



**BOX**<sup>SM</sup>  
TECHNOLOGY

**SOLA® Access Information Language**  
**SAIL Specifications Guide**  
**for BOX**

***Confidential***

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# Document History

| VERSION | DATE       | CHANGE DESCRIPTION  |
|---------|------------|---|
| 2.0     | 2012-11-10 | <ul style="list-style-type: none"> <li>2.2.1: Message Format, Replace reference “business message” to “SAIL message”.</li> <li>5.39: Leg Execution Notice, Fields ‘Reference ID’ and ‘Original Reference ID’ always blank.</li> <li>Chapter 6: Error Codes, Update list of error codes.</li> <li>Chapter 7: Field Types, Update description of field ‘Special Price Term’.</li> </ul>   |
| 2.1     | 2013-10-08 | <ul style="list-style-type: none"> <li>5.3 - OI: Improvement Order Entry, Replaced unused ‘Linked’ fields by a filler</li> <li>5.10 Quote Notice: Updated message title and description.</li> <li>5.13 - BD: Bulk Quote Date, Added links to new Field Types for fields ‘Calculation Time Interval’, ‘Maximum Total Volume’, ‘Maximum Total Value’, ‘Maximum Delta Volume’ and ‘Maximum Delta Value’.</li> <li>6 - Error Codes: Removed error related to Linked Orders.</li> <li>7 - Field Types, Removed unused ‘Linked’ fields, Removed BOX-TOP value in ‘Price Type’ field, Added value ‘6’ in field ‘IML Handling’ for Complex Order exposure.</li> </ul> |
| 2.2     | 2014-09-03 | <ul style="list-style-type: none"> <li>Removal of message NM: Market Maker Prime Notice</li> <li>Change of text in message XI: Improvement Order Cancellation</li> <li>Introduced new field name: ‘Counterpart Account Type’ in messages NT: Execution Notice and NL: Leg Execution Notice</li> </ul>   |
| 2.3     | 2015-04-17 | <ul style="list-style-type: none"> <li>Section 5: Business Messages <ul style="list-style-type: none"> <li>Added Special Price Term to 5.1 - OE: Order Entry message, Corrected filler order</li> <li>Added Special Price Term to 5.2 - OM: Order Modification message, Corrected filler order</li> </ul> </li> <li>Section 7: Field Types</li> <li>Added Special Price Term to Field Types table</li> </ul>  |
| 2.4     | 2016-03-28 | <ul style="list-style-type: none"> <li>Section 7: Added B value to Field Type Status</li> </ul>   |
| 2.5     | 2016-06-13 | <ul style="list-style-type: none"> <li>Implementation of PTV features in SAIL Protocol version B1:</li> <li>Section 5: New business messages: MU TraderStatus, GZ User Global Cancellation, Modified message BD BulkQuoteData</li> <li>Section 6: Modified Field Calculation Time Interval, Cancellation Type, Quote Cancel Reason, Status, Trader Lock Status</li> <li>Section 7: New error codes for PTV (3096, 3097)</li> <li>General: Re-ordering of messages, values in alphabetical order</li> </ul>  |

| VERSION | DATE       | CHANGE DESCRIPTION  |
|---------|------------|---|
| 2.6     | 2016-09-09 | <ul style="list-style-type: none"> <li>Section 5: New message NQ: Quality Market Maker Notification</li> <li>Section 5.32: Modified Post Trading Instructions field (O/R)</li> <li>Section 7: New error code (0407)</li> </ul>  |
| 2.7     | 2016-11-07 | <ul style="list-style-type: none"> <li>Floor Trade - Section 7: Added 2 error codes (0123 = Floor Trade Not Allowed, 0124 = InsufficientSurrender quantity)</li> </ul>  |
| 2.8     | 2017-06-13 | <p>Section 6 – Field Types</p> <ul style="list-style-type: none"> <li>Special Price Term: Value X updated to include Qualified Contingent Cross Order</li> <li>Special Trade Indicator: Value D added : Customer Cross Order or Qualified Contingent Cross Order</li> </ul>   |
| 2.9     | 2017-11-24 | <ul style="list-style-type: none"> <li>Section 1: Protocol version B3</li> <li>Section 5.22: NL Message (Leg Number length 2 bytes)</li> <li>Section 5.32: Update to Quantity field for IOI</li> <li>Section 5.35: ON message, new field “Enabled”</li> <li>Section 6: Special Price Term updated for IOI, Protocol, Leg updated</li> </ul>   |
| 2.10    | 2018-04-09 | <ul style="list-style-type: none"> <li>General editing (new logo, added 2.1 List of Messages, moved Section 4 - Data Type to Section 2.3 – Data Type)</li> <li>Section 5: Duration Type (Value A= AuctionOrKill)</li> </ul>   |
| 2.11    | 2018-06-27 | <ul style="list-style-type: none"> <li>New Sections: 4.13 KT Complex Order Auction Acknowledgement and 4.37 OT Complex Order Auction Entry</li> </ul>   |
| 2.12    | 2018-09-28 | <ul style="list-style-type: none"> <li>Protocol version B3 on front cover</li> <li>Section 2.3.3: Additional restrictions</li> <li>Sections 4.10, 4.36, 4.37 (Messages KN, ON, OT): Updates of Number of Legs</li> <li>Section 5: Leg number field updated to 12, Open/Close and Post-Trading Instruction, IML Handling, Special Trade Indicator fields updated</li> <li>Section 6: New error code (0310)</li> </ul>  |
| 2.13    | 2020-01-21 | <ul style="list-style-type: none"> <li>Section 5: Field ‘Special Trade Indicator’, added value ‘R’ for Manual QOO</li> <li>Field ‘IML Handling’ : Removed ‘Combined Order Type’ wording.</li> <li>Fields Additional Quantity &amp; Quantity Term : added Surrender Qty as supported for Facilitation and Floor Trade.</li> <li>Section 5: Add a new type ‘MM CAT UserTime ‘ with the definition specified in the solution of the ‘BMR20-0003 – Add Quote TimeStamp in CAT files’</li> <li>Section 2.3.1 Incoming Messages Header: Field ‘User Time’, change to ‘optional’, change ‘Field Type’ to ‘CAT UserTime’.</li> <li>Removed Previous Historical Changes prior to 2012-05-30</li> </ul> |

| VERSION | DATE       | CHANGE DESCRIPTION  |
|---------|------------|---|
| 2.14    | 2020-02-20 | <ul style="list-style-type: none"> <li>Revert back the modification done in v2.13 on the field 'MM CAT UserTime' in the SAIL Incoming header.</li> <li>Sections 4.3 GC Global Cancellation, 4.4 GZ User Global Cancellation &amp; Section 4.38 Q&lt;i&gt;: Bulk Quote: Added the field 'MM CAT Usertime'.</li> <li>Section 5 Field Types: Modified the definition of the field 'MM CAT UserTime'</li> </ul>   |
| 2.15    | 2020-05-26 | <ul style="list-style-type: none"> <li>Added MIP for Facilitation</li> <li>Added message type 'GZ' in 'KO' ack from.</li> <li>Added Section 7: Password encoding.</li> </ul>  |
| 2.16    |            | <ul style="list-style-type: none"> <li>Added precision for ClientOrderId in Owner Data</li> </ul>   |
| 2.17    | 2021-04-23 | <p>Support of SubAccount using the PostTradeInstructions</p> <ul style="list-style-type: none"> <li>Section 4.1 - Added PostTradingInstructions in message type BD: BulkQuoteData</li> <li>Section 4.33 - Added PostTradingInstructions in message type OI: Improvement Order Entry</li> <li>Section 5 – Addition of SubAccount (MMID) in PostTradingInstructions with an example</li> <li>Removed NI: Instrument State Change message as it is no longer disseminated by BOX</li> </ul> <p>The following are corrections to the specs for accuracy. They are not related to any changes to the message format and fields:</p> <ul style="list-style-type: none"> <li>4.3 – Removed “orders” from definition of message type GC: Global Cancellation</li> <li>Section 4.4 – Added a definition for message type GZ: User Global Cancellation</li> <li>Section 4.7 – Removed “orders” from definition of message type KG: Global Cancellation Confirmation</li> <li>Section 4.8 – Corrected definition of message type: KI Improvement Order Acknowledgement</li> <li>Section 4.9 – Corrected definition of message type KM: Order Modification Acknowledgement with proper MessageType KM</li> <li>Section 4.10 – Corrected definition of message type KN: Complex Order Instrument Acknowledgement</li> <li>Section 4.13 – Corrected definition of message type KT: Complex Order Auction Acknowledgment</li> <li>Section (4.18, 4.19, 4.20) – Corrected to “Outgoing” message types</li> <li>Section 4.29 – Corrected definition of message type NY: Leg Execution Cancellation Notice</li> <li>Section 4.30 – Added other types of auction and customer cross orders to definition of message type OA: Auction Entry</li> <li>Section 4.3.6 – Corrected Buyer and Seller Post Trade Instructions as optional fields</li> </ul> |

| VERSION | DATE       | CHANGE DESCRIPTION  |
|---------|------------|---|
| 2.18    | 2022-05-20 | Section 3.5 – Added information related to usage of TI (Heartbeat) message  |
| 2.19    | 2022-06-03 | Support of complex order instrument up to 16 legs – impacted messages: <ul style="list-style-type: none"><li>• Section 4.10 - KN: New Complex Order Instrument Acknowledgement</li><li>• Section 4.35 - ON: New Complex Order Instrument</li><li>• Section 4.36 - OT: Complex Order Auction Entry</li></ul> |

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## Section 1 Introduction

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The SAIL Specifications Guide for BOX explains the protocol required by Participants to trade on a SOLA® platform.

SAIL is a daily protocol, meaning that all counters and sequence IDs are reset everyday.

The current Protocol version is B3.

### 1.1 Scope

The scope of this document is to provide a detailed description of the BOX SOLA Access Information Language (SAIL). This includes but is not limited to:

- Message Format and Delivery
- Session Protocol
- Application Messages, which include:
  - Technical Messages
  - Business Messages

This document provides information and does not in any way provide engineering or other professional services.

### 1.2 Audience

This document targets business, programmer, and network analysts who are responsible for determining the technical solutions needed to interface with SAIL.

### 1.3 Related Documents

BOX SAIL Business Design Guide

### 1.4 BOX Contact

Market Operation Center Support / Technical Help Desk

Toll Free: 1-866-768- 8845

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## Section 2 Overview

The SAIL protocol is defined at two levels: technical and business. The technical level deals with the delivery of data while the business level defines business-related data content.

### 2.1 List of Messages

This table contains the SAIL messages supported by BOX.

| TYPE      | SAIL MESSAGES  |
|-----------|--|
| Technical | TC: User Connection<br>TD: User Disconnection<br>TA: Disconnection Instruction<br>TH: Heartbeat (Question)<br>TI: Heartbeat (Response)<br>TO: Out of Sequence<br>TE: Technical Error Notice<br>TM: Disconnection Instruction Acknowledgement<br>TK: Connection Acknowledgement<br>TL: Disconnection Acknowledgement<br>TT: end of Transmission   |
| Business  | BD: Bulk Quote Data<br>ER: Error Notice<br>GC: Global Cancellation<br>GZ: User Global Cancellation<br>KD: Bulk Quote Data Acknowledgement<br>KE: Order Acknowledgement<br>KG: Global Cancellation Confirmation<br>KI: Improvement Order Acknowledgment<br>KM: Order Modification Acknowledgement<br>KN: New Complex Order Instrument Acknowledgement<br>KO: Standard Acknowledgement<br>KQ: Directed/Routed Order Rejection and Quote Resubmission Message<br>KT: Complex Order Auction Acknowledgement<br>KY: Auction or Improvement Cancellation Acknowledgement<br>KZ: Order Cancellation Acknowledgement<br>LA: Bulk Quote Acknowledgement<br>MU: TraderStatus<br>NC: Directed Order Cancellation Notice |

| TYPE | SAIL MESSAGES  |
|------|--|
|      | ND: Directed Order Notice<br>NE: Excluded Instrument Notice<br>NG: Group State Change<br>NI: Instrument State Change<br>NL: Leg Execution Notice<br>NP: Cancellation of All Quotes Notices<br>NQ: Quality Market Maker Notification<br>NT: Execution Notice<br>NU: Quote Notice<br>NX: Execution Cancellation Notice<br>NY: Leg Execution Cancellation Notice<br>NZ: Order Cancellation Notice (by system)<br>OA: Auction Entry<br>OD: Directed Order Acceptation<br>OE: Order Entry<br>OI: Improvement Order Entry<br>OM: Order Modification<br>ON: New Complex Order Instrument<br>OT: Complex Order Auction Entry<br>Q<i>: Bulk Quote<br>RE: Executing Participant Connection<br>RF: Executing Participant Disconnection<br>RP: Market Maker Protection Subscription<br>RQ: Request for Quote<br>XE: Order Cancellation<br>XI: Improvement Order Cancellation |

## 2.2 Message Format and Delivery

The following sections summarize general specifications for constructing and transmitting BOX SOLA Access Information Language protocol messages.

### 2.2.1 Message Format

All technical and business SAIL messages start with 4 bytes of Endian coded data indicating message length. An End of Text (ETX) character is added after the last character of each business message, which may be padded with spaces of up to three bytes for alignment, making the total length of each message a multiple of four bytes.

Example:

|                     |   |                    |                  |
|---------------------|---|--------------------|------------------|
| <0021> <sup>1</sup> | <XXXXXXXXXXXXXXXXXXXXXXXXXX> <sup>2</sup> | <ETX> <sup>3</sup> | < > <sup>4</sup> |
|---------------------|---|--------------------|------------------|

1. 4 bytes indicating length of business message. Codification little-Endian, right justified, left-filled with zeroes.
2. 21 bytes, business message body.
3. ETX (End of Text) character having a value of binary 3.
4. 2 bytes (spaces for alignment).

**Note:** In the above example, the total length of the message is 28 (4 + 21 + 1 + 2).

### 2.2.2 Required Fields

Each message within the protocol is comprised of fields, which are either:

- R = Required
- O = Optional
- C = Conditional (fields that are required based on the presence, or value of other fields).

Systems should be designed to operate only when the required and conditionally required fields are present.

## 2.3 Data Type

This section defines the SAIL Data Type messages.

### 2.3.1 Incoming Messages Header

This is the header required on all incoming Participant business messages.

| FIELD NAME        | FIELD TYPE       | REQ/OPT |
|-------------------|------------------|---------|
| Message Type      | Message Type     | R       |
| User Time (Local) | Time             | O       |
| Trader ID         | Trader ID        | R       |
| User Sequence ID  | User Sequence ID | R       |

### 2.3.2 Outgoing Messages Header

This is the header included on all outgoing Exchange messages.

| FIELD NAME                                      | FIELD TYPE          | REQ/OPT |
|---|---------------------|---------|
| Message Type                                    | Message Type        | R       |
| Message Timestamp (Local) (Trading Engine Time) | Time                | R       |
| User Sequence ID <sup>1</sup>                   | User Sequence ID    | O       |
| Exchange Message ID                             | Exchange Message ID | O       |
| Gap Sequence ID                                 | Numeric (2)         | R       |

1. In the Outgoing Messages Header, the User Sequence ID is set for acknowledgement only, and contains the identical User Sequence ID number present in the incoming message or it contains zeroes. Unsolicited messages (trade notice, group state change, instrument state change, etc.) are set to zeroes.

### 2.3.3 Owner Data

This is not a message. It describes the format of a mandatory order reference for the Participant, the **ClientOrderId**, that may be present within certain messages.

In addition, a free text **Memo** can be added to the owner data field by appending a pound sign (#) to the **ClientOrderId**:

- Any information preceding the pound sign (#) is the **ClientOrderId**.
- Any information after the pound sign (#) is the **Memo**

If no pound (#) sign is found, the whole field is assumed to be the **ClientOrderId**.

| FIELD NAME    | FIELD TYPE    | REQ/OPT |
|---------------|---------------|---------|
| ClientOrderId | ClientOrderId | R       |
| #             |               | O       |
| Memo          | Memo          | O       |

Restrictions:

The **Ownerdata** must contain at most one # (pound sign) character and that it should not contain the following ASCII characters:

- % (percent sign), comma or semi-colon, "" (double quote), '|' (Pipe sign)
- ascii characters in the decimal code ranges between 0 to 31 and 127 and up

The following characters are accepted but are not transferred to OCC on trade submissions: > (greater than), < (less than), '(single quote) or & (ampersand).

If the validation fails, an error message is sent to the participant.

### 2.3.4 Clearing Data

This is not a message. It describes the format of the Participant's clearing data that must appear on specified messages. This data is used for clearing purposes.

| FIELD NAME              | FIELD TYPE              | REQ/OPT |
|-------------------------|-------------------------|---------|
| Clearing Instruction    | Clearing Instruction    | R       |
| Account Type            | AccountType             | R       |
| Open/Close              | Open/Close              | R       |
| Hedge/Spec              | Hedge/Spec              | R       |
| Clearing Operation Mode | Clearing Operation Mode | R       |
| Clearing Destination    | Firm ID                 | C       |

The firm specified in the Firm ID field clears the trade if Clearing Operation Mode is set.

## Section 3 Technical Messages

This section defines the SAIL Technical Messages.

### 3.1 TC: User Connection

Incoming

Trader Connection is the first message to be sent by the Participant at the beginning of the day.

| FIELD NAME  |   | FIELD TYPE          | REQ/OPT |
|---|---|---------------------|---------|
| Message Type: TC                                    |   | Message Type        | R       |
| Protocol Version.                                   |   | Protocol            | R       |
| User ID   |   | User ID             | R       |
| Password (MD5 Encryption)                           |   | Password            | R       |
| Session ID  |   | Session ID          | O       |
| Time (HHMMSS)                                       |   | Time                | R       |
| Exchange Message ID                                 |   | Exchange Message ID | O       |
| Inactivity Interval                                 |   | Inactivity Interval | O       |
| Number of Message types to be received <sup>1</sup> |   | Numeric (2)         | R       |
| (1 to 99 occurrences)                               | Message types to be received <sup>2</sup> | Message Type        | R       |

1. Indicates the number of message types (specified further in the message) the Participant wants to receive.
2. List of message types requested by the Participant.  
The following messages are sent to the Participant even if they are not part of the list: ER, TE, TO, TH, and TT.

## 3.2 TD: User Disconnection

Incoming

The User Disconnection message is sent by the Participant to the Exchange when it wants to disconnect from the system.

| FIELD NAME       | FIELD TYPE   | REQ/OPT |
|------------------|--------------|---------|
| Message Type: TD | Message Type | R       |
| User ID          | User ID      | R       |
| Session ID       | Session ID   | O       |

## 3.3 TA: Disconnection Instruction

Incoming

This message is used by a Participant to indicate the instruction(s) to execute if the connection ends.

| FIELD NAME                                    | FIELD TYPE  | REQ/OPT          |   |
|---|---|------------------|---|
| Message Type: TA                              | Message Type  | R                |   |
| Number of Instructions present in the message | Numeric (2)   | R                |   |
| 1 to 99 occurrences                           | Trader ID   | R                |   |
|   | Disconnection Instruction.<br><b>Note:</b> Cancel quotes only.<br>Q: QuotesOnly | CancellationType | R |
|   | Active: Y (ON) N (OFF)  | YesNoFlag        | R |

### 3.4 TH: Heartbeat (Question)

Outgoing

This message is sent by the exchange to the participant at the beginning of every Heartbeat period. For each connection, participants are allowed to send a limited number of messages per second.

This message indicates the first message to be processed in the Heartbeat period. If there is no pending message from the participant, the field User Sequence ID represents the next expected User Sequence ID.

| FIELD NAME  | FIELD TYPE          | REQ/OPT |
|---|---------------------|---------|
| Message Type: TH  | Message Type        | R       |
| User Sequence ID (first User Sequence ID for next/current Heartbeat period) | User Sequence ID    | R       |
| Last Exchange Message ID (sent to Participant)                              | Exchange Message ID | R       |
| Time (Local)  | Time                | R       |

### 3.5 TI: Heartbeat (Response)

Incoming

**A TI message should only be sent in response to a TH message sent by the exchange.**

A *Heartbeat* message sent by the exchange to the participant at the beginning of every Heartbeat period must receive a response from the participant application within “n” units specified in the *Connection* message. The response can be any message. If a *Heartbeat* is not responded to, the participant is considered as not connected and the disconnection instructions specified in the Disconnection Instructions message (TA: Disconnection Instruction) are executed.

Message TI is used to respond to a *Heartbeat* (TH message) if no other message needs to be sent. Message is identical to the received Heartbeat (TH) message.

This message has the same number of bytes and format as TH: Heartbeat (Question).

Message type must be TI, while other values can be the same as last received TH message.



### 3.6 TO: Out of Sequence

Outgoing

This message is sent by the exchange when the User Sequence ID in the message is out of sequence. Participant must reconnect.

| FIELD NAME                     | FIELD TYPE       | REQ/OPT |
|--------------------------------|------------------|---------|
| Message Type: TO               | Message Type     | R       |
| Received User Sequence ID      | User Sequence ID | R       |
| Expected Last User Sequence ID | User Sequence ID | R       |
| Message Time (Local)           | Time             | R       |

### 3.7 TE: Technical Error Notice

Outgoing

The message is sent by the exchange when a technical error is encountered in the message sent by the Participant.

| FIELD NAME   | FIELD TYPE       | REQ/OPT |
|--|------------------|---------|
| Message Type: TE                                     | Message Type     | R       |
| Received Message Type <sup>1</sup>                   | Message Type     | R       |
| Preceding User Sequence ID received (zeroes if none) | User Sequence ID | R       |
| Error Code   | Error Code       | R       |
| Error Position                                       | Numeric (4)      | R       |
| Error Message  | String (100)     | R       |

| FIELD NAME                | FIELD TYPE   | REQ/OPT |
|---------------------------|--------------|---------|
| Start of message in error | String (100) | R       |

1. Received Message type in Error

### 3.8 TM: Disconnection Instruction Acknowledgement

Outgoing

This message is sent to acknowledge receipt of TA: Disconnection Instruction message.

| FIELD NAME                     | FIELD TYPE       | REQ/OPT |
|--------------------------------|------------------|---------|
| Message Type: TK, TM, TL       | Message Type     | R       |
| Current Session ID             | Session ID       | R       |
| Last User Sequence ID received | User Sequence ID | O       |

### 3.9 TK: Connection Acknowledgement

Outgoing

This message is sent to acknowledge receipt of a TC: User Connection message.

This message has the same number of bytes and format as the TM: Disconnection Instruction Acknowledgement message.

### 3.10 TL: Disconnection Acknowledgement

Outgoing

This message is sent to acknowledge receipt of a TD: User Disconnection message.

This message has the same number of bytes and format as the TM: Disconnection Instruction Acknowledgement message.

### 3.11 TT: End of Transmission

Outgoing

This message is sent to indicate that the session's transmission is completed. Participant is disconnected.

| FIELD NAME  | FIELD TYPE       | REQ/OPT |
|---|------------------|---------|
| Message Type: TT  | Message Type     | R       |
| Ended Session ID  | Session ID       | R       |
| Last User Sequence ID received<br>If no business message has been received on this connection, this field is equal to zeroes. | User Sequence ID | O       |
| Time  | Time             | R       |

## Section 4 Business Messages

This section defines the SAIL Business messages. The messages are listed in alphabetical order.

**Note:** In the following business messages, the fields marked as 'Fillers' are reserved for Exchange usage.

### 4.1 BD: Bulk Quote Data

Incoming

This message contains specific protection data and trader's data valid for further Bulk Quotes. A new BD message replaces previously entered data.

| FIELD NAME                                  | FIELD TYPE                | REQ/OPT |
|---|---------------------------|---------|
| Incoming Messages Header (Message Type: BD) |                           | R       |
| Group                                       | Group ID                  | R       |
| Clearing Data                               |                           | R       |
| Owner Data                                  |                           | R       |
| Filler (must be blank)                      | String (2)                | R       |
| Filler (must be blank)                      | String (8)                | R       |
| Filler (must be blank)                      | String (2)                | R       |
| Calculation Time Interval                   | Calculation Time Interval | O       |
| Maximum Total Volume                        | Numeric (8)               | O       |
| Maximum Total Value                         | Numeric (8)               | O       |
| Maximum Delta Volume                        | Numeric (8)               | O       |

| FIELD NAME                | FIELD TYPE              | REQ/OPT |
|---------------------------|-------------------------|---------|
| Maximum Delta Value       | Numeric (8)             | O       |
| Percent Of Quote          | Numeric (8)             | O       |
| Post Trading Instructions | Post Trade Instructions | O       |

## 4.2 ER: Error Notice

Outgoing

This message is an error notification. It is sent in response to a message from the Participant when the system cannot process it.

| FIELD NAME                                  | FIELD TYPE   | REQ/OPT |
|---|--------------|---------|
| Outgoing Messages Header (Message Type: ER) |              | R       |
| Error Code                                  | Error Code   | R       |
| Error Description                           | String (100) | R       |

## 4.3 GC: Global Cancellation

Incoming

This message is sent by the Participant when he wants to cancel his quotes

| FIELD NAME                                  | FIELD TYPE       | REQ/OPT |
|---|------------------|---------|
| Incoming Messages Header (Message Type: GC) |                  | R       |
| Group                                       | Group ID         | R       |
| Type of Cancellation<br>Q: QuotesOnly       | CancellationType | R       |

| FIELD NAME      | FIELD TYPE      | REQ/OPT |
|-----------------|-----------------|---------|
| MM CAT UserTime | MM CAT UserTime | O       |

#### 4.4 GZ: User Global Cancellation

Incoming

| THIS MESSAGE IS SENT BY THE PARTICIPANT WHEN HE WANTS TO CANCEL HIS QUOTES OR ORDERS ON A SINGLE INSTRUMENT OR ALL INSTRUMENTS OF A GROUP AND/OR BY ACCOUNT TYPES.FIELD NAME | FIELD TYPE       | REQ/OPT |  |
|--|------------------|---------|--|
| Incoming Messages Header (Message Type: GZ)  |                  | R       |  |
| Group  | Group ID         | O       |  |
| Instrument   | Instrument ID    | O       |  |
| Type of Cancellation   | CancellationType | R       |  |
| AccountTypeFilter  | String (8)       | O       |  |
| MM CAT UserTime  | MM CAT UserTime  | O       |  |

#### 4.5 KD: Bulk Quote Data Acknowledgement

Outgoing

This message is used to acknowledge a [BD: Bulk Quote Data](#) message.

| FIELD NAME                                  | FIELD TYPE | REQ/OPT |
|---|------------|---------|
| Outgoing Messages Header (Message Type: KD) |            | R       |
| Group                                       | Group ID   | R       |

| FIELD NAME   | FIELD TYPE | REQ/OPT |
|--|------------|---------|
| Trader ID  | Trader ID  | R       |
| Quote ID (identifies trader's quote on this group) | Order ID   | R       |

## 4.6 KE: Order Acknowledgement

Outgoing

This message is used to acknowledge an

**OE:** Order Entry message.

| FIELD NAME                                  | FIELD TYPE        | REQ/OPT |
|---|-------------------|---------|
| Outgoing Messages Header (Message Type: KE) |                   | R       |
| Group                                       | Group ID          | R       |
| Instrument                                  | Instrument ID     | R       |
| Trader ID                                   | Trader ID         | R       |
| Order ID                                    | Order ID          | R       |
| Status                                      | Status            | R       |
| Verb (Side)                                 | Verb              | R       |
| Quantity                                    | Quantity          | R       |
| Assigned Price                              | Assigned Price    | R       |
| Clearing Data                               |                   | R       |
| Owner Data                                  |                   | R       |
| Original Order ID                           | Original Order ID | R       |
| Filler                                      | Numeric (6)       | R       |

## 4.7 **KG: Global Cancellation Confirmation**

Outgoing

This message is used to acknowledge a GC: Global Cancellation message and is sent to a Participant when his quotes have been cancelled.



| FIELD NAME   | FIELD TYPE       | REQ/OPT |
|--|------------------|---------|
| Outgoing Messages Header (Message Type: KG)                    |                  | R       |
| Group  | Group ID         | R       |
| Trader ID  | Trader ID        | R       |
| Type of Cancellation<br>Only 'Q' = QuotesOnly can be returned. | CancellationType | R       |

## 4.8 KI: Improvement Order Acknowledgment

### Outgoing

This message is used to acknowledge an OA: Auction Entry or an OI: Improvement Order Entry message.

| FIELD NAME                                  | FIELD TYPE     | REQ/OPT |
|---|----------------|---------|
| Outgoing Messages Header (Message Type: KI) |                | R       |
| Group                                       | Group ID       | R       |
| Instrument                                  | Instrument ID  | R       |
| Trader ID                                   | Trader ID      | R       |
| Order ID                                    | Order ID       | R       |
| Status                                      | Status         | R       |
| Verb (Side)                                 | Verb           | R       |
| Quantity                                    | Quantity       | R       |
| Assigned Price                              | Assigned Price | R       |

| FIELD NAME   | FIELD TYPE        | REQ/OPT |
|--|-------------------|---------|
| Clearing Data  |                   | R       |
| Owner Data   |                   | R       |
| Original Order ID                                      | Original Order ID | R       |
| Auction ID (only if message type is KI or else zeroes) | Auction ID        | R       |

## 4.9 KM: Order Modification Acknowledgement

Outgoing

This message is used to acknowledge an OM: Order Modification.

| FIELD NAME                                  | FIELD TYPE     | REQ/OPT |
|---|----------------|---------|
| Outgoing Messages Header (Message Type: KM) |                | R       |
| Group                                       | Group ID       | R       |
| Instrument                                  | Instrument ID  | R       |
| Trader ID                                   | Trader ID      | R       |
| Order ID                                    | Order ID       | R       |
| Status                                      | Status         | R       |
| Verb (Side)                                 | Verb           | R       |
| Quantity                                    | Quantity       | R       |
| Assigned Price                              | Assigned Price | R       |
| Clearing Data                               |                | R       |

| FIELD NAME        | FIELD TYPE        | REQ/OPT |
|-------------------|-------------------|---------|
| Owner Data        |                   | R       |
| Original Order ID | Original Order ID | R       |
| Filler            | Numeric (6)       | R       |

## 4.10 KN: New Complex Order Instrument Acknowledgement

### Outgoing

This message is used to acknowledge the creation of a new Complex Order instrument as requested via an ON: New Complex Order Instrument message.

| FIELD NAME                                  | FIELD TYPE              | REQ/OPT       |   |
|---|-------------------------|---------------|---|
| Outgoing Messages Header (Message Type: KN) |                         | R             |   |
| Strategy Group                              | Group ID                | R             |   |
| Strategy Instrument ID                      | Instrument ID           | R             |   |
| Creation Status                             | String (1)              | R             |   |
| Number of Legs                              | Numeric (2)             | R             |   |
| 2 to 16 occurrences                         | Leg Group               | Group ID      | R |
|   | Leg Instrument ID       | Instrument ID | R |
|   | Leg Verb                | Verb          | R |
|   | Filler (must be spaces) | String (1)    | R |
|   | Leg Quantity (ratio)    | Quantity      | R |

## 4.11 KO: Standard Acknowledgement

Outgoing

This message is sent as an acknowledgement for the following messages:

- RE: Executing Participant Connection
- RF: Executing Participant Disconnection
- RQ: Request for Quote
- RP: Market Maker Protection Subscription
- GZ: User Global Cancellation

| FIELD NAME                                  | FIELD TYPE   | REQ/OPT |
|---|--------------|---------|
| Outgoing Messages Header (Message Type: KO) |              | R       |
| Trader ID                                   | Trader ID    | R       |
| Original Message Type (RE, RF, RQ, RP, GZ)  | Message Type | R       |

## 4.12 KQ: Directed/Routed Order Rejection and Quote Resubmission Message

Incoming

This message is sent by an executing Participant to reject a DO.

| FIELD NAME                                  | FIELD TYPE     | REQ/OPT |
|---|----------------|---------|
| Incoming Messages Header (Message Type: KQ) |                | R       |
| Group                                       | Group ID       | R       |
| Instrument                                  | Instrument ID  | R       |
| Trader ID                                   | Trader ID      | R       |
| Order ID                                    | Order ID       | R       |
| Rejection Code                              | Rejection Code | R       |
| Quote Quantity                              | Quantity       | O       |
| Quote Price                                 | Price          | O       |

## 4.13 KT: Complex Order Auction Acknowledgement

Outgoing

This message is used to acknowledge an OT: Complex Order Auction Entry.

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Outgoing Messages Header (Message Type: KT) |               | R       |
| Group                                       | Group ID      | R       |
| Instrument                                  | Instrument ID | R       |

| FIELD NAME        | FIELD TYPE        | REQ/OPT |
|-------------------|-------------------|---------|
| Trader ID         | Trader ID         | R       |
| Order ID          | Order ID          | R       |
| Status            | Status            | R       |
| Verb (Side)       | Verb              | R       |
| Quantity          | Quantity          | R       |
| Assigned Price    | Assigned Price    | R       |
| Clearing Data     |                   | R       |
| Owner Data        |                   | R       |
| Original Order ID | Original Order ID | R       |
| Auction ID        | Auction ID        | R       |

#### 4.14 **KY: Auction or Improvement Cancellation Acknowledgement**

##### Outgoing

This message is used to acknowledge an XI: Improvement Order Cancellation message pertaining to Solicitation Facilitation.

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Outgoing Messages Header (Message Type: KY) |               | R       |
| Group                                       | Group ID      | R       |
| Instrument                                  | Instrument ID | R       |

| FIELD NAME   | FIELD TYPE        | REQ/OPT |
|--|-------------------|---------|
| Trader ID  | Trader ID         | R       |
| Order ID   | Order ID          | R       |
| Status   | Status            | R       |
| Verb (Side)  | Verb              | R       |
| Quantity   | Quantity          | R       |
| Assigned Price   | Assigned Price    | R       |
| Clearing Data  |                   | R       |
| Owner Data   |                   | R       |
| Original Order ID                                      | Original Order ID | R       |
| Auction ID (only if message type is KI or else zeroes) | Auction ID        | R       |

## 4.15 KZ: Order Cancellation Acknowledgement

Outgoing

This message is used to acknowledge an XE: Order Cancellation message.

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Outgoing Messages Header (Message Type: KZ) |               | R       |
| Group                                       | Group ID      | R       |
| Instrument                                  | Instrument ID | R       |
| Trader ID                                   | Trader ID     | R       |

| FIELD NAME   | FIELD TYPE        | REQ/OPT |
|--|-------------------|---------|
| Order ID   | Order ID          | R       |
| Status   | Status            | R       |
| Verb (Side)  | Verb              | R       |
| Quantity   | Quantity          | R       |
| Assigned Price   | Assigned Price    | R       |
| Clearing Data  |                   | R       |
| Owner Data   |                   | R       |
| Original Order ID                                      | Original Order ID | R       |
| Auction ID (only if message type is KI or else zeroes) | Auction ID        | R       |

## 4.16 LA: Bulk Quote Acknowledgement

Outgoing

This message acknowledges the receipt of a Q<i> : Bulk Quote message.

| FIELD NAME   | FIELD TYPE   | REQ/OPT     |
|--|--------------|-------------|
| Outgoing Messages Header (Message Type: LA)        |              | R           |
| Group  | Group ID     | R           |
| Quote ID (identifies trader's quote on this group) | Order ID     | R           |
| Number of Quotes in Error                          | Numeric (3)  | R           |
| 1 to 280 occurrences                               | Quote number | Numeric (3) |



| FIELD NAME |            | FIELD TYPE | REQ/OPT |
|------------|------------|------------|---------|
|            | Error code | Error Code | R       |

**Note:** Exchange Message ID = Blanks (not included in retransmitted messages).

## 4.17 MU: TraderStatus

Outgoing

This message indicates the the status of a trader.

| FIELD NAME                                  |  | FIELD TYPE         | REQ/OPT |
|---|--|--------------------|---------|
| Outgoing Messages Header (Message Type: MU) |  |                    | R       |
| Trader ID                                   |  | Trader ID          | R       |
| TraderLockOut                               |  | Trader Lock Status | R       |
| RiskTeamLockOut                             |  | Trader Lock Status | R       |

## 4.18 NC: Directed Order Cancellation Notice

Outgoing

This message is sent to an Executing Participant.

| FIELD NAME                                  |  | FIELD TYPE    | REQ/OPT |
|---|--|---------------|---------|
| Outgoing Messages Header (Message Type: NC) |  |               | R       |
| Group                                       |  | Group ID      | R       |
| Instrument                                  |  | Instrument ID | R       |
| Trader ID                                   |  | Trader ID     | R       |

| FIELD NAME          | FIELD TYPE | REQ/OPT |
|---------------------|------------|---------|
| Verb (Side)         | Verb       | R       |
| Quantity            | Quantity   | R       |
| Price               | Price      | R       |
| Referenced Order ID | Order ID   | R       |

## 4.19 ND: Directed Order Notice

Outgoing

This message is a Directed Order notice sent to an Executing Participant.

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Outgoing Messages Header (Message Type: ND) |               | R       |
| Group                                       | Group ID      | R       |
| Instrument                                  | Instrument ID | R       |
| Trader ID                                   | Trader ID     | R       |
| Verb (Side)                                 | Verb          | R       |
| Quantity                                    | Quantity      | R       |
| Price                                       | Price         | R       |
| Referenced Order ID                         | Order ID      | R       |

## 4.20 NE: Excluded Instrument Notice

Outgoing

This message is sent when a Participant is receiving a NP: Cancellation of All Quotes Notice message with the “Type of Cancellation” set to “W” (Cancel Pending). The NE: Excluded Instrument Notice message indicates which instruments still have active quotes in the book that are pending to be cancelled. When the quotes on these instruments are later cancelled, another NP message is issued to notify the Participant.

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Outgoing Messages Header (Message Type: NE) |               | R       |
| Group                                       | Group ID      | R       |
| Filler                                      | String (2)    | R       |
| Trader ID                                   | Trader ID     | R       |
| Filler                                      | String (2)    | R       |
| NbOfInstruments                             | Numeric (4)   | R       |
| 1 to 9999 occurrences: Instrument           | Instrument ID | R       |

## 4.21 NG: Group State Change

Outgoing

This message indicates a Group state change.

| FIELD NAME                                  | FIELD TYPE  | REQ/OPT |
|---|-------------|---------|
| Outgoing Messages Header (Message Type: NG) |             | R       |
| Group                                       | Group ID    | R       |
| Group State                                 | Group State | R       |

## 4.22 NL: Leg Execution Notice

Outgoing

This message reports the execution for a leg of Complex Order instrument trade.

| FIELD NAME                                  | FIELD TYPE              | REQ/OPT |
|---|-------------------------|---------|
| Outgoing Messages Header (Message Type: NL) |                         | R       |
| Group                                       | Group ID                | R       |
| Instrument                                  | Instrument ID           | R       |
| Trader ID                                   | Trader ID               | R       |
| Reference ID                                | Order ID                | R       |
| Verb (Side)                                 | Verb                    | R       |
| Quantity Traded                             | Quantity                | O       |
| Trade Price                                 | Price                   | R       |
| Time Trade HHMMSS                           | Time                    | R       |
| Clearing Data                               |                         | R       |
| Owner Data                                  |                         | R       |
| Special Trade Indicator                     | Special Trade Indicator | O       |
| Price Type                                  | Price Type              | R       |
| Trade Type                                  | Trade Type              | R       |
| Auction ID                                  | Auction ID              | R       |

| FIELD NAME                              | FIELD TYPE       | REQ/OPT |
|---|------------------|---------|
| Trade Number                            | Trade Number     | R       |
| Trade Memo                              | String (50)      | O       |
| Original Reference ID                   | Order ID         | R       |
| ID Code for the Counterpart Participant | Firm ID          | R       |
| Liquidity Status                        | Liquidity Status | R       |
| Strategy Group                          | Group ID         | O       |
| Strategy Instrument ID                  | Instrument ID    | O       |
| Strategy Verb (side)                    | Verb             | O       |
| Strategy Trade Number                   | Trade Number     | O       |
| Leg Number                              | Leg Number (2)   | O       |
| Counterpart Account Type                | Account Type     | R       |

## 4.23 NP: Cancellation of All Quotes Notices

### Outgoing

This message is an advice sent to a Participant when his quotes have been cancelled (either by the system or at his request).

| FIELD NAME                                  | FIELD TYPE | REQ/OPT |
|---|------------|---------|
| Outgoing Messages Header (Message Type: NP) |            | R       |
| Group <sup>1</sup>                          | Group ID   | R       |

| FIELD NAME          | FIELD TYPE          | REQ/OPT |
|---------------------|---------------------|---------|
| Instrument          | Instrument ID       | R       |
| Trader ID           | Trader ID           | R       |
| Quote Cancel Reason | Quote Cancel Reason | R       |

1. Indicates the group of instruments for which the quotes have been cancelled.

## 4.24 NQ: Quality Market Maker Notification

### Outgoing

This message notifies Market Makers of their qualified quantity for the QMM Step at the end of the auction.

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Outgoing Messages Header (Message Type: NQ) |               | R       |
| Group                                       | Group ID      | R       |
| Instrument                                  | Instrument ID | R       |
| Trader ID                                   | Trader ID     | R       |
| Auction ID                                  | Auction ID    | R       |
| Verb  | Verb          | R       |
| Auction Quantity                            | Quantity      | R       |
| Auction Price                               | Price         | R       |
| Quote Quantity                              | Quantity      | R       |

| FIELD NAME         | FIELD TYPE | REQ/OPT |
|--------------------|------------|---------|
| Quote Price        | Price      | R       |
| Qualified Quantity | Quantity   | R       |

## 4.25 NT: Execution Notice

Outgoing

This message is an execution notice for a trade.

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Outgoing Messages Header (Message Type: NT) |               | R       |
| Group                                       | Group ID      | R       |
| Instrument                                  | Instrument ID | R       |
| Trader ID                                   | Trader ID     | R       |
| Reference ID (Order ID or Quote ID)         | Order ID      | R       |
| Verb (Side)                                 | Verb          | R       |
| Quantity Traded                             | Quantity      | R       |
| Trade Price                                 | Price         | R       |
| Time of the Trade HHMMSS                    | Time          | R       |
| Clearing Data                               |               | R       |
| Owner Data                                  |               | R       |

| FIELD NAME                              | FIELD TYPE              | REQ/OPT |
|---|-------------------------|---------|
| Special Trade Indicator                 | Special Trade Indicator | R       |
| Price Type                              | Price Type              | R       |
| Trade Type                              | Trade Type              | R       |
| Auction ID                              | Auction ID              | O       |
| Trade Number                            | Trade Number            | R       |
| Trade Memo                              | Trade Memo              | R       |
| Original Reference ID                   | Original Reference ID   | R       |
| ID Code for the Counterpart Participant | Firm ID                 | R       |
| Liquidity Status                        | Liquidity Status        | R       |
| Counterpart Account Type                | Account Type            | O       |

## 4.26 NU: Quote Notice

### Outgoing

This message is sent by the trading engine when a quote is shelved or unshelved when an Executing Participant rejects to start an auction when receiving a Directed Order.

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Outgoing Messages Header (Message Type: NU) |               | R       |
| Group                                       | Group ID      | R       |
| Instrument                                  | Instrument ID | R       |



| FIELD NAME                                | FIELD TYPE | REQ/OPT |
|---|------------|---------|
| Trader ID                                 | Trader ID  | R       |
| Reference ID (Quote or Order ID)          | Order ID   | R       |
| Verb (Side)                               | Verb       | R       |
| Order Type                                | Order Type | R       |
| Action                                    | Action     | R       |
| New quantity                              | Quantity   | R       |
| New price                                 | Price      | R       |
| Previous quantity                         | Quantity   | R       |
| Previous price                            | Price      | R       |
| Auction ID                                | Auction ID | R       |
| Original Reference ID (Quote or Order ID) | Order ID   | R       |

#### 4.27 **NX: Execution Cancellation Notice**

Outgoing

This message is an execution cancellation notice and has the same number of bytes and format as the NT: Execution Notice message.

#### 4.28 **NY: Leg Execution Cancellation Notice**

Outgoing

This message reports the execution cancellation notice for a leg of the strategy trade. This message has the same number of bytes and format as the NL: Leg Execution

## 4.29 NZ: Order Cancellation Notice (by system)

Outgoing

This message is used when an order is cancelled by Market Operation or by the system (expiration).

This message has the same number of bytes and format as the KZ: Order Cancellation Acknowledgement message.

## 4.30 OA: Auction Entry

Incoming

This message is used to start an auction (Guaranteed Auction PIP, Facilitation Auction, Solicitation Auction) or to submit a cross order (Customer Cross or Qualified Contingent Cross).

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Incoming Messages Header (Message Type: OA) |               | R       |
| Group                                       | Group ID      | R       |
| Instrument                                  | Instrument ID | R       |
| Verb (Side)                                 | Verb          | R       |
| Quantity                                    | Quantity      | R       |
| Price                                       | Price         | R       |
| Buying Clearing Data                        |               | R       |
| Selling Clearing Data                       |               | R       |
| Buying Owner Data                           |               | R       |
| Selling Owner Data                          |               | R       |
| IML Handling                                | IML Handling  | O       |

| FIELD NAME                       | FIELD TYPE             | REQ/OPT |
|----------------------------------|------------------------|---------|
| Special Price Term               | Special Price Term     | R       |
| Additional Price <sup>1</sup>    | Price                  | O       |
| Quantity Term                    | Quantity Term          | O       |
| Additional Quantity              | Additional Quantity    | O       |
| Buying Post Trading Instruction  | Post Trade Instruction | O       |
| Selling Post Trading Instruction | Post Trade Instruction | O       |

1. Must be left empty for Solicitation

## 4.31 OD: Directed Order Acceptation

Incoming

This message is sent by an Executing Participant to accept a Directed Order.

| FIELD NAME                                  | FIELD TYPE             | REQ/OPT |
|---|------------------------|---------|
| Incoming Messages Header (Message Type: OD) |                        | R       |
| Group                                       | Group ID               | R       |
| Instrument                                  | Instrument ID          | R       |
| Referenced Order ID                         | Order ID               | R       |
| Auction Starting Price                      | Price                  | R       |
| Clearing Data (dealer)                      |                        | R       |
| Owner Data (dealer)                         |                        | R       |
| Additional Price                            | Price                  | O       |
| Quantity Term                               | Quantity Term          | O       |
| Post Trading Instruction                    | Post Trade Instruction | O       |
| Additional Quantity                         | Quantity               | O       |

## 4.32 OE: Order Entry

### Incoming

This message is used to enter a Regular Order, Directed Order, Preference Order, and Indication of Interest in the system.

| FIELD NAME                                  | FIELD TYPE                      | REQ/OPT |
|---|---------------------------------|---------|
| Incoming Messages Header (Message Type: OE) |                                 | R       |
| Group                                       | Group ID                        | R       |
| Instrument                                  | Instrument ID                   | R       |
| Price Type                                  | Price Type                      | R       |
| Verb (Side)                                 | Verb                            | R       |
| Quantity                                    | Quantity<br>(Optional when IOI) | C       |
| Price                                       | Price                           | C       |
| Special Price Term                          | Special Price Term              | R       |
| Filler (must be blank)                      | String (10)                     | R       |
| Quantity Term                               | Quantity Term                   | O       |
| Additional Quantity                         | Additional Quantity             | C       |
| Duration Type                               | Duration Type                   | R       |
| GTD Date <sup>1</sup>                       | Date                            | C       |
| Executing Participant <sup>2</sup>          | Firm ID                         | C       |

| FIELD NAME                | FIELD TYPE              | REQ/OPT |
|---------------------------|-------------------------|---------|
| IML Handling              | IML Handling            | R       |
| Clearing Data             |                         | R       |
| Owner Data                |                         | R       |
| Post Trading Instructions | Post Trade Instructions | O       |

1. Must be present if Duration Type is D. Represents the order's last active day.
2. Contains the digit portion of the Participant ID of the Participant to whom the Directed/Routed Order is submitted. If not used, it must be set to blanks.

### 4.33 **OI: Improvement Order Entry**

Incoming

This message contains information related to an Improvement during an Auction only. It is used to either enter or modify an Improvement order.

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Incoming Messages Header (Message Type: OI) |               | R       |
| Group                                       | Group ID      | R       |
| Instrument                                  | Instrument ID | R       |
| Verb (Side)                                 | Verb          | R       |
| Quantity Sign                               | Quantity Sign | R       |
| Quantity                                    | Quantity      | R       |
| Price                                       | Price         | R       |
| Auction ID                                  | Auction ID    | R       |

| FIELD NAME                | FIELD TYPE              | REQ/OPT |
|---------------------------|-------------------------|---------|
| Filler                    | String (17)             | R       |
| Clearing Data             |                         | R       |
| Owner Data                |                         | R       |
| Post Trading Instructions | Post Trade Instructions | O       |

### 4.34 OM: Order Modification

#### Incoming

This message is used to modify a regular order entered through an OE: Order Entry message. The modified order must be booked.

| FIELD NAME                                  | FIELD TYPE         | REQ/OPT |
|---|--------------------|---------|
| Incoming Messages Header (Message Type: OM) |                    | R       |
| Group                                       | Group ID           | R       |
| Instrument                                  | Instrument ID      | R       |
| Price Type                                  | Price Type         | R       |
| Verb (Side)                                 | Verb               | R       |
| Quantity Sign                               | Quantity Sign      | R       |
| Quantity                                    | Quantity           | R       |
| Price                                       | Price              | C       |
| Special Price Term                          | Special Price Term | R       |

| FIELD NAME                     | FIELD TYPE             | REQ/OPT |
|--------------------------------|------------------------|---------|
| Filler (must be blank)         | String (10)            | R       |
| Filler (must be blank)         | String (1)             | R       |
| Filler (must be blank)         | String (8)             | R       |
| Duration Type                  | Duration Type          | R       |
| GTD Date <sup>1</sup>          | Date                   | C       |
| Firm ID                        | Firm ID                | R       |
| IML Handling                   | IML Handling           | R       |
| Modified Order ID <sup>2</sup> | Order ID               | R       |
| Clearing Data                  |                        | R       |
| Owner Data                     |                        | R       |
| Post Trading Instruction       | Post Trade Instruction | O       |

1. Must be present if Duration Type is D. Represents the order's last active day.
2. Order ID of the order being modified.



## 4.35 ON: New Complex Order Instrument

Incoming

This message is sent when a Participant is requesting to create a new Complex Order instrument.

| FIELD NAME                                  |                         | FIELD TYPE    | REQ/OPT |
|---|-------------------------|---------------|---------|
| Incoming Messages Header (Message Type: ON) |                         |               | R       |
| Enabled (Y (Yes) N (No))                    |                         | YesNoFlag     | R       |
| Number of Legs                              |                         | Numeric (2)   | R       |
| 2 to 16 occurrences                         | Leg Group               | Group ID      | R       |
|   | Leg Instrument ID       | Instrument ID | R       |
|   | Leg Verb                | Verb          | R       |
|   | Filler (must be spaces) | String (1)    | R       |
|   | Leg Quantity (ratio)    | Quantity      | R       |

## 4.36 OT: Complex Order Auction Entry

Incoming

This message contains information related to a strategy auction entry with leg prices.

| FIELD NAME                                  |  | FIELD TYPE    | REQ/OPT |
|---|--|---------------|---------|
| Incoming Messages Header (Message Type: OT) |  |               | R       |
| Group                                       |  | Group ID      | R       |
| Instrument                                  |  | Instrument ID | R       |

| FIELD NAME                       |               | FIELD TYPE             | REQ/OPT |
|----------------------------------|---------------|------------------------|---------|
| Verb (Side)                      |               | Verb                   | R       |
| Quantity                         |               | Quantity               | R       |
| Price                            |               | Price                  | O       |
| Buying Clearing Data             |               |                        | R       |
| Selling Clearing Data            |               |                        | R       |
| Buying Owner Data                |               |                        | R       |
| Selling Owner Data               |               |                        | R       |
| IML Handling                     |               | IML Handling           | R       |
| Special Price Term               |               | Special Price Term     | R       |
| Additional Price                 |               | Price                  | R       |
| QuantityTerm                     |               | Quantity Sign          | R       |
| Additional Quantity              |               | Quantity               | R       |
| Buying Post Trading Instruction  |               | Post Trade Instruction | O       |
| Selling Post Trading Instruction |               | Post Trade Instruction | O       |
| NbLegs                           |               | Numeric (2)            | R       |
| 2 to 16 occurrences              | LegGroup      | Group ID               | R       |
|                                  | LegInstrument | Instrument ID          | R       |

| FIELD NAME |               | FIELD TYPE | REQ/OPT |
|------------|---------------|------------|---------|
|            | TradeLegPrice | Price      | R       |

### 4.37 Q<i>: Bulk Quote

Incoming

This is a set of messages to enter Bulk Quotes. The second letter of Message Type indicates the quantity and price formats.

<i> = A to P

| X <sup>Y</sup> 1 | 2 | 4 | 6 | 8 |
|------------------|---|---|---|---|
| 4                | A | E | I | M |
| 6                | B | F | J | N |
| 8                | C | G | K | O |
| 10               | D | H | L | P |

1. X = Price size (including format indicator) and Y = Quantity size

Example: A QC Message is formatted with Price 8 bytes in length and Quantity 2 bytes in length.

| FIELD NAME   | FIELD TYPE      | REQ/OPT |
|--|-----------------|---------|
| Incoming Messages Header (Message Type: Q<i>)      |                 | R       |
| Group  | Group ID        | R       |
| Quote ID (identifies trader's quote on this group) | Order ID        | R       |
| MM CAT UserTime                                    | MM CAT UserTime | O       |
| Number of Quotes                                   | Numeric (3)     | R       |

| FIELD NAME           |                       | FIELD TYPE    | REQ/OPT |
|----------------------|-----------------------|---------------|---------|
| 1 to 280 occurrences | Group                 | Group ID      | R       |
|                      | Instrument            | Instrument ID | R       |
|                      | Verb (Side)           | Verb          | R       |
|                      | Quantity Sign (+ - =) | Quantity Sign | R       |
|                      | Quantity              | Quantity      | O       |
|                      | Price                 | Price         | O       |

#### 4.38 RE: Executing Participant Connection

Incoming

This message is sent when an Executing Participant wants to connect, i.e., is ready to receive a Directed Order.

| FIELD NAME                                  | FIELD TYPE | REQ/OPT |
|---|------------|---------|
| Incoming Messages Header (Message Type: RE) |            | R       |

#### 4.39 RF: Executing Participant Disconnection

Incoming

This message is sent when an Executing Participant wants to disconnect, i.e., does not want to receive Directed Orders anymore.

This message has the same number of bytes and format as the [RE: Executing Participant Connection](#) message.

## 4.40 RP: Market Maker Protection Subscription

Incoming

This message has two purposes:

Specify to the BOX trading system what kind of Market Maker Protection should be enabled (standard or advanced)

Reactivate quoting when Advanced Market Maker Protection has been triggered.

| FIELD NAME                                  | FIELD TYPE      | REQ/OPT |
|---|-----------------|---------|
| Incoming Messages Header (Message Type: RP) |                 | R       |
| Group                                       | Group ID        | R       |
| Protection Type (Advanced/Normal)           | Protection Code | R       |

## 4.41 RQ: Request for Quote

Incoming

This message is sent by the Participant to broadcast a Request for Quote message to other Participants.

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Incoming Messages Header (Message Type: RQ) |               | R       |
| Group                                       | Group ID      | R       |
| Instrument                                  | Instrument ID | R       |
| Quantity <sup>1</sup>                       | Quantity      | O       |

## 4.42 XE: Order Cancellation

Incoming

This message is sent by the Participant to cancel an order present in the book.

| FIELD NAME                                  | FIELD TYPE    | REQ/OPT |
|---|---------------|---------|
| Incoming Messages Header (Message Type: XE) |               | R       |
| Group                                       | Group ID      | R       |
| Instrument                                  | Instrument ID | R       |
| Cancelled Order ID                          | Order ID      | R       |

## 4.43 XI: Improvement Order Cancellation

Incoming

This message is sent by the Participant to cancel an existing Improvement Order for an Auction.

This message has the same number of bytes and format as the XE: order Cancellation message.

## Section 5 Field Types

The following table displays the format, length, description, and values list for each field type (listed in alphabetical order).

In the Format column, note that: A = Alphabetic, N = Numeric, X = Alphanumeric.

| FIELD NAME                | L | T  | DEFINITION/VALIDATION RULES  |
|---------------------------|---|----|--|
| Account Type              | X | 1  | <ul style="list-style-type: none"> <li>6: Public Customer</li> <li>7: Broker Dealer</li> <li>8: Market Maker</li> <li>T: Professional Customer</li> <li>W: Broker Dealer cleared as Customer</li> <li>X: Away Market Maker</li> </ul>  |
| Action                    | A | 1  | <ul style="list-style-type: none"> <li>Q: Quantity Update</li> <li>S: Shelved</li> <li>U: Un-shelved</li> </ul>  |
| Additional Quantity       | N | 8  | <ul style="list-style-type: none"> <li>For OA Auction Entry, indicates the number of contracts the InitO is willing to surrender.</li> </ul> <p>For Solicitation, Facilitation and Floor Trade it is used when the field Quantity Term is set to 'B'. It must contain a quantity less than or equal to the quantity being auctioned.</p> |
| Assigned Price            | X | 10 | Price assigned by the Trading System.<br>Refer to Price for format details.  |
| Auction ID                | N | 6  | Identifies the number of an auction (Improvement Phase). It is a sequential number which is unique per Instrument and per Trading Day.<br>Current Auction identifier if the trade occurred during an auction.  |
| Calculation Time Interval | N | 8  | Expressed in number of milliseconds  |
| Cancellation Type         | A | 1  | Type of cancellation <ul style="list-style-type: none"> <li>A: All</li> <li>L: Locked</li> <li>O: OrdersOnly</li> <li>Q: QuotesOnly</li> </ul>   |
| Clearing Instruction      | X | 12 | Client Account Number<br>Following characters are accepted but are not transferred to OCC on trade submissions: > (greater than), < (less than), ' (single quote), " (double quote), & (ampersand)   |

| FIELD NAME              | L | T   | DEFINITION/VALIDATION RULES  |
|-------------------------|---|-----|--|
| ClientOrderId           | X | 20  | Client Order Id<br>Unique identifier for orders as assigned by participants.<br>Trailing blanks are not significant.   |
| Creation Status         | A | 1   | Indicates the status of the Complex Order Instrument request <ul style="list-style-type: none"> <li>C: Created as specified in the ON: New Complex Order Instrument request.</li> <li>M: Created but with modifications. 2 scenarios exist: <ol style="list-style-type: none"> <li>Complex Order Instruments are created using the smallest ratio unit possible.<br/>Ex: Request to create the instrument 10A+20B will result in a Complex Order instrument of 1A+2B being created.</li> <li>The same Complex Order instrument exists but in reverse order.<br/>Ex.: Client requests to create the instrument A-B will result in the instrument B-A if this one already exists. The order verb will need to be reversed as well (Buy A-B is equal to Sell B-A).</li> </ol> </li> </ul> |
| Clearing Operation Mode |   |     | Indicates the pre-posting action to be taken by the clearing system when a trade has occurred. When this field is filled, the field 'Clearing Destination' must also be filled. <ul style="list-style-type: none"> <li>Space: No clearing operation</li> <li>C: CMTA (Clearing Member Trading Agreement), firm will be defined in the Clearing Destination field</li> <li>G: Give-Up Firm will be defined in the Clearing Destination field</li> <li>I: Both CMTA and Give-Up firms will be defined in the Post Trading Instruction field</li> </ul>   |
| Date                    | X | 8   | Year, Month and Day (YYYYMMDD)   |
| Duration Type           | A | 1   | <ul style="list-style-type: none"> <li>A: Auction or Kill</li> <li>D: Order is Valid until GTD date (GTD)</li> <li>E: Immediate order, cannot be booked (FAK)</li> <li>F: Valid until instrument expiration (GTC)</li> <li>J: Valid for the current Day only (Day)</li> <li>W: Valid for the current session order only</li> </ul>   |
| Enum                    | X | 1   | List of values (see message field detail)  |
| Error Code              | N | 4   | Refer to Error Codes for error code definitions.   |
| Error Message           | X | 100 | First 100 characters of an erroneous message   |



| FIELD NAME          | L | T | DEFINITION/VALIDATION RULES   |
|---------------------|---|---|---|
| Error Position      | N | 4 | Determines the bytes at which an error has been detected  |
| Exchange Message ID | X | 6 | <p>Identifies a message sent by the exchange for a Participant connection. It represents the exchange identifier of the message for the current session. It is used in a Connection message as a retransmission starting point.</p> <ul style="list-style-type: none"> <li>• If equal to zeroes: start from 1st message of the session.</li> <li>• If equal to blanks: start from next message for Participant.</li> <li>• If valid Exchange Message ID: start at this message ID or the next message for the Participant.</li> <li>• If it contains spaces, it means that this field is not subject to re-transmission.</li> </ul> |
| Firm ID             | X | 4 | Identifies a firm referenced in the SOLA® database  |
| YesNoFlag           | X | 1 | <ul style="list-style-type: none"> <li>• Y: Yes</li> <li>• N: No</li> </ul>   |
| Gap Sequence ID     | N | 2 | A Sequence Numeric (base 10) used to track gaps and runs from 0 to 99 over and over. If the Participant detects a gap, he has to reconnect with a Trader Connection message.  |
| Group ID            | X | 2 | Group Identification within the system. A Group is composed of instruments and is usually associated with a specific underlying.  |
| Group State         | X | 1 | <p>This parameter indicates the new status of the group. For message type NG, it contains one of the following values:</p> <ul style="list-style-type: none"> <li>• B: Post session</li> <li>• C: Consultation Start</li> <li>• F: Consultation End</li> <li>• I: Prohibited</li> <li>• M: Mini-batch</li> <li>• N: Market Operation Center Intervention</li> <li>• O: Opening</li> <li>• P: Pre-opening</li> <li>• S: Continuous Trading Session</li> <li>• Z: Interrupted</li> </ul>  |

| FIELD NAME           | L | T | DEFINITION/VALIDATION RULES   |
|----------------------|---|---|---|
| Handling Instruction | X | 1 | <p>Indicates to the target Market Maker how order should be processed.</p> <p>Instructions for order handling on destination trading floor or system.</p> <ul style="list-style-type: none"> <li>• 1: Automated only, no broker intervention</li> <li>• 2: Automated with broker intervention</li> <li>• 3: Manual order, best execution</li> </ul>   |
| Hedge/Spec           | A | 1 | <ul style="list-style-type: none"> <li>• H: Hedger</li> <li>• S: Speculator</li> </ul>  |
| IML Handling         | X | 1 | <p>All Public Customer Orders sent to BOX must include NBBO filtering instructions:</p> <ol style="list-style-type: none"> <li>1. NBBO Filtering and IML Routing: The order is filtered for NBBO and is routed to the best away Exchange if it is executed and BOX is not at NBBO.</li> <li>2. No NBBO Filtering: The order is not filtered for NBBO. This type of filtering is not acceptable for Public Customer and Broker Dealer origin orders, regardless of whether they are for BOX Participants or not.</li> <li>3. NBBO Filtering and No IML Routing: Order filtered against NBBO without Inter-Market Linkage routing instructions, the Order being rejected back to the sender if it is marketable at the time of reception and BOX is not at NBBO. For Complex Order, this is the only valid value.</li> <li>4. InBound ISO order. The order is a Limit and IOC order. It is not filtered against NBBO and not routed away.</li> <li>5. Contingent Orders: Specifies that the Auction or Floor Trade is contingent and should not be controlled against the NBBO for the execution price. Only used for Solicitation, Facilitation and Floor Trades. The only values supported for Solicitation and Facilitation are 3 and 5.</li> <li>6. No Exposure for Complex Order Instrument upon entry. Default behaviour for Complex Order Instrument is to be exposed upon entry. Only valid for Complex Order.</li> </ol> |
| Inactivity Interval  | N | 2 | Number of missed heartbeats before considering the user disconnected. If set to 0, the user is never considered as disconnected by the system.  |
| Instrument ID        | X | 4 | Instrument identification within a Group  |

| FIELD NAME       | L | T  | DEFINITION/VALIDATION RULES  |
|------------------|---|----|--|
| Instrument State | X | 1  | <ul style="list-style-type: none"> <li>F Forbidden: Trading is forbidden for this instrument. Orders and quotes are rejected</li> <li>N Normal: The instrument follows group state processing</li> <li>R Orders and quotes are processed in Pre-opening if the group is in Trading status.</li> </ul>  |
| Leg Number       | N | 2  | ID of the leg of the Complex Order Instrument. Maximum value of 16.  |
| Liquidity Status | X | 1  | <p>Indicates if the trade adds or removes liquidity</p> <ul style="list-style-type: none"> <li>M: Maker</li> <li>T: Taker</li> <li>[ ]: Trade is not eligible for Make or Take fee pricing structure</li> </ul>  |
| Memo             | X | 50 | Free text zone can be used to transmit additional information for processing. No validations are carried out on this field.  |
| Message Type     | X | 2  | Type of Message  |
| MM CAT Uvertime  | X | 8  | <p>Time at which Market Maker sent their Bulk Quote message to BOX, represented in number of nanoseconds since midnight of the current day, use Eastern Time zone. Must be left blank if not used. BOX will not do any validation of the value provided.</p> <p>The Base62 character set is:<br/> “0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ<br/> abcdefghijklmnopqrstuvwxyz”</p> <p>Any other character is evaluated as 0.</p> |

| FIELD NAME | L | T | DEFINITION/VALIDATION RULES   |
|------------|---|---|---|
| Open/Close | X | 1 | <p>Indicates how the Participant's position will be handled by the clearing system. Valid Values for options and individual leg of a Complex Order instrument:</p> <ul style="list-style-type: none"> <li>• C: Close (all legs or single instrument)</li> <li>• O: Open (all legs or single instrument)</li> </ul> <p>For Complex Orders, ' ' must be used. It indicates that the OpenClose positions are specified in the <b>Post Trading Instruction</b> field.</p> <p>For Legacy support, the following values are still supported for Complex Orders:</p> <ul style="list-style-type: none"> <li>• 1: 1<sup>st</sup> leg Open, 2<sup>nd</sup> leg Close</li> <li>• 2: 1<sup>st</sup> leg Close, 2<sup>nd</sup> leg Open</li> <li>• 3: 1<sup>st</sup> leg Open, 2<sup>nd</sup> leg Open, 3<sup>rd</sup> leg Close</li> <li>• 4: 1<sup>st</sup> leg Open, 2<sup>nd</sup> leg Close, 3<sup>rd</sup> leg Open</li> <li>• 5: 1<sup>st</sup> leg Open, 2<sup>nd</sup> leg Close, 3<sup>rd</sup> leg Close</li> <li>• 6: 1<sup>st</sup> leg Close, 2<sup>nd</sup> leg Open, 3<sup>rd</sup> leg Open</li> <li>• 7: 1<sup>st</sup> leg Close, 2<sup>nd</sup> leg Open, 3<sup>rd</sup> leg Close</li> <li>• 8: 1<sup>st</sup> leg Close, 2<sup>nd</sup> leg Close, 3<sup>rd</sup> leg Open</li> <li>• A: 1<sup>st</sup> leg Open, 2<sup>nd</sup> leg Open, 3<sup>rd</sup> leg Open, 4<sup>th</sup> leg Close</li> <li>• B: 1<sup>st</sup> leg Open, 2<sup>nd</sup> leg Open, 3<sup>rd</sup> leg Close, 4<sup>th</sup> leg Open</li> <li>• D: 1<sup>st</sup> leg Open, 2<sup>nd</sup> leg Open, 3<sup>rd</sup> leg Close, 4<sup>th</sup> leg Close</li> <li>• E: 1<sup>st</sup> leg Open, 2<sup>nd</sup> leg Close, 3<sup>rd</sup> leg Open, 4<sup>th</sup> leg Open</li> <li>• F: 1<sup>st</sup> leg Open, 2<sup>nd</sup> leg Close, 3<sup>rd</sup> leg Open, 4<sup>th</sup> leg Close</li> <li>• G: 1<sup>st</sup> leg Open, 2<sup>nd</sup> leg Close, 3<sup>rd</sup> leg Close, 4<sup>th</sup> leg Open</li> <li>• H: 1<sup>st</sup> leg Open, 2<sup>nd</sup> leg Close, 3<sup>rd</sup> leg Close, 4<sup>th</sup> leg Close</li> <li>• I: 1<sup>st</sup> leg Close, 2<sup>nd</sup> leg Open, 3<sup>rd</sup> leg Open, 4<sup>th</sup> leg Open</li> <li>• J: 1<sup>st</sup> leg Close, 2<sup>nd</sup> leg Open, 3<sup>rd</sup> leg Open, 4<sup>th</sup> leg Close</li> <li>• K: 1<sup>st</sup> leg Close, 2<sup>nd</sup> leg Open, 3<sup>rd</sup> leg Close, 4<sup>th</sup> leg Open</li> <li>• L: 1<sup>st</sup> leg Close, 2<sup>nd</sup> leg Open, 3<sup>rd</sup> leg Close, 4<sup>th</sup> leg Close</li> <li>• M: 1<sup>st</sup> leg Close, 2<sup>nd</sup> leg Close, 3<sup>rd</sup> leg Open, 4<sup>th</sup> leg Open</li> <li>• N: 1<sup>st</sup> leg Close, 2<sup>nd</sup> leg Close, 3<sup>rd</sup> leg Open, 4<sup>th</sup> leg Close</li> <li>• P: 1<sup>st</sup> leg Close, 2<sup>nd</sup> leg Close, 3<sup>rd</sup> leg Close, 4<sup>th</sup> leg Open</li> </ul> |

| FIELD NAME            | L | T | DEFINITION/VALIDATION RULES  |
|-----------------------|---|---|--|
| Order ID              | X | 8 | Identifies an order. Associated with Group ID and Instrument ID; it is the Order Key identifier  |
| Order Type            | A | 1 | <ul style="list-style-type: none"> <li>• O: Order</li> <li>• Q: Quote</li> </ul>   |
| Original Order ID     | X | 8 | First Order ID assigned to the order by the trading system   |
| Original Reference ID | X | 8 | References either the Original Order ID of the traded order or the Quote ID of the quote that has traded ID Code for the Counterpart Participant Trader ID firm if it is a cross trade, else blank |
| Password              | X | 8 | Contact Technical Help Desk for details<br>Used when establishing a SAIL Logical connection<br>See section 7 for details on how to encode it.  |

|                        |   |    |   |
|------------------------|---|----|---|
| Post Trade Instruction | X | 50 | <p>String of characters</p> <p>This field is used for 4 reasons:</p> <ul style="list-style-type: none"> <li>• Specify a CMTA</li> <li>• Specify a Give-Up Firm</li> <li>• Specify a SubAccount at OCC. The SubAccount represents the Market Maker ID (MMID) at OCC.</li> <li>• Specify the Open Close of a Complex Order</li> </ul> <p>The information can be specified as follows:</p> <ul style="list-style-type: none"> <li>• To specify a CMTA, enclose the CMTA Firm ID (up to 4 digits) between 2 'C'</li> <li>• To specify a Give-Up Firm, enclose the Give-Up Firm ID (up to 4 digits) between 2 'G'</li> <li>• To specify a SubAccount (ClearingAccount at OCC), enclose the SubAccount between 2 '#' (pound sign). SubAccount is defined as a string up to 3 AlphaNumeric as is currently supported by OCC). Any preceding space is allowed, but any trailing space is ignored. <ul style="list-style-type: none"> <li>○ #ABC# means 'ABC' will be sent to OCC (Sent as is)</li> <li>○ # AB# means ' AB' will be sent to OCC (Preceding space conserved)</li> <li>○ #AB # means 'AB' will be sent to OCC (Trailing space removed)</li> <li>○ #ABCD# means 'ABC' (truncated to 3) will be sent to OCC</li> </ul> </li> </ul> <p>To specify the OpenClose of a Complex Order, enclose the Open (O) or Close (C) position of each leg between 2 'P' - up to 16 legs Open/Close are supported.</p> <p><b><u>For example:</u></b></p> <p>"C950CG980G#ABC#POOCCOCOCOCPP" is interpreted as follows:</p> <ul style="list-style-type: none"> <li>• The CMTA is 950</li> <li>• The Give-Up is 980</li> <li>• The SubAccount is ABC</li> <li>• The Open/Close of the 10 legs of the strategy is as follows: <ul style="list-style-type: none"> <li>. Leg 1: Open</li> <li>. Leg 2: Open</li> <li>. Leg 3: Close</li> <li>. Leg 4: Close</li> <li>. Leg 5: Open</li> <li>. Leg 6: Close</li> <li>. Leg 7: Open</li> <li>. Leg 8: Close</li> <li>. Leg 9: Close</li> <li>. Leg 10: Close</li> </ul> </li> </ul> |
|------------------------|---|----|---|

| FIELD NAME      | L | T  | DEFINITION/VALIDATION RULES   |
|-----------------|---|----|---|
| Price           | X | 10 | <p>Price with format indicator and price mantissa</p> <p><b>Format indicator (1):</b><br/>           If the format indicator is Alpha, it means that the price is negative (A means negative value with no decimal, B means negative value with 1 decimal, C means negative value with 2 decimals, etc.).<br/>           If the format indicator is Numeric, it means that the price is positive (0 means positive value with no decimal, 1 means positive value with one decimal, 2 means positive value with 2 decimals, etc.).<br/>           If the format indicator is set to spaces, it means that the price is not significant.</p> <p><b>Price mantissa (9):</b><br/>           Represents the price value including the number of decimals defined in the format indicator.</p> <p><b>Examples:</b><br/>           Format indicator = 2;<br/>           Price mantissa = 3509438; Price = 35094.38<br/>           Format indicator = A;<br/>           Price mantissa = 3567838; Price = -3567838<br/>           Format indicator = ;<br/>           Price mantissa = 3567838; Price = not significant</p> |
| Price Type      | X | 1  | <p>For regular order:</p> <ul style="list-style-type: none"> <li>• L: Limit (price set in message)</li> <li>• O: At Opening price</li> <li>• W: At any price (Market Order)</li> </ul>  |
| Protection Code | A | 1  | <p>Type of protection requested by the Market Maker</p> <ul style="list-style-type: none"> <li>• A: Advanced Protection</li> <li>• C: Functionally equivalent to N</li> <li>• N: Standard Protection</li> </ul> <p><b>Note:</b> If no Market Maker Protection Subscription message is sent, BOX will assume the Participant requested standard protection (N). BOX will reset the selected protection to standard every morning before the pre-opening phase. A new Market Maker Protection Subscription message will be required to activate advanced protection.</p>  |
| Protocol        | X | 2  | <p>Protocol ID:<br/>           Versions A0, A1, A2, and A5 are no longer supported.<br/>           A6 (includes Complex Order), A7, A8, B1, B3</p>  |
| Quantity        | N | 8  | Number of contracts or shares   |

| FIELD NAME          | L | T | DEFINITION/VALIDATION RULES  |
|---------------------|---|---|--|
| Quantity Sign       | X | 1 | <p>For a quote or an order update, it identifies how to handle the quantity:</p> <ul style="list-style-type: none"> <li>• "+": Add the incoming quantity to the booked quantity</li> <li>• "-": Subtract the incoming quantity from the booked quantity</li> <li>• "=": Replace the booked quantity with the incoming quantity</li> </ul> <p>Participants are able to modify the quantity of an order by specifying the quantity variation from the original value (+, - signs) instead of being limited to specifying only the remaining quantity.</p>  |
| Quantity Term       | X | 1 | <ul style="list-style-type: none"> <li>• B: Surrender Quantity for Solicitation, Facilitation and Floor Trade</li> <li>• J: Indicates that the Auction type as MIP</li> <li>• Space: None</li> </ul> <p>The above value indicates that the InitO is willing to surrender a portion of the total number of contracts</p>  |
| Quote Cancel Reason | A | 1 | <p>Identifies the type of quote cancellation</p> <ul style="list-style-type: none"> <li>• A: Cancelled by the Trader</li> <li>• D: MMP – Percent Of Quote has been reached</li> <li>• E: Maximum Triggers Protection Limit Exceeded</li> <li>• G: Cancelled By Supervisor</li> <li>• I: Eliminated on Disconnect</li> <li>• L: Traded Activity Protection Limit Exceeded</li> <li>• M: Cancelled by the BOX Market Operations Center (MOC)</li> <li>• O: Eliminated Due To Drill Through Protection</li> <li>• P: MMP - Max number of trades has been reached</li> <li>• Q: Quotes Cancelled</li> <li>• R: MMP - Max value has been reached</li> <li>• S: Cancelled by the System</li> <li>• T: MMP - Max Volume has been reached</li> <li>• N: MMP - Max Delta Volume has been reached</li> <li>• V: MMP - Max Delta Value has been reached</li> <li>• W: Cancel Pending</li> </ul> |
| Reference ID        | X | 8 | References the order (Order ID) or the quote (Quote ID) that has traded  |
| Rejection Code      | N | 4 | <ul style="list-style-type: none"> <li>• 0001: Executing Participant Discretion</li> <li>• 0002: Auction Order failed</li> </ul>   |
| Session ID          | X | 4 | <p>Identifies current session ID</p> <p>If set to blank spaces, this means the Participant wants to connect to the current session ID.</p>   |



| FIELD NAME              | L | T | DEFINITION/VALIDATION RULES  |
|-------------------------|---|---|--|
| Special Price Term      | X | 1 | <p>PIP Solicitation Facilitation</p> <ul style="list-style-type: none"> <li>• B: Solicitation Auction</li> <li>• C: Facilitation Auction</li> <li>• G: Regular PIP</li> <li>• X: Customer Cross Order or Qualified Contingent Cross Order</li> </ul> <p><b>Note:</b> These values specify the type of Auction to be started.</p> <p>Order Entry</p> <ul style="list-style-type: none"> <li>• '': (Blank), No Special Price Term</li> <li>• O: Directed Order</li> <li>• P: Preferenced Order</li> <li>• R: Floor Trade</li> <li>• A: Indication of Interest</li> </ul> |
| Special Trade Indicator | A | 1 | <p>Defines the type of trade</p> <ul style="list-style-type: none"> <li>• A: As-Of-Trade</li> <li>• B: Block Trade</li> <li>• L: Late Trade</li> <li>• O: Hidden Trade</li> <li>• S: Size Adjustment Trade</li> <li>• R: Floor Trade</li> <li>• D: Customer Cross Order or Qualified Contingent Cross Order</li> </ul> <p>Applies to Solicitation, Facilitation and Floor Trade only:</p> <ul style="list-style-type: none"> <li>• g: Contingent Trade (trade was not controlled against the NBBO)</li> </ul>  |

| FIELD NAME   | L | T  | DEFINITION/VALIDATION RULES  |
|--------------|---|----|--|
| Status       |   |    | <p>Provides the Participant with the outcome reserved for the order that is the subject of the entry, modification, or cancellation.</p> <ul style="list-style-type: none"> <li>• " ": Order put in the Order Book (having possibly been partially executed)</li> <li>• A: Order cancelled by the trader or at the end of the exposition phase</li> <li>• B: Order has been eliminated by the trading system due to invalid out of limits price</li> <li>• D: The order is a 'Directed/Routed Order' and has been received by ExecutingParticipant</li> <li>• E: The order has been eliminated by the trading system</li> <li>• G: Cancelled By Supervisor</li> <li>• I: Session Order has been cancelled when the Participant closes or loses his connection to the SOLA trading system</li> <li>• J: Eliminated Due To Maximum Nb Triggers Limit Exceeded</li> <li>• K: Eliminated Due To Trade Activity Limit Exceeded</li> <li>• L: Order has been sent to the away exchange</li> <li>• M: Cancelled by the BOX Market Operations Center (MOC)</li> <li>• O: Eliminated Due To Drill Through Protection</li> <li>• P: Order is being exposed</li> <li>• R: Order is eliminated due to trading restriction</li> <li>• T: Eliminated Due To Trade Limit Exceeded</li> <li>• W: Cancel Pending</li> <li>• X: Order executed in full (or partially and the remaining part could not be put in the Order Book) (Fill &amp; Kill)</li> </ul> |
| String (x)   | X | X  | Free text depending on the context   |
| Time         | N | 6  | HHMMSS   |
| Trade Memo   | X | 50 | Text entered by Market Operation when it is a Manual Trade Entry   |
| Trade Number | N | 8  | Identifies the trade number for an instrument and one day  |

| FIELD NAME         | L | T | DEFINITION/VALIDATION RULES   |
|--------------------|---|---|---|
| Trade Type         | X | 1 | Identifies the origin of the trade <ul style="list-style-type: none"> <li>• A: Traded during a Guaranteed Auction</li> <li>• B: Solicitation Auction</li> <li>• C: Facilitation Auction</li> <li>• F: Traded during Continuous Trading following FIFO algorithm</li> <li>• M: Trade entered by Market Operations</li> <li>• O: Traded during Opening</li> </ul> |
| Trader ID          | X | 8 | Identifies the trader <ul style="list-style-type: none"> <li>• 4 first characters: Firm Identifier</li> <li>• 4 Last characters: Trader Identifier</li> </ul>   |
| Trader Lock Status |   |   | <ul style="list-style-type: none"> <li>• L: Locked</li> <li>• U: Unlocked</li> </ul>  |
| User ID            | X | 8 | Identifies the User for a connection. The User ID must be referenced in the SOLA® configuration database.   |
| User Sequence ID   | N | 8 | Identifies all the incoming business messages for one connection. Must be sequential and start at 1 at the beginning of the day. Used by SOLA® to track gaps in message sequence.   |
| Verb               | X | 1 | Identifies an order/quote side <ul style="list-style-type: none"> <li>• B: Buy</li> <li>• S: Sell</li> </ul>  |

## Section 6 Error Codes

---

The following table displays the error codes and text that will appear in error responses.

| ERROR CODE | ERROR TEXT                                  |
|------------|---|
| 0001       | User Identification is incorrect            |
| 0002       | Protocol Version is not supported           |
| 0003       | Message Type is not supported               |
| 0004       | Session ID is not active                    |
| 0005       | User Account Locked                         |
| 0006       | Message Type requested is not supported     |
| 0008       | Message is too short                        |
| 0009       | Message is too long                         |
| 0010       | Message contains Binary Data                |
| 0011       | No Heartbeat Activity: Disconnection        |
| 0012       | Message Type is Out Of Context              |
| 0013       | User ID has been deactivated: Disconnection |
| 0014       | Syntax Error + <detailed text>              |
| 0015       | Field Value is too small                    |
| 0016       | Field Value is too big                      |

| ERROR CODE | ERROR TEXT  |
|------------|---|
| 0100       | Firm is Forbidden to trade on this Group                            |
| 0101       | Duration Type is Forbidden for current Group state                  |
| 0102       | Verb field (Side) cannot be modified                                |
| 0103       | Order is not active   |
| 0104       | Price Type is forbidden for this instrument                         |
| 0105       | Price Term is Forbidden for current Instrument state                |
| 0108       | Duration Type is Forbidden for current Instrument state             |
| 0109       | Order cannot be processed: No opposite limit                        |
| 0110       | Price does not represent a valid tick increment for this Instrument |
| 0111       | Duration Type is invalid for this Price Type                        |
| 0112       | Cross Order price must be within the Instrument trading limits      |
| 0113       | Order price outside price spread                                    |
| 0114       | Opposite Firm must be filled for committed order                    |
| 0115       | Order Account Type is inconsistent with IML Handling field          |
| 0116       | Crosss order is not allowed   |
| 0117       | Cross order quantity is outside limits                              |
| 0118       | Duration Type is Invalid for This Price Term                        |

| ERROR CODE | ERROR TEXT  |
|------------|---|
| 0119       | Quantity is out of range  |
| 0120       | Functionality is not supported                                      |
| 0121       | Order price is outside the order entry protection limits.           |
| 0123       | Floor Trade Not Allowed   |
| 0124       | Insufficient Surrender Quantity                                     |
| 0201       | GTD date must be equal to or greater than current day               |
| 0202       | GTD date must be equal to or less than Instrument expiration date   |
| 0203       | GTD date must be filled only if Duration Type is equal to GTD       |
| 0300       | Quantity Term is Forbidden for current Instrument state             |
| 0302       | Quantity must be less than or equal to Maximum Improvement Quantity |
| 0303       | Quantity Term is not authorized for this Order Type                 |
| 0304       | Additional Quantity must be less than Order Quantity                |
| 0305       | Additional Quantity is too small                                    |
| 0306       | Minimum quantity cannot be modified                                 |
| 0307       | Quantity Term is forbidden for Duration Type                        |
| 0308       | Order quantity is outside the instrument quantity threshold         |
| 0309       | Quantities must be multiples of lot size                            |

| ERROR CODE | ERROR TEXT   |
|------------|--|
| 0310       | Order Net Value Is Outside the Net Value Threshold                 |
| 0402       | Trader ID field cannot be modified                                 |
| 0403       | Market Maker not authorized for Group                              |
| 0404       | Market Maker P orders not authorized for class                     |
| 0405       | Market Maker quote spread invalid for P orders                     |
| 0406       | Market Maker quote size invalid for P orders                       |
| 0407       | Market Maker quote should not trade on entry                       |
| 0500       | Order price is outside the instrument price threshold              |
| 0501       | Price field is mandatory for Limit Orders                          |
| 0502       | Price field must not be filled for this Price Type                 |
| 0503       | Order cannot be modified or cancelled                              |
| 0504       | Additional Price is forbidden for Price Term                       |
| 0505       | Order price must be greater than additional price                  |
| 0506       | Order price must be lower than additional price                    |
| 0507       | Additional price must be lower than last price or last day price   |
| 0508       | Additional price must be greater than last price or last day price |
| 0509       | Order rejected. Cannot trade outside instrument price thresholds.  |

| ERROR CODE | ERROR TEXT   |
|------------|--|
| 0510       | Order cannot be modified   |
| 511        | Order price is outside circuit breaker limits                          |
| 512        | Price Term Invalid For Price Type                                      |
| 0513       | Instrument allows only Closing Orders                                  |
| 0514       | Instrument Leg allows only Closing Orders                              |
| 0700       | Only one quote per Instrument and per Side is accepted                 |
| 0701       | Quote is not present in the Instrument Book                            |
| 0702       | Bulk Quote Participant Protection in progress; Quote not processed.    |
| 0703       | Advanced Bulk Quote Participant Protection not enabled for this Group  |
| 0704       | Buy and Sell must not cross for the same instrument                    |
| 0705       | Number of quotes is not in sync with the message length                |
| 0707       | Bulk Quote Participant Protection state must be re-activated           |
| 0708       | Trader ID has no quote for this Group                                  |
| 0709       | All the Instruments must belong to the same Group                      |
| 0710       | Clearing Data has not been initialized                                 |
| 0800       | Required number of Market Makers is not satisfied to start an auction. |
| 0801       | Auction ID is not active.  |



| ERROR CODE | ERROR TEXT   |
|------------|--|
| 0802       | Only Price can be updated.   |
| 0803       | Price must be better than previous Improvement Price.                  |
| 0804       | Improvement Quantity is not valid.                                     |
| 0805       | Only price and quantity can be updated.                                |
| 0806       | Improvement Verb is not valid for this auction.                        |
| 0807       | A guaranteed auction cannot be started when NBBO is crossed or locked. |
| 0808       | An auction is already running.   |
| 0810       | Price must be within NBBO spread.                                      |
| 0811       | Quantity must be greater than Minimum Improvement Quantity.            |
| 0812       | Improvement Order cannot be cancelled                                  |
| 0813       | Initial Order cancel is forbidden                                      |
| 0814       | Improvement cancellation forbidden                                     |
| 0815       | Improvement price must be improved                                     |
| 0816       | Improvement quantity cannot be decreased                               |
| 0900       | EP Disconnected  |
| 1000       | Cross orders forbidden in Pre-opening phase.                           |
| 1001       | Instrument does not exist  |

| ERROR CODE | ERROR TEXT  |
|------------|---|
| 1002       | Group ID does not exist                                   |
| 1003       | Trader ID is invalid                                      |
| 1004       | Message Type is forbidden for current Instrument state    |
| 1005       | Firm ID is Invalid  |
| 1006       | Directed Order should be Guaranteed                       |
| 1007       | Participant must use A2 protocol version                  |
| 1008       | RFQ currently underway for this instrument                |
| 1009       | Action not allowed under current configuration            |
| 1010       | Number of entries is invalid                              |
| 1011       | Invalid Trade Id  |
| 1103       | Cross order price type must be limited                    |
| 1104       | Validity date type for a cross order must be FAK          |
| 1105       | Invalid datas for Low and high limits                     |
| 1106       | The preopening time must be greater than system time      |
| 1107       | Firm or trader had been disabled                          |
| 1108       | Instrument mandatory when using MM Monitoring Mode Forced |
| 1109       | Market maker has no obligation for this group             |

| ERROR CODE | ERROR TEXT  |
|------------|---|
| 2000       | Technical error: function not performed. Contact Technical Help Desk. |
| 2001       | Gateway State forbids this command. Contact Technical Help Desk.      |
| 2002       | Function only partially performed. Contact Technical Help Desk.       |
| 3000       | Broker Option   |
| 3001       | Unknown Invalid Symbol  |
| 3002       | Exchange Closed   |
| 3003       | Order Exceeds Limit   |
| 3004       | Too Late To Enter   |
| 3005       | Unknown Order   |
| 3006       | Duplicate Order   |
| 3007       | Stale Order   |
| 3008       | Instrument State Rotation   |
| 3009       | Instrument State NonFirmMode  |
| 3010       | Instrument State halted   |
| 3011       | Reference Price Is Out Of Bound                                       |
| 3012       | Unknown Clearing Firm   |
| 3013       | SubAccount ID Missing   |

| ERROR CODE | ERROR TEXT                     |
|------------|--------------------------------|
| 3014       | Invalid Auto Ex Value          |
| 3015       | Account Missing                |
| 3016       | Time In Force Missing Invalid  |
| 3017       | Open Close Missing Invalid     |
| 3018       | Exec Broker Missing            |
| 3019       | Clearing Account Missing       |
| 3020       | Execution Information Missing  |
| 3021       | Order Received Too Soon        |
| 3022       | Order Capacity Missing Invalid |
| 3023       | Late Print To OPRA Tape        |
| 3024       | Communications Delays To OPRA  |
| 3025       | Manual Crowd Trade             |
| 3026       | Processing Problems            |
| 3027       | Complex Order                  |
| 3028       | Trade Rejected                 |
| 3029       | Trade Busted Corrected         |
| 3030       | Original Order Rejected        |

| ERROR CODE | ERROR TEXT   |
|------------|--|
| 3031       | Rejected Linkage Trade                             |
| 3032       | Other  |
| 3033       | Traded At NBBO                                     |
| 3034       | Unknown Exchange                                   |
| 3035       | Too Late To Cancel                                 |
| 3036       | Already In Pending Cancel                          |
| 3037       | Pro Rata Satisfaction Distrib                      |
| 3038       | Req Ord Size Superior Trade Size                   |
| 3039       | Not At NBBO  |
| 3040       | Cancel Due To Non Block Trade                      |
| 3041       | Unknown Clearing Operation Mode                    |
| 3042       | Invalid Price Type                                 |
| 3096       | TraderLockOut                                      |
| 3097       | RiskTeamLockOut                                    |
| 4001       | Executing Participant discretion                   |
| 4002       | Initial Order Failed                               |
| 4003       | Executing Participant did not respond Order booked |

| ERROR CODE | ERROR TEXT  |
|------------|---|
| 4010       | Invalid modification of Executing Participant                     |
| 5001       | Report date is invalid  |
| 5002       | Account number does not exist                                     |
| 5003       | Account already exists  |
| 5004       | Both quantities cannot be null                                    |
| 5005       | Position does not exist   |
| 5006       | Account does not exist  |
| 5007       | Participant does not exist  |
| 5008       | Approved participant does not exist                               |
| 5009       | This account has open positions                                   |
| 5010       | Firm unit mismatch  |
| 5011       | Invalid instrument for specified report date                      |
| 9000       | Internal. To be defined   |
| 9001       | Price Term is forbidden for ISO order                             |
| 9002       | Quantity Term is forbidden for ISO order                          |
| 9003       | ISO order must be Limit   |
| 9004       | Group opening not allowed number of instruments exceeds threshold |

| ERROR CODE | ERROR TEXT  |
|------------|---|
| 9005       | Group opening not allowed total traded volume exceeds threshold |
| 9006       | Instrument opening not allowed a quote crosses the CTO          |
| 9007       | ISO order must be IOC   |
| 9008       | Change to ISO order is forbidden                                |
| 9009       | Unknown CPU.  |
| 9010       | CPU State forbids this command.                                 |
| 9011       | Change from PPA IML handling is Forbidden.                      |
| 9012       | Change to PPA IML handling Type is Forbidden.                   |
| 9013       | No order to delete in the book                                  |
| 9014       | Strategy trade must be cancelled leg by leg                     |
| 9015       | Strategy instrument has some legs closed                        |
| 9016       | Maximum pending instrument creation reached                     |
| 9017       | Invalid Number Of Legs  |
| 9018       | Invalid Leg Information   |
| 9019       | Unknown Strategy type   |
| 9020       | Firm Creation Quotas Has Been Reached                           |
| 9021       | Leg Instrument Is Not Active                                    |

| ERROR CODE | ERROR TEXT   |
|------------|--|
| 9022       | Strategy has unpriced legs                                 |
| 9023       | Group state does not allow this function                   |
| 9024       | Order cannot be processed presence of capped legging order |



## Section 7 Password Encoding

---

This algorithm is to be used when encoding the 'Password' field in the 'TC – User Connection' message type.

### Step 1) Initialize values

Get the 'Password' value as assigned by BOX MOC at the initial creation of the 'User ID'.

Take the value that will be passed in the field 'Time' in the 'TC – User Connection' message type which represents the time at which the 'TC' message is sent.

Example:

```
Password = "PASSWORD"  
Time = "160803"
```

### Step 2) Get the MD5 hash result

Concatenate the 'Time' and 'Password' values from step 1 and hash them using the MD5 algorithm.

The result should be a 32 hexadecimal character string

Example:

```
HashToMD5("160803PASSWORD")  
Result: "9B9FD80B4A3FC5CC02DA4119B15F0C07"
```

### Step 3) Encode to Base64 format

Take the last 8 bytes (rightmost) from the result of step 2 and encode it using the Base64 algorithm, with the following character set:

```
"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789  
+/"
```

Example:

```
HexToBase64("02DA4119B15F0C07")  
Result = "AtpBGbFfDAc="
```

### Step 4) Set the Password in the 'TC' message

Take the first 8 bytes of the result of step 3 to initialize the 'Password' field and the value use in step 1 for the 'Time' field

Example:

```
Password = "AtpBGbFf"  
Time = "160803"
```