Cboe Futures Exchange Platform Change Matrix

Version 1.0.3

October 17, 2017

The following are lists of key platform changes by categories of interest designed to provide Trading Privilege Holders (TPHs) with an overview on what key platform specific features will be added, retained, modified or removed from CFE upon migration to the Bats technology platform. Please refer to the relevant specifications on the CFE 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

Order Entry	
BOE v2.0	A
FIX	M
FIX DROP	M
Order by Order FIX DROP	A
CMi 2 Order Entry	D
CMi 2 Quote Entry	D

CMi 2 is being replaced with Cboe BOE (Binary Order Entry). In order to support certain CFE specific features, a futures specific BOE protocol specification will be implemented. The BOE implementation for CFE does not support entry of two-sided quotes or bulk order entry.

Similarly, the existing Cboe FIX and DROP will replace CFE's current FIX and DROP and an Order by Order FIX DROP will be added.

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

Notable differences in order entry functionality include:

- Client Order ID replaces Branch/Sequence number.
- Separate fields for Account Type (Customer/Firm) and CTI code (1, 2, 3, 4).
- Required Account information will be provided in the Account field, rather than the Subaccount field (Tag 440).
- Order Entry Operator ID and Manual Order indicator will both be required fields.
- Matched Trade Prevention instructions on an order-by-order basis.
- Spread order entry conforming to standard futures pricing.
- Fee codes provided on fill reports.
- Order mass cancel message.
- Purge port to cancel all orders for a firm, regardless of order 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.
- The system will be re-started each day between 4:00 pm and 4:45 pm. This results in re-starting of sequence numbers and the potential for lost execution reports in the event of an extended customer-side issue starting before 4:00 pm and lasting through the restart time.
- Price limits will be in effect during extended trading hours. Orders to buy above the upper limit or to sell below the lower limit will be rejected when the limits are in effect.

Order Types and Handling	
Stop Limit Orders	M[1]
Market/Limit Orders	E
DAY, GTC, IOC Time-in-Force	E
FOK Orders	M[2]
Spread Orders	M[3]
Opening Process	M[4]

[1]Stop Limit Orders will trigger only on trades, not on bids or offers as they do today.
[2]FOK orders can be entered as MIN orders with a MIN quantity equal to the order size. MIN orders with MIN quantity less than the order size will also be accepted but will be treated as IOC.
[3]Spread Orders that become marketable due to an incoming leg order will execute before booking of the leg order.
[4]The opening process will be modified. It is described further in the Opening Process Specification. Changes to trading hours are described in the CFE Technical Integration FAQ.

Port Attributes	
Cancel on Disconnect	M[1]
Send Trade Breaks	A
Default 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, GTC or both.
[2]This functionality is similar to current CFE CMI2/FIX functionality that allows the user to query for open orders.

Upon migration, port owners will be permitted/required to set certain attributes at a port level. The full set of port attributes are described in the relevant BOE/FIX specs. The above table highlights attributes that are different from similar functionality currently available at CFE.

Data Feeds	
CSM	D
CSM Level 2	D
Multicast TOP	A
Multicast PITCH	A

CFE's current data feeds – CSM and CSM Level 2 – will be replaced by the Cboe 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. Other notable differences in data feeds include:

- Variance Futures inputs will be distributed through both market data feeds.
- Settlement prices will be disseminated for each futures product as soon as they are available. We will no longer wait until settlement prices for all products are calculated.
- 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.
- The VIX index level (VBI) will not be disseminated through TOP or PITCH . The index can be obtained from the Cboe's CSMi feed, by contacting indexdata@cboe.com.
- Price limit levels will be distributed through both market data feeds.

Other	
Web Portal – Clearing Firm Risk Controls	**M[1]**
Web Portal – TPH Firm Risk Controls	**M[2]**
Web Portal – General	**A[3]**
Block & ECRP – Trade Entry Tool	**A[4]**
Secure Web API	**A**

[1]Clearing firm risk controls will be available through the Cboe Customer Web portal for use by CFE clearing firms. Clearing firm risk controls will include: Kill Switch; Max Order Size; Net Long and Net Short controls.
[2]TPH Firm risk controls will be available through the Cboe Customer Web Portal. TPHs will be able to specify maximum contracts traded per second; limit order protection; and max order size.
[3]TPHs will have access to various functions and information through the Cboe Customer Web Portal, including: viewing real time latency; order lookup; open orders query; cancel orders; and setting Port Attributes; in addition to other functionality.
[4]Block and ECRP trade entry will no longer be managed by the CFE Help Desk, rather TPH's Authorized Reporters will enter these trade types through a user interface in the Web Portal.

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

Revision History

Document Version	Date	Description
1.0.0	05/01/17	Initial version.
1.0.1	06/05/17	Update to data feeds section regarding VBI distribution.
1.0.2	06/30/17	Updates to reflect: price limit levels; protocol relative latencies; and system restart.
1.0.3	10/17/17	Cboe branding/logo updates.