



BOXSM
TECHNOLOGY

Financial Information eXchange (FIX)
FIX Business Design Guide
for BOX

FIX-BX-001E
Document Revision: 3.9
Protocol Version : B6
Date of Issue: 2023-11-21

Document History

VERSION	DATE	CHANGE DESCRIPTION
2.4.1	2008-05-16	Conversion to FrameMaker
2.4.2	2008-05-28	<p>Impacts of Options Symbology Initiative. New field No. 205 is added to specify the maturity day of instrument. The MaturityDay field is mandatory for the new OSI and optional for the old format.</p> <p>Sections impacted are listed below:</p> <ul style="list-style-type: none"> Section 4.6.2: next to [MaturityMonthYear 200] added [MaturityDay 205] <p>Section 4.7.2: next to [MaturityMonthYear 200] added [MaturityDay 205]</p>
2.4.3	2008-05-29	<p>Symbology updates approved Changed MMTP/SLE or SLE to SAIL Removed all reference to Strategy Trading:</p> <ul style="list-style-type: none"> Section 4.12 Strategy Trading Section 7.1.2 HSVF Message Codes Section 7.2 Message Sequences <p>Section 7.2.7 Strategy Processing, Figures 23 & 24</p>
		Removed all reference to HSVF and updated all Message illustrations
2.5	2009-02-18	Changed Doc. ID. to FIX-BX-001E
2.6	2010-08-18	<ul style="list-style-type: none"> Remove section 2.2 on ATR. Add Session Orders duration type. Add MIP functionality. Modification of DO/RO sections. Add ISO Order. Update connection schedule. Remove message allocation throughput. <p>Update the number of listed instrument in Queries section.</p>
2.7	2012-03-07	Added sections 7.2.10 to 7.2.15 for Complex Order messaging.

VERSION	DATE	CHANGE DESCRIPTION
2.8	2012-06-15	<ul style="list-style-type: none"> Reformatted text in section 4.5.2 and deleted existing sections 4.5.5 and 4.5.6 Added section 4.11 for Complex Order resulting in Clearing Information moving to section 4.12. Updated section 4.12.3 to include Complex Order. <p>Updated section 6.2.</p>
2.9	2013-09-25	<p>4.5.1 - Supported Types of Orders: Removed BOX-TOP Order, Market-on-Opening: May trade at multiple different prices for Complex Order, Renamed U.S Style Market Order to Market Order.</p> <p>4.10.1: Modified allowable time to match or improve the contra side of a 'Must Be Filled' Order from 3 seconds to 'n' milliseconds.</p> <p>4.11.2: Complex Order: Removed BOX-TOP Order type.</p> <p>4.11.3: Exposure Functionality: New section added.</p> <p>4.12 - Solicitation and Facilitation Auctions: New section added.</p> <p>4.13 - Customer Cross Order: New section added.</p> <p>Section 4.12 renamed 4.14.</p> <p>4.14.3 - BOX Controls Against the NBBO Market: Removed value '4' in 7906-CombinedOrdType tag.</p> <p>6.1 - Order Mass Status: Updated what Orders are returned.</p> <p>6.2 - Security Definition Request: Updated possible number of instruments returned.</p> <p>7.2.7 - Improvement Phase Processing: Renamed 'PIP Initial Order' message for 'Auction Initial Order'</p> <p>7.2.10 - Complex Order Instrument Creation and Order Entry Processing:</p> <p>Figure 50, Execution Reports for the legs are sent before the Execution Report for the Complex Order</p> <p>Figures 44, 45, 48, 49, 50, and 51(added Exposure feature)</p> <p>Figure 46; Updated to include only 1 Execution Report</p> <p>7.2.11: - Complex Order Modification Processing:</p> <p>Figures 52 & 54 (added Exposure feature)</p> <p>7.2.16 & 7.2.17: New diagrams added on Solicitation, Facilitation and Customer Cross Order.</p>

VERSION	DATE	CHANGE DESCRIPTION
3.0	2015-05-15	<p>4.5.3 Supported Special Price Terms: Add Directed Order, Add Preferenced Order</p> <p>7.2.9 Directed/Router Order: Add [RoutingInst 9303=O] to Figure 35, 36, 37, 38, 39: Correct table heading. Remove [ExecutingParticipant=XYZ] from table 37</p> <p>7.2.15 Directed Complex Order: Add [RoutingInst 9303=O] to Figure 63, 64</p> <p>7.2.18 Preferenced Order Processing: Add [RoutingInst 9303=P] to Figure 68, 69: correct table heading</p>
3.1	2016-06-10	<p>Added Section 4 – Validation Tools</p> <p>Section 5 – Order Management was extracted from Section 3- BOX Features for clarity</p> <p>Section 8- Added Section 8.19 Lock-Out Due to Exceeded Limit or By Trader</p> <p>Table 2: Added messages (BE - User Request, BF- User Response, CB- User Notification)</p>
3.2	2016-11-14	<p>Added QOO Order to 5.1.1</p> <p>Added Section 8.17 QOO Entry</p>
3.3	2017-11-24	<p>Added IOI Order to 5.1.1</p> <p>Added Section 8.18 Indication of Interest Entry</p>
3.4	2018-09-20	<p>Update Logo, Boston Options</p> <p>Section 5.7.1: Update of Number of Legs to 12 and Leg Ratio to 99999999, and example</p> <p>Update of number of legs in sections 5.7.2, 8.10, 8.11, 8.12, 8.13, 8.14, 8.15</p>
3.5	2019-02-08	<p>Updates following the removal of 3-1 ratio restriction for CO on QOO</p> <p>Sections 3.2.7 updated and 3.2.8 added</p> <p>Sections 3.4.1, 5.1.5, 5.5.2, 5.7.1 updated</p> <p>Section 5.8:</p> <ul style="list-style-type: none"> Added Surrender quantity to Facilitation. <p>Added MIP to Facilitation.</p>

3.6	2021-04-23	<p>Management of new Tag 440 (ClearingAccount)</p> <ul style="list-style-type: none"> • Section 5.10.1 – Added ClearingAccount (Tag 440) to Pre-Trade section • Section 5.10.2 – Changes as follows: <ul style="list-style-type: none"> ○ Removed section on TMS usage by Participants ○ Added section on precedence of QuickID and Clearing-related tags (439, 440, 76,1) • Appendix B.2 – Pre-Trade Clearing. Added ClearingAccount (Tag 440) • Appendix C – MMID Acronym definition <p>Error Management in BOX (Internal) Protocol B5:</p> <ul style="list-style-type: none"> • Section 5.4.2 – Corrected Error message management for Entry of Request for Quote ‘R’. Business Message Reject ‘j’ is sent as error message in B5 • Section 8.3 – Diagram “Quote Request is Rejected” updated with Business Message Reject ‘j’ • Section 8.10 – Added new scenario for error management of Security Definition Request rejection with either a FIX ‘8’ (ExecutionReport with Error) or FIX ‘j’ (Business Message Reject ‘j’) • Section 8.14 – Added new scenario for error management of FIX ‘PI’ Instrument Creation is Rejected. <p>Corrections of text for accuracy:</p> <ul style="list-style-type: none"> • Section 4.4.3 – Removed “Quotes” from from Lock-Out of a Trader • Section 5.1.5 – Removed SAIL messages from General Processing (Buy or Sell Order). Replaced with proper FIX messages • Section 5.3.2 – Added Fix MessageType ‘9’ to Processing Timetable of Cancellation of an Order • Section 5.6.1 – Removed references to SAIL messages and processing in “Pip Initiation and Participation”. FIX message processing is now documented • Section 5.6.4 – Added Multicast Line ‘P’ for PIP Information Broadcast • Section 5.6.5 – Removed references to SAIL messages and processing in “End of PIP”. FIX message processing is now documented • Section 5.6.7 – Removed Routed Order (RO) from text. Corrected SAIL messages processing for relevant FIX messages. And removed section not relevant to FIX processing. • Section 5.8 – Added Improvement Orders (from Initiating Participant)
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VERSION	DATE	CHANGE DESCRIPTION
		<ul style="list-style-type: none"> • Appendix B – Clearing. Removed reference to TMS documentation • Appendix B.2 – Removed section on “Post-Trade Clearing” and participant use of TMS. <p>Appendix B.2 = Removed TMS usage in “Trade Allocation” section</p>
3.7	2022-06-06	<p>Update of Number of Legs to 16 in the following sections:</p> <ul style="list-style-type: none"> • Section 5.7 (Complex Order) • Section 5.7.1 (Complex order – Instrument Creation) • Section 5.7.2 (Complex Order – Order Management) • Section 8.10 (Complex Order Instrument Creation and Order Entry Processing) • Section 8.11 (Complex Order Modification Processing) • Section 8.12 (Complex Order Cancellation Processing) • Section 8.13 (Complex Order Trade Messages) • Section 8.14 (Complex Order Auction Phase Processing) • Section 8.15 (Directed Complex Order) <p>Miscellaneous document updates (no functional changes)</p> <ul style="list-style-type: none"> • Title Page Added specifications (FIX) • All through document fixed capitalization • Update to the Definition table; definition of Floor Broker. • 3.2.4 Added link to BOX Rule. • Changed terms or words used throughout the document to be more specific and to be compliant with legal terms used by BOX

VERSION	DATE	CHANGE DESCRIPTION
3.8	2022-10-17	<p>Added new section 5.5.4 - New Trade entered by the Market Operations Center (MOC)</p> <p>Added new Message Sequence:</p> <ul style="list-style-type: none">• Section 8.6 – Trade Messages – New Trade entered by MOC <p>Updated Messages Sequence - Replaced FIX 'j' Business Reject by FIX '8' Execution Report (Rejected) for the following:</p> <ul style="list-style-type: none">• Section 8.10 - Complex Order Instrument Creation Request Rejected• Section 8.14 - PIP Initial Complex Order – Instrument Creation is Rejected
3.9	2023-11-21	<p>Added Complex/Multi-Leg QOO net order price rounding in favor of the QOO MBF in Section 5.7.1</p>

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Section 1 Introduction

The FIX Business Design Guide for BOX was developed by BOX Technology.

1.1 Objective

The main objective of the FIX Business Design Guide is to provide information to prospective BOX Exchange Participants or Independent Software Vendors (ISV), in the functional design of their application intended to interface with the BOX trading engine via the FIX protocol interface. The BOX FIX Gateway is based on FIX Version 4.2.

1.2 Scope

The FIX Business Design Guide includes a trading overview and detail message flow during the connection and trading phases.

1.3 Audience

The target audience for the FIX Business Guide is staff at either the business or IT level of an organization interested in the functional design of the BOX trading System.

- For Business Analysts and Project Managers: a high-level view of BOX trading features and requirements.
- For Software developers: connectivity and message flow between the BOX trading System and BOX Participants.

1.4 BOX Contact

Market Operations Center Support / Technical Help Desk
Toll Free: 1-866-768- 8845
boxmoc@boxoptions.com

1.5 Service Definitions

The FIX interface provides BOX Participants with the functionality required to interact with the BOX market. Services provided are classified into two distinct groups as shown below:

1.5.1 Solicited

- Order entry, modification, and cancellation
- Request for quote
- Auction initiation and participation
- Order Mass request

- Security Definition Request

1.5.2 Unsolicited

- MOC action notification (Order elimination, trade cancellation, etc.)
- Order elimination
- Trade cancellation

For detailed explanations of these features, refer to Section 5, Order Management.

1.5.3 Acronyms and Terms

Below is the definition of the acronyms and terms used throughout this document

ACRONYM AND TERM	DEFINITION
Participant	Firm that has one or several traders who can trade on BOX through one or several connections
Client	A computer system able to interact with the BOX electronic trading platform and to support the specific range of functionality required by the firm's trading activities
Connection	A Connection is a physical link between the Client and BOX A Participant may have multiple connections (see Appendix B for details)
QOO	Qualify Open-Outcry also referred to as Floor Trade in this document
Floor Broker	A Broker on the Trading Floor who is registered with the Exchange for the purpose, while on the Trading Floor, of accepting and handling QOO Orders. Can take part of the InitO quantity
Floor Market Maker	A Market Maker on the Trading Floor who has received permission from the Exchange to trade in options for his own account. Can take part of the InitO quantity
Group (Instrument Group)	Refers to all instruments with the same underlying
IOI Distribution Message	Message for the Floor Broker to communicate to the Exchange the distribution of the IOI-Order in a specific QOO Order
IOI Order	Type of Order entered by a Floor Broker to indicate interest to participate in QOO

ACRONYM AND TERM	DEFINITION
QOO Distribution Message	Message for the QOO Initiator to communicate to the Exchange the distribution of the QOO Order among all other Floor Brokers
QOO Initiator	A Floor Broker that has created the QOO (the InitO)
QOO MBF	Must-be-filled or initiating Participant in the QOO
QOO Order	A Floor Trade Entered on the BOX Trading Floor
SAIL	SOLA Access Information Language ASCII based protocol describes functions to be performed by BOX as well as market events and notifications
MOC	Market Operations Center which is the entity responsible for monitoring and operating the BOX market
Trader	Owner of Orders and Quotes that are sent to the BOX Trading System Several Traders can use the same connection to send messages to the Exchange. Trader Identifier must be present in all Business messages sent to BOX
Unrelated Participant	An unrelated participant on the BOX Book that took a part of the QOO Initiator's quantity Generally, a Public Customer, but other AccountTypes can be part of the trade if they offer a better price or if they have priority over a Public Customer on the BOX Book
CMTA	Clearing Member Trade Assignment
FIX	Financial Information Exchange
IML	Inter Market Linkage
MBF	Must Be Filled
OCC	Options Clearing Corporation
OLA	Options Linkage Authority
TOP	Theoretical Opening Price
MMID	Market Maker ID which represents the Market Maker Clearing Account at OCC
Order	Refers to the intent to Buy or Sell a contract on a specific Option or Complex instrument.

ACRONYM AND TERM	DEFINITION
BOX Book	Refers to BOX electronic list of buy and sell orders or quotes for a specific Option Instrument
Complex BOX Book	Refers to BOX electronic list of buy and sell orders for a specific Complex Instrument

Section 2 Trading Overview

Trading has been grouped into three general categories:

- Market Making
- Agency Trading
- Proprietary

Note: Participants who are not involved in Market Making on BOX may also be referred to as Order Flow Providers (OFP).

Market Making

Market Makers are Participants who have applied as a Market Maker on BOX and have been allocated one or more market making appointments by BOX (i.e., assigned the rights and responsibilities for making markets in one or more option classes).

The FIX interface does not provide functions related to market making.

Note: Participants who intend to be Market Makers on BOX must use the **SAIL** protocol.

Agency Trading

A BOX Participant (and the computer application they use for connection) is viewed to be supporting agency trading if it is executing Orders on behalf of customer accounts, including Orders for the accounts of other broker/dealers (acting themselves on behalf of their customer accounts or their own proprietary accounts).

Proprietary Trading

A BOX Participant (and the computer application they use for connection) is viewed to be supporting proprietary trading if it is executing Orders on behalf of proprietary accounts of the BOX Participant.

Section 3 **BOX Features**

BOX is a fully automated equity options exchange. All Orders are 'live' and available to all Participants.

BOX does not provide or endorse any front-end trading application or platform. However, every application (either developed in-house by a Participant or by an ISV) that will interface with the SOLA Trading Engine is certified by BOX.

3.1 Market Model

There are multiple Market Makers in each class of option contracts with none having priority over the others. All Orders and quotes are handled on a strict price/time priority without any Participant controlling the price.

3.2 Trading Phases Overview

3.2.1 Consultation Start

This phase is reserved for the Market Operations Center (MOC). The MOC can act on instruments for the forthcoming trading day (e.g., reserve instruments). No Order entries coming from Participants or the MOC can be accepted during this phase. However, the MOC can perform Order deletions for a specific instrument or global deletions of a specific Participant's Orders.

3.2.2 Pre-opening

This phase allows Participants to enter, modify, and cancel Orders. Orders introduced during this period contribute to the calculation of the Theoretical Opening Price (TOP) but are not traded.

3.2.3 Opening

At the scheduled Opening time, Orders are matched, and trades are generated at the last calculated TOP. An optimization algorithm maximizes the number of trades and reduces the remaining imbalance. Price time priority at each price is used to allocate the trades at the TOP. The automatic phase transition for a group, following an Opening, is Continuous Trading, also known as the Trading Session. For more information on TOP, refer to the [BOX Rules](#).

3.2.4 Trading Session

This phase is triggered as soon as the Opening phase ends. The switch to the Trading Session phase marks the end of the opening processes. Orders introduced are executed, entered in the BOX Book, or eliminated in real time.

3.2.5 Market Operation Center Intervention

This is a period during which the MOC can perform all the modifications necessary to monitor the market and correct errors (deletion of Orders for a specific instrument, cancellation of trades, etc.). During this period, neither Participants nor the MOC can place Orders. Participants may receive messages during this phase, e.g., Group or Instrument State change notices.

3.2.6 Consultation End

This phase is reserved for the MOC, during which it can only consult the market. During this period, neither Participants nor the MOC can place Orders. Participants will not receive any messages during this phase.

3.2.7 Maintenance

This is a phase during which a group switches to next trading day. Orders whose validity date have expired are deleted. Statistics for the instruments are reset (high, low, volume). Participants cannot enter Orders on any instrument during this phase. Notifications of expired Orders are sent to Participants who are not typically connected during this phase. Such messages are available upon next connection.

3.2.8 Post-session

This is a weekly session during which various off-line processing takes place, including all Maintenance processing. Participants cannot enter any Orders on any instrument during this phase. As in the Maintenance phase, messages to Participants may be created during this phase. However, they are available upon next connection.

3.3 Instrument Groups

An instrument group is a set of investment instruments or financial instruments governed by the same trading rules. BOX uses the concept of instrument groups in its functioning and dialogue with Participant Firms' Clients.

An individual options series is referred to as an instrument. It is BOX policy to have all option series related to the same underlying instrument (i.e., options class) belonging to a unique instrument group.

3.4 Behavior of an Instrument Independently of its Group

The normal behavior of an instrument is to follow the rules of its group according to the group status. This section describes certain cases where the instrument behaves independently of its group.

3.4.1 Reservation, Suspension, Opening of an Instrument

The reservation of an instrument is instigated by the MOC when the instrument undergoes a financial operation. Reservation, triggered manually by the MOC or automatically at Opening, is aimed at controlling the market by limiting the gap between prices.

The impact which the suspension or reservation of an instrument has on the processing of Orders related to that instrument varies according to the phase in which the group is situated.

Pre-Opening

MOC can suspend an instrument to prevent it from trading when the market opens. If the MOC removes the suspension prior to the opening of the group, the rules governing the instruments group are then reapplied to the instrument, and the instrument opens at the same time as the other instruments in the group, if the Theoretical Opening Price (TOP) for this instrument is within the authorized range.

Opening

If the instrument is forbidden, it remains in this state during the Opening and the instrument will not open with the rest of the instruments within the group. Until further intervention by Market Operation Center, all Orders entered for this instrument will be processed in the same way as Orders placed during the Pre-Opening phase.

If the instrument is reserved at the moment of opening, one of the following occurs:

- If the indicated opening price is once again within the authorized price limits, opening will take place automatically and the reservation will be lifted.
- If the indicated opening price is outside the authorized price limits, the instrument will remain reserved until further intervention by Market Operation Center. All Orders entered on this instrument will be processed like Pre-Opening Orders. If Market Operation Center opens the instrument, the latter will remain reserved or will open, depending on whether the thresholds of the indicated opening price have been exceeded or not.

Continuous Trading Session

MOC can suspend or reserve an instrument: the instrument is then set apart from the group and its trading rules. Orders entered are processed like pre-opening Orders.

MOC can lift the suspension or the reservation on an instrument by Opening the instrument which is then considered open and follows the trading rules governing its group.

Section 4 Validation Tools

4.1 Overview

The BOX Trading System supports various protection mechanisms allowing the configuration of various limits and implementing controls on trading activity.

When a limit is reached, new Orders or quotes can be rejected and booked Orders cancelled. In addition, notification messages are sent informing Participants of their status (active or locked).

For this purpose, the BOX Trading System maintains counters, cumulating the values over a set period.

Limits

There is no hierarchy among overlapping Limits, and all configured Limits are always considered simultaneously, the most restricting one being applied.

Trader Teams

Limits are configured by Trader Teams. A Trader Team is defined as a grouping of Traders and is identified by a Trader ID referred to as the 'Team Lead'.

A Trader is member of one and only Trader Team. By default, a Trader that is not explicitly configured as part of a Team is considered to be the sole member of the Team of which he is also the Team Lead.

4.2 Order-Entry Related Protection

Maximum Order Quantity (fat finger) for Incoming Orders

This trading validation mechanism is used to prevent creating risk exposure with a single Order.

Order creation messages (D or AB) or modification messages (G or AC) are validated against the configured Limits before being accepted. If a message is rejected, the rejection message contains an Error Code value indicating which Limit caused the rejection.

BOX defines the Maximum Order Quantity for the Exchange. Participants can also call the MOC to configure customized values for this limit at the Trader Teams level for Orders including Customer Cross Orders and Improvement Orders as well as for auctions.

4.3 Trade-Related Protection

4.3.1 Traded Order Protection

A mechanism based on the following Protection Counters is implemented for all Participants trades resulting from Orders. The Traded Order Protection limits are controlled by Trader Team/Group. These limits are Time Interval related.

Maximum Number of Trades = Count (Trades)

Maximum Traded Volume = \sum Traded Volume

Maximum Traded Value = \sum (Trade Volume x Trade Price x Contract Size x Tick Value)

Delta Max Volume = Absolute $\{ \sum ((\text{Buy Call Traded Volume} + \text{Sell Put Traded Volume}) - (\text{Sell Call Traded Volume} + \text{Buy Put Traded Volume})) \}$

Delta Max Value = Absolute $\{ \sum ((\text{Buy Call Traded Volume} \times \text{Trade Price} \times \text{Contract Size} \times \text{Tick Value} + \text{Sell Put Traded Volume} \times \text{Trade Price} \times \text{Contract Size} \times \text{Tick Value}) - (\text{Sell Call Traded Volume} \times \text{Trade Price} \times \text{Contract Size} \times \text{Tick Value} + \text{Buy Put Traded Volume} \times \text{Trade Price} \times \text{Contract Size} \times \text{Tick Value})) \}$

BOX defines default protections for the Exchange. Participants can call the MOC to configure customized values for these limits at the Trader Teams level.

4.3.2 Traded Activity Protection

The Traded Activity Protection (same counters as Traded Order Protection limits) is an additional mechanism that controls the traded activity resulting from Orders and quotes. Traded Activity Protection limits are controlled by Participants across all names.

Following each trade, the Traded Activity counters set are incremented for each side of the trade, regardless if the side is related to an Order or a quote. These limits are also Time Interval related.

When a Traded Activity counter is triggered, all Orders and quotes on both sides of the market for the Trader Team are cancelled on all groups, even for instruments that are not in a trading state. Order Cancellation Notice messages return the cancellation reason (due to Traded Activity protection). If configured, these protections can result in a lock-out of the system.

BOX defines default protections for the Exchange. Participants can call the MOC to configure customized values for these limits at the Trader Teams level.

4.3.3 Maximum Triggers Protection

The Maximum Triggers Protection mechanism limits the total position and credit risk a specific Trader Team may engage, when several trade related triggers occur within a set period. Maximum Triggers Protection limits are controlled by Participants across all names.

When the total amount of triggers (Traded Order Protection or Traded Activity Protection) for a Trader Team exceeds the configured Maximum Triggers limit within the set time-interval:

- The team's Orders and quotes across all names are cancelled.
- If so configured, the team is put in a lock-out and is prohibited from entering new Orders and quotes until the MOC's intervention.

BOX defines default protections for the Exchange. Participants can request from the MOC to configure customized values for these limits at the Trader Teams level.

4.4 Kill Switch Protection

The BOX Trading System includes the following "Kill Switch Protection" risk control measures.

4.4.1 Cancel Participants' Orders

Cancel-On-Disconnect: If the Participant disconnects from the Exchange, all Orders are cancelled.

Cancel When No Heartbeat: If no heartbeat is detected, the Participant is deemed to be disconnected and all Orders are cancelled.

4.4.2 Cancel All Orders with a Single Message (BE Message Type)

Participants have the ability to cancel all Orders or to request a lock-out with a single message sent to the Exchange.

The Global Cancellation message (BE message type) is available to cancel all Orders or to request a lock-out for a specified trader.

4.4.3 Lock-Out of a Trader

Participants can also call the MOC to request Order cancellation or a lock-out of the trader.

While the Trader is locked out, the following entry types are prevented:

- New or modified Orders of all types (Regular Orders, ISO, Customer Cross, PO, DO, Improvement Orders, etc.), whether on a single option instrument or on a strategy instrument
- All requests for starting a PIP (direct request or via DO Acceptance)
- All requests for starting a Solicitation or Facilitation auction
- All new or modified (solicitation-facilitation) improvement Orders on a PIP, solicitation, or facilitation

4.4.4 Restrict Automated Re-Entry to Trading after Lock-Out

Upon requesting a lock-out, the trader is restricted from re-entry to trading until MOC's intervention. The MOC is responsible for re-establishing Order/quote entry for the trader.

Section 5 Order Management

5.1 Order Entry

Order entry allows Clients to enter Orders to be traded on BOX.

5.1.1 Supported Types of Orders

BOX supports the following Order types:

Limit Orders

Limit Orders entered into the BOX Book are executed at the price stated or better. Any residual volume left after part of a Limit Order has traded is retained in the BOX Book until it is withdrawn or traded (unless designated as Fill and Kill). All Limit Orders (unless designated as Good Till Date “GTD” and Good Till Cancel “GTC”) are automatically withdrawn by BOX at market close. A Limit Order is submitted by setting tag [OrdType 40=2].

Market-on-Opening Order

Market-on-Opening Orders entered into the BOX Book are executed on the market opening at the best price available in the market until all available volume on the opposite side of the market has been traded. Any residual volume left after part of a Market-on-Opening Order has been executed is automatically converted to a Limit Order at the price at which the original Market-on-Opening Order was executed. Market-on-Opening Orders have priority over Limit Orders. A Market-on-Opening Order is submitted by setting tag [OrdType 40=O]. This type of Order is available only in the pre-opening market phase (see Pre-opening).

Market Orders

Market Orders are executed at the best price available in the market for the total quantity available from any contra bid (offer). This type of Order should always be used in conjunction with either the OLA Routing or NBBO Filtering option ([CombinedOrdType 7906] described later in this document). According to the option selected, any residual volume left after part of a Market Order has been executed is either automatically sent through the IML (Inter Market Linkage) network for execution at another exchange or cancelled. A Market Order is submitted by setting tag [OrdType 40=1].

Qualified Open Outcry (QOO) Orders

A QOO Order mimics the trading floor model and adapts it to an existing electronic marketplace to allow for regulatory compliance. This Order type enables BOX Participants to enter trades that have been agreed upon into the electronic platform. These electronic floor trades must respect the market rules.

A QOO is an agreement between two counterparties, the Must-Be-Filled (MBF) side and the non-MBF side (InitO), to execute a trade on a given product and at a given price.

Indication of Interest (IOI) Orders

This type of Order can be entered by a Floor Broker to indicate its interest to participate in a floor trade. Only the configured floor brokers are allowed to enter IOI messages.

5.1.2 Supported Order Qualifiers

When submitting an Order to BOX, Participants must provide one of the duration types below.

Day

Orders designated as 'Day' will remain in the BOX Book until the Order:

- Trades
- Is withdrawn by the relevant responsible trader or BOX at the Participant's request
- Is automatically cancelled by BOX at the end of the current trading day

A 'Day' Order is submitted by setting tag [TimeInForce 59=0].

Good Till Date (GTD)

Orders designated as 'Good till Date' will remain in the BOX Book until the Order:

- Trades
- Is withdrawn by the relevant responsible trader or BOX at the Participant's request
- Is automatically cancelled by BOX at the end of the day specified in the Date field

A GTD Order is submitted by setting tag TimeInForce 59=6].

Good Till Cancelled (GTC)

Orders designated as 'Good Till Cancelled' will remain in the BOX Book until the Order:

- Trades
- Is withdrawn by the relevant responsible trader or BOX at the Participant's request
- Is automatically cancelled by BOX on expiration of the contract month to which the Order is related

A GTC Order is submitted by setting tag [TimeInForce 59=1].

Fill and Kill (FAK)

Orders designated as 'FAK', also referred to as Immediate or Cancel (IOC), are processed as follows:

- Participants receive an Execution Report ([OrdStatus 39=0]) message indicating that the Order has been accepted.
- The Order is immediately executed against any existing Orders at the specified price or better, up to the volume of the FAK Order.
- At the opening of the instrument, the Participant will receive an Execution Report ([OrdStatus 39=4]) message if the Order is not totally filled.
 - Then one (or several) Execution Report ([OrdStatus 39=1 or 2]) messages will be sent. In each of the reports, the [LeavesQty 141] field specifies whether a part of the Order remains (or not) to be traded.
 - In the last Execution Report message, the [LeavesQty 141] is set to 0, and any residual volume left after part of the FAK Order has traded will be automatically cancelled by BOX.

A FAK Order is submitted by setting tag [TimeInForce 59=3].

Session Orders

Session Orders will remain in the BOX Book until the Order:

- Trades,
- Is withdrawn by the relevant responsible trader or BOX at the Participant's request,
- Is automatically cancelled by BOX at the end of the current trading day,
- The participant's application loses or terminates its connection to the BOX trading system. Orders that are exposed, being processed by an away exchange after routed by BOX and Directed Orders not acknowledged by the executing participant are not cancelled in this case.

A Session Order is submitted by setting tag [TimeInForce 59=W].

5.1.3 Supported Special Price Terms

BOX supports the following Special Price Terms.

Directed Order

The Directed Order is directed/routed to the Executing Participant specified on the Order for potential price improvement. See Directed Orders in Support of PIP for a detailed description of the Directed Order.

Preferred Order

A Preferred Order allows Participants to designate a Market Maker (PO-MM) who is entitled to a guaranteed percentage of the Order, as long as this Market Maker is quoting at NBBO.

5.1.4 Processing Timetable

This paragraph sets out the processing timetable that follows the entry of an Order. For a given event, it describes the processing carried out by BOX as well as the Order of the messages sent. The events in question are:

- Entry of a buy or sell Order in general (Order rejected or accepted)
- Entry of an accepted Fill and Kill Order, partially filled when it is introduced

5.1.5 General Processing (Buy or Sell Order)

To enter an Order, the Participant sends a New Order Single message. For the specifications of these messages, refer to the [SOLA FIX Specifications Guide](#).

BOX performs various validations on the parameters of the New Order Single message received.

If one of these validations fails, BOX sends an Execution Report '[MsgType '8' and OrdStatus 39=8]) with the [Text 58] specifying the appropriate reason for the rejection.

If the incoming Order is rejected due to a session level error, a FIX '3' message is returned to the Participant instead of a FIX '8.'

If all the validations are accepted, BOX accepts the message received and attributes an [OrderId 37] to the Order entered.

An Execution Report message received immediately after an Order entry can indicate that it has been:

- Entered in the BOX Book (a part of the Order having possibly been executed),
- Eliminated,
- Exposed for NBBO matching and eliminated,
- Executed partially or in full.

If a part or all the Order was executed, the FIX interface receives, immediately after the Execution Report ([OrdStatus 39=0]) message, one or several Execution Report ([OrdStatus 39=1 or 2]) messages providing more information about the trade that took place.

If the Order has been entered in the BOX Book, the Participant will automatically later receive one of the following messages:

- One (or several) Execution Report ([OrdStatus 39=1 or 2]) messages,
- An Execution Report ([OrdStatus 39=4]) message if the Order is eliminated.

Note: The maximum validity duration set when instrument default validity is 'M'.

5.2 Modifying an Order

Order modification allows Participants to modify Orders that are currently booked.

5.2.1 Functions Available when Modifying an Order

A Trader may modify all booked Orders, either self-entered or by the BOX MOC on their behalf. A Trader cannot modify an Order that has not been booked. That is, a Trader cannot modify an Order if it has been fully executed, cancelled, or eliminated.

A Trader cannot modify the instrument ID or the side of the Order. With the exception of a quantity reduction or the modification of the client account number, in which case the Order retains price/time priority. A modified Order is eliminated from the BOX Book and replaced by a new Order.

5.2.2 General Processing

To modify an Order, the Participant sends an Order Cancel/Replace Request message. In this message, the Participant specifies the following elements allowing BOX to locate the Order:

- The instrument affected by the modification [Symbol 55], [SecurityType 167], [PuOrCall 201], [StrikePrice 202], [MaturityMonthYear 200], and [MaturityDay 205]
- The [OrigClOrdID 41]
- The side of the Order [Side 54]
- The date-time of the Order [TransactTime 60]

All the parameters of the Order can then be modified in the Order Cancel/Replace Request message. Certain rules governing modification must nevertheless be respected, outlined in the [SOLA FIX Specifications Guide](#).

BOX carries out various validations on the parameters received.

If the message is not valid, BOX sends a Cancel Reject message [MsgType '9'] specifying the error code for the first error detected. If no parameters have been modified, BOX sends a Cancel Reject specifying 'No modification of the Order'.

If the message is valid, BOX eliminates the old Order from the BOX Book and replaces it with the new Order, to which it attributes a new [OrderId 37]. It sends the acknowledgement of the modification in the form of an Execution Report message. This message contains the new [OrderId 37] attributed to the modified Order by BOX and the revised characteristics of the modified Order. The modified Order can be:

- Entered in the BOX Book: the Order has been modified and at least a part of the Order has been entered in the BOX Book,
- Eliminated: the Order has been modified and immediately eliminated,
- Exposed for NBBO matching then rejected,
- Executed partially or in full: the Order has been modified and immediately executed in full.

5.3 Cancellation of an Order

Order cancellation allows Traders to cancel Orders that are currently booked.

5.3.1 Functions Available when Cancelling an Order

Once the Participant has placed an Order, it can request to cancel it. This cancellation will only be taken into consideration if the Order, or a part of the Order, is in the BOX Book in the central system. A Participant can also cancel an Order entered on its account by the BOX MOC.

5.3.2 Processing Timetable

To cancel an Order, the Participant sends a Cancel Request message. This message specifies all the parameters allowing BOX to locate the Order:

- The instrument affected by the modification [Symbol 55], [SecurityType 167], [PuOrCall 201], [StrikePrice 202], [MaturityMonthYear 200], and [MaturityDay 205]
- The [OrigClOrdID 41]
- The side of the Order [Side 54]
- The date-time of the Order [TransactTime 60]

BOX carries out various validations on the parameters received:

- If the Cancel Request is not valid, BOX sends a Cancel Reject message [MsgType '9'] indicating the error code for the first error detected.
- If the Cancel Request is valid, BOX sends the acknowledgement of the cancellation in the form of an Execution Report ([MsgType '8', OrdStatus 39=4]) message specifying the outcome reserved for the Order.

5.4 Entry of a Request for Quote

Request for Quote entry allows Participants to broadcast a Request for Quote to the market.

5.4.1 Functions Available when Entering a Request for Quote

The Quote Request message contains the symbol and may also contain a Quantity.

5.4.2 Processing Timetable

The Participant enters a Quote Request (MsgType R) message. BOX validates the message.

If the Quote Request message is not valid, BOX sends a Business Message Reject [j].

If the message is valid, the Participant receives a Quote Acknowledgement ([MsgType 'b']) message with [QuoteAckStatus 297=0].

5.5 Unsolicited Services

5.5.1 Entry, Modification, Cancellation of an Order by Market Operation Center

The BOX MOC can either, at the request of a Participant, enter, modify and cancel an Order in the BOX Book for the account of a Participant.

This action can take place:

- During pre-opening,
- During the continuous trading session

In the case of an Order entry by MOC, the Participant receives an Execution Report ([MsgType '8'], [OrdStatus 39=0]) message. It will also receive all the messages linked to this Order.

In the case of a modification or a cancellation placed by MOC, the Participant that owns the initial Order receives the Execution Report ([MsgType '8', [OrdStatus 39=4 or 5]) message corresponding to the modification or the cancellation. In the case of a modification, it will also receive all the messages linked to the modifying Order.

5.5.2 Cancellation of an Order

This section describes all the cases of Order cancellation by the system or by MOC that do not occur as the result of the transmission of an Order cancellation message from the Participant. An Execution Report [OrdStatus 39=4] message sent to the Participant who initially entered the Order which is the object of the cancellation.

Table 1: Order Cancellation

REASON FOR CANCELLATION	BOX
Cancellation of an Order by Market Operation Center	Possible during Pre-opening, Opening, Continuous Trading Session, Market Operation Center Intervention, Consultation End of Day and Group Interruption/Forbidden.
Elimination of all the Orders relating to an instrument by Market Operation Center	Possible during: Consultation Beginning of Day, Pre-Opening, Continuous Trading Session, Market Operation Center Intervention, Consultation End of Day and Group Interruption/Forbidden.
Global Cancellation of all the Orders of a Participant or Participant's Orders by Market Operation Center	Global Cancellation of all Participant's Orders Option to select by instrument or instruments group, side, Order account type, type of Order.... Possible during: Consultation Beginning of Day, Pre-Opening, Continuous Trading session, Market Operation Center Intervention, Consultation End of Day and Group Interruption/Forbidden.
Cancellation of all the Orders in the BOX Book for a Participant during post-session (requested by Market Operation Center)	Must be requested by MOC before Post-Session Carried out during Post-Session
Elimination because the Instrument has expired or is updated or is deleted	Carried out during Mini-Batch or Post-Session In case of instrument updates, the modification of the instrument name will not trigger purge of Orders. If the Tick Increment for prices is modified, all prices that do not respect the new Tick Increment are purged. The others remain in BOX Book.
Elimination of Fill and Kill Orders partially filled or not filled at opening	Carried out on the opening of the instrument.
Elimination because the validity of the Order is reached	Carried out at the end of each trading day: During the week just before Mini-Batch or during Mini-Batch At the end of the week (last trading day of the weekly session) just before Post-Session.

REASON FOR CANCELLATION	BOX
Eliminated Due to Trade Limit Exceeded Eliminated Due to Trade Activity Limit Exceeded Eliminated Due to Maximum Nb Triggers Limit Exceeded Eliminated Due to Drill Through Protection Eliminated Out of Limits	Protection mechanisms

5.5.3 Cancellation of a Trade by Market Operation Center

MOC Orders the central system to cancel a trade that took place during the day. This cancellation can be initiated according to BOX rules.

This can take place:

- During Pre-Opening,
- During the Continuous Trading Session,
- During Market Operation Center Intervention,
- During Consultation End,
- On an Interrupted Group.

BOX sends the two Participants concerned an Execution Report ([MsgType '8'], [ExecTransType 20=1]) message. This message specifies all the parameters relating to the cancelled trade.

5.5.4 New Trade Entered by the MOC

Upon request from the Executing Broker, and subject to approval in accordance with BOX rules, the MOC can enter a new trade to replace a previously cancelled trade.

For each party to the trade, BOX will send an Execution Report ([MsgType '8'], [ExecTransType 20=0],[TrdType 828=M (MOC Trade)], [SpecialTradeInd 9459=L(Late Trade) or A (As-Of-Trade)]) message. This message specifies all the parameters of the new trade.

- Tag 9459=L (Late Trade) for correction of a same-day trade.
- Tag 9459=A (As-Of-Trade) for correction of a previous-day trade.

5.6 Price Improvement Period

The Price Improvement Period (PIP) is a mini auction phase in which a single Order (the “Must Be Filled” Order or MBF) is exposed to the BOX market in Order to trade at a price better than the current NBBO (National Best Bid and Offer). The PIP allows authorized Participants to compete by posting prices in penny increments.

5.6.1 PIP Initiation and Participation

All Orders designated for price improvement must be submitted to the BOX market along with a contra Order (the Primary Improvement Order). A MBF Order along with its Auction Order is submitted to the market using a PI message (Auction Initial Order) with [Auction Type = G] message. If this message is successful, a PIP will begin. To be accepted, all Improvement Orders must fulfill the following conditions:

- Be on the opposite side of the MBF Order,
- From the MBF Order perspective, provide a price better than the current NBBO (National Best Bid and Offer).

To secure its share of the MBF Order, the initiator of the PIP (or dealer side) may improve the contra side of their Auction Order by modifying its price in reaction to other Participants' Improvement Orders. The initiator of the PIP improves his price using the Auction Initial Order ([MsgType 'PI']) message containing the improved price and referencing the auction ID of the ongoing PIP.

5.6.2 Maximum Improvement Price (MIP)

In addition to the auction start price, the MIP functionality allows the PIP initiator to specify a maximum improvement price ([PricImprovement 639]) up to which the Participant is willing to match the price and quantity of any competing Improvement Orders. The BOX Trading system will automatically match the price of the dealer side of the auction Order each time an Improvement Order is received at a better price.

Key features of the MIP are:

- MIP can be entered directly in a PIP or through a Directed Order (DO).
- The MIP can be a Limit or Market (match all improvements) Order.
- The dealer side will “auto match” at all better price levels, including the maximum improvement price.
- The dealer side will “auto match” for the entire quantity at each improved price level, except the level where the MBF will be completely filled.
- The dealer side will have the lowest priority at each improved price level.
- No dissemination of “auto improvements” by the dealer side to the market.
- Any Improvement Order entered by the dealer side while a MIP is in progress will be rejected.

5.6.3 Market Conditions Required for PIP Initiation

Refer to BOX Rules 7150.

5.6.4 PIP Information Broadcast

Active participation in the PIP requires processing of the PIP messages contained in BOX's Market Data Feed (HSVF). For Participants connecting to the HSVF only for PIP interaction, the HSVF connection message (type RS) allows Participants to receive only messages related to the PIP. Alternatively, the Participants can connect to the Multicast Lines 'P' (PIP Only) to receive only PIP-related messages.

Note: For information regarding the processing of PIP messages within the BOX HSVF, please refer to [SOLA HSVF Unicast Specifications Guide for BOX](#) and [SOLA HSVF Multicast Specifications Guide for BOX](#).

5.6.5 End of the PIP

At the completion of the PIP and following execution of all PIP related Orders, any unfilled Order balance of all PIP related Orders are purged. For any untraded quantity of the Auction Initial Order, the Initiator (Dealer Side) of the PIP will receive an Execution Report ([MsgType '8'], [OrdStatus 39=4]. For any traded quantity up to the quantity of the Auction Initial Order, the Initiator (Dealer Side) of the PIP will receive an Execution Report (MsgType '8', [OrdStatus 39 = 1 or 2]).

5.6.6 Trade Matching Process

Refer to BOX Rules 7150.

5.6.7 Directed Orders in Support of PIP

Any BOX Participant may route Orders to other BOX Participants for potential price improvement (typically, this occurs between a Participant acting in their capacity as an Order flow provider and a Market Making Participant.) Participants will be able to submit a "Directed Order" or "DO" to any other BOX Participant of their choice (the "Executing Participant" or "EP") in Order for the EP to originate a price improvement period (PIP) (see "Normal Course" below). The EP must process the DO immediately upon receipt.

Order routing as described in this section may take one of three forms:

- The Directed Order (DO) where the Executing Participant ("EP") is a BOX Market Maker on the class to where the instrument included in the DO belongs and the Market Maker **does not** have a quote at NBBO that could trade with the DO or;
- The Directed Order or (DO) where the Executing Participant ("EP") is a BOX Market Maker on the class to where the instrument included in the DO belongs and the Market Maker **does** have a quote at NBBO that could trade with the DO, this is known as a Guaranteed Directed Order or (GDO).

Normal Course DO

A Participant sends a New Order [MsgType D] as a Directed Order [RoutingInst 9303 = 'O'] specifying it is to be considered for PIP and identifying the specific EP [ExecutingParticipantId 7901] to whom to submit the Directed Order. The trading engine sends the Directed Order to the EP. The EP accepts the Directed Order and indicates the Auction (PIP) starting Price and the clearing information. The Auction starting Price must meet price checks against the NBBO and must always be equal to or better than the price appearing in the DO.

As soon as the PIP is started by the trading engine, the DO ceases to exist. Therefore, at this point the DO can neither be modified nor cancelled. Once the PIP is originated, all regular messages and message sequences of the PIP apply (i.e., between BOX and the submitting Participant for the MBF Order and between BOX and the EP for the contra Order). The Participant who submitted the DO receives a confirmation only for the MBF side and the trade will be cleared in his OCC account.

Note: The sequence number assigned to the PIP initial Order has no relation to the sequence number of the DO.

Alternate Course: Rejection When the EP Is not Registered

If the EP to whom the DO is directed did not systemically indicate that it is willing to accept a DO, the DO will be transformed into a regular Order and submitted to BOX. In this event, the Participant will only receive the standard Execution Report message (MsgType 35=8) indicating that the Order was entered on BOX. An Execution Report message (MsgType 35=8) will NOT be sent indicating that the Order was accepted as a Directed Order.

Alternate Course: Rejection or Timeout by the Registered EP (DO)

If the EP is a BOX MM who has received a DO and declines to offer price improvement (or does not respond), he may refuse the DO and send it back to the BOX trading engine for submission to the BOX Book and eventual execution as a regular Order. In this case, all related messages (acknowledgements as well as Order executions and any subsequent modifications or cancellations) are sent to the submitting Participant.

Upon receipt of the rejected DO, the BOX trading engine will book the DO as a regular Order.

Alternate Course: Modification or Cancellation

With one exception, the submitting Participant may modify or cancel his DO Order by placing either an Order Modification (MsgType 35=G) message or an Order Cancellation (MsgType 35=F) message referring to the Client Order ID (CIOrdID 11) of the Order.

Exception: If the DO is handled as per the normal course description and the PIP Initial Order has already been sent to the trading engine, the modification or cancel request will be rejected. The submitting Participant will receive an Execution Report (MsgType 35=8) message with Order Status (OrdStatus 39=8) as rejection.

5.7 Complex Order

Complex Order (also known as multi-leg option Order or Strategy Order) allows Participants to simultaneously buy or sell several different options (from 2 to 16) that normally could only be achieved by placing separate Orders.

5.7.1 Instrument Creation

A Complex Order instrument, as opposed to regular option instrument, must be created on Participant's request before they can trade, unless another Participant has already created it. Participants can choose between two different methods to trade Complex Order instruments on BOX.

The first method is to create the Complex Order instrument (MsgType=c), wait for the response (creation request accepted or rejected) and send the Order on that instrument (MsgType=D). This method conforms to FIX Protocol Version 4.2. If the instrument already exists, no Message Type 'c' is required.

The second method is to send the Complex Order instrument creation request and the Order at the same time within the same FIX message (MsgType=AB). This method conforms to FIX Version 4.4. If the instrument already exists, the instrument definition must still be provided.

Complex Order instruments are created by the Participants during the normal trading session by sending a 'Security Definition Request' message type (MsgType =c) or a 'New Multi-Leg Order - Single' (MsgType =AB). They are created only if there is no instrument with the same definition that exists. The rules for Complex Order instrument creation request are:

- The number of legs must be between 2 and 16.
- All legs must be for the same underlying.
- The maximum leg ratio for each leg is 99999999.
- The maximum leg ratio percentage between the lowest and the highest leg ratio is 300% (or 3 times) for non-QOO Orders.
- After they are created, the Instruments are available for trading for the current day only. They expire at the end of their creation day. The next day, if required, the instrument must be recreated using the same procedure.
- Leg ratios provided are reduced to the smallest ratio unit possible. Participants must adjust their Order quantity and price accordingly. This will result in the creation of a Complex Order instrument with modifications from the original definition provided by the Participant although the trading strategy will remain unchanged.
- A Complex Order instrument may already exist but in reverse Order. In this case the creation request does not create a new instrument. Participants must adjust their Order Side (Buy or Sell) and price accordingly. This will result in the creation of a Complex Order instrument with modifications from the original definition provided by the Participant although the trading strategy will remain unchanged.

- Like the previous rule, if the Complex Order instrument request is for an instrument for which all legs are negative (to Sell), then all legs of the instrument created are reversed. Participants must adjust their Order Side and price accordingly. This will result in the creation of a Complex Order instrument with modifications from the original definition provided by the Participant although the trading strategy will remain unchanged.
- The position of each leg of the Complex Order instrument created uses the following sort criteria (in priority). This might result in the creation of a Complex Order instrument with modifications from the original definition provided by the Participant although the trading strategy will remain unchanged.
- Ascending expiration date (nearest to farthest date)
- Ascending strike price (from lowest to highest price)
- Call, Put
- Ascending leg ratio (from lowest to highest ratio number)
- Alphabetical SAIL Instrument ID

Examples: The following examples are using the format $S = A + B + C - D$ where:

- 'S' is the Complex Order instrument
- 'A', 'B', 'C' and 'D' are the individual legs
- The signs '+' and '-' are the verb for each leg:
 - '+' = Buying the leg
 - '-' = Selling the leg

COMPLEX ORDER INSTRUMENT REQUEST	RESULT (INSTRUMENT CREATED)	RULE TO REFERENCE
$S = A + 3B$	S = A + 3B created if it does not already exist	The number of legs must be between 2 and 16.
$S = A + B + C$	S = A + B + C created if it does not already exist	The number of legs must be between 2 and 16.
$S = A + B + C + D$	S = A + B + C + D created if it does not already exist	The number of legs must be between 2 and 16.
$S = 90A - 100000000B$	Request invalid Ratio of 100000000 is invalid (greater than 99999999)	The maximum leg ratio for each leg is 99999999
$S = 90A - 99B$	S = 90 A - 99B created if it does not already exist	The maximum leg ratio for each leg is 99999999
$S = 16A - 50B$	Request invalid	The maximum leg ratio percentage between

COMPLEX ORDER INSTRUMENT REQUEST	RESULT (INSTRUMENT CREATED)	RULE TO REFERENCE
	50/16=3.125 which is greater than 3	the lowest and the highest leg ratio is 300% (or 3)
S = 15A - 44B	<p>S = 15A - 44B created if it does not already exist</p> <p>44/15=2.93, which is less than 3</p>	The maximum leg ratio percentage between the lowest and the highest leg ratio is 300% (or 3)
S = 10A - 20B	<p>S = A - 2B created if it does not already exist</p> <p>If a Participant wants to Buy 5@20.00 of (10A - 20B), then he needs now to Buy 50@2.00 of (A -2B)</p>	Leg ratios provided are reduced to the smallest ratio unit possible. Participants must adjust their Order quantity and price accordingly.
S = A - B	<p>No new instrument is created if S = B - A exists</p> <p>If a Participant wants to Buy 5@1.50 of (A - B), then he needs now to Sell 5@-1.50</p>	A Complex Order instrument may already exist but in reverse Order. In this case the creation request does not create a new instrument. Participants must adjust their Order verb and price accordingly.
S = - A - B	<p>S = A + B created if it does not already exist</p> <p>If a Participant wants to buy 5@1.00 of (- A - B), then he needs now to sell 5@-1.00 of (A + B)</p>	Similar to the previous rule, if the Complex Order instrument request is for an instrument for which all legs are negative (to Sell), then all legs of the instrument created are reversed. Participants must adjust their Order verb and price accordingly

Complex/Multi-Leg QOO Net Order Price Rounding

After leg ratio reduction, the system calculates the net order price of the Complex QOO Order or multi-leg QOO Order. When the calculated net order price has more than 3 decimals, the system will round the Complex QOO or multi-leg QOO Order calculated net order price in favor of the QOO MBF to 3 decimals.

COMPLEX ORDER INSTRUMENT REQUEST	NET ORDER PRICE	CALCULATED NET ORDER PRICE ROUNDED IN FAVOR OF THE QOO MBF
(QOO MBF Buy) S = 6A + 3B	12.50	12.50/3=4.166... calculated net order price is rounded down to 4.166
(QOO MBF Sell) S = 6A + 3B	12.50	12.50/3=4.166... calculated net order price is rounded up to 4.167

5.7.2 Order Management

The following Order types are accepted for Complex Order instrument:

- Market
- Limit Day
- Immediate Or Cancel (IOC)
- Session

The Orders on a Complex Order instrument are managed on a separate Complex BOX Book but are actively interacting with the BOX Book. See [Complex Orders BOX Rules](#) for more details.

As with regular option instruments, cancellations and modifications to Complex Orders are allowed. The mechanisms used are the same as Orders on option instruments.

The following Order types are accepted for Complex Order (CO) instruments:

- Market
- Limit Day
- Immediate or Cancel (IOC)
- Session

Cancelling/Modifying Complex Orders

As with regular option instruments, the cancellation and modification of Complex Orders are allowed. The mechanism used depends on how the original Order was entered. The following rules apply:

Original Order Entered Using Msg.	To cancel Order use Msg.	To Modify Order use Msg.	Execution Report Returned
D	F ¹	G	1 for the CO
AB	F ^{2,3}	AC	1 for the CO 1 for each individual leg (2 - 16 messages)

5.7.3 Exposure Functionality

This feature gives Participants the ability to expose their Complex Orders to the BOX Market to solicit liquidity before being booked or cancelled.

For each Complex Order sent to BOX, Participants can specify if they want it exposed or not. If the Participant elects not to have the Complex Order exposed, the Order follows standard processing - the Order being traded, booked or cancelled without the current exposure process.

If no specific instruction is provided on the Order, the default behavior for Complex Orders is to expose, if possible. The instruction not to expose is provided with the tag [CombinedOrdType 7906=6].

This exposure enhancement only applies to Complex Orders. The NBBO exposure period for standard option instruments under BOX Rule 7130 remains unchanged.

An incoming Complex Order requesting to be exposed trades immediately with what it can and any remaining quantity, if any, is exposed.

The exposure period is set at 100 milliseconds.

At the end of the exposure period, any remaining quantity of the Complex Order is booked (if possible) or cancelled ([TimelnForce 59=3]).

A Complex Order may be cancelled at the end of the exposure period based on the Participant's initial instruction.

Complex Orders being exposed are broadcast through the BOX HSVF.

Complex Orders are exposed at the following prices:

¹Without the leg repeating block

²With leg repeating block (Tag 600 series)

³The information included in the repeating block may or may not match what was sent in the original AB message type.

COMPLEX ORDER TYPE	ORIGINAL COMPLEX ORDER PRICE	EXPOSED PRICE
Limit	Outside same side CNBBO ¹	Never exposed
Limit	Outside opposite side CNBBO or equal to opposite side CNBBO	Opposite side CNBBO
Limit	Inside CNBBO	Original Order Price
Market	n/a	Opposite side CNBBO

1. cNBBO means the best net bid and offer price for a Complex Order Strategy based on the NBBO of the individual options instruments of such Strategy.

5.7.4 Auctions

The following auction types are accepted for Complex Order instrument:

- PIP
- Solicitation
- Facilitation
- Customer Cross Order

The Directed Order mechanism for PIP is also supported although the GDO procedure does not apply. The different auction rules for regular option instruments apply for Complex Order instruments.

5.7.5 Trading

A Complex Order instrument can start trading as soon as all its legs are open for trading. No Orders are allowed in the pre-opening phase on Complex Order instruments. When two Complex Orders trade together, trades for each individual leg are calculated. Trades involving a Complex Order instrument are always controlled against the NBBO market (at or better than the NBBO).

When a Complex Order instrument trades, the Participant receives 1 trade for the Complex Order instrument that includes the net price and 1 trade for each individual leg.

5.7.6 Market Data

The Implied Orders / Legging Orders are included in the BOX HSVF. In the 'H-Option Market Depth / HS-Complex Order Market Depth' message types, they are included in a separate level identified with and 'A'.

The best limit broadcasts to OPRA may contain Legging Orders (see Implied / Legging Orders) should they be part of the best limit on BOX.

Limits on Complex Order instruments are not broadcast to OPRA.

5.7.7 Post-Trading

Only the leg trades are cleared at OCC and are included in the BOX ATR (Automated Trade Reporting) feed. The Complex Order instrument trades are not processed by the BOX post-trading system.

5.7.8 Implied / Legging Orders

Implied Orders are Orders on the Complex BOX Book that are derived or calculated from the option leg BOX Book. The following table indicates Implied Orders (shown in yellow).

COMPLEX ORDER A+B		LEG A		LEG B	
BID	ASK	BID	ASK	BID	ASK
3.00	3.05	1.00	1.10	2.00	2.20
2.90	3.10	0.90	1.20	1.95	2.40
2.80	3.30				

Legging Orders are Orders on the option leg BOX Book that are derived or calculated from the Complex BOX Book. The following table indicates Legging Orders (shown in yellow).

COMPLEX ORDER A+B		LEG A		LEG B	
BID	ASK	BID	ASK	BID	ASK
2.90	3.05	1.00	1.05	2.00	2.05
2.80	3.10	0.90	1.10	1.95	2.20
		0.70	1.20	1.80	2.40

Implied and Legging Orders are calculated continuously in real time as the Complex Order and Option Leg BOX Books are updating.

Continuous real time Implied/Legging Order price calculation is only applicable on a two-legged Complex Order instrument with a ratio of 1:1.

Implied and Legging Orders are calculated using Orders only. Implied/Legging Order price cannot be calculated using another Implied/Legging Order. Implied Order calculation is only performed by using Orders that are at the NBBO.

Legging Order calculation is performed when an incoming Order is booked on the Complex BOX Book at the best limit. When a match occurs, the option leg BOX Book always have priority over the Complex BOX Book as follows:

- At the same price, Implied Orders always have priority over a regular Order on the Complex BOX Book.
- At the same price, real Orders always have priority over Legging Orders on the option leg BOX Book.

In the PIP mechanism, Implied/Legging Orders are processed as regular unrelated Orders.

5.8 Solicitation and Facilitation Auctions

The Facilitation Auction allows Order Flow Providers ("OFPs") to enter two-sided transactions of 50 contracts or more when the OFP represents an Order on one side as agent ("Agency Order") and is trading against the Agency Order as Principal, and/or has solicited an Order on the opposite side of the Agency Order. The Facilitation Auction provides an Agency Order an opportunity for price improvement, with the Initiating Participant providing a guaranteed execution of the Agency Order through the submission of the contra side Facilitation Order. The Facilitation Auction also provides the Initiating Participant a participation guarantee of 40% of the Agency Order, but only after the Agency Order first trades against better priced Orders and Public Customers on BOX.

The Solicitation Auction provides additional execution capabilities for large blocks (trades of 500 or more contracts). The Solicitation Auction is a process where an Initiating Participant enters a two-sided Order - one side it has solicited and the opposite side an Agency Order. Each Agency Order entered into the Solicitation Auction shall be designated as All-or-None.

To enhance the possibility of executions, the Initiating Participant may specify the number of contracts he is willing to surrender ("Surrender Quantity") to the BOX Book. Use of the Surrender Quantity function allows block-size Solicitation Auction trades in certain instances in which there would otherwise be no execution.

Shared features for the Facilitation and Solicitation auction types are:

- Solicitation and Facilitation Auctions initialization are available in both FIX and SAIL protocols.
- Account type of Initiating Participant cannot be Public Customer.
- Orders can be entered at any initial price and can be penny increments.

- The execution price can be outside the NBBO if the Solicitation/Facilitation Auction is flagged as being 'Contingent'. Otherwise, the execution price must be at or between the NBBO. In all cases, the execution price cannot trade outside the BOX Market, or ahead of a Public Customer booked Order.
- The Initiating Participant cannot improve its initial price.
- The Initiating Participant can cancel its Solicitation/Facilitation Auction.
- Improvement Orders are not broadcast in the BOX HSVF.
- Improvement Orders from Initiating Participant can be cancelled or reduced in price or size prior to execution.
- Cannot be initiated upon receipt of a Directed Order (DO).
- The Initiating Participant can specify the number of contracts willing to be surrendered (Surrender Quantity) to the BOX Book.

The differences are:

SOLICITATION	FACILITATION
Minimum size of 500 contracts.	Minimum size of 50 contracts.
No guarantee that the Initiating Participant will participate in the execution of the Agency Order.	Initiating Participant is guaranteed execution against 40% of the Agency Order after better priced Orders and after Public Customer Orders at the same price.
No MIP	Support of Maximum Improvement Price (MIP) feature (see section 5.6.2 Maximum Improvement Price')

For more details about the allocation for both auction types, refer to BOX Rules 7270.

In FIX, a Solicitation auction is entered using a [MsgType 35=PI] (Auction Initial Order with the tag [AuctionType 9383=B]. A Facilitation auction is entered using a [MsgType 35=PI] (Auction Initial Order with the tag [AuctionType 9383=C]. Execution Report messages [MsgType 35=8] are returned with the tags [SpecialTradeInd 9459=g] and [ContingentOrder 7388=2] when the auction is of type 'Contingent', and with [AuctionType 9383=B] for Solicitation and [AuctionType 9383=C] for Facilitation.

Message type [MsgType 35=F] (Order Cancel Request) is used to cancel a Solicitation and Facilitation auction.

5.9 Customer Cross Order

A Customer Cross Order is comprised of a non-Professional, Public Customer to buy and a non-Professional, Public Customer to sell at the same price and for the same quantity.

They are automatically executed upon entry provided the execution is between the best bid and offer on BOX and will not trade through the NBBO market.

They are automatically rejected if they cannot be executed.

They may only be entered in the regular trading increments applicable to the options classes.

Customer Cross Orders are not accepted on an option instrument while there is an auction in progress or while an Order is being exposed for the same option instrument.

Customer Cross Orders are only accepted during Continuous Trading.

In FIX, a Customer Cross Order is entered using a [MsgType 35=PI] (Auction Initial Order with the tag [AuctionType 9383=X]. Execution Report messages [MsgType 35=8] are returned with the tag [SpecialTradeInd 9459=D].

5.10 Clearing Information

Participants are able to choose the clearing assignment of their BOX trades.

5.10.1 Pre-Trade

At Order entry, Participants can flag an Order for CMTA transfer by setting the [ClearingFirm 439] to the OCC member ID and account [Account 1] of the targeted broker-dealer. Additionally, Market Makers can flag a [ClearingAccount 440] (SubAccount) which represents their Market Maker ID (MMID) at OCC.

Participants can also flag an Order for Give-Up by setting the [ExecBroker 76] to the OCC member ID that will receive the trade for clearing. Give-Ups will only be allowed between Firms having a Give-Up agreement registered and configured in BOX. If a Participant attempts to do a Give-Up for which there is no agreement with the destination firm, the Participant default clearing information is used.

'New Order Single' and 'Order Cancel/Replace Request' can set one Give-Up, one CMTA, or both. 'Auction Initial Order' can set one Give-Up or one CMTA but not both at the same time.

BOX will not validate the use of these fields any further. Consequently, improper identification of CMTA target or SubAccount by a Participant will be treated by the OCC according to their applicable policy.

5.10.2 Post-Trade

BOX provides a Post-Trade application which can be used to handle post-trade CMTA assignments and perform automatic Give-Up and Allocation of trades using a pre-configured Allocation Key or QuickID. BOX Participants can communicate with the BOX MOC to set-up their default post-trade clearing instructions via the QuickID.

Post-Trade Clearing Instructions can be activated as follows:

- Participants wishing to use their pre-configured post-trade instructions can specify the Account (Tag 1) as QuickID. The provided QuickID will then be used to look up the pre-configured SubAccount, Giveup, Allocation or CMTA and perform automatic post-trade operations.
- Alternatively, Participants wishing to use their pre-trade clearing instructions ([ClearingFirm or CMTA 439], [ClearingAccount or SubAccount 440] [ExecBroker or GiveUpFirm 76]) defined at Order/Auction entry level **must** not specify their QuickID as Account (Tag 1). The Account (Tag 1) can be used to specify the Client Account Number as long as this does not match any pre-configured QuickID.

If both the QuickID and post-clearing instructions (Tags 439, 440, 76) are specified at Order/Auction entry level, the **QuickID** has **higher precedence** (priority) on the **pre-trade** clearing instructions.

5.11 BOX Controls against the NBBO Market

Participants can control how their Orders are validated against the NBBO market using the [CombinedOrdType 7906] field in FIX. The valid values for this field are described.

1: NBBO Filtering and IML Routing - The incoming Order to BOX is controlled against the NBBO and may be routed to an away exchange. If the Order is executable at the NBBO and BOX is not at the NBBO, the Order will be exposed on BOX at the NBBO price to fill it. If it is not traded at the end of the n-second exposition phase, the Order will be routed through the Inter Market Linkage (IML) to the away exchange posting the NBBO. This is the normal setting for public customer Orders.

2: No NBBO Filtering - The incoming Order to BOX is neither controlled against the NBBO nor routed to an away exchange. The Order will be sent directly into the BOX Book where it will book or trade.

3: NBBO Filtering and no IML Routing - The incoming Order to BOX is controlled against the NBBO but not routed to an away exchange. If the Order is executable at the NBBO and BOX is not at the NBBO, the Order will be exposed on BOX at the NBBO price to fill it. If the Order is not traded at the end of the 'n-second' exposition phase, it will be rejected and sent back to the originator. This is the normal setting for PIP Initial and Proprietary Orders, other than those noted under '2' above.

Inbound ISO Order - The incoming Order to BOX, known as an Intermarket Sweep Order (ISO), is not controlled against the NBBO and not routed to an away exchange. The Order can trade in BOX through the NBBO market. The trade is reported to OPRA with a trade-through identifier.

An ISO Order is a limit IOC Order priced to trade against a Protected Quote. The Participant submitting the ISO must simultaneously send ISOs to sweep all better priced markets. BOX accepts ISOs to sweep BOX's displayed price and executes ISOs irrespective of the NBBO.

ISO Orders are identified with tag [ExecInst 18=f]. Participants should not send tag [ExecInst 18] and [CombinedOrdType 7906] together in the same Order. Orders with both tags present are rejected.

Note: **Directed Orders:** The Combined Order Type on a Directed Order should be set to the value required on the Order if it is rejected by the EP for initiation of a PIP and changed to a normal Order for BOX. Regardless of the Combined Order Type on the Directed Order, BOX will automatically set the Combined Order Type to '3' on the PIP Initial Order if the EP accepts the Directed Order to start a PIP.

The [CombinedOrdType 7906] field is used in conjunction with the field [Rule80A 47]. Please refer to the [SOLA FIX Specifications Guide](#) document to get all the possible combinations based on message type. If this field is not provided, the default value used is '3'.

Section 6 Connection Management

To establish a FIX session, follow these guidelines:

- Participants can establish FIX sessions between 7:00 a.m. and 6:00 p.m. on each trading day.
- BOX CompID is 'BOX1'.
- No encryption technique is supported.
- For Resend Request, BOX will always request all messages subsequent to the last received ([BeginSeqNo 7=first message of range], [EndSeqNo 16=0]). Any new messages received before the reception of the last requested message will be discarded.
- As BOX does not support 24-hour connectivity, new sessions must be re-established each morning.
- BOX allows having only one Participant per FIX session (or per CompID). ISVs offering a service bureau need to have a separate CompID, and therefore a separate FIX session, for each of their clients.
- For message traffic efficiency, BOX does not allow Participants to send a Heartbeat message at intervals of less than 30 seconds. Consequently, Logon messages with a value less than 30 seconds, or not equal to 0 (meaning no Heartbeat will be sent) in the [HeartBtInt 108] field are rejected.
- If a Participant does not send any message within 2 Heartbeat periods, BOX will send a Test Request message and wait for a response from the Participant. If the Participant does not respond to the Test Request within the Heartbeat period, the session will be disconnected. To summarize, if a Participant does not send any message within 3 Heartbeat periods, connection is dropped, and the Participant will need to re-connect.

Section 7 Queries

To help Participants manage and synchronize their trading database, BOX offers two types of queries: Order Mass Status and Security Definition.

7.1 Order Mass Status

The Order Mass Status query returns all Orders that were entered during the day and all open Orders from previous days for the Participant. One Execution Report [ExecTransType 20=3] is returned for each Order that has been subject to an Execution Report in the current day.

The maximum number of requests is limited to 5 per Participant per day.

7.2 Security Definition Request

When using the message type “35=c” with the “SecurityRequestType = 2”, the query returns all listed instruments on BOX. This request is generating one message per instrument. Consequently, to receive the complete list of instruments, the client should expect to receive over 1 million messages.

The maximum number of request (SecurityRequestType=2) is limited to 3 per Participant per day and they are only allowed before the market opening.

Section 8 Messaging

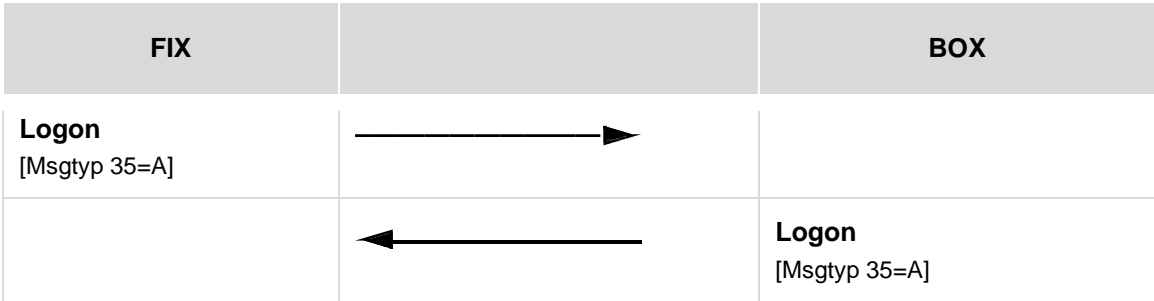
This section details the message sequencing for the FIX Protocol.

MESSAGE NAME	MSGTYPE
New Single/Complex Order	D
Cancel/Replace Single/Complex Order Request	G
Order Single/Complex Cancel Request	F
Quote Request	R
Execution Report	8
Order Single/Complex Cancel Reject	9
Quote Acknowledgement	b
Security Definition Request	c
Security Definition	d
Order Mass Status Request	AF
PIP Initial Order	PI
New Multi-Leg Order - Single	AB
Cancel/Replace Multi-Leg Order	AC
User Request	BE
User Response	BF

MESSAGE NAME	MSGTYPE
User Notification	CB
Business Message Reject	j
Logon	A
Heartbeat	0
Test Request	1
Resend Request	2
Reject	3
Sequence Reset	4
Logout	5

8.1 Connection

Initializing a FIX Connection



Terminating a FIX Connection

FIX		BOX
Logout [Msgtyp 35=5]	→	
	←	Logout [Msgtyp 35=5]

Sending a Heartbeat

FIX		BOX
Heartbeat [Msgtyp 35=0]	→	

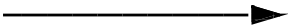

Initializing a Test Connection

FIX		BOX
Test Request [Msgtyp 35=1] [TestReqID 112=value]	→	
	←	Heartbeat [Msgtyp 35=0] [TestReqID 112=value]



Sending a Resent Request

FIX		BOX
Resend Request [Msgtyp 35=2] [BeginSeqNo 7=seqno] [EndSeqNo 16=seqno or 0]	→	
	←	Resend Original Messages [PossDupFlag 43=Y] and / or Sequence Reset [MsgType 35=4] [ResetSeqNumFlag 141=Y].

Sending a Sequence Reset

FIX		BOX
Resend Request [MsgType 35=4] [ResetSeqNumFlag 141=Y]		
		Resend Original Messages [PossDupFlag 43=Y] or Sequence Reset [MsgType 35=4] [ResetSeqNumFlag 141=Y].

Receiving a Session Level Reject

FIX		BOX
New Order [MsgType 35=D] required field missing		
		Reject [MsgType 35=3] [RefSeqNum 45=offending msg#] [Text 58=description].

8.2 Order Processing


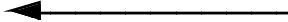
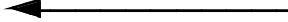

The Order Is Rejected

FIX		BOX
New Order [MsgType 35=D]	→	
	←	Execution Report [MsgType 35=8] [ExecType 150=8] [OrdStatus 39=8] [ExecTransType 20=0]


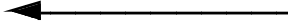
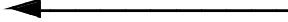

The Order Is Accepted and Fully Executed

FIX		BOX
New Order [MsgType 35=D]	→	
	←	Execution Report [MsgType 35=8] [ExecType 150=0] [OrdStatus 39=0] [ExecTransType 20=0]
	←	Execution Report [MsgType 35=8] [ExecType 150=1] [OrdStatus 39=1] [ExecTransType 20=0]
	←	Execution Report [MsgType 35=8] [ExecType 150=2] [OrdStatus 39=2] [ExecTransType 20=0]


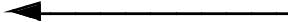
An Immediate or Cancel Order Is Partially Filled at Opening

FIX		BOX
New Order [MsgType 35=D] [TimeInForce 59=3]		
		Execution Report [MsgType 35=8] [ExecType 150=0] [OrdStatus 39=0] [ExecTransType 20=0]
		Execution Report [MsgType 35=8] [ExecType 150=1] [OrdStatus 39=1] [ExecTransType 20=0]
		Execution Report [MsgType 35=8] [ExecType 150=4] [OrdStatus 39=4] [ExecTransType 20=0]



An Immediate or Cancel Is Partially Executed in Continuous Trading

FIX		BOX
New Order [MsgType 35=D] [TimeInForce 59=3]		
		Execution Report [MsgType 35=8] [ExecType 150=0] [OrdStatus 39=0] [ExecTransType 20=0]
		Execution Report [MsgType 35=8] [ExecType 150=1] [OrdStatus 39=1] [ExecTransType 20=0]
		Execution Report [MsgType 35=8] [ExecType 150=1] [OrdStatus 39=1] [ExecTransType 20=0]



An Immediate or Cancel Order is not Executed in Continuous Trading

FIX		BOX
New Order [MsgType 35=D] [TimeInForce 59=3]		
		Execution Report [MsgType 35=8] [ExecType 150=4] [OrdStatus 39=4] [ExecTransType 20=0]

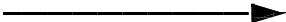

A New Order Is Sent with Possible Resend

FIX		BOX
New Order [MsgType 35=D] [PossResend 97=Y]		
		Execution Report [MsgType 35=8] [ExecType 150=0] [ExecTransType 20=0]

An Order Is Resent with Possible Resend



FIX		BOX
New Order [MsgType 35=D] [PossResend 97=Y]		
		Execution Report [MsgType 35=8] [ExecType 150=0] [ExecTransType 20=status]

8.3 Quotes Processing



FIX		BOX
Quote Request [MsgType 35=R]		
		Quote Acknowledgement [MsgType 35=b]

8.4 Modification Processing

Modification Is Rejected



FIX		BOX
Order Cancel/Replace [MsgType 35=G]		
		Order Cancel/Reject [MsgType 35=9]

Modification Is Accepted

FIX		BOX
Order Cancel/Replace [MsgType 35=G] [OrderQty 38=qty]		
		Execution Report [MsgType 35=8] [OrdStatus 39=5] [LeavesQty 38=qty]

8.5 Cancellation Processing

Cancellation Is Accepted

FIX		BOX
Cancel Request [MsgType 35=F]		
		Execution Report [MsgType 35=8] [OrdStatus 39=4]

Cancellation Is Rejected

FIX		BOX
Cancel Request [MsgType 35=F]	→	
	←	Order Cancel Reject [MsgType 35=9]

Global Cancellation of all Orders for a Member Initiated by MOC

FIX		BOX
	←	Execution Report^{1,2} [MsgType 35=8] [OrdStatus 39=4]
<p>1. Will be sent for every booked Order posted by the member.</p> <p>2. No [OrigClOrdID 41] is sent.</p>		

8.6 Trade Messages

Cancellation of a Trade Performed by MOC

FIX		BOX
	←	Execution Report [MsgType 35=8] [OrdStatus 39=4] [ExecTransType 20=1]

New Trade entered by MOC

FIX		BOX
	←	Execution Report [MsgType 35=8] [ExecTransType 20=0] [TrdType 828=M] [SpecialTradeInd 9459=L or A]

8.7 Improvement Phase Processing

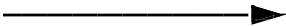

The Initial Order Is Accepted

FIX		BOX
Auction Initial Order [MsgType 35=PI]	→	
	←	Execution Report [MsgType 35=8] [OrdStatus 39=0] [Side 54=1] [ImprovePhaseId 7900 =X] ¹
	←	Execution Report [MsgType 35=8] [OrdStatus 39=0] [Side 54=2] [ImprovePhaseId 7900 =X] ¹
1. X represents the identifier of the PIP period.		


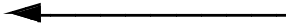
The Initial Order Is Rejected

FIX		BOX
Auction Initial Order [MsgType 35=PI]	→	
	←	Execution Report [MsgType 35=8] [OrdStatus 39=8] [Side 54=1]
	←	Execution Report [MsgType 35=8] [OrdStatus 39=8] [Side 54=2]

The Initial Order Modifies a PIP in progress

FIX		BOX
Auction Initial Order [MsgType 35=PI] [ImprovePhaseId 7900=X]		
		Execution Report [MsgType 35=8] [OrdStatus 39=0] [ImprovePhaseId 7900=X] ¹
1. X represents the identifier of the PIP period.		

Matching of the Initial Order Against Itself

FIX		BOX
		Execution Report [MsgType 35=8] [OrdStatus 39=2] [Side 54=1] [ImprovePhaseId 7900=X] ¹ [NoContraBroker 382=1] [ContraBroker 375=999]
		Execution Report [MsgType 35=8] [OrdStatus 39=2] [Side 54=2] [ImprovePhaseId 7900=X] ¹ [NoContraBroker 382=1] [ContraBroker 375=999]
Note: Both Execution Reports are sent to originator of the PIP. NoContraBroker and ContraBroker are used to report that the participant executed the trade against itself (or one of its client). 999 represent the firm's BOX Participant ID.		

Initial Order Executed Against a Regular Order and Against Itself

FIX		BOX
	←	Execution Report ¹ [MsgType 35=8] [OrdStatus 39=1] [ImprovePhaseId 7900=X] [ImprovePhaseId 7900=X] ¹ [NoContraBroker 382=1] [ContraBroker 375=999]
	←	Execution Report ² [MsgType 35=8] [OrdStatus 39=1] [ImprovePhaseId 7900=X] [ImprovePhaseId 7900=X] ¹ [NoContraBroker 382=1] [ContraBroker 375=999]
	←	Execution Report ³ [MsgType 35=8] OrdStatus 39=2 ImprovePhaseId 7900=X
	←	Execution Report ⁴ [MsgType 35=8] [OrdStatus 39=4] ImprovePhaseId 7900=X]
<p>Note: NoContraBroker and ContraBroker are used to report that the participant executed the trade against itself (or one of its client). 999 represent the firm's BOX Participant ID. The 4 Execution Report messages may not be sent on the exact Order as shown above.</p> <ol style="list-style-type: none"> 1. For the dealer side of the PIP. 2. For the MBF side of the PIP that traded against the dealer side of the PIP. 3. For the MBF side of the PIP that traded against the regular Order. 4. For the cancellation of the untraded remaining quantity on the dealer side of the PIP. This message may be sent before the execution report message(s). 		

Re-initialization of Memory Server (After a Server Failure)

FIX		BOX
	←	Execution Report⁴ [MsgType 35=8] [OrdStatus 39=4] [ImprovePhaseId 7900=X]

8.8 IML Processing

Entering an Order that Gets Exposed and then Gets Filled in BOX

FIX		BOX
New Order ⁵ [MsgType 35=D] [CombinedOrdType 7906=1]	→	
	←	Execution Report [MsgType 35=8] [OrdStatus 39=P]
	←	Execution Report [MsgType 35=8] [OrdStatus 39=2]

⁴A cancellation message is sent for each instrument for which there was an Improvement Phase at the time of the memory server failure.

⁵The price of the order may potentially cause a trade through.

**Entering an Order that Gets Exposed and Gets Routed to an Away Exchange.
The Order is Totally Traded**

FIX		BOX
New Order ⁶ [MsgType 35=D] [CombinedOrdType 7906=1]	—————▶	
	◀—————	Execution Report [MsgType 35=8] [OrdStatus 39=P]
	◀—————	Execution Report [MsgType 35=8] [OrdStatus 39=L]
	◀—————	Execution Report [MsgType 35=8] [OrdStatus 39=2]

Entering an Order that Gets Exposed and then Gets Routed to Away Exchange

Note: The Order is not Traded. (Cancelled or Timed-out).

FIX		BOX
New Order ⁷ [MsgType 35=D] [CombinedOrdType 7906=1]	—————▶	
	◀—————	Execution Report [MsgType 35=8] [OrdStatus 39=P]
	◀—————	Execution Report [MsgType 35=8] [OrdStatus 39=L]
	◀—————	Execution Report ⁸ [MsgType 35=8] [OrdStatus 39=8]







⁶The price of the order may cause a trade-through (be filled at a better price at an away exchange).

⁷The price of the order may potentially cause a trade-through.


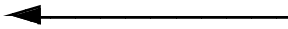


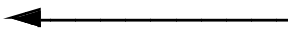
⁸The order is cancelled or not traded before the time-out period.

Entering an Order that Gets Exposed and then Gets Routed to an Away Exchange

Note: The Order is Modified by the Participant while being booked at Another Exchange. After the Modification, BOX is still Unable to fill the Order at the NBBO. Therefore, the Order gets routed an Away Market again.

FIX		BOX
New Order [MsgType 35=D] [CombinedOrdType 7906=1]		
		Execution Report [MsgType 35=8] [OrdStatus 39=P]
		Execution Report [MsgType 35=8] [OrdStatus 39=L]
Order Cancel/Replace [MsgType 35=G]		
		Execution Report [MsgType 35=8] [OrdStatus 39=P]
		Execution Report [MsgType 35=8] [OrdStatus 39=L]




Entering an Order that Gets Exposed and then Gets Routed to an Away Exchange. The Order Is Partially Traded and Re-Booked in BOX

FIX		BOX
New Order ⁹ [MsgType 35=D] [CombinedOrdType 7906=1]		
		Execution Report [MsgType 35=8] [OrdStatus 39=P]
		Execution Report [MsgType 35=8] [OrdStatus 39=L]
		Execution Report [MsgType 35=8] [OrdStatus 39=1]
		Execution Report ¹⁰ [MsgType 35=8] [OrdStatus 39=0]

⁹The price of the order may potentially cause a trade-through.

¹⁰The remaining quantity is re-booked in BOX with a new [OrderID 37] value.





Entering an Order that Gets Exposed and then Gets Booked in BOX

FIX		BOX
New Order [MsgType 35=D] [CombinedOrdType 7906=1]		
		Execution Report [MsgType 35=8] [OrdStatus 39=P]
		Execution Report¹¹ [MsgType 35=8] [OrdStatus 39=0]
<p>Note: This situation occurs when the Order is no longer causing a trade-through at the end of the exposition phase because the NBBO has changed.</p>		



¹¹Assigned a new [OrderId 37] value.

8.9 Directed/Routed Order

Sending a Routed Order that Gets Accepted and Transformed into a PIP Initial Order

FIX		BOX
New Order [MsgType 35=D] [ExecutingParticipantI D 7901=XYZ] [RoutingInst 9303=O]		
		Execution Report [MsgType 35=8] [OrdStatus 39=Q]
		Execution Report ¹² [MsgType 35=8] [OrdStatus 39=0] [ImprovePhaseId 7900=X]
		Execution Report ¹ [MsgType 35=8] [OrdStatus 39=2] [ImprovePhaseId 7900=X]

Sending a Directed Order that Gets Refused by the Executing Participant

FIX		BOX
New Order [MsgType 35=D] [ExecutingParticipantI D 7901=XYZ] [RoutingInst 9303=O]		
		Execution Report ¹³ [MsgType 35=8] [OrdStatus 39=Q]

¹²For the MBF side of the PIP initial order initiated by the Executing Participant.

¹³In response to the Directed Order.

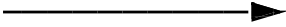

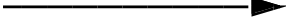

FIX		BOX
	←	Execution Report [MsgType 35=8] [OrdStatus 39=0] [ImprovePhaseId 7900=X]
	←	Execution Report ¹⁴ [MsgType 35=8] [OrdStatus 39=2]
<p>The EP is a Market Maker and has a quote booked on the dealer side of the Directed Order and his quote is executable against the Directed Order.</p>		

Canceling a Directed/Routed Order



FIX		BOX
New Order [MsgType 35=D] [ExecutingParticipantI D 7901=XYZ] [RoutingInst 9303=O]	→	
	←	Execution Report [MsgType 35=8] [OrdStatus 39=Q]
Cancel Request [MsgType 35=F]	→	
	←	Execution Report [MsgType 35=8] [OrdStatus 39=4]
<p>Note: A Directed/Routed Order may be cancelled before the Executing Participant has responded and before the time-out period.</p>		

¹⁴The Directed Order is transformed into a regular order at its original price.

Modifying a Directed/Routed Order

FIX		BOX
New Order [MsgType 35=D] [ExecutingParticipantID 7901=XYZ] [RoutingInst 9303=O]		
		Execution Report [MsgType 35=8] [OrdStatus 39=Q]
Order Cancel/Replace [MsgType 35=G] [ExecutingParticipantID 7901=XYZ] [RoutingInst 9303=O]		
		Execution Report [MsgType 35=8] [OrdStatus 39=Q]
<p>Note: A Directed/Routed Order may be modified before the Executing Participant has responded and before the time-out period.</p>		



Sending a Directed/Routed Order to an Unregistered Executing Participant or When the Executing Participant Is Not Responding (timed-out).

FIX		BOX
New Order [MsgType 35=D] [ExecutingParticipantID 7901=XYZ] [RoutingInst 9303=O]		
		Execution Report ¹⁵ [MsgType 35=8] [OrdStatus 39=0]
<p>Note: The Directed/Routed Order is transformed into a regular Order.</p>		



¹⁵In response to the Regular Order.

8.10 Complex Order Instrument Creation and Order Entry Processing



Complex Order Instrument Created as Requested

FIX		BOX
Security Definition Request [MsgType 35=c] [SecurityType 167=MLEG] <i>Including repeating leg block with tag 300 series.</i>		
		Security Definition [MsgType 35=d] [SecurityType 167=MLEG] [SecurityResponseType 323=2] [Symbol 55=Symbol of the Complex Order Instrument] <i>Including repeating leg block with tag 300 series.</i>

Complex Order Instrument Created with Modifications¹⁶


FIX		BOX
Security Definition Request [MsgType 35=c] [SecurityType 167=MLEG] <i>Including repeating leg block with tag 300 series.</i>		
		Security Definition [MsgType 35=d] [SecurityType 167=MLEG] [SecurityResponseType 323=1] [Symbol 55=Symbol of the Complex Order Instrument] <i>Including repeating leg block with tag 300 series.</i>

Complex Order Instrument Creation Request Rejected¹⁷

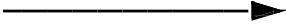

FIX		BOX
Security Definition Request [MsgType 35=c] [SecurityType 167=MLEG] <i>Including repeating leg block with tag 300 series.</i>		
		Business Message Reject [MsgType 35=j]

¹⁶A Complex Order Instrument already exists but with either: a) opposite verb (ex.: A-B exists and B+A is requested) b) ratios equivalent to the greatest common divisor (ex.: A+2B exists and 4A+8B is requested).




¹⁷One of the provided legs does not exist or is not valid; One or more field values provided in the request message is invalid.

FIX		BOX
<p>New Multi-Leg Order - Single [MsgType 35=AB] [SecurityType 167=MLEG] <i>Including repeating leg block with tag 600 series.</i></p>		
		<p>Execution Report (Rejected) [MsgType 35=8] [ExecType 150=8] [OrdStatus 39=8] [ExecTransType 20=0]</p>



Complex Order Instrument List Request

FIX		BOX
Security Definition Request [MsgType 35=c] [SecurityRequestType 321=2]		
	 One for each listed instrument	Security Definition [MsgType 35=d] [Symbol 55=Complex Order Instrument symbol or Underlying symbol for options]



Complex Order Created/Accepted (with exposure) ¹⁸

FIX		BOX
New Multi-Leg Order - Single [MsgType 35=AB] [SecurityType 167=MLEG] [CombinedOrderType =3] <i>Including repeating leg block with tag 600 series.</i>		
	 1 for the Complex Order	Execution Report [MsgType 35=8] [OrdStatus 39=P] [MultiLegRptType 442=3] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]
	 2 to 16, one for each individual leg of the Complex Order	Execution Report [MsgType 35=8] [OrdStatus 39=P] [MultiLegRptType 442=2] [Symbol 55=Symbol of the leg] [SecurityType 167=OPT]

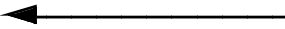


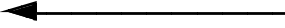
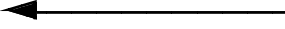
¹⁸Complex Order Instrument is created with this message or already exists.

FIX		BOX
	 1 for the Complex Order	Execution Report [MsgType 35=8] [OrdStatus 39=0] [MultiLegRptType 442=3] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]
	 2 to 16, one for each individual leg of the Complex Order	Execution Report [MsgType 35=8] [OrdStatus 39=0] [MultiLegRptType 442=2] [Symbol 55=Symbol of the leg] [SecurityType 167=OPT]



Complex Order Instrument Created/Accepted that Gets Traded (No Exposure)¹⁹

FIX		BOX
New Multi-Leg Order - Single [MsgType 35=AB] [SecurityType 167=MLEG] [CombinedOrderType =6] <i>Including repeating leg block with tag 600 series.</i>		
	 1 for the Complex Order	Execution Report (New) [MsgType 35=8] [OrdStatus 39=0] [MultiLegRptType 442=3] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]



¹⁹Complex Order Instrument is created with this message or already exists.




FIX		BOX
	 2 to 16, one for each individual leg of the Complex Order	Execution Report (New) [MsgType 35=8] [OrdStatus 39=0] [MultiLegRptType 442=2] [Symbol 55=Symbol of the leg] [SecurityType 167=OPT]
	 1 for the Complex Order	Execution Report (Partially filled) [MsgType 35=8] [OrdStatus 39=1] [MultiLegRptType 442=3] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]
	 2 to 16, one for each individual leg of the Complex Order	Execution Report (Partially filled) [MsgType 35=8] [OrdStatus 39=1] [MultiLegRptType 442=2] [Symbol 55=Symbol of the leg] [SecurityType 167=OPT]
	 1 for the Complex Order	Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [MultiLegRptType 442=3] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]
	 2 to 16, one for each individual leg of the Complex Order	Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [MultiLegRptType 442=2] [Symbol 55=Symbol of the leg] [SecurityType 167=OPT]

Complex Order Instrument Created but Order Is Rejected¹




FIX		BOX
<p>New Multi-Leg Order - Single [MsgType 35=AB] [SecurityType 167=MLEG] <i>Including repeating leg block with tag 600 series.</i></p>		
	 1 for the Complex Order	<p>Execution Report (Rejected) [MsgType 35=8] [OrdStatus 39=8] [MultiLegRptType 442=3] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]</p>
<p>1. The Complex Order Instrument is created successfully but one or more field values in the Order entry part is invalid.</p>		

Complex Order Rejected¹

FIX		BOX
<p>New Single/Complex Order [MsgType 35=D] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]</p>		
	 For the Complex Order Instrument	<p>Execution Report (Rejected) [MsgType 35=8] [OrdStatus 39=8] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]</p>
<p>1. The Complex Order Instrument must already exist prior to sending the Order.</p>		


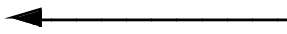



FIX		BOX
<p>New Single/Complex Order [MsgType 35=D] [SecurityType 167=MLEG] [CombinedOrderType =NOT PROVIDED] [Symbol 55=Symbol of the Complex Order Instrument]</p>		
	 For the Complex Order Instrument	<p>Execution Report [MsgType 35=8] [OrdStatus 39=P] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]</p>
	 For the Complex Order Instrument	<p>Execution Report [MsgType 35=8] [OrdStatus 39=0] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]</p>
<p>1. The Complex Order Instrument must already exist prior to sending the Order.</p>		


Complex Order Accepted (with Exposure)¹

FIX		BOX
<p>New Single/Complex Order [MsgType 35=D] [SecurityType 167=MLEG] [CombinedOrderType =NOT PROVIDED] [Symbol 55=Symbol of the Complex Order Instrument]</p>		
	 For the Complex Order Instrument	<p>Execution Report [MsgType 35=8] [OrdStatus 39=P] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]</p>
	 For the Complex Order Instrument	<p>Execution Report [MsgType 35=8] [OrdStatus 39=0] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]</p>




1. The Complex Order Instrument must already exist prior to sending the Order.





Complex Order Accepted that Gets Totally Traded (with Exposure)¹

FIX		BOX
<p>New Single/Complex Order [MsgType 35=D] [SecurityType 167=MLEG] [CombinedOrderType =3] [Symbol 55=Symbol of the Complex Order Instrument]</p>		
	 1 for the Complex Order	<p>Execution Report (New) [MsgType 35=8] [OrdStatus 39=0] [Symbol 55=Symbol of the Complex Order Instrument] [MultiLegRptType 442=3] [SecurityType 167=MLEG]</p>
	 1 for the Complex Order	<p>Execution Report (Partially filled) [MsgType 35=8] [OrdStatus 39=1] [Symbol 55=Symbol of the Complex Order Instrument] [MultiLegRptType 442=3] [SecurityType 167=MLEG]</p>
	 2 to 16, one for each individual leg of the Complex Order	<p>Execution Report (Partially filled) [MsgType 35=8] [OrdStatus 39=1] [Symbol 55=Symbol of the leg] [MultiLegRptType 442=2] [SecurityType 167=OPT]</p>
	 1 for the Complex Order	<p>Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [Symbol 55=Symbol of the Complex Order Instrument] [MultiLegRptType 442=3] [SecurityType 167=MLEG]</p>





FIX		BOX
	 2 to 16, one for each individual leg of the Complex Order	Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [Symbol 55=Symbol of the leg] [MultiLegRptType 442=2] [SecurityType 167=OPT]
1. The Complex Order Instrument must already exist prior to sending the Order.		

IOC Complex Order Instrument Created/Accepted that Gets Partially Traded (with Exposure)¹

FIX		BOX
New Multi-Leg Order - Single [MsgType 35=AB] [SecurityType 167=MLEG] [TimeInforce 59=3] [CombinedOrderType =NOT PROVIDED] <i>Including repeating leg block with tag 600 series.</i>		
	 1 for the Complex Order	Execution Report (New) [MsgType 35=8] [OrdStatus 39=0] [Symbol 55=Symbol of the Complex Order Instrument] [MultiLegRptType 442=3] [SecurityType 167=MLEG]
	 2 to 16, one for each individual leg of the Complex Order	Execution Report (New) [MsgType 35=8] [OrdStatus 39=P] [Symbol 55=Symbol of the leg] [MultiLegRptType 442=2] [SecurityType 167=OPT]

FIX		BOX
	 1 for the Complex Order	Execution Report (Partially filled) [MsgType 35=8] [OrdStatus 39=1] [Symbol 55=Symbol of the Complex Order Instrument] [MultiLegRptType 442=3] [SecurityType 167=MLEG]
	 2 to 16, one for each individual leg of the Complex Order	Execution Report (Partially filled) [MsgType 35=8] [OrdStatus 39=1] [Symbol 55=Symbol of the leg] [MultiLegRptType 442=2] [SecurityType 167=OPT]
	 1 for the Complex Order	Execution Report (Cancelled) [MsgType 35=8] [OrdStatus 39=4] [Symbol 55=Symbol of the Complex Order Instrument] [MultiLegRptType 442=3] [SecurityType 167=MLEG]
	 2 to 16, one for each individual leg of the Complex Order	Execution Report (Cancelled) [MsgType 35=8] [OrdStatus 39=4] [Symbol 55=Symbol of the leg] [MultiLegRptType 442=2] [SecurityType 167=OPT]
1. The Complex Order Instrument must already exist prior to sending the Order.		

New IOC Complex Order Accepted that Gets Partially Traded (no Exposure)²⁰

FIX		BOX
<p>New Single/Complex Order [MsgType 35=D] [SecurityType 167=MLEG] [TimeInForce 59=3] [CombinedOrderType =6] [Symbol 55=Symbol of the Complex Order Instrument]</p>		
	 For the Complex Order	<p>Execution Report (New) [MsgType 35=8] [OrdStatus 39=0] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]</p>
	 For the Complex Order	<p>Execution Report (Partially filled) [MsgType 35=8] [OrdStatus 39=1] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]</p>
	 For the Complex Order	<p>Execution Report (Cancelled) [MsgType 35=8] [OrdStatus 39=4] [Symbol 55=Symbol of the Complex Order Instrument] [SecurityType 167=MLEG]</p>




²⁰The Complex Order Instrument must already exist prior to sending the order.

8.11 Complex Order Modification Processing


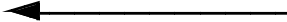
Complex Orders entered using the “AB” message type must be modified using the “AC” message type otherwise the Order Modification request is rejected.

Complex Orders entered using the “D” message type must be modified using the “G” message type otherwise the Order Modification request is rejected.

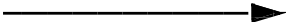

Cancel/Replace Complex Order Accepted (no Exposure)

FIX		BOX
<p>Cancel/Replace Multi-Leg Order [MsgType 35=AC] [SecurityType 167=MLEG] [CombinedOrderType =6] <i>Including repeating leg block with tag 600 series.</i></p>		
	 1 for the Complex Order	<p>Execution Report (Replaced) [MsgType 35=8] [OrdStatus 39=5] [Symbol 55=Symbol of the Complex Order Instrument] [MultiLegRptType 442=3] [SecurityType 167=MLEG]</p>
	 2 to 16, one for each individual leg of the Complex Order	<p>Execution Report (Replaced) [MsgType 35=8] [OrdStatus 39=5] [Symbol 55=Symbol of the leg] [MultiLegRptType 442=2] [SecurityType 167=OPT]</p>

Cancel/Replace Complex Order Rejected

FIX		BOX
<p>Cancel/Replace Multi-Leg Order [MsgType 35=AC] [SecurityType 167=MLEG] <i>Including repeating leg block with tag 600 series.</i> or Cancel/Replace Single/Complex Order Request¹ [MsgType 35=G] [SecurityType 167=MLEG]</p>		
	 For the Complex Order	<p>Order Single/Complex Cancel Reject [MsgType 35=9]</p>
<p>1. Original Order has been sent using a D message type.</p>		

Cancel/Replace Complex Order Request Accepted (no Exposure)

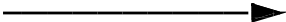


FIX		BOX
<p>Cancel/Replace Single/Complex Order Request¹ [MsgType 35=G] [SecurityType 167=MLEG] [CombinedOrderType=6]</p>		
	 For the Complex Order Instrument	<p>Execution Report (Replaced) [MsgType 35=8] [OrdStatus 39=5] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]</p>
<p>1. Original Order has been sent using a D message type.</p>		

8.12 Complex Order Cancellation Processing



Complex Orders entered using the “AB” message type must be cancelled using the “F” message type including the leg block component identical to the one in the original Order, otherwise the Order Cancellation request is rejected.

Complex Orders entered using the “D” message type must be cancelled using the “F” message type without the leg block component, otherwise the Order Cancellation request is rejected.



Complex Order Cancel Request Accepted¹

FIX		BOX
<p>Order Single/Complex Cancel Request² [MsgType 35=F] [SecurityType 167=MLEG] <i>Including repeating leg block with tag 600 series.</i></p>		
	 1 for the Complex Order	<p>Execution Report (Cancelled) [MsgType 35=8] [OrdStatus 39=4] [Symbol 55=Symbol of the Complex Order Instrument] [MultiLegRptType 442=3] [SecurityType 167=MLEG]</p>
	 2 to 16, one for each individual leg of the Complex Order	<p>Execution Report (Cancelled) [MsgType 35=8] [OrdStatus 39=4] [Symbol 55=Symbol of the leg] [MultiLegRptType 442=2] [SecurityType 167=OPT]</p>
<ol style="list-style-type: none"> 1. The field [Symbol 55] must not be provided when the repeating leg block is provided. 2. Original Order has been sent using an AB message type. 		



Complex Order Cancel Request Accepted

FIX		BOX
<p>Order Single/Complex Cancel Request¹ [MsgType 35=F] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument] <i>Repeating leg block IS NOT included.</i></p>		
	 For the Complex Order	<p>Execution Report (Cancelled) [MsgType 35=8] [OrdStatus 39=4] [MultiLegRptType 442=3] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]</p>
<p>1. Original Order has been sent using a D message type.</p>		

Complex Order Cancel Request Rejected


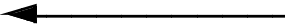
FIX		BOX
<p>Order Single/Complex Cancel Request¹ [MsgType 35=F] [SecurityType 167=MLEG] [Symbol 55 =MUST NOT BE PROVIDED] <i>Including repeating leg block with tag 600 series.</i> or Order Single/Complex Cancel Request² [MsgType 35=F] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument] <i>Repeating leg block is not provided and/or ignore.</i></p>		
	 For the Complex Order	<p>Order Single/Complex Cancel Reject [MsgType 35=9]</p>
<p>1. Original Order has been sent using an AB message type. 2. Original Order has been sent using a D message type.</p>		

**Global Cancellation of all Complex Orders for a Participant Initiated by BOX
MOC or Session Orders are Cancelled ([TimeInForce 59=W])**

FIX		BOX
	 1 for the Complex Order	Execution Report (Cancelled)^{1,2} [MsgType 35=8] OrdStatus 39=4] [MultiLegRptType 442=3] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]
	 2 to 16, one for each individual leg of the Complex Order	Execution Report (Cancelled) [MsgType 35=8] [OrdStatus 39=4] [MultiLegRptType 442=2] [SecurityType 167=OPT] [Symbol 55=Symbol of the leg]
1. Will be sent for every booked Order of the Participant. 2. No [OrigClOrdID 41] is sent.		

8.13 Complex Order Trade Messages

Cancellation of a Complex Order Trade performed by BOX MOC

FIX		BOX
	 1 for the Complex Order	Execution Report [MsgType 35=8] OrdStatus 39=4] [ExecTransType 20=1] [MultiLegRptType 442=3] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]
	 2 to 16, one for each individual leg of the Complex Order	Execution Report (Cancelled) [MsgType 35=8] [OrdStatus 39=4] [ExecTransType 20=1] [MultiLegRptType 442=2] [SecurityType 167=OPT] [Symbol 55=Symbol of the leg]

8.14 Complex Order Auction Phase Processing

The features supported and managed with the “PI” message type are: PIP, Solicitation, Facilitation and Customer Cross Order. The field [Auction Type 9383] allows Participants to specify what they want to do when they are sending “PI” message type.

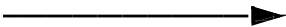



PIP Initial Complex Order messages entered for Solicitation and Facilitation auction types using the “PI” message type including the leg block component must be cancelled using the “F” message type otherwise the cancellation request is rejected.





PIP Initial Complex Order messages entered for Solicitation and Facilitation auction types using the “PI” message type not including the leg block component must be cancelled using the “F” message type without the leg block component, otherwise the cancellation request is rejected.


PIP Initial Complex Order messages entered for PIP including the leg block component must be improved using the “PI” message type including the leg block component otherwise the PIP Initial Order is rejected.

PIP Initial Complex Order messages entered for PIP not including the leg block component must be improved using the “PI” message type without the leg block component, otherwise the PIP Initial Order for the improvement is rejected.


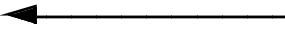
PIP Initial Complex Order Accepted and Gets Traded¹


FIX		BOX
<p>PIP Initial Order [MsgType 35=PI] [SecurityType 167=MLEG] [Symbol 55=NOT PROVIDED] <i>Including repeating leg block with tag 600 series.</i></p>		
	 1 for the Complex Order (Buy side)	<p>Execution Report (New) [MsgType 35=8] [OrdStatus 39=0] [Side 54=1] [ImprovementPhaseID 7900=X] [MultiLegRptType 442=3] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]</p>
	 2 to 16, one for each individual leg of the Complex Order (Buy side)	<p>Execution Report (New) [MsgType 35=8] [OrdStatus 39=0] [Side 54=1] [ImprovementPhaseID 7900=X] [MultiLegRptType 442=2] [SecurityType 167=OPT] [Symbol 55=Symbol of the leg]</p>
	 1 for the Complex Order (Sell side)	<p>Execution Report (New) [MsgType 35=8] [OrdStatus 39=0] [Side 54=2] [ImprovementPhaseID 7900=X] [MultiLegRptType 442=3] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]</p>

FIX		BOX
	 2 to 16, one for each individual leg of the Complex Order (Sell side)	Execution Report (New) [MsgType 35=8] [OrdStatus 39=0] [Side 54=2] [ImprovementPhaseID 7900=X] [MultiLegRptType 442=2] [SecurityType 167=OPT] [Symbol 55=Symbol of the leg]
	 1 for the Complex Order (Buy side)	Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [Side 54=1] [ImprovementPhaseID 7900=X] [MultiLegRptType 442=3] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]
	 2 to 16, one for each individual leg of the Complex Order (Buy side)	Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [Side 54=1] [ImprovementPhaseID 7900=X] [MultiLegRptType 442=2] [SecurityType 167=OPT] [Symbol 55=Symbol of the leg]
	 1 for the Complex Order (Sell side)	Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [Side 54=2] [ImprovementPhaseID 7900=X] [MultiLegRptType 442=3] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]




FIX		BOX
	 2 to 16, one for each individual leg of the Complex Order (Sell side)	Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [Side 54=2] [ImprovementPhaseID 7900=X] [MultiLegRptType 442=2] [SecurityType 167=OPT] [Symbol 55=Symbol of the leg]
1. Complex Order Instrument is created with this message or already exists		

PIP Initial Complex Order Accepted – Instrument Already Exists¹

FIX		BOX
PIP Initial Order [MsgType 35=PI] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument] <i>Repeating leg block IS NOT provided.</i>		
	 For the Complex Order (Buy side)	Execution Report (New) [MsgType 35=8] [OrdStatus 39=0] [Side 54=1] [ImprovementPhaseID 7900=X] [MultiLegRptType 442=3] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]

FIX		BOX
	 For the Complex Order (Sell side)	Execution Report (New) [MsgType 35=8] [OrdStatus 39=0] [Side 54=2] [ImprovementPhaseID 7900=X] [MultiLegRptType 442=3] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]
1. Complex Order Instrument must already exist prior to sending this message.		

PIP Initial Complex Order – Instrument Creation is Rejected¹

FIX		BOX
PIP Initial Order [MsgType 35=PI] [SecurityType 167=MLEG] [Symbol 55=NOT PROVIDED] <i>Including repeating leg block with tag 600 series.</i>		
		Execution Report (Rejected) [MsgType 35=8] [Side 54=1] [ExecType 150=8] [OrdStatus 39=8] [ExecTransType 20=0]
		Execution Report (Rejected) [MsgType 35=8] [Side 54=2] [ExecType 150=8] [OrdStatus 39=8] [ExecTransType 20=0]
1. The request to create a new Complex Order Instrument is rejected due to: a) one of the provided leg does not exist or is not valid; b) one or more field values provided in the instrument request portion is invalid.		

8.15 Directed Complex Order




Directed Complex Orders entered using the “AB” message type must be modified using the “AC” message type otherwise the Order Modification request is rejected.

Directed Complex Orders entered using the “D” message type must be modified using the “G” message type otherwise the Order Modification request is rejected.


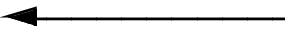


Directed Complex Orders entered using the “AB” message type must be cancelled using the “F” message type including the leg block component otherwise the Order Cancellation request is rejected.

Directed Complex Orders entered using the “D” message type must be cancelled using the “F” message type without the leg block component, otherwise the Order Cancellation request is rejected.



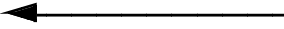

Sending a Directed Complex Order that Gets Accepted and Transformed into a PIP Initial Order²¹

FIX		BOX
<p>New Multi-Leg Order - Single [MsgType 35=AB] [ExecutingParticipantID 7901=XYZ] [SecurityType 167=MLEG] [RoutingInst 9303=O] Including repeating leg block with tag 600 series.</p>		
	 1 for the Complex Order (DO side)	<p>Execution Report (Directed) [MsgType 35=8] [OrdStatus 39=Q] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]</p>
	 2 to 16, one for each individual leg of the Complex Order (DO side)	<p>Execution Report (Directed) [MsgType 35=8] [OrdStatus 39=Q] [SecurityType 167=OPT] [Symbol 55=Symbol of the leg]</p>


²¹Complex Order Instrument is created with this message or already exists.

FIX		BOX
	 1 for the Complex Order (DO side)	Execution Report (New in PIP) [MsgType 35=8] [OrdStatus 39=0] [ImprovePhaseId 7900=X] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]
	 2 to 16, one for each individual leg of the Complex Order (DO side)	Execution Report (New in PIP) [MsgType 35=8] [OrdStatus 39=0] [ImprovePhaseId 7900=X] [SecurityType 167=OPT] [Symbol 55=Symbol of the leg]
	 1 for the Complex Order (DO side)	Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [ImprovePhaseId 7900=X] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]
	 2 to 16, one for each individual leg of the Complex Order (DO side)	Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [SecurityType 167=OPT] [Symbol 55=Symbol of the leg] [ImprovePhaseId 7900=X]

Sending a Directed Complex Order on an Existing Instrument that Gets Accepted and Transformed into a PIP Initial Order²²


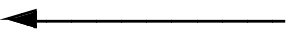
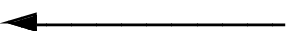

FIX		BOX
<p>New Single/Complex Order [MsgType 35=D] [SecurityType 167=MLEG] [ExecutingParticipantID 7901=XYZ] [Symbol 55=Symbol of the Complex Order Instrument] [RoutingInst 9303=O]</p>		
	 For the Complex Order (DO side)	<p>Execution Report (Directed) [MsgType 35=8] [OrdStatus 39=Q] [SecurityType 167=MLEG] [Symbol 55=Symbol of the Complex Order Instrument]</p>
	 For the Complex Order (DO side)	<p>Execution Report (New in PIP) [MsgType 35=8] [OrdStatus 39=0] [SecurityType 167=MLEG] [ImprovePhaseId 7900=X] [Symbol 55=Symbol of the Complex Order Instrument]</p>
	 1 for the Complex Order (DO side)	<p>Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [SecurityType 167=MLEG] [ImprovePhaseId 7900=X] [Symbol 55=Symbol of the Complex Order Instrument]</p>

²²The Complex Order Instrument must already exist prior to sending the Directed Order.

FIX		BOX
	 2 to 16, one for each individual leg of the Complex Order (DO side)	Execution Report (Filled) [MsgType 35=8] [OrdStatus 39=2] [SecurityType 167=OPT] [Symbol 55=Symbol of the leg] [ImprovePhaseId 7900=X]

8.16 Solicitation / Facilitation Auctions

Solicitation or Facilitation Auction Accepted and Traded

FIX		BOX
Auction Initial Order [MsgType 35=PI] [AuctionType 9383=B] for Solicitation or [AuctionType 9383=C] for Facilitation		
		Execution Report (New)¹ [MsgType 35=8] [OrdStatus 39=0] [AuctionType 9383=B or C] [ImprovementPhaseID 7900=X]
		Execution Report (New)² [MsgType 35=8] [OrdStatus 39=0] [AuctionType 9383=B or C] [ImprovementPhaseID 7900=X]
		Execution Report (Filled)¹ [MsgType 35=8] [OrdStatus 39=2] [[AuctionType 9383=B or C] [TrdType 828=B or C] [ImprovementPhaseID 7900=X]

FIX		BOX
	←	Execution Report (Filled)² [MsgType 35=8] [OrdStatus 39=2] [AuctionType 9383=B or C] [TrdType 828=B or C] [ImprovementPhaseID 7900=X]
1. For the Dealer side. 2. For the MBF side.		

Solicitation or Facilitation Auction Accepted and Cancelled

FIX		BOX
Auction Initial Order [MsgType 35=PI] [AuctionType 9383=B] for Solicitation or [AuctionType 9383=C] for Facilitation	→	
	←	Execution Report (New)¹ [MsgType 35=8] [OrdStatus 39=0] [AuctionType 9383=B or C] [ImprovementPhaseID 7900=X]
	←	Execution Report (New)² [MsgType 35=8] [OrdStatus 39=0] [AuctionType 9383=B or C] [ImprovementPhaseID 7900=X]
Order Cancel Request [MsgType 35=F]	→	
	←	Execution Report (Cancelled) [MsgType 35=8] [OrdStatus 39=4] [AuctionType 9383=B or C] [ImprovementPhaseID 7900=X]

FIX		BOX
	←	Execution Report (Cancelled) [MsgType 35=8] [OrdStatus 39=4] [AuctionType 9383=B or C] [ImprovementPhaseID 7900=X]
3. For the Dealer side. 4. For the MBF side.		

8.17 QOO Entry

FIX		BOX
Auction Initial Order [MsgType 35=PI] [AuctionType 9383=R]	→	
	←	Execution Report (New) [MsgType 35=8] [Side 54=1] [OrdStatus 39=0] [AuctionType 9383=R]
	←	Execution Report (New) [MsgType 35=8] [Side 54=2] [OrdStatus 39=0] [AuctionType 9383=R]
	←	Execution Report (Filled) [MsgType 35=8] [Side 54=1] [OrdStatus 39=2]
	←	Execution Report (Filled) [MsgType 35=8] [Side 54=2] [OrdStatus 39=2]

8.18 Indication of Interest Entry

FIX		BOX
Auction Initial Order [MsgType 35=AB] [OrdType 40=F]	→	
	←	Execution Report (New) [MsgType 35=8] [OrdStatus 39=0]

8.19 Customer Cross Order

Customer Cross Order Accepted and Traded

FIX		BOX
Auction Initial Order [MsgType 35=PI] [AuctionType 9383=X]	→	
	←	Execution Report (New) [MsgType 35=8] [Side 54=1] [OrdStatus 39=0] [AuctionType 9383=X]
	←	Execution Report (New) [MsgType 35=8] [Side 54=2] [OrdStatus 39=0] [AuctionType 9383=X]
	←	Execution Report (Filled) [MsgType 35=8] [Side 54=1] [OrdStatus 39=2] [SpecialTradeInd 9459=D]

FIX		BOX
	←	Execution Report (Filled) [MsgType 35=8] [Side 54=2] [OrdStatus 39=2] [SpecialTradeInd 9459=D]

8.20 Preferred Order Processing

Preferred Order Entered with a Market Maker


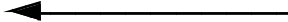
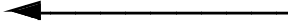
FIX		BOX
New Order [MsgType 35=D] [ExecutingParticipant 7901=XYZ] [RoutingInst 9303=P]	→	
	←	Execution Report [MsgType 35=8] [OrdStatus 39=0]

8.21 Lock-Out Indication Notification

Lock-Out due to Exceeded Limit or Initiated by MOC

FIX		BOX
	←	User Notification [MsgType 35=CB] [UserStatus 926=L or A]

Lock-Out Initiated by Participant

FIX		BOX
User Request [MsgType 35=BE] [User Request Type 924=L or O] L to request a LockOut O to cancel Orders		
		User Response [MsgType 35=BF] [User Request Type 924=L or O]
		User Notification [MsgType 35=CB] [UserStatus 926=L or A]

Appendix A Theoretical Opening Price (TOP) Calculation

A.1 Calculation

This section summarizes and demonstrates the Theoretical Opening Price (TOP) calculation process during the pre-opening phase. In the pre-opening phase, bids and offers are sent as normal. However, instead of trading immediately, Orders are simply collected by BOX to be matched only at the opening. As soon as a Market at Open Order is entered, the system will begin the calculation of the TOP. In most cases, this calculation will proceed as follows:

- The system will look for the best available price on the opposite side of the Market at Open Order(s).
- If the quantity available at this price level is not sufficient to fill all the Market at Open Orders entered, the system will look for the next best limit and add up the quantity available at this price level to the one found at the previous price level. This will go on for as long as the total quantity found is lower than the total quantity of all Market at Open Orders.
- As soon as enough quantity has been found, the system will use the last limit found as the current TOP.

A.2 TOP

At the opening, the TOP becomes the opening price. All Market at Open Orders will trade at the opening price against opposing limit Orders with a price equal or better than the TOP.

Appendix B Clearing

This section informs BOX Participants of the procedures to be followed so that information related to trades is transmitted properly to The Options Clearing Corporation (OCC). The purpose of this Appendix is not to define the clearing procedures at the OCC. Participants should communicate with their OCC Representative for all questions pertaining to the clearing procedures at the OCC.

B.1 BOX and OCC

All options traded on BOX are cleared by the OCC. As such, BOX traded options are fungible with those traded on other US equity options exchanges. All trade information is transmitted to OCC by BOX at the end of each business day and is made available to Participants on OCC Interfaces at T+1.

Clearing Identification and OCC

For options trades to be processed properly under the appropriate Clearing Member at OCC, BOX Participants must provide BOX with their OCC Clearing Member name and number.

BOX will configure this information as being the default OCC Clearing Member number.

At the Order entry level, if BOX Participants fail to specify the Clearing Member information, BOX will assign the default OCC Clearing Member number configured for the BOX Participant.

B.2 Customer and Proprietary Clearing

Pre-Trade Clearing

At the Order entry level (pre-trade), traders may specify, in the appropriate Order entry field, the clearing information for Customer and Proprietary trading, such as CMTA [ClearingFirm 439], Give-Up [ExecBroker 76], SubAccount (or MMID) [Clearing Account 440] and Account Number [Account 1]. This information will be transmitted to OCC by BOX at the end of the trading day.

If no information is provided at the Order entry level, the default OCC clearing account number configured for the CompID is used.

Trade Allocation

The CMTA and Give-Up Agreements are electronic agreements that are completed via the OCC Clearing system. Participants are offered two alternatives to effect clearing assignment of their BOX trades to their OCC Clearing Members of choice.

- At Order entry, BOX Participants using the FIX protocol should enter the CMTA information in the [ClearingFirm 439] field and their Give-Up information in the [ExecBroker 76] field.

- CMTA and Give-Up can be automatically executed through the BOX Post-Trade application. Participants wishing to use this service instead of defining their post-trading information at Order entry must contact the BOX MOC to set-up their post-trading configuration.

All CMTAs and Give-Ups are validated at OCC. Invalid CMTAs and Give-Ups are treated by OCC in accordance with their applicable policy. BOX does not verify the validity of the CMTA and Give-Up indication.