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Informational Circular

IC-2018-21

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**TO: BOX Options Participants**  
**FROM: BOX Market Operations Center**  
**SUBJECT: Upcoming Enhancements to Complex Orders**  
**DATE: September 24, 2018**

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Effective **December 10, 2018**, BOX Exchange LLC ("BOX" or the "Exchange") will offer enhanced functionality for Complex Orders trading on the Exchange. Specifically, Participants will now have the ability to create Complex Orders with up to 12 legs, and with leg ratios over 99. All other Complex Order functionality remains unchanged.

### Technical Information

#### **HSVF Protocol**

A new protocol version 'C7' will be added to support these enhancements. For the new versions of the HSVF specifications documents, please refer to the BOX website at <https://boxoptions.com/technology/trading-interface-specifications/>.

In order to receive Complex Orders with more than 4 legs and/or with leg ratios over 99, Unicast HSVF Participants must connect to version 'C7'.

Multicast HSVF Participants will be required to connect to version ('C7').

The following HSVF message types will be modified:

Message Type JS – Complex Order Instrument Keys – Up to 591 Bytes

Field Name		L	T	Definition
Message Header		11	X	Refer to Message Header
Exchange ID		1	A	Q by default
Instrument Description		30	X	Complex Order Instrument symbol. The individual legs are defined in message type NS.
Expiry Year		2	N	Expiration year of the leg of the Complex Order Instrument expiring first. Format is YY.
Delivery Month		1	A	Delivery month code of the leg of the Complex Order Instrument expiring first Refer to Month Codes
Expiry Day		2	N	Expiry day of the leg of the Complex Order Instrument expiring first
Max Number of Contracts per Order		6	X	Maximum authorized number of contracts per order Refer to Indicator Code
Min Number of Contracts per Order		6	X	Minimum authorized number of contracts per order Refer to Indicator Code
Max Threshold Price Sign		1	X	+ or - sign
Max Threshold Price		6	X	Maximum threshold price authorized for an option contract Refer to Indicator Code
Max Threshold Price Fraction Indicator		1	X	Number of decimal places or fraction positions Refer to Fraction Indicator Code
Min Threshold Price Sign		1	X	+ or - sign
Min Threshold Price		6	X	Minimum threshold price authorized for an option contract Refer to Indicator Code
Min Threshold Price Fraction Indicator		1	X	Number of decimal places or fraction positions Refer to Fraction Indicator Code
Tick Increment		6	X	Precision used when expressing the price of an order limit Refer to Tick Table (Price Fraction Rules)
Tick Increment Fraction Indicator		1	N	Defines the number of decimal places or fraction positions Refer to Fraction Indicator Code
Filler		2	X	
Group		2	X	Group of the instrument
Instrument		4	X	Code identifying the instrument
Instrument External Code		30	X	External identifier used by traders when entering an order
Complex Order Instrument Allow Implied		1	A	Complex Order Instrument support of Implied Price. N: No C: Continuous Implied S: Snapshot Implied
Number of Legs		2	N	Number of legs in the Complex Order Instrument 2 to 12
From 2 to 12 times	Leg Ratio Sign	1	X	+ : Buy the leg - : Sell The Leg
	Leg Ratio	8	N	Quantity 1 to 99999999
	Leg Symbol	30	X	Trading symbol of the leg

Message Type NS – Complex Order Summary – 116 Bytes

Field Name	L	T	Definition
Message Header	11	X	Refer to Message Header
Exchange ID	1	A	Q by default
Instrument Description	30	X	Complex Order Instrument symbol. The individual legs are defined in message type NS.
Bid Price Sign +/-	1	X	For the Bid Price field
Bid Price	6	N	Closing bid or most recent bid if sent after a cancellation
Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to Fraction Indicator Code
Bid Size	5	X	Number of contracts represented by the Bid Price. If size is greater than 99999, the 5th character becomes an exponent Refer to Indicator Code
Ask Price Sign	1	X	+ or - sign
Ask Price	6	N	Closing ask or most recent ask if sent after a cancellation
Ask Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to Fraction Indicator Code
Ask Size	5	X	Number of contracts represented by the Ask Price. If size is greater than 99999, the 5th character becomes an exponent Refer to Indicator Code
Last Price Sign +/-	1	X	For the Last Price field
Last Price	6	N	Last Trade Price for the contract or the current price if sent after a cancellation
Last Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to Fraction Indicator Code
Open Price Sign	1	X	+ or - sign
Open Price	6	N	Price of the first trade of the day
Open Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to Fraction Indicator Code
High Price Sign	1	X	+ or - sign
High Price	6	N	Highest trade price of the day or current high price if sent after a cancellation
High Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to Fraction Indicator Code
Low Price Sign	1	X	+ or - sign
Low Price	6	N	Lowest Trade Price of the day or current low price if sent after a cancellation
Low Price Fraction Indicator	1	X	Defines number of decimal or fraction positions Refer to Fraction Indicator Code
Net Change Sign	1	X	+ or - sign
Net Change	6	N	Net change = last trade price - previous close If no previous settlement price (new series) then net change is zero
Net Change Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to Fraction Indicator Code
Volume	8	X	Total number of contracts traded or current volume if sent after cancellation Refer to Indicator Code

## FIX Protocol

The following table summarizes the changes for the FIX protocol. For the new version of the FIX specifications document, please refer to BOX website at <https://boxoptions.com/technology/trading-interface-specifications/>.

Message Types	Fields	Description
AB: New Multi-Leg Order – Single AC: Cancel/Replace Multi-Leg Order PI: Auction Initial Order F: Order Single/Complex Cancel Request	555 - NoLegs	From 2 to 12
	623 - LegRatioQty	Up to 99999999
	54 - Side	Will now be optional for Complex Orders. This avoids reversing the Complex Order instrument definition when one already exists but in reverse order.
C: Security Definition Request D: Security Definition	146 - NoRelatedSym	From 2 to 12
	319 - RatioQty	Up to 99999999
All inbound and outbound messages	52 - SendingTime 60 - TransactTime	From 17 to 24  BOX will now send microseconds in these fields in the format: YYYYMMDD-HH:MM:SS.mmmuuu  Where the 'uuu' is microseconds.  Participants interested in receiving microsecond will need to contact BOX MOC to have their connections configured accordingly.

## SAIL Protocol

The following table summarizes the changes for the SAIL protocol. For the new version of the SAIL specifications document, please refer to BOX website at <https://boxoptions.com/technology/trading-interface-specifications/>.

Message Types	Description
KN: New Complex Order Instrument Acknowledgement ON: New Complex Order Instrument OT: Complex Order Auction Entry	Will accept from 2 to 12 legs for Complex Orders in the repeating group at the end each messages.

## Test Environment

Participants interested in testing these changes may do so in the BOX Test environment starting on November 5, 2018.

## Contacts

Please contact the Market Operations Center at (866) 768-8845 or by e-mail at [BOXMOC@boxoptions.com](mailto:BOXMOC@boxoptions.com) should you require additional information.