



# LTSE FIX Specification

For use with FIX Protocol Version 4.2

Version: 1.4.1

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*Abstract*

*This document provides information on business descriptions, programming interfaces and protocols for connecting client applications to the Long-Term Stock Exchange trading system using FIX protocol.*

*Please note that some functionality described herein may not be available.*

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## Overview

This specifications document outlines the format in which participants to LTSE should construct FIX messages for order entry as well as the expected format for execution messages received back from LTSE to conform to the exchange standard. LTSE supports FIX 4.2 as a base protocol, available at <http://www.fixprotocol.org/> with LTSE-specific modifications detailed in this specification document.

## LTSE FIX Certification

Participants will be required to pass a certification test in an environment using the current production code track designated by the Exchange. Send an email to [techops@longtermstockexchange.com](mailto:techops@longtermstockexchange.com) for connectivity and certification requirements.

## Hours of Operation

Orders may be entered on the system during the Pre-Market, Regular Market and Post-Market Sessions, collectively known as "System Hours".

Orders are never routed away from the Exchange.

Session	Start and End Time (all times are Eastern Standard)
Pre-Market Session	8:00 a.m. – 9:30 a.m.
Regular Market Session	9:30 a.m. – 4:00 p.m.
Post-Market Session	4:00 p.m. – 5:00 p.m.

# Message Types

All messages below will be preceded by the standard FIX header and followed by the standard FIX trailer. Bolded text indicates required tags for the message type in question, unbolded text indicates optional tags.

## FIX Admin Supported Messages

Message Name	MsgType
Heartbeat	0
Logon	A
Test Request	1
Resend Request	2
Reject	3
Sequence Reset	4
Logout	5

## Session Messages

FIX participants should send the tags for Sender and Target CompID in the message header.

Tag	Name	Information
49	SenderCompID	The ID of the fix client given by LTSE
56	TargetCompID	The exchange ID "LTSE"

Participants should expect to receive these tags in the message header.

The TargetCompID "LTSE" will be used by the Exchange.

## System Event Message

Tag	Field Name	Details	Guidelines
35	MsgType	h	
<b>336</b>	<b>TradingSessionID</b>		
<b>340</b>	<b>TradSesStatus</b>	2 = Start of Day 3 = End of Day	Event Codes: "2" = Start of Day – This is always the first message each day. It indicates that LTSE is open and ready to start accepting orders. "3" = End of Day – This indicates that LTSE is now closed and will not accept any new orders, replaces or cancelations in this session. There will be no further executions during this session

## Logon

The logon message authenticates a user establishing a connection to a remote system. Must always be initiated by Subscriber to LTSE.

Tag	Field Name	Details	Guidelines
Standard Header			MsgType = A
98	<b>EncryptMethod</b>	0	
108	<b>HeartBtInt</b>		interval in seconds Low values (i.e.30) are recommended
Standard Trailer			

## Heartbeat

The Heartbeat monitors the status of the communication link and identifies when the last of a string of messages was not received.

Tag	Field Name	Details	Guidelines
Standard Header			MsgType = 0
112	<i>TestReqID</i>		Required when the heartbeat is the result of a Test Request message
Standard Trailer			

## Test Request

The test request message forces a heartbeat from the opposing application.

Tag	Field Name	Details	Guidelines
Standard Header			MsgType = 1
112	<b>TestReqID</b>		Test identifier
Standard Trailer			

## Resend Request

Tag	Field Name	Details	Guidelines
Standard Header			MsgType = 2
7	<b>BeginSeqNo</b>		Message sequence number of first message in range to be resent
16	<b>EndSeqNo</b>		Message sequence number of the last message in range to be resent. If request is for a single message BeginSeqNo = EndSeqNo. If request is for all messages subsequent to a particular message, EndSeqNo = "0" (representing infinity).
Standard Trailer			

## Session Reject

The reject message should be issued when a message is received but cannot be properly processed due to a session-level rule violation.

Tag	Field Name	Details	Guidelines
Standard Header			MsgType = 3
<b>45</b>	<b>RefSeqNum</b>		MsgSeqNum of rejected message
371	RefTagID		
372	RefMsg Type		
373	SessionRejectReason	Code to identify reason for a session-level Reject message. 0=Invalid tag number 1=Required tag missing 2=Tag not defined for this message type 3=Undefined Tag 4=Tag specified without a value 5=Value is incorrect (out of range) for this tag 6=Incorrect data format for value 7=Decryption problem 8=Signature problem 9=CompID problem 10=SendingTime accuracy problem 11=Invalid MsgType	
58	Text		
354	EncodedTextLen		
355	EncodedText		
Standard Trailer			

## Sequence Reset

The sequence reset message is used by the sending application to reset the incoming sequence number on the opposing side.

Tag	Field Name	Details	Guidelines
Standard Header			MsgType = 4
<b>36</b>	<b>NewSeqNo</b>		Next sequence number to expect
123	GapFillFlag		Indicates that the Sequence Reset message is replacing administrative or application messages which will not be resent. Y=Gap Fill Message, MsgSeqNum field valid
Standard Trailer			

## Logout

Disconnection without a logout message indicates an abnormal condition

Tag	Field Name	Details	Guidelines
Standard Header			MsgType = 5
58	Text		
Standard Trailer			

## Risk Functionality

The system will have cancel-on-disconnect functionality for all sessions. Open orders at the Exchange for a participant's FIX session will automatically cancel if the session is disconnected.

Notional accumulated exposure risk controls can be configured for a participant or clearing firm's broker correspondent across MPIDs, by MPID, by session, or in combination, per clearing firm relationship or participant, as applicable. When triggered new orders will automatically reject and all open orders canceled when the notional exposure has exceeded a predetermined limit. The notional Risk Controls may be increased or decreased on an intra-day basis by a Member or the clearing firm of a Member, as applicable.

Risk Controls may be optionally elected by a Member or the clearing firm of a Member.

## Trading Messages

### Single Order

#### Market

Must have a TIF of IOC or DAY.

IOC can be enriched with MinQty.

ISOs must be marked with a TIF of IOC and are not compatible with MinQty.

Market Orders marked as DAY will be queued during Pre-Market Session and executed upon transitioning to Regular Market, but rejected during Post-Market Session. Market Orders marked IOC will be rejected during Pre-Market Session and Post-Market.

Tag	Field Name	Details	Guidelines
StandardHeader			MsgType = D
1	Account		Trade Account. Customer defined up



			to 16 characters.
11	<b>ClOrdID</b>	Unique identifier, per session, per trading day for Order as assigned by the Member	Max length: 20 chars
18	<b>ExecInst</b>	f=ISO (executes on LTSE) i=LTSE Only	[f]=ISO Not compatible with MinQty, ISO only compatible with TIF of IOC
21	<b>HandInst</b>	Instructions for order handling. Required by FIX. Must always set to: 1= Automated execution order, private, no Broker intervention	
38	<b>OrderQty</b>	Number of shares ordered	1-10,000,000
40	<b>OrdType</b>	1=Market	
47	<b>OrderCapacity</b>	A=Agency P=Principal R=Riskless Principal	
54	<b>Side</b>	Side of Order 1=Buy 2=Sell Long 5=Sell Short 6=Sell Short Exempt	LocateReqd (114)=[N] must be populated for [5]=Sell Short and [6]=Sell Short Exempt
55	<b>Symbol</b>	Ticker Symbol	The entire symbol (root and suffix, if applicable) needs to be sent if using Nasdaq symbology.
59	<b>TimeInForce</b>	3=IOC 0=Day	Market Orders marked as DAY will be queued during Pre-Market Session and executed upon transitioning to Regular Market, but rejected during Post-Market Session. Market Orders marked IOC will be rejected during Pre-Market Session and Post-Market.
60	<b>TransactTime</b>	Time of order creation expressed in UTC	
110	<b>MinQty</b>		Only available for use with IOC orders
114	<b>LocateReqd</b>	Required for Sell Short and Sell Short Exempt orders. N=Locate not required	[N] is the only accepted valid value. Lack of (114) or values other than 114=[N] for Sell Short or Sell Short Exempt orders will be rejected.
7928	<b>Anti-Internalization Group ID</b>	2 character ID preventing orders that share the same value from executing against each other. Requires Anti-Internalization to be enabled at the port level	Each character can be "0-9", "A-Z", "a-z". Case sensitive (i.e. 5B != 5b). "--" signifies "free-to-trade" (AntiInternalization disabled for this order)
58	<b>Text</b>		
<b>StandardTrailer</b>			

## Limit

Can be enriched with MinQty, or can be coded as an ISO (subject to guidelines below).

Tag	Field Name	Details	Guidelines
35			MsgType = D
1	Account		Trade Account. Customer defined up to 16 characters.
11	ClOrdID	Unique identifier, per session, per trading day for Order as assigned by the Member	Max length: 20 chars
18	ExecInst	f=ISO (executes on LTSE) i=LTSE Only	[f]=ISO Not compatible with MinQty, ISO only compatible with TIF of IOC
21	HandInst	Instructions for order handling. Required by FIX. Must always set to: 1= Automated execution order, private, no Broker intervention	
38	OrderQty	Number of shares ordered	1-10,000,000
40	OrdType	2=Limit	
44	Price	The MPV for orders entered into the System shall be \$0.01 for orders priced \$1.00 or greater, and \$0.0001 for orders priced below \$1.00.	
47	OrderCapacity	A=Agency P=Principal R=Riskless Principal	
54	Side	Side of Order 1=Buy 2=Sell Long 5=Sell Short 6=Sell Short Exempt	LocateReqd (114)=[N] must be populated for [5]=Sell Short and [6]=Sell Short Exempt
55	Symbol	Ticker Symbol	The entire symbol (root and suffix, if applicable) needs to be sent if using Nasdaq symbology.
59	TimeInForce	0=Day (Regular Market Session: 9:30am – 4:00pm) 3=IOC 5 = Good 'til Extended Time (GTX) 6=Good 'til Time (System Hours: 8:00am – 5:00pm) (GTT) M=System Hours (System Hours: 8:00am – 5:00pm) (SYS)	[0]=Day orders can be sent, and will be acknowledged, before the start of continuous trading at 9:30am, but will only be active starting 9:30am [6]=Good 'til Time requires ExpireTime (126) All unexecuted orders at end of corresponding trading sessions will receive Unsolicited Cancels.
60	TransactTime	Time of order creation expressed in UTC	
114	LocateReqd	Required for Sell Short and Sell Short Exempt orders. N=Locate	[N] is the only accepted valid value. Lack of (114) or values other than

		not required	114=[N] for Sell Short or Sell Short Exempt orders will be rejected.
7928	Anti-Internalization Group ID	2 character ID preventing orders that share the same value from executing against each other. Requires Anti-Internalization to be enabled at the port level	Each character can be "0-9", "AZ", "a-z". Case sensitive (i.e. 5B != 5b). "--" signifies "free-to-trade" (AntiInternalization disabled for this order)
126	<i>ExpireTime</i>		UTCTIMESTAMP Required if TimeInForce=6 (Good 'til Time)
58	Text		
Standard Trailer			

## Order Cancel / Replace Request

Do not use this message to cancel the remaining quantity of an existing order. Amendable fields include Quantity and Price.

Tag	Field Name	Details	Guidelines
35			MsgType = G
11	<b>ClOrdID</b>		Unique ID of cancel request
18	<b>ExecInst</b>		Must match original ExecInst
21	<b>HandInst</b>	Instructions for order handling. Required by FIX. Must always set to: 1= Automated execution order, private, no Broker intervention	
38	<b>OrderQty</b>	Must match original order quantity	Cannot be less than currently executed quantity
40	<b>OrderType</b>		Must match original OrdType
41	<b>OrigClOrdID</b>		ClOrdID referencing the order to be cancelled
47	<b>OrderCapacity</b>		Must match original OrderCapacity
54	<b>Side</b>		Must match original Side
55	<b>Symbol</b>		Must match original Symbol
59	<b>TimeInForce</b>		Must match original TimeInForce
60	<b>TransactTime</b>		Time of cancel/replace creation expressed in UTC
44	Price		Requested price for the order to be amended to
Standard Trailer			

## Order Cancel Request

This message type is used to cancel all of the remaining quantity of an existing order.

Tag	Field Name	Details	Guidelines
35			MsgType = F
11	<b>ClOrdID</b>		Unique ID of cancel request
41	<b>OrigClOrdID</b>		ClOrdID referencing the order to be cancelled
54	<b>Side</b>		Must match original side.
55	<b>Symbol</b>		Must match original symbol
60	<b>TransactTime</b>		Time of cancel/replace creation expressed in UTC
Standard Trailer			

## Order Cancel Request Reject

In the case of an order that is no longer known to the system as open, a reject message will be sent to the participant.

Tag	Field Name	Details	Guidelines
35			MsgType = 9
11	<b>ClOrdID</b>		Unique ID of cancel request
37	<b>OrderID</b>		None
39	<b>OrdStatus</b>	8	This is the reject value number
41	<b>OrigClOrdID</b>		ClOrdID referencing the order to be cancelled
102	<b>CxlRejReason</b>	1	Meaning is "unknown order"
434	<b>CxlRejResponseTo</b>	1 = order cancel request 2 = order cancel replace request	
Standard Trailer			

## Execution Report

In addition to the below fields common to all Execution Reports from LTSE, please see sections below for Order Status specific fields.

The execution report message is used to:

1. Confirm the receipt of an order
2. Confirm changes to an existing order (i.e. accept cancel and replace requests)

3. Relay order status information
4. Relay fill information on working orders
5. Reject orders
6. Trade Bust

Each execution message will contain information that will describe the current state of the order and execution status as understood by LTSE.

## Execution Report Message

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
1	Account		Trade Account. Customer defined up to 16 characters.
6	<b>AvgPrice</b>		Calculated average price of all fills on this order
11	<b>ClOrdID</b>		Will match confirmed ClOrdID of current order chain
14	<b>CumQty</b>		Total number of shares filled
17	<b>ExecID</b>		Unique identifier of execution message
18	<b>ExecInst</b>		Will match original order
37	<b>OrderID</b>		Unique LTSE Order ID
38	OrderQty		Will reflect last accepted value
40	<b>OrdType</b>		Will match original order
47	<b>OrderCapacity</b>		Will match original order
54	<b>Side</b>		Will match original order
55	<b>Symbol</b>		Will match original order
59	TimeInForce		Will match original order
60	<b>TransactTime</b>		Time of execution creation (in UTC)
151	<b>LeavesQty</b>		Number of shares open for further execution.
9730	TradeLiquidityIndicator	A = add R = remove	Only for partially filled or filled orderStatus
Standard Trailer			

## Acknowledgement

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
20	<b>ExecTransType</b>	0=New	
39	<b>OrderStatus</b>	0=New	
150	<b>ExecType</b>	0=New	
151	LeavesQty	OrderQty	
Standard Trailer			

## Partially Filled

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
<b>20</b>	<b>ExecTransType</b>	0=New	
30	LastMkt	Market of execution for last fill	
31	LastPx	Price of this (last) fill.	
32	LastShares	Quantity of shares executed on this (last) fill.	
<b>39</b>	<b>OrderStatus</b>	1=Partially Filled	
<b>150</b>	<b>ExecType</b>	1=Partially Filled	
151	LeavesQty	OrderQty - CumQty	
Standard Trailer			

## Filled

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
<b>20</b>	<b>ExecTransType</b>	<b>0=New</b>	
30	LastMkt		Market of execution for last fill
31	LastPx		Price of this (last) fill.
32	LastShares		Quantity of shares executed on this (last) fill.
<b>39</b>	<b>OrderStatus</b>	<b>2=Filled</b>	
<b>150</b>	<b>ExecType</b>	<b>2=Filled</b>	
151	LeavesQty	0	
Standard Trailer			

## Canceled

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
<b>20</b>	<b>ExecTransType</b>	0=New	
31	LastPx	0.0	
32	LastShares	0	
<b>39</b>	<b>OrderStatus</b>	4=Cancelled	
41	OrigClOrdID	ClOrdID used to identify the referenced order in cancel request.	
<b>150</b>	<b>ExecType</b>	4=Cancelled	
151	LeavesQty	0	
Standard Trailer			

## Unsolicited Cancel

### Replaced

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
<b>20</b>	<b>ExecTransType</b>	0=New	
31	LastPx	0.0	
32	LastShares	0	
<b>39</b>	<b>OrderStatus</b>	5=Replaced	
41	OrigClOrdID		ClOrdID used to identify the referenced order in cancel request.
<b>150</b>	<b>ExecType</b>	5=Replaced	
151	LeavesQty	OrderQty - CumQty	
Standard Trailer			

### Rejected

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
<b>20</b>	<b>ExecTransType</b>	0=New	
31	LastPx	0.0	
32	LastShares	0	
<b>39</b>	<b>OrderStatus</b>	8=Rejected	
103	OrdRejReason		Code to identify reason for order rejection
<b>150</b>	<b>ExecType</b>	8=Rejected	
151	LeavesQty	0	
Standard Trailer			

### Trade Bust

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
<b>6</b>	AvgPx		Will match original value
<b>11</b>	ClOrdID		Will match original value
<b>14</b>	CumQty		Total number of shares filled
<b>17</b>	ExecID		Will match original execution
<b>18</b>	ExecInst		Will match original order
<b>20</b>	ExecTransType	1=Cancel	Will default to cancel

37	OrderID		Will match original value
38	OrderQty		Will match original value
39	OrdStatus	1= Partial Fill; 2=Filled	Will match original value
40	OrdType		Will match original value
44	Price		Will match original value
47	OrderCapacity		Will match original value
54	Side		Will match original value
55	Symbol		Will match original value
59	TimeInForce		Will match original value
60	TransactTime		Time of execution creation (in UTC)
75	TradeDate		Value will be date time in UTC
150	ExecType	4=Canceled	Will default to canceled
151	LeavesQty		Will match original value
Standard Trailer			

## Appendix: A - Standard Header and Trailer

### Header

Tag	Field Name	Details	Guidelines
8	<b>BeginString</b>		
9	<b>BodyLength</b>		
35	<b>MsgType</b>		
49	<b>SenderCompID</b>		
56	<b>TargetCompID</b>		
34	<b>MsgSeqNum</b>		
43	PossDupFlag	Optional	
97	PossResend	Optional	
52	<b>SendingTime</b>		
122	OrigSendingTime	Optional	

### Trailer

Tag	Field Name	Details	Guidelines
10	Checksum		



## Appendix: B - Order Reject Reasons

Tag	Field Name	Details	Guidelines
103	OrdRejReason	1=Unknown symbol 2=Exchange closed 5=Unknown	Order Code to identify reason for order rejection
58	Text		Description of reason for order rejection, to be sent in conjunction with OrdRejReason (103)

## Appendix: C - Symbology

Security Categorization	NASDAQ Integrated Platform Suffix
Preferred	-
Preferred Class "A"*	-A
Preferred Class "B"*	-B
Class "A"*	.A
Class "B"*	.B
Preferred when distributed	-\$
When distributed	\$
Warrants	+
Warrants Class "A"*	+A
Warrants Class "B"*	+B
Called	*
Class "A" Called*	.A*
Preferred called	-*
Preferred "A" called*	-A*
Preferred "A" when issued*	-A#
Emerging Company Marketplace	!
Partial Paid	@
Convertible	%
Convertible called	%*
Class Convertible	.A%
Preferred (class A) Convertible	-A%
Preferred (class A) when Distributed	-A\$
Rights	^
Units	=
When issued	#
Rights when issued	^#
Preferred when issued	-#
Class "A" when issued*	.A#
Warrant when issued	+#

TEST symbol	~
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## Document Revision Table

Version	Date	Change
v1.4	February 26, 2020	Add Trade Bust Details; Remove Max Floor; Addition of Tag1, Rejected Tag 150 value
v1.4.1	March 6, 2020	Clarification to Trade Bust fields, Removed CMS Symbology Support