



LTSE FIX Specification

The VSM™ uses FIX Protocol Version 4.2

Version: 1.4.2

Updated: September 29, 2020

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 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 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	
336	TradingSessionID		
340	TradSesStatus	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	<i>EncryptMethod</i>	0	
108	<i>HeartBtInt</i>		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	<i>TestReqID</i>		Test identifier
Standard Trailer			

Resend Request

Tag	Field Name	Details	Guidelines
Standard Header			MsgType = 2
7	<i>BeginSeqNo</i>		Message sequence number of first message in range to be resent
16	<i>EndSeqNo</i>		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
45	RefSeqNum		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
36	NewSeqNo		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.

ISOs must be marked with a TIF of IOC and are compatible 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	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 Standard Order	f=ISO Must be used with TIF = IOC. MinQty can be used
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	1=Market	
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	For [5]=Sell Short and [6]=Sell Short Exempt, Tag 114 (LocateReqd) =N must be populated
55	Symbol	Ticker Symbol	The entire symbol needs to be sent if using Nasdaq symbology.
59	TimeInForce	3=IOC 0=Day	Market Orders marked IOC and Day will be rejected during Pre-Market Session and Post-Market.
60	TransactTime	Time of order creation expressed in UTC	
110	MinQty		Only available for use with IOC orders
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

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 (Tag 126) All unexecuted orders at the 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 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	ClOrdID		Unique ID of cancel request
18	ExecInst		Must match original ExecInst
21	HandInst	Instructions for order handling. Required by FIX. Automated execution order, private, no Broker intervention	Must match original HandleInst. Must always set to: 1
38	OrderQty	Requested quantity for the order to be amended to.	Cannot be less than currently executed quantity
40	OrderType		Must match original OrdType
41	OrigClOrdID		ClOrdID referencing the order to be cancelled
47	OrderCapacity		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	AvgPrice		Calculated average price of all fills on this order
11	ClOrdID		Will match confirmed ClOrdID of current order chain
14	CumQty		Total number of shares filled
17	ExecID		Unique identifier of execution message
18	ExecInst		Will match original order
32	Last Shares		
37	OrderID		Unique LTSE Order ID
38	OrderQty		Will reflect last accepted value
40	OrdType		Will match original order
47	OrderCapacity		Will match original order
54	Side		Will match original order
55	Symbol		Will match original order
59	TimelnForce		Will match original order
60	TransactTime		Time of execution creation (in UTC)
151	LeavesQty		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	ExecTransType	0=New	
39	OrderStatus	0=New	
150	ExecType	0=New	
151	LeavesQty	OrderQty	
Standard Trailer			

Partially Filled

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
20	ExecTransType	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.	
39	OrderStatus	1=Partially Filled	

150	ExecType	1=Partially Filled	
151	LeavesQty	OrderQty - CumQty	
Standard Trailer			

Filled

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
20	ExecTransType	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.
39	OrderStatus	2=Filled	
150	ExecType	2=Filled	
151	LeavesQty	0	
Standard Trailer			

Canceled / Unsolicited Cancel

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

Replaced

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
20	ExecTransType	0=New	
31	LastPx	0.0	
32	LastShares	0	
39	OrderStatus	5=Replaced	
41	OrigClOrdID		ClOrdID used to identify the referenced order in cancel request.

150	ExecType	5=Replaced	
151	LeavesQty	OrderQty - CumQty	
Standard Trailer			

Rejected

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

Trade Bust

Tag	Field Name	Details	Guidelines
35			MsgType 8 = ExecutionReport
6	AvgPx		Will match original value
11	ClOrdID		Will match original value
14	CumQty		Total number of shares filled
17	ExecID		Will be a new value
18	ExecInst		Will match original order
19	ExecRefID		Will match original execution
20	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			

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
8	BeginString		
9	BodyLength		
35	MsgType		
49	SenderCompID		
56	TargetCompID		
34	MsgSeqNum		
43	PossDupFlag	Optional	
97	PossResend	Optional	
52	SendingTime		
122	OrigSendingTime	Optional	

Trailer

Tag	Field Name	Details	Guidelines
10	Checksum		

Appendix: B - Order Reject Reasons

Tag	Field Name	Details	Guidelines
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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>Session Reject message: Tag 373 values update</p> <p>Market orders: IOC and DAY rejected during Pre- and Post-Market; ISO orders are compatible with Min Qty (Tag 110)</p> <p>Anti-Internalization on Group ID: guidelines clarification</p> <p>Order Cancel Request: Tag 38 added to message</p> <p>Trade Bust: Tag 17 Guideline is 'Will be new value'; Tag 19 Guidelines 'will match original execution'</p> <p>Drop Copy: New message addition</p>