Cboe Options Exchange Platform Change Matrix

Version 1.0.1

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The following list of key platform changes, categorized by interest, provide Trading Permit Holders ("TPHs") with an overview of key platform-specific features to be added, retained, modified or removed from Cboe Options Exchange ("C1") upon migration to the Bats technology platform. Please refer to the relevant specifications on the Cboe Integration Website for more details.

Matrix Legend
E=Existing Feature Planned to Maintain As-Is
M=Modification to Existing Feature
A=Addition of New Feature
D=Deletion of Feature

Time Zone and Trading Sessions	
Time Zone will be Eastern Time	**M[1]**
Global Trading Hours ("GTH") Book	**M[2]**
GTH Hours	**M**
GTH Close Time	**E**
Regular Trading Hours ("RTH")	**E**

[1]Upon migration to Bats technology, all timestamps and trading times will transition from Central Time (CT) zone to Eastern Time (ET) zone for both Floor and Electronic trading systems.
[2]Formerly known as Extended Trading Hours ("ETH").

There are several notable changes to the GTH session:
- The GTH and RTH sessions will share the same book.
- The pre-market queuing session start time will be changed from 4:00PM CT (previous trading day) to 2:00AM ET (current trading day).
- Each series in SPX/SPXW, VIX/VIXW and FLEX will trade in the GTH session until 9:15AM ET.
- All remaining SPX/SPXW and VIX/VIXW orders in the GTH session after 9:15AM ET will become live in the RTH queuing session.

Quote and Order Entry	
BOE	**A**
BOE Quote Interface	**A**
FIX	**M**
FIX DROP	**M**
Order by Order DROP	**A**
CMi 2 Order Entry	**D**
CMi 2 Quote Entry	**D**

CMi 2 is being replaced with BOE for order and quote entry. In order to support certain Cboe specific features, the current BOE protocol for options order entry will be modified. A new `Quote Update` message type will be made available within BOE to support entry of two-sided quotes in a single message.

The existing Bats technology FIX and DROP protocols will replace Cboe's current FIX and DROP, and support for the Bats technology Order by Order DROP protocol will be added.

Note that while FIX is an ASCII-based protocol, BOE is binary based, providing efficiencies that allow for reduced latency.

Notable differences in order entry functionality include (refer to the specifications for complete details):

- Client Order ID replaces Branch/Sequence number.
- Matched Trade Prevention instructions may be provided on an order-by-order basis.
- Complex order debit/credit pricing is changing. Please refer to the Complex Order Price fields (both short and long form) of the FIX and/or BOE specification for complete details.
- Fee codes provided on fill reports.
- Order mass cancel message (by underlying product).
- BOE purge ports to mass cancel groups of orders or quotes for a firm, regardless of entry port.
- Cancel-Replace/Order update handling will conform to standard FIX handling where an *OrderQty* delta is calculated and applied to *LeavesQty*. This leaves the user in total control of contract quantity exposure when the modification request overlaps partial fills for the order.
- Bandwidth restrictions (orders per second) will be substantially higher. There are no bandwidth restrictions on bulk ports which are utilized for `Quote Update` messages.

Order Types and Handling	
Market/Limit Orders	**E**
DAY, GTC, IOC Time-in-Force	**E**
GTD Time-in-Force	**A**
FOK, At The Open, AON Orders	**E**
Complex Orders	**M[1]**
Opening Process	**M[2]**
Stop/Stop Limit Orders	**M[3]**
Post Only Modifier	**A**
Price Adjust Modifier	**A**
Cancel Back Modifier	**A**
Order Format 2	**D**
Order Routing to PAR	**M[4]**
RTH Only Orders	**A[5]**

[1]See Complex Book Process Specification for details.
[2]The opening process will be modified. It is described further in the Opening Process Specification.
[3]Stop and Stop Limit orders will be triggered by National bids, offers and trades, not just Cboe quotes and trades.
[4]The Order Handling System currently used on Cboe Command will no longer be available. Firms that would like orders to route to PAR for open outcry handling must specify a PAR destination on the order.
[5]Order entry field SessionEligibility (22017) will support participation for RTH only or Both GTH and RTH. There is no support for GTH only. Additional details described in the FIX and BOE Specifications.

Port Attributes	
Cancel on Disconnect	**M[1]**
Send Trade Breaks	**A**
Default Match Trade Prevention ("MTP") Value	**A**
Microsecond Time Stamp Granularity	**A**
Carried Order Restatements	**M[2]**

[1]Cancel on Disconnect will allow the port owner to select Day, All or None.
[2]This functionality is similar to current Cboe CMI2/FIX functionality that allows the user to query for open orders.

Attributes from current Cboe CMI2/FIX logins will not be automatically configured on new BOE/FIX ports on Bats Technology. Upon migration, port owners will be permitted/required to configure needed attributes at a port level. The full set of port attributes are described in the relevant BOE/FIX specs. While the above table highlights attributes that are different from similar functionality currently available at Cboe, TPHs should carefully review all default settings on the new platform.

Data Feeds	
CSM	**D**
CSM Level 2	**D**
CSM Opening Auction Feed for Volatility Settlements	**D**
Multicast TOP	**A**
Multicast PITCH	**A**
Multicast Auction Feed	**A**
Multicast Opening Auction Feed for Volatility Settlements	**A**
Complex Multicast TOP	**A**
Complex Multicast PITCH	**A**
Complex Auction Multicast PITCH	**A**
FLEX	**A**

Cboe's current data feeds – CSM and CSM Level 2 – will be replaced by Multicast TOP and PITCH feed protocols. The PITCH feed is an order-by-order feed, and it replaces CSM Level 2's aggregated depth feed. Market data from both PITCH and TOP will be segregated into underlying-based channels for distribution. Market data generated from complex orders will be on separate TOP and PITCH feeds. Note that the trade reports in single legs generated from complex order trading will be available on the regular TOP and PITCH feeds. Other notable differences in data feeds include:

- The Multicast TOP feed will serve as a convenience feed as it will be derived from the PITCH feed. As a result, the PITCH feed will be inherently faster than the TOP feed. Auction messages will be available through the Multicast Auction, PITCH, and TOP Feeds. They will no longer be available through CMI2 and FIX, as they are today.

Complete details for each new C1 data feed can be found in the in the updated technical specifications on the Cboe Integration Website.

FLEX	
FIX Order Entry	**M[1]**
FLEX GUI	**D[2]**
FLEX Open Outcry Trading	**M[3]**
FLEX Book	**D[4]**
FLEX Single Sided Auction	**M[5]**
FLEX Two Sided Auction	**M[5]**
FLEX Market Data	**M[5]**

[1]The Bats technology FIX specification will support FLEX order entry, including routing to PAR for open outcry handling, single-sided auctions, and two-sided auctions.

[2]There will no longer be a FLEX GUI made available by Cboe. However, Silexx will support FLEX order entry.

[3]Open outcry FLEX trading will occur only on PAR. Trade entry via contacting the Operations Support Center ("OSC") to input trades will no longer be supported.

[4]There will be no FLEX book. All FLEX trades will be executed through electronic auctions or in open outcry on PAR.

[5]There will be a separate multicast market data feed (Cboe Options FLEX) for FLEX, including auctions. Market data will still be available on OPRA through text messages.

Billing and Billing Reporting	
Monthly Bills (TPHs and Clearing Firm)	**M[1]**
Daily Trade Files	**M[1]**
Daily Billing Reports	**M[1]**
Frequent Trader – Post Trade Form Submission	**D[2]**
Strategy Order Rebate – Post Trade Form Submission	**D[2]**
ORS/CORS – Post Trade Form Submission	**D[2]**

[1]All daily and monthly bills, as well as daily billing reports (such as those for tiered billing programs) will be available through the Customer Web Portal.

[2] Cboe will no longer accept submission of forms for Frequent Trader, Strategy Order Rebate or ORS/CORS. Instead, TPHs will be required to either mark their orders for the programs or add the required information through the Clearing Editor on the trade date.

Other	
Web Portal – TPH Firm Risk Controls	**M[1]**
QRM	**D[1]**
Web Portal – General	**A[2]**
CTMi	**D[2,3]**
Clearing Editor	**A[3]**
FIX 4.4 Access for clearing drop copies and changes (RTC)	**D[4]**
Market Access Portal (MAP) – Permit Management	**D[2]**
Permits	**M[5]**
Secure Web API	**A[4]**

[1]TPH Firm risk controls will be available through the Customer Web Portal. See the Risk Management specification for details. TPHs will no longer be able to set QRM-style settings through a trading API (BOE/FIX) but may do so using the Secure Web API. Underlying symbols will be used to manage risk rules.

[2]TPHs will have access to various functions and information through the Customer Web Portal, including viewing real time latency, order lookup, open orders query, cancel orders, setting Port Attributes, MM Appointments and Permit Management, all Billing files and Billing Reporting, CTMi similar functionality (Unmatched Trades, Floor Add Trades) and other additional functionality. Refer to the Customer Web Portal specification for more information.

[3]Clearing Editor functionality is similar to CTMi. Please see Clearing Editor specification for more details.

[4]The [Secure Web API](#) will include post trade clearing functionality as well as management of certain risk settings.
[5]Separate permits will be issued for floor access and electronic access. Electronic access will be at the firm level, requiring a single permit for market making, while floor access will be on an individual nominee basis. Associated access fees will be changed to support the new model.

The Bats technology suite of Web Portal and Risk Management tools will be made available to Cboe TPHs and will replace existing mechanisms that control similar features on Cboe.

Revision History

Document Version	Date	Description
1.0.0	11/16/18	Initial version.
1.0.1	09/10/19	General updates and additional clarifications.