



Cboe Futures Exchange Multicast Depth of Book (PITCH) Implementation Guide

Version 1.0.1

October 17, 2017

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1 Introduction

The Cboe Futures Exchange (“CFE”) disseminates depth of book market data using the PITCH protocol. The PITCH market data protocol is based on the PITCH protocol used for existing Bats BZX and EDGX Options Exchanges. This document is provided to assist customers with migration of an existing Options Exchange PITCH 2.37.8 implementation for use with CFE PITCH version 1.0.3. As a result, this document provides a point-in-time guide to porting from an Options Exchange PITCH implementation for use with CFE. Consult the revision history of future revisions as necessary as the protocol specifications evolve to accommodate new exchange features and functionality.

This document follows the same structure as the CFE PITCH specification. In each section, the differences relevant to porting an existing Options Exchange PITCH implementation are highlighted. Sections with no notable differences are omitted.

1.1 Overview

See the [CFE Multicast PITCH Specification](#) for an overview of the CFE PITCH feed.

1.2 Feed Connectivity Requirements

The CFE PITCH feeds are all WAN-shaped. No Gig-shaped or 5-Gig-shaped feeds are available on CFE.

1.3 Symbol Ranges, Units, and Sequence Numbers

The CFE PITCH feed will have two units instead of 32. Symbol range distributions are defined in section 7.1.2 in the [CFE Multicast PITCH Specification](#).

1.3.1 Futures Specific Symbol Processing

CFE has implemented a symbol mapping mechanism (`Futures Instrument Definition` message) which maps each specific simple futures contract or spread instrument to a six character, ASCII *Symbol*. For example, the weekly VX11 contract expiring March 14, 2017 might be represented by the *Symbol* ‘0ab123’. This symbol mapping is similar to the method used on Bats Options PITCH which maps a six character, ASCII *Symbol* to an OSI Root symbol.

The CFE PITCH feed will send a sequenced `Futures Instrument Definition` message on feed startup. This allows for all symbol mappings to be available on SPIN and GRP.

Spread instruments may be occasionally created intra-day on CFE. In these cases, the `Futures Instrument Definition` message will be sent as a sequenced message on the real-time feed before any other messages that reference an instrument created intra-day are sent.

2 Protocol

Any CFE-specific message types and fields along with related functionality will be highlighted in this section. Any message types and fields that appear here are new and must be accommodated by any feed handler that is expected to take the CFE Multicast PITCH feed.

2.1 CFE-Specific Protocol Features

2.1.1 PITCH Message Type Comparison

The following table details a comparison of PITCH message types between the CFE PITCH specification and the Bats Options PITCH specification. Message types fall into one of the following categories.

- Added (A) = This is a new message type specific to CFE PITCH.
- Modified (M) = This message type exists in both CFE PITCH and Bats Options PITCH, but there are modifications to one or more fields.
- Same (=) = Exists in both CFE PITCH and Bats Options PITCH with no changes.
- Deleted (D) = Exists on Bats Options PITCH but not on CFE PITCH.

Refer to the [CFE Multicast PITCH Specification](#) for specific details on any message type that has been Added (A) or Modified (M). These message types will require special attention for any feed handler that is being ported from Bats Options PITCH.

Message Type	Message Name	Category	Notes
0x20	Time	=	
0x97	Unit Clear	=	
0xB1	Time Reference	A	New for CFE
0xBB	Futures Instrument Definition	A	New for CFE
0xBE	Price Limit	A	New for CFE
0x21	Add Order - Long	M	Removed <i>Add Flags</i>
0x22	Add Order - Short	M	Removed <i>Add Flags</i>
0x23	Order Executed	M	Added <i>Trade Condition</i>
0x24	Order Executed at Price/Size	M	Added <i>Trade Condition</i>
0x25	Reduce Size - Long	=	
0x26	Reduce Size - Short	=	
0x27	Modify Order - Long	M	<i>Modify Flags</i> changes to a Reserved byte
0x28	Modify Order - Short	M	<i>Modify Flags</i> changes to a Reserved byte

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0x29	Delete Order	=	
0x2A	Trade - Long	M	Added Trade Condition
0x2B	Trade - Short	M	Added Trade Condition
0xBC	Transaction Begin	A	New for CFE
0xBD	Transaction End	A	New for CFE
0x2C	Trade Break	=	
0xB9	Settlement	A	New for CFE
0xBA	End of Day Summary	A	New for CFE
0x31	Trading Status	M	Reg SHO Action removed. Reserved bytes relocated.
0x2D	End Of Session	=	
0x2E	Symbol Mapping	D	
0x2F	Add Order - Expanded	D	
0x30	Trade - Expanded	D	

2.1.2 Trade Date

CFE PITCH adds the concept of a Trade Date. This is required because the calendar date may not match the current Trade Date or Business Date. The term Trade Date is used within the CFE PITCH specification to match identically named fields in the CFE FIX and BOE specifications.

2.1.3 Transaction Blocks

The CFE PITCH protocol adds new transaction block handling, which allows feed handlers to postpone publishing a quote update until the end of a transaction block. This might be used, for instance, in a case where a single aggressive order exhausts the available liquidity on several price levels. Refer to sections 2.14 and 2.15 of the [CFE Multicast PITCH Specification](#) for additional details.

2.2 Gap Request Proxy Messages

There are no substantive differences between CFE PITCH and Bats Options PITCH in regards to the GRP.

2.3 Spin Server Messaging

The following CFE-specific message types will be added to spin: Futures Instrument Definition, Settlement, Time Reference. All other Spin server functionality is consistent with the implementation on Bats Options.

3 Support

Please e-mail questions or comments regarding this specification to cfetradedesk@cboe.com.

Revision History

Document Version	Date	Description
1.0.0	08/30/17	Initial version.
1.0.1	10/17/17	Cboe branding/logo changes.