

B.11

CIRO, Marketplaces, Clearing Agencies and Trade Repositories

B.11.2 Marketplaces

B.11.2.1 Tradelogiq Markets Inc. – Lynx ATS – Periodic Matching – Notice of Proposed Amendments and Request for Comment

TRADELOGIQ MARKETS INC.

NOTICE OF PROPOSED AMENDMENTS AND REQUEST FOR COMMENT

LYNX ATS

PERIODIC MATCHING

Tradelogiq Markets Inc. (**Tradelogiq**) is publishing this Notice of Proposed Changes and Request for Comment in accordance with the “Process for the Review and Approval of Rules and the Information Contained in Form 21-101F2 and the Exhibits Thereto” (**Protocol**).

Subject to approval by the Ontario Securities Commission (**OSC**), Tradelogiq intends to implement the changes described below in respect of the implementation of a new trading model for Lynx ATS (**proposed changes**).

Market participants are invited to provide comments on the proposed changes. Comments should be in writing and submitted by November 13, 2023 to:

Market Regulation Branch
Ontario Securities Commission
22nd Floor
20 Queen Street West
Toronto, Ontario M5H 3S8
e-mail: marketregulation@osc.gov.on.ca

And to:

Jonathan Sylvestre
Chief Compliance Officer & Head of Market Structure
Tradelogiq Markets Inc.
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Toronto, ON M5J 2V5
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Comments will be made public on the OSC website. Upon completion of the review by OSC staff, and in the absence of any regulatory concerns, notice will be published to confirm the completion of OSC staff's review and to specify the intended implementation date of the changes.

If you have any questions concerning the information below, please contact Travis Felker, Head of Product and Strategy for Tradelogiq at 416-885-1231 or travis.felker@tradelogiq.com.

A. Periodic Matching - A new trading model for Lynx ATS (“Lynx”)

In October 2021, Tradelogiq received regulatory approval to introduce a speedbump that would be applied to orders sent by specified trader types (**speedbump proposal**). Tradelogiq ultimately decided not to proceed with implementation of the speedbump proposal and, in any event, the proposal was deemed to be withdrawn under the Protocol due to the amount of time that had passed since its approval. In accordance with the Protocol, OSC staff has published a separate deemed withdrawal notice in respect of that proposal.¹

¹ https://www.osc.ca/sites/default/files/2023-09/ats_20230928_lynx-ats-notice-of-withdrawal.pdf

Tradelogiq is now proposing to implement a periodic matching model on Lynx, whereby orders will not be matched immediately upon receipt, but will participate in discrete match events (**Match Events**) that will occur on a scheduled recurring basis, with each Match Event occurring every few milliseconds or less.

B. Expected implementation date

Subject to regulatory approval and meeting the specification and testing availability requirements set out in section 12.3 of National Instrument 21-101 *Marketplace Operation*, we expect implementation will occur no earlier than March 2024.

C. Details and rationale for the proposed changes

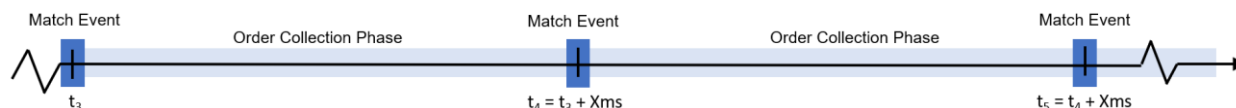
The following provides a general overview of the next generation Lynx trading model. For more details, including details and examples pertaining to order types, features and the matching process, see Appendix A.

The new model will consist of two separate books – a “Visible Book” and a “Midpoint Book” – both of which will be available for order entry and trading from 9:30am to 4:00pm (ET)² and will offer trading in all Canadian listed securities, as currently available on Lynx. The two books will operate on the same platform but will be functionally separated based on order type. More specifically, the Midpoint Book will consist solely of fully hidden Midpoint Peg orders, which are only eligible to interact against other Midpoint Pegs. All other order types participate only in the Visible Book.

Tradelogiq’s current intent is that the two books will be accessible through subscribers’ existing FIX order entry sessions and based on existing session defaults and/or the presence of FIX tags currently used to identify an order as being destined for Lynx.

As noted above, and applicable to both books, Lynx will operate a periodic matching model whereby orders received during the period preceding each Match Event (**Collection Phase**) will be displayed where applicable but will not be matched upon receipt. Orders will only be matched at Match Events that will be scheduled to occur every few milliseconds or less.

The following diagram presents the concept:



a) Visible Book summary

Orders in the Visible Book will, for the most part, be liquidity providing or liquidity taking based on their time-in-force condition. “Event or Cancel” (**EOC**) orders (being orders entered with an “Immediate or Cancel” (**IOC**) time-in-force condition) are generally classified as liquidity taking orders and are eligible to match only during the first Match Event after receipt, with any unfilled volume of an EOC order being cancelled at the end of that Match Event. Orders marked with a “DAY” time-in-force condition are generally classified as liquidity providing orders and will remain eligible for participation in subsequent Match Events until fully filled, cancelled by the subscriber, or cancelled by Lynx at the end of the trading day.

Other key details for the Visible Book are summarized below:

- Matching process – Matching will occur in two stages.
 - Stage 1 – EOC-to-DAY – EOC orders will be matched against DAY orders, with trade pricing determined by the executable price of the DAY order, similar to how an IOC order entered to a continuous auction market will execute based on the price of the resting order.
 - Stage 2 – EOC Final Turn – Unfilled EOCs with a limit price that is equal to or better than the Protected National Best Bid and Offer (**Protected NBBO**) midpoint will be matched against each other at the midpoint price. Subscribers will have the ability to choose that their EOC orders not participate in the EOC Final Turn.

Priority of DAY orders in each stage will be price / broker / time.³

As indicated by the above, DAY orders will not interact with each other in the Visible Book.

- Order display – DAY orders are always displayed, or are partially displayed in the case of DAY orders entered with an iceberg instruction. EOC orders are never displayed.

² Trading on Omega ATS will continue to operate from 8:00am to 5:00pm.

³ In all cases, whether for Visible Book or Midpoint Book, broker preferencing will not apply where one or both sides are marked as jitney.

Given that DAY orders will be displayed but not executable throughout the Collection Phase, a dynamic display mechanism will be implemented to avoid the potential for displayed prices to be locked or crossed with the Protected NBBO, or to be internally locked or crossed in the event there are resting DAY orders with overlapping prices. A DAY order's display price will therefore be constrained to the least aggressive of: (1) its limit price (2) its pegged price, where applicable, and (3) the Protected NBBO midpoint.

- Order types
 - DAY orders will include the "DAY Limit" and "Primary Peg" order types. Primary Peg orders can be entered with an offset. Both order types are visible, but can be entered with an iceberg instruction. Where entered as an iceberg, subscribers can also indicate a minimum interaction size (**MIS**) instruction to be applied when matching contra-side EOC orders against its hidden reserve portion, allowing users to specify the minimum counterparty order size to be met by each contra-side EOC order.
 - EOC orders will include the EOC Limit and Market Peg order types. Market Peg order types can be entered with an offset.
- Order processing and market data
 - New orders, order amend and order cancel requests will be processed as received during the Collection Phase. The ability to amend or cancel an order during the Collection Phase applies to all orders – whether EOC or DAY.
 - New displayed orders and order updates that affect the display price of an order during the Collection Phase (including when there is a change in the Protected NBBO that affects pegged reference prices or the display constraints described above) will be reflected on market data feeds as they are processed in real-time in the Lynx trading system. Trade reports will be generated and published on the market data feeds at each Match Event.
 - Lynx market data will be disseminated via the existing market data feed for Lynx, utilizing the existing data specifications.

Through this innovative design, we expect that the key benefits for those providing liquidity in the Visible Book through the use of DAY orders will include improved execution quality as a result of reduced adverse selection risk. In addition, because Lynx will be an unprotected venue, the inclusion of *displayed* Primary Peg DAY orders will extend the above protection to participants regardless of their sophistication level, the amount invested in technology and latency reduction, or the size of the order.

We also expect that the ability for a Primary Peg to include a reserve iceberg quantity, and for the MIS condition to be applied in connection with the reserve quantity of both a DAY Limit iceberg and Primary Peg iceberg, will provide new opportunities for subscribers to trade more effectively in size without having to disclose the entirety of their position.

Liquidity takers in the Lynx Visible Book will have the ability to interact with more stable passive liquidity, to the extent that the protections and features available to liquidity providers contributes to committed visible liquidity in greater size and at improved prices.

The EOC Final Turn will also provide new and novel benefits to liquidity takers by helping to mitigate the risk that DAY volume is no longer available, whether because it faded or was exhausted during the Match Event, while unlocking a new source of liquidity and new opportunities for price improvement.

b) Midpoint Book summary

The Midpoint Book will be a dark order book consisting solely of Midpoint Peg orders. The MIS instruction will be available for use on all Midpoint Peg orders.

New orders, amends and cancel requests will similarly be processed as received during the Collection Phase.

Matching will occur in one stage. Midpoint Peg orders will be traded on a FIFO basis against all eligible contra-side orders,⁴ with broker/time priority applied to the contra-side orders.

At the end of the Match Event, any unfilled EOC Midpoint Peg orders are cancelled.

⁴ Being those contra-side Midpoint Peg orders that not constrained from trading due to a limit price that is less aggressive than the Protected NBBO midpoint.

As with the Visible Book, trade reports will be generated and published on the market data feeds at each Match Event, utilizing the existing data specifications. Midpoint Book trades will be specifically identified on the market data feeds to distinguish a trade from the Midpoint Book from a trade that occurred in the Visible Book.

Based on the design and features of the Midpoint Book, we expect the primary benefits will be better execution quality and reduced market impact relative to standard midpoint offerings. We expect that subscribers will have increased opportunities to trade size as a result of the aggregation of midpoint liquidity during the Collection Phase, and can manage information leakage by limiting interaction against small information-seeking orders through use of MIS.

c) Market data

New orders and order updates affecting displayed orders during the Collection Phase, including when there is a change in the Protected NBBO that affects displayed peg reference prices or the display prices of aggressive DAY orders that have been constrained to the Protected NBBO midpoint, will be reflected in the market data feeds as they are processed by the Lynx trading system.

Similarly, trade reports will be generated and published on the market data feeds as each trade occurs during a Match Event.

Lynx market data will be disseminated using the existing Lynx market data feed, which is a full-depth order and trade feed, and utilizing the existing data specifications and connectivity. Tradelogiq expects that if any changes to data feed specifications are needed, they will be minimal – for example, interested participants will be afforded the capability to identify trades that occurred in the Midpoint Book.

D. Expected impact on market structure, subscribers and, if applicable, investors and capital markets

Tradelogiq expects the Lynx periodic matching model to have a positive impact on the market structure, subscribers and their clients based on the intended benefits of the model described throughout this notice. The model also provides new trading opportunities as a result of the innovative design and enhanced features that may have a positive effect on market-wide liquidity and price discovery.

We do not expect that Lynx will have any negative impact on the markets as a whole. It is our expectation that the Visible Book will not be protected for the purposes of the OPR requirements in Part 6 of National Instrument 23-101 *Trading Rules*.

Tradelogiq is also conscious of the burden associated with the adoption of new markets and features and will seek to minimize those impacts by leveraging existing Lynx connectivity, and the existing order entry and market data specifications. Further, we note that subscribers already accessing and using Lynx today can continue do so through existing order types, and can leverage similar liquidity-taking strategies already deployed in smart order routers for taking liquidity on speedbump markets.

E. Expected impact on Tradelogiq's compliance with Ontario securities law requirements and, in particular, requirements for fair access and maintenance of fair and orderly markets

The Amendments will not impact Tradelogiq's compliance with applicable securities laws and in particular the requirements for fair access and the maintenance of fair and orderly markets.

The order types and features offered are available to all users, and all orders will be (a) subject to delay as a result of the periodic matching mechanism and (b) eligible to be amended or cancelled.

Tradelogiq expects that the model will not be protected for the purposes of the OPR requirements in Part 6 of National Instrument 23-101 *Trading Rules* due to the impact of the periodic matching mechanism on an EOC's ability to immediately execute. The display pricing mechanism and execution pricing constraints applicable to DAY orders entered to the Visible Book, and the availability of OPR features for EOC orders entered to the Visible Book, are intended to ensure that the model does not contribute to the appearance of locked or crossed markets, and is designed to prevent trade-throughs where the responsibilities for compliance for OPR have not otherwise been assumed by the subscriber by marking their order as DAO.

F. Summary of consultations undertaken in formulating the proposed change and the internal governance process followed to approve it

Tradelogiq conducted informal consultations with a number of stakeholders over the course of the development of this proposal, and all necessary internal executive approvals were obtained prior to filing.

G. If the proposed change will require subscribers or service vendors to modify their systems after implementation, the expected impact on the systems of subscribers and service vendors together with an estimate of the amount of time needed to perform the necessary work and how the estimated amount of time was deemed reasonable in light of the expected impact of the proposed change on Lynx ATS, its market structure, subscribers, investors or the Canadian capital markets

From an order entry and FIX messaging perspective, no significant changes are needed. Subscribers and vendors may choose to expend development efforts to take advantage of the Primary Peg and Market Peg orders and the MIS feature, but their usage is optional. Further, the core functionality of these features is generally well understood and will rely on standard and/or existing FIX tags and values, as appropriate.

In terms of market data, as noted above, we anticipate that any changes to our market data specifications will be minimal, and no new connections will be required to access data for users already consuming or receiving a Lynx market data feed. Order updates and trade reports will be generated and disseminated as they occur, following our existing market data specifications and in the same way such events are disseminated today for both Omega ATS and Lynx ATS, thereby fitting into existing downstream data processes and workflows.

Based on our intended implementation date, we expect there will be at least 90 days between regulatory approval and implementation, which should be sufficient for those who wish to implement the new features and model into their trading workflows.

H. Alternatives considered

Consideration had been given to proceeding with the speedbump mechanism that had been previously approved for implementation. As already expressed, it is our view that the periodic matching model offers trade features that should provide opportunities for better outcomes and execution quality than those available under the previously approved speedbump model.

I. If applicable, whether the proposed change would introduce a model or feature that currently exists in other markets or jurisdictions

The periodic matching model being proposed for Lynx ATS incorporates a number of features present in marketplace models in Canada and in other jurisdictions.

For example, the concept of scheduled times for recurring match events (whether fixed or randomized) is present on MATCHNow where matching of dark "LP orders" at the Protected NBBO midpoint occurs on a randomized basis every 1 to 3 seconds. IntelligentCross®, an alternative trading system in the United States, operates a visible periodic matching model, whereby matches occur at a frequency of 900 microseconds or less, and in a manner that has similarities to a continuous auction market. In addition, the application of order execution delays on visible markets is not new. Both Alpha Exchange and CBOE Canada operate visible markets that may impose delays on incoming liquidity-taking orders.

The display mechanism, whereby orders priced more aggressively than the Protected NBBO midpoint will be displayed at prices at or inside the Protected NBBO midpoint price, is unique in the context of how it is deployed for this proposal. However, the notion of displaying volume at prices that do not reflect more aggressive executable prices is not new. For example, NEO-N will aggregate and display volume of midpoint peg orders at the same-side best displayed price. In a sense, a DAY order entered to the Visible Book with an aggressive executable price that is through the Protected NBBO midpoint is akin to a dark order whose volume is displayed at a less aggressive price (like on NEO-N).

The EOC final-turn mechanism, while also unique in the context of its use in this proposal, is similar in concept to a reference price based matching mechanism like that applicable for matches between LP orders on MATCHNow (referred to above), or exchange closing auctions which match orders at an assigned calculated price and then cancel any remaining unfilled orders.

The availability of MIS on the hidden portion of an iceberg is also unique in the context of this proposal, but the concept of applying a condition on hidden liquidity that establishes a minimum size for interaction with contra-side orders is not new for fully hidden orders.

APPENDIX A – ADDITIONAL DETAILS AND RATIONALE**1. Visible Book***a) Order types and features – Visible Book*

Order types for the Visible Book are generally classified into liquidity taking and liquidity providing orders (subject to the exception whereby two liquidity taking orders may execute against each other as described further in the section below regarding “Match Event Process and Match Priority”).

Liquidity providing orders are always displayed, whereas liquidity taking orders are never displayed. The time-in-force condition applied to the order defines whether it is liquidity providing or liquidity taking. The following table summarizes the order types and key attributes available for orders.

| | LIQUIDITY TAKING (ACTIVE) (Not Displayed) | | LIQUIDITY PROVIDING (PASSIVE) (Displayed / Partially Displayed) | |
|---------------|----------------------------------------------|------------|--------------------------------------------------------------------|-----------|
| Time-in-Force | EOC | | DAY | |
| Order Type | EOC Limit | Market Peg | Primary Peg | DAY Limit |
| Features: | | | | |
| Peg offset | | Y | Y | |
| Iceberg | | | Y | Y |
| MIS | | | Y | Y |

i) Liquidity taking orders

Orders marked IOC (referred to as EOC for the purposes of the periodic matching model) are generally considered to be liquidity taking. An EOC order will behave similarly to an IOC order, except that instead of seeking to execute immediately, they will seek to execute at the first scheduled Match Event after receipt, with any unfilled amount being cancelled at the end of that Match Event.

Except in the EOC Final Turn of matching that is further described in detail in the section titled “Match Event process and match priority – Visible Book”, EOC orders are intended to trade only against liquidity providing (i.e., DAY) orders in the Visible Book.

The Visible Book will offer two liquidity taking EOC order types: “EOC Limit” and “Market Peg” orders.

- EOC Limit – An EOC Limit is entered with a limit price and is executable against contra-side orders up to its limit price, subject to any other applicable instruction on the order (e.g., an OPR instruction).
- Market Peg – A Market Peg’s price will float in reference to the opposite-side Protected National Best Bid and Offer (**Protected NBBO**), subject to the order’s limit price. Specifically, a buy Market Peg will be priced in reference to the opposite-side Protected National Best Offer (**Protected NBO**), while a sell Market Peg will be priced in reference to the opposite-side Protected National Best Bid (**Protected NBB**).

Market Pegs can be entered with or without a limit price, and with an offset value that specifies the distance in number of trading increments from the reference price that the Market Peg’s price should be set. A positive offset will indicate a more aggressive price relative to the opposite-side Protected NBBO, while a negative offset will indicate a less aggressive price. For example, where the Protected NBO is \$10.05, a buy Market Peg with a positive (negative) offset of 1 (-1) will result in the Market Peg being priced at \$10.06 (\$10.04).

At the time of the Match Event, a Market Peg with a pegged price that is more aggressive than its limit price will remain eligible to trade at prices up to its limit price. A Market Peg will not trade at a Match Event if there is no opposite-side Protected NBBO to serve as a reference price.

ii) Liquidity providing orders

Liquidity providing orders are identified based on the subscriber having applied a “DAY” time-in-force condition to their order. DAY orders will remain eligible to participate in each Match Event until fully filled, cancelled by the subscriber, or cancelled by Lynx at the end of the trading day.

DAY orders will only trade with EOC orders in the Visible Book. DAY orders will therefore never match against each other in the Visible Book.

The Visible Book will offer two liquidity providing order types, being the “DAY Limit” and “Primary Peg”.

- DAY Limit – A DAY Limit is entered with a limit price and can be executed against contra-side liquidity taking orders, subject to any other applicable instruction or pricing constraint applied to the order.⁵
- Primary Peg – A Primary Peg’s price will float in reference to the same-side Protected NBBO, as applicable, subject to the order’s limit price and any other applicable instruction or pricing constraint. Specifically, a buy Primary Peg will be priced in reference to the same-side Protected NBB, while a sell Primary Peg will be priced in reference to the same-side Protected NBO.

Primary Pegs can be entered with or without a limit price, and with an offset value that specifies the distance in number of trading increments from the reference price that the Primary Peg’s price should be set. A positive offset will indicate a more aggressive price relative to the same-side Protected NBBO, while a negative offset will indicate a less aggressive price. For example, where the Protected NBB is \$10.00, a buy Primary Peg with a positive (negative) offset of 1 (-1) will result in the Primary Peg being priced at \$10.01 (\$9.99).

A Primary Peg will be held in a non-executable state (and therefore will not be displayed and will not be participate in a Match Event) at any time where there is no same-side Protected NBBO to serve as a reference price.

- Additional order features available for use with DAY Limit and Primary Peg:
 - Iceberg – Lynx will support iceberg functionality on both the DAY Limit and Primary Peg, providing users with the ability to participate at each Match Event in larger size without disclosing the full size of their order. Used in combination with a Primary Peg, the result is a floating iceberg that allows users to manage both information leakage in relation to the total size of their order while ensuring their execution price is in line with current prices.

The hidden portion of an iceberg will only execute once all displayed volume at that price level has been exhausted. Because matching will occur at scheduled intervals, the hidden portion of an iceberg may be executed against by one or more liquidity taking orders before being refreshed – i.e., a refresh occurs only at the end of a match event to reduce superfluous messaging during Match Event processing. The refreshed amount will always be the lesser of the order’s specified display size or the order’s remaining quantity. A new priority timestamp will be applied at the time of the refresh. (See example of EOC-to-DAY matching in paragraph (c) below regarding Match Event process and matching priority for the Visible Book.)
 - Minimum Interaction Size (**MIS**) – Lynx will also support the use of the MIS condition applicable to the reserve portion of either of a DAY Limit iceberg or Primary Peg iceberg. The MIS condition can be used to specify contra-party size and limit exposure to small-sized information seeking orders. The specified MIS value is compared against the entered size of the contra-side order, regardless of the contra-side liquidity taking order’s remaining size after executing first against any displayed resting volume. Where the remaining order size of a liquidity providing order with the MIS condition is less than the MIS specified on the order, the MIS to be applied will be the remaining order size. (See examples in section 4 below.)

b) Order processing during the Collection Phase – Visible Book

i) Handling of new order and amend and cancel requests

Order and amend and/or cancel requests will be processed as received during each Collection Phase. The ability to amend or cancel orders during the Collection Phase applies equally to all orders, and allows all subscribers to manage their exposure during changing market conditions, regardless of whether the subscriber is seeking to provide or take liquidity.

Order and amend/cancel requests received after the commencement of a Match Event will be processed at the commencement of the next Collection Phase to allow for efficient Match Event processing.

⁵ See the section on “Executable prices and effect of changes in executable price on time priority” regarding the application of pricing constraints on the execution price of a liquidity providing order at the time of a match event.

ii) Order display

Order updates to DAY orders will be reflected in real-time in the Lynx market data feeds. Displayed prices of Primary Pegs will also update in real-time in response to a change in the reference Protected NBB/NBO price.

Because DAY orders will be displayed but not executable throughout the Collection Phase, a dynamic display mechanism will be implemented to avoid the potential for displayed prices to be locked or crossed with the Protected NBBO, or to be internally locked or crossed in the event there are resting DAY orders with overlapping prices.

A DAY order's display price will therefore be constrained to the least aggressive of: (1) its limit price; (2) its pegged price, as applicable; and (3) the Protected NBBO midpoint (or inside the Protected NBBO midpoint where the midpoint is an invalid increment for display purposes, or the midpoint price is already occupied for display purposes.)

This display mechanism is also intended to provide the ability for subscribers with liquidity providing orders on either side to contribute price improving displayed liquidity on similar terms, including the ability to provide price-improving liquidity at prices that are more aggressive than the midpoint without exposing their true limit.

An example of the display mechanism is set out below.

Assume Protected NBBO is \$10.00 x \$10.03, and there are no orders in the Visible Book at the commencement of the Collection Phase:

Lynx then receives the following three liquidity providing DAY orders (in sequence):

| # | Type | Side | Volume | Limit Price | Peg Offset |
|---|-------------|------|--------|-------------|------------|
| 1 | DAY Limit | Buy | 500 | \$10.03 | |
| 2 | Primary Peg | Buy | 300 | \$10.02 | +1 |
| 3 | DAY Limit | Sell | 600 | \$10.01 | |

Because each of the above orders is priced at or through the Protected NBBO midpoint of \$10.015, they will be displayed at prices that are constrained to the NBBO midpoint in the manner described above. The order updates sent on the Lynx market data feeds will therefore result in display prices for each as follows:

| BUY | | | SELL | | |
|-----|--------|---------------|---------------|--------|---|
| # | Volume | Display Price | Display Price | Volume | # |
| 1 | 500 | \$10.01 | \$10.02 | 600 | 3 |
| 2 | 300 | \$10.01 | | | |

Order 1 (buy) is displayed at \$10.01 despite it having a limit price of \$10.03 because its display price is constrained by the Protected NBBO midpoint. Order #2 (buy) is displayed at its pegged reference price of Primary + 1 – being \$10.01. The display price for Order #3 (sell) is constrained by the Protected NBBO midpoint.

The dynamic display mechanism affects only the display price of an order and does not affect the order's executable price.

iii) Executable prices and effect of changes in executable price on time priority

The executable price of an order entered into the Visible Book will generally be determined by its limit price or peg reference price.

An EOC order's executable price will be determined by its limit / peg reference price, and subject to the effect of any OPR instruction. Similar to when a subscriber enters an IOC order on a speedbump market, subscribers can assume responsibility for OPR compliance and identify their order as a Directed Action Order (**DAO**) or can utilize the OPR features offered by Lynx (described in section 3 below).

For a DAY order, the executable price will similarly be determined by its limit / peg reference price, but will in all cases be constrained to the opposite-side NBBO. This will ensure there is no appearance of trade-throughs resulting from the execution of DAY orders entered with a limit price or peg reference price that crosses the opposite-side Protected NBBO at the time of a Match Event. A DAY order's executable price at any given time is therefore the least aggressive of: (i) its limit price; (ii) its peg reference price in the case of a Primary Peg; and (iii) the opposite-side Protected NBBO.

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As noted above, the dynamic display mechanism will affect the display price of a DAY order but does not affect the order's executable price. This is because the display mechanism is intended to manage the appearance of locked or crossed markets during the Collection Period, and the constraints applied to an order's display price differ from the constraints applied to an order's executable price.

During the Collection Period, Lynx will also update a DAY order's executable price when such price is affected by a change in the Protected NBBO, and will update the order's priority timestamp at any time its executable price changes.

An example of the impact of changes in the executable price is set out below.

Assume Protected NBBO is \$10.00 x \$10.03, time of commencement of Collection Period is 10:02:03.055000 and there are no orders in the Visible Book.

Lynx then receives the following aggressively priced liquidity providing DAY orders to the Visible Book (in sequence):

| # | Timestamp | Type | Side | Volume | Limit Price | Peg Offset |
|---|-----------------|-------------|------|--------|-------------|------------|
| 1 | 10:02:03.055200 | Primary Peg | Buy | 500 | \$10.03 | +2 |
| 2 | 10:02:03.055400 | DAY Limit | Buy | 1000 | \$10.04 | N/A |
| 3 | 10:02:03.055700 | DAY Limit | Buy | 200 | \$10.02 | N/A |

After receipt, the order book is as follows:

| BUY | | | | | | | |
|-----|--------------------|----------------|--------|-------------|------------------|---------------|--|
| # | Priority Timestamp | Type | Volume | Limit Price | Executable Price | Display Price | |
| 2 | 10:02:03.055400 | DAY Limit | 1000 | \$10.04 | \$10.03 | \$10.01 | |
| 1 | 10:02:03.055200 | Primary Peg +2 | 500 | \$10.03 | \$10.02 | \$10.01 | |
| 3 | 10:02:03.055700 | DAY Limit | 200 | \$10.02 | \$10.02 | \$10.01 | |

Notes:

- Executable price of Order 2 constrained by opposite-side Protected NBBO.
- Executable price of Order 1 determined by Primary Peg + offset instruction; not constrained by limit or opposite-side Protected NBBO.
- Executable price of Order 3 not constrained by opposite-side Protected NBBO.
- Display price on market data feeds of all three orders constrained by Protected NBBO midpoint.

At 10:02:03.056130, Lynx receives an update of the Protected NBB to \$10.01 – the Protected NBBO is now \$10.01 x \$10.03. The order book updates as follows:

| BUY | | | | | | | |
|-----|--------------------|----------------|--------|-------------|------------------|---------------|--|
| # | Priority Timestamp | Type | Volume | Limit Price | Executable Price | Display Price | |
| 2 | 10:02:03.055400 | DAY Limit | 1000 | \$10.04 | \$10.03 | \$10.02 | |
| 1 | 10:02:03.056130 | Primary Peg +2 | 500 | \$10.03 | \$10.03 | \$10.02 | |
| 3 | 10:02:03.055700 | DAY Limit | 200 | \$10.02 | \$10.02 | \$10.02 | |

Notes:

- Executable price of Order 1 updates to \$10.03 as a result of its peg instruction, which price does not exceed the opposite-side Protected NBBO. Order 1 is assigned a new priority timestamp as a result of the change to its executable price.
- Display price on market data feeds updates accordingly for all three orders and remains constrained by the Protected NBBO midpoint.

At the next Match Event, assuming no further updates occurred during the Collection Period, Order 2 would have time priority over Order 1 at the executable price of \$10.03 due to the change in Order 1’s executable price during the Collection Period, and despite Order 2 having a more aggressive limit price.

c) Match Event process and match priority – Visible Book

Matching in the Visible Book will occur in two stages, as described below.

Stage 1 – EOC-to-DAY

During this stage, EOC orders will be matched on a “first in, first out” (**FIFO**) basis against DAY orders, like an EOC order entered to a continuous auction market.

Priority of matching for DAY orders will follow price/broker/time priority. The following also impacts the matching priority for DAY orders:

- Within a given price level, all displayed DAY order volume at price level will be executed before any hidden iceberg volume is executed.
- Broker preferencing will only apply when both sides of are attributed. This applies both when executing visible DAY order volume and when executing hidden iceberg volume.

In the event that the Protected NBBO is locked or crossed at the time of the Match Event, there will be no trades executed during the EOC-to-DAY stage of matching.

An example of the EOC-to-DAY matching stage:

Assume the Protected NBBO is \$10.00 x \$10.03, and the Visible Book consists of the following orders at the commencement of the Match Event.

For simplicity, the Rank assigned to each order below represents the order’s position based on its priority timestamp (lowest number / letter = oldest timestamp). “Type” delineates only between DAY and EOC orders, while “Executable Price” represents the order’s executable price based on its limit and/or peg reference prices. Orders below are sorted from most aggressive price to least, followed by Rank (i.e., priority timestamp).

| BUY | | | | | | SELL | | | | | |
|------|------|--------|----------------------|--------------------|------------------|------------------|--------------------|----------------------|--------|------|------|
| Rank | Type | Broker | Total Order Quantity | Displayed Quantity | Executable Price | Executable Price | Displayed Quantity | Total Order Quantity | Broker | Type | Rank |
| C | EOC | 051 | 1200 | N/A | \$10.03 | \$10.00 | N/A | 1500 | 063 | EOC | A |
| F | EOC | 001 | 900 | N/A | \$10.03 | \$10.00 | N/A | 2000 | 001 | EOC | E |
| 2 | DAY | 001 | 1000 | 1000 | \$10.01 | \$10.01 | N/A | 500 | 078 | EOC | B |
| 1 | DAY | 120 | 2000 | 500 | \$10.00 | \$10.01 | N/A | 1000 | 001 | EOC | D |
| 6 | DAY | 063 | 1000 | 200 | \$10.00 | \$10.03 | 1200 | 1200 | 037 | DAY | 5 |

B.11: CIRO, Marketplaces, Clearing Agencies and Trade Repositories

The following represents the trades that will result from the EOC-to-Day stage of the Match Event.

| Trade # | Buy order | Sell Order | Price | Quantity | Notes |
|---------|-----------|------------|---------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ① | DAY_2 | EOC_A | \$10.01 | 1000 | Sell EOC_A was the first EOC received, and trades 1000 shares against the 1000 shares of Buy DAY_2 displayed at \$10.01. |
| ② | DAY_6 | EOC_A | \$10.00 | 200 | Sell EOC_A then trades 200 against the displayed volume of Buy DAY_6 at \$10.00, trading ahead of buy Buy DAY_1 due to broker preferencing (both sides attributed). |
| ③ | DAY_1 | EOC_A | \$10.00 | 300 | Sell EOC_A then trades its remaining 300 shares against the displayed volume of Buy DAY_1 (displayed before hidden). |
| ④ | EOC_C | DAY_5 | \$10.03 | 1200 | Sell EOC_B is next in sequence, but there are no buy DAY orders remaining that are executable at its \$10.01 executable price. Buy EOC_C is next in sequence and trades its full 1200 shares against the 1200 shares displayed by Sell DAY_5. |
| ⑤ | DAY_1 | EOC_E | \$10.00 | 200 | Sell EOC_D is next in sequence, but there are no buy DAY orders remaining that are executable at its \$10.01 executable price. Sell EOC_E is next in sequence and trades 200 shares against the remaining 200 shares displayed by Buy DAY_1. |
| ⑥ | DAY_1 | EOC_E | \$10.00 | 1500 | Sell EOC_E then trades 1500 shares of its remaining volume against the 1500 share reserve quantity of Buy DAY_1. Sell EOC_E is anonymous, so there is no broker preferencing opportunity. |
| ⑦ | DAY_6 | EOC_E | \$10.00 | 300 | Sell EOC_E then trades its remaining 300 shares against the reserve quantity of Buy Day_6. |

After the EOC-to-DAY stage of matching, the Visible Book is as follows:

| BUY | | | | | | | SELL | | | | | |
|------|------|--------|-----------------|------------|---------------|------------------|------------------|---------------|-----------------|--------|------|------|
| Rank | Type | Broker | Total Order QTY | Leaves QTY | Displayed QTY | Executable Price | Executable Price | Displayed QTY | Total Order QTY | Broker | Type | Rank |
| F | EOC | 001 | 900 | N/A | N/A | \$10.03 | \$10.01 | N/A | 500 | 078 | EOC | B |
| 6 | DAY | 063 | 1000 | 200 | 0 | \$10.00 | \$10.01 | N/A | 1000 | 001 | EOC | D |

Stage 2 – EOC Final Turn

In this stage, remaining unexecuted EOC orders that are priced at or through the Protected NBBO midpoint have the opportunity to execute against each other at that midpoint price. This will help to mitigate the potential that DAY orders are fully exhausted before EOC demand can be satisfied, including in the case where adjustments / cancels to DAY orders are made by subscribers during the Collection Phase due to changes in market conditions, which would have otherwise resulted in the EOC orders going unfilled.

EOC orders will participate in this matching stage by default, but subscribers with EOC orders will be able to opt-out of the EOC Final Turn stage where desired,⁶ both at the session level and on an order-by-order basis. However, where opted-out, subscribers may miss additional opportunities to obtain price improvement for their client orders.

Remaining EOC orders will be made eligible on a FIFO basis to trade against the remaining eligible contra-side EOC orders. The priority for contra-side orders will follow broker / time for contra-side orders with an executable price that is at or through the Protected NBBO midpoint.

⁶ For example, to avoid fee uncertainty depending on the fee model and fees applicable to trades in the Visible Book.

B.11: CRO, Marketplaces, Clearing Agencies and Trade Repositories

At the end of this stage, any unfilled EOC orders will be cancelled, DAY order display quantities for icebergs will be refreshed, and the order book will transition to the next Collection Phase and begin to process received orders (including those received while the matching process was being run).

In the event that there is no valid Protected NBBO midpoint available at the Match Event (i.e., one or both sides of the Protected NBBO is missing, or the Protected NBBO is locked or crossed), no EOCs will trade during the EOC Final Turn.

Continuing from the example above as at the end of the EOC-to-DAY stage of matching:

Protected NBBO midpoint at beginning of Match Event was \$10.015, and the Visible Book consisted of the following orders at the commencement of the EOC final turn stage:

| BUY | | | | | | | SELL | | | | | |
|------|------|--------|-----------------|------------|---------------|------------------|------------------|---------------|-----------------|--------|------|------|
| Rank | Type | Broker | Total Order QTY | Leaves QTY | Displayed QTY | Executable Price | Executable Price | Displayed QTY | Total Order QTY | Broker | Type | Rank |
| F | EOC | 001 | 900 | N/A | N/A | \$10.03 | \$10.01 | N/A | 500 | 078 | EOC | B |
| 6 | DAY | 063 | 1000 | 200 | 0 | \$10.00 | \$10.01 | N/A | 1000 | 001 | EOC | D |

The following represents the trades that will result from the EOC Final Turn stage of the Match Event.

| Trade # | Buy order | Sell Order | Price | Quantity | Notes |
|---------|-----------|------------|----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8 | EOC_F | EOC_B | \$10.015 | 500 | Sell EOC_B is first based on FIFO, and trades its full quantity against the Buy EOC_F at \$10.015. (EOC_B is the active side of the trade.) |
| 9 | EOC_F | EOC_D | \$10.015 | 400 | Sell EOC_D is next in sequence, and trades 400 shares against the remaining 400 shares of Buy EOC_F at \$10.015. (EOC_D is the active side of the trade.) |

After Trade #9, there are no remaining EOC matching opportunities by virtue of there being no remaining buy EOCs, and so the Match Event ends. Any remaining unfilled EOCs (i.e., the remaining 600 shares of EOC_D in the above example) are cancelled.

Any remaining DAY orders are updated (e.g., display portion of icebergs refreshed) and the Visible Book transitions back to Collection Phase state. The Visible Book at the commencement of the subsequent Collection Phase is as follows:

| BUY | | | | | | | SELL | | | | | |
|------|------|--------|-----------------|------------|---------------|------------------|------------------|---------------|-----------------|--------|------|------|
| Rank | Type | Broker | Total Order QTY | Leaves QTY | Displayed QTY | Executable Price | Executable Price | Displayed QTY | Total Order QTY | Broker | Type | Rank |
| 6 | DAY | 063 | 1000 | 200 | 200 | \$10.00 | | | | | | |
| | | | | | | | | | | | | |

d) Fee model – Visible Book

Notification regarding the fee model and fee levels for the Visible Book will be made public closer to implementation for competitive reasons, and to allow for further consultations with subscribers after they have had sufficient time to consider the model as described herein.

2. Midpoint Book

The Midpoint Book will be a dark book consisting solely of Midpoint Peg orders. No separate connectivity is required to access the Midpoint Book – the separation is strictly functional, based on order type. Midpoint Peg orders will only trade with other Midpoint Peg orders and will not interact with orders entered to the Visible Book.

a) Order types and features – Midpoint Book

A Midpoint Peg’s price will float in reference to the Protected NBBO midpoint, subject to the order’s limit price. Midpoint Pegs can be entered with or without a limit price, and can be entered in half-tick increments to reflect the fact that trades can occur at a Protected NBBO midpoint price that is in a half-tick increment.

The MIS condition will be available for use on Midpoint Peg orders (both DAY and EOC) to allow subscribers to specify contra-party size and limit exposure to small-sized information seeking orders. MIS will work in the same way as described earlier in the circumstance where it is applied to the reserve portion of iceberg DAY orders in the Visible Book, except that it could be possible in the Midpoint Book both sides of a potential trade will have a MIS condition attached. In that case, each side must satisfy their respective contra-side’s MIS requirement in order for a trade to occur.

A Midpoint Peg will be held in a non-executable state and not participate in a Match Event when the Protected NBBO midpoint is more aggressive than the order’s specified limit price. Midpoint Pegs will not trade in a Match Event where a valid Protected NBBO midpoint is not available (i.e., where one or both sides of the Protected NBBO is missing, or where the Protected NBBO is locked or crossed).

b) Order processing during the Collection Phase – Midpoint Book

Similarly to the Visible Book, new order and amend and cancel requests will be processed as received during the Collection Phase.

As all Midpoint Peg orders float with the Protected NBBO midpoint, and are only tradeable against other Midpoint Peg orders at the midpoint price at the time of the Match Event following the FIFO approach described below, Midpoint Peg orders will maintain their relative time priority when the Protected NBBO midpoint changes.

c) Match Event process and match priority – Midpoint Book

Only Midpoint Peg orders that have a limit price that is at or through the Protected NBBO midpoint will be eligible to match during a Match Event.

Matching in the Midpoint Book will occur in one stage. Midpoint Peg orders will be traded on a FIFO basis against all eligible contra-side orders in the Midpoint Book, and regardless of the order’s time-in-force conditions. Priority for eligible contra-side Midpoint Peg orders is broker / time, and anonymous broker preferencing will apply.⁷

EOC Midpoint Peg orders will be eligible to participate in multiple trades throughout the Match Event process, and any unfilled EOC Midpoint Peg orders will be cancelled at the end of the Match Event.

As an example:

Assume the Protected NBBO midpoint is \$10.015 (Protected NBBO is \$10.00 x \$10.03), and the Midpoint Book consists of the following orders at the commencement of the Match Event.

For simplicity, the Rank assigned to each order below represents the order’s position based on its time priority (lowest number / letter = oldest timestamp). “Type” delineates only between DAY and EOC orders. Orders below are sorted by Rank. “True Broker” identifies the underlying broker on the order, regardless of whether the order was marked as anonymous. “Executable” reflects whether the Midpoint Peg is executable based on the order’s limit price – orders that are not executable due to their limit price are shaded grey.

| BUY | | | | | | SELL | | | | | |
|------|------|-------------|----------------------|-------------|------------|------------|-------------|----------------------|-------------|------|------|
| Rank | Type | True Broker | Total Order Quantity | Limit Price | Executable | Executable | Limit Price | Total Order Quantity | True Broker | Type | Rank |
| A | DAY | 165 | 600 | MKT | Y | Y | \$10.015 | 2000 | 063 | EOC | C |
| B | DAY | 112 | 900 | \$10.03 | Y | N | \$10.02 | 1500 | 165 | EOC | E |
| D | EOC | 097 | 1000 | \$10.01 | N | Y | \$10.00 | 500 | 078 | DAY | F |
| G | EOC | 120 | 2000 | \$10.015 | Y | Y | \$10.01 | 1000 | 112 | DAY | H |
| J | DAY | 063 | 1000 | \$10.02 | Y | Y | \$10.01 | 1200 | 037 | DAY | I |

⁷ Meaning broker priority will apply for two contra-side orders from the same subscriber regardless of whether one or both sides is marked as anonymous.

B.11: CIRO, Marketplaces, Clearing Agencies and Trade Repositories

The following represents the trades that will result during the Match Event.

| Trade # | Buy order | Sell Order | Price | Quantity | Notes |
|---------|-----------|------------|----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | DAY_A | EOC_C | \$10.015 | 600 | Buy DAY_A is first based on FIFO and trades (active) in full against Sell EOC_C based on time. (No broker preferencing applied to Sell EOC_E as it is not executable due to its limit price.) |
| 2 | DAY_B | DAY_H | \$10.015 | 900 | Buy DAY_B is next in sequence to trade and trades (active) in full against Sell DAY_H due to broker preferencing. |
| 3 | DAY_J | EOC_C | \$10.015 | 1000 | Sell EOC_C is next in sequence to trade and trades (active) 1000 of its remaining 1400 shares against Buy DAY_J due to broker preferencing. |
| 4 | EOC_G | EOC_C | \$10.015 | 400 | Sell EOC_C then trades its remaining 400 shares (active) against Buy EOC_G. (Buy EOC_D is non-executable based on limit price.) |
| 5 | EOC_G | DAY_F | \$10.015 | 500 | Sell DAY_F is next in sequence to trade and trades (active) in full against Buy EOC_G based on time. Both Buy EOC_D and Sell EOC_E would have otherwise been next to trade after Sell EOC_C, but both are non-executable due to their limit price. |
| 6 | EOC_G | DAY_H | \$10.015 | 100 | Buy EOC_G is next in sequence to trade and trades (active) against the 100 remaining shares of Sell DAY_H based on time. |
| 7 | EOC_G | DAY_I | \$10.015 | 1000 | Buy EOC_G then trades (active) its remaining 1000 shares against Sell DAY_I. |

After Trade #7, there are no further matching opportunities, and the Match Event ends. Any remaining unfilled EOC Midpoint Peg orders (being Buy EOC_D and Sell EOC_E which were both not executable due to limit price) are cancelled.

The Midpoint Book then transitions back to Collection Phase state. The Midpoint Book at the commencement of the subsequent Collection Phase is as follows:

| BUY | | | | | | SELL | | | | | |
|------|------|-------------|----------------------|-------------|------------|------------|-------------|----------------------|-------------|------|------|
| Rank | Type | True Broker | Total Order Quantity | Limit Price | Executable | Executable | Limit Price | Total Order Quantity | True Broker | Type | Rank |
| | | | | | | Y | \$10.01 | 200 | 037 | DAY | A* |
| | | | | | | | | | | | |

* Remaining 200 share balance of Sell DAY_I from the preceding Match Event now has the oldest timestamp, as reflected in the revised rank above.

d) Fee model – Midpoint Book

We intend to implement the Midpoint Book with a symmetrical fee model. This will provide fee certainty to subscribers for each trade regardless of whether their order is considered the active or passive side of the trade.

The fee model and fee levels for the Midpoint Book will be made public closer to implementation.

3. Additional information

a) Match Event frequency

Tradelogiq intends to base Match Event frequency on the combination of a static duration component and a randomization window. The static duration will be set at no more than 5 milliseconds. A window of randomization of no more than 1 millisecond on each side of the static duration may be implemented in order to create some additional uncertainty to reduce the potential for gaming, and to reduce the effectiveness of the most aggressive latency-sensitive liquidity taking strategies.

As an example, if the static duration between Match Events is set at 4 milliseconds, a randomization window with a width of 500 microseconds on each side would result in a subsequent Match Event occurring at a randomized time that is between 3.5 milliseconds and 4.5 milliseconds after the last Match Event.

At launch, Tradelogiq intends for the same single static duration and randomization window size to be applied to all symbols. Tradelogiq will publish a Subscriber Notice at least 2 months prior to launch identifying the static duration and randomization window size.

Depending on subscriber feedback post-launch regarding experience trading in the Match Events, the static duration and randomization window size may be adjusted, and/or apply differently between different symbol groups. For example, user experience may indicate that longer static durations may be needed for securities priced under \$1, or for less liquid securities relative to highly liquid securities, or that different durations should be applied for ETFs. User experience might also indicate that there should be no randomization window. Changes will be communicated by Subscriber Notice at least 2 months in advance.

In the event that Tradelogiq determines from subscriber feedback that there is a need to increase the maximum static duration to a value in excess of 5 milliseconds, or to increase the maximum width of the randomization window to more than 1 millisecond on each side, the change in maximums will be published for comment and subject to the regulatory approval process before being implemented.

b) Other order attributes or features

i) *Anonymous / attributed*

As is currently the case on Lynx, orders entered into Lynx will be attributed by default, but subscribers may specify that the order be anonymous.

ii) *Post Only*

Post Only functionality will only be available for DAY Midpoint Peg orders. The presence of a Post Only instruction on a DAY Midpoint Peg order will allow for that order to lock with a contra-side Midpoint Peg order when it is the former order's turn in sequence to trade against contra-side orders in the Midpoint Book. The Post Only DAY Midpoint Peg order will then remain booked and available to be executed against by other Midpoint Peg orders as those other orders transition to an active state.

iii) *OPR Protection*

DAY orders will always be passive within the Visible Book and will have their execution price constrained to the opposite side NBBO. For this reason, OPR instructions entered on a DAY order submitted to the Visible Book will be ignored.

As with IOC orders entered to a speedbump market, OPR instructions will be available for use on EOC orders entered into the Visible Book for the purposes of trading during the first stage of matching (i.e., the EOC-to-DAY stage). Subscribers that wish to take responsibility for OPR compliance when routing to the Visible Book can mark their order as DAO. Regardless of which OPR instruction (OPR Re-price or OPR Cancel) a subscriber specifies on their EOC, the result in both cases will be the application of OPR Cancel – i.e., the EOC order will be permitted to trade at prices up to and at the opposite-side Protected NBBO, but it will not trade through the opposite-side Protected NBBO.⁸

For the Midpoint Book, OPR instructions entered on orders will be ignored given that trades can only occur at the Protected NBBO midpoint, and no trades will be generated during a Match Event for the Midpoint Book where the Protected NBBO is locked or crossed.

iv) *Self-Trade Prevention*

Subscribers will be able to use the same self-trade prevention features currently available on Lynx – “Trade and Suppress”, “Cancel and Decrement”, “Cancel Newest” and “Cancel Oldest” – as described in the current Tradelogiq Functionality Guide available on our website.⁹

A “No Cancel” feature applicable only to the Market Peg, EOC Limit and Midpoint Peg order types will also be available. The No Cancel feature will be applied when present on an active order involved in a potential match with a contra-side order from the same subscriber containing the same user-generated key. Where applied, the active order with the No Cancel instruction will not trade against the contra-side order, but will remain executable for subsequent matching opportunities. See example at Section 4 below.

⁸ An EOC with the OPR Re-price or OPR Cancel instruction will not cancel after the application of the OPR mechanism when trading against contra-side DAY orders in the EOC-to-DAY stage, but will remain available to participate in the EOC Final Turn.

⁹ See section 5.2 of the Functionality Guide available at <https://tradelogiq.com/wp-content/uploads/2023/06/TMI-Functionality-Guide-v1.0-2023-06-01.pdf>.

v) *Non-supported features*

Upon the implementation of the new periodic matching model, the following order types and instructions will no longer be supported, and will be rejected:

- Intentional cross types
- Odd lots and mixed lots – Only orders received in round board lots will be accepted.
- Bypass orders – Lynx will not be protected for OPR purposes and will not support bypass functionality due to the periodic matching model to be employed.
- ‘Fill or Kill’ and ‘All or None’.

4. Additional examples

a) Example of Minimum Interaction Size

The following is an example of the application of MIS when entered on iceberg orders in the Visible Book.

Assume the Protected NBBO is \$10.00 x \$10.05, and the Visible Book consists of the following orders at the commencement of the Match Event.

For simplicity, the Rank assigned to each order below represents the order’s position based on its priority timestamp (lowest number / letter = oldest timestamp). “Type” delineates only between DAY and EOC orders, while “Executable Price” represents the order’s executable price based on its limit and/or peg reference prices. All orders are anonymous to remove any broker preferencing considerations. Orders below are sorted from most aggressive price to least, followed by Rank (i.e., priority timestamp).

| BUY | | | | | | | SELL | | | | | | |
|------|------|-----------------|------------|-------------|-----|------------------|------------------|-----|-------------|------------|-----------------|------|------|
| Rank | Type | Total Order QTY | Leaves QTY | Display QTY | MIS | Executable Price | Executable Price | MIS | Display QTY | Leaves QTY | Total Order QTY | Type | Rank |
| 1 | DAY | 1500 | 1500 | 500 | 500 | \$10.01 | \$10.00 | N/A | N/A | N/A | 900 | EOC | A |
| 2 | DAY | 1000 | 1000 | 200 | 300 | \$10.01 | \$10.00 | N/A | N/A | N/A | 400 | EOC | B |

The following represents the trades that will result from the EOC-to-Day stage of the Match Event.

| Trade # | Buy order | Sell Order | Price | Quantity | Notes |
|---------|-----------|------------|---------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | DAY_1 | EOC_A | \$10.01 | 500 | Sell EOC_A was the first EOC received, and trades 500 shares against the 500 shares displayed for Buy DAY_1 at \$10.01. The MIS instruction on Buy DAY_1 does not apply to trades against its visible portion. |
| 2 | DAY_2 | EOC_A | \$10.01 | 200 | Sell EOC_A then trades against the 200 shares displayed volume of Buy DAY_2 at \$10.01 based on displayed volume before iceberg reserve volume at the same price. All buy display volume has been exhausted. |
| 3 | DAY_1 | EOC_A | \$10.01 | 200 | The remaining 200 shares of Sell EOC_A then trades against the 1000 share reserve portion of Buy DAY_1. Sell EOC_A’s original size of 900 shares satisfied Buy DAY_1’s MIS condition. (MIS considers the contra-side order’s original size, and not its size at the time of the trade.) |
| 4 | DAY_2 | EOC_B | \$10.01 | 400 | Sell EOC_B is next in sequence and attempts to trade first against the reserve portion of Buy DAY_1, but its original size of 400 shares does not satisfy the 500 share MIS. Sell EOC_B will then trade its full 400 shares against the 800 share reserve volume of Buy DAY_2. |

B.11: CIRO, Marketplaces, Clearing Agencies and Trade Repositories

After the EOC-to-DAY stage of matching, the Visible Book transitions to the EOC-to-EOC matching phase but there are no EOCs remaining. The Match Event ends and any remaining DAY orders are updated (e.g., display portion of icebergs is refreshed) and the Visible Book transitions back to Collection Phase state. The Visible Book at the commencement of the subsequent Collection Phase is as follows:

| BUY | | | | | | | SELL | | | | | | |
|------|------|-----------------|------------|-------------|-----|------------------|------------------|-----------------|-----|-------------|-----------------|------|------|
| Rank | Type | Total Order QTY | Leaves QTY | Display QTY | MIS | Executable Price | Executable Price | Total Order QTY | MIS | Display QTY | Total Order QTY | Type | Rank |
| 1 | DAY | 1500 | 800 | 500 | 500 | \$10.01 | | | | | | | |
| 2 | DAY | 1000 | 400 | 200 | 300 | \$10.01 | | | | | | | |

As noted earlier, MIS in the Midpoint Book would be applied in the same way except that in the case where two contra-side Midpoint Peg orders are eligible to interact, both sides would need to satisfy their respective contra-side's MIS requirement in order for a trade to occur.

b) Example of "No Cancel" self-trade feature

The following is an example of the new "No Cancel" feature that is available for Market Peg and EOC Limit orders in the Visible Book and for any Midpoint Peg order in the Midpoint Book. The application of "No Cancel" in the example would be the same regardless of book or matching stage.

Assume the Protected NBBO is \$10.00 x \$10.05, and the Visible Book consists of the following orders at the commencement of the Match Event.

For simplicity, the Rank assigned to each order below represents the order's position based on its priority timestamp (lowest number / letter = oldest timestamp). "Type" delineates only between DAY and EOC orders, while "Executable Price" represents the order's executable price based on its limit and/or peg reference prices. All orders are attributed and are not icebergs. Orders below are sorted from most aggressive price to least, followed by Rank (i.e., priority timestamp).

| BUY | | | | | | | SELL | | | | | | |
|------|------|--------|-----------------|----------------|-----------|------------------|------------------|-----------|-----------------|----------------|--------|------|------|
| Rank | Type | Broker | Self Trade Feat | Self Trade Key | Order QTY | Executable Price | Executable Price | Order QTY | Self Trade Feat | Self Trade Key | Broker | Type | Rank |
| C | EOC | 042 | | | 500 | \$10.05 | \$10.00 | 1000 | XM | 123ABC | 063 | EOC | A |
| 1 | DAY | 037 | | | 500 | \$10.01 | \$10.00 | 500 | | | 078 | EOC | B |
| 2 | DAY | 120 | | | 500 | \$10.00 | | | | | | | |
| 3 | DAY | 063 | OM | ABC123 | 500 | \$10.00 | | | | | | | |

The following represents the trades that will result from the EOC-to-Day stage of the Match Event.

| Trade # | Buy order | Sell Order | Price | Quantity | Notes |
|---------|-----------|------------|---------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | DAY_1 | EOC_A | \$10.01 | 500 | Sell EOC_A was the first EOC received, and trades 500 shares against the 500 shares of Buy DAY_1 at \$10.01. Sell EOC_A then seeks to trade against Buy DAY orders 2 and 3. Buy DAY_3 has priority due to broker preferencing, but both SELL EOC_A and Buy DAY_3 are from the same broker and have the same self-trade key. The self-trade instruction of 'XM' is applied as Sell EOC_A is the active order. Sell EOC_A stops trading at this point but remains eligible to participate in the EOC-to-EOC matching stage. |
| 2 | DAY_2 | EOC_B | \$10.01 | 500 | Sell EOC_B is next in sequence and trades its full 500 shares against the 500 shares of Buy DAY_2 at \$10.00 based on time. |

B.11: CIRO, Marketplaces, Clearing Agencies and Trade Repositories

After the EOC-to-DAY stage of matching, the Visible Book is as follows:

| BUY | | | | | | | SELL | | | | | | |
|------|------|--------|-----------------|----------------|-----------|------------------|------------------|-----------|-----------------|----------------|--------|------|------|
| Rank | Type | Broker | Self Trade Feat | Self Trade Key | Order QTY | Executable Price | Executable Price | Order QTY | Self Trade Feat | Self Trade Key | Broker | Type | Rank |
| C | EOC | 042 | | | 500 | \$10.05 | \$10.00 | 1000 | XM | 123ABC | 063 | EOC | A |
| 3 | DAY | 063 | OM | ABC123 | 500 | \$10.00 | | | | | | | |

The EOC-to-EOC stage of matching would then commence, at which point Sell EOC_A would be eligible to trade again following the process for that stage described earlier.