



Application Development

CHX FIX Drop Copy Execution Specification

Revision History

Date	Initials	Revision
06/14/07	YT	Initial release
08/17/07	RJG	Added participant receipt of drop copy information

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1. Introduction

This document is intended for firms who would like to receive execution drop copies from the CHX using the FIX protocol 4.1.

This document describes functionality that is proprietary, optional, different or possibly unclear in the standard FIX specifications, which can be accessed at www.fixprotocol.org.

1.1 Clearing Firm Drop Copies

Clearing firms can receive execution reports for CHX participant trading accounts that are associated with a clearing firm via configuration. The Drop Copy Execution functionality can be used by clearing firms to monitor the execution activity of its correspondent customers.

1.2 Participant Firm Drop Copies

Participants may also receive execution drop copies by a connection independent of order entry. The participant drop copy message layout and definition is the same as CHX's FIX order entry implementation (see *FIX Interface*). Participant drop copies are available upon request and configuration by CHX.

2. FIX Session

The firm will connect to the CHX system at a pre-arranged IP address and port number.

CHX's CompID (*TargetCompID* or *SenderCompID*) is always "CHX". The firm's CompID will be determined during initial configuration and has a maximum length of 12 characters.

2.1 Message Header

Each administrative or application message is preceded by a standard header.

Tag	Field Name	Req'd	Comments
8	BeginString	Y	FIX 4.1
9	BodyLength	Y	Must be second field in message
35	MsgType	Y	Must be third field in message
49	SenderCompID	Y	Assigned value used to identify sender of message.
56	TargetCompID	Y	Assigned value used to identify receiver of message.
115	OnBehalfOfCompID	N	A four-character field used to identify firm originating message.
116	OnBehalfOfSubID	N	Sub ID of the <i>OnBehalfOfCompID</i>
128	DeliverToCompID	N	A four-alphabetic character field agreed upon by the recipient and CHX used to identify the destination targeted to receive the message.

Tag	Field Name	Req'd	Comments
129	DeliverToSubID	N	Sub ID of the <i>DeliverToCompID</i>
43	PossDupFlag	N	Always required for retransmitted messages, whether prompted by the sending system or as the result of a resend request.
97	PossResend	N	Required when message may be duplicate of another message sent under a different sequence number.
34	MsgSeqNum	Y	
52	SendingTime	Y	Expressed in GMT.

2.2 Logon Message

While data encryption is supported within the FIX specification, CHX does not support this feature. CHX only establishes connections to order sending firms via a dedicated circuit.

Tag	Field Name	Req'd	Comments
	<i>Standard Header</i>	Y	<i>MsgType = A</i>
98	EncryptMethod	Y	Ignored by CHX.
108	HeartBtInt	Y	Pre-arranged between CHX and the broker. CHX will adjust to this value (received from the firm) and put it in the confirmation Logon message (sent to the firm)
141	ResetSeqNumFlag	N	CHX doesn't support 24-hour connectivity so if a firm sends a logon with ResetSeqNumFlag=Y, it will reject the logon message.

The fields *RawDataLength* and *RawData* are not supported

2.3 Other Session Control Messages

All other administrative messages for session control – **Heartbeat, Test Request, Resend Request, Reject, Sequence Reset and Logout** – are supported as described in the FIX Protocol Specification which can be accessed at www.fixprotocol.org.

3. Application Messages

3.1 Execution Report

The CHX will use the **Execution Report** message to send execution drop copies to clearing firms. An execution report can contain one of the following:

1. Trade (fill or partial fill) – *ExecTransType* = 0 (New) and *ExecType* = 1 (Partial fill) or 2 (Fill)
2. Trade cancel – *ExecTransType* = 1 (Trade cancel)
3. Trade correction – *ExecTransType* = 2 (Trade correction)

The custom field *BuyOrSellTradingAcctID* (7390) is used to indicate the buy or sell trading account ID of the execution report.

Tag	Field Name	Req'd	Comments
	<i>Standard Header</i>	Y	<i>MsgType</i> = 8
11	ClOrdID	N	Always populated.
37	OrderID	Y	Unique identifier for order as assigned by CHX.
17	ExecID	Y	Unique identifier of execution message (not trade; CHX doesn't provide the trade ID.) as assigned by CHX.
19	ExecRefID	N	Populated when <i>ExecTransType</i> = 1 (Cancel) or 2 (Correct).
7390	BuyOrSellTradingAcctID	Y	Identifies the buy or sell trading account ID of the execution report.
20	ExecTransType	Y	Identifies transaction type. 0 = New 1 = Trade cancel 2 = Trade correction
150	ExecType	Y	The CHX supports the following status values: 1 = Partial fill 2 = Fill
39	OrdStatus	Y	The CHX supports the following status values: 0 = New 1 = Partially filled 2 = Filled 3 = Done for day 4 = Canceled 5 = Replaced 7 = Stopped 8 = Rejected C = Expired
32	LastShares	Y	Quantity of shares bought/sold; otherwise 0.
31	LastPx	Y	Price of <i>LastShares</i> .
30	LastMkt	N	Market of execution for last fill. CHX expects ISO 10383 Market Identifier Code (MIC); however, this field is not validated. Please refer to the FIX 4.4 specification for more information about the MIC.
14	CumQty	Y	For all reports on cross type orders, the value will be set to 0 (zero). The <i>BuyCumQty</i> and <i>SellCumQty</i> fields will be used instead.
151	LeavesQty	Y	For all reports on cross type orders, the value will be set to 0 (zero)., The <i>BuyLeavesQty</i> and <i>SellLeavesQty</i> fields will be used instead.

Tag	Field Name	Req'd	Comments
6	AvgPx	Y	For all reports on cross type orders, this value will be set to 0 (zero).
60	TransactTime	N	
851	LastLiquidityInd	N	Indicator to identify whether this fill was a result of a liquidity provider providing or liquidity taker taking the liquidity. Applicable only for trades (partial fill (1) or fill (2)) or trade cancels/corrections. Valid values: 1 - Added Liquidity 2 - Removed Liquidity 3 - Liquidity Routed Out
55	Symbol	Y	
65	SymbolSfx	N	
54	Side	Y	1 = Buy 2 = Sell 5 = Sell short 6 = Sell short exempt 8 = Cross 9 = Cross short A = Cross short exempt
40	OrdType	N	1 = Market 2 = Limit 7 = Limit or better The following are user-defined values: Q = Midpoint Cross R = Cross with Yield S = Cross with Satisfy V = Opening Cross
38	OrderQty	Y	
44	Price	N	
99	StopPx	N	
111	MaxFloor	N	Maximum number of shares within an order to be displayed in the Matching System quote. If <i>MaxFloor</i> is not specified, the order will be displayed in it's entirety assuming it would not lock or cross the NBBO. <i>MaxFloor</i> must be a round lot value and less than the <i>OrderQty</i> ; otherwise the order will be rejected. If <i>MaxFloor</i> = 0, the order will be undisplayed (Do not Display).
7369	RefreshThreshold	N	User-defined field. For a reserve order, the field acts as a low water mark for the current display quantity. That is, when the current displayed quantity becomes less than or equal to this field, it should be reset to the original display quantity as defined by <i>MaxFloor</i> . Absence of this field means <i>RefreshThreshold</i> = 0.
18	Execlnst	N	5 = Held K = Cancel on Trading Halt f = Inter-market Sweep Order (ISO) z = Satisfaction party gets better price, used with cross with satisfy orders. Custom value. [When available]

Tag	Field Name	Req'd	Comments
7387	ISOType	N	Custom field, ISO type. Applicable for ISO orders (Tag 18 <i>ExecInst</i> = <i>f</i>). Absence of this field is interpreted as 0 (Price-penetrating ISO). 0 = Price-penetrating ISO (default) 1 = BBO ISO (may rest in book if <i>TimeInForce</i> not '3' (IOC)) 2 = Outbound ISO [When available]
7388	TradeThroughExempt Type	N	Custom field. Indicates trade-through exemption type. Applicable for cross orders that have no ISO execution type (i.e., Tag 18 <i>ExecInst</i> <> <i>f</i>) and Tag 54 <i>Side</i> = 8, 9 or A (Cross, Cross short or cross short exempt)). 1 = Benchmark [When available] 2 = Qualified Contingent Trade
59	TimeInForce	N	
126	ExpireTime	N	Populated when <i>TimeInForce</i> = GTD.
63	SettlmntTyp	N	0 = Regular 1 = Cash 2 = Next Day (T+1) 3 = T+2 4 = T+3 5 = T+4 6 = Future 7 = When And If Issued 8 = Sellers Option 9 = T+5 Sxx = Seller where xx is the number of days from the day of trade creation, e.g. S3 (user-defined value)
64	FutSettDate	N	Required when <i>SettlmntTyp</i> = 6 (Future) or 8 (Sellers Option).
7375	YieldSide	N	User-defined field, required if <i>OrdType</i> = R (Cross with Yield) 1 = Yield to Buy Displayed Orders 2 = Yield to Sell Displayed Orders 3 = Yield to Buy and/or Sell Displayed Orders 4 = Yield to Buy Displayed and Undisplayed Orders 5 = Yield to Sell Displayed and Undisplayed Orders 6 = Yield to Buy and/or Sell Displayed and Undisplayed Orders
336	TradingSessionID	N	Indicates the trading session(s) the order is eligible to be traded in. If <i>ExecType</i> = 1 (Partially fill) or 2 (Filled), this will indicate the session the trade occurred. Absence of this field indicates Regular session (1).
58	Text	N	Used as follows: In the case of <i>ExecTransType</i> = 2 (Trade correction), it shows the corrected price: "NOT price".

The following fields are only used for cross order type execution reports. These fields should be ignored for all other execution reports.

The *CrossExecutedSide* is required when *ExecType* = Partially filled (1) or Filled (2). The other fields below are replacements for the *CumQty* and *LeavesQty* fields.

7382	CrossExecutedSide	N	Indicates the executed side of the cross. 1 = Buy side 2 = Sell side 3 = Both sides
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Tag	Field Name	Req'd	Comments
7383	BuyCumQty	N	The buy-side cumulative quantity of the cross order.
7384	BuyLeavesQty	N	The buy-side leaves quantity of the cross order.
7385	SellCumQty	N	The sell-side cumulative quantity of the cross order.
7386	SellLeavesQty	N	The sell-side leaves quantity of the cross order.

3.2 Don't Know Trade (DK)

Clearing firms can use the **Don't Know Trade (DK)** message to notify the CHX that a received **Execution Report** message has been rejected. This message can be thought of as an execution reject message.

Tag	Field Name	Req'd	CHX Req'd	Comments
	<i>Standard Header</i>	Y	Y	<i>MsgType = Q</i>
127	DKReason	Y		
55	Symbol	Y		
54	Side	Y		
38	OrderQty	Y		
32	LastShares	Y		
31	LastPx	Y		
37	OrderID	N		
17	ExecID	N		
65	SymbolSfx	N		Not FIX standard
58	Text	N		

4. User- defined Fields

Tag	Field Name	Req'd	Description
7369	RefreshThreshold	N	User-defined field. For a reserve order, the field acts as a low water mark for the current display quantity. That is, when the current displayed quantity becomes less than or equal to this field, it should be reset to the original display quantity. Absence of this field means <i>RefreshThreshold = 0</i> .
7375	YieldSide	N	User-defined field required if <i>OrdType = R</i> (Cross with Yield) 1 = Yield to Buy Displayed Orders 2 = Yield to Sell Displayed Orders 3 = Yield to Buy and/or Sell Displayed Orders 4 = Yield to Buy Displayed and Undisplayed Orders 5 = Yield to Sell Displayed and Undisplayed Orders 6 = Yield to Buy and/or Sell Displayed and Undisplayed Orders
7382	CrossExecutedSide	N	Indicates the executed side of the cross. 1 = Buy side 2 = Sell side 3 = Both sides
7383	BuyCumQty	N	The buy-side cumulative quantity of the cross order.
7384	BuyLeavesQty	N	The buy-side leaves quantity of the cross order.
7385	SellCumQty	N	The sell-side cumulative quantity of the cross order.
7386	SellLeavesQty	N	The sell-side leaves quantity of the cross order.
7387	ISOType	N	ISO type. Applicable for ISO orders (Tag 18 <i>ExecInst = f</i>). Absence of this field is interpreted as 0 (Price-penetrating ISO). 0 = Price-penetrating ISO (default) 1 = BBO ISO (may rest in book if <i>TimeInForce</i> not '3' (IOC)) 2 = Outbound ISO
7388	TradeThroughExempt Type	N	Indicates trade-through exemption type. Applicable for cross orders that have no ISO execution type (i.e., Tag 18 <i>ExecInst <> f</i>) and Tag 54 <i>Side = 8, 9 or A</i> (Cross, Cross short or cross short exempt)). 1 = Benchmark 2 = Qualified Contingent Trade
7390	BuyOrSellTradingAcc tID	Y	Identifies the buy or sell trading account ID of the execution report.

5. FIX Message Examples

The below trading account symbols are samples for illustrative purposes only and are not necessarily valid. Please note that some common fields in the example messages below can be omitted.

5.1 Execution Reports from One Sided Orders

5.1.1 Execution Report from a Buy Order

Execution Report to a clearing firm			
Tag	Field Name	Value	Comment
17	ExecID	E:01	
7390	BuyOrSellTradingAcctID	BBBB	BUY trading account ID, indicated by <i>Side = 1 (Buy)</i>
11	ClOrdID	C:01	
54	Side	1 (Buy)	
40	OrdType	2 (Limit)	
150	ExecType	1 (Partially Filled)	
39	OrdStatus	1 (Partially Filled)	
32	LastShares	100	
31	LastPx	9.99	
14	CumQty	100	
151	LeavesQty	900	

5.1.2 Execution Report from a Sell Order

Execution Report to a clearing firm			
Tag	Field Name	Value	Comment
17	ExecID	E:01	
7390	BuyOrSellTradingAcctID	SSSS	SELL trading account ID, indicated by <i>Side = 2 (Sell)</i>
11	ClOrdID	C:01	
54	Side	2 (Sell)	
40	OrdType	2 (Limit)	
150	ExecType	1 (Partially Filled)	
39	OrdStatus	1 (Partially Filled)	
32	LastShares	100	
31	LastPx	9.99	
14	CumQty	100	
151	LeavesQty	900	

5.2 Execution Reports from Cross Orders

5.2.1 Execution Report from a Cross Order with the Buyer and Seller being Identical

For example, when a straight cross order with the both the buyer and seller as "BBSS" is executed, one drop copy will be sent to the clearing firm.

Execution Report to a clearing firm			
Tag	Field Name	Value	Comment
17	ExecID	E:01	
7390	BuyOrSellTradingAcctID	BBSS	BUY/SELL trading account ID, indicated by <i>Side</i> = 8 (Cross) and <i>CrossExecutedSide</i> = 3 (Both Sides)
11	ClOrdID	CROSS-ID-1	
54	Side	8 (Cross)	
40	OrdType	2 (Limit)	
150	ExecType	2 (Fill)	
39	OrdStatus	2 (Filled)	
32	LastShares	1000	
31	LastPx	80.00	
7382	CrossExecutedSide	3 (Both Sides)	
7383	BuyCumQty	1000	
7384	BuyLeavesQty	0	
7385	SellCumQty	1000	
7386	SellLeavesQty	0	

5.2.2 Execution Reports from a Cross Order with the Buyer and Seller being Different

For instance, when a straight cross order that the buyer (“BBBB”) and seller (“SSSS”) are different is executed, one drop copy will be sent to the clearing firm of the buyer (“BBBB”) and the other will be sent to the clearing firm of the seller (“SSSS”). Both drop copies will have the same *ExecID* (“E:01”).

Execution Report #1 to the clearing firm of the BUY trading account ID			
Tag	Field Name	Value	Comment
17	ExecID	E:01	
7390	BuyOrSellTradingAcctID	BBBB	Buy trading account ID, indicated by <i>Side</i> = 8 (Cross) and <i>CrossExecutedSide</i> = 1 (Buy Side)
11	ClOrdID	CROSS-ID-1	
54	Side	8 (Cross)	
40	OrdType	2 (Limit)	
150	ExecType	2 (Fill)	
39	OrdStatus	2 (Filled)	
32	LastShares	1000	
31	LastPx	80.00	
7382	CrossExecutedSide	1 (Buy Side)	
7383	BuyCumQty	1000	
7384	BuyLeavesQty	0	
7385	SellCumQty	1000	
7386	SellLeavesQty	0	

Execution Report #2 to the clearing firm of the SELL trading account Id			
Tag	Field Name	Value	Comment
17	ExecID	E:01	
7390	BuyOrSellTradingAcctID	SSSS	SELL trading account ID, indicated by <i>Side</i> = 8 (Cross) and <i>CrossExecutedSide</i> = 2 (Sell Side)
11	ClOrdID	CROSS-ID-1	

Execution Report #2 to the clearing firm of the SELL trading account Id			
Tag	Field Name	Value	Comment
54	Side	8 (Cross)	
40	OrdType	2 (Limit)	
150	ExecType	2 (Fill)	
39	OrdStatus	2 (Filled)	
32	LastShares	1000	
31	LastPx	80.00	
7382	CrossExecutedSide	2 (Sell Side)	
7383	BuyCumQty	1000	
7384	BuyLeavesQty	0	
7385	SellCumQty	1000	
7386	SellLeavesQty	0	