TRADEcho PreTrade SI Quote FIX Specification

3.17-RevA February, 2024

TRADEcho

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About this document

TRADEcho FIX specification for interaction with Systematic Internaliser quotes.

Intended audience

Technical teams responsible for developing connectivity to the TRADEcho pre-trade transparency services.

Related documents

- TRADEcho MiFID II Data Requirements
- TRADEcho Portal User Guide
- TRADEcho Connectivity Guide
- TRADEcho MiFID II PostTrade FIX Specification
- TRADEcho SI Determination Technical Specification
- MIT401 – Guide to Reference Data Services

Terms and acronyms

Term/Acronym	Description
APA	Approved Publication Arrangement
API	Application Programme Interface
ARM	Approved Reporting Mechanism
AVT	Average Value of Transactions
CCP	Central Counterparty
ESMA	European Securities and Market Authority
ISIN	International Securities Identification Number
LEI	Legal Entity Identifiers
LIS	Large-in-Scale
LSE	London Stock Exchange
MiFID	Markets in Financial Instruments Directive
MTF	Multilateral Trading Facility
MMT	Market Model Typology
OTC	Over-the-Counter
OTF	Organised Trading Facility
SI	Systematic Internaliser
SMS	Standard Market Size
SSTI	Size Specific to Instrument

Revision history

This document has been revised according to the following table:

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3.17-RevA	No Change	February 2, 2024
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3.13-RevA	No Change	October 07, 2022
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3.11-Rev A	• Section 2.5 - Updated New Throttling Mechanism	February 11, 2022
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3.10-Rev A	• Section 1.10 – Added description for Notation • Section 2.5 – Updated new mechanism of Message Rate Throttling	October 19, 2021
3.9-Rev A	• No changes	August 12, 2021
3.8.3-Rev A	• No changes	May 05, 2021
3.7.1-Rev B	• Updated description of QuotePublishMode (tag 25101) in: - MassQuote (i) • Updated description of Text (tag 58) in: - MassQuoteAcknowledgement (b)	Jan 08, 2021
3.7.1-Rev A	• No changes	Oct 12, 2020
3.6.0-Rev A	• No changes	Aug 03, 2020

3.5.0-Rev A	• CountryOfIssue (tag 470) is made non-mandatory in:
	   - MassQuote (i)
	   - QuoteCancel(Z)
	   - MassQuoteAcknowledgement (b)
	   - SuspendQuoting (U3)
	   - SuspendQuotingStatusReport (U4)
	• Currency (15) is made non mandatory in:
	   - QuoteCancel(Z)
	   - MassQuoteAcknowledgement (b)
	   - SuspendQuoting (U3)
	   - SuspendQuotingStatusReport (U4)
	• Currency (15) definition has changed in:
	   - SuspendQuoting (U3)
	   - SuspendQuotingStatusReport (U4)
	• Section 1.6.1 – Removed reference to MIT301 document
	• Section 1.2.3 Added clarity to the Si Quote publication channels
		May 21, 2020

3.4.0	• Updated description for SuspendQuotingStatusReport.	Feb 10, 2020
3.1.3-Rev A	• Consistent naming of tags containing 'APA' (was both 'Apa' and 'APA').	Apr 03, 2019
3.1.1-Rev A	• Made attribute naming consistent. • Updated FIX server behavior when receiving malformed fix messages	Mar 19, 2019
3.0.0-Rev A	• Added tag TargetAPA (25011) to message MassQuote (i) and MassQuoteAcknowledgement (b)	Nov 16, 2018
2.14.0-Rev A	• Added tag QuotePackageID (25104) to message MassQuote (i) • Added tag QuotePackagePrice (25105) to message MassQuote (i) • Added tag QuotePackagePriceType (25106) to message MassQuote (i) • Added tag QuotePackageCurrency (25107) to message MassQuote (i) • Added tag QuotePackageID (25104) to message MassQuoteAcknowledgement (b)	Sep 3, 2018
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2.10-A	• No changes in this release.	Mar 13, 2018
2.9-B	• Corrected typo in tag number for tag NotionalCurrency (25015), used in the MassQuote (i) message.	Mar 9, 2018
2.9-A	• No changes in this release.	Feb 2, 2018
2.8-D	• Fixed broken links in Introduction chapter.	Jan 9, 2018

2.8-C	• Added EUX (Euro Cents), SRG (Guilder), USE (USD TO EUR FOR BIT), and USX (US Cents) to list of valid currencies, see Currency on page *14*.	Dec 21, 2017
2.8-B	• Updated the intended operational hours, see Hours of operation on page *13*.	Nov 30, 2017
2.8-A	• No changes in this release.	Nov 15, 2017
2.7-B	• Updated the intended operational hours, see Hours of operation on page *13*.	Nov 2, 2017
2.7-A	• Made tag Currency (15) required • Made tag CountryOfIssue (470) required when SecurityIDSource (22) = 4 (ISIN) • Corrected description for value 5 (unknown quote) in tag QuoteRejectReason (300), it is not applicable for amending	Oct 13, 2017
2.6-A	• No changes in this release.	Sep 15, 2017
2.5-A	• Corrected tag TestReqID (112) as required in a TestRequest (1) message. • Corrected description of tag QuoteStatus (297) used in message MassQuoteAcknowledgement (b) and added valid values • Removed section on MiFIR reference data under Transparency reference data chapter • Added valid values to tag SuspendQuotingRejectReason (7581) used in message SuspendQuotingStatusReport (U4) • Corrected tags QuoteSetID (302) and QuoteEntryID (299) as required in message MassQuote (i)—Client to APA • Added tag SecuritySuspended (5010) to message SuspendQuoting (U3)	Sep 1, 2017

2.4-A	• Rewrote the ISIN Product identifier section	Aug 11, 2017
	• Added TRADEcho SRR (SRRECHO) as a valid TargetCompID	
	• Added the correct third level of reject handling, the MassQuoteAcknowledgement (b) message	
	• NewPassword (925) reinstated to Logon message	
	• Removed message TradeCaptureReport from tag BusinessRejectRefID (379) in message BusinessMessageReject (j)	
	• Clarified that tag Currency (15) is optional in a MassQuote (i) message when 22 = 4	
	• Changed valid values for tag QuoteRejectReason (300), used in the MassQuoteAcknowledgement (b) message: 　o Added 2 (Exchange Closed) and 3 (Member quote limit exceeded) 　o Removed 6 (Duplicate Quote) and 7 (Invalid bid/ask spread)	
	• Removed valid values 5 (Unknown Quote), 6 (Duplicate Quote), and 7 (Invalid bid/ask spread) for tag QuoteEntryRejectReason (368) used in the MassQuoteAcknowledgement (b) message	
	• Added conditional requirement of tag Text (58) in the MassQuoteAcknowledgement (b) message if QuoteEntryStatus = 0 or 100 (and QuotePublishMode is 1 or 2) and added valid values	
	• Removed valid value 101 = OTCD ID from tag SecurityIDSource (22) in the SuspendQuotingStatusReport (U4) message	
	• Removed SRRECHOTEST and TRADECHOTEST as valid values for TargetCompID	
2.3	• Added QuotePublishMode(25101) to MassQuote(i)	Jun, 2017
	• Added BidNotionalAmount(25102), OfferNotionalAmount(25103), NotionalCurrency(25015) and UnderlyingSecurityID(309) to MassQuote(i) to handle non-equity quotes.	
1-1	Initial version. Previously pre-trade covered in same specification as post-trade.	Apr, 2017

1   Introduction

TRADEcho is the service name for the London Stock Exchange Groups' transparency services. TRADEcho facilitates efficient, multi-asset class, trade and Systematic Internaliser quote publication.

The TRADEcho service is hosted and operated by the London Stock Exchange. Boat's TRADEcho team provide specialist product and regulatory knowledge. The Exchanges' real-time publication service TRADEcho, is complemented by UnaVista, the Groups' regulatory reporting service.

This document outlines the FIX message specification for clients publishing pre-trade SI quotes to meet MiFIR/MiFID II transparency obligations.

1.1   TRADEcho

In support of MiFIR/MiFID II pre-trade transparency obligations, the TRADEcho service supports the publication of Systematic Internaliser (SI) quotes via LSE market data channels, and/or on websites including www.tradecho.com.

MiFIR/MiFID II extends pre-trade transparency (SI quote) obligations to a wider range of asset classes. In addition to venues, pre-trade transparency requirements are applicable to investment firms deemed SIs.

1.2   SI quoting overview
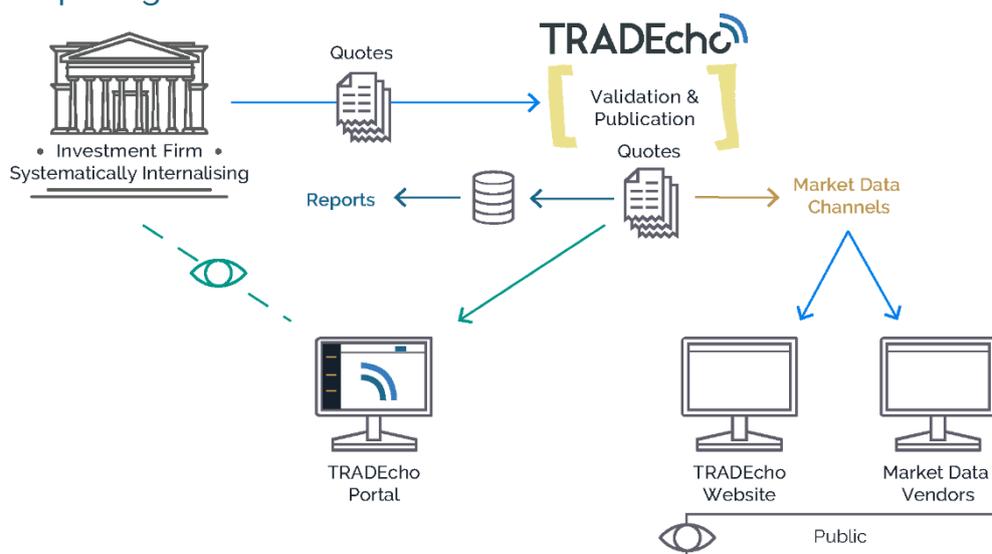
1.2.1   SI quote submission

Clients can enter SI quotes via:

* FIX—as outlined within this document
* The TRADEcho portal—detailed in the TRADEcho Portal User Guide

1.2.2   SI quote filtering

The TRADEcho service will carry out an assessment to determine whether a SI quote is deemed necessary for publication. Where a SI quote is not deemed eligible for publication under MiFIR/MiFID II, it will not be published unless SI quote validation is overridden. Note, that if a product is unknown to TRADEcho the SI eligibility assessment will not take place and the SI quote will be published on www.tradecho.com.

1.2.3 *SI quote publication*

SI quotes for Equity and Equity Like securities that appear on The Reference Data Service in a flat file via FTP/SFTP (see *MIT401 – Guide to Reference Data Services for full details)* are published via the Groups' GTP (Group Ticket Plant) market data service. For further information on GTP refer to:

http://www.londonstockexchange.com/products-and-services/millennium-exchange/documentation/documentation.htm

SI quotes for all Non-Equity securities and the remaining Equity securities not included in The Reference Data Service above, will not be published via GTP. Instead they are published on the TRADEcho website, www.tradecho.com. A machine-readable format is also provided there, meeting regulatory requirements.

1.3 FIX overview

This document describes the TRADEcho FIX protocol implementation for entering SI Quotes using FIX.5.0.SP2 (including earlier FIX release features).

It is assumed that the reader is familiar with FIX v.5.0 as detailed by the FIX Protocol Organisation. For further information on FIX please see:

Fix 5.0 SP2 Specification:

https://www.fixtrading.org/standards/fix-5-0-sp-2/

MiFID II working groups:

https://www.fixtrading.org/working-groups/

1.3.1 *Conventions Used*

For the sake of readability some field names in the message tables have been split across 2 lines; in all cases, all FIX fields have no spaces in their names.

All message specification field tables presented in this document have a **Reqd** column populated with a **Y**, **C** or **N**. These are defined as:

1. For messages from the client to TRADEcho:

   Y = Mandatory—must be populated with a value of appropriate data type otherwise a level-1 reject (**MsgType** = **j**) will be sent back to the client with **SessionRejectReason** (373) = **1** (Required Tag Missing)

   C = Conditional—must be populated if another field's value depends upon it. The field's description usually contains the phrase, "Required when…". If not populated when conditionally required, this should result in a level-2 reject (**MsgType** = **j**) with **BusinessRejectReason** (380) = **5** (Conditionally required field missing)

   N = An optional field but may be needed to support specific business logic. Often used in conjunction with default values which may therefore require overriding by the client. Values considered as unacceptable for the given business scenario may result in any of the 3 reject-level messages. Other values may cause warning or informational fields to be populated on the TCR-S.

2. For messages from TRADEcho to the client:

   Y = Always populated with a valid value

   C = Will be populated if required by another field's value

   N = May be populated

1.4 Hours of operation

The current intention is to operate the service as follows (all in UK time):

- FIX Engine and Portal availability: 06:00-19:15
- OTC and SI Trade Report/Quote submission: 06:00-19:15
- SI Quote publication: 06:00-19:15

SI quotes will be rejected if received outside the operational hours.

The operational hours will be kept under review following further consultation with clients and regulators. Please check the ClientHub for the latest updates.

1.5 Product identifiers

TRADEcho supports two product identification types:

- LSE ID
- ISIN

Product identifiers are provided in the morning reference data download as outlined below.

1.5.1 LSE ID

Unique instrument ID assigned to the product by the exchange. If LSE ID is used, it must be present in the reference data universe made available that morning. Invalid or unknown LSE IDs received will result in a rejection.

When using the LSE ID, the client must send:

- Tag 22 (**SecurityIDSource**) = **8** (Exchange Symbol)
- Tag 48 (**SecurityID**) = LSE ID
- Tag 15 (**Currency**)—Traded currency

1.5.2 ISIN

The service supports ISINs for all asset classes (including OTC Derivatives). The ISIN universe of instruments for SI quote publication consists of all that have been classed as ToTV (*Traded on a MiFID II Trading Venue*) in time for inclusion in the morning reference data refresh.

Where unknown ISINs are received on quotes, they are regarded as out of scope on the basis of not being in the ToTV universe.

When using ISIN to identify products, the client must send:

- Tag 22 (**SecurityIDSource**) = **4** (ISIN)
- Tag 48 (**SecurityID**) = ISIN code
- Tag 15 (**Currency**)—Traded currency
- Tag 470 (**CountryOfIssue**)—ISO country code.

Note: The search technique for locating the correct instrument is to start with just the ISIN and then try combinations with **CountryOfIssue and Currency** until only one result is found. E.g. if a single row is returned from using just the ISIN and **CountryOfIssue**, the **Currency** will not be used. If, after all 3 are used, multiple rows are returned, the instrument with lowest Instrument ID (SecurityIDSource = 8) will be selected.

1.6 Transparency reference data

1.6.1 LSEG Reference data

The Reference Data Service provides instrument reference data to participants for products that can be traded on or off book on the LSEG markets in a *flat file* format. This data is made available via FTP/SFTP, full details of the interface are specified in *MIT401 – Guide to Reference Data Services*.

In addition to the flat file a subset of reference data is available via the Market Data feed each morning.

1.7 Currency

The currency to which the quote applies should be submitted in tag 15 (**Currency**).

Valid values are ISO-4217 Currency list plus:

Value	Meaning
EUX	Euro Cents
GBX	GB Pennies
ITL	Italian Lira
SRG	Guilder
USE	USD TO EUR FOR BIT
USX	US Cents
ZAC	South African Cents (1/100th of a Rand)

1.8 Timestamps

The formats supported by TRADEcho are

Second granularity: YYYYMMDD-HH:MM:SS

Millisecond granularity: YYYYMMDD-HH:MM:SS.sss

Microsecond granularity: YYYYMMDD-HH:MM:SS.ssssss

Date: YYYYMMDD.

All timestamps sent to TRADEcho shall be in UTC.

1.9 Pricing

1.9.1 Tick Sizes

Quotes do not need to conform to tick size tables.

1.9.2 Rounding

The TRADEcho service supports up to 5 decimal places (dcp). Any values received beyond 5 dcp are dropped by the TRADEcho FIX gateway. The number of dcp supported remains under consultation with clients.

1.10 Notation

Notation used in indicating number of digits allowed (m,n) indicates m number of digits in total where n is fixed number of decimal points and m-n is maximum digits allowed as integer. E.g, 19,5 indicates that the system allows maximum 14 digits integer and 5 digits decimal.

2 FIX session layer

The session layer describes how FIX sessions are established and maintained.

Sessions support FIX v.5.0 and FIX v.4.2/v.4.4.

Clients request a **SenderCompID** (49) using the TRADEcho portal.

2.1 Connecting to the FIX server process

A FIX session is established by sending a logon message and is always initiated by the FIX client and accepted by the FIX server process. The FIX session is established between two parties, called sender and target. The parties are represented by the following tags in StandardHeader:

- **SenderCompID** (49)—the party initiating the session
- **TargetCompID** (56)—the acceptor of the session

TargetCompID (56): (Please consult the LSE connectivity team for the latest values used by the environments)

- TRADEcho SRR: *SRRECHO*
- TRADEcho APA: *TRADECHO*

All FIX sessions must be authorized. When the FIX gateway receives a logon message at connection start, the session is authorized using the following:

- **SenderCompId** (49) - must contain the FIX User ID as set up by the client in the TRADEcho portal. For details on accessing the portal please refer to the TRADEcho connectivity guide
- **Password** (554)—must contain the password

Each FIX client must keep lists of FIX gateways and their IP addresses. If a contribution gateway cannot be reached, a client should wait 5 seconds, then try to connect to the next contribution gateway in the list.

If the server receives a connection attempt from a **SenderCompID**, while a session is already established with the same **SenderCompID**, the connection attempt will be rejected via a Reject message without breaking the existing TCP/IP connection with the client. The server will increment the next inbound message sequence number expected from the client as well as its own outbound message sequence number.

2.2 Lost connection

When reconnecting, the subscriber should login again to the session by using the next transmitted sequence numbers. In the event that the sequence numbers are out of synch, the subscriber should send a resend request to retransmit any potentially lost data.

2.3 Message validation

If a FIX message is not in a correct fix message format, i.e. the <TagNum> is not of the intDataType (ASCII characters "0" to "9", leading zeroes are not allowed), the whole message is considered as garbage and discarded by the FIX server without any response/reject message.

2.4 Reject handling

TRADEcho utilizes three levels of rejections. The message types used are:

- Reject (**MsgType** = **3**)
- BusinessMessageReject (**MsgType** = **j**)
- MassQuoteAcknowledgement (**MsgType** = **b**)

2.4.1 Level 1—Reject (3)

The Reject message is used when a message is received but cannot be properly processed due to a session level rule violation. Here are some examples:

- A message lacking a mandatory tag;
- A message with an incorrect value for a specific tag;
- A tag without a value;
- Unknown message type;
- A tag appears more than once.

TRADEcho will not reject messages for having invalid tags (i.e. **SessionRejectReason 2** or **3**), instead TRADEcho ignores any tags that are not covered by the services.

Apart from key fields in repeating groups, TRADEcho does not require tags to be in a particular order.

2.4.2 Level 2—BusinessMessageReject (j)

The BusinessMessageReject is used for covering second level validation failures, including when a message is lacking conditionally mandatory tags or when the FIX gateway is open but the requested service is closed.

2.4.3 Level 3—MassQuoteAcknowledgement (b)

Third level validation failures are covered by MassQuoteAcknowledgement, which include:

- Unknown instrument e.g. not within the TRADEcho ToTV Instrument Universe
- Unknown Quote e.g. when attempting to amend an existing quote
- Invalid bid/ask spread e.g. bid > ask

2.5 Message rate throttling

TRADEcho has implemented a scheme for throttling message traffic where each **CompID** is only permitted a certain message rate. The message rate permitted is determined by configured user thresholds and the current traffic in the FIX gateway.

If any threshold is exceeded,

1. Messages are read but all are rejected for a time period of Delay Time (System sends a Reject message (MsgType=3) with Text="Rate limit exceeded")

2. After the Delay Time, processing message commences and new messages are read. This will continue till Nth time in a row.

3. If the user breaches the limit again in N+1 time in a row, the system sends a FIX Logout message with the same reason (Text="Rate limit exceeded") and no further messages are processed.

4. If user was logged out by the reason above, all his subsequent login attempts during the period set in config (delayBetweenLogins setting) will be rejected and FIX Logon Reject message will be sent back.

5. User can log in after the elapse of delayBetweenLogins time.

2.6 Session message details

The following sections cover the supported session messages.

2.6.1 *Logon*

The logon message authenticates a user establishing a connection to a remote system. The logon message must be the first message sent by the session initiator.

If the logon request is rejected, a logout message is sent back with the reason for the rejection in the <Text (58)> field and the TCP/IP session is terminated by FIX Gateway.

On some occasions a silent disconnect is used as to protect unauthorized access attempts from obtaining information.

Logon (A)

Tag	Name	Reqd	Comment
	StandardHeader	Y	MsgType = A
98	EncryptMethod	Y	The method of encryption. Always 0=None
108	HeartBtInt	Y	Indicates the heartbeat interval in seconds
141	ResetSeqNumFlag	N	Indicates whether the client and server should reset sequence numbers. Absence of this field is interpreted as Do Not Reset Sequence Numbers (N).
554	Password	Y	The password assigned to the CompID. Required if the message is generated by the client. New Passwords should be configured and managed via the TRADEcho portal.
925	NewPassword	N	New Password or passphrase. [Remove this when password reset is available in the portal]

Value	Meaning
Y	Yes, reset sequence numbers
N	No

1409	SessionStatus	C	Status of the FIX session or the request to change the password. Required if the message is generated by the server

Value	Meaning
0	Session Active
1	Session password changed
3	New Password Does Not Comply with Policy

1137	DefaultApplVerID	Y	The default version of FIX messages used in this session.
	StandardTrailer	Y	

2.6.2   *Heartbeat*

During periods of message inactivity, FIX applications will generate Heartbeat messages at regular time intervals. The heartbeat monitors the status of the communication link and identifies incoming sequence number gaps.

When logging on, the client requests a heartbeat interval, using the `HeartBtInt` tag (see the logon message). Heartbeats must be sent in both directions:

- FIX Gateway sends Heartbeat requests at the requested interval, unless other messages are sent.
- The FIX client must send Heartbeat requests at the requested interval, unless other messages are sent.
- Too frequent Heartbeat interval might result in a disconnect in case of a general network glitch, causing the client to miss two consecutive Heartbeats.

Heartbeat (0)

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

Tag	Name	Reqd	Comment
	StandardHeader	Y	MsgType = 0
112	TestReqID	C	Required when the heartbeat is the result of a Test Request message
	StandardTrailer	Y	

TestRequest

TestRequest (1)

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

The test request message checks sequence numbers or verifies communication line status. The opposite application responds to the Test request with a Heartbeat containing the **TestReqID**.

Tag	Name	Reqd	Comment
	StandardHeader	Y	MsgType = 1
112	TestReqID	Y	Required when the heartbeat is the result of a Test Request message
	StandardTrailer	Y	

2.6.3   ResendRequest

The resend request is sent to initiate the retransmission of messages.

This function is utilized if a sequence number gap is detected, if the receiving application lost a message, or as a function of the initialization process. A resend request from client is always responded to. When a sequence gap is identified, it will be sent along with Sequence Reset message(s) in Gap Fill mode (123=Y) and it replaces all the administrative messages.

ResendRequest (2)

Tag	Name	Reqd	Comment
	StandardHeader	Y	MsgType = 2
7	BeginSeqNo	Y	
16	EndSeqNo	Y	
	StandardTrailer	Y	

2.6.4   Reject

Reject (Session Level) (3)

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

An example of when a reject may be appropriate would be the receipt of a message with invalid basic data which successfully passes de-encryption, CheckSum and BodyLength checks.

Tag	Name	Reqd	Comment
	StandardHeader	Y	MsgType = 3
45	RefSeqNum	Y	MsgSeqNum of rejected message
371	RefTagID	N	The tag number of the FIX field being referenced.

372	RefMsgType	N	
373	SessionRejectReason	N	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 = CompID problem
			11 = Invalid MsgType
			13 = Tag appears more than once
			15 = Repeating group fields out of order
			16 = Incorrect NumInGroup count for repeating group
			18 = Invalid/Unsupported Application Version
			99 = Other
58	Text	N	Code to identify reason for a session-level Reject message
	StandardTrailer	Y	

2.6.5 *BusinessMessageReject*

The BusinessMessageReject message can reject an application-level message that fulfils session-level rules but can be rejected without being validated against the specific message type's rules.

BusinessMessageReject (j)

Tag	Name	Reqd	Comment
	StandardHeader	Y	MsgType = j (lowercase)
45	RefSeqNum	Y	MsgSeqNum of rejected message
372	RefMsgType	Y	The MsgType of the FIX message being referenced.
371	RefTagID	Y	If a message is rejected due to an issue with a particular field its tag number will be indicated.
379	BusinessRejectRefID	N	Client specified identifier (e.g. Firm Trade ID) of the rejected message if it is available.

Message	Identifier
MassQuote	QuoteReqID (131)
QuoteCancel	QuoteReqID (131)
SuspendQuoting	SuspendQuotingReqID (7579)

380	BusinessRejecReason	Y	4: Application not available 5: Conditionally required field missing 0: Other
58	Text	N	Where possible, message to explain reason for rejection
	StandardTrailer	Y	

2.6.6 Sequence reset

Sequence numbers are reset daily. Sequence numbers can also be modified intra-day, where it the reset functionality has different modes:

- Gap Fill Mode—used as the response to a Resend request and
- Reset Mode—used to reset the sequence number after an unrecoverable application failure.

A sequence reset—Reset Mode—can only increase the sequence number.

Sequence reset (4)

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

Tag	Name	Reqd	Comment
	StandardHeader	Y	MsgType = 4
123	GapFillFlag		The mode in which the message is being used. Absence of this field is interpreted as Sequence Reset (N) **Value** — **Description** Y — Gap Fill N — Sequence Reset
36	NewSeqNo	Y	
	StandardTrailer	Y	

2.6.7 Logout

The logout message initiates or confirms the termination of a FIX session. FIX clients should terminate their sessions gracefully by logging out.

Logout (5)

Tag	Name	Reqd	Comment
	StandardHeader	Y	MsgType = 5

1409	SessionStatus		Required when the heartbeat is the result of a Test Request message

Value	Meaning
3	New Password Does Not Comply with Policy
4	Session logout complete
6	Account locked
7	Logons are not allowed at this time
100	Other
101	Logout due to session level failure
102	Logout by Service Desk

58	Text		
	StandardTrailer	Y	

2.6.8 *StandardHeader*

The standard FIX message header.

Tag	Name	Reqd	Comment
8	BeginString	Y	FIXT.1.1 (Always unencrypted, must be first field in message)
9	BodyLength	Y	(Always unencrypted, must be second field in message)
35	MsgType	Y	(Always unencrypted, must be third field in message)
1128	ApplVerID		Version of FIX used. Required if the message is generated by the server.
49	SenderCompID	Y	(Always unencrypted)
56	TargetCompID	Y	(Always unencrypted)
115	OnBehalfOfCompID		Trading partner company ID used when sending messages via a third party (Can be embedded within encrypted data section.)
128	DeliverToCompID		Trading partner company ID used when sending messages via a third party (Can be embedded within encrypted data section.)
34	MsgSeqNum	Y	Yes (Can be embedded within encrypted data section.)
50	SenderSubID		Yes (Can be embedded within encrypted data section.)
57	TargetSubID		"ADMIN" reserved for administrative messages not intended for a specific user. (Can be embedded within encrypted data section.)

116	OnBehalfOfSubID		Trading partner SubID used when delivering messages via a third party. (Can be embedded within encrypted data section.)
144	OnBehalfOfLocationID		Trading partner LocationID (i.e. geographic location and/or desk) used when delivering messages via a third party. (Can be embedded within encrypted data section.)
129	DeliverToSubID		Trading partner SubID used when delivering messages via a third party. (Can be embedded within encrypted data section.)
145	DeliverToLocationID		Trading partner LocationID (i.e. geographic location and/or desk) used when delivering messages via a third party. (Can be embedded within encrypted data section.)
43	PossDupFlag		Always required for retransmitted messages, whether prompted by the sending system or as the result of a resend request. (Can be embedded within encrypted data section.)
97	PossResend		Required when message may be duplicate of another message sent under a different sequence number. (Can be embedded within encrypted data section.)
52	SendingTime	Y	(Can be embedded within encrypted data section.)
122	OrigSendingTime		Required for message resent as a result of a ResendRequest. If data is not available set to same value as SendingTime (Can be embedded within encrypted data section.)
369	LastMsgSeqNumProcessed		The last MsgSeqNum value received by the FIX engine and processed by downstream application, such as trading system or order routing system. Can be specified on every message sent. Useful for detecting backlog with a counterparty.

2.6.9   *StandardTrailer*

The standard FIX message trailer.

Tag	Name	Reqd	Comment
93	SignatureLength		Required when trailer contains signature.
			Note: Not to be included within SecureData field
89	Signature		**Note:** Not to be included within SecureData field
10	CheckSum	Y	(Always unencrypted, always last field in message)

TRADEcho

3 SI quoting message guide

The **MassQuote** (**i**) message is used for entering and updating quotes. This message allows for entering quotes with depth as well as quotes for multiple quotable instruments within the same message.

3.1 QuoteID

With the **MassQuote** message an identifier for the quote message shall be supplied in the **QuoteID** field. When quotes are updated, the **QuoteID** from the original Mass Quote message is supplied together with the instruments for which there have been changes. For the instruments which have changed, the full depth needs to be supplied. If at least one side of a quote, for a Quote ID and instrument combination in the Mass Quote message, is accepted by the system, then all active quotes for that Quote ID and instrument combination previously submitted by the firm will be cancelled and replaced with the sides of the new quote that passed validation. The instruments which quotes have not changed do not need to be supplied on the message, and will be left un-affected in the system.

3.2 QuoteSetID

A MassQuote message is divided into Quote Sets. Every Quote Set shall contain one or more quote entries for a single product, and a product may only be part of one Quote Set per message. There are no requirements on the **QuoteSetID** other than that they need to be unique for the message. They do not drive any functionality other than the structure of the message.

3.3 QuoteEntryID

Each quote needs a **QuoteEntryID**. There are no requirements on the **QuoteEntryID** other than that they need to be unique per Quote Set. They do not drive any functionality other than the structure of the message.

3.4 ValidUntilTime

The **ValidUntilTime** can be used to set an expiry time for a quote. Leaving this tag blank will result in the quote being left open throughout the day, expiring when the system closes. If the **ValidUntilTime** is set beyond the end of the TRADEcho operational day e.g. 23:59:00 the quote will still expire at the end of the TRADEcho day.

4 SI quoting message details

The trade reporting model supported in the system is single-sided SI quotes. In the single sided SI quoting model, one of the parties reports the trade and optionally includes the counterparty details in the Trade Capture Report.

The following sections cover the supported SI quoting messages.

4.1 MassQuote (i)—Client to APA

The Mass Quote message can contain quotes for multiple products, each in its own Quote Set. In each MassQuote, every Quote Set shall contain one or more quote entries for a single product, and a product may only be part of one Quote Set per message.

Tag	Field	Description	Reqd
117	QuoteID	Unique identifier for the quotes in this message.	Y
131	QuoteReqID	Identifier that is returned in the MassQuoteAck(b) message.	N
60	TransactTime	Timestamp for the quote.	Y
301	QuoteResponseLevel	Level of Response requested from receiver of quote messages. 0 = No Acknowledgement 1 = Acknowledge only erroneous quotes (default) 2 = Acknowledge each quote message	N
25101	QuotePublishMode	Type of behaviour when handling submitted quotes: 0 = Always publish (without performing TRADEcho validation) 1 = Always Publish (TRADEcho will also calculate waivers) 2 = (Default) Let TRADEcho determine whether to publish a submitted quote according to applicable waivers.	N
25011	TargetAPA	Target APA if deemed eligible for publication. Current options: ECHO (LSE UK), ECEU (LSE EEA) Default: ECHO	N

QuoteSetGrp				
Tags		Field	Description	Reqd
296		NoQuoteSets	The number of sets of quote in the message.	Y
296	302	QuoteSetID	Sequential number for the Quote Set. Assumed to start at 1 for a given QuoteID. Must be the first field in the repeating group.	Y

QuoteEntryGrp

Tags			Field	Description	Reqd
296	295		NoQuoteEntries	The number of quotes for this instrument (QuoteSet) that follow in this message.	Y
296	295	299	QuoteEntryID	Uniquely identifies this quote as part of a quote set.	Y
296	295	48	SecurityID	Security identifier	Y
296	295	22	SecurityIDSource	4 = ISIN 8 = Exchange symbol LSE ID	Y
296	295	470	CountryOfIssue	ISO 3166 2-character country code. Specifies the country the instrument was issued in.	N
296	295	62	ValidUntilTime	Indicates expiration time of indication message expressed in UTC. If not populated quote will remain open until the end of the TRADEcho operational day	N
296	295	423	PriceType	Price notation 2 = Per Unit (Default) 1 = Percentage 9 = Yield 22 = Basis Points	N
296	295	15	Currency	SI quote currency. ISO 4217 three-letter currency code. (additional values GBX, ZAC, ITL refer to Currency on page 14).	Y
296	295	132	Bidpx	Bid price. Note that either BidPx or OfferPx must be specified.	C
296	295	133	OfferPx	Offer price. Note that either BidPx or OfferPx must be specified.	C
296	295	134	BidSize	The bid size of the quote. Mandatory if the BidPx field is used.	C
296	295	135	OfferSize	The offer size of the quote. Mandatory if the OfferPx field is used.	C
296	295	2750	QuoteTier	Used to enable downstream filtering so that only certain clients have access to a view quote.	N
296	295	25102	BidNotionalAmount	Bid notional amount. Required when instrument is non-equity or non-equity like (i.e. covered by RTS 2 only).	C
296	295	25103	OfferNotionalAmount	Offer notional amount. Required when instrument is non-equity or non-equity like (i.e. covered by RTS 2 only).	C
296	295	25015	NotionalCurrency	The currency of the notional amount of the Quote. Required when instrument is non-equity like (i.e. covered by RTS 2 only).	C

296	295	309	UnderlyingSecurityID	ISIN of underlier.	N
				Will usually be for bonds pricing against a Benchmark as a spread when PriceType (423) will be 22 = Basis Points.	
296	295	25104	QuotePackageID	Package ID, unique ID, marking the quotes included in a package.	N
296	295	25105	QuotePackagePrice	Price of the package. Required when QuotePackageID is used.	C
296	295	25106	QuotePackagePriceType	Price notation	C
				2 = Per Unit	
				3 = Percentage	
				9 = Yield	
				22 = Basis Points	
				Required when QuotePackageID is used.	
296	295	25107	QuotePackageCurrency	Package currency. Required when QuotePackagePriceType is "Per Unit".	C

4.2   QuoteCancel (Z)

The Quote Cancel message is used by an originator of quotes to cancel quotes. The Quote Cancel message supports cancellation of:

• All quotes
• All quotes for one or more specified securities
• All quotes with a certain QuoteID
• All quotes with a certain QuoteID for one or more specified securities

Tag	Field	Description	Reqd
117	QuoteID	Conditionally required when	C
		QuoteCancelType(298) = 5 (cancel quote specified in QuoteID). Maps to QuoteID(117) of a MassQuote(MsgType=i).	
131	QuoteReqID	An identifier that will be returned in the MassQuoteAck(j) message	N
298	QuoteCancelType	Identifies the type of Quote Cancel request.	Y
		1 = Cancel one or more instrument.	
		4 = Cancel all quotes	
		5 = Cancel quotes matching the supplied QuoteID and, if specified, one or more SecurityIDs	

Tags		Field	Description	Reqd
301		QuoteResponseLevel	Level of Response requested from receiver of quote messages. 0 = No Acknowledgement 1 = Acknowledge only erroneous quotes (default) 2 = Acknowledge each quote message	N

QuoteEntryGrp

Tags		Field	Description	Reqd
295		NoQuoteEntries	The number of quote entries in the message.	N
295	48	SecurityID	Security identifier. Required in a QuoteEntry.	C
295	22	SecurityIDSource	Required in a QuoteEntry. 4 = ISIN 8 = Exchange symbol LSE ID	C
295	15	Currency	SI quote currency. ISO 4217 three-letter currency code. (additional values GBX, ZAC, ITL refer to Currency on page 14).	N
295	470	CountryOfIssue	ISO 3166 2-character country code. Specifies the country the instrument was issued in.	N

4.3 MassQuoteAcknowledgement (b)

Mass Quote Acknowledgement is used as the application level response to the Mass Quote and Quote Cancel messages. The system may reply with several Mass Quote Acknowledgements if the corresponding Mass Quote or Quote Cancel request contains several instruments. All quotes within a Quote Set in the Mass Quote Acknowledgement will be on the same instrument and have the same **QuoteID**. Quotes on the same instrument but with different QuoteIDs will be divided into different Quote Sets. When acknowledging Quote Cancel messages where no instrument identifiers were supplied (applicable for **QuoteCancelType** (298) **4** and **5**) the instruments in the MassQuoteAcknowledgement message(s) will be specified with **SecurityIDSource** (22) = **8**, i.e. LSE Instrument ID:s will be returned.

Tag	Field	Description	Reqd
117	QuoteID	The QuoteID(117) from the MassQuote or QuoteCancel message that is being acknowledged. • MassQuote: QuoteID (117) • QuoteCancel: QuoteID (117) if supplied in request, otherwise not populated	N
131	QuoteReqID	Copied from the MassQuote(i) or QuoteCancel(Z) message.	N

297	QuoteStatus	Identifies the status of the quote acknowledgement. 0 = Accepted 5 = Rejected 100 = Accepted (not published)	Y
300	QuoteRejectReason	Reason Quote was rejected. 1 = Unknown instrument 2 = Exchange Closed 3 = Member quote limit exceeded 5 = Unknown Quote 8 = Invalid price (number too large) 9 = Not authorized to quote security 99 = Other	N
25011	TargetAPA	Copied from the MassQuote(i)	Y

QuoteSetAckGrp

Tags		Field	Description	Reqd
296		NoQuoteSets	The number of sets of quote in the message.	N
296	302	QuoteSetID	Sequential number for the Quote Set. Assumed to start at 1 for a given QuoteID. Must be the first field in the repeating group. Required if NoQuoteSets > 0.	C

QuoteEntryAckGrp

Tags			Field	Description	Reqd
296	295		NoQuoteEntries	The number of quotes for this instrument (QuoteSet) that follow in this message.	N
296	295	299	QuoteEntryID	Uniquely identifies this quote as part of a quote set. Required if NoQuoteEntries > 0.	C
296	295	25104	QuotePackageID	QuotePackageID submitted by the client.	N
296	295	48	SecurityID	Security identifier. Required in a QuoteEntry.	C
296	295	22	SecurityIDSource	Required in a QuoteEntry. 4 = ISIN 8 = Exchange symbol LSE ID	C
296	295	470	CountryOfIssue	ISO 3166 2-character country code. Specifies the country the instrument was issued in.	N

296	295	15	Currency	SI quote currency. ISO 4217 three-letter currency code. (additional values GBX, ZAC, ITL refer to Currency on page *14*).	N
296	295	1167	QuoteEntryStatus	Status of the quote. 0 = Accepted (and published) 5 = Rejected 100 = Accepted (not published)	C
296	295	368	QuoteEntryRejectReason	Reason Quote Entry was rejected. Required if QuoteEntryStatus = 5. 1 = Unknown instrument 8 = Invalid price 9 = Not authorized to quote security 99 = Other	C
296	295	58	Text	Description of the rejection or pre-trade waiver determination. Required if QuoteEntryStatus = 5 or QuoteEntryStatus = 0 (and QuotePublishMode is 1 or 2) or 100 (and QuotePublishMode is 1 or 2): - Instrument is not Traded on a Trading Venue. - Instrument is Illiquid. - Quote is greater than SSTI. - Quote is greater than SMS.	C

4.4 SuspendQuoting (U3)

The Suspend Quoting message is used by a contributor to suspend and release quoting in a set of instruments.

Tag	Field	Description	Reqd
7579	SuspendQuotingReqID	Unique identifier which will be returned in the Suspend Quoting Status Report message.	Y
RelatedSymGrp			

Tags		Field	Description	Reqd
146		NoRelatedSym	Number of instruments this message suspends.	Y
146	48	SecurityID	Security identifier. Required in a QuoteEntry.	C
146	22	SecurityIDSource	Required in a QuoteEntry. 4 = ISIN 8 = Exchange symbol LSE ID	Y

146	470	CountryOfIssue	The country of issue of the instrument.	N
146	15	Currency	Instrument currency. ISO 4217 three-letter currency code. (additional values GBX, ZAC, ITL refer to Currency on page *14*).	N
146	5010	SecuritySuspended	Indicates if the contributor has suspended the instrument or not.	Y

4.5 SuspendQuotingStatusReport (U4)

The Suspend Quoting Status Report message is sent from the server to confirm if the quoting on instruments was successfully suspended/unsuspended or not (i.e. rejected).

Tag	Field	Description	Reqd
7579	SuspendQuotingReqID	The unique identifier that was submitted with the Suspend Quoting message.	Y

RelatedSymGrp

Tags		Field	Description	Reqd
146		NoRelatedSym	Number of instruments in this message.	Y
146	48	SecurityID	Security identifier. Required in a QuoteEntry.	Y
146	22	SecurityIDSource	Required in a QuoteEntry. 4 = ISIN 8 = Exchange symbol LSE ID	Y
146	470	CountryOfIssue	The country of issue of the instrument.	N
146	15	Currency	Instrument currency. ISO 4217 three-letter currency code. (additional values GBX, ZAC, ITL refer to Currency on page *14*).	N
146	7580	SuspendQuotingStatus	The status of the request. 0 = Request accepted 1 = Request rejected	Y
146	7581	SuspendQuotingRejectReason	The reason the quote suspension was rejected. 1 = Unknown quotable instrument 99 = Other Required if SuspendQuotingStatus = 1.	C

| 146 | 58 | Text | Detailed description of the reject reason. Required if SuspendQuotingStatus = 1. | C |
| 146 | 5010 | SecuritySuspended | Indicates if the contributor has suspended the instrument or not. | Y |

4.6 SI quote message example

1. The quote contributor wishes to send the quotes on Vodafone and British Telecom to the system. A MassQuote message with **QuoteID** = **AA** containing the quotes for two instruments is sent.

Instrument	Bid size	Bid price	Offer price	Offer size
Vodafone/GBP	1000	195.00	196.00	1000
	3000	194,50	197	3000
British Telecom/GBP	1000	308,50	309,50	1000

2. The best Offer price of Vodafone is changed to **196.50**. All other quotes remain the same. A Mass Quote message with the same **QuoteID** = **AA** is sent. All Bids and Offers are sent for Vodafone, even though only one price has changed. Nothing is sent for British Telecom, as there have not been any changes for this instrument.

Instrument	Bid size	Bid price	Offer price	Offer size
Vodafone/GBP	1000	195.00	196.50	1000
	3000	194,50	197	3000

Details of example:

1. Enter Mass Quote with two instruments	2. Update quote for VOD with Mass Quote
QuoteID=AA **TransactTime(60)**=20170109-11:04:01 **NoQuoteSets**=2 **QuoteSetID**=AA01 **NoQuoteEntries**=4 **QuoteEntryID**=AA01:1 **SecurityID**=[LSE Instrument ID for VOD] **PriceType**=2 **BidPx**=195.00 **BidSize**=1000 **QuoteEntryID**=AA01:2 **SecurityID**="LSE Instrument ID VOD" **OfferPx**=196.00 **OfferSize**=1000 **QuoteEntryID**=AA01:3 **SecurityID**=[LSE Instrument ID for VOD] **PriceType**=2 **BidPx**=194.50 **BidSize**=3000 **QuoteEntryID**=AA01:4 **SecurityID**=[LSE Instrument ID for VOD] **OfferPx**=197.00 **OfferSize**=3000 **QuoteSetID**=AA02 **NoQuoteEntries**=2 **QuoteEntryID**=AA02:1 **SecurityID**=[LSE Instrument ID for BT] **PriceType**=2 **BidPx**=308.50 **BidSize**=1000 **QuoteEntryID**=AA02:2 **SecurityID**=[LSE Instrument ID for BT] **OfferPx**=309.50 **OfferSize**=1000	**QuoteID**=AA (the original Quote ID is supplied) **TransactTime(60)**=20170109-11:04:30 **NoQuoteSets**=1 (only quotes for one instrument has changed) **QuoteSetID**=AA01 **NoQuoteEntries**=4 (all four prices are sent) **QuoteEntryID**=AA01:1 **SecurityID**=[LSE Instrument ID for VOD] **PriceType**=2 **BidPx**=195.00 **BidSize**=1000 **QuoteEntryID**=AA01:2 **SecurityID**=[LSE Instrument ID for VOD] **OfferPx**=196.50 (updated best offer price) **OfferSize**=1000 **QuoteEntryID**=AA01:3 **SecurityID**=[LSE Instrument ID for VOD] **PriceType**=2 **BidPx**=194.50 **BidSize**=3000 **QuoteEntryID**=AA01:4 **SecurityID**=[LSE Instrument ID for VOD] **OfferPx**=197.00 **OfferSize**=3000