



Cboe Europe CEDX Binary Order Entry Specification

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1 Introduction

1.1 Overview

This document describes Cboe CEDX Binary Order Entry (CEDX BOE), the Cboe Europe (hereafter, "Cboe") proprietary order entry protocol.

Where applicable, the terminology (e.g., time in force) used in this document is similar to that used by the FIX protocol to allow those familiar with FIX to more easily understand CEDX BOE. This document assumes the reader has basic knowledge of the FIX protocol.

CEDX BOE fulfills the following requirements:

- *CPU and memory efficiency.* Message encoding, decoding, and parsing are simpler to code and can be optimized to use less CPU and memory at runtime.
- *Application level simplicity.* State transitions are simple and unambiguous. They are easy to apply to a Participant's representation of an order.
- *Session level simplicity.* The session level protocol (login, sequencing, replay of missed messages, logout) is simple to understand.

Whilst Cboe has strived to preserve feature parity between FIX and CEDX BOE where possible, some features may only be available in one protocol or the other.

All binary values are in little Endian (used by Intel x86 processors), and *not* network byte order.

Each message is identified by a unique message type. Not all message types are used in all of the Cboe trading environments globally. A listing of the supported message types is provided in **List of Message Types** (§ 8, p. 175).

All communication is via standard TCP/IP.

1.2 Data Types

The following data types are used by CEDX BOE. The size of some data types varies by message. All data types have default values of binary zero, in both Participant to Cboe and Cboe to Participant contexts.

- *Binary:* Little Endian byte order, unsigned binary value. The number of bytes used depends on the context.
 - One byte: FE = 254
 - Four bytes: 64 00 00 00 = 100
- *Signed Binary:* Little Endian byte order, signed two's complement, binary value. The number of bytes used depends on the context.
 - One byte: DF = -33
 - Four bytes: 64 00 00 00 = +100

- *Binary Price*: Little Endian byte order value, signed two's complement, eight bytes in size, with four implied decimal places. So, if the value is 123,400, the actual value taking into account implied decimal places is 12.34.

$$- 08 E2 01 00 00 00 00 00 = 123,400/10000 = 12.34$$

For negative prices, if the value is -123,400, the actual value taking into account implied decimal places is -12.34.

$$- F8 1D FE FF FF FF FF FF = -123,400/10000 = -12.34$$

- *Short Binary Price*: Little Endian byte order value, signed two's complement, four bytes in size, with four implied decimal places. So, if the value is 12,300, the actual value taking into account implied decimal places is 1.23.

$$- 78 E0 01 00 = 123,000/10000 = 1.23$$

- *Trade Price*: Little Endian byte order value, eight bytes in size, with seven implied decimal places. So, if the value is 123,400,000, the actual value taking into account implied decimal places is 12.34.

$$- 40 EF 5A 07 00 00 00 00 = 123,400,000/10000000 = 12.34$$

- *Signed Binary Fee*: Little Endian byte order value, signed two's complement, eight bytes in size, signed, with five implied decimal places. So, the value -123,000 is -1.23 after taking account for the five implied decimal places.

$$- 88 1F FE FF FF FF FF FF = -123,000/100000 = -1.23$$

- *Alpha*: Uppercase letters (A-Z) and lowercase letters (a-z) only. ASCII NUL (0x00) filled on the right, if necessary. The number of bytes used depends on the context.

- *Alphanumeric*: Uppercase letters (A-Z), lowercase letters (a-z) and numbers (0-9) only. ASCII NUL (0x00) filled on the right, if necessary.

- *Text*: Printable ASCII characters only. ASCII NUL (0x00) filled on the right, if necessary.

- *DateTime*: 8 bytes. The date and time, in UTC, represented as nanoseconds past the UNIX epoch (00:00:00 UTC on 1 January 1970), encoded as Little Endian. The nanoseconds portion is currently ignored and treated as 0 (i.e. the times are only accurate to microseconds) on input, and will always be set to 0 by Cboe in outgoing messages. However, Cboe may begin populating the nanoseconds portion at any time without warning.

For example: E0 FA 20 F7 36 71 F8 11 = 1,294,909,373,757,324,000 = 2011-01-13 09:02:53.757324 UTC.

- *Date*: Little Endian byte order, unsigned binary value, 4 bytes in size. The YYYYMMDD expressed as an integer.

1.3 MiFID II notes

MiFID II Short Code Identifier Ranges

Cboe supports six separate ranges of short codes listed below. A range is provided for each valid combination of id and qualified role.

- *ClientID* and *ClientQualifiedRole* = Natural Person (24)
- *ClientID* and *ClientQualifiedRole* = Firm or LEI (23)

- *InvestorID* and *InvestorQualifiedRole* = Natural Person (24)
- *InvestorID* and *InvestorQualifiedRole* = Algorithm (22)
- *ExecutorID* and *ExecutorQualifiedRole* = Natural Person (24)
- *ExecutorID* and *ExecutorQualifiedRole* = Algorithm (22)

Each range is four bytes in length. Participants can use numbers 4 through to 4,294,967,295 as short codes. Values 0, 1, 2 and 3 are reserved.

MiFID II Mandatory Fields

In messages like NEW ORDER V2 and NEW ORDER CROSS, whilst *AlgorithmicIndicator* (for orders only), *Capacity*, *ClientID*, *ClientQualifiedRole*, *ExecutorID*, *ExecutorQualifiedRole*, *InvestorID*, *InvestorQualifiedRole*, *LiquidityProvision* and *OrderOrigination* are optional from a BOE bitfield perspective, correctly providing data associated with these fields may be mandatory from a MiFID II regulatory perspective. Participants should assess which of these fields are required on each order according to the Cboe Rulebook and their MiFID II obligations.

For cross orders in NEW ORDER CROSS and NEW ORDER CROSS MULTILEG, where these fields are required, they need to be specified for each allocation in the cross order.

1.4 Volatility Strategies

A Volatility Strategy is defined as a complex option package with a future leg in the same underlying product.

A Volatility Strategy instrument can be created using the NEW COMPLEX INSTRUMENT message type.

A minimum of two legs must be specified and a maximum of 12 legs will be accepted. Only one future leg is allowed and it must be last leg in the repeating group, all of the remaining legs must be options. For the future leg a reference price must be specified using the *LegPrice* field.

Orders for Volatility Strategies must be entered using the NEW COMPLEX ORDER message type.

1.5 Optional Fields and Bitfields

Some messages such as NEW ORDER V2 and NEW ORDER CROSS have a number of optional fields. A count and number of bitfields in the message specify which optional fields will be present at the end of the message. If a bit is set, the field will be present. Fields are appended to the end of the message. There is no implicit framing between the optional fields. In order to decode the optional fields, they *must* be appended in a particular order to the end of the message. The fields of the first bitfield are appended first, lowest order bit first. Next, the fields of the next bitfield are appended, lowest order bit first. This continues for all bitfields. While certain *reserved* bits within a defined bitfield are used within another Cboe market and will be ignored, bits that are reserved for future expansion must be set to 0 when noted in the bitfield description.

The size, data type, and values for each field are described in **List of Optional Fields** (§ 6, p. 156).

Note that the set of optional fields returned for each Cboe to Participant message type is determined at session login (using the LOGIN REQUEST V2 message); hence, the exact size and layout of each message received by the client application can be known in advance. **Any requested optional field which is irrelevant in a particular context will still be present in the returned message, but with all bytes set to binary zero (0x00).**

Each return message from Cboe to Participant indicates the optional fields which are present, even though the Participant indicated during login which optional fields are to be sent. The reason for the inclusion (and duplication) is so that each message can be interpreted on its own, without having to find the corresponding login request or response to know which optional fields are present. So, for example, in a log file, decoding a message requires only that single message.

Example messages are shown with each message type which should help to make this concept clear.

In the table for optional bitfields per message, the following legend applies:

- Indicates that the field can be requested for a message
- Indicates that the field cannot be requested for a message

2 Session

2.1 Message Headers

Each message has a ten byte header. The two initial *StartOfMessage* bytes are present to aid in message reassembly for network capture purposes. The *MatchingUnit* field is only populated on sequenced non-session level messages sent from Cboe to the Participant. Messages from Participant to Cboe and all session level messages must always set this value to 0.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	Message type.
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH. For session level traffic, the unit is set to 0. For messages from Participant to Cboe, the unit must be 0.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Messages from Cboe to Participant are sequenced distinctly per matching unit. Messages from Participant to Cboe are sequenced across all matching units with a single sequence stream. Participant can optionally send a 0 sequence number on all messages from Participant to Cboe. Cboe highly recommends Participant to send sequence number on all inbound messages.

2.2 Login, Replay and Sequencing

Session level messages, both inbound (Participant to Cboe) and outbound (Cboe to Participant) are unsequenced. Inbound (Participant to Cboe) application messages are sequenced. Upon reconnection, Cboe informs the Participant of the last processed sequence number; the Participant *may* choose to resend any messages with sequence numbers greater than this value. A gap forward in the Participant's incoming sequence number is permitted at any time and is ignored by Cboe. Gaps backward in sequence number (including the same sequence number used twice) are never permitted and will always result in a LOGOUT message being sent and the connection being dropped.

Most (but not all) outbound (Cboe to Participant) application messages are monotonically sequenced per matching unit. Each message's documentation will indicate whether it is sequenced or unsequenced. While matching units on CEDX BOE correspond directly to matching units on Multicast PITCH, sequence numbers do not.

Upon reconnection, a Participant sends the last received sequence number per matching unit in a LOGIN REQUEST V2 message. Cboe will respond with any missed messages. However, when the LOGIN REQUEST V2 *NoUnspecifiedUnitReplay* flag is enabled, Cboe will exclude messages from unspecified matching units during replay. Cboe will send a REPLAY COMPLETE message when replay is finished. If there are no messages to replay,

a REPLAY COMPLETE message will be sent immediately after a LOGIN RESPONSE V2 message. Cboe will reject all orders during replay.

Assuming Participant has requested replay messages using a properly formatted LOGIN REQUEST V2 after a disconnect, any unacknowledged orders remaining with the Participant after the REPLAY COMPLETE message is received should be assumed to be unknown to Cboe.

Unsequenced messages will not be included during replay.

A session is identified by the username and session sub-identifier (both supplied by Cboe). Only one concurrent connection per username and session sub-identifier is permitted.

If a login is rejected, an appropriate LOGIN RESPONSE V2 message will be sent and the connection will be terminated.

2.3 Sequence Reset

A reset sequence operation is not available for Binary Order Entry. However, a Participant can send a LOGIN REQUEST message with *NoUnspecifiedUnitReplay* field enabled, and *NumberOfUnits* field set to zero. Then, upon receiving a LOGIN RESPONSE V2 message from Cboe, the Participant can use the field *LastReceivedSequenceNumber* as the sequence starting point for sending future messages.

2.4 Heartbeats

CLIENT HEARTBEAT messages are sent from Participant to Cboe and SERVER HEARTBEAT messages are sent from Cboe to Participant if no other data has been sent in that direction for one second. Like other session level messages, heartbeats from Cboe to the Participant do *not* increment the sequence number. If Cboe receives no inbound data or heartbeats for five seconds, a LOGOUT message will be sent and the connection will be terminated. **Participants are encouraged to have a one second heartbeat interval and to perform similar connection staleness logic.**

2.5 Logging Out

To gracefully log out of a session, a LOGOUT REQUEST message should be sent by the Participant. Cboe will finish sending any queued data for that port and will then respond with its own LOGOUT message and close the connection. After receipt of a LOGOUT REQUEST message, Cboe will ignore all other inbound (Participant to Cboe) messages except for CLIENT HEARTBEAT.

3 Session Messages

3.1 Participant to Cboe

3.1.1 Login Request V2

A LOGIN REQUEST V2 message must be sent as the first message upon connection.

A number of repeating parameter groups, some of which may be required, are sent at the end of the message. Ordering of parameter groups is not important. New parameter groups may be added in the future with no notice.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x37
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	Always 0 for session level messages.
<i>SessionSubID</i>	10	4	Alphanumeric	Session Sub ID supplied by Cboe.
<i>Username</i>	14	4	Alphanumeric	Username supplied by Cboe.
<i>Password</i>	18	10	Alphanumeric	Password supplied by Cboe.
<i>NumberOfParam Groups</i>	28	1	Binary	A number, <i>n</i> (possibly 0), of parameter groups to follow.
<i>ParamGroup₁</i>				First parameter group.
⋮				
<i>ParamGroup_n</i>				Last parameter group.

Unit Sequences Parameter Group

This parameter group includes the last consumed sequence number per matching unit received by the Participant. Cboe uses these sequence numbers to determine what outbound (Cboe to Participant) traffic, if any, was missed by the Participant. If this parameter group is not sent, it's assumed the Participant has not received any messages (e.g., start of day).

The Participant does *not* need to include a sequence number for a unit if they have never received messages from it. For example, if the Participant has received responses from units 1, 3, and 4, the LOGIN REQUEST V2 message need not include unit 2. If the Participant wishes to send a value for unit 2 anyway, 0 would be the only allowed value.

Only one instance of this parameter group may be included.

Field	Offset	Length	Data Type	Description
<i>ParamGroupLength</i>	0	2	Binary	Number of bytes for the parameter group, including this field.
<i>ParamGroupType</i>	2	1	Binary	0x80
<i>NoUnspecified UnitReplay</i>	3	1	Binary	Flag indicating whether to replay missed outgoing (Cboe to Participant) messages for unspecified units. 0x00 = False (Replay Unspecified Units) 0x01 = True (Suppress Unspecified Units Replay)

<i>NumberOfUnits</i>	4	1	Binary	A number, <i>n</i> (possibly 0), of unit/sequence pairs to follow, one per unit from which the Participant has received messages.
<i>UnitNumber₁</i>		1	Binary	A unit number.
<i>UnitSequence₁</i>		4	Binary	Last received sequence number for the unit.
⋮				
<i>UnitNumber_n</i>		1	Binary	A unit number.
<i>UnitSequence_n</i>		4	Binary	Last received sequence number for the unit.

Return Bitfields Parameter Group

This parameter group, which may be repeated, indicates which attributes of a message will be returned by Cboe for the remainder of the session. This allows Participants to tailor the echoed results to the needs of their system without paying for bandwidth or processing they do not need.

Listing of the return bitfields which are permitted per message is contained in **Return Bitfields Per Message** (§ 5, p. 98).

Field	Offset	Length	Data Type	Description
<i>ParamGroupLength</i>	0	2	Binary	Number of bytes for the parameter group, including this field.
<i>ParamGroupType</i>	2	1	Binary	0x81
<i>MessageType</i>	3	1	Binary	Return message type for which the bitfields are being specified (e.g., 0x25 for an ORDER ACKNOWLEDGMENT V2 message)
<i>NumberOfReturn Bitfields</i>	4	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	5	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.

Example Login Request V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	43 00	67 bytes
<i>MessageType</i>	37	Login Request V2
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	00 00 00 00	Always 0 for session level messages
<i>SessionSubID</i>	30 30 30 31	0001
<i>Username</i>	54 45 53 54	TEST
<i>Password</i>	54 45 53 54 49 4E 47 00 00 00	TESTING
<i>NumberOfParam Groups</i>	03	3 parameter groups
<i>ParamGroupLength</i>	14 00	20 bytes for this parameter group
<i>ParamGroupType</i>	80	0x80 = Unit Sequences
<i>NoUnspecified UnitReplay</i>	01	True (replay only specified units)
<i>NumberOfUnits</i>	03	Three unit/sequence pairs to follow;
<i>UnitNumber₁</i>	01	Unit 1
<i>UnitSequence₁</i>	4A BB 01 00	Last received sequence of 113,482
<i>UnitNumber₂</i>	02	Unit 2
<i>UnitSequence₂</i>	00 00 00 00	Last received sequence of 0
<i>UnitNumber₃</i>	04	Unit 4
<i>UnitSequence₃</i>	79 A1 00 00	Last received sequence of 41,337
<i>ParamGroupLength</i>	08 00	8 bytes for this parameter group
<i>ParamGroupType</i>	81	0x81 = Return Bitfields
<i>MessageType</i>	25	0x25 = Order Acknowledgment V2
<i>NumberOfReturn Bitfields</i>	03	3 bitfields to follow
<i>ReturnBitfield₁</i>	00	No bitfields from byte 1
<i>ReturnBitfield₂</i>	41	<i>Symbol, Capacity</i>
<i>ReturnBitfield₃</i>	05	<i>Account, ClearingAccount</i>
<i>ParamGroupLength</i>	0C 00	12 bytes for this parameter group
<i>ParamGroupType</i>	81	0x81 = Return Bitfields
<i>MessageType</i>	2C	0x2C = Order Execution V2
<i>NumberOfReturn Bitfields</i>	07	7 bitfields to follow
<i>ReturnBitfield₁</i>	00	No bitfields from byte 1
<i>ReturnBitfield₂</i>	41	<i>Symbol, Capacity</i>
<i>ReturnBitfield₃</i>	07	<i>Account, ClearingFirm, ClearingAccount</i>
<i>ReturnBitfield₄</i>	00	No bitfields from byte 4
<i>ReturnBitfield₅</i>	40	<i>BaseLiquidityIndicator</i>
<i>ReturnBitfield₆</i>	00	No bitfields from byte 6
<i>ReturnBitfield₇</i>	01	<i>SubLiquidityIndicator</i>

3.1.2 Logout Request

To end the session, the Participant should send a LOGOUT REQUEST message. Cboe will finish sending any queued data and finally respond with a LOGOUT message and close the connection.

A Participant may simply close the connection without logging out, but may lose any queued messages by doing so.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x02
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	Always 0 for session level messages.

Example Logout Request Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	08 00	8 bytes
<i>MessageType</i>	02	Logout Request
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	00 00 00 00	Always 0 for session level messages

3.1.3 Client Heartbeat

See **Heartbeats** (§ 2.4, p. 9) for more information about heartbeats and the session level protocol.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x03
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	Always 0 for session level messages.

Example Client Heartbeat Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	08 00	8 bytes
<i>MessageType</i>	03	Client Heartbeat
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	00 00 00 00	Always 0 for session level messages

3.2 Cboe to Participant

3.2.1 Login Response V2

A LOGIN RESPONSE V2 message is sent in response to a LOGIN REQUEST V2 message. On a successful login, the *LoginResponseStatus* will be set to A. On a failed login, *LoginResponseStatus* will be set to a value other than A, and *LoginResponseText* will be set to an appropriate failure description.

Cboe will verify Return Bitfields at login time. If the Return Bitfields in a Return Bitfields Parameter Group are invalid, *LoginResponseStatus* will be set to F, and *LoginResponseText* will include a description of which byte and bit are invalid. This is done to ensure that reserved fields are not used, and only options that apply to the local market are set. See **Return Bitfields Per Message** (§ 5, p. 98) for additional information.

Note that two sets of sequence numbers are available on the LOGIN RESPONSE V2. The set of sequence numbers in the body are the actual Cboe to Participant sequence numbers indicating the highest sequence numbers available per matching unit. If specified during login, the Unit Sequences Parameter Group will also be returned which is an echo of the sequence numbers the Participant presented during login as the highest received. If these are different, it indicates a gap which will be filled by Cboe.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x24
<i>MatchingUnit</i>	5	1	Binary	Always 0 for session level messages.
<i>SequenceNumber</i>	6	4	Binary	Always 0 for session level messages.
<i>LoginResponseStatus</i>	10	1	Alphanumeric	Accepted, or the reason for the rejection. A = Login Accepted N = Not authorized (invalid username/password) D = Session is disabled B = Session in use S = Invalid session Q = Sequence ahead in Login message I = Invalid unit given in Login message F = Invalid return bitfield in login message M = Invalid Login Request message structure
<i>LoginResponseText</i>	11	60	Text	Human-readable text with additional information about the reason for rejection. For successful logins, this is empty. ASCII NUL (0x00) filled on the right, if necessary.
<i>NoUnspecifiedUnitReplay</i>	71	1	Binary	Echoed back from the original LOGIN REQUEST V2 message.
<i>LastReceivedSequenceNumber</i>	72	4	Binary	Last inbound (Participant to Cboe) message sequence number processed by Cboe.
<i>NumberOfUnits</i>	76	1	Binary	A number, <i>n</i> , of unit/sequence pairs to follow, one per unit. A pair for every unit will be sent, even if no messages have been sent to this port today. For unsuccessful logins, this will be 0.
<i>UnitNumber₁</i>		1	Binary	A unit number.
<i>UnitSequence₁</i>		4	Binary	Highest available Cboe to Participant sequence number for the unit.
⋮				

<i>UnitNumber_n</i>		1	Binary	A unit number.
<i>UnitSequence_n</i>		4	Binary	Highest available Cboe to Participant sequence number for the unit.
<i>NumberOfParam Groups</i>		1	Binary	Echoed back from the original LOGIN REQUEST V2 message.
<i>ParamGroup₁</i>				Echoed back from the original LOGIN REQUEST V2 message.
⋮				
<i>ParamGroup_n</i>				Echoed back from the original LOGIN REQUEST V2 message.

Example Login Response V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	88 00	136 bytes
<i>MessageType</i>	24	Login Response V2
<i>MatchingUnit</i>	00	Always 0 for session messages
<i>SequenceNumber</i>	00 00 00 00	Always 0 for session level messages
<i>LoginResponseStatus</i>	41	A = Login Accepted
<i>LoginResponseText</i>	41 63 63 65 70 74 65 64 00	Accepted (padding) (padding) (padding) (padding) (padding)
<i>NoUnspecified</i>	01	True (replay only specified units)
<i>UnitReplay</i>		
<i>Last Received Sequence Number</i>	54 4A 02 00	Last sequence Cboe received of 150,100
<i>NumberOfUnits</i>	04	Four unit/sequence pairs to follow.
<i>UnitNumber₁</i>	01	Unit 1
<i>UnitSequence₁</i>	4A BB 01 00	Actual last sequence of 113,482
<i>UnitNumber₂</i>	02	Unit 2
<i>UnitSequence₂</i>	00 00 00 00	Actual last sequence of 0
<i>UnitNumber₃</i>	03	Unit 3
<i>UnitSequence₃</i>	00 00 00 00	Actual last sequence of 0
<i>UnitNumber₄</i>	04	Unit 4
<i>UnitSequence₄</i>	79 A1 00 00	Actual last sequence of 41,337
<i>NumberOfParam Groups</i>	03	3 parameter groups
<i>ParamGroupLength</i>	14 00	20 bytes for this parameter group
<i>ParamGroupType</i>	80	0x80 = Unit Sequences
<i>NoUnspecified</i>	01	True (replay unspecified units)
<i>UnitReplay</i>		
<i>NumberOfUnits</i>	03	Three unit/sequence pairs to follow
<i>UnitNumber₁</i>	01	Unit 1
<i>UnitSequence₁</i>	4A BB 01 00	Last received sequence of 113,482
<i>UnitNumber₂</i>	02	Unit 2
<i>UnitSequence₂</i>	00 00 00 00	Last received sequence of 0
<i>UnitNumber₃</i>	04	Unit 4
<i>UnitSequence₃</i>	79 A1 00 00	Last received sequence of 41,337
<i>ParamGroupLength</i>	08 00	8 bytes for this parameter group

<i>ParamGroupType</i>	81	0x81 = Return Bitfields
<i>MessageType</i>	25	0x25 = Order Acknowledgment V2
<i>NumberOfReturn</i>	03	3 bitfields to follow
<i>Bitfields</i>		
<i>ReturnBitfield₁</i>	00	No bitfields from byte 1
<i>ReturnBitfield₂</i>	41	<i>Symbol, Capacity</i>
<i>ReturnBitfield₃</i>	05	<i>Account, ClearingAccount</i>
<i>ParamGroupLength</i>	0C 00	12 bytes for this parameter group
<i>ParamGroupType</i>	81	0x81 = Return Bitfields
<i>MessageType</i>	2C	0x2C = Order Execution V2
<i>NumberOfReturn</i>	07	7 bitfields to follow
<i>Bitfields</i>		
<i>ReturnBitfield₁</i>	00	No bitfields from byte 1
<i>ReturnBitfield₂</i>	41	<i>Symbol, Capacity</i>
<i>ReturnBitfield₃</i>	07	<i>Account, ClearingFirm, ClearingAccount</i>
<i>ReturnBitfield₄</i>	00	No bitfields from byte 4
<i>ReturnBitfield₅</i>	40	<i>BaseLiquidityIndicator</i>
<i>ReturnBitfield₆</i>	00	No bitfields from byte 6
<i>ReturnBitfield₇</i>	01	<i>SubLiquidityIndicator</i>

3.2.2 Logout

A LOGOUT is usually sent in response to a LOGOUT REQUEST. Any queued data is transmitted, a LOGOUT is sent, and Cboe will close the connection. However, a LOGOUT may also be sent if the Participant violates the protocol specification (e.g., by moving backwards in sequence number).

The LOGOUT contains the last transmitted sequence number for each unit, allowing the Participant to check that their last received sequence number matches.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x08
<i>MatchingUnit</i>	5	1	Binary	Always 0 for session level messages.
<i>SequenceNumber</i>	6	4	Binary	Always 0 for session level messages.
<i>LogoutReason</i>	10	1	Alphanumeric	The reason why the LOGOUT message was sent. U = User Requested E = End of Day A = Administrative ! = Protocol Violation
<i>LogoutReason</i> <i>Text</i>	11	60	Text	Human-readable text with additional information about the reason for logout. Particularly useful if <i>LogoutReason</i> = ! (Protocol Violation).
<i>LastReceived</i> <i>SequenceNumber</i>	71	4	Binary	Last inbound (Participant to Cboe) message sequence number processed by Cboe.
<i>NumberOfUnits</i>	75	1	Binary	A number, <i>n</i> (possibly 0), of unit/sequence pairs to follow, one per unit from which the client has received messages.
<i>UnitNumber₁</i>		1	Binary	A unit number.
<i>UnitSequence₁</i>		4	Binary	Highest available sequence number for the unit.

⋮				
<i>UnitNumber_n</i>		1	Binary	A unit number.
<i>UnitSequence_n</i>		4	Binary	Highest available sequence number for the unit.

Example Logout Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	55 00	85 bytes
<i>MessageType</i>	08	Logout
<i>MatchingUnit</i>	00	Always 0 for session level messages
<i>SequenceNumber</i>	00 00 00 00	Always 0 for session level messages
<i>LogoutReason</i>	55	U = User Requested
<i>LogoutReason</i>	55 73 65 72 00 00 00 00 00 00	User
<i>Text</i>	00 00	
<i>LastReceived</i>	54 5A 02 00	Last Cboe received sequence of 150,100
<i>SequenceNumber</i>		
<i>NumberOfUnits</i>	03	Three unit/sequence pairs to follow.
<i>UnitNumber₁</i>	01	Unit 1
<i>UnitSequence₁</i>	4A BB 01 00	Last sent sequence of 113,482
<i>UnitNumber₂</i>	02	Unit 2
<i>UnitSequence₂</i>	00 00 00 00	Last sent sequence of 0
<i>UnitNumber₃</i>	04	Unit 4
<i>UnitSequence₃</i>	79 A1 00 00	Last sent sequence of 41,337

3.2.3 Server Heartbeat

See **Heartbeats** (§ 2.4, p. 9) for more information about heartbeats and the session level protocol.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>Message Type</i>	4	1	Binary	0x09
<i>MatchingUnit</i>	5	1	Binary	Always 0 for session level messages.
<i>SequenceNumber</i>	6	4	Binary	Always 0 for session level messages.

Example Server Heartbeat Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	08 00	8 bytes
<i>MessageType</i>	09	Server Heartbeat
<i>MatchingUnit</i>	00	Always 0 for session level messages
<i>SequenceNumber</i>	00 00 00 00	Always 0 for session level messages

3.2.4 Replay Complete

See **Login, Replay and Sequencing** (§ 2.2, p. 8) for more information on Login, sequencing and replay.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x13
<i>MatchingUnit</i>	5	1	Binary	Always 0 for session level messages.
<i>SequenceNumber</i>	6	4	Binary	Always 0 for session level messages.

Example Replay Complete Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	08 00	8 bytes
<i>MessageType</i>	13	Replay Complete
<i>MatchingUnit</i>	00	Always 0 for session level messages
<i>SequenceNumber</i>	00 00 00 00	Always 0 for session level messages

4 Application Messages

4.1 Participant to Cboe

4.1.1 New Order V2

A NEW ORDER V2 message consists of a number of required fields followed by a number of optional fields. The optional fields used are specified by setting bits in the *NewOrderBitfields*. Fields must be appended at the end of the message, starting with the lowest order enabled bit in the first bitfield first.

This message should be used when submitting a single-leg order for standard listed options, or an order for simple futures instrument. Complex options or spread futures order must use NEW COMPLEX ORDER.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x38
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message.
<i>CIOrdID</i>	10	20	Text	Corresponds to <i>CIOrdID</i> (11) in Cboe FIX. Day-unique ID chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe. If the CIOrdID matches a live order, the order will be rejected as duplicate. Note: Cboe only enforces uniqueness of CIOrdID values among currently live orders. However, we strongly recommend that you keep your CIOrdID values day-unique.
<i>Side</i>	30	1	Alphanumeric	Corresponds to <i>Side</i> (54) in Cboe FIX. 1 = Buy 2 = Sell
<i>OrderQty</i>	31	4	Binary	Corresponds to <i>OrderQty</i> (38) in Cboe FIX. Order quantity. System limit is 999,999 contracts.
<i>NumberOfNewOrderBitfields</i>	35	1	Binary	Bitfield identifying which bitfields are set. Field values must be appended to the end of the message.
<i>NewOrderBitfield₁</i>	36	1	Binary	Bitfield identifying fields to follow.
⋮				
<i>NewOrderBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields. . .</i>				

Required Order Attributes:

The following are required to be sent on new orders:

- some form of symbology (see **Symbology** below); and,

- a *Price* only (limit orders) or a *Price* and/or *OrdType* (limit, or market orders.)
- *CustOrderHandlingInst*
- *AccountType*

All price fields (*Price*, *StopPx*) must be entered as non-negative values.

All other values have defaults. See the table in **List of Optional Fields** (§ 6, p. 156) for additional information about each optional field, including its default value.

Symbology:

Cboe accepts two symbologies: Cboe Symbology, and ISIN. Different symbologies may be used on different orders, but it is recommended that Participants use the same symbology for all orders.

If using Cboe Symbology to identify an instrument, the Participant:

- **must** set *Symbol* to the Cboe Symbology symbol.

If using ISIN to identify an instrument, the Participant:

- **must** set *IDSource* to ISIN (4);
- **must** set *SecurityID* to the ISIN;
- *may optionally* set the *Symbol* to the Cboe Symbology symbol or to the *SecurityID*.

When specifying an optional value as noted above, the value specified must match the value in Cboe symbol database. Otherwise, the order will be rejected.

See **MiFID II Notes** (§ 1.3, p. 6) for MiFID II-related required fields.

Example New Order V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	4F 00	79 bytes
<i>MessageType</i>	38	New Order V2
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>ClOrdID</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
<i>Side</i>	31	Buy
<i>OrderQty</i>	E8 03 00 00	1,000 contracts
<i>NumberOfNewOrder</i>	09	9 bitfields to follow
<i>Bitfields</i>		
<i>NewOrderBitfield1</i>	04	<i>Price</i>
<i>NewOrderBitfield2</i>	41	<i>Symbol, Capacity</i>
<i>NewOrderBitfield3</i>	01	<i>Account</i>
<i>NewOrderBitfield4</i>	10	<i>OpenClose</i>
<i>NewOrderBitfield5</i>	00	No bitfields from byte 5
<i>NewOrderBitfield6</i>	00	No bitfields from byte 6
<i>NewOrderBitfield7</i>	00	No bitfields from byte 7
<i>NewOrderBitfield8</i>	00	No bitfields from byte 8
<i>NewOrderBitfield9</i>	30	<i>CustOrderHandlingInst, AccountType</i>
<i>Price</i>	44 D6 12 00 00 00 00 00	123.4500
<i>Symbol</i>	56 31 32 38 41 00 00 00	V128A
<i>Capacity</i>	41	A = Agency
<i>Account</i>	44 45 46 47 00 00 00 00 00 00 00 00 00 00 00 00	DEFG

OpenClose 4F
CustOrderHandlingInst 59
AccountType 31

0 = Open
Y = Electronic
1 = Customer

Input bitfields:

Byte	Bit	Field	
1	1	<i>ClearingFirm</i>	●
	2	<i>ClearingAccount</i>	●
	4	<i>Price</i>	●
	8	<i>ExecInst</i>	–
	16	<i>OrdType</i>	●
	32	<i>TimeInForce</i>	●
	64	<i>MinQty</i>	●
	128	<i>MaxFloor</i>	–
2	1	<i>Symbol</i>	●
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	●
	16	<i>SecurityId</i>	●
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	●
	128	<i>RoutingInst</i>	–
3	1	<i>Account</i>	●
	2	<i>DisplayIndicator</i>	–
	4	<i>MaxRemovePct</i>	–
	8	<i>DiscretionAmount</i>	–
	16	<i>PegDifference</i>	–
	32	<i>PreventMatch</i>	●
	64	<i>LocateRequired</i>	–
	128	<i>ExpireTime</i>	●
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>RiskReset</i>	●
	16	<i>OpenClose</i>	●
	32	<i>CMTANumber</i>	–
	64	<i>TargetPartyID</i>	–
	128	<i>LiquidityProvision</i>	●
5	1	<i>Reserved</i>	–
	2	<i>AttributedQuote</i>	–
	4	<i>BookingType</i>	–
	8	<i>ExtExecInst</i>	–
	16	<i>ClientID</i>	●
	32	<i>InvestorID</i>	●
	64	<i>ExecutorID</i>	●
	128	<i>OrderOrigination</i>	●

continued...

Byte	Bit	Field	
6	1	<i>DisplayRange</i>	–
	2	<i>StopPx</i>	•
	4	<i>RoutStrategy</i>	–
	8	<i>RouteDeliveryMethod</i>	–
	16	<i>ExDestination</i>	–
	32	<i>EchoText</i>	–
	64	<i>AuctionId</i>	•
	128	<i>RoutingFirmID</i>	–
7	1	<i>AlgorithmicIndicator</i>	•
	2	<i>CustomGroupId</i>	•
	4	<i>ClientQualifiedRole</i>	•
	8	<i>InvestorQualifiedRole</i>	•
	16	<i>ExecutorQualifiedRole</i>	•
	32	<i>CtiCode</i>	–
	64	<i>ManualOrderIndicator</i>	–
	128	<i>OperatorId</i>	–
8	1	<i>QuoteRoomID</i>	–
	2	<i>SIIndicator</i>	–
	4	<i>ClearingOptionalData</i>	–
	8	<i>ClientIdAttr</i>	–
	16	<i>FrequentTraderID</i>	–
	32	<i>Compression</i>	–
	64	<i>FloorDestination</i>	–
	128	<i>FloorRoutingInst</i>	–
9	1	<i>OrderOrigin</i>	–
	2	<i>ORS</i>	–
	4	<i>PriceType</i>	–
	8	<i>TradingSessionId</i>	–
	16	<i>CustOrderHandlingInst</i>	•
	32	<i>AccountType</i>	•
	64	<i>CrossTradeFlag</i>	–
	128	<i>DrillThruProtection</i>	•

4.1.2 New Order Cross (Options only)

A NEW ORDER CROSS message contains the details for both the agency (initiating) and contra side(s) of a cross order (such as an AIM order). The message consists of a number of required fields including Symbol, Price, OrderQty, and relevant clearing information for all parties, as well as a number of optional fields.

The first order in the list is the agency order, while the rest are contra side responses. There is a maximum of ten (10) contra-parties that can be supplied with the order, for a total of eleven (11) repeating groups, as described below.

In each repeating group, the *Side*, *AllocQty*, *CIOrdID*, *Capacity*, and *ClearingFirm* are always required. Beyond that, the bits in the *NewOrderCrossBitfields* control which fields are expected. Any fields that are specified in *NewOrderCrossBitfields* that appear in the repeating groups should not be supplied in the optional fields that come after the repeating groups.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.

<i>MessageType</i>	4	1	Binary	0x7A
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message.
<i>CrossID</i>	10	20	Text	Corresponds to <i>CrossID</i> (548) in Cboe FIX. Day-unique identifier for the cross order chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe.
<i>CrossType</i>	30	1	Alphanumeric	Corresponds to <i>CrossType</i> (549) in Cboe FIX. Type of auction order being submitted. This indicates the type of auction that will be initiated upon order entry. 1 = Automated Improvement Mechanism (AIM)
<i>CrossPrioritization</i>	31	1	Alphanumeric	Corresponds to <i>CrossPrioritization</i> (550) in Cboe FIX. Indicates which side of the cross order will be prioritized for execution. This identifies the Agency side. 1 = Buy 2 = Sell
<i>Price</i>	32	8	Binary Price	Corresponds to <i>Price</i> (44) in Cboe FIX. Auction price.
<i>OrderQty</i>	40	4	Binary	Corresponds to <i>OrderQty</i> (38) in Cboe FIX. Order quantity. System limit is 999,999 contracts.
<i>NumberOfNewOrderCrossBitfields</i>	44	1	Binary	Bitfield identifying bitfields which are set.
<i>NewOrderCrossBitfield₁</i>	45	1	Binary	Bitfield identifying fields to follow.
⋮				
<i>NewOrderCrossBitfield_n</i>		1	Binary	Last bitfield.
<i>GroupCnt</i>		2	Binary	Number of order allocations represented by repeating groups included in this cross order. Must be at least 2 (One agency and one contra), and no more than 11.
<i>Repeating Groups of...</i>				
<i>Side</i>		1	Alphanumeric	Corresponds to <i>Side</i> (54) in Cboe FIX. 1 = Buy 2 = Sell
<i>AllocQty</i>		4	Binary	Corresponds to <i>AllocQty</i> (80) in Cboe FIX. Number of contracts for this party.

<i>CIOrdID</i>		20	Text	<p>Corresponds to <i>CIOrdID</i> (11) in Cboe FIX.</p> <p>Day-unique ID chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe.</p> <p>If the <i>CIOrdID</i> matches a live order, the order will be rejected as duplicate.</p> <p>Note: Cboe only enforces uniqueness of <i>CIOrdID</i> values among currently live orders. However, we strongly recommend that you keep your <i>CIOrdID</i> values day-unique.</p>
<i>Capacity</i>		1	Alpha	<p>Corresponds to <i>OrderCapacity</i> (47) in Cboe FIX.</p> <p>A = Agency (maps to 'AOTC')</p> <p>P = Principal (maps to 'DEAL')</p> <p>R = Riskless Principal (maps to 'MTCH')</p>
<i>ClearingFirm</i>		4	Alpha	<p>Corresponds to <i>ClearingFirm</i> (439) in Cboe FIX.</p> <p>Firm that will clear this allocation.</p>
<i>AccountType</i>		1	Alphanumeric	<p>Corresponds to <i>AccountType</i> (581) in Cboe FIX.</p> <p>Indicates type of account associated with the order.</p> <p>1 = Account is carried on customer side of the books.</p> <p>3 = House Trader</p>
<i>Account</i> (Optional)		16	Text	See List of Optional Fields (§ 6, p. 156).
<i>ClearingAccount</i> (Optional)		4	Text	See List of Optional Fields (§ 6, p. 156).
<i>OpenClose</i> (Optional)		1	Alphanumeric	See List of Optional Fields (§ 6, p. 156).
<i>CustOrder</i> <i>HandlingInst</i> (Optional)		1	Alpha	See List of Optional Fields (§ 6, p. 156).
<i>Liquidity</i> <i>Provision</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>Order</i> <i>Origination</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>Algorithmic</i> <i>Indicator</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>ClientID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Client</i> <i>QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>InvestorID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).

<i>Investor QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>ExecutorID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Executor QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Optional fields. . .</i>				

Required Order Attributes:

The following are required to be sent on new orders:

- Some form of symbology (see **Symbology** below)
- Agency order's *Side* must match the cross order's *CrossPrioritization*
- Each contra-party allocation must have the opposite *Side*
- Each side's cumulative *AllocQty* must equal the cross order's *OrderQty*
- *CustOrderHandlingInst* on each allocation.

Symbology: Cboe accepts two symbologies: Cboe Symbology, and ISIN. Different symbologies may be used on different orders, but it is recommended that Participants use the same symbology for all orders.

If using Cboe Symbology to identify an instrument, the Participant:

- **must** set *Symbol* to the Cboe Symbology symbol.

If using ISIN to identify an instrument, the Participant:

- **must** set *IDSource* to ISIN (4);
- **must** set *SecurityID* to the ISIN;
- *may optionally* set the *Symbol* to the Cboe Symbology symbol or to the *SecurityID*.

When specifying an optional value as noted above, the value specified must match the value in Cboe symbol database. Otherwise, the order will be rejected.

See **MiFID II Notes** (§ 1.3, p. 6) for MiFID II-related required fields.

Example New Order Cross Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	A7 00	167 bytes
<i>MessageType</i>	7A	New Order Cross
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>CrossID</i>	4E 5A 31 56 37 42 4A 31 41 63 63 65 70 74 42 75 79 00 00 00	NZ1V7BJ1AcceptBuy
<i>CrossType</i>	31	1 = AIM Order
<i>CrossPrioritization</i>	31	1 = Agency Buy
<i>Price</i>	20 4E 00 00 00 00 00 00	2.00
<i>OrderQty</i>	64 00 00 00	100 contracts
<i>NumberOf</i>	03	3 bitfields to follow
<i>NewOrderCross</i>		
<i>Bitfields</i>		
<i>NewOrderCrossBitfield₁</i>	09	<i>Symbol, CustOrderHandlingInst</i>

*NewOrderCrossBitfield*₂ 20
*NewOrderCrossBitfield*₃ 10
GroupCnt 03 00
Side 31
AllocQty 64 00 00 00
CIOrdID 51 4C 37 53 5A 37 43 31 61 67
 65 6E 63 79 00 00 00 00 00 00

Capacity 41
ClearingFirm 44 45 46 47
AccountType 31
ClearingAccount 00 00 00 00
OpenClose 43
CustOrderHandlingInst 59
Side 32
AllocQty 28 00 00 00
CIOrdID 51 4C 39 4B 38 55 56 31 63 6F
 6E 74 72 61 31 00 00 00 00 00

Capacity 50
ClearingFirm 41 42 43 44
AccountType 33
ClearingAccount 57 58 59 5A
OpenClose 4F
CustOrderHandlingInst 59
Side 32
AllocQty 3C 00 00 00
CIOrdID 51 4C 39 54 35 59 44 31 63 6F
 6E 74 72 61 32 00 00 00 00 00

Capacity 50
ClearingFirm 41 42 43 44
AccountType 33
ClearingAccount 57 58 59 5A
OpenClose 4F
CustOrderHandlingInst 59
Symbol 30 30 51 30 6B 41 00 00

ClearingAccount
OpenClose
 3 repeating groups to follow
 1 = Buy
 100 contracts
 QL7SZ7C1agency

 A = Agency
 DEFG
 1 = Customer
 No *ClearingAccount* for this order
 C = Close
 Y = Electronic
 2 = Sell
 40 contracts
 QL9K8UV1contra1

 P = Principal
 ABCD
 3 = House Trader
 WXYZ
 0 = Open
 Y = Electronic
 2 = Sell
 60 contracts
 QL9T5YD1contra2

 P = Principal
 ABCD
 3 = House Trader
 WXYZ
 0 = Open
 Y = Electronic
 00Q0kA

Input bitfields:

Byte	Bit	Field	
1	1	<i>Symbol</i>	•
	2	<i>IdSource</i>	•
	4	<i>SecurityId</i>	•
	8	<i>CustOrderHandlingInst</i>	•
	16	<i>LiquidityProvision</i>	•
	32	<i>OrderOrigination</i>	•
	64	<i>AlgorithmicIndicator</i>	•
	128	<i>PreventMatch</i>	•
2	1	<i>AutoMatch</i>	•
	2	<i>AutoMatchPrice</i>	•
	4	<i>LastPriority</i>	•
	8	<i>Account</i>	•
	16	<i>Reserved</i>	–
	32	<i>ClearingAccount</i>	•
	64	<i>ClientID</i>	•
	128	<i>ClientQualifiedRole</i>	•
3	1	<i>InvestorID</i>	•
	2	<i>InvestorQualifiedRole</i>	•
	4	<i>ExecutorID</i>	•
	8	<i>ExecutorQualifiedRole</i>	•
	16	<i>OpenClose</i>	•
	32	<i>DrillThruProtection</i>	•
	64	<i>Reserved</i>	–
	128	<i>Reserved</i>	–

4.1.3 New Complex Order

A NEW COMPLEX ORDER message contains the details required to enter an order on a complex instrument. A complex instrument can be a spread futures predefined by Cboe or a complex option created with previously entered NEW COMPLEX INSTRUMENT request. The message is similar to a NEW ORDER with an additional repeating group of the positions for each leg. The positions must be in the order predefined by Cboe in the case of a predefined spread futures, or in the case of complex options, the order returned by the system in the COMPLEX INSTRUMENT ACCEPTED response message, not the order supplied in the NEW COMPLEX INSTRUMENT request.

Complex orders in cross product spreads where the products do not operate on the same matching unit cannot leg into the simple book.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x4B
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message.

<i>CIOrdID</i>	10	20	Text	<p>Corresponds to <i>CIOrdID</i> (11) in Cboe FIX.</p> <p>Day-unique ID chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe.</p> <p>If the <i>CIOrdID</i> matches a live order, the order will be rejected as duplicate.</p> <p>Note: Cboe only enforces uniqueness of <i>CIOrdID</i> values among currently live orders. However, we strongly recommend that you keep your <i>CIOrdID</i> values day-unique.</p>
<i>Side</i>	30	1	Alphanumeric	<p>Corresponds to <i>Side</i> (54) in Cboe FIX.</p> <p>1 = Buy 2 = Sell</p>
<i>OrderQty</i>	31	4	Binary	<p>Corresponds to <i>OrderQty</i> (38) in Cboe FIX.</p> <p>Order quantity. System limit is 999,999 contracts.</p>
<i>NumberOfNewComplexOrderBitfields</i>	35	1	Binary	Bitfield identifying which bitfields are set. Field values must be appended to the end of the message.
<i>NewComplexOrderBitfield₁</i>	36	1	Binary	Bitfield identifying fields to follow.
⋮				
<i>NewComplexOrderBitfield_n</i>		1	Binary	Last bitfield.
<i>NoLegs</i>		1	Binary	<p>Corresponds to <i>NoLegs</i> (555) in Cboe FIX.</p> <p>Indicates the number of repeating groups to follow.</p> <p>Must be a minimum of 2 and a maximum of 12. However, for orders with <i>AccountType</i> value of 3 (House Trader), it is possible to specify 0 here. In that case, the repeating group <i>ComplexLegOrderInfo</i> should not follow, and the <i>LegPositionEffect</i> is defaulted to None ("N") for each leg.</p>

Repeating Group *ComplexLegOrderInfo* must occur the number of times specified in *NoLegs*. Each field occurs in each group, in order as shown below. Optional fields occur only if corresponding bits in bitfields are set.

<i>LegPositionEffect</i>	1	Alphanumeric	<p>Corresponds to <i>LegPositionEffect</i> (564) in Cboe FIX.</p> <p>Indicates status of client position in option for this leg.</p> <p>O = Open C = Close N = None</p> <p>Orders must specify <i>LegPositionEffect</i>. However, orders with <i>AccountType</i> value of 3 (House Trader) may specify a value of "N" for each leg. For House Trader, this repeating group is only needed if a non-zero value of <i>NoLegs</i> is used.</p>
<i>Optional fields. . .</i>			Optional fields as set in the bitmap. Note, optional fields that occur in the repeating groups appear above, repeating per group, not within this block.

Required Order Attributes:

The following attributes are required to be sent:

- *Symbol*
- *Price* only (limit orders) or *Price* and/or *OrdType* (limit or market orders);
- *Capacity*;
- *AccountType*; and,
- *CustOrderHandlingInst*

All other values have defaults. See the table in **List of Optional Fields** (§ 6, p. 156) for additional information about each optional field, including its default value.

Example New Complex Order Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	50 00	80 bytes
<i>MessageType</i>	4B	New Complex Order
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>ClOrdID</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
<i>Side</i>	31	Buy
<i>OrderQty</i>	64 00 00 00	100
<i>NumberOfNewComplex</i>	07	7 bitfields to follow
<i>OrderBitfields</i>		
<i>NewComplexOrder</i>	64	<i>Price, Symbol, Capacity</i>
<i>Bitfield₁</i>		

<i>NewComplexOrder</i>	01	<i>Account</i>
<i>Bitfield₂</i>		
<i>NewComplexOrder</i>	00	No bitfields from byte 3
<i>Bitfield₃</i>		
<i>NewComplexOrder</i>	00	No bitfields from byte 4
<i>Bitfield₄</i>		
<i>NewComplexOrder</i>	00	No bitfields from byte 5
<i>Bitfield₅</i>		
<i>NewComplexOrder</i>	00	No bitfields from byte 6
<i>Bitfield₆</i>		
<i>NewComplexOrder</i>	30	<i>CustOrderHandlingInst, AccountType</i>
<i>Bitfield₇</i>		
<i>NoLegs</i>	03	3 legs
<i>LegPositionEffect</i>	4F	0 = Open
<i>LegPositionEffect</i>	4F	0 = Open
<i>LegPositionEffect</i>	4F	0 = Open
<i>Price</i>	38 FF FF FF FF FF FF FF	-0.02
<i>Symbol</i>	00 00 00 00 00 43 31 00	0000C1
<i>Capacity</i>	41	A = Agency
<i>Account</i>	44 45 46 47 00 00 00 00 00 00	DEFG
	00 00 00 00 00 00	
<i>CustOrderHandlingInst</i>	59	Y = Electronic
<i>AccountType</i>	31	1 = Customer

Input bitfields:

Byte	Bit	Field	
1	1	<i>ClearingFirm</i>	●
	2	<i>ClearingAccount</i>	●
	4	<i>Price</i>	●
	8	<i>OrdType</i>	●
	16	<i>TimeInForce</i>	●
	32	<i>Symbol</i>	●
	64	<i>Capacity</i>	●
	128	<i>RoutingInst</i>	●
2	1	<i>Account</i>	●
	2	<i>PreventMatch</i>	●
	4	<i>ExpireTime</i>	●
	8	<i>CMTANumber</i>	–
	16	<i>TargetPartyID</i>	–
	32	<i>AttributedQuote</i>	–
	64	<i>EchoText</i>	–
	128	<i>AuctionId</i>	●
3	1	<i>RoutingFirmID</i>	–
	2	<i>DrillThruProtection</i>	●
	4	<i>RiskReset</i>	●
	8	<i>CustomGroupId</i>	●
	16	<i>LegSide</i>	–
	32	<i>EquityPartyId</i>	–
	64	<i>Reserved</i>	–
	128	<i>ClearingOptionData</i>	–
4	1	<i>ClientIDAttr</i>	–
	2	<i>FrequentTraderID</i>	–
	4	<i>SessionEligibility</i>	–
	8	<i>MaxFloor</i>	–
	16	<i>DisplayRange</i>	–
	32	<i>ComboOrder</i>	–
	64	<i>Compression</i>	–
	128	<i>EquityExDestination</i>	–
5	1	<i>EquityLegShortSell</i>	–
	2	<i>FloorDestination</i>	–
	4	<i>FloorRoutingInst</i>	–
	8	<i>MultiClassSprd</i>	–
	16	<i>OrderOrigin</i>	–
	32	<i>ORS</i>	–
	64	<i>PriceType</i>	–
	128	<i>StrategyId</i>	–
6	1	<i>Reserved</i>	–
	2	<i>ExecInst</i>	–
	4	<i>TiedHedge</i>	–
	8	<i>LiquidityProvision</i>	●
	16	<i>OrderOrigination</i>	●
	32	<i>AlgorithmicIndicator</i>	●
	64	<i>ClientID</i>	●
	128	<i>ClientQualifiedRole</i>	●

continued...

Byte	Bit	Field	
7	1	<i>InvestorID</i>	•
	2	<i>InvestorQualifiedRole</i>	•
	4	<i>ExecutorID</i>	•
	8	<i>ExecutorQualifiedRole</i>	•
	16	<i>CustOrderHandlingInst</i>	•
	32	<i>AccountType</i>	•
	64	<i>DisplayIndicator</i>	•
128	<i>Reserved</i>	–	

4.1.4 New Order Cross Multileg (Options only)

A NEW ORDER CROSS MULTILEG message contains the details for both the agency (initiating) and contra side(s) of a cross order (such as an AIM order). The two-sided order consists of a number of required fields including Symbol, Price, OrderQty, and relevant clearing information for both the agency and contra sides, as well as a number of optional fields. A maximum of ten (10) contra-parties will be accepted per order.

CROSS ORDER ACKNOWLEDGEMENT, CROSS ORDER REJECTED, and CROSS ORDER CANCELLED message types will be used by the Exchange to respond to NEW ORDER CROSS MULTILEG messages.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x85
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message.
<i>CrossID</i>	10	20	Text	Corresponds to <i>CrossID</i> (548) in Cboe FIX. Day-unique identifier for the cross order chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe.
<i>CrossType</i>	30	1	Alphanumeric	Corresponds to <i>CrossType</i> (549) in Cboe FIX. Type of auction order being submitted. This indicates the type of auction that will be initiated upon order entry. 1 = Automated Improvement Mechanism (AIM)
<i>CrossPrioritization</i>	31	1	Alphanumeric	Corresponds to <i>CrossPrioritization</i> (550) in Cboe FIX. Indicates which side of the cross order will be prioritized for execution. This identifies the Agency side. 1 = Buy 2 = Sell
<i>Price</i>	32	8	Binary Price	Corresponds to <i>Price</i> (44) in Cboe FIX. Auction price.

<i>OrderQty</i>	40	4	Binary	Corresponds to <i>OrderQty</i> (38) in Cboe FIX. Order quantity. System limit is 999,999 contracts.
<i>NumberOfNewOrderCrossMultileg Bitfields</i>	44	1	Binary	Bitfield identifying bitfields which are set.
<i>NewOrderCrossMultileg Bitfield₁</i>	45	1	Binary	Bitfield identifying fields to follow.
⋮				
<i>NewOrderCrossMultileg Bitfield_n</i>		1	Binary	Last bitfield.
<i>GroupCnt</i>		2	Binary	Number of order allocations represented by repeating groups included in this cross order. Must be at least 2 (One agency and one contra), and no more than 11.
<i>Repeating Groups of...</i>				
<i>Side</i>		1	Alphanumeric	Corresponds to <i>Side</i> (54) in Cboe FIX. 1 = Buy 2 = Sell
<i>AllocQty</i>		4	Binary	Corresponds to <i>AllocQty</i> (80) in Cboe FIX. Number of contracts for this party.
<i>CIOrdID</i>		20	Text	Corresponds to <i>CIOrdID</i> (11) in Cboe FIX. Day-unique ID chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe. If the CIOrdID matches a live order, the order will be rejected as duplicate. Note: Cboe only enforces uniqueness of CIOrdID values among currently live orders. However, we strongly recommend that you keep your CIOrdID values day-unique.
<i>Capacity</i>		1	Alpha	Corresponds to <i>OrderCapacity</i> (47) in Cboe FIX. A = Agency (maps to 'AOTC') P = Principal (maps to 'DEAL') R = Riskless Principal (maps to 'MTCH')
<i>ClearingFirm</i>		4	Alpha	Corresponds to <i>ClearingFirm</i> (439) in Cboe FIX. Firm that will clear this allocation.
<i>AccountType</i>		1	Alphanumeric	Corresponds to <i>AccountType</i> (581) in Cboe FIX. Indicates type of account associated with the order. 1 = Account is carried on customer side of the books. 3 = House Trader
<i>Account (Optional)</i>		16	Text	See List of Optional Fields (§ 6, p. 156).

<i>ClearingAccount</i> (Optional)		4	Text	See List of Optional Fields (§ 6, p. 156).
<i>LegPosition</i> <i>Effects</i> (Optional)		12	Alpha	See List of Optional Fields (§ 6, p. 156).
<i>CustOrder</i> <i>HandlingInst</i> (Optional)		1	Alpha	See List of Optional Fields (§ 6, p. 156).
<i>Liquidity</i> <i>Provision</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>Order</i> <i>Origination</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>Algorithmic</i> <i>Indicator</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>ClientID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Client</i> <i>QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>InvestorID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Investor</i> <i>QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>ExecutorID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Executor</i> <i>QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Optional fields. . .</i>				

Required Order Attributes:

The following are required to be sent on new orders:

- *Symbol* - Cboe Symbology symbol created by NEW COMPLEX INSTRUMENT message.
- Agency order's *Side* must match the cross order's *CrossPrioritization*
- Each contra-party allocation must have the opposite *Side*
- Each side's cumulative *AllocQty* must equal the cross order's *OrderQty*
- *CustOrderHandlingInst* on each allocation.

Example New Order Cross Multileg Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	D4 00	212 bytes
<i>MessageType</i>	85	New Order Cross Multileg
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>CrossID</i>	4E 5A 31 56 37 42 4A 31 41 63 63 65 70 74 42 75 79 00 00 00	NZ1V7BJ1AcceptBuy

<i>CrossType</i>	31	1 = AIM Order
<i>CrossPrioritization</i>	31	1 = Agency Buy
<i>Price</i>	20 4E 00 00 00 00 00 00	2.00
<i>OrderQty</i>	64 00 00 00	100 contracts
<i>NumberOf</i>	03	3 bitfields to follow
<i>NewOrderCross</i>		
<i>Multileg Bitfields</i>		
<i>NewOrderCrossMultileg</i>	09	<i>Symbol, CustOrderHandlingInst</i>
<i>Bitfield₁</i>		
<i>NewOrderCrossMultileg</i>	20	<i>ClearingAccount</i>
<i>Bitfield₂</i>		
<i>NewOrderCrossMultileg</i>	10	<i>LegPositionEffects</i>
<i>Bitfield₃</i>		
<i>GroupCnt</i>	03 00	3 repeating groups to follow
<i>Side</i>	31	1 = Buy
<i>AllocQty</i>	64 00 00 00	100 contracts
<i>CIOrdID</i>	51 4C 37 53 5A 37 43 31 61 67	QL7SZ7C1agency
	65 6E 63 79 00 00 00 00 00 00	
<i>Capacity</i>	41	A = Agency
<i>ClearingFirm</i>	44 45 46 47	DEFG
<i>AccountType</i>	31	1 = Customer
<i>ClearingAccount</i>	00 00 00 00	No <i>ClearingAccount</i> for this order
<i>LegPositionEffects</i>	43 43 4F 4F 20 20 20 20 20 20	CC00 - Instrument has four legs, Close first 2 legs, Open last 2 legs
	20 20	Y = Electronic
<i>CustOrderHandlingInst</i>	59	2 = Sell
<i>Side</i>	32	40 contracts
<i>AllocQty</i>	28 00 00 00	QL9K8UV1contra1
<i>CIOrdID</i>	51 4C 39 4B 38 55 56 31 63 6F	
	6E 74 72 61 31 00 00 00 00 00	
<i>Capacity</i>	50	P = Principal
<i>ClearingFirm</i>	41 42 43 44	ABCD
<i>AccountType</i>	33	33 = House Trader
<i>ClearingAccount</i>	57 58 59 5A	WXYZ
<i>LegPositionEffects</i>	43 43 43 43 20 20 20 20 20 20	CCCC - Instrument has four legs, Close on all four legs
	20 20	Y = Electronic
<i>CustOrderHandlingInst</i>	59	2 = Sell
<i>Side</i>	32	60 contracts
<i>AllocQty</i>	3C 00 00 00	QL9T5YD1contra2
<i>CIOrdID</i>	51 4C 39 54 35 59 44 31 63 6F	
	6E 74 72 61 32 00 00 00 00 00	
<i>Capacity</i>	50	P = Principal
<i>ClearingFirm</i>	41 42 43 44	ABCD
<i>AccountType</i>	33	33 = House Trader
<i>ClearingAccount</i>	57 58 59 5A	WXYZ
<i>LegPositionEffects</i>	4F 43 4F 43 20 20 20 20 20 20	OC0C - Instrument has four legs, mixture of Open and Close
	20 20	Y = Electronic
<i>CustOrderHandlingInst</i>	59	00Q0kA
<i>Symbol</i>	30 30 51 30 6B 41 00 00	

Input bitfields:

Byte	Bit	Field	
1	1	<i>Symbol</i>	●
	2	<i>IdSource</i>	–
	4	<i>SecurityId</i>	–
	8	<i>CustOrderHandlingInst</i>	●
	16	<i>LiquidityProvision</i>	●
	32	<i>OrderOrigination</i>	●
	64	<i>AlgorithmicIndicator</i>	●
	128	<i>PreventMatch</i>	●
2	1	<i>AutoMatch</i>	●
	2	<i>AutoMatchPrice</i>	●
	4	<i>LastPriority</i>	●
	8	<i>Account</i>	●
	16	<i>Reserved</i>	–
	32	<i>ClearingAccount</i>	●
	64	<i>ClientID</i>	●
	128	<i>ClientQualifiedRole</i>	●
3	1	<i>InvestorID</i>	●
	2	<i>InvestorQualifiedRole</i>	●
	4	<i>ExecutorID</i>	●
	8	<i>ExecutorQualifiedRole</i>	●
	16	<i>LegPositionEffects</i>	●
	32	<i>Reserved</i>	–
	64	<i>Reserved</i>	–
	128	<i>Reserved</i>	–

4.1.5 Cancel Order V2

Request to cancel either a single order or mass cancellation of a group of orders. Note that this does not apply to open orders across multiple sessions unless submitted on a Purge Port.

A single order cancellation uses the *CIOrdID* from a previous order.

Mass cancellation of a group of orders requires sending *MassCancelInst*, which comprises filters used to specify the set of orders to cancel.

- If the Trading Firm filter is set to “F”, the *ClearingFirm* optional field must be specified.
- If the Acknowledgement Style is set to “S” or “B”, the *MassCancelId* optional field must be specified.
- If the *ProductCode* field is specified, only orders for instruments associated with that *ProductCode* are cancelled.

The system limits the rate at which identical Mass Cancel and Purge messages can be submitted to the system. Requests are restricted to ten (10) messages per second per port.

An identical mass cancel message is defined as a message having all of the same *CustomGroupID* (only applicable for Purge messages), *ProductCode*, *ClearingFirm*, Lockout Instruction and Instrument Type Filter field values, as a previously received message.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.

<i>MessageType</i>	4	1	Binary	0x39
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message.
<i>OrigClOrdID</i>	10	20	Text	Corresponds to <i>OrigClOrdID</i> (41) in Cboe FIX. <i>ClOrdID</i> of the order to cancel.
<i>NumberOfCancelOrderBitfields</i>	30	1	Binary	Bitfield identifying bitfields which are set. May be 0. Field values must be appended to the end of the message.
<i>CancelOrderBitfield₁</i>	31	1	Binary	Bitfield identifying fields to follow. Only present if <i>NumberOfCancelOrderBitfields</i> is non-zero.
⋮				
<i>CancelOrderBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields. . .</i>				

Example Cancel Order V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	22 00	34 bytes
<i>MessageType</i>	39	Cancel Order V2
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	64 00 00 00	Sequence Number 100
<i>OrigClOrdId</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
<i>NumberOfCancelOrderBitfields</i>	01	1 bitfield to follow
<i>CancelOrderBitfield1</i>	01	<i>ClearingFirm</i>
<i>ClearingFirm</i>	54 45 53 54	TEST

Input bitfields:

Byte	Bit	Field	
1	1	<i>ClearingFirm</i>	●
	2	<i>MassCancelLockout</i>	–
	4	<i>MassCancel</i>	–
	8	<i>ProductCode</i>	–
	16	<i>MassCancelId</i>	●
	32	<i>RoutingFirmID</i>	–
	64	<i>ManualOrderIndicator</i>	–
2	128	<i>OperatorId</i>	–
	1	<i>MassCancelInst</i>	●
	2	(Reserved)	–
	4	(Reserved)	–
	8	(Reserved)	–
	16	(Reserved)	–
	32	(Reserved)	–
64	(Reserved)	–	
128	(Reserved)	–	

ClearingFirm is required for service bureau ports.

4.1.6 Modify Order V2

Request to modify an order. The order attributes to be modified are selected using *NumberOfModifyBitfields* and some number of bitfields to follow.

Only *Price*, *OrderQty*, *OrdType*, *MaxFloor*, and *StopPx* may be adjusted. Modifies will result in a loss of time priority unless the modification involves a decrease in *OrderQty*, a change to *MaxFloor* or a change to *StopPx*. *OrdType* may be adjusted from Limit to Market.

Changes in *OrderQty* result in an adjustment of the current order's *OrderQty*. The new *OrderQty* does not directly replace the current order's *LeavesQty*. Rather, a delta is computed from the current *OrderQty* and the replacement *OrderQty*. This delta is then applied to the current *LeavesQty*. If the resulting *LeavesQty* is less than or equal to zero, the order is cancelled. This results in safer behavior when the modification request overlaps partial fills for the current order, leaving the Participant in total control of the share exposure of the order.

A MODIFY ORDER V2 should not be issued until the ORDER ACKNOWLEDGEMENT V2 for the previous NEW ORDER V2 or ORDER MODIFIED message for the previous MODIFY ORDER V2 has been received. The BOE handler will reject a new MODIFY ORDER V2 if it has not been accepted or it has not seen the result of the prior modification from the Matching Engine. However, MODIFY ORDER V2 requests that merely reduce *OrderQty* may be overlapped if the existing *CIOrdID* is reused, as long as the trading identifier has not been opted-in to daily limit trading risk controls. This is the only case where reuse of the *CIOrdID* is allowed.

OrderQty must be present on all Modify Order V2 requests. Messages sent without *OrderQty* will be rejected.

Price must be present on all limit order Modify Order V2 requests. Messages sent without *Price* will be rejected. If the modification is from a limit to a market order the price will be disregarded.

ClearingFirm is required for service bureau ports.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x3A
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message.
<i>CIOrdID</i>	10	20	Text	New <i>CIOrdID</i> for this order.
<i>OrigCIOrdID</i>	30	20	Text	Corresponds to <i>OrigCIOrdID</i> (41) in Cboe FIX. <i>CIOrdID</i> of the order to replace. In the case of multiple changes to a single order, this will be the <i>CIOrdID</i> of the most recently accepted change.
<i>NumberOfModifyOrderBitfields</i>	50	1	Binary	Bitfield identifying bitfields which are set. May be 0. Field values must be appended to the end of the message.
<i>ModifyOrderBitfield₁</i>	51	1	Binary	Bitfield identifying fields to follow.
⋮				
<i>ModifyOrderBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields. . .</i>				

Example Modify Order V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	3E 00	62 bytes
<i>MessageType</i>	3A	Modify Order V2
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	64 00 00 00	Sequence Number 100
<i>CIOrdID</i>	41 42 43 31 32 34 00 00 00 00	ABC124
	00 00 00 00 00 00 00 00 00 00	
<i>OrigCIOrdID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
	00 00 00 00 00 00 00 00 00 00	
<i>NumberOfModify</i>	01	1 bitfield to follow
<i>OrderBitfields</i>		
<i>ModifyOrder</i>	0C	<i>OrderQty</i> , <i>Price</i>
<i>Bitfield1</i>		
<i>OrderQty</i>	64 00 00 00	100 contracts
<i>Price</i>	08 E2 01 00 00 00 00 00	12.34

Input bitfields:

Byte	Bit	Field	
1	1	<i>ClearingFirm</i>	●
	2	<i>Reserved</i>	–
	4	<i>OrderQty</i>	★
	8	<i>Price</i>	★
	16	<i>OrdType</i>	●
	32	<i>CancelOrigOnReject</i>	●
	64	<i>ExecInst</i>	–
2	128	<i>Side</i>	–
	1	<i>MaxFloor</i>	–
	2	<i>StopPx</i>	●
	4	<i>RoutingFirmID</i>	–
	8	<i>ManualOrderIndicator</i>	–
	16	<i>OperatorID</i>	–
	32	<i>FrequentTraderID</i>	–
64	<i>CustOrderHandlingInst</i>	●	
128	<i>Reserved</i>	–	

★ *OrderQty* must be present on all MODIFY ORDER V2 requests. *Price* must be present on all limit order MODIFY ORDER V2 requests.

ClearingFirm is required for service bureau ports.

4.1.7 Quote Update

Request to enter or update one or more quotes. QUOTE UPDATE requests will be forwarded in their entirety to the matching engine instance as a single message and will be applied in a single transaction. Optional bitfields are not supported for any response messages for quotes.

All options / futures in a single QUOTE UPDATE must trade under a single product code. Requests which include options / futures trading under multiple product codes will be rejected in their entirety. As options product code are different from futures product code, this includes mixing options and futures in a single QUOTE UPDATE.

A quote is unique per port, firm, and side. You may quote multiple price levels of depth using either multiple firm

on a single port or with the same firm on multiple ports.

Quote requests are one-sided. To delete a quote, send an update with a zero price and/or size.

Quotes may utilize simple options / futures only; complex options / spread future quotes may not be submitted. All quotes will be automatically cancelled at the end of the trading day.

Quotes may be marked post only. If a quote crosses the EBBO or displayed Cboe book, it will be rejected. If a quote would be displayed at a price that locks the EBBO, it will be accepted or rejected based on the PostingInstruction on the quote.

If a quote modification is rejected, the resting quote being modified is also cancelled.

Executions, unsolicited cancels, and unsolicited modification response messages from the exchange are different from those for orders. They are optimized for efficiency and contain some different data elements (e.g., *QuoteUpdateID*) than the respective messages for orders.

The *PreventMatch* field may not be specified on the QUOTE UPDATE message and Match Trade Prevention is only available if defaulted at the port level. For Bulk Quoting ports, only Cancel Newest, Cancel Oldest, or Cancel Both are permitted. If a Bulk Quoting port is not configured with both a default MTP Modifier and Unique ID Level, Match Trade Prevention will be disabled.

Capacity may not be changed when modifying a quote. To change Capacity of a resting quote, you must first send a quote with zero price and size and then re-enter the quote with the desired Capacity.

The Quote Execution message will be the only Quote related message available over ODROP and FIXDROP.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x7B
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message.
<i>QuoteUpdateID</i>	10	16	Text	ID chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe, the 'at' symbol and double quotes. Responses, both to the Quote Update and any Quote Executions, Quote Cancellations, and Quote Modification messages will include this identifier. Note: Cboe only enforces uniqueness of QuoteUpdateID values among those not yet acknowledged by the matching engine. However, we strongly recommend that you keep your QuoteUpdateID values day-unique.
<i>ClearingFirm</i>	26	4	Alpha	Corresponds to <i>OnBehalfOfCompID</i> (115) and <i>ClearingFirm</i> (439) in Cboe FIX. Firm that will clear the trade. If empty (all binary zero), a default will be used (only permitted on non-service bureau accounts).

<i>ClearingAccount</i>	30	4	Text	<p>Corresponds to <i>OnBehalfOfSubID</i> (116) and <i>ClearingAccount</i> (440) in Cboe FIX.</p> <p>Supplemental identifier. Recorded and made available in execution reports. Available via Drop.</p>
<i>OrderOrigination</i>	34	1	Text	<p>Corresponds to <i>OrderOrigination</i> (1724) in Cboe FIX.</p> <p>5 = (DEA). Indicates DEA activity (as deemed by MiFID II) is involved in this order. 0 = Non-DEA. (default) Other values are unsupported and will be rejected.</p>
<i>Algorithmic Indicator</i>	35	1	Text	<p>This corresponds to <i>OrderAttributeTypes</i> (8015) = 4 in Cboe FIX. Indicates that the order was placed as a result of an investment firm engaging in algorithmic trading.</p> <p>N = No algorithm was involved (default). Y = Algorithm was involved (ALGO).</p>
<i>LiquidityProvision</i>	36	1	Text	<p>This flag is used to indicate whether the order is related to any sort of liquidity provision activity, as defined by MiFID II. This flag is <u>mandatory</u> for orders which are part of a liquidity provision activity.</p> <p>N = Not Liquidity Provision (default) Y = Liquidity Provision</p> <p>For quote updates, market makers can only submit liquidity provision quotes if they have an active LPP registration for the product code underlying the symbols in the Quote Update.</p>

<i>CustOrderHandlingInst</i>	37	1	Alpha	<p>Corresponds to <i>CustOrderHandlingInst</i> (1031) in Cboe FIX. A default value can be set using the 'Default Customer Order Handling Instruction' port attribute. This port attribute is defaulted to Electronic.</p> <p>As only simple instruments are supported for quotes, only Y and W should be used. The system will not, however, reject quotes with other values.</p> <p>Y = Electronic. (Default) W = Desk C = Vendor-provided Platform billed by Executing Broker (For complex) G = Sponsored Access via Exchange API or FIX, provided by Executing Broker (For complex) H = Premium Algorithmic Trading Provider, billed by Executing Broker (For complex) D = Other, including other-provided screen (For complex)</p>
<i>Account</i>	38	16	Text	<p>Corresponds to <i>Account</i> (1) in Cboe FIX.</p> <p>Reflected back on execution reports associated with this order. May be made available in the Participant's clearing file. Allowed characters are alphanumeric and colon.</p>
<i>CustomGroupld</i>	54	2	Binary	<p>Optional. Used to group orders for use in PURGE ORDERS. Set to 0 if functionality not needed.</p>
<i>Capacity</i>	56	1	Alpha	<p>Corresponds to <i>OrderCapacity</i> (47) in Cboe FIX.</p> <p>A = Agency (maps to 'AOTC') P = Principal (maps to 'DEAL') R = Riskless Principal (maps to 'MTCH')</p>
<i>ClientID</i>	57	4	Binary	<p>The short code representing the client behind the order. Data corresponding to this short code must have been previously supplied, or will be supplied by the end of the calendar day, per our Rules. The value must be between 0 and 4,294,967,295.</p> <p>For clients, the following values are reserved for applicable use:</p> <p>0 = NONE (No Client for this order) 1 = AGGR (An aggregation of multiple client orders) 2 = PNAL (Clients are pending allocation)</p>

<i>Client QualifiedRole</i>	61	1	Binary	Required whenever a <code>ClientID</code> is specified. Valid values are: 0 = None - Only applicable if using a reserved value for <code>ClientID</code> 23 = Firm or legal entity (LEI) 24 = Natural person
<i>ExecutorID</i>	62	4	Binary	The short code representing the execution decision maker of the order. Data corresponding to this short code must have been previously supplied, or will be supplied by the end of the calendar day, per our Rules. The value must be between 0 and 4,294,967,295. For executing decision makers, the following value is reserved for applicable use: 3 = NORE (Timing and location of the execution determined by the client of the Participant)
<i>Executor QualifiedRole</i>	66	1	Binary	Required whenever an <code>ExecutorID</code> is specified. Valid values are: 0 = None - Only applicable if using a reserved value for <code>ExecutorID</code> 22 = Algorithm 24 = Natural person
<i>InvestorID</i>	67	4	Binary	The short code representing the investment decision maker of the order. Data corresponding to this short code must have been previously supplied, or will be supplied by the end of the calendar day, per our Rules. The value must be between 0 and 4,294,967,295.
<i>Investor QualifiedRole</i>	71	1	Binary	Required whenever an <code>InvestorID</code> is specified. Valid values are: 22 = Algorithm 24 = Natural person
<i>AccountType</i>	72	1	Alphanumeric	Corresponds to <i>AccountType</i> (581) in Cboe FIX. Indicates type of account associated with the order. 1 = Account is carried on customer side of the books. 3 = House Trader

<i>PostingInstruction</i>	73	1	Text	P = Post Only (do not remove liquidity) B = Book Only (allow removal of liquidity, available for Market Makers of futures only). Note that for options, only Post Only is supported.
<i>QuoteCnt</i>	74	1	Binary	Number of repeating groups included in this quote update. Allowed values are 1-20.
<i>Repeating Groups of...</i>				
<i>Symbol</i>		6	Alphanumeric	Cboe Symbology symbol
<i>Side</i>		1	Alphanumeric	1 = Buy 2 = Sell
<i>OpenClose</i>		1	Alphanumeric	Corresponds to <i>OpenClose</i> (77) in Cboe FIX. Indicates status of client position in the option. O = Open C = Close N = None Orders with <i>AccountType</i> value of 3 (House Trader) are not required to specify <i>OpenClose</i> or may optionally specify a value of "N". Otherwise, orders with Orders with <i>AccountType</i> value of 1 (Customer Account) must specify <i>OpenClose</i> .
<i>Price</i>		8	Binary Price	Corresponds to <i>Price</i> (44) in Cboe FIX. Limit price. To cancel an existing quote, specify 0.
<i>OrderQty</i>		4	Binary	Order quantity. System limit is 999,999 contracts. To cancel an existing quote, specify a size of 0.

Example Quote Update Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	71 00	113 bytes
<i>MessageType</i>	7B	Quote Update
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	64 00 00 00	Sequence Number 100
<i>QuoteUpdateID</i>	41 42 43 31 32 34 00 00 00 00 00 00 00 00 00 00	ABC124
<i>ClearingFirm</i>	41 42 43 44	ABCD
<i>ClearingAccount</i>	57 58 59 5A	WXYZ
<i>OrderOrigination</i>	30	0 (Non-DEA)
<i>AlogrithmicIndicator</i>	4E	N
<i>LiquidityProvision</i>	4E	N
<i>CustOrderHandlingInst</i>	59	Y = Electronic
<i>Account</i>	44 45 46 47 00 00 00 00 00 00 00 00 00 00 00 00	DEFG
<i>CustomGroupID</i>	C8 00 00 00	200
<i>Capacity</i>	41	A = Agency
<i>ClientID</i>	00 00 00 00	0 = NONE

<i>ClientQualifiedRole</i>	00	0 = None
<i>ExecutorID</i>	03 00 00 00	3 = NORE
<i>ExecutorQualifiedRole</i>	00	0 = None
<i>InvestorID</i>	C9 00 00 00	201
<i>InvestorQualifiedRole</i>	18	24 = Natural Person
<i>AccountType</i>	31	1 = Customer
<i>PostingInstruction</i>	50	P = Post Only
<i>QuoteCnt</i>	02	2 quotes to follow
<i>Symbol</i>	30 30 30 30 30 31	000001
<i>Side</i>	31	Buy
<i>OpenClose</i>	4F	0 = Open
<i>Price</i>	70 17 00 00 00 00 00 00	0.60
<i>OrderQty</i>	64 00 00 00	100 contracts
<i>Symbol</i>	30 30 30 30 30 37	000007
<i>Side</i>	32	Sell
<i>OpenClose</i>	4F	0 = Open
<i>Price</i>	20 4E 00 00 00 00 00 00	2.00
<i>OrderQty</i>	78 00 00 00	120 contracts

4.1.8 Purge Orders

Request to cancel a group of orders across all the firm's sessions. This differs from a mass cancel request sent via a CANCEL ORDER message as the purge request is applied across all of the firm's sessions, not just the session on which the CANCEL ORDER was received.

A purge request requires populating the *MassCancelInst* bitfield.

A firm may choose to implement one or more filters:

- Trading Firm Filter - optionally cancel based on the *ClearingFirm* field.
- Symbol Filter - optionally cancel based on the *ProductCode* field. When specified, only orders for instruments associated with the given ProductCode are cancelled. This cannot be combined with CustomGroupID filter.
- CustomGroupID Filter - optionally cancel based on *CustomGroupID* field. Cannot be combined with Symbol filter.

If both *ProductCode* and a list of *CustomGroupID* values are specified, the PURGE ORDERS request will be rejected.

Optionally specify *MassCancelInst* if the Acknowledgement Style is set to S or B.

The system limits the rate at which identical Mass Cancel and Purge Request messages can be submitted to the system. Requests are restricted to ten (10) messages per second per port.

An identical purge message is defined as a message having all of the same *CustomGroupID*, *ProductCode*, *ClearingFirm*, Lockout Instruction and Instrument Type Filter field values, as a previously received message.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x47
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message.
<i>Reserved</i>	10	1	Binary	Reserved for Cboe internal use. To maintain forward compatibility, fill with 0.

<i>NumberOfPurgeOrdersBitfields</i>	11	1	Binary	Bitfield identifying bitfields which are set. May be 0. Field values must be appended to the end of the message.
<i>PurgeOrdersBitfield₁</i>	12	1	Binary	Bitfield identifying fields to follow. Only present if <i>NumberOfPurgeOrdersBitfields</i> is non-zero.
⋮				
<i>PurgeOrdersBitfield_n</i>		1	Binary	Last bitfield.
<i>CustomGroupldCnt</i>		1	Binary	Number of repeating <i>CustomGroupld</i> included in this message.
<i>CustomGroupld₁</i>		2	Binary	First <i>CustomGroupld</i> . Only present if <i>CustomGroupldCnt</i> is non-zero.
⋮				
<i>CustomGroupld_n</i>		2	Binary	Last <i>CustomGroupld</i> .
<i>Optional fields. . .</i>				

Example Purge Orders V2 Message with CustomGroupld:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	2A 00	42 bytes
<i>MessageType</i>	47	Purge Orders V2
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	64 00 00 00	Sequence Number 100
<i>Reserved</i>	00	Reserved
<i>NumberOfPurgeOrderBitfields</i>	01	1 bitfield to follow
<i>PurgeOrdersBitfield1</i>	A8	<i>ClearingFirm</i> , <i>MassCancelLockout</i> , <i>MassCancelInst</i> <i>MassCancelld</i>
<i>CustomGroupldCnt</i>	02	2 <i>CustomGroupld</i> to follow
<i>CustomGroupld₁</i>	BF BE	first <i>CustomGroupld</i> of 48831
<i>CustomGroupld₂</i>	C0 BE	second <i>CustomGroupld</i> of 48832
<i>ClearingFirm</i>	54 45 53 54	TEST
<i>MassCancelLockout</i>	31	1 = lockout
<i>MassCancelInst</i>	34	4 = clearing firm match, single ack
<i>MassCancelld</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123

Input bitfields:

Byte	Bit	Field	
1	1	<i>ClearingFirm</i>	●
	2	<i>MassCancelLockout</i>	–
	4	<i>MassCancelInst</i>	★
	8	<i>ProductCode</i>	●
	16	<i>MassCancelId</i>	●
	32	<i>RoutingFirmID</i>	–
	64	<i>ManualOrderIndicator</i>	–
	128	<i>OperatorId</i>	–
2	1	<i>Symbol</i>	–
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	–
	16	<i>SecurityId</i>	–
	32	<i>SecurityExchange</i>	–
	64	<i>Reserved</i>	–
	128	<i>Reserved</i>	–

ClearingFirm is required for service bureau ports.

4.1.9 Reset Risk

Reset or release Trading Firm, Symbol (ProductCode), Trading Firm Group or Custom Group ID level lockout conditions resulting from risk profile trips or self-imposed lockouts issued via PURGE ORDERS messages. Risk resets can be performed using this message or by using the *RiskReset* field on a NEW ORDER message.

When specifying the Symbol field, the ProductCode should be used. Risk Resets are always performed at the underlying (ProductCode) level.

Only one unique risk reset of a given type (Trading Firm, Symbol, CustomGroupID, Trading Firm Group) is allowed per second. Additional resets will be ignored (*RiskResetResult* = <space>). For example, a customer may reset risk for *CustomGroupID* = 1 and may not reset risk again for *CustomGroupID* = 1 until one second has elapsed. This restriction is designed to safeguard the trading platform from excessive risk messaging.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x56
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message.
<i>RiskStatusID</i>	10	16	Text	Unique identifier for this Reset Risk request. Response message will have this corresponding identifier. Note: Cboe only enforces uniqueness of RiskStatusID values among currently unacknowledged requests. However, we strongly recommend that you keep your RiskStatusID values day-unique.

<i>RiskReset</i>	26	8	Text	Corresponds to <i>RiskReset</i> (7692) in Cboe FIX. Indicates Symbol, Trading Firm, Custom-GroupID, and Trading Firm Group lockout reset. See List of Optional Fields (§ 6, p. 156) for more explanation.
<i>Reserved</i>	34	4	Binary	Reserved for Cboe internal use. To maintain forward compatibility, fill with 0.
<i>ClearingFirm</i>	38	4	Alpha	Risk will be reset for this Trading Firm.
<i>Symbol</i>	42	6	Alphanumeric	Populate with Symbol for resets at the Product-Code level. Leave empty for resets at the Trading Firm level
<i>CustomGroupID</i>	48	2	Binary	Optional. Populate with an identifier for resets including a <i>CustomGroupID</i> . Set to 0 to ignore.

Example Reset Risk Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	30 00	48 bytes
<i>MessageType</i>	56	Reset Risk
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>RiskStatusID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
<i>RiskReset</i>	53 46 00 00 00 00 00 00	SF = Symbol and Trading Firm level reset
<i>Reserved</i>	00 00 00 00	Ignore
<i>ClearingFirm</i>	54 45 53 54	TEST
<i>Symbol</i>	41 42 43 00 00 00	ABC
<i>CustomGroupID</i>	00 00	No CustomGroupID

4.1.10 New Complex Instrument (Options only)

A NEW COMPLEX INSTRUMENT message is used to request that the system create a complex strategy. The resulting symbol (if accepted by the system) will be returned in a COMPLEX INSTRUMENT ACCEPTED message; a COMPLEX INSTRUMENT REJECTED message will be sent if it is not accepted.

A minimum of two legs must be specified and a maximum of twelve option or future legs will be accepted. At least one leg must be an option leg. No equity leg is allowed. All legs must have the same underlying product.

A *ClearingFirm* must be sent on each NEW COMPLEX INSTRUMENT message unless a Default Executing Firm ID is set at the port-level.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x4C
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message.

<i>CIOrdID</i>	10	20	Text	<p>Corresponds to <i>CIOrdID</i> (11) in Cboe FIX.</p> <p>Day-unique ID chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe.</p> <p>If the <i>CIOrdID</i> matches a live order, the order will be rejected as duplicate.</p> <p>Note: Cboe only enforces uniqueness of <i>CIOrdID</i> values among currently live orders. However, we strongly recommend that you keep your <i>CIOrdID</i> values day-unique.</p>
<i>NumberOfNewComplexInstrumentBitfields</i>	30	1	Binary	Bitfield identifying which bitfields are set. Field values must be appended to the end of the message.
<i>NewComplexInstrumentBitfield₁</i>	31	1	Binary	Bitfield identifying fields to follow.
⋮				
<i>NewComplexInstrumentBitfield_n</i>		1	Binary	Last bitfield.
<i>NoLegs</i>		1	Binary	<p>Corresponds to <i>NoLegs</i> (555) in Cboe FIX.</p> <p>Indicates the number of repeating groups to follow.</p> <p>Must be a minimum of 2 and a maximum of 12.</p>
<p>Repeating Group <i>ComplexLeg</i> must occur the number of times specified in <i>NoLegs</i>. Each field occurs in each group, in order as shown below. Optional fields occur only if corresponding bits in bitfields are set.</p>				
<i>LegSymbol</i>	8	Alphanumeric	Corresponds to <i>LegSymbol</i> (600) in Cboe FIX.	
<i>LegRatioQty</i>	4	Binary	<p>Corresponds to <i>LegRatioQty</i> (623) in Cboe FIX.</p> <p>Ratio of number of contracts in this leg per order quantity.</p> <p>Must be between 1 and 99,999.</p>	
<i>LegSide</i>	1	Alphanumeric	<p>Corresponds to <i>LegSide</i> (624) in Cboe FIX.</p> <p>1 = Buy 2 = Sell</p>	
<i>Optional fields...</i>				Optional fields as set in the bitmap. Note, optional fields that occur in the repeating groups appear above, repeating per group, not within this block.

Example New Complex Instrument Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	3D 00	61 bytes
<i>MessageType</i>	4C	New Complex Instrument
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100

<i>CIOrdID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
	00 00 00 00 00 00 00 00 00 00	
<i>NumberOfNewComplex</i>	01	1 bitfield to follow
<i>InstrumentBitfields</i>		
<i>NewComplexInstrument</i>	08	<i>ClearingFirm</i>
<i>Bitfield₁</i>		
<i>NoLegs</i>	02	2 legs
<i>LegSymbol</i>	30 30 51 30 6B 41 00 00	00Q0kA
<i>LegRatioQty</i>	02 00 00 00	Ratio of 2
<i>LegSide</i>	31	Buy
<i>LegSymbol</i>	30 30 51 30 6B 41 00 00	00Q0kA
<i>LegRatioQty</i>	01 00 00 00	Ratio of 1
<i>LegSide</i>	32	Sell
<i>ClearingFirm</i>	54 45 53 54	TEST

Input bitfields:

Byte	Bit	Field	
	1	<i>LegCFIcode</i>	–
	2	<i>LegMaturityDate</i>	–
	4	<i>LegStrikePrice</i>	–
	8	<i>ClearingFirm</i>	●
	16	<i>Reserved</i>	–
	32	<i>LegPrice</i>	●
	64	<i>Reserved</i>	–
	128	<i>Reserved</i>	–

4.1.11 Trade Capture Report V2

The TRADE CAPTURE REPORT V2 is used to submit a Block Trade. The report must contain both sides of the trade (*NoSides* = 2).

CustOrderHandlingInst is mandatory and must be included in the report.

Trade reports in Complex Instruments are not supported. Instead, participants should submit individual trades for each leg, with the appropriate leg price/quantity.

The model supported is as described in the FIX 5.0 (SP2) specification in the Two-Party Reporting workflow diagram of the Trade Capture Reporting section.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x3C
<i>MatchingUnit</i>	5	1	Binary	Always 0 for inbound (Participant to Cboe) messages.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message.

<i>TradeReportID</i>	10	20	Text	<p>Corresponds to <i>TradeReportID</i> (571) in Cboe FIX.</p> <p>Day-unique ID chosen by client. Cboe will enforce port level day-uniqueness. 20 characters or less. Characters in ASCII range 33–126 are allowed, except for comma, semi-colon, and pipe.</p> <p>If the <i>TradeReportID</i> matches a live trade report (one that has been acked, but not confirmed or declined), it will be rejected as duplicate.</p>
<i>LastShares</i>	30	4	Binary	<p>Corresponds to <i>LastShares</i> (32) in Cboe FIX.</p> <p>Executed share quantity. If the <i>LargeSize</i> optional field is specified, that value holds precedence over this field.</p>
<i>LastPx</i>	34	8	Trade Price	<p>Corresponds to <i>LastPx</i> (31) in Cboe FIX.</p> <p>Price of this fill. Note the use of Binary Price to represent positive and negative prices, which can occur with complex/spread instruments.</p>
<i>NumberOfTradeCaptureReportBitfields</i>	42	1	Binary	Bitfield identifying bitfields which are set. Field values must be appended to the end of the message.
<i>TradeCaptureReportBitfield₁</i>		1	Binary	Bitfield identifying fields to follow.
⋮				
<i>TradeCaptureReportBitfield_n</i>		1	Binary	Last bitfield.
<i>NoSides</i>		1	Binary	<p>Corresponds to <i>NoSides</i> (552) in Cboe FIX.</p> <p>Indicates the number of repeating groups to follow. Must be 2.</p>

Repeating Group *TrdCapRptSideGrp* must occur the number of times specified in *NoSides*. Only *Side* and *PartyID* are mandatory. Each field occurs in each group, in order as shown below. Optional fields should occur only if corresponding bits in bitfields are set.

<i>Side</i>	1	Alphanumeric	Corresponds to <i>Side</i> (54) in Cboe FIX. 1 = Buy 2 = Sell
<i>Capacity</i>	1	Alpha	Corresponds to <i>OrderCapacity</i> (47) in Cboe FIX. (Orders). Corresponds to <i>LastCapacity</i> (29) in Cboe FIX. (Executions). A = Agency (maps to 'AOTC') P = Principal (maps to 'DEAL') R = Riskless Principal (maps to 'MTCH')
<i>PartyID</i>	4	Alpha	Corresponds to <i>PartyID</i> (448) in Cboe FIX. The end-client responsible for the trade. Must be an identifier (4 uppercase letters) known to Cboe.
<i>Account</i>	16	Text	Corresponds to <i>Account</i> (1) in Cboe FIX. Contains the <i>Account</i> specified on this leg on the trade capture, if any. Reflected back on trade capture report confirmations. Allowed characters are alphanumeric.
<i>PartyRole</i>	1	Alphanumeric	Corresponds to <i>PartyRole</i> (452) in Cboe FIX. Contains the <i>PartyRole</i> specified on this leg on the trade capture, if any. Reflected back on trade capture report confirmations. 1 = ExecutingFirm (default) (if used, must be set on both sides. Is not permitted for bilateral trades) 2 = EnteringFirm (the party reporting the trade. Should not be used for the second leg) 3 = ContraFirm (the party the trade is alleged against)
<i>CustOrder HandlingInst</i>	1	Alpha	Corresponds to <i>CustOrderHandlingInst</i> (1031) in Cboe FIX. A default value can be set using the 'Default Customer Order Handling Instruction' port attribute. This port attribute is defaulted to Electronic. Y = Electronic. (Default) W = Desk C = Vendor-provided Platform billed by Executing Broker (For complex) G = Sponsored Access via Exchange API or FIX, provided by Executing Broker (For complex) H = Premium Algorithmic Trading Provider, billed by Executing Broker (For complex) D = Other, including other-provided screen (For complex)

... continued ... part of Repeating Group <i>TrdCapRptSideGrp</i>				
<i>OpenClose</i>	1	Alphanumeric		<p>Corresponds to <i>OpenClose</i> (77) in Cboe FIX.</p> <p>Indicates status of client position in the option.</p> <p>O = Open C = Close N = None</p> <p>Orders with <i>AccountType</i> value of 3 (House Trader) are not required to specify <i>OpenClose</i> or may optionally specify a value of "N". Otherwise, orders with <i>AccountType</i> value of 1 (Customer Account) must specify <i>OpenClose</i>.</p>
<i>AccountType</i>	1	Alphanumeric		<p>Corresponds to <i>AccountType</i> (581) in Cboe FIX.</p> <p>Indicates type of account associated with the order.</p> <p>1 = Account is carried on customer side of the books. 3 = House Trader</p>
<i>Optional fields...</i>				Optional fields as set in the bitmap. Note, optional fields that occur in the repeating groups appear above, repeating per group, not within this block.

Example Trade Capture Report V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	50 00	80 bytes
<i>MessageType</i>	3C	Trade Capture Report V2
<i>MatchingUnit</i>	00	Always 0 for inbound messages
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TradeReportID</i>	31 34 32 39 30 39 38 34 38 39 35 38 37 33 33 32 00 00 00 00	1429098489587332
<i>LastShares</i>	46 00 00 00	70 shares
<i>LastPx</i>	40 F9 A1 6A 00 00 00 00	1789000000 = 178.9000000
<i>NumberOf</i>	06	4 bitfields to follow
<i>TradeCaptureReport</i>		
<i>Bitfields</i>		
<i>Bitfield₁</i>	01	<i>Symbol</i>
<i>Bitfield₂</i>	B5	<i>Capacity, TransactionCategory,</i>
		<i>PartyRole, TradeReportTransType, VenueType</i>
<i>Bitfield₃</i>	A2	<i>MatchType, TradePublishIndicator,</i>
		<i>ExecutionMethod</i>
<i>Bitfield₄</i>	43	<i>TradeReportType, TradeHandlingInstruction,</i>
		<i>OrderCategory</i>
<i>Bitfield₅</i>	01	No bitfields from byte 5
<i>Bitfield₆</i>	01	<i>CustOrderHandlingInst, OpenClose</i>
<i>NoSides</i>	02	2 repeating groups to follow
<i>Side</i>	31	Buy
<i>Capacity</i>	50	Principal
<i>PartyID</i>	54 45 53 54	TEST
<i>PartyRole</i>	31	ExecutingFirm
<i>CustOrderHandlingInst</i>	59	Y = Electronic
<i>AccountType</i>	31	1 = Customer
<i>OpenClose</i>	4F	0 = Open
<i>Side</i>	32	Sell
<i>Capacity</i>	50	Principal
<i>PartyID</i>	54 45 53 54	TEST
<i>PartyRole</i>	31	ExecutingFirm
<i>CustOrderHandlingInst</i>	44	D = Desk
<i>AccountType</i>	33	3 = House
<i>OpenClose</i>	43	C = Close
<i>Symbol</i>	56 4F 44 6C 00 00 00 00	V0D1
<i>TransactionCategory</i>	50	P = Regular Trade
<i>TradeReportTransType</i>	00	0 = New
<i>VenueType</i>	4F	0 = Off Book
<i>MatchType</i>	03	3 = Trade Reporting (On-Exchange)
<i>TradePublishIndicator</i>	01	1 = Publish trade
<i>ExecutionMethod</i>	55	U = Unspecified
<i>TradeReportType</i>	00	0 = Submit
<i>TradeHandlingInstr</i>	01	1 = Two-Party Report
<i>OrderCategory</i>	03	3 = Privately Negotiated Trade

Input bitfields:

Byte	Bit	Field	
1	1	<i>Symbol</i>	•
	2	<i>Reserved</i>	–
	4	<i>Currency</i>	–
	8	<i>IDSource</i>	•
	16	<i>SecurityID</i>	•
	32	<i>Security Exchange</i>	–
	64	<i>ExecInst</i>	•
	128	<i>Reserved</i>	–
2	1	<i>Capacity</i>	•
	2	<i>Account</i>	•
	4	<i>TransactionCategory</i>	•
	8	<i>TradeTime</i>	•
	16	<i>PartyRole</i>	•
	32	<i>TradeReportTransType</i>	•
	64	<i>TradeID</i>	•
	128	<i>VenueType</i>	•
3	1	<i>TradingSessionSubId</i>	–
	2	<i>MatchType</i>	•
	4	<i>TrdSubType</i>	•
	8	<i>SecondaryTrdType</i>	•
	16	<i>TradePriceCondition</i>	•
	32	<i>TradePublishIndicator</i>	•
	64	<i>LargeSize</i>	•
	128	<i>ExecutionMethod</i>	•
4	1	<i>TradeReportType</i>	•
	2	<i>TradeHandlingInstruction</i>	•
	4	<i>TradeLinkID</i>	•
	8	<i>TradeReportRefID</i>	–
	16	<i>GrossTradeAmt</i>	•
	32	<i>Tolerance</i>	•
	64	<i>OrderCategory</i>	•
	128	<i>SettlementPrice</i>	–
5	1	<i>SettlementDate</i>	–
	2	<i>PriceFormation</i>	•
	4	<i>AlgorithmicIndicator</i>	•
	8	<i>WaiverType</i>	–
	16	<i>DeferralReason</i>	–
	32	<i>SettlementCurrency</i>	–
	64	<i>SettlementLocation</i>	–
	128	<i>ThirdParty</i>	–
6	1	<i>CustOrderHandlingInst</i>	•
	2	<i>OpenClose</i>	•
	4	<i>AccountType</i>	•
	8	<i>Reserved</i>	–
	16	<i>Reserved</i>	–
	32	<i>Reserved</i>	–
	64	<i>Reserved</i>	–
	128	<i>Reserved</i>	–

4.2 Cboe to Participant

4.2.1 Order Acknowledgment V2

ORDER ACKNOWLEDGMENT V2 messages are sent in response to a NEW ORDER V2 message. The message corresponds to a FIX Execution Report with *ExecType* (150) = 0 (New).

Per the instructions given in a Return Bitfields Parameter Group on the LOGIN REQUEST V2 (§ 3.1.1, p. 11), optional fields may be appended to echo back information provided in the original NEW ORDER V2 message. Fields which have been requested to be echoed back but which were not filled in will still be sent, but filled with binary zero (0x00).

Permitted return bits are described in § 5.1, p. 98.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x25
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>CIOrdID</i>	18	20	Text	Echoed back from the original order.
<i>OrderID</i>	38	8	Binary	Corresponds to <i>OrderID</i> (37) in Cboe FIX. Order identifier supplied by Cboe. This identifier corresponds to the identifiers used in Cboe market data products.
<i>ReservedInternal</i>	46	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	47	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	48	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields...</i>				

Example Order Acknowledgment V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	4E 00	78 bytes
<i>MessageType</i>	25	Order Acknowledgment V2
<i>MatchingUnit</i>	03	Matching Unit 3
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CIOrdID</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
<i>OrderID</i>	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturnBitfields</i>	03	3 bitfields to follow
<i>Bitfields</i>		

<i>ReturnBitfield</i> ₁	00	No bitfields from byte 1
<i>ReturnBitfield</i> ₂	41	<i>Symbol</i> , <i>Capacity</i>
<i>ReturnBitfield</i> ₃	05	<i>Account</i> , <i>ClearingAccount</i>
<i>Symbol</i>	30 30 51 30 6B 41 00 00	00Q0kA
<i>Capacity</i>	50	0x50 = P = Principal
<i>Account</i>	41 42 43 00 00 00 00 00	ABC
	00 00 00 00 00 00 00 00	
<i>ClearingAccount</i>	00 00 00 00	(empty)

Example Minimal Order Acknowledgment V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	2E 00	46 bytes
<i>MessageType</i>	25	Order Acknowledgment V2
<i>MatchingUnit</i>	03	Matching Unit 3
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CIOrdID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
	00 00 00 00 00 00 00 00 00 00	
<i>OrderID</i>	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturn</i>	00	No bitfields to follow
<i>Bitfields</i>		

4.2.2 Cross Order Acknowledgment (Options Only)

CROSS ORDER ACKNOWLEDGMENT messages are sent in response to a NEW ORDER CROSS message. The message corresponds to a FIX Execution Report with *ExecType* (150) = 0 (New). In FIX, multiple execution reports could be generated from one new cross order message.

Per the instructions given in a Return Bitfields Parameter Group on the LOGIN REQUEST V2 (§ 3.1.1, p. 11), optional fields may be appended to echo back information provided in the original NEW ORDER CROSS message. Fields which have been requested to be echoed back but which were not filled in will still be sent, but filled with binary zero (0x00).

In each repeating group, the *CIOrdID* and *OrderID* are always returned. Beyond that, the bits specified in the optional return bitfields parameter group control which fields are returned. Any fields that appear in the repeating groups will not appear in the optional fields that come after the repeating groups.

Permitted return bits are described in § 5.2, p. 102.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x7C
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).

<i>CrossID</i>	18	20	Text	Corresponds to <i>CrossID</i> (548) in Cboe FIX. Echoed back from the original order.
<i>AuctionId</i>	38	8	Binary	Corresponds to <i>AuctionId</i> (9370) in Cboe FIX. Auction order identifier supplied by Cboe. This identifier corresponds to the identifiers used in Cboe market data products.
<i>ReservedInternal</i>	46	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	47	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	48	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>GroupCnt</i>		2	Binary	Number of order allocations represented by repeating groups included in this message.
<i>Repeating Groups of...</i>				
<i>CIOrdID</i>		20	Text	Corresponds to <i>CIOrdID</i> (11) in Cboe FIX. Day-unique ID chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe. If the CIOrdID matches a live order, the order will be rejected as duplicate. Note: Cboe only enforces uniqueness of CIOrdID values among currently live orders. However, we strongly recommend that you keep your CIOrdID values day-unique.
<i>OrderID</i>		8	Binary	Corresponds to <i>OrderID</i> (37) in Cboe FIX. Order identifier supplied by Cboe. This identifier corresponds to the identifiers used in Cboe market data products.
<i>Side</i> (Optional)		1	Alphanumeric	See List of Optional Fields (§ 6, p. 156).
<i>AllocQty</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Capacity</i> (Optional)		1	Alpha	See List of Optional Fields (§ 6, p. 156).
<i>OpenClose</i> (Optional)		1	Alphanumeric	See List of Optional Fields (§ 6, p. 156).
<i>Account</i> (Optional)		16	Text	See List of Optional Fields (§ 6, p. 156).
<i>ClearingAccount</i> (Optional)		4	Text	See List of Optional Fields (§ 6, p. 156).
<i>ClearingFirm</i> (Optional)		4	Alpha	See List of Optional Fields (§ 6, p. 156).
<i>CustOrderHandlingInst</i> (Optional)		1	Alpha	See List of Optional Fields (§ 6, p. 156).

<i>AccountType</i> (Optional)		1	Alphanumeric	See List of Optional Fields (§ 6, p. 156).
<i>Liquidity Provision</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>Order Origination</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>Algorithmic Indicator</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>ClientID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Client QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>InvestorID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Investor QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>ExecutorID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Executor QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Optional fields. . .</i>				Optional fields as set in the bitmap. Note, optional fields that occur in the repeating groups appear above, repeating per group, not within this block.

Example Cross Order Acknowledgment Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	91 00	145 bytes
<i>MessageType</i>	7C	Cross Order Acknowledgment
<i>MatchingUnit</i>	02	Matching Unit 2
<i>SequenceNumber</i>	01 00 00 00	Sequence number 1
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CrossID</i>	4E 5A 31 56 37 42 4A 31 41 63 63 65 70 74 42 75 79 00 00 00	NZ1V7BJ1AcceptBuy
<i>AuctionId</i>	01 C0 91 A2 94 AB 78 04	2G4GYK000001 (base 36)
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturn</i>	02	2 bitfields to follow
<i>Bitfields</i>		
<i>ReturnBitfield₁</i>	00	No bitfields from byte 1
<i>ReturnBitfield₂</i>	41	<i>Symbol, Capacity</i>
<i>GroupCnt</i>	03 00	3 repeating groups to follow
<i>CIOrdID</i>	4E 5A 31 56 37 47 4E 31 61 67 65 6E 63 79 00 00 00 00 00 00	NZ1V7GN1agency
<i>OrderID</i>	02 C0 91 A2 94 AB 78 04	2G4GYK000002 (base 36)
<i>Capacity</i>	50	P = Principal
<i>CIOrdID</i>	4E 5A 31 56 37 4B 46 31 63 6F	NZ1V7KF1contra1

	6E 74 72 61 31 00 00 00 00 00	
<i>OrderID</i>	03 C0 91 A2 94 AB 78 04	2G4GYK000003 (base 36)
<i>Capacity</i>	41	A = Agency
<i>CIOrdID</i>	4E 5A 31 56 37 4E 48 31 63 6F	NZ1V7NH1contra2
	6E 74 72 61 32 00 00 00 00 00	
<i>OrderID</i>	04 C0 91 A2 94 AB 78 04	2G4GYK000004 (base 36)
<i>Capacity</i>	41	A = Agency
<i>Symbol</i>	30 30 51 30 6B 41 00 00	00Q0kA

4.2.3 Quote Update Acknowledgment

QUOTE UPDATE ACKNOWLEDGMENT messages are sent in response to a QUOTE UPDATE message. The effect of each requested update will be found in this response. The ordering between request and response is preserved.

For quotes not marked post only which are priced at an executable price and which may remove liquidity against non-Market Maker liquidity, QuoteResult reason of D or d will be provided. In these cases, executions or cancellations (as needed) will immediately follow as additional messages. In some cases, an execution may not be permitted (e.g., risk management causes cancellation of the targeted order before execution), no additional messages will follow and the quote will post.

In some cases, a new *OrderID* will be assigned for an existing quote. There are currently two situations where this occurs, but others may be added in the future:

- An order which has received a large number of quote updates over its life will be assigned a new *OrderID* if receiving an update which would cause a loss in priority.
- A quote update sent to modify the PostingInstruction will be assigned a new *OrderID* if there is an existing quote in that symbol on that port and for that Firm.

If using the *OrderID* in your system or to correlate with an *OrderID* on PITCH, always be prepared to receive an update on an QUOTE UPDATE ACKNOWLEDGMENT .

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x7D
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>QuoteUpdateID</i>	18	16	Text	Echoed back from the original QUOTE UPDATE request.

<i>QuoteRejectReason</i>	34	1	Text	Reason for rejection of an entire QUOTE UPDATE message by the matching engine. If an error is indicated, then no quotes were entered or updated. <i>QuoteCnt</i> will be 0. <space> = Success See Quote Reason Codes (§ 7.2, p. 173) for a list of possible quote reject codes. Additional reasons may be added in the future without warning.
<i>Reserved</i>	35	17	Binary	Reserved for Cboe internal use. Filled with 0.
<i>QuoteCnt</i>	52	1	Binary	Number of repeating groups included in this quote update. Allowed values are 1-20.
<i>Repeating Groups of...</i>				
<i>OrderID</i>		8	Binary	Corresponds to <i>OrderID</i> (37) in Cboe FIX. Order identifier supplied by Cboe. This identifier corresponds to the identifiers used in Cboe market data products.
<i>QuoteResult</i>		1	Text	Result of the quote request. <i>Acceptance:</i> A = New Quote L = Modified; loss of priority R = Modified; retains priority (size reduction) N = No change, matches existing quote D = New Quote, but may remove liquidity d = Modified, but may remove liquidity <i>Cancellation:</i> U = User cancelled (zero size/price requested) <i>Rejection:</i> a = Admin P = Rejected, cannot post f = Risk management firm or Custom Group ID level S = Rejected, symbol not found p = Rejected, invalid price r = Invalid Remove s = Risk management underlying level u = Rejected, other reason Additional reasons indicating a reject may be added in the future with no notice.
<i>SubLiquidity Indicator</i>		1	Alphanumeric	Cboe may add additional values without notice. Participants must gracefully ignore unknown values. ASCII NUL (0x00) = No Additional Information N = Normal U = Qualifying Market Turner <space> = No quote on book

<i>Subreason</i>		1	Alphanumeric	Additional detail for a quote rejection. See Subreason Codes (§ 7.3, p. 174) for a list of possible subreasons.
<i>Reserved</i>		5	Binary	Reserved for Cboe internal use. Filled with 0.

Example Quote Update Acknowledgment Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	53 00	83 bytes
<i>MessageType</i>	7D	Quote Update Acknowledgment
<i>MatchingUnit</i>	01	Matching Unit 1
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>QuoteUpdateID</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
<i>QuoteRejectReason</i>	20	<space> = Success
<i>Reserved</i>	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Ignore
<i>QuotesCnt</i>	02	2 quotes
<i>OrderID</i>	02 C0 91 A2 94 AB 78 04	2G4GYK000002 (base 36)
<i>QuoteResult</i>	64	d = Modified, but may remove liquidity
<i>SubLiquidityIndicator</i>	4E	N = Normal
<i>Subreason</i>	20	<space> = None
<i>Reserved</i>	00 00 00 00 00	Ignore
<i>OrderID</i>	03 C0 91 A2 94 AB 78 04	2G4GYK000003 (base 36)
<i>QuoteResult</i>	4C	L = Modified, loss of priority
<i>SubLiquidityIndicator</i>	55	U = Qualifying Market Tuber
<i>Subreason</i>	20	<space> = None
<i>Reserved</i>	00 00 00 00 00	Ignore

4.2.4 Order Rejected V2

ORDER REJECTED V2 messages are sent in response to a NEW ORDER V2 which must be rejected. This message corresponds to a FIX Execution Report with *ExecType* (150) = 8 (Rejected). ORDER REJECTED V2 messages are unsequenced.

Permitted return bits are described in § 5.3, p. 105.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x26
<i>MatchingUnit</i>	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
<i>SequenceNumber</i>	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).

<i>CIOrdID</i>	18	20	Text	Echoed back from the original order.
<i>OrderRejectReason</i>	38	1	Text	Reason for an order rejection. See Reason Codes (§ 7.1, p. 172) for a list of possible reasons.
<i>Text</i>	39	60	Text	Human readable text with more information about the reject reason.
<i>ReservedInternal</i>	99	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturn Bitfields</i>	100	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	101	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields. . .</i>				

Example Order Rejected V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	76 00	118 bytes
<i>MessageType</i>	26	Order Rejected V2
<i>MatchingUnit</i>	00	Unsequenced Message, unit = 0
<i>SequenceNumber</i>	00 00 00 00	Unsequenced Message, sequence = 0
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CIOrdID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
	00 00 00 00 00 00 00 00 00 00	
<i>OrderRejectReason</i>	44	D
<i>Text</i>	44 75 70 6C 69 63 61 74 65 20	Duplicate CIOrdID
	43 6C 4F 72 64 49 44 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturn Bitfields</i>	03	3 bitfields to follow
<i>ReturnBitfield₁</i>	00	No bitfields from byte 1
<i>ReturnBitfield₂</i>	01	<i>Symbol</i>
<i>ReturnBitfield₃</i>	06	<i>ClearingFirm, ClearingAccount</i>
<i>Symbol</i>	31 32 33 61 42 63 00 00	123aBc
<i>ClearingFirm</i>	54 45 53 54	TEST
<i>ClearingAccount</i>	00 00 00 00	(empty)

4.2.5 Cross Order Rejected (Options Only)

CROSS ORDER REJECTED messages are sent in response to a NEW ORDER CROSS which must be rejected. This message corresponds to a FIX Execution Report with *ExecType* (150) = 8 (Rejected). CROSS ORDER REJECTED messages are unsequenced.

Permitted return bits are described in § 5.4, p. 108.

Field	Offset	Length	Data Type	Description
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<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x7E
<i>MatchingUnit</i>	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
<i>SequenceNumber</i>	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>CrossID</i>	18	20	Text	Corresponds to <i>CrossID</i> (548) in Cboe FIX. Echoed back from the original order.
<i>OrderRejectReason</i>	38	1	Text	Reason for an order rejection. See Reason Codes (§ 7.1, p. 172) for a list of possible reasons.
<i>Text</i>	39	60	Text	Human readable text with more information about the reject reason.
<i>ReservedInternal</i>	99	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	100	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	101	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields...</i>				

Example Cross Order Rejected Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	59 00	89 bytes
<i>MessageType</i>	7E	Cross Order Rejected
<i>MatchingUnit</i>	00	Unsequenced Message, unit = 0
<i>SequenceNumber</i>	00 00 00 00	Unsequenced Message, sequence = 0
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CrossID</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
<i>OrderRejectReason</i>	41	A
<i>Text</i>	53 65 72 69 65 73 20 6E 6F 74 20 63 75 72 72 65 6E 74 6C 79 20 74 72 61 64 69 6E 67 00	Series not currently trading
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturnBitfields</i>	02	2 bitfields to follow
<i>ReturnBitfield₁</i>	00	No bitfields from byte 1
<i>ReturnBitfield₂</i>	01	<i>Symbol</i>
<i>Symbol</i>	30 30 51 30 6B 41 00 00	00Q0kA

4.2.6 Quote Update Rejected

QUOTE UPDATE REJECTED messages are sent in response to a QUOTE UPDATE message when the entire quote block is rejected by the order handler. No existing quotes are updated or cancelled as a result.

QUOTE UPDATE REJECTED messages are unsequenced.

Permitted return bits are described in § 5.4, p. 108.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x7F
<i>MatchingUnit</i>	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
<i>SequenceNumber</i>	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>QuoteUpdateID</i>	18	16	Text	Echoed back from the QUOTE UPDATE request
<i>QuoteRejectReason</i>	34	1	Text	Reason for rejection of an entire QUOTE UPDATE message by the matching engine. If an error is indicated, then no quotes were entered or updated. <i>QuoteCnt</i> will be 0. <space> = Success See Quote Reason Codes (§ 7.2, p. 173) for a list of possible quote reject codes. Additional reasons may be added in the future without warning.
<i>Reserved</i>	35	17	Binary	Reserved for Cboe internal use. Filled with 0.

Example Quote Update Rejected Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	32 00	50 bytes
<i>MessageType</i>	7F	Quote Update Rejected V2
<i>MatchingUnit</i>	00	Unsequenced Message, unit = 0
<i>SequenceNumber</i>	00 00 00 00	Unsequenced Message, sequence = 0
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>QuoteUpdateID</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
<i>QuoteRejectReason</i>	4D	M = symbols not on same matching engine
<i>Reserved</i>	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Ignore

4.2.7 Order Modified V2

ORDER MODIFIED V2 messages are sent in response to a MODIFY REQUEST V2 to indicate that the order has been successfully modified.

Note: You must opt-in to receiving LeavesQty in Order Modified V2 messages. In some cases, the last message to be received on an order's lifecycle will be an ORDER MODIFIED V2 message. The way to know the order is no longer live is to inspect *LeavesQty*. An example of this would be modification of an order whilst an execution is being generated, resulting in the order being reduced to zero outstanding quantity. To maintain return structure compatibility with Participants with Version 1, this field remains in the optional block.

Permitted return bits are described in § 5.5, p. 111.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x27
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>CIOrdID</i>	18	20	Text	Client order ID. This is the <i>CIOrdID</i> from the Modify Order message.
<i>OrderID</i>	38	8	Binary	Corresponds to <i>OrderID</i> (37) in Cboe FIX. The unique <i>OrderID</i> . Modifications do <i>not</i> change the <i>OrderID</i> .
<i>ReservedInternal</i>	46	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	47	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	48	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields...</i>				

Example Order Modified V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	35 00	63 bytes
<i>MessageType</i>	27	Order Modified V2
<i>MatchingUnit</i>	03	Matching Unit 3
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CIOrdID</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
<i>OrderID</i>	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturnBitfields</i>	05	5 bitfields to follow
<i>ReturnBitfield₁</i>	04	<i>Price</i>
<i>ReturnBitfield₂</i>	00	No fields from byte 2
<i>ReturnBitfield₃</i>	00	No fields from byte 3
<i>ReturnBitfield₄</i>	00	No fields from byte 4
<i>ReturnBitfield₅</i>	02	<i>LeavesQty</i>

Price	08 E2 01 00 00 00 00 00	12.34
LeavesQty	00 00 00 00	0 (order done)

4.2.8 Order Restated

ORDER RESTATED messages are sent to inform the Participant that an order has been asynchronously modified for some reason without an explicit MODIFY ORDER request having been sent.

For Cboe Europe Derivatives, ORDER RESTATED messages will only be sent when an AggressiveHeld order is released to the Order Book.

Participants should be prepared to accept and apply ORDER RESTATED messages for any reason.

The return bitfields indicate the characteristics of the order which have changed. Optional fields will be present at the end of the message with the new values.

Note: You must opt-in to receiving *LeavesQty* in ORDER RESTATED messages. In some cases, the last message to be received on an order's lifecycle will be an ORDER RESTATED message. The way to know the order is no longer live is to inspect *LeavesQty*. An example of this would be restatement of an order in some cases due to *PreventParticipantMatch* being set to d.

Permitted return bits are described in § 5.6, p. 114.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x28
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>CIOrdID</i>	18	20	Text	The <i>CIOrdID</i> is the identifier from the open order.
<i>OrderID</i>	38	8	Binary	Corresponds to <i>OrderID</i> (37) in Cboe FIX. The unique <i>OrderID</i> . For informational purposes only. Restatements do <i>not</i> change the <i>OrderID</i> .
<i>RestatementReason</i>	46	1	Alphanumeric	The reason for this Order Restated message. Q = Liquidity Updated Cboe reserves the right to add new values as necessary without prior notice.
<i>ReservedInternal</i>	47	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	48	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	49	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields...</i>				

Example Order Restated V2 message for a reserve (iceberg) reload:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	41 00	65 bytes
<i>MessageType</i>	28	Order Restated V2
<i>MatchingUnit</i>	03	Matching Unit 3
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CIOrdID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
	00 00 00 00 00 00 00 00 00 00	
<i>OrderID</i>	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
<i>RestatementReason</i>	4C	L = Reload
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturn</i>	06	6 bitfields to follow
<i>Bitfields</i>		
<i>ReturnBitfield₁</i>	00	No fields from byte 1
<i>ReturnBitfield₂</i>	00	No fields from byte 2
<i>ReturnBitfield₃</i>	00	No fields from byte 3
<i>ReturnBitfield₄</i>	00	No fields from byte 4
<i>ReturnBitfield₅</i>	02	<i>LeavesQty</i>
<i>ReturnBitfield₆</i>	01	<i>SecondaryOrderId</i>
<i>LeavesQty</i>	64 00 00 00	100 contracts
<i>SecondaryOrderId</i>	0A 10 1E B7 5E 39 2F 02	171WC100000A (base 36)

4.2.9 Quote Restated

QUOTE RESTATED messages are sent to inform the Participant that an order has been asynchronously modified for some reason by the Exchange. Additional reasons may be added in the future.

In the case where an inbound quote will execute against a resting order or quote, then a QUOTE RESTATED message will be sent after the QUOTE UPDATE ACKNOWLEDGMENT as a function of normal system behavior. These Restatements will contain the *RestatementReason* of Q=Liquidity.

This message may be expanded in length in the future with new fields added to the end. To maintain forward compatibility, be prepared to receive a message longer than the documented length and to gracefully ignore those extra fields.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x80
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>QuoteUpdateID</i>	18	16	Text	Echoed back from the original QUOTE UPDATE request.
<i>OrderID</i>	34	8	Binary	Corresponds to <i>OrderID</i> (37) in Cboe FIX. The unique <i>OrderID</i> . For informational purposes only. Restatements do <i>not</i> change the <i>OrderID</i> .

<i>LeavesQty</i>	42	4	Binary	Corresponds to <i>LeavesQty</i> (151) in Cboe FIX. Quantity still open for further execution. If zero, the order is complete.
<i>WorkingPrice</i>	48	8	Binary Price	New working price.
<i>Symbol</i>	54	6	Alphanumeric	Cboe Symbology symbol
<i>Side</i>	60	1	Alphanumeric	1 = Buy 2 = Sell
<i>RestatementReason</i>	61	1	Alphanumeric	The reason for this Quote Restated message. W = Wash Q = Liquidity Updated

Example Quote Restated message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	3C 00	60 bytes
<i>MessageType</i>	80	Quote Restated
<i>MatchingUnit</i>	03	Matching Unit 3
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>QuoteUpdateID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
<i>OrderID</i>	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
<i>LeavesQty</i>	64 00 00 00	100 contracts
<i>WorkingPrice</i>	AC 07 01 00 00 00 00 00	6.75
<i>Symbol</i>	30 30 34 63 53 73	004cDs
<i>Side</i>	31	1 = Buy
<i>RestatementReason</i>	57	W = Wash

4.2.10 User Modify Rejected V2

USER MODIFY REJECTED V2 messages are sent in response to a MODIFY ORDER V2 for an order which cannot be modified. USER MODIFY REJECTED V2 messages are unsequenced.

This message corresponds to a FIX Execution Report with *MsgType* (35) = 9 (Order Cancel Reject) and *CxlResponseTo* (434) = 2 (Order Cancel/Replace Request).

Permitted return bits are described in § 5.7, p. 117.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x29
<i>MatchingUnit</i>	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
<i>SequenceNumber</i>	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).

<i>CIOrdID</i>	18	20	Text	The <i>CIOrdID</i> of the modify request which was rejected.
<i>ModifyRejectReason</i>	38	1	Text	Reason for a modify rejection. See Reason Codes (§ 7.1, p. 172) for a list of possible reasons.
<i>Text</i>	39	60	Text	Human readable text with more information about the reject reason.
<i>ReservedInternal</i>	99	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	100	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	101	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields. . .</i>				

Example User Modify Rejected V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	63 00	99 bytes
<i>MessageType</i>	29	User Modify Rejected V2
<i>MatchingUnit</i>	00	Unsequenced Message, unit = 0
<i>SequenceNumber</i>	00 00 00 00	Unsequenced Message, sequence = 0
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CIOrdID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
	00 00 00 00 00 00 00 00 00 00	
<i>ModifyRejectReason</i>	50	Pending Fill
<i>Text</i>	50 65 6E 64 69 6E 67 00 00 00	Pending
	00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturnBitfields</i>	00	No optional fields

4.2.11 Order Cancelled V2

An order has been cancelled.

Permitted return bits are described in § 5.8, p. 120.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x2A

<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>CIOrdID</i>	18	20	Text	The order which was cancelled.
<i>CancelReason</i>	38	1	Text	Reason for the order cancellation. See Reason Codes (§ 7.1, p. 172) for a list of possible reasons.
<i>ReservedInternal</i>	39	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	40	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	41	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields...</i>				

Example Order Cancelled V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	48 00	72 bytes
<i>MessageType</i>	2A	Order Cancelled V2
<i>MatchingUnit</i>	03	Matching Unit 3
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CIOrdID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
<i>CancelReason</i>	55	U = User Requested
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturnBitfields</i>	05	5 bitfields to follow
<i>ReturnBitfield₁</i>	00	No fields from byte 1
<i>ReturnBitfield₂</i>	00	No fields from byte 2
<i>ReturnBitfield₃</i>	06	<i>ClearingFirm</i> , <i>ClearingAccount</i>
<i>ReturnBitfield₄</i>	00	No fields from byte 2
<i>ReturnBitfield₅</i>	01	<i>OrigCIOrdId</i>
<i>ClearingFirm</i>	54 45 53 54	TEST
<i>ClearingAccount</i>	31 32 33 34	1234
<i>OrigCIOrdId</i>	41 42 43 31 32 31 00 00 00 00	ABC121
	00 00 00 00 00 00 00 00 00 00	

4.2.12 Quote Cancelled

A QUOTE_CANCELLED message will be sent to indicate an unsolicited cancellation of a quote entered with a Quote Update message. An unsolicited cancellation is used, for example, when a resting quote is cancelled due to PTP with an inbound order or quotes are being cancelled due to a risk trip

This message may be expanded in length in the future with new fields added to the end. To maintain forward compatibility, be prepared to receive a message longer than the documented length and to gracefully ignore those

extra fields.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x81
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>QuoteUpdateID</i>	18	16	Text	Echoed back from the original QUOTE UPDATE request.
<i>OrderID</i>	34	8	Binary	Corresponds to <i>OrderID</i> (37) in Cboe FIX. <i>OrderID</i> assigned by the matching engine.
<i>Symbol</i>	42	6	Alphanumeric	Cboe Symbology symbol
<i>Side</i>	48	1	Alphanumeric	1 = Buy 2 = Sell
<i>CancelReason</i>	49	1	Text	Reason for the quote cancellation. See Reason Codes (§ 7.1, p. 172) for a list of possible reasons.
<i>CancelSubreason</i>	50	1	Alphanumeric	Additional detail for a quote cancellation. See Subreason Codes (§ 7.3, p. 174) for a list of possible subreasons.

Example Quote Cancelled message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	31 00	49 bytes
<i>MessageType</i>	81	Quote Cancelled
<i>MatchingUnit</i>	01	Matching Unit 1
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>QuoteUpdateID</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00	ABC123
<i>OrderID</i>	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
<i>Symbol</i>	30 30 34 63 53 73	004cDs
<i>Side</i>	32	2 = Sell
<i>CancelReason</i>	55	U = User
<i>CancelSubreason</i>	42	B = Purge/Mass Cancel Symbol level by user

4.2.13 Cross Order Cancelled (Options Only)

A NEW ORDER CROSS has been cancelled. Individual order allocations from the original NEW ORDER CROSS message will be echoed back in the repeating groups.

In each repeating group, the *CIOrdID* and *OrderID* are always returned. Beyond that, the bits specified in the optional return bitfields parameter group control which fields are returned. Any fields that appear in the repeating groups will not appear in the optional fields that come after the repeating groups.

Permitted return bits are described in § 5.9, p. 123.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x82
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>CrossID</i>	18	20	Text	Corresponds to <i>CrossID</i> (548) in Cboe FIX. The cross order which was cancelled.
<i>CancelReason</i>	38	1	Text	Reason for the order cancellation. See Reason Codes (§ 7.1, p. 172) for a list of possible reasons.
<i>ReservedInternal</i>	39	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	40	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	41	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>GroupCnt</i>		2	Binary	Number of order allocations represented by repeating groups included in this message.
<i>Repeating Groups of...</i>				
<i>CIOrdID</i>		20	Text	Corresponds to <i>CIOrdID</i> (11) in Cboe FIX. Day-unique ID chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe. If the <i>CIOrdID</i> matches a live order, the order will be rejected as duplicate. Note: Cboe only enforces uniqueness of CIOrdID values among currently live orders. However, we strongly recommend that you keep your CIOrdID values day-unique.
<i>OrderID</i>		8	Binary	Corresponds to <i>OrderID</i> (37) in Cboe FIX. Order identifier supplied by Cboe. This identifier corresponds to the identifiers used in Cboe market data products.
<i>Side</i> (Optional)		1	Alphanumeric	See List of Optional Fields (§ 6, p. 156).

<i>AllocQty</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Capacity</i> (Optional)		1	Alpha	See List of Optional Fields (§ 6, p. 156).
<i>OpenClose</i> (Optional)		1	Alphanumeric	See List of Optional Fields (§ 6, p. 156).
<i>Account</i> (Optional)		16	Text	See List of Optional Fields (§ 6, p. 156).
<i>ClearingAccount</i> (Optional)		4	Text	See List of Optional Fields (§ 6, p. 156).
<i>ClearingFirm</i> (Optional)		4	Alpha	See List of Optional Fields (§ 6, p. 156).
<i>CustOrder HandlingInst</i> (Optional)		1	Alpha	See List of Optional Fields (§ 6, p. 156).
<i>AccountType</i> (Optional)		1	Alphanumeric	See List of Optional Fields (§ 6, p. 156).
<i>Liquidity Provision</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>Order Origination</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>Algorithmic Indicator</i> (Optional)		1	Text	See List of Optional Fields (§ 6, p. 156).
<i>ClientID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Client QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>InvestorID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Investor QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>ExecutorID</i> (Optional)		4	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Executor QualifiedRole</i> (Optional)		1	Binary	See List of Optional Fields (§ 6, p. 156).
<i>Optional fields. . .</i>				Optional fields as set in the bitmap. Note, optional fields that occur in the repeating groups appear above, repeating per group, not within this block.

Example Cross Order Cancelled Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	8A 00	138 bytes
<i>MessageType</i>	82	Cross Order Cancelled
<i>MatchingUnit</i>	02	Matching Unit 2

<i>SequenceNumber</i>	01 00 00 00	Sequence number 1
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CrossID</i>	4E 5A 31 56 37 42 4A 31 41 63 63 65 70 74 42 75 79 00 00 00	NZ1V7BJ1AcceptBuy
<i>CancelReason</i>	55	U = User Requested
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturn</i>	02	2 bitfields to follow
<i>Bitfields</i>		
<i>ReturnBitfield₁</i>	00	No bitfields from byte 1
<i>ReturnBitfield₂</i>	41	<i>Symbol, Capacity</i>
<i>GroupCnt</i>	03 00	3 repeating groups to follow
<i>CIOrdID</i>	4E 5A 31 56 37 47 4E 31 61 67 65 6E 63 79 00 00 00 00 00 00	NZ1V7GN1agency
<i>OrderID</i>	02 C0 91 A2 94 AB 78 04	2G4GYK000002 (base 36)
<i>Capacity</i>	43	P = Principal
<i>CIOrdID</i>	4E 5A 31 56 37 4B 46 31 63 6F 6E 74 72 61 31 00 00 00 00 00	NZ1V7KF1contra1
<i>OrderID</i>	03 C0 91 A2 94 AB 78 04	2G4GYK000003 (base 36)
<i>Capacity</i>	46	A = Agency
<i>CIOrdID</i>	4E 5A 31 56 37 4E 48 31 63 6F 6E 74 72 61 32 00 00 00 00 00	NZ1V7NH1contra2
<i>OrderID</i>	04 C0 91 A2 94 AB 78 04	2G4GYK000004 (base 36)
<i>Capacity</i>	46	A = Agency
<i>Symbol</i>	30 30 51 30 6B 41 00 00	00Q0kA

4.2.14 Cancel Rejected V2

A CANCEL REJECTED V2 message is sent in response to a CANCEL ORDER V2 message to indicate that the cancellation cannot occur. CANCEL REJECTED V2 messages are unsequenced.

Permitted return bitfields are described in § 5.10, p. 126.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x2B
<i>MatchingUnit</i>	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
<i>SequenceNumber</i>	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>CIOrdID</i>	18	20	Text	The order whose cancel was rejected.
<i>CancelReject Reason</i>	38	1	Text	Reason for a cancel rejection. See Reason Codes (§ 7.1, p. 172) for a list of possible reasons.
<i>Text</i>	39	60	Text	Human readable text with more information about the reject reason.
<i>ReservedInternal</i>	99	1	Binary	Reserved for Cboe internal use.

<i>NumberOfReturn Bitfields</i>	100	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	101	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields...</i>				

Example Cancel Rejected V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	63 00	99 bytes
<i>MessageType</i>	2B	Cancel Rejected V2
<i>MatchingUnit</i>	00	Unsequenced Message, unit = 0
<i>SequenceNumber</i>	00 00 00 00	Unsequenced Message, sequence = 0
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>ClOrdID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
	00 00 00 00 00 00 00 00 00 00	
<i>CancelRejectReason</i>	4A	J
<i>Text</i>	54 4F 4F 20 4C 41 54 45 00 00	TOO LATE
	00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
	00 00 00 00 00 00 00 00 00 00	
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturn Bitfields</i>	00	No optional fields

4.2.15 Order Execution V2

An ORDER EXECUTION V2 is sent for each fill on an order.

Rather than returning a monetary value indicating the rebate or charge for an execution, the *FeeCode* is an indication of a fee classification corresponding to an item on the venue's fee schedule.

For executions involving complex orders, an ORDER EXECUTION V2 message will be generated for the complex order, with *MultilegReportingType* = "3", followed by ORDER EXECUTION V2 messages for each leg, with *MultilegReportingType* = "2". You must opt-in to receiving this optional field on ORDER EXECUTION V2 messages at login in order to receive this field.

The symbology used on executions for complex orders, including the legs, will **always** be Cboe symbology.

Permitted return bitfields are described in § 5.11, p. 129.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x2C
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.

<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.								
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).								
<i>CIOrdID</i>	18	20	Text	Order receiving the execution.								
<i>ExecID</i>	38	8	Binary	Corresponds to <i>ExecID</i> (17) in Cboe FIX. Execution ID. Unique across all matching units on a given day. Note: ExecIDs will be represented on ODROP, FIXDROP and standard DROP ports as base 36 ASCII. Example conversion: <table border="1" data-bbox="906 683 1391 817"> <thead> <tr> <th>Decimal</th> <th>Base 36</th> </tr> </thead> <tbody> <tr> <td>28294005440239</td> <td>A1234B567</td> </tr> <tr> <td>76335905726621</td> <td>R248BC23H</td> </tr> <tr> <td>728557228187</td> <td>09AP05V2Z</td> </tr> </tbody> </table>	Decimal	Base 36	28294005440239	A1234B567	76335905726621	R248BC23H	728557228187	09AP05V2Z
Decimal	Base 36											
28294005440239	A1234B567											
76335905726621	R248BC23H											
728557228187	09AP05V2Z											
<i>LastShares</i>	46	4	Binary	Corresponds to <i>LastShares</i> (32) in Cboe FIX. Executed contract quantity.								
<i>LastPx</i>	50	8	Binary Price	Corresponds to <i>LastPx</i> (31) in Cboe FIX. Price of this fill. Note the use of Binary Price to represent positive and negative prices, which can occur with complex/spread instruments.								
<i>LeavesQty</i>	58	4	Binary	Corresponds to <i>LeavesQty</i> (151) in Cboe FIX. Quantity still open for further execution. If zero, the order is complete.								
<i>BaseLiquidity Indicator</i>	62	1	Alphanumeric	Indicates whether the trade added or removed liquidity. A = Added Liquidity R = Removed Liquidity C = Auction Trade								
<i>SubLiquidity Indicator</i>	63	1	Alphanumeric	Additional information about an execution. Cboe may add additional values without notice. Participants must gracefully ignore unknown values. ASCII NUL (0x00) = No Additional Information b = Automated Improvement Mechanism (AIM) U = Qualifying Market Turner order. Only set when <i>BaseLiquidityIndicator</i> = A. g = Aggressive Hold. Order held by speed bump.								
<i>ContraBroker</i>	64	4	Alphanumeric	Corresponds to <i>ContraBroker</i> (375) in Cboe FIX.								
<i>ReservedInternal</i>	68	1	Binary	Reserved for Cboe internal use.								
<i>NumberOfReturn Bitfields</i>	69	1	Binary	Number of bitfields to follow.								

<i>ReturnBitfield</i> ₁	70	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield</i> _n		1	Binary	Last bitfield.
<i>Optional fields...</i>				

Example Order Execution V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	53 00	83 bytes
<i>MessageType</i>	2C	Order Execution V2
<i>MatchingUnit</i>	03	Matching Unit 3
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CIOrdID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
	00 00 00 00 00 00 00 00 00 00	
<i>ExecID</i>	01 F0 B7 D9 71 21 00 00	D19800001 (base 36)
<i>LastShares</i>	64 00 00 00	100 contracts
<i>LastPx</i>	08 E2 01 00 00 00 00 00	12.34
<i>LeavesQty</i>	00 00 00 00	0 (order completed)
<i>BaseLiquidityIndicator</i>	41	A = Added
<i>SubLiquidityIndicator</i>	00	(unset)
<i>ContraBroker</i>	42 41 54 53	BATS
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturn</i>	03	3 bitfields to follow
<i>Bitfields</i>		
<i>ReturnBitfield</i> ₁	00	No bitfields from byte 1
<i>ReturnBitfield</i> ₂	00	No bitfields from byte 2
<i>ReturnBitfield</i> ₃	46	<i>ClearingFirm</i> , <i>ClearingAccount</i> , <i>OrderQty</i>
<i>ClearingFirm</i>	54 45 53 54	TEST
<i>ClearingAccount</i>	31 32 33 43	1234
<i>OrderQty</i>	78 00 00 00	120 contracts

4.2.16 Quote Execution

A QUOTE EXECUTION message is used to indicate an execution has occurred on a resting quote.

This message may be expanded in length in the future with new fields added to the end. To maintain forward compatibility, be prepared to receive a message longer than the documented length and to gracefully ignore those extra fields.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x83
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.

<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).								
<i>QuoteUpdateID</i>	18	16	Text	Echoed back from the most recent QUOTE UPDATE request for this quote.								
<i>OrderID</i>	34	8	Binary	Corresponds to <i>OrderID</i> (37) in Cboe FIX. Order identifier supplied by Cboe. This identifier corresponds to the identifiers used in Cboe market data products.								
<i>ExecID</i>	42	8	Binary	Corresponds to <i>ExecID</i> (17) in Cboe FIX. Execution ID. Unique across all matching units on a given day. Note: ExecIDs will be represented on ODROP, FIXDROP and standard DROP ports as base 36 ASCII. Example conversion: <table border="1" data-bbox="906 797 1393 931"> <thead> <tr> <th>Decimal</th> <th>Base 36</th> </tr> </thead> <tbody> <tr> <td>28294005440239</td> <td>A1234B567</td> </tr> <tr> <td>76335905726621</td> <td>R248BC23H</td> </tr> <tr> <td>728557228187</td> <td>09AP05V2Z</td> </tr> </tbody> </table>	Decimal	Base 36	28294005440239	A1234B567	76335905726621	R248BC23H	728557228187	09AP05V2Z
Decimal	Base 36											
28294005440239	A1234B567											
76335905726621	R248BC23H											
728557228187	09AP05V2Z											
<i>Symbol</i>	50	6	Alphanumeric	Cboe Symbology symbol								
<i>ClearingFirm</i>	56	4	Alpha	Echoed back from the original quote.								
<i>LastShares</i>	60	4	Binary	Corresponds to <i>LastShares</i> (32) in Cboe FIX. Executed contract quantity.								
<i>LastPx</i>	64	8	Binary Price	Corresponds to <i>LastPx</i> (31) in Cboe FIX. Price of this fill. Note the use of Binary Price to represent positive and negative prices, which can occur with complex/spread instruments.								
<i>LeavesQty</i>	72	4	Binary	Corresponds to <i>LeavesQty</i> (151) in Cboe FIX. Quantity still open for further execution. If zero, the order is complete.								
<i>LastMkt</i>	76	4	Alphanumeric	Corresponds to <i>LastMkt</i> (30) in Cboe FIX. Segment MIC of this fill.								
<i>Side</i>	80	1	Alphanumeric	1 = Buy 2 = Sell								
<i>BaseLiquidity Indicator</i>	81	1	Alphanumeric	Indicates whether the trade added or removed liquidity. A = Added Liquidity R = Removed Liquidity C = Auction Trade								

<i>SubLiquidity Indicator</i>	82	1	Alphanumeric	<p>Cboe may add additional values without notice. Participants must gracefully ignore unknown values.</p> <p>ASCII NUL (0x00) = No Additional Information</p> <p>b = Automated Improvement Mechanism (AIM)</p> <p>U = Qualifying Market Turner</p>
<i>FeeCode</i>	83	2	Alphanumeric	Indicates fee associated with an execution. Fee codes are published in the pricing schedule. New fee codes may be sent with little to no notice. Participants are encouraged to code their systems to accept unknown fee codes.

Example Quote Execution Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	54 00	84 bytes
<i>MessageType</i>	83	Quote Execution
<i>MatchingUnit</i>	03	Matching Unit 3
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>QuoteUpdateID</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00	ABC123
<i>OrderID</i>	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
<i>ExecID</i>	01 F0 B7 D9 71 21 00 00	D19800001 (base 36)
<i>Symbol</i>	30 30 51 30 6B 41	00Q0kA
<i>ClearingFirm</i>	54 45 53 54	TEST
<i>LastShares</i>	64 00 00 00	100 contracts
<i>LastPx</i>	70 17 00 00 00 00 00 00	0.60
<i>LeavesQty</i>	00 00 00 00	0 (order done)
<i>LastMkt</i>	43 45 44 58	CEDX
<i>Side</i>	32	2 = Sell
<i>BaseLiquidityIndicator</i>	41	A = Added
<i>SubLiquidityIndicator</i>	00	(unset)
<i>FeeCode</i>	41 42	AB

4.2.17 Trade Cancel or Correct V2

Used to relay a trade which has been cancelled (busted) or corrected (price or size change only). The *CorrectedPrice* and optional *CorrectedSize* fields will be set to 0 for cancelled trades and to the new trade price and/or size for corrected trades. TRADE CANCEL OR CORRECT V2 can be sent for same day as well as previous day trades.

Trade cancels or corrections to complex instruments will result in individual TRADE CANCEL OR CORRECT messages being sent for each leg. No cancels or corrections will be sent for complex instruments.

Permitted return bitfields are described in § 5.12, p. 132.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.

<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x2D
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>CIOrdID</i>	18	20	Text	<i>CIOrdID</i> of the order whose fill is being cancelled or corrected.
<i>OrderID</i>	38	8	Binary	Corresponds to <i>OrderID</i> (37) in Cboe FIX. Order whose fill is being cancelled or corrected.
<i>ExecRefID</i>	46	8	Binary	Corresponds to <i>ExecRefID</i> (19) in Cboe FIX. Refers to the <i>ExecID</i> (o)f the fill being cancelled or corrected.
<i>Side</i>	54	1	Alphanumeric	Side of the order.
<i>BaseLiquidity Indicator</i>	55	1	Alphanumeric	Indicates whether the trade added or removed liquidity. A = Added Liquidity R = Removed Liquidity C = Auction Trade
<i>ClearingFirm</i>	56	4	Alpha	Echoed back from the original order.
<i>ClearingAccount</i>	60	4	Text	Echoed back from the original order.
<i>LastShares</i>	64	4	Binary	Number of shares of the trade being cancelled.
<i>LastPx</i>	68	8	Binary Price	Price of the trade being cancelled.
<i>CorrectedPrice</i>	76	8	Binary Price	For trade corrections, this is the new trade price. For trade breaks, this is set to 0.
<i>OrigTime</i>	84	8	DateTime	Corresponds to <i>OrigTime</i> (42). The date and time of the original trade, in GMT.
<i>ReservedInternal</i>	92	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturn Bitfields</i>	93	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	94	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields. . .</i>				

Example Trade Cancel or Correct Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	66 00	102 bytes
<i>MessageType</i>	2D	Trade Cancel or Correct V2
<i>MatchingUnit</i>	03	Matching Unit 3
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000

<i>ClOrdID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
	00 00 00 00 00 00 00 00 00 00	
<i>OrderID</i>	05 10 1E B7 5E 39 2F 02	171WC1000005 (base 36)
<i>ExecRefID</i>	01 F0 B7 D9 71 21 00 00	D19800001 (base 36)
<i>Side</i>	31	Buy
<i>BaseLiquidity</i>	41	A = Added
<i>Indicator</i>		
<i>ClearingFirm</i>	54 45 53 54	TEST
<i>ClearingAccount</i>	00 00 00 00	(empty)
<i>LastShares</i>	64 00 00 00	100 contracts
<i>LastPx</i>	70 17 00 00 00 00 00 00	0.60
<i>CorrectedPrice</i>	00 00 00 00 00 00 00 00	0 (cancelled)
<i>OrigTime</i>	E0 BA 75 95 15 4C EB 11	1,291,209,373,757,324,000
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturn</i>	02	4 bitfields to follow
<i>Bitfields</i>		
<i>ReturnBitfield₁</i>	00	No fields from byte 1
<i>ReturnBitfield₂</i>	01	<i>Symbol</i>
<i>Symbol</i>	30 30 51 30 6B 41 00 00	00Q0kA

4.2.18 Purge Rejected

A PURGE REJECTED V2 message is sent in response to a PURGE ORDERS V2 message to indicate that the mass cancellation cannot occur. PURGE REJECTED V2 messages are unsequenced.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x48
<i>MatchingUnit</i>	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
<i>SequenceNumber</i>	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>PurgeReject Reason</i>	18	1	Text	Reason for a purge rejection. See Reason Codes (§ 7.1, p. 172) for a list of possible reasons.
<i>Text</i>	19	60	Text	Human readable text with more information about the reject reason.
<i>ReservedInternal</i>	79	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturn Bitfields</i>	80	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	81	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>Optional fields...</i>				

Example Purge Rejected V2 Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	72 00	114 bytes
<i>MessageType</i>	48	Purge Rejected V2
<i>MatchingUnit</i>	00	Unsequenced Message, unit = 0
<i>SequenceNumber</i>	00 00 00 00	Unsequenced Message, sequence = 0
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>PurgeRejectReason</i>	41	A
<i>Text</i>	41 44 4D 49 4E 00	ADMIN
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturn</i>	0F	15 bitfields to follow
<i>Bitfields</i>		
<i>ReturnBitfield</i> ₁	00	No fields from byte 1
<i>ReturnBitfield</i> ₂	00	No fields from byte 2
<i>ReturnBitfield</i> ₃	00	No fields from byte 3
<i>ReturnBitfield</i> ₄	00	No fields from byte 4
<i>ReturnBitfield</i> ₅	00	No fields from byte 5
<i>ReturnBitfield</i> ₆	00	No fields from byte 6
<i>ReturnBitfield</i> ₇	00	No fields from byte 7
<i>ReturnBitfield</i> ₈	00	No fields from byte 8
<i>ReturnBitfield</i> ₉	00	No fields from byte 9
<i>ReturnBitfield</i> ₁₀	00	No fields from byte 10
<i>ReturnBitfield</i> ₁₁	00	No fields from byte 11
<i>ReturnBitfield</i> ₁₂	00	No fields from byte 12
<i>ReturnBitfield</i> ₁₃	00	No fields from byte 13
<i>ReturnBitfield</i> ₁₄	00	No fields from byte 14
<i>ReturnBitfield</i> ₁₅	08	MassCancelld
<i>MassCancelld</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123

4.2.19 Reset Risk Acknowledgment

Response to a RESET RISK request.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x57
<i>MatchingUnit</i>	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
<i>SequenceNumber</i>	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.

<i>RiskStatusID</i>	10	16	Text	Unique identifier for this Reset Risk request. Response message will have this corresponding identifier. Note: Cboe only enforces uniqueness of RiskStatusID values among currently unacknowledged requests. However, we strongly recommend that you keep your RiskStatusID values day-unique.
<i>RiskResetResult</i>	26	1	Text	<space> = Ignored; exceeds 1 reset per second Y = Success F = Rejected; exceeds firm reset limit C = Rejected; exceeds Custom Group ID limit D = Rejected; automatic risk resets are disabled E = Rejected; empty ResetRisk field I = Rejected; Incorrect data center S = Rejected; exceeds risk root reset limit U = Rejected; invalid underlying c = Rejected; invalid ClearingFirm y = Rejected; in replay Additional reject values may be added in the future with no notice.

Example Reset Risk Acknowledgment Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	19 00	25 bytes
<i>MessageType</i>	57	Reset Risk Acknowledgment
<i>MatchingUnit</i>	00	Unsequenced Message, unit = 0
<i>SequenceNumber</i>	00 00 00 00	Unsequenced Message, sequence
<i>RiskStatusID</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00	ABC123
<i>RiskResetResult</i>	59	Y = Success

4.2.20 Mass Cancel Acknowledgment

A MASS CANCEL ACKNOWLEDGMENT is an unsequenced message sent when a PURGE ORDERS or CANCEL ORDER V2 message requesting a mass cancellation has completed cancelling all individual orders.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x36
<i>MatchingUnit</i>	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
<i>SequenceNumber</i>	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
<i>TransactionTime</i>	10	8	DateTime	The time in the order entry gateway when the final matching engine event was received to complete the mass cancel.

<i>MassCancelld</i>	18	20	Text	Copied from the <i>MassCancelld</i> passed on the original CANCEL ORDER V2 or PURGE ORDERS V2. This field corresponds to <i>MassCancelld</i> (7695) in Cboe FIX.
<i>CancelledOrderCount</i>	38	4	Binary	Number of orders cancelled. This field corresponds to <i>CancelledOrderCount</i> (7696) in Cboe FIX.
<i>ReservedInternal</i>	42	1	Binary	Reserved for Cboe internal use.

Example Mass Cancel Acknowledgment Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes
<i>MessageLength</i>	29 00	41 bytes
<i>MessageType</i>	36	Mass Cancel Acknowledgment
<i>MatchingUnit</i>	00	Unsequenced Message, unit = 0
<i>SequenceNumber</i>	00 00 00 00	Unsequenced Message, sequence = 0
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>MassCancelld</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
<i>CancelledOrderCount</i>	63 00 00 00	99 orders were cancelled
<i>ReservedInternal</i>	00	Ignore

4.2.21 Complex Instrument Accepted (Options only)

The COMPLEX INSTRUMENT ACCEPTED is used to indicate acceptance of a complex strategy. The leg order sent back may differ from the originating request; *RevisedLegs* will indicate if the leg order has been altered from the original request.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x4D
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).

<i>CIOrdID</i>	18	20	Text	<p>Corresponds to <i>CIOrdID</i> (11) in Cboe FIX.</p> <p>Day-unique ID chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe.</p> <p>If the <i>CIOrdID</i> matches a live order, the order will be rejected as duplicate.</p> <p>Note: Cboe only enforces uniqueness of <i>CIOrdID</i> values among currently live orders. However, we strongly recommend that you keep your <i>CIOrdID</i> values day-unique.</p>
<i>Symbol</i>	38	8	Alphanumeric	<p>Corresponds to <i>Symbol</i> (55) in Cboe FIX.</p> <p>Cboe Symbology for the instrument.</p>
<i>RevisedLegs</i>	46	1	Alphanumeric	<p>Indicates if the legs on the created complex strategy have been reordered from the original request.</p> <p>If the legs were reordered, the order of the Open-Close fields on a <i>NEWCOMPLEXORDER</i> must be the order returned by the exchange, not the order from the original request.</p> <p>1 = Legs were not reordered 2 = Legs were reordered</p>
<i>NoOfSecurities</i>	47	4	Binary	<p>Corresponds to <i>NoOfSecurities</i> (8641) in Cboe FIX.</p> <p>Indicates the number of securities created by the member in this trading session.</p>
<i>ReservedInternal</i>	51	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	52	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield</i> ₁	53	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield</i> _{<i>n</i>}		1	Binary	Last bitfield.
<i>NoLegs</i>		1	Binary	<p>Corresponds to <i>NoLegs</i> (555) in Cboe FIX.</p> <p>Indicates the number of repeating groups to follow.</p> <p>Must be a minimum of 2 and a maximum of 12.</p>

Repeating Group *ComplexLeg* must occur the number of times specified in *NoLegs*. Each field occurs in each group, in order as shown below. Optional fields occur only if corresponding bits in bitfields are set.

<i>LegSymbol</i>	8	Alphanumeric	Corresponds to <i>LegSymbol</i> (600) in Cboe FIX.
<i>LegRatioQty</i>	4	Binary	Corresponds to <i>LegRatioQty</i> (623) in Cboe FIX. Ratio of number of contracts in this leg per order quantity. Must be between 1 and 99,999.
<i>LegSide</i>	1	Alphanumeric	Corresponds to <i>LegSide</i> (624) in Cboe FIX. 1 = Buy 2 = Sell

<i>Optional fields. . .</i>				Optional fields as set in the bitmap. Note, optional fields that occur in the repeating groups appear above, repeating per group, not within this block.
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Example Complex Instrument Accepted Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	44 00	68 bytes
<i>MessageType</i>	4D	Complex Instrument Accepted
<i>MatchingUnit</i>	03	Matching Unit 3
<i>SequenceNumber</i>	64 00 00 00	Sequence number 100
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CIOrdID</i>	41 42 43 31 32 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00	ABC123
<i>Symbol</i>	5A 4E 4B 38 46 43 00 00	ZNK8FC
<i>RevisedLegs</i>	30	Legs accepted as sent
<i>NoOfSecurities</i>	04 00 00 00	4 complex strategies created by sender
<i>NumberOfReturn</i>	00	no bitfields to follow
<i>InstrumentBitfields</i>		
<i>NoLegs</i>	03	2 legs
<i>LegSymbol</i>	30 30 51 30 6B 41 00 00	00Q0kA
<i>LegRatioQty</i>	02 00 00 00	Ratio of 2
<i>LegSide</i>	31	Buy
<i>LegSymbol</i>	30 30 51 33 6B 43 00 00	00Q3kC
<i>LegRatioQty</i>	01 00 00 00	Ratio of 1
<i>LegSide</i>	32	Sell

4.2.22 Complex Instrument Rejected (Options only)

The COMPLEX INSTRUMENT REJECTED is used to indicate that a requested complex strategy has been rejected. COMPLEX INSTRUMENT REJECTED messages are unsequenced.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.

<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x4E
<i>MatchingUnit</i>	5	1	Binary	Unsequenced application message. Matching unit will be set to 0.
<i>SequenceNumber</i>	6	4	Binary	Unsequenced application message. Sequence number will be set to 0.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>CIOrdID</i>	18	20	Text	Corresponds to <i>CIOrdID</i> (11) in Cboe FIX. Day-unique ID chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe. If the <i>CIOrdID</i> matches a live order, the order will be rejected as duplicate. Note: Cboe only enforces uniqueness of <i>CIOrdID</i> values among currently live orders. However, we strongly recommend that you keep your <i>CIOrdID</i> values day-unique.
<i>OrderRejectReason</i>	38	1	Text	Reason for an order rejection. See Reason Codes (§ 7.1, p. 172) for a list of possible reasons.
<i>Text</i>	39	60	Text	Human readable text with more information about the reject reason.
<i>NoOfSecurities</i>	99	4	Binary	Corresponds to <i>NoOfSecurities</i> (8641) in Cboe FIX. Indicates the number of securities created by the member in this trading session.
<i>ReservedInternal</i>	103	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	104	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield</i> ₁	105	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield</i> _{<i>n</i>}		1	Binary	Last bitfield.
<i>Optional fields...</i>				

Example Complex Instrument Rejected Message:

Field Name	Hexadecimal	Notes
<i>StartOfMessage</i>	BA BA	Start of message bytes.
<i>MessageLength</i>	64 00	100 bytes
<i>MessageType</i>	4E	Complex Instrument Rejected
<i>MatchingUnit</i>	00	Unsequenced Message, unit = 0
<i>SequenceNumber</i>	00 00 00 00	Unsequenced Message, sequence = 0
<i>TransactionTime</i>	E0 FA 20 F7 36 71 F8 11	1,294,909,373,757,324,000
<i>CIOrdID</i>	41 42 43 31 32 33 00 00 00 00	ABC123
<i>OrderRejectReason</i>	00 00 00 00 00 00 00 00 00 00 44	D

<i>Text</i>	44 75 70 6C 69 63 61 74 65 20 43 6C 4F 72 64 49 44 00	Duplicate CIOrdID
<i>NoOfSecurities</i>	04 00 00 00	4 complex strategies created by sender
<i>ReservedInternal</i>	00	Ignore
<i>NumberOfReturn</i>	00	no bitfields to follow

4.2.23 Trade Capture Report Acknowledgment V2

The TRADE CAPTURE REPORT ACKNOWLEDGMENT V2 is sent by Cboe to acknowledge the receipt of a TRADE CAPTURE REPORT V2. It is a technical-level ack. The Trade is not considered to have fully succeeded until a TRADE CAPTURE CONFIRM V2 is sent.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x30
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>TradeReportID</i>	18	20	Text	Corresponds to <i>TradeReportID</i> (571) in Cboe FIX. Contains the <i>TradeReportID</i> (571) of the original trade capture report to which this message relates
<i>ReservedInternal</i>	38	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	39	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	40	1	Binary	Bitfield identifying fields to return.
:				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>NoSides</i>		1	Binary	Corresponds to <i>NoSides</i> (552) in Cboe FIX. Indicates the number of repeating groups to follow. Must be 2.

Repeating Group *TrdCapAckSideGrp* must occur the number of times specified in *NoSides*. All fields are optional. Each field occurs in each group, in bitfield order as shown below, if its corresponding bit in the bitfields bit is set.

<i>Side</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>Capacity</i>	1	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>Account</i>	16	Text	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>PartyID</i>	4	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>PartyRole</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>OpenClose</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>CustOrder HandlingInst</i>	1	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>AccountType</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.

<i>Optional fields. . .</i>				Optional fields as set in the bitmap. Note, optional fields that occur in the repeating groups appear above, repeating per group, not within this block.
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4.2.24 Trade Capture Report Reject V2

The TRADE CAPTURE REPORT REJECT V2 is sent by Cboe in response to a TRADE CAPTURE REPORT V2. TRADE CAPTURE REPORT REJECT V2 messages are unsequenced.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x31
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>TradeReportID</i>	18	20	Text	Corresponds to <i>TradeReportID</i> (571) in Cboe FIX. Contains the <i>TradeReportID</i> (571) of the original trade capture report to which this message relates

<i>Reason</i>	38	1	Text	Reason for a TRADE CAPTURE REPORT reject or decline. See Reason Codes (§ 7.1, p. 172) for a list of possible reasons.
<i>Text</i>	39	60	Text	Human readable text with more information about the reject reason.
<i>ReservedInternal</i>	99	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	100	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	101	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.
<i>NoSides</i>		1	Binary	Corresponds to <i>NoSides</i> (552) in Cboe FIX. Indicates the number of repeating groups to follow. Must be 2.
Repeating Group <i>TrdCapAckSideGrp</i> must occur the number of times specified in <i>NoSides</i> . All fields are optional. Each field occurs in each group, in bitfield order as shown below, if its corresponding bit in the bitfields bit is set.				
<i>Side</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>Capacity</i>	1	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>Account</i>	16	Text	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>PartyID</i>	4	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>PartyRole</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>OpenClose</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>CustOrderHandlingInst</i>	1	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>AccountType</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>Optional fields...</i>				Optional fields as set in the bitmap. Note, optional fields that occur in the repeating groups appear above, repeating per group, not within this block.

4.2.25 Trade Capture Confirm V2

The TRADE CAPTURE CONFIRM V2 is sent from Cboe to the participant in order to confirm that a TRADE CAPTURE REPORT V2 has been fully processed. It is a business-level confirmation as distinct from the technology level acknowledgment sent as a TRADE CAPTURE REPORT ACKNOWLEDGMENT V2.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.

<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x32
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.
<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>TradeReportID</i>	18	20	Text	Corresponds to <i>TradeReportID</i> (571) in Cboe FIX. Unique identifier for the trade report confirm as provided by Cboe
<i>TradeReportRefID</i>	38	20	Text	Corresponds to <i>TradeReportRefID</i> (572) in Cboe FIX. Contains the <i>TradeReportID</i> (571) of the original trade capture report to which this message relates
<i>TradeID</i>	58	8	Binary	Corresponds to <i>TradeID</i> (1003) in FIX. An ID allocated by Cboe in response to a trade capture report, identifying a particular trade. These are present in the PITCH Off-Book Trade messages, and are guaranteed unique for a minimum of 7 calendar days from the original report.
<i>LastShares</i>	66	4	Binary	Corresponds to <i>LastShares</i> (32) in Cboe FIX. Executed share quantity. If the <i>LargeSize</i> optional field is specified, that value holds precedence over this field.
<i>LastPx</i>	70	8	Trade Price	Corresponds to <i>LastPx</i> (31) in Cboe FIX. Price of this fill. Note the use of Binary Price to represent positive and negative prices, which can occur with complex/spread instruments.
<i>ContraBroker</i>	78	4	Alphanumeric	Corresponds to <i>ContraBroker</i> (375) in Cboe FIX. Indicates the market of execution. ¹
<i>ReservedInternal</i>	82	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	83	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	84	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.

¹for historical reasons a local execution for an order entered into the BXE book is identified with a value of BATS

<i>NoSides</i>		1	Binary	Corresponds to <i>NoSides</i> (552) in Cboe FIX. Indicates the number of repeating groups to follow. Must be 2.
Repeating Group <i>TrdCapAckSideGrp</i> must occur the number of times specified in <i>NoSides</i> . All fields are optional. Each field occurs in each group, in bitfield order as shown below, if its corresponding bit in the bitfields bit is set.				
<i>Side</i>		1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>Capacity</i>		1	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>Account</i>		16	Text	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>PartyID</i>		4	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>Central Counterparty</i>		1	Alpha	The CCP handling the trade C = EuroCCP
<i>PartyRole</i>		1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>FeeCode</i>		2	Alphanumeric	Indicates fee associated with an execution. Fee codes are published in the pricing schedule. New fee codes may be sent with little to no notice. Participants are encouraged to code their systems to accept unknown fee codes.
<i>OpenClose</i>		1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>CustOrder HandlingInst</i>		1	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>AccountType</i>		1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.
<i>Optional fields...</i>				Optional fields as set in the bitmap. Note, optional fields that occur in the repeating groups appear above, repeating per group, not within this block.

4.2.26 Trade Capture Report Decline V2

The TRADE CAPTURE DECLINE V2 is sent from Cboe to the participant in order to decline a TRADE CAPTURE REPORT V2. It is a business-level reject as distinct from the technology level acknowledgment sent as a TRADE CAPTURE REPORT ACKNOWLEDGMENT V2.

Field	Offset	Length	Data Type	Description
<i>StartOfMessage</i>	0	2	Binary	Must be 0xBA 0xBA.
<i>MessageLength</i>	2	2	Binary	Number of bytes for the message, including this field but not including the two bytes for the <i>StartOfMessage</i> field.
<i>MessageType</i>	4	1	Binary	0x33
<i>MatchingUnit</i>	5	1	Binary	The matching unit which created this message. Matching units in CEDX BOE correspond to matching units on Multicast PITCH.

<i>SequenceNumber</i>	6	4	Binary	The sequence number for this message. Distinct per matching unit.
<i>TransactionTime</i>	10	8	DateTime	The time the event occurred in the Cboe matching engine (not the time the message was sent).
<i>TradeReportID</i>	18	20	Text	Corresponds to <i>TradeReportID</i> (571) in Cboe FIX. Unique identifier for the trade report confirm as provided by Cboe
<i>TradeReportRefID</i>	38	20	Text	Corresponds to <i>TradeReportRefID</i> (572) in Cboe FIX. Contains the <i>TradeReportID</i> (571) of the original trade capture report to which this message relates
<i>TradeID</i>	58	8	Binary	Corresponds to <i>TradeID</i> (1003) in FIX. An ID allocated by Cboe in response to a trade capture report, identifying a particular trade. These are present in the PITCH Off-Book Trade messages, and are guaranteed unique for a minimum of 7 calendar days from the original report.
<i>LastShares</i>	66	4	Binary	Corresponds to <i>LastShares</i> (32) in Cboe FIX. Executed share quantity. If the LargeSize optional field is specified, that value holds precedence over this field.
<i>LastPx</i>	70	8	Trade Price	Corresponds to <i>LastPx</i> (31) in Cboe FIX. Price of this fill. Note the use of Binary Price to represent positive and negative prices, which can occur with complex/spread instruments.
<i>ContraBroker</i>	78	4	Alphanumeric	Corresponds to <i>ContraBroker</i> (375) in Cboe FIX. Indicates the market of execution. ²
<i>Reason</i>	82	1	Text	Reason for a TRADE CAPTURE REPORT reject or decline. See Reason Codes (§ 7.1, p. 172) for a list of possible reasons.
<i>Text</i>	83	60	Text	Human readable text with more information about the reject reason.
<i>ReservedInternal</i>	143	1	Binary	Reserved for Cboe internal use.
<i>NumberOfReturnBitfields</i>	144	1	Binary	Number of bitfields to follow.
<i>ReturnBitfield₁</i>	145	1	Binary	Bitfield identifying fields to return.
⋮				
<i>ReturnBitfield_n</i>		1	Binary	Last bitfield.

²for historical reasons a local execution for an order entered into the BXE book is identified with a value of BATS

<i>NoSides</i>		1	Binary	Corresponds to <i>NoSides</i> (552) in Cboe FIX. Indicates the number of repeating groups to follow. Must be 2.
Repeating Group <i>TrdCapAckSideGrp</i> must occur the number of times specified in <i>NoSides</i> . All fields are optional. Each field occurs in each group, in bitfield order as shown below, if its corresponding bit in the bitfields bit is set.				
<i>Side</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>Capacity</i>	1	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>Account</i>	16	Text	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>PartyID</i>	4	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>PartyRole</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>OpenClose</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>CustOrder HandlingInst</i>	1	Alpha	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>Account Type</i>	1	Alphanumeric	Echoed back from the original TRADE CAPTURE REPORT V2 message.	
<i>Optional fields. . .</i>				Optional fields as set in the bitmap. Note, optional fields that occur in the repeating groups appear above, repeating per group, not within this block.

5 Return Bitfields Per Message

Legend:

- Indicates that the field can be requested for a message
- Indicates that the field cannot be requested for a message

5.1 Order Acknowledgment V2

Byte	Bit	Field	
1	1	<i>Side</i>	•
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	•
	8	<i>Execlnst</i>	–
	16	<i>OrdType</i>	•
	32	<i>TimelnForce</i>	•
	64	<i>MinQty</i>	•
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	•
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	•
	16	<i>SecurityId</i>	•
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	•
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	•
	2	<i>ClearingFirm</i>	•
	4	<i>ClearingAccount</i>	•
	8	<i>DisplayIndicator</i>	•
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	•
	128	<i>PreventMatch</i>	•
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	•
	16	<i>CIOrdIdBatch</i>	–
	32	<i>CorrectedSize</i>	–
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdId</i>	•
	2	<i>LeavesQty</i>	•
	4	<i>LastShares</i>	•
	8	<i>LastPrice</i>	•
	16	<i>DisplayPrice</i>	•
	32	<i>WorkingPrice</i>	•
	64	<i>BaseLiquidityIndicator</i>	•
	128	<i>ExpireTime</i>	•

continued...

Byte	Bit	Field	
6	1	SecondaryOrderId	•
	2	CCP	–
	4	ContraCapacity	–
	8	AttributedQuote	–
	16	ExtExecInst	–
	32	BulkOrderIds	–
	64	BulkRejectReasons	–
	128	PartyRole	–
7	1	SubLiquidityIndicator	•
	2	TradeReportTypeReturn	–
	4	TradePublishIndReturn	–
	8	Text	–
	16	Bid	–
	32	Offer	–
	64	LargeSize	–
	128	LastMkt	–
8	1	FeeCode	–
	2	EchoText	–
	4	StopPx	•
	8	RoutingInst	•
	16	RoutStrategy	–
	32	RouteDeliveryMethod	–
	64	ExDestination	–
	128	TradeReportRefID	–
9	1	MarketingFeeCode	–
	2	TargetPartyID	–
	4	AuctionId	•
	8	OrderCategory	–
	16	LiquidityProvision	•
	32	CmtaNumber	–
	64	CrossType	–
	128	CrossPrioritization	–
10	1	CrossId	–
	2	AllocQty	–
	4	GiveUpFirmID	–
	8	RoutingFirmID	–
	16	WaiverType	•
	32	CrossExclusionIndicator	–
	64	PriceFormation	–
	128	ClientQualifiedRole	•
11	1	ClientID	•
	2	InvestorID	•
	4	ExecutorID	•
	8	OrderOrigination	•
	16	AlgorithmicIndicator	•
	32	DeferralReason	–
	64	InvestorQualifiedRole	•
	128	ExecutorQualifiedRole	•

continued...

Byte	Bit	Field	
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–
13	1	<i>CumQty</i>	–
	2	<i>DayOrderQty</i>	–
	4	<i>DayCumQty</i>	–
	8	<i>AvgPx</i>	–
	16	<i>DayAvgPx</i>	–
	32	<i>PendingStatus</i>	–
	64	<i>DrillThruProtection</i>	•
	128	<i>MultilegReportingType</i>	–
14	1	<i>LegCFIcode</i>	–
	2	<i>LegMaturityDate</i>	–
	4	<i>LegStrikePrice</i>	–
	8	<i>QuoteRoomID</i>	–
	16	<i>SecondaryExecId</i>	–
	32	<i>UserRequestID</i>	–
	64	<i>Username</i>	–
	128	<i>UserStatus</i>	–
15	1	<i>TradeReportingIndicator</i>	–
	2	<i>EquityPartyId</i>	–
	4	<i>EquityNBBOProtect</i>	–
	8	<i>MassCancelId</i>	–
	16	<i>TradePublishInd</i>	–
	32	<i>ReportTime</i>	–
	64	<i>LegSymbolSfx</i>	–
	128	<i>ClientIdAttr</i>	–
16	1	<i>FrequentTraderID</i>	–
	2	<i>SessionEligibility</i>	–
	4	<i>ComboOrder</i>	–
	8	<i>Compression</i>	–
	16	<i>FloorDestination</i>	–
	32	<i>FloorRoutingInst</i>	–
	64	<i>MultiClassSpread</i>	–
	128	<i>OrderOrigin</i>	–
17	1	<i>PriceType</i>	–
	2	<i>StrategyId</i>	–
	4	<i>TradingSessionId</i>	–
	8	<i>TradeThroughAlertType</i>	–
	16	<i>SenderLocationId</i>	–
	32	<i>FloorTraderAcronym</i>	–
	64	<i>ExecLegCFIcode</i>	–
	128	<i>CustOrderHandlingInst</i>	•

continued...

Byte	Bit	Field	
18	1	<i>AccountType</i>	•
	2	<i>CrossInitiator</i>	–
	4	<i>Subreason</i>	–
	8	<i>ReservedBit</i>	–
	16	<i>ReservedBit</i>	–
	32	<i>ReservedBit</i>	–
	64	<i>ReservedBit</i>	–
	128	<i>ReservedBit</i>	–

5.2 Cross Order Acknowledgment (Options Only)

Byte	Bit	Field	
1	1	<i>Side</i>	•
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	•
	8	<i>ExecInst</i>	–
	16	<i>OrdType</i>	–
	32	<i>TimeInForce</i>	–
	64	<i>MinQty</i>	–
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	•
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	•
	16	<i>SecurityId</i>	•
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	•
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	•
	2	<i>ClearingFirm</i>	•
	4	<i>ClearingAccount</i>	•
	8	<i>DisplayIndicator</i>	–
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	•
	128	<i>PreventMatch</i>	•
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	•
	16	<i>CIOrdIdBatch</i>	–
	32	<i>CorrectedSize</i>	–
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdId</i>	–
	2	<i>LeavesQty</i>	–
	4	<i>LastShares</i>	–
	8	<i>LastPrice</i>	–
	16	<i>DisplayPrice</i>	–
	32	<i>WorkingPrice</i>	–
	64	<i>BaseLiquidityIndicator</i>	–
	128	<i>ExpireTime</i>	–
6	1	<i>SecondaryOrderId</i>	–
	2	<i>CCP</i>	–
	4	<i>ContraCapacity</i>	–
	8	<i>AttributedQuote</i>	–
	16	<i>ExtExecInst</i>	–
	32	<i>BulkOrderIds</i>	–
	64	<i>BulkRejectReasons</i>	–
	128	<i>PartyRole</i>	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	•
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	•
	128	<i>CrossPrioritization</i>	•
10	1	<i>CrossId</i>	•
	2	<i>AllocQty</i>	•
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	•
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	•
11	1	<i>ClientID</i>	•
	2	<i>InvestorID</i>	•
	4	<i>ExecutorID</i>	•
	8	<i>OrderOrigination</i>	•
	16	<i>AlgorithmicIndicator</i>	•
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	•
	128	<i>ExecutorQualifiedRole</i>	•
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	–
	2	DayOrderQty	–
	4	DayCumQty	–
	8	AvgPx	–
	16	DayAvgPx	–
	32	PendingStatus	–
	64	DrillThruProtection	•
	128	MultilegReportingType	–
14	1	LegCFIcode	–
	2	LegMaturityDate	–
	4	LegStrikePrice	–
	8	QuoteRoomID	–
	16	SecondaryExecId	–
	32	UserRequestID	–
	64	Username	–
	128	UserStatus	–
15	1	TradeReportingIndicator	–
	2	EquityPartyId	–
	4	EquityNBBOProtect	–
	8	MassCancelId	–
	16	TradePublishInd	–
	32	ReportTime	–
	64	LegSymbolSfx	–
	128	ClientIdAttr	–
16	1	FrequentTraderID	–
	2	SessionEligibility	–
	4	ComboOrder	–
	8	Compression	–
	16	FloorDestination	–
	32	FloorRoutingInst	–
	64	MultiClassSpread	–
	128	OrderOrigin	–
17	1	PriceType	–
	2	StrategyId	–
	4	TradingSessionId	–
	8	TradeThroughAlertType	–
	16	SenderLocationId	–
	32	FloorTraderAcronym	–
	64	ExecLegCFIcode	–
	128	CustOrderHandlingInst	•
18	1	AccountType	•
	2	CrossInitiator	–
	4	Subreason	–
	8	ReservedBit	–
	16	ReservedBit	–
	32	ReservedBit	–
	64	ReservedBit	–
	128	ReservedBit	–

5.3 Order Rejected V2

Byte	Bit	Field	
1	1	Side	•
	2	PegDifference	–
	4	Price	•
	8	Execlnst	–
	16	OrdType	•
	32	TimelnForce	•
	64	MinQty	•
	128	MaxRemovePct	–
2	1	Symbol	•
	2	SymbolSfx	–
	4	Currency	–
	8	IdSource	•
	16	SecurityId	•
	32	SecurityExchange	–
	64	Capacity	•
	128	ContraTrader	–
3	1	Account	•
	2	ClearingFirm	•
	4	ClearingAccount	•
	8	DisplayIndicator	•
	16	MaxFloor	–
	32	DiscretionAmount	–
	64	OrderQty	•
	128	PreventMatch	•
4	1	MaturityDate	–
	2	StrikePrice	–
	4	PutOrCall	–
	8	OpenClose	•
	16	CIOrdldBatch	–
	32	CorrectedSize	–
	64	PartyID	–
	128	AccessFee	–
5	1	OrigCIOrdld	–
	2	LeavesQty	–
	4	LastShares	–
	8	LastPrice	–
	16	DisplayPrice	–
	32	WorkingPrice	–
	64	BaseLiquidityIndicator	–
	128	ExpireTime	–
6	1	SecondaryOrderld	•
	2	CCP	–
	4	ContraCapacity	–
	8	AttributedQuote	–
	16	ExtExeclnst	–
	32	BulkOrderlds	–
	64	BulkRejectReasons	–
	128	PartyRole	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	•
	8	<i>RoutingInst</i>	•
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	•
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	–
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	•
11	1	<i>ClientID</i>	•
	2	<i>InvestorID</i>	•
	4	<i>ExecutorID</i>	•
	8	<i>OrderOrigination</i>	•
	16	<i>AlgorithmicIndicator</i>	•
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	•
	128	<i>ExecutorQualifiedRole</i>	•
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	-
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	•
18	1	AccountType	•
	2	CrossInitiator	-
	4	Subreason	•
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.4 Cross Order Rejected (Options Only)

Byte	Bit	Field	
1	1	Side	–
	2	PegDifference	–
	4	Price	•
	8	ExecInst	–
	16	OrdType	–
	32	TimeInForce	–
	64	MinQty	–
	128	MaxRemovePct	–
2	1	Symbol	•
	2	SymbolSfx	–
	4	Currency	–
	8	IdSource	•
	16	SecurityId	•
	32	SecurityExchange	–
	64	Capacity	–
	128	ContraTrader	–
3	1	Account	–
	2	ClearingFirm	–
	4	ClearingAccount	–
	8	DisplayIndicator	–
	16	MaxFloor	–
	32	DiscretionAmount	–
	64	OrderQty	•
	128	PreventMatch	•
4	1	MaturityDate	–
	2	StrikePrice	–
	4	PutOrCall	–
	8	OpenClose	–
	16	CIOrdIdBatch	–
	32	CorrectedSize	–
	64	PartyID	–
	128	AccessFee	–
5	1	OrigCIOrdId	–
	2	LeavesQty	–
	4	LastShares	–
	8	LastPrice	–
	16	DisplayPrice	–
	32	WorkingPrice	–
	64	BaseLiquidityIndicator	–
	128	ExpireTime	–
6	1	SecondaryOrderId	–
	2	CCP	–
	4	ContraCapacity	–
	8	AttributedQuote	–
	16	ExtExecInst	–
	32	BulkOrderIds	–
	64	BulkRejectReasons	–
	128	PartyRole	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	–
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	•
	128	<i>CrossPrioritization</i>	•
10	1	<i>CrossId</i>	•
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	–
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	–
11	1	<i>ClientID</i>	–
	2	<i>InvestorID</i>	–
	4	<i>ExecutorID</i>	–
	8	<i>OrderOrigination</i>	–
	16	<i>AlgorithmicIndicator</i>	–
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	–
	128	<i>ExecutorQualifiedRole</i>	–
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	-
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	-
18	1	AccountType	-
	2	CrossInitiator	-
	4	Subreason	●
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.5 Order Modified V2

Byte	Bit	Field	
1	1	<i>Side</i>	•
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	•
	8	<i>Execlnst</i>	–
	16	<i>OrdType</i>	•
	32	<i>TimelnForce</i>	•
	64	<i>MinQty</i>	•
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	–
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	–
	16	<i>SecurityId</i>	–
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	–
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	•
	2	<i>ClearingFirm</i>	•
	4	<i>ClearingAccount</i>	•
	8	<i>DisplayIndicator</i>	•
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	•
	128	<i>PreventMatch</i>	•
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	–
	16	<i>CIOrdldBatch</i>	–
	32	<i>CorrectedSize</i>	–
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdld</i>	•
	2	<i>LeavesQty</i>	•
	4	<i>LastShares</i>	•
	8	<i>LastPrice</i>	•
	16	<i>DisplayPrice</i>	•
	32	<i>WorkingPrice</i>	•
	64	<i>BaseLiquidityIndicator</i>	•
	128	<i>ExpireTime</i>	•
6	1	<i>SecondaryOrderld</i>	•
	2	<i>CCP</i>	–
	4	<i>ContraCapacity</i>	–
	8	<i>AttributedQuote</i>	–
	16	<i>ExtExeclnst</i>	–
	32	<i>BulkOrderlds</i>	–
	64	<i>BulkRejectReasons</i>	–
	128	<i>PartyRole</i>	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	•
	8	<i>RoutingInst</i>	•
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	•
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	•
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	•
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	•
11	1	<i>ClientID</i>	•
	2	<i>InvestorID</i>	•
	4	<i>ExecutorID</i>	•
	8	<i>OrderOrigination</i>	•
	16	<i>AlgorithmicIndicator</i>	•
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	•
	128	<i>ExecutorQualifiedRole</i>	•
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	-
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	●
18	1	AccountType	-
	2	CrossInitiator	-
	4	Subreason	-
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.6 Order Restated V2

Byte	Bit	Field	
1	1	<i>Side</i>	•
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	•
	8	<i>Execlnst</i>	–
	16	<i>OrdType</i>	•
	32	<i>TimelnForce</i>	•
	64	<i>MinQty</i>	•
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	•
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	•
	16	<i>SecurityId</i>	•
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	•
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	•
	2	<i>ClearingFirm</i>	•
	4	<i>ClearingAccount</i>	•
	8	<i>DisplayIndicator</i>	•
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	•
	128	<i>PreventMatch</i>	•
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	•
	16	<i>CIOrdldBatch</i>	–
	32	<i>CorrectedSize</i>	–
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdld</i>	•
	2	<i>LeavesQty</i>	•
	4	<i>LastShares</i>	•
	8	<i>LastPrice</i>	•
	16	<i>DisplayPrice</i>	•
	32	<i>WorkingPrice</i>	•
	64	<i>BaseLiquidityIndicator</i>	•
	128	<i>ExpireTime</i>	•
6	1	<i>SecondaryOrderld</i>	•
	2	<i>CCP</i>	–
	4	<i>ContraCapacity</i>	–
	8	<i>AttributedQuote</i>	–
	16	<i>ExtExeclnst</i>	–
	32	<i>BulkOrderlds</i>	–
	64	<i>BulkRejectReasons</i>	–
	128	<i>PartyRole</i>	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	•
	8	<i>RoutingInst</i>	•
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	•
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	•
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	•
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	•
11	1	<i>ClientID</i>	•
	2	<i>InvestorID</i>	•
	4	<i>ExecutorID</i>	•
	8	<i>OrderOrigination</i>	•
	16	<i>AlgorithmicIndicator</i>	•
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	•
	128	<i>ExecutorQualifiedRole</i>	•
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	-
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	•
18	1	AccountType	•
	2	CrossInitiator	-
	4	Subreason	-
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.7 User Modify Rejected V2

Byte	Bit	Field	
1	1	<i>Side</i>	–
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	–
	8	<i>Execlnst</i>	–
	16	<i>OrdType</i>	–
	32	<i>TimelnForce</i>	–
	64	<i>MinQty</i>	–
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	–
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	–
	16	<i>SecurityId</i>	–
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	–
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	–
	2	<i>ClearingFirm</i>	–
	4	<i>ClearingAccount</i>	–
	8	<i>DisplayIndicator</i>	–
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	–
	128	<i>PreventMatch</i>	–
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	–
	16	<i>CIOrdldBatch</i>	–
	32	<i>CorrectedSize</i>	–
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdld</i>	–
	2	<i>LeavesQty</i>	–
	4	<i>LastShares</i>	–
	8	<i>LastPrice</i>	–
	16	<i>DisplayPrice</i>	–
	32	<i>WorkingPrice</i>	–
	64	<i>BaseLiquidityIndicator</i>	–
	128	<i>ExpireTime</i>	–
6	1	<i>SecondaryOrderld</i>	–
	2	<i>CCP</i>	–
	4	<i>ContraCapacity</i>	–
	8	<i>AttributedQuote</i>	–
	16	<i>ExtExeclnst</i>	–
	32	<i>BulkOrderlds</i>	–
	64	<i>BulkRejectReasons</i>	–
	128	<i>PartyRole</i>	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	–
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	–
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	–
11	1	<i>ClientID</i>	–
	2	<i>InvestorID</i>	–
	4	<i>ExecutorID</i>	–
	8	<i>OrderOrigination</i>	–
	16	<i>AlgorithmicIndicator</i>	–
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	–
	128	<i>ExecutorQualifiedRole</i>	–
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	-
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	-
18	1	AccountType	-
	2	CrossInitiator	-
	4	Subreason	-
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.8 Order Cancelled V2

Byte	Bit	Field	
1	1	<i>Side</i>	•
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	•
	8	<i>Execlnst</i>	–
	16	<i>OrdType</i>	•
	32	<i>TimelnForce</i>	•
	64	<i>MinQty</i>	•
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	•
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	•
	16	<i>SecurityId</i>	•
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	•
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	•
	2	<i>ClearingFirm</i>	•
	4	<i>ClearingAccount</i>	•
	8	<i>DisplayIndicator</i>	•
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	•
	128	<i>PreventMatch</i>	•
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	•
	16	<i>CIOrdIdBatch</i>	–
	32	<i>CorrectedSize</i>	–
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdId</i>	•
	2	<i>LeavesQty</i>	•
	4	<i>LastShares</i>	•
	8	<i>LastPrice</i>	•
	16	<i>DisplayPrice</i>	•
	32	<i>WorkingPrice</i>	•
	64	<i>BaseLiquidityIndicator</i>	•
	128	<i>ExpireTime</i>	•
6	1	<i>SecondaryOrderId</i>	•
	2	<i>CCP</i>	–
	4	<i>ContraCapacity</i>	–
	8	<i>AttributedQuote</i>	–
	16	<i>ExtExeclnst</i>	–
	32	<i>BulkOrderIds</i>	–
	64	<i>BulkRejectReasons</i>	–
	128	<i>PartyRole</i>	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	•
	8	<i>RoutingInst</i>	•
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	•
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	•
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	•
11	1	<i>ClientID</i>	•
	2	<i>InvestorID</i>	•
	4	<i>ExecutorID</i>	•
	8	<i>OrderOrigination</i>	•
	16	<i>AlgorithmicIndicator</i>	•
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	•
	128	<i>ExecutorQualifiedRole</i>	•
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	–
	2	DayOrderQty	–
	4	DayCumQty	–
	8	AvgPx	–
	16	DayAvgPx	–
	32	PendingStatus	–
	64	DrillThruProtection	–
	128	MultilegReportingType	–
14	1	LegCFIcode	–
	2	LegMaturityDate	–
	4	LegStrikePrice	–
	8	QuoteRoomID	–
	16	SecondaryExecId	–
	32	UserRequestID	–
	64	Username	–
	128	UserStatus	–
15	1	TradeReportingIndicator	–
	2	EquityPartyId	–
	4	EquityNBBOProtect	–
	8	MassCancelId	–
	16	TradePublishInd	–
	32	ReportTime	–
	64	LegSymbolSfx	–
	128	ClientIdAttr	–
16	1	FrequentTraderID	–
	2	SessionEligibility	–
	4	ComboOrder	–
	8	Compression	–
	16	FloorDestination	–
	32	FloorRoutingInst	–
	64	MultiClassSpread	–
	128	OrderOrigin	–
17	1	PriceType	–
	2	StrategyId	–
	4	TradingSessionId	–
	8	TradeThroughAlertType	–
	16	SenderLocationId	–
	32	FloorTraderAcronym	–
	64	ExecLegCFIcode	–
	128	CustOrderHandlingInst	●
18	1	AccountType	–
	2	CrossInitiator	–
	4	Subreason	●
	8	ReservedBit	–
	16	ReservedBit	–
	32	ReservedBit	–
	64	ReservedBit	–
	128	ReservedBit	–

5.9 Cross Order Cancelled (Options Only)

Byte	Bit	Field	
1	1	<i>Side</i>	•
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	•
	8	<i>ExecInst</i>	–
	16	<i>OrdType</i>	–
	32	<i>TimeInForce</i>	–
	64	<i>MinQty</i>	–
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	•
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	•
	16	<i>SecurityId</i>	•
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	•
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	•
	2	<i>ClearingFirm</i>	•
	4	<i>ClearingAccount</i>	•
	8	<i>DisplayIndicator</i>	–
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	•
	128	<i>PreventMatch</i>	•
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	•
	16	<i>CIOrdIdBatch</i>	–
	32	<i>CorrectedSize</i>	–
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdId</i>	–
	2	<i>LeavesQty</i>	–
	4	<i>LastShares</i>	–
	8	<i>LastPrice</i>	–
	16	<i>DisplayPrice</i>	–
	32	<i>WorkingPrice</i>	–
	64	<i>BaseLiquidityIndicator</i>	–
	128	<i>ExpireTime</i>	–
6	1	<i>SecondaryOrderId</i>	–
	2	<i>CCP</i>	–
	4	<i>ContraCapacity</i>	–
	8	<i>AttributedQuote</i>	–
	16	<i>ExtExecInst</i>	–
	32	<i>BulkOrderIds</i>	–
	64	<i>BulkRejectReasons</i>	–
	128	<i>PartyRole</i>	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	•
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	•
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	•
	128	<i>CrossPrioritization</i>	•
10	1	<i>CrossId</i>	•
	2	<i>AllocQty</i>	•
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	•
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	•
11	1	<i>ClientID</i>	•
	2	<i>InvestorID</i>	•
	4	<i>ExecutorID</i>	•
	8	<i>OrderOrigination</i>	•
	16	<i>AlgorithmicIndicator</i>	•
	32	<i>DeferralReason</i>	•
	64	<i>InvestorQualifiedRole</i>	•
	128	<i>ExecutorQualifiedRole</i>	•
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	<i>CumQty</i>	–
	2	<i>DayOrderQty</i>	–
	4	<i>DayCumQty</i>	–
	8	<i>AvgPx</i>	–
	16	<i>DayAvgPx</i>	–
	32	<i>PendingStatus</i>	–
	64	<i>DrillThruProtection</i>	–
	128	<i>MultilegReportingType</i>	–
14	1	<i>LegCFIcode</i>	–
	2	<i>LegMaturityDate</i>	–
	4	<i>LegStrikePrice</i>	–
	8	<i>QuoteRoomID</i>	–
	16	<i>SecondaryExecId</i>	–
	32	<i>UserRequestID</i>	–
	64	<i>Username</i>	–
	128	<i>UserStatus</i>	–
15	1	<i>TradeReportingIndicator</i>	–
	2	<i>EquityPartyId</i>	–
	4	<i>EquityNBBOProtect</i>	–
	8	<i>MassCancelId</i>	–
	16	<i>TradePublishInd</i>	–
	32	<i>ReportTime</i>	–
	64	<i>LegSymbolSfx</i>	–
	128	<i>ClientIdAttr</i>	–
16	1	<i>FrequentTraderID</i>	–
	2	<i>SessionEligibility</i>	–
	4	<i>ComboOrder</i>	–
	8	<i>Compression</i>	–
	16	<i>FloorDestination</i>	–
	32	<i>FloorRoutingInst</i>	–
	64	<i>MultiClassSpread</i>	–
	128	<i>OrderOrigin</i>	–
17	1	<i>PriceType</i>	–
	2	<i>StrategyId</i>	–
	4	<i>TradingSessionId</i>	–
	8	<i>TradeThroughAlertType</i>	–
	16	<i>SenderLocationId</i>	–
	32	<i>FloorTraderAcronym</i>	–
	64	<i>ExecLegCFIcode</i>	–
	128	<i>CustOrderHandlingInst</i>	●
18	1	<i>AccountType</i>	–
	2	<i>CrossInitiator</i>	–
	4	<i>Subreason</i>	–
	8	<i>ReservedBit</i>	–
	16	<i>ReservedBit</i>	–
	32	<i>ReservedBit</i>	–
	64	<i>ReservedBit</i>	–
	128	<i>ReservedBit</i>	–

5.10 Cancel Rejected V2

Byte	Bit	Field	
1	1	Side	•
	2	PegDifference	–
	4	Price	•
	8	Execlnst	–
	16	OrdType	•
	32	TimelnForce	•
	64	MinQty	•
	128	MaxRemovePct	–
2	1	Symbol	•
	2	SymbolSfx	–
	4	Currency	–
	8	IdSource	•
	16	SecurityId	•
	32	SecurityExchange	–
	64	Capacity	•
	128	ContraTrader	–
3	1	Account	–
	2	ClearingFirm	–
	4	ClearingAccount	–
	8	DisplayIndicator	–
	16	MaxFloor	–
	32	DiscretionAmount	–
	64	OrderQty	–
	128	PreventMatch	–
4	1	MaturityDate	–
	2	StrikePrice	–
	4	PutOrCall	–
	8	OpenClose	•
	16	CIOrdldBatch	–
	32	CorrectedSize	–
	64	PartyID	–
	128	AccessFee	–
5	1	OrigCIOrdld	–
	2	LeavesQty	–
	4	LastShares	–
	8	LastPrice	–
	16	DisplayPrice	–
	32	WorkingPrice	–
	64	BaseLiquidityIndicator	–
	128	ExpireTime	–
6	1	SecondaryOrderld	–
	2	CCP	–
	4	ContraCapacity	–
	8	AttributedQuote	–
	16	ExtExeclnst	–
	32	BulkOrderlds	–
	64	BulkRejectReasons	–
	128	PartyRole	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	•
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	•
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	•
	2	<i>AllocQty</i>	•
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	•
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	•
11	1	<i>ClientID</i>	•
	2	<i>InvestorID</i>	•
	4	<i>ExecutorID</i>	•
	8	<i>OrderOrigination</i>	•
	16	<i>AlgorithmicIndicator</i>	•
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	•
	128	<i>ExecutorQualifiedRole</i>	•
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	•
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	-
18	1	AccountType	-
	2	CrossInitiator	-
	4	Subreason	-
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.11 Order Execution V2

Byte	Bit	Field	
1	1	<i>Side</i>	•
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	•
	8	<i>Execlnst</i>	–
	16	<i>OrdType</i>	•
	32	<i>TimelnForce</i>	•
	64	<i>MinQty</i>	•
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	•
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	•
	16	<i>SecurityId</i>	•
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	•
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	•
	2	<i>ClearingFirm</i>	•
	4	<i>ClearingAccount</i>	•
	8	<i>DisplayIndicator</i>	•
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	•
	128	<i>PreventMatch</i>	•
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	•
	16	<i>CIOrdIdBatch</i>	–
	32	<i>CorrectedSize</i>	–
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdId</i>	–
	2	<i>LeavesQty</i>	–
	4	<i>LastShares</i>	–
	8	<i>LastPrice</i>	–
	16	<i>DisplayPrice</i>	–
	32	<i>WorkingPrice</i>	–
	64	<i>BaseLiquidityIndicator</i>	–
	128	<i>ExpireTime</i>	–
6	1	<i>SecondaryOrderId</i>	–
	2	<i>CCP</i>	–
	4	<i>ContraCapacity</i>	–
	8	<i>AttributedQuote</i>	–
	16	<i>ExtExeclnst</i>	–
	32	<i>BulkOrderIds</i>	–
	64	<i>BulkRejectReasons</i>	–
	128	<i>PartyRole</i>	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	•
8	1	<i>FeeCode</i>	•
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	•
	8	<i>RoutingInst</i>	•
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	–
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	•
	128	<i>CrossPrioritization</i>	•
10	1	<i>CrossId</i>	•
	2	<i>AllocQty</i>	•
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	•
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	•
11	1	<i>ClientID</i>	•
	2	<i>InvestorID</i>	•
	4	<i>ExecutorID</i>	•
	8	<i>OrderOrigination</i>	•
	16	<i>AlgorithmicIndicator</i>	•
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	•
	128	<i>ExecutorQualifiedRole</i>	•
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	–
	2	DayOrderQty	–
	4	DayCumQty	–
	8	AvgPx	–
	16	DayAvgPx	–
	32	PendingStatus	–
	64	DrillThruProtection	•
	128	MultilegReportingType	•
14	1	LegCFIcode	–
	2	LegMaturityDate	–
	4	LegStrikePrice	–
	8	QuoteRoomID	–
	16	SecondaryExecId	•
	32	UserRequestID	–
	64	Username	–
	128	UserStatus	–
15	1	TradeReportingIndicator	–
	2	EquityPartyId	–
	4	EquityNBBOProtect	–
	8	MassCancelId	–
	16	TradePublishInd	–
	32	ReportTime	–
	64	LegSymbolSfx	–
	128	ClientIdAttr	–
16	1	FrequentTraderID	–
	2	SessionEligibility	–
	4	ComboOrder	–
	8	Compression	–
	16	FloorDestination	–
	32	FloorRoutingInst	–
	64	MultiClassSpread	–
	128	OrderOrigin	–
17	1	PriceType	–
	2	StrategyId	–
	4	TradingSessionId	–
	8	TradeThroughAlertType	–
	16	SenderLocationId	–
	32	FloorTraderAcronym	–
	64	ExecLegCFIcode	–
	128	CustOrderHandlingInst	•
18	1	AccountType	•
	2	CrossInitiator	–
	4	Subreason	–
	8	ReservedBit	–
	16	ReservedBit	–
	32	ReservedBit	–
	64	ReservedBit	–
	128	ReservedBit	–

5.12 Trade Cancel or Correct V2

Byte	Bit	Field	
1	1	<i>Side</i>	–
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	–
	8	<i>Execlnst</i>	–
	16	<i>OrdType</i>	–
	32	<i>TimelnForce</i>	–
	64	<i>MinQty</i>	–
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	•
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	•
	16	<i>SecurityId</i>	•
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	•
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	–
	2	<i>ClearingFirm</i>	–
	4	<i>ClearingAccount</i>	–
	8	<i>DisplayIndicator</i>	–
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	–
	128	<i>PreventMatch</i>	–
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	•
	16	<i>CIOrdIdBatch</i>	–
	32	<i>CorrectedSize</i>	•
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdId</i>	–
	2	<i>LeavesQty</i>	–
	4	<i>LastShares</i>	–
	8	<i>LastPrice</i>	–
	16	<i>DisplayPrice</i>	–
	32	<i>WorkingPrice</i>	–
	64	<i>BaseLiquidityIndicator</i>	–
	128	<i>ExpireTime</i>	–
6	1	<i>SecondaryOrderId</i>	–
	2	<i>CCP</i>	–
	4	<i>ContraCapacity</i>	–
	8	<i>AttributedQuote</i>	–
	16	<i>ExtExeclnst</i>	–
	32	<i>BulkOrderIds</i>	–
	64	<i>BulkRejectReasons</i>	–
	128	<i>PartyRole</i>	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	●
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	●
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	–
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	–
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	–
11	1	<i>ClientID</i>	–
	2	<i>InvestorID</i>	–
	4	<i>ExecutorID</i>	–
	8	<i>OrderOrigination</i>	–
	16	<i>AlgorithmicIndicator</i>	–
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	–
	128	<i>ExecutorQualifiedRole</i>	–
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	-
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	-
18	1	AccountType	-
	2	CrossInitiator	-
	4	Subreason	-
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.13 Purge Rejected

Byte	Bit	Field	
1	1	<i>Side</i>	–
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	–
	8	<i>Execlnst</i>	–
	16	<i>OrdType</i>	–
	32	<i>TimelnForce</i>	–
	64	<i>MinQty</i>	–
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	–
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	–
	16	<i>SecurityId</i>	–
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	–
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	–
	2	<i>ClearingFirm</i>	–
	4	<i>ClearingAccount</i>	–
	8	<i>DisplayIndicator</i>	–
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	–
	128	<i>PreventMatch</i>	–
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	–
	16	<i>CIOrdldBatch</i>	–
	32	<i>CorrectedSize</i>	–
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdld</i>	–
	2	<i>LeavesQty</i>	–
	4	<i>LastShares</i>	–
	8	<i>LastPrice</i>	–
	16	<i>DisplayPrice</i>	–
	32	<i>WorkingPrice</i>	–
	64	<i>BaseLiquidityIndicator</i>	–
	128	<i>ExpireTime</i>	–
6	1	<i>SecondaryOrderld</i>	–
	2	<i>CCP</i>	–
	4	<i>ContraCapacity</i>	–
	8	<i>AttributedQuote</i>	–
	16	<i>ExtExeclnst</i>	–
	32	<i>BulkOrderlds</i>	–
	64	<i>BulkRejectReasons</i>	–
	128	<i>PartyRole</i>	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	–
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	–
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	–
11	1	<i>ClientID</i>	–
	2	<i>InvestorID</i>	–
	4	<i>ExecutorID</i>	–
	8	<i>OrderOrigination</i>	–
	16	<i>AlgorithmicIndicator</i>	–
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	–
	128	<i>ExecutorQualifiedRole</i>	–
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	•
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	-
18	1	AccountType	-
	2	CrossInitiator	-
	4	Subreason	-
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.14 Complex Instrument Accepted (Options Only)

Byte	Bit	Field	
1	1	<i>Side</i>	–
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	–
	8	<i>ExecInst</i>	–
	16	<i>OrdType</i>	–
	32	<i>TimeInForce</i>	–
	64	<i>MinQty</i>	–
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	–
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	–
	16	<i>SecurityId</i>	–
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	–
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	–
	2	<i>ClearingFirm</i>	–
	4	<i>ClearingAccount</i>	–
	8	<i>DisplayIndicator</i>	–
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	–
	128	<i>PreventMatch</i>	–
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	–
	16	<i>CIOrdIdBatch</i>	–
	32	<i>CorrectedSize</i>	–
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdId</i>	–
	2	<i>LeavesQty</i>	–
	4	<i>LastShares</i>	–
	8	<i>LastPrice</i>	–
	16	<i>DisplayPrice</i>	–
	32	<i>WorkingPrice</i>	–
	64	<i>BaseLiquidityIndicator</i>	–
	128	<i>ExpireTime</i>	–
6	1	<i>SecondaryOrderId</i>	–
	2	<i>CCP</i>	–
	4	<i>ContraCapacity</i>	–
	8	<i>AttributedQuote</i>	–
	16	<i>ExtExecInst</i>	–
	32	<i>BulkOrderIds</i>	–
	64	<i>BulkRejectReasons</i>	–
	128	<i>PartyRole</i>	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	–
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	–
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	–
11	1	<i>ClientID</i>	–
	2	<i>InvestorID</i>	–
	4	<i>ExecutorID</i>	–
	8	<i>OrderOrigination</i>	–
	16	<i>AlgorithmicIndicator</i>	–
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	–
	128	<i>ExecutorQualifiedRole</i>	–
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	-
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	-
18	1	AccountType	-
	2	CrossInitiator	-
	4	Subreason	-
	8	ReservedBit	-
	16	LegPrice	●
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.15 Complex Instrument Rejected (Options Only)

Byte	Bit	Field	
1	1	<i>Side</i>	–
	2	<i>PegDifference</i>	–
	4	<i>Price</i>	–
	8	<i>ExecInst</i>	–
	16	<i>OrdType</i>	–
	32	<i>TimeInForce</i>	–
	64	<i>MinQty</i>	–
	128	<i>MaxRemovePct</i>	–
2	1	<i>Symbol</i>	–
	2	<i>SymbolSfx</i>	–
	4	<i>Currency</i>	–
	8	<i>IdSource</i>	–
	16	<i>SecurityId</i>	–
	32	<i>SecurityExchange</i>	–
	64	<i>Capacity</i>	–
	128	<i>ContraTrader</i>	–
3	1	<i>Account</i>	–
	2	<i>ClearingFirm</i>	–
	4	<i>ClearingAccount</i>	–
	8	<i>DisplayIndicator</i>	–
	16	<i>MaxFloor</i>	–
	32	<i>DiscretionAmount</i>	–
	64	<i>OrderQty</i>	–
	128	<i>PreventMatch</i>	–
4	1	<i>MaturityDate</i>	–
	2	<i>StrikePrice</i>	–
	4	<i>PutOrCall</i>	–
	8	<i>OpenClose</i>	–
	16	<i>CIOrdIdBatch</i>	–
	32	<i>CorrectedSize</i>	–
	64	<i>PartyID</i>	–
	128	<i>AccessFee</i>	–
5	1	<i>OrigCIOrdId</i>	–
	2	<i>LeavesQty</i>	–
	4	<i>LastShares</i>	–
	8	<i>LastPrice</i>	–
	16	<i>DisplayPrice</i>	–
	32	<i>WorkingPrice</i>	–
	64	<i>BaseLiquidityIndicator</i>	–
	128	<i>ExpireTime</i>	–
6	1	<i>SecondaryOrderId</i>	–
	2	<i>CCP</i>	–
	4	<i>ContraCapacity</i>	–
	8	<i>AttributedQuote</i>	–
	16	<i>ExtExecInst</i>	–
	32	<i>BulkOrderIds</i>	–
	64	<i>BulkRejectReasons</i>	–
	128	<i>PartyRole</i>	–

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	–
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	–
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	–
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	–
	128	<i>ClientQualifiedRole</i>	–
11	1	<i>ClientID</i>	–
	2	<i>InvestorID</i>	–
	4	<i>ExecutorID</i>	–
	8	<i>OrderOrigination</i>	–
	16	<i>AlgorithmicIndicator</i>	–
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	–
	128	<i>ExecutorQualifiedRole</i>	–
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	<i>CumQty</i>	–
	2	<i>DayOrderQty</i>	–
	4	<i>DayCumQty</i>	–
	8	<i>AvgPx</i>	–
	16	<i>DayAvgPx</i>	–
	32	<i>PendingStatus</i>	–
	64	<i>DrillThruProtection</i>	–
	128	<i>MultilegReportingType</i>	–
14	1	<i>LegCFIcode</i>	–
	2	<i>LegMaturityDate</i>	–
	4	<i>LegStrikePrice</i>	–
	8	<i>QuoteRoomID</i>	–
	16	<i>SecondaryExecId</i>	–
	32	<i>UserRequestID</i>	–
	64	<i>Username</i>	–
	128	<i>UserStatus</i>	–
15	1	<i>TradeReportingIndicator</i>	–
	2	<i>EquityPartyId</i>	–
	4	<i>EquityNBBOProtect</i>	–
	8	<i>MassCancelId</i>	–
	16	<i>TradePublishInd</i>	–
	32	<i>ReportTime</i>	–
	64	<i>LegSymbolSfx</i>	–
	128	<i>ClientIdAttr</i>	–
16	1	<i>FrequentTraderID</i>	–
	2	<i>SessionEligibility</i>	–
	4	<i>ComboOrder</i>	–
	8	<i>Compression</i>	–
	16	<i>FloorDestination</i>	–
	32	<i>FloorRoutingInst</i>	–
	64	<i>MultiClassSpread</i>	–
	128	<i>OrderOrigin</i>	–
17	1	<i>PriceType</i>	–
	2	<i>StrategyId</i>	–
	4	<i>TradingSessionId</i>	–
	8	<i>TradeThroughAlertType</i>	–
	16	<i>SenderLocationId</i>	–
	32	<i>FloorTraderAcronym</i>	–
	64	<i>ExecLegCFIcode</i>	–
	128	<i>CustOrderHandlingInst</i>	–
18	1	<i>AccountType</i>	–
	2	<i>CrossInitiator</i>	–
	4	<i>Subreason</i>	–
	8	<i>ReservedBit</i>	–
	16	<i>ReservedBit</i>	–
	32	<i>ReservedBit</i>	–
	64	<i>ReservedBit</i>	–
	128	<i>ReservedBit</i>	–

5.16 Trade Capture Report Acknowledgment V2

Byte	Bit	Field	
1	1	Side	•
	2	PegDifference	–
	4	Price	–
	8	Execlnst	–
	16	OrdType	–
	32	TimelnForce	–
	64	MinQty	–
	128	MaxRemovePct	–
2	1	Symbol	•
	2	SymbolSfx	–
	4	Currency	–
	8	IdSource	•
	16	SecurityId	•
	32	SecurityExchange	–
	64	Capacity	•
	128	(Reserved)	–
3	1	Account	•
	2	ClearingFirm	•
	4	ClearingAccount	–
	8	DisplayIndicator	–
	16	MaxFloor	–
	32	DiscretionAmount	–
	64	OrderQty	•
	128	PreventMatch	–
4	1	MaturityDate	–
	2	StrikePrice	–
	4	PutOrCall	–
	8	OpenClose	•
	16	CIOrdldBatch	–
	32	CorrectedSize	–
	64	PartyID	•
	128	AccessFee	–
5	1	OrigCIOrdld	–
	2	LeavesQty	–
	4	LastShares	–
	8	LastPrice	–
	16	DisplayPrice	–
	32	WorkingPrice	–
	64	BaseLiquidityIndicator	–
	128	ExpireTime	–
6	1	SecondaryOrderld	–
	2	CCP	–
	4	ContraCapacity	–
	8	AttributedQuote	–
	16	ExtExeclnst	–
	32	BulkOrderlds	–
	64	BulkRejectReasons	–
	128	PartyRole	•

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	●
	4	<i>TradePublishIndReturn</i>	–
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	●
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	●
	16	<i>LiquidityProvision</i>	●
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	–
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	●
	128	<i>ClientQualifiedRole</i>	–
11	1	<i>ClientID</i>	–
	2	<i>InvestorID</i>	–
	4	<i>ExecutorID</i>	–
	8	<i>OrderOrigination</i>	–
	16	<i>AlgorithmicIndicator</i>	●
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	–
	128	<i>ExecutorQualifiedRole</i>	–
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	-
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	•
18	1	AccountType	•
	2	CrossInitiator	-
	4	Subreason	-
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.17 Trade Capture Report Reject V2

Byte	Bit	Field	
1	1	Side	•
	2	PegDifference	–
	4	Price	–
	8	Execlnst	–
	16	OrdType	–
	32	TimelnForce	–
	64	MinQty	–
	128	MaxRemovePct	–
2	1	Symbol	•
	2	SymbolSfx	–
	4	Currency	–
	8	IdSource	•
	16	SecurityId	•
	32	SecurityExchange	–
	64	Capacity	•
	128	(Reserved)	–
3	1	Account	•
	2	ClearingFirm	•
	4	ClearingAccount	–
	8	DisplayIndicator	–
	16	MaxFloor	–
	32	DiscretionAmount	–
	64	OrderQty	•
	128	PreventMatch	–
4	1	MaturityDate	–
	2	StrikePrice	–
	4	PutOrCall	–
	8	OpenClose	•
	16	CIOrdldBatch	–
	32	CorrectedSize	–
	64	PartyID	•
	128	AccessFee	–
5	1	OrigCIOrdld	–
	2	LeavesQty	–
	4	LastShares	–
	8	LastPrice	–
	16	DisplayPrice	–
	32	WorkingPrice	–
	64	BaseLiquidityIndicator	–
	128	ExpireTime	–
6	1	SecondaryOrderld	–
	2	CCP	–
	4	ContraCapacity	–
	8	AttributedQuote	–
	16	ExtExeclnst	–
	32	BulkOrderlds	–
	64	BulkRejectReasons	–
	128	PartyRole	•

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	●
	4	<i>TradePublishIndReturn</i>	●
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	–
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	–
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	●
	128	<i>ClientQualifiedRole</i>	–
11	1	<i>ClientID</i>	–
	2	<i>InvestorID</i>	–
	4	<i>ExecutorID</i>	–
	8	<i>OrderOrigination</i>	–
	16	<i>AlgorithmicIndicator</i>	●
	32	<i>DeferralReason</i>	–
	64	<i>InvestorQualifiedRole</i>	–
	128	<i>ExecutorQualifiedRole</i>	–
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	-
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	•
18	1	AccountType	•
	2	CrossInitiator	-
	4	Subreason	-
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.18 Trade Capture Confirm V2

Byte	Bit	Field	
1	1	Side	•
	2	PegDifference	–
	4	Price	–
	8	Execlnst	–
	16	OrdType	–
	32	TimelnForce	–
	64	MinQty	–
	128	MaxRemovePct	–
2	1	Symbol	•
	2	SymbolSfx	–
	4	Currency	–
	8	IdSource	•
	16	SecurityId	•
	32	SecurityExchange	–
	64	Capacity	–
	128	(Reserved)	•
3	1	Account	•
	2	ClearingFirm	•
	4	ClearingAccount	–
	8	DisplayIndicator	–
	16	MaxFloor	–
	32	DiscretionAmount	–
	64	OrderQty	•
	128	PreventMatch	–
4	1	MaturityDate	–
	2	StrikePrice	–
	4	PutOrCall	–
	8	OpenClose	•
	16	CIOrdldBatch	–
	32	CorrectedSize	–
	64	PartyID	•
	128	AccessFee	–
5	1	OrigCIOrdld	–
	2	LeavesQty	–
	4	LastShares	–
	8	LastPrice	–
	16	DisplayPrice	–
	32	WorkingPrice	–
	64	BaseLiquidityIndicator	–
	128	ExpireTime	–
6	1	SecondaryOrderld	–
	2	CCP	•
	4	ContraCapacity	–
	8	AttributedQuote	–
	16	ExtExeclnst	–
	32	BulkOrderlds	–
	64	BulkRejectReasons	–
	128	PartyRole	•

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	●
	4	<i>TradePublishIndReturn</i>	●
	8	<i>Text</i>	●
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	●
8	1	<i>FeeCode</i>	●
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	●
	16	<i>LiquidityProvision</i>	–
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	●
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	●
	128	<i>ClientQualifiedRole</i>	–
11	1	<i>ClientID</i>	–
	2	<i>InvestorID</i>	–
	4	<i>ExecutorID</i>	–
	8	<i>OrderOrigination</i>	–
	16	<i>AlgorithmicIndicator</i>	●
	32	<i>DeferralReason</i>	●
	64	<i>InvestorQualifiedRole</i>	–
	128	<i>ExecutorQualifiedRole</i>	–
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	-
	16	TradePublishInd	•
	32	ReportTime	•
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	•
18	1	AccountType	•
	2	CrossInitiator	-
	4	Subreason	-
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

5.19 Trade Capture Report Decline V2

Byte	Bit	Field	
1	1	Side	•
	2	PegDifference	–
	4	Price	–
	8	Execlnst	–
	16	OrdType	–
	32	TimelnForce	–
	64	MinQty	–
	128	MaxRemovePct	–
2	1	Symbol	•
	2	SymbolSfx	–
	4	Currency	–
	8	IdSource	•
	16	SecurityId	•
	32	SecurityExchange	–
	64	Capacity	•
	128	(Reserved)	–
3	1	Account	•
	2	ClearingFirm	•
	4	ClearingAccount	–
	8	DisplayIndicator	–
	16	MaxFloor	–
	32	DiscretionAmount	–
	64	OrderQty	•
	128	PreventMatch	–
4	1	MaturityDate	–
	2	StrikePrice	–
	4	PutOrCall	–
	8	OpenClose	•
	16	CIOrdldBatch	–
	32	CorrectedSize	–
	64	PartyID	•
	128	AccessFee	–
5	1	OrigCIOrdld	–
	2	LeavesQty	–
	4	LastShares	–
	8	LastPrice	–
	16	DisplayPrice	–
	32	WorkingPrice	–
	64	BaseLiquidityIndicator	–
	128	ExpireTime	–
6	1	SecondaryOrderld	–
	2	CCP	–
	4	ContraCapacity	–
	8	AttributedQuote	–
	16	ExtExeclnst	–
	32	BulkOrderlds	–
	64	BulkRejectReasons	–
	128	PartyRole	•

continued...

Byte	Bit	Field	
7	1	<i>SubLiquidityIndicator</i>	–
	2	<i>TradeReportTypeReturn</i>	●
	4	<i>TradePublishIndReturn</i>	●
	8	<i>Text</i>	–
	16	<i>Bid</i>	–
	32	<i>Offer</i>	–
	64	<i>LargeSize</i>	–
	128	<i>LastMkt</i>	–
8	1	<i>FeeCode</i>	–
	2	<i>EchoText</i>	–
	4	<i>StopPx</i>	–
	8	<i>RoutingInst</i>	–
	16	<i>RoutStrategy</i>	–
	32	<i>RouteDeliveryMethod</i>	–
	64	<i>ExDestination</i>	–
	128	<i>TradeReportRefID</i>	–
9	1	<i>MarketingFeeCode</i>	–
	2	<i>TargetPartyID</i>	–
	4	<i>AuctionId</i>	–
	8	<i>OrderCategory</i>	–
	16	<i>LiquidityProvision</i>	–
	32	<i>CmtaNumber</i>	–
	64	<i>CrossType</i>	–
	128	<i>CrossPrioritization</i>	–
10	1	<i>CrossId</i>	–
	2	<i>AllocQty</i>	–
	4	<i>GiveUpFirmID</i>	–
	8	<i>RoutingFirmID</i>	–
	16	<i>WaiverType</i>	–
	32	<i>CrossExclusionIndicator</i>	–
	64	<i>PriceFormation</i>	●
	128	<i>ClientQualifiedRole</i>	–
11	1	<i>ClientID</i>	–
	2	<i>InvestorID</i>	–
	4	<i>ExecutorID</i>	–
	8	<i>OrderOrigination</i>	–
	16	<i>AlgorithmicIndicator</i>	●
	32	<i>DeferralReason</i>	●
	64	<i>InvestorQualifiedRole</i>	–
	128	<i>ExecutorQualifiedRole</i>	–
12	1	<i>CtiCode</i>	–
	2	<i>ManualOrderIndicator</i>	–
	4	<i>OperatorId</i>	–
	8	<i>TradeDate</i>	–
	16	<i>ClearingPrice</i>	–
	32	<i>ClearingSize</i>	–
	64	<i>ClearingSymbol</i>	–
	128	<i>ClearingOptionalData</i>	–

continued...

Byte	Bit	Field	
13	1	CumQty	-
	2	DayOrderQty	-
	4	DayCumQty	-
	8	AvgPx	-
	16	DayAvgPx	-
	32	PendingStatus	-
	64	DrillThruProtection	-
	128	MultilegReportingType	-
14	1	LegCFIcode	-
	2	LegMaturityDate	-
	4	LegStrikePrice	-
	8	QuoteRoomID	-
	16	SecondaryExecId	-
	32	UserRequestID	-
	64	Username	-
	128	UserStatus	-
15	1	TradeReportingIndicator	-
	2	EquityPartyId	-
	4	EquityNBBOProtect	-
	8	MassCancelId	-
	16	TradePublishInd	-
	32	ReportTime	-
	64	LegSymbolSfx	-
	128	ClientIdAttr	-
16	1	FrequentTraderID	-
	2	SessionEligibility	-
	4	ComboOrder	-
	8	Compression	-
	16	FloorDestination	-
	32	FloorRoutingInst	-
	64	MultiClassSpread	-
	128	OrderOrigin	-
17	1	PriceType	-
	2	StrategyId	-
	4	TradingSessionId	-
	8	TradeThroughAlertType	-
	16	SenderLocationId	-
	32	FloorTraderAcronym	-
	64	ExecLegCFIcode	-
	128	CustOrderHandlingInst	•
18	1	AccountType	•
	2	CrossInitiator	-
	4	Subreason	-
	8	ReservedBit	-
	16	ReservedBit	-
	32	ReservedBit	-
	64	ReservedBit	-
	128	ReservedBit	-

6 List of Optional Fields

The following are descriptions of optional fields which may be sent or received.

Field	Length	Data Type	Description
<i>Account</i>	16	Text	Corresponds to <i>Account</i> (1) in Cboe FIX. Reflected back on execution reports associated with this order. May be made available in the Participant's clearing file. Allowed characters are alphanumeric and colon.
<i>AccountType</i>	1	Alphanumeric	Corresponds to <i>AccountType</i> (581) in Cboe FIX. Indicates type of account associated with the order. 1 = Account is carried on customer side of the books. 3 = House Trader
<i>Algorithmic Indicator</i>	1	Text	For orders and executions, this corresponds to <i>OrderAttributeTypes</i> (8015) = 4 in Cboe FIX. For Trade Capture Report, this corresponds to <i>AlgorithmicTradeIndicator</i> (2667) in Cboe FIX. Indicates that the order (or the reported trade in a Trade Capture Report) was placed as a result of an investment firm engaging in algorithmic trading. N = No algorithm was involved (default). Y = Algorithm was involved (ALGO).
<i>AllocQty</i>	4	Binary	Corresponds to <i>AllocQty</i> (80) in Cboe FIX. Number of contracts for this party.
<i>AuctionId</i>	8	Binary	Corresponds to <i>AuctionId</i> (9370) in Cboe FIX. Auction order identifier supplied by Cboe. This identifier corresponds to the identifiers used in Cboe market data products.
<i>AutoMatch</i>	1	Alphanumeric	Corresponds to <i>AutoMatch</i> (9040) in Cboe FIX. Better-priced responses will be matched by the Contra side. Indicates the type of Auto Match the Contra Order will use. Mutually exclusive with <i>LastPriority</i> . Limit type Auto Match orders require <i>AutoMatchPrice</i> to be supplied. 0 = Disabled (Default) 1 = Market 2 = Limit
<i>AutoMatchPrice</i>	8	Binary Price	Corresponds to <i>AutoMatchPrice</i> (9044) in Cboe FIX. Sets the limit price at which the Contra Order will Auto Match. Required if <i>AutoMatch</i> = 2 (Limit). Ignored otherwise. Must be non-negative. 1 = Buy 2 = Sell

<i>BaseLiquidity Indicator</i>	1	Alphanumeric	Indicates whether the trade added or removed liquidity. A = Added Liquidity R = Removed Liquidity C = Auction Trade
<i>CancelOrig OnReject</i>	1	Alpha	Corresponds to <i>CancelOrigOnReject</i> (9619) in Cboe FIX. Indicates handling of original order on failure to modify. N = Leave original order alone. Y = Cancel original order if modification fails.
<i>Capacity</i>	1	Alpha	Corresponds to <i>OrderCapacity</i> (47) in Cboe FIX. (Orders). Corresponds to <i>LastCapacity</i> (29) in Cboe FIX. (Executions). A = Agency (maps to 'AOTC') P = Principal (maps to 'DEAL') R = Riskless Principal (maps to 'MTCH')
<i>ClearingAccount</i>	4	Text	Corresponds to <i>OnBehalfOfSubID</i> (116) and <i>ClearingAccount</i> (440) in Cboe FIX. Supplemental identifier. Recorded and made available in execution reports. Available via Drop.
<i>ClearingFirm</i>	4	Alpha	Corresponds to <i>OnBehalfOfCompID</i> (115) and <i>ClearingFirm</i> (439) in Cboe FIX. Firm that will clear the trade. If empty (all binary zero), a default will be used (only permitted on non-service bureau accounts).
<i>ClientID</i>	4	Binary	The short code representing the client behind the order. Data corresponding to this short code must have been previously supplied, or will be supplied by the end of the calendar day, per our Rules. The value must be between 0 and 4,294,967,295. For clients, the following values are reserved for applicable use: 0 = NONE (No Client for this order) 1 = AGGR (An aggregation of multiple client orders) 2 = PNAL (Clients are pending allocation)
<i>Client QualifiedRole</i>	1	Binary	Required whenever a <i>ClientID</i> is specified. Valid values are: 0 = None - Only applicable if using a reserved value for <i>ClientID</i> 23 = Firm or legal entity (LEI) 24 = Natural person
<i>CorrectedSize</i>	4	Binary	Corresponds to <i>CorrectedSize</i> (6655) in Cboe FIX. Number of shares after trade adjustment.
<i>CrossID</i>	20	Text	Corresponds to <i>CrossID</i> (548) in Cboe FIX. Day-unique identifier for the cross order chosen by the client. Characters in the ASCII range 33–126 are allowed, except for comma, semicolon, and pipe.

<i>CrossType</i>	1	Alphanumeric	Corresponds to <i>CrossType</i> (549) in Cboe FIX. Type of auction order being submitted. This indicates the type of auction that will be initiated upon order entry. 1 = Automated Improvement Mechanism (AIM)
<i>CrossPrioritization</i>	1	Alphanumeric	Corresponds to <i>CrossPrioritization</i> (550) in Cboe FIX. Indicates which side of the cross order will be prioritized for execution. This identifies the Agency side. 1 = Buy 2 = Sell
<i>CustomGroupId</i>	2	Binary	Optional. Used to group orders for use in PURGE ORDERS. Set to 0 if functionality not needed.
<i>CustOrder HandlingInst</i>	1	Alpha	Corresponds to <i>CustOrderHandlingInst</i> (1031) in Cboe FIX. A default value can be set using the 'Default Customer Order Handling Instruction' port attribute. This port attribute is defaulted to Electronic. Y = Electronic. (Default) W = Desk C = Vendor-provided Platform billed by Executing Broker (For complex) G = Sponsored Access via Exchange API or FIX, provided by Executing Broker (For complex) H = Premium Algorithmic Trading Provider, billed by Executing Broker (For complex) D = Other, including other-provided screen (For complex)
<i>DeferralReason</i>	1	Alphanumeric	Corresponds to <i>TrdRegPublicationReasons</i> (8013) in FIX. It indicates the deferral reason for the trade. This is only supported in return messages from Cboe to Participants. The following values are valid: - = No Deferral Reason 6 = Deferral for Large In Scale (LRGS)
<i>DisplayIndicator</i>	1	Alphanumeric	Corresponds to <i>DisplayIndicator</i> (9479) in Cboe FIX. This is only applicable for Complex Options orders participating in C-RFQ. I = Hidden. If set, the auction price will be hidden for the initiator. For responders, their response will be hidden from the Auction Summary. This will only happen if the order meets the LIS threshold. If this field is not specified, or if the LIS threshold is not met, then by default, the auction price or the response will be displayed.
<i>DisplayPrice</i>	8	Binary Price	Only present when order is fully or partially booked. If the order has to be displayed at a less aggressive price for some reason, then that price will be reported here, otherwise equals price. Present for hidden orders, indicating the price the order would have been displayed at.

<i>DrillThruProtection</i>	8	Binary Price	<p>Corresponds to <i>DrillThruProtection</i> (6253) in Cboe FIX.</p> <p>Amount sender is willing to trade through BBO at the time of order entry. This is available for both futures and options on simple and complex instruments.</p> <p>The amount should be entered as a non-negative value indicating the protection to be applied for the order. This is the value by which the order may aggress the resting BBO. The drill through price is then the resting BBO aggressed by the drill through protection value. A zero value denotes full BBO protection. This will allow the inbound order to execute only against the top level of the resting price. The drill through price is the resting BBO.</p> <p>If unspecified, the exchange default value will be used. The drill through price is the resting BBO aggressed by the exchange default value.</p>
<i>ExecutorID</i>	4	Binary	<p>The short code representing the execution decision maker of the order. Data corresponding to this short code must have been previously supplied, or will be supplied by the end of the calendar day, per our Rules. The value must be between 0 and 4,294,967,295.</p> <p>For executing decision makers, the following value is reserved for applicable use:</p> <p>3 = NORE (Timing and location of the execution determined by the client of the Participant)</p>
<i>Executor QualifiedRole</i>	1	Binary	<p>Required whenever an <i>ExecutorID</i> is specified.</p> <p>Valid values are:</p> <p>0 = None - Only applicable if using a reserved value for <i>ExecutorID</i></p> <p>22 = Algorithm</p> <p>24 = Natural person</p>
<i>ExpireTime</i>	8	DateTime	<p>Corresponds to <i>ExpireTime</i> (126) in FIX.</p> <p>Required for <i>TimeInForce</i> = 6 orders, specifies the date-time (in UTC) that the order expires.</p>
<i>FeeCode</i>	2	Alphanumeric	<p>Indicates fee associated with an execution. Fee codes are published in the pricing schedule. New fee codes may be sent with little to no notice. Participants are encouraged to code their systems to accept unknown fee codes.</p>
<i>IDSource</i>	1	Alphanumeric	<p>Corresponds to <i>IDSource</i> (22) in Cboe FIX.</p> <p>4 = ISIN</p>

<i>InvestorID</i>	4	Binary	The short code representing the investment decision maker of the order. Data corresponding to this short code must have been previously supplied, or will be supplied by the end of the calendar day, per our Rules. The value must be between 0 and 4,294,967,295.
<i>Investor QualifiedRole</i>	1	Binary	Required whenever an <i>InvestorID</i> is specified. Valid values are: 22 = Algorithm 24 = Natural person
<i>LastMkt</i>	4	Alphanumeric	Corresponds to <i>LastMkt</i> (30) in Cboe FIX. Segment MIC of this fill.
<i>LastPriority</i>	1	Alphanumeric	Corresponds to <i>LastPriority</i> (9849) in Cboe FIX. When enabled, allocation will go to other participants' responses before requiring the Contra Order to satisfy remaining contracts of the Agency Order. Mutually exclusive with <i>AutoMatch</i> . 0 = Disabled (Default) 1 = Enabled
<i>LastPx</i>	8	Binary Price	Corresponds to <i>LastPx</i> (31) in Cboe FIX. Price of this fill. Note the use of Binary Price to represent positive and negative prices, which can occur with complex/spread instruments.
<i>LastShares</i>	4	Binary	Corresponds to <i>LastShares</i> (32) in Cboe FIX. Executed contract quantity.
<i>LeavesQty</i>	4	Binary	Corresponds to <i>LeavesQty</i> (151) in Cboe FIX. Quantity still open for further execution. If zero, the order is complete.
<i>LegPosition Effects</i>	12	Alpha	Corresponds to <i>LegPositionEffects</i> (22019) in Cboe FIX. Indicates status of the client position in each complex option leg. For example, if five legs, then this field must have five position effects specified. Ordering of position effects matches the instrument definition. O = Open C = Close N = None Orders with <i>AccountType</i> value of 3 (House Trader) are not required to specify <i>LegPositionEffects</i> or may optionally specify a value of "N" for each leg. Otherwise, orders with <i>AccountType</i> value of 1 (Customer Account) must specify <i>LegPositionEffects</i> .

<i>LegPrice</i>	8	Binary Price	<p>Corresponds to <i>LegPrice</i> (566) in Cboe FIX.</p> <p>Reference price for the future leg of a Volatility Strategy. Mandatory for this case, otherwise ignored. See the Volatility Strategies section (p. 7) for more details.</p>
<i>LiquidityProvision</i>	1	Text	<p>Corresponds to <i>OrderAttributeTypes</i> (8015) = 2 in Cboe FIX.</p> <p>This flag is used to indicate whether the order is related to any sort of liquidity provision activity, as defined by MiFID II. This flag is <u>mandatory</u> for orders which are part of a liquidity provision activity.</p> <p>N = Not Liquidity Provision (default) Y = Liquidity Provision</p>
<i>MassCancelld</i>	20	Text	<p>Copied from the <i>MassCancelld</i> passed on the original CANCEL ORDER V2 or PURGE ORDERS V2. This field corresponds to <i>MassCancelld</i> (7695) in Cboe FIX.</p>

<p><i>MassCancelInst</i></p>	<p>16</p>	<p>Text</p>	<p>Corresponds to <i>MassCancelInst</i> (7700) in Cboe FIX.</p> <p>Used for specification of PURGE ORDERS V2 functionality and optionally used for specification of Mass Cancel functionality associated with the CANCEL ORDER V2 message.</p> <p>At least one character must be provided (Trading Firm filter). Contiguous characters must be specified up to total length. Truncated/unspecified characters will default to values indicated (D) below.</p> <p>1st character: Trading Firm filter A = No filtering by trading firm relationship is performed F = All orders that were under the clearing relationship specified in <i>ClearingFirm</i>. If "F" specified and <i>ClearingFirm</i> not provided, the Mass Cancel or Purge request will be rejected. If "F" specified and the <i>ClearingFirm</i> field is provided but is blank (NULL), the Mass Cancel or Purge request will be treated like "A", and no filtering by trading firm relationship is performed.</p> <p>2nd character: Acknowledgement Style M = (D) ORDER CANCELLED V2 messages are sent for each cancelled order. If M is sent and the <i>MassCancelld</i> optional field is specified, the <i>MassCancelld</i> value is ignored. S = A single MASS CANCEL ACKNOWLEDGEMENT V2 message is sent once all cancels have been processed. The <i>MassCancelld</i> optional field must be specified or the Mass Cancel or Purge request will be rejected. B = Both individual ORDER CANCELLED V2 and MASS CANCEL ACKNOWLEDGEMENT V2 messages will be sent. Also requires the <i>MassCancelld</i> optional field to be specified or the Mass Cancel or Purge request will be rejected.</p> <p>3rd character: Lockout instruction N = (D) No lockout L = Lockout until corresponding <i>RiskReset</i> received. Lockout can be used only with Clearing Firm filter set to F, otherwise the Mass Cancel or Purge request will be rejected.</p> <p>4th character: Instrument Type filter B = (D) Cancel both simple and complex orders S = Cancel simple orders only C = Cancel complex orders only</p> <p>A self-imposed lockout can be released using the <i>RiskReset</i> field of the NEW ORDER V2 or NEW COMPLEX ORDER message or by sending a RESET RISK message. If the <i>ProductCode</i> optional field is specified, a symbol level reset is required, otherwise a Firm level reset is required to release a lockout.</p>
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<i>MaxFloor</i>	4	Binary	<p>Corresponds to <i>MaxFloor</i> (111) in Cboe FIX.</p> <p>Portion of <i>OrderQty</i> to display. The balance is reserve. 0 displays the entire quantity. The displayed quantity of each order at a price level is decremented first. When displayed quantity is fully decremented, it is reloaded up to <i>MaxFloor</i> from reserve.</p> <p>Default = 0</p>
<i>MinQty</i>	4	Binary	<p>Corresponds to <i>MinQty</i> (110) in Cboe FIX.</p> <p>Optional minimum fill quantity for IOC orders. Ignored for other orders. Default is zero.</p> <p>On entry and user modification, the behavior is configurable on the port and can apply to the total fill size, which may be made up of several consecutive smaller fills.</p>
<i>MultilegReporting Type</i>	1	Alphanumeric	<p>Corresponds to <i>MultilegReportingType</i> (442) in Cboe FIX.</p> <p>Indicates the type of ORDER EXECUTION V2 message during a complex order execution.</p> <p>1 = Single-leg /Simple instrument 2 = Individual leg of multi-leg instrument (Options), or Simple instrument execution that is part of a Spread instrument execution (Futures) 3 = Entire multi-leg / Spread instrument package</p>
<i>OpenClose</i>	1	Alphanumeric	<p>Corresponds to <i>OpenClose</i> (77) in Cboe FIX.</p> <p>Indicates status of client position in the option.</p> <p>O = Open C = Close N = None</p> <p>Orders with <i>AccountType</i> value of 3 (House Trader) are not required to specify <i>OpenClose</i> or may optionally specify a value of "N". Otherwise, orders with Orders with <i>AccountType</i> value of 1 (Customer Account) must specify <i>OpenClose</i>.</p>
<i>OrderCategory</i>	1	Binary	<p>This field corresponds to the MMT Level 3.2 field 'Negotiated Transaction Indicator', and is used by the participant to indicate that the trade was a Negotiated Transaction as per the Cboe Rules. For all trade reports reported on-exchange, the value must be 3.</p> <p>0 = Not a Negotiated Trade 3 = Privately Negotiated Trade</p> <p>On return fields, this field indicates whether Cboe deems the trade as utilising the Negotiated Transaction waiver under Mi-FID.</p>

<i>OrderOrigination</i>	1	Text	<p>Corresponds to <i>OrderOrigination</i> (1724) in Cboe FIX.</p> <p>5 = (DEA). Indicates DEA activity (as deemed by MiFID II) is involved in this order. 0 = Non-DEA. (default) Other values are unsupported and will be rejected.</p>
<i>OrderQty</i>	4	Binary	<p>Corresponds to <i>OrderQty</i> (38) in Cboe FIX.</p> <p>Order quantity. System limit is 999,999 contracts.</p>
<i>OrdType</i>	1	Alphanumeric	<p>Corresponds to <i>OrdType</i> (40) in Cboe FIX.</p> <p>1 = Market 2 = Limit (default) 3 = Stop (Options only) 4 = Stop Limit</p> <p>Market implies <i>TimeInForce</i> of IOC (3).</p> <p>Stop/Stop Limit orders must have <i>TimeInForce</i> = 0 (DAY), 1 (GTC), or 6 (GTD).</p>
<i>OrigClOrdID</i>	20	Text	<p>Corresponds to <i>OrigClOrdID</i> (41) in Cboe FIX.</p>

<i>PreventMatch</i>	3	Alpha	<p>Corresponds to <i>PreventParticipantMatch</i> (7928) in Cboe FIX.</p> <p>The first character is the Participant Trade Prevention (PTP) Modifier with the following possible values:</p> <p>N = Cancel Newest O = Cancel Oldest B = Cancel Both</p> <p>Not all values are supported in all contexts.</p> <p>On a <i>NEW ORDER v2</i>, all values are supported. On a <i>NEW COMPLEX ORDER</i>, for complex options, and spread instruments, all values are supported, and when specified, they only apply on complex vs. complex matches. When a complex order with Participant Trade Prevention interacts with a single-leg order with Participant Trade Prevention, the complex order will always be cancelled. Similarly, in the event of a Spread order match with a Simple order, the Spread order will always be cancelled irrespective of the value of the first character.</p> <p>On a <i>NEW ORDER CROSS</i>, only N and O are supported for the PTP modifier, and it is only applicable to the Agency order.</p> <p>The second character indicates the Unique ID Level:</p> <p>F = Prevent Match at Participant Level M = Prevent Match at Trading Firm Level</p> <p>The third character indicates a Trading Group ID (optional):</p> <p>Member specified alphanumeric value 0–9, A–Z, or a–z.</p> <p>The Unique ID level (character 2) of both orders must match to prevent a trade. If specified <u>on both orders</u>, Trading Group ID (character 3) must match to prevent a trade.</p> <p>The PTP Modifier (character 1) of the inbound order will be honoured.</p>
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<i>Price</i>	8	Binary Price	<p>Corresponds to <i>Price</i> (44) in Cboe FIX.</p> <p>Limit price. Four implied decimal places.</p> <p>Required for limit orders (<i>OrdType</i> = 2). If specified on a new market order (<i>OrdType</i> = 1), the order will be rejected.</p> <p>For complex orders, net price of the strategy. Four implied decimal places. (Options only)</p> <p>Buy orders:</p> <ul style="list-style-type: none"> • Positive value, Debit • Negative value, Credit • Even order, 0 (Zero) <p>Sell orders:</p> <ul style="list-style-type: none"> • Positive value, Credit • Negative value, Debit • Even order, 0 (Zero)
<i>PriceFormation</i>	1	Alphanumeric	<p>Optional.</p> <p>Indicates the price formation attribute of the trade, and corresponds to MMT v3 Level 3.8</p> <p>Not specified or P = Plain-Vanilla Trade J = Trade Not Contributing to the Price Discovery Process (TNCP) N = Price is Pending (PNDG)</p>
<i>ProductCode</i>	6	Text	Product Code symbol.
<i>ReportTime</i>	8	DateTime	<p>Corresponds to <i>RptTime</i> (7570) in FIX.</p> <p>Optional. Indicates the time at which a deferred trade report will be automatically published.</p>

RiskReset	8	Text	<p>Corresponds to <i>RiskReset</i> (7692) in Cboe FIX. For use by Participants using Cboe Risk Management tools to reset or release Trading Firm, Trading Firm Group, Symbol or CustomGroupID level lockout conditions resulting from risk profile trips or self-imposed lockout issued via CANCEL ORDER or PURGE ORDERS messages.</p> <p>Single Character Values - with counter reset:</p> <p>S = Symbol level lockout reset F = Trading firm level lockout reset C = CustomGroupID lockout reset G = Trading firm Group level lockout reset</p> <p>Single Character Values - without counter reset:</p> <p>T = Symbol level self-imposed lockout reset E = Trading firm level self-imposed lockout reset D = CustomGroupID self-imposed lockout reset H = Trading firm Group level lockout reset</p> <p>Values may be combined together to allow for resets of multiple self-imposed lockouts in a single message. For example, FS, SC, FC, and SFC are all acceptable values.</p> <p>The single character values with no counter reset will release a self-imposed lockout condition only without resetting any counters related to active risk rules. This may be useful for time based risk rules where the lockout may be released without resetting any risk values being tracked back to zero. If a conflicting value is provided the lockout release with counter reset will take precedence. For example, "ST" will release any lockout and reset any applicable root-level rule counters to zero.</p> <p>When a resting or inbound order is executed and a Symbol level risk profile limit is reached, resting orders on the associated Product Code will be cancelled and inbound orders on the Product Code will be rejected until this field is filled with the value S on a subsequent NEW ORDER or NEW COMPLEX ORDER message corresponding to a symbol on the same Product Code, or on a RESET RISK message.</p> <p>If a Trading Firm level rule is tripped, this tag can be filled with the value F to reset all Trading Firm level rules. While this will reset Trading Firm level rules, it is possible that both Trading Firm and Symbol level rules are currently both tripped. Setting this field to F will not clear Symbol level rules and the order may still be rejected. To clear both Symbol and Trading Firm level rules, set this field to SF to reset all associated Trading Firm level and Symbol level lockouts.</p> <p>If orders have been locked out by at the custom group ID level, inbound orders for the locked custom group ID will be rejected until this field is filled with the value C.</p>
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<i>RoutingInst</i>	4	Text	<p>Corresponds to <i>RoutingInst</i> (9303) in Cboe FIX. Complex options only.</p> <p>1st character: B = Book Only (will remove from local book), allowed to interact with both single-leg and other complex orders. Default value. D = Complex Book Only, allowed to interact with other complex orders only³</p> <p>2nd character: L = Do Not Expose order via C-RFQ. S = Expose order via C-RFQ (Default).⁴</p>
<i>SecondaryExeclD</i>	8	Binary	<p>Corresponds to <i>SecondaryExeclD</i> (527) in Cboe FIX.</p> <p>Field indicates whether an execution is a complex instrument execution or a Simple instrument execution that is part of a complex execution. If the <i>SecondaryExeclD</i> field is blank, the execution is a Simple instrument execution only. If the <i>SecondaryExeclD</i> field is present and is the same as the <i>ExeclD</i> field, the execution represents a complex execution for which associated simple instrument executions will follow. Simple instrument executions associated with a complex execution will contain a <i>SecondaryExeclD</i> value that matches the <i>ExeclD</i> of the associated complex execution.</p>
<i>SecondaryOrderID</i>	8	Binary	<p>Corresponds to <i>SecondaryOrderID</i> (198) in Cboe FIX.</p> <p>Denotes an alternative <i>OrderID</i> which is present on Cboe market data feeds (for example, to hide that a reserve (iceberg) order has reloaded). Or, <i>OrderID</i> of the contra side of a prevented match.</p>
<i>SecurityID</i>	16	Text	<p>Corresponds to <i>SecurityID</i> (48) in Cboe FIX.</p> <p>ISIN if <i>IDSource</i> is set.</p>
<i>Side</i>	1	Alphanumeric	<p>Corresponds to <i>Side</i> (54) in Cboe FIX.</p> <p>1 = Buy 2 = Sell</p>
<i>StopPx</i>	8	Binary Price	<p>Corresponds to <i>StopPx</i> (99) in Cboe FIX.</p> <p>Stop price. Required if <i>OrdType</i> = 3 (Stop) or 4 (Stop Limit). Stop and Stop Limit orders will only be triggered off Last Sale Eligible trades.</p> <p>New in Version 2.</p>

³Only valid with *TimelnForce* values of 0 (Day) or 3 (IOC), otherwise order will be rejected.

⁴ All non-IOC Complex Orders will be eligible for C-RFQ unless otherwise specified.

<i>SubLiquidity Indicator</i>	1	Alphanumeric	<p>Additional information about an execution. Cboe may add additional values without notice. Participants must gracefully ignore unknown values.</p> <p>ASCII NUL (0x00) = No Additional Information</p> <p>b = Automated Improvement Mechanism (AIM)</p> <p>U = Qualifying Market Turner order. Only set when <i>BaseLiquidityIndicator</i> = A.</p> <p>g = Aggressive Hold. Order held by speed bump.</p>
<i>Subreason</i>	1	Alphanumeric	<p>Additional detail for an order reject or cancellation.</p> <p>Corresponds to the first character in <i>Subreason</i> (22058) in Cboe FIX.</p> <p>See Subreason Codes (§ 7.3, p. 174) for a list of possible subreasons.</p>
<i>Symbol</i>	8	Alphanumeric	<p>Corresponds to <i>Symbol</i> (55) in Cboe FIX.</p> <p>Cboe Symbology for the instrument.</p>
<i>TimeInForce</i>	1	Alphanumeric	<p>Corresponds to <i>TimeInForce</i> (59) in FIX.</p> <p>0 = Day</p> <p>1 = GTC (allowed, but treated as Day)</p> <p>2 = At The Open (complex only)</p> <p>3 = IOC (Portion not filled immediately is cancelled. Market orders are implicitly IOC.)</p> <p>4 = FOK (Supported in NEW ORDER only; Not supported in NEW COMPLEX ORDER.</p> <p>6 = GTD (expires at earlier of specified <i>ExpireTime</i> or end of day)</p>
<i>TradeHandling Instruction</i>	1	Binary	<p>Used to specify the trade reporting model used.</p> <p>1 (Two-Party Report)</p> <p>2 (One Party Report for Matching)</p>
<i>TradeID</i>	8	Binary	<p>Corresponds to <i>TradeID</i> (1003) in FIX.</p> <p>Optional. Is used by the participant to specify the previously reported trade that the report sent refers to.</p>
<i>TradeLinkID</i>	1	Alpha	<p>Third Party Trade Identifier used for identifying trades coming from a complex package. 30 characters or less. Characters in ASCII range 33–126 are allowed, except for comma, semicolon, and pipe.</p>
<i>TradePrice Condition</i>	1	Binary	<p>Corresponds to <i>TradePriceCondition</i> (1390) in FIX. The following values are valid:</p> <p>0 = Cum Dividend (deprecated)</p> <p>2 = Ex Dividend (deprecated)</p> <p>13 = Special Dividend (SDIV)</p>

<i>TradePublishInd</i>	1	Binary	<p>Corresponds to <i>TradePublishIndicator</i> (1390) in FIX.</p> <p>Optional. Is used by the participant to request that the publication be delayed. The following values are valid:</p> <ul style="list-style-type: none"> 0 = Do not publish 1 = Publish trade 2 = Deferred publication
<i>TradeReportTransType</i>	1	Binary	<p>Corresponds to <i>TradeReportTransType</i> (487) in FIX.</p> <p>Optional. Specifies the transaction type of the report sent via Trade Capture Report. The following values are valid:</p> <ul style="list-style-type: none"> 0 = New 1 = Cancel 2 = Replace 3 = Release
<i>TradeReportType</i>	1	Binary	<p>This field controls pending state of the trade report.</p> <ul style="list-style-type: none"> 0 = (Submit) for all new trade reports
<i>TradeReportTypeReturn</i>	2	Binary	<p>When requested, both <i>TradeReportTransType</i> and <i>TradeReportType</i> will be returned.</p>
<i>TradeTime</i>	8	DateTime	<p>Corresponds to <i>TransactTime</i> (60) and <i>TradeDate</i> (75) in FIX.</p> <p>Optional, for new trade reports. Cancel/amend/releases require the original time of the trade. Specifies the date and time at which the trade was arranged. This field defaults to the time at which the message is received, when defaulting is allowed.</p>
<i>TradingSessionSubId</i>	1	Binary	<p>Corresponds to <i>TradingSessionSubId</i> (625) in FIX. The following values are valid:</p> <ul style="list-style-type: none"> 2 = Scheduled Opening Auction 4 = Scheduled Closing Auction 6 = Scheduled Intraday Auction 8 = Unspecified Auction 9 = Unspecified Auction 3 = Continuous Trading 5 = Post Trading 10 = Out of Main Session Trading
<i>TransactionCategory</i>	1	Alphanumeric	<p>Corresponds to <i>TrdType</i> (828) in FIX.</p> <p>Optional. Specifies the type or category of the trade being reported in a Trade Capture Report. At this time, only the following values are valid:</p> <ul style="list-style-type: none"> P = Regular Trade (aka Plain-Vanilla Trade) Y = Exchange For Physical Z = Package Trade

<i>TrdSubType</i>	1	Binary	Corresponds to <i>TrdSubType</i> (829) in FIX. Optional. The following values are valid: 37 = Agency Cross trade
<i>VenueType</i>	1	Alphanumeric	Corresponds to <i>VenueType</i> (1430) in FIX. The following values are valid: 0 = Off Book
<i>WaiverType</i>	1	Alphanumeric	Corresponds to <i>TrdRegPublicationReasons</i> (8013) in FIX. It indicates the Negotiation or Pre-Trade Transparency Waiver derived by Cboe. This is only supported in return messages from Cboe to Participant. For Order Execution v2 messages, all the values are valid. For Trade Capture Confirm v2 messages, all the Negotiated Trade values, and RFPT are valid. The following values are valid: - = No Waiver Type 0 = Negotiated Trade in Liquid Instrument (NLIQ) 1 = Negotiated Trade in Illiquid Instrument (OILQ) 2 = Negotiated Trade Subject to Conditions Other Than the Current Market Price (PRIC) 3 = Reference Price (Dark Book) (RFPT) (Pre-Trade Transparency Waiver) A = Order Management Facility (Iceberg) (Pre-Trade Transparency Waiver) 9 = Large In Scale (Pre-Trade Transparency Waiver)
<i>WorkingPrice</i>	8	Binary Price	Only present when order is fully or partially booked. If price had to be adjusted to a less aggressive value for some reason, then the adjusted price will be reported here, otherwise equals price.

7 Reason Codes

7.1 Order Reason Codes

The following is a list of all reason codes used related to orders and trade capture reports. These reason codes are used in a variety of contexts (order cancellations, order rejections, modify rejections, etc.). All reasons are not valid in all contexts. The reason code will be followed by free form text. Cboe may add additional reason codes without notice. Members must gracefully ignore unknown values.

A = Admin
D = Duplicate Identifier (e.g., *CIOrdID*)
H = Halted
I = Incorrect Data Center
J = Too late to cancel
K = Order Rate Threshold Exceeded
L = Price Exceeds Cross Range
M = Liquidity Available Exceeds Order Size
N = Ran Out of Liquidity to Execute Against
O = *CIOrdID* Doesn't Match a Known Order
P = Can't Modify an Order That is Pending Fill
Q = Waiting For First Trade
U = User Requested
V = Would Wash
W = Add Liquidity Only Order Would Remove
X = Order Expired
Y = Symbol Not Supported
Z = Unforeseen Reason
f = Risk Management Trading Firm Level
m = Market Access Risk Limit Exceeded
o = Max Open Orders Count Exceeded
r = Reserve Reload
s = Risk Management Symbol Level
x = Crossed Market
y = Order Received by Cboe During Replay
+ = Risk Management Trading Firm Group Level

7.2 Quote Reason Codes

The following is a list of all quote reason codes used by Cboe. All reasons are not valid in all contexts. The reason code will be followed by free form text. The specific text the system delivers may vary from the text listed below, to provide clarification of the reject reason. Cboe may add additional reason codes without notice. Members must gracefully ignore unknown values.

C = Invalid *ClearingFirm*
D = Invalid *WashId*
F = Not enabled for quotes
I = Incorrect Data Center
L = Invalid *QuoteCnt*
M = Symbols not on same matching engine
P = Invalid *PostingInstruction*
Q = Invalid *QuoteUpdateID*
R = Product Code does not match across quotes
S = Symbol not found
U = Symbol range unreachable
W = Invalid *WashPreventType*
a = Admin
b = Invalid *AccountType*
c = Invalid *Capacity*
f = Risk Management Trading Firm Level
l = Liquidity Provision quotes require active LPP registration for product
m = Invalid *WashMethod*
n = Exceed max notional value per order
o = Invalid *OpenClose*
s = Invalid *Side*
v = Invalid EU Record Keeping info, such as *OrderOrigination, AlgorithmicIndicator, LiquidityProvision, ClientID, ClientQualifiedRole, ExecutorID, ExecutorQualifiedRole, InvestorID, InvestorQualifiedRole*.
x = Exceed max size per order
y = Quote Received by Cboe During Replay
z = Session End

7.3 Order and Quote Subreason Codes

The following is a list of subreason codes used to indicate additional detail for the order rejections or cancellations. The specific text the system delivers may vary from the text listed below, to provide clarification of the reject reason. Cboe may add additional values without notice. Members must gracefully ignore unknown values.

- A = Purge/Mass Cancel Trading Firm Level by user
- B = Purge/Mass Cancel Symbol Level by user
- C = Purge/Mass Cancel Custom Group ID Level by user
- E = Trading Firm Level lockout by Cboe Trade Desk Admin
- J = Firm disconnect
- K = Matching engine disconnect
- T = Cboe Trade Desk admin
- f = Risk Management Trading Firm Level by rule
- s = Risk Management Symbol Level by rule
- + = Risk Management Trading Firm Group Level by rule

8 List of Message Types

8.1 Participant to Cboe

Message Name	Level	Type	Sequenced
Login Request V2	Session	0x37	No
Logout Request	Session	0x02	No
Client Heartbeat	Session	0x03	No
New Order V2	Application	0x38	Yes
New Order Cross	Application	0x7A	Yes
New Complex Order	Application	0x4B	Yes
New Order Cross Multileg	Application	0x85	Yes
Cancel Order V2	Application	0x39	Yes
Modify Order V2	Application	0x3A	Yes
Quote Update	Application	0x7B	Yes
Purge Orders	Application	0x47	Yes
New Complex Instrument	Application	0x4C	Yes

8.2 Cboe to Participant

Message Name	Level	Type	Sequenced
Login Response V2	Session	0x24	No
Logout	Session	0x08	No
Server Heartbeat	Session	0x09	No
Replay Complete	Session	0x13	No
Order Acknowledgment V2	Application	0x25	Yes
Cross Order Acknowledgment	Application	0x7C	Yes
Quote Update Acknowledgment	Application	0x7D	Yes
Order Rejected V2	Application	0x26	No
Cross Order Rejected	Application	0x7E	No
Quote Update Rejected	Application	0x7F	No
Order Modified V2	Application	0x27	Yes
Order Restated V2	Application	0x28	Yes
Quote Restated	Application	0x80	Yes
User Modify Rejected V2	Application	0x29	No
Order Cancelled V2	Application	0x2A	Yes
Quote Cancelled	Application	0x81	Yes
Cross Order Cancelled	Application	0x82	Yes
Cancel Rejected V2	Application	0x2B	No
Order Execution V2	Application	0x2C	Yes
Quote Execution	Application	0x83	Yes
Trade Cancel or Correct V2	Application	0x2D	Yes
Purge Rejected V2	Application	0x48	No
Reset Risk Acknowledgment	Application	0x57	No
Mass Cancel Acknowledgment V2	Application	0x36	No
Complex Instrument Accepted	Application	0x4D	Yes
Complex Instrument Rejected	Application	0x4E	No

9 Port Attributes

TBD

10 BOE Differences between US and Europe Derivatives

This section describes, in detail, the differences between the BOE implementations of the Cboe US Futures/Options exchanges and Cboe Europe Derivatives.

Trade Capture Reports

All messaging related to the use of Trade Capture Reports is only available in Europe.

Persistence

GTC Orders are not supported in the Cboe Europe system. As such, all participant created complex instruments will be purged at the EOD.

Order Routing

Futures and Options Trading on Cboe Europe Contracts can only be undertaken on the Cboe Europe Venue. As such, this environment will have no Order Routing capability.

Iceberg Orders

Iceberg orders will not be supported for any Derivatives in Cboe Europe.

Order/Quote Attribution

The identity of the contra firm/trader to an execution is exposed on US Options. This information will not be available on the European Execution Messages.

Cross Mechanisms

CrossType (549) in the US Options Systems can be used to specify one of three Auction Types.

- Automated Improvement Mechanism (AIM)
- Qualified Contingent Cross (QCC)
- Solicited Cross (SAM)

Cboe Europe Options will only support the AIM Auction Type.

Order Entry

Symbology

In the US Systems, Symbols can be specified using a Product Identifier, such as OSI Root and associated information like MaturityMonth, MaturityDay, StrikePrice and PutOrCall. In the European system, products must be specified using the 6-Character Cboe Symbol as taken from the Symbol File provided in Symbol, or the ISIN Code provided in SecurityID. Complex Instruments can be identified by defining each leg with a Cboe Symbol or ISIN, or the 6-Character Identifier for the Complex Instrument as a whole. Complex Instruments will not have an ISIN.

Capacity

In Europe, Capacity values must conform to the MiFID II defined values of:

- A = AOTC (Agency)
- P = DEAL (Principal)
- R = MTCH (Riskless)

MiFID II

MiFID II requires that Cboe Europe process the following fields for record keeping obligations:

- Client ID
- Executing Trader
- Investor ID

Market Making Activity should be marked using the LiquidityProvision field.

Algorithmic Trading Activity should be marked using the Algorithmic Indicator field.

DEA Activity, as defined in MiFID II, should also be marked using the OrderOrigination field.

This information will also need to be provided on a per Contra basis for AIM Auction Orders sent using the New Order Cross message.

OpenClose/LegPositionEffect

The OpenClose/LegPositionEffect fields will be required for all Orders where the participant is trading on a client account. The Account Type must be specified using the AccountType bitfield.

The Position Effect must be specified on a per Leg basis. Account Type will need to be provided on a per order basis, or per contra for New Order Cross Messages.

Execution Source

CustOrderHandlingInst must be specified for all New Order Messages, and also on a per contra basis for all Cross Order Messages. If this information is missing, the Order will be rejected.

Complex Order Entry

In Cboe Europe, due to the requirement to provide the OpenClose indicator, its equivalent LegPositionEffect is required for Complex Instruments. Therefore, unlike US Futures, the New Order Message is exclusively for Simple Instruments. Complex Instruments must be submitted using the New Complex Order message.

Quoting Interface

The Quoting Interface used in US Futures and US Options uses distinct message types due to their distinct nature and the lack of optional bitfields. In EU Derivatives, the Quoting messages are distinct again to remove any US specific fields, and add in the European specific ones.

New Order Cross

The New Order Cross Message for US Options is tailored to the US flows. In Europe, new message types are defined with support for additional Europe Specific fields. The Auction mechanism remains the same.

11 Support

Please email questions or comments regarding this specification to tradedeskeurope@cboe.com.

Revision History

March 13, 2020	Version 1.0.0 Draft first version.
May 25, 2020	Version 1.0.1 Added <i>OpenClose</i> in <i>QuoteUpdate</i> message.
June 16, 2020	Version 1.0.2 Added new section, § 10, p. 177, highlighting key differences between US and EU Derivatives environments. Renamed <i>ExecutionSource</i> to <i>CustOrderHandlingInst</i> to match the existing FIX Tag 1031. Removed support for <i>MaxFloor</i> .
June 30, 2020	Version 1.0.3 Added <i>AccountType</i> , and clarify if <i>OpenClose</i> and <i>LegPositionEffects</i> are mandatory. Added <i>MassCancel</i> in Order Cancel Request, and added <i>InstrumentTypeFilter</i> in <i>MassCancelInst</i> .
August 17, 2020	Version 1.0.4 Added info on Default Customer Order Handling Instruction port attribute, and clarified the use of <i>NoLegs</i> in New Complex Order.
September 22, 2020	Version 1.0.5 Added <i>CustOrderHandlingInst</i> , <i>OpenClose</i> and <i>AccountType</i> to <i>TrdCapRptSideGrp</i> .
October 5, 2020	Version 1.0.6 Changed the fields order of <i>OpenClose</i> in <i>NewOrderCross</i> , and <i>LegPositionEffects</i> in <i>NewOrderCrossMultileg</i> ; these fields are no longer mandatory.
October 19, 2020	Version 1.0.7 <i>AuctionId</i> is now a valid return bitfield in <i>Cross Order Cancelled</i> message.
November 10, 2020	Version 1.0.8 Removed <i>At The Close</i> as a valid <i>TimelnForce</i> value.
December 21, 2020	Version 1.0.9 Updated examples and Added example for <i>QuoteUpdate</i> ; Updated supported values for <i>PreventMatch</i> ; Expanded list of Quote Reason Codes (§ 7.2, p. 173); Added support for <i>DrillThruProtection</i> ; Clarified TCR support for complex instruments; Added support for <i>RoutingInst</i> for complex options.
11 January 2021	Version 1.0.10 Added Volatility Strategies section. Added optional <i>LegPrice</i> to <i>NoLegs</i> repeating group.
14 January 2021	Version 1.0.11 Updated and clarified usage of <i>ProductCode</i> in <i>Cancel Order</i> , <i>Purge Orders</i> and <i>ResetRisk</i> .
2 February 2021	Version 1.0.12 Updated values supported in <i>RiskReset</i> , added support for <i>Subreason</i> ; Added <i>TradeLinkId</i> for trade reports.
9 February 2021	Version 1.0.13 Updated values in <i>SubLiquidityIndicator</i> ; Clarified values supported in <i>TimelnForce</i> for complex orders.
23 February 2021	Version 1.0.14 Update supported values for <i>TradeCaptureReport</i> messages.
03 March 2021	Version 1.0.15 Clarified usage of <i>Order Restatement</i> Message.
08 March 2021	Version 1.0.16 Added <i>DisplayIndicator</i> to <i>New Complex Order</i> message; Added descriptions for more trade capture report specific optional fields.
24 March 2021	Version 2.0.0 Removed Draft Watermark.

01 April 2021	Version 2.1 Updated descriptions of various fields for <i>QuoteUpdate</i> , including <i>PostingInstruction</i> and <i>CustOrderHandlingInst</i> .
07 April 2021	Version 2.2 Updated values in <i>RestatementReason</i> for <i>Order Restated</i> .
09 April 2021	Version 2.3 <i>AuctionId</i> now supported in <i>Order Modified</i> message.
14 April 2021	Version 2.4 Updated <i>QuoteCancelled CancelReason</i> to point to the correct set of reason codes.
22 April 2021	Version 2.5 Updated LPP registration requirements in using <i>LiquidityProvision</i> in <i>Quote Update</i> ; Added new <i>Quote Reason</i> code.
04 May 2021	Version 2.6 Updated <i>Transaction Category</i> with new values for Exchange For Physical and Package Trade.