LME Clear
FIX 4.4. Specification

Please respond to:

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Document History

Date	Version	Status	Author	Change Summary
31/10/2012	1.00	Draft	Richard Leftwich	First distribution. Based on full FIX API specification V1.0.
17/12/2012	1.01		Richard Leftwich	Added: • Support for bureau subscribers. • Recovery section. • ‘Business Event’ and Auto Exercise Gradations News messages. • News message for start of option assignment process. • Price Field Mappings and Trade References sections. • Detail section to Appendix: Comparison to XI+. • AccountType to TCR message. • Exchange and clearing fees to incoming & outgoing TCR. • AccountType 4 for Non Seg for pre EMIR compliance. • Client Code for EMIR compliance. Removed: • LastQty. • PosQtyStatus (706) from Position block. Updated/Corrected: • Comment for LegLastPx. • Member ‘Reports’ now separate from member ‘Data’. • Member ‘Reports’ list. • Open Interest and Auto Exercise Gradations not available via Market Data Report. • Various corrections. • Noted that subscribers have to reset the FIX sequence number at the start of each day. • Updates to reflect that a suspended trade can be cancelled by the exchange. • Sub Account data renamed to Account. • Noted that only the current and previous day’s trades and positions can be requested via FIX.
	1.02		Richard Leftwich	Non published version.
05/06/2013	1.03		Richard Leftwich	• Various clarifying text changes and minor corrections. • Updated text on recovery. • Added Business Message Reject message. • Default changed to non-subscription for Trade Reports and Position Reports. • UniqueProductId (20008) (ESMA Product Identifier) added to Instrument block. • Parties block: Added tag PartyIDSource (447). • Parties block: Added enumeration to tag PartyRole (452). • Parties block: Comments updated for tag PartyID (448). • Changed enumerations for PosType (703) in Position Quantity block. • Removed Miscellaneous Fees block. • Added password encryption. • Change to comments on ExecType (150). • Trade cancellations cannot be suspended. • A subscriber representing both sides of a trade will receive a

Date	Version	Status	Author	Change Summary
				single TCR. • Added tag TradeReportTransType (487). • TCR: Added tag MatchingSlipID (5442). • TCR: Added tag UniqueTransactionId (20007) – ESMA requirement. • TCR: Added tag TimeBracket (943). • TCR: Added tag TradeTime (5179). • TCR: Tag LegInstrument assigned ID 20005. • TCR: Tag LegBuySell assigned ID 20006. • TCR: Tag OrderID (37) now mandatory. • TCR: Tag Account (1) now mandatory. • TCR: Tag TradeReportType (856) is now mandatory. • TCR: Reduced enumerations for tag AccountType (581). • TCR: Removed tag TradeReportRefID (572). • TCR: Removed enumerations 'YS' and 'V' for tag AbbreviatedPrice (5475). • TCR: Removed group MiscellaneousFeesGroup. • Expanded Price Field Mappings table. • Updated text for Position Management & Reporting. • Position Maintenance Request: Removed enumeration '2 – Do not exercise' from tag PosTransType (709) – each option exercise instruction supersedes any previous one for the same series. • Position Maintenance Request: Removed enumeration '4 – Non Segregated…' from tag AccountType (581). • Added Instrument block to Position Maintenance Report. • Removed enumeration '4 – Non Segregated…' from tag AccountType (581) in Position Maintenance Report. • Request for Positions: Reduced enumerations for tag PosReqType (724). • Request for Positions: Removed support for specific position categories (e.g. ABD, FDO, etc). • Request for Positions: Removed enumeration '4 – Non Segregated…' from tag AccountType (581). • Request for Positions Ack: Added Instrument block. • Request for Positions Ack: Removed tag TotalNumPosReports (727). • Request for Positions Ack: Removed tag UnsolicitedIndicator (325). • Request for Positions Ack: Removed tag Account (1). • Request for Positions Ack: Removed tag AccountType (581). • Request for Positions Ack: Removed tag Text (58). • Removed support for specific position categories (e.g. ABD, FDO, etc). • Position Report: Added tag UniqueTransactionId (20007) – ESMA requirement. • Position Report: Removed enumeration '4 – Non Segregated…' from tag AccountType (581). • Position Report: Removed tag AbbreviatedPrice (5474). • The SPAN file is not available as embedded XML in FIX. • Market Data Request Reject: Reduced enumerations for tag MDReqRejReason (281). • Market Data Snapshot/Full Refresh: Removed tag MDEntryTime (273). • News: For New Exchange Data, added text for TRD (Trades), OPP (Open Positions), ACC (Accounts). • News: Removed delay on availability of market data. • Updated sequence diagrams in Appendices. • Removed Member Reports section from appendices.

Date	Version	Status	Author	Change Summary
12/11/2013	1.04		Richard Leftwich	• Documented server use. • Added text describing concurrent subscriptions. • Corrected Standard Header, Tag 8 should contain value FIX.4.4. • Updated description of PosType (703). • ExchangeTradeType moved to 'side' level in TCR. • Change to trade reference formats. • Updated section on News message. • Removed support for option exercise.
	1.05		Richard Leftwich	• Minor updates.
	1.06		Richard Leftwich	• Various text changes for clarification. • Instrument Block/Strike Price – Changed from Mandatory: No to Mandatory No/Conditional. • TCR/RTC to member/TradeReportTransType – Removed comment that it's not supplied on query server. • TCR Report Request/ExecID – Moved to before SecondaryTradeReportID. • TCR Report Request Ack/Instrument – Noted that if it's supplied on the incoming request, it's also supplied in the Ack. • Request for Positions/ClearingBusinessDate – Removed 'Previous' from possible values, i.e. only current day now allowed. • Request for Positions Ack/PosReqResult – Status 2 (No positions found that match criteria) will no longer be supplied. • Request for Positions Ack/Parties – Noted that if it's supplied on the incoming request, it's also supplied in the Ack. • Request for Positions Ack/Instrument – Noted that if it's supplied on the incoming request, it's also supplied in the Ack. • Position Report/UnsolicitedIndicator – Noted that it's not supplied for snapshots. • Position Report/RiskNettingGroupId – Tag removed. Reference in Appendix B removed. • Position Report/RiskCalculationNodeId – Tag removed. Reference in Appendix B removed. • Position Report/AdHocNettingGroupId – Tag removed. Reference in Appendix B removed. • Position Report/AccessGroupId – Tag removed. Reference in Appendix B removed. • Position Report/UniqueTransactionId – Changed from Mandatory:Yes to Mandatory:No. • Market Data Request/MDUpdateType – Changed from Mandatory:No/Conditional to Mandatory:No. Noted that if supplied it should be set to 0. • News/New Static Data – Added types MDT (Market Data Types) and FRP (Fee Rules).
25/03/14	1.07		Richard Leftwich	• Noted that for trade and position report requests, it is possible to receive a successful status in the corresponding Ack, and for there to be no matching reports available. • Added tag PosReqID (710) to PositionReport (AP). • Added 'AMG' report type. • Removed rejection value 8 (Unsupported Entry Type) from MDReqRejReason (281).

Date	Version	Status	Author	Change Summary
08/05/14	1.08		Richard Leftwich	• Column names corrected in FIX Message Usage Table. • LegLastQty is always a mandatory tag in TCRs. • Clarification to text for password encryption.
18/06/14	1.09		Richard Leftwich	• Clarification to Price Field Mappings, section 7.2.5. • Invalid Logon request messages will result in immediate termination of the session.
	1.10		Richard Leftwich	• Removed from RequestForPositionsAck (AO): status 99 for PosReqResult, and status 1 for PosReqStatus. • Removed support for DLV (Delivery Quantity) Position Type in Position Reports.

26/01/15	1.12		Kieran Hoban	• Additional Member News (Type=3) messages for:
				  ○ SPAN margin details (SMD)
				  ○ Monthly Member Collateral Fees (MCF)
				  ○ Monthly Fees (MFE)
				• Sorted News (Type=3) messages into alphabetical order for ease of reading and reference

13/07/15	1.13		Kieran Hoban	• Additional Member News (Type=3) message for the Compression Report (COM).
27/08/15	1.14		Kieran Hoban	• Additional Member News (Type=3) messages for the Warrants as Collateral functionality

Errata

Section	Reference	Description

Associated Documents

Document	Version
LME Clear FIX Specification – Complete	V1.14
LME Clear Data File Specification	V1.15

Table of Contents

1 Introduction

LME Clear provides an electronic interface for members and other users to obtain trade and clearing data from the system. The API provided is based on industry standard FIX 4.4. It provides similar functionality to the XI+ External Interface to the LCH.Clearnet Synapse system. There is a summary of the functional differences in section Appendix C: Comparison To XI+.

1.1 Purpose of Document

This document provides to the members and ISVs detailed technical information on the FIX messages and the controlling methods and concepts to facilitate the development/configuration of interfacing systems.

The document is structured as follows:

- Message Integration: A section describing common/repeating features of FIX messages such as the Standard Header and ‘Common Component Blocks’, compliance to FIX and a summary of messages used.
- FIX Session layer: A section describing the FIX session layer and supported session level messages.
- Business Layer: A section describing the messages used for:
    - Trade Management.
    - Trade Reporting.
    - Position Reporting.
    - Reporting Market Data.
    - Reporting Member specific data such as Position, Margin, Financial.
    - Reference Data Management.
    - General Messages: A section describing general application messages.

1.2 Intended Audience

- Members
- Independent Software Vendors (ISVs)

1.3 Scope

This document describes the FIX Trade Gateway for LME Clear based on the FIX 4.4 standard.

2 Subscriptions

A subscription to the LME Clear FIX API is associated with one user login. A subscription is not synonymous with a member as it can represent more than one member.

2.1 Permissions

All permissions are at subscriber level:

Permissions	Comment
Members Represented	Permission for each member the subscription can represent.

Typically:

- A member has a subscription representing just one member, itself. It can report on its own trades and positions.
- A bureau has a subscription representing one or more members. It can report on trades and positions for any of the represented members.

3 Services

The LME Clear FIX services are split across two servers.

Server	Functionality	Server Name
Trade Stream	This server provides a fully recoverable stream of trades and associated statuses throughout the business day.	FSMEM
Query	This server provides all other query based functionality.	FSMD

To subscribe to services on both servers, independent and concurrent logical connections are required. The same subscription cannot be used for both servers, or to connect more than once to one server.

For details on the FIX messages supported by server, refer to the FIX Message Usage table in section 5.3.

4 Recovery

4.1 Failure Between LME Clear and Member or ISV

4.1.1 Trade Stream Server

In the event of a system or communications failure between the LME Clear Trade Stream server and a member or ISV, the LME Clear Trade Stream server makes available all the current day's messages until its normal end of day.

The standard FIX Resend message should be used to recover lost messages.

If the failure persists beyond the normal LME Clear end of day, the member/ISV can pick up trades (and positions) on the following day by requesting via the LME Clear Query server the data for the previous business day's date. FIX does not support the availability of any other types of data using this method.

Trades, positions and other data can also be downloaded from the member/ISV's FTP directory – refer to the LME Clear Data File Specification.

4.1.2 Query Server

On (re)connection to the LME Clear Query server following failure, all previously issued News messages for the day will be re-issued. These can be used to establish whether the subscriber's datasets are up to date. Refer to section 7.6.2 for more information.

If a failure persists beyond the normal LME Clear end of day, the member/ISV can pick up trades on the following day by requesting the data for the previous business day's date. FIX does not support the availability of any other types of data using this method.

Trades, positions and other data can also be downloaded from the member/ISV's FTP directory – refer to the LME Clear Data File Specification.

5 Message Integration

5.1 Deviations from FIX Protocol

To support the requirements there are a number of deviations from the FIX 4.4 protocol. These include specific custom tags, as described in Appendix B: Deviation from FIX Protocol.

5.2 Conventions

In order to fully describe the FIX messages supported by LME Clear, the layouts have been placed within tables to assist with readability. The following guidelines apply:

- An arrow (→) indicates that a field is a sub-component and appears within the parent block.
- Within a repeating block, tags must be in the order specified.
- Where the mandatory requirement for a field to be present is indicated as **No (conditional)**, there are rules that dictate whether a value is required based on a values in another field.
- Where timestamps are specified, these are in UTC unless otherwise stated.

5.3 FIX Message Usage Table

The table below shows the FIX messages used for the available business functions and reports:

Category	Fix Message Name	Type	Server[1] FSMD	FSMD	FSMEM	FSMEM	Usage
			In	Out	In	Out	
Session Management	Logon	**A**	Yes	Yes	Yes	Yes	This message is used for establishing external FIX connections to LME Clear.
	Reject	**3**		Yes		Yes	Used as a general rejection message within the session management layer.
	Heartbeat	**0**	Yes	Yes	Yes	Yes	Used in the following ways: • External connections to LME Clear use the heartbeat to indicate availability for message receipt. • LME Clear use heartbeat messages to ensure continued message receipt from other FIX-based messaging applications.
	Test Request	**1**	Yes	Yes	Yes	Yes	Used as a probe to ensure that the service is available and handling requests.
	Resend Request	**2**			Yes	Yes	Used to request a resend of previously received messages.
	Sequence Reset	**4**	Yes	Yes	Yes	Yes	Used in the following ways: • LME Clear external FIX sessions use this message to reset sequence numbers. • LME Clear uses this message to reset sequence numbers with external FIX-based applications.
	Logout	**5**	Yes	Yes	Yes	Yes	Used for external FIX sessions to disconnect from LME Clear.

[1] FSMEM = Trade Stream, FSMD = Query

Category	Fix Message Name	Type	Server[1] FSMD In	FSMD Out	FSMEM In	FSMEM Out	Usage
Trade Management	Trade Capture Report	**AE**		Yes		Yes	Used to provide notification of clearing status changes to the subscriber.
Trade Reporting	Trade Capture Report Request	**AD**	Yes				Historic trade request/subscribe and unsubscribe to Trade Capture Reports.
	Trade Capture Report Request Ack	**AQ**		Yes			Acknowledgement of a Trade Capture Report Request.
Position Management	Request for Positions	**AN**	Yes				Historic position request/subscribe and unsubscribe to Position Reports.
	Request for Positions Ack	**AO**		Yes			Used to acknowledge or reject a Position Maintenance Request for Positions.
	Position Report	**AP**		Yes			Used to report current positions.
Market Data	Market Data Request	**V**	Yes				Used to request market wide data.
	Market Data Request Reject	**Y**		Yes			Used by LME Clear to reject a Market Data Request.
	Market Data Snapshot Full Refresh	**W**		Yes			Used to report a market wide data snapshot.
General Messages	Business Message Reject	**j**		Yes		Yes	Used to reject messages that cannot be processed or rejected using any other message type.
	News	**B**		Yes (full)		Yes (partial)	Used to advise of clearing business events, including margin calls and data availability.

5.4 Message Filtering/Subscription

Message filtering and subscriptions are only supported by the Query Server.

5.4.1 Trade Reports

Trade reports are not sent to the subscriber unless specifically subscribed to using standard FIX protocol rules.

Real-time trade reports are provided via the TradeCaptureReport (AE) message. To subscribe, use the TradeCaptureReportRequest (AD) message with field SubscriptionRequestType (263) set to '1'. Refer to section 7.3.1.

5.4.1 Position Reports

Position reports are not sent to the subscriber unless specifically subscribed to using standard FIX protocol rules.

Real-time position reports are provided via the PositionReport (AP) message. To subscribe, use the RequestForPositions (AN) message with field SubscriptionRequestType (263) set to '1'. Refer to section 7.4.1.

5.4.2 Common Behaviour

Any filter criteria in place in the message at the time of the subscription request also applies to subsequent reports based on that subscription during the same FIX session. For example, if a RequestForPositions (AN) message has the SubscriptionRequestType (263) set to '1' and the underlying instrument requested is 'CA', this means that there is now a subscription to receive all position changes for the underlying instrument 'CA'.

It is possible to have more than one subscription at a time. Each subscription is identified by the supplied TradeRequestID (for trades) or PosReqID (for positions). For example:

Action	TradeRequestID	Subscriber Behaviour
Subscription to CAD trades.	MyCADTrades	Send TradeCaptureRequest (AD) message with TradeRequestID set to 'MyCADTrades' and SubscriptionRequestType set to 1.
AHD Trade received by LME Clear.		No message received.
Subscription to AHD trades.	MyAHDTrades	Send TradeCaptureRequest (AD) message with TradeRequestID set to 'MyAHDTrades' and SubscriptionRequestType set to 1. TradeCaptureReport (AD) message received for AHD trade with TradeRequestID set to 'MyAHDTrades'.
AHD Trade received by LME Clear.		TradeCaptureReport (AD) message received for AHD trade with TradeRequestID set to 'MyAHDTrades'.
CAD Trade received by LME Clear.		TradeCaptureReport (AD) message received for CAD trade with TradeRequestID set to 'MyCADTrades'.
Subscription to CAD trades cancelled.	MyCADTrades	Send TradeCaptureRequest (AD) message with TradeRequestID set to 'MyCADTrades' and SubscriptionRequestType set to 2.
CAD Trade received by LME Clear.		No message received.
AHD Trade received by LME Clear.		TradeCaptureReport (AD) message received for AHD trade with TradeRequestID set to 'MyAHDTrades'.

Subscription settings are only valid for a single FIX session.

5.5 Common FIX Elements

The following section outlines the message blocks that are used consistently across messages. These messages are referenced later.

5.5.1 Standard Header

The following table provides details on the tags used within a standard FIX header to support integration with LME Clear:

Tag ID	Name	Data Type	Mandatory?	Comments
8	**BeginString**	String	Yes	Must be the first field within the message and have a value of FIX.4.4.
9	**BodyLength**	Length	Yes	Must be the second field within the message.
35	**MsgType**	String	Yes	Must be the third field within the message.
49	**SenderCompID**	String	Yes	Identifier for the sending firm / company, e.g. LME.
56	**TargetCompID**	String	Yes	Identified for the intended recipient firm / company – “EXEC”.
34	**MsgSeqNum**	SeqNum	Yes	
43	**PossDupFlag**	Boolean	No	Used when messages are re-transmitted as a result of a resend request or as identified by the sending system.
52	**SendingTime**	UTCTimestamp	Yes	Time of message transmission expressed in UTC.
122	**OrigSendingTime**	UTCTimestamp	No	Used to indicate the original transmission time of the message when a resend request is being processed. If the original sending time data is not available, this field is the same as SendingTime (Tag 52).
369	**LastMsgSeqNumProcessed**	SeqNum	No	The last message sequence number received (based on Tag 34).

5.5.2 Standard Trailer

Tag ID	Name	Data Type	Mandatory?	Comments
10	**CheckSum**	String	Yes	A three-byte checksum that must always be the final field of the message.

5.5.3 Instrument Component Block

Tag ID	Name	Data Type	Context (LME Clear)	Mandatory?	Comments
55	**Symbol**	String	In	No (Conditional)	The contract or ISO currency symbol, e.g. CAD for Copper USD. Mandatory for PositionMaintenanceRequest (AL).

Tag ID	Name	Data Type	Context (LME Clear)	Mandatory?	Comments
			Out	Yes	The contract or ISO currency symbol, e.g. CAD for Copper USD.
10010	**NoOfInstrumentLegs**	NumInGroup	In	No (Conditional)	The number of instrument legs contained within the message. 1 to n for request and trade level messages (to support carry trades). 1 for Position Maintenance Request (AL). Mandatory for PositionMaintenanceRequest (AL).
			Out	Yes	The number of instrument legs contained within the message. 1 to n for trade level messages (to support carry trades). 1 for Position Report (AP) messages.
→ 20004	**InstrumentLegNo**	Int	In	No (Conditional)	1 to n. Mandatory for PositionMaintenanceRequest (AL).
			Out	Yes	1 to n.
→ 5475	**PromptDate**	String	In	No (Conditional)	Delivery date (Futures) of the contract in DDMMYY format. For Options contracts, this field is populated by the expiry month code in MMMYY format. Mandatory for PositionMaintenanceRequest (AL).
			Out	Yes	Delivery date (Futures) of the contract in DDMMYY format. For Options contracts, this field is populated by the expiry month code in MMMYY format.
→ 202	**StrikePrice**	Price	In	No (Conditional)	Mandatory for PositionMaintenanceRequest (AL) if the CFICode (461) tag defines an option or TAPO contract. If supplied, NoOfInstrumentLegs is 1. Float 000000000.00 Refer to section 7.2.5.
			Out	No (Conditional)	Supplied if the CFICode (461) tag defines an option or TAPO contract. If supplied, NoOfInstrumentLegs is 1. Refer to section 7.2.5.
→ 20008	**UniqueProductId**	String	In	No	ESMA Unique Product Identifier.
			Out	No	ESMA Unique Product Identifier.
461	**CFICode**	String	In	No (Conditional)	Indicates the type of security using the ISO 10962 Classification of Financial Instruments code. Refer to Appendix A: CFI Codes.

Tag ID	Name	Data Type	Context (LME Clear)	Mandatory?	Comments
					Mandatory for PositionMaintenanceRequest (AL).
			Out	Yes	Indicates the type of security using the ISO 10962 Classification of Financial Instruments code. Refer to Appendix A: CFI Codes.

5.5.4 Parties Block

Tag ID	Name	Data Type	Context (LME Clear)	Mandatory?	Comments
453	**NoPartyIDs**	NumInGroup		No	Specified the number of parties (repeating groups) within the block.
→ 448	**PartyID**	String	Both	No	This field is required if the NoPartyIDs (453) tag is set to a value above zero. If PartyIDSource is set to 'D', PartyID represents the Clearing Member with the three letter LME mnemonic. If PartyIDSource is set to 'N', PartyID represents the client code.
→ 447	**PartyIDSource**	Char	Both	No	This field is required if the NoPartyIDs (453) tag is set to a value above zero. Set to: • D – PartyID is an LME Clearing Member • N – PartyID is a client code
→ 452	**PartyRole**	Int	Both	No	This field is required if the NoPartyIDs (453) tag is set to a value above zero. It represents the type of party, e.g. Clearing Member. The following are acceptable values: • 3 – Client • 4 – Clearing Member

Note that for EMIR compliance, all client trades include a client code in tag PartyID (448). Use of this field may be subject to future regulatory change.

5.5.5 Position Quantity Block

Tag ID	Name	Data Type	Context (LME Clear)	Mandatory?	Comments
702	**NoPositions**	NumInGroup		No	Specifies the number of positions (repeating groups) within the block.

Tag ID	Name	Data Type	Context (LME Clear)	Mandatory?	Comments
→ 703	**PosType**	String	Out	No	This field is required if the NoPositions (702) tag is set to a value above zero and represents the type of quantity being returned. The following are valid values: • TOT – Total Transaction Qty.
→ 704	**LongQty**	Qty	Out	No	Long quantity
→ 705	**ShortQty**	Qty	Out	No	Short quantity

6 FIX Session Layer

6.1 FIX Session Establishment

A FIX session is established by sending a Logon message. The FIX session is established between two parties; the sender and the target represented by the following tags in the Standard Message Header (see section 5.5.1):

- SenderCompID (tag 49). The party initiating the session.
- TargetCompID (tag 56). The acceptor of the session as per configuration.

The FIX session is always initiated by the FIX client and accepted by the FIX server.

6.2 Start of Day/End of Day Procedures

A standard FIX Session lasts indefinitely, or until:

- A login message that specifies that the sequence numbers should be reset, using ResetSeqNumFlag=Y (tag 141).
- A SequenceReset message is sent by either side of the FIX session.

LME Clear restarts every night so subscribers need to login and reset the sequence number at the start of each day.

6.3 Reject Handling

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

- 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.

For the full list, refer to section 6.5.5.

If an application-level message passes the syntax checking on the FIX Session level, it is then processed at the business level. If this process detects an error condition, a business level reject is issued.

6.4 Authorization

All FIX Sessions are subject to authorization. When the FIX gateway receives a Logon message at connection startup, the session is authorized using:

- SenderCompId (49). This is the session identifier together with the TargetCompId.
- Username (553). Must contain the member ID assigned by LME Clear.
- Password (554). Must contain the password assigned by LME Clear, encrypted as described in section 6.5.1.

The password cannot be changed via the FIX API.

6.5 Message Details

The following sections cover all supported Session Messages.

FIX Message Name	Type	Direction
Logon	A	In
Heartbeat	0	In/Out
Test Request	1	In/Out
Reject	3	In/Out
Sequence Request	4	In/Out
Logout	5	In/Out

6.5.1 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.

The FIX server requires an encrypted password. To encrypt the password, additional information is passed using the RawData (tag 96) and RawDataLength (tag 95) fields.

A varying number is used to further scramble the password and to make the encrypted password different for each logon. This number:

1. Is an integer number.
2. Has a value of the current (GMT) system time in milliseconds.
3. Is higher than the previous midnight's (GMT) time in milliseconds.
4. Is lower than the following midnight's (GMT) time in milliseconds.
5. Has a higher value than the number used in the previous logon request.

A letter identifies subfields. A colon delimits a subfield identifier from a subfield value. The delimiter for the client random number is 'm'. A typical RawData value would be m:1065641126118 from a client logging on to the first version of the FIX server.

If the Logon request is invalid for any reason, the TCP/IP session is immediately terminated by the FIX Gateway. No Logout message is sent in response to an invalid Logon request.

Tag ID	Name	Mandatory?	Comments
Standard Header		Yes	MsgType (35) = A.
98	**EncryptMethod**	Yes	Method of encryption. • 0 – None
108	**HeartBtInt**	Yes	Heartbeat interval (seconds). Must be greater than zero.
95	**RawDataLength**	Yes	Number of bytes in RawDataField. Required on incoming logon messages from the client.
96	**RawData**	Yes	Unformatted raw data. Required on incoming logon messages

Tag ID	Name	Mandatory?	Comments
			from the client.
141	**ResetSeqNumFlag**	No	Indicates that both sides of the FIX session should reset sequence numbers.
789	**NextExpectedMsgSeqNum**	No	Alternative via counterpart bi-lateral agreement message gap detection and recovery approach. **For future use.**
553	**Username**	Yes	Must contain the member ID assigned by LME Clear.
554	**Password**	Yes	Must contain the encrypted password as described below.
Standard Trailer		Yes	See section [Standard Trailer].

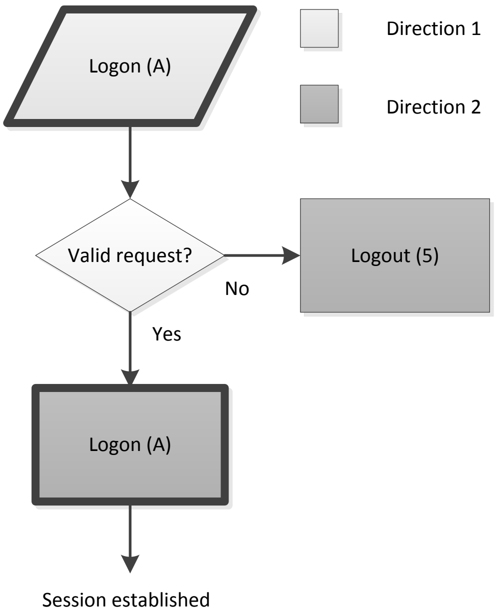
Password Encryption

The following entities make up the encrypted password:

1. A hash pattern applied on the source password as supplied by LME Clear.
2. The 32 byte fax key, a field from the user's LME Clear account that is copied outside the protocol, probably by fax or email.
3. The "HmacSHA1" encryption algorithm.
4. An 8 byte increasing number generated by the client.

Java and C/C++ source code to create the hash pattern can be found on the LME's member site https://extranet.lme.com/. LME Clear may assist third-party developers in finding the required source code in Java or C/C++ that implements the "HmacSHA1" encryption algorithm.

Flow Diagram



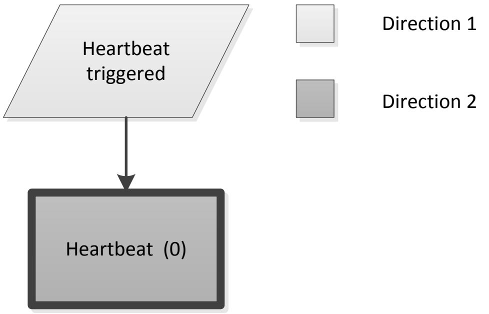
6.5.2 Heartbeat

During periods of message inactivity, FIX applications generates 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:

- The 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.

Tag ID	Name	Mandatory?	Comments
Standard Header		Yes	MsgType (35) = 0.
112	**TestReqID**	No	Required when the heartbeat is a result of a Test Request message.
Standard Trailer		Yes	See section [Standard Trailer].

<u>Flow Diagram</u>

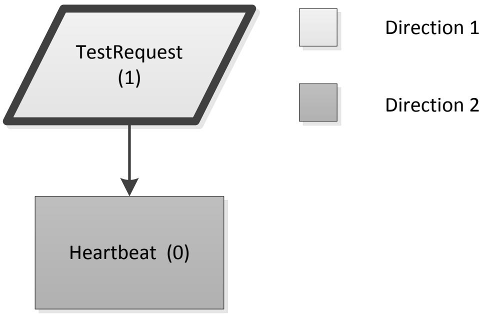


6.5.3 Test Request

The Test Request message forces a Heartbeat from the opposing application. Test requests are responded to with a Heartbeat message conveying the test request ID.

Tag ID	Name	Mandatory?	Comments
Standard Header		Yes	MsgType (35) = 1.
112	**TestReqID**	Yes	The value is returned in the resulting Heartbeat.
Standard Trailer		Yes	See section [Standard Trailer].

<u>Flow Diagram</u>

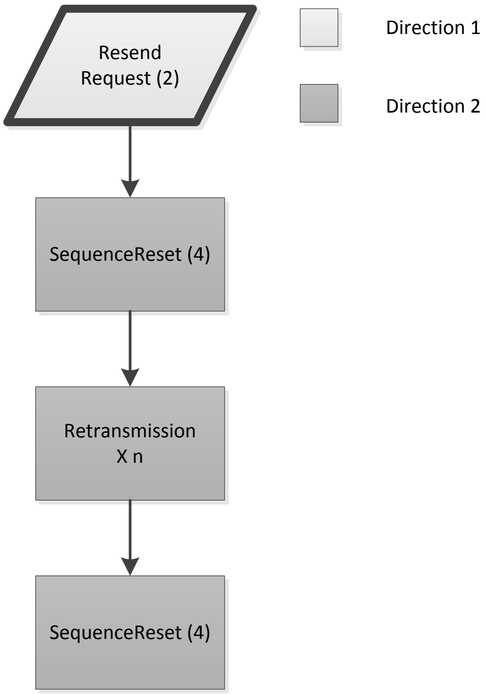


6.5.4 Resend Request

The Resend Request is sent to initiate the retransmission of messages. This message is not supported by the Query server.

Tag ID	Name	Mandatory?	Comments
Standard Header		Yes	MsgType (35) = 2.
7	**BeginSeqNo**	Yes	Sequence number of the first message in the range to be re-sent.
16	**EndSeqNo**	Yes	Sequence number of the last message in the range to be re-sent. If the request is for all messages, subsequent to a particular message the EndSeqNo field should be set to 0 (representing infinity).
Standard Trailer		Yes	See section [Standard Trailer].

Flow Diagram



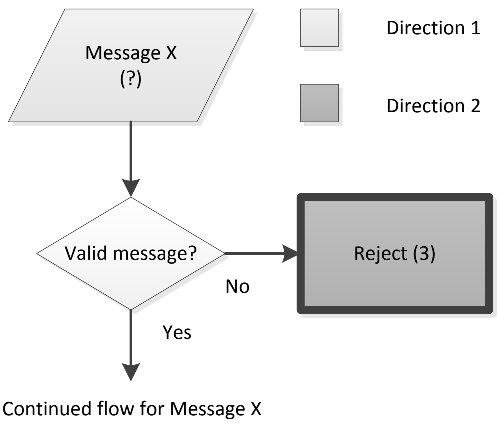
6.5.5 Reject

See section 6.3 for usage.

Tag ID	Name	Mandatory?	Comments
Standard Header		Yes	MsgType (35) = 3.
45	**RefSeqNum**	Yes	MsgSeqNum of rejected message.
371	**RefTagID**	No	The tag number of the FIX message being referenced.
372	**RefMsgType**	No	The MsgType of the FIX message being referenced.
373	**SessionRejectReason**	No	Code to identify the 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. • 9 – CompID problem. • 10 – SendingTime accuracy problem. • 11 – Invalid MsgType. • 13 – Tag appears more than once. • 14 – Tag specified out of required order. • 15 – Repeating group fields out of order. • 16 – Incorrect NumInGroup count for repeating group. • 17 – Non “data” value includes field delimiter (SOH character). • 98 – Service not available at this time. • 99 – Other.

Tag ID	Name	Mandatory?	Comments
58	**Text**	No	Where possible, message to explain reason for rejection.
Standard Trailer		Yes	See section [Standard Trailer].

Flow Diagram

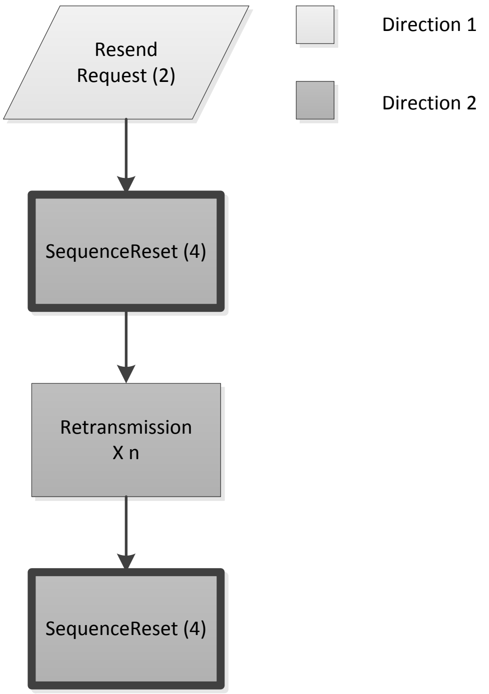


6.5.6 Sequence Reset

A Sequence Reset has two modes: Gap Fill Mode which is 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.

Tag ID	Name	Mandatory?	Comments
Standard Header		Yes	MsgType (35) = 4.
36	**NewSeqNum**	Yes	New sequence number.
123	**GapFillFlag**	No	Indicates that the Sequence Reset message is replacing administrative or application messages which will not be resent. • Y – Gap Fill message, *MsgSeqNum* field valid. • N – Sequence Reset, ignore *MsgSeqNum*.
Standard Trailer		Yes	See section [Standard Trailer].

Flow Diagram

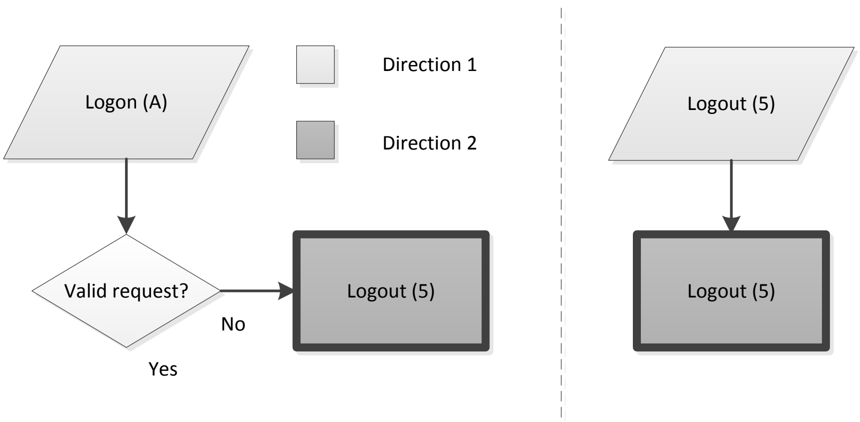


6.5.7 Logout

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

Tag ID	Name	Mandatory?	Comments
Standard Header		Yes	MsgType (35) = 5.
58	**Text**	No	Additional description of the message.
Standard Trailer		Yes	See section [Standard Trailer].

Flow Diagram



7 Business Layer

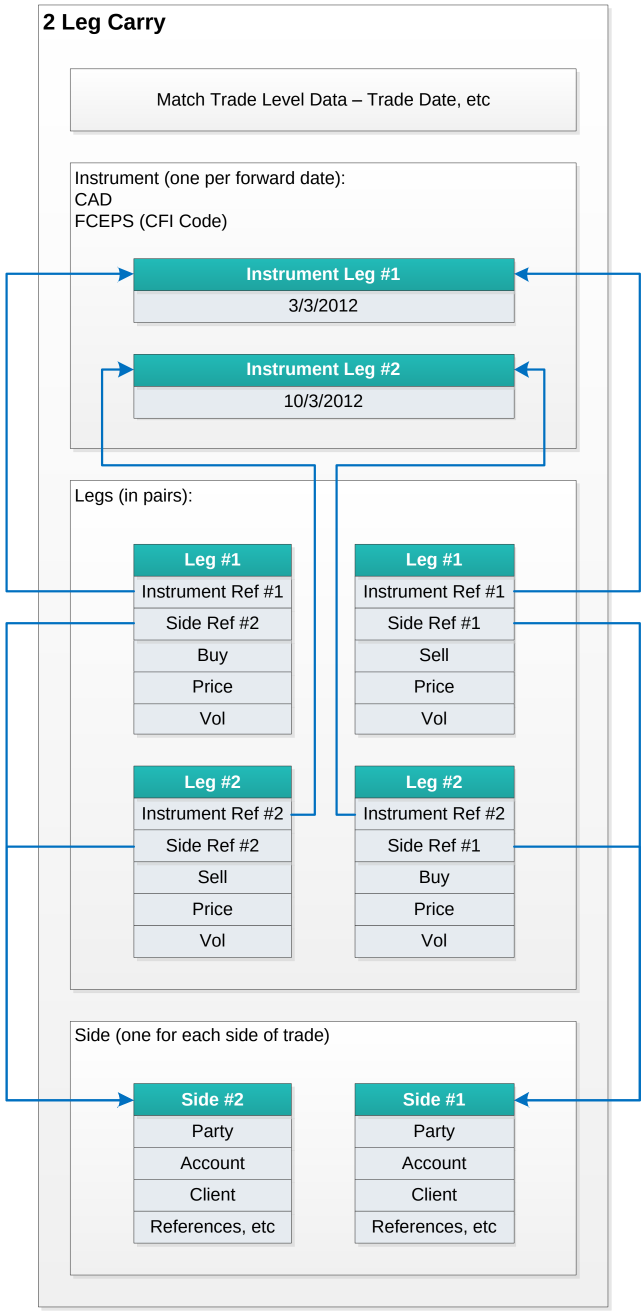
7.1 Trade Representation

Carry trades are matched as a single unit. LME Clear must also assess them for risk as a single unit. For FIX to support multi-legged LME carries, the following approach is taken:

The Instrument data block has been expanded to include a repeating group to hold all the instruments for the carry. Each element in the group has an InstrumentLegNo, example below.

There is no requirement for the instruments in a carry to be in chronological order.

Note: For non carries, the structure is the same except only the first instrument and leg pair are required.



This issue is only relevant to Trade Management. Once novated, carries are maintained at component position level.

7.2 Trade Management

This section details the trade messages that are used by members, ISVs and LME Clear to support the reporting of trades for clearing, along with associated notifications.

LME Clear can send to the subscriber one or more TradeCaptureReport (AE) messages indicating the LME Clear status of the trade. On the Query server, the receipt of these messages can be subscribed to/unsubscribed to via the TradeCaptureReportRequest (AD) message (section 7.3.1). If subscribed to, the possible trade states and responses are below.

On the Trade Stream server, TradeCaptureReport (AE) messages are supplied automatically.

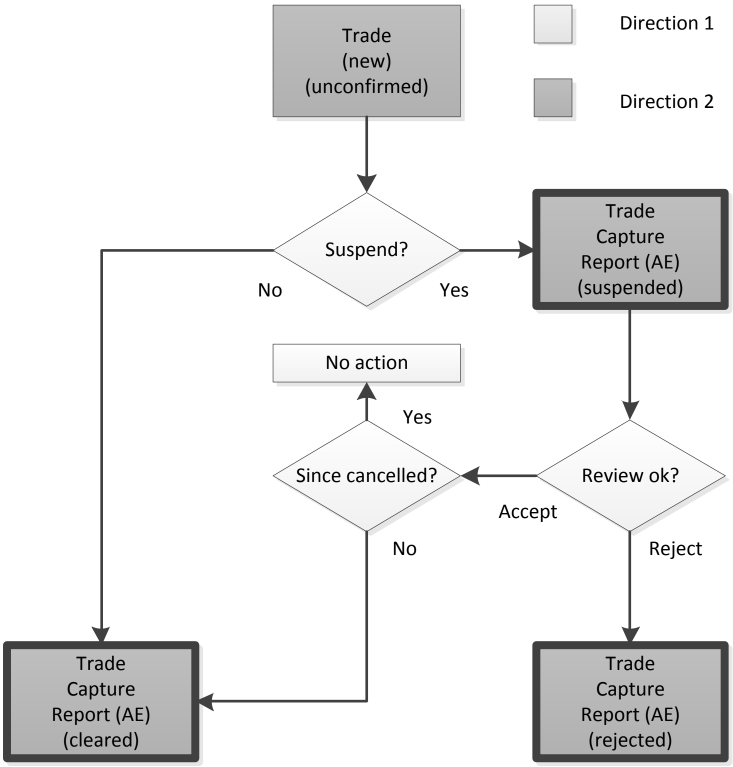
Trade State				
Previous State	**New State**	**Message**	**ExecType**	**Comment**
Trade New (unconfirmed)	Trade New Cleared	TradeCaptureReport (AE)	F (Trade)	
Trade New (unconfirmed)	Trade New Suspended	TradeCaptureReport (AE)	9 (Suspended)	
Trade New Cleared	Trade Cancelled	TradeCaptureReport (AE)	H (Cancelled)	
Trade New suspended	Trade New Cleared	TradeCaptureReport (AE)	F (Trade)	
Trade New suspended	Trade New Rejected	TradeCaptureReport (AE)	8 (Rejected)	
Trade New suspended	Trade Cancelled	TradeCaptureReport (AE)	H (Cancelled)	Trade cancelled while pended.
Trade Cancel (unconfirmed)	Trade Cancelled	TradeCaptureReport (AE)	H (Cancelled)	
Trade Cancel (unconfirmed)	Trade Cancel Rejected	TradeCaptureReport (AE)	8 (Rejected)	There is a conflict with a business event or adjustment.

7.2.1 Abbreviated Price Conversion

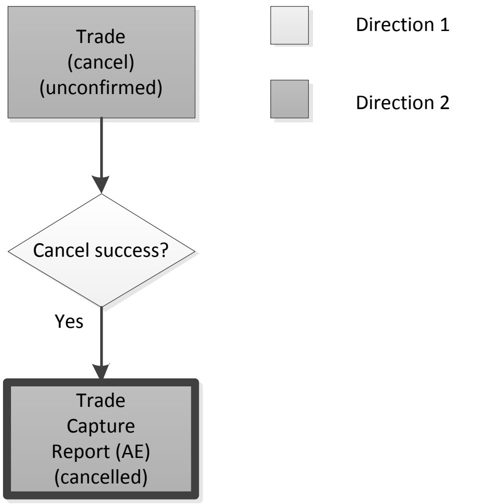
Subscribers are not notified of abbreviated price conversions. Subscribers can fix the price for abbreviated price trades on receipt of the market data from either the Exchange or LME Clear.

7.2.2 Flow Diagrams

New Trade



Trade Cancel



7.2.3 Trade Capture Report – LME Clear to Subscriber

<u>Server Support: Trade Stream, Query</u>

If subscribed to (refer to section 7.3.1), TradeCaptureReport (AE) messages are sent unsolicited to service subscribers to indicate any change of status.

TradeCaptureReport (AE) messages are sent unsolicited to indicate any change of status. To receive these messages from the Query server, they have to be subscribed to (refer to section 7.3.1). A subscription is not necessary on the Trade Stream server.

If a subscriber represents the members for both sides of a trade (e.g. a bureau), Trade Capture Report (AE) messages will contain both members' 'sides' in a single message.

Tag ID	Name	Data Type	Mandatory?	Comments
Standard Header			Yes	MsgType (35) = AE.
571	**TradeReportID**	String	Yes	Unique identifier for the Trade Capture Report.
487	**TradeReportTransType**	Int	No	Identifies Trade Report message transaction type. Valid values: • 0 – New
856	**TradeReportType**	Int	Yes	Trade report type as specified in the originating trade capture report. • 0 – Submit • 6 – Trade Report Cancel
568	**TradeRequestID**	String	No	The originating request identifier if this message is in response to a trade capture report request.
855	**SecondaryTrdType**	Int	No	Clearing trade event description. • 1 – LME Clear Trade Insert • 2 – LME Clear Trade Cancellation
150	**ExecType**	Char	Yes	The type of execution being reported, one of the following values: • 8 – Rejected • 9 – Suspended • F – Trade • H – Cancelled
748	**TotNumTradeReports**	Int	No	Used if the message is provided in response to a trade capture report request and indicates the number of trade reports provided in the message.
912	**LastRptRequested**	Boolean	No	Indicates if this is the last message in a snapshot response to a trade capture report request.
325	**UnsolicitedIndicator**	Boolean	No	Indicates if this message is being provided as part of a subscription request. Not supplied for snapshots.
572	**TradeReportRefID**	String	No	The TradeReportID from the original TradeCaptureReport (AE) submitted by the exchange.

Tag ID	Name	Data Type	Mandatory?	Comments
880	**TrdMatchID**	String	Yes	A match ID assigned by LME Clear to all matched trades. Same ID for buy and sell side.
17	**ExecID**	String	No	Exchange assigned Matched Trade reference.
570	**PreviouslyReported**	Boolean	Yes	Indicates whether the trade capture report was previously reported to the counterparty. This is set to N in all cases.
5940	**SelectTradeNumber**	String	No	Where a trade is reported via LMEselect, the trade reference will be included here. An example would be TN-AA-20100331-00001.
7931	**VenueID**	Int	No	Venue of execution • 0 – Telephone • 1 – Ring • 2 – Select • 3 – Basis Ring • 4 – OTC
	Instrument		Yes	See section [Instrument Component Block].
31	**LastPx**	Price	No (Conditional)	Option premium. Supplied if the CFICode (461) tag defines an option or TAPO contract. Refer to section 7.2.5.
943	**TimeBracket**	String	No (Conditional)	LME session time, e.g. R1. Supplied if TradeTime not supplied.
75	**TradeDate**	LocalMktDate	Yes	Indicates the date of the trade referenced in the message, in the format YYYYMMDD.
555	**NoLegs**	NumInGroup	Yes	Specifies the number of Instrument Legs (repeating groups) for a carry trade.
→ 624	**LegSide**	Int	Yes	1 or 2 to correspond to Side (54).
→ 20005	**LegInstrument**	Int	Yes	Corresponds to InstrumentLegNo.
→ 20006	**LegBuySell**	Char	Yes	• B – Buy • S – Sell
→ 5474	**AbbreviatedPrice**	String	No	Contract Price. Price of the leg can be expressed as: (a) A price code expressions (e.g. S + 10 which means settlement price plus ten). Valid price codes are S, C, MC, M3 & B (basis). This is only valid for futures. (b) A differential (e.g. -10 which means ten units lower than the price of the first leg). A valid differential is a number prefixed with either (+) or (-). Refer to section 7.2.4.

Tag ID	Name	Data Type	Mandatory?	Comments
→ 198	**SecondaryOrderID**	String	No	Generated by LMEsmart at half trade leg level. Also known as LMEsmart Order ID.
→ 10003	**LegLastQty**	Qty	Yes	Details the trade quantity for this leg.
→ 637	**LegLastPx**	Price	No (Conditional)	Represents the price for the current trade leg. Supplied if the trade has a non abbreviated price. Refer to section 7.2.4.
→ 5442	**MatchingSlipID**	Int	Yes	The slip id as allocated by LMEsmart.
→ 20007	**UniqueTransactionId**	String	Yes	The ESMA Unique Transaction Identifier.
60	**TransactTime**	UTCTimestamp	Yes	The time that the transaction represented in the trade capture report took place.
552	**NoSides**	NumInGroup	Yes	The number of half trades contained in the structure.
→ 54	**Side**	Char	Yes	Indicates the side category based on the following values: • 1 – First Side • 2 – Second Side
→ 527	**SecondaryExecID**	String	No	Reference supplied by LME Clear to reference an accepted trade. At half trade level.
→ 37	**OrderID**	String	Yes	Order ID generated by LMEsmart.
→ 11	**ClOrdID**	String	No	Client supplied Order ID at half trade level.
→	**Parties**			See section [Parties Block].
→ 1	**Account**	String	Yes	Account mnemonic. Only supplied on Sides that match eligibility for the subscriber.
→ 581	**AccountType**	Int	Yes	Indicates the type of account associated with the original order. The following values are applicable: • 1 – ISA • 2 – House • 3 – Omnibus Only supplied on Sides that match eligibility for the subscriber.

Tag ID	Name	Data Type	Mandatory?	Comments
→ 5681	**ExchangeTradeType**	Int	No	Exchange defined type of trade • 0 – NORMAL • 2 – GIVE-UP EXECUTOR • 3 – MEMBER CLEARING • 4 – HISTORIC PRICE CARRY • 5 – OPTION EXPIRY FUTURE • 6 – REVERSAL • 7 – CORRECTION • 8 – EXCEPTION • 9 – OTC BRING ON • 10 – OTC TAKE OFF • 11 – TRANSFER SEND • 12 – TRANSFER RECEIVE • 14 – GIVE-UP CLEARER • 15 – FINANCING
→ 109	**ClientID**	String	No	Client identifier. Only supplied on Sides that match eligibility for the subscriber.
→ 5476	**PrivateReference**	String	No	Private Reference. Only supplied on Sides that match eligibility for the subscriber.
→ 5477	**PublicReference**	String	No	Public Reference. Only supplied on Sides that match eligibility for the subscriber.
→ 5179	**TradeTime**	String	No (Conditional)	HHMMSS Supplied if TimeBracket not supplied.
→ 58	**Text**	String	No	Used to specify an optional reference on a trade Only supplied on Sides that match eligibility for the subscriber.
Standard Trailer			Yes	See section [Standard Trailer].

7.2.4 Trade References

LME Clear allocates references at both matched and half trade level. The table below describes the usage in the TradeCaptureReport (AE) messages:

Scenario	TrdMatchID (880)	SecondaryExecID (527)
TradeCaptureReport (AE) (half trade) to member 1	1133578710056001	1133578710056001
TradeCaptureReport (AE) (half trade) to member 2	1133578710056001	1133578710056003

7.2.5 Price Field Mappings

The price fields LastPX, StrikePrice, LegLastPX and AbbreviatedPrice are populated by LME Clear in the outgoing TradeCaptureReport (AE) message as follows:

Scenario[2]	LastPX	Strike	LegLastPX	AbbreviatedPrice
Option received	Option Premium	Strike	Not supplied	Not supplied
Future received with explicit price	Not supplied	Not supplied	Explicit price	Not supplied
Future received with abbreviated price before reference price known by RTC	Not supplied	Not supplied	Not supplied	Abbreviated price
Future received with abbreviated price after reference price known by RTC	Not supplied	Not supplied	Explicit price	Abbreviated price

[2] Also see section 7.2.1.

7.3 Trade Reporting

This section provides details on messages:

- Used to report on trades that have been registered and/or novated within the LME Clear environment.
- Subscribe/unsubscribe to Trade Capture Reports.

7.3.1 Trade Capture Report Request – Subscriber to LME Clear

Server Support: Query

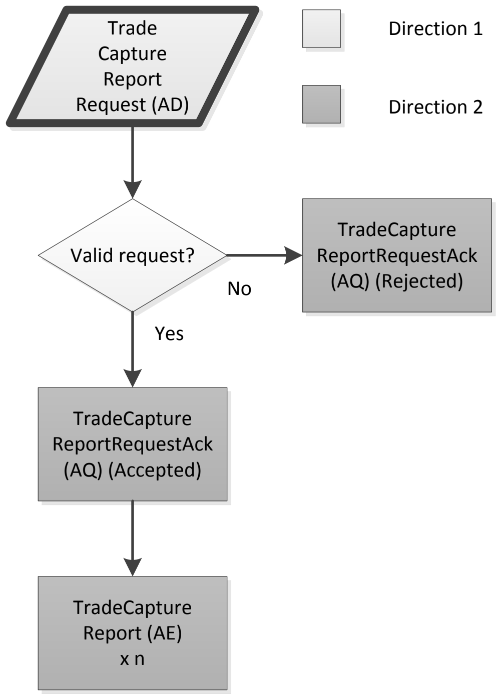
The TradeCaptureReportRequest (AD) message is used to request all TradeCaptureReport (AE) messages matching the criteria supplied within the message. It is also used to subscribe/unsubscribe to the receipt of unsolicited TradeCaptureReport (AE) messages.

The TradeCaptureReportRequest message is always acknowledged by a TradeCaptureReportRequestAck (AQ) message.

Tag ID	Name	Data Type	Mandatory?	Comments
Standard Header			Yes	MsgType (35) = AD.
568	**TradeRequestID**	String	Yes	Unique identifier for the request.
569	**TradeRequestType**	Int	Yes	Always specify 1 for matched trades as all other values are unsupported.
263	**SubscriptionRequestType**	Char	No	Use this field to subscribe/unsubscribe to the receipt of unsolicited TradeCaptureReports. • 0 – Snapshot (Default) • 1 – Snapshot + Updates (Subscribe) • 2 – Disable previous Snapshot + Update Request (Unsubscribe) Subscription settings are valid for the session only. If a subscription of updates is required, this must be subscribed to for each FIX session.
571	**TradeReportID**	String	No	Use this field to request a trade report by TradeReportID.
17	**ExecID**	String	No	Use this field to request a specific trade report based on the Original Exchange assigned Matched Trade reference.
818	**SecondaryTradeReportID**	String	No	Use this field to request a specific trade report based on the LME Clear assigned match identifier (as supplied in the SecondaryExecID (527)). The value used depends on whether the request is for the buy or sell side, as each is assigned different values by the clearing platform.
880	**TrdMatchID**	String	No	Use this field to request a specific trade report based on the Clearing assigned Matched Trade reference.
	Parties		No	Use this block to request specific trade reports based on the parties within the trade, e.g. Clearing Member. See section [Parties Block].
	Instrument		No	See Section [Instrument Component Block].

Tag ID	Name	Data Type	Mandatory?	Comments
580	**NoDates**	NumInGroup	No	Use this block to specify the trading day or days for which trade capture reports are to be returned. If no value is provided, then the current trading day is assumed. If a request is for data relating to a date range, specify two dates. Note that only the current and previous day's trades are available via FIX.
→ 60	**TransactTime**	UTCTimestamp	No	Timestamp to be used when returning trade capture reports. The timestamp relates to the business transaction time of the original message. Only the date portion of this filter is used. The time portion is ignored.
Standard Trailer			Yes	See section [Standard Trailer].

Flow Diagram



7.3.2 Trade Capture Report Request Ack – LME Clear to Subscriber

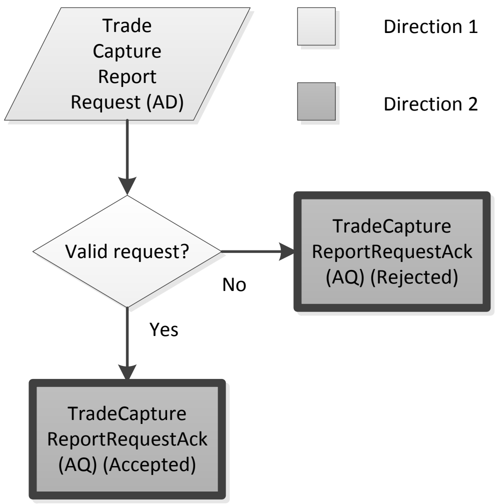
Server Support: Query

The following message is provided as an acknowledgement of a TradeCaptureReportRequest (AD) message.

Note that if there are no trades available that match the requested criteria, it is possible to receive a TradeCaptureReportRequestAck (AQ) with a TradeRequestResult of '0' (Successful). In this scenario, there are no following TradeCaptureReport (AE) reports.

Tag ID	Name	Data Type	Mandatory?	Comments
Standard Header			Yes	MsgType (35) = AQ.
568	**TradeRequestID**	String	Yes	Unique identifier from the trade capture report request.
569	**TradeRequestType**	Int	Yes	Always specify 1 for matched trades as all other values are unsupported.
748	**TotNumTradeReports**	Int	No	Indicates the number of trade capture reports that match the criteria specified in the original trade capture report request.
749	**TradeRequestResult**	Int	Yes	Denotes the result of the trade request: • 0 – Successful • 99 – Other
750	**TradeRequestStatus**	Int	Yes	Status of the trade request: • 0 – Accepted • 1 – Completed • 2 – Rejected
	Instrument		No	See section [Instrument Component Block]. Populated if supplied on the incoming TradeCaptureReportRequest (AD) message.
58	**Text**	String	No	Used to provide informative text when a request is rejected.
Standard Trailer			Yes	See section [Standard Trailer].

Flow Diagram



7.4 Position Reporting

This section details the position management messages used by members, ISVs and LME Clear to support the reporting of positions in LME Clear. These messages support the following functions:

- Open Position Requests and Reports

Unsolicited notifications of all position changes, including from option exercise, can be sent in real time to the subscriber by one or more subsequent PositionReport (AP) messages. The receipt of these real time messages can be subscribed/unsubscribed to via the use of the SubscriptionRequestType field in the RequestForPositions (AN) message (section 7.4.1).

To subscribe, send a RequestForPositions (AN) message with SubscriptionRequestType set to 1.

To unsubscribe, send a RequestForPositions (AN) message with SubscriptionRequestType set to 2.

RequestForPositions (AN) messages can also be used to initiate additional PositionReport (AP) messages, providing a definitive snapshot of the positions matching the criteria supplied with the request message. See section 7.4.3.

7.4.1 Request For Positions – Subscriber to LME Clear

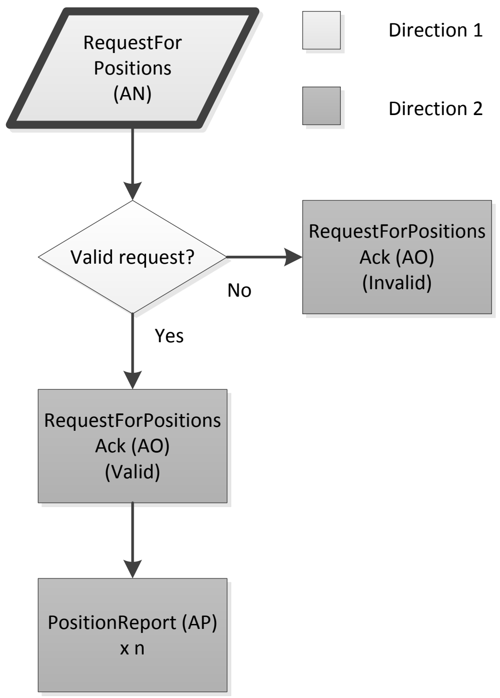
Server Support: Query

The RequestForPositions (AN) message is always acknowledged by a RequestForPositionsAck (AO) message. After the RequestForPositionsAck (AO) has been sent, if the subscriber RequestForPositions (AN) message is not rejected outright (perhaps due to syntax), LME Clear can send to the subscriber one or more subsequent PostionReport (AP) messages reporting requested positions.

Tag ID	Name	Data Type	Mandatory?	Comments
Standard Header			Yes	MsgType (35) = AN.
710	**PosReqID**	String	Yes	Unique identifier for the request.
724	**PosReqType**	Int	Yes	• 0 – Positions
263	**SubscriptionRequestType**	Char	No	Use this field to subscribe/unsubscribe to the receipt of unsolicited PositionReport messages. • 0 – Snapshot (Default) • 1 – Snapshot + Updates (Subscribe) • 2 – Disable previous Snapshot + Update Request (Unsubscribe) Subscription settings are valid for the session only. By default, PositionReport messages are not subscribed to.
	Parties		No	Use this block to request specific position reports based on the parties within the trade, e.g. Clearing Member.
1	**Account**	String	No	Specifies the associated Account for the maintenance request.

Tag ID	Name	Data Type	Mandatory?	Comments
581	**AccountType**	Int	No	Indicates the type of account associated with the original order. The following values are applicable: • 1 – ISA • 2 – House • 3 – Omnibus
	Instrument		No	See Section [Instrument Component Block].
715	**ClearingBusinessDate**	LocalMktDate	Yes	Indicates the required clearing date for the request. Note that only the current day's positions are available via FIX.
60	**TransactTime**	UTCTimestamp	Yes	Timestamp to be used when returning position reports. The timestamp relates to the business transaction time of the original message. Only the date portion of this filter is used. The time portion is ignored.
Standard Trailer			Yes	See section [Standard Trailer].

Flow Diagram



7.4.2 Request For Positions Ack – LME Clear to Subscriber

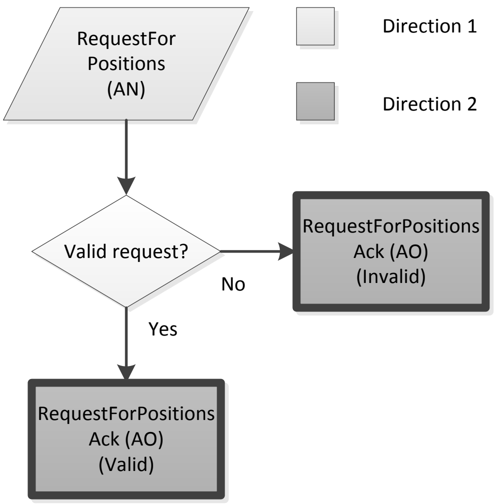
Server Support: Query

The following message is provided as an acknowledgement of a RequestForPositions (AN) message.

Note that if there are no positions available that match the requested criteria, it is possible to receive a RequestForPositionsAck (AO) with a PosReqResult of ‘0’ (Valid Request). In this scenario, there are no following PositionReport (AP) messagess.

Tag ID	Name	Data Type	Mandatory?	Comments
Standard Header			Yes	MsgType (35) = AO.
721	**PosMaintRptID**	String	Yes	Unique identifier from the Request For Positions.
728	**PosReqResult**	Int	Yes	• 0 – Valid request • 1 – Invalid or unsupported request • 3 – Not authorized to request positions • 4 – Request for Position not supported
729	**PosReqStatus**	Int	Yes	• 0 – Completed • 2 – Rejected
	Parties		No	See section [Parties Block]. Populated if supplied on the incoming RequestForPositions (AN) message.
	Instrument		No	See section [Instrument Component Block]. Populated if supplied on the incoming RequestForPositions (AN) message.
Standard Trailer			Yes	See section [Standard Trailer].

Flow Diagram



7.4.3 Position Report – LME Clear to Subscriber

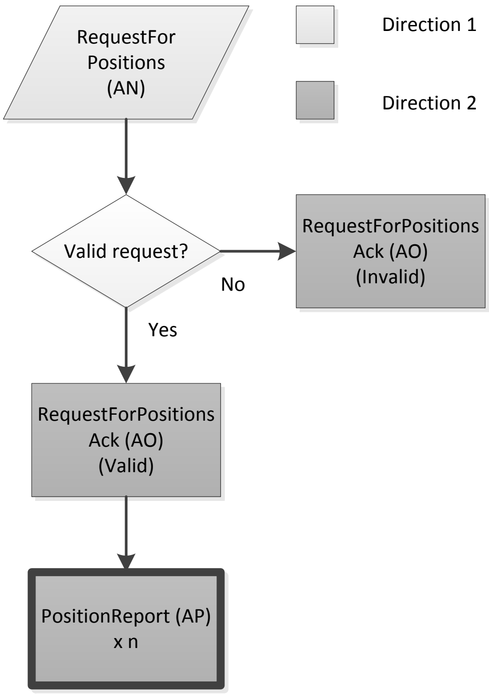
Server Support: Query

The PositionReport (AP) message is sent on demand following LME Clear receipt of a RequestForPositions (AN) message and a success status response in a RequestForPositionsAck (AO) message.

Tag ID	Name	Data Type	Mandatory?	Comments

Tag ID	Name	Data Type	Mandatory?	Comments
Standard Header			Yes	MsgType (35) = AP.
721	**PosMaintRptID**	String	Yes	Unique identifier for the position report.
710	**PosReqID**	String	No	The originating request identifier.
325	**UnsolicitedIndicator**	Boolean	No	Indicates whether or not this message is being sent as the result of a subscription request. Not supplied for snapshots.
728	**PosReqResult**	Int	Yes	Indicates that the message is a result of a position request. The value is 0 for a valid request.
715	**ClearingBusinessDate**	LocalMktDate	Yes	The clearing business date.
	Parties			See section [Parties Block].
1	**Account**	String	No	Used to indicate the risk Account group against which margin is calculated.
581	**AccountType**	Int	No	Indicates the type of account associated with the original order. The following values are applicable: • 1 – ISA • 2 – House • 3 – Omnibus
	Instrument		Yes	See section [Instrument Component Block].
730	**SettlPrice**	Price	No	The mark-to-market price for the position.
	PositionQty		Yes	See section [Position Quantity Block].
20007	**UniqueTransactionId**	String	No	The ESMA Unique Transaction Identifier.
Standard Trailer			Yes	See section [Standard Trailer].

Flow Diagram


RequestFor
Positions
(AN)
Direction 1
Direction 2
Valid request?
No
RequestForPositions
Ack (AO)
(Invalid)
Yes
RequestForPositions
Ack (AO)
(Valid)
PositionReport (AP)
x n

7.5 Market Data

This section describes the messages used by members and ISVs to support the reporting of market data in LME Clear.

The FIX subscription functionality is not supported for market data. This is because market data is only sent in response to a MarketDataRequest (V) message, usually sent following the notification of market data availability via a News (B) message – refer to section 7.6.2. If a market dataset is requested prior to the appropriate News (B) message being issued, the response will contain the latest dataset available. Typically this would be the previous day's.

The types of market wide data available are a subset of the LME Clear published XML and CSV data files of the same name:

- Settlement and Mean Prices
- Futures Closing Prices
- Asian Benchmark Prices
- Notional Average Prices
- Traded Option Prices
- TAPO Prices
- Exchange Rates
- Interest Rates

The following types of market wide data are not available via the FIX API:

- Open Interest
- Auto Exercise Gradations
- SPAN File
- Market Prices File (SET/CLO)

LME Clear responds to a MarketDataRequest (V) message with either a MarketDataRequestReject (Y) or MarketDataSnapshotFullRefresh (W) message.

7.5.1 Market Data Request – Subscriber to LME Clear

Server Support: Query

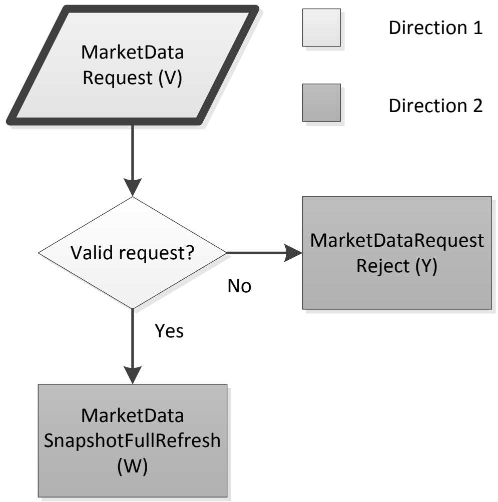
The MarketDataRequest (V) message is used to request all MarketDataSnapshotFullRefresh (W) messages matching the data type criteria supplied within the message.

If the MarketDataRequest (V) message is invalid or the requested data is unavailable, a MarketDataRequestReject (Y) message is returned.

Tag ID	Name	Data Type	Mandatory?	Comments
Standard Header			Yes	MsgType (35) = V.
262	**MDReqID**	String	Yes	Unique identifier for the request.
263	**SubscriptionRequestType**	Char	Yes	Always specify '0' for Snapshot.
264	**MarketDepth**	Int	Yes	Ignored.
265	**MDUpdateType**	Int	No	If supplied, specify '0' for Full Refresh.

Tag ID	Name	Data Type	Mandatory?	Comments
267	**NoMDEntryTypes**	NumInGroup	Yes	Specifies the number of market data entry types specified in the request. Always specify '1'.
→ 269	**MDEntryType**	Char	Yes	Repeating group that specifies the types of market wide data requested, based on the following accepted values: • a – 'Settlement and Mean Prices' • b – 'Futures Closing Prices' • c – 'Asian Benchmark Prices' • d – 'Notional Average Prices' • e – 'Traded Option Prices' • f – 'TAPO Prices' • g – 'Exchange Rates' • h – 'Interest Rates'
Standard Trailer			Yes	See section [Standard Trailer].

Flow Diagram



7.5.2 Market Data Request Reject – LME Clear to Subscriber

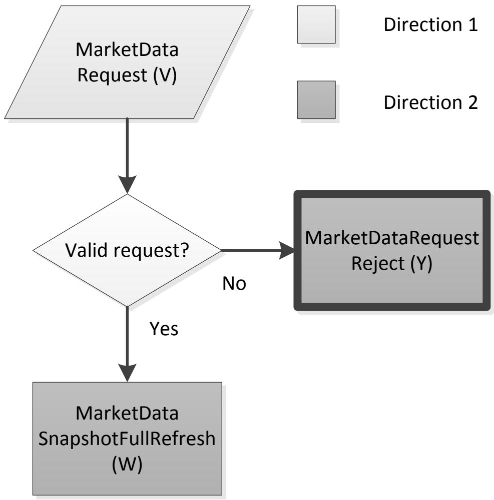
Server Support: Query

The MarketDataRequestReject (Y) message is provided as an acknowledgement of invalid or MarketDataRequest (V) messages, or if the requested data is unavailable.

Tag ID	Name	Data Type	Mandatory?	Comments
Standard Header			Yes	MsgType (35) = Y.
262	**MDReqID**	String	Yes	Unique identifier from the original market data request.

Tag ID	Name	Data Type	Mandatory?	Comments
281	**MDReqRejReason**	Char	No	Specifies the reason why the market data request was rejected, based on the following values: • 1 – Duplicate Request Identifier • 4 – Unsupported Subscription Request Type • Y – Unknown Request Identifier • Z – Other
58	**Text**	String	No	Free format text that optionally contains additional information on the reason for the request being rejected.
Standard Trailer			Yes	See section [Standard Trailer].

Flow Diagram



7.5.3 Market Data – Snapshot/Full Refresh – LME Clear to Subscriber

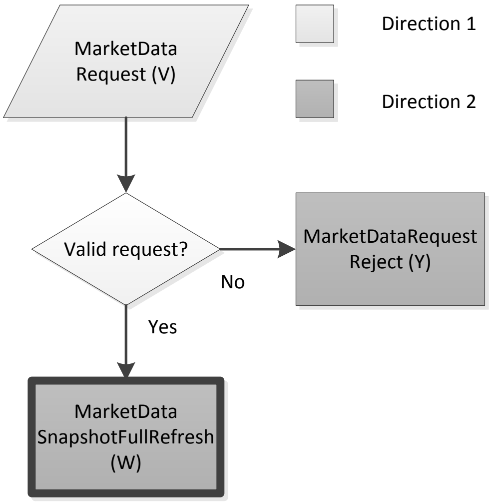
Server Support: Query

A MarketDataSnapshotFullRefresh (W) message is sent following LME Clear receipt of a valid MarketDataRequest (V) message.

Tag ID	Name	Data Type	Mandatory?	Comments
Standard Header			Yes	MsgType (35) = W.
212	**XmlDataLen**	Length	No	Part of Standard Header. Length of the XmlData (213) data block.
213	**XmlData**	Data	No	Part of Standard Header. Actual XML data stream in compressed format. Note: may contain embedded SOH characters.
262	**MDReqID**	String	No	Unique identifier from the original market data request.
268	**NoMDEntries**	NumInGroup	Yes	Specifies the number of repeating market data group entries within the message.

Tag ID	Name	Data Type	Mandatory?	Comments
→ 269	**MDEntryType**	Char	Yes	Specifies the entry type as supplied in the MarketDataRequest (V) message.
→ 272	**MDEntryDate**	UTCDateOnly	No	Specifies the date for the market data, based on the UTC date format, e.g. YYYYMMDD.
Standard Trailer			Yes	See section [Standard Trailer].

Flow Diagram



7.6 General

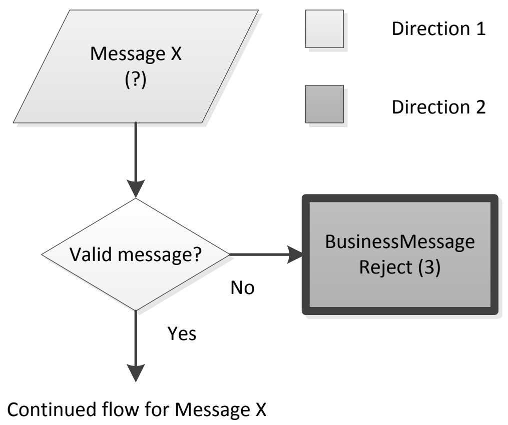
7.6.1 Business Message Reject

Server Support: All

Tag ID	Name	Data Type	Mandatory?	Comments
Standard Header			Yes	MsgType (35) = j.
45	**RefSeqNum**	SeqNum	No	The MsgSeqNum for the rejected message.
372	**RefMsgType**	String	Yes	The MsgType of the rejected message.
379	**BusinessRejectRefID**	String	No (Conditional)	Specifies the originating identifier of the message and is required unless no identifier was supplied.

Tag ID	Name	Data Type	Mandatory?	Comments
380	**BusinessRejectReason**	Int	Yes	Specifies the reason that the message was rejected based on the following values: • 0 – Other • 1 – Unknown ID • 2 – Unknown security • 3 – Unsupported message • 4 – Application not available • 5 – Conditionally required field not provided • 6 – Not authorised
58	**Text**	String	No	Additional information about the message in the form of free format text .
Standard Trailer			Yes	See section [Standard Trailer].

Flow Diagram



7.6.2 News – LME Clear to Subscriber

Server Support

All News messages are available on the Query server.

Only the End Of Trade Messages (EOT) and End Of Messages (EOM) are available on the Trade Stream server.

The News (B) message is used to advise of the following:

- General broadcast message.
- Business events: see following table.
- New static data.
- New market wide data.
- New member specific data.
- New member reports.
- Margin call.
- End of trade messages for the current day.
- Reports and reporting data availability.
- End of all messages for the current day.

Tag ID	Name	Data Type	Mandatory?	Comments
Standard Header			Yes	MsgType (35) = B.
42	**OrigTime**	UTCTimestamp	No	Unique identifier for the request.
61	**Urgency**	Char	No	This can be: • 0 – Normal • 1 – Flash (Alert)
148	**Headline**	Char	Yes	The headline text as defined in the table above.
33	**NoLinesOfText**	NumInGroup	Yes	Identifies number of lines of text body.
→ 58	**Text**	String	Yes	Additional description of the message, as described in the table below.
Standard Trailer			Yes	See section [Standard Trailer].

Most market data, member trades and positions are available via the FIX API. Static data, some market data and most member data are only available as XML or CSV data files from the subscriber's FTP directory.

Changes to the data are flagged via the FIX API but the data can only be picked up from the subscriber's FTP directory – refer to the LME Clear Data File Specification.

On (re-)connection to the Query server, all news messages issued for the current day so far are re-issued. As this server does not support the Resend message, this ensures that the subscriber always receives all news messages.

It is possible for a news message for a given dataset/report/event to be issued more than once in a day. This could potentially happen if the previously issued information was incorrect. To cater for this possibility, each news message contains a sequence number in the first Text tag. This can be used to ensure that the latest dataset has been downloaded when reconnecting after a communication outage. Note that the sequence number increments for each news message issued regardless of the dataset, for example:

News for Dataset	Sequence Number	Comment
SET	1	
FCP	2	
INR	3	
EXR	4	
FCP	5	Re-issue of FCP.

An example first News message for the availability of settlement prices will include the following:

Tag ID	Content

Tag ID	Content
Headline	New Market Wide Data
NoLinesOfText	2
→ Text	Sequence number: 1
→ Text	SET

The **Headline** and **Text** fields in the message are used as below. Additional Text tags include the full path and filename for any relevant data file or report file.

Headline	Text	Comment
'Broadcast'	'GEN'	General purpose message for passing news/information to member systems. A variable number of Text lines will be supplied.
'Business Event'	'BE1' 'BE2' 'BE3' 'BE4' 'BE5'	'Option Assignment process has now started.' 'Open position and granter assignments are now available.' 'LME Warrant Delivery Allocations are now available.' 'TAPO Declaration and Assignment now available.' 'Index Option Declaration and Assignment now available.'
'New Static Data'	'CNT' 'CON' 'CUR' 'FRP' 'INS' 'MDT' 'MEM' 'SCH' 'SCT' 'UND'	Changes to static data are not flagged at datatype level; instead this message indicates that there is a change to part of the static dataset so the subscriber should collect and update static on the connecting system. • 'CNT' – Contract Types • 'CON' – Contracts • 'CUR' – Currencies • 'FRP' – Fee Rules • 'INS' – Instruments • 'MDT' – Market Data Types • 'MEM' – Member List • 'SCH' – Schedule • 'SCT' – Sub Contract Types • 'UND' – Underlyings
'New Market Wide Data'	'ABP' 'ACP' 'AEG' 'CLO' 'EXR' 'FCP' 'INR' 'NAP' 'OPI' 'SET' 'SMP'	New Market Data (excluding Open Interest, Auto Exercise Gradations and Market Prices – SET/CLO) is also available via the FIX API. • 'ABP' – Asian Benchmark Prices • 'ACP' – TAPO Prices • 'AEG' – Auto Exercise Gradations • 'CLO' – Closing Prices • 'EXR' – Exchange Rates • 'FCP' – Future Closing Prices • 'INR' – Interest Rate • 'NAP' – Notional Average Prices • 'OPI' – Open Interest • 'SET' – Settlement Prices • 'SMP' – Settlement and Mean Prices • 'SPF' – SPAN File 'TCP' – Traded Option Prices

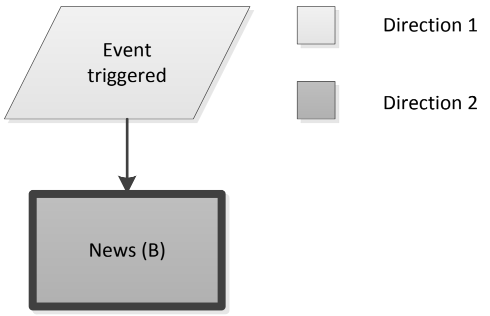
Headline	Text	Comment
	'SPF' 'TCP'	
'New Member Data'	'ACC' 'AEO' 'AMG' 'CDA' 'CFE' 'CLB' 'COD' 'COM' 'DCM' 'EXP' 'FDA' 'FEE' 'FPA' 'FSM' 'IAS' 'IWH' 'MCF' 'MDF' 'MFE' 'OPP' 'SMD' 'SMG' 'TRD' 'VMG' 'WDA' 'YAL'	New Member Data is not available via the FIX API. • 'ACC' – Accounts • 'AEO' – Auto Exercised Options • 'AMG' – Additional Margins • 'CDA' – Collateral Daily Activity • 'CFE' – Collateral Fees (Daily) • 'CLB' – Non Cash Collateral Balances • 'COD' – Cover Distribution • 'COM' – Compression Report • 'DCM' – Delivery Commitments • 'EXP' - Expiries • 'FDA' – Financial Daily Activity • 'FEE' – Fees (Daily) • 'FPA' – Financial Pending Daily Activity • 'FSM' – Financial Summary • 'IAS' – Invoice & Account Sales • 'IWH' – Warrant Holdings • 'MCF' – Collateral Fees (Monthly) • 'MDF' – Member Default Fund • 'MFE' – Fees (Monthly) • 'OPP' – Open Positions • 'SMD' – SPAN Margin Details • 'SMG' – Summary Margins • 'TRD' – Trades • 'VMG' - Variation Margins • 'WDA' – Non Cash Warrant Collateral Daily Activity • 'YAL' – Japanese Yen Advice
'Margin Call'	'MRG'	*Variable.*
'New Member Report'	*LMECaaaaa*	The report code supplied indicates that the report data is available for collection in PDF form from the member's FTP location.
'End of Trade Messages'	EOT	
'End of Messages'	EOM	

An example News message for the availability of the Financial Summary report:

Tag ID	Content
Headline	New Member Report
NoLinesOfText	4

Tag ID	Content
→ Text	Sequence number: 12
→ Text	LMECFINSR
→ Text	ABC\20130430\data\20130430_105941_ABC_TRD.xml
→ Text	ABC\20130430\data\20130430_105941_ABC_TRD.csv

Flow Diagram



Appendix A: CFI Codes

Code	Description	Used For
FCEPS	Future, Commodity, Extraction, Physical, Standardized.	Single outright futures
FFICS	Future, Financial, Index, Cash, Standardized.	Index futures
OPAFPS	Option, Put, American, Future, Physical, Standardized.	Metal future put options
OCAFPS	Option, Call, American, Future, Physical, Standardized.	Metal future call options
OPXTCS	Option, Put, Commodity, Cash, Standardized.	Metal TAPO puts
OCXTCS	Option, Call, Commodity, Cash, Standardized.	Metal TAPO calls
OPEICS	Option, Put, European, Index, Cash, Standardized.	Index put options
OCEICS	Option, Call, European, Index, Cash, Standardized.	Index call options
FCECS	Future, Commodity, Extraction, Cash, Standardized.	LmeMini and Swaps
MRCPS	Miscellaneous, Referential Instrument, Currency [FOR], Physical, Standardized.	OTC Precious

Appendix B: Deviation from FIX Protocol

Changed Message Definitions

The following message structures do not adhere to the FIX 4.4. protocol standards:

Type	Name	Change to Definition
AE	Trade Capture Report	To handle multi-legged carry/LME trades.
AD	Trade Capture Report Request	Contains changed Instrument block.
AQ	Trade Capture Report Request Ack	Contains changed Instrument block.
AL	Position Maintenance Request	Contains changed Instrument block.
AN	Request for Positions	Contains changed Instrument block.
AP	Position Report	To handle LME specific requirements. Also includes changed instrument block.

Changed Component Blocks

The following component blocks do not adhere to the FIX 4.4. protocol standards:

Name	Change to Definition
Instrument	To reflect LME.

User Defined Tags & Changed Tag Definitions

Fields with a Tag ID greater than 5000 are custom fields registered with FIX Protocol Organisation. The following custom fields are used to support LME Clear but they are either appearing in new messages or have modified definitions:

Tag ID	Name	Added to Message/Block	Change to Definition
5474	**AbbreviatedPrice**	TradeCaptureReport (AE)	
5475	**PromptDate**	Instrument Block	
5681	**ExchangeTradeType**	TradeCaptureReport (AE)	
5476	**PrivateReference**	TradeCaptureReport (AE)	
5477	**PublicReference**	TradeCaptureReport (AE)	
5940	**SelectTradeNumber**	TradeCaptureReport (AE)	

Fields with a Tag ID in the 20000 to 39999 range are user defined and unregistered. The following are used to support LME Clear.

Tag ID	Name	Added to Message	Comment/Definition
20004	**InstrumentLegNo**	TradeCaptureReport (AE)	As NoLegs.
20005	**LegInstrument**	TradeCaptureReport (AE)	To cross reference to InstrumentLegNo.
20006	**LegBuySell**	TradeCaptureReport (AE)	• B – Buy • S – Sell
20007	**UniqueTransactionId**	TradeCaptureReport (AE) PositionReport (AP)	ESMA required Unique Transaction Identifer, unique at half trade leg level.
20008	**UniqueProductId**	TradeCaptureReport (AE) PositionReport (AP)	ESMA required Unique Product Identifer.

The following tags are not part of FIX 4.4. but are used by LMEsmart or LMEselect. For consistency, the following are used:

Tag ID	Name	Added to Message/Block	Comment
109	**ClientID**	TradeCaptureReport (AE)	The Client Identifier.
10003	**LegLastQty**	TradeCaptureReport (AE)	Details the trade quantity for this leg. This tag is introduced as ID 1418 from 5.0SP1.

Tag ID	Name	Added to Message/Block	Comment
10010	**NoOfInstrumentLegs**	Instrument Block	Number the number instrument legs. 1 unless a carry trade.

The following tags are part of FIX 4.4. but have a changed/expanded definition:

Tag ID	Name	Added to Message/Block	Change to Definition
269	**MDEntryType**	MarketDataRequest (V)	This field uses different values from standard FIX 4.4.
581	**AccountType**	*Various messages*	This field has values with different meanings from FIX 4.4.

Appendix C: Comparison To XI+

Summary

Subscription	High Level Business Function	XI+ Provision	FIX Provision	Comment
All	Business Event Notifications/Broadcasts	Yes	Yes	
All	Trade Stream	Yes	Yes	
All	Position Stream	Yes	Yes	
All	Trade Reporting	Yes	Yes	
All	Market Data	Yes	Mostly	Notifications provided for SPAN file and Open Interest but data must be picked up via FTP.
All	Summary Margins	Yes	Partly	Notifications provided but data must be picked up via FTP.
Member/Bureau	Option Declaration	No	Yes	
All	Parameter Data Download	Yes	Partly	Notifications provided but data must be picked up via FTP.
All	Static Data Download	Yes	Partly	Notifications provided but data must be picked up via FTP.
All	Member Data Download	No	Partly	Notifications provided but data must be picked up via FTP.

Detail

- Prices: It is no longer possible to provide the Input/Calculated flag for each price. This dates from the MCS system. Since Synapse, all USD prices have been provided by the LME and all non USD prices have been calculated by LCH.Clearnet. This approach continues with LME Clear.

XI+ to FIX 4.4. Message Mapping

Functional Area	Specific Function	XI+ Type	XI+ Comment	FIX Message Type	FIX Comment	Primary Source	Primary Destination
Logon/Logoff	Logon Request	M003		Logon [type ‘A’]		LMEsmart/Member	LME Clear
	Logoff Request	M004		Logout [type '5']		LMEsmart/Member	LME Clear
Trade Reporting	Trade Status (Accepted / Rejected / Pending)	L058 L059	Sent unsolicited. Stream.	TradeCaptureReport [type ‘AE’]	Sent unsolicited. Stream.	LME Clear	LMEsmart/Member
	End of Trade Messages Notification	L063		News [type 'B']		LME Clear	LMEsmart/Member
	End of Messages for Trading Day Notification	L234		News [type 'B']		LME Clear	LMEsmart/Member
	Broadcast Message	L060		News [type 'B']		LME Clear	LMEsmart/Member
	Trade Search Request	M009		TradeCaptureReport [type ‘AD’]		LMEsmart/Member	LME Clear
	Trade Search Result	L051		TradeCaptureReport [type ‘AQ’]	Acknowledge Request	LME Clear	LMEsmart/Member
				TradeCaptureReport [type ‘AE’]	Results. Sent after Acknowledge Request.	LME Clear	LMEsmart/Member
Market Data *(also see Market Data n.n.xls)*	Available: Settlement Prices (inc MASP) (inc FX Rates)	L308/FS		News [type 'B']		LME Clear	Member
	Available: Closing Forward Prices	L308/FC		News [type 'B']		LME Clear	Member
	Available: Closing Traded Option Prices	L308/TC		News [type 'B']		LME Clear	Member
	Available: Closing TAPO Prices	L308/AC		News [type 'B']		LME Clear	Member
	Available: Exchange/Interest Rates	L311		News [type 'B']		LME Clear	Member
	Available: SPAN Parameter File	L313		News [type 'B']		LME Clear	Member

Functional Area	Specific Function	XI+ Type	XI+ Comment	FIX Message Type	FIX Comment	Primary Source	Primary Destination
	Price Search Request: Settlement Prices (inc MASP)	M300/S		MarketDataRequest [type 'V']		Member	LME Clear
	Price Search Request: Settlement Prices (Mean)	M300/M		MarketDataRequest [type 'V']		Member	LME Clear
	Price Search Request: Closing Forward Prices	M300/C/F		MarketDataRequest [type 'V']		Member	LME Clear
	Price Search Request: Traded Option Prices	M300/C/T		MarketDataRequest [type 'V']		Member	LME Clear
	Price Search Request: TAPO Prices	M300/C/A		MarketDataRequest [type 'V']		Member	LME Clear
	Price Search Result	L302		MarketDataSnapshotFullRefresh [type 'W']		LME Clear	Member
	Rates Search Request: FX Rate Curve	M301	XI+ returns FX and IR curves and DFs in the same message.	MarketDataRequest [type 'V']		LMEsmart/Member	LME Clear
	Rates Search Request: IR and DF Curve	M301	XI+ returns FX and IR curves and DFs in the same message.	MarketDataRequest [type 'V']		LMEsmart/Member	LME Clear
	Rates Search Result	L303		MarketDataSnapshotFullRefresh [type 'W']		LME Clear	Member
Position Management (Business Events)	Available: Open Position	L312		News [type 'B']		LME Clear	Member
	Available: Open Interest	L317		News [type 'B']		LME Clear	Member
	Position Search Request: Futures	M302/F		RequestForPositions [type 'AN']		LMEsmart/Member	LME Clear
	Position Search Request: Traded Options	M302/T		RequestForPositions [type 'AN']		LMEsmart/Member	LME Clear
	Position Search Request: TAPOs	M302/A		RequestForPositions [type 'AN']		LMEsmart/Member	LME Clear
	Position Search Result	L304		RequestForPositionsAck [type 'AO']	Acknowledge Request	LME Clear	LMEsmart/Member

Functional Area	Specific Function	XI+ Type	XI+ Comment	FIX Message Type	FIX Comment	Primary Source	Primary Destination
				PositionReport [type 'AP']	Results. Sent after Acknowledge Request.	LME Clear	LMEsmart/Member
	Position Modification: Settlement of Prompt Futures	L236/SET L221 L237		PositionReport [type 'AP']		LME Clear	Member
	Position Modification: Assignment of Exercised Options	L236/ASG L221 L237		PositionReport [type 'AP']		LME Clear	Member
	Position Modification: Futures Derived from Exercised Options	L236/FDO L221 L237		PositionReport [type 'AP']		LME Clear	Member
	Position Modification: Position Transfered	L236/TFR L221 L23T		PositionReport [type 'AP']		LME Clear	Member
	Position Modification: Exercised Option Positions	L236/EXR L221 L237		PositionReport [type 'AP']		LME Clear	Member
	Position Modification: Abandoned Option Positions	L236/ABD L221 L237		PositionReport [type 'AP']		LME Clear	Member
	Position Modification: Closed Out Option Positions	L236/OPC L221 L237		PositionReport [type 'AP']		LME Clear	Member
Trade Management (Adjustments by LME Clear)	Trade Insertion by LME Clear Operations	L059/IN		TradeCaptureReport [type 'AE']		LME Clear	Member
	Trade Cancellation by LME Clear Operations	L059/CA		TradeCaptureReport [type 'AE']		LME Clear	Member
Position Management (Adjustments by LME Clear)	Position Insertion/Cancellation	L221		PositionReport [type 'AP']		LME Clear	Member
Margins	Available: Summary Margins	L314		News [type 'B']		LME Clear	Member
	Margin Call	*N/A*	*Not available on XI+*	News [type 'B']	Used for margin call.	LME Clear	Member

Functional Area	Specific Function	XI+ Type	XI+ Comment	FIX Message Type	FIX Comment	Primary Source	Primary Destination
Option Declarations	Option Declaration Search Request	M320		RequestForPositions [type 'AN']		Member	LME Clear
	Option Declaration Request	M321		PositionMaintenanceRequest [type 'AL']		Member	LME Clear
	Option Declaration Safe Store	L321		PositionMaintenanceReport [type 'AM']		LME Clear	Member
	Option Declaration Search Result	L320		RequestForPositionsAck [type 'AO']	Acknowledge Request	LME Clear	Member
				PositionReport [type 'AP']	Results. Sent after Acknowledge Request.	LME Clear	Member
Report/Data Availability	Availability: Report or Data File	*N/A*	*Not available on XI*	News [type 'B']	Report or data file available indicated in message.	LME Clear	Member

Redundant XI+ Functionality

Specific Function	XI+ Type	Comment
Continue Search	M011	Redundant protocol level functionality.
Cancel Search	M012	Redundant protocol level functionality.
Next LTSS Message	L021	Redundant protocol level functionality.
Parameter Download Request: PARAMETER CHANGE DATES	M306	Not supported by LME Clear.
Parameter Download Request: VALID METAL CODES	M306	Not supported by FIX. Parameter data is available as an XML or CSV file by FTP server. Notification of availability via FIX.
Parameter Download Request: VALID COMMODITY CODES	M306	Not supported by FIX. Parameter data is available as an XML or CSV file by FTP server. Notification of availability via FIX.
Parameter Download Request: VALID CURRENCY CODES	M306	Not supported by FIX. Parameter data is available as an XML or CSV file by FTP server. Notification of availability via FIX.

Specific Function	XI+ Type	Comment
Parameter Download Request: VALID GENERIC CONTRACT TYPES	M306	Not supported by FIX. Parameter data is available as an XML or CSV file by FTP server. Notification of availability via FIX.
Parameter Download Request: VALID CONTRACT TYPES	M306	Not supported by FIX. Parameter data is available as an XML or CSV file by FTP server. Notification of availability via FIX.
Parameter Download Request: VALID ACCOUNTS	M306	Not supported by FIX. Parameter data is available as an XML or CSV file by FTP server. Notification of availability via FIX.
Parameter Download Request: VALID MEMBERS FOR SUBSCRIBER	M306	Not supported by LME Clear.
Parameter Download Request: VALID PRICE TYPES	M306	Not supported by FIX. Parameter data is available as an XML or CSV file by FTP server. Notification of availability via FIX.
Parameter Result	L316	Not supported by FIX. Parameter data is available as an XML or CSV file by FTP server. Notification of availability via FIX.
SPAN Turbo Generic Request	M307	Not supported by FIX. The SPAN file is available by FTP server as an XML or CSV file. Notification of availability via FIX News message.
SPAN Turbo Generic Details	L071	Not supported by FIX. The SPAN file is available by FTP server as an XML or CSV file. Notification of availability via FIX News message.
Open Interest Search Request	M305	Not supported by FIX. Open Interest data is available by FTP server as an XML or CSV file, or as a PDF report. Notification of availability via FIX News message.
Open Interest Search Result	L315	Not supported by FIX. Open Interest data is available by FTP server as an XML or CSV file, or as a PDF report. Notification of availability via FIX News message.
Margin Search Request	M304	Not supported by FIX. Margin data is available by FTP server as an XML or CSV file, or as a PDF report. Notification of availability via FIX News message.
Margin Search Result	L305	Not supported by FIX. Margin data is available by FTP server as an XML or CSV file, or as a PDF report. Notification of availability via FIX News message.
Service Status	L052	Redundant protocol level functionality.
Logon Confirmation	L056	Redundant protocol level functionality.
No More Messages Available	L066	Redundant protocol level functionality.
Clearing Availability	L318	Not required. User can log on and switch subscription of trade/position messages.
Clearing Non Availability	L319	Not required. Messages broadcast now.
Change Password Request	M024	Encryption requirements make it necessary for password changes to be managed manually.
Safe Store Confirmation	L054	Encryption requirements make it necessary for password changes to be managed manually.

Appendix F: Glossary

Term/Acronym	Description
API	Applications Programming Interface.
CSV	Comma Separated Values. A flat text file with values separated by the comma character.
EMIR	European Market Infrastructure Regulation.
ESMA	European Securities and Markets Authority.
FIX	Financial Information eXchange.
FTP	File Transfer Protocol. A standard for the exchange of data across a network.
ISV	Independent Software Vendor.
SPAN	Standardized Portfolio Analysis of Risk. Initial margin methodology originally developed by the Chicago Mercantile Exchange (CME).
TAPO	Traded Average Price Option.
UTC	Co-ordinated Universal Time.
XML	Extensible Markup Language (XML). A markup language that defines a set of rules for encoding documents in a format that is both human and machine readable.