FIX Specification for Barclays LX® US (New Gateway)

FIX 4.2

April 2024
Version 2.40

Contents

1. Introduction and Contact Details

1.1 Introduction

LX® is Barclays' proprietary crossing network which aggregates liquidity across clients, internal desks and non-displayed trading partners to provide users with an additional source of liquidity. LX is a registered ATS in the US and operates on a continuous basis during US market hours.

Accessing LX: Orders are sent to Barclays LX directly (1) via an electronic order entry connection, (2) through Barclays' Algos, or (3) through the smart order router. The smart order router routes orders to LX, other ATSs, exchanges, and other execution venues. The smart order router and Algos are separate from LX.

Please read in conjunction with the Barclays LX Form ATS-N filing and the Barclays LX - ATS FAQs document accessible at barx.com/eqdisclosures.

1.2 Purpose of document

This document defines the FIX protocol interface between a client and LX. It provides guidance and reference to you, the client, to assist in establishing FIX connectivity and order flow with Barclays. Please do not hesitate to discuss with your sales contact, or with the contacts below, about any aspects of this document for which you need further clarification.

This document is based on FIX version 4.2.

This document should be read in conjunction with the FIX specifications on the FIX Protocol website (www.fixprotocol.org).

1.3 Contact

LX Service Desk
+1 212 526 9190
LXService@barclays.com

1.4 Summary of supported functions

Field/Message	Description
OrdType	- Limit - Pegged (no Limit Price) - Pegged (with a Limit Price)
Side	- Buy - Sell - Sell Short - Sell Short Exempt
TimeInForce	- Day - Immediate or Cancel (IOC)
ExecInst	- R – Primary Peg* - P – Market Peg* - M – Mid Price Peg* * Requires OrdType = Pegged(P)
Quantity	Odd lots are supported on firm orders. They are not supported on conditional orders and will be rejected. Mixed lots are supported. When two mixed lot orders are of the exact same quantity, the full order size will cross. Interaction between mixed lot orders and round lot orders is dependent on the round lot order's eligibility to interact with odd lot quantities (the match will be either maximum order quantity if round lot order is eligible to interact with odd lot quantities or largest common round lot quantity otherwise). The balance will stay on the order book or cancel back depending on the Subscriber's choice of interacting with odd lot orders. For two mixed lot orders of different quantities, the maximum order quantity will cross, and the residual leaves quantity either will remain in the order book or will be cancelled back depending on the Subscriber's preference for interacting with odd lot orders.
MinQty	Minimum Quantity supported via tag 110. LX does not "bunch" fills for this feature, meaning that each fill from LX will be of a quantity equal to or greater than the MinQty specified by the client on the order. Please note, if the remaining open shares fall below the MinQty, LX will treat the order as an "All or None" with MinQty=LeavesQty by default. For example, client sends a NewOrder with OrderQty=2,000 and MinQty=1,000. Client receives a fill for 1,200 shares. At this point, LeavesQty is 800. The client may only receive another fill from LX if the quantity will be exactly 800. Client will also have the ability to select on an order–by-order basis whether the order will cancel back when remaining open shares (leaves quantity) falls below the MinQty or to treat leaves quantity as the MinQty For orders where the client opts to treat the leaves quantity as the MinQty, and the leaves quantity is below the round lot, the interaction behavior will be determined by whether the client indicates to interact with odd lots or not.

Field/Message	Description
Cancels	Full cancels only. LX does not support FIX 4.0 partial cancels. Use Cancel/Replace (Order Modification) instead.
Cancel/Replace (Order Modifications)	Supported: • Price increases and decreases • Quantity increases and decreases • MinQty changes
Trade Corrects and Trade Cancels (i.e., "Busts")	Trade Corrects are not currently supported electronically. Trade Cancels (i.e., "Busts") are supported electronically via the LX Service desk only.
Cancel on Disconnect	LX will automatically cancel open orders for a client once a session disconnect is detected if cancel on disconnect is enabled.
Hours of Operation	LX operates from 9:30 A.M. EST to 4:00 P.M. EST and will begin accepting orders at 8:00 A.M. EST. Orders received by LX prior to 9:30 A.M. EST are entered into the queue and become eligible for execution at or after 9:30 A.M. EST. Stocks will become eligible for execution in LX once the primary listing market has opened the stock. At 4:00 P.M. EST, any unexecuted orders will be cancelled. The ATS will be closed or close early during market holidays or shortened trading days. Barclays has discretion to close or to not open the ATS in the event of a market disruption or technological or other issues.

1.5 Summary of changes to the document

Version	Date	Comments
2.0	July 2010	FIX Rules of Engagement for the new LX platform.
2.1	October 4, 2010	Added comments pertaining to RegSHO amendments and the Short Sell Exempt Side [54] value. The current implementation is subject to change pending updates from the SEC.
2.2	October 7, 2010	Changed requirements for Sell Short Exempt orders (allowed at any time from Broker/Dealer customers) as per the latest SEC FAQ on the Reg SHO addendum. ShortSaleExemptionReason[1688] will be accepted but not required from B/D customers.
2.3	November 9, 2010	Based on client feedback, adding FIX4.2 fields and values which were not supported in the original version of the spec. For clients who do not require strict FIX4.2 compliance, these features can be disabled.
2.4	November 16, 2010	Removed Held/Not Held as acceptable execution instructions. Only Pegging instructions (M/P/R) are allowed.
2.5	November 19, 2010	Added appendix with symbology examples.
2.6	November 30, 2010	Removed OrderMassCancel functionality as this is not currently supported.

Version	Date	Comments

2.7	April 20, 2011	1. Added support for the following new features:
		    • CancelOnMarketMove[9253]
		    • NoLockCross[9254]
		    • AddLiquidityOnly (ExecInst[18]=6)
		    • CancelQty[9255]
		2. Removed "fill bunching" behavior for MinQty[110].
		3. ShortSaleExemptionReason[1688] removed from the specification.
		4. ResetSeqNumFlag[141] removed from the specification

2.8	May 27, 2011	Added support for ISO instruction – ExecInst[18]='f'.
2.9	February 2, 2012	Updated Cancel/Replace section to include logic LX uses when replacing orders if the client specifies OrderQty <= CumQty.
2.10	April 20, 2012	Added LastCapacity[29] on Execution Report fill messages.
2.11	October 16, 2012	Changed EncryptMethod[98] to be required as is the case with the current version of our FIX engine.
2.12	January 31, 2012	Added Hours of Operation in the Summary of supported functions.
2.13	December 19,2012	Added Liquidity Profiling to the Summary of Supported Functions section. FIX Rules of Engagement for utilizing the Conditional Orders feature in the Barclays ATS (LX).
2.14	February 13, 2015	Adjusted the MatchTimer from 20ms to 100ms in section 2.0 Key Features and Definitions. This is to match the current behavior in production.
2.15	October 15, 2015	New requirements on valid values for Tag 57 for Liquidity Profiling. New requirements on locate broker requirements (Tag 114, Tag 5700). Removal of TakeWhenPosted[9255] and Cancel-on-Market Move [9253] under ExecInst and OrdType.
2.16	July 12, 2016	Added section 5.2 Location of LX and connectivity.
2.17	July 18,2016	New requirements on valid values for Tag 57 for Liquidity Profiling. 57 = MEDHIGH to interact only with medium and high alpha takers. 57 = HIGH to interact only with high alpha takers.
2.18	January 4, 2017	Removed support for ISO instruction – ExecInst[18]='f'. New requirements on valid values for Tag 57 for Subscriber Type Blocking.

Version	Date	Comments
2.19	May 25, 2017	New requirements on valid values for Tag 57 for LX MinTime. 57= MINTIME to limit interactions with LX direct subscribers orders that have rested on the LX order book for a minimum duration.
2.20	June 21, 2017	Updated section 5.2 Location of LX and connectivity.
2.21	September 18, 2017	Added LastMkt[30] If enabled, LX will return "BARX" which is the MIC for LX.
2.22	February 22, 2018	Section for New Single Conditional Order was split into sections 3.3.3 New Single Conditional Order (35=D, 18=C) and 3.3.4 New Single Conditional Order, Firm-Up (35=D, 9259=MatchID)
2.23	October 1, 2018	Removed references to Tick Size Pilot Program for tag 44.
2.24	September 3, 2019	Removed language limiting valid locate brokers to be only MPIDs (Tag 114, Tag 5700).
2.25	October 30, 2019	Updated validation criteria for LocateBroker field (Tag 5700). Removed IOC from criteria for order rejection (Tag 9255).
2.26	January 9, 2020	Updated the description for Tag 60 under section 3.3.2 New Order Single (35=D)
2.27	May 18, 2020	Added TradeWithOddLotEnabled [12223] Added LeavesQtyAsMinQty [12224] Removed MatchQty[10284] Removed CancelQty[9225]
2.28	January 11,2021	Updated scenarios in section 4 Examples of Fix Workflow as follows: Firm Up Response: Changed 59 = 0 to 59 = 3 Partial Fill: Changed 39=2 to 39=1, 54=5 to 54=1, and 150=2 to 150=1 Conditional Expiration: Changed 54 = 5 to 54 = 1
2.29	October 5, 2021	Removed valid values section for OrdRejReason[103] field in section 3.4.1
2.30	April 12, 2022	Removed value 18 from tag 102. Added tag 23013 to sections 3.3.2 New Order Single (35=D) and 3.3.4 New Single Conditional Order, Firm-Up (35=D, 10283=MatchID).
2.31	June 27, 2022	Updated tag 11 ClOrdId supported value to 40 characters or less. Removed the "3 = Done for Day" value from tag 39 OrdStatus. Updated supported value for tag 102 CxlRejReason to "Will be included on OrdStatus=8" Updated tag 38 OrderQty required value to "C" Updated the disconnect time calculation formula in section 3.2.3 TestRequest (35=1)
2.32	October 12, 2022	Removed the "1 = Not held" value from tag 18 ExecInst.

Version	Date	Comments
2.33	November 15, 2022	Removed the "5 = Held" value from tag 18 ExecInst.
2.34	December 1, 2022	Updated "OATS reporting" to "CAT reporting" in the Conditional Order Type Functionality section.
2.35	January 23, 2023	Updated conditional Order Type functionality to note that LX will only generate a single invite on a conditional order in Section 2
		Updated conditional match timer to note that the timer will only apply for Firm UP IOCs that are still crossable and not partially filled in Section 2
		Updated Tag 1 Account that it must be less than 64 characters or it will be rejected
		Tag 110 MinQty can be > OrderQty (Tag 38) as long as leavesQtyAsMinQty (Tag 12224) = Y
		Tag 114 Locate Required will be defaulted to N if omitted and Locate Broker (5700) is populated
		Updated New Single Conditional Order, Firm Up - Order characteristics (e.g. side, capacity) must match the original conditional order else the order will be rejected in section 3.3.4
		Update to logic when replacing OrderQty to a value that is equal to or less than the CumQty will result in an Execution Report for a "Cancelled" (i.e., OrderStatus = 4, ExecType = 4 in Section 3.3.6
		Any invalid replace request will result in a cancellation of the order from the order book in Section 3.3.6
		Update to Conditional example messages in section 4.1
		Removed typo in cancel request example in Section 4.2
		Update the location of LX data center to reflect Ocean data center in NY4 in Section 5.2
2.36	May 31, 2023	Updated comments to the Introduction Section 1.1 to reflect the agreement with NASDAQ Ocean, under which Ocean will host, operate and support the technology platform for LX.
		Added Ocean Cancel and Reject Codes in Appendix Section 5.3
		Added scenarios for an invalid replace in section 3.36
		Updated the notes for TradeWithLotEnabled in section 3.3.2 to the below:
		The default behavior is for all orders to be able to cross with odd lot order.
		An odd lot order will not be subject to validation against TradewithOddLotEnabled. (Odd lot order with TradeWithOddLotEnabled = N will be accepted but the tag will be ignored. If the order is subsequently replaced to a mixed lot then it will no longer be eligible to trade against odd lot orders. Similarly, if a mixed lot order is sent with TradeWithOddLotEnabled = N the order will initially not be eligible to trade against odd lot orders. If the orderQty is reduced to an odd lot then it will not be subject to validation against the TradeWithOddLotEnabled and will trade against odd lot orders.

Version	Date	Comments
2.37	August 1, 2023	MatchID renamed to FirmUpID
		SenderCompID values limited to 4 – 6 characters
		SenderSubID must be 32 characters or less
		TargetCompID must always be LATS
		Contact emails for sequence number resets and cross connect updated
		Tag 18 ExecInst no longer supports values of "A" (agency Only) or "6" (Add Liquidity Only) or "C" ConditionalOrder. These are now supported via new FIX tags 6438 (CrossingInstruction),9140 (PostOnly) and 23012 (ConditionalOrder) respectively.
		Tag 55 Symbology limited to ETS
		Tag 65 SymbolSfx removed
		Tag 100 ExDestination = 83 removed
		Tag 5700 Locate Broker – only a single value is accepted. If a broker dealer provides a value in tag 5700 it will be validated against the valid locate broker list
		Tag 28002 (previously 9254) Trading in locked markets default changed from Y to N.
		Tag 12223 (TradeWithOddeLotEnabled) replaced with 28001 (TradeWIthOddLotEnabled)
		Tag 12224 (LeavesQtyAsMinQty) replaced with 9500 (MinQtyInstructions
		Tag 23003 SubscriberID required on all messages
		All unsolicited Cancels including conditional invitations are indicated with 39 (OrdStatus) = 4 and 150 (ExecType) = D
		Tag 38 (OrderQty) added as required on cancel message
		Support of Trade Cancellation
		Additional FIX tags to be included on Execution Reports – 47, 57, 59, 110, 378, 548, 5700, 23012
		Symbology sections removed from appendix
		Location of LX section 5.2 updated
2.38	August 30, 2023	Tag 21 updated to a required field.
		Tag 115 updated to a required field

Version	Date	Comments
2.39	March 13, 2024	Tag 57 (TargetSubID) will have a 16-character limit
		Tag 60 (TransactTime) is required on all messages and stale order checks will be done exclusively via TransactTime (Tag 52 - SendingTime will no longer be used)
		Tag 114 (LocateRequired) will no longer be defaulted to N if tag 5700 (LocateBroker) is provided
		Tag 5700 (LocateBroker) – multiple locate broker values can be passed but only the first value will be validated
		Tag 28001 (TradeWithOddLotEnabled) and Tag 28002 (NoLockCross) instructions are amendable. Note that if provided on the New Order Single messages and left off on replace messages the system default value will be applied on the replace
		Tag 21 required on replace messages
		Tag 37 OrderID can change across Cancels and Modifications
		Tag 103 (OrderRejReason) only 2 specific values to be passed in this field - 0 = Broker option and 6 = Duplicate Order
		Tag 56 (TargetCompID) BCAPLX to be passed
2.40	April 16, 2024	Added Tag 1 Account on section 3.4.1 Execution Report
		Added Tag 128 DeliverToCompID on section 3.4.1 Execution Report
		Added Tag 23003 SubscriberID on section 3.4.1 Execution Report

2. Conditional Order Type Functionality

Conditional Order – "Conditional" is an Order Type supported by Barclays LX which allows traders to post quantity to the LX Limit Order book without the risk of over filling their intended order quantity. Conditional Orders will never result in an execution. A "match" on a Conditional Order is referred to as a Conditional Invitation. This message informs the trader that there exists the potential to interact with liquidity in LX and prompts the trader to submit a Firm order which may or may not execute.

The intended use of Conditional Orders is to allow traders to expose their full parent order quantity (or some portion thereof) while actively trading those same shares in other venues. The purpose of the Conditional Order is to execute the entire parent order quantity (or a large portion thereof) against a counterparty who is looking to trade in large/block sizes.

Minimum Execution Quantity (MinQty) – A parameter on the Conditional Order Type that allows a participant to specify the minimum quantity that they are willing to trade. The largest allowable value for MinQty is the full order quantity (in which case the order can be considered "All or None"). Barclays LX will not "bunch" contra liquidity to satisfy the MinQty requirement of an order. While multiple executions and counterparties are possible in a match, each contra execution will have to meet the MinQty.

Conditional "Match" or **"Invite"** – Barclays LX will respond to a Conditional Order with an Invite when a Match has been found. A match will occur when a buy and sell order meet the following requirements:

- Are crossable at the limit prices of each order
- Are at or within the NBBO
- Satisfy the MinQty parameters on all orders
- Are enabled to trade against each other

The Invite is a message to the Conditional Order user that a potential for a match is present. The invite, however, is not a trade. In order for a trade to take place, all participants must submit Firm Orders to LX. The Invite will contain a "FirmUpID".

FirmUpID – A day-unique identifier for every conditional match. This should be provided by the Conditional Order user upon sending Firm-Up orders to access tradeable LX liquidity. Without this ID, LX will treat the Firm-Up orders as any other Firm Order.

Firm Orders – Immediately executable order quantity that LX will execute if determined to be crossable by the matching algorithm.

Firm-Up Orders – These are Firm Orders which contain a **FirmUpID** and are sent in response to a Conditional Invite from LX. By supplying the **FirmUpID**, LX is able to accurately calculate Conditional Order Metrics and utilize the Conditional Match Timer feature. Order characteristics (e.g side, capacity) must match the original conditional order else the order will be rejected.

Please note, Firm-Up orders are not eligible to match with Conditional Orders.

Conditional Match Timer – LX will set a timer in the matching engine upon a Conditional Match when sending Invites. The timer is configurable and is currently set to 100 milliseconds. LX will use the match timer to determine when to expire Firm-Up Orders. Match timer starts once the conditional orders are matched and only valid for Firm-up IOC orders that are still crossable and not partially filled. Firm-up day order will be open as a regular order if not crossed.

CAT reporting – Please note that any Conditional messages (NewOrders, Cancels, Replaces, Invites) are not order events (due to the fact that they are not executable). Thus, as per FINRA guidance these messages are not reported to CAT. Firm-Up orders and resulting executions, however, are normal order events and will be reported to FINRA by Barclays LX. Conditional Order participants are expected to meet their CAT reporting requirements.

3. FIX Connectivity

3.1 FIX Messages

This section discusses the details of the FIX messages supported by LX and some details on how each field is used. Please contact the service desk to discuss your connectivity protocol.

LX will ensure that all FIX messages have all the required fields as per the supported version of the FIX protocol. Relevant non-mandatory fields are also documented below. Barclays reserves the right to send additional non-mandatory fields (without notification or revision of this document) provided that the overall validity of the FIX message remains intact.

The following tables represent the fields that LX supports for each message type, and the supported values for each field. Each table does not represent a complete FIX message. Every message sent and received by LX must have a Message Header and a Message Trailer as described below.

3.1.1 Message Header

The table below describes the details required in messages received from your firm. Messages sent from Barclays will contain the details discussed below as well.

Tag	Field Name	Required	Validated	Comments
8	BeginString	Y	N	FIX4.2 identifies beginning of new message and protocol version. Must always be the first field in the message and should always be unencrypted. LX will respond with BeginString=FIX4.2 since any other BeginString would cause a Session Level Reject.
9	BodyLength	Y	Y	Message length, in bytes, forward to the CheckSum field. Must always be the second field in the message
35	MsgType	Y	N	Always the third field in the message and should always be unencrypted. Valid values include: • A: Logon • 0: Heartbeat • 1: Test Request • 2: Resend Request • 3: Reject (Session Level) • 4: Sequence Reset • 5: Logout • D: Order • F: Cancel • G: Cancel/Replace • 8: Execution Report • 9: Cancel Reject

Tag	Field Name	Required	Validated	Comments
34	MsgSeqNum	Y	Y	If a sequence number is received by LX that is lower than expected without PossDupFlag=Y set, LX will generate a logout message and drop the Session. This scenario is considered to be an error because LX knows about messages that the client does not know have been sent. To recover from this situation, either the expected sequence number will need to be decreased or the client will need to increase the sequence number before the session can be successfully re-established. Sequence numbers are expected to be received in order (i.e., 1, 2, 3, 4, 5). If a sequence number is received higher than expected (e.g., 1, 2, 5) a resend request for the missing messages will be generated. Sequence numbers can be "padded" with zeroes (e.g., '0' or '00').
43	PossDupFlag	N	N	Included when a sequence number already sent or received is retransmitted. If MsgSeqNum has already been received and this flag is not set to 'Y', it is treated as an error condition and a logout/disconnect will occur. All messages received with PossDupFlag = Y will be processed. A stale order check will be done for all orders.
49	SenderCompID	Y	Y	Configured on a per session basis. The value must be agreed upon by the Client and Barclays before trading. It will always be four to six characters.
50	SenderSubID	N	N	Must be 32 characters or less
52	SendingTime	Y	N	UTC message creation time as assigned by the client FIX engine. This must include milliseconds.
56	TargetCompID	Y	Y	"BCAPLX"
97	PossResend	N	N	Required when message may be duplicate of another message sent under a different sequence number
122	OrigSendingTime	N	N	Not required on the original order but required for message resends. If data is not available, set the same value as SendingTime

3.1.2 Message Trailer

Each FIX message sent and received must have a trailer at the end of the message. The table below describes the field that must appear in the trailer and how it is used.

Tag	Field Name	Required	Validated	Comments
10	CheckSum	Y	Y	Three byte, simple checksum calculated by summing all bytes in the message and converting to a modulo 256 number. This must always be the last field in the message and must always be unencrypted.

3.2 FIX Session Messages

LX will support the following session level messages. Details of each message type are explained below.

Description	Tag = Value
Logon	35 = A
Heartbeat	35 = 0
Test Request	35 = 1
Resend Request	35 = 2
Reject	35 = 3
Sequence Reset (Gap fill)	35 = 4
Logout	35 = 5

3.2.1 Logon (35=A)

The Client should initiate a TCP connection to LX on a predetermined host and port. Once the connection is established, the client should initiate the logon process. After receiving a logon request with the sequence number expected by LX (refer to Resend Request for out of sequence problems), a logon response message will be sent. If a logon request is received that cannot be identified based on the SenderCompID, LX will disconnect the session and will not respond with a logout.

Do not reset sequence numbers intra-day as some messages may be lost. If you need to reset sequence numbers please contact Ocean operations - DL-OceanOperations@nasdaq.com.

Tag	Field Name	Required	Validated	Comments
108	HeartBtInt	Y	Y	The interval in seconds after no activity in which a heartbeat will be sent to indicate the connection is still alive. Both sides of the session will use the same heartbeat interval (server side sessions will use the same interval that it receives from the client side session). Recommended interval is 60 seconds.

3.2.2 Heartbeat (35=0)

LX will send a heartbeat if there is no message activity for the interval determined by the HeartBtInt in the logon message. As a clarification, any message can qualify as message activity; heartbeats are only sent when there is no activity on the connection. LX will also respond to test requests with a heartbeat containing the corresponding TestReqID.

Tag	Field Name	Required	Validated	Comments
112	TestReqID	N	Y	If this Heartbeat is in response to a Test Request, the corresponding TestReqID will be included.

3.2.3 TestRequest (35=1)

A Test Request will be sent to the counterparty If a heartbeat is not received within the configured HeartbeatTimeout interval (default is 1.25 times the heartbeat interval). After 3 × (Heart Beat Interval × Heart Beat Interval Multiplier) seconds of inactivity (detect that we have received a heartbeat and then detect that the counterparty is not responding to the test request), the FIX engine will logout and disconnect from the counterparty (after sending a logout we also wait for a logout response for the Logout Response Timeout before disconnecting). For example, if the default value of 1.25 is used for Heart Beat Interval Multiplier and Logout Response Timeout, a disconnect will occur in 225 seconds after the last message was received from the client (3 × HeartBeatInterval × FixEngHeartBeatTimeoutMultipler = 3 × 60 × 1.25 = 225).

Tag	Field Name	Required	Validated	Comments
112	TestReqID	Y	N	A unique identifier for this test request.

3.2.4 Resend Request (35=2)

LX will issue a Resend Request, if it receives a message with a sequence number that is higher than expected.

The FIX protocol specification defines two methods to recover missing messages. In the first method, all messages from the first missing message up to the last message sent by the client will be requested. In the second method, only the missing messages are requested. The second method can result in multiple resend requests being required and is discouraged. The LX uses the first method of re-sequencing.

When a Resend Request message is received by LX, the resend will be satisfied before processing any additional messages. All messages sent from LX in response to a Resend Request will be marked with PossDupFlag='Y'.

Tag	Field Name	Required	Validated	Comments
7	BeginSeqNo	Y	Y	The MsgSeqNum of the first message to be resent.
16	EndSeqNo	Y	Y	The last MsgSeqNum that is to be resent. LX will always request infinite resends as described by the FIX protocol. EndSeqNo will always be equal to "0". It is preferred that when the client requests a resend of messages they use the infinite resend approach (i.e., from BeginSeqNo=X to EndSeqNo=0). However, resend requests from BeginSeqNo=X and EndSeqNo=Y are also supported by LX.

3.2.5 Session Reject (35=3)

Unless there is a FIX session layer error, application reject messages (35=8, 150=8) are preferred to session reject messages. Any message that is rejected by LX with a session reject will not be resent on a resend request.

LX will send a session reject in the event that a FIX message is received that is improperly formatted.

Tag	Field Name	Required	Validated	Comments
7	RefSeqNo	Y	Y	The MsgSeqNum of the message the reject applies to.

3.2.6 Sequence Reset (35=4)

The sequence reset message is used to indicate that certain messages will not be resent, typically administrative messages. For example, if a resend is requested of message 5 and up, but messages 5-7 were heartbeat messages, LX will send a sequence reset for MsgSeqNum=5 with the NewSeqNo=8 indicating that messages 5, 6, 7 will not be resent. Sequence reset messages will also contain PossDupFlag=Y. The following message types will not be resent, they will be gap filled A, 0, 1, 2, 3, 4, 5.

Tag	Field Name	Required	Validated	Comments
36	NewSeqNo	Y	N	The new sequence number that will be sent from LX.
123	GapFillFlag	N	N	If 'Y', indicates that this message is being sent in place of multiple messages (typically admin messages but could be used in place of application messages that are no longer valid to be included in a Resend).

3.2.7 Logout (35=5)

You must verify, prior to logout, that there are no live or pending orders, otherwise trade reports may be missed. Executions or messages from the previous day cannot be resent or replayed on current trading day. For assistance with requests for previous day's data, please contact the Service Desk for details.

The party initiating the logout must be the party that breaks the TCP connection to Barclays. This requirement allows for both sides to issue a Resend Request should the logout or its reply arrive with a sequence gap. If you receive a logout with a sequence gap, as per the protocol specification, issue a Resend Request and then your own logout.

Tag	Field Name	Required	Validated	Comments
58	Text	N	N	A description of why the logout occurred.

3.3 FIX Application Messages (Incoming – Client to Barclays)

The following incoming message types are supported; any other messages will be ignored.

Description	Tag = Value
New Order – Single	35 = D
Order Cancel Request	35 = F
Order Cancel/Replace Request	35 = G

3.3.1 Using the incoming message tables

- Tag – The fix integer tag value

- Field Name – The descriptive name for the tag. *Italics* indicate that a group of fields defined in another section are relevant to this message (e.g., *Standard Header* indicates that the standard header is also relevant to the particular message).

- Required:
  - Y if the field is required on the message sent to LX
  - N if it is optional
  - C if it is conditionally required.
  - R if it is not allowed and will result in a Reject. This will only be provided for fields which deviate from the standard LX FIX ROE

- Comments – LX-specific instructions

All tags in the incoming FIX message are validated only where specified.

3.3.2 New Order Single (35=D)

The new order message type is used by clients wishing to send single stock orders to Barclays.

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
	Standard Header		Y		*MsgType[35]="D"*
1	Account		N	Account values must be agreed with Barclays Service Desk.	Must be less than 64 Characters. Values longer than 64 characters will be rejected
11	ClOrdID	Unique identifier of the order as assigned by the client.	Y	Must be 40 characters or less.	
18	ExecInst	Execution Instructions for LX.	C	R = Primary Peg* P = Market Peg*	* Required for Pegged Orders (OrdType[40]='P')

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
				M = Mid-point Peg*	These are the only acceptable values. Any other values will result in an order rejection.
21	HandlInst		Y	1: Automated execution order, private, no Broker intervention	If omitted or any other values sent to LX will result in an order reject.
38	OrderQty	Number of shares	Y		Must be greater than or equal to 1 share. See LX FAQ and ATS-N for handling of odd and mixed lots.
40	OrdType		Y	2 = Limit P = Pegged*	* Pegged orders require ExecInst[18]= M, P, or R
44	Price	Price field is always required for Limit Orders and is also accepted for Pegged Orders.	C		Price must follow the Minimum Price Variance rules as dictated by RegNMS: Any price over $1 can have at maximum 2 decimals. Any price under $1 can have at maximum 4 decimals.
47	Rule 80A /Order Capacity		Y	A = Agency P = Principal	
54	Side		Y	Supported values: 1 = Buy 2 = Sell 5 = Sell Short 6 = Sell Short Exempt*	* Available only to broker-dealers who have been configured by Barclays.
55	Symbol	ETS (Exchange Traded Symbol	Y		Ticker symbol. The format of the symbol is native INET symbology. More information can be found at the following link: http://www.nasdaqtrader.com/Trader.aspx?id=CQSSymbolConvention
57	TargetSubID		N	**Liquidity Profiling** Set Tag 57 to value below to access the counterparty block feature on passive orders routed directly to LX:	LX MinTime and Subscriber Type Blocking are available only to Barclays Institutional Clients & Client Algo/Router Users.

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
				57 = LOW to interact only with low alpha takers	Barclays Institutional Clients & Algo/Router Users cannot use LX MinTime in conjunction with blocking based on Subscriber Types or Liquidity Profiling categories.
				57 = LOWMED to interact only with low and medium alpha takers	Additional supported values can be customized. Please contact your Barclays Sales representative for more information.
				57 = MED to interact only with medium alpha takers	
				57 = MEDHIGH to interact only with medium and high alpha takers	
				57 = HIGH to interact only with high alpha takers	
				57 = [NULL] to interact with all	
				LX MinTime	
				Barclays Institutional Clients & Algo/Router Users cannot use LX MinTime in conjunction with blocking based on Subscriber Types or Liquidity Profiling categories	
				57= MINTIME to limit interactions with LX direct subscribers orders that have rested on the LX order book for a minimum duration	
				57 = [NULL] to interact with all	
				Subscriber Type Blocking	
				Set Tag 57 to value below to access the Subscriber Type Blocking feature on passive or aggressive orders routed directly to LX:	
				57 = TYPE1 to interact only with Barclays Institutional Clients & Client Algo/Router Users	
				57 = TYPE12 to interact only with Barclays Institutional Clients & Client Algo/Router Users *and* Broker-Dealers	
				57 = TYPE14 to interact with Barclays Institutional Clients & Client Algo/Router Users and Barclays Trading Desks	
				57 = TYPE124 to interact only with Barclays Institutional Clients & Client Algo/Router Users, Broker-Dealers *and* Barclays Trading Desks	
				57 = [NULL] to interact with allNote: There is a 16 character limit on this tag	

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
59	TimeInForce	Specifies how long the order remains in effect.	N	0 = Day (Default if omitted) 3 = Immediate or Cancel	Absence of this field is interpreted as a Day Order. 0 = Day (Default if omitted)
60	TransactTime	Time of order creation. This will be used to conduct a stale order check.	Y	Time in UTC format including milliseconds.	LX expects TransactTime values to be in UTC. Any other format would lead to incorrect stale checks. Clients may send TransactTime values with microseconds, but LX will truncate the value to only use milliseconds.
63	SettlType	Indicates order settlement period.	N	0 = Regular Settlement	Any other value will cause the order to be rejected. 0 = Regular Settlement (Default if omitted)
110	MinQty	Minimum quantity of an order to be executed.	N	If Conditional, the minimum quantity to be conditionally matched.	If > order quantity (tag 38) and MinQtyInstructions (tag 9500) = A then the order will be accepted otherwise the order will be rejected
114	LocateReqd	Required for Short Sale (Side 54= 5) and Short Sale Exempt (Side 54= 6).	C	Tag 114 = N to indicate the broker is not required to locate. Tag 5700 is required when sending Tag 114 with a value of N.	For Broker Dealers Tag 114 is not required. For Non-Broker Dealers Tag 114 should be set to N when Tag 5700 is populated. 114 = Y will result in a reject.
115	OnBehalfOfCompID	ID used to identify the SubCustomer on the order. To be used in conjunction with SubscriberID	Y		To be assigned by Barclays
5700	LocateBroker	Required for Short Sale (Side 54= 5) and Short Sale Exempt (Side 54= 6).	C	Must be an identifier of a valid locate broker.	If the value provided is not part of our accepted Locate Broker list, the order will be rejected. If the LocateBroker field contains a list of values

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
		This field must contain an identifier of a valid locate broker as accepted by Barclays.			(delimited by either a Comma "," or a Hyphen "-"), LX will only validate the first entry in the list to ensure client has provided a valid Locate Broker. If value is not valid, LX will reject the order.A valid entry must be 2 – 4 characters. The client should work with the Barclays Service desk to ensure proper configuration if locates are not required on Short Sells. This field is not required for Broker/Dealer clients but if a Broker-Dealer Direct Subscriber sends a sell short order (tag 54 = 5) or sell short exempt order (tag 54 = 6) with tag 5700, the value will be validated against Barclays provided values.
6438	CrossInstructio n	Crossing instructions as decided by the subscriber.	N	N = No Restriction (allow all crossing) P = Do Not Cross With LEHM and LEHM Affiliates Principal (allow agency crosses	Sending an invalid value will reject the order
9140	PostOnly	Specifies the order will only match if adding liquidity		P = Post-Only	This tag is only applicable to firm orders. Sending this tag for any other order type will result in the order being rejected. A PostOnly order that is marketable upon receipt will be cancelled back
28002	NoLockCross	LX will not cross any orders with this feature enabled when its view of the NBBO is locked. Alternatively, this feature can	N	Y = Enabled (All orders will not cross if NBBO is locked) N = Disabled (All orders will cross if NBBO is locked)	The default behavior is orders will not cross in Locked markets. If NoLockCross is sent as N : this will override default behaviors and all orders can cross during a locked market This field can be defaulted at the client level.

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
		be disabled to allow orders to cross when the NBBO is locked.			
28001	TradeWithOddLotEnabled	Specify preference whether or not to allow this order to cross with odd lot order.	N	Y = Enabled (Order may cross with odd lot order) N = Disabled (Order will not cross with odd lot order)	The default behavior is for all orders to be able to cross with odd lot order. An odd lot order will not be subject to validation against TradewithOddLotEnabled. (Odd lot order with TradeWithOddLotEnabled = Y will be accepted and the tag will be ignored)
9500	MinQtyInstructions	Specifies the method by which MinQty instructions are to be enforced. Allowed on MinQty orders	N	A = Order becomes AON if Leaves < MinQty M = Cancel if Leaves < MinQty	Default will be to treat as AON if the leaves quantity < MinQty.
23013	AllowConditionals	Determines if the order is eligible to interact with conditionals (Conditional Eligible)	N	C = Match with Conditionals only F = Match with Firm orders only B = Match With Both (default)	If omitted, the default behavior is for Day orders to be eligible to interact with both and for IOC orders to be ineligible to interact with conditionals. Can be defaulted at the client level.
23003	SubscriberID	ID used to identify the Subscriber submitting the order. The Subscriber, in conjunction with the Subscriber's Subcustomer ID, uniquely identifies the trading participant.	Y		To be assigned by Barclays

3.3.3 New Single Conditional Order (35=D)

The new order message type is used by clients wishing to send single stock Conditional Orders to Barclays LX. Fix Tag 28001 (TradeWithOddLotEnabled) and 9500 (MinQtyInstructions) should not be sent on Conditional orders. If sent, the Conditional order will be rejected. Conditional orders will interact with other conditional orders as well as firm orders designated as conditional eligible subject to LiquidityProfiling/Counterparty blocking logic.

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
	Standard Header		Y		*MsgType[35]="D"*
18	ExecInst	Execution Instructions for LX.	C	Multi-value string separated by a space character. Required: R = Primary Peg** P = Market Peg** M = Mid-point Peg**	** Required for Pegged Orders (OrdType[40]='P')
38	OrderQty	Number of conditional shares to post in the order book.	Y		Must be greater or equal to round lot size. See LX FAQ for handling of odd and mixed lots.
59	TimeInForce	Specifies how long the order remains in effect.	N	0 = Day	Absence of this field is interpreted as a Day Order. All other TimeInForce will be rejected.
110	MinQty	Minimum quantity to be conditionally matched	N		The minimum quantity to be conditionally matched. Note: When used here, it only applies on Conditional Order, MinQty must also be resubmitted on Firm-Up.

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
115	OnBehalfOfCompID	ID used to identify the SubCustomer on the order. To be used in conjunction with SubscriberID	Y		To be assigned by Barclays
23012	ConditionalOrder		Y	C = Conditional Order	
23003	SubscriberID	ID used to identify the Subscriber submitting the order. The Subscriber, in conjunction with the Subscriber's Subcustomer ID, uniquely identifies the trading participant.	Y		To be assigned by Barclays

3.3.4 New Single Conditional Order, Firm-Up (35=D, 23014=FirmUpID)

The new order message type is used by clients wishing to send a firm-up of Conditional Orders to Barclays LX. Order characteristics (side, symbol and cross instruction) must match the original conditional order else the order will be rejected

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
	Standard Header		Y	*MsgType[35]="D"*	
	Required Fields		Y	*Fields required by LX as defined in the Rules of Engagement document.*	
18	ExecInst	Execution Instructions for LX.	N	Multi-value string separated by a space character.	Execution Instructions are supported as per the LX FIX ROE.
23012	ConditionalOrder		Y	F = Firm Up Order	
23014*	FirmUpID	Value from the Conditional Invite provided by LX.	Y		It is important that participants provide this ID accurately on Firm-Up orders so that LX can associate the order with a Conditional Match. The association with a Conditional Match controls the Timer and allows Barclays to accurately generate Conditional Order Metrics.
23003	SubscriberID	ID used to identify the Subscriber submitting the order. The Subscriber, in conjunction with the Subscriber's Subcustomer ID, uniquely identifies the trading participant.	Y		To be assigned by Barclays

23013	AllowConditionals	Determines if the order is eligible to interact with conditionals (Conditional Eligible)	N	F = Not eligible to interact with conditionals	Absence of this field is interpreted as not eligible to interact with conditionals.

Please note that a Cancel Acknowledgement for a New Order Single Conditional and a Conditional Invitation are both represented by the same order state values:

- *OrdStatus[39]="4"*
- *ExecType[150]="D"*

In order to distinguish between the two, please use the presence of FirmUpID MatchID[2301410283] to identify Conditional Invites. You can assume that without the presence of this field, the message is a Cancel Acknowledgement.

3.3.5 Order Cancel Request (35=F)

The order cancel request is used to request the cancellation of the remaining quantity of an existing order. An immediate response to this message will be sent:

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
	Standard Header		*Y*		*MsgType[35]="F"*
11	ClOrdID	Unique ID of cancel request.	Y	Must be 40 characters or less.	Format requirements specified in New Order – Single definition.
38	OrdQty		Y		
41	OrigClOrdID		Y		Must match the ClOrdID[11] of the previous order (NOT the initial order of the day) as assigned by the client, used to identify the previous order in cancel requests.
54	Side		Y		Must be the same as the original order.
55	Symbol		Y		Must be the same as the original order (if originally provided).
115	OnBehalfOfCompID	ID used to identify the SubCustomer on the order. To be used in conjunction with SubscriberID	Y		To be assigned by Barclays
23003	SubscriberID	ID used to identify the Subscriber submitting the order. The Subscriber, in conjunction with the Subscriber's Subcustomer ID, uniquely identifies the trading participant.	Y		To be assigned by Barclays
60	TransactTime	UTC Time stamp of the cancel creation.	Y		

3.3.6 Order Modification Request (35=G)

The Order Modification (Cancel/Replace) request is used to change the parameters of an existing order. Only the following can be modified:

- Price (Any price changes will result in a loss of position in the order book)
- OrderQty (Quantity increases will result in a loss of position in the order book)
  - Please note, replacing OrderQty to a value that is equal to or less than the CumQty will result in an Execution Report for a "Cancelled" (i.e., OrderStatus = 4, ExecType = 4).
- MinQty (MinQty changes will result in a loss of position in the order book).
- TradeWithOddLotEnabled and NoLockCross instructions

Any invalid replace request will result in a cancellation of the order from the order book. (e.g., a replace that attempts to change a pegged order to a limit order)

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
	Standard Header		Y		MsgType[35] = "G"
11	ClOrdID	Unique identifier provided by the client for the modification request.	Y	Must be 40 characters or less	Refer to formatting requirements of New Order – Single.
21	HandlInst		Y	1: Automated execution order, private, no Broker intervention	If omitted or any other values sent to LX will result in an order cancellation.
38	OrderQty	Order Quantity.	Y		This can be increased, decreased, or remain the same as the original order quantity. Attempts to replace to an OrderQty less than the order's filled quantity will result in a cancellation of the order.
40	OrdType		Y		Must be the same as the original order.* * Modifying from Pegged to Limit requires a Cancel and New rather than a Replace.

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
41	OrigClOrdID		Y		ClOrdID[11] of the previous order (NOT the initial order of the day) as assigned by the client. Used to identify the previous order in modification requests.
44	Price		C		The Limit or Pegged Limit Price. This can be increased, decreased, or remain the same as the original order price.
54	Side		Y		Must be the same as the original order.
55	Symbol		Y		Must be the same as the original order.
60	TransactTime	Time of replace creation.	Y		Refer to New Order - Single, will be used for stale order checks.
110	MinQty		C		If this field was present on the original order, and missing on the Replace, this will remove the MinQty restriction.
114	LocateReqd		C		Required for Short Sale (Side 54=5) and Short Sale Exempt (Side 54=6). Requirements are the same as new order.
115	OnBehalfOfCompID	ID used to identify the SubCustomer on the order. To be used in conjunction with SubscriberID	Y		To be assigned by Barclays

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
23003	SubscriberID	ID used to identify the Subscriber submitting the order. The Subscriber, in conjunction with the Subscriber's Subcustomer ID, uniquely identifies the trading participant.	Y		To be assigned by Barclays
23013	AllowConditionals	Determines if the order is eligible to interact with conditionals (Conditional Eligible)	N	C = Match with Conditionals only F = Match with Firm orders only B = Match With Both (default)	This tag value must be consistent on a Cancel/Replace message associated with the original order. A different value will result in a replace reject and a cancellation of the original order.
28001	TradeWithOddLotEnabled	Specify preference whether or not to allow this order to cross with odd lot order.	C	Y = Enabled (Order may cross with odd lot order) N = Disabled (Order will not cross with odd lot order)	If this field was present on the original order, and missing on the Replace the default behaviour will be applied.,
28002	NoLockCross	LX will not cross any orders with this feature enabled when its view of the NBBO is locked. Alternatively, this feature can be disabled to allow orders to cross when the NBBO is locked.	C	Y = Enabled (All orders will not cross if NBBO is locked) N = Disabled (All orders will cross if NBBO is locked)	If this field was present on the original order, and missing on the Replace the default behaviour will be applied.

Tag	Field Name	Description	Required (Y/N/C)	Supported Values / Formats	Notes
5700	LocateBroker		C		Amends of an existing order follows the same rules as a new order. Clients can amend the order with the original valid broker or a new valid broker. An invalid broker or blank will result in the rejection of an amend. (and the order will be cancelled in LX Ocean).

3.4 FIX Application Messages (Outgoing – Barclays to Client)

Description	Tag = Value
Execution Report	MsgType[35]="8"
Order Cancel Reject	MsgType[35]="9"

3.4.1 Execution Report (35=8)

The Execution Report message is used to:

1. Acknowledge the receipt of an order/Conditional Order
2. Acknowledge the modification of an existing order/Conditional Order (i.e., accept Cancel/Replace requests)
3. Acknowledge the cancellation of an existing order/Conditional Order
4. Convey information about an order crossing in LX (i.e., Fills) or potential match (i.e., Conditional Invite)
5. Reject orders/Conditional Orders, Cancels, or Order Modification requests

All fields supplied in the execution reports are listed below.

Tag	Field Name	Comments
	Standard Header	*MsgType[35]="8"*
1	Account	Value as provided by the client on the order.
6	AvgPx	Calculated average price of all fills on this order. "0" always on a conditional order.
11	ClOrdID	Unique identifier as provided by the client.
14	CumQty	Total quantity (e.g., number of shares) filled. "0" always on a conditional order.
17	ExecID	Unique identifier for a message as generated by LX.
20	ExecTransType	Identifies transaction type 0 = New 1 = Cancel
29	LastCapacity	Broker capacity in order execution. Not populated for Conditional Invites. Valid Values: 2 = for "Cross as Agent". The contra on your execution was a Barclays client order (institution or broker-dealer) 3 = for "Cross as Principal". The contra on your execution was a Barclays firm order (principal or proprietary)
30	LastMkt	If enabled, LX will return "BARX" which is the MIC for LX.
31	LastPx	Price of this last fill. Set to 0 for Conditional Invites.
32	LastQty	Quantity of shares bought/sold on this last fill. Set to 0 for Conditional Invites.
37	OrderID	Unique identifier generated by LX. This ID can change across Cancels and Modifications.
38	OrderQty	Value as provided by the client on the order or replace.
39	OrdStatus	Valid Values: 0 = New 1 = Partial Fill 2 = Filled 4 = Cancelled (On Cancel Acks and Invites*) 5 = Replaced 8 = Rejected

Tag	Field Name	Comments
40	OrdType	Value as provided by the client on the order or replace.
41	OrigClOrdID	ClOrdID of the previous order when cancelling or replacing an order.
44	Price	Value as provided by the client on the order or replace.
47	Rule 80A /Order Capacity	A = Agency P = Principal
54	Side	Value as provided by the client on the order or replace.
55	Symbol	Value as provided by the client on the order or replace.
57	TargetSubID	
58	Text	May be populated with descriptive text provided by LX.
59	TimeInForce	0 = Day 3 = Immediate or Cancel
60	TransactTime	Represents the time that LX generated the message. For Fills, this will be the time that a trade occurred.
103	OrdRejReason	0 = Broker option 6 = Duplicate Order
110	MinQty	Minimum quantity of an order to be executed.
128	DeliverToCompID	Value as provided in Tag 115 by the client on the order.
150	ExecType	Represents the type of Execution Report. Valid values: 0 = New 1 = Partial Fill; 2 = Fill 4 = Cancelled (On Cancel Acks and Invites*) 5 = Replaced 8 = Rejected C = Expired D = Restated
151	LeavesQty	Quantity open for further execution. "0" Always for Conditional Orders.

Tag	Field Name	Comments
378	ExecRestatementReason	Provided when ExecType = D. Valid value: 5 = Partial decline of OrderQty
548	CrossID	Identifier for a partial/full fill. Must be unique during a given trading day.
851	LastLiquidityInd	Indicator to identify whether this fill was a result of a liquidity provider providing or liquidity taker taking the liquidity. Not populated for Conditional Invites. 1 = Added Liquidity 2 = Removed Liquidity
5700	LocateBroker	
23003	SubscriberID	Value as provided by the client on the order.
23012	ConditionalOrder	Valid values: C = Conditional Order F = Firm Up Order R = Firm Up Request
23014*	FirmUpID	Day-unique ID for this conditional match. Should be provided on the subsequent Firm-Up order. Present on all Conditional Invites.

* *Please note that a Cancel Acknowledgement for a New Order Single Conditional and a Conditional Invitation are both represented by the same order state values:*

- *OrdStatus[39]="4"*
- *ExecType[150]="D"*

In order to distinguish between the two, please use the presence of FirmUpID *MatchID[1028323014] to identify Conditional Invites. You can assume that without the presence of this field, the message is a Cancel Acknowledgement.*

3.4.2 Order Cancel Reject (35=9)

The order cancel reject message is issued by LX upon receipt of a cancel request or cancel/replace request message which cannot be honored. Requests to change price or quantity are executed only when an outstanding quantity exists. Filled orders cannot be changed (i.e., quantity reduced or price change.)

Tag	Field Name	Comments
	Standard Header	*MsgType[35]="9"*
1	Account	As specified in new order message
11	ClOrdID	Unique identifier as provided by the client.

Tag	Field Name	Comments
37	OrderID	Unique identifier generated by LX. This ID can change across Cancels and Modifications. .
39	OrdStatus	OrdStatus value after this cancel reject is applied. Refer to ExecutionReport for valid values.
41	OrigClOrdID	ClOrdID that could not be cancelled/replaced.
55	Symbol	Value as provided by the client on the order or replace.
58	Text	May be populated with descriptive text provided by LX.
60	TransactTime	Time of CancelReject creation.
102	CxlRejReason	0 = Too late to cancel 1 = Unknown order
434	CxlRejResponseTo	Identifies the type of request that a Cancel Reject is in response to. 1 = Order Cancel Request 2 = Order Cancel/Replace Request

4. Example Fix Workflow

4.1 Example 1 (New, Replace, Invite, Firm-Up)

1. NewOrderSingleConditional

Scenario:

- Conditional Buy 100,000 shares
- IBM
- Limit 196.11
- Minimum execution quantity of 50,000 shares

8=FIX.4.2|9=196|**35=D**|34=28494|49=TESTID|56=LATS|52=20121219-16:30:00.000
|**11=ClOrdID0001**|**23012=C**|21=1|55=IBM|54=1|44=196.11|**38=100000**|40=2|**59=0**|47=A|**110=50000**
|60=20121219-16:30:00.000|10=038

2. New Acknowledgement

Scenario: LX has accepted the Conditional Order and posted it on the Conditional Order Book. Conditional Order details are echoed back such as Side, Symbol, Price.

8=FIX.4.2|9=0181|35=8|34=28504|52=20121219-16:30:00.001|49=LATS|56= TESTID
|55=IBM|**11=ClOrdID0001**|17=000A000A1|37=226597006100000|38=100000|**39=0**|40=2|44=196.11|54=1
|60=20121219-16:30:00.001|**150=0**|110=50000|10=224

3. Replace Request

Scenario: Client replaces the minimum execution quantity on their Conditional Order

8=FIX.4.2|9=196|**35=G**|34=28697|49= TESTID |56=LATS|52=20121219-16:30:00.002
|11=ClOrdID0002|41=ClOrdID0001|**23012=C**|21=1|55=IBM|54=1|44=196.11|**38=100000**|40=2|**59=0**|47=A
|**110=25000**|60=20121219-16:30:00.002|10=130

4. Replace Acknowledgement

Scenario: LX has accepted the replacement Conditional Order and posted it on the Conditional Order Book. Conditional Order details are echoed back such as Side, Symbol, Price.

8=FIX.4.2|9=0193|35=8|34=28708|52=20121219-16:30:00.003|49=LATS|56= TESTID
|55=IBM|**11=ClOrdID0002**|17=000A000A2|37=226597006100001|38=100000|**39=0**|40=2|44=196.11|54=1
|60=20121219-16:30:00.001|**150=5**|**110=25000**|10=224

5. Conditional Invitation

Scenario: LX has found a potential crossing opportunity and is inviting the participant to respond with a Firm-Up order.

8=FIX.4.2|9=0209|35=8|34=0028723|52=20121219-16:30:00.004|49=LATS|56= TESTID |
55=IBM|11=**ClOrdID0002**|17=0000ZZZ0Z|**6=0**|**14=0**|31=0|32=0|37=226597006100001|38=100000|**39=4**|40=2|
44=196.11|54=1|60=20121219-16:30:00.004|**150=D**|**151=0**|**23014=FIRMUPIDID0001**|23012=R|10=223

6. **Firm-Up Response**

Scenario: Participant is responding to a Conditional Invitation with a Firm-Up IOC Order

> 8=FIX.4.2|9=250|**35=D**|34=28494|49= TESTID |56=LATS|52=20121219-16:30:00.005
> |**11=ClOrdID0003**|21=1|55=IBM|54=1|44=196.11|38=45000|40=2|59=3|47=A|
> |**23014=FIRMUPID0001**|60=20121219-16:30:00.005|23012=F|23013=F|10=038

7. **Assume that the Firm-Up order was Acknowledged, OrderID=226597006140009**

8. **Partial Fill**

Scenario: LX has crossed the Firm-Up order with another Firm-Up order or existing Firm liquidity in the order book. The customer was able to cross 40,000 shares of the ordered 45,000, and received a price improved fill at 196.101

> 8=FIX.4.2|9=0310|35=8|34=0028723|52=20121219-16:30:00.006|49=LATS|56= TESTID
> |55=IBM|**11=ClOrdID0003**|17=0000ZZZ0Y|**29=3**|**31=196.101**|**32=40000**|37=226597006140009|38=45000
> |**39=1**|40=2|44=196.11|54=1|60=20121219-16:30:00.006|**150=1**|**151=5000**|**851=1**|10=123

9. **Conditional Expiration**

Scenario: Given that the conditional response is an IOC order that is no longer crossable / partially filled the order will be immediately cancelled to allow the participant to trade these shares in a different manner.

> 8=FIX.4.2|9=0310|35=8|34=0028724|52=20121219-16:30:00.0007|49=LATS|56= TESTID
> |55=IBM|**11=ClOrdID0003**|17=0000ZZZ0X||37=226597006140009|38=45000|**39=4**|40=2|44=196.11|54=1
> |60=20121219-16:30:00.0;06|**150=D**|151=0|10=124

Note: If the conditional response is an IOC order that is crossable and has not been partially filled the open shares (firm) will remain on the LX book until the completion of the conditional match timer. Upon expiration of the match timer LX will cancel the order to allow the participant to trade these shares in a different manner. This will be based on a configurable timer in the matching engine (currently defaulted to 100 milliseconds).

4.2   Example 2 (New, Cancel)

1. **NewOrderSingleConditional**

Scenario:

- Conditional Buy 100,000 shares
- IBM
- Limit 196.11
- Minimum execution quantity of 50,000 shares

> 8=FIX.4.2|9=196|**35=D**|34=28494|49= TESTID |56=LATS|52=20121219-16:30:00.000
> |**11=ClOrdID0001**|**23012=C**|21=1|55=IBM|54=1|44=196.11|**38=100000**|40=2|**59=0**|47=A|**110=50000**|60=20121219-16:
> 30:00.000|10=038

2. **New Acknowledgement**

Scenario: LX has accepted the Conditional Order and posted it on the Conditional Order Book. Conditional Order details are echoed back such as Side, Symbol, Price.

> 8=FIX.4.2|9=0181|35=8|34=28504|52=20121219-16:30:00.001|49=LATS|56= TESTID
> |55=IBM|**11=ClOrdID0001**|17=000A000A1|37=226597006100000|38=100000|**39=0**|40=2|44=196.11|54=1|60=201212
> 19-16:30:00.001|**150=0**|10=224

3. **Cancel Request**

> 8=FIX.4.2|9=196|**35=F**|34=28697|49= TESTID |56=LATS|52=20121219-16:30:00.002
> |11=ClOrdID0002|41=ClOrdID0001|**23012=C**|21=1|55=IBM|54=1|44=196.11|**38=100000**|40=2|**59=0**|47=A
> |**110=25000**|60=20121219-16:30:00.002|10=130

4. **Cancel Acknowledgement**

Scenario: LX has accepted the cancellation Conditional Order and removed it from the Conditional Order Book. Conditional Order details are echoed back such as Side, Symbol, Price.

> 8=FIX.4.2|9=0193|35=8|34=28708|52=20121219-16:30:00.003|49=LATS|56= TESTID
> |55=IBM|**11=ClOrdID0002**|17=000A000A2|37=226597006100001|38=100000|**39=4**|40=2|44=196.11|54=1|60=201212
> 19-16:30:00.001|**150=4**|10=224

5. Appendix

5.1 Location of LX and connectivity

The LX matching engine that is hosted by NASDAQ OCEAN platform will be hosted in the Equinix NY4 Data Center in Secaucus, NJ

Cross connections to LX in NY4 are available to all clients by request.

> To order a cross-connect for LX in NY4, please email coloadmin@nasdaq.com

Ocean Cancel / Reject Codes

i. Reject Codes

The Rejected Order Reasons are described in the following table:

Reason	Explanation
A	Other
B	Invalid Category
C	Invalid Capacity
D	Exceeds Credit Limit
E	Invalid Peg Type
F	Invalid Side
G	Invalid MinQty
H	Invalid MinQty Instruction
I	Invalid Subscriber
J	Invalid Subcustomer
K	Invalid Quantity
L	LATS Not Accepting
M	Invalid Symbol
N	PRM Not Configured
O	Invalid OrdType

Reason	Explanation
P	Invalid Post Only
Q	Invalid Price
R	Invalid Locate Required
S	Shares Exceed Threshold
T	Too Late To Cancel
U	Invalid Handling Instruction
V	Missing ClOrdID
W	Duplicate ClOrdID
X	Invalid TIF
Y	Kill Switch
Z	Symbol Not Trading
a	Short Sell Restricted
c	Invalid Self Match
e	Invalid Locate Broker
f	Firm Up Request Expired
j	Invalid Allow Conditional
s	Invalid IOI Eligible
t	Invalid Cross Instruction
128	Invalid TIF For ALO(PostOnly)
129	Invalid PegType For ALO(PostOnly)
130	Conditional not allowed for ALO (PostOnly)
131	Locate Broker Required
132	Invalid Settlement Type
133	Invalid Order Restriction
243	MinTime not allowed
246	Invalid Client Segment
247	Invalid No Lock Cross

Reason	Explanation
248	Invalid Trade With Odd Lot
249	Invalid White/Black List Name
250	Invalid Liquidity Provide Mask
251	Invalid Liquidity Take Mask
252	Odd Lot Not allowed for Conditional

ii. Risk Reject Codes

The Pre-Trade Risk Management Reasons are described in the following table:

Reason	Explanation
1	Exceeded Max Shares per Order
2	Exceeded Max Order Rate
3	Exceeded Dup Orders
4	Fat Finger Price
5	Exceeded Max Notional Value per Order
6	Exceeded Max Aggregated Orders Volume
7	Exceeded Max Order Count

iii. Cancel Codes

The Cancel Order Reasons are described in the following table:

Reason	Explanation
A	Partial Cancel
C	Conditional Order expired
H	Halted
I	Immediate or Cancel Order
L	OddLot
M	Unsolicited cancel for Marketable PostOnly order
O	MinExec
R	Replace Out
S	Supervisory. The order was manually cancelled or reduced by a supervisory terminal
T	Timeout. The Time In Force for this order has expired
U	User requested cancel. Sent in response to a Cancel Request Message
X	Cancel on Disconnect

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