CBOE®

CHICAGO BOARD OPTIONS EXCHANGE

CBOE Application Programming Interface

CBOE API Version 4.2 - Release Notes

Provides an overview of upcoming changes in the next production release of the CMi

CBOE PROPRIETARY INFORMATION

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Document #[API-00]

Front Matter

Disclaimer

Support and Questions Regarding This Document

Questions regarding this document can be directed to The Chicago Board Options Exchange at 312.786.7300 or via e-mail: api@cboe.com.

The latest version of this document can be found at the CBOE web site: http://systems.cboe.com/webAPI.

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Overview

This document highlights changes for the new release of the CMi API, Version 4.2. This release supports a new constant for CBOE's User Input Monitor (UIM). IDL, documentation and simulator changes are detailed in the sections below. Your feedback or questions regarding this document should be sent to api@cboe.com.

CMi V4.2 Highlights

CBOE's User Input Monitor (UIM) is a service that will run in the CBOE trade server to monitor user quote times. The UIM service will limit the CBOE's liability for a user who is unable, due to exchange system issues, to update or cancel their market quotes. An additional benefit is to protect Market Makers when their own system problems prohibit them from quoting.

The UIM service is intended to assist in the detection of problems with a user's quote input stream. The CBOEDirect system services discrete collections of underlying symbols per business server group. If one of these server group detects no inbound quotes for a user for any of the group's serviced underlying symbols during the configured time period, it will declare an error condition for the user. This will result in all of the user's quotes in that group to be removed by the systems. If a user is actively quoting in classes serviced by one business server group and stops streaming quotes in another business group there will be no impact to their quotes in the active group. Cancel reports will be sent to the user with the cmiConstant cancel reason, const cmiUtil::ActivityReason NO_USER_ACTIVITY.

IDL Interfaces

New and modified IDL is reflected in **bold** face.

cmiConstants.idl

```
module cmiConstants


 interface ActivityReasons
   {
     const cmiUtil::ActivityReason NOTHING_DONE = 1;
     const cmiUtil::ActivityReason USER = 2;
     const cmiUtil::ActivityReason SYSTEM = 3;
     const cmiUtil::ActivityReason LOST_CONNECTION = 4;
     const cmiUtil::ActivityReason INSUFFICIENT_QUANTITY = 5;
     const cmiUtil::ActivityReason SPECIAL_ADJUSTMENT = 6;
     const cmiUtil::ActivityReason QRM_REMOVED = 7;
     const cmiUtil::ActivityReason INSUFFICIENT_QUANTITY_BUY_SIDE  = 8;
     const cmiUtil::ActivityReason INSUFFICIENT_QUANTITY_SELL_SIDE  = 9;
     const cmiUtil::ActivityReason QUOTE_UPDATE_CONTROL =10;
     // acceptServerFailure event would have following reason
     const cmiUtil::ActivityReason FAILOVER= 11;
     const cmiUtil::ActivityReason QUOTE_IN_TRIGGER =12;
     const cmiUtil::ActivityReason INVALID_SESSION_ID =13;
     const cmiUtil::ActivityReason SAL_IN_PROGRESS = 14;
     const cmiUtil::ActivityReason CROSS_IN_PROGRESS = 15;
     const cmiUtil::ActivityReason INVALID_NBBO = 16;
     const cmiUtil::ActivityReason NOT_WITHIN_NBBO = 17;
     const cmiUtil::ActivityReason TRADE_THROUGH_CBOE = 18;
     const cmiUtil::ActivityReason INSUFFICIENT_CUSTOMER_ORDER_QUANTITY = 19;
     const cmiUtil::ActivityReason INSUFFICIENT_CROSS_ORDER_SIZE = 20;
     const cmiUtil::ActivityReason INSUFFICIENT_CROSS_ORDER_DOLLAR_AMOUNT = 21;
     const cmiUtil::ActivityReason SELL_SHORT_RULE_VIOLATION = 22;
     const cmiUtil::ActivityReason NO_USER_ACTIVITY = 23;

     }
```

Document Changes

API-01

- No changes

API-02

- Added a section for the User Input Monitor (UIM) service based on this release.
- Changed the W_MAIN quote limitations to read: 100 Mass Quote or Quote message calls per user per 1 second period (*not 3 second period*) **(RATE_EXCEEDED)**
- Updated the "Considerations for Internalization" section to read:

  > "Both the primary (customer) order and a match (firm) order will be cancelled if, for any reason, the AIM auction cannot be initiated (e.g. fewer than 3 quoters in the series; etc.)."

- Added a new section "Recommended Market Making Guidelines".

  It is important to follow the market making guildelines listed below to effectively interact with CBOE's Hybrid Trading System.

  1. Threading. For CMi users, quoting should be ***single threaded*** per class. This will ensure the proper ordering of the quotes. Since threads are non-deterministic, it is possible that multiple threads per class could be processed out of order. Please wait for the call return per thread and class.
  2. Logout implications. The logout is an expensive function. We have observed traders logging out of the system in what appears to be a panic. A less severe method of

removing quotes would be to send a ***cancel all quotes*** message. Each firm has the capability to sense whenever they are experiencing slowness by measuring response time on a per quote block basis. Your systems could then automatically send in the cancel quotes on your trader's behalf.

3. Quotes post-logout. We ask that you not send in quotes immediately prior to a logout and certainly not after the logout request. After a logout, CBOEdirect sweeps the firm's books to remove quotes. These post-logout quotes have the distinct possibility of being missed in the sweep and could remain until they become marketable and trade. Each firm should strive to not submit quotes post-logout.
4. Excessive quoting/thrashing. We have observed firms sending in mass quotes, then single cancels, followed by mass quotes again. If there is a perceived reason validating the need for cancels, then they should not be immediately followed by mass quotes. Do not continue to send quotes after the cancel is sent. If CBOE is experiencing slowness, these quotes become meaningless and only serve to exacerbate the problem. If the intent is to update the quote, then the cancel is superfluous.
5. Excessive quoting/duplicate quotes. We have observed firms sending in quotes identical to their existing quote – same price, same size. In some cases, these duplicate quotes are even within the same block. This is unnecessary and adds undue processing to the server.
6. Blocking. There are many single quote blocks entered. It is much more efficient to block multiple quotes together within a single message, when possible.
7. Excessive quoting/improper quote use. We have observed one firm sending in quote quantity changes by plus or minus one in rapid succession presumably to visually confirm that their quotes were being reflected in the market. Please do not use this technique to confirm quotes.
8. Status message handling. A minimum of a single thread per class for status callbacks pertaining to market data is recommended. Status messages should be handled as quickly as possible, possibly by another thread, in order to allow delivery of the next status message. We ask that each firm use ***class level callbacks for order and quote status***. We have observed that firms cannot keep up with order or quote status if it spans multiple classes with a single callback.

API-03

- Described new messages and data types based on this release.
- Changed the definition for askIsMarketBest and bidIsMarketBest in the CurrentMarketStructV2 to read:

  - askIsMarketBest: true indicates that the ask price is part of NBBO; false indicates that the ask price may not be part of NBBO

  - bidIsMarketBest: true indicates that the bid price is part of NBBO; false indicates that the bid price may not be part of NBBO

API-04

- Defined new constants based on this release.

API-05

- No changes

API-06

- No changes

API-07

- No changes

API-08

- No changes

CAS-01

- No changes

CAS-02

- No changes

Simulator

- The CMi V4.2 simulator release

Test Plan Changes

- No changes