



# LTSE FIX Specification

The VSM™ uses FIX Protocol Version 4.2

Version: 1.4.3

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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.*

# Table of Contents

Table of Contents	3
Overview	4
LTSE FIX Certification	4
Hours of Operation	4
Message Types	5
FIX Admin Supported Messages	5
Session Messages	5
System Event Message	5
Logon	6
Heartbeat	6
Test Request	6
Resend Request	6
Session Reject	7
Sequence Reset	7
Logout	8
Risk Functionality	8
Single Order	8
Market	8
Limit	9
Order Cancel / Replace Request	11
Order Cancel Request	11
Order Cancel Request Reject	12
Execution Report	12
Execution Report Message	12
Acknowledgement	13
Partially Filled	13
Filled	14
Canceled / Unsolicited Cancel	14
Replaced	14
Rejected	15
Trade Bust	15
Drop Copy	16

<b>Appendix: A - Standard Header and Trailer</b>	<b>16</b>
Header	16
Trailer	16
<b>Appendix: B - Order Reject Reasons</b>	<b>16</b>
<b>Appendix: C - Symbology</b>	<b>17</b>
<b>Document Revision Table</b>	<b>18</b>

## Overview

This specification document outlines the format in which participants to LTSE VSM™ 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)
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
<b>98</b>	<b><i>EncryptMethod</i></b>	0	
<b>108</b>	<b><i>HeartBtInt</i></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
<b>112</b>	<b><i>TestReqID</i></b>		Test identifier
Standard Trailer			

## Resend Request

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

## 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		Identified Tag with issue
372	RefMsg Type		
373	SessionRejectReason	Code to identify reason for a session-level Reject message.  1=Required tag missing 4=Tag specified without a value 5=Value is incorrect (out of range) for this tag 6=Incorrect data format for value 9=Unauthorized Sender Comp ID 11=Invalid MsgType 99=Order Input not allowed on DC	
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 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.

Market Orders marked IOC and DAY 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>CIOrdID</b>	Unique identifier, per session,	Max length: 20 chars



		per trading day for Order as assigned by the Member	
18	<b>ExecInst</b>	i=LTSE Only	
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	For [5]=Sell Short and [6]=Sell Short Exempt, Tag 114 (LocateReqd) =N must be populated
55	<b>Symbol</b>	Ticker Symbol	The entire symbol needs to be sent if using Nasdaq symbology.
59	<b>TimeInForce</b>	3=IOC 0=DAY	Market Orders marked IOC and DAY will be rejected during Pre-Market Session and Post-Market.
60	<b>TransactTime</b>	Time of order creation expressed in UTC	
110	MinQty		Only available for use with IOC orders Upon order entry or order amendment the "effective minimum quantity" of an order is equal to the lesser of the submitted minimum quantity or the total share size of the order.
114	LocateReqd	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	Anti-Internalization Group ID	Preventing orders that share the same value from executing against each other. Requires Anti-Internalization to be enabled at the port level.	'--' disables anti-internalization for the order and signifies 'free to trade'.
58	Text		
StandardTrailer			

## Limit

ISOs must be marked with a TIF of IOC.

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 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, 5]=DAY orders and GTX can be sent, and will be acknowledged, before the start of continuous trading at 9:30am, but will only be active starting 9:30am. [3]= Accepted at all times. [6]=Good 'til Time requires ExpireTime (Tag 126) Accepted at all times. [M]=Accepted at all times. All unexecuted orders at the end of

			corresponding trading sessions will receive Unsolicited Cancels.
60	<b>TransactTime</b>	Time of order creation expressed in UTC	
110	MinQty		Only available for use with IOC orders Upon order entry or order amendment the "effective minimum quantity" of an order is equal to the lesser of the submitted minimum quantity or the total share size of the order.
114	LocateReqd	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	Anti-Internalization Group ID	Preventing orders that share the same value from executing against each other. Requires Anti-Internalization to be enabled at the port level.	'-' disables anti-internalization for the order and signifies 'free to trade'.
126	<i>ExpireTime</i>		UTCTIMESTAMP Required if TimeInForce=6 (Good 'til Time)
58	Text		
Standard Trailer			

## Order Cancel / Replace Request

Amendable fields include Quantity and Price. It is preferable to use the Order Cancel Request message to cancel the remaining quantity of an existing order .

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. Automated execution order, private, no Broker intervention	Must match original HandleInst. Must always set to: 1
38	<b>OrderQty</b>	Requested quantity for the order to be amended to.	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	Side		Must match original Side
55	Symbol		Must match original Symbol
59	TimeInForce		Must match original TimeInForce
60	TransactTime		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	ClOrdID		Unique ID of cancel request
38	OrderQty		Number of shares
41	OrigClOrdID		ClOrdID referencing the order to be cancelled
54	Side		Must match original side.
55	Symbol		Must match original symbol
60	TransactTime		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	ClOrdID		Unique ID of cancel request
37	OrderID		None
39	OrdStatus	8	This is the reject value number
41	OrigClOrdID		ClOrdID referencing the order to be cancelled
102	CxlRejReason	1	Meaning is "unknown order"
434	CxlRejResponseTo	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
32	Last Shares		
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	TimelnForce		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
<b>20</b>	<b>ExecTransType</b>	0=New	
<b>39</b>	<b>OrderStatus</b>	0=New	
<b>150</b>	<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 / Unsolicited Cancel

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			

## 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
<b>35</b>			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 be a new value
<b>18</b>	ExecInst		Will match original order
<b>19</b>	ExecRefID		Will match original execution
<b>20</b>	ExecTransType	1=Cancel	Will default to cancel
<b>37</b>	OrderID		Will match original value
<b>38</b>	OrderQty		Will match original value
<b>39</b>	OrdStatus	1= Partial Fill; 2=Filled	Will match original value
<b>40</b>	OrdType		Will match original value
<b>44</b>	Price		Will match original value
<b>47</b>	OrderCapacity		Will match original value
<b>54</b>	Side		Will match original value
<b>55</b>	Symbol		Will match original value
<b>59</b>	TimeInForce		Will match original value
<b>60</b>	TransactTime		Time of execution creation (in UTC)
<b>75</b>	TradeDate		Value will be date time in UTC
<b>150</b>	ExecType	4=Canceled	Will default to canceled
<b>151</b>	LeavesQty		Will match original value
Standard Trailer			

## Drop Copy

The Exchange provides a drop copy for Member trades. The session may be configured by session or by MPID. All Execution Report messages, 35=8, that are sent to the originating order entry session will be processed. However the Drop Copy message will be enhanced to include Tag 109.

Tag	Field Name	Details	Guidelines
109	Client ID	MPID for the order entry session	
115	OnBehalfOfCompID	SenderCompID for the order entry session	



## Appendix: A - Standard Header and Trailer

### Header

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

## 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
v1.4.2	September 22, 2020	<p><b>Session Reject message:</b> Tag 373 values update</p> <p><b>Market orders:</b> IOC and DAY rejected during Pre- and Post-Market;</p> <p><b>Anti-Internalization on Group ID:</b> guidelines clarification</p> <p><b>Order Cancel Request:</b> Tag 38 added to message</p> <p><b>Trade Bust:</b> Tag 17 Guideline is 'Will be new value'; Tag 19 Guidelines 'will match original execution'</p> <p><b>Drop Copy:</b> New message addition</p>
v1.4.3	November 4, 2020	<p><b>Market orders:</b> remove ISO reference information</p> <p><b>Limit orders:</b> added ISO reference information</p> <p><b>Time in Force:</b> added information for GTT, GTX, SYS</p> <p><b>Min Qty:</b> added guidelines clarification</p>