



U.S. Options Auction Feed Specification

Version 1.0.7

March 23, 2018

Contents

| | | |
|----------|--|-----------|
| 1 | Introduction | 4 |
| 2 | Protocol | 4 |
| 2.1 | Message Format | 4 |
| 2.2 | Unsequenced Unit Header | 5 |
| 2.3 | Execution IDs | 5 |
| 2.4 | Heartbeat Messages | 5 |
| 3 | Cboe Options Auction Feed Messages | 6 |
| 3.1 | Time | 6 |
| 3.2 | Unit Clear | 6 |
| 3.3 | Auction Notification | 6 |
| 3.4 | Auction Cancel | 7 |
| 3.5 | Auction Trade | 7 |
| 3.6 | End of Session | 8 |
| 3.7 | Symbol Mapping | 8 |
| 4 | Example Messages | 9 |
| 4.1 | Unsequenced Unit Header | 9 |
| 4.2 | Time Message | 9 |
| 4.3 | Unit Clear | 9 |
| 4.4 | Auction Notification Message | 9 |
| 4.5 | Auction Cancel Message | 10 |
| 4.6 | Auction Trade Message | 10 |
| 4.7 | End of Session | 10 |
| 4.8 | Symbol Mapping Message | 10 |
| 5 | Multicast Configuration | 11 |
| 5.1 | US Options Production Environment Configuration | 11 |
| 5.1.1 | Production Unit Distribution | 11 |
| 5.1.2 | EDGX Options Production Multicast Routing Parameters | 12 |
| 5.1.3 | EDGX Options Production Address/Unit Distribution | 12 |
| 5.2 | US Options Certification Environment Configuration | 14 |
| 5.2.1 | Certification Unit Distribution | 14 |
| 5.2.2 | Options Certification Multicast Routing Parameters | 15 |
| 5.2.3 | EDGX Options Certification Address/Unit Distribution | 16 |
| 6 | Connectivity | 17 |

U.S Options
Auction Feed Specification (Version 1.0.7)

6.1 Supported Extranet Carriers 17

7 References17

8 Support.....17

1 Introduction

The Cboe U.S. Options Auction Feed specification may be used to deliver Auction message information for the EDGX Options Exchange. Cboe Members may use this multicast feed to receive real-time Auction Notification, Auction Trade and Auction Cancel messages.

Cboe Members may also use Cboe Multicast PITCH to receive auction messages as well as real-time depth of book quotations and execution information. Refer to the [US Equities/Options Multicast Depth of Book \(PITCH\) Specification](#) for more information.

2 Protocol

EDGX Options users may receive the Cboe Options Auction Feed protocol over multicast only.

The Cboe Options Auction Feed cannot be used to enter orders. For Cboe Options Auction order entry, refer to the Cboe US Options [FIX](#) or [BOE](#) specifications.

2.1 Message Format

Cboe Options Auction Feed protocol messages are delivered un-sequenced and may not be retrieved if missed.

Cboe Members familiar with the Multicast Depth of Book protocol should find it very easy to reuse that code to process the Cboe Options Auction Feed. All multicast delivered events will be self-contained. Developers can assume that delivered data will not cross frame boundaries and a single Ethernet frame will contain only one Unit Header with associated data.

The Cboe Options Auction Feed is comprised of a series of dynamic length un-sequenced messages. Each message begins with *Length* and *Message Type* fields. **Cboe reserves the right to add message types and grow the length** of any message without notice. Members should develop their decoders to handle unknown message types and messages beyond the expected length. Messages will only be grown to add additional data to the end of a message.

2.2 Unsequenced Unit Header

The `Unsequenced Unit Header` is used for all Cboe Options Auction Feed messages.

Unsequenced data may be delivered using the `Unsequenced Unit Header`. Unsequenced headers will have a 0 value for the sequence field and potentially for the unit field.

| Unsequenced Unit Header | | | | |
|-------------------------------|--------|--------|------------|---|
| Field | Offset | Length | Value/Type | Description |
| Hdr Length | 0 | 2 | Binary | Length of entire block of messages. Includes this header and <i>Hdr Count</i> messages to follow. |
| Hdr Count | 2 | 1 | Binary | Number of messages to follow this header. |
| Hdr Unit | 3 | 1 | Binary | Unit that applies to messages included in this header. |
| Hdr Sequence | 4 | 4 | Binary | Will be zero. |
| Total Length = 8 bytes | | | | |

2.3 Execution IDs

The 1st character of an Execution ID (after converting to a 9 character, base 36 number zero-padded on the left) may be used to differentiate between internal matched trades and internal auction fills. The Cboe Options Auction Feed will only represent Auction Fills as follows:

- 0 (zero) = Cboe Internal Match
- C = Auction Fill

2.4 Heartbeat Messages

The `Unsequenced Unit Header` with a count field set to “0” will be used for heartbeat messages. During trading hours heartbeat messages will be sent if no data has been delivered within 1 second.

Outside of trading hours Cboe sends heartbeat messages on all real-time channels to help users validate multicast connectivity. Heartbeat messages may not be sent from 12:00 am – 1:00 am ET or during maintenance windows.

3 Cboe Options Auction Feed Messages

3.1 Time

A `Time` message is sent whenever the source time for a unit passes over a second boundary. All subsequent time offset fields for the same unit will use the new `Time` value as the base until another `Time` message is received for the same unit.

| Time | | | | |
|-------------------------------|--------|--------|--------------|--|
| Field Name | Offset | Length | Type/(Value) | Description |
| <i>Length</i> | 0 | 1 | Binary | <i>Length</i> of this message including this field |
| <i>Message Type</i> | 1 | 1 | 0x20 | Time Message |
| <i>Time</i> | 2 | 4 | Binary | Number of whole seconds from midnight Eastern Time |
| Total Length = 6 bytes | | | | |

3.2 Unit Clear

The `Unit Clear` message instructs feed recipients to clear all orders for the Cboe book in the unit specified in the `Unsequenced Unit Header`. This message will be sent at startup each day. It would also be distributed in certain recovery events such as a data center fail-over.

| Unit Clear | | | | |
|-------------------------------|--------|--------|--------------|--|
| Field Name | Offset | Length | Type/(Value) | Description |
| <i>Length</i> | 0 | 1 | Binary | <i>Length</i> of this message including this field |
| <i>Message Type</i> | 1 | 1 | 0x97 | Unit Clear Message |
| <i>Time offset</i> | 2 | 4 | Binary | Nanosecond offset from last unit timestamp |
| Total Length = 6 bytes | | | | |

3.3 Auction Notification

`Auction Notification` messages are used to disseminate order details of an auction. Auctions will be available for a defined period of time known as the exposure period.

| Auction Notification | | | | |
|----------------------|--------|--------|-----------------|---|
| Field Name | Offset | Length | Type/(Value) | Description |
| <i>Length</i> | 0 | 1 | Binary | Length of this message including this field |
| <i>Message Type</i> | 1 | 1 | 0xAD | Auction Notification Message |
| <i>Time offset</i> | 2 | 4 | Binary | Nanosecond offset from last unit timestamp |
| <i>Symbol</i> | 6 | 6 | Printable ASCII | <i>Symbol</i> right padded with spaces. |
| <i>Auction ID</i> | 12 | 8 | Binary | Day specific identifier assigned to this auction. |
| <i>Auction Type</i> | 20 | 1 | Alphanumeric | "T" = Step-Up Mechanism (SUM) "B" = Bats Auction Mechanism (BAM) |

U.S Options
Auction Feed Specification (Version 1.0.7)

| | | | | |
|--------------------------------|----|---|-------------------|---|
| <i>Side</i> | 21 | 1 | Alphanumeric | "B" or "S" |
| <i>Price</i> | 22 | 8 | Binary Long Price | For SUM this will reflect the NBBO price of the opposite side of the auction at the time of entry. For BAM this will reflect the limit price specified on the BAM order. |
| <i>Contracts</i> | 30 | 4 | Binary | Number of contracts available in the auction. |
| <i>Customer Indicator</i> | 34 | 1 | Alphanumeric | "N" = Non-Customer "C" = Customer |
| <i>ParticipantID</i> | 35 | 4 | Alphanumeric | Executing Broker (optional) of firm attributed to this quote |
| <i>Auction End Offset</i> | 39 | 4 | Binary | Nanosecond offset from last timestamp |
| Total Length = 43 bytes | | | | |

3.4 Auction Cancel

Auction Cancel messages are used to disseminate the cancellation of an earlier Auction Notification message as a result of a user cancellation of the original order, a user modification request to change the price or increase the original order quantity, or a fading of the NBBO.

A user request to modify the order price or to increase the original order quantity will result in a cancellation of the auction followed by a new Auction Notification message. Auction Cancel messages will not be issued for order quantity decrements.

| Auction Cancel | | | | |
|--------------------------------|--------|--------|--------------|--|
| Field Name | Offset | Length | Type/(Value) | Description |
| <i>Length</i> | 0 | 1 | Binary | Length of this message including this field |
| <i>Message Type</i> | 1 | 1 | 0xAE | Auction Cancel Message |
| <i>Time offset</i> | 2 | 4 | Binary | Nanosecond offset from last unit timestamp |
| <i>Auction ID</i> | 6 | 8 | Binary | Day specific identifier assigned to this auction |
| Total Length = 14 bytes | | | | |

3.5 Auction Trade

Auction Trade messages are used to disseminate executions resulting from an options auction.

| Auction Trade | | | | |
|---------------------|--------|--------|--------------|---|
| Field Name | Offset | Length | Type/(Value) | Description |
| <i>Length</i> | 0 | 1 | Binary | Length of this message including this field |
| <i>Message Type</i> | 1 | 1 | 0xAF | Auction Trade Message |

U.S Options
Auction Feed Specification (Version 1.0.7)

| | | | | |
|--------------------------------|----|---|-------------------|--|
| <i>Time offset</i> | 2 | 4 | Binary | Nanosecond offset from last unit timestamp |
| <i>Auction ID</i> | 6 | 8 | Binary | Day specific identifier assigned to this auction |
| <i>Execution ID</i> | 14 | 8 | Binary | Day specific identifier assigned to this execution |
| <i>Price</i> | 22 | 8 | Binary Long Price | Trade price |
| <i>Contracts</i> | 30 | 4 | Binary | Number of contracts traded |
| Total Length = 34 bytes | | | | |

3.6 End of Session

The End of Session message is sent for each unit when the unit shuts down. No more auction messages will be delivered for this unit, but heartbeats from the unit may be received.

| End of Session | | | | |
|-------------------------------|--------|--------|--------------|--|
| Field Name | Offset | Length | Type/(Value) | Description |
| <i>Length</i> | 0 | 1 | Binary | <i>Length</i> of this message including this field |
| <i>Message Type</i> | 1 | 1 | 0x2D | End of Session Message |
| <i>Timestamp</i> | 2 | 4 | Binary | Nanosecond offset from last unit timestamp |
| Total Length = 6 bytes | | | | |

3.7 Symbol Mapping

A Symbol Mapping message is used to map the 6 character multicast feed symbol field to an OSI symbol. These messages are sent continuously through the day at variable rates as bandwidth allows.

| Symbol Mapping | | | | |
|--------------------------------|--------|--------|-----------------|--|
| Field Name | Offset | Length | Type/(Value) | Description |
| <i>Length</i> | 0 | 1 | Binary | <i>Length</i> of this message including this field |
| <i>Message Type</i> | 1 | 1 | 0x2E | Symbol Mapping Message |
| <i>Feed Symbol</i> | 2 | 6 | Printable ASCII | Symbol right padded with spaces |
| <i>OSI Symbol</i> | 8 | 21 | Printable ASCII | OSI Symbol |
| <i>Symbol Condition</i> | 29 | 1 | Alphanumeric | “N” = Normal “C” = Closing Only |
| Total Length = 30 bytes | | | | |

4 Example Messages

Each of the following message types must be wrapped by an unsequenced unit header as described in Section 2.24. Note that in the following examples, each byte is represented by two hexadecimal digits.

4.1 Unsequenced Unit Header

| | | |
|--------------|-------------|----------------------------|
| Hdr Length | 31 00 | 49 bytes, including header |
| Hdr Count | 02 | 2 messages to follow |
| Hdr Unit | 01 | Unit 1 |
| Hdr Sequence | 00 00 00 00 | Always set to zero |

4.2 Time Messag

| | | |
|--------|-------------|--------------------------------------|
| Length | 06 | 6 bytes |
| Type | 20 | Time |
| Time | 98 85 00 00 | 34,200 seconds = 09:30 AM Eastern |

4.3 Unit Clear

| | | |
|-------------|-------------|------------------------------------|
| Length | 06 | 6 bytes |
| Type | 97 | Unit Clear |
| Time offset | 18 D2 06 00 | 447,000 ns since last Time Message |

4.4 Auction Notification Message

| | | |
|--------------------|-------------------------|------------------------------------|
| Length | 2B | 43 bytes |
| Type | AD | Auction Notification |
| Time offset | 18 D2 06 00 | 447,000 ns since last Time Message |
| Symbol | 30 30 6d 45 56 4f | 00mEVO |
| Auction ID | 05 40 5B 77 8F 56 1D 0B | 631WC4000005 |
| Auction Type | 54 | T = SUM |
| Side | 42 | B = Buy Side |
| Prc | E8 A3 0F 00 00 00 00 00 | \$102.50 |
| Contracts | 64 00 00 00 | 100 contracts |
| Customer Indicator | 43 | C = Customer |
| ParticipantID | 45 46 49 44 | EFID |
| Auct. End Offset | 38 73 0E 00 | 947,000 ns since last Time Message |

U.S Options
Auction Feed Specification (Version 1.0.7)

4.5 Auction Cancel Message

| | | |
|-------------|-------------------------|---------------------------------------|
| Length | E | 14 bytes |
| Type | AE | Auction Cancel |
| Time offset | 18 D2 06 00 | 447,000 ns since last Time Message |
| Auction ID | 05 40 5B 77 8F 56 1D 0B | |

4.6 Auction Trade Message

| | | |
|--------------|-------------------------|---------------------------------------|
| Length | 22 | 34 bytes |
| Type | AF | Auction Trade |
| Time offset | 18 D2 06 00 | 447,000 ns since last Time Message |
| Auction ID | 05 40 5B 77 8F 56 1D 0B | |
| Execution Id | 34 2B 46 E0 BB 00 00 00 | 0AAP09VEC |
| Prc | E8 A3 0F 00 00 00 00 00 | \$102.50 |
| Contracts | 64 00 00 00 | 100 contracts |

4.7 End of Session

| | | |
|-------------|-------------|---------------------------------------|
| Length | 06 | 6 bytes |
| Type | 2D | End of Session |
| Time offset | 18 D2 06 00 | 447,000 ns since last Time Message |

4.8 Symbol Mapping Message

| | | |
|---------------------|--|---------------------------|
| Length | 1E | 30 bytes |
| Type | 2E | Symbol Mapping Message |
| Feed Symbol | 31 20 20 20 20 20 | |
| OSI Symbol | 4D 53 46 54 20 20 31 30 30 31 31 36 43 30 30 30 34 37 35 30 30 | MSFT 100116C00047500 |
| Symbol Condition | 44 | 'C' - Closing Only |

5 Multicast Configuration

5.1 US Options Production Environment Configuration

5.1.1 Production Unit Distribution

The following table describes an updated Cboe symbol distribution across units for EDGX Options.

| Unit | Symbol Range (current) | Symbol Range (Effective 4/14/18) |
|------|------------------------------|----------------------------------|
| 1 | A – ADRZZ | A – ADOZZ |
| 2 | ADS – AMZMZ | ADP – AMZMZ AMZNA – ANETZ |
| 3 | AMZN – AOZZZ | ANEU – BAAAZ |
| 4 | AP – BACAZ | BAAB – BKNFZ |
| 5 | BACB – CASZZ | BKNG – BZZZZ |
| 6 | CAT – CMGAZ | C – CLGXZ |
| 7 | CMGB – CYGZZ | CLGY – CSXAZ |
| 8 | CYH – DOWAZ | CSXB – DISAZ |
| 9 | DOWB – FASTZ | DISB – ETFBZ |
| 10 | FASU – FOWZZ | ETFC – FIVDZ |
| 11 | FOX – GOLFZ | FIVE – GLDAZ |
| 12 | GOLG – GPBZZ | GLDB – GOOGZ |
| 13 | GPC – HULZZ | GOOH – HSXZZ |
| 14 | HUM – IPAAZ | HSY – IWLZZ |
| 15 | IPAB – IWLZZ IWMA – LDLAZ | IWM – JNJAZ |
| 16 | LDLB – MCDAZ | JNJB – LMTAZ |
| 17 | MCDB – MTVZZ | LMTB – MLNXZ |
| 18 | MTW – NKEAZ | MLNY – MUA AZ |
| 19 | NKEB – PCLMZ | MUAB – NTE SZ |
| 20 | PCLN – PCLNZ | NTET – OXYAZ |
| 21 | PCLO – QQPZZ QQQA – REGNZ | OXYB – QGENZ |
| 22 | REGO – SNEAZ | QGEO – RHAAZ |
| 23 | SNEB – SPXZZ SPYA – TLLPZ | RHAB – SMGZZ |
| 24 | TLLQ – TTMAZ | SMH – SPXZZ SPYA – SYEZZ |
| 25 | TTMB – USFZZ | SYF – TSKZZ |
| 26 | USG – VRWZZ | TSL – UALAZ |
| 27 | VRX – WFLZZ | UALB – VLOAZ |
| 28 | WFM – XLP AZ | VLOB – WDCAZ |
| 29 | XL PB – ZZZZZ | WDCB – XLDZZ |
| 30 | IWM | XLE – ZZZZZ |
| 31 | QQQ | AMZN |
| 32 | SPY | SPY |

U.S Options
Auction Feed Specification (Version 1.0.7)

Note - Cboe reserves the right to add units and/or change symbol distribution with 48 hours of notice and no migration period. Notice will be given that the distribution will change on a certain date. Care should be taken to support mappings in these tables via software configuration.

5.1.2 EDGX Options Production Multicast Routing Parameters

| Data Center | Rendezvous Point |
|----------------------------------|------------------|
| NY5 Primary Data Center A feed | 74.115.128.160 |
| NY5 Primary Data Center B feed | 74.115.128.161 |
| CH4 Secondary Data Center E feed | 174.136.181.250 |

5.1.3 EDGX Options Production Address/Unit Distribution

The following tables describe the unit distribution across the EDGX Options Auction Feed.

| NY5 Primary Datacenter | | EAA 174.136.164.0/28 | EBA 174.136.164.16/28 |
|------------------------|---------|-------------------------|--------------------------|
| Unit | IP Port | Real-time MC | Real-time MC |
| 1 | 30601 | 224.0.131.144 | 233.130.124.144 |
| 2 | 30602 | | |
| 3 | 30603 | | |
| 4 | 30604 | | |
| 5 | 30605 | 224.0.131.145 | 233.130.124.145 |
| 6 | 30606 | | |
| 7 | 30607 | | |
| 8 | 30608 | | |
| 9 | 30609 | 224.0.131.146 | 223.130.124.146 |
| 10 | 30610 | | |
| 11 | 30611 | | |
| 12 | 30612 | | |
| 13 | 30613 | 224.0.131.147 | 233.130.124.147 |
| 14 | 30614 | | |
| 15 | 30615 | | |
| 16 | 30616 | | |
| 17 | 30617 | 224.0.131.148 | 233.130.124.148 |
| 18 | 30618 | | |
| 19 | 30619 | | |
| 20 | 30620 | | |
| 21 | 30621 | 224.0.131.149 | 233.130.124.149 |
| 22 | 30622 | | |
| 23 | 30623 | | |
| 24 | 30624 | | |
| 25 | 30625 | 224.0.131.150 | 233.130.124.150 |
| 26 | 30626 | | |
| 27 | 30627 | | |
| 28 | 30628 | | |
| 29 | 30629 | 224.0.131.151 | 233.130.124.151 |
| 30 | 30630 | | |
| 31 | 30631 | | |

U.S Options
Auction Feed Specification (Version 1.0.7)

| | | |
|----|-------|--|
| 32 | 30632 | |
|----|-------|--|

| CH4 Secondary Datacenter | | EEA 174.136.176.128/28 |
|--------------------------|---------|---------------------------|
| Unit | IP Port | Real-time MC |
| 1 | 31601 | 233.19.3.128 |
| 2 | 31602 | |
| 3 | 31603 | |
| 4 | 31604 | |
| 5 | 31605 | 233.19.3.129 |
| 6 | 31606 | |
| 7 | 31607 | |
| 8 | 31608 | |
| 9 | 31609 | 233.19.3.130 |
| 10 | 31610 | |
| 11 | 31611 | |
| 12 | 31612 | |
| 13 | 31613 | 233.19.3.131 |
| 14 | 31614 | |
| 15 | 31615 | |
| 16 | 31616 | |
| 17 | 31617 | 233.19.3.132 |
| 18 | 31618 | |
| 19 | 31619 | |
| 20 | 31620 | |
| 21 | 31621 | 233.19.3.133 |
| 22 | 31622 | |
| 23 | 31623 | |
| 24 | 31624 | |
| 25 | 31625 | 233.19.3.134 |
| 26 | 31626 | |
| 27 | 31627 | |
| 28 | 31628 | |
| 29 | 31629 | 233.19.3.135 |
| 30 | 31630 | |
| 31 | 31631 | |
| 32 | 31632 | |

Note - Cboe reserves the right to add multicast addresses with prior notice, but no migration period. Notice will be given that the distribution will change on a certain date. Care should be taken to support mappings in these tables via software configuration. Addresses in the gray area are pre-assigned but not available. Members should not configure their networks or systems for these addresses.

5.2 US Options Certification Environment Configuration

5.2.1 Certification Unit Distribution

The following table describes the Cboe Options symbol distribution across units.

| Unit | Symbol Range (current) | Symbol Range (Effective 4/14/18) |
|------|------------------------------|----------------------------------|
| 1 | A – ADRZZ | A – ADOZZ |
| 2 | ADS – AMZMZ | ADP – AMZMZ AMZNA – ANETZ |
| 3 | AMZN – AOZZZ | ANEU – BAAAZ |
| 4 | AP – BACAZ | BAAB – BKNFZ |
| 5 | BACB – CASZZ | BKNG – BZZZZ |
| 6 | CAT – CMGAZ | C – CLGXZ |
| 7 | CMGB – CYGZZ | CLGY – CSXAZ |
| 8 | CYH – DOWAZ | CSXB – DISAZ |
| 9 | DOWB – FASTZ | DISB – ETFBZ |
| 10 | FASU – FOWZZ | ETFC – FIVDZ |
| 11 | FOX – GOLFZ | FIVE – GLDAZ |
| 12 | GOLG – GPBZZ | GLDB – GOOGZ |
| 13 | GPC – HULZZ | GOOH – HSXZZ |
| 14 | HUM – IPAAZ | HSY – IWLZZ |
| 15 | IPAB – IWLZZ IWMA – LDLAZ | IWM – JNJAZ |
| 16 | LDLB – MCDAZ | JNJB – LMTAZ |
| 17 | MCDB – MTVZZ | LMTB – MLNXZ |
| 18 | MTW – NKEAZ | MLNY – MUA AZ |
| 19 | NKEB – PCLMZ | MUAB – NTESZ |
| 20 | PCLN – PCLNZ | NTET – OXYAZ |
| 21 | PCLO – QQPZZ QQQA – REGNZ | OXYB – QGENZ |
| 22 | REGO – SNEAZ | QGEO – RHAAZ |
| 23 | SNEB – SPXZZ SPYA – TLLPZ | RHAB – SMGZZ |
| 24 | TLLQ – TTMAZ | SMH – SPXZZ SPYA – SYEZZ |
| 25 | TTMB – USFZZ | SYF – TSKZZ |
| 26 | USG – VRWZZ | TSL – UALAZ |
| 27 | VRX – WFLZZ | UALB – VLOAZ |
| 28 | WFM – XLP AZ | VLOB – WDCAZ |
| 29 | XLPB – ZZZZZ | WDCB – XLDZZ |
| 30 | IWM | XLE – ZZZZZ |
| 31 | QQQ | AMZN |
| 32 | SPY | SPY |

U.S Options
Auction Feed Specification (Version 1.0.7)

5.2.3 EDGX Options Certification Address/Unit Distribution

The following tables describe the unit distribution across certification EDGX Options Multicast Auction Feed out of the NY5 datacenter.

| NY5 Primary Datacenter | | WAN-Shaped 174.136.174.176/28 |
|------------------------|---------|----------------------------------|
| Unit | IP Port | Real-time MC |
| 1 | 32601 | 224.0.74.208 |
| 2 | 32602 | |
| 3 | 32603 | |
| 4 | 32604 | |
| 5 | 32605 | |
| 6 | 32606 | |
| 7 | 32607 | |
| 8 | 32608 | |
| 9 | 32609 | |
| 10 | 32610 | |
| 11 | 32611 | |
| 12 | 32612 | |
| 13 | 32613 | |
| 14 | 32614 | |
| 15 | 32615 | |
| 16 | 32616 | |
| 17 | 32617 | 224.0.74.210 |
| 18 | 32618 | |
| 19 | 32619 | |
| 20 | 32620 | |
| 21 | 32621 | |
| 22 | 32622 | |
| 23 | 32623 | |
| 24 | 32624 | |
| 25 | 32625 | |
| 26 | 32626 | |
| 27 | 32627 | |
| 28 | 32628 | |
| 29 | 32629 | |
| 30 | 32630 | |
| 31 | 32631 | |
| 32 | 32632 | |

Note - Cboe reserves the right to add multicast addresses with prior notice, but no migration period. Notice will be given that the distribution will change on a certain date. Care should be taken to support mappings in these tables via software configuration.

6 Connectivity

6.1 Supported Extranet Carriers

The Cboe Options Auction Feed will be made available to Members through extranet carriers that have completed their multicast implementation and certified with Cboe on a per-market basis. Cboe has certified a number of carriers for redistribution of Cboe Multicast data feeds as outlined in the [Cboe US Equity/Options Connectivity Manual](#). For more information on receiving the Cboe Options Auction Feed through any of these providers, please refer to the vendor contact information noted in the Extranet Providers section of the Connectivity Manual.

7 References

For more information on Cboe Symbology, please refer to the [Cboe Symbology Reference](#) document.

8 Support

Please e-mail questions or comments regarding this specification to tradedesk@bats.com.

U.S Options
Auction Feed Specification (Version 1.0.7)

Revision History

| Document Version | Date | Description |
|------------------|----------|---|
| 1.0.0 | 05/17/16 | Initial version 1.0.0. |
| 1.0.1 | 05/31/16 | Added IPs and Port Numbers to the EDGX Options Certification Address/Unit Distribution table. |
| 1.0.2 | 06/28/16 | Added IPs and Port Numbers to the EDGX Options Production Address/Unit Distribution table. Updated the Unsequenced Unit Header to 8 bytes. Removal of NBBO Price from Auction Notification message. |
| 1.0.3 | 08/01/16 | Added support for BAM Auctions. |
| 1.0.4 | 01/06/17 | Updated description of Auction Trade message. |
| 1.0.5 | 10/17/17 | Cboe branding/logo changes. |
| 1.0.6 | 03/08/18 | Updated Unit Distribution ranges. |
| 1.0.7 | 03/23/18 | Updated Unit Distribution ranges effective date updated to 4/14/18. |