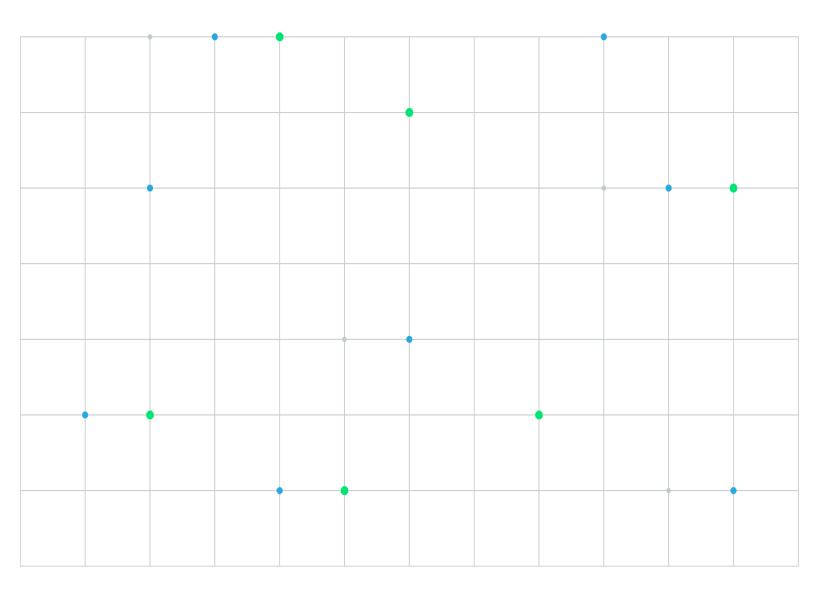


AutoCert+ iLink User Manual

Date: October 9, 2024



Neither futures trading nor swaps trading are suitable for all investors, and each involves the risk of loss. Swaps trading should only be undertaken by investors who are Eligible Contract Participants (ECPs) within the meaning of Section 1a(18) of the Commodity Exchange Act. Futures and swaps each are leveraged investments and, because only a percentage of a contract's value is required to trade, it is possible to lose more than the amount of money deposited for either a futures or swaps position. Therefore, traders should only use funds that they can afford to lose without affecting their lifestyles and only a portion of those funds should be devoted to any one trade because traders cannot expect to profit on every trade. All examples discussed are hypothetical situations, used for explanation purposes only, and should not be considered investment advice or the results of actual market experience.

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AutoCert+ iLink User Help System



AutoCert+

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.

What's New >

Read an introduction to new features and enhancements

PDF Download >

Open a PDF version of the Help System

Client Systems Wiki >

Read technical and business information about current CME Group electronic trading platform and trading services

Other Application Help >

Find the most up to date procedures and videos for CME Group-developed applications and system functionality

Video >

Watch this video to learn about testing and certifying your system to interface with and validate CME Group core functionality and new functionality

Customer Center >

Log into a self-managed application that authenticates access to a variety of CME Group applications and services

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 to CME Globex, CME Group provides a dedicated certification environment to allow customers to test their systems before they complete certification.

The following apply to each iLink test case:

- The book is clear at the beginning of each test.
- · After the instrument is selected, the instrument is locked until the test is completed.
- If you submit an incorrect response to any question in a test case, you must repeat the test case from the beginning.
- For partial or complete fills, assume CME Group creates the appropriate orders in the book.

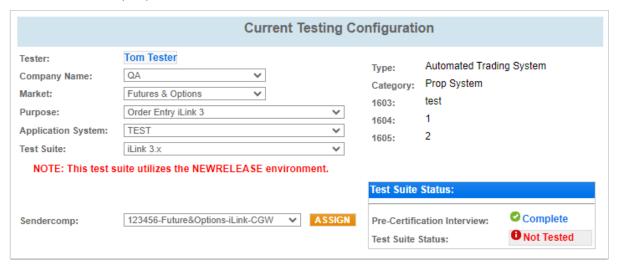
Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



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+ iLink test suite.
 - a. Tester: Automatically selected based on the logged in user
 - b. Select a Company Name
 - c. Market: Futures & Options
 - d. Purpose: Order Entry iLink 3
 - e. Select an Application System
 - f. Test Suite: iLink 3.x
 - g. Select a SenderComp, then select ASSIGN.

Test cases may require selection of an **instrument**.



- 4. Complete the Interview for this test suite.
- 5. Complete applicable test cases.
 - Session Layer
 - Business Layer
 - <u>Failover</u>
- 6. Complete the certification process from the Post Certification tab.

What's New

The list below illustrates the updates made to the AutoCert+ iLink Help system.

Date	Торіс	Description
9 Oct 2024	Mass Quote Protection	updated instructions for consolidated mass quote test
9 Oct 2024	Mass Quote (1) Buy / Sell, (2) Execution, (3) New Quote Protection	removed due to mass quote protection functionality update
28 Oct 2022	Format	Website and PDF format changes only.
16 Mar 2022	Processing Message Gaps of More than 2500 Messages for Mass Quote Systems	Added new topic.
	Processing Message Gaps of More than 2500 Messages	Updated screen- shots and step 1.
	Mid-Week Connection for Mass Quote Systems (Binding without Initialization)	Updated screenshot, step 5 and 6.
16 Oct 2020	 Manual Order Indicator for Manual System (Mass Quote) Manual Order Indicator for ATS System (Mass Quote) Manual Order Indicator for Semi Automated System (Mass Quote) 	Added new topics.
08 May 2020	Processing Rejects	Updated step 5 in screenshots and description.
	The Interview	Updated screenshot.
27 Mar 2020	Session Layer Tests	Updated session layer tests for pre- registration vs on- demand.
	Business Layer Tests	Added business layer tests.
	<u>Failover Tests</u>	Added failover tests.
20 Feb 2020	Mid-Week Connection (Ini- tialization and Binding) with New UUID for Pre-Registered Format	Updated topics with new test names.
	Mid-Week Connection for Mass	Added new topics for added tests.

Date	Торіс	Description
	Quote Systems (Binding without Initialization) for Pre-Registered Format • Mid-Week Connection (Initialization and Binding) with New UUID for Mass Quote Systems using Pre-Registered Format	
18 Feb 2020	All	Initial release

Interview

The interview consists of a series of questions about your trading application and products. You must complete the precertification interview before running the test cases.

Warning: In order to perform certification testing for iLink MSGW failover with fault tolerance, you must test during the New Release Weekly Failover Testing Windows.



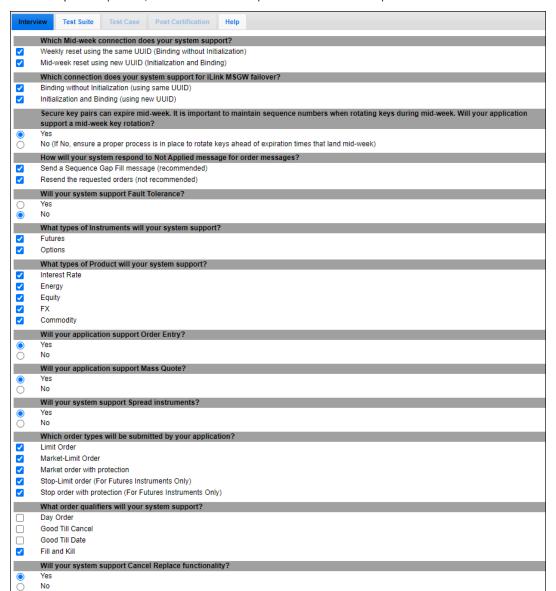
Note: FOK functionality is not available for Futures and Options.



To complete the interview:

Answer each question and click the" Complete" button when finished.

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



	Will your evetom support Cancal Poplace without OrderID2
	Will your system support Cancel Replace without OrderID?
	Yes
0	No .
	Will your system support Order Cancel without OrderID?
	Yes
0	
0	No
	Will your system use the Cancel Replace with In-Flight-Mitigation (IFM) functionality?
0	Yes
	No No
0	
	Will your system support Minimum Quantity functionality?
	Yes
Ŏ	No No
_	
	Will your system support Maximum Quantity Display functionality?
	Yes
0	No No
	Will your system support GiveUp Orders?
	Yes
0	No No
	Will your system support Route-Through functionality?
0	Yes
0	No
	Which Quote Cancellation functionality will your system support?
~	All Quotes
✓	Instruments
✓	Instruments Groups
~	Quote Set ID
	Can your system send Mass quote on UDS instruments?
	Yes
Ö	No
	How will your system send orders?
0	Manual
0	ATS
0	Semi Automated
•	
	Will your system support Cross Order functionality?
<u> </u>	Will your system support Cross Order functionality? Yes
0	Yes No
0	Yes No Will your system support R-Cross Order functionality for Equity contracts?
0	Yes No Will your system support R-Cross Order functionality for Equity contracts? Yes
0	Yes No Will your system support R-Cross Order functionality for Equity contracts?
0	Yes No Will your system support R-Cross Order functionality for Equity contracts? Yes No
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	Yes No Will your system support R-Cross Order functionality for Equity contracts? Yes No Will your system support R-Cross Order functionality for contracts belonging to a product complex other than Equity? Yes No Will your system support Cross Order Cancel functionality? Yes No Will your system support C-Cross Order functionality? Yes No Will your system support UDS Yes No Can your system create Covered Option instruments? Yes No Can your system create Combo Option instruments? Yes No Can your system create Recursive UDS instruments? Yes
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	Yes No Will your system support R-Cross Order functionality for Equity contracts? Yes No Will your system support R-Cross Order functionality for contracts belonging to a product complex other than Equity? Yes No Will your system support Cross Order Cancel functionality? Yes No Will your system support C-Cross Order functionality? Yes No Will your system support UDS Yes No Can your system create Covered Option instruments? Yes No Can your system create Combo Option instruments? Yes No Can your system create Recursive UDS instruments? Yes No Can your system create Recursive UDS instruments? Yes No Can your system create Recursive UDS instruments?
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AutoCert+ iLink

	Which Mass Order Cancel Functionality does your system support?
✓	Market Segment ID
✓	Instrument Group
✓	Instrument
	Does your system support Order Status functionality?
	Yes
0	No
	Does your system support Mass Order Status functionality?
	Yes
0	No No
	Which Mass Order Status Functionality does your system support?
~	Market Segment
✓	Instrument Group
	Instrument
	Will your system support Quote Request functionality?
	Yes
Ŏ	No
	Will your system support Cancel on Behalf?
	Yes
Ŏ	No
	Will your system support Cancel on Behalf using Order Cancel Request (MsgType 35=F)?
	Yes
Ŏ	No
	Will your system support Cancel on Behalf using Order Mass Action Request (MsgType 35=CA)?
	Yes
ŏ	No.
	Which Cancel on Behalf using Order Mass Action Request functionality does your system support?
~	Market Segment ID
	Instrument Group
	Instrument
	Will your system support Cancel on Behalf using Quote Cancel without Mass Quote Block/Unblock (Please contact CSET to authorize your SenderComplD to Mass Quote AutoCert+ product group).
	Sender Compile to mass quote AutoCett's product groups. Yes
ŏ	No.
	Which Cancel on Behalf using Quote Cancel functionality without Mass Quote Block will your system support?
~	All Quotes
	Instruments
Z	Instruments Groups
Z	Quote Set ID
_	
	Will your system support Cancel on Behalf using Quote Cancel with Mass Quote Block/Unblock (Please contact CSET to authorize your
	SenderCompID to Mass Quote AutoCert+ product group). Yes
0	No
	Which Cancel on Behalf using Quote Cancel functionality with Mass Quote Block will your system support?
<u> </u>	All Quotes
~	Instruments Groups
	Please acknowledge that you are aware Cancel on Behalf using Quote Cancel by Instrument and Quote Set with Mass Quote Block will be rejected.
0	Acknowledge
0	Not Acknowledge
	Will your system support Order Status functionality for Cancel on Behalf?
	Yes
0	No
	How does your application register Administrative Information? (check all that apply)
✓	Pre-Registration (Service Gateway)
✓	On-Demand
Com	nplete
Coll	ipiete.

Session Layer Tests

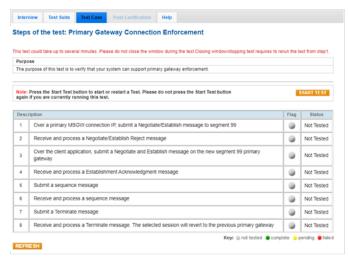
This section contains information on the session layer tests.

Connection Tests

This section contains information on the connection tests.

Primary Gateway Connection Enforcement

The purpose of this test is to verify that your system can support primary gateway enforcement.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Primary Gateway Connection Enforcement test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Select the START TEST button.
 - 0

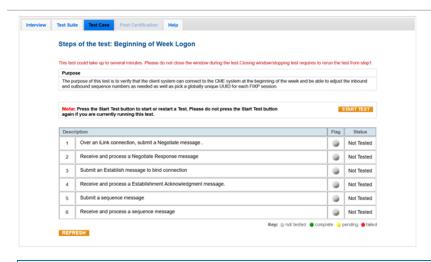
 $\textbf{Note: DO NOT} \ select \ the \ \textbf{START TEST} \ button \ once \ the \ test \ is \ in \ progress.$

- 3. Over a primary MSGW connection IP, submit a Negotiate/Establish message to segment 99.
- Receive and process a Negotiate Reject/Establish Reject message.
- 5. Over the client application, submit a Negotiate and Establish message on the new segment 99 primary gateway.
- 6. Receive and process an Establishment Acknowledgment message.
- 7. Submit a Sequence message.
- 8. Receive and process a <u>Sequence</u> message.
- 9. Submit a Terminate message.
- 10. Receive and process a Terminate message. The selected session will revert to the previous primary gateway.

Beginning of Week Logon

The purpose of this test is to verify that the client system can:

- · connect to the CME system at the beginning of the week
- adjust the inbound and outbound sequence numbers as needed
- · pick a globally unique UUID for each FIXP session



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



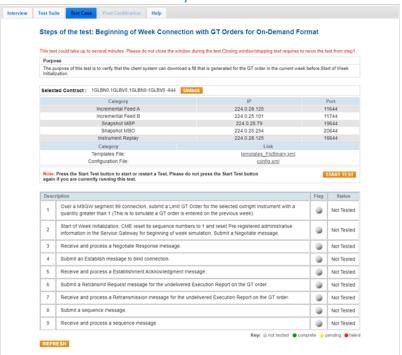
To run a Beginning of Week Logon test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Select the START TEST button.
 - Note: DO NOT select the START TEST button once the test process is in progress.
- 3. Over an iLink connection, submit a Negotiate message.
- 4. Receive and process a Negotiate Response message.
- 5. Submit an Establish message to bind connection.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the <u>Establishment Acknowledgment</u> message.
- 7. Submit a Sequence message.
- 8. Receive and process a Sequence message.

Beginning of Week Connection with GT Orders

The purpose of this test is to verify that the client system can download a fill that is generated for the GT order in the current week before Start of Week Initialization.

On-Demand Format Only



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Beginning of Week Connection with GT Orders for On-Demand Format test:

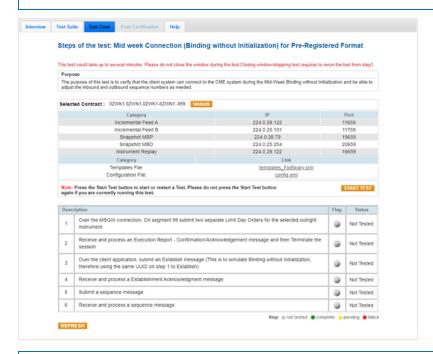
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Select the START TEST button.
- Note: DO NOT select the START TEST button once the test process is in progress.
- 3. Over a MSGW segment 99 connection, submit a <u>Limit GT Order</u> for the selected outright instrument with a quantity greater than 1 (This is to simulate a GT order entered the previous week).
- 4. Start of Week Initialization: CME resets sequence numbers to 1 and resets pre-registered administrative information in the Service Gateway for beginning of week simulation. Submit a Negotiate message.
- 5. Receive and process a <u>Negotiate Response</u> message.
- 6. Submit an Establish message to bind connection.
- 7. Select **Yes** or **No** to indicate whether your system received and processed the <u>Establishment Acknowledgment</u> message.
- 8. Submit a Retransmit Request message for the undelivered Execution Report on the GT order.
- 9. Select **Yes** or **No** to indicate whether your system received and processed the <u>Retransmission</u> message for the undelivered Execution Report on the GT order.
- 10. Submit a Sequence message.
- 11. Receive and process a Sequence message.

Mid-Week Connection (Binding without Initialization)

The purpose of this test is to verify that the client system can connect to the CME system during the Mid-Week Binding without Initialization and adjust the inbound and outbound sequence numbers as needed.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Mid-Week Connection (Binding without Initialization) test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the START TEST button.



- Over the MSGW connection, on segment 99 submit two separate <u>Limit Day Orders</u> for a selected outright instrument.
- 5. Receive and process an Execution Report New Order message and then Terminate the session.
- 6. Over the client application, submit an <u>Establish</u> message using the same UUID from step 1 to simulate Binding without Initialization.
- 7. Select **Yes** or **No** to indicate whether your system received and processed the <u>Establishment Acknowledgment</u> message.
- 8. Submit a Sequence message.
- 9. Receive and process a Sequence message.

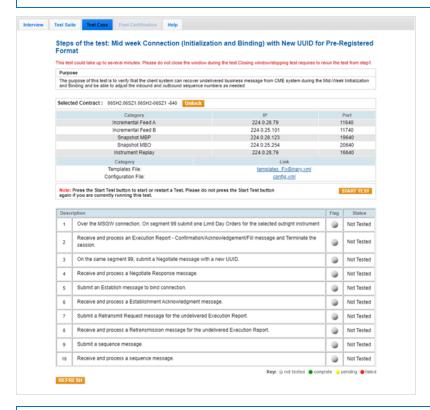
Mid-Week Connection (Initialization and Binding) with New UUID

The purpose of this test is to verify that the client system can:

- · recover undelivered business messages from the CME system during the mid-week initialization and binding
- · adjust the inbound and outbound sequence numbers as needed

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Mid-Week Connection (Initialization and Binding) with New UUID test:

- Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- Select the START TEST button.

 - Note: DO NOT select the START TEST button once the test process is in progress.
- 4. Over the MSGW connection, on segment 99 submit one Limit Day Order for a selected outright instrument
- Receive and process an Execution Report New Order message and Terminate the session
- On the same segment 99, submit a Negotiate message with a new UUID.
- 7. Receive and process a Negotiate Response message.

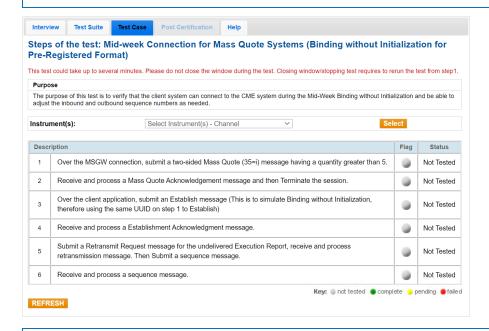
- 8. Submit an Establish message to bind connection.
- 9. Select **Yes** or **No** to indicate whether your system received and processed the <u>Establishment Acknowledgment</u> message.
- 10. Submit a Retransmit Request message for the undelivered Execution Report.
- 11. Select **Yes** or **No** to indicate whether your system received and processed the <u>Retransmission</u> message for the undelivered Execution Report.
- 12. Submit a Sequence message.
- 13. Receive and process a Sequence message.

Mid-Week Connection for Mass Quote Systems (Binding without Initialization)

The purpose of this test is to verify that the client system can connect to the CME system during the Mid-Week Binding without Initialization and adjust the inbound and outbound sequence numbers as needed.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Mid-Week Connection for Mass Quote Systems (Binding without Initialization) test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the START TEST button.
 - Note: DO NOT select the

- Over the MSGW connection, submit a two-sided Mass Quote (35=i) message having a quantity (tag →134-BidSize / →135-OfferSize) greater than 5.
- 5. Receive and process a Mass Quote Acknowledgment message and then Terminate the session.
- 6. Over the client application, submit an <u>Establish</u> message. (This is to simulate Binding without Initialization; therefore, it uses the same UUID on step 1 to Establish.)
- 7. Receive and process a Establishment Acknowledgment message.
- 8. Submit a <u>Retransmit Request</u> message for the undelivered Execution Report, receive and process a <u>Retransmission</u> message. Then submit a <u>Sequence</u> message.
- 9. Receive and process a Sequence message.

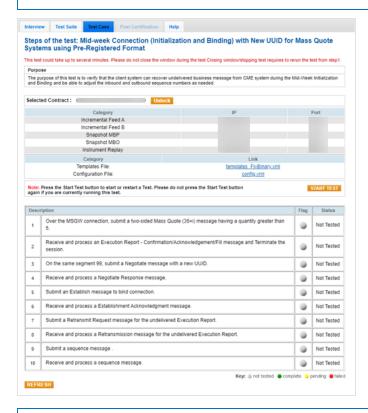
Mid-Week Connection (Initialization and Binding) with New UUID for Mass Quote Systems

The purpose of this test is to verify that the client system can:

- · recover undelivered business messages from the CME system during the mid-week initialization and binding
- · adjust the inbound and outbound sequence numbers as needed

Pre-Registered and On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Mid-Week Connection (Initialization and Binding) with New UUID for Mass Quote Systems test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the **START TEST** button.



Note: DO NOT select the START TEST button once the test process is in progress.

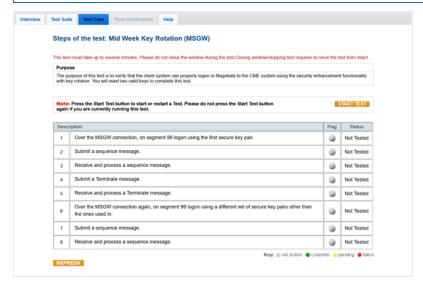
- 4. Over the MSGW connection, submit a two-sided Mass Quote (35=i) message having a quantity greater than 5
- 5. Receive and process an Execution Report New Order message and Terminate the session
- 6. On the same segment 99, submit a Negotiate message with a new UUID.
- 7. Receive and process a Negotiate Response message.
- 8. Submit an Establish message to bind connection.
- 9. Select **Yes** or **No** to indicate whether your system received and processed the <u>Establishment Acknowledgment</u> message.
- 10. Submit a Retransmit Request message for the undelivered Execution Report.
- 11. Select **Yes** or **No** to indicate whether your system received and processed the <u>Retransmission</u> message for the undelivered Execution Report.
- 12. Submit a Sequence message.
- 13. Receive and process a Sequence message.

Mid-Week Key Rotation (MSGW)

The purpose of this test is to verify that the client system can properly logon or Negotiate to the CME system using the security enhancement functionality with key rotation.



Note: You will need two valid keys to complete this test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To complete the Mid-Week Key Rotation (MSGW) test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. Select the START TEST button.

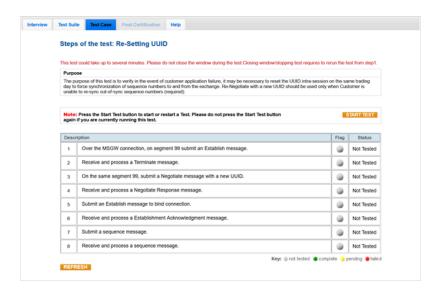


- 3. Over the MSGW connection, on segment 99 logon using the first secure key pair.
- 4. Submit a Sequence message.
- 5. Receive and process a Sequence message.
- 6. Submit a Terminate message.
- 7. Receive and process a Terminate message.
- 8. Over the MSGW connection again, on segment 99, logon using a different set of secure key pairs other than the ones used in step 1.
- 9. Submit a Sequence message.
- 10. Receive and process a Sequence message.

Re-Setting UUID

The purpose of this test is to verify that, in the event of customer application failure, the application system can reset the UUID intra-session on the same trading day to force synchronization of sequence numbers to and from the exchange.

Note: Re-Negotiate with a new UUID should be used only when the customer is unable to re-sync out-of-sync sequence numbers (required).



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

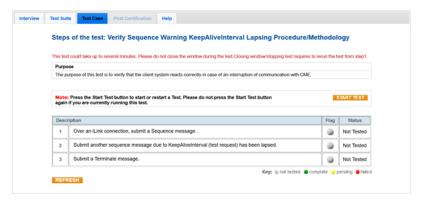


To run a Re-Setting UUID test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Select the START TEST button.
 - Note: DO NOT select the START TEST button once the test process is in progress.
- 3. Over the MSGW connection, on segment 99, submit an Establish message.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the Terminate message.
- 5. On the same segment 99, submit a Negotiate message with a new UUID.
- 6. Receive and process a Negotiate Response message.
- 7. Submit an Establish message to bind connection.
- 8. Select **Yes** or **No** to indicate whether your system received and processed the <u>Establishment Acknowledgment</u> message.
- 9. Submit a Sequence message.
- 10. Receive and process a Sequence message.

Verify Sequence Warning KeepAliveInterval Lapsing Procedure/Methodology

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



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Verify Sequence Warning KeepAliveInterval Lapsing Procedure/Methodology test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Select the START TEST button.
 - Note: DO NOT select the START TEST button once the test process is in progress.
- 3. Over an iLink connection, submit a Sequence message.
- 4. Submit another Sequence message due to the KeepAliveInterval (test request) lapsing.
- 5. Submit a Terminate message.

Warning: This test creates a sequence number gap that could interfere with the logon process of your next test.

Message Gap Tests

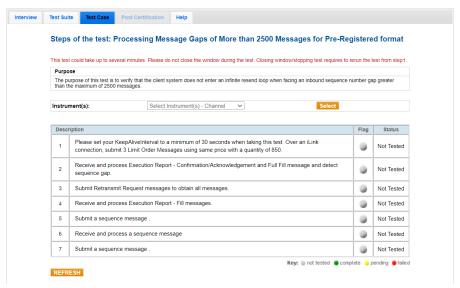
This section contains information on the message gap tests.

Processing Message Gaps of More than 2500 Messages

The purpose of this test is to verify that the client system does not enter an infinite resend loop when facing an inbound sequence number gap greater than the maximum of 2500 messages.

- · Pre-Registered Format
- · On-Demand Format

Pre-Registered Format



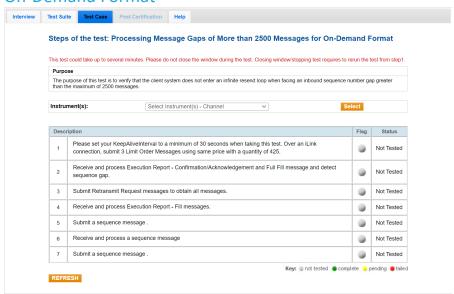
To run a Processing Message Gaps of More than 2500 Messages for Pre-Registered Format test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the START TEST button.



- 4. Please set your KeepAliveInterval to a minimum of 30 seconds when taking this test. Over an iLink connection, submit 3 Limit Order messages using the same price with a quantity of 850.
- 5. Receive and process an Execution Report New Order and Execution Report Trade Outright [39=2 (Filled)] message and detect a sequence gap.
- 6. Submit a Retransmit Request message to obtain all messages.
- 7. Receive and process an Execution Report Trade Outright [39=2 (Filled)] message.
- 8. Submit a Sequence message.
- 9. Receive and process a Sequence message.
- 10. Submit a Sequence message.

On-Demand Format



To run a Processing Message Gaps of More than 2500 Messages for On-Demand Format test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the START TEST button.



Note: **DO NOT** select the **START TEST** button once the test process is in progress.

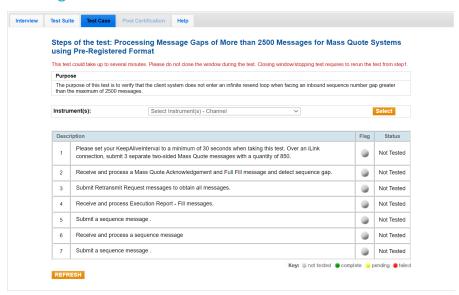
- 4. Please set your KeepAliveInterval to a minimum of 30 seconds when taking this test. Over an iLink connection, submit 3 Limit Order messages using the same price with a quantity of 425.
- 5. Receive and process an <u>Execution Report New Order</u> and <u>Execution Report Trade Outright [39=2 (Filled)]</u> message and detect a sequence gap.
- 6. Submit a Retransmit Request message to obtain all messages.
- 7. Receive and process an Execution Report Trade Outright [39=2 (Filled)] message.
- 8. Submit a **Sequence** message.
- 9. Receive and process a Sequence message.
- 10. Submit a Sequence message.

Processing Message Gaps of More than 2500 Messages for Mass Quote Systems

The purpose of this test is to verify that the client system does not enter an infinite resend loop when facing an inbound sequence number gap greater than the maximum of 2500 messages.

- Pre-Registered Format
- · On-Demand Format

Pre-Registered Format



To run a Processing Message Gaps of More than 2500 Messages for Mass Quote Systems using Pre-Registered Format test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the START TEST button.
 - 0

- 4. Please set your KeepAliveInterval to a minimum of 30 seconds when taking this test. Over an iLink connection, submit 3 separate two-sided Mass Quote messages with a quantity of 850
- 5. Receive and process a Mass Quote Acknowledgment and Execution Report Trade Outright [39=2 (Filled)] message and detect a sequence gap
- 6. Submit a Retransmit Request message to obtain all messages.
- 7. Receive and process an Execution Report Trade Outright [39=2 (Filled)] message.
- 8. Submit a Sequence message.
- 9. Receive and process a Sequence message.
- 10. Submit a Sequence message.

On-Demand Format



To run a Processing Message Gaps of More than 2500 Messages for Mass Quote Systems using On-Demand Format test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the START TEST button.



Note: DO NOT select the START TEST button once the test process is in progress.

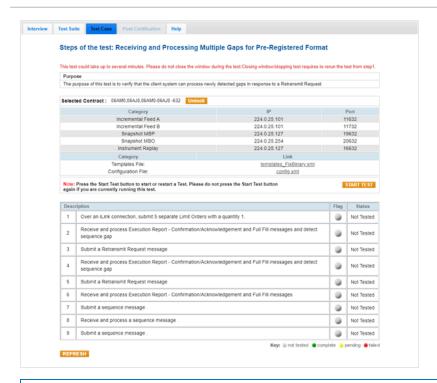
- 4. Please set your KeepAliveInterval to a minimum of 30 seconds when taking this test. Over an iLink connection, submit 3 separate two-sided Mass Quote messages with a quantity of 425.
- 5. Receive and process a Mass Quote Acknowledgment and Execution Report Trade Outright [39=2 (Filled)] message and detect a sequence gap
- 6. Submit a Retransmit Request message to obtain all messages.
- 7. Receive and process an Execution Report Trade Outright [39=2 (Filled)] message.
- 8. Submit a Sequence message.
- 9. Receive and process a Sequence message.
- 10. Submit a Sequence message.

Receiving and Processing Multiple Gaps

The purpose of this test is to verify that the client system can process newly detected gaps in response to a <u>Retransmit Request</u>.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

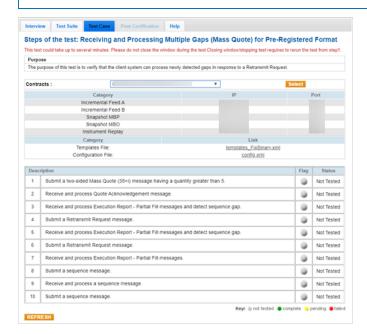
To run a Receiving and Processing Multiple Gaps test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Select the START TEST button.
 - Note: DO NOT select the START TEST button once the test process is in progress.
- 3. Over an iLink connection, submit 5 separate Limit Orders with a quantity of 1.
- 4. Receive and process <u>Execution Report New Order</u> and <u>Execution Report Trade Outright [39=2 (Filled)]</u> and detect a sequence gap.
- 5. Submit a Retransmit Request message.
- 6. Receive and process Execution Report New Order and Execution Report Trade Outright [39=2 (Filled)] and detect sequence gap.
- 7. Submit a Retransmit Request message.
- 8. Receive and process Execution Report New Order and Execution Report Trade Outright [39=2 (Filled)].
- 9. Submit a Sequence message.
- 10. Receive and process a Sequence message.
- 11. Submit a Sequence message.

Receiving and Processing Multiple Gaps (Mass Quote)

The purpose of this test is to verify that the client system can process newly detected gaps in response to a <u>Retransmit</u> Request.

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.





To run a Receiving and Processing Multiple Gaps (Mass Quote) test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- Select the START TEST button.



Note: DO NOT select the START TEST button once the test process is in progress.

- 3. Submit a two-sided Mass Quote (35=i) message having a quantity greater than 5.
- 4. Receive and process a Quote Acknowledgment message.
- 5. Receive and process Execution Report Trade Outright [39=1 (Partially Filled)] messages and detect a sequence gap.
- 6. Submit a Retransmit Request message.
- 7. Receive and process Execution Report Trade Outright [39=1 (Partially Filled)] messages and detect a sequence gap.
- 8. Submit a Retransmit Request message.
- 9. Receive and process Execution Report Trade Outright [39=1 (Partially Filled)] messages.
- 10. Submit a Sequence message.
- 11. Receive and process a Sequence message.
- 12. Submit a Sequence message.

Bi-Directional Gap Scenario (Resend Orders) - (Day or FAK/FOK Orders)

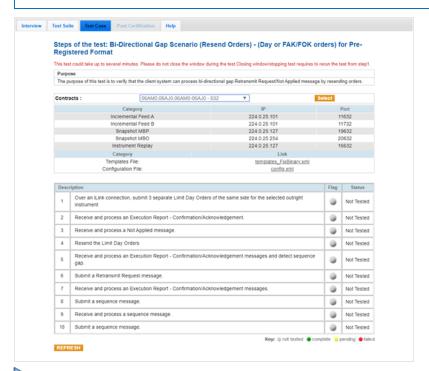
The purpose of this test is to verify that the client system can process bi-directional gap Retransmit Request/Not Applied messages by resending orders.



Note: FOK functionality is not available for Futures and Options.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



To run a Bi-Directional Gap Scenario (Resend Orders) - (Day or FAK/FOK orders) test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the START TEST button.
 - 0

- 4. Over an iLink connection, submit 3 separate Limit Day orders of the same side for the selected outright instrument.
- 5. Receive and process an Execution Report New Order.
- 6. Receive and process a Not Applied message.
- 7. Resend the Limit Day orders.
- 8. Receive and process Execution Report New Order messages and detect sequence.
- 9. Submit a Retransmit Request message.
- 10. Receive and process Execution Report New Order messages.
- 11. Submit a Sequence message.
- 12. Receive and process a Sequence message.
- 13. Submit a Sequence message.

Bi-Directional Gap Scenario (Sequence Gap Fill) - (Day or FAK/FOK Orders)

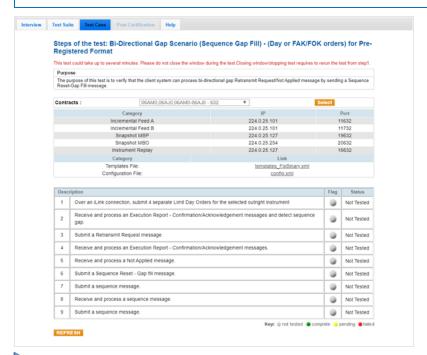
The purpose of this test is to verify that the client system can process bi-directional gap Retransmit Request / Not Applied messages by sending a Sequence Reset-Gap Fill message.



Note: FOK functionality is not available for Futures and Options.

Pre-Registered and On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



To run a Bi-Directional Gap Scenario (Sequence Gap Fill) - (Day or FAK/FOK Orders) fill test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the **START TEST** button.



- 4. Over an iLink connection, submit 4 separate Limit Day Orders for the selected outright instrument.
- 5. Receive and process Execution Report New Order messages and detect sequence gap.
- 6. Submit a Retransmit Request message.
- 7. Receive and process an Execution Report New Order messages.
- 8. Receive and process a Not Applied message.
- 9. Submit a Sequence Reset Gap fill message.
- 10. Submit a Sequence message.

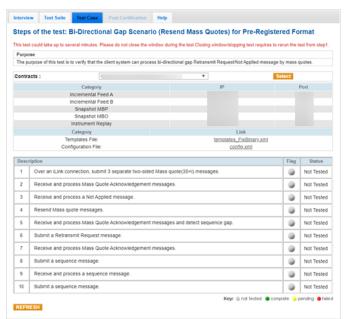
- 11. Receive and process a Sequence message.
- 12. Submit a Sequence message.

Bi-Directional Gap Scenario (Resend Mass Quotes)

The purpose of this test is to verify that the client system can process bi-directional gap Retransmit Request / Not Applied messages for mass quotes.

Pre-Registered and On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



To run a Bi-Directional Gap Scenario (Resend Mass Quotes) test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Select the START TEST button.



- 3. Over an iLink connection, submit 3 separate two-sided Mass Quote (35=i) messages
- 4. Receive and process Mass Quote Acknowledgment messages.
- 5. Receive and process a Not Applied message.
- 6. Resend Mass Quote messages.
- 7. Receive and process Mass Quote Acknowledgment messages and detect sequence gap.
- 8. Submit a Retransmit Request message.
- 9. Receive and process Mass Quote Acknowledgment messages.
- 10. Submit a **Sequence** message.

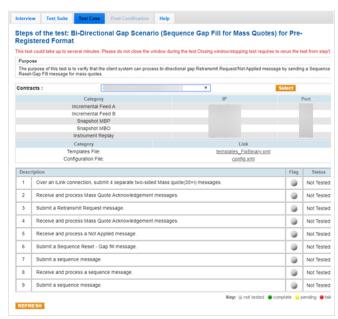
- 11. Receive and process a Sequence message.
- 12. Submit a Sequence message.

Bi-Directional Gap Scenario (Sequence Gap Fill for Mass Quotes)

The purpose of this test is to verify that the client system can process bi-directional gap Retransmit Request / Not Applied messages by sending a Sequence Reset-Gap Fill message for mass quotes.

For Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



To run a Bi-Directional Gap Scenario (Sequence Gap Fill for Mass Quotes) test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- Select the START TEST button.



- 3. Over an iLink connection, submit 4 separate two-sided Mass quote (35=i) messages
- 4. Receive and process Mass Quote Acknowledgment messages.
- 5. Submit a Retransmit Request message
- 6. Receive and process Mass Quote Acknowledgment messages.
- 7. Receive and process a Not Applied message.
- 8. Submit a Sequence Reset Gap fill message
- 9. Submit a Sequence message.
- 10. Receive and process a Sequence message.
- 11. Submit a Sequence message.

Real-Time Message Tests

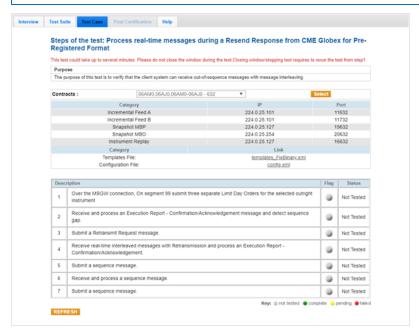
This section contains information on the real-time message gap tests.

Process Real-Time Messages During a Resend Response from CME Globex

The purpose of this test is to verify that the client system can receive out-of-sequence messages with message interleaving.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.





To run an iLink MSGW - Process Real-Time Messages During a Resend Response from CME Globex test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the **START TEST** button.



- Over the MSGW connection, on segment 99 submit three separate <u>Limit Day Orders</u> for the selected outright instrument.
- 5. Receive and process an Execution Report New Order message and detect sequence gap.
- 6. Submit a Retransmit Request message.
- 7. Receive real-time interleaved messages with Retransmission and process an Execution Report New Order message.
- 8. Submit a Sequence message.
- 9. Receive and process a Sequence message.
- 10. Submit a Sequence message.

Process Real-Time Messages for FAK/FOK During a Resend Response from CME Globex

The purpose of this test is to verify that the client system can receive out-of-sequence messages with message interleaving.



Note: FOK functionality is not available for Futures and Options.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.





- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the START TEST button.



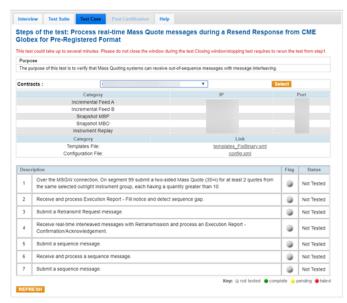
- 4. Over the MSGW connection, on segment 99 submit 3 separate FAK/FOK Orders for the selected outright instrument.
- 5. Receive and process an Execution Report New Order message and detect sequence gap.
- 6. Submit a Retransmit Request message.
- 7. Receive real-time interleaved messages with Retransmission and process an Execution Report New Order message.
- 8. Submit a Sequence message.
- 9. Receive and process a Sequence message.
- 10. Submit a Sequence message.

Process Real-Time Mass Quote Messages During a Resend Response from CME Globex

The purpose of this test is to verify that Mass Quoting systems can receive out-of-sequence messages with message interleaving.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.





To run a Process Real-Time Mass Quote Messages During a Resend Response from CME Globex test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. From the Contracts drop-down, select the desired contract if the contract is not already locked.
- 3. Select the START TEST button.



- 4. Over the MSGW connection, on segment 99 submit a two-sided Mass Quote (35=i) for at least 2 quotes from the same selected outright instrument group, each having a quantity greater than 10.
- 5. Receive and process Execution Report Fill notice message and detect sequence gap.
- 6. Submit a Retransmit Request message.
- 7. Receive real-time interleaved messages with Retransmission and process Execution Report Confirmation / Acknowledgment message.
- 8. Submit a Sequence message.
- 9. Receive and process a sequence message.
- 10. Submit a sequence message.

Business Layer Tests

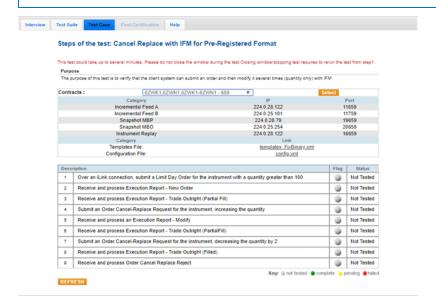
This section contains information on the business layer tests.

Cancel/Replace with IFM

The purpose of this test is to verify that the client system can submit an order and then modify it several times (quantity only) with in-flight mitigation (IFM).

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Cancel Replace with IFM test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



- 3. Over an iLink connection, submit a Limit Day Order for the instrument with a quantity greater than 100.
- 4. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 5. Enter the following tag values to indicate that your system received and processed the Execution Report Trade Outright (Partial Fill):
 - tag 31-LastPx
 - tag 151-LeavesQty
- 6. Submit an Order Cancel-Replace Request for the instrument, increasing the quantity.
- 7. Select Yes or No to indicate whether your system received and processed the Execution Report Modify.
- 8. Enter the tag 151-LeavesQty value to indicate that your system received the Execution Report Trade Outright (PartialFill).
- 9. Submit an Order Cancel-Replace Request for the instrument, decreasing the quantity by 2.

10.	Select Yes or No to indicate whether your system received and processed the Execution Report - Trade Outright
	(Filled).

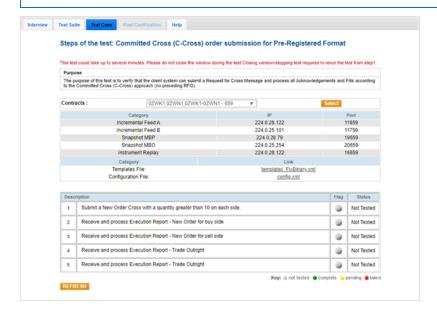
Select Yes or No to indicate whether your system received and processed the 	Order (Cancel Re	place Re	ject.
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Committed Cross (C-Cross) Order Submission

The purpose of this test is to verify that the client system can submit a <u>New Order Cross</u> message and process all acknowledgments and fills according to the Committed Cross (C-Cross) approach (no preceding RFQ).

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Committed Cross (C-Cross) Order Submission test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Select the START TEST button.



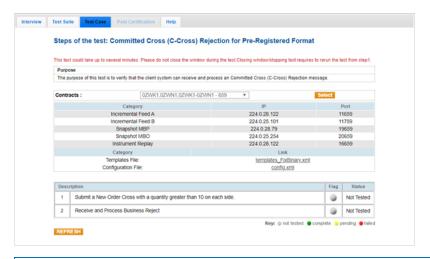
- 3. Submit a New Order Cross message with a quantity greater than 10 on each side.
- Select Yes or No to indicate whether your system received and processed the <u>Execution Report New Order</u> for buy side.
- 5. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report New Order for sell side.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the **Execution Report Trade Outright**.
- 7. Select Yes or No to indicate whether your system received and processed the Execution Report Trade Outright.

Committed Cross (C-Cross) Rejection

The purpose of this test is to verify that the client system can receive and process a Committed Cross (C-Cross) Rejection (Business Reject) message.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Committed Cross (C-Cross) Rejection test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Select the **START TEST** button.
 - Note: DO NOT select the START TEST button once the test process is in progress.
- 3. Submit a New Order Cross with a quantity greater than 10 on each side.
- 4. Select Yes or No to indicate whether your system received and processed the Business Reject.

Create a Combo Option Contract and Send an Order on the New Contract

The purpose of this test is to verify that your application can create a User Defined Combo option contract and send a New Order and a Cancel Request on the instrument.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Create a Combo Option Contract and Send an Order on the New Contract test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Send a Security Definition Request to create a Combo Option instrument.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Security Definition Response</u> acknowledging the reception of the Security Definition Request message and creation of the UDS instrument.
 - **Note:** The next 2 steps are only used for client systems that support UDS instruments.
- 5. Send an order on the UDS combo option created in step 2.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> message for the order sent in step 3.
 - Note: The next 2 steps are NOT required for FAK-only and FOK-only client systems.

- 7. Send a Order Cancel Request message on the order sent in step 3.
- 8. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Cancel</u> for Cancel Request submitted in step 5.

Create a Covered Option Contract and Send an Order on the New Contract

The purpose of this test is to verify that your application can create a User Defined Covered option contract and send a New Order and a Cancel Request on the instrument.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Create a Covered Option Contract and Send an Order on the New Contract test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Send a Security Definition Request to create a Covered Option instrument
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Security Definition Response</u> acknowledging the reception of the Security Definition Request message and creation of the UDS instrument.
 - **Note:** The next 2 steps are only used for client systems that support UDS instruments.
- 5. Send a New Order Single for the UDS covered option created in step 2
- 6. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> message for the order sent in step 3.
 - **Note:** The next 2 steps are **NOT** required for FAK-only and FOK-only client systems.

- 7. Send an Order Cancel Request message for the order sent in step 3
- 8. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Cancel</u> for the Order Cancel Request submitted in step 5

Create a Recursive UDS Contract and Send an Order on the New Contract

The purpose of this test is to verify that your application can create a User Defined Spread with one or more of its legs being a User-Defined Spread and send a New Order - Single message on such an instrument.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Create a Recursive UDS Contract and Send an Order on the New Contract test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Send a <u>Security Definition Request</u> to create Spread Combo or Covered Option instrument with at least one leg being a User Defined Spread.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Security Definition Response</u> acknowledging the reception of the Security Definition Request message and creation of the UDS instrument.
 - **Note:** The next 2 steps are only used for client systems that support UDS instruments.
- 5. Send an order on the UDS contract created in step 2.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> message for the order sent in step 3.
 - **Note:** The next 2 steps are **NOT** required for FAK-only and FOK-only client systems.

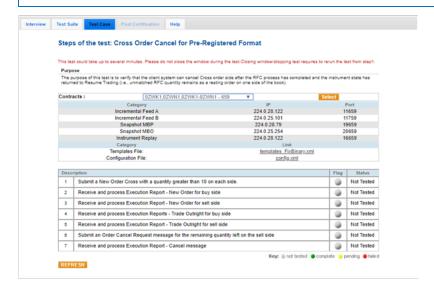
- 7. Send an Order Cancel Request message on the order sent in step 3.
- 8. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Cancel</u> for the Order Cancel Request submitted in step 5.

Cross Order Cancel

The purpose of this test is to verify that the client system can cancel a Cross order side after the RFC process has completed and the instrument state has returned to Resume Trading (i.e., unmatched RFC quantity remains as a resting order on one side of the book).

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Cross Order Cancel test:

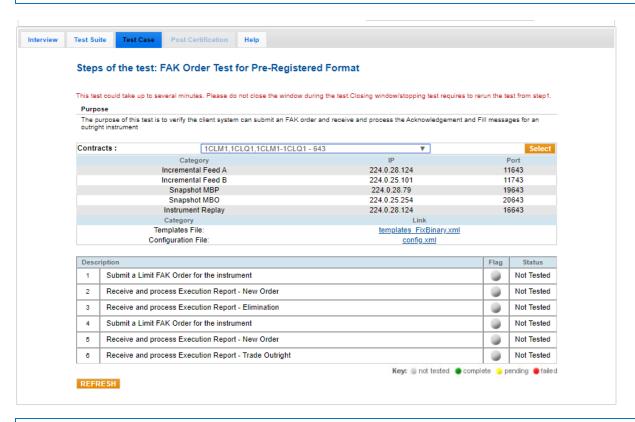
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Select the START TEST button.
 - Note: DO NOT select the START TEST button once the test process is in progress.
- 3. Submit a New Order Cross with a quantity greater than 10 on each side.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> for buy side.
- 5. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report New Order for sell side.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Reports Trade Outright</u> for buy side.
- 7. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report Trade Outright for sell side.
- 8. Submit an Order Cancel Request message for the remaining quantity left on the sell side.
- 9. Select **Yes** or **No** to indicate whether your system received and processed the **Execution Report** Cancel message.

FAK Order Test

The purpose of this test is to verify the client system can submit an <u>FAK (Fill and Kill)</u> order and receive and process the acknowledgment and fill messages for an outright instrument.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run an FAK Order test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Submit a Limit FAK Order for the instrument.
- 4. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 5. Select **Yes** or **No** to indicate whether your system received and processed the **Execution Report Elimination**.
- 6. Submit a Limit FAK Order for the instrument.

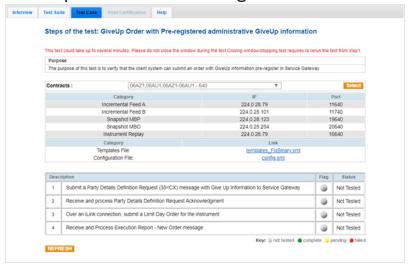
	AutoCert+ iLink
	Select Yes or No to indicate whether your system received and processed the Execution Report - New Order.
8.	Select Yes or No to indicate whether your system received and processed the <u>Execution Report - Trade Outright</u> .

Give-Up Order with Administrative Give-Up Information

The purpose of this test is to verify that the client system can submit an order with pre-registered or on-demand give-up information in the Service Gateway.

- Give-Up Order with Administrative Give-Up Information
- Give-Up Order with On-Demand Administrative Give-Up Information

Give-Up Order with Pre-Registered Administrative Give-Up Information



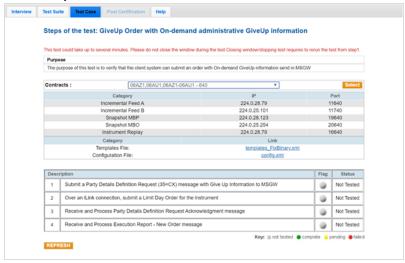
Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Give-Up Order with Pre-Registered Administrative Give-Up Information test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Submit a Party Details Definition Request (35=CX) message with Give Up Information to Service Gateway.
- 4. Receive and process a Party Details Definition Request Acknowledgment.
- 5. Over an iLink connection, submit a Limit Day Order for the instrument.
- 6. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.

Give-Up Order with On-Demand Administrative Give-Up Information



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Give-Up Order with On-Demand Administrative Give-Up Information test:

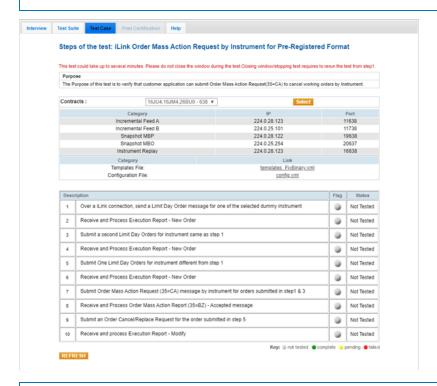
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Submit a Party Details Definition Request (35=CX) message with Give-Up Information to MSGW.
- 4. Over an iLink connection, submit a Limit Day Order for the instrument
- 5. Select **Yes** or **No** to indicate whether your system received and processed the <u>Party Details Definition Request</u> Acknowledgment.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> message.

iLink Order Mass Action Request by Instrument

The Purpose of this test is to verify that customer application can submit an Order Mass Action Request (35=CA) message to cancel working orders by instrument.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run an iLink Order Mass Action Request by Instrument test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



- 3. Over a iLink connection, send a Limit Day Order message for one of the selected dummy instrument.
- 4. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 5. Submit a second Limit Day Orders for the same instrument as step 1.
- 6. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 7. Submit One Limit Day Order for an instrument different from step 1.
- 8. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 9. Submit Order Mass Action Request (35=CA) message by instrument for orders submitted in step 1 & 3.

- 10. Enter the following tag values to indicate that your system received and processed the Order Mass Action Report

 (35=BZ) Accepted message:
 - tag 1374-MassActionScope
 - tag 1375-MassActionResponse
 - 0

Note: The next 2 steps are only required for client systems that support Order Cancel-Replace functionality.

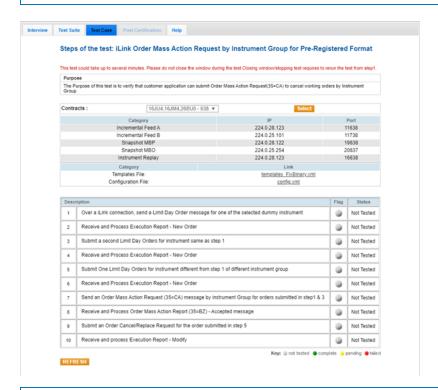
- 11. Submit an Order Cancel / Replace Request for the order submitted in step 5.
- 12. Select Yes or No to indicate whether your system received and processed the Execution Report Modify.

iLink Order Mass Action Request by Instrument Group

The Purpose of this test is to verify that customer application can submit Order Mass Action Request (35=CA) to cancel working orders by Instrument Group.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run an iLink Order Mass Action Request by Instrument Group test:

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



- 3. Over a iLink connection, send a Limit Day Order message for one of the selected dummy instrument.
- 4. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 5. Submit a second Limit Day Orders for instrument same as step 1.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report New Order.
- 7. Submit One Limit Day Orders for instrument different from step 1 of different instrument group.
- 8. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 9. Send an Order Mass Action Request (35=CA) message by instrument Group for orders submitted in step 1 & 3.

- 10. Enter the following tag values to indicate that your system received and processed the Order Mass Action Report

 (35=BZ) Accepted message:
 - tag 1374-MassActionScope
 - tag 1375-MassActionResponse



Note: The next 2 steps are only required for client systems that support Order Cancel-Replace functionality.

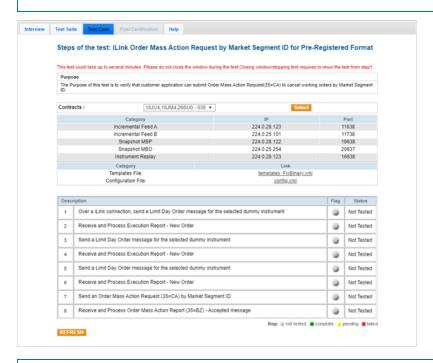
- 11. Submit an Order Cancel / Replace Request for the order submitted in step 5.
- 12. Select Yes or No to indicate whether your system received and processed the Execution Report Modify.

iLink Order Mass Action Request by Market Segment ID

The Purpose of this test is to verify that customer application can submit Order Mass Action Request (35=CA) to cancel working orders by Market Segment ID.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run an iLink Order Mass Action Request by Market Segment ID test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



- 3. Over a iLink connection, send a Limit Day Order message for the selected dummy instrument
- 4. Select **Yes** or **No** to indicate whether your system received and processed the **Execution Report New Order**.
- 5. Send a Limit Day Order message for the selected dummy instrument.
- 6. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 7. Send a Limit Day Order message for the selected dummy instrument.
- 8. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 9. Send an Order Mass Action Request (35=CA) by Market Segment ID.

- 10. Enter the following tag values to indicate that your system received and processed the Order Mass Action Report

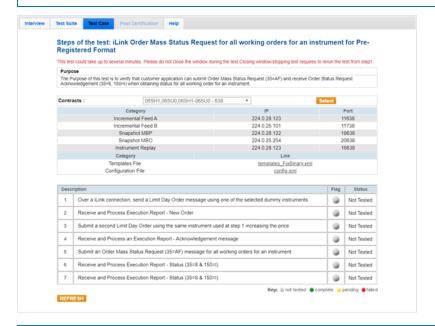
 (35=BZ) Accepted message:
 - 1300-MarketSegmentID
 - 1374-MassActionScope
 - 1375-MassActionResponse

iLink Order Mass Status Request for All Working Orders for an Instrument

The Purpose of this test is to verify that customer application can submit Order Mass Status Request (35=AF) and receive Order Status Request Acknowledgment (35=8, 150=I) when obtaining status for all working order for an instrument.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run an iLink Order Mass Action Request for all Working Orders for an Instrument test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



- 3. Over a iLink connection, send a Limit Day Order message using one of the selected dummy instruments.
- 4. Select "Yes" or "No" to indicate whether or not your system processed the Execution Report New Order.
- 5. Submit a second Limit Day Order using the same instrument used at step 1 increasing the price.
- 6. Select Yes or No to indicate whether your system received and processed the Execution Report New Order message.
- 7. Submit an Order Mass Status Request (35=AF) message for all working orders for an instrument.
- 8. Enter the following tag values to indicate that your system received and processed the Execution Report Status (35=8 & 150=I):

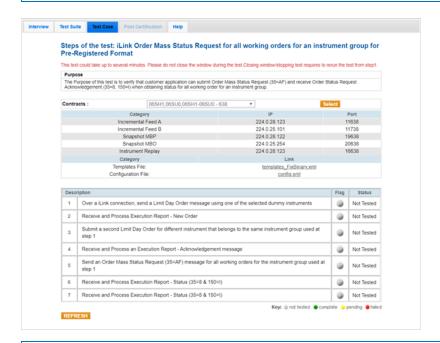
- tag 39-OrdStatus
- tag 912-LastRptRequested
- tag 584-MassStatusReqID
- 9. Enter the following tag values to indicate that your system received and processed the Execution Report Status (35=8 & 150=I):
 - tag 39-OrdStatus
 - tag 912-LastRptRequested
 - tag 584-MassStatusReqID

iLink Order Mass Status Request for All Working Orders for an Instrument Group

This test verifies that you can submit an (Order Mass Status Request (tag 35-MsgType=AF) and receive an Order Status Request acknowledgment (35-8, 150-I) when requesting the current state of all working orders for an instrument group.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run an iLink Order Mass Status Request for All Working Orders for an Instrument Group test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



- 3. Over a iLink connection, send a <u>Limit Day Order</u> message using one of the selected dummy instruments.
- 4. Select "Yes" or "No" to indicate whether your system processed the Execution Report New Order.
- 5. Submit a second Limit Day Order for different instrument that belongs to the same instrument group used at step 1.
- 6. Select "Yes" or "No" to indicate whether your system processed the Execution Report New Order message.
- 7. Send an Order Mass Status Request (35=AF) message for all working orders for the instrument group used at step 1.
- 8. Enter the values from the following tags to confirm that your system received and processed the Execution Report-Status (35=8 & 150=I).

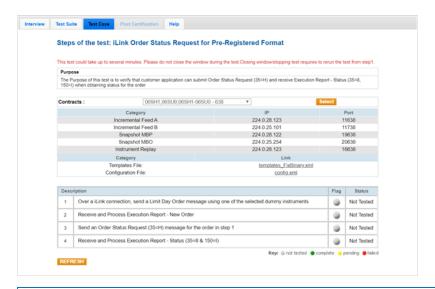
- Tag 39-OrdStatusTag 912-LastRptRequested
- Tag 584-MassStatusReqID
- 9. Enter the values from the following tags to confirm that your system received and processed the Execution Report -Status (35=8 & 150=I).
 - Tag 39-OrdStatus
 - Tag 912-LastRptRequested
 - Tag 584-MassStatusReqID

iLink Order Status Request

The Purpose of this test is to verify that your application can submit an <u>Order Status Request (35=H)</u> message and receive an <u>Execution Report - Status (35=8, 150=I)</u> message when obtaining status for the order.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run an iLink Order Status Request test:

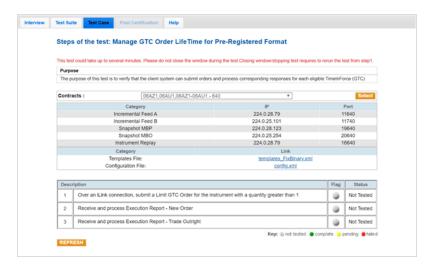
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over a iLink CGW connection, send a Limit Day Order message using one of the selected dummy instruments.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the **Execution Report New Order**.
- 5. Send an Order Status Request (35=H) message for the order in step 1.
- 6. Enter the tag 39-OrdStatus value to indicate that your system received and processed the Execution Report Status (35=8 & 150=I).

Manage GTC Order Lifetime

The purpose of this test is to verify that the client system can submit orders and process corresponding responses for each eligible TimeInForce (GTC).

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Manage GTC Order Lifetime test:

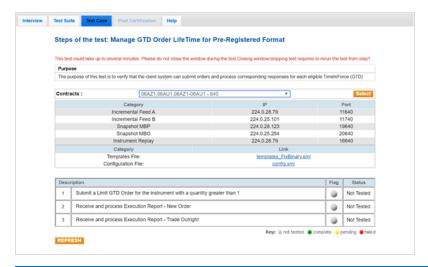
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a Limit GTC Order for the instrument with a quantity greater than 1.
- 4. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 5. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Trade Outright</u>.

Manage GTD Order LifeTime

The purpose of this test is to verify that the client system can submit orders and process corresponding responses for each eligible TimeInForce (GTD).

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Manage GTD Order Lifetime test:

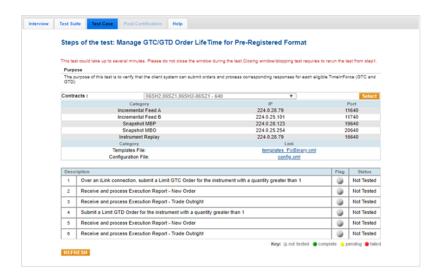
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a Limit GTD Order for the instrument with a quantity greater than 1.
- 4. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 5. Select Yes or No to indicate whether your system received and processed the Execution Report Trade Outright.

Manage GTC/GTD Order Lifetime

The purpose of this test is to verify that the client system can submit orders and process corresponding responses for each eligible TimeInForce (GTC and GTD).

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Manage GTC/GTD Order Lifetime test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



- 3. Over an iLink connection, submit a Limit GTC Order for the instrument with a quantity greater than 1.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Party Details Definition Request</u> Acknowledgment.
- 5. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report New Order.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the Party Details Definition Request Acknowledgment.
- 7. Select Yes or No to indicate whether your system received and processed the Execution Report Trade Outright.
- 8. Submit a Limit GTD Order for the instrument with a quantity greater than 1.
- 9. Select **Yes** or **No** to indicate whether your system received and processed the Party Details Definition Request Acknowledgment.
- 10. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.

11.	Select Yes or No to indicate whether your system received and processed the Party Details Definition Request Acknow-
	ledgment.

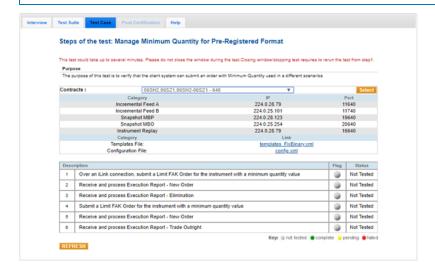
12.	Select Yes or No	to indicate whether	your system	received and	processed the	Execution Re	port - Trade C	otright.
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Manage Minimum Quantity

The purpose of this test is to verify that the client system can submit an order with Minimum Quantity used in different scenarios.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Manage Minimum Quantity test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



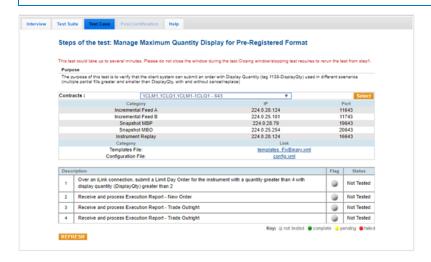
- 3. Over an iLink connection, submit a Limit FAK Order for the instrument with a minimum quantity value.
- 4. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 5. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Elimination</u>.
- 6. Submit a Limit FAK Order for the instrument with a minimum quantity value.
- 7. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report New Order.
- 8. Select **Yes** or **No** to indicate whether your system received and processed the **Execution Report Trade Outright**.

Manage Maximum Quantity Display

The purpose of this test is to verify that the client system can submit an order with Display Quantity (tag 1138-DisplayQty) used in different scenarios (multiple partial fills greater and smaller than DisplayQty, with and without cancel / replace).

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Manage Maximum Quantity Display test:

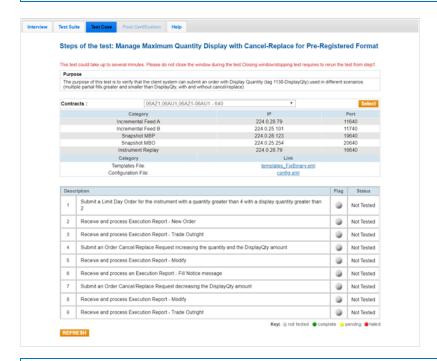
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a <u>Limit Day Order</u> for the instrument with a quantity greater than 4 with display quantity (DisplayQty) greater than 2
- 4. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 5. Select Yes or No to indicate whether your system received and processed the Execution Report Trade Outright.
- 6. Select Yes or No to indicate whether your system received and processed the Execution Report Trade Outright.

Manage Maximum Quantity Display with Cancel/Replace

The purpose of this test is to verify that the client system can submit an order with Display Quantity (tag 1138-DisplayQty) used in different scenarios (multiple partial fills greater and smaller than DisplayQty, with and without cancel/replace).

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Manage Maximum Quantity Display with Cancel/Replace test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Submit a Limit Day Order for the instrument with a quantity greater than 4 with a display quantity greater than 2
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u>
- 5. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Trade Outright</u>
- 6. Submit an Order Cancel/Replace Request increasing the quantity and the DisplayQty amount
- 7. Select Yes or No to indicate whether your system received and processed the Execution Report Modify
- 8. Select Yes or No to indicate whether your system received and processed the Execution Report Fill Notice message
- 9. Submit an Order Cancel/Replace Request decreasing the DisplayQty amount

10. Select Yes or No to indicate whether your system received and processed the Execution Report - N	l and processed the Execution Report - Modify
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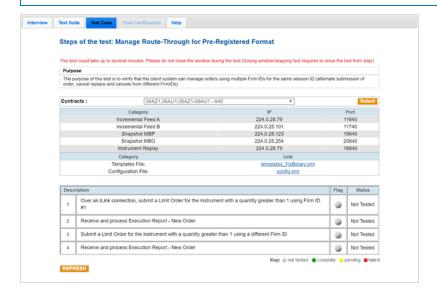
11. Se	lect Yes or No	to indicate whether	your system	received and	processed the Execution Re	port - Trade Outri	ight
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Manage Route-Through

The purpose of this test is to verify that the client system can manage orders using multiple Firm IDs for the same session ID (alternate submission of order, cancel replace and cancels from different FirmIDs).

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Manage Route-Through test:

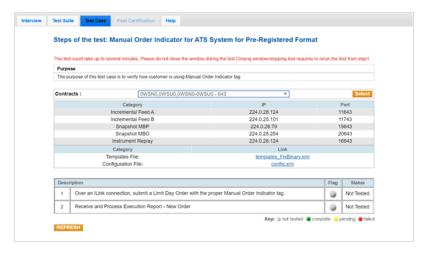
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a Limit Order for the instrument with a quantity greater than 1 using Firm ID #1.
- 4. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 5. Submit a Limit Order for the instrument with a quantity greater than 1 using a different Firm ID.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report New Order.

Manual Order Indicator for ATS System

The purpose of this test case is to verify how the client system is using the Manual Order Indicator tag.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Manual Order Indicator for ATS System test:

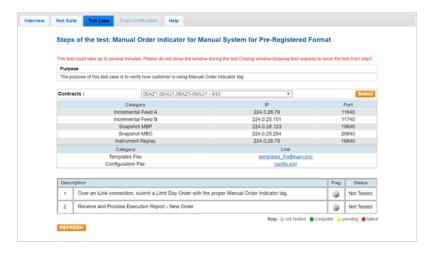
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a Limit Day Order with the proper Manual Order Indicator tag.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the **Execution Report New Order**.

Manual Order Indicator for Manual System

The purpose of this test case is to verify how the client system is using the Manual Order Indicator tag.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Manual Order Indicator for Manual System test:

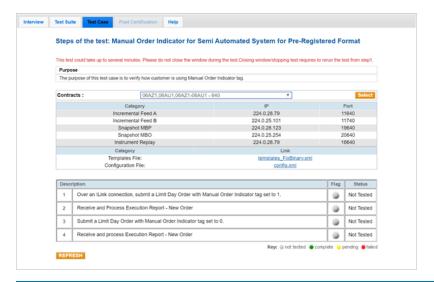
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a Limit Day Order with the proper Manual Order Indicator tag.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the **Execution Report New Order**.

Manual Order Indicator for Semi Automated System

The purpose of this test case is to verify how the client system is using the Manual Order Indicator tag.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.

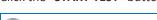


Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Manual Order Indicator for Semi Automated System test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



Note: DO NOT select the "START TEST" button once the test process is in progress.

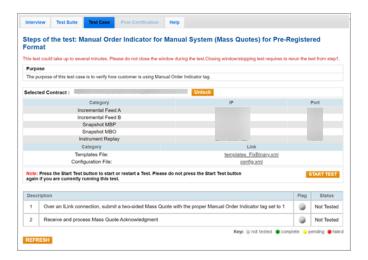
- 3. Over an iLink connection, submit a <u>Limit Day Order</u> with the Manual Order Indicator (tag 1028-Manual OrderIndicator) set to 1.
- 4. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 5. Submit a Limit Day Order with Manual Order Indicator tag set to 0.
- 6. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.

Manual Order Indicator for Manual System (Mass Quote)

The purpose of this test case is to verify how the client system is using the Manual Order Indicator tag.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Manual Order Indicator for Manual System (Mass Quote) test:

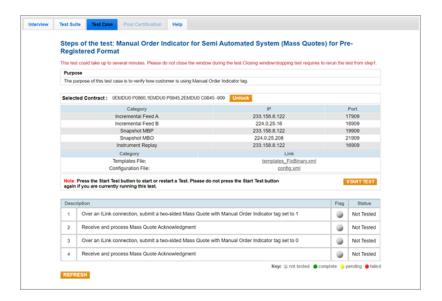
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a two-sided Mass Quote with the Manual Order Indicator tag set to 1.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the Mass Quote Acknowledgment.

Manual Order Indicator for Semi Automated System (Mass Quote)

The purpose of this test case is to verify how the client system is using the Manual Order Indicator tag.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Manual Order Indicator for Manual System test:

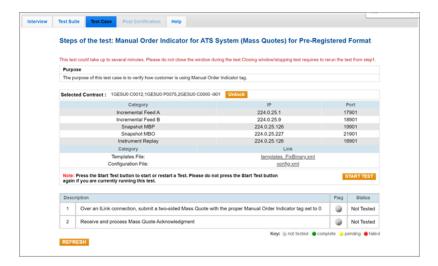
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a two-sided Mass Quote with the Manual Order Indicator tag set to 1.
- 4. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 5. Over an iLink connection, submit a two-sided Mass Quote with the Manual Order Indicator tag set to 0.
- 6. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.

Manual Order Indicator for ATS System (Mass Quote)

The purpose of this test case is to verify how the client system is using the Manual Order Indicator tag.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Manual Order Indicator for ATS System (Mass Quote) test:

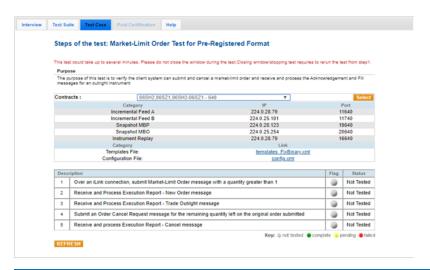
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a two-sided Mass Quote with the Manual Order Indicator tag set to 0.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Mass Quote Acknowledgment</u>.

Market Limit Order

The purpose of this test is to verify the client system can submit and cancel a market-limit order and receive and process the Acknowledgment and Fill messages for an outright instrument

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Market-Limit Order test:

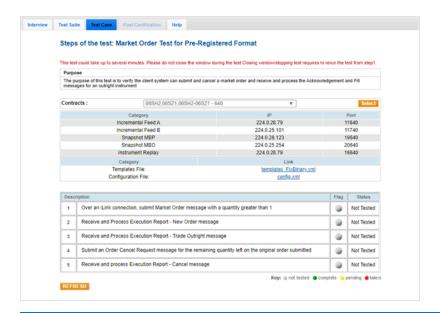
- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit Market-Limit Order message with a quantity greater than 1.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> message.
- 5. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Trade Outright</u> message.
 - Note: The next 2 steps are NOT required for FAK-only and FOK-only client systems.
- 6. Submit an Order Cancel Request message for the remaining quantity left on the original order submitted.
- 7. Select **Yes** or **No** to indicate whether your system received and processed the **Execution Report Cancel** message.

Market Order

The purpose of this test is to verify the client system can submit and cancel a market order and receive and process the Acknowledgment and Fill messages for an outright instrument.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Market Order test:

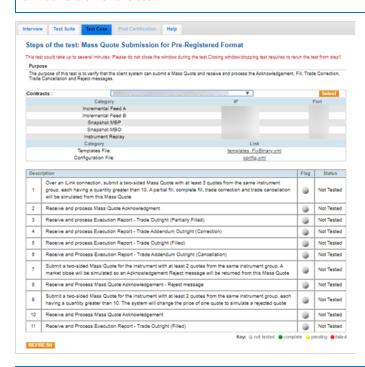
- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit Market Order message with a quantity greater than 1.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> message.
- 5. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Trade Outright</u> message.
 - **Note:** The next 2 steps are **NOT** required for FAK-only and FOK-only client systems.
- 6. Submit an Order Cancel Request message for the remaining quantity left on the original order submitted.
- 7. Select Yes or No to indicate whether your system received and processed the Execution Report Cancel message.

Mass Quote Submission

The purpose of this test is to verify that the client system can submit a Mass Quote and receive and process the Acknowledgment, Fill, Trade Correction, Trade Cancellation and Reject messages.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Mass Quote Submission test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



- 3. Over an iLink connection, submit a two-sided Mass Quote with at least 3 quotes from the same instrument group, each having a quantity greater than 10. A partial fill, complete fill, trade correction and trade cancellation will be simulated from this Mass Quote.
- 4. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 5. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Trade Outright</u> (Partially Filled).
- 6. Enter the tag 31-LastPx value to indicate that your system received the <u>Execution Report Trade Addendum</u> Outright (Correction).

- 7. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report Trade Outright (Filled).
- 8. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report Trade Addendum Outright (Cancellation).
- 9. Submit a two-sided Mass Quote for the instrument with at least 2 quotes from the same instrument group. A market close will be simulated so an Acknowledgment Reject message will be returned from this Mass Quote.
- 10. Select **Yes** or **No** to indicate whether your system received and processed the Mass Quote Acknowledgment Reject message.
- 11. Submit a two-sided Mass Quote for the instrument with at least 2 quotes from the same instrument group, each having a quantity greater than 10. The system will change the price of one quote to simulate a rejected quote.
- 12. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 13. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report Trade Outright (Filled).

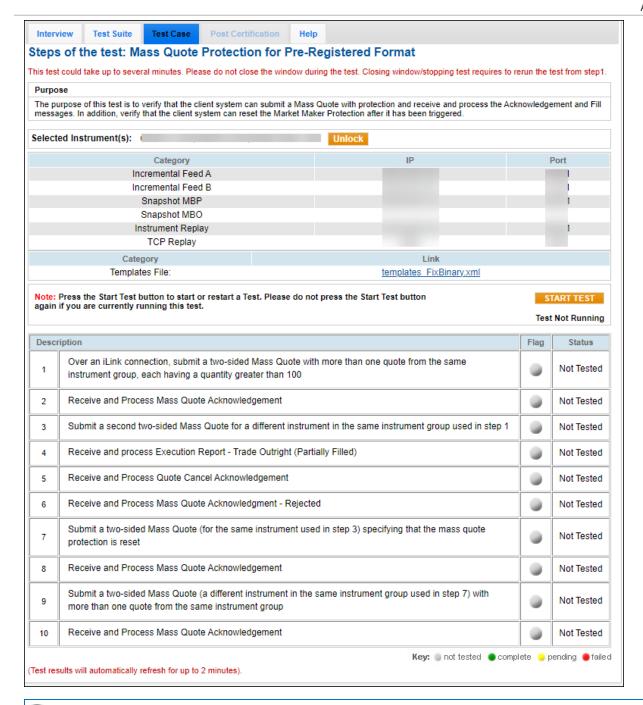
Mass Quote Protection

The purpose of this test is to verify that the client system can:

- Submit a Mass Quote with protection
- Receive and process the Acknowledgement and Fill messages.
- In addition, verify that the client system can reset the Market Maker Protection after it has been triggered.

Pre-Registered or On-Demand Format

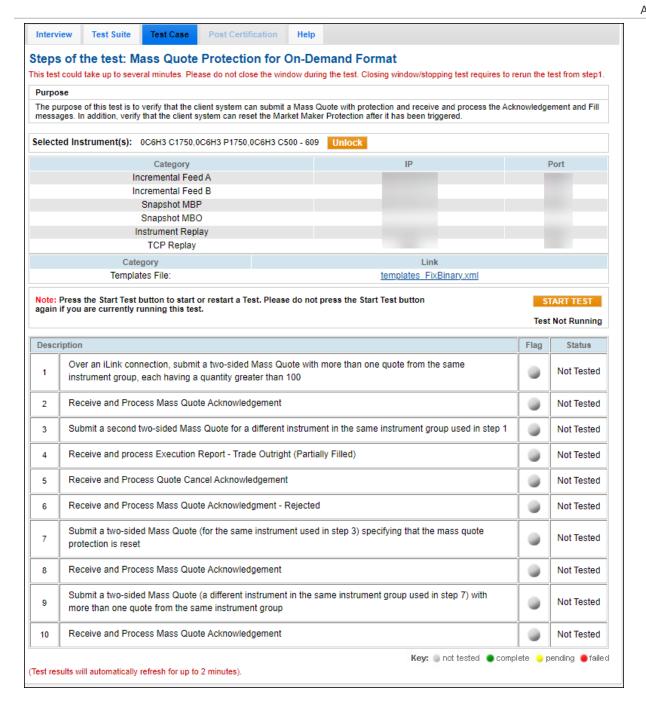
Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- To run a Mass Quote Protection test:

- 1. Over an iLink connection, submit a two-sided Mass Quote with more than one quote from the same instrument group, each having a quantity greater than 100.
- 2. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 3. Submit a second two-sided Mass Quote for a different instrument in the same instrument group used in step 1.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Trade Outright</u> (Partially Filled).
- 5. Select Yes or No to indicate whether your system received and processed the Quote Cancel Acknowledgment.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the Mass Quote Acknowledgment (Rejected).
- 7. Submit a two-sided Mass Quote (for the same instrument used in step 3) specifying that the mass quote protection was reset.
- 8. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 9. Submit a two-sided Mass Quote (a different instrument in the same instrument group used in step 7) with more than one quote from the same instrument group.
- 10. Select **Yes** or **No** to indicate whether your system received and processed the Mass Quote Acknowledgment. On-demand screen

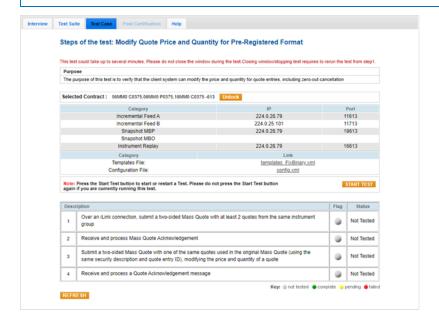


Modify Quote Price and Quantity

The purpose of this test is to verify that the client system can modify the price and quantity for quote entries, including zero-out cancellation.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Modify Quote Price and Quantity test:

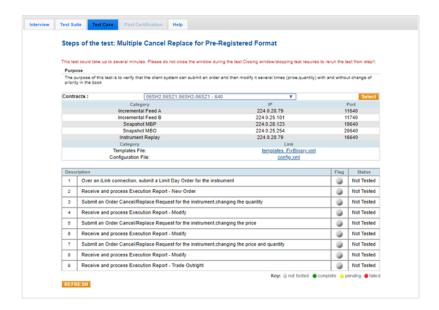
- 1. From the Contract drop-down, select the desired contract if the contract is not already locked.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a two-sided Mass Quote with at least 2 quotes from the same instrument group.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 5. Submit a two-sided Mass Quote with one of the same quotes used in the original Mass Quote (using the same security description and quote entry ID), modifying the price and quantity of a quote.
- 6. Select Yes or No to indicate whether your system received and processed the Quote Acknowledgment message.

Multiple Cancel Replace

The purpose of this test is to verify that the client system can submit an order and then modify it several times (price, quantity) with and without a change of priority in the book.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Multiple Cancel Replace test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



Note: DO NOT select the "START TEST" button once the test process is in progress.

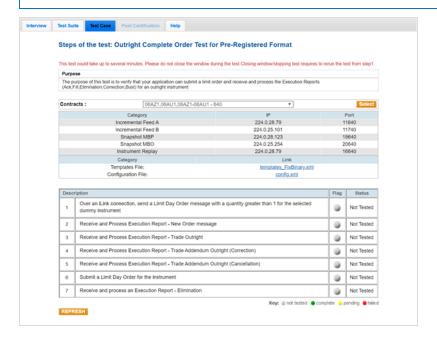
- 3. Over an iLink connection, submit a Limit Day Order for the instrument.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report New Order.
- 5. Submit an Order Cancel / Replace Request for the instrument, changing the quantity.
- 6. Select Yes or No to indicate whether your system received and processed the Execution Report Modify.
- 7. Submit an Order Cancel / Replace Request for the instrument, changing the price.
- 8. Select Yes or No to indicate whether your system received and processed the Execution Report Modify.
- 9. Submit an Order Cancel / Replace Request for the instrument, changing the price and quantity.
- 10. Select Yes or No to indicate whether your system received and processed the Execution Report Modify.
- 11. Select Yes or No to indicate whether your system received and processed the Execution Report Trade Outright.

Outright Complete Order

The purpose of this test is to verify that your application can submit a limit order and receive and process the Execution Reports (Ack,Fill,Elimination,Correction,Bust) for an outright instrument.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run an Outright Complete Order test:

- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



Note: DO NOT select the "START TEST" button once the test is in progress.

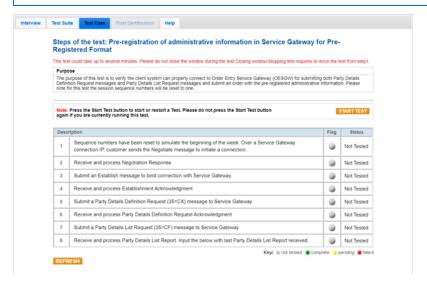
- 3. Over an iLink connection, send a <u>Limit Day Order</u> message with a quantity greater than 1 for the selected dummy instrument.
- 4. Receive and process an Execution Report New Order message.
- 5. Receive and process an Execution Report Trade Outright.
- 6. Receive and process an Execution Report Trade Addendum Outright (Correction).
- 7. Receive and process an Execution Report Trade Addendum Outright (Cancellation).
- 8. Submit a Limit Day Order for the instrument.
- 9. Receive and process an Execution Report Elimination.

Pre-Registration of Administrative Information in Service Gateway

The purpose of this test is to verify the client system can properly connect to the Order Entry Service Gateway (OESGW) for submitting both Party Details Definition Request messages and Party Details List Request messages and submit an order with the pre-registered administrative information.



Note: For this test the session sequence numbers will be reset to one.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Pre-Registration of Administrative Information in Service Gateway test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Select the **START TEST** button.



Note: DO NOT select the START TEST button once the test process is in progress.

- 3. Sequence numbers have been reset to simulate the beginning of the week. Over a Service Gateway connection IP, send a <u>Negotiate</u> message to initiate a connection.
- 4. Receive and process Negotiation Response.
- 5. Submit an Establish message to bind the connection with the Service Gateway.
- 6. Receive and process Establishment Acknowledgment.
- 7. Submit a Party Details Definition Request (35=CX) message to Service Gateway.

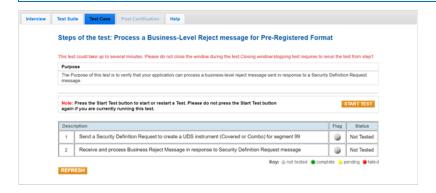
- 8. Enter the tag 1505-PartyDetailsListRequestID value to indicate that your system received and processed the PartyDetails Definition Request Acknowledgment.
- 9. Submit a Party Details List Request (35=CF) message to Service Gateway.
- 10. Enter the following tag values to indicate that your system received and processed the Party Details List Report:
 - tag 1512-TotNoParties
 - tag 893-LastFragment

Process a Business-Level Reject Message

The purpose of this test is to verify that your application can process a business-level reject message sent in response to a Security Definition Request message.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Process a Business-Level Reject Message test:

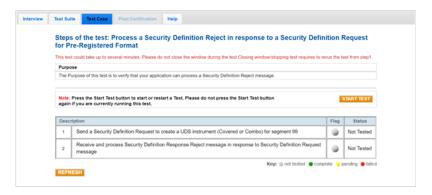
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Send a Security Definition Request to create a UDS instrument (Covered or Combo)
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Business Reject</u> Message in response to Security Definition Request message.

Process a Security Definition Reject in Response to a Security Definition Request

The purpose of this test is to verify that your application can process a Security Definition Reject message.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Process a Security Definition Reject in Response to a Security Definition Request test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Send a Security Definition Request to create a UDS instrument (Covered or Combo)
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Security Definition Response Reject</u> message in response to Security Definition Request message.

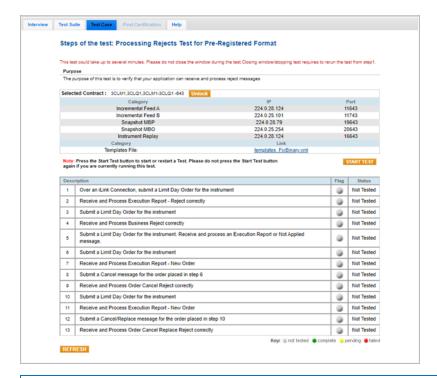
Processing Rejects

The purpose of this test is to verify that your application can receive and process reject messages.

- Pre-Registered or On-Demand Format
- Pre-Registered or On-Demand Format

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Processing Rejects test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



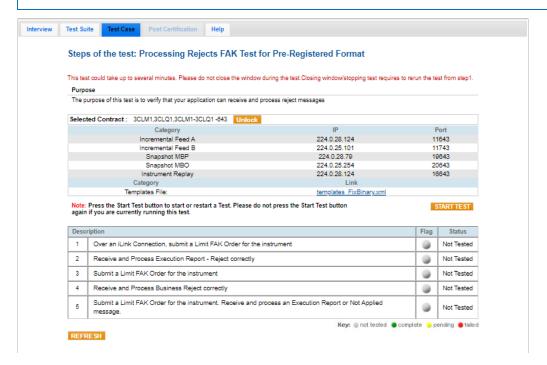
Note: DO NOT select the "START TEST" button once the test process is in progress.

- 3. Over an iLink connection, submit a Limit Day Order for the instrument.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the **Execution Report Reject** correctly.
- 5. Submit a Limit Day Order for the instrument.
- 6. Select Yes or No to indicate whether your system received and processed the Business Reject correctly.
- 7. Submit a Limit Day Order for the instrument. Receive and process the Execution Report or Not Applied message.

- 8. Submit a Limit Day Order for the instrument.
- 9. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 10. Submit an Order Cancel Request message for the order placed in step 5.
- 11. Select Yes or No to indicate whether your system received and processed the Order Cancel Reject correctly.
 - Note: The remaining steps are only required for client systems that support Order Cancel-Replace functionality.
- 12. Submit a Limit Day Order for the instrument.
- 13. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 14. Submit a Order Cancel/Replace Request message for the order placed in step 9.
- 15. Select Yes or No to indicate whether your system received and processed the Order Cancel Replace Reject correctly.

Pre-Registered or On-Demand Format (FAK Only)

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Processing Rejects FAK test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - **Note**: **DO NOT** select the **"START TEST"** button once the test process is in progress.

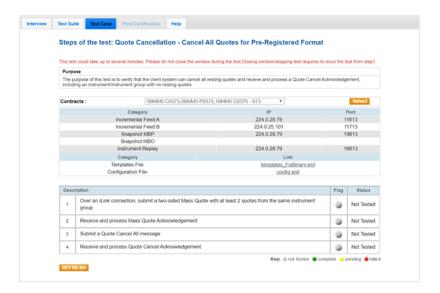
- 3. Over an iLink connection, submit a Limit FAK Order for the instrument.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Reject</u> correctly.
- 5. Submit a Limit FAK Order for the instrument.
- 6. Select Yes or No to indicate whether your system received and processed the Business Reject correctly.
- 7. Submit a Limit FAK Order for the instrument. Receive and process the Execution Report or Not Applied message.

Quote Cancellation (Cancel All Quotes)

The purpose of this test is to verify that the client system can cancel all resting quotes and receive and process a Quote Cancel Acknowledgment, including an instrument/instrument group with no resting quotes.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Quote Cancellation (Cancel All Quotes) test:

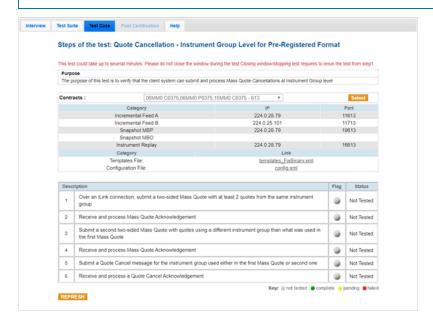
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a two-sided Mass Quote with at least 2 quotes from the same instrument group.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 5. Submit a Quote Cancel All message.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the Quote Cancel Acknowledgment.

Quote Cancellation (Instrument Group Level)

The purpose of this test is to verify that the client system can submit and process Mass Quote Cancellations at instrument group level.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Quote Cancellation (Instrument Group Level) test:

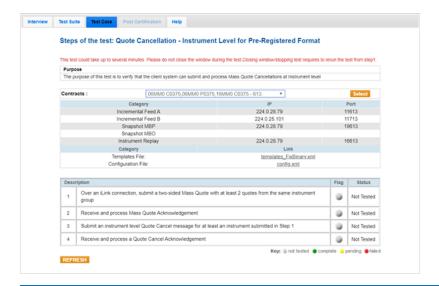
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a two-sided Mass Quote with at least 2 quotes from the same instrument group.
- 4. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 5. Submit a second two-sided Mass Quote with quotes using a different instrument group than what was used in the first Mass Quote.
- 6. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 7. Submit a Quote Cancel message for the instrument group used either in the first Mass Quote or second one.
- 8. Select Yes or No to indicate whether your system received and processed the Quote Cancel Acknowledgment.

Quote Cancellation (Instrument Level)

The purpose of this test is to verify that the client system can submit and process Mass Quote Cancellations at the instrument level.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Quote Cancellation (Instrument Level) test:

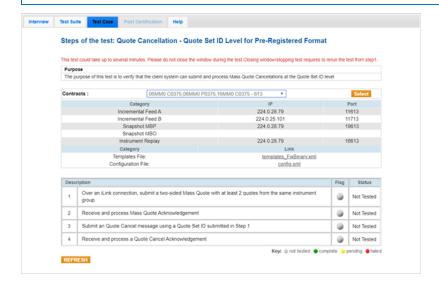
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a two-sided Mass Quote with at least 2 quotes from the same instrument group.
- 4. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 5. Submit an instrument level Quote Cancel message for at least an instrument submitted in Step 1.
- 6. Select Yes or No to indicate whether your system received and processed the Quote Cancel Acknowledgment.

Quote Cancellation (Quote Set ID Level)

The purpose of this test is to verify that the client system can submit and process Mass Quote Cancellations at the Quote Set ID level.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Quote Cancellation (Quote Set ID Level) test:

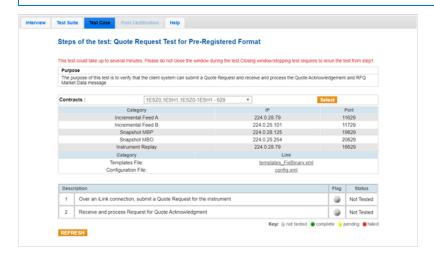
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a two-sided Mass Quote with at least 2 quotes from the same instrument group.
- 4. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 5. Submit an Quote Cancel message using a Quote Set ID submitted in Step 1.
- 6. Select Yes or No to indicate whether your system received and processed the Quote Cancel Acknowledgment.

Quote Request

This test verifies that you can submit a <u>Quote Request</u> and receive and process the <u>Quote Acknowledgment</u> and <u>RFQ</u> <u>Market Data messages</u>.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

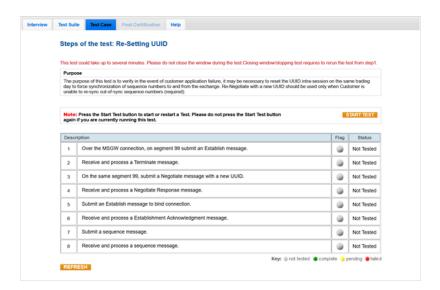
To run a Quote Request test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a Quote Request for the instrument.
- 4. Select "Yes" or "No" to indicate whether or not your system processed the Request for Quote Acknowledgment and RFQ Market Data messages.

Re-Setting UUID

The purpose of this test is to verify that, in the event of customer application failure, the application system can reset the UUID intra-session on the same trading day to force synchronization of sequence numbers to and from the exchange.

Note: Re-Negotiate with a new UUID should be used only when the customer is unable to re-sync out-of-sync sequence numbers (required).



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Re-Setting UUID test:

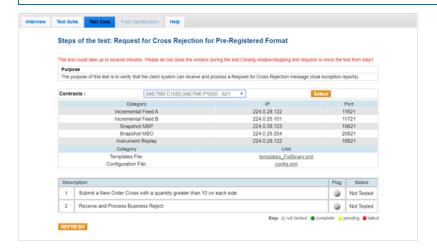
- 1. Select a **SenderComp** from the drop-down and select **ASSIGN** if a SenderComp is not already assigned.
- 2. Select the START TEST button.
 - Note: DO NOT select the START TEST button once the test process is in progress.
- 3. Over the MSGW connection, on segment 99, submit an Establish message.
- 4. Select Yes or No to indicate whether your system received and processed the Terminate message.
- 5. On the same segment 99, submit a Negotiate message with a new UUID.
- 6. Receive and process a Negotiate Response message.
- 7. Submit an Establish message to bind connection.
- 8. Select **Yes** or **No** to indicate whether your system received and processed the <u>Establishment Acknowledgment</u> message.
- 9. Submit a Sequence message.
- 10. Receive and process a Sequence message.

Request for Cross Rejection

The purpose of this test is to verify that the client system can receive and process a Request for Cross Rejection message (dual exception reports).

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Request for Cross Rejection test:

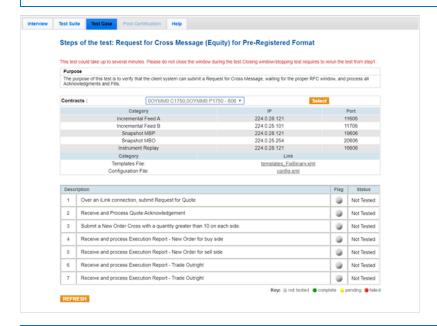
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Submit a New Order Cross message with a quantity greater than 10 on each side.
- 4. Select "Yes" or "No" to indicate whether or not your system received and processed the Business Reject message.

Request for Cross Message (Equity)

The purpose of this test is to verify that the client system can submit a Request for Cross message, wait for the proper RFC window and process all Acknowledgments and Fills.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run Request for Cross Message (Equity) test:

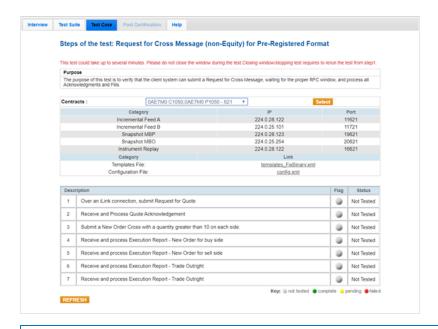
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit Request for Quote.
- 4. Select Yes or No to indicate whether your system received and processed the Request for Quote Acknowledgment.
- 5. Submit a New Order Cross with a quantity greater than 10 on each side.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> for buy side.
- 7. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report New Order for sell side.
- 8. Select Yes or No to indicate whether your system received and processed the Execution Report Trade Outright.
- 9. Select Yes or No to indicate whether your system received and processed the Execution Report Trade Outright.

Request for Cross Message (Non-Equity)

The purpose of this test is to verify that the client system can submit a Request for Cross message, wait for the proper RFC window and process all Acknowledgments and Fills.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Request for Cross Message (Non-Equity) test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



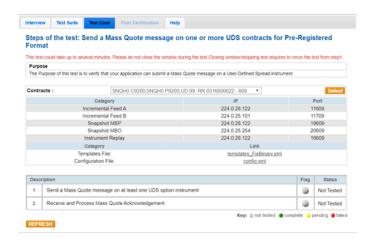
- 3. Over an iLink connection, submit Request for Quote.
- 4. Select Yes or No to indicate whether your system received and processed the Request for Quote Acknowledgment.
- 5. Submit a New Order Cross with a quantity greater than 10 on each side.
- Select Yes or No to indicate whether your system received and processed the <u>Execution Report New Order</u> for buy side.
- Select Yes or No to indicate whether your system received and processed the Execution Report New Order for sell side.
- 8. Select Yes or No to indicate whether your system received and processed the Execution Report Trade Outright.
- 9. Select Yes or No to indicate whether your system received and processed the Execution Report Trade Outright.

Send a Mass Quote Message on One or More UDS Contracts

The Purpose of this test is to verify that your application can submit a <u>Mass Quote</u> message on a User-Defined Spread instrument.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Send a Mass Quote Message on One or More UDS Contracts test

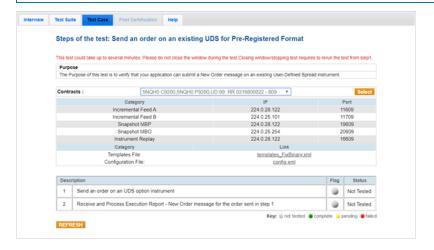
- 1. From the Contract drop-down, select the desired contract if the contract is not already locked.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Send a Mass Quote message on at least one UDS option instrument.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the Mass Quote Acknowledgment.

Send an Order on an Existing UDS

The purpose of this test is to verify that your application can submit a <u>New Order - Single</u> message on an existing User Defined Spread instrument.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Send an Order on an Existing UDS test:

- Note: DO NOT select the "START TEST" button once the test process is in progress.
- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Send New Order Single message on a UDS option instrument.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> message for the order sent in step 1.

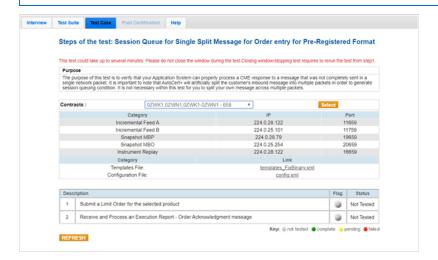
Session Queue for Single Split Message

The purpose of this test is to verify that your application system can properly process a CME Globex response to a message that was not completely sent in a single network packet.

Note: It is important to note that AutoCert+ will artificially split the customer's inbound message into multiple packets in order to generate session queuing condition. It is not necessary within this test for you to split your own message across multiple packets.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Session Queue for Single Split Message test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



- 3. Submit a Limit Order for the selected product
- 4. Enter the following tag values to indicate that your system received and processed an Execution Report Order Acknowledgment message:
 - tag 5904-DelayDuration
 - tag 9553-SplitMsg

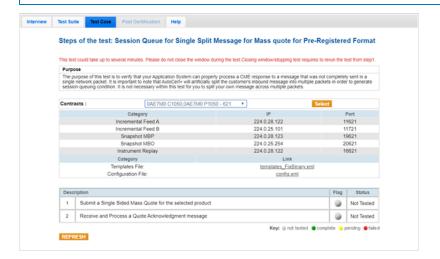
Session Queue for Single Split Message (Mass Quotes)

The purpose of this test is to verify that your application system can properly process a CME Globex response to a message that was not completely sent in a single network packet.

Note: It is important to note that AutoCert+ will artificially split the customer's inbound message into multiple packets in order to generate session queuing condition. It is not necessary within this test for you to split your own message across multiple packets.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Session Queue for Single Split Message (Mass Quote) test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Submit a Single Sided Mass Quote for the selected product
- 4. Receive and Process a Quote Acknowledgment message
 - tag 5904-DelayDuration
 - tag 9553-SplitMsg

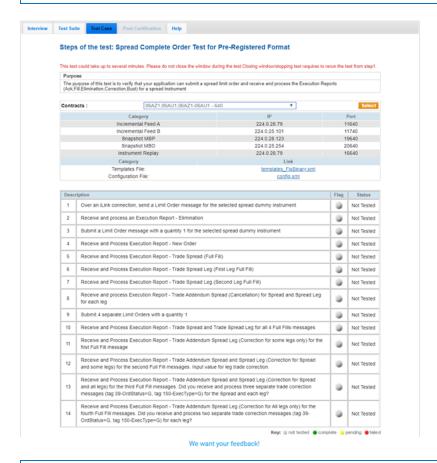
Spread Complete Order

The purpose of this test is to verify that your application can:

- · submit a spread limit order
- · receive and process the Execution Reports (Ack, Fill, Elimination, Correction, Bust) for a spread instrument

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Spread Complete Order test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test is in progress.
- 3. Over an iLink connection, send a Limit Order message for the selected spread dummy instrument.
- 4. Select Yes or No to indicate whether your system received and processed the Execution Report Elimination.

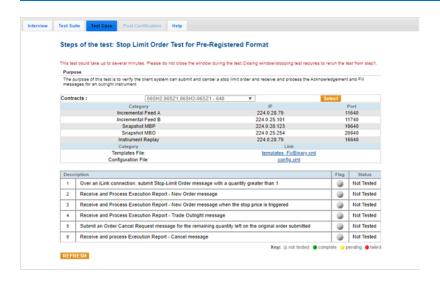
- 5. Submit a Limit Order message with a quantity of 1 for the selected spread dummy instrument.
- 6. Select Yes or No to indicate whether your system received and processed the Execution Report New Order.
- 7. Enter the following tag values to indicate that your system received and processed the Execution Report Trade
 Spread (Full Fill):
 - tag 39-OrdStatus
 - tag 31-LastPx
 - tag 38-OrderQty
- 8. Enter the tag 31-LastPx value to indicate that your system received and processed the Execution Report Trade Spread Leg (First Leg Full Fill).
- 9. Enter the tag 31-LastPx value to indicate that your system received and processed the Execution Report Trade Spread Leg (Second Leg Full Fill).
- 10. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Trade Addendum</u> Spread (Cancellation) for Spread and Spread Leg for each leg.
- 11. Submit 4 separate Limit Orders with a quantity 1.
- 12. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report Trade Spread and Trade Spread Leg for all 4 Full Fills messages.
- 13. Enter the following tag values to indicate that your system received and processed the Execution Report Trade Addendum Spread Leg (Correction for some legs only) for the first Full Fill message
 - tag 1507-OrigSideTradeID
 - tag 31-LastPx
 - tag 9703-OriginalSecondaryExecID
- 15. Enter the following tag values to indicate that your system received and processed the Execution Report Trade Addendum Spread and Spread Leg (Correction for Spread and some legs) for the second Full Fill messages:
 - tag 1507-OrigSideTradeID
 - tag 31-LastPx
 - tag 9703-OriginalSecondaryExecID
- 16. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report Trade Addendum Spread and Spread Leg (Correction for Spread and all legs) for the third Full Fill messages. Did you receive and process three separate trade correction messages (tag 39-OrdStatus=G, tag 150-ExecType=G) for the Spread and each leg?
- 17. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report Trade Addendum Spread Leg (Correction for All legs only) for the fourth Full Fill messages. Did you receive and process two separate trade correction messages (tag 39-OrdStatus=G, tag 150-ExecType=G) for each leg?

Stop Limit Order

The purpose of this test is to verify the client system can submit and cancel a stop-limit order and receive and process the Acknowledgment and Fill messages for an outright instrument

Pre-Registered and On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Stop-Limit Order Test

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



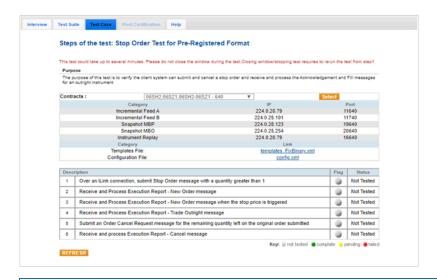
- 3. Over an iLink connection, submit Stop-Limit Order message with a quantity greater than 1.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> message.
- 5. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report New Order message when the stop price is triggered.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Trade Outright</u> message.
- 7. Submit an Order Cancel Request message for the remaining quantity left on the original order submitted.
- 8. Select Yes or No to indicate whether your system received and processed the Execution Report Cancel message.

Stop Order

The purpose of this test is to verify the client system can submit and cancel a stop order and receive and process the Acknowledgment and Fill messages for an outright instrument

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run a Stop Order test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.



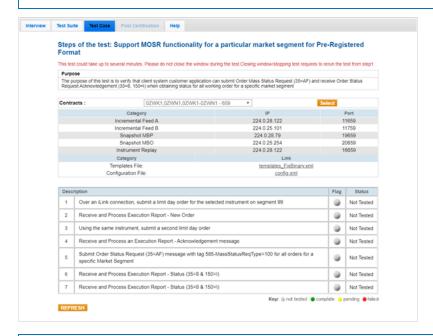
- 3. Over an iLink connection, submit Stop Order message with a quantity greater than 1.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> message.
- 5. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report New Order message when the stop price is triggered.
- 6. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report Trade Outright</u> message.
- 7. Submit an Order Cancel Request message for the remaining quantity left on the original order submitted.
- 8. Select Yes or No to indicate whether your system received and processed the Execution Report Cancel message.

Support MOSR Functionality for a Particular Market Segment

The purpose of this test is to verify that client system customer application can submit an Order Mass Status Request (35=AF) and receive an Order Status Request Acknowledgment (35=8, 150=I) when obtaining status for all working order for a specific market segment.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run a Support MOSR Functionality for a Particular Market Segment test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the START TEST button.



- 3. Over an iLink connection, submit a Limit Day order for the selected instrument on segment 99.
- 4. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report New Order.
- 5. Using the same instrument, submit a second Limit Day order.
- 6. Select Yes or No to indicate whether your system received and processed the Execution Report New Order message.
- 7. Submit Order Status Request (35=AF) message with tag 585-MassStatusReqType=100 for all orders for a specific Market Segment.
- 8. Enter the following tag values to indicate that your system received and processed the Execution Report Status (35=8 & 150=I):

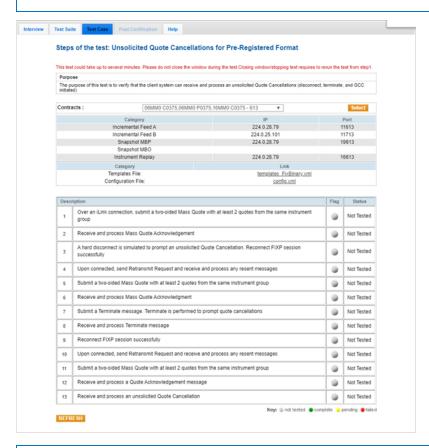
- tag 39-OrdStatus
- tag 912-LastRptRequested
- tag 584-MassStatusReqID
- 12. Enter the following tag values to indicate that your system received and processed the Execution Report Status (35=8 & 150=I):
 - tag 39-OrdStatus
 - tag 912-LastRptRequested
 - tag 584-MassStatusReqID

Unsolicited Quote Cancellations

The purpose of this test is to verify that the client system can receive and process an unsolicited Quote Cancellations (disconnect, terminate, and GCC initiated)

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run an Unsolicited Quote Cancellations test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the "START TEST" button.
 - Note: DO NOT select the "START TEST" button once the test process is in progress.
- 3. Over an iLink connection, submit a two-sided Mass Quote with at least 2 quotes from the same instrument group.
- 4. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 5. A hard disconnect is simulated to prompt an unsolicited Quote Cancellation.
- 6. Select Yes or No to indicate whether your system reconnected to the FIXP session successfully.
- 7. Upon connection, send Retransmit Request and receive and process any resent messages

- 8. Submit a two-sided Mass Quote with at least 2 quotes from the same instrument group.
- 9. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 10. Submit a Terminate message. Termination is performed to prompt quote cancellations.
- 11. Select Yes or No to indicate whether your system received and processed the Terminate message.
- 12. Select **Yes** or **No** to indicate whether your system reconnected the FIXP session successfully (receive and process any appropriate messages).
- 13. Submit a two-sided Mass Quote with at least 2 quotes from the same instrument group.
- 14. Select Yes or No to indicate whether your system received and processed the Quote Acknowledgment message.

Failover Tests

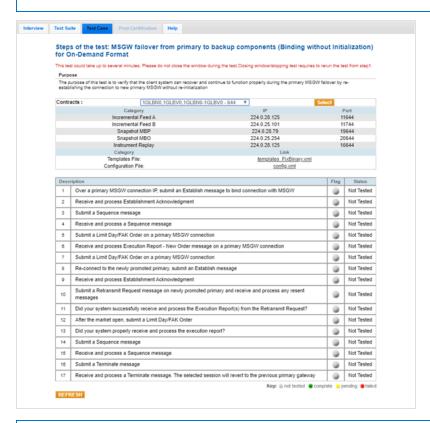
This section contains information on the failover tests.

MSGW Failover from Primary to Backup Components (Binding without Initialization)

The purpose of this test is to verify that your system can recover and continue to function properly during a primary MSGW failover.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run an MSGW Failover from Primary to Backup Components (Binding without Initialization) test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the START TEST button.
 - 1

- 3. Over a primary MSGW connection IP, submit an Establish message to bind the connection with the MSGW.
- 4. Receive and process the Establishment Acknowledgment message.
- 5. Submit a Sequence message.
- Receive and process a Sequence message.

- 7. Submit a Limit Day Order on a primary MSGW connection.
- 8. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> message on a primary MSGW connection.
- 9. Submit a Limit Day Order on a primary MSGW connection.
- 10. Re-connect to the newly promoted primary, submit an Establish message.
- 11. Receive and process Establishment Acknowledgment.
- 12. Submit a Retransmit Request message on newly promoted primary and receive and process any resent messages.
- 13. Select Yes or No to indicate whether your system received and processed the Retransmit Request?
- 14. After the market open, submit a Limit Day Order.
- 15. Select Yes or No to indicate whether your system received and processed the Execution Report New Order?
- 16. Submit a Sequence message.
- 17. Receive and process a Sequence message.
- 18. Submit a Terminate message.
- 19. Receive and process a Terminate message. The selected session will revert to the previous primary gateway.

MSGW Failover from Primary to Backup Components (Initialization and Binding)

The purpose of this test is to verify that the client system can recover and continue to function properly during the primary MSGW failover by re-initializing and re-establishing the connection to new primary MSGW

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run an MSGW Failover from Primary to Backup Components (Initialization and Binding) test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- Click the START TEST button.
 - Note: DO NOT select the START TEST button once the test process is in progress.
- Over a primary MSGW connection IP, submit a <u>Negotiate</u> message using new UUID to initialize the connection with MSGW.

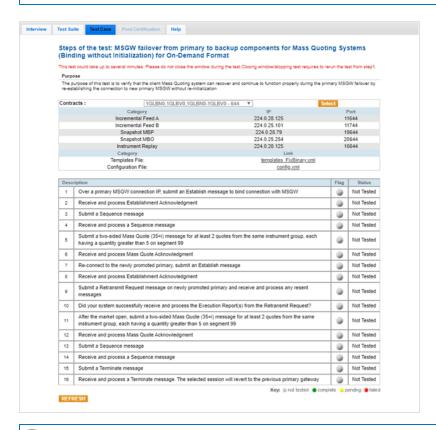
- 4. Receive and process a Negotiation Response message.
- 5. Submit an Establish message to bind connection with MSGW.
- 6. Receive and process the Establishment Acknowledgment.
- 7. Submit a Sequence message.
- 8. Receive and process a Sequence message.
- 9. Submit a Limit Day Order on a primary MSGW connection.
- 10. Select **Yes** or **No** to indicate whether your system received and processed the <u>Execution Report New Order</u> message on a primary MSGW connection.
- 11. Submit a Limit Day Order on a primary MSGW connection.
- 12. Re-connect to the newly promoted primary: Submit a Negotiate message using new UUID to re-initialize the connection.
- 13. Receive and process a Negotiation Response message.
- 14. Submit an Establish message to bind the connection.
- 15. Receive and process the Establishment Acknowledgment.
- 16. Submit a Retransmit Request message on newly promoted primary and receive and process any resent messages.
- 17. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report(s) from the Retransmit Request?
- 18. After the market open, submit a Limit Day Order.
- 19. Select Yes or No to indicate whether your system received and processed the execution report?
- 20. Submit a Sequence message.
- 21. Receive and process a Sequence message.
- 22. Submit a Terminate message.
- 23. Receive and process a Terminate message. The selected session will revert to the previous primary gateway.

MSGW Failover from Primary to Backup Components for Mass Quoting Systems (Binding without Initialization)

The purpose of this test is to verify that the client Mass Quoting system can recover and continue to function properly during the primary MSGW failover by re-establishing the connection to the new primary MSGW without re-initialization.

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.



To run an MSGW Failover from Primary to Backup Components for Mass Quoting Systems (Binding without Initialization) test:

- Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- Click the START TEST button.



- 3. Over a primary MSGW connection IP, submit an Establish message to bind the connection with the MSGW.
- 4. Receive and process Establishment Acknowledgment.
- 5. Submit a Sequence message.

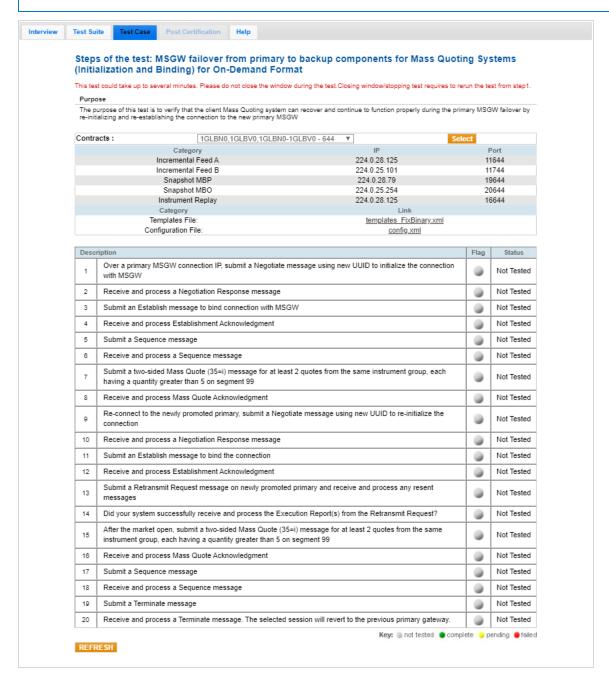
- 6. Receive and process a Sequence message.
- 7. Submit a two-sided Mass Quote (35=i) message for at least 2 quotes from the same instrument group, each having a quantity greater than 5 on segment 99.
- 8. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 9. Re-connect to the newly promoted primary, submit an Establish message.
- 10. Receive and process the Establishment Acknowledgment.
- 11. Submit a <u>Retransmit Request</u> message on the newly promoted primary and receive and process any resent messages.
- 12. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report(s) from the Retransmit Request.
- 13. After the market open, submit a two-sided Mass Quote (35=i) message for at least 2 quotes from the same instrument group, each having a quantity greater than 5 on segment 99.
- 14. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 15. Submit a Sequence message.
- 16. Receive and process a Sequence message.
- 17. Submit a Terminate message.
- 18. Receive and process a Terminate message. The selected session will revert to the previous primary gateway.

MSGW Failover from Primary to Backup Components for Mass Quoting Systems (Initialization and Binding)

The purpose of this test is to verify that the client Mass Quoting system can recover and continue to function properly during the primary MSGW failover by re-initializing and re-establishing the connection to the new primary MSGW

Pre-Registered or On-Demand Format

Note: This test is used for both Pre-Registered and On-Demand formats. The image below shows the Pre-Registered format version of the test.



Note: If a test is not proceeding to the next step, selecting the Refresh button (REFRESH) below the test steps may resolve the issue.

To run an MSGW Failover from Primary to Backup Components for Mass Quoting Systems (Initialization and Binding) test:

- 1. Select a SenderComp from the drop-down and select ASSIGN if a SenderComp is not already assigned.
- 2. Click the START TEST button.



- 3. Over a primary MSGW connection IP, submit a <u>Negotiate</u> message using new UUID to initialize the connection with MSGW.
- 4. Receive and process a Negotiate Response message.
- 5. Submit an Establish message to bind connection with MSGW.
- 6. Receive and process the Establishment Acknowledgment.
- 7. Submit a Sequence message.
- 8. Receive and process a Sequence message.
- 9. Submit a two-sided Mass Quote (35=i) message for at least 2 quotes from the same instrument group, each having a quantity greater than 5 on segment 99.
- 10. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 11. Re-connect to the newly promoted primary: Submit a Negotiate message using a new UUID to re-initialize the connection.
- 12. Receive and process a Negotiate Response message.
- 13. Submit an Establish message to bind the connection.
- 14. Receive and process the Establishment Acknowledgment.
- 15. Submit a Retransmit Request message on newly promoted primary and receive and process any resent messages.
- 16. Select **Yes** or **No** to indicate whether your system received and processed the Execution Report(s) from the Retransmit Request?
- 17. After the market open, submit a two-sided Mass Quote (35=i) message for at least 2 quotes from the same instrument group, each having a quantity greater than 5 on segment 99.
- 18. Select Yes or No to indicate whether your system received and processed the Mass Quote Acknowledgment.
- 19. Submit a Sequence message.
- 20. Receive and process a Sequence message.
- 21. Submit a Terminate message.
- 22. Receive and process a Terminate message. The selected session will revert to the previous primary gateway.