

# CHX Direct Access Server (DAS) Link Specification

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## Revision History

Date/Version	Initials	Revision
06/08/2007 v 1.00	RGG	Initial release
09/19/2007 v 1.01	VS	FIX 4.0
10/05/2007 v 1.02	RGG	Added Account field. Added AnonymityFlag. Remove Sell Short Exempt and Cross Short Exempt as valid sides.
10/12/07 v 1.03	RJG	Remove Appendix A Tag 47 definitions
11/29/2007 v 1.04	RJG	Added disconnect action code information
12/11/2007 v 1.04	RJG	Added note to vendors
1/10/2008 v 1.04	RJG	Added Stock-Option execution instruction to the inbound New Order message and removed the Opening Cross order type from the spec.
06/10/2008 v 1.05	JAC	Changed default value for RefreshThreshold from 0 to MaxFloor.
07/15/2009 v 1.06	JAC	Added Post only and Always Quote to New Order ExecInst. Added new trading sessions to New Order TradingSessionID.
07/27/2009 v 1.07	JAC	Always Quote has been approved by SEC.
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10/21/2010 v 1.09	JAC	Restored Sell Short Exempt and Cross Short Exempt as valid sides.
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09/24/2014 v 1.14	JAC	Revised Rule80A (Tag 47) comments.
01/23/2015 v 1.15	JAC	Added MERoutingInst to New Order.
06/15/2015 v 1.16	JAC	Updates for SNAP <sup>sm</sup> Auctions on New Order, Execution Report and Cancel/Replace.  Revised ExecInst, LastLiquidityInd, OrdType and TimelnForce. Added PegDiff, CancelOnAuctionCode, SNAPMinExecRequiredFlag, SNAPConvertToAOOFlag and AOOOneAndDoneFlag. Removed references to Cross with Yield functionality. Removed tags 7382, 7383, 7384, 7385 and 7386
11/11/2015 v 1.17	JAC	Added custom tag 7400 to define SNAP <sup>sm</sup> and SNAP <sup>sm</sup> AOO orders on New Order and Execution Report.

Date/Version	Initials	Revision
		Deprecated OrdType and TimeInForce values which previously defined SNAP <sup>sm</sup> and AOO orders on New Order and Execution Report.
12/01/2015 v 1.18	JAC	Added custom tag 7400 to Cancel/Replace Request.

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## 1. Introduction

The CHX Direct Access Server (DAS) provides a streamlined interface for customers to connect to the CHX Matching System. By using the DAS, orders should be received by the CHX Matching System much quicker than through the normal CHX interface. However, the DAS will not support all order types offered by the CHX Matching System. In addition, the DAS will not support routing to any destination other than the CHX Matching System.

This document is intended for firms who would like to connect to the CHX Matching System using the DAS. The DAS supports FIX version 4.0, 4.1 and 4.2. 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](http://www.fixprotocol.org).

**Note to Vendors:** The DAS will accept orders from any give-up that is valid at the Chicago Stock Exchange, and therefore it is the vendor's responsibility to assure that only orders intended to be sent to the CHX are sent over the DAS. Any requests for validation made in connection with orders sent through other CHX connections (such as the OMS) will not be recognized by the DAS.

## 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.4.0, FIX 4.1 or FIX 4.2
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 maximum four-character field used to identify firm originating message.
116	OnBehalfOfSubID	N	Sub ID of the <i>OnBehalfOfCompID</i>
128	DeliverToCompID	N	The only value allowed will be 'ECHX'.
129	DeliverToSubID	N	Any value entered will be ignored.
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
	Standard Header	Y	<i>MsgType = A</i>
98	EncryptMethod	Y	Always 0 (None).
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. <b>For FIX 4.1/4.2</b>

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

## 2.3 Email

The CHX has the ability to send and receive **Email** messages.

Tag	Field Name	Req'd	Comments
	Standard Header	Y	<i>MsgType = C</i>
94	EmailType	Y	Valid values: 0 = New 1 = Reply 2 = Admin Reply
164	EmailThreadId	Y	Unique identifier (for the day) for an email thread (new and chain of replies). Positive numeric. <b>For FIX 4.1/4.2</b>
55	Symbol	N	Stock symbol
65	SymbolSfx	N	
147	Subject	Y	<b>For FIX 4.1/4.2</b>
33	LinesOfText	Y	
58	→ Text	Y	The total maximum length of Text(s) is 80 characters.

## 2.4 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](http://www.fixprotocol.org).

## 2.5 Automated Order Cancel on Disconnect

The CHX DAS can be configured to automatically cancel all open orders whenever there is an order sending firm (OSF) – DAS or DAS – Matching System disconnect. OSFs may configure the firm's DAS automated order cancel and connection failure behavior by selecting one of the Disconnect Action Codes listed in the table below. There is no guarantee that all



open orders will be successfully canceled subsequent to a disconnect. Order sending firms should contact CHX Customer Service to ensure that all orders have been canceled or execution reports received in the event of a OSF - DAS or DAS - Matching System disconnect.

Disconnect Action Code  Trigger Event		0	1	2	3
		<i>Normal</i>	<i>Broad Cancel &amp; Disconnect</i>	<i>Narrow Cancel &amp; Reconnect</i>	<i>Broad Cancel &amp; Reconnect</i>
<b>OSF-DAS Disconnect</b>					
	DAS shuts down OSF connection	N	Y	N	N
	DAS signals Matching System(s) to cancel orders of OSF	N	Y	Y	Y
	DAS allows OSF to reconnect	Y	N	Y	Y
<b>DAS-Matching System Disconnect</b>					
	DAS rejects new orders and cancel/replace requests; queues cancel and status request messages for the disconnected Matching System(s) until connection restored	Y	Y	Y	Y
	Connected Matching System(s)	Process messages normally	Cancel orders of OSF	Process messages normally	Cancel orders of OSF
	Disconnected Matching System(s)	Process messages normally	Cancel orders of OSF	Cancel orders of OSF	Cancel orders of OSF

## 3. Order Messages

### 3.1 New Order

Cross orders, which are indicated by the *Side* equal to Cross (8) or Cross Short (9), cannot be canceled or canceled/replaced. Cross orders must have the *BuyerFirm* and *SellerFirm* specified.

Tag	Field Name	Req'd	Comments
	<i>Standard Header</i>	Y	<i>MsgType = D</i>
1	Account	N	Account as specified by the order sender. The Account is limited to 20 characters. This value will be returned on any execution report for the order.
11	ClOrdID	Y	This field must be unique for the current day.
21	HandlInst	Y	1 = Automated execution order, private, no Broker intervention.
55	Symbol	Y	
54	Side	Y	1 = Buy 2 = Sell 5 = Sell short 6 = Sell short exempt 8 = Cross 9 = Cross short A = Cross short exempt
38	OrderQty	Y	Maximum quantity accepted by the Matching System is 99,999,999
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 its 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). In the CHX Matching System the <i>OrderQty</i> of undisplayed orders must be equal to or greater than 1000 shares.
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> = <i>MaxFloor</i> .
40	OrdType	Y	1 = Market 2 = Limit 7 = Limit or better  Market orders must be IOC.  The following are user-defined values: P = Peg Q = Midpoint Cross  Cross orders must have the <i>BuyerFirm</i> and <i>SellerFirm</i> specified.  Any Midpoint Cross (Q) order must not have a <i>Price</i> (#44); otherwise, it will be rejected.

Tag	Field Name	Req'd	Comments
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  Settlement types other than "0 (Regular)" are only valid for cross order types.
64	FutSettDate	N	Required when <i>SettlmntTyp</i> = 6 (Future) or 8 (Sellers Option).
18	Execlnst	N	CHX accepts only: 5 = Held K = Cancel on Trading Halt  The following Peg modifiers are only allowed on SNAP <sup>sm</sup> AOO (Auction Only Orders) (see Time in Force below): P = Market Peg – Buy pegged to offer; Sell to bid R = Primary Peg – Buy pegged to bid; Sell to offer M = Midpoint Peg  f = Inter-market Sweep Order (ISO)  The following are custom values: p = Post only q = Always quote v = Stock-Option (for cross orders only)
7387	ISOType	N	Custom field, ISO type. Applicable for ISO orders (Tag 18 <i>Execlnst</i> = f). Absence of this field is interpreted as 0 (Price-penetrating ISO).  0 = Price-penetrating ISO (default) 1 = BBO ISO (may rest in book if TimeInForce not '3' (IOC))
7388	TradeThroughExemptType	N	Custom field. Indicates trade-through exemption type. Applicable for cross orders that have no ISO execution type (i.e., Tag 18 <i>Execlnst</i> <> f) and Tag 54 <i>Side</i> = 8, 9 or A (Cross or Cross short)). 2 = Qualified Contingent Trade
65	SymbolSfx	N	
44	Price	N	Maximum price accepted by the Matching System is 9,999,999.99
47	Rule80A (aka OrderCapacity)	N	A Participant must definitively indicate its capacity on every order and may do so using the following means:  Proprietary: Tag 47="P" Riskless Principal: Tag 47 ="R" Agency: Tag 47="A" OR Tag 47 omitted

Tag	Field Name	Req'd	Comments
59	TimeInForce	N	0 = Day 3 = Immediate or Cancel 4 = Fill or Kill 6 = Good Till Date (Must be current date.) A = Good For Seconds (GFS; # of seconds) [Available in later releases.]
126	ExpireTime	N	Required if <i>TimeInForce</i> = GTD. Must be current date.
7368	GFSSeconds	N	Populated when <i>TimeInForce</i> = GFS. [Available in later releases.]
439	ClearingFirm	N	Clearing firm account symbol that is going to clear the trade.
7365	BuyerFirm	N	Required if <i>Side</i> = 8 (Cross) or 9 (Cross Short). 4 alphanumeric.
7366	SellerFirm	N	Required if <i>Side</i> = 8 (Cross) or 9 (Cross Short). 4 alphanumeric.
336	TradingSessionID	N	Indicates the trading session(s) the order is eligible to be traded in. Absence of this field indicates valid to all sessions. 1 = Primary trading session 2 = Late Crossing session – Only cross (except Midpoint Cross) orders accepted. 4 = Late trading session 5 = Early trading session 6 = Early and Primary trading sessions 7 = Early, Primary, and Late trading sessions
7391	AnonymityFlag	N	Flag to determine whether the order sender is to remain anonymous.  N = Order sender will NOT be anonymous and will be displayed on the CHX Book Feed, as ContraBroker on execution reports and in clearing transactions. Y = Order sender will be anonymous in the CHX Book Feed, as ContraBroker on executions and within clearing transactions.  Note: If this tag is omitted, the order will not be anonymous. Instead of using this tag, the firm can request that all orders to the CHX remain anonymous by contacting Customer Service.
7394	CHXOnly	N	Indicates CHX Only order type.  N = Do not process as CHX Only order. S = CHX Only order. Price will slide to avoid locking/crossing NBBO. L = CHX Only order if price locks NBBO; reject order if price crosses NBBO.  Note: If this tag is omitted, the CHX Only order type will default to N (Do not process as CHX Only). Firms can contact Customer Service to set an alternative default value.
60	TransactTime	Y	<b>For FIX 4.2</b>

Tag	Field Name	Req'd	Comments
7928	MatchTradePrevention	N	<p>Used to prevent the order from trading against other orders from the same trading group. 2 characters (not space separated):</p> <p>1<sup>st</sup> character – MTP Action:  I = No MTP Action (Inactivate the trading account default MTP action, if any)  N = Cancel Newest (or incoming order)  O = Cancel Oldest (or resting order)  B = Cancel Both</p> <p>2<sup>nd</sup> character – MTP Sub Level (optional):  Member specified alphanumeric value 0-9, A-Z, or a-z.</p> <p>When MTP is triggered (preventing a match), the MTP Action (1<sup>st</sup> character) of the inbound order will always be honored (the MTP Action of the resting order is irrelevant).</p> <p>If specified on the incoming order, the MTP Sub Level (2<sup>nd</sup> character) of both orders must match to prevent a trade.</p> <p>Absence of this field indicates No MTP Action by default. However, Firms can contact Customer Service to set an alternative default value.</p>
7393	MERoutingInst	N	<p>Instructs the ME to either route the order to satisfy Reg. NMS Rule 610 &amp; 611 requirements or reject the order back to the sender.</p> <p>0 – External routing allowed.  1 – External routing not allowed. ME only order.</p>

Tag	Field Name	Req'd	Comments
211	PegDiff	N	<p>Must be expressed as the number of ticks for the given instrument.</p> <p>A SNAP<sup>sm</sup> AOO Market Peg buy order can be pegged to the offer with a positive or negative value; a positive value would make the order more competitive, a negative value would make the order less competitive.</p> <p>SNAP<sup>sm</sup> AOO Market Peg sell order can be pegged to the bid with a positive or negative value; a positive value would make the order less competitive, a negative value would make the order more competitive.</p> <p>SNAP<sup>sm</sup> AOO Primary Peg buy order can be pegged to the bid with a positive or negative value; a positive value would make the order more competitive while a negative value would make the order less competitive.</p> <p>SNAP<sup>sm</sup> AOO Primary Peg sell order can be pegged to the offer with a positive or negative value; a positive value would make the order less competitive while a negative value would make the order more competitive.</p> <p>The value must be in the range -9999 to 9999. Depending on the tick size of the instrument and the price of the order, this would translate to -0.0999 to 0.0999 below 1.00, -99.99 to 99.99 above 1.00 for an instrument with a tick size of 0.01, -999.90 to 999.90 for an instrument with a tick size of 0.10, etc.</p> <p>For more details, see "Section 5: FIX message examples".</p>
7396	CancelOnSNAPAuctionFlag	N	<p>Determines if order participates in SNAP<sup>sm</sup> Auctions.</p> <p>'Y' –When a SNAP<sup>sm</sup> Auction is invoked, the order will be canceled, it will not participate in the SNAP<sup>sm</sup> Auction.</p> <p>'N' –When a SNAP<sup>sm</sup> Auction is invoked, the order will not be canceled, it will participate in the SNAP<sup>sm</sup> Auction.</p> <p>Note: If this tag is omitted, the CancelOnSNAPAuctionFlag will default to 'N'. Firms can contact Customer Service to set an alternative default value.</p>

Tag	Field Name	Req'd	Comments
7397	SNAPMinExecRequiredFlag	N	<p>Only relevant on a SNAP<sup>sm</sup> order.</p> <p>Flag determines if the SNAP<sup>sm</sup> order requires a minimum number of shares to be projected to execute in the SNAP<sup>sm</sup> Auction before invoking the SNAP<sup>sm</sup> Auction, otherwise if the minimum participation shares are not projected to execute during the SNAP<sup>sm</sup> Auction, the SNAP<sup>sm</sup> order will be canceled without invoking the SNAP<sup>sm</sup> Auction. Note: Although SNAP<sup>sm</sup> orders initiate the SNAP<sup>sm</sup> Auction, there is no guarantee the SNAP<sup>sm</sup> order will participate.</p> <p>'Y' = Minimum SNAP<sup>sm</sup> threshold required. 'N' = Minimum SNAP<sup>sm</sup> threshold not required.</p> <p>Absence of this field indicates the minimum SNAP threshold is not required.</p>
7398	SNAPConvertToAOOFlag	N	<p>Only relevant on a SNAP<sup>sm</sup> order.</p> <p>'Y' = If this SNAP<sup>sm</sup> order received after SNAP<sup>sm</sup> Auction already invoked by another SNAP<sup>sm</sup> order, this SNAP<sup>sm</sup> order will be converted to SNAP<sup>sm</sup> AOO, as long as it meets the SNAP<sup>sm</sup> AOO requirements.</p> <p>'N' = If this SNAP order received after SNAP<sup>sm</sup> Auction already invoked by another SNAP<sup>sm</sup> order, this SNAP<sup>sm</sup> order will be canceled.</p> <p>Absence of this field indicates SNAP<sup>sm</sup> order can be converted to SNAP<sup>sm</sup> AOO.</p>
7399	AOOOneAndDoneFlag	N	<p>Only relevant on an SNAP<sup>sm</sup> AOO.</p> <p>Flag determines if SNAP<sup>sm</sup> AOO will participate in one or more SNAP<sup>sm</sup> Auctions.</p> <p>'Y' = SNAP<sup>sm</sup> AOO will only participate in one SNAP<sup>sm</sup> Auction, then it will be canceled.</p> <p>'N' = SNAP<sup>sm</sup> AOO will participate in every available SNAP<sup>sm</sup> Auction until either the order is cancelled by the sender, the order is executed in its entirety or the primary trading session ends and the remainder of the order is canceled.</p> <p>Absence of this field indicates SNAP<sup>sm</sup> AOO will participate in every SNAP<sup>sm</sup> Auction.</p>
7400	CHXOrdType	N	<p>s = SNAP<sup>sm</sup> Auction Order 9 = SNAP<sup>sm</sup> Auction Only Order (AOO)</p> <p>If CHXOrdType = s (SNAP<sup>sm</sup> Auction Order), OrdType must be 2 (Limit). May also be qualified with either tag 7397 (SNAP<sup>sm</sup> Minimum Execution Required) or tag 7398 (SNAP<sup>sm</sup> Convert to AOO)</p> <p>If CHXOrdType = 9 (AOO), OrdType must be 2 (Limit) or P (Peg).</p> <p>If specified, TimeInForce must be 0 = Day.</p>

## 3.2 Order Cancel Request

This message is used to request the cancellation of all of the remaining quantity of an existing order. In order to partially cancel (reduce) an order, use the **Cancel/Replace Request** message.

**FIX 4.0:** If the cancel request is successful, the CHX will send an **Execution Report** referencing the *OrigClOrdID* (**not ClOrdID**) with *OrderStatus* = 4 (Cancelled).

**FIX 4.1/4.2:** If the requested cancel is successful, the CHX will send an **Execution Report** referencing the *ClOrdID* (**not OrigClOrdID**) with *ExecType* and *OrderStatus* = 4 (Cancelled).

Please note that cross orders cannot be cancelled electronically by order senders. Cross orders either execute or reject. If a processing problem occurs, order sending firms should contact Customer Service to resolve the issue.

Tag	Field Name	Req'd	Comments
	<i>Standard Header</i>	Y	<i>MsgType</i> = F
41	OrigClOrdID	Y	Order ID of the order being cancelled.
11	ClOrdID	Y	Must be unique for the current day.
125	CxlType	Y	CHX accepts only: F = Full remaining quantity. <b>This field is only used in FIX 4.0 only.</b> <b>Tag 125, CxlType, is not a field in this message in FIX 4.1/4.2</b>
55	Symbol	Y	
54	Side	Y	
38	OrderQty	Y	Original <i>OrderQty</i> .
65	SymbolSfx	N	
60	TransactTime	Y	<b>For FIX 4.2</b>

## 3.3 Cancel/Replace Request

Do not use this message to cancel the remaining quantity of an outstanding order; use the **Order Cancel Request** message instead.

**FIX 4.0:** If the request is successful, the CHX will send an **Execution Report** referencing the *ClOrdID* (**not OrigClOrdID**) with *OrderStatus* = 0 (New) for fully open order or *OrderStatus* = 1 (Partially filled) for partially filled order. From that point on, the broker must reference the *replacement* order with the *ClOrdID*.

**FIX 4.1/4.2:** If the request is successful, the CHX will send an **Execution Report** referencing the *ClOrdID* (**not OrigClOrdID**) with *ExecType* = 5 (Replaced) and *OrderStatus* = 5 (Replaced) for fully open order or *OrderStatus* = 1 (Partially filled) for partially filled order. From that point on, the broker must reference the *replacement* order with the *ClOrdID*.

Please note that cross orders cannot be cancelled/replaced electronically by order senders. Cross orders either execute or reject. If a processing problem occurs, order sending firms should contact Customer Service to resolve the issue.

Tag	Field Name	Req'd	Comments
	<i>Standard Header</i>	Y	<i>MsgType</i> = G
41	OrigClOrdID	Y	Order ID of the order being replaced.
11	ClOrdID	Y	Unique identifier of <b>replacement order</b> as assigned by institution. This field must at a minimum be unique for the current day. For multi-day, the firm must assure uniqueness of this field across days. Embedding a date with the <i>ClOrdID</i> would be one solution.
21	HandlInst	Y	Must match the original order. Otherwise it will get rejected.



Tag	Field Name	Req'd	Comments
55	Symbol	Y	Must match the original order.
54	Side	Y	Must match the original order.
38	OrderQty	Y	Changeable but this quantity has to include any partial executions previously received on the original order(s).
111	MaxFloor	N	<i>Changeable</i>
7369	RefreshThreshold	N	<i>Changeable</i>
40	OrdType	Y	Changeable.
18	ExecInst	N	Changeable, except cancel/replace to ExecInst = f.
65	SymbolSfx	N	Must match the original order.
44	Price	N	Changeable.
59	TimeInForce	N	Changeable.
126	ExpireTime	N	Changeable.
7368	GFSSeconds	N	Populated when TimeInForce = GFS.
439	ClearingFirm	N	Clearing firm account symbol that is going to clear the trade.
60	TransactTime	Y	<b>For FIX 4.2</b>
211	PegDiff	N	Changeable.
7400	CHXOrdType	N	Must match the original order.

### 3.4 Order Status Request

Upon receiving an **Order Status Request** message, the CHX will respond with an **Execution Report** with *ExecTransType* = 3 (Status).

Tag	Field Name	Req'd	Comments
	<i>Standard Header</i>	Y	<i>MsgType = H</i>
11	ClOrdID	Y	
55	Symbol	Y	
54	Side	Y	
37	OrderID	N	
65	SymbolSfx	N	

### 3.5 Execution Report

If an order is rejected, CHX will send an **Execution Report** message with *OrdStatus* = 8 (Rejected) with *OrdRejReason* OR *Text*, but not both.

If an order is canceled by the CHX (unsolicited cancel), the CHX will notify the broker by sending an **Execution Report** referencing *ClOrdID* of the canceled order with *OrdStatus* = 4 (Canceled).

If a trade is busted, the CHX will send an **Execution Report** referencing the original order in *ExeRefID* with *ExecTransType* = 1 (Trade Cancel).

If a trade is corrected, the CHX will send an **Execution Report** referencing the original order in *ExeRefID* with *ExecTransType* = 2 (Trade Correction).

The CHX may send an **Execution Report** message with *OrdStatus* = C (Expired) after the market is closed, indicating the order has been expired.

Tag	Field Name	Req'd	Comments
	<i>Standard Header</i>	Y	<i>MsgType = 8</i>
1	Account	N	Account specified by order sender when order was entered. Maximum length of 20 characters.
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. This field will always be "0" if <i>ExecTransType</i> = 3 (Status).
20	ExecTransType	Y	
39	OrdStatus	Y	The CHX supports the following status values: 0 = New 1 = Partially filled 2 = Filled 4 = Canceled 5 = Replaced 6 = Pending Cancel/Replace (renamed to Pending Cancel in <b>FIX 4.2</b> ) 8 = Rejected C = Expired E = Pending Replace ( <b>For FIX 4.2</b> )
55	Symbol	Y	
54	Side	Y	
38	OrderQty	Y	
32	LastShares	Y	Quantity of shares bought/sold; otherwise 0.  With MTP, the number of shares that would have matched on an MTP triggered cancel. Firms must contact Customer Service to receive this information.
31	LastPx	Y	Price of <i>LastShares</i> .  With MTP, the price at which LastShares would have matched on an MTP triggered cancel. Firms must contact Customer Service to receive this information.
198	SecondaryOrderID	N	With MTP, OrderID of the contra side that prevented match on an MTP triggered cancel. Firms must contact Customer Service to receive this information. <b>For FIX 4.1/4.2</b>
30	LastMkt	N	Market of execution for last fill. CHX will send ISO 10383 Market Identifier Code (MIC). Please refer to the FIX 4.4 specification for more information about the MIC.
375	ContraBroker	N	Identifies contra broker. A four- character field identifying the CHX account ID for the contra-broker. This tag will be present on all executions that occur in the CHX matching system.  If the ContraBroker has specified that orders are to remain anonymous, then this field will contain the value 'ANON'.
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. <b>For FIX 4.1/4.2</b>

Tag	Field Name	Req'd	Comments
6	AvgPx	Y	For all reports on cross type orders, this value will be set to 0 (zero).
150	ExecType	Y	The CHX supports the following status values: 0 = New 1 = Partially fill 2 = Fill 4 = Canceled 5 = Replace 6 = Pending Cancel/Replace (renamed to Pending Cancel in <b>FIX 4.2</b> ) 8 = Rejected C = Expired D = Restated (ExecutionRpt sent unsolicited by the CHX, with <i>ExecRestatementReason</i> set, used for unsolicited change) ( <b>For FIX 4.2</b> ) E = Pending Replace ( <b>For FIX 4.2</b> ) <b>For FIX 4.1/4.2</b>
378	ExecRestatementReason	N	Code to identify reason for an ExecutionRpt message sent with <i>ExecType</i> =Restated or used when communicating an unsolicited cancel. <b>For FIX 4.2</b>
11	ClOrdID	N	Always populated.
41	OrigClOrdID	N	Conditionally populated for Replaced and Canceled <i>ExecType</i> values. <i>ClOrdID</i> of the previous order (NOT the initial order of the day) when canceling or replacing and order. <b>For FIX 4.1/4.2</b>
65	SymbolSfx	N	
40	OrdType	N	Always populated.
44	Price	N	Populated only when <i>OrdStatus</i> = 5 (Replaced).
111	MaxFloor	N	
7369	RefreshThreshold	N	
18	ExecInst	N	Populated only when <i>OrdStatus</i> = 5 (Replaced). For supported values, see <b>New Order</b>
7387	ISOType	N	
7388	TradeThroughExemptType	N	
59	TimeInForce	N	
126	ExpireTime	N	Populated when <i>TimeInForce</i> = GTD.
7368	GFSSeconds	N	Populated when <i>TimeInForce</i> = GFS. [Available in later releases.]
19	ExecRefID	N	Populated when <i>ExecTransType</i> = 1 (Cancel) or 2 (Correct).
103	OrdRejReason	N	Populated when <i>OrdStatus</i> = 8 (Rejected) and there is a matched code (rejected reason) in the FIX specification. If there is no matched code, CHX will populate <i>Text</i> instead.
60	TransactTime	N	
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 indicated the session the trade occurred. Absence of this field indicates Regular session (1).

Tag	Field Name	Req'd	Comments
851	LastLiquidityInd	N	<p>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.</p> <p>Valid values:  1 - Added Liquidity  2 - Removed Liquidity  3 - Liquidity Routed Out  4 - Auction</p>
58	Text	N	<p>Used as follows:</p> <p>In the case of <i>OrdStatus</i> = 8 and there is no matched <i>OrdRejReason</i>, this field will describe why CHX rejected the order.</p>
7395	WorkPx	N	<p>If the order was inserted into book with a price which was adjusted to avoid locking/crossing the NBBO, the initial working price will be provided in this tag.</p>
211	PegDiff	N	<p>Must be expressed as the number of ticks for the given instrument.</p> <p>A SNAP<sup>sm</sup> AOO Market Peg buy order can be pegged to the offer with a positive or negative value; a positive value would make the order more competitive, a negative value would make the order less competitive.</p> <p>SNAP<sup>sm</sup> AOO Market Peg sell order can be pegged to the bid with a positive or negative value; a positive value would make the order less competitive, a negative value would make the order more competitive.</p> <p>SNAP<sup>sm</sup> AOO Primary Peg buy order can be pegged to the bid with a positive or negative value; a positive value would make the order more competitive while a negative value would make the order less competitive.</p> <p>SNAP<sup>sm</sup> AOO Primary Peg sell order can be pegged to the offer with a positive or negative value; a positive value would make the order less competitive while a negative value would make the order more competitive.</p> <p>The value must be in the range -9999 to 9999. Depending on the tick size of the instrument and the price of the order, this would translate to -0.9999 to 0.9999 below 1.00, -99.99 to 99.99 above 1.00 for an instrument with a tick size of 0.01, -999.90 to 999.90 for an instrument with a tick size of 0.10, etc.</p> <p>For more details, see "Section 5: FIX message examples".</p>

Tag	Field Name	Req'd	Comments
7396	CancelOnSNAPAuctionFlag	N	<p>Determines if order participates in SNAP<sup>sm</sup> Auctions.</p> <p>'Y' –When a SNAP<sup>sm</sup> Auction is invoked, the order will be canceled, it will not participate in the SNAP<sup>sm</sup> Auction.</p> <p>'N' –When a SNAP<sup>sm</sup> Auction is invoked, the order will not be canceled, it will participate in the SNAP<sup>sm</sup> Auction.</p> <p>Note: If this tag is omitted, the CancelOnSNAPAuctionFlag will default to 'N'. Firms can contact Customer Service to set an alternative default value.</p>
7397	SNAPMinExecRequiredFlag	N	<p>Only relevant on a SNAP<sup>sm</sup> order.</p> <p>Flag determines if the SNAP<sup>sm</sup> order requires a minimum number of shares to be projected to execute in the SNAP<sup>sm</sup> Auction before invoking the SNAP<sup>sm</sup> Auction, otherwise if the minimum participation shares are not projected to execute during the SNAP<sup>sm</sup> Auction, the SNAP<sup>sm</sup> order will be canceled without invoking the SNAP<sup>sm</sup> Auction. Note: Although SNAP<sup>sm</sup> orders initiate the SNAP<sup>sm</sup> Auction, there is no guarantee the SNAP<sup>sm</sup> order will participate.</p> <p>'Y' = Minimum SNAP<sup>sm</sup> threshold required. 'N' = Minimum SNAP<sup>sm</sup> threshold not required.</p> <p>Absence of this field indicates the minimum SNAP threshold is not required.</p>
7398	SNAPConvertToAOOFlag	N	<p>Only relevant on a SNAP<sup>sm</sup> order.</p> <p>'Y' = If this SNAP<sup>sm</sup> order received after SNAP<sup>sm</sup> Auction already invoked by another SNAP<sup>sm</sup> order, this SNAP<sup>sm</sup> order will be converted to SNAP<sup>sm</sup> AOO One and Done, as long as it meets the SNAP<sup>sm</sup> AOO requirements.</p> <p>'N' = If this SNAP order received after SNAP<sup>sm</sup> Auction already invoked by another SNAP<sup>sm</sup> order, this SNAP<sup>sm</sup> order will be canceled.</p> <p>Absence of this field indicates SNAP<sup>sm</sup> order can be converted to SNAP<sup>sm</sup> AOO.</p>

Tag	Field Name	Req'd	Comments
7399	AOOOneAndDoneFlag	N	<p>Only relevant on an SNAP<sup>sm</sup> AOO.</p> <p>Flag determines if SNAP<sup>sm</sup> AOO will participate in one or more SNAP<sup>sm</sup> Auctions.</p> <p>'Y' = SNAP<sup>sm</sup> AOO will only participate in one SNAP<sup>sm</sup> Auction, then it will be canceled.</p> <p>'N' = SNAP<sup>sm</sup> AOO will participate in every available SNAP<sup>sm</sup> Auction until either the order is cancelled by the sender, the order is executed in its entirety or the primary trading session ends and the remainder of the order is canceled.</p> <p>Absence of this field indicates SNAP<sup>sm</sup> AOO will participate in every SNAP<sup>sm</sup> Auction.</p>
7400	CHXOrdType	N	<p>s = SNAP<sup>sm</sup> Auction Order 9 = SNAP<sup>sm</sup> Auction Only Order (AOO)</p> <p>If CHXOrdType = s (SNAP<sup>sm</sup> Auction Order), OrdType must be 2 (Limit). May also be qualified with either tag 7397 (SNAP<sup>sm</sup> Minimum Execution Required) or tag 7398 (SNAP<sup>sm</sup> Convert to AOO)</p> <p>If CHXOrdType = 9 (AOO), OrdType must be 2 (Limit) or P (Peg).</p> <p>If specified, TimeInForce must be 0 = Day.</p>

## 3.6 Order Cancel Reject

If the CHX is unable to honor an **Order Cancel Request** or **Order Cancel/Replace Request** message submitted by the firm, the CHX will send an **Order Cancel Reject** message back to the sender.

Tag	Field Name	Req'd	Comments
	<i>Standard Header</i>	Y	<i>MsgType = 9</i>
11	ClOrdID	Y	Unique order ID of <b>Order Cancel Request</b> or <b>Order Cancel/Replace Request</b> .
37	OrderID	Y	Can be "" (no branch code and sequence number), indicating that CHX assigned no order ID because it was rejected.
39	OrdStatus	Y	<b>For FIX 4.1/4.2</b>
41	OrigClOrdID	Y	<b>For FIX 4.1/4.2</b>
102	CxlRejReason	N	Populated, if there is a matched code (reject reason) in the FIX spec. If not, Text is used instead.
58	Text	N	Used as follows: "Invalid Price" or "Invalid StopPx".
60	TransactTime	N	<b>For FIX 4.2</b>

Tag	Field Name	Req'd	Comments
434	CxlRejResponseTo	Y	Identifies the type of request that a Cancel Reject is in response to. Valid values: 1 - Order Cancel Request 2 - Order Cancel/Replace Request <b>For FIX 4.2</b>

## 4. User-defined Fields

Tag	Field Name	Req'd	Description
7365	BuyerFirm	N	Required if <i>Side</i> = 8 (Cross) or 9 (Cross Short) - 4 alphanumeric.
7366	SellerFirm	N	Required if <i>Side</i> = 8 (Cross) or 9 (Cross Short) - 4 alphanumeric.
7368	GFSSeconds	N	Populated when <i>TimeInForce</i> = GFS.
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</i> = 0.
7387	ISOType	N	ISO type. Applicable for ISO orders (Tag 18 <i>ExecInst</i> = f). 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	TradeThroughExemptType	N	Indicates trade-through exemption type. Applicable for cross orders that have no ISO execution type (i.e., Tag 18 <i>ExecInst</i> <> f) and Tag 54 <i>Side</i> = 8 or 9 (Cross or Cross short)).  1 = Benchmark 2 = Qualified Contingent Trade
7391	AnonymityFlag	N	Flag to determine whether the order sender is to remain anonymous.  N = Order sender will NOT be anonymous and will be displayed on the CHX Book Feed, as ContraBroker on execution reports and in clearing transactions. Y = Order sender will be anonymous in the CHX Book Feed, as ContraBroker on executions and within clearing transactions.  Note: If this tag is omitted, the order will not be anonymous. Instead of using this tag, the firm can request that all orders to the CHX remain anonymous by contacting Customer Service.
7393	MERoutingInst	N	Instructs the ME to either route the order to satisfy Reg. NMS Rule 610 & 611 requirements or reject the order back to the sender.  0 – External routing allowed. 1 – External routing not allowed. ME only order.

Tag	Field Name	Req'd	Description
7394	CHXOnly	N	<p>Indicates CHX Only order type.</p> <p>N = Do not process as CHX Only order.  S = CHX Only order. Price will slide to avoid locking/crossing NBBO.  L = CHX Only order if price locks NBBO; reject order if price crosses NBBO.</p> <p>Note: If this tag is omitted, the CHX Only order type will default to S (CHX Only) unless the firm has contacted Customer Service to set an alternative default value.</p>
7395	WorkPx	N	<p>If the order was inserted into book with a price which was adjusted to avoid locking/crossing the NBBO, the working price will be provided in this tag.</p>
7396	CancelOnSNAPAuctionFlag	N	<p>Determines if order participates in SNAP<sup>sm</sup> Auctions.</p> <p>'Y' –When a SNAP<sup>sm</sup> Auction is invoked, the order will be canceled, it will not participate in the SNAP<sup>sm</sup> Auction.</p> <p>'N' –When a SNAP<sup>sm</sup> Auction is invoked, the order will not be canceled, it will participate in the SNAP<sup>sm</sup> Auction.</p> <p>Note: If this tag is omitted, the CancelOnSNAPAuctionFlag will default to 'N'. Firms can contact Customer Service to set an alternative default value.</p>
7397	SNAPMinExecRequiredFlag	N	<p>Only relevant on a SNAP<sup>sm</sup> order.</p> <p>Flag determines if the SNAP<sup>sm</sup> order requires a minimum number of shares to be projected to execute in the SNAP<sup>sm</sup> Auction before invoking the SNAP<sup>sm</sup> Auction, otherwise if the minimum participation shares are not projected to execute during the SNAP<sup>sm</sup> Auction, the SNAP<sup>sm</sup> order will be canceled without invoking the SNAP<sup>sm</sup> Auction. Note: Although SNAP<sup>sm</sup> orders initiate the SNAP<sup>sm</sup> Auction, there is no guarantee the SNAP<sup>sm</sup> order will participate.</p> <p>'Y' = Minimum SNAP<sup>sm</sup> threshold required.  'N' = Minimum SNAP<sup>sm</sup> threshold not required.</p> <p>Absence of this field indicates the minimum SNAP threshold is not required.</p>



Tag	Field Name	Req'd	Description
7398	SNAPConvertToAOOFlag	N	<p>Only relevant on a SNAP<sup>sm</sup> order.</p> <p>'Y' = If this SNAP<sup>sm</sup> order received after SNAP<sup>sm</sup> Auction already invoked by another SNAP<sup>sm</sup> order, this SNAP<sup>sm</sup> order will be converted to SNAP<sup>sm</sup> AOO One and Done, as long as it meets the SNAP<sup>sm</sup> AOO requirements.</p> <p>'N' = If this SNAP order received after SNAP<sup>sm</sup> Auction already invoked by another SNAP<sup>sm</sup> order, this SNAP<sup>sm</sup> order will be canceled.</p> <p>Absence of this field indicates SNAP<sup>sm</sup> order can be converted to SNAP<sup>sm</sup> AOO.</p>
7399	AOOOneAndDoneFlag	N	<p>Only relevant on an SNAP<sup>sm</sup> AOO.</p> <p>Flag determines if SNAP<sup>sm</sup> AOO will participate in one or more SNAP<sup>sm</sup> Auctions.</p> <p>'Y' = SNAP<sup>sm</sup> AOO will only participate in one SNAP<sup>sm</sup> Auction, then it will be canceled.</p> <p>'N' = SNAP<sup>sm</sup> AOO will participate in every available SNAP<sup>sm</sup> Auction until either the order is cancelled by the sender, the order is executed in its entirety or the primary trading session ends and the remainder of the order is canceled.</p> <p>Absence of this field indicates SNAP<sup>sm</sup> AOO will participate in every SNAP<sup>sm</sup> Auction.</p>
7400	CHXOrdType	N	<p>s = SNAP<sup>sm</sup> Auction Order 9 = SNAP<sup>sm</sup> Auction Only Order (AOO)</p> <p>If CHXOrdType = s (SNAP<sup>sm</sup> Auction Order), OrdType must be 2 (Limit). May also be qualified with either tag 7397 (SNAP<sup>sm</sup> Minimum Execution Required) or tag 7398 (SNAP<sup>sm</sup> Convert to AOO)</p> <p>If CHXOrdType = 9 (AOO), OrdType must be 2 (Limit) or P (Peg).</p> <p>If specified, TimeInForce must be 0 = Day.</p>

Tag	Field Name	Req'd	Description
7928	MatchTradePrevention	N	<p>Used to prevent the order from trading against other orders from the same trading group. 2 characters (not space separated):</p> <p>1<sup>st</sup> character – MTP Action:  I = No MTP Action (Inactivate the trading account default MTP action, if any)  N = Cancel Newest (or incoming order)  O = Cancel Oldest (or resting order)  B = Cancel Both</p> <p>2<sup>nd</sup> character – MTP Sub Level (optional):  Member specified alphanumeric value 0-9, A-Z, or a-z.</p> <p>When MTP is triggered (preventing a match), the MTP Action (1<sup>st</sup> character) of the inbound order will always be honored (the MTP Action of the resting order is irrelevant).</p> <p>If specified on the incoming order, the MTP Sub Level (2<sup>nd</sup> character) of both orders must match to prevent a trade.</p> <p>Absence of this field indicates No MTP Action by default. However, Firms can contact Customer Service to set an alternative default value.</p>

## 5. FIX Message Examples

### 5.1 Buy Order

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00

### 5.2 Correspondent Order

Order senders have the ability to send correspondent orders to the CHX, which will clear using the specified symbol as shown in the example below.

Tag	Field Name	Value
439	ClearingFirm	CLFM
54	Side	1 (Buy)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00

## 5.3 Cross Orders

### 5.3.1 Normal Cross Order

Tag	Field Name	Value
11	CIOrdID	CROSS-ID-1
54	Side	8 (Cross)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
7365	BuyerFirm	ABCD
7366	SellerFirm	WXYZ

### 5.3.2 Midpoint Cross Order

Tag	Field Name	Value
54	Side	8 (Cross)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	Q (Cross at Midpoint)
7365	BuyerFirm	ABCD
7366	SellerFirm	WXYZ

## 5.4 Display Orders

### 5.4.1 Reserve Order with RefreshThreshold

The following example shows a 20000 share order with a display size of 2000 and a refresh value of 500. When the order is entered into the book, only 2000 shares will display in the CHX quote. With each partial execution of the order, the display amount will be decreased by the execution amount. Once the display volume drops to 500 or less, the display volume will be refreshed to 2000.

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	20000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
111	MaxFloor	2000
7369	RefreshThreshold	500

### 5.4.2 Reserve Order without RefreshThreshold

The following example show a 20000 share order with a display size of 2000 with no refresh value specified. This order will behave the same as the previous example, with the exception that the display volume will not be refreshed until the display volume reaches 2000 (MaxFloor).

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	20000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
111	MaxFloor	2000

## 5.4.3 Do not Display Order

The display volume is specified as zero (0).

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	20000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
111	MaxFloor	0

## 5.5 Reg NMS Orders

### 5.5.1 Price-Penetrating ISO

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
18	ExecInst	f (ISO)

### 5.5.2 BBO ISO

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
18	ExecInst	f (ISO)
7387	ISOType	1 (BBO ISO)
59	TimeInForce	3 (IOC)

### 5.5.3 ISO Cross

Tag	Field Name	Value
11	ClOrdID	CROSS-ID-1

Tag	Field Name	Value
54	Side	8 (Cross)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
7365	BuyerFirm	ABCD
7366	SellerFirm	WXYZ
18	ExecInst	f (ISO)

## 5.5.4 Qualified Contingent Trade

Tag	Field Name	Value
11	ClOrdID	CROSS-ID-1
54	Side	8 (Cross)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
7365	BuyerFirm	ABCD
7366	SellerFirm	WXYZ
7388	TradeThroughExemptType	2 (Qualified Contingent Trade)

## 5.6 SNAP<sup>sm</sup> Auction Orders

### 5.6.1 Buy Order – Cancel on SNAP<sup>sm</sup> Auction

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
7396	CancelOnSNAPAuctionFlag	Y (Cancel on SNAP <sup>sm</sup> Auction)

### 5.6.2 SNAP<sup>sm</sup> – Do Not Convert to SNAP<sup>sm</sup> AOO

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	100000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
7398	SNAPConvertToAOOFlag	N (Do Not Convert to SNAP <sup>sm</sup> AOO)
7400	CHXOrdType	s (SNAP <sup>sm</sup> order)

## 5.6.3 SNAP<sup>sm</sup> – Minimum Threshold Required

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	100000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
7397	SNAPMinExecRequiredFlag	Y (Minimum participation threshold required)
7400	CHXOrdType	s (SNAP <sup>sm</sup> order)

## 5.6.4 SNAP<sup>sm</sup> AOO – One and Done

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	10000
55	Symbol	IBM
40	OrdType	2 (Limit)
44	Price	80.00
59	TimeInForce	If specified, 0 = Day is only allowable value.
7399	AOOOneAndDoneFlag	Y (Only participate in one SNAP Auction)
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

## 5.6.5 SNAP<sup>sm</sup> AOO – Buy Market Peg – Limit - Positive PegDiff – IBM tick size is .01

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	10000
55	Symbol	IBM
40	OrdType	P (Peg)
44	Price	80.00
59	TimeInForce	If specified, 0 = Day is only allowable value.
18	ExecInst	P (Market Peg)
211	PegDiff	2
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

79.95 – 79.97, this order will be priced at 79.99

80.00 – 80.02, this order will be priced at 80.00

80.04 – 80.06, this order will be priced at 80.00

(79.97 + 2 ticks = 79.99)

(80.02 + 2 ticks = 80.04), default to 80.00 limit

(80.06 + 2 ticks = 80.08), default to 80.00 limit

## 5.6.6 SNAP<sup>sm</sup> AOO – Buy Market Peg – Limit - Positive PegDiff – ADGE tick size is .01

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	10000
55	Symbol	ADGE
40	OrdType	P (Peg)

Tag	Field Name	Value
44	Price	.9999
59	TimeInForce	If specified, 0 = Day is only allowable value.
18	ExecInst	P (Market Peg)
211	PegDiff	4
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

.9990 - .9995 this order will be priced at .9999	(.9995 + 4 ticks = .9999)
.9995 - .9997, this order will be priced at .9999	(.9997 + 4 ticks = 1.01, default to .9999)
1.00 - 1.01, this order will be priced at .9999	(1.01 + 4 ticks = 1.05, default to .9999)

## 5.6.7 SNAP<sup>sm</sup> AOO – Buy Market Peg – Limit - Negative PegDiff – ADGE tick size is .01

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	10000
55	Symbol	ADGE
40	OrdType	P (Peg)
44	Price	1.00
59	TimeInForce	If specified, 0 = Day is only allowable value.
18	ExecInst	P (Market Peg)
211	PegDiff	-4
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

.9990 - .9995 this order will be priced at .9991	(.9995 - 4 ticks = .9991)
.9995 - .9997, this order will be priced at .9993	(.9997 - 4 ticks = .9993)
1.00 - 1.01, this order will be priced at .9997	(1.01 - 4 ticks = .9997)

## 5.6.8 SNAP<sup>sm</sup> AOO – Buy Market Peg – Limit - Positive PegDiff – BRK.A tick size is .10

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	10000
55	Symbol	BRK.A
40	OrdType	P (Peg)
44	Price	219,820.00
59	TimeInForce	If specified, 0 = Day is only allowable value.
18	ExecInst	P (Market Peg)
211	PegDiff	105
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

219,580.30 – 219,720.00,  
this order will be priced at 219,730.50 (219,720.00 + 105 ticks = 219,730.50)

219,650.50 – 219,819.20,  
this order will be priced at 219,820.00 (219,819.20 + 105 ticks = 219,829.70), default to 219,820.00 limit

220,590.30 – 220,820.60,  
this order will be priced at 219,820.00 (220,820.60 + 105 ticks = 220,831.10), default to 219,820.00 limit

## 5.6.9 SNAP<sup>sm</sup> AOO – Sell Market Peg – No Limit - Positive PegDiff – IBM tick size is .01

Tag	Field Name	Value
54	Side	2 (Sell)
38	OrderQty	10000
55	Symbol	IBM
40	OrdType	P (Peg)
59	TimeInForce	If specified, 0 = Day is only allowable value.
18	ExecInst	P (Market Peg)
211	PegDiff	2
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

79.96 – 79.98, this order will be priced at 79.98	(79.96 + 2 ticks = 79.98)
80.00 – 80.02, this order will be priced at 80.02	(80.00 + 2 ticks = 80.02)
80.04 – 80.06, this order will be priced at 80.06	(80.04 + 2 ticks = 80.06)

## 5.6.10 SNAP<sup>sm</sup> AOO – Buy Market Peg – No Limit - Negative PegDiff – IBM tick size is .01

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	10000
55	Symbol	IBM
40	OrdType	P (Peg)
59	TimeInForce	If specified, 0 = Day is only allowable value.
18	ExecInst	P (Market Peg)
211	PegDiff	-2
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

79.96 – 79.98, this order will be priced at 79.96	(79.98 - 2 ticks = 79.96)
80.00 – 80.02, this order will be priced at 80.00	(80.02 - 2 ticks = 80.00)
80.04 – 80.06, this order will be priced at 80.04	(80.06 - 2 ticks = 80.04)

## 5.6.11 SNAP<sup>sm</sup> AOO – Sell Market Peg – Limit - Negative PegDiff – IBM tick size is .01

Tag	Field Name	Value
54	Side	2 (Sell)
38	OrderQty	10000
55	Symbol	IBM
40	OrdType	P (Peg)
44	Price	80.00
59	TimeInForce	If specified, 0 = Day is only allowable value.
18	ExecInst	P (Market Peg)



Tag	Field Name	Value
211	PegDiff	-2
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

79.96 – 79.98, this order will be priced at 80.00	(79.96 – 2 ticks = 79.94), default to 80.00 limit
80.00 – 80.02, this order will be priced at 80.00	(80.00 – 2 ticks = 79.98), default to 80.00 limit
80.04 – 80.06, this order will be priced at 80.02	(80.04 – 2 ticks = 80.02)

## 5.6.12 SNAP<sup>sm</sup> AOO – Buy Primary Peg – No Limit - Positive PegDiff – IBM tick size is .01

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	10000
55	Symbol	IBM
40	OrdType	P (Peg)
59	TimeInForce	If specified, 0 = Day is only allowable value.
18	ExecInst	R (Primary Peg)
211	PegDiff	2
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

79.96 – 79.98, this order will be priced at 79.98	(79.96 + 2 ticks = 79.98)
80.00 – 80.02, this order will be priced at 80.02	(80.00 + 2 ticks = 80.02)
80.04 – 80.06, this order will be priced at 80.06	(80.04 + 2 ticks = 80.06)

## 5.6.13 SNAP<sup>sm</sup> AOO – Sell Primary Peg – Limit - Positive PegDiff – IBM tick size is .01

Tag	Field Name	Value
54	Side	2 (Sell)
38	OrderQty	1000
55	Symbol	IBM
40	OrdType	P (Peg)
44	Price	80.00
59	TimeInForce	If specified, 0 = Day is only allowable value.
18	ExecInst	R (Primary Peg)
211	PegDiff	2
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

79.95 – 79.97, this order will be priced at 80.00	(79.97 + 2 ticks = 79.99), default to 80.00 limit
80.00 – 80.02, this order will be priced at 80.04	(80.02 + 2 ticks = 80.04)
80.04 – 80.06, this order will be priced at 80.08	(80.06 + 2 ticks = 80.08)

## 5.6.14 SNAP<sup>sm</sup> AOO – Buy Primary Peg – Limit - Negative PegDiff – IBM tick size is .01

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	10000

Tag	Field Name	Value
55	Symbol	IBM
40	OrdType	P (Peg)
44	Price	80.00
59	TimelnForce	If specified, 0 = Day is only allowable value.
18	ExecInst	R (Primary Peg)
211	PegDiff	-2
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

79.96 – 79.98, this order will be priced at 79.94	(79.96 – 2 ticks = 79.94)
80.00 – 80.02, this order will be priced at 79.98	(80.00 – 2 ticks = 79.98)
80.04 – 80.06, this order will be priced at 80.00	(80.04 – 2 ticks = 80.02), default to 80.00 limit

## 5.6.15 SNAP<sup>sm</sup> AOO – Sell Primary Peg – No Limit - Negative PegDiff – IBM tick size is .01

Tag	Field Name	Value
54	Side	2 (Sell)
38	OrderQty	10000
55	Symbol	IBM
40	OrdType	P (Peg)
59	TimelnForce	If specified, 0 = Day is only allowable value.
18	ExecInst	R (Primary Peg)
211	PegDiff	-2
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

79.96 – 79.98, this order will be priced at 79.96	(79.98 – 2 ticks = 79.96)
80.00 – 80.02, this order will be priced at 80.00	(80.02 – 2 ticks = 80.00)
80.04 – 80.06, this order will be priced at 80.04	(80.06 – 2 ticks = 80.04)

## 5.6.16 SNAP<sup>sm</sup> AOO – Buy Midpoint Peg - Limit

Tag	Field Name	Value
54	Side	1 (Buy)
38	OrderQty	10000
55	Symbol	IBM
40	OrdType	P (Peg)
44	Price	80.00
59	TimelnForce	If specified, 0 = Day is only allowable value.
18	ExecInst	M (Midpoint Peg)
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

79.96 – 79.98, this order will be priced at 79.97	(79.96 + 79.98)/2 = 79.97
79.96 – 79.97, this order will be priced at 79.965	(79.96 + 79.97)/2 = 79.965
80.00 – 80.01, this order will be priced at 80.00	(80.00 + 80.01)/2 = 80.005, default to 80.00 limit

## 5.6.17 SNAP<sup>sm</sup> AOO – Sell Midpoint Peg – No Limit

Tag	Field Name	Value
54	Side	2 (Sell)
38	OrderQty	10000
55	Symbol	IBM
40	OrdType	P (Peg)
59	TimeInForce	If specified, 0 = Day is only allowable value.
18	ExecInst	M (Midpoint Peg)
7400	CHXOrdType	9 (SNAP <sup>sm</sup> Auction Only Order)

If the NBBO used to price the SNAP<sup>sm</sup> auction is:

79.96 – 79.98, this order will be priced at 79.97	$(79.96 + 79.98)/2 = 79.97$
79.96 – 79.97, this order will be priced at 79.965	$(79.96 + 79.97)/2 = 79.965$
80.00 – 80.01, this order will be priced at 80.005	$(80.00 + 80.01)/2 = 80.005$