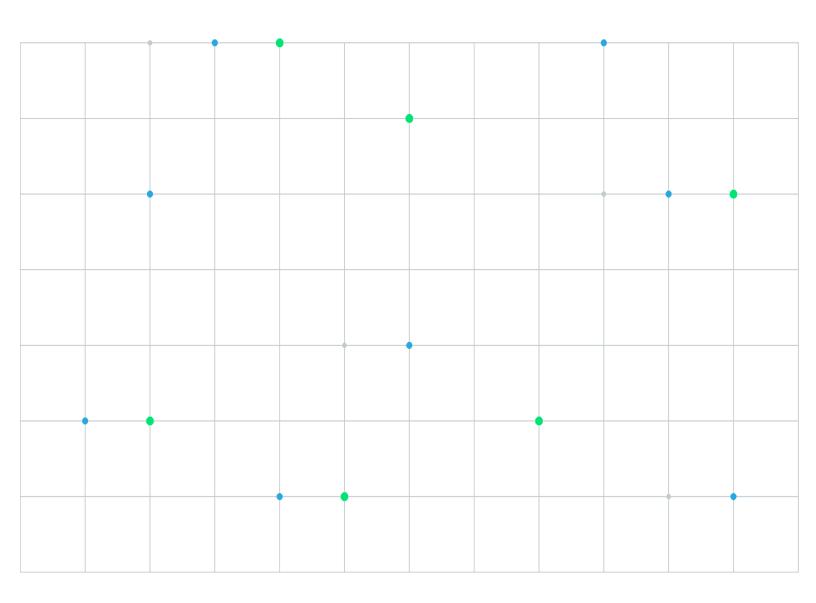


AutoCert+ EBS Conflated TCP User Manual

28 September 2022



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Table of Contents

Getting Started	4
What's New	5
Interview	6
Certification Tests	7
Channel Reset for Conflated TCP Market Data Group	7
Conflated TCP Book Management Messages for Market by Price (MBP)	8
Conflated TCP Book Management Messages for Market by Price (MBP) with Market Best	9
Key Rotation (TCP MDP GW)	10
Limits and Banding Messages for Conflated TCP Market Data Group (Snapshot only)	. 11
Limits and Banding Messages for Conflated TCP Market Data Group (Snapshot and	
Updates)	12
Security Definition Message for eFIX	
Security Definition Message for Fixed Date NDF	
Security Definition Message for On-MTF NDF	
Security List Request by All Request Verification	
Security List Request by Instrument Level Request Verification	
Security Definition Mid-Week Updates	
Security Status Request Verification (Snapshot only)	
Security Status Request Verification (Snapshot and Updates)	20
Market Data Request by All Request Verification	21
Market Data Request by Instrument Level Request Verification (Snapshot only)	
Market Data Request by Instrument Level Request Verification (Snapshot and Updates)	
Trade Summary Message for Conflated TCP Market Data Group (Snapshot only)	24
Trade Summary Message for Conflated TCP Market Data Group (Snapshot and Updates)	25

Getting Started

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

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

This Help system accompanies the AutoCert+ EBS Conflated TCP test suite.



To run and navigate AutoCert+:

- 1. Complete the steps detailed in the "Process Summary EBS New Release Testing Setup" topic.
- 2. Log into the automated certification tool.
- 3. Review general AutoCert+ test suite navigation and general interview information.
- 4. Navigate to the AutoCert+ EBS Conflated TCPtest suite.



- a. Select a Company Name.
- b. For Market, select EBS.
- c. For Purpose, select Market Data Conflated TCP.
- d. Select an Application System.
- e. For Test Suite, select EBS Conflated TCP.
- 5. Select a **Sendercomp** and select **ASSIGN**.
- 6. Complete the Interview for this test suite.
- 7. Complete applicable test cases.
- 8. Complete the certification process from the Post Certification tab.

What's New

The list below illustrates the updates made to the AutoCert+ EBS Conflated TCP Help system.

Date	Topic	Description
Wednesday, September 14, 2022	Certification Tests	Removed Test Case - Security Definitions Message for NDF
Wednesday, September 14, 2022	Interview	Updated interview questions for Non-Deliverable Forwards (NDF) market, including Fixed Date NDF
Monday, May 24, 2021		Initial release.

Interview

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

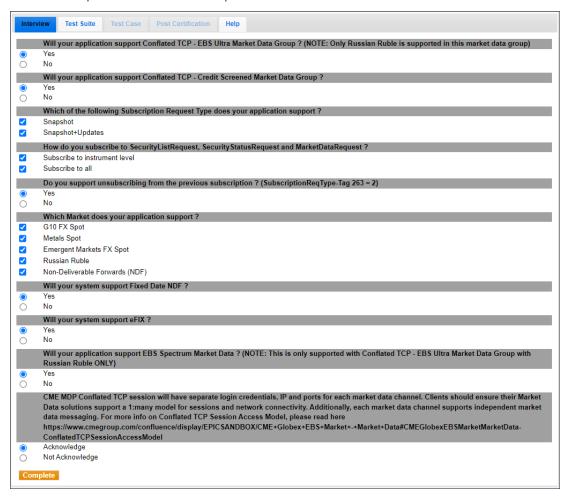


Note: You cannot access test suites and test cases until the completion of the interview.



To complete the interview:

Answer each question and select "Complete" when finished.



Certification Tests

This section contains information on the certification tests.

Channel Reset for Conflated TCP Market Data Group

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



See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Channel Reset for Conflated TCP Market Data Group test:

- 1. Over an existing TCP MDP connection having an active subscription to MarketDataRequest, confirm that the books are empty for the selected instruments.
- 2. Receive market data for a set of orders.
- 3. Confirm the quantities and prices on the book for the selected instrument.
- 4. Receive a Market Data Incremental Refresh (tag 35-MsgType=X) Channel Reset message.
- 5. Receive the resent book.
- 6. Confirm the quantities and prices on the book for the selected instrument.

Conflated TCP Book Management Messages for Market by Price (MBP)

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

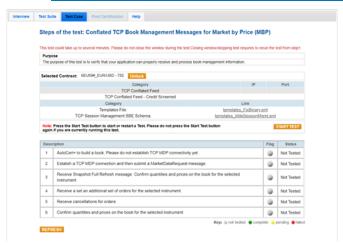


See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Conflated TCP Book Management Messages for Market by Price (MBP) test:

- 1. AutoCert+ builds a book. Do not establish TCP MDP connectivity yet.
- 2. Establish a TCP MDP connection and then submit a Market Data Request Message (tag 35-MsgType=V) message.
- 3. Receive Market Data Snapshot (tag 35-MsgType=W) Full Refresh message. Confirm the quantities and prices on the book for the selected instrument.
- 4. Receive an additional set of orders for the selected instrument.
- 5. Receive cancellations for orders.
- 6. Confirm the quantities and prices on the book for the selected instrument.

Conflated TCP Book Management Messages for Market by Price (MBP) with Market Best

The purpose of this test is to verify that your application can properly receive and process book management messages with market best information.

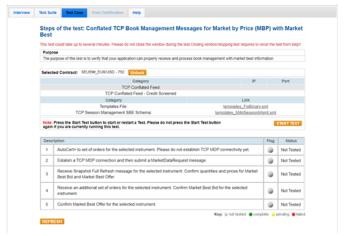


See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Conflated TCP Book Management Messages for Market by Price (MBP) with Market Best test:

- 1. AutoCert+ sends a set of orders for the selected instrument. Do not establish TCP MDP connectivity yet.
- 2. Establish a TCP MDP connection and then submit a Market Data Request (tag 35-MsgType=V) message.
- 3. Receive a Market Data Snapshot (tag 35-MsgType=W) Full Refresh message for the selected instrument. Confirm the quantities and prices for the Market Best Bid and Market Best Offer.
- 4. Receive an additional set of orders for the selected instrument. Confirm the Market Best Bid for the selected instrument.
- 5. Confirm the Market Best Offer for the selected instrument.

Key Rotation (TCP MDP GW)

This test verifies that your system can properly negotiate to the CME system using the security functionality with key rotation.



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



See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Key Rotation (TCP MDP GW) test:

- 1. Over an existing TCP MDP connection, submit a Negotiate message using the first secure key pair.
- 2. Submit a SubscriberHeartbeat message.
- 3. Receive and process an AdminHeartbeat message.
- 4. Submit a Terminate message.
- 5. Receive and process a Terminate message.
- 6. Over a TCP MDP connection again, submit a Negotiate message using a different set of secure key pairs than the ones used in step 1.
- 7. Submit a SubscriberHeartbeat message.
- 8. Receive and process an AdminHeartbeat message.

Limits and Banding Messages for Conflated TCP Market Data Group (Snapshot only)

The purpose of this test is to verify that your application can properly receive and process Market Data Incremental Refresh (tag 35-MsgType=X) - Limits and Banding messages.

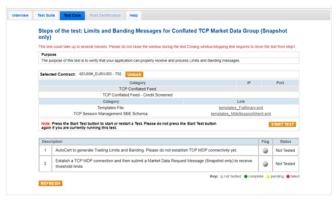


See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Limits and Banding Messages for Conflated TCP Market Data Group (Snapshot only) test:

- 1. AutoCert+ generates Trading Limits and Banding. Do not establish TCP MDP connectivity yet.
- 2. Establish a TCP MDP connection and then submit a Market Data Request (tag 35-MsgType=V) message (Snapshot only) to receive threshold limits.

Limits and Banding Messages for Conflated TCP Market Data Group (Snapshot and Updates)

The purpose of this test is to verify that your application can properly receive and process Market Data Incremental Refresh (tag 35-MsgType=X) - Limits and Banding messages.

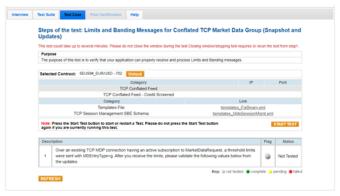


See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Limits and Banding Messages for Conflated TCP Market Data Group (Snapshot and Updates) test:

1. Over an existing TCP MDP connection having an active subscription to MarketDataRequest, a threshold limits were sent with MDEntryType=g. After you receive the limits, enter the tag values below from the updates.

Security Definition Message for eFIX

The purpose of this test is to verify that your application can properly receive and process Security Definition (tag 35-MsgType=d) messages for eFIX.



See MDP 3.0 - Message Specification.

- 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

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





To run a Security Definition Message for eFIX test:

- 1. Over an existing TCP MDP connection, submit a Security List Request (tag 35-MsgType=x) message.
- 2. Confirm that your application successfully received and processed a Request Acknowledgment (tag 35-MsgType=V) message with MDReqIDStatus=0 [full ack] or MDReqIDStatus(tag 37720)=1[partial ack].
- 3. Confirm that your application successfully received and processed a Security Definition (tag 35-MsgType=d) message for eFIX. Verify the values from the first Security Definition (tag 35-MsgType=d) message received. Time format should be entered as: HH:MM:SS.
 - tag 1446-RateSource
 - tag 37726-FixRateLocalTime
 - tag 37727-FixRateLocalTimeZone

Security Definition Message for Fixed Date NDF

The purpose of this test is to verify that your application can properly receive and process Security Definition (tag 35-MsgType=d) messages for Fixed Date NDF.



See MDP 3.0 - Message Specification.

- 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

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





To run a Security Definition Message for Fixed Date NDF test:

- 1. Over an existing TCP MDP connection, submit a Security List Request (tag 35-MsgType=x) message.
- 2. Confirm that your application successfully received and processed a Request Acknowledgment (tag 35-MsgType=V) message with MDReqIDStatus=0 [full ack] or MDReqIDStatus(tag 37720)=1[partial ack].
- Confirm that your application successfully received and processed a Security Definition (tag 35-MsgType=d) message
 for Fixed Date NDF. Verify the values on the selected instrument Security Definition (tag 35-MsgType=d) message
 received. The date format should be entered as: YYYYMMDD.
 - tag 63-SettlType
 - tag 200-MaturityMonthYear

Security Definition Message for On-MTF NDF

The purpose of this test is to verify that your application can properly receive and process Security Definition (tag 35-MsgType=d) messages for On-MTF NDF.



See MDP 3.0 - Message Specification.

- 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

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





To run a Security Definition Message for On-MTF NDF test:

- 1. Over an existing TCP MDP connection, submit a Security List Request (tag 35-MsgType=x) message.
- 2. Confirm that your application successfully received and processed a Request Acknowledgment (tag 35-MsgType=V) message with MDReqIDStatus=0 [full ack] or MDReqIDStatus(tag 37720)=1[partial ack].
- 3. Confirm that your application successfully received and processed a Security Definition (tag 35-MsgType=d) message for On-MTF NDF. Verify the values on the selected instrument Security Definition (tag 35-MsgType=d) message received. The date format should be entered as: YYYYMMDD.
 - tag 63-SettlType
 - First tag 541-MaturityDate in the repeating group
 - tag 455-SecurityAltID

Security List Request by All Request Verification

This test verifies that your system can properly request all entitled instruments.

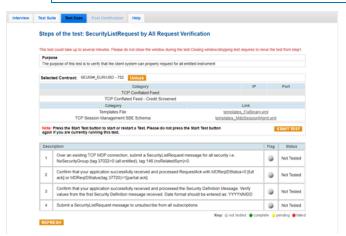


See MDP 3.0 - Message Specification.

- 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.
- Select the START TEST button.



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





To run a Security List Request by All Request Verification test:

- 1. Over an existing TCP MDP connection, submit a Security List Request (tag 35-MsgType=x) message for all securities, i.e. NoSecurityGroup (tag 37022=0 (all entitled), tag 146 (noRelatedSym)=0.
- 2. Confirm that your application successfully received and processed a Request Acknowledgment message with MDReqIDStatus=0 [full ack] or MDReqIDStatus(tag 37720)=1[partial ack].
- 3. Confirm that your application successfully received and processed a Security Definition (tag 35-MsgType=d) message. Verify values from the first Security Definition (tag 35-MsgType=d) message received. The date format should be entered as: YYYYMMDD.
 - First tag 75-TradeDate in the repeating group
 - First tag 64-SettlDate in the repeating group
 - tag 55-Symbol
 - tag 1300-MarketSegmentID
- 4. Submit a Security List Request (tag 35-MsgType=x) message to unsubscribe from all subscriptions.

Security List Request by Instrument Level Request Verification

This test verifies that your system can properly request all entitled instruments at the instrument level.

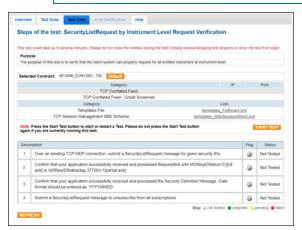


See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Security List Request by Instrument Level Request Verification test:

- 1. Over an existing TCP MDP connection, submit a Security List Request (tag 35-MsgType=x) message for given security IDs.
- 2. Confirm that your application successfully received and processed a Request Acknowledgment (tag 35-MsgType=V) with MDReqIDStatus=0 [full ack] or MDReqIDStatus(tag 37720)=1[partial ack].
- 3. Confirm that your application successfully received and processed a Security Definition (tag 35-MsgType=d) message. The date format should be entered as: YYYYMMDD.
- 4. Submit a Security List Request (tag 35-MsgType=x) message to unsubscribe from all subscriptions.

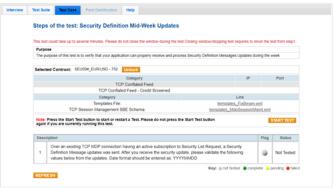
Security Definition Mid-Week Updates

This test verifies that your application can properly receive and process Security Definition (tag 35-MsgType=d) messages updates during the week.



See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Security Definition Mid-Week Updates test:

1. Over an existing TCP MDP connection having an active subscription to Security List Request (tag 35-MsgType=x), updates for a Security Definition (tag 35-MsgType=d) message were sent. After you receive the security update, verify the following values below from the updates. The date format should be entered as: YYYYMMDD

Security Status Request Verification (Snapshot only)

This test verifies that your system can send and process a Security Status Request (35-MsgType=g) message.

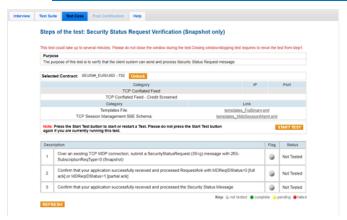


See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Security Status Request Verification (Snapshot only) test:

- 1. Over an existing TCP MDP connection, submit a Security Status Request (35-MsgType=g) message with 263-SubscriptionRegType=0 (Snapshot).
- 2. Confirm that your application successfully received and processed a Request Acknowledgment (tag 35-MsgType=V) with MDReqIDStatus=0 [full ack] or MDReqIDStatus=1 [partial ack].
- 3. Confirm that your application successfully received and processed a security status message.

Security Status Request Verification (Snapshot and Updates)

This test verifies that your system can send and process a Security Status Request (35-MsgType=g) message.

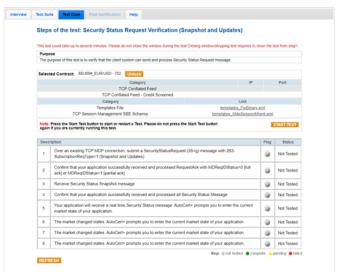


See MDP 3.0 - Message Specification.

- 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.
- Select the START TEST button.



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





To run a Security Status Request Verification (Snapshot and Updates) test:

- 1. Over an existing TCP MDP connection, submit a Security Status Request (35-MsgType=g) message with 263-SubscriptionReqType=1 (Snapshot and Updates).
- 2. Confirm that your application successfully received and processed Request Acknowledgment (tag 35-MsgType=V) with MDReqIDStatus=0 [full ack] or MDReqIDStatus=1 [partial ack].
- 3. Receive a security status Snapshot (35-MsgType=W) message.
- 4. Confirm that your application successfully received and processed all security status message.
- 5. Your application will receive a real-time security status message. AutoCert+ prompts you to enter the current market state of your application.
- 6. The market changed states. AutoCert+ prompts you to enter the current market state of your application.
- 7. The market changed states. AutoCert+ prompts you to enter the current market state of your application.
- 8. The market changed states. AutoCert+ prompts you to enter the current market state of your application.

Market Data Request by All Request Verification

This test verifies that your system can send and process a Market Data Request (tag 35-MsgType=V) message.



See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Market Data Request by All Request Verification test:

- 1. Over an existing TCP MDP connection, submit a Market Data Request message for NoSecurityGroup(tag 37022)=0 (for all entitled), NoRelatedSym (tag 146)=0.
- 2. Confirm that your application successfully received and processed a Request Acknowledgment (tag 35-MsgType=V) message with MDReqIDStatus=0 [full ack] or MDReqIDStatus(tag 37720)=1[partial ack].

Market Data Request by Instrument Level Request Verification (Snapshot only)

This test verifies that your system can send and process a Market Data Request (tag 35-MsgType=V) message.

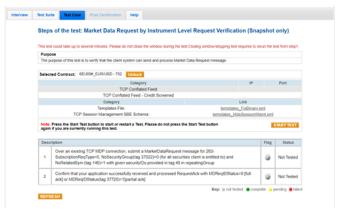


See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Market Data Request by Instrument Level Request Verification (Snapshot only) test:

- 1. Over an existing TCP MDP connection, submit a Market Data Request (tag 35-MsgType=V) message for 263-SubscriptionReqType=0, NoSecurityGroup(tag 37022)=0 (for all securities client is entitled to) and NoRelatedSym (tag 146)=1 with given security IDs provided in tag 48 in the repeating group.
- 2. Confirm that your application successfully received and processed a Request Acknowledgment (tag 35-MsgType=V) with MDReqIDStatus=0 [full ack] or MDReqIDStatus(tag 37720)=1[partial ack].

Market Data Request by Instrument Level Request Verification (Snapshot and Updates)

This test verifies that your system can send and process a Market Data Request (tag 35-MsgType=V) message.

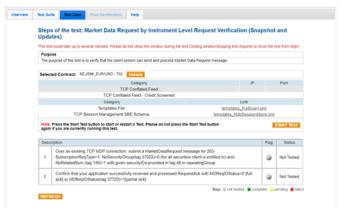


See MDP 3.0 - Message Specification.

- 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 is in progress.



To run a Market Data Request by Instrument Level Request Verification (Snapshot and Updates) test:

- 1. Over an existing TCP MDP connection, submit a Market Data Request (tag 35-MsgType=V) message for 263-SubscriptionReqType=1, NoSecurityGroup(tag 37022)=0 (for all securities client is entitled to) and NoRelatedSym (tag 146)=1 with given securityIDs provided in tag 48 in the repeating group.
- 2. Confirm that your application successfully received and processed a Request Acknowledgment (tag 35-MsgType=V) message with MDReqIDStatus=0 [full ack] or MDReqIDStatus(tag 37720)=1[partial ack].

Trade Summary Message for Conflated TCP Market Data Group (Snapshot only)

The purpose of this test is to verify that your application can properly receive and process a Market Data Incremental Refresh (tag 35-MsgType=X) Trade Summary message.

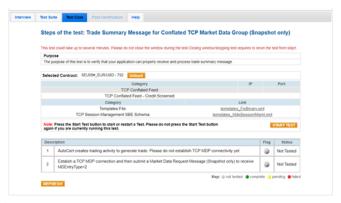


See MDP 3.0 - Message Specification.

- 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 is in progress.





To run a Trade Summary Message for Conflated TCP Market Data Group (Snapshot only) test:

- 1. AutoCert creates trading activity to generate a trade. Do not establish TCP MDP connectivity yet.
- 2. Establish a TCP MDP connection and then submit a Market Data Request Message (tag 35-MsgType=V) (Snapshot only) message to receive MDEntryType=2.

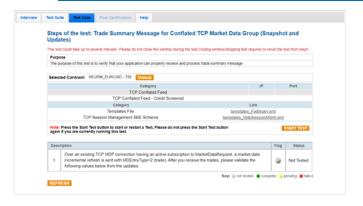
Trade Summary Message for Conflated TCP Market Data Group (Snapshot and Updates)

The purpose of this test is to verify that your application can properly receive and process a Market Data Incremental Refresh (tag 35-MsgType=X) Trade Summary message.

- 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 is in progress.





See MDP 3.0 - Message Specification.



To run a Trade Summary Message for Conflated TCP Market Data Group (Snapshot and Updates) test:

1. Over an existing TCP MDP connection having an active subscription to MarketDataRequest, a Market Data Incremental Refresh (tag 35-MsgType=X) message is sent with MDEntryType=2 (trade). After you receive the trades, enter the tag values from the updates.