



CBOE Information Circular IC12-024
C2 Information Circular C2 IC12-003

To: CBOE and C2 Trading Permit Holders and Vendors
From: CBOE and C2 Systems and Business Development
Date: April 19, 2012
Re: Recommended Best Practices for CBOE and C2 CMi and FIX Interfaces
(updates IC11-089 and C2-IC11-006)

Substantive additions/changes since last version: A new section was added pertaining to execution and/or clearing reports in excess of original order quantity, and a new section was added regarding strong passwords.

This information is offered to assist those interfacing with CBOE and C2 to best handle a few of the most common communication issues specific to the CBOE and C2 CMi (CBOE Market Interface) and FIX (Financial Information Exchange) Interface. Users are strongly encouraged to follow these recommendations to mitigate confusion and exposure. This document is not to be interpreted as a comprehensive listing of all possible systems issues, but a guide to common communication questions.

Execution and/or clearing reports in excess of original order quantity: In the event that a firm receives an execution and/or clearing report in excess of the original order quantity, the firm should immediately contact the Help Desk to inform the Exchange of the problem and determine whether further market action is required by the firm.

Strong Passwords: All users are required to use “strong” passwords for their CBOEdirect log-ins. Strong passwords include:

- at least 8 characters;
- at least one non-alphabetic character. Non-alphabetic characters include numbers (0-9) and punctuation; and
- at least one lower case and one upper case alphabetic character.

Firms may contact the Help Desk to request password changes.

Certification: After API certification is complete in the API test environment, and after a successful initial production log-in, all users must contact the Help Desk, before production trading, to complete a final certification, which includes the following:

- Send quotes/orders/cancels in a production training symbol.
- Set QRM (Quote Risk Monitor) protection levels (Market-Makers only).
- Verify proper accounts (Market-Makers only).
- Verify order-routing parameters (BD users only).

Daily Log-in Time: Users can log-in anytime after approximately 6:45 am CT but should connect no later than 8:00 am CT.

Valid Trading Days: Users should only process trade data for days recognized as valid trading days (holidays and weekends are not considered valid trading days). CBOE and C2 may run systems for testing purposes on these days, and firms that connect on these non-business days may receive execution reports and must recognize that such reports are not valid.

Quote Token: Quoters are strongly recommended to make use of Quote Token functionality, also referred to as the Quote Update Control ID. The Quote Token is a field included in a quote message that must be updated whenever the previous quote has been cancelled. By updating the Token the quoter is acknowledging receipt of the cancel message, thereby precluding the possibility that the quote update was "in-flight" when the cancel occurred and inadvertently trading on that in-flight quote.

Concurrent Quoting: Users who are appropriately configured may send up to 10 quote packets between acknowledgements. It is vital, however, that users do not send more than one quote for the SAME product between acknowledgements. Doing so may result in a reject of both updates, and CBOE cannot guarantee processing sequence. Further, when attempting a mass quote cancel, users should always send the cancel request AFTER receipt of the acknowledgement on the last quote packet sent. Finally, a second mass cancel should not be sent until an acknowledgement has been received on the first.

Alternative Market Data Provider: CBOE and C2 currently provide, on a subscription basis, BBO market data to their Trading Permit Holders. In the event that CBOE or C2 market data is unavailable or delayed for any reason, users should have an alternate source to ensure continuity.

CBOE Streaming Markets (CSM): To ensure uninterrupted market data availability, CSM users are advised to have both Primary (A side) and Secondary (B side) network connections for consuming CSM market data. This allows users to receive uninterrupted market data when the A side primary network router is down and the B side router takes over.

Possible Resend / Possible Dupe: If PossResend or PossDupe reports are received, the receiving firm must realize these are only possible resends/duplicates which may have been sent previously. Accordingly, the firm should contact the Help Desk before taking market action on such reports. To test this further in the API test environment, please contact the API group to schedule test time.

Possible Corrupted Product: If any of the following is encountered on an execution report:

- EXECUTING BROKER is blank
- CONTRA BROKER or FIRM is blank
- PRICE is blank
- QUANTITY is blank

Do not consider this a valid execution, and do not hedge this trade. Follow the "protective actions" identified below.

Remote Transaction Timeout (RTT): An RTT message, rather than a standard acknowledgement, is returned to a user if a quote or order takes an extreme amount of time (currently configured to 30 seconds) to process within the CBOEdirect system. The purpose is to release control of the inbound processing back to the user without waiting for the situation to clear. It is critical to understand that the order or quote update may or may not have processed successfully. Users must follow the "protective actions" identified below.

Delayed Acknowledgement/Report: As with the above RTT condition, if a quote update, quote cancel, order or order cancel acknowledgement or report is not received within a time interval that is acceptable to the sender, the user must follow the "protective actions" identified below. Another way to identify possible delays or corrupted products/series/classes is available to those who also use the CTMI RTC (CBOE Trade Match Real-Time Communications) interface. Under normal conditions, executions received via CMI/FIX and trades received via RTC should be nearly simultaneous. If an imbalance or discrepancy is noticed between the two, the user should be on alert that there may be a problem.

Protective Actions: If any corrupted product or delay is suspected, the user must immediately:

- 1) If a quote message is affected, cancel the quote(s) in question or log-out.
- 2) If an order is affected, cancel the order in question and wait for a successful cancel report before re-routing to an alternative marketplace. Failure to do so may result in an over-fill.
 - a. If the cancel attempt itself results in another delayed acknowledgement, wait or re-send another cancel, but no more than two cancel requests should be sent for any order.
 - b. If the cancel attempt returns a message indicating that the order was not found, then there is no current way to determine whether the order still exists on CBOE or C2, as applicable, and re-sending the order could result in an eventual duplicate execution.
- 3) Contact the Help Desk immediately to determine the internal failure point and whether the message(s) in question successfully processed. Inform the Help Desk of the log-in ID experiencing the delay and the class in which the condition was seen. This will assist the Help Desk in finding the cause. Also, request a trade/order review.

Timely Reporting: If a firm encounters an issue that is expected to require Help Desk assistance, a timely reporting of that problem is required.

Order Execution Discrepancies: Firms should match and reconcile execution reports to the original order, even if the order appears to have been rejected or not acknowledged by the Exchange, and even if the order was subsequently re-routed to another marketplace. If executions cannot be reconciled for any reason, the firm should immediately contact the Help Desk.

Guaranteed Message Delivery (GMD): Firms should follow the GMD procedures in order to properly handle possible status message resends. Please note, resends may occur due to issues on either the exchange or on the firm side.

Message Reject Text: If a firm receives a reject message on a quote or order, and does not recognize the reason text given for the reject (FIX Tag 58, Reject Reason in CMI) the firm should immediately contact the Help Desk for clarification.

Strategy Order Side: For firms using the "1-step" method for strategy orders, FIX Tag 54 (Side) must always be set to "1" (Same).

The Help Desk can be reached at 866-728-2263.

For more detailed information regarding recommended Best Practices, contact the API Group at api@cboe.com/312-786-7300 or refer to Best Practices documentation on the API systems website at <https://systems.cboe.com/>