MRX Spread Depth Glimpse Feed

Version 2.02

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1. Overview

A complement to the MRX Spread Depth of Market real-time data feed product, MRX GLIMPSE for Spread Depth of Market is a point-to-point data feed connection that provides direct data feed customers with the current Depth of Book in the MRX execution system. MRX GLIMPSE for Spread Depth of Market 2.0 uses the same data formats as the MRX Spread Depth of Market data feed product.

2. Architecture

MRX GLIMPSE for Spread Depth of Market (MRX Depth)is a point-to-point data feed product comprised of a series of sequenced messages. Each message is variable in length based on the message type. The messages that make up the MRX GLIMPSE for Spread Depth of Market (MRX Depth) 2.0 protocol are typically delivered using a higher level protocol that takes care of sequencing and delivery guarantees.

MRX currently offers the Options GLIMPSE data feed in the SoupBinTCP protocol option only. Please note that GLIMPSE users must login to SoupBinTCP for sequence 1 to correctly receive data.

3. Data Types

All Alpha or Alphanumeric fields are left justified and padded on the right with spaces.

All Integer fields are unsigned big-endian (network byte order) binary encoded numbers unless otherwise specified. Integers may be 1, 2, 4 or 8 bytes long.

Prices are 2 byte or 4 byte Integer fields. 2 byte Price fields are unsigned positive numbers. 4 byte Price fields are signed numbers. When a 4 byte price is converted to a decimal format, prices are in fixed point format with 6 whole number places followed by 4 decimal digits. When a 2 byte price is converted to a decimal format, prices are in fixed point format with 3 whole number places followed by 2 decimal digits.

Negative prices will be indicated with a negative integer at the start of the price field

4. Message Formats

This feed supports the following types of messages:

- System Events
- Complex Strategy Directory Message
- Strategy Trading Action Message
- Announcements of new resting orders in the book
- Glimpse Snapshot message that reflects MRX Spread Depth sequence number at the time that the MRX GLIMPSE spin was requested

Within the system event and administrative types, the options system may support multiple message formats as outlined below.

4.1.   System Event Message

The system event message type is used to signal a market or data feed handler event. The format is

as follows:

System Event Message

Name	Offset	Length	Value	Notes
Message Type	0	1	Alpha	"S" = System Event Message
Tracking Number	1	2	Integer	Internal system tracking number
Timestamp	3	8	Integer	Nanoseconds since midnight.
Event Code	11	1	Alpha	Refer to System Event Codes below

System Event Codes

Code	Explanation	When (typically)
"O"	Start of Messages. This is always the first message sent in any trading day.	After ~12:30am
"S"	Start of System Hours. This message indicates that the options system is open and ready to start accepting orders.	After Start of Messages and before Start of Currency Opening Process
"Q"	Start of Opening Process. This message is intended to indicate that the options system has started its opening auction process.	9:30:00am
"N"	Start of Normal Hours Closing Process. This message is intended to indicate that the options system will no longer generate new executions for options that trade during normal hours.	4:00:00pm
"L"	Start of Late Hours Closing Process. This message is intended to indicate that the options system will no longer generate new executions for options that trade during extended hours.	4:15:00pm
"E"	End of System Hours. This message indicates that the options system is now closed.	~5:15pm
"C"	End of Messages. This is always the last message sent in any trading day.	~5:20pm
"W"	End of WCO Early closing. This message is intended to indicate that the exchange will no longer accept any new orders or changes to existing Orders on last trading date of WCO options.	12:00 Noon

4.2.   Administrative Messages

4.2.1.   Complex Strategy Directory Message

Whenever a complex order is added in the system for an underlying, the order is normalized and results in either the creation of a new complex strategy or is added to an existing strategy. A Complex Order Strategy Message containing the strategy definition will be sent. For GTC strategies, these will be assigned each trading day and will not be persistent across trading days. The Strategy ID assigned for a new complex strategy is unique for a particular complex instrument for a trading session. However, Strategy IDs are independent of session Options IDs and uniqueness of the IDs across both complex and simple options is not guaranteed.

- The Underlying Symbol is in most cases the same as the industry standard ticker underlying. In rare cases, such as a special settlement symbol, the exchange assigns unique underlying symbols.
- If an Option is removed from the system intra-day, a new options directory message will be sent with "Tradable" field set to "N". Any Quotes sent for this removed Option will be rejected. All existing quotes for this option will be purged.

Name	Offset	Length	Value	Notes
Message Type	0	1	Alpha	"N" = Directory Message
Tracking Number	1	2	Integer	Internal System Tracking Number
Timestamp	3	8	Integer	Nanoseconds since midnight
Strategy ID	11	4	Integer	Option ID assigned daily. Valid for trading day
Strategy Type	15	1	Alphanumeric	"V" = Vertical Spread "T" = Time Spread "D" = Diagonal Spread "S" = Straddle "G" = Strangle "C" = Combo "R" = Risk Reversal "A" = Ratio Spread "B" = Box Spread "F" = Butterfly Spread "U" = Custom
Underlying Symbol	16	13	Alphanumeric	Underlying Symbol for the strategy. All legs in this strategy belong to this Underlying
Number of legs	29	1	Integer	Number of legs in the strategy Legs NOTE: Leg field offsets below are an equation, where "n" is the zero based leg number (0, 1, …)
Option ID	$23n + 30$	4	Integer	Option ID for this leg, valid for the trading day. The same ID as the corresponding Option in the Options Directory Message. Zero (0) for Stock Leg.
Security Symbol	$23n + 34$	6	Alphanumeric	Denotes the option root symbol (security symbol)
Expiration Year	$23n + 40$	1	Integer	Last two digits of the year of the option expiration
Expiration Month	$23n + 41$	1	Integer	Expiration Month of the option (1-12)
Expiration Day	$23n + 42$	1	Integer	Day of the Month of expiration (1-31)
Explicit Strike Price	$23n + 43$	4	Integer	Explicit strike price. Refer to Data Types for field processing notes. Zero (0) for Stock Leg.
Option Type	$23n + 47$	1	Alpha	"C" = Call option "P" = Put option Blank (" ") for Stock Leg.
Side	$23n + 48$	1	Alpha	Indicates the side of the leg: "B" = Leg is on Buy side "S" = Leg is on Sell side
Leg Ratio	$23n + 49$	4	Integer	Leg Ratio

Leg Information, legs repeated. N=0, (applies to the Option ID through Leg Ratio rows)

4.2.2. Strategy Trading Action Message

The options system uses this administrative message to indicate the current trading status of an index or equity option within the options market.

Prior to the start of system hours, the options system will send out a Trading Action message. The options system will send out a Trading Action message with the "T" (Trading Resumption) for all options contracts that are eligible for trading at the start of the options market system hours. If a security is absent from the pre-opening Trading Action spin, firms should assume that the security is being treated as halted in the options platform at the start of the system hours. Securities may be halted in the options system for regulatory or operational reasons.

After the start of system hours, the options system will use the Trading Action message to relay changes in trading status for an individual security. Messages will be sent when an option is halted or is released for trading.

Note: Complex strategies can remain crossed after an "Open" status has been disseminated via a Trading Action Message. When a complex strategy is crossed prior to opening and a valid opening price cannot be found, the strategy will move to an Open state and attempt order book uncrossing at valid prices on a best effort basis.

Strategy Trading Action Message

Name	Offset	Length	Value	Notes
Message Type	0	1	Alpha	"H" = Trading Action
Tracking Number	1	2	Integer	Internal System Tracking number
Timestamp	3	8	Integer	The time, expressed as the number of nanoseconds after midnight.
Strategy ID	11	4	Integer	Integer ID of the Strategy, as defined in the Complex Strategy Message.
Current Trading State	15	1	Alpha	Reflects the current trading state for the options security in the options market. The allowable values are: "H" = Halt in effect "T" = Continuous Trading "I" = Pre Open "O" = Opening Auction "R" = Re-Opening "X" = Closed

4.3. Add Order Message

An Add Order Message indicates that a new order has been accepted by the Nasdaq MRX system and was added to the displayable book. The message includes a day-unique Order Reference Number used by MRX to track the order. For bandwidth efficiency reasons, this message can be published in either short or long format.

Add Order Message – Short Form

Name	Offset	Length	Value	Notes
Message Type	0	1	Alpha	"f" = Add Order Message
Tracking Number	1	2	Integer	Internal system tracking number
Timestamp	3	8	Integer	The time, expressed as the number of nanoseconds after midnight.
Strategy ID	11	4	Integer	Integer ID of the Strategy, as defined in the Complex Strategy Message.
Order Reference Number	15	8	Integer	The unique reference number assigned to the new order. The order reference number is Increasing, but not necessarily sequential.
Side	23	1	Alpha	Indicates the side of the order: "B" = buy "S" = sell "O" = Buy Market "P" = Sell Market When Side = O or P price can be ignored
Order Capacity	24	1	Alpha	"C" = Customer Order "F" = Firm Order "M" = Nasdaq registered Market Maker "B" = Broker Dealer Order "P" = Professional Order "O" = Other exchange registered market maker

Add Order Message – Short Form

Name	Offset	Length	Value	Notes
Price	25	2	Integer	The display price of the new order being added to the book. The price will be zero for market orders NOTE: When converted to a decimal format, this price is in fixed point format with 3 whole number places followed by 2 decimal digits.
Volume	27	2	Integer	The total quantity of the new order being added to the book

Add Order Message – Long Form

Name	Offset	Length	Value	Notes
Message Type	0	1	Alpha	"F" = Add Order Message
Tracking Number	1	2	Integer	Internal system tracking number
Timestamp	3	8	Integer	The time, expressed as the number of nanoseconds after midnight.
Strategy ID	11	4	Integer	Integer ID of the Strategy, as defined in the Complex Strategy Message.
Order Reference Number	15	8	Integer	The unique reference number assigned to the new order. The order reference number is Increasing, but not necessarily sequential.
Side	23	1	Alpha	Indicates the side of the order: "B" = buy "S" = sell "O" = Buy Market "P" = Sell Market When Side = O or P price can be ignored
Order Capacity	24	1	Alpha	"C" = Customer Order "F" = Firm Order "M" = Nasdaq registered Market Maker "B" = Broker Dealer Order "P" = Professional Order "O" = Other exchange registered market maker
Price	25	4	Integer	The display price of the new order being added to the book. The price will be zero for market orders NOTE: When converted to a decimal format, this price is in fixed point format with 6 whole number places followed by 4 decimal digits.
Volume	29	4	Integer	The total quantity of the new order being added to the book

5. Glimpse Snapshot for Spread Depth of Market Feed

The Snapshot message reflects the MRX Options Spread Depth of Market sequence number at the time that the MRX GLIMPSE spin was requested.

To maintain a real-time order display, firms should begin to process real-time MRX Depth messages beginning with the sequence number stated in this MRX GLIMPSE snapshot message.

Snapshot Message

Name	Offset	Length	Value	Notes
Message Type	0	1	Alpha	"M" = End of Snapshot Message
Sequence Number	1	20	Numeric	Spread Depth of Market Feed sequence number when the Glimpse snapshot was taken. To keep the stream current, process the Spread Depth of Market Feed messages beginning with the message sequence number in this snapshot message. Note: While Spread Depth of Market Feed is a binary data feed, the SoupBINTCP protocol uses ASCII characters for the sequence number in the logon request message format.

6. Support

- For general product support for Nasdaq data feeds, please contact Nasdaq Market Data at clientsuccess@nasdaq.com.
- For technical support for Nasdaq data feeds, please contact Nasdaq Systems Engineering at OptionsHelpDesk@nasdaq.com.

7. Document History

Revision	Published	Author(s)	Summary of Changes
Version 2.0	March 16, 2022		• Initial Draft
Version 2.01	June 16, 2022		• Edits to table of contents and section formats and add page breaks to each section. • Language edits to the overview section. • Complex Strategy Message Updates: o Butterfly Spread enumeration from "Y" to "F" in the Strategy Field o Notes to Expiration Month Field o Notes to Explicit Strike Price Field to indicate Zero (0) for Stock Leg o Removed "N" = N/A enumeration from Option Type Field and added Blank (" ") = Stock Leg o Correction to offsets starting with Explicit Strike Price Side fields o Updated the "O" and "P" enumerations on the Add Order Message (Short & Long Form) Side Field.
Version 2.02	January 9, 2023		• Version updated to 2.02 • Clarifying the Data Types: Added "2 byte Price Fields are unsigned positive numbers. 4 byte Price fields are signed positive numbers."
Version 2.02	April 6, 2023		• Corrected the Data Types: Changed "4 byte price fields are signed positive numbers." to "4 byte price fields are signed numbers".