

# MRX AND ISE Spread Top of Market Glimpse Feed

Version 2.02

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## 1. Overview

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

## 2. Architecture

MRX AND ISE GLIMPSE for Spread Top of Market (MRX AND ISE Top) 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 AND ISE GLIMPSE for Spread Top of Market (MRX AND ISE Spread Top) protocol are typically delivered using a higher level protocol that takes care of sequencing and delivery guarantees.

MRX AND ISE 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 Messages
- Strategy Trading Action Messages
- Best bid and offer updates
- Glimpse Snapshot message

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 Strategy Directory 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.

### Complex Strategy Message

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

## Complex Strategy Message

Name	Offset	Length	Value	Notes	
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, ...)	
Leg Information, legs repeated. N=0,	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	

### 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.

Whenever a strategy is created and assigned a Strategy ID, MRX AND ISE will send a Strategy Trading Action Message with current trading state "T" (Trading) or "H" (Halted) soon after the Complex Strategy directory message is sent. Trading firms should assume that all strategies are eligible for trading. MRX AND ISE will send out a Trading Action message with "H" (HALTED) when a strategy is halted for trading. Thereafter throughout the trading day the Trading Action message is used to relay changes in trading status for the strategy. Messages will be sent when the strategy is halted or is released for trading.

#### 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	Nanoseconds since midnight
Strategy ID	11	4	Integer	Integer ID of the Strategy, as defined in the Complex Strategy Message.
Current Trading State	15	1	Alphabetic	Reflects the current trading state for the State derivative. The allowable values are: "H" = Halt in effect "T" = Continuous Trading "I" = Pre-Open "O" = Opening Auction "R" = Re-Opening "X" = Closed

### 4.3. Strategy Best Bid AND Ask Update

The options system will continuously calculate its best bid and ask position for active strategies on the options market during the trading day. Whenever the best bid and ask position changes on both sides, the options system will send its best bid and ask update via the data feed for the affected security. A change in bid or ask implies a change in price and/or sizes. The quote will reflect the highest price displayable in the options system for buy orders and the lowest price displayable in the options system for sell orders. Customer and ProCust sizes are displayed as well.

If only one side of the quote changes, Best Bid OR Ask Update message will be sent for bandwidth efficiency reasons. The Quote Condition applies to both the bid and ask sides.

#### Best Bid AND Ask Update

Name	Offset	Length	Value	Notes
Message Type	0	1	Alpha	"E" = Best bid AND ask update
Tracking Number	1	2	Integer	Internal system tracking number
Timestamp	3	8	Integer	Nanoseconds since midnight
Strategy ID	11	4	Integer	Integer ID of the strategy, as defined in the Strategy Directory Message.
Quote Condition	15	1	Alpha	<space> = regular quote/autox eligible
Bid Market Size	16	4	Integer	The aggregate market size on Bid side.
Bid Price	20	4	Integer	Best bid price in fixed point format with 6 whole number places followed by 4 decimal digits
Bid Size	24	4	Integer	Aggregated number of contracts on the bid side being displayed in the options market at the current time. Does not include the market size.
Bid Cust Size	28	4	Integer	Customer quantity on the bid side.
Bid ProCust Size	32	4	Integer	Customer professional quantity on the bid side.
Bid DNTT Size	36	4	Integer	Aggregated Bid DNTT (Do not Trade Through) Limit Size
Bid DNTT Market Size	40	4	Integer	The aggregated DNTT (Do Not Trade Through) Market Size on Bid Size.
Ask Market Size	44	4	Integer	Aggregate market quantity on Ask side.
Ask Price	48	4	Integer	Best ask price in fixed point format with 6 whole number places followed by 4 decimal digits
Ask Size	52	4	Integer	Aggregated number of contracts on the ask side being displayed in the options market at the current time. Does not include the market size.
Ask Cust Size	56	4	Integer	Customer quantity on the ask side.
Ask ProCust Size	60	4	Integer	Customer professional quantity on the ask side.
Ask DNTT Size	64	4	Integer	Aggregated Ask DNTT (Do not Trade Through) Limit Size
Ask DNTT Market Size	68	4	Integer	The aggregated DNTT (Do Not Trade Through) Market Size on Ask Size.

### 4.4. Strategy Best Bid OR Ask Update

The options system will continuously calculate its best bid and offer position for active strategies on the options market during the trading day. Whenever the best bid or ask position changes on one side but not the other side, the options system will send its best bid or ask update via this feed for the affected security. A change in bid or ask implies a change in price and/or size. The quote will reflect the highest price displayable in the options system for buy orders/quotes and the lowest price displayable in the options system for sell orders/quotes.

For the bid or ask update received, the data feed recipient firm should adjust the quotation bid or ask side only for the market side indicated in the message. Implicitly the opposite side has the same price and size as previously displayed.

If both bid and ask change as one update, the Best Bid AND Ask Update message will be sent, displaying both sides of the quote simultaneously.

#### Best Bid OR Ask Update Message

Name	Offset	Length	Value	Notes
Message Type	0	1	Alpha	Strategy Best bid OR ask update: "c" = Quote update bid side "d" = Quote update ask side
Tracking Number	1	2	Integer	Internal system tracking number
Timestamp	3	8	Integer	Nanoseconds since midnight
Strategy ID	11	4	Integer	Integer ID of the strategy, as defined in the Strategy Directory Message.
Quote Condition	15	1	Alpha	<space> = regular quote/autox eligible
Market Size	16	4	Integer	The aggregate market size on Bid or Ask side.
Price	20	4	Integer	Best bid or ask price in fixed point format with 6 whole number places followed by 4 decimal digits
Size	24	4	Integer	Aggregated number of contracts on the bid or ask side being displayed in the options market at the current time. Does not include the market size.
Cust Size	28	4	Integer	Customer quantity on the bid or ask side.
ProCust Size	32	4	Integer	Customer professional quantity on the bid or ask side.
DNTT Size	36	4	Integer	Aggregated DNTT (Do Not Trade Through) Limit Size
DNTT Market Size	40	4	Integer	The aggregated DNTT (Do Not Trade Through) Market Size on Bid or Ask Size.

## 5. Glimpse for Top of Market Spread Feed

The Snapshot message reflects the MRX AND ISE Options Spread Top of Market (MRX AND ISE Top) sequence number at the time that the MRX AND ISE Options GLIMPSE for MRX AND ISE Spread Top of Market spin was requested.

To maintain a real-time order display, firms should begin to process real-time MRX AND ISE Options Top of Market messages beginning with the sequence number stated in this MRX AND ISE Options GLIMPSE for MRX AND ISE Top of Market snapshot message

#### Snapshot Message

Name	Offset	Length	Value	Notes
Message Type	0	1	Alpha	"M" = End of Snapshot Message
Sequence Number	1	20	Numeric	Top of Market Spread Feed sequence number when the Glimpse snapshot was taken. To keep the stream current, process the Top of Market Spread Feed messages beginning with the message sequence number in this snapshot message.  Note: While Top of Market Spread 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](mailto:Clientsuccess@nasdaq.com).

## 7. Document History

Revision	Published	Author(s)	Summary of Changes
Version 2.0	March 16, 2022		<ul style="list-style-type: none"><li>• Initial Draft</li><li>• Complex Strategy Message Updates:<ul style="list-style-type: none"><li>– Butterfly Spread enumeration from “Y” to “F” in the Strategy Field</li><li>– Notes to Expiration Month Field</li><li>– Notes to Explicit Strike Price Field to indicate Zero (0) for Stock Leg</li></ul></li></ul>
Version 2.01	June 16, 2022		<ul style="list-style-type: none"><li>– Removed “N” = N/A enumeration from Option Type Field and added Blank (“ ”) = Stock Leg</li><li>– Correction to offsets starting with Explicit Strike Price Side fields</li><li>• Correction to Bid NTT Market Size and Ask NTT Market Size Field name to DNTT for Do Not Trade Through on Best Bid AND Ask Update Message and Best Bid OR Ask Update Message. Notes updated accordingly.</li></ul>
Version 2.02	January 9, 2023		<ul style="list-style-type: none"><li>• Version updated to 2.02</li><li>• Clarifying the Data Types: Added “2 byte Price Fields are unsigned positive numbers. 4 byte Price fields are signed positive numbers.”</li></ul>
Version 2.02	April 6, 2023		<ul style="list-style-type: none"><li>• Corrected the Data Types: Changed “4 byte price fields are signed positive numbers” to “4 byte price fields are signed numbers”</li></ul>
Version 2.02	April 1, 2024		<ul style="list-style-type: none"><li>• ISE will adopt Spread Top of Market Glimpse v2.02 during the replatform scheduled to complete September 23,2024</li></ul>