



Reminder - Cboe Equities Introduces New Message in Flight Behavior

Reference ID: C2024010202

OVERVIEW

Applicable Cboe Exchanges: BYX Equities, BZX Equities, EDGA Equities, EDGX Equities

Effective January 19, 2024, on the Cboe EDGA Equities (EDGA) Exchange and **effective February 9, 2024** on the Cboe BYX Equities (BYX), Cboe BZX Equities (BZX), and Cboe EDGX Equities (EDGX) Exchanges, Cboe will introduce changes to message in flight settings. The changes include a reduction in the number of messages in flight to a single matching engine as well as a new limit on the total number of unacknowledged messages for each FIX or BOE order entry session.

TECHNICAL DETAILS

Current Order Handler Behavior

Cboe's FIX and BOE order handlers read TCP data from members. The order handler validates and translates these bytes from FIX or BOE into internal Cboe format to send to the matching engines. The internal protocol has a limited send window facing each matching engine. When there are more than 256 unacknowledged messages, the FIX or BOE order handler will stop sending messages to that matching engine while continuing to read TCP data from the member.

When members collectively outpace the matching engine's ability to process data, a potentially large queue of messages builds up at the matching engine and within individual order handlers.

New Order Handler Behavior

On the effective date, the number of messages in flight between each order handler and matching engine will be reduced to 32. In addition, when the total number of unacknowledged messages exceeds 1,024, the FIX/BOE order handler will stop reading from the member-facing TCP socket. This will cause the order handler to stop removing bytes from the TCP receive buffer and will prevent the member from sending more TCP data once the member's own configured send buffer is full.

When the total number of unacknowledged messages falls below 960, member facing TCP socket reading will resume.

For the purposes of counting messages in flight, each new order, cancel/replace, or cancel message will count as one message.

FUTURE CHANGES TO MESSAGE LIMITS

Cboe may update either the message in flight or the total number of unacknowledged messages settings with notice. Changes to reduce either limit will be made only with two weeks' notice. Cboe reserves the ability to increase either limit immediately with notice.

TESTING OPPORTUNITIES AND WEEKEND TESTS

The new message in flight and total number of unacknowledged message settings are currently available in all Cboe Equities certification environments.

Please note that to facilitate customer testing, the allowed number of messages in flight and the total number of unacknowledged messages will be set to a much lower rate in certification than in production. The certification settings will allow 2 messages in flight and a total of 5 unacknowledged messages.

Rollout Schedule

Milestone	Target Availability Date
Message in flight settings available in all Cboe Equities Certification Environments	12/12/23 COMPLETED
EDGA weekend test	01/06/24
EDGA production launch	01/19/24
BYX, BZX, EDGX weekend test	02/03/24
BYX, BZX, EDGX production launch	02/09/24

ADDITIONAL INFORMATION

For more information, please refer to the following technical specifications:

- [US Equities BOE Specification](#)
- [US Equities FIX Specification](#)

Please contact the Cboe Trade Desk for support or with any questions.

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