



Cboe Options Exchange (“C1”) Technical Integration Frequently Asked Questions

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GENERAL QUESTIONS

What are the immediate effects on me as a Trading Permit Holder (TPH)?

- While we’ll be busy at work behind the scenes integrating the two companies, there will be significant operational changes in Q4 2018 and throughout 2019. 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.
- 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 C1?

- We plan to migrate C1 to Bats technology on October 7, 2019.
- We expect the migration process to begin later this year, with details continuing to be made available on the integration website as the integration progresses: [Integration Web Page \(http://batsintegration.cboe.com/c1\)](http://batsintegration.cboe.com/c1)
- An integration timeline is also available on the [Integration Web Page](#).

Will functionality of C1 change?

- Please refer to the [Platform Change Matrix](#) for a summary of key functional changes planned for the new C1 platform.
- Also refer to the Technical Specifications for the new C1 platform that can also be found on the [Integration Web Page](#).

Will changes be made to the C1 priority and allocation method?

- Please refer to the [Platform Change Matrix](#) for any changes in priority or allocation method.
- The matching algorithm for complex orders will change to prioritize complex orders ahead of individual leg orders that are not priority customer 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 C1 order types and functionality will continue to be supported, while other new order types will be made available. For example, new Post-Only orders, previously requested by customers, will be available for both simple and complex orders.
- There will be certain minor changes related to the migration to the Bats technology, but the functionality and differentiation that are core to C1's marketplace will remain unchanged.
- More details regarding functionality can be found within the new technical specifications and the [Platform Change Matrix](#), both of which are available on the [Integration Web Page](#).

Which equity clearing brokers will be available for complex instruments with stock legs?

- For the October 7, 2019 migration, as with C1 today, Cowen will be the only clearing broker available for equity leg transactions.
- Cboe anticipates adding the following additional brokers after the initial migration (date TBD and would be announced via Trade Desk notice):
 - Cheevers
 - FOG
 - Libucki

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

- C1 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 US Customer Web Portal](#). **Appointments from the legacy C1 platform WILL NOT be automatically transferred to the Bats technology platform. TPHs will be required to re-register for their appointments for the new platform.**
- C1 will not support intra-day changes to class appointments after the migration.
- Market-Maker continuous quoting obligations will remain unchanged for C1 following the migration to Bats technology. If any decisions are made to change these obligations, we will provide ample notice.

- C1 customers will be allowed to utilize the new [Quoting Interface](#) using the [Binary Order Entry \(“BOE”\)](#) protocol.

How will QRM Risk functionality be impacted?

- While C1 Market-Makers currently use quote messages, under Bats technology C1 customers (including Market-Makers) will use BOE Quote Update messages. Functionality similar to legacy Cboe Command QRM risk controls will be available upon the migration. Refer to the [US Options Risk Management Specification](#) for complete details.
- 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 US Customer Web Portal](#) or using the [Secure Web API](#).

How will time zone changes impact the C1 migration?

- Upon migration to Bats technology, all trading times and system timestamps will transition from Central Time (CT) zone to Eastern Time (ET) zone for both Floor and Electronic trading systems.

Will the trading hours of C1 change?

- The C1 order acceptance queuing session for SPX, VIX and FLEX will be moved up from 5:00 PM ET the previous trading day to 2:00 AM ET trading day.
- The Global Trading Hours (“GTH”) session which currently operates from 3AM to 9:15AM ET for SPX, VIX and FLEX will be extended to operate from 3AM through the 9:30AM ET open.
- Upon migration to Bats technology C1 Regular Trading Hours (“RTH”) will remain unchanged.

Order Acceptance	2:00 - 3:00 ET (SPX, VIX and FLEX)
	7:30 - 9:30 ET (All Products)
GTH	3:00 - 9:30 ET (SPX, VIX and FLEX)
RTH	9:30 - 4:00 ET (All Products)
	9:30 - 4:15 ET (Select ETF's/ETN's and Index products)

Will TPHs need to complete new registration materials for C1?

- No. We do not currently anticipate any need to re-paper existing C1 TPHs.
- 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.
- In situations where a firm currently has multiple permits, they will 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 C1 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 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 Membership Services at membershipservices@cboe.com. The Membership Services team will then work with the TPH to create the EFID.

Who do I call if I have a question?

- The existing C1 Help Desk in the Operations Support Center (“OSC”) and the Cboe Trade Desk will continue to operate as they have in the past. If you have a question related to the legacy Command technology platform for C1, contact the C1 Help Desk, and if you have a question related to the Bats technology markets or the new Bats technology platform for C1, contact the Cboe Trade Desk.
 - C1 Help Desk (legacy platform): helpdesk@cboe.com or +1.866.728.2263
 - Cboe US Trade Desk (Bats platform): tradedesk@cboe.com or +1.913.815.7001
- Additionally, if your firm would like to request a group Technical Review, please contact the Cboe Trade Desk or reach out to your firm’s Account Manager.
- Firms may contact the Cboe NOC with any questions regarding connectivity to either platform.
 - Cboe NOC: noc@cboe.com or +1.913.815.7005

- Unless a representative from Cboe has informed you otherwise, your additional contacts such as business development or sales remain unchanged at this time.

TECHNOLOGY/INTEGRATION QUESTIONS

What is the integration transition timeline? When will C1 transition to Bats technology?

- Our plan is to migrate C1 to Bats technology in the Equinix NY5 data center on October 7, 2019, at which point the legacy C1 platform will be retired.
- The 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 C1 data centers? Will you continue to operate in the same ones in which you currently operate?

Secaucus

- C1 will be consolidated with all other US equities and options exchanges in the Equinix NY5 data center in Secaucus, NJ.
- 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) C1 TPH physical connections in NY4 can be used to access C1 once C1 has moved to NY5. New orders for physical connectivity to the new C1 platform will be accepted beginning on February 1, 2019.
- C1 TPHs will also be able to use the PoP in Weehawken (EWR2, formerly known as NJ2) to access C1 once it is moved to NY5.
- 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 the C1 matching engine in NY5.

Chicago

- **TPHs using legacy physical connections to access the new C1 Disaster Recovery (DR) platform will be required to either use public IP address space OR change their private addressing to ranges assigned by the Cboe NOC.**
- C1 DR data center will move to 350 Cermak (ORD1, formerly known as CH4) in Chicago.
- TPHs in the DR data center in 400 S. La Salle may continue to use existing connectivity through the migration date.

Will C1 TPHs have the ability to access all other Cboe markets from a single connection?

- No. In the Secaucus data center, C1 connectivity cannot be utilized to reach other Cboe Exchanges. TPHs will have the ability to access other Cboe DR markets in 400 S. La Salle and 350 Cermak (i.e. CFE and CBOE) from a single connection at 400 S. La Salle or 350 Cermak.

Will C1 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 C1 production migration occur in a single day?

- Yes, we plan to migrate C1 to NY5 on Bats technology on October 7, 2019.
- To ensure the migration goes well, we will be conducting multiple weekend dress rehearsals beginning on Saturday, June 15, 2019.
- We also plan to allow trading of test symbols in NY5 on the new C1 production trading platform during normal production trading hours starting on Monday, May 5, 2019.

Regarding the planned network and connectivity testing for C1, will TPHs be able to conduct this testing using physical cross-connectivity 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 C1 trading platform without having an infrastructure presence at NY5. TPHs will be able to use their existing C1 physical connectivity to connect and test but are encouraged to order new C1 latency equalized connectivity to ensure the fastest access. Legacy C1 connectivity will incur a latency disadvantage compared to new NY4/NY5 Latency Equalized connections.

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 C1 latency equalized network.**

Will my C1 connectivity fees be changing?

- There are no changes to C1 pricing at this time. If any decisions are made to change pricing, we will provide ample notice to customers.

What kind of physical connectivity will be offered for C1?

- Only 1Gb and 10Gb connections will be offered in NY4, NY5, 350 Cermak, and 400 S. La Salle at this time.

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 C1 environments and are used solely for C1 access will not be billable until after the C1 production migration is complete.
- Post-integration pricing for physical port fees in NY5 has not been determined, but Cboe 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 C1 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 FIX and BOE order entry protocols will be the standard protocols for C1.
- Technical specifications are available on the [Integration Web Page](#).

Will there be any changes to C1 spreads as part of this migration? Also, C1 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?

- C1 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.
- C1 will continue to allow for a one-step spread creation process for TPHs not wishing 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).
- C1 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/RUTW, VIX/VIXW, and SPX/SPXW will be supported.

- C1 TPHs may begin to familiarize themselves with the Complex order logic via the [US Options Complex Book Process](#) specification. .

Will my firm’s legacy production logical order entry sessions be converted to order entry sessions on the new Bats technology platform?

- Effective April 1, 2019, C1 will determine how many order entry and quoting (migrating to BOE) 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 FIX and BOE specifications, but may be updated by making a “Modify” [Logical Port Request](#) update in the [Cboe 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 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 US Customer Web Portal](#).
- Additional sessions may be requested via the [Logical Port Request](#) “add” tool in the [Cboe US Customer Web Portal](#) starting April 1, 2019.
- Firms must enter delete requests for any auto-generated logical sessions that the firm does not wish to maintain. Delete requests may be entered via the [Logical Port Request](#) “Delete” tool in the [Cboe US Customer Web Portal](#) prior to the October 7, 2019 activation of the new C1 production trading platform. Sessions for which a delete request has not been entered will be billed accordingly starting October 7, 2019.

CERTIFICATION QUESTIONS

May I use my existing C1 Certification sessions?

- No. Upon migration to Bats technology, all existing C1 Certification sessions will be decommissioned and will not be available for use to certify the new C1 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 C1 Certification session?

- Once firms establish physical connectivity to the new latency equalized network infrastructure within either the NY4 or NY5 data center, or via their existing C1 NY4 connectivity, free of charge Certification order entry, market data, and drop sessions may be requested via the [Logical Port Request](#) form found in the [Cboe 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.
- Certification sessions will be available during production normal Global Trading Hours (“GTH”).

What should I do prior to scheduling a Certification appointment?

- Firms must first establish physical connectivity to the new C1 latency equalized network infrastructure within the NY4 or NY5 data center or use their existing connectivity and must then request new Certification sessions. The Cboe Conformance [Certification Tool](#) available in the [Cboe US Customer Web Portal](#) may be utilized to perform and submit an unattended C1 certification starting Friday, March 1, 2019. Alternatively, firms that prefer to perform a live certification can contact the Cboe Trade Desk. 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 C1 production environment.

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

- Firms may request a Certification web login by emailing the Cboe 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 Trade Desk at tradedesk@cboe.com.
- In order to be scheduled, TPHs must include with their request the completed [Certification Script](#).
- Alternatively, TPHs may use the [conformance app](#) available in the batstrading.com web portal.

During what hours may I schedule a certification appointment?

- TPHs may contact the Cboe 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.
- Firms utilizing the BOE Quoting Interface (Quote Update) functionality will additionally be required to certify that functionality.

If I have certified on one of the Cboe Exchanges already on Bats technology, do I need to certify for C1 after it is migrated?

- 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 or quotes.

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 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 C1 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 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 C1 may be requested via the [Logical Port Request](#) form found in the [Cboe US Customer Web Portal](#); these requests are typically filled same day for next day connectivity.

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

- The most recent specifications can be found on the [Integration Web Page](#) or on the [Options Technical Specifications](#) page.

MARKET DATA QUESTIONS

Which market data protocols will be supported post-migration?

- The Bats technology market data protocols will be the standard protocols for C1 following the technology migration. C1 will offer Multicast PITCH, Multicast TOP, Complex Multicast PITCH, Complex Multicast TOP, Options Auction, Complex Auction Multicast PITCH, Opening Auction Feed, and FLEX Auction Feed market data products. The technical specifications can be found on the [Integration Web Page](#) or on the [Options Technical Specifications](#) page.

What changes can I expect to the Bats technology market data protocols in support of C1?

- The market data protocols for C1 will be based on existing similar Bats technology market data protocols used by other Bats technology trading platforms and will share existing specifications with the other options platforms. The technical specifications can be found on the [Integration Web Page](#) or on the [Options Technical Specifications](#) page.

If I currently subscribe to C1 Market Data but not Bats technology Market Data, will I have to complete new agreements?

- On February 1, 2018, Cboe migrated all market data recipients, including those receiving C1 market data, to one Cboe Global Markets U.S. Market Data Agreement. A new agreement is not required.

What changes can I expect regarding my Market Data bills?

- On May 1, 2018, C1 market data fees were transitioned to an invoice from Cboe Global Markets. Therefore, the invoice you currently receive will not change. However, please note that there will be changes to the names of the feeds on your invoice (e.g., Cboe Options BBO Internal Distribution to Cboe Options TOP Internal Distribution).

How will Market Data reporting requirements change?

- Reporting requirements will not change and C1 market data recipients will continue to use the Data Declarations Tool for reporting usage.

BILLING QUESTIONS

How will billing be impacted by the integration?

- Billing for C1 will be migrated to enhanced Bats technology; the invoices will follow the style and structure of the invoices on the BZX Options exchange.
- As is the case today, basic transaction billing – including rebates and related adjustments - will appear on invoices by Executing Firm Id (EFID) as they do in Bats technology.
- Various other C1 charges and rebates will appear in invoices related to TPHs, frequent traders, etc., as applicable.
- All transaction fees, and logical port fees wherever possible, will be collected through the OCC; net rebate positions will be rebated through the OCC.
- As part of the platform migration, TPHs will be required to migrate to use the [Cboe US Customer Web Portal](#) for accessing their invoices.

Can I get a preview of the new invoices?

- Preview versions of the new C1 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.
- As noted, the basic look and feel of the C1 invoices after migration will be that of the existing Bats technology invoices

Will Cboe 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 C1?

- Your trade detail will be made available online via the [Cboe US Customer Web Portal](#) upon completion of the platform migration.
- Contact the Cboe Trade Desk for more information regarding access to the [Cboe US Customer Web Portal](#).