BZX Equities Auction Feed Specification

Version 1.3.4

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Contents

1 Introduction

1.1 Overview

Cboe Members may use the Cboe BZX Equities Auction Feed to obtain Opening, Closing, Halt, IPO Auction, and Cboe Market Close (CMC) information. The Auction Feed is a direct data feed product. The Auction Feed disseminates Cboe Auction price and size information **every 5 seconds**:

- between 8:00 and 9:30 a.m. ET for the Opening Auction.
- between 3:00 and 4:00 p.m. ET for the Closing Auction.
- during a defined Quote-Only period for Halt and IPO Auctions.

1.2 Halt and IPO Quote-Only Period

The default Quote-Only period will be 5 minutes before Halt Re-Open Auctions and 15 minutes before IPO Auctions plus a short random period to prevent gaming. Situations that can result in the Quote-Only period being extended include, but are not limited to:

- Unmatched Market Order Shares (automatic)
- Legitimate Underwriter Request (manual, IPO only)
- Volatility (automatic 5-minute extension for a price movement that is the greater of 10% or 50 cents in the 15 second window prior to the auction match)

During the Quote-Only period, Cboe will begin accepting orders and disseminating indicative prices and Auction Feed information in the subject security. Entered orders can be cancelled and no executions in the subject security will occur until the auction has completed.

1.3 Feed Connectivity Requirements

Given the defined intervals and the limited amount of messaging required at this time, there is no minimum bandwidth requirement for the Auction Feed.

2 Protocol

The Cboe BZX Equities Auction Feed disseminates Auction information. The Auction Feed cannot be used to enter orders. For order entry, refer to the U.S. Equities FIX Specification.

All information presented on the Auction Feed is anonymous and does not contain any member identifying information.

2.1 Message Format

The Cboe BZX Equities Auction Feed is comprised of a series of fixed-length sequenced messages. The length of each message is dependent upon the message type. Each message is made up of non-control ASCII bytes. Members familiar with the TCP PITCH protocol should find it very easy to reuse that code to process the Auction Feed.

2.2 Sequence Numbers

The messages that make up the Cboe BZX Equities Auction Feed protocol are delivered using SOUP 2.0, which handles sequencing and delivery integrity. Cboe implementation of SOUP 2.0 is the same as other Market Centers.

3 Sessions

Cboe implementation of SOUP 2.0 is the same as other Market Centers. This includes the implementation of session events such as login requests, client/server heartbeats, and logout requests.

4 Auction Feed Messages

The fields within each message type have a corresponding data type. The various data types are defined in the following table.

Data Type	Description
Alpha	A string of ASCII letters (A-Z) left justified and space padded on the right.
Numeric	A string of ASCII numbers (0-9), right justified and zero filled on the left.
Prices	A string of ASCII numbers (0-9) consisting of 6 whole number digits followed by 4 decimal digits. The whole number portion is zero filled on the left; the decimal portion is zero filled on the right. The decimal point is implied by position and does not does explicitly appear in the field.
Timestamps	A string of numbers (0-9) representing whole number milliseconds past midnight Eastern Time, right justified and zero filled on the left, with no decimal point.

4.1 System Event Message

Unlike other Market Centers, Cboe does not send `System Event` messages.

4.2 Auction Update Message

`Auction Update` messages are used to disseminate Cboe price and size information during auctions for Cboe listed securities and for CMC. `Auction Update` messages are sent every 5 seconds during the auction periods previously defined.

At approximately 3:35 p.m. ET, an `Auction Update` will be disseminated for any symbol with matched CMC shares. **Effective 03/10/23**, at approximately 3:49 p.m. ET, an `Auction Update` will be disseminated for any symbol with matched CMC shares. The Buy Shares and Sell Shares fields will each indicate matched shares.

The `Auction Update` message has the following format:

Field Name	Offset	Length	Data Type	Description
Timestamp	0	8	Numeric	Timestamp
Message Type	8	1	"I"	Auction Update
Stock Symbol	9	8	Alpha	Stock symbol right padded with spaces.
Auction Type	17	1	Alpha	O = Opening Auction C = Closing Auction H = Halt Auction I = IPO Auction M = Cboe Market Close
Reference Price	18	10	Numeric	BBO Collared auction price (see Auction Process Spec).
Buy Shares	28	10	Numeric	Number of shares on buy side at the *Reference Price*. Shares matched for Cboe Market Close.
Sell Shares	38	10	Numeric	Number of shares on sell side at the

Field Name	Offset	Length	Data Type	Description
				Reference Price. Shares matched for Cboe Market Close.
Indicative Price	48	10	Numeric	Price at which the auction book and the continuous book would match.
Auction Only Price	58	10	Numeric	Price at which the auction book would match using only *Eligible Auction Orders* (see Auction Process Spec).

4.3 Auction Summary Message

`Auction Summary` messages are used to disseminate the results of a Cboe listed security auction and for CMC.

An `Auction Summary` message for each Cboe listed security is sent at the conclusion of its opening auction and represents the Cboe official opening price. A Closing `Auction Summary` message for each Cboe listed security is sent at the conclusion of its closing auction and represents the Cboe official closing price. An IPO `Auction Summary` message for each Cboe listed security is sent at the conclusion of the IPO Auction and represents the official Cboe IPO opening price.

An `Auction Summary` message will be sent for CMC once the official closing price for each security is available. The Price and Shares fields will indicate the price of the CMC match and the number of shares that were executed. If the official closing price is updated after its initial publication, then another `Auction Summary` message will be disseminated to reflect the updated price of the CMC match.

The `Auction Summary` message has the following format:

Field Name	Offset	Length	Data Type	Description
Timestamp	0	8	Numeric	Timestamp
Message Type	8	1	“J”	Auction Summary
Stock Symbol	9	8	Alpha	Stock symbol right padded with spaces.
Auction Type	17	1	Alpha	O = Opening Auction C = Closing Auction H = Halt Auction I = IPO Auction M = Cboe Market Close
Price	18	10	Numeric	Auction price or CMC match price.
Shares	28	10	Numeric	Cumulative number of shares executed during the auction or CMC match.

5 Support

Please direct questions or comments regarding this specification to tradedesk@cboe.com.

Revision History

Document Version	Date	Description
1.0.0	05/09/11	Initial version.
1.0.1	06/06/11	Various changes based on feedback and internal discussions.
1.0.2	06/27/11	Minor formatting update.
1.0.3	07/12/11	Corrected typo in Multicast Configuration section.
1.1.0	09/26/11	Converted protocol specification from Multicast format to TCP format.
1.2.0	02/19/16	Bats branding/logo changes.
1.2.1	03/24/16	Update to `Auction Update` dissemination times for Opening and Closing Auctions (effective 3/4/16).
1.2.2	10/17/17	Cboe branding/logo changes.
1.3.0	07/03/18	Added support for Cboe Market Close (CMC) in `Auction Update` and `Auction Summary. Auction Update` messages effective TBD.
1.3.1	01/30/20	Added effective date for CMC, 3/6/20.
1.3.2	07/14/21	Removed effective date for CMC (effective 3/6/20).
1.3.3	06/16/22	Updated title to Cboe BZX Equities and added verbiage to note Cboe Market Close Behavior.
1.3.4	02/16/23	Updated the `Auction Update` dissemination time to approximately 3:49 p.m. ET for any symbol with crossed Cboe Market Close shares (**effective 03/10/23**).