

MIAX Futures Onyx

Futures Express Interface Binary Orders for Trading Futures

FEI Interface Specification

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Table of Contents

Table of Contents.....	1
1 Overview	2
1.1 Exchange related information	3
1.1.1 Hours of operation for MIAX Futures Onyx Trading Platform	3
1.1.2 Obtaining more information	3
1.2 FEI Architecture	4
1.3 Certification for trading via FEI.....	4
1.4 Hot Topics	5
1.5 Data Types	7
1.6 Configuration	7
2 Session Management Messages.....	8
3 Application Messages.....	8
3.1 Liquidity Messages	8
3.1.1 New Order Request.....	8
3.1.2 New Order Response	12
3.1.3 Modify Order Request	14
3.1.4 Modify Order Response	18
3.1.5 Cancel Order Request.....	19
3.1.6 Cancel Order Response.....	21
3.1.7 Mass Cancel Request	22
3.1.8 Mass Cancel Response	24
3.1.9 Strategy Creation Request	25
3.1.10 Strategy Creation Response.....	26
3.2 Notifications	28
3.2.1 System State Notification	28
3.2.2 New Order Notification	29
3.2.3 Modify Order Notification	30
3.2.4 Reserve Order Replenishment Notification.....	32
3.2.5 Cancel/Reduce Size Order Notification.....	33
3.2.6 Order Status Update Notification.....	35
3.2.7 Simple Execution Notification.....	36
3.2.8 Complex Execution Notification.....	38
Appendix A: Contact List	40
Appendix B: Revision History.....	41

1 Overview

Futures Express Interface (**FEI**) is a messaging interface that MIAX Futures Exchange members and sponsored firms use to submit binary orders for trading on the MIAX Futures Onyx Trading Platform.

FEI Features:

FEI messaging and the system architecture is designed for low latency and high throughput messaging. Some of the key features of the interface are:

- FEI is a gateway interface that provides clients order entry capabilities to a single MIAX Futures Onyx Matching Engine.
- FEI uses binary numeric fields, fixed length ASCII fields and bit fields in order to utilize bandwidth efficiently and assist in achieving **low latency**.
- FEI requires the use of TCP IP protocol in order to provide a **guaranteed delivery** mechanism for the order packets. Order acknowledgements and Order Cancel acknowledgements come directly from the Matching Engine allowing for **enhanced determinism** of delivery and processing.
- Message formats are designed to use **minimal bandwidth**. Use of Instrument IDs in place of a full canonical symbol is an example.
- FEI allows Auto Cancel on Disconnect on each session thereby allowing firms to reduce their risk in case of system problems at their end.
- FEI also allows Auto Cancel on System/Matching Engine Failure on each session allowing firms to reduce their risk in case of MIAX Futures Onyx system failures that prevent Firm's interaction with existing orders.
- Orders entered via FEI are provided the following risk protection mechanisms:
 - Per Order Risk Metrics
 - Maximum Order Size Protection
 - Minimum and Maximum Order Price Protection
 - Price Tick Size Check
 - Market Order Reject/Stop Market Order Reject
 - Accepted Futures Product List
 - Extended 1 Trading Session Restriction
 - Extended 2 Trading Session Restriction
 - Cumulative Risk Metrics
 - Credit Risk Metrics
 - Total Gross Traded and Open Credit Exposure Protection
 - Buy Side Traded and Open Credit Exposure Protection
 - Sell Side Traded and Open Credit Exposure Protection
 - Order Rate and Duplicate Order Checks
 - Duplicate Order Check
 - Order Rate Protection
 - Trade Risk Metrics
 - Trading Collar
 - Self-Trade Protection

- Daily Trading Limit
 - Note: Above protections are available to all Trading Participants that use FEI
- FEI provides order event and system state notifications allowing the firms to take necessary actions immediately.

This specification is intended to be used only by MIAX Futures Exchange member firms and the firms that are sponsored for MIAX Futures Exchange access by MIAX Futures Exchange member firms. Members are encouraged to refer to MIAX Futures Onyx User’s Manual for additional details on functionalities supported by the exchange.

1.1 Exchange related information

1.1.1 Hours of operation for MIAX Futures Onyx Trading Platform

Please visit the [MIAX Website](#) for details about times for each of these periods. Please note that all times are Eastern Time.

Note: Times specified in the website are in United States Eastern Time zone.

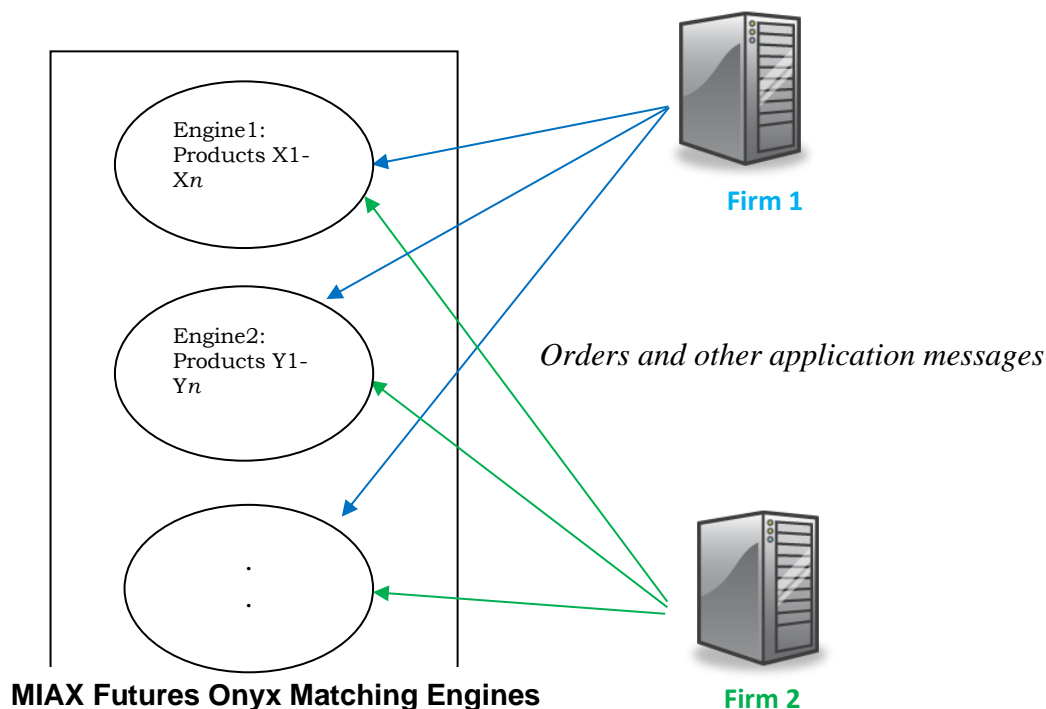
5:40 pm ET	End of Recycle Window Firms are allowed to connect to FEI. Firms are able to download Instrument Definitions via Market Data Feeds.
5:45 pm ET	Live Order Window (LOW) Start of acceptance of messages (including Orders). Orders received at or after this time can be accepted by MIAX Futures Onyx.
5:05 pm ET	Beginning of Recycle Window (ends at 2:05 pm ET on early closing days) FEI has completed sending all messages and Firms will be disconnected.

Please refer to the [MIAX Website](#) for details about times for each of these events/periods as well as Product specific trading schedules.

1.1.2 Obtaining more information

Information such as (but not limited to) membership, rules, fees and support can be obtained by sending an email to Trading Operations at MIAXFuturesTradingOperations@MIAXGlobal.com or by visiting the [MIAX website](#)

1.2 FEI Architecture



Highlights:

- MIAX Futures Onyx trading architecture is highly scalable and consists of multiple Matching Engines. Each Matching Engine handles trading for a set of Instrument IDs. The Instrument sets may not be contiguous ranges of Instruments and could be organized in any manner as assigned by the exchange. For the most part, the Instrument ID assignments will be static in terms of allocation to a Matching Engine. However, if reallocation of Instruments across various Matching Engines is needed, such changes would be communicated to the firms with ample notice prior to the actual implementation.
- Firms can connect to one or more pre-assigned servers that host their FEI instances and segment their order entry messages across these instances.
- This architecture offers low latency, high throughput, narrow fault domains and high degree of resiliency for Firm's order entry messages.

1.3 Certification for trading via FEI

Please contact MIAX Trading Operations to obtain more information about certification testing and the details about the test environment.

When the Firms are ready with their application, they must certify their application with the MIAX Futures Exchange. This certification testing is a manual process. In order to schedule a certification test, please email MIAX Trading Operations.

1.4 Hot Topics

Membership: Contact MIAX Member services for details about MIAX Futures Exchange membership. As part of the on-boarding process, each Trading Participant will be provided Exchange-assigned MPIDs that can be used for order entry on a FEI session. Firms are allowed to use any of these MPIDs to send orders via the session after the permission is setup.

Live Order Window (LOW): Official order acceptance starts at 5:45 pm ET. Any Orders entered before that time will be rejected. Orders received and accepted after 5:45 pm ET will be in-play for opening and trading.

Data feeds: MIAX Futures Onyx has several value-adding data feeds. Details of the feeds and their content can be obtained by visiting the [MIAX website](#) or emailing Trading Operations.

Instrument management: The list of all Instrument IDs that can be traded per Matching Engine via FEI will be available through DOM and TOM feeds, additionally it will also be available through FXD feed. The MIAX Futures Onyx assigned Instrument ID of each Instrument will be sent in every order message so that firms can tie each message to an Instrument ID.

Flow control: FEI is a synchronous messaging interface that supports an “N”-in-flight paradigm to the Matching Engine. Upon receipt of “N” binary orders, FEI will not read the firm facing order entry ports until it sends out a response. Firms that do not strictly follow a “N”-in-flight paradigm are advised to limit the number of in-flight liquidity blocks to less than 20 for optimal TCP protocol performance; i.e. under certain limited circumstances, exceeding this limit could result in shrinking window size and/or dropped packets. For more information regarding the in-flight settings, please reach out to MIAX Trading Operations.

Self-Trade Protection: MIAX Futures Onyx offers Self-Trade Protection that firms can use to better manage their order flow and prevent unintended executions with their own orders. Firms can specify Self-Trade Protection instructions on individual orders or at the session/port level.

Port Setup: Trading Participants have flexibility in setting up FEI ports to cater to their architecture.

Backup Ports: Firms will be assigned backup FEI ports on backup infrastructure. These are slated to be used in the event of failure of primary FEI infrastructure. These backup FEI ports will not accept any messages while operating in the backup mode and are solely used for connection verification while in this mode. Note that these backup ports will have separate IP addresses than the primary ports.

Auto-Cancel on Disconnect (ACOD): In the event a Trading Participant’s session with the exchange is disconnected, orders submitted via that session that are open on the Order Book can be canceled automatically upon disconnect.

Trading Participants must select one of the following actions on a session by session basis which will be enforced when the protection is triggered:

- Cancel All Non GTC/GTD Open Orders: All Non-GTC/GTD Open orders that were sent through this session and are open will be canceled upon session disconnect.

- Do Not Cancel All Non GTC/GTD Open Orders: This will disable Auto Cancel on Disconnect and MIAx Futures Onyx will not cancel any open orders upon that session's disconnect. This is the default behavior for the session if the Trading Participant does not opt in for ACOD.

When FEI detects a disconnect for any reason (whether due to graceful logout, a connection loss or loss of heartbeats), it will trigger the auto cancel on disconnect process, whereby FEI will try to cancel all eligible orders (eligibility defined above).

The ACOD feature is provided on a best effort basis. Executions can occur while FEI is processing the ACOD event. As the technical circumstances initiating a disconnect may vary, Firms may contact Trading Operations to confirm the status of ACOD eligible open orders remaining at MIAx Futures Onyx that were sent via the session(s) that disconnected. The cancel and execution notifications resulting from cancels or trades during the disconnect can also be received upon a subsequent reconnect by the Firm on the same day.

Auto-Cancel on System/Matching Engine Failure (ACOSF): In the event of a Matching Engine or FEI failure that prevents Firm's interaction with existing orders, Trading Participants may request that their open orders are canceled automatically for a given session. Orders submitted via any of the Trading Participant's other sessions will not be affected. Additionally, orders submitted to any Matching Engines that are not impacted will not be affected.

Trading Participants must select one of the following actions on a session by session basis which will be enforced when the protection is triggered:

- Cancel All Non GTC/GTD Open Orders: All Non-GTC/GTD open orders in the impacted Matching Engine(s) that were sent through this session will be canceled upon system failure.
- Do Not Cancel All Non GTC/GTD Open Orders: This will disable Auto Cancel on System Failure and MIAx Futures Onyx will not cancel any open orders from that session upon system failure. This is the default behavior for the session if the Trading Participant does not opt in for ACOSF.

The ACOSF feature is provided on a best effort basis. Executions can occur while the ACOSF event is being processed. As the technical circumstances initiating an ACOSF may vary, Firms are advised to contact Trading Operations to confirm the status of ACOSF eligible open orders remaining at MIAx Futures Onyx. The cancel and execution notifications resulting from cancels or trades during the failure can also be received upon a subsequent reconnect by the Firm on the same day.

Executions/Busts/Adjustments: All executions, Trade busts (cancels) and adjustments (corrections) from the current trading day are conveyed to Firms via FEI. As of Trades, Trade busts and adjustments from prior trading days are not sent on FEI.

Business Trade Date: Business Trade Date refers to the calendar date on which a Trading Day ends, and is typically the calendar date after it begins. For example: A Business Trade Date of Monday 10/28/2024 begins on Sunday 10/27/2024 and ends on Monday 10/28/2024.

1.5 Data Types

The following table describes the data types used in FEI messaging:

Note: Time fields in all messages are as per timings of United States Eastern Time zone.

Data Type	Description
BinaryU	Unsigned, Intel x86 byte-ordered (little-endian), binary encoded numbers
BinaryS	Signed, Intel x86 byte-ordered (little-endian), binary encoded numbers
Price9S	BinaryS Field with the last 9 (right most) digit places being decimal places. \$-1.00 is represented as -1,000,000,000
NanoTime	BinaryU field that contains number of nanoseconds since the UNIX Epoch, 1970-01-01 00:00:00 +0000 (UTC).
MilliTime	BinaryU field that contains number of milliseconds since the UNIX Epoch, 1970-01-01 00:00:00 +0000 (UTC).
Date	BinaryU field that contains number of days since the UNIX Epoch, 1970-01-01 00:00:00 +0000 (UTC). This field describes the Business Trade Date.
Alphanumeric	Each place can contain characters or numbers. Left justified and space-padded on to the right
String	Characters in ASCII range 33-126 are allowed, except for pipe. If less than the maximum field size, must be null terminated. To specify an empty string, set null terminator as the first character.

1.6 Configuration

Notifications: All the notifications listed in this specification can be enabled on each FEI order entry session/port. While requesting FEI ports, Firms can request which notifications they need to be enabled on each port.

Notes:

- Order-based notifications are received only on the ports over which the order was received.
- All notifications are sequenced messages; for more information on sequenced messages please refer to SesM specification.

Session Based Configuration: Firms have the ability to configure their individual FEI sessions to receive various protections. The settings are only applied at the time of order entry or order modification. Please refer to MIAX Futures Onyx Port Attributes document (available at the [MIAX website](#)) for details on the configurable attributes.

2 Session Management Messages

Firms use **SesM-TCP (MIAX proprietary session management Protocol)** for connecting to FEI. Please refer to latest TCP Session Management document (available at the [MIAX website](#)) for details about SesM-TCP. This protocol layer offers session management capabilities such as authentication, application messaging over TCP/IP, sequencing of messages, heartbeats and gap fills. Some of the messages that are sent over FEI are considered to not be of any value for refreshing after reconnecting and hence those are unsequenced messages.

Note: Upon receipt of an unknown, malformed or illegal application message or session message, FEI will send a SesM “Goodbye Packet” with a human readable reason text string and FEI will disconnect the line.

3 Application Messages

This section consists of application messages such as Orders and Notifications.

3.1 Liquidity Messages

3.1.1 New Order Request

Firms can use this format to send a single New Order Request. Note that the Instrument ID may refer to either a Simple/Outright Instrument or a Complex Instrument that was first created using Strategy Creation Request/Response.

Message Direction: Firm to MIAX Futures Onyx

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Unsequenced Pkt; Refer to SesM Protocol Specification</i>
Message Type	2	Alphanumeric	“N1”
Client Send Time	8	NanoTime	Firm’s send time.
MPID	5	Alphanumeric	Five character MPID of the Firm whose order is sent in the message.
Operator ID	18	String	This must contain a 2 to 18 character Operator.
Operator Location	6	String	The location associated with Operator ID (see above). This field must contain at least 2 characters but the recommended format is as follows: The first two bytes as per ISO 3166-1, identify the country (e.g., US = United States).

Field Name	Length	Data Type	Notes
			The next three bytes indicate a comma-delimited state or province code (e.g., IL - Illinois, NJ = New Jersey). Examples: "US,IL" "US,NJ"
Account	16	String	Customer ID defined by the firm. This field must contain at least 1 character. For XMGE products, account up to 16 characters will be passed through for clearing. For XMFE products, account up to 10 characters will be passed through for clearing.
Client Order ID	20	String	Firm specified unique order ID. MIAX Futures Onyx will validate that <i>Client Order ID</i> is unique across all open orders for the Session within a Matching Engine. However, firms are responsible to ensure this uniqueness across all orders sent during the trading day.
Instrument ID	4	BinaryU	Instrument ID mapped to a given Instrument assigned by MIAX Futures Onyx.
Price	8	Price9S	Limit price of the order. This field is ignored for order types 3 (Market Order), 4 (Stop Market Order), 5 (Market Order with Protection), 6 (Market-Limit Order), and 7 (Stop-Market Order with Protection). Minimum and Maximum Price: Defined in the applicable Product Reference Guide. Negative values supported for both Simple and Complex Instruments.
Stop Order Trigger Price	8	Price9S	Stop Order Trigger Price. This field is ignored for order types 1 (Limit Order), 3 (Market Order), 5 (Market Order with Protection), and 6 (Market-Limit Order).
Size	4	BinaryU	Number of contracts to buy/sell. Maximum Size: Defined in Product Reference Guide and/or configured per session.
Order Instructions	2	BinaryU	Bit 0 – Side <ul style="list-style-type: none"> 0 - Buy 1 - Sell Bit 1 – Reserve Order Replenishment Timing Instruction <ul style="list-style-type: none"> 0 – Replenished after Display Qty exhaust 1 – Replenish immediately after partial fill NOTE: This field is ignored if order is not a Reserve Order.

Field Name	Length	Data Type	Notes
			Bit 2-15 – Reserved for future use Note: Bit 0 is LSB.
Time In Force (TIF)	1	Alphanumeric	Time in Force 'I' – IOC (Immediate or Cancel) 'D' – Day 'F' – FOK (Fill or Kill) 'C' – GTC (Good 'til Cancel) 'X' – GTD (Good 'til Date)
Order Type	1	Alphanumeric	Order Type '1' – Limit Order '2' – Stop Limit Order '3' – Market Order '4' – Stop Market Order '5' – Market Order with Protection '6' – Market-Limit Order '7' – Stop-Market Order with Protection
Self Trade Protection	1	BinaryU	Bit 0-2 – Self Trade Protection Level 0 – Self Trade Protection Disabled 1 – Firm 2 – MPID 3 – Parent Group Bit 3-5 – Self Trade Protection Instruction 0 – Not Applicable 1 - Cancel Newest 2 - Cancel Oldest 3 - Cancel Both 4 - Decrement and Cancel Bit 6-7 - Reserved for future use Note: Bit 0 is LSB.
Self Trade Protection Group	2	String	Customer specified protection group consisting of the following characters: "A" to "Z", "a" to "z" or "0" to "9" If empty string, group is not specified.
Purge Group	1	Alphanumeric	Customer specified purge group "A" to "Z", "a" to "z" or "0" to "9". If space (" "), group is not specified.
Customer Order Handling Instruction	1	Alphanumeric	Customer Order Handling Instruction: 'W' – Desk 'Y' – Electronic 'C' – Vendor-Provided Platform Billed by Executing Broker 'G' – Sponsored Access via Exchange API or FIX provided by Executing Broker 'H' – Premium Algorithmic Trading Provider Billed by Executing Broker

Field Name	Length	Data Type	Notes
			'D' - Other
Additional Order Indicators	1	BinaryU	Bit 0 – Customer of Firm Designation 0 – Customer 1 – Firm Bit 1 – Manual Order Indicator 0 – Automated 1 – Manual Bit 2 – Open Close position Indicator 0 – Open 1 – Close Bit 3 – Side Clearing Trade Price Type 0 – Trade Clears at Execution Price 1 – Trade Clears at Alternate Price Bit 4-7 - Reserved for future use Note: Bit 0 is LSB.
MinQty	4	BinaryU	Minimum fill quantity. Must be > 1 to be a MinQty order. If not a MinQty order, must be set to zero.
Order Expiry Date	2	Date	GTD Order Expiry date. Must be set to zero for all other TIFs. Date of order expiration (last day the order can trade), always expressed in terms of the Business Trade Date.
Trading Collar Dollar Value	8	Price9S	Custom Dollar Value Trading Collar Protection
CTI Code	1	Alphanumeric	CTI Code possible values: <ul style="list-style-type: none"> • '1' = CTI 1: Transactions initiated and executed by an individual Market Participant for his/her own account, for an account he/she controls, or for an account in which he/she has ownership or financial interest. • '2' = CTI 2: Transactions executed for the proprietary account of a Clearing Member. • '3' = CTI 3: Transactions where a Market Participant executes for the personal account of another Market Participant, for an account the other Market Participant controls or for an account in which the other Market Participant has ownership or financial interest. • '4' = CTI 4: Any transaction not meeting the definition of CTI 1, 2 or 3.
Text Memo	20	String	Clearing Text Memo
MaxFloor Qty	4	BinaryU	Number of shares of the order to display. The balance is reserve. Must be > 0 to be a Reserve order. If not a Reserve order, must be set to zero.

Field Name	Length	Data Type	Notes
			The following order types cannot be reserve orders: <ul style="list-style-type: none"> '2' – Stop Limit Order '3' – Market Order '4' – Stop Market Order '7' – Stop-Market Order with Protection
Display Range Qty	4	BinaryU	Used for random replenishment of Reserve orders. Must be less than MaxFloor Qty. Must be set to zero to disable random replenishment or when the order is not Reserve.
Reserved	24	BinaryU	Reserved for future use.

Points to note:

- Self-Trade Protection Group provides a way to create a more granular group within the same Firm, MPID or Parent Group at which the protection is applied. Self-Trade Protection Group can be specified when the Self Trade Protection Level is set to Firm, MPID or Parent Group. When specified, orders from the same Firm, MPID or Parent Group will be protected from trading with each other **only** if they have the same Self-Trade Protection Group.
- Defaults for Self Trade Protection Level, Instruction and Group can be configured at the session level. The default session level settings (if configured) will be applied to orders that have Self-Trade Protection Level set to “Disabled”.
- Note, Complex Orders will not support Time in Force of FOK, Minimum Quantity Instructions, Stop Limit or Stop Market Orders. Attempts to submit a Complex Order with any of these attributes included will be rejected.
- Please refer to the applicable Product Reference Guide for the minimum and maximum price and size accepted by the system. Additionally, Firms may provide a configuration of maximum order size applicable to their orders, otherwise the exchange default maximum order size check will be used.
- Election of '1 - Trade Clears at Alternate Price' for the 'Side Clearing Trade Price Type' will be processed by the Clearing House on a trade-by-trade basis. Some products are not eligible to be priced at an Alternate Price. Please contact the MIAX Futures Onyx Clearing House for additional details.

3.1.2 New Order Response

This message format provides an acknowledgement for a New Order Request accepted by MIAX Futures Onyx.

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
SesM Protocol Data			Unsequenced or Sequenced Pkt; Refer to SesM Protocol Specification
Message Type	2	Alphanumeric	“NR”

Field Name	Length	Data Type	Notes
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
MPID	5	Alphanumeric	As specified in the New Order Request.
Client Order ID	20	String	As specified in the New Order Request.
Instrument ID	4	BinaryU	As specified in the New Order Request.
Order ID	8	BinaryU	Exchange assigned unique order ID when order is accepted. If order is not accepted, set to zero. Order ID is unique across the exchange and across trading days.
Status	1	Alphanumeric	<p>“ ” – Successful.</p> <p>“A” – Duplicate Client Order ID</p> <p>“B” – Not in Live Order Window</p> <p>“C” – Invalid Order Type</p> <p>“E” – Invalid Customer Order Handling Instruction</p> <p>“F” – Invalid Time In Force or its use</p> <p>“G” – Invalid Self Trade Protection Level</p> <p>“H” – Invalid Self Trade Protection Instruction</p> <p>“I” – Invalid MPID</p> <p>“K” – Invalid use Self Trade Protection Instruction</p> <p>“L” – Invalid Self Trade Protection Group</p> <p>“M” – Invalid use Self Trade Protection Group</p> <p>“N” – Invalid for current Trading status</p> <p>“O” – Invalid Client Order ID</p> <p>“P” – Invalid Price</p> <p>“Q” – Invalid Size</p> <p>“R” – Invalid use Minimum Qty</p> <p>“S” – Invalid Instrument ID</p> <p>“U” – Invalid use Order Type</p> <p>“V” – Invalid Purge Group</p> <p>“W” – Invalid Order Expiry Date or its use</p> <p>“Y” – Blocked by user Mass Cancel</p> <p>“a” – Blocked by MFP/HelpDesk Mass Cancel</p> <p>“b” – Blocked by CRM</p> <p>“c” – Invalid Account</p> <p>“d” – Invalid Trading Collar “g” – Invalid Operator ID</p> <p>“h” – Invalid Operator Location</p> <p>“i” – Invalid CTI Code</p> <p>“j” – Invalid Text Memo</p> <p>“k” – Blocked by Drop Copy ACOD/ACOSF event</p> <p>“l” – Daily Trading Limit breach</p> <p>“m” – Trading Collar Protection</p> <p>“n” – Duplicate Order Protection</p> <p>“o” – Order Type Restriction</p> <p>“p” – Restriction for current trading session</p>

Field Name	Length	Data Type	Notes
			“q” – Product Restriction “r” – Customer order for Regulated Account “s” – Firm order for Segregated Account “t” – Order not allowed when ETH Clearing not enabled “u” – No Mbbo for Market Order with Protection or Market-Limit Order “v” – Invalid Display Range Qty “w” – Invalid MaxFloor Qty “x” – Invalid use of Reserve Order Replenishment Timing Instruction “y” – Invalid Order Type for Reserve Order “Z” – Undefined reason “*” – Downgraded from older version
Reserved	10	BinaryU	Reserved for future use.

Points to note:

- Response is a sequenced message only when Status in the response is Successful, otherwise response is not sequenced.

3.1.3 Modify Order Request

Firms can use this format to send a request to modify a resting order. Note that the Instrument ID may refer to either a Simple/Outright Instrument or a Complex Instrument that was first created using Strategy Create Request/Response.

Message Direction: Firm to MIAX Futures Onyx

Field Name	Length	Replac eable	Data Type	Notes
<i>SesM Protocol Data</i>				<i>Unsequenced Pkt; Refer to SesM Protocol Specification</i>
Message Type	2	N	Alphanumeric	“M1”
Client Send Time	8	N	NanoTime	Firm’s send time.
MPID	5	N	Alphanumeric	As specified in the New Order Request. If different, this modify request is rejected.
Operator ID	18	Y	String	This must contain a 2 to 18 character Operator ID.
Operator Location	6	Y	String	The location associated with Operator ID (see above).

Field Name	Length	Replac eable	Data Type	Notes
				<p>This field must contain at least 2 characters but the recommended format is as follows:</p> <p>The first two bytes as per ISO 3166-1, identify the country (e.g., US = United States).</p> <p>The next three bytes indicate a comma-delimited state or province code (e.g., IL - Illinois, NJ = New Jersey).</p> <p>Examples: "US,IL" "US,NJ"</p>
Client Order ID	20	Y	String	<p>New <i>Client Order ID</i> for the order modification.</p> <p>MIAX Futures Onyx will validate that <i>Client Order ID</i> is unique across all open orders for the Session within a Matching Engine. However, firms are responsible to ensure this uniqueness across all order requests sent during the trading day.</p>
Original Client Order ID	20	N	String	<p>Target <i>Client Order ID</i> that is being modified.</p> <p>In the case of multiple modifications to a single order, this will be the <i>Client Order ID</i> of the most recent accepted change.</p> <p>If an order with this target <i>Client Order ID</i> is found for the same Session, this modify order request is processed and the target order is modified. If not, this modify order request is rejected.</p>
Instrument ID	4	N	BinaryU	<p>As specified in the New Order Request. Must match Instrument ID of the order that is being modified.</p>
Price	8	Y	Price9S	<p>Limit price of the order.</p> <p>This field is ignored for order types 3 (Market Order) and 4 (Stop Market Order).</p> <p>Minimum and Maximum Price: Defined in the applicable Product Reference Guide.</p>

Field Name	Length	Replac eable	Data Type	Notes
				Negative values supported for both Simple and Complex Instruments.
Stop Order Trigger Price	8	Y	Price9S	Stop Order Trigger Price. Ignored if not a stop order. NOTE: After Stop Order has triggered, this field will be ignored.
Size	4	Y	BinaryU	New size of the order if size is being modified. Else the old size. Maximum Size: Defined in applicable Product Reference Guide and/or configured per session.
Order Expiry Date	2	Y	Date	GTD Order Expiry date. Must be set to zero for all other order types. Date of order expiration (last day the order can trade), always expressed in terms of the Business Trade Date.
Self Trade Protection Group	2	Y	String	Customer specified protection group consisting of the following characters: "A" to "Z", "a" to "z" or "0" to "9" If empty string, group is not specified.
Purge Group	1	Y	Alphanumeric	Customer specified purge group "A" to "Z", "a" to "z" or "0" to "9". If space (" "), group is not specified.
Customer Order Handling Instruction	1	Y	Alphanumeric	Customer Order Handling Instruction: 'W' – Desk 'Y' – Electronic 'C' – Vendor-Provided Platform Billed by Executing Broker 'G' – Sponsored Access via Exchange API or FIX provided by Executing Broker 'H' – Premium Algorithmic Trading Provider Billed by Executing Broker 'D' – Other
Additional Order Indicators	1	Y	BinaryU	Bit 0 – Customer of Firm Designation 0 – Customer 1 – Firm Bit 1 – Manual Order Indicator 0 – Automated 1 – Manual Bit 2 – Open Close position Indicator 0 – Open 1 – Close Bit 3 – Side Clearing Trade Price Type 0 – Trade Clears at Execution Price

Field Name	Length	Replac eable	Data Type	Notes
				1 – Trade Clears at Alternate Price Bit 4-7 - Reserved for future use Note: Bit 0 is LSB.
MaxFloor Qty	4	Y	BinaryU	New MaxFloor Qty for the Reserve order if MaxFloor Qty is being modified. Else the old MaxFloor Qty. A Reserve order cannot be modified to be a non-Reserve order and vice versa; if attempted will result in a reject. <ul style="list-style-type: none"> If the original order set MaxFloor > 0, the modify request cannot set it to zero If the original order set MaxFloor Qty to zero, the modify request cannot set it to a non-zero value
Reserved	28	N	BinaryU	Reserved for future use

Points to note:

- Modify Size behavior:
 - MIAX Futures Onyx will subtract the executed contracts of the order from the quantity specified in the *Size* field of the modify request and leave open the remaining size for the order.
 - If the requested size is less than or the same as the executed size, the remaining size (Leaves Qty) of the order will be reduced to zero and the order will be closed. There will be no “too late to cancel” message generated.
 - Orders that modify price or stop order trigger price, or increase open size will always receive new time priority.
 - An order can only be modified from the session that submitted the original order.

3.1.4 Modify Order Response

This message format provides acknowledgement for a Modify Order Request accepted by MIAX Futures Onyx.

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Unsequenced or Sequenced Pkt; Refer to SesM Protocol Specification</i>
Message Type	2	Alphanumeric	"MR"
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
MPID	5	Alphanumeric	As specified in the Modify Order Request.
Client Order ID	20	String	New <i>Client Order ID</i> specified in the Modify Order Request.
Original Client Order ID	20	String	As specified in the Modify Order Request.
Instrument ID	4	BinaryU	As specified in the Modify Order Request.
Order ID	8	BinaryU	Exchange assigned unique order ID. Set to zero if request is rejected.
Leaves Qty	4	BinaryU	Size of the order that is still open If the modification request is accepted with Status= " " and current size of the order becomes zero (Leaves Qty = 0), the order is closed. If the modification request is rejected, Leaves Qty is not applicable and is set to zero.
Status	1	Alphanumeric	" " – Successful. "A" – Duplicate Client Order ID "B" – Not in Live Order Window "D" – Cannot find order with Target Client Order ID "E" – Invalid Customer Order Handling Instruction "F" – Invalid for Time in Force "I" – Invalid MPID "J" – MPID does not match target order "L" – Invalid Self Trade Protection Group "M" – Invalid use Self Trade Protection Group "N" – Invalid for current Trading status "O" – Invalid Client Order ID "P" – Invalid Price "Q" – Invalid Size "S" – Invalid Instrument ID "T" – Invalid Target Client Order ID "V" – Invalid Purge Group "W" – Invalid Order Expiry Date or its use

Field Name	Length	Data Type	Notes
			“Y” – Blocked by user Mass Cancel “a” - Blocked by MFP/HelpDesk Mass Cancel “b” – Blocked by CRM “g” – Invalid Operator ID “h” – Invalid Operator Location “k” - Blocked by Drop Copy ACOD/ACOSF event “l” – Daily Trading Limit breach “m” –Trading Collar Protection “p” – Restriction for current trading session “q” – Product Restriction “r” – Customer order for Regulated Account “s” – Firm order for Segregated Account “w” – Invalid to change or use of MaxFloor Qty “Z” – Undefined reason “*” – Downgraded from older version
Reserved	10	BinaryU	Reserved for future use.

Points to note:

- Response is a sequenced message only when Status in the response is Successful, otherwise response is not sequenced.
- Modification to price or stop order trigger price, or increase in quantity will lead to loss of time priority.

3.1.5 Cancel Order Request

Firms can use this format to send a cancel request for a resting order. Note that the Instrument ID may refer to either a Simple/Outright Instrument or a Complex Instrument that was first created using Strategy Creation Request/Response.

Message Direction: Firm to MIAX Futures Onyx

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Unsequenced Pkt; Refer to SesM Protocol Specification</i>
Message Type	2	Alphanumeric	“CO”
Client Send Time	8	NanoTime	Firm’s send time
MPID	5	Alphanumeric	As specified in the New Order Request. If different, this cancel request is rejected.
Operator ID	18	String	This must contain a 2 to 18 character Operator ID.
Operator Location	6	String	The location associated with Operator ID (see above). This field must contain at least 2 characters but the recommended format is as follows:

Field Name	Length	Data Type	Notes
			<p>The first two bytes as per ISO 3166-1, identify the country (e.g., US = United States).</p> <p>The next three bytes indicate a comma-delimited state or province code (e.g., IL - Illinois, NJ = New Jersey).</p> <p>Examples: "US,IL" "US,NJ"</p>
Order ID	8	BinaryU	Exchange assigned order ID that is used to cancel order. If set to zero, will be using Original Client Order ID to cancel order.
Client Order ID	20	String	<i>Client Order ID</i> of the cancel request. MIAX Futures Onyx will validate that <i>Client Order ID</i> is unique across all open orders for the Session within a Matching Engine. However, firms are responsible to ensure this uniqueness across all order requests sent during the trading day.
Original Client Order ID	20	String	Target <i>Client Order ID</i> that is being canceled. In case the order has had multiple modifications prior to the cancel request, this will be the <i>Client Order ID</i> of the most recently accepted modify request. If an order with this original <i>Client Order ID</i> is found for the same Session, this cancel request is processed and the target order is canceled. If not, this cancel request is rejected. If canceling by Order ID, this field should be set to an empty string.
Instrument ID	4	BinaryU	As specified in the New Order Request. Must match Instrument ID of the order that is being canceled.
Reserved	10	BinaryU	Reserved for future use

Points to note:

- Cancel of an order that is not open (or never existed) will result in a cancel reject. Note this does not pertain to Stop orders that have not been triggered, those are considered open.
- An order can also be canceled as part of a mass cancel request.
- Cancel Order Request using the Order ID can be used to cancel an order entered through the same or a different FEI session.
 - Session needs to be entitled to send the Cancel Order Request with Order ID.
- Cancelling an order entered through a FOI session is not allowed.

3.1.6 Cancel Order Response

This message format provides response to an Order Cancel Request. Note that the Instrument ID may refer to either a Simple/Outright Instrument or a Complex Instrument that was first created using Strategy Create Request/Response.

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Unsequenced or Sequenced Pkt; Refer to SesM Protocol Specification</i>
Message Type	2	Alphanumeric	"CR"
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
MPID	5	Alphanumeric	MPID specified in the Cancel Order Request.
Client Order ID	20	String	As specified in the Cancel Order Request.
Original Client Order ID	20	String	As specified in the Cancel Order Request.
Instrument ID	4	BinaryU	As specified in the Cancel Order Request.
Order ID	8	BinaryU	Exchange assigned unique order ID. Set to zero if request is rejected.
Status	1	Alphanumeric	" " – Successful. "A" – Duplicate Client Order ID "B" – Not in Live Order Window "D" – Cannot find order with Target Client Order ID "I" – Invalid MPID "J" – MPID does not match target order "N" – Invalid for current Trading status "O" – Invalid Client Order ID "S" – Invalid Instrument ID "T" – Invalid Target Order ID "e" – Invalid Order ID or its use "f" – Request not permitted "g" – Invalid Operator ID "h" – Invalid Operator Location "Z" – Undefined reason "*" – Downgraded from older version
Reserved	10	BinaryU	Reserved for future use.

Points to note:

- Response is sequenced only when Status in the response is Successful.

3.1.7 Mass Cancel Request

- Firms can use this message format to request the cancellation of all orders based on the requested scope and the provided criteria.
- The following Scope combinations will be accepted:
 - Session
 - Session Scope will purge all orders for the current Session
 - When Session Scope is specified it will be required that the MPID field is provided with a valid and entitled MPID in order to be accepted
 - MPID
 - MPID Scope will purge all orders for the specified MPID
 - When MPID Scope is specified it will be required that the MPID field is provided with a valid MPID in order to be accepted
 - MPID+Product Group
 - MPID+Product Group Scope will purge all orders for the specified Product Group and MPID
 - When MPID+Product Group Scope is specified it will be required that the Product Group Code field is provided with a valid MPID in order to be accepted
 - MPID+Product Group+Product Type
 - MPID+Product Group+Product Type Scope will purge all orders for the specified Product Group, Product Type and MPID
 - When MPID+Product Group+Product Type Scope is specified it will be required that the Product Group Code and Product Type fields are provided with a valid MPID in order to be accepted
- The following additional attribute can be provided to further specify the Mass Cancel request beyond the Scope:
 - Purge Group can be specified to cancel orders of a specific Purge Group within the defined Scope of the Mass Cancel request

Message Direction: Firm to MIAX Futures Onyx

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Unsequenced Pkt; Refer to SesM Protocol Specification</i>
Message Type	2	Alphanumeric	"X1"
Client Send Time	8	NanoTime	Firm's send time
MPID	5	Alphanumeric	Targeted MPID for the Mass Cancel request when the Scope is MPID
Operator ID	18	String	This must contain a 2 to 18 character Operator ID.
Operator Location	6	String	The location associated with Operator ID (see above).

Field Name	Length	Data Type	Notes
			<p>This field must contain at least 2 characters but the recommended format is as follows:</p> <p>The first two bytes as per ISO 3166-1, identify the country (e.g., US = United States).</p> <p>The next three bytes indicate a comma-delimited state or province code (e.g., IL - Illinois, NJ = New Jersey).</p> <p>Examples: "US,IL" "US,NJ"</p>
Reserved	10	Alphanumeric	Reserved for future use
Client Order ID	20	String	Unique ID assigned by the Firm to this Mass Cancel Request.
Scope	1	Alphanumeric	<p>Mass-Cancel Scope:</p> <ul style="list-style-type: none"> • "M" – MPID • "P" – MPID + Product Group • "T" – MPID + Product Group + Product Type • "S" – Session
Action	1	Alphanumeric	<p>Action to be taken for the specified Scope:</p> <ul style="list-style-type: none"> • 'B' – Block only. The system will reject all new orders • 'M' – Mass cancel only. The system will mass-cancel all open orders. New orders can be accepted • 'X' – Block and mass-cancel • 'R' – Remove blocking for the specified scope.
Product Group Code	13	String	<p>Product Group Code: e.g. MWE for Hard Red Spring Wheat Standard Deliverable (5000 Bushels), or XXX-YYY for cross-product spreads. NOTE: This field is only applicable for scope "P"; it will be set to NULL for "T" , ignored for other scopes.</p>
Product Type	1	Alphanumeric	<p>Product Type:</p> <ul style="list-style-type: none"> • 'O' = Outright Futures • 'S' = Standard Calendar Spread • 'E' = Equity Calendar Spread • 'B' = Butterfly Spread • "C" = Cross-Product Spread. <p>NOTE:</p>

Field Name	Length	Data Type	Notes
			<ul style="list-style-type: none"> This field is only applicable for scope "T", ignored for other scopes. Product Type "C" can only be used when Product Group Code is for Cross Product Spread.
Purge Group	1	Alphanumeric	Customer specified purge group "A" to "Z", "a" to "z" or "0" to "9". If space (" "), group is not specified.
Reserved	9	BinaryU	For future use.

Points to note:

- A Mass Cancel Request is not atomic and is processed by the system on best effort basis.
- A Mass Cancel Request with action 'B' (Block only) or 'X' (Block and mass-cancel) will require a reset before any new order or order modification messages are accepted from the blocked MPID. A reset is done with the same message type as the Mass Cancel, but action 'R' (Remove blocking). If a mass cancel with block only and a block and mass cancel are done consecutively, only a single reset is required.
- A Mass Cancel Request with action 'M' (Mass cancel only) will not require a reset.
- *Client Order ID* specified in the Mass Cancel Request is not validated for uniqueness and is only echoed back in the corresponding Mass Cancel Response. Firms are recommended to use unique *Client Order ID* for the trading day across all message types.

3.1.8 Mass Cancel Response

This message format will be used to inform the Firm about the status of their previous Mass Cancel Request.

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Unsequenced Pkt; Refer to SesM Protocol Specification</i>
Message Type	2	Alphanumeric	"XR"
Matching Engine Time	8	NanoTime	Time at which this message was generated by FEI.
MPID	5	Alphanumeric	As specified in the Mass Cancel Request.
Client Order ID	20	String	As specified in the Mass Cancel Request.
Status	1	Alphanumeric	" " – Successful "A" – Invalid action "B" – Invalid scope "C" – Invalid Purge group "D" – Not in Live Order Window "E" – Invalid Product Group Code "F" – Invalid Product Type "I" – Invalid MPID

Field Name	Length	Data Type	Notes
			"O" – Invalid Client Order ID "g" – Invalid Operator ID "h" – Invalid Operator Location "*" – Downgraded from older version "Z" - Undefined
Reserved	10	BinaryU	Reserved for future use.

Points to note:

- This is not a sequenced message.
- If the firm got disconnected without receiving response to this message, it is recommended sending another request to confirm the request.
- Mass Cancel Request will not cancel orders for instruments that are in opening freeze.

3.1.9 Strategy Creation Request

Firms can use this message format to create a Complex Strategy

Message Direction: Firm to MIAX Futures Onyx

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Unsequenced Pkt; Refer to SesM Protocol Specification</i>
Message Type	2	Alphanumeric	"SD"
Client Send Time	8	NanoTime	Firm's send time
MPID	5	Alphanumeric	Five character MPID of the Firm requesting to create this message
Operator ID	18	String	This must contain a 2 to 18 character Operator ID.
Operator Location	6	String	The location associated with Operator ID (see above). This field must contain at least 2 characters but the recommended format is as follows: The first two bytes as per ISO 3166-1, identify the country (e.g., US = United States). The next three bytes indicate a comma-delimited state or province code (e.g., IL - Illinois, NJ = New Jersey). Examples: "US,IL" "US,NJ"

Field Name	Length	Data Type	Notes
Client Order ID	20	String	Unique ID specified by the firm that is used to identify each request.
Reserved	16	BinaryU	Reserved for future use
Number of Legs	1	BinaryU	Number of strategy legs. The fields below (marked with →) are repeated for each specified leg
→ Instrument ID	4	BinaryU	Instrument ID for the leg
→ Leg Ratio	4	BinaryS	Leg ratio for the specified instrument Positive indicates Buy Negative indicates Sell
→ Reserved	8	BinaryU	Reserved for future use

3.1.10 Strategy Creation Response

Firms will receive this message in response to the Strategy Creation Request

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Unsequenced or Sequenced Pkt; Refer to SesM Protocol Specification</i>
Message Type	2	Alphanumeric	“SR”
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
MPID	5	Alphanumeric	MPID specified in the Strategy Creation Request.
Client Order ID	20	String	Unique ID specified by the firm that is used to identify each request.
Instrument ID	4	BinaryU	Instrument ID for the requested strategy. If request is not successful, set to zero.
Status	1	Alphanumeric	Status of the response ‘ ‘ – Successful ‘A’ – Invalid number of legs ‘B’ – Invalid/Not allowed Strategy ‘C’ – Invalid Leg ratio ‘D’ – Reserved for future use ‘E’ – Repeating instrument ‘F’ – No more strategies can be created ‘G’ - Not in Live Order Window ‘H’ – Invalid leg instrument ‘I’ – Invalid MPID ‘O’ – Invalid Client Order ID ‘Z’ – Undefined ‘g’ – Invalid Operator ID ‘h’ – Invalid Operator Location

Field Name	Length	Data Type	Notes
			'*' – Downgraded for older version
Reserved	16	BinaryU	Reserved for future use

Points to note:

- Response is a sequenced message only when Status in the response is Successful, otherwise response is not sequenced.

3.2 Notifications

Notifications provide details of an order in MIAX Futures Onyx after acceptance of an order request or after an unsolicited update/cancellation of the order. All notifications messages listed in this section can be enabled or disabled on individual sessions and are sent only if enabled. Please contact Trading Operations for more information.

3.2.1 System State Notification

This message is published whenever system state events take place.

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Sequenced Pkts; Refer to SesM Protocol Specification.</i>
Message Type	2	Alphanumeric	"SN"
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
FEI Version	8	Alphanumeric	FEI version. e.g. FEI 1.0
Session ID	1	BinaryU	MIAX Futures Onyx assigned ID for the current trading session for the Matching Engine.
System Status	1	Alphanumeric	"S" – Start of System Hours "C" – End of System Hours "1" – Start of Test Session "2" – End of Test Session "*" – Downgraded for older version
Reserved	8	BinaryU	Reserved for future use.

Points to note:

- This is a sequenced message
- It is published for each Matching Engine

3.2.2 New Order Notification

This message is published whenever New Order Request is accepted by MIAX Futures Onyx.

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Sequenced Pkts; Refer to SesM Protocol Specification.</i>
Message Type	2	Alphanumeric	"O1"
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
MPID	5	Alphanumeric	As specified in the New Order Request.
Order ID	8	BinaryU	Exchange assigned unique order ID.
Client Send Time	8	NanoTime	As specified in the New Order Request.
Operator ID	18	String	As specified in the New Order Request.
Operator Location	6	String	As specified in the New Order Request.
Account	16	String	As specified in the New Order Request.
Client Order ID	20	String	As specified in the New Order Request.
Instrument ID	4	BinaryU	As specified in the New Order Request.
Price	8	Price9S	Exchange assigned limit price for order types 5 (Market Order with Protection), 6 (Market-Limit Order), and 7 (Stop-Market Order with Protection). For all other order types, the field is set to the same value as specified in the New Order Request.
Stop Order Trigger Price	8	Price9S	As specified in the New Order Request.
Size	4	BinaryU	As specified in the New Order Request.
Order Instructions	2	BinaryU	As specified in the New Order Request.
Time In Force (TIF)	1	Alphanumeric	As specified in the New Order Request.
Order Type	1	Alphanumeric	Set to 2 ('Stop Limit Order') order type for 7 (Stop-Market Order with Protection). For all other order types, the field is set to the same value as specified in the New Order Request
Self Trade Protection	1	BinaryU	As specified in the New Order Request.
Self Trade Protection Group	2	String	As specified in the New Order Request.
Purge Group	1	Alphanumeric	As specified in the New Order Request.
Customer Order Handling Instruction	1	Alphanumeric	As specified in the New Order Request.
Additional Order Indicators	1	BinaryU	As specified in the New Order Request.

Field Name	Length	Data Type	Notes
MinQty	4	BinaryU	As specified in the New Order Request.
Order Expiry Date	2	Date	As specified in the New Order Request.
Trading Collar Dollar Value	8	Price9S	As specified in the New Order Request.
CTI Code	1	Alphanumeric	As specified in the New Order Request.
Text Memo	20	String	As specified in the New Order Request.
MaxFloor Qty	4	BinaryU	As specified in the New Order Request.
Display Range Qty	4	BinaryU	As specified in the New Order Request.
Reserved	24	BinaryU	Reserved for future use.

Points to note:

- This is a sequenced message.
- The message can only be received on the session that submitted the new order request.
- Stop-Market Order with Protection will be immediately converted into Stop Limit Order upon acceptance

3.2.3 Modify Order Notification

This message is published whenever a Modify Order Request is accepted by MIAX Futures Onyx.

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Sequenced Pkts; Refer to SesM Protocol Specification.</i>
Message Type	2	Alphanumeric	"MN"
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
MPID	5	Alphanumeric	As specified in the Modify Order Request
Order ID	8	BinaryU	Exchange assigned unique order ID.
Client Send Time	8	NanoTime	As specified in the Modify Order Request.
Leaves Qty	4	BinaryU	Size of the order that is still open
Operator ID	18	String	As specified in the Modify Order Request
Operator Location	6	String	As specified in the Modify Order Request
Client Order ID	20	String	As specified in the Modify Order Request
Original Client Order ID	20	String	As specified in the Modify Order Request
Instrument ID	4	BinaryU	As specified in the Modify Order Request
Price	8	Price9S	As specified in the Modify Order Request
Stop Order Trigger Price	8	Price9S	As specified in the Modify Order Request
Size	4	BinaryU	As specified in the Modify Order Request
Order Expiry Date	2	Date	As specified in the Modify Order Request
Self Trade Protection Group	2	String	As specified in the Modify Order Request

Field Name	Length	Data Type	Notes
Purge Group	1	Alphanumeric	As specified in the Modify Order Request
Customer Order Handling Instruction	1	Alphanumeric	As specified in the Modify Order Request
Additional Order Indicators	1	BinaryU	As specified in the Modify Order Request
MaxFloor Qty	4	BinaryU	As specified in the Modify Order Request
Reserved	28	BinaryU	Reserved for future use.

Points to note:

- This is a sequenced message.
- This message can only be received on the session that requested the order modification.

3.2.4 Reserve Order Replenishment Notification

This message is published to notify firms of their Reserve Order replenishment events.

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Sequenced Pkts; Refer to SesM Protocol Specification.</i>
Message Type	2	Alphanumeric	"RP"
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
Instrument ID	4	BinaryU	As specified in New Order Request
Order ID	8	BinaryU	Exchange assigned unique Order ID of the Reserve order
Secondary Order ID	8	BinaryU	Secondary Order ID used to publish the display portion of the Reserve order on Onyx DOM feed.
Display Qty	4	BinaryU	Display size of the Reserve order after replenishment
Reserved	16	BinaryU	Reserved for future use

Points to note:

- This is a sequenced message.
- This message can only be received on the session that submitted the original order.

3.2.5 Cancel/Reduce Size Order Notification

This is the message format that will be used when Cancel Order Request is accepted by MIAX Futures Onyx or when unsolicited order cancels or order size reductions are to be notified to firms.

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Sequenced Pkts; Refer to SesM Protocol Specification.</i>
Message Type	2	Alphanumeric	"XN"
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
MPID	5	Alphanumeric	As specified in the New Order Request.
Operator ID	18	String	Operator ID of the order if user initiated cancel. For unsolicited cancels, if the order has had multiple modifications, this will be the <i>Operator ID</i> of the most recent accepted change for the order. Operator ID is always sourced from the new order request or last modify order request.
Operator Location	6	String	Operator Location of the order if user initiated cancel. For unsolicited cancels, if the order has had multiple modifications, this will be the <i>Operator Location</i> of the most recent accepted change for the order. Operator Location is always sourced from the new order request or last modify order request.
Client Order ID	20	String	<i>Client Order ID</i> of the order. If the order has had multiple modifications, this will be the <i>Client Order ID</i> of the most recent accepted change for the order.
Instrument ID	4	BinaryU	As specified in the New Order Request.
Order ID	8	BinaryU	Exchange assigned unique Order ID.
Client Send Time	8	NanoTime	As specified in the Cancel Order Request for solicited cancels, and set to zero for unsolicited cancels.
Leaves Qty	4	BinaryU	Size of the order that is still open, includes size on MIAX Futures Onyx
Cancel Reason	1	Alphanumeric	"A" – Min Quantity not satisfied or FOK Min Quantity not satisfied "B" – Reserved for future use "C" – Time in Force canceled "D" – Auto Cancel on Disconnect (ACOD) "E" – Breached daily trading price range" "F" – Auto Cancel on System Failure (ACOSF)

Field Name	Length	Data Type	Notes
			<p>“G” – Trading Collar protection</p> <p>“H” – Canceled by Helpdesk or over MIAX Member Firm Portal</p> <p>“I” – GTC/GTD customer order introduction for Regulated Account</p> <p>“J” – Mass Cancel MPID (or Product Group/Product Type) by user</p> <p>“K” – Mass Cancel MPID (or Product Group/Product Type) by Helpdesk or over MIAX Member Firm Portal</p> <p>“L” – Mass Cancel Session by user</p> <p>“M” – Mass Cancel Session by Helpdesk or over MIAX Member Firm Portal</p> <p>“N” – Crossing Strategy Match Price Range (SMPR)</p> <p>“O” – CRM Protection</p> <p>“P” – Drop Copy ACOD/ACOSF event</p> <p>“Q” – Marketable order outside Strategy Match Price Range (SMPR)</p> <p>“R” – GTC/GTD order introduction breached per-order Risk Metrics</p> <p>“S” – GTC/GTD firm order introduction for Segregated Account</p> <p>“T” - Order not allowed when ETH Clearing not enabled</p> <p>“U” – Canceled by user through order entry session</p> <p>“V” – Canceled by user through a session other than the order entry session</p> <p>“W” – Stop Order no longer valid</p> <p>“1” – Full cancel due to Self-Trade Protection - Cancel Newest Instruction</p> <p>“2” – Full cancel due to Self-Trade Protection - Cancel Oldest Instruction</p> <p>“3” – Full cancel due to Self-Trade Protection - Cancel Both Instruction</p> <p>“4” – Full/Partial cancel due to Self-Trade Protection - Decrement and Cancel Instruction</p> <p>“Z” – Undefined reason</p> <p>“*” – Downgraded from older version</p>
Last Price	8	Price9S	Match price if the order had not been prevented from execution by Self Trade Protection. Only applicable when Cancel Reason is ‘1’ or ‘2’ or ‘3’ or ‘4’, otherwise set to zero.

Field Name	Length	Data Type	Notes
Last Size	4	BinaryU	Number of contracts that would have matched if the order had not been prevented from execution by Self Trade Protection. Only applicable when Cancel Reason is '1' or '2' or '3' or '4', otherwise set to zero.
Reserved	8	BinaryU	Reserved for future use.

Points to note:

- This is a sequenced message.
- This message can only be received on a session over which the original order was sent.

3.2.6 Order Status Update Notification

This message format will be used to notify the firms about order status updates.

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Sequenced Pkts; Refer to SesM Protocol Specification.</i>
Message Type	2	Alphanumeric	"OS"
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
Instrument ID	4	BinaryU	Simple Instrument ID.
Order ID	8	BinaryU	Exchange assigned unique order ID when order is accepted.
Status	1	Alphanumeric	Order status update 'S' – Stop order triggered
Order Type	1	Alphanumeric	Order Type that is currently in effect The following values are possible: '1' – Limit Order '3' – Market Order "*" – Downgraded from older version
Time In Force (TIF)	1	Alphanumeric	Time In Force that is currently in effect The following values are possible: 'I' – IOC (Immediate or Cancel) 'D' – Day "*" – Downgraded from older version
Reserved	30	BinaryU	Reserved for future use

Points to note:

- This is a sequenced message.
- When a Stop Limit Order triggers, it will be automatically converted into a Limit Order with a TIF of Day.

- When a Stop Market Order triggers, it will be automatically converted into a Market Order with a TIF of IOC.

3.2.7 Simple Execution Notification

This message format will be used to notify the firms of their Simple order executions (fills/partial fills), trade corrections and cancellations (busts).

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Sequenced Pkts; Refer to SesM Protocol Specification.</i>
Message Type	2	Alphanumeric	"EN"
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
MPID	5	Alphanumeric	As specified in the New Order Request.
Operator ID	18	String	As specified in the New Order Request or last Modify request
Operator Location	6	String	As specified in the New Order Request or last Modify request
Instrument ID	4	BinaryU	Simple Instrument ID.
Client Order ID	20	String	Client Order ID of the order. If the order has had multiple modifications, this will be the <i>Client Order ID</i> of the most recent accepted change for the order.
Simple Trade ID	8	BinaryU	Exchange assigned unique Simple Trade ID. See notes below for details.
Complex Trade ID	8	BinaryU	Exchange assigned unique Complex Trade ID. Used when Simple Instruments trade as part of a Complex transaction, Set to zero for Simple trades that do not trade as part of a Complex transaction.
Execution ID	8	BinaryU	Exchange assigned unique Execution ID. See notes below for details.
Trade Date	2	Date	Business Trade Date
Correction Number	1	BinaryU	Trade correction number. Used to identify the version of the trade being corrected or canceled. Increments by 1 for each subsequent correction. Set to zero for new trades*. *NOTE: If a trade was corrected, and later restated, the correction number will be set equal to the same value that was provided in the last correction message.
Trade Status	1	Alphanumeric	Possible values: "E" – New Execution "C" – Price/Size Correction "X" – Trade Cancellation (bust)

Field Name	Length	Data Type	Notes
Last Price	8	Price9S	Price of this execution if it is a new execution. Price after the correction if it is a trade correction. Price of the trade canceled if it is a trade bust. Restated price of the TAS or BTIC trade if it is a Final Trade Price Restatement; see Last Price Restatement field below.
Last Size	4	BinaryU	Number of contracts executed if it is a new execution. Number of contracts after the correction if it is a trade correction. Number of contracts canceled if it is a trade bust.
Order Instructions	2	BinaryU	Bit 0 – Order Side <ul style="list-style-type: none"> 0 – Buy 1 - Sell Bit 1-15 – Reserved for future use Note: Bit 0 is LSB.
CTI Code	1	Alphanumeric	As specified in the New Order Request.
Text Memo	20	String	As specified in the New Order Request.
Liquidity Indicator	3	String	Please refer to MIAX Onyx Futures Liquidity Indicator Codes document (available on the MIAX website) for the list of codes.
Secondary Order ID	8	BinaryU	Applicable to Reserve orders. Secondary Order ID used on MIAX Onyx DOM feed for the executed display portion of the Reserve order. Set to zero for non-Reserve orders or if the execution is for the non-display portion of the Reserve order.
Last Price Restatement	1	Alphanumeric	Final Trade Price Restatement for a TAS or BTIC Trade: <ul style="list-style-type: none"> Y - Final Trade Price for TAS/BTIC Trade N - Not applicable NOTE: when set to 'Y', Last Price has been updated with a final trade price.
Reserved	23	BinaryU	Reserved for future use

Points to note:

- This is a sequenced message.
- Each two-sided clearing trade is assigned a Simple Trade ID that is unique across the exchange for the trading day. Each side of the trade is assigned an Execution ID that is unique for the trading day.
- This message can only be received on a session that submitted the original order.
- Trade Cancels and Corrections only for Simple Instruments on the current trading day are sent using this message.
- Complex instrument executions are reported for each individual component/leg of the order.
- Simple Trade IDs and Complex Trade IDs are unique across Simple and Complex executions within a cloud.

3.2.8 Complex Execution Notification

This message format will be used to notify the firms of their Complex order executions (fills/partial fills).

Message Direction: MIAX Futures Onyx to Firm

Field Name	Length	Data Type	Notes
<i>SesM Protocol Data</i>			<i>Sequenced Pkts; Refer to SesM Protocol Specification.</i>
Message Type	2	Alphanumeric	"CN"
Matching Engine Time	8	NanoTime	Time at which this message was generated by the Matching Engine.
MPID	5	Alphanumeric	As specified in the New Order Request.
Instrument ID	4	BinaryU	Complex Instrument ID.
Client Order ID	20	String	Client Order ID of the order. If the order has had multiple modifications, this will be the <i>Client Order ID</i> of the most recent accepted change for the order.
Complex Trade ID	8	BinaryU	Exchange assigned unique Complex Trade ID. See notes below for details.
Trade Date	2	Date	Business Trade Date
Last Net Price	8	Price9S	Net Price of this execution. Restated net price of the TAS or BTIC trade if it is a Final Trade Price Restatement; see Last Price Restatement field below.
Last Size	4	BinaryU	Number of strategies executed
Order Instructions	2	BinaryU	Bit 0 – Complex Order Side <ul style="list-style-type: none"> • 0 – Buy • 1 - Sell Bit 1-15 – Reserved for future use Note: Bit 0 is LSB.
Secondary Order ID	8	BinaryU	Applicable to Reserve orders. Secondary Order ID used on MIAX Onyx DOM feed for the executed display portion of the Reserve order. Set to zero for non-Reserve orders or if the execution is for the non-display portion of the Reserve order.
Last Price Restatement	1	Alphanumeric	Final Trade Price Restatement for a TAS or BTIC Trade: <ul style="list-style-type: none"> • Y - Final Trade Price for TAS/BTIC Trade • N - Not applicable NOTE: when set to 'Y', Last Net Price has been updated with a final trade price.

Field Name	Length	Data Type	Notes
Reserved	23	BinaryU	Reserved for future use

Points to note:

- This is a sequenced message.
- Trade Cancels and Corrections will not be sent for Complex trades
- Simple Trade IDs and Complex Trade IDs are unique across Simple and Complex executions.

Appendix A: Contact List

Please visit the [MIAX Website](#) for obtaining the most up-to-date contact list and other such information.

Appendix B: Revision History

Revision Date	Version	Description
10/31/2024	1.0	Initial release.
1/10/2025	1.0a	<p>Added Product-scoping fields to Mass Cancel request.</p> <p>Updated exchange timings in section 1.1.</p> <p>Status codes updates in various messages.</p> <p>Minor clarifications and corrections to text in End of Recycle Window, Strategy Creation Response MPID Notes, and Cancel/Reduce Size. Notification Operator ID and Operator Location Notes.</p> <p>Clarified handing of Price and Stop Order Trigger Price in New Order and Modify Order requests.</p> <p>Remove error code 0.</p>
3/25/2025	1.0b	<p>Corrected Data Type of Price (from 6U to 9s) for Last Price field in Sections 3.2.6 and 3.2.7</p> <p>Clarified Note in Section 3.1.8 regarding Opening Freeze</p> <p>Status code updates.</p>
5/22/2025	1.0c	<p>Corrected order of fields in Modify Order Notification (Section 3.2.3)</p> <p>Updated 3.1.10 / Strategy Creation Response with new Status = G / Not in Live Order Window.</p> <p>Updated 3.2.4 / Cancel/Reduce Size Order Notification with modified Cancel Reason A to include FOK cancels.</p>
8/4/2025	1.1	<p>Trade IDs are now unique across both Simple and Complex trades</p> <p>Added new Side Clearing Trade Price Type bit within existing Additional Order Indicators byte in 3.1.1/New Order Request and 3.1.3/Modify Order Request</p> <p>Added new Status values in</p> <ul style="list-style-type: none"> * 3.1.2/New Order Response * 3.1.4/Modify Order Response * 3.2.4/Cancel/Reduce Size Order Notification <p>Changed 3.1.3/Modify Order Request field Size from BinaryS to BinaryU</p> <p>Changed 3.2.3/Modify Order Notification field Size from BinaryS to BinaryU</p>
11/7/2025	1.2	<p>Changed 3.1.1 / New Order Request:</p> <ul style="list-style-type: none"> • Three new Order Type values added • Updated description for field Price <p>Added new Reject/Cancel Reasons in:</p> <ul style="list-style-type: none"> • 3.1.2 / New Order Response • 3.2.4 / Cancel Order Notification <p>Changed 3.2.2 / New Order Notification:</p> <ul style="list-style-type: none"> • Updated descriptions for existing fields Order Type and Price

		<ul style="list-style-type: none"> • Added point to note regarding Stop-Market Order with Protection <p>Changed 3.2.5 / Order Status Update Notification:</p> <ul style="list-style-type: none"> • Added new fields <ul style="list-style-type: none"> ○ Order Type ○ Time In Force (TIF) • Reduced Reserved field size from 32 to 30 • Added point to note regarding Stop Limit Orders
6/8/2026	1.3	<p>Changed 3.1.1 / New Order Request:</p> <ul style="list-style-type: none"> • New Order Instruction: Reserve Order Replenish Trigger • New field MaxFloor Qty • New field Display Range Qty <p>Added new reject reasons to 3.1.2 New Order Response Added new reject reasons to 3.1.4 Modify Order Response</p> <p>Changed 3.1.3 / Modify Order Request:</p> <ul style="list-style-type: none"> • New field MaxFloor Qty <p>Changed 3.2.2 / New Order Notification:</p> <ul style="list-style-type: none"> • New Order Instruction: Reserve Order Replenish Trigger • New field MaxFloor Qty • New field Display Range Qty <p>Changed 3.2.3 / Modify Order Notification:</p> <ul style="list-style-type: none"> • New field MaxFloor Qty <p>Added Reserve Order Replenishment Notification in 3.2.4</p> <p>Changed 3.2.7 Simple Execution Notification</p> <ul style="list-style-type: none"> • New field Secondary Order ID <p>Changed 3.2.8 Complex Execution Notification</p> <ul style="list-style-type: none"> • New field Secondary Order ID <p>Deprecate "XQ" message and replace with "X1" message due to Product Group Code expansion to 13 bytes</p> <p>Strategy Creation Response</p> <ul style="list-style-type: none"> • Remove error code 'D'

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