 58-Text)] message.
7. Stop sending Market Data Snapshot Full Refresh (35=W) message for the unsubscribed instrument.

Market Data Price Precision Test

The purpose of this test is to confirm client system is sending prices complying with EBS price precision.

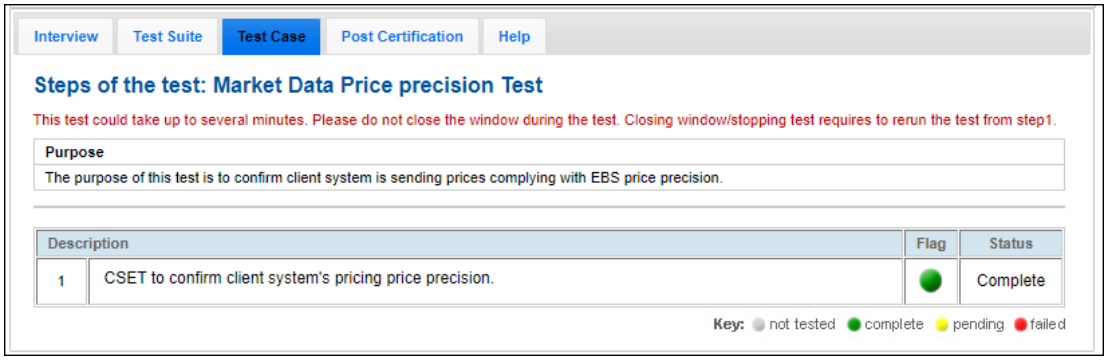
For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

> **Note**:DO NOT select the START TEST button once the test is in progress.
> If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

CME Group will verify client system's price precision and reply with additional information to resolve issues (if applicable).



Order Entry Sweepable Trading Tests

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

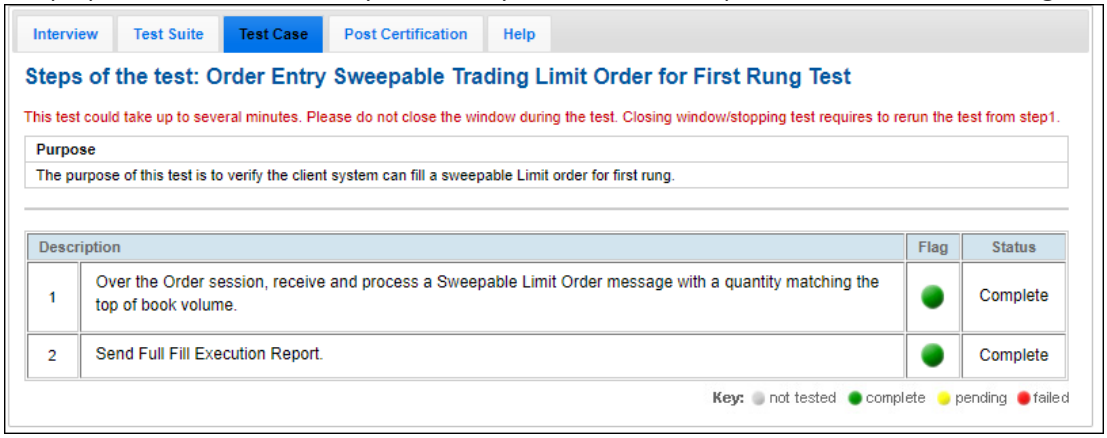
   Note:DO NOT select the START TEST button once the test is in progress.
   If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

4. Select from available tests to continue:

- Order Entry Sweepable Trading Limit Order for First Rung Test
- Order Entry Sweepable Trading Previously Quoted Order for First Rung Test
- Order Entry Sweepable Trading Limit Order for Another Rung Test
- Order Entry Sweepable Trading Previously Quoted Order for Another Rung Test

Order Entry Sweepable Trading Limit Order for First Rung Test

The purpose of this test is to verify the client system can fill a sweepable Limit order for first rung.



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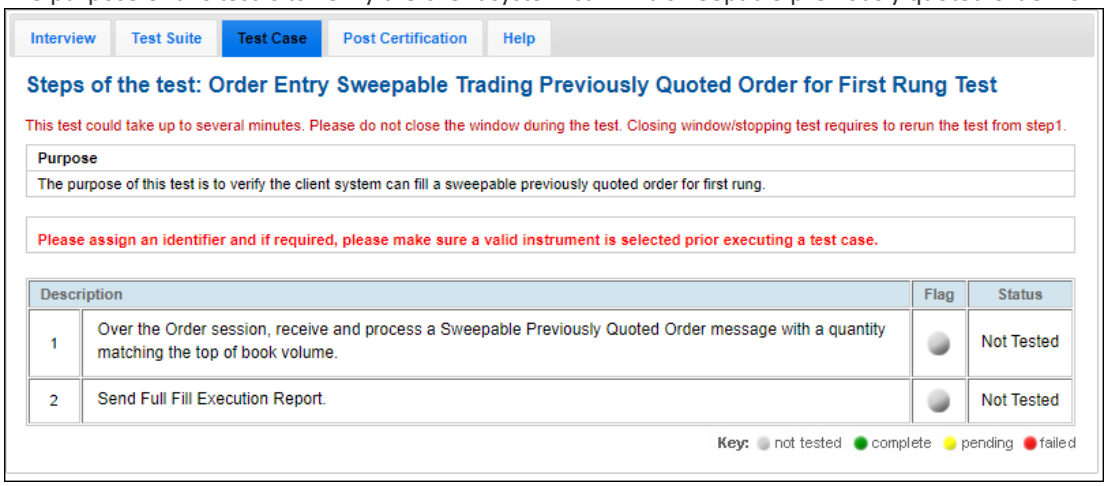
5. Over the Order session, receive and process a Sweepable Limit Order (35=D) message with a quantity matching the top of book volume.
6. Send Full Fill Execution Report [35=8 (tag 150-ExecType=F, tag 39-OrdStatus=2)].

Order Entry Sweepable Trading Previously Quoted Order for First Rung Test

The purpose of this test is to verify the client system can fill a sweepable previously quoted order for first rung.



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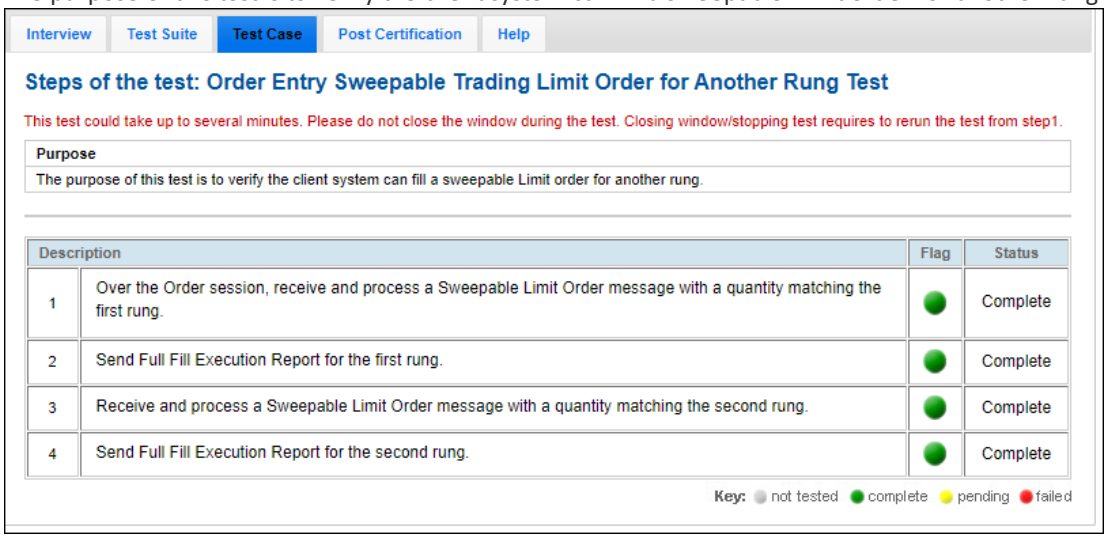
5. Over the Order session, receive and process a Sweepable Previously Quoted Order [35=D (tag 40-OrdType=D, tag 117-QuoteID)] message with a quantity matching the top of book volume.
6. Send Full Fill Execution Report [35=8 (tag 150-ExecType=F, tag 39-OrdStatus=2)].

Order Entry Sweepable Trading Limit Order for Another Rung Test

The purpose of this test is to verify the client system can fill a sweepable Limit order for another rung.



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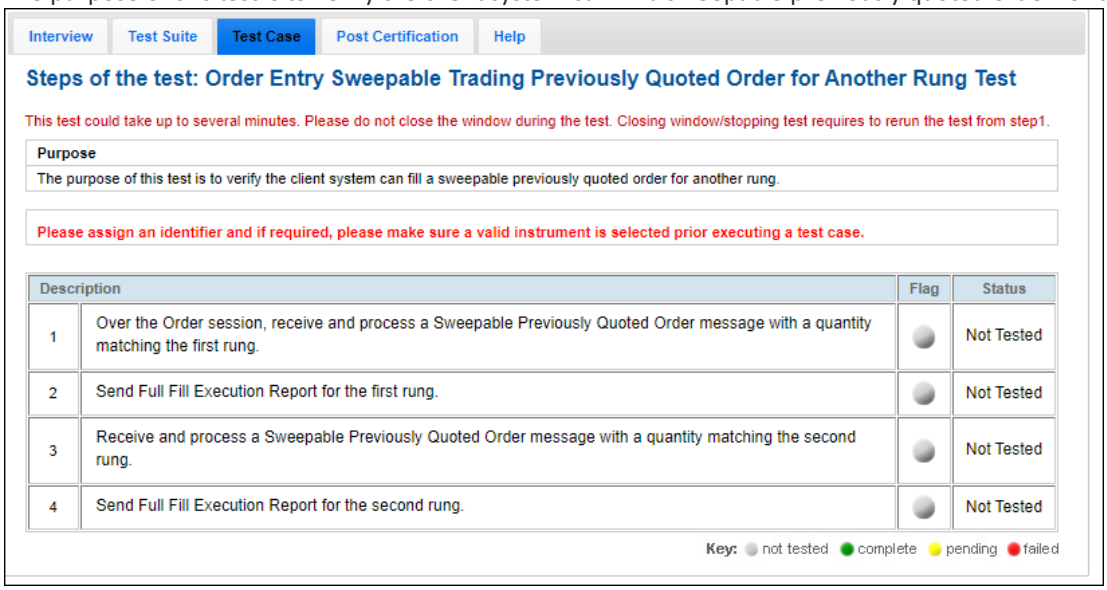
5. Over the Order session, receive and process a Sweepable Limit Order (35=D) message with a quantity matching the first rung.
6. Send Full Fill Execution Report [35=8 (tag 150-ExecType=F, tag 39-OrdStatus=2)] for the first rung.

7. Receive and process a Sweepable Limit Order message with a quantity matching the second rung.
8. Send Full Fill Execution Report [35=8 (tag 150-ExecType=F, tag 39-OrdStatus=2)] for the second rung.

Order Entry Sweepable Trading Previously Quoted Order for Another Rung Test

The purpose of this test is to verify the client system can fill a sweepable previously quoted order for another rung.



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5. Over the Order session, receive and process a Sweepable Previously Quoted Order [35=D (tag 40-OrdType=D, tag 117-QuoteID)] message with a quantity matching the first rung.
6. Send Full Fill Execution Report [35=8 (tag 150-ExecType=F, tag 39-OrdStatus=2)]. for the first rung.
7. Receive and process a Sweepable Previously Quoted Order [35=D (tag 40-OrdType=D, tag 117-QuoteID)] message with a quantity matching the second rung.
8. Send Full Fill Execution Report [35=8 (tag 150-ExecType=F, tag 39-OrdStatus=2)] for the second rung.

Order Entry Single Ticket Trading Tests

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

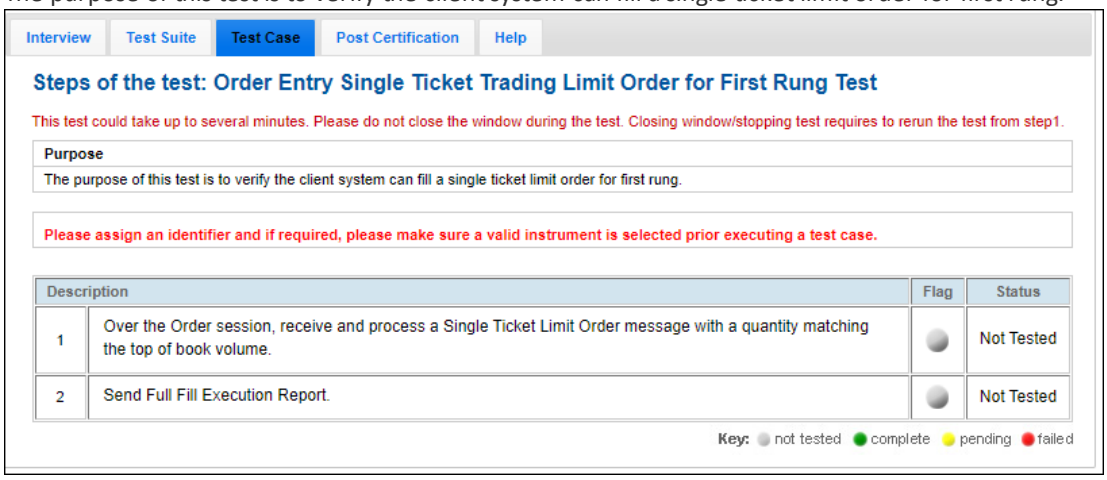
   Note:DO NOT select the START TEST button once the test is in progress.
   If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

4. Select from available tests to continue:

- Order Entry Single Ticket Trading Limit Order for First Rung Test
- Order Entry Single Ticket Trading Previously Quoted Order for First Rung Test
- Order Entry Single Ticket Trading Limit Order for Another Rung Test
- Order Entry Single Ticket Trading Previously Quoted Order for Another Rung Test

Order Entry Single Ticket Trading Limit Order for First Rung Test

The purpose of this test is to verify the client system can fill a single ticket limit order for first rung.



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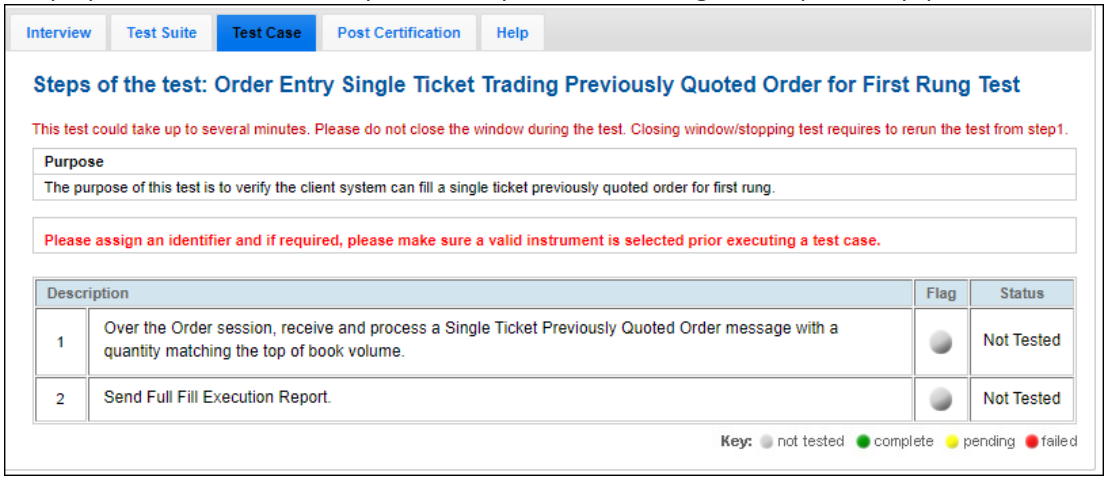
5. Over the Order session, receive and process a Single Ticket Order [35=D (tag 40-OrdType=2)] message with a quantity matching the top of book volume.
6. Send Full Fill Execution Report [35=8 (tag 150-ExecType=F, tag 39-OrdStatus=2)].

Order Entry Single Ticket Trading Previously Quoted Order for First Rung Test

The purpose of this test is to verify the client system can fill a single ticket previously quoted order for first rung.

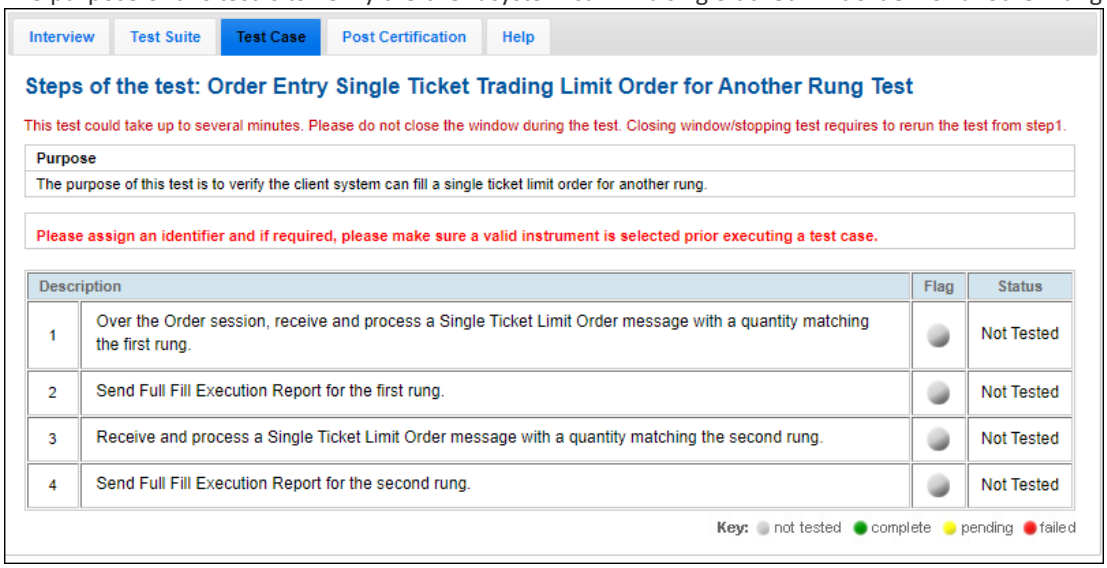


continued from 4 (top)

5. Over the Order session, receive and process a Single Ticket Previously Quoted Order [35=D (tag 40-OrdType=D, tag 117-QuoteID)] message with a quantity (tag 38-OrderQty) matching the top of book volume.
6. Send Full Fill Execution Report [35=8 (tag 150-ExecType=F, tag 39-OrdStatus=2)].

Order Entry Single Ticket Trading Limit Order for Another Rung Test

The purpose of this test is to verify the client system can fill a single ticket limit order for another rung.

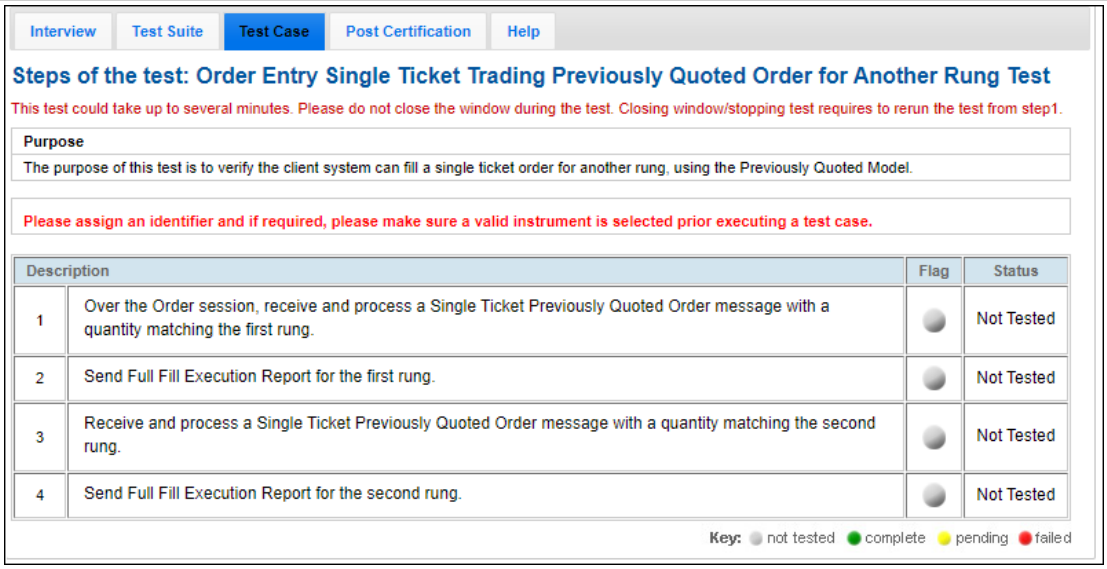


continued from 4 (top)

5. Over the Order session, receive and process a Single Ticket Limit Order (35=D) message with a quantity matching the first rung.
6. Send Full Fill Execution Report [35=8 (tag 150-ExecType=F, tag 39-OrdStatus=2)]. for the first rung.
7. Receive and process a Single Ticket Limit Order [35=D (tag 40-OrdType=2, tag 44-Price) message with a quantity (tag 38-OrderQty) matching the second rung.
8. Send Full Fill Execution Report (35=8) for the second rung.

Order Entry Single Ticket Trading Previously Quoted Order for Another Rung Test

The purpose of this test is to verify the client system can fill a single ticket previously quoted order for another rung.



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5. Over the Order session, receive and process a Single Ticket Previously Quoted Order [35=D (tag 40-OrdType=D, tag 117-QuoteID)] message with a quantity matching the first rung.
6. Send Full Fill Execution Report [35=8 (tag 150-ExecType=F, tag 39-OrdStatus=2)]. for the first rung.
7. Receive and process a Single Ticket Previously Quoted Order message with a quantity matching the second rung.
8. Send Full Fill Execution Report for the second rung.

Order Entry Multiplex Pricing Test

The purpose of this test is to verify the client system can fill a multiplex order.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

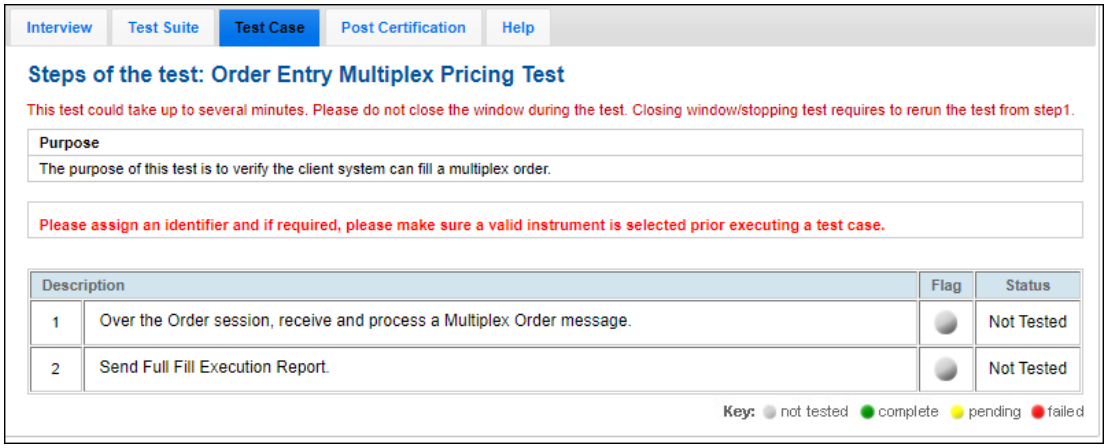
To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

Note:DO NOT select the START TEST button once the test is in progress.
If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

To run an Order Entry Multiplex Pricing Test:

1. Over the Order session, receive and process a Multiplex Order (35=D) message.
2. Send Full Fill Execution Report [35=8 (tag 39-OrdStatus=2, tag 150-ExecType=F)].



Order Cancelled Test

The purpose of this test is to verify the client system can send an order cancelled Execution Report.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

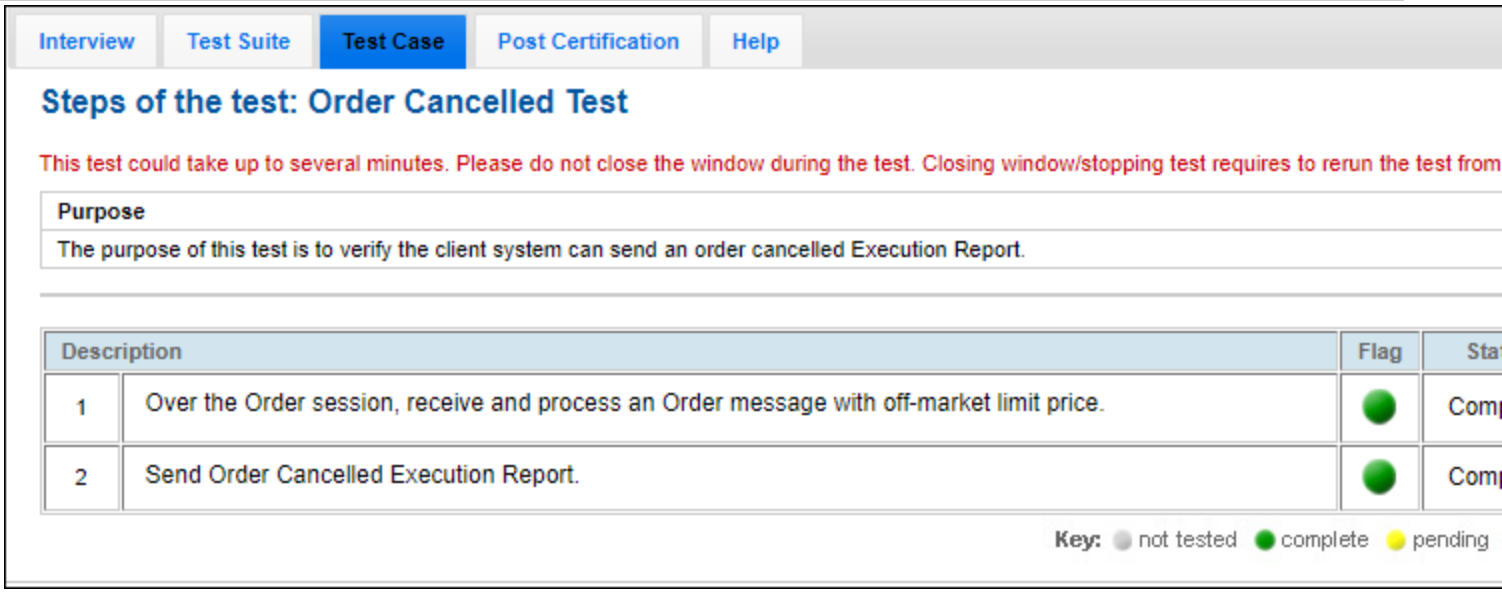
To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

Note:DO NOT select the START TEST button once the test is in progress.
If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

To run an Order Cancelled Test:

1. Over the Order session, receive and process an Order (35=D) message with off-market limit price.
2. Send Order Cancelled Execution Report [35=8 (tag 150-ExecType=4, tag 103-OrdRejReason)].



Order Rejected Test

The purpose of this test is to verify the client system can send an Order Rejected Execution Report.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

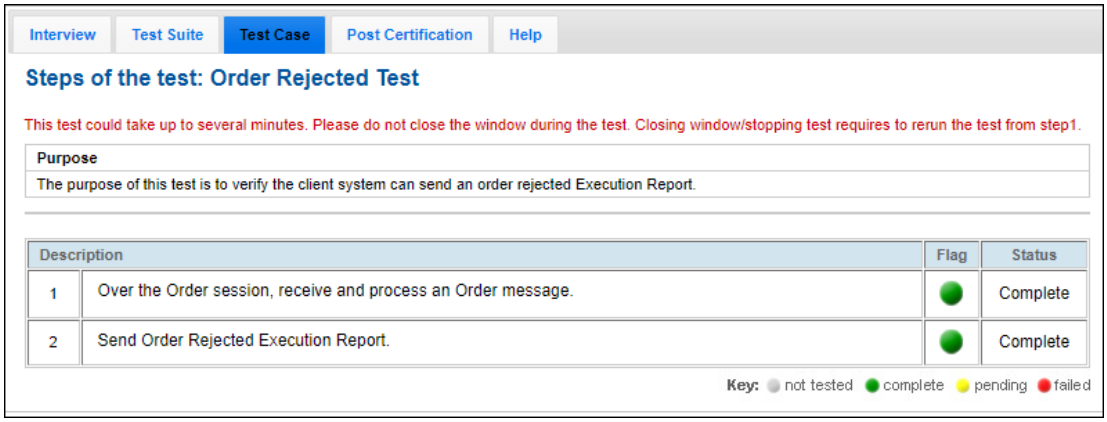
To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

> **Note**:DO NOT select the START TEST button once the test is in progress.
> If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

To run an Order Rejected Test:

1. Over the Order session, receive and process an Order (35=D) message.
2. Send Order Rejected Execution Report [35=8 (tag 150-ExecType=8, tag 103-OrdRejReason)].



Order Entry Processing Execution Acknowledgment Test

The purpose of this test is to verify the client system can receive and process an Execution Acknowledgment message.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

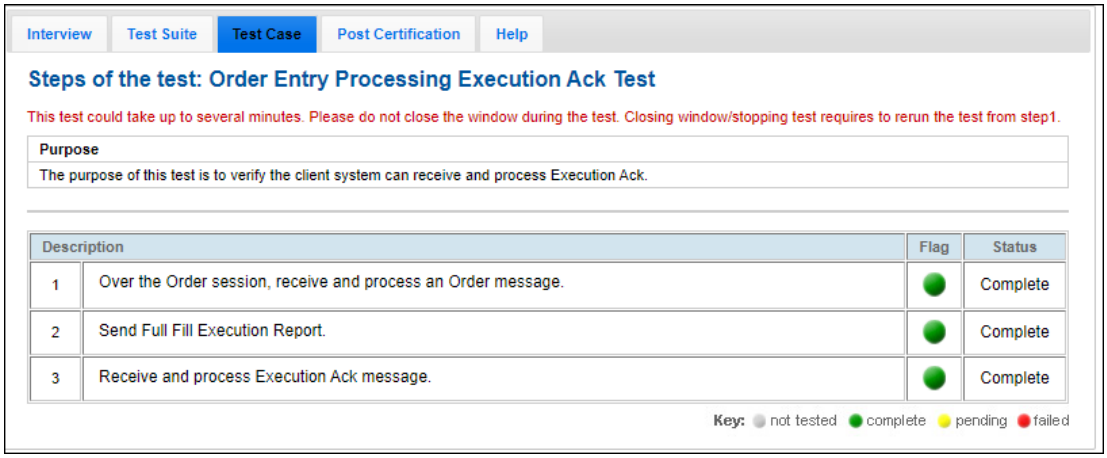
To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

Note:DO NOT select the START TEST button once the test is in progress.
If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

To run an Order Entry Processing Execution Acknowledgement Test

1. Over the Order session, receive and process an Order (35=D) message.
2. Send Full Fill Execution Report (35=8).
3. Receive and process Execution Ack message.



Order Entry Processing Don't Know Trade Test

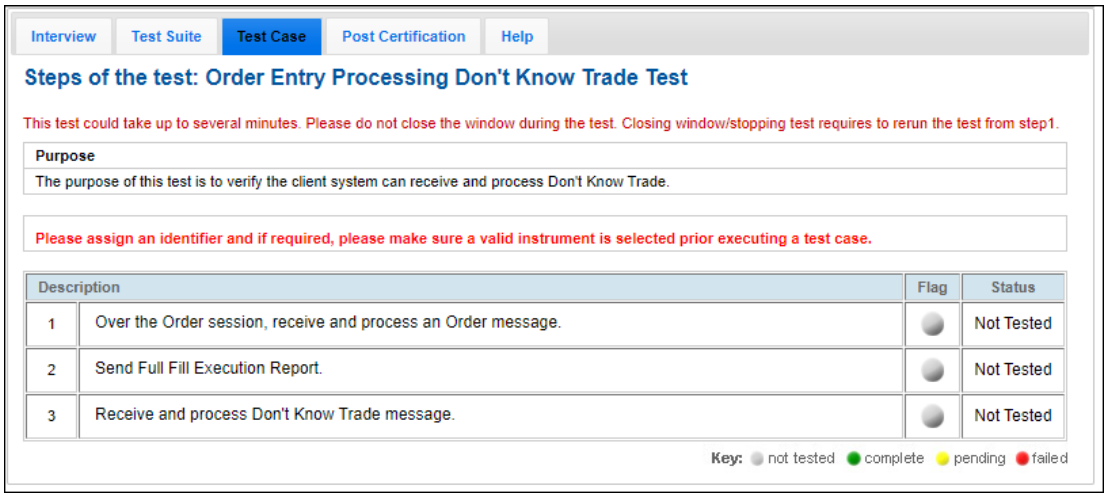
The purpose of this test is to verify the client system can receive and process a Don't Know Trade.

For the initial EBS Direct Maker API certification period:
- AutoCert+ test cases will appear in read-only format.
- To complete Interview responses and Tests, users must first contact Certification Support for Electronic Trading (CSET)

To select the test:

1. Select a **Identifier** from the drop-down and select **ASSIGN** if not already assigned.
2. From the **Test Suite** tab, select the linked test.
3. Click the **START TEST** button.

Note:DO NOT select the START TEST button once the test is in progress.
If a test is not proceeding to the next step, clicking the **Refresh** button (REFRESH) below the test steps may resolve the issue.

To run a Order Entry Processing Don't know Trade Test

1. Over the Order session, receive and process an Order (35=D) message.
2. Send Full Fill Execution Report (35=8).
3. Receive and process Don't Know Trade (35=Q) message.