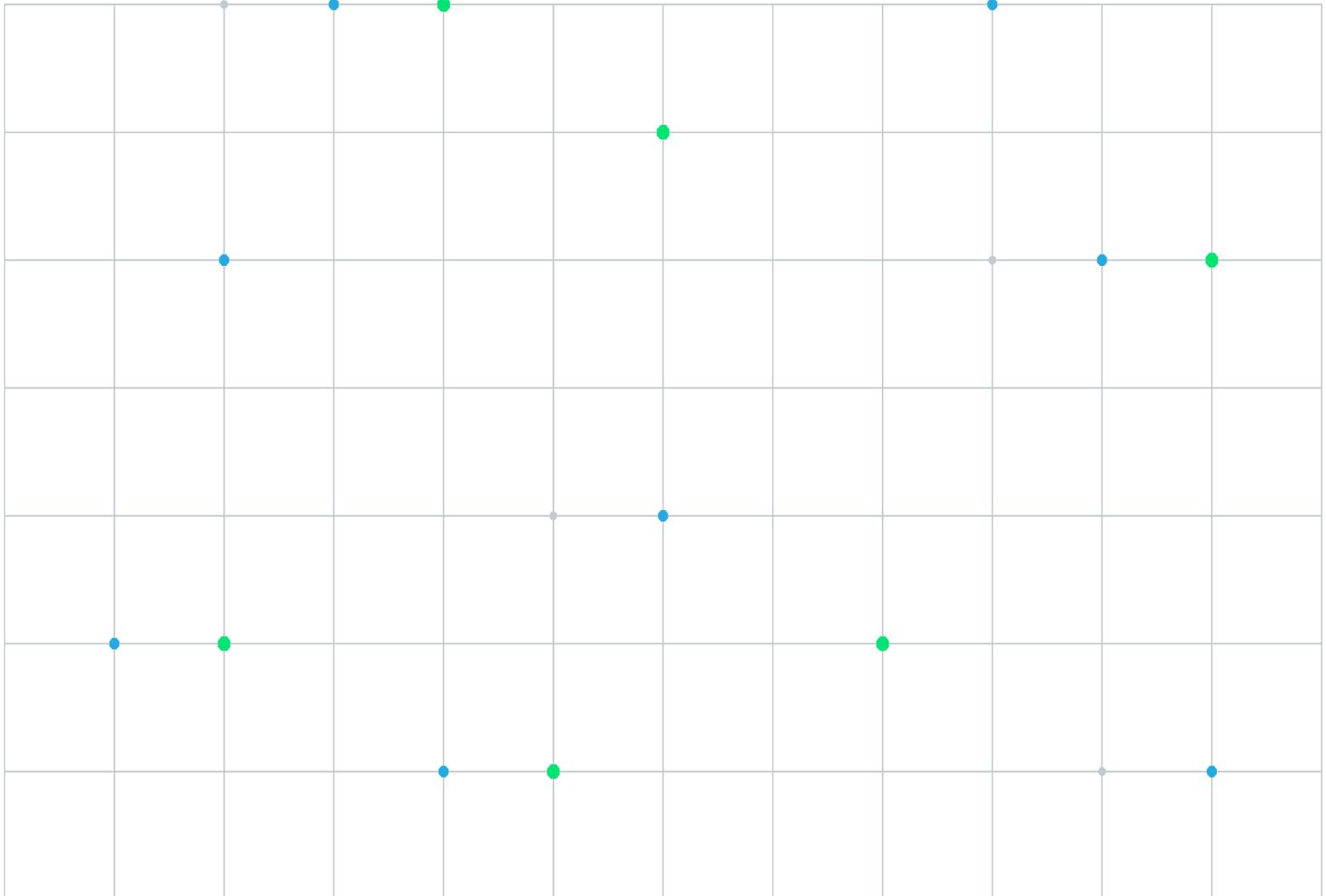


AutoCert+ Audit Trail for iLink 2.X User Manual

March 21, 2023



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Please submit user experience [feedback](#) about this help system.

Getting Started

The Audit Trail test suite provides an interface for customers to verify that they can successfully upload a comma separated value (CSV) file, containing audit trail data from CME Group.

CME, CBOT, NYMEX, COMEX Rule 536.B.2. requires that the electronic audit trail associated with any system that accesses the CME Globex platform through the CME iLink gateway contain a complete and accurate record of all activity through that connection, and account for every electronic communication by the order routing or front-end system from the time such order routing or front-end system receives or generates an electronic communication until it is communicated to CME Globex. Further, the Rule requires that clearing members guaranteeing a connection to CME Globex are responsible for maintaining, or causing to be maintained, the electronic audit trail for a minimum of 5 years by the responsible party as set forth in the Rule.

Firms responsible for the order routing/front-end audit trail of a trading system that accesses CME Globex through the CME iLink gateway must have the ability to display data in the required format. Further, the connected entity must ensure that **all trading functionality supported by the system** is appropriately reflected in the audit trail.

For the convenience of those responsible for such order routing or front-end systems, the Exchanges have updated the [Client Systems Wiki](#) with the new data definitions, required format, and validation rules applied through the certification process of the minimum acceptable audit trail elements that such systems must capture.

The files must be in CSV format. The CSV files must also be continuous; that is, the files must contain all audit trail data on one tab of the spreadsheet. If the data is not continuous, the test will fail and all previous tests will need to be retested.

See also:

[CME Globex Front-End Audit Trail Requirements](#)

[Market Regulatory Advisory Notice - Order Routing/Front-End Audit Trail Requirements](#)

Contact Information

The audit trail certification will require a tester to work with two different teams, CSET and Market Regulation. Please contact the appropriate team; a reference guide is provided below.

Certification Support for Electronic Trading (CSET)

Contact CSET for assistance with:

- technical issues
- logging into the audit trail certification tool
- questions on how to use the audit trail certification tool
- error messages

Email: cset@cmegroup.com

Phone: +1 312 930 2322 (US)

Phone: +44 20 3379 3803 (London)

Phone: +65 6593 5593 (Asia)

Market Regulation

Contact Market Regulation with questions on Rule 536.B.2 regarding the content or requirements of the audit trail.

Email: AuditTrail@cmegroup.com

What's New

The list below illustrates the updates made to the AutoCert+ Audit Trail for iLink 2.X Help system.

Date	Topic	Description
21 March 2023	1 Tier and N Tier Systems	CME Group Market Regulation no longer validates or reviews 2 Tier messaging and it is not required in the audit trail
7 Oct 2022	Format	Website and PDF format changes only.
28 Jul 2022	Completing Certification	Additional Audit trail submission requirements added.
31 Mar 2020	All	Branded to specify this test suite is for iLink 2.x.
13 Jun 2018	File Format Requirements	Added first paragraph about CSV format.
	Running Tests	Added first paragraph about CSV format.
19 Apr 2017	All	Initial release

1 Tier and N Tier Systems

Before completing the [interview](#), review the [Front End Audit Trail Tier 1 and Tier 2 Architecture](#) explanation to determine the architecture of your system.

1 Tier Systems

1 Tier Systems only need to complete the 1 Tier tests; however, the audit trail certification will not be complete until a production audit trail containing 1 tier messaging is provided to CME Group Market Regulation. The production audit trail must be submitted to CME Group Market Regulation within 10 days of going live on CME Globex.

N Tier Systems

A 2 Tier system can be used to test the 1 Tier structure; however, CME Group Market Regulation no longer validates or reviews 2 Tier messaging and it is not required in the audit trail.

Production audit trail messaging must be submitted to CME Group Market Regulation within 10 days of going live on CME Globex. After the production audit trail is reviewed by Market Regulation and is found to be compliant with the [audit trail requirements](#), CME Group Market Regulation will issue a certification letter.

Interview

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

After answering the interview questions, click the **Complete** button.

Interview | Test Suite | Test Case | Post Certification | Help

Does your system have a 1-tier or n-tier architecture?

1-Tier
 N-Tier

Is the system utilizing the convenience or market segment gateway?

Convenience
 Market Segment

Select all the functionalities that your system supports

New Order
 Fill-And-Kill or Fill-Or-Kill Orders
 Order on spread instruments
 Quantity Display Orders
 Market Orders
 Stop Orders
 Order Modification Request
 Request for Quote (RFQ)
 Request for Cross (RFC)
 Mass Quote
 Mass Order Cancel

I understand that if in the future the system is modified in a way that impacts the message flow or message content with CME Globex, the trading system will need to recertify the audit trail functionality.

Yes
 No

Message Flow

Each functionality that you selected in the interview must have the message flow described below in the audit trail. The file may have additional data; however, only the checked functionalities will be tested. The data for the audit trail must be generated from either the New Release or Certification environment.

Refer to the [CME Globex Front-End Audit Trail Requirements](#) for information on what fields must be included in the CSV file.

 **Note: DO NOT** use data generated from AutoCert+.

New Order: Audit trail must contain at least the following messages related to the same order:

- 1 New Order
- 1 Execution Report - Acknowledgment
- 1 Execution Report - Partial Fill Notice
- 1 Order Cancel Request
- 1 Execution Report - Cancel Confirmation

Order on spread instruments: Audit trail must contain at least the following messages related to the same order:

- 1 New Order for a spread instrument
- 1 Execution Report - Acknowledgment for the spread
- 1 Execution Report - Partial Fill Notice for the spread
- N Execution Reports - Partial Fill Notices for corresponding legs
- 1 Execution Report - Fill Notice for the spread
- N Execution Reports - Fill Notices for corresponding legs

Fill and Kill Orders: Audit trail must contain at least the following messages related to the same order:

- 1 New Order with Fill and Kill Qualifier
- 1 Execution Report - Acknowledgment
- 1 Execution Report - Partial Fill Notice
- 1 Execution Report - Elimination Notice

Quantity Display Orders: Audit trail must contain at least the following messages related to the same order:

- 1 New Order with Display Quantity different from Order Quantity
- 1 Execution Report - Acknowledgment
- 2 Execution Report - Partial Fill Notice
- 1 Execution Report - Fill Notice

Fill or Kill Orders (Minimum Quantity): Audit trail must contain at least the following messages related to the same order:

- 1 New Order with Fill and Kill qualifier and Minimum Quantity same as Order Quantity
- 1 Execution Report - Acknowledgment
- 1 Execution Report - Complete Fill Notice
- 1 Execution Report - Elimination Notice

Market Orders: Audit trail must contain at least the following messages related to the same order:

- 1 New Order with Market-Limit or Market with Protection type
- 1 Execution Report - Acknowledgment
- 1 Execution Report - Partial Fill Notice
- 1 Execution Report - Fill Notice

Stop Orders: Audit trail must contain at least the following messages related to the same order:

- 1 New Order with Stop-Limit or Stop with Protection type
- 1 Execution Report - Acknowledgment
- 1 Execution Report - Acknowledgment (trigger)
- 1 Execution Report - Partial Fill Notice
- 1 Execution Report - Fill Notice

Order Modification Request: Audit trail must contain at least the following messages related to the same order:

- 1 New Order
- 1 Execution Report - Acknowledgment
- 1 Order Modification Request
- 1 Execution Report - Modification Confirmation
- 1 Order Modification Request
- 1 Execution Report - Modification Confirmation

Request for Quote (RFQ): Audit trail must contain at least the following messages:

- 1 Request for Quote
- 1 Quote Acknowledgment

Request for Cross (RFC): Audit trail must contain at least the following messages related to the same RFC:

- 2 New orders with the same Cross ID (RFC decomposed into its sides)
- 2 Execution Report - Acknowledgments: 1 for each side with the same cross ID
- 2 Execution Report - Fill Notices (Partial or Full Fill): 1 for each side with the same cross ID

Mass Quote: Audit trail must contain at least the following messages related to the same market segment:

- Mass Quote decomposed into its quote entries (>1 quote entry)
- 1 Quote Acknowledgment
- Mass Quote decomposed into its quote entries (>1 quote entry)
- 1 Quote Acknowledgment
- Execution Report - Fill Notice with the Client Order ID equal to the Quote Entry ID for 1 of the 2 Mass Quote messages
- 1 Quote Cancel All
- 2 Quote Cancel Acknowledgments

Mass Order Cancel: Audit trail must contain at least the following messages related to the same order:

- 1 New Orders
- 1 New Orders
- 1 Execution Report - Acknowledgments
- 1 Execution Report - Acknowledgments
- 1 Mass Action Request

- 1 Mass Action Report
 - The Mass Action Report message submitted by CME Globex must be decomposed into its confirmed cancelled orders. The Audit Trail must include one line item per cancelled order.

Submitting Files

This topic contains submission guidelines for the CSV files. The files must adhere to the [CME Globex Front-End Audit Trail Requirements](#) for each required functionality test, which is determined by your answers to the [interview](#) questions. The file must also adhere to the naming conventions for each column and the file must represent each of the columns for all of the rows. Additional columns may be added at the end of the file for the internal use of the firm.

The Client Systems Wiki details each message and provides a list of the necessary fields that need to be captured in the audit trail. Some fields (e.g., message type, side, order qualifier) must capture the appropriate FIX value. In addition, for execution reports, some fields (such as message type and reject reason) must contain a combination of two FIX values. The values may be separated with a back (\) or forward (/) slash.

File Format Requirements

The files must be in CSV format. The CSV files must also be continuous; that is, the files must contain all audit trail data on one tab of the spreadsheet. If the data is not continuous, the test will fail and all previous tests will need to be retested.

Refer to the [CME Globex Front-End Audit Trail Requirements](#) for information on what fields must be included in the CSV file.

Non-FIX Fields

The majority of the fields for the audit trail requirements have a corresponding FIX tag with the exception of two fields: message link ID (field 14) and Order Flow ID (field 15). These fields exist only in the audit trail and are required to be generated by the client system; the two fields will not be populated by CME Group.

See the following topics for descriptions of the fields:

- [Message Link ID](#)
- [Order Flow ID](#)

Message Link ID

The architecture of the system will determine how the message link ID is captured. Once a value is used for the message link ID, it may not be reused for the trading day / iLink session. Reference the descriptions below to determine the appropriate way to capture the message link ID.

1. If the system has a 1 Tier architecture, the value can be omitted. However, if you chose to capture the message link ID then the value will work similar to a sequence number, where the value will begin at 1 and end at N, for example. The message link ID must only contain letters, numbers and / or the following characters:
_ - : @ . + () / \
2. For an N Tier architecture system that does not support a parent / child (many-to-one or one-to-many) relationship, the message link ID will tie a message from N Tier to 1 Tier and from 1 Tier to N tier. If the system at any point does not support a transmission message from N Tier to 1 Tier or from 1 Tier to N tier, an explanation must be provided to Market Regulation to determine if an exemption can be provided.

Note: A 2 Tier system can be used to test the 1 Tier structure; however, CME Group Market Regulation no longer validates or reviews 2 Tier messaging and it is not required in the audit trail. For additional information, see [1 Tier and N Tier Systems](#).

The following example illustrates how to capture the message link ID:

Message Direction	Message Link ID	Order Flow ID	Client Order ID	CME Globex Order ID
From Client	1	1	1	

To CME	1	1	1	
From CME	2	1	1	12345678
To Client	2	1	1	12345678

3. For an N Tier architecture that supports a parent / child relationship, the value will work similar to the explanation provided in point 2. However, modifications will be applied to a parent / child order. The message link ID will tie the parent order to each individual child order. The following example illustrates how to capture the message link ID:

Message Direction	Message Link ID	Order Flow ID	Client Order ID	CME Globex Order ID
From client	1	1	1	
To CME	1	1	1	
From CME	2	1	1	12345677
To client	2	1	1	12345677
To CME	1	1	2	
From CME	3	1	2	12345678
To client	3	1	2	12345678
To CME	1	1	3	
From CME	4	1	3	12345679
To client	4	1	3	12345679

Order Flow ID

The order flow ID will tie all related messaging to one order. The value must remain the same throughout the life of the order, including modify and cancel requests. You may use the correlation client order ID (tag 9717), but the client system must capture the same ID value throughout the life of the order, starting with the new order and ending once the order has been filled or canceled / expired. Once a value is used for the order flow ID, it may not be reused for the trading day / iLink session. The message link ID must only contain letters, numbers and / or the following characters:

 _ - : @ . + () / \

See [Message Link ID](#) for an example of how to capture the value.

Running Tests

Note: The files must be in CSV format. The CSV files must also be continuous; that is, the files must contain all audit trail data on one tab of the spreadsheet. If the data is not continuous, the test will fail and all previous tests will need to be retested.

Based on your responses to the [interview](#), the selected functionalities will be tested. Each test certifies a specific message type within the CSV file. Once a test is passed, the next test will display. Repeat the process until all functionalities in the test suite have been successfully tested and passed.

Refer to the [CME Globex Front-End Audit Trail Requirements](#) for information on what fields must be included in the CSV file.

Note: If one test fails, **ALL OF THE TESTS MUST BE RETAKEN.**

Example Test

This section illustrates the steps of a New Order test as an example of how to run a test.

Note: This is just one example. You must successfully pass all of the required tests included in the test suite, based on your responses to the interview questions.

SenderComp : ASSIGN

Test Suite Status:

Pre-Certification Interview : ✔ Complete

Test Suite Status: ❌ Not Tested

[Audit Trail Online Help](#)

Interview | **Test Suite** | **Test Case** | Post Certification

Steps of the test: New Order

This test could take up to several minutes. Please do not close the window during the test. Closing window/stopping test requires to rerun the test from step 1.

Purpose

The purpose of test is to audit New Orders

Please assign a SenderCompID and make sure a valid contract is selected to start certifying a test.

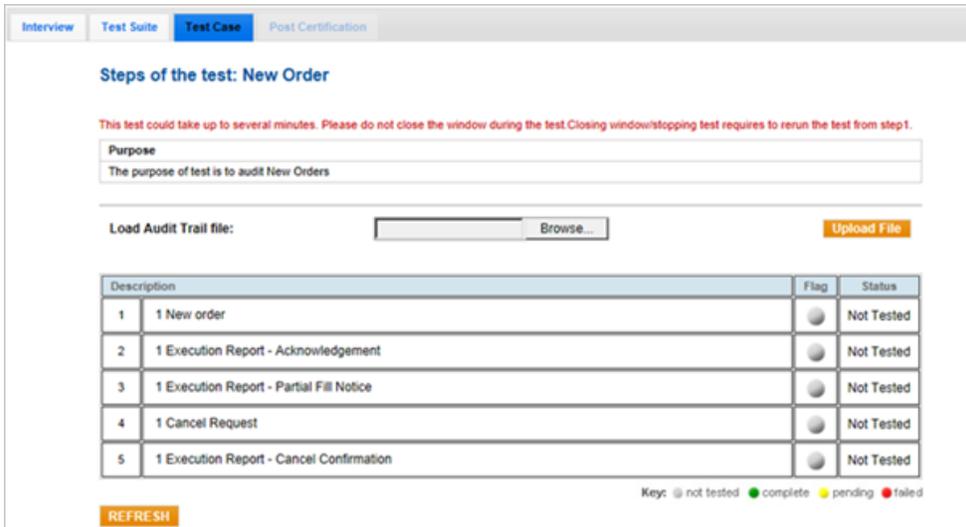
Description	Flag	Status
1 1 New order	●	Not Tested
2 1 Execution Report - Acknowledgement	●	Not Tested
3 1 Execution Report - Partial Fill Notice	●	Not Tested
4 1 Cancel Request	●	Not Tested
5 1 Execution Report - Cancel Confirmation	●	Not Tested

Key: ● not tested ● complete ● pending ● failed

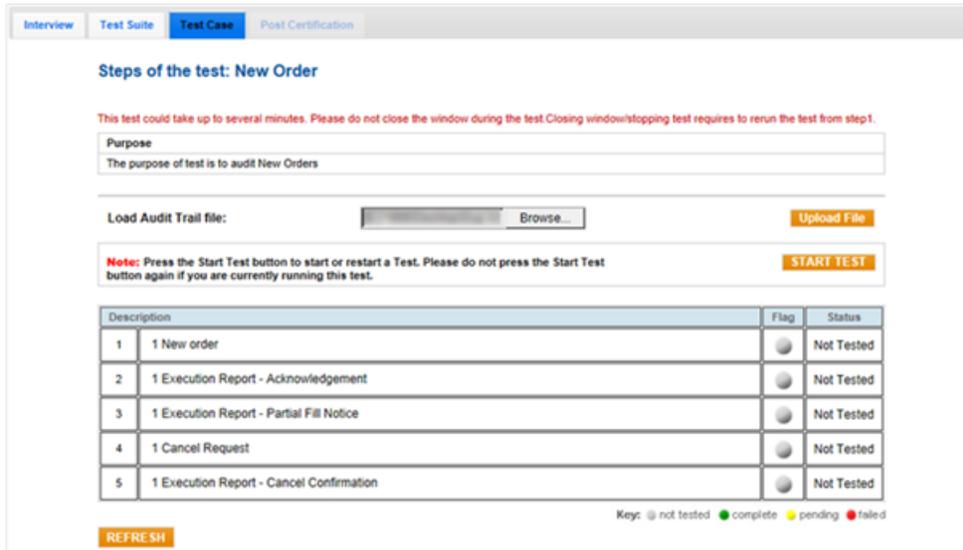
REFRESH

▶ To run a test:

1. Select a **SenderComp** in the drop-down.
2. Click **Assign**.
3. Click **Browse** and navigate to the location of the CSV file to be uploaded.



4. Click **Upload File**.
5. Click **START TEST**.



The test runs and the CSV file is validated.

If the Flag indicators remain gray after you click **START TEST**, click **REFRESH**.

If the test is passed, the next test is displayed. If the test is failed, you must return to the first test and [restart](#) the entire test suite.

Restarting Tests

If a test is failed, all of the tests in the test suite must be retaken.

▶ To restart the tests:

1. Determine the reason for the failed test.
2. Click the **Status** field and/or the text below the failed step for details.

3. Upload a new CSV file with a new name.
4. Start with the first test and retake all required tests.

Troubleshooting

This topic describes how to troubleshoot the AutoCert+ Audit Trail tests.

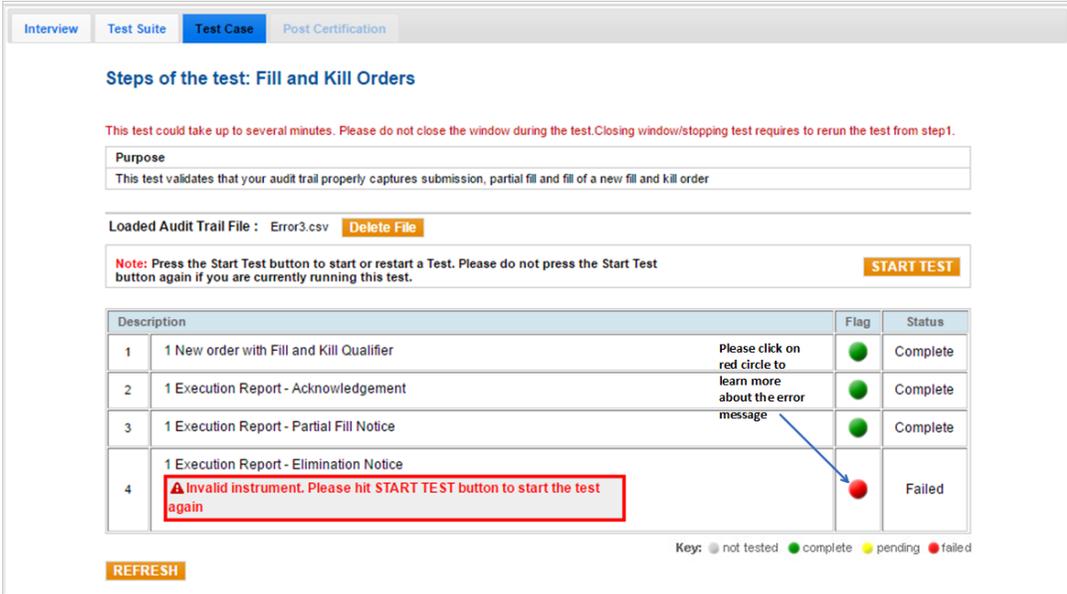
Refer to the [CME Globex Front-End Audit Trail Requirements](#) for information on what fields must be included in the CSV file.

- [Failed Test](#)
- [Tests Run Slowly](#)

Failed Test

If a test is failed:

- a red indicator  displays in the Flag column
- the word "Failed" displays in the Status column, and
- a reason for the test failure displays below the description of the test



The screenshot shows the 'Test Case' tab in the AutoCert+ Audit Trail interface. The test is titled 'Steps of the test: Fill and Kill Orders'. Below the title, there is a warning: 'This test could take up to several minutes. Please do not close the window during the test. Closing window/stopping test requires to rerun the test from step 1.' The 'Purpose' section states: 'This test validates that your audit trail properly captures submission, partial fill and fill of a new fill and kill order'. The 'Loaded Audit Trail File' is 'Error3.csv' with a 'Delete File' button. A 'Note' instructs: 'Press the Start Test button to start or restart a Test. Please do not press the Start Test button again if you are currently running this test.' There is a 'START TEST' button. Below this is a table with columns 'Description', 'Flag', and 'Status'.

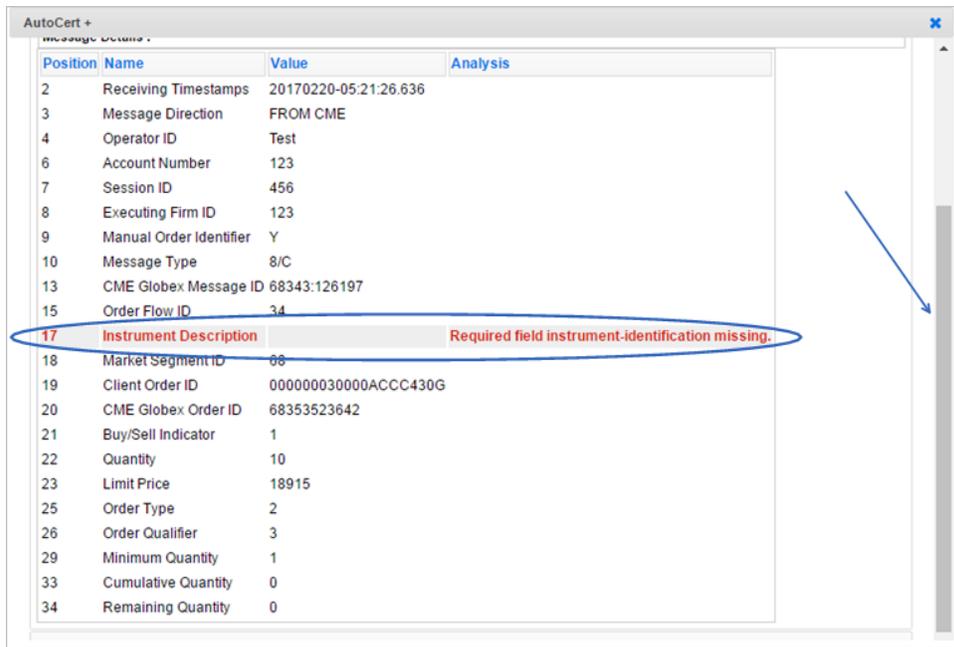
Description	Flag	Status
1 1 New order with Fill and Kill Qualifier		Complete
2 1 Execution Report - Acknowledgement		Complete
3 1 Execution Report - Partial Fill Notice		Complete
4 1 Execution Report - Elimination Notice ⚠ Invalid instrument. Please hit START TEST button to start the test again		Failed

A blue arrow points from the text 'Please click on red circle to learn more about the error message' to the red flag icon in the failed test row. Below the table is a 'Key:  not tested  complete  pending  failed' and a 'REFRESH' button.

To view details for a failed test:

1. Click the red indicator for the failed test.
2. Scroll through the messages and find the field(s) with red text.

An explanation displays in the Analysis field.



Position	Name	Value	Analysis
2	Receiving Timestamps	20170220-05:21:26.636	
3	Message Direction	FROM CME	
4	Operator ID	Test	
6	Account Number	123	
7	Session ID	456	
8	Executing Firm ID	123	
9	Manual Order Identifier	Y	
10	Message Type	8/C	
13	CME Globex Message ID	68343:126197	
15	Order Flow ID	34	
17	Instrument Description		Required field instrument-identification missing.
18	Market Segment ID	06	
19	Client Order ID	000000030000ACCC430G	
20	CME Globex Order ID	68353523642	
21	Buy/Sell Indicator	1	
22	Quantity	10	
23	Limit Price	18915	
25	Order Type	2	
26	Order Qualifier	3	
29	Minimum Quantity	1	
33	Cumulative Quantity	0	
34	Remaining Quantity	0	

Tests Run Slowly

If the tests are running slowly, the CSV file may be too large. To remedy this issue, at the start of the next test, replace the CSV file with a smaller CSV file.

▶ To replace the CSV file:

1. Click **Delete File**.
2. Click **Browse** and navigate to the location of the new CSV file to be uploaded.
3. Click **START TEST**.

Completing Certification

After completing the testing in Autocert+ and going live on CME Globex, the connecting entity or the clearing firm is required to provide Market Regulation a full production audit trail report. The report must be provided within 10 days of going live on CME Globex. The purpose of this review is to verify that:

- the connecting entity's audit trail meets the minimum data requirements, and
- the audit trail can be produced in a standard human-readable format.

Submitting a Production Sample for Review

Within 10 days of the trading system going live in the production environment, customers must submit a trading sample file.

Production sample trading file requirements:

- Contains the complete order flow messaging generated to and received from the CME Globex platform and iLink session; also known as the FIX log.
- Contains data for one entire trading day.
- Must be presented as a tag delimited .CSV file.
Binary or XML files will not be accepted.
- Must indicate the firm name and values that will populate tags [1603, 1604 and 1605](#).
- Send to [Market Regulation - Data Investigation Team](#)

Refer to the [CME Globex Front-End Audit Trail Requirements](#) for information on what fields must be included in the CSV file.