CBOE FIX Protocol Support

Version 9.0.2

Volume 1: Overview and Concepts

Provides an overview of the CBOE support and implementation of the FIX protocol

CONFIDENTIAL
CBOE Proprietary Information

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Production Release

Front Matter

Disclaimer

Change Notices

The following change notices are provided to assist users of the CBOE FIX Protocol support in determining the impact of changes to their applications.

Date	Version	Description of Change
15 Jul 2011	9.0.2	No changes
29 Apr 2011	9.0.1	No changes
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12 Aug 2005	3.2	No updates
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30 Nov 2004	3.1	Document updates for internalization and auctions
04 Oct 2004	3.0b	Version Changes
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18 June 2004	3.0	API Enhancements
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06 Feb 2004	2.63	New Version

Support and Questions Regarding This Document

Questions regarding this document can be directed to The Chicago Board Options Exchange at 312.786.7300 or via e-mail: api@cboe.com.

The latest version of this document can be found at the CBOE web site http://systems.cboe.com.

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About This Document

Purpose

This document presents the capabilities and planned availability for support of the FIX protocol to access CBOE markets.

Intended Audience

Firms considering connecting to CBOE using the FIX protocol. Developers of applications that are using the FIX protocol interface to markets accessible through CBOEdirect 2.0.

Related Documents

Document Number	Document Description
FIX-RELNOTES	CBOE FIX Release Notes Version 2.0
FIX-ROADMAP	CBOE FIX Document Road Map
FIX-01	CBOE FIX Volume 1: Overview & Concepts
FIX-03A	CBOE FIX Volume 3A: FIX 4.2 Programmer's Guide: FIX Session Layer
FIX-03B	CBOE FIX Volume 3B: FIX 4.2 Programmer' Guide: Application Layer: Fundamentals and Field (Tag) Dictionary
FIX-03C	CBOE FIX Volume 3C: FIX 4.2 Programmer' Guide: Order Routing
FIX-03D	CBOE FIX Volume 3D: FIX 4.2 Programmer' Guide: Market making
FIX-06	CBOE FIX Volume 6: FIX 4.2 Certification Guide
FIX-07	CBOE FIX Volume 7: FIX 4.2 CBOE Market Data FIX Engine (CFIX)
NET-01	CBOE Network Connectivity Guide
	Financial Information Exchange Protocol (FIX) Version 4.2 (http://www.fixprotocol.org)
	Financial Information Exchange Protocol (FIX) Version 4.3 (http://www.fixprotocol.org)

Introduction

CBOE provides support of the FIX protocol for firms. The primary service is known as the CBOE FIX 4.2 Service is built on top of the CBOEdirect trading system. The CBOE FIX 4.2 Service provides extensive order routing and market making support, including mass quoting to electronic markets, market data from electronic markets, product information retrieval and status updates, and the ability to define and trade multileg instruments, such as options strategies and futures calendar spreads. CBOE recommends all firms consider the CBOE FIX 4.2 Service as multileg order support and access to futures markets. Users will also benefit from the CBOE FIX 4.2 services improved compatibility with FIX order handling semantics, improved order status, and the ability to retrieve product information.

CBOE FIX 4.2 Service Version 1.0 supported market making and order routing.

- Order entry
- Better support for standard order handling semantics
- Improved inquiry of order status
- Ability to receive bust and reinstate reports from selected CBOE markets
- Mass quoting to selected CBOE markets
- Ability to retrieve product information (class and series) and subscribe for changes in product status
- Subscription to product trading status, including intra-trading session addition of series
- Subscription to trading session status information
- Subscription for market data
- Query for book depth (book depth snapshots)

Version 2.0 of the CBOE FIX 4.2 Service adds the following capabilities:

- Ability to route orders to the floor
- Retrieval of product information for products traded on the floor
- Subscription for book depth updates (in addition to previously provided snapshot capability)
- Support for securities futures markets of the OneChicago™ exchange
- Ability to define and trade complex instruments, such as option strategies

Version 2.1 of the CBOE FIX 4.2 Service adds the following capabilities:

- Ability to send orders as part of Options Linkage

Version 2.5 of the CBOE FIX 4.2 Service adds the following capabilities:

- Ability to perform Hybrid quoting on the CBOE trading floor

Version 3.0 of the CBOE FIX 4.2 Service adds the following capabilities:

- Hybrid and Stock updates

Version 3.1 of the CBOE FIX 4.2 Service adds the following capabilities:

- Ability to perform internalization and automated auction

Background on the FIX Protocol

The FIX Protocol (Financial Information Exchange) was started by buy side security firms (specifically Fidelity Investments and Solomon Smith Barney), as a method for standardizing and then automating stock trading transactions. The protocol has been widely adopted in the securities industry. Derivative product support was first introduced in version 4.1 of the FIX Protocol. CBOE played a leadership role in expanding the protocol for use in exchange style derivatives trading with version 4.2.

The FIX Protocol has two levels. The S*ession Layer* specifies communication sessions between two FIX users. The Session level protocol consists of the following activities:

- Logon
- Message Exchange
- Logout
- Message Recovery

The second layer is the *Application Layer* which consists of application level messages that support the message formats that describe communications that commonly take place between buyers and sellers of securities. The FIX 4.2 application layer is presented in volumes FIX-03B, FIX-03C, FIX-03D.

Support for the FIX protocol is increasing. Several vendors provide servers that can communicate using the FIX protocol. These servers are usually referred to as *FIX Engines*. These FIX Engines usually provide standard interfaces, such as CORBA, for purposes of integration with a firm's existing systems. An entire industry has been created around the supply and support of the FIX protocol.

The FIX protocol application level messages are tagged data items, where a FIX Field Index identifies each field. The FIX Field Index is an integer number. For instance, FIX Field Index = 11 is the ClOrdID field which is a unique identifier for an order as assigned by the institution.

CBOE and the FIX Protocol Standard

CBOE has taken a leadership position in expanding the FIX protocol for exchange style derivatives trading by participating in the ECN and Exchange Working Group during the definition of the FIX 4.2 protocol. CBOE is continuing that leadership with participation in the Futures & Options Working Group and FIX Technical Committees enhancing FIX 4.3 for derivatives usage.

The inclusion of support for derivative securities by the FIX protocol specification is new with version 4.1. The adoption of FIX for use by derivative exchanges is a recent occurrence. The CBOE has taken a leadership role in this evolution of the FIX protocol to support exchange-based derivatives trading. As an example of this commitment, CBOE devoted resources for the development of the FIX 4.2 specification.

An Overview of the CBOE FIX 4.2 Service

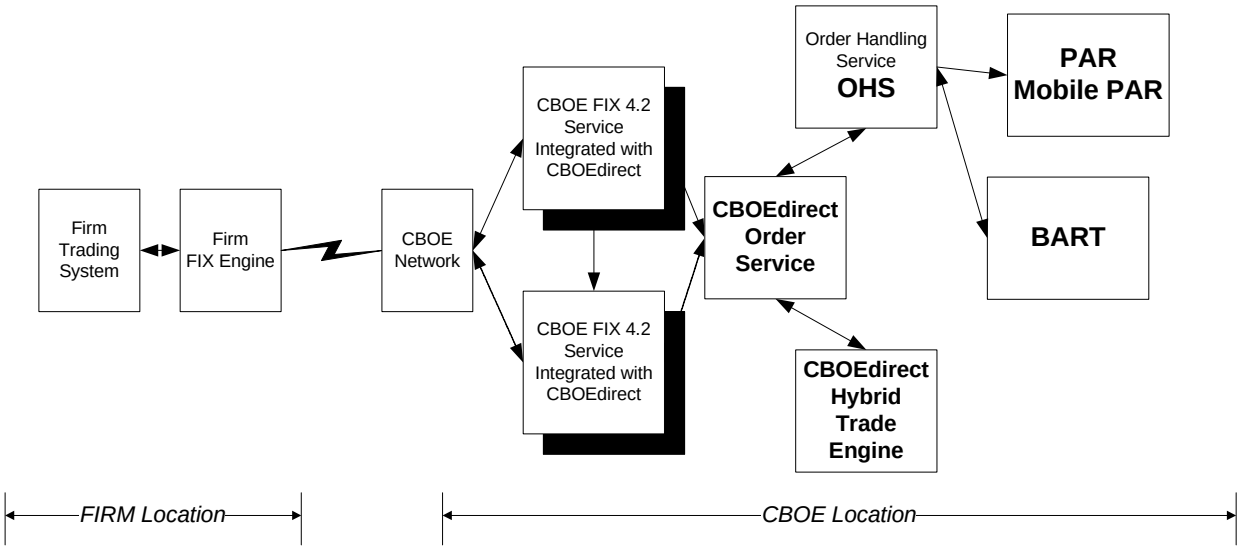
The CBOE FIX 4.2 Service uses components from CBOEdirect™ to provide access to both open outcry and electronic markets. An overview of the major systems and components involved with the CBOE FIX 4.2 Service is provided to help you understand how your FIX requests are processed at CBOE.

Firms will connect to CBOE using a TCP/IP network connection. This network connection can be an existing connection to the firm or one provided using the CBOE Network (refer to NET-01 FIX-04 for more information on connecting to CBOE FIX Services).

CBOE uses a highly available FIX engine in a redundant configuration to provide automated fail over and recovery. These FIX Engines are referred to collectively as the **CBOE FIX 4.2 Service**.

The CBOE FIX 4.2 Servers are tightly integrated with CBOEdirect electronic trading system services. The primary CBOEdirect service that is elaborated in this document is the **CBOEdirect Order Service**. The CBOEdirect Order Service provides access to both open outcry and electronic markets. The CBOEdirect Order Service also persists and maintains all orders that are submitted via CBOEdirect.

Figure 1 FIX 4.2 Service overview diagram showing major components



CBOE does not provide a subroutine library or software development kit

In keeping with the philosophy of the FIX protocol, CBOE does not provide a subroutine library to access FIX Protocol messages. Each firm that connects to CBOE via FIX will be required to provide their own FIX protocol support. A list of vendors that provide servers that support FIX (FIX Engines) and firms that provide software development toolkits for FIX can be accessed from the FIX Protocol Organization Web Site (http://www.fixprotocol.org).

CBOE FIX 4.2 Service Capabilities

The FIX 4.2 service provides the ability to perform the following functions:

- Order Routing to CBOEdirect - Including the definition and trading of options strategies on Electronic Markets
- Order Routing to Open Outcry markets supported by the CBOE Order Routing System (ORS)

- High degree of compatibility with FIX 4.2 Order Handling Semantics
- Market making using Mass Quoting to CBOE trading floor and OneChicago Electronic Markets.
- Market data for electronic markets.
- Product Information (Class and Series) for CBOE and OneChicago markets, including CBOE open outcry markets.
- Security status information for electronic markets.
- Trading session status information for all CBOE markets.
- Support for options linkage order routing.

CBOE FIX 4.2 Service supports routing orders and quotes to Open Outcry Markets

The following table compares CBOE FIX 4.2 Service capabilities for electronic markets and open outcry markets.

Table 1 CBOE FIX 4.2 Feature Comparison

Function	Electronic Markets[1]	Open Outcry Markets[2]
Order Routing		
New Order Single	●	●
Order Entry for Strategies	●	●
Order Cancel FIX 4.2 Semantics	●	●
Order Cancel Replace FIX 4.2 Semantics	●	●
Order Status Requests	●	●
Execution Report – Fills	●	●
Execution Report – Cancels	●	●
Execution Report – Status	●	●
Execution Report –Bust	●	
Execution Report – Bust with Reinstated Quantity	●	
Execution Report – Nothing Done	●	●
Quote Request (RFQ) Inbound	●	
Quoting (Market Making)		
Quote	●	●
Mass Quote	●	●
Quote Status Request	●	●
Quote Status – Subscribe for Quote Requests	●	

[1] Electronic Markets include OneChicago securities futures trading and CBOEdirect early morning index options trading session.

[2] To be provided with Version 2.0 of the CBOEDirect system.

Function	Electronic Markets[1]	Open Outcry Markets[2]
Quote Cancel	●	●
Quote Request Outbound	●	
Security Definition		
Security Definition Request – List of Classes	●	●
Security Definition Request – List of Products	●	●
Security Definition Request – List of Strategies	●	●
Security Definition Request – Define a Strategy	●	●
Market Data		
Market Data Request – Subscription for Current Market (Top of Book)	●	●
Market Data Full Refresh – Current Market (Top of Book)	●	●
Market Data Request – Subscription for National Best Bid and Offer (Consolidated top of book)	●	●
Market Data Full Refresh – National Best Bid and Offer (Consolidated top of book)	●	●
Market Data Request – Subscription for Last Sale (Ticker) for options and underlying products	●	●
Market Data Full Refresh – Last Sale (Ticker) for options and underlying products	●	●
Market Data Request – Subscription for Recap for options and underlying products	●	●
Market Data Full Refresh – Recap for options and underlying products	●	●
Market Data Request – Subscription Expected Opening Price	●	●
Market Data Full Refresh – Expected Opening Price	●	●
Market Data Request – Snapshot Request for Book Depth	●	●
Market Data Full Refresh – Book Depth	●	●
Market Status[3]		
Trading Session Status Request – Snapshot and subscription for trading session information	●	●
Trading Session Status subscription responses	●	●
Security Status Request – Snapshot and subscription for product information	●	●
Security Status – subscription responses	●	●

[3] For open outcry markets, trading session status and security status is entered by operations personnel using the CBOEdirect administrators workstation. For CBOEdirect markets, market and product state transitions have been automated, though manual intervention is possible.

User Roles

This section provides a description of the user roles used in CBOEdirect. Each SenderCompId is assigned a user role. The user role defines the features that can be accessed for a user. User roles exist for the various types of market participants, such as an order entry firm or a quote-providing firm. In addition, user roles exist for special functions, such as for clearing firms that want to receive duplicate copies of all trade reports, display of market data, etc. Users developing applications may choose to create applications that use one or more of the following roles.

CBOE now supports the Firm and Firm Display roles in CBOEdirect. These roles may only be used by clearing firms. Non-self clearing member firms cannot use the Firm and Firm Display roles. When a CBOEdirect Firm or Firm Display user logs in using FIX 4.2, the CBOE would automatically subscribed the user to receive duplicate copies of order and quote related messages (new order, order filled, order trade busted, quote filled, quote trade busted, etc.) for all users clearing their trades through that clearing firm. CBOE will not publish all orders for a clearing firm when the Firm or Firm Display role logs on.

BROKER_DEALER

- Main purpose is to enter orders acting as agent
- Commonly referred to as the “Broker” role
- User ID must be an actual membership acronym approved by the CBOE or CME Membership Department
- Not allowed to enter quotes
- Allowed to enter orders for any approved clearing firm per the permissions given by the Membership Department
- Allowed to enter orders for any order origin type
    1. BROKER_DEALER
    2. CUSTOMER
    3. CUSTOMER_BROKER_DEALER
    4. FIRM
    5. MARKET_MAKER
- Allowed to send RFQs but not allowed to receive RFQs
- Not allowed to access orders entered by other users clearing their trades through the same clearing firm
- Has full access to viewing products, market data, and strategies
- Able to create strategy products

CLASS_DISPLAY

- Main purpose is to obtain market data
- Recently renamed to “Class Display” from the “Market Data” role
- User ID must be created and assigned by CBOE staff
- Not allowed to enter orders
- Not allowed to enter quotes
- Not allowed to send RFQs and not allowed to receive RFQs
- Has full access to viewing products, market data, and strategies
- Not able to create strategy products

CUSTOMER_BROKER_DEALER

- This role is not currently being used by CBOEdirect

DPM_ROLE

- Commonly referred to as the Lead-Market-Maker (LMM) role
- Main purpose is to act as LMM in CBOEdirect platform as described on http://www.cboedirect.com/ and http://www.onechicago.com/
- User ID must be an actual membership acronym approved by the CBOE or CME Membership Department

- Has access similar to the “Market-Maker” role
- Allowed to enter proprietary orders for own account
- NOT allowed to enter orders acting as agent
- Allowed to enter quotes
- Only allowed to enter orders for default executing give-up firm per the permissions given by the Membership Department
- Allowed to enter orders only for MARKET_MAKER order origin type (see cmiConstants::OrderOrigins)
- Allowed to send and receive RFQs
- Not allowed to access orders entered by other users belonging to same clearing firm
- Has full access to viewing products, market data, strategies
- Able to create strategy products

FIRM

- Main purpose is to enter orders acting as agent on behalf of clearing firm
- May only be used by approved CBOE or CME clearing firms
- User ID must be an actual membership acronym approved by the CBOE or CME Membership Department that will be assigned the Firm role
- Not allowed to enter quotes
- Allowed to receive copies of all messages delivered to all users clearing their trades through that clearing firm.
- Allowed to enter orders giving up clearing firms allowed by permissions setup up in the Membership Department
- Allowed to enter orders for any order origin type
    6. BROKER_DEALER
    7. CUSTOMER
    8. CUSTOMER_BROKER_DEALER
    9. FIRM
    10. MARKET_MAKER
- Allowed to send RFQs but not allowed to receive RFQs
- Full access to orders entered by other users belonging to same clearing firm
- Has full access to viewing products, market data, and strategies
- Able to create strategy products

FIRM_DISPLAY

- Main purpose is to receive copies of all messages delivered to all users clearing their trades through the default clearing firm
- User ID must be created and assigned by CBOE staff
- Has access similar to the “Class Display” role
- May only be used by approved CBOE or CME clearing firms
- Not allowed to enter quotes
- Not allowed to enter orders
- Not allowed to send RFQs and not allowed to receive RFQs
- Allowed to access orders entered by other users belonging to same clearing firm
- Has full access to viewing products, market data, and strategies
- Not able to create strategy products

HELP_DESK

- For CBOE Administrator use only

MARKET_MAKER

- Main purpose is to act as Market-Maker (MM) in CBOEdirect platform as described on http://www.cboedirect.com/ and http://www.onechicago.com/
- User ID must be an actual membership acronym approved by the CBOE or CME Membership Department
- Has access similar to the "DPM" role
- Allowed to enter proprietary orders for own account
- NOT allowed to enter orders acting as agent
- Allowed to enter quotes
- Only allowed to enter orders for default executing give up firm per the permissions given by the Membership Department
- Allowed to enter orders only for MARKET_MAKER order origin type
- Allowed to send and receive RFQs
- Not allowed to access orders entered by other users belonging to same clearing firm
- Has full access to viewing products, market data, and strategies
- Able to create strategy products

UNKNOWN_ROLE

- This is the default role when a user is created. No enabled and active CBOEdirect user should persist with this role.

CBOE FIX Protocol Frequently Asked Questions

What is FIX?

The FIX Protocol is an industry standard created by retail and institutional investors for the trading of securities. The FIX protocol was originally designed to automate much of the trading that was done over telephone by providing messages for indications of interest, quotations, orders, and execution reports.

When will FIX protocol support be available from CBOE?

CBOE currently provides support for the FIX 4.2 Service that supports market making to select markets, retrieval of product information, and product trading status.

Can FIX be used for remote market making?

At this time, FIX 4.2 can be used for remote market making for electronic markets using the CBOEdirect trading system.

What type of connection to CBOE is required?

The FIX Protocol is implemented over the TCP/IP protocol. To communicate with CBOE a connection to the CBOE TCP/IP Network is required.

Is a subroutine library required to communicate to CBOE using FIX?

No, CBOE does not require the use of CBOE supplied software to communicate to CBOE using FIX. This is because CBOE is using and industry standard FIX engine (for more information refer to the question on FIX compatibility).

How compatible is CBOE's implementation of the FIX protocol with the FIX standard?

To answer this question some background information must be provided.

FIX can be divided into three levels.

At the most basic level, the FIX Session Layer defines how two applications transmit messages back and forth. CBOE is using an industry leading FIX engine product to ensure that the FIX Session Layer is industry standard. Any FIX engine or FIX enabled application that has properly implemented the standard FIX session layer should be able to communicate with CBOE.

The second level of the FIX protocol is the FIX Application Message Layer. CBOE has done everything possible to support the FIX standard application messages. The FIX 4.2 version is planned to be fully compliant with the FIX 4.2 specification.

The highest level of the FIX protocol is the actual message semantics. This is how orders are maintained and FIX values are calculated.

The CBOE FIX 4.2 Service is:

- fully compatible with the FIX session layer,
- fully compatible with the FIX application messages layer,
- highly compatible with FIX order handling semantics.

Who should use the FIX protocol?

Anyone that wants to submit orders to CBOE or who are interested in remote market making to electronic markets should strongly consider adopting the FIX protocol as a means to communicate and manage CBOE order flow. The FIX protocol should be of great interest to firms that are already using the FIX protocol and are interested in reducing the number of disparate interfaces required to trade securities. Also, existing COMPASS firms should consider FIX as a way to obtain more bandwidth and improved functionality as compared to COMPASS.

Where can software to support the CBOE FIX interface be obtained?

CBOE does not provide a subroutine library to access FIX Protocol messages. Each firm that connects to CBOE via FIX will be required to provide their own FIX protocol support. A list of vendors that provide servers that support FIX (FIX Engines) and firms that provide software development toolkits for FIX can be accessed from the FIX Protocol Organization Web Site (http://www.fixprotocol.org). There are also emerging viable open source FIX engines, such as QuickFIX.

What FIX messages are supported by CBOE?

Refer to the CBOE FIX 4.2 Message Summary for a detailed description of the messages supported by the CBOE FIX services.

What are the features in FIX?

The following table outlines the major features in CBOE FIX 4.2.

Characteristic/Function	FIX 4.2
Communication Protocol	TCP/IP
Bandwidth	Configurable from 56Kbps to 192Kbps.
Application Message Formatting	FIX tag, value format
Order Entry	Provides order routing to ORS and CBOE Direct.
Cancel	Following FIX order handling semantics will only supports full cancel.
Cancel/Replace	Following FIX order handling semantics will cancel by reducing OrderQty.
Order Status Reporting	Adds ability to query status of an order using the FIX Order Status Request message.
Complex Orders	Support for defining and trading complex orders on the floor and in CBOEdirect.
Product Query	Permits retrieval of product information, such as product classes, products, strategies
Security status (Product)	Provides for subscription to security status (open, halt, close)
Trading session status	Provides subscription for trading session status
Email	Communication between exchange and market participant
Book Depth	Book depth for products traded on selected CBOE markets
Mass Quote	Provides for submission of quotes to selected CBOE Markets
Industry Usage	FIX is gaining wide acceptance and usage in the securities industry. There

Characteristic/Function	FIX 4.2
	is a great deal of momentum behind the protocol at this time.

How to connect to the CBOE FIX Service

The following steps should be followed to connect to CBOE.

1. **Inform CBOE of your interest in using FIX**

   Contact 312.786.7300 or api@cboe.com at CBOE to inform them of your interest in using FIX 4.2. At that time the process for connecting to CBOE will be reviewed with you and a rough timeline for achieving connectivity will be established.

   Read the **NET-01CBOE Network Connectivity Guide** for information on how to connect to CBOE.

2. **Modify Applications to support FIX 4.2 messages**

   You will most likely need to modify your order routing application to support the order handling semantics and tags required by FIX. If you are an existing COMPASS user and you do not rely on Inbound Unprocessable (IU) messages as part of your order routing—conversion of FIX should be a matter of conversion to a new protocol—with minimal impacts to your firm's order routing software.

   Programmers and analysts should refer to FIX-03 (FIX 4.2 Programmer's Guide) for information on the CBOE FIX service message formats.

3. **Contact CBOE to Initiate Testing**

   Contact 312.786.7300 or api@cboe.com in order to have a connection defined and configured for testing. At that time you will be asked for the IP address and TCP port that you plan on using to establish a FIX session to the CBOE. Shortly after this information is provided with the request, CBOE will provide you with an IP address and TCP port for a test FIX Engine.

   Testing is accomplished via dial up connection, ISDN.

4. **Certify Application**

   Your order routing application and FIX engine will be certified compliant with FIX 4.2, once the firm has successfully completed each test protocol identified in **FIX-06 FIX 4.2 Certification and Testing Guide**. This certification will permit connection to a production CBOE FIX 4.2 server. CBOE reserves the right to deny access to any firm for any reason.

5. **Configure FIX Engine for Production Operation**

   After obtaining certification, CBOE will schedule configuration of your firm's connection to a production server. You will be provided with an IP address and a TCP port for each connection you plan to have to the CBOE FIX service. At that time CBOE will also ask for an IP address and a TCP port on your network for each of your planned FIX Engine connections.

CBOE FIX 4.2 Service Message Summary

FIX 4.2 Session Layer Protocol Support

FIX 4.2 shall support the FIX 4.2 session layer.

FIX Message	CBOE Implementation	FIX Message Description
Logon	Will require logon and password to the CBOE FIX engine.	The logon message authenticates a user establishing a connection to a remote system. The logon message must be the first message sent by the application requesting to initiate a FIX session.
TestRequest		The test request message forces a heartbeat from the opposing application. The test request message checks sequence numbers or verifies communication line status. The opposite application responds to the Test Request with a Heartbeat.
ResendRequest		The resend request is sent by the receiving application to initiate the retransmission of messages. This function is utilized if a sequence number gap is detected, if the receiving application lost a message, or as a function of the initialization process.
Reject		The reject message should be issued when a message is received but cannot be passed through to the application level. An example of when a reject may be appropriate would be the receipt of a message with invalid basic data (e.g. MsgType=&)
SequenceReset		The sequence reset message is used by the sending application to reset the incoming sequence number on the opposing side.
Logout		The logout message initiates or confirms the termination of a FIX session. Disconnection without the exchange of logout messages should be interpreted as an abnormal condition.
Heartbeat		The Heartbeat monitors the status of the communication link and identifies when the last of a string of messages was not received.

FIX 4.2 Application Layer Message Support

The following message formats were adopted from the electronic version of the FIX Protocol Specification. Each FIX message is shown with information on CBOE's implementation if it differs from the usage detailed in the FIX specification message description.

FIX 4.2 Message	FIX 4.2 Message Usage(Implementation description, differences from specification)	FIX Specification Message Description
Advertisement	*Not Supported*	Advertisement messages are used to announce completed transactions. The advertisement message can be transmitted in various transaction types; NEW, CANCEL and REPLACE.
Indications of Interest	*Not Supported*	Indication of interest messages market merchandise that the broker is buying or selling in either a proprietary or agency capacity. The indications can be time bound with a specific expiration value.
News	*Not Supported*	The news message is a general free format message between the broker and institution. The message contains flags to identify the news item's urgency and to allow sorting by subject company (symbol).
Email	Used to send messages between trading operations and FIX users.	The email message is similar to the format and purpose of to the News message, however, it is intended for private use between two parties.
QuoteRequest	Used to submit requests for quotes into the electronic trading system.	In some markets it is the practice to request quotes from brokers prior to placement of an order. The quote request message is used for this purpose.
Quote	*Not Supported*	The quote message is used as the response to a Quote Request message and can be used to publish unsolicited quotes.
New Order – Single	Enter new order to electronic trading system. The FIX 4.2 version fully supports FIX 4.2 order handling semantics.	The new order message type is used by institutions wishing to electronically submit securities and forex orders to a broker for execution.
Execution Report	Will be generated when an action is taken on an order, such as a fill, cancel, etc.	Each execution message will contain information that will describe the current state of the order and execution status as understood by the broker.
Don't Know Trade (DK)	*Not Supported*	The Don't Know Trade (DK) message notifies a trading partner that an electronically received execution has been rejected. This message can be thought of as an execution reject message.
Order Cancel/ Replace Request	Uses a subset of FIX order handling semantics, with the exception of the ability to re-open a closed order.	Cancel/Replace is used to change any valid attribute of an open order (i.e. reduce/increase quantity, change limit price, change instructions, etc.) It can be used to re-open a filled order by increasing OrderQty.

FIX 4.2 Message	FIX 4.2 Message Usage(Implementation description, differences from specification)	FIX Specification Message Description
Order Cancel Request	The cancel request can only be used to cancel the remaining open quantity, to comply with the FIX specification.	The order cancel request message requests the cancellation of all of the remaining quantity of an existing order. Note that the Order Cancel/Replace Request should be used to partially cancel (reduce) an order.
Order Cancel Reject	Used to reject order cancel requests for unknown orders and orders that are too late to cancel.	The order cancel reject message is issued by the broker upon receipt of a cancel request or cancel/replace request message which cannot be honored. Requests to change price or decrease quantity are executed only when an outstanding quantity exists.
Order Status Request	Used to generate an execution report with ExecTransType = Status	The order status request message is used by the institution to generate an order status message back from the broker.
Allocation	*Not Supported*	The allocation record instructs a broker on how to allocate executed shares to sub-accounts. The allocation record can also be used as a confirmation message through which third parties can communicate execution and settlement details.
Allocation ACK	*Not Supported*	The allocation ACK record is used by the broker to acknowledge the receipt and status of an allocation record received from the institution.
Settlement Instruction	*Not Supported*	The Settlement Instructions message provides either the broker's or the institution's instructions for trade settlement.
New Order List	*Not Supported*	The new order list message type is used by institutions wishing to electronically submit lists of related orders to a broker for execution.
List Status	*Not Supported*	The list status message is issued as the response to a List Status Request message and indicates the current state of the orders within the list as they exists at the broker's site.
List Execute	*Not Supported*	The list execute message type is used by institutions to instruct the broker to begin execution of a previously submitted list.
List Cancel Request	*Not Supported*	The list cancel request message type is used by institutions wishing to cancel previously submitted lists either before or during execution.
List Status Request	*Not Supported*	The list status request message type is used by institutions to instruct the broker to generate status messages for a list.

FIX 4.2 Message	FIX 4.2 Message Usage(Implementation description, differences from specification)	FIX Specification Message Description
Market Data Request	Request a snapshot of book depth to products traded on the CBOE electronic market.	Some systems allow the transmission of real-time quote, order, trade and/or other price information on a subscription basis. A Market Data Request is a general request for market data on specific securities or forex quotes
Market Data – Snapshot / Full Refresh	Book depth for a product traded in the electronic market.	The Market Data messages are used as the response to a Market Data Request message. In all cases, one Market Data message refers only to one Market Data Request. It can be used to transmit a 2-sided book of orders or list of quotes, a list of trades, index values, opening, closing, settlement, high, low, or VWAP prices, or any combination of these.
Market Data – Incremental Refresh	*Not Supported*	The second Market Data message format is used for incremental updates. Market Data Entries may have an MDEntryID unique among all currently active Market Data Entries so they can be referenced for the purposes of deleting and changing them later. When changing a Market Data Entry, it may keep the same MDEntryID, in which case only MDEntryID would be populated, or the MDEntryID may change, in which case MDEntryID will contain the new ID, and MDEntryRefID will contain the ID of the Market Data Entry being changed. An MDEntryID can be reused within a day only if it has first been deleted.
Market Data Request Reject	Reject book depth requests for unknown products or products that are not traded on the electronic markets.	The Market Data Request Reject is used when the broker cannot honor the Market Data Request, due to business or technical reasons. Brokers may choose to limit various parameters, such as the size of requests, whether just the top of book or the entire book may be displayed, and whether Full or Incremental updates must be used.
Security Definition Request, Security Definition	Used to query product information for products traded and on CBOE markets and their underlying products.	Also provides the ability to query for product information.
Security Status Request, Security Status	Used to provide state information on products traded in the electronic trading system	Permits snapshot or subscription to updates to product and class status.
Trading Session Status Request, Trading Session Status	Used to provide state information on electronic trading sessions	Permits snapshot or subscription to updates to trading session status.

FIX 4.2 Message	FIX 4.2 Message Usage(Implementation description, differences from specification)	FIX Specification Message Description
Mass Quote	Used to provide submission of two sided quotes with size to CBOE markets.	The Mass Quote message can contain quotes for multiple securities to support applications that allow for the mass quoting of an option series. Two levels of repeating groups have been provided to minimize the amount of data required to submit a set of quotes for a class of options (e.g. all option series for IBM).
Quote Acknowledgement	Used to acknowledge quotes submitted to CBOE markets using the Mass Quote message.	An optional response to Quote, Mass Quote, Quote Cancel, and Quote Request message is the Quote Acknowledgement message. The use of the Quote Acknowledgement message is optional per Quote, Mass Quote, or Quote Request message. It is intended to provide application level acknowledgement of quotes. The level of response requested from a receiver of the Quote Acknowledgement message is specified in the QuoteResponseLevel tag.
Quote Cancel	Used to cancel quotes submitted to CBOE markets using the Mass Quote message.	The Quote Cancel message is used by an originator of quotes to cancel quotes.
Quote Status Request	Used to obtain quote status for quotes submitted to CBOE markets using the Mass Quote message.	The quote status request message is used by the institution to generate an execution report that contains the quote status message back from the counterparty. It is used to retrieve the status of the originating party's quotes and not to obtain market data information.
Bid Request, Bid Response	*Not Supported*	In the "Non disclosed" convention (e.g. US/European model) the BidRequest message can be used to request a bid based on the sector, country, index and liquidity information contained within the message itself. In the "Non disclosed" convention the entry repeating group is used to define liquidity of the program. Primarily provided to support list (program) trading.
Business Message Reject	Used to reject messages that are not compliant with CBOE's implementation of FIX 4.2.	Generic reject message.