C2 TECHNICAL INTEGRATION FREQUENTLY ASKED QUESTIONS

GENERAL QUESTIONS

What are the immediate effects of this transaction on me as a Trading Privilege Holder (TPH)?

➢ While we'll be busy at work behind the scenes integrating the two companies this year, there will be no significant operational changes in 2017. With respect to regular day-to-day business and operational support, all TPHs should continue to interact and communicate with each exchange as they normally would.

➢ To eliminate confusion and provide an immediate high level of service, we are integrating the sales teams, and your point of contact for equities, options, and futures will continue to be in touch.

➢ The CBOE and Bats production platform support teams will continue to operate independently, including the Help Desk/Trade Desk and TPH Administration/Membership Services teams, so these contacts at the respective organizations remain unchanged at this time.

➢ As the integration process progresses, we will continue to keep you apprised of any changes in day-to-day contacts and/or processes as it relates to your interaction with the exchanges.

➢ Your feedback is important to us so expect to hear from us regularly throughout the integration process.

What's happening with C2?

➢ We plan to migrate C2 to Bats technology on May 14, 2018.

➢ We expect the migration process to begin later this year and details will continue to be made available on the integration website as the integration progresses: Integration Web Page (http://batsintegration.cboe.com)

➢ An integration timeline will also be made available on the Integration Web Page.

Will functionality of C2 change?

➢ We will provide ample notice to all TPHs regarding any technology and/or functionality changes that may impact their businesses.

Will changes be made to the C2 priority and allocation method?

➢ Upon migration to Bats technology the matching algorithm for single-leg orders will continue to be straight pro-rata, with no customer priority or DPM/PMM entitlements.
➢ The matching algorithm for complex orders will change to prioritize complex orders ahead of individual leg orders at a given price.
➢ We will remain in close dialogue with our customers and provide ample notice if further changes are to be made in the future.

Are you keeping all order types and product offerings of both companies?

➢ No. Most, but not all, current C2 order types and functionality will continue to be supported, while other new order types that were previously not supported will be available. We are in the process of reviewing all product offerings and order types with a view towards providing features that are most important to our customers. For example, AON and complex reserve orders, which are seldom used on C2 currently, will not be supported on initial launch; while new Post-Only orders, which have been previously requested by customers given C2's make/take pricing model, will be available for both simple and complex orders.
➢ There may be certain minor changes related to the migration to the Bats technology; however, the functionality and differentiation that are core to C2's marketplace will remain unchanged.
➢ More details regarding functionality will be announced within the new technical specifications which we plan to make available on September 1, 2017.

Will changes be made to Market-Maker Appointments or Quoting Obligations?

➢ C2 Market-Maker appointments under Bats technology will be at the class level and will not allow for series level appointments as supported on existing Bats platforms.
➢ Market-Maker class appointments will be completed using the [CBOE Bats US Customer Web Portal](#) .
➢ C2 will not support intra-day changes to class appointments after the migration.
➢ Market-Maker continuous quoting obligations will remain unchanged for C2 following the migration to Bats technology. If any decisions are made to change these obligations, we will provide ample notice for any changes.
➢ C2 customers will be allowed to utilize BOE Bulk ports which will replace the current C2 quoting interface.
➢ C2 will reject any orders not marked as Post-Only on bulk ports.

How will QRM Risk functionality be impacted?

➢ C2 Market-Makers currently use quote messages, whereas under Bats technology, C2 customers (including Market-Makers) will use bulk orders. Functionality similar to legacy CBOE Command QRM risk controls will be available after the migration to Bats technology.

➢ Upon migration Market-Makers will not be able to query or update QRM settings via FIX or BOE.

➢ Management of QRM risk controls can be completed using the Risk Management Tool within the CBOE Bats US Customer Web Portal or using the Secure Web API.

➢ The details of QRM will be made available in the Risk Management specification in September when other technical specifications are made available for C2.

Will the trading hours of C2 change?

➢ No. Upon migration to Bats technology C2 regular trading hours will remain unchanged. However the C2 pre-market queuing session will be moved up from 6:00 AM CT to 6:30 AM CT

Will TPHs need to complete new registration materials for C2?

➢ No. We do not currently anticipate any need to repaper existing C2 TPHs.

➢ Each TPH application will be migrated, and we expect each TPH will have one trading permit.

➢ In situations where a firm currently has multiple permits, they will likely be consolidated and managed as a single permit for the Bats technology platform.

Will TPHs be restricted to a specific number of logins as they are today? What will order entry session restrictions look like on Bats technology?

➢ No. The concept of a login will be eliminated in favor of the concept of a logical order entry session or "port".

➢ Each TPH may maintain as many logical order entry sessions as they are willing to purchase.

➢ Logical order entry sessions will have a substantially higher messages per second rate and capacity than existing C2 order entry sessions.

➢ Logical order entry sessions will also allow for multiple EFIDs to be associated with a session for clearing purposes.

What is an EFID?

➢ An EFID is an Executing Firm ID which associates a 4 character alpha ID with an OCC clearing number.

➢ EFIDs must be associated with a logical session and submitted with orders on a given session to identify the clearing relationship to be used for a respective order.

➢ Multiple EFIDs may be associated with a single logical order entry session, and the same EFID may be used across multiple logical order entry sessions.

➤ Once EFIDs have been established for a firm, the EFID association to logical ports can be managed by contacting CBOE Bats Trade Desk.

How do I obtain an EFID?

➤ In order to obtain an EFID assignment, a firm must first ensure they have a clearing guarantee on file with TPH Administration/Membership Services at registration@cboe.com. The TPH Administration/Membership Services team will then work with the TPH to create the EFID.

Who do I call if I have a question?

➤ The existing CBOE/C2 Help Desk, CFE Help Desk and CBOE Bats Trade Desk will continue to operate as they have in the past. If you have a question related to the CBOE markets or current technology platform for C2, contact the CBOE/C2 or CFE Help Desks, and if you have a question related to the Bats markets or the proposed technology platform for C2, contact the CBOE Bats Trade Desk.
  - CBOE/C2 Help Desk (legacy platform): helpdesk@cboe.com or +1.866.728.2263
  - CFE Trade Desk (Bats platform): cfetradedesk@cboe.com or +1.312.786.8700
  - CBOE Bats US Trade Desk (Bats platform): tradedesk@cboe.com or +1.913.815.7001
  - CFE Help Desk (legacy platform): cfehelpdesk@cboe.com or +1.877.226.3773
  - Index Support: indexsupport@cboe.com or +1.312.786.7635
  - Bats Listings Team: listings@bats.com
  - Bats Europe Trade Desk: tradedeskeurope@bats.com or +44.20.7012.8901
  - Hotspot Contact Info:
    - Americas: +1.212.209.1420 or HotspotFXSales@bats.com
    - Europe: +44.207.131.3450 or HotspotFXSales@bats.com
    - Asia: +65.6818.9071 or HotspotFXSales@bats.com
    - Technical Support: +1.212.378.8558
➤ Additionally, if your firm would like to request a group Technical Review, please contact the Trade Desk.
➤ The CBOE Bats NOC may be contacted for questions regarding connectivity questions related to the platform migration to Bats technology.
  - CBOE Bats NOC: noc@cboe.com or +1.913.815.7005
➤ Unless a representative from CBOE or Bats has informed you otherwise, your additional contacts, e.g. business development or sales, are unchanged at this time.

TECHNOLOGY/INTEGRATION QUESTIONS

What is the integration transition timeline? When will C2 transition to Bats technology?

- Our plan is to migrate C2 to Bats technology at the Equinix NY5 data center on May 14, 2018, at which point the legacy C2 technology will be retired.
- We expect the migration process to begin later this year and an Integration Timeline as well as more details can be found on the [Integration Web Page](#).
- We will remain in close dialogue with our customers and provide regular communication and ample notice on any technology changes we plan to make that will impact their businesses.

What is the plan for the data centers? Will you continue to operate in the same ones in which you currently operate?

Secaucus

- CBOE plans to consolidate all exchanges into the Equinix NY5 data center in Secaucus, NJ upon migration of each exchange.
- CBOE Bats exchanges (EDGA Exchange, EDGX Exchange, BYX Exchange, BZX Exchange, and BZX Options Exchange and EDGX Options Exchange) will remain in their current location in Equinix NY5.
- NY5 is a state-of-the-art data center that is part of the Equinix Secaucus, NJ campus. It is approximately ½ mile west of NY4 and can be accessed via an Equinix IBX cross-connect from both NY4 and NY2.
- CBOE will maintain a network Point-of-Presence (PoP) in NY4 indefinitely so that current (legacy) C2 TPH physical connections in NY4 can be used to access C2 once C2 has moved to NY5. Note that existing Bats latency equalized connectivity in NY5 may be utilized to access C2 once C2 has moved to NY5. New orders for physical connectivity will be accepted closer to effective date.
- C2 TPHs will also be able to use the Bats' PoP in NJ2 to access C2 once it is moved to NY5 on Bats technology.
- To ensure a seamless transition to NY5 while preserving the ecosystem in NY4, we will engineer connectivity with equal latency from both NY4 and NY5 demarcation points to all CBOE matching engines in NY5 for the foreseeable future.

Chicago

- TPHs using legacy physical connections to access the new C2 platform will be required to either use public IP address space OR change their private addressing to ranges assigned by the CBOE Bats NOC.
- C2 Disaster Recovery data center will remain at 400 S. La Salle in Chicago.
- TPHs in the Disaster Recovery data center in 400 S. La Salle may continue to use existing connectivity.
- TPHs will be able to access C2 and CBOE DR in 400 S. La Salle via a CBOE Bats PoP in 350 E. Cermak.

Will C2 TPHs have the ability to access all other CBOE markets from a single connection?

➢ In the Secaucus data center, C2 connectivity will be physically available from the same cross connect as the CBOE Bats exchanges (BYX Exchange, BZX Exchange, EDGA Exchange, EDGX Exchange, BZX Options Exchange and EDGX Options Exchange).

➢ TPHs will have the ability to access other CBOE Disaster Recovery markets in 400 S. La Salle (i.e. CFE and CBOE) from a single connection at 400 S. La Salle.

Will C2 TPHs require separate connections for order entry and market data?

➢ No. Both order entry and market data will be available over a single connection.

Will C2 production migration occur in a single day?

➢ Yes, we plan to migrate C2 to NY5 on Bats technology on May 14, 2018.

➢ To ensure the migration goes well, we will be conducting multiple dress rehearsals beginning 1Q18.

➢ We also plan to allow trading of test symbols in NY5 on the new C2 production trading platform during normal production trading hours starting on March 5, 2018.

Regarding the planned network and connectivity testing for C2, will TPHs be able to conduct this testing with the physical cross-connect they may have at NY4? Or would TPHs need to have new infrastructure to do that testing?

➢ CBOE will maintain a PoP at NY4 that will enable TPHs to conduct testing and connect to the new C2 trading platform without having an infrastructure presence at NY5. TPHs will be able to use their existing C2 physical connectivity to connect and test but are encouraged to use existing CBOE Bats connectivity or order new C2 latency equalized connectivity to ensure the fastest access.

How is CBOE handling latency differences between NY4 and NY5?

➢ CBOE plans to engineer equal latency between NY4 and NY5 so that TPHs that already have their infrastructure in place at NY4 will not be disadvantaged so long as they establish new physical connectivity to the C2 latency equalized network or utilize existing CBOE Bats connectivity that is part of the latency equalized network.

Will my C2 connectivity fees be changing?

➢ There are no changes to C2 pricing at this time. If any decisions are made to change pricing, we will provide ample notice to customers.

Will I be charged for physical port fees if I bring up a new NY5 connection prior to the production integration date?

➢ No. Physical ports in NY5 that connect to the new C2 environments and are used solely for C2 access will not be billable by C2 until after C2 production migration is complete.

➢ Post-integration pricing for physical port fees in NY5 has not been determined, but C2 will provide ample notice to customers regarding any changes to existing connectivity fees.

Will TPHs, Extranets or Telco providers be allowed co-location space within the new C2 NY5 cage?

➢ No. However, TPHs will be able to order a circuit to NY5 that will be extended to the CBOE NY5 cage at no additional cost to them.

Which order entry protocols will be supported?

➢ The Bats FIX and BOE order entry protocols will be the standard protocols for C2.

➢ We plan to make these technical specifications available on [Integration Web Page](#) by September 1, 2017.

Will there be any changes to C2 spreads as part of this migration? Also, C2 currently requires the trader to send + or – on price depending on whether the spread order is debit or credit. Will this remain the same or will there be a change?

➢ C2 will allow TPHs to automatically create spreads with a two-step process for FIX and BOE users by first submitting the request to create the Complex Instrument, and then to send a Complex Order by referencing the new Complex Instrument ID. The two-step process will eliminate the need to send all of the information for each component leg on every order.

➢ C2 will continue to allow for a one-step spread creation process for TPHs that don't wish to manage Complex Instrument IDs by allowing them to send the complete component leg information on all Complex Orders. The one-step process will be offered to FIX users only.

➢ Upon migration, spread pricing will be normalized and use the standard industry practice.

➢ There may be some situations based on term structure where negative prices will be disseminated (e.g., when market prices would reflect a credit bid or debit offer).

➢ C2 will not allow for Complex Instruments to consist across multiple OSI Root symbols for an underlying product (e.g. ABC and ABC1). However, spreads across RUT and RUTW will be supported.

➢ C2 TPHs that are also Members of EDGX Options Exchange may begin to familiarize themselves with Complex order logic available on EDGX Options that is scheduled to become available on October 23, 2017, as EDGX Options complex order logic will be similar to C2 complex order logic.

Will my firm's legacy production logical order entry sessions be converted to Bats sessions?

➢ Effective February 5, 2018, C2 will determine how many order entry and quoting (migrating to BOE Bulk) logins each firm has on the current production platform and will create a logical production order entry session on the Bats technology platform for every firm login that exists on that effective date.
➢ One FIX session will be created for every firm FIX login, and one BOE session will be created for every firm CMI login.
➢ Default session settings will be applied as defined within the Bats FIX and BOE specifications, but may be updated by making a "Modify" Logical Port Request update in the CBOE Bats US Customer Web Portal.
➢ One FIX DROP session will be created for every firm in production. Prior to the production launch firms will be able to work with the CBOE Bats Trade Desk as well as their account managers to ensure this DROP port and any others desired are configured in the manner expected.
➢ Once logical production ports have been created, firms may obtain their logical session connection information via the Ports tool within the CBOE Bats US Customer Web Portal.
➢ Additional sessions may be requested via the Logical Port Request "add" tool in the CBOE Bats US Customer Web Portal starting February 5, 2018.
➢ Firms must enter delete requests for any logical sessions that have been auto-generated that the firm does not wish to maintain. Delete requests may be entered via the Logical Port Request "Delete" tool in the CBOE Bats US Customer Web Portal prior to the May 14, 2018 activation of the new C2 production trading platform. Sessions for which a delete request has not been entered will be billed accordingly starting May 14, 2018.

CERTIFICATION QUESTIONS

May I use my existing C2 Certification sessions?

➢ No. Upon migration to Bats technology, all existing C2 Certification sessions will be decommissioned and will not be available for use to certify the new C2 trading platform. There will be no automatic transfer of Certification sessions from the legacy platform to the Bats technology platform.

How do I request a new C2 Certification session?

➢ Once firms establish physical connectivity to the new latency equalized network infrastructure within either the NY4 or NY5 data center, free of charge Certification order entry, market data, and drop sessions may be requested via the [Logical Port Request](#) form found in the [CBOE Bats US Customer Web Portal](#). In their requests, firms should specify any desired port settings other than the port defaults which can be found in the FIX or BOE Specifications located on the [Integration Web Page](#).

During what hours can I connect to the Certification environments?

➢ Firms may connect to Certification sessions during normal production trading hours.
➢ Certification sessions are not available outside of normal trading hours nor on market holidays.

What should I do prior to scheduling a Certification appointment?

➢ Firms must first establish physical connectivity to the new C2 latency equalized network infrastructure within the NY4 or NY5 data center or use their existing connectivity and must then request new Certification sessions. They also must complete and return to the C2 Trade Desk the Certification Questionnaire (link will be made available on the [Integration Web Page](#)). In order to avoid delays and/or undesired rescheduling, firms are expected to complete sufficient unattended testing prior to their appointment.

What symbols can I use for testing?

➢ Certification will support testing for the same test and production classes that will be available for trading in the C2 production environment.

How do I use the Certification website to test Risk Management?

➢ The public Certification website at https://certification.bats.com/ parallels the production site and includes a real-time book view of Certification orders for a specified symbol and environment, which firms may find useful in testing.
➢ Firms may request a Certification web login by emailing the CBOE Bats Trade Desk at tradedesk@cboe.com. This will allow firms to become familiar with the full suite of production web portal tools. This includes Web Portal Risk Control tools.

How do I schedule a Certification appointment?

➢ Upon completion of sufficient unattended testing, TPHs may request a Certification appointment by emailing their request to the CBOE Bats Trade Desk at tradedesk@cboe.com.
➢ In order to be scheduled, TPHs must include with their request the completed Certification Questionnaire (link will be made available on the [Integration Web Page](#)).

During what hours may I schedule a certification appointment?

➢ TPHs may contact the CBOE Bats Trade Desk during normal operational hours to schedule a Certification. Certifications will normally be conducted on regular business days between 9:00 a.m. and 3:00 p.m. CT.

For which features will I be required to certify?

➢ All TPHs must certify for basic functionality, including establishing and maintaining connectivity, order entry, disconnect recovery, QRM, and linkage.

➢ TPHs are expected to certify for all functionalities they intend to use in production, but they will only be required to certify for order types or order modifiers they intend to use in production.

If I have certified on one of the CBOE Bats Exchanges, do I need to certify for C2 after it is migrated to Bats technology?

➢ Yes. Upon successful certification for one Exchange, TPHs will be required to complete additional certification for functionalities unique to the additional Exchange(s) to which they will be submitting production orders.

What happens after I certify?

➢ Upon successful Certification, TPHs will receive an emailed copy of their completed Certification script. TPHs will be able to request and connect to FIX or BOE sessions created in the NY5 data center with the certified functionalities enabled.

➢ Note that, regardless of any prior production and/or Certification session settings, all new production sessions will be created with the Bats default session settings. Therefore, it is the responsibility of the TPH to specify any desired non-default settings when it requests its new production sessions. TPHs are further reminded that C2 requires QRM settings be established by the TPH for each appointed class.

➢ For reference, a list of port default settings is available within the BOE and FIX specifications located on the Integration Web Page. TPHs may also view the port and default port settings through the Port Status tool available on the CBOE Bats US Customer Web Portal. To view default port settings, from the Port Status page simply click on the "More Options" icon and select "View Port Attributes Info".

➢ Additional order entry sessions beyond those currently in place with C2 may be requested via the Logical Port Request form found in the CBOE Bats US Customer Web Portal; these requests are typically filled same day for next day connectivity.

Where can I find the technical specification for Bats order entry protocols?

➢ The most recent specifications can be found on the Integration Web Page.

MARKET DATA QUESTIONS

Which market data protocols will be supported post-migration?

➢ The Bats market data protocols will be the standard protocols for C2 following the technology migration. C2 will offer Multicast PITCH, Multicast TOP, Complex PITCH, Complex TOP, and Complex Auction market data products. The technical specifications will be posted and available through the Integration Web Page per the defined integration schedule.

What changes can I expect to the Bats market data protocols in support of C2?

➢ The market data protocols for C2 will be based on existing similar Bats market data protocols used by other Bats trading platforms and will share existing specifications with the other options platforms. These specifications will be updated and available on the Integration Web Page per the defined integration schedule.

If I currently subscribe to C2 Market Data, but not CBOE Bats Market Data, will I have to complete new agreements?

➢ CBOE and Bats plan to consolidate the Market Data Agreements for our US products, which may occur prior to the completion of the technology integration. Firms will be notified in advance of any change to their agreements, which will include change details and any required action on the part of the firm.

What changes can I expect regarding my Market Data bills?

➢ At this time, there will be no changes to your market data bills. As the integration process continues, market data billing may be consolidated across some or all of the exchanges. Sufficient notice will be provided prior to any changes being implemented. Please direct questions related to your market data invoice items to marketdata@cboe.com.

How will Market Data reporting requirements change?

➢ Firms should follow current reporting policies and procedures for CBOE and Bats market data. As part of the consolidation, CBOE and Bats will look to consolidate policies and procedures where applicable. Firms will be notified in advance of any changes to policies and procedures, including any firm requirements.

BILLING QUESTIONS

How will billing be impacted by the integration?

➤ Billing for C2 will be migrated to the same Bats technology billing system used to support all existing Bats U.S. Equities and Options Exchanges.

➤ As is the case today, with the new billing system, C2 will issue a bill to TPHs for all transaction and non-transaction fees which will be collected through the OCC.

➤ As part of the platform migration, TPHs will be required to migrate from the current C2 Firm58 billing portal to use the CBOE Bats US Customer Web Portal for accessing their invoices.

Can I get a preview of the new invoices?

➤ Preview versions of the new C2 invoices for transaction fees will be distributed in advance of invoice updates at a date to be announced.

➤ These previews are drafts only, allowing you time to prepare for the new look of the invoices.

Will CBOE and Bats banking information change along with the billing updates?

➤ No, banking information for all exchanges will remain the same.

How can I view my trade detail for C2?

➤ Your trade detail will be made available online via the CBOE Bats US Customer Web Portal upon completion of the platform migration.

➤ Contact the CBOE Bats Trade Desk for more information regarding access to the CBOE Bats US Customer Web Portal.