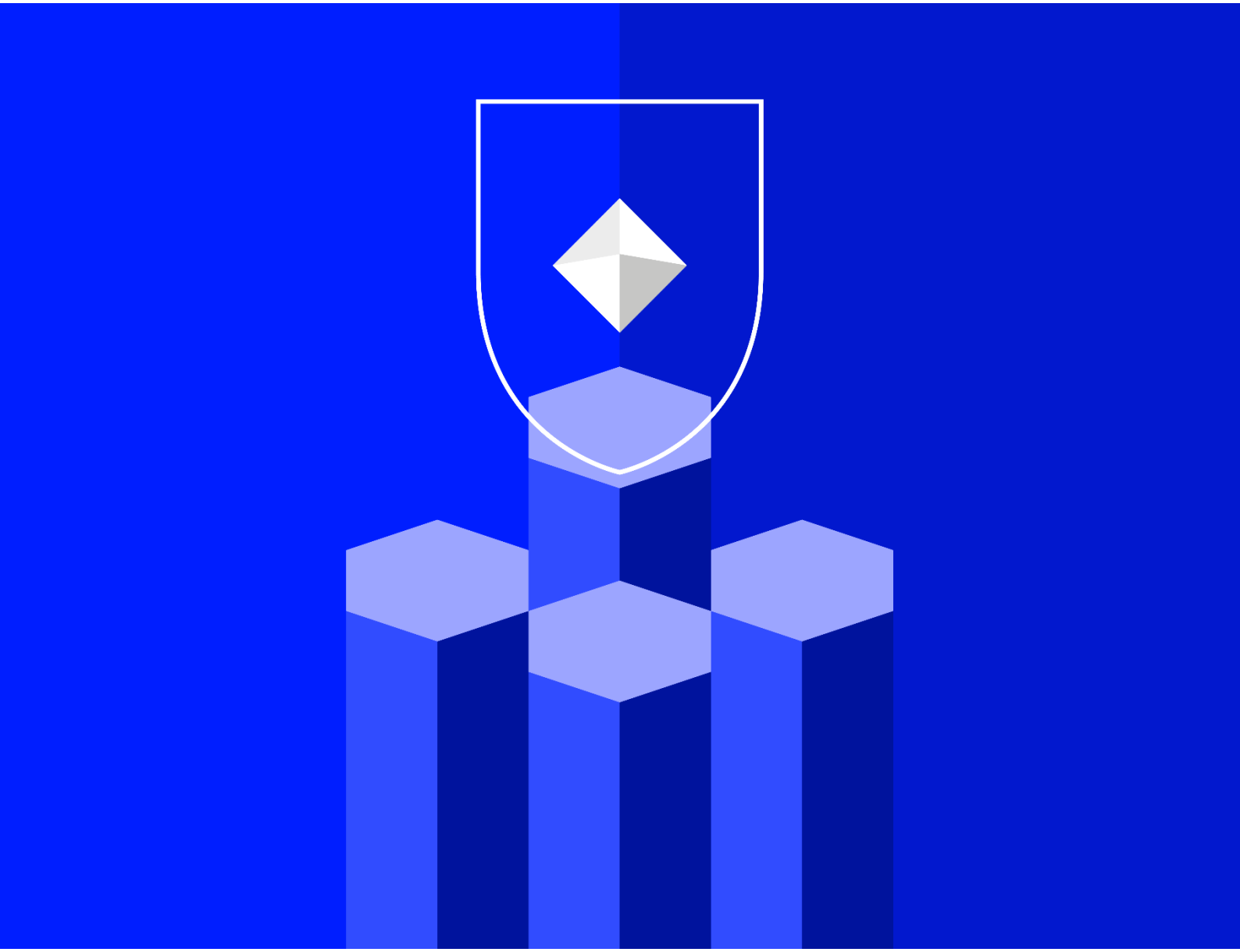
MIT205 – DROP COPY GATEWAY (FIX 5.0)

Issue 15.0

5 January 2024



LONDON STOCK EXCHANGE

Contents

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1.0 Introduction

London Stock Exchange has provided a drop copy gateway to enable member firms to receive additional copies of the Execution Reports generated by Millennium Exchange. This interface may also be used by clients to download the current status of all their active orders in the event of a failure. The drop copy gateway cannot be used to submit orders or receive market data.

The interface is a point-to-point service based on the technology and industry standards TCP/IP, FIXT and FIX. The session and application event models and messages are based on versions 1.1 and 5.0 (Service Pack 2) of the FIXT and FIX protocols respectively.

The encryption of messages between the client and server is not supported.

1.1 Purpose

The purpose of this document is to provide a technical description of the drop copy gateway available on the Millennium Exchange platform.

1.2 Readership

This document is particularly relevant to technical staff within the member firms of London Stock Exchange. This document outlines how to connect to the drop copy gateway and the detailed message types and fields used.

When read in conjunction with the other Millennium Exchange guides, it is intended that these documents provide all of the details directly connected London Stock Exchange customers require to develop to the new services.

1.3 Document series

This document is part of a series of documents which provide a holistic view of the trading and information services available from London Stock Exchange post the migration to Millennium Exchange.

For reference, the full range of documents is outlined below:

- MIT201 – Guide to the new Trading System
  - MIT202 – FIXTrading Gateway (FIX 5.0) Specification
  - MIT203 – Native Trading Gateway Specification
  - MIT204 – Post Trade Gateway (FIX 5.0) Specification
  - MIT205 – Drop Copy Gateway (FIX 5.0) Specification (this document)
- MIT301 – Guide to Market Data Services
  - MIT304 – Regulatory News Service Specification
- MIT401 – Reference Data Service Specification
- MIT501 – Guide to Customer Testing Services
  - MIT502 – Guide to Application Certification
  - MIT503 – Certification Report
- MIT601 – Guide to Trading Services Disaster Recovery
- MIT701 – Guide to Sponsored Access
- MIT801 – Reject Codes

This series principally covers non-regulatory information. It does not override or supersede the rules of London Stock Exchange, the AIM rules or admission and disclosure standards and is intended to be read in conjunction with these Rules documents and the Millennium Exchange parameters document.

The latest version of this document series can be found via the following link:
http://www.londonstockexchange.com/products-and-services/millennium-exchange/technicalinformation/technicalinformation.htm

1.4 Document history

This document has been through the follow iterations:

Issue	Date	Description
8.0	23 May 2011	Eighth issue of this document published via London Stock Exchange's website and distributed to customers.
8.1	14 June 2011	New logon functionality will now be introduced in the next functional release, which is yet to be scheduled. Please refer to page 18.
9.0	23 September 2011	Ninth issue of this document published via London Stock Exchange's website and distributed to customers.
10.0	9 December 2011	Tenth issue of this document published via London Stock Exchange's website and distributed to customers.
10.1	28 September 2012	Amended to include new PassiveOnlyOrder and PriceDifferential tags. Published on London Stock Exchange's website.
10.2	1 November 2012	Amended to include Connectivity Policy section 3.5.
10.3	22 March 2013	Amended to reflect the latest Millennium enhancements.
10.3	5 April 2013	Update to Sections 2.3 and 2.5 – removal of reference to Trade Correct.
10.3	18 April 2013	6.5.1 – Enum 3 added to tab 378 in ER. Tag 336 removed completely.
11.0	5 July 2013	Amended to reflect the latest Millennium enhancements.
11.1	26 July 2013	Further amendments to reflect the latest Millennium enhancements.
11.2	2 June 2014	Amended to reflect the latest Millennium enhancements. Sections 2.5 and 6.5.1 have had updates.
11.3	31 October 2014	Amended to reflect rebranding ITCH to MITCH.
11.4	21 January 2015	The following sections have been amended to support the new Cross Order functionality and additional amendments: 2.5 – Clarification on the treatment of the OrigClOrdID (41) and ClOrdID (11) fields when an order is cancelled by Market Operations. 4.1 – Further clarifications around logon behaviour. 6.5.1 – Addition of 3 new fields, Cross ID (548), Cross Type (549), and OrigCrossID (551), in the Execution Report message, to support the new Cross Order functionality. See MIT902 – Cross Orders Message Change Guidelines for full details on all changes.
11.5	16 June 2015	The following sections have been amended to support the changes related to Release 8.7 and additional clarifications: 2.4 – Removed PriceDifferential. 3.5 – Clarification of system behaviour and expected customer actions upon successful connection to the secondary gateway following a primary gateway failover. 3.6 – New standard section on message rate throttling. 4.1 – Clarification of system behaviour if messages are sent before the exchange of logon messages. 4.2.2 – Described system behaviour if heart beat interval is set to 0 on logon. 4.4.1.1 – Corrected contact team. 5.1 – Cross reference to Trading Technical Parameters. 6.5.1 – Clarification on population of CrossID on execution reports. Removed PriceDifferential – no longer in use. New tag MinQty to support Minimum Execution Size (MES) for enhanced pegged order functionality.

Issue	Date	Description
11.6	14 August 2015	The following sections have been amended: 3.6 – Clarified the behaviour of message rate throttling.
11.7	16 August 2016	The following sections have been amended to aid clarity and also to reflect the changes introduced in Millennium 9.1 upgrade: 2.5 – Clarified Order Cancellation behaviour and Order Cancel/Replace by Market Operations. Removed reference to CPP session since it has been removed from the system. 2.6 – Clarified SendingTime(52) behaviour. 3.2 – Clarified Sponsoring Firm and Sponsored user behaviour. 3.4 – Clarified Business message reject. 4.1 – Clarified Establishing a Connection behaviour including rapid login/logout behaviour. 6.0 – Amended the behaviour of what happens when an undefined tag is sent along with Administrative and Application messages. 6.3.1 – Added value '3 – New session password does not comply with policy'. 6.5.1 – Clarified 'Text', 'OrigClOrdID' tag behaviour. Added RFQID, QuoteRespType and LastLiquidityInd tags. 7.3 – Clarified Reject Reason 4. 8.0 – Corrected Telnet Access time.
11.8	07 April 2017	The following sections have been amended to aid clarity and also to reflect the changes introduced in the Millennium 9.2 (MiFID II compliant) upgrade: 2.5.4 – Clarified Party Identification behaviour. 2.6, 2.10.1– Clarified Timestamps behaviour. 2.10.2, 6.5.1, 6.6.1 – Added a new NoTrdRegPublications (2668) Repeating Group to the Execution Report for Pre-trade waiver flags. Clarified NoPartyIDs, PartyID, PartyIDSource, PartyRole behaviour and added new enums. Added PartyRoleQualifier tag, Order Attribute component block and OrderOrigination tag. 2.10.3, 6.5.1 – Clarified Order Capacities. 2.10.4 – Added section on Order Record Keeping Information. 6.2.1 – Clarified DeliverToCompID behaviour.
11.8.1	27 June 2017	The following section have been amended to aid clarity: 6.6.1 – Clarified PartyRole (452) behaviour.
11.8.2	15 August 2017	The following sections have been amended to aid clarity: 6.6.1 – Clarified PartyRole (452) behaviour. 6.7.1 – Clarified BusinessRejectReason (380) behaviour. 7 – Removed Reject codes section since MIT801 has all the relevant reject codes and reasons.
11.8.3	8 September 2017	The following sections have been amended to aid clarity: 2.5 – The reference to order being amended by Market Operations is removed. 6.5.1 – The value in TrdRegPublicationReason (2670) for OILQ flag is corrected. 6.5.1 – The description of DisplayQty (1138) is updated for more clarity. 6.5.1 – The description of MinQty (110) is updated for more clarity. 6.5.1 – The description of Exec Restatement Reason (378) is updated for more clarity. Reference to order being amended by Market Operations is removed. 6.6.1 – The description of NoPartyIDs (453) is corrected.

Issue	Date	Description
11.9	5 February 2018	The following sections have been amended to reflect new functionality to allow Sponsoring Firms to maintain the status of their Sponsored users: 6.1.2 – New message types User Request (BE) and User Response (BF) added. 6.4.2 – Message layout for User Request (BE) added. 6.5.2 – Message layout for User Response (BF) added. 6.5.1 – The reference to pre-MIFDII order capacity removed.
11.10	28 August 2018	6.5.1 – Updated the LastPx(31) field to highlight the fact that the field will not be populated when Exec Type (150) is Restated (D). 6.6.1 – Updated the description of the Party ID (448) and Party Role (452). 6.1.2.2 – News (B) message is introduced. 6.1.2.2 – Updated to indicate that Execution Report is sent out in relation to RFQ Quote. 6.1.2.2 – The description for 'User Response' message is updated to add clarity. 6.5.3 – News (B) message is introduced.
11.10.1	8 October 2018	6.5.3 – The description of Text (58) has been corrected to remove reference to the Inner circuit breaker.
11.11	19 May 2019	6.5.1 – Introduced the new field 'Group ID' in Execution Report. 6.5.1 – Clarity given regarding Required tags in Execution Report. 6.5.1 – Updated TypeOfTrade on when value 2 will be disseminated. 7.0 – Service availability times updated to reflect current configuration.
12.0	5 June 2019	6.5.1 – Added new field ContraOrderBook (33007) to the Execution Report. 6.5.1 – Included AvgPx (6) to the Quote Execution Report for London Stock Exchange for RFQ quotes and RFQs.
12.1	12 July 2019	6.5.1 – LastMkt(30) tag is added to the Execution Report.
12.2	2 August 2019	6.5.1 – Updated the description of the Price (44) field to specify that it will not be populated for RFQs.
12.3	11 October 2019	6.5.1 – LastMkt (30) – Description is updated to state 'The value in this field should be disregarded if Exec Type is not Trade (F)'. 3.2 – Updated description with zero latency drop copy monitoring and carry forward order expiry if monitoring user is not logged in at start of Pre-trading session.
13	25 March 2020	6.5.1 – QuoteRespType (694) – New value 101 'Executable' was added for RFQ quote. 6.5.1 – Offset (27018) – New tag was added. 6.4.5 – Price (44) – clarification was added on how this tag should be populated for the offset (OrdType=F) orders. 6.5.1 – TypeOfTrade (20000) – The description was updated to specify the behaviour during sessions other than continuous trading/CPX. 'MTCH' is replaced with 'GTP' throughout the document. 7 – Timings were corrected.
13.1	15 July 2020	6.5.1 – OrdType (40) – Offset Order Type was added.
14.0	17 July 2020	London Stock Exchange Release 9.5.9. 6.5.1 – DecimalTVTIC (27020) – New tag was added. 6.5.1 – Trade Match ID – TVTIC (880) – Description was updated to clarify that base 10 value will be available.
15.0	12 January 2024	References to Cross/BTF orders have been removed as this order type is currently unavailable in production. 2.10,2, 6.5.1, 6.6.1 2.10.2 – references to SIZE flag for RFQ is removed as this is not populated for RFQs

Issue	Date	Description
		Release 1.23.3 changes: 6.5.1 – Tag 828 (TrdType) is added.

Within this document, where amendments have been made to the previous version, these changes will be identified by highlighting the changes in Red.

1.5 Enquiries

Please contact either the Technical Account Management Team or your Technical Account Manager if you have any questions about the Millennium Exchange services outlined in this document. The Technical Account Management team can be contacted at:

- Telephone: +44 (0)20 7797 3939
- Email: londontam@lseg.com

2.0 Service description

2.1 Services supported by Trading Gateway

A description of the services (e.g., order types, quotes, notification of Market Operations actions, etc.) available via the Trading Gateway is provided in the FIX specification for this interface which vendors are encouraged to read together with this specification.

2.2 Connection configuration

2.2.1 Real-time connections

A real-time client enabled for the drop copy functionality will receive a copy of each eligible Execution Report immediately after it is published.

A member firm connection will be configured to receive a copy of all the Execution Report messages generated for the firm for the events outlined in Section 2.3. If required, a firm connection could be configured to only receive drop copies for selected Trader Groups.

For the purpose of redundancy, the service supports the configuration of multiple drop copy connections to send the same information on the activity of the selected firms/Trader Groups.

The identity of the CompID that transmitted the order a particular drop copy relates to will be specified in the header field OnBehalfOfCompID (115).

Please refer to Sections 5.4 and 5.5 for a description of how the Execution Reports published during the time a real-time client is disconnected from the server may be recovered.

A real-time client may also use the Own Order Book Download (OOBD) service (outlined in Section 2.4) to recover the status of all active orders in the event of a system failure.

2.2.2 Non real-time connections

Execution Reports will not be streamed to non-real time clients. Such a client may only connect to the server to use the Own Order Book Download service outlined in Section 2.4.

2.3 Supported events

Clients will receive drop copies of the Execution Reports generated for the following events:

(i) Order accepted

(ii) Order rejected

(iii) Order executed

(iv) Quote executed

(v) Order expired

(vi) Order cancelled

(vii) Order cancel/replaced

(viii) Order Suspended

(ix) Trade cancellation

2.3.1 Quotes

The Quote Status Report and Mass Quote Acknowledgement messages sent by the Trading Gateway to acknowledge or reject Quotes, Mass Quotes and Quote Cancel messages are not available via the 'Copy To' functionality.

However, the Execution Reports sent when quotes are executed are available as 'Copy To' messages. The ClOrdID (11) of such a message will contain the QuoteMsgID (1166) of the last Quote message or QuoteID (117) of the last Mass Quote message that updated the executed quote. The side, quantity and price fields (i.e., Side (54), LastQty (32), LastPx (31), LeavesQty (151), OrderQty (38), Price (44), etc.) will contain information for the executed side. As the matching system does not keep track of cumulative quantity for quotes, the value in the fields CumQty (14) will be "0".

2.4 Own Order Book Download

Any client may use the Mass Order Status Request message to download the current status of each active order for a specified Trader Group. The total number of Mass Order Status Requests that a client may submit can be found in the Trading Technical Parameters document on the Technical Specifications website. A client may request London Stock Exchange to reset its request count. This feature is intended to help manage an emergency situation and should not be relied upon as a normal practice.

If a request is successful, the server will respond with an Execution Report for each active order for the specified Trader Group. Each such message will include the MassStatus ReqID (584) of the request, an ExecID (17) of "0" and an ExecType (150) of Order Status (I). The last Execution Report in a partition sent in response to the request will include a LastRptRequested (912) of Last Message (Y).

The server will transmit a single Execution Report if the request is rejected or if there are no active orders for the specified Trader Group. Such a message will include the MassStatusReqID (584) of the request, an ExecID (17) of "0", an ExecType (150) of Order Status (I) and an OrdStatus (39) of Rejected (8).

The message will not include fields that relate to order-specific information (i.e., OrderID (37), OrderQty (38), LeavesQty (151), CumQty (14), SecurityID (48), SecurityIDSource (22), OrdType (40), Side (54), AccountType (581), OrderCapacity (528), PassiveOnlyOrder (27010), DisplayQty(1138), MDEntryID(278)). The reason for the rejection will be specified in the field OrdRejReason (103).

2.5 Execution Reports

The Execution Report message is used to communicate many different events to clients. The events are differentiated by the value in the ExecType (150) field as outlined below.

ExecType	Usage	Ord Status
0	**Order Accepted** Indicates that a new order has been accepted.	0
8	**Order Rejected** Indicates that an order has been rejected. The reason for the rejection is specified in the field OrdRejReason (103).	8
F	**Order or Quote Executed** Indicates that an order or quote has been partially or fully filled. The execution details (e.g., price and quantity) are specified.	1, 2
C	**Order Expired** Indicates that an order has expired in terms of its time qualifier or due to an execution limit or when the incoming order is configured with the Self Execution Prevention[1] specifying CIO or CRO. The reason for the expiration is specified in the Text (58) field. This message will also be sent when a Market Order or a Stop Order is expired at the point of aggressing the order book during the Continuous Trading session, if a circuit breaker is breached during that aggression, The reason for the expiration is specified in the Text (58) field.	C

[1] Cancel Incoming Order (CIO), leaves the resting order
Cancel Resting Order (CRO), allows the incoming order to be executed/rest

ExecType	Usage	Ord Status
4	**Order Cancelled** Indicates that an order cancel request has been accepted and successfully processed. This message is also sent if the order was cancelled by Market Operations or the order cancellation is initiated by the system. In such a scenario, the Execution Report will include an ExecRestatementReason (378) of Market Option (8). It will not include an OrigClOrdID (41) and will not be assigned a new ClOrdID (11).	4
5	**Order Cancel/Replaced** Indicates that an order cancel/replace request has been accepted and successfully processed.	0, 1
D	**Order Cancel/Replace by Market Operations** Indicates that an order has been cancelled by Market Operations. The unsolicited message will include an ExecRestatement Reason (378) of Market Option (8). It will not include an OrigClOrdID (41) and will not be assigned a new ClOrdID (11). Also sent if an order price/size is changed by the system without being requested by the participants.	0, 1
H	**Trade Cancel** Indicates that an execution has been cancelled. An ExecRefID (19) to identify the execution being cancelled will be included.	0, 1, 4, C
I	**Order Status Response** Sent for active orders if a mass status request is accepted.	0, 1
I	**Order Status Reject** Indicates that an order mass status request has been rejected.	8
9	**Order Suspended** Indicates that an order has been parked by the system without adding it to the order book. This message will be sent when an incoming stop or stop limit orders is put in to the unelected state. This message will be sent when an incoming pegged order is put into the parked state. This message will be sent when an incoming order with a time in force GFA/GFS/GFX/CPX/ATC is put into the parked state.	9

2.5.1 Order Status

As specified in the FIX protocol, the OrdStatus (39) field of an Execution Report is used to convey the current state of an order. If an order simultaneously exists in more than one order state, the value with highest precedence is reported as the OrdStatus (39). The relevant order statuses are given below from the highest to lowest precedence.

Value	Meaning
2	Filled
4	Cancelled
C	Expired
1	Partially Filled
0	New
8	Rejected
9	Suspended

2.5.2 Order and execution identifiers

2.5.2.1 Client Order IDs

In the case of orders, the ClOrdID (11) included in each Execution Report will be that specified when the order was submitted. An order's ClOrdID (11) will be updated each time an Order Cancel/Replace Request or an Order Cancel Request is accepted.

In the case of quotes, the ClOrdID (11) included in each Execution Report will be either the QuoteMsgID (1166) of the last Quote message or QuoteID (117) of the last Mass Quote message that updated the executed quote.

2.5.2.2 Order IDs

The server will use the OrderID (37) field to affix the order identification numbers of the matching system. Order IDs will be unique across trading days.

In terms of the FIX protocol, unlike ClOrdID (11) which requires a chaining through Cancel/Replace Requests and Cancel Requests, the OrderID (37) of an order will remain constant throughout its life.

2.5.2.3 Order ID tag length

The system will accept a maximum length of 20 characters. If the ID is longer than 20 characters then it will be rejected. This is valid for the following:

NewOrderSingle – ClOrdID (11)

OrderCancelRequest – OriginalClOrdID (41)

NewOrderSingle – SecondaryClOrdID (526)

NewOrderSingle – ClOrdLinkID (583)

Quote – QuoteMsgID (1166)

2.5.2.4 Execution IDs

The server will use the ExecID (17) field to affix the execution identification numbers of the matching system. Execution IDs will be unique across trading days.

2.5.3 Instrument identification

Instruments will be identified using the SecurityID (48) field. It is required to specify SecurityID Source (22) field as well.

2.5.4 Party identification

ID	Description	Relevant FIX Tags
Member ID	Identifier of the member the interest is submitted under.	PartyRole (452) = 1 PartyIDSource = D PartyID (448)
Trader Group	Identifier of the trader group the interest is submitted under.	PartyRole (452) = 76 PartyIDSource (447) = D PartyID (448)
Trader ID	Identifier of the trader the interest is submitted under.	PartyRole (452) = 100 PartyIDSource (447) = D PartyID (448)
Client Reference	Client reference information applicable to an order.	Account (1)
Counterparty Firm	Identifier of the counterparty firm in a trade.	PartyRole (452) = 17 PartyIDSource = D PartyID (448)

ID	Description	Relevant FIX Tags
Market Makers	Identifier of the market maker firms to whom a private Request for Quote (RFQ) is directed at.	PartyRole (452) = 66 PartyIDSource (447) = D PartyID (448)
Contra Trader	The trading mnemonic of the contra-side of a privately negotiated RFQ.	PartyRole (452) = 37 PartyIDSource (447) = D PartyID (448)
Executing Trader	Identifier of the Executing Trader relevant to the order/quote or RFQ.	PartyRole (452) = 12 PartyIDSource (447) = P PartyID (448)
Client ID	Identifier of the client of the order/quote or RFQ.	PartyRole (452) = 3 PartyIDSource (447) = P PartyID (448)
Investment Decision Maker	Identifier of the investment decision relevant to the order/quote or RFQ.	PartyRole (452) = 122 PartyIDSource (447) = P PartyID (448)

Trading privileges are, depending on how the participant is set up, assigned at the level of the SenderCompID (49), Trader Group or Trader ID.

It should be noted that the party block with the invalid Trader Group (76) will not be included in the rejected Execution Report. In a scenario where the request was submitted with multiple party blocks, only the party block with the invalid Trader Group (76) will be dropped from the rejected Execution Report. The other party blocks will be included in the message.

A member of London Stock Exchange is required to specify a Trader Group. Members of these markets may optionally specify a Trader ID in each message.

2.6 Timestamps and dates

The matrix below clarifies the expectations for timestamps and dates.

FIX Tag	Client Generated tag – accepted format	Server Generated tag – sent format
SendingTime (52)	UTC,	UTC,
OrigSendingTime (122)	YYYMMDD-HH:MM:SS.uuuuuu and YYYYMMDD-HH:MM:SS.sss	YYYYMMDD-HH:MM:SS.uuuuuu
TransactTime (60)		
ExpireDate (432)	YYYYMMDD, specified in the local date for the server (i.e., not in UTC).	

2.7 Repeating groups

If a repeating group (components/component block) is used in a message, the NoXXX field (e.g., NoPartyIDs field in the trading party repeating group) should be specified first before the repeating group starts. This is applicable for both the messages generated by the client and the server.

The messages generated by the server will have the fields within a repeating group in order.

The messages generated by a client should have the first field in a repeating group in order. If the first field in a repeating group is in order, a message generated by a client will be accepted. If not, the message will be rejected.

2.8 Mapping Order ID to GTP

To convert FIX Order ID to GTP Order ID:

Step 1 – Convert the 12 byte FIX Order ID from ASCII into a base 62 equivalent using the base 62 mapping table below

Step 2 – Convert this string into a base 10 (decimal) number

Step 3 – The GTP Order ID is this base 10 number represented in binary

Note

- 64 bit integer data types should be used for the calculation otherwise integers will overflow
- Excel also rounds the value since its using a 64 bit float data type for the calculation

The Order ID format (ASCII):

12 bytes
0-9, A-Z, a-z
Base 62 encoded Order ID

The Order ID binary format is calculated as follows:

20 bits	2 bits	3 bits	2 bits	32 bits (4 bytes)
<number of sec>	[0-3]	[0-7]	[0-3]	
The number of 5-minute intervals from Jan 1, 2010	ID	Partition ID	Thread ID	Order number

The base 62 mapping table:

0	0	20	K	40	e	60	y
1	1	21	L	41	f	61	z
2	2	22	M	42	g		
3	3	23	N	43	h		
4	4	24	O	44	i		
5	5	25	P	45	j		
6	6	26	Q	46	k		
7	7	27	R	47	l		
8	8	28	S	48	m		
9	9	29	T	49	n		
10	A	30	U	50	o		
11	B	31	V	51	p		
12	C	32	W	52	q		
13	D	33	X	53	r		
14	E	34	Y	54	s		

15	F	35	Z	55	t		
16	G	36	a	56	u		
17	H	37	b	57	v		
18	I	38	c	58	w		
19	J	39	d	59	x		

For example:

ASCII Order ID for FIX	004Xj7Wu76ta
Base 62 equivalent	00,00,04,33,45,07,32,56,07,06,55,36
Base 10 (decimal) number	61512470073704470
GTP Order ID	Binary encoding of the above decimal

2.9 Mapping Trade Match ID to GTP

To convert FIX Trade Match ID to GTP Trade ID:

Step 1 – Convert the 10 byte Trade Match ID from ASCII into a base 36 equivalent using the base 36 mapping table below

Step 2 – Convert this string into a base 10 (decimal) number

Step 3 – The GTP Trade ID is this base 10 number represented in binary

The Trade Match ID format (ASCII):

10 bytes
0-9, A-Z
Base 36 encoded trade id

The Trade Match ID binary format is calculated as follows:

20 bits	2 bits	3 bits	2 bits	24 bits
<number of sec>	[0-15]	[0-7]	[0-3]	
The number of 5-minute intervals from Jan 1, 2010	ID	Partition ID	Thread ID	Trade number

The base 36 mapping table (G offset):

0	G	20	0
1	H	21	1
2	I	22	2
3	J	23	3
4	K	24	4
5	L	25	5
6	M	26	6

7	N	27	7
8	O	28	8
9	P	29	9
10	Q	30	A
11	R	31	B
12	S	32	C
13	T	33	D
14	U	34	E
15	V	35	F
16	W		
17	X		
18	Y		
19	Z		

For example:

ASCII Trade ID for FIX	G5DIF33YV0
Base 36 equivalent	00,25,33,02,35,23,23,18,15,20
Base 10 (decimal) number	73120274710544
GTP Trade ID	Binary encoding of the above decimal

2.10 MiFID II changes

2.10.1 Timestamping at microsecond granularity

All server-generated timestamps will now be in microsecond granularity. It is not mandatory for client-generated timestamps to be in microsecond granularity. Further details are described in the Timestamps and dates section.

2.10.2 Pre-trade Waiver Flags

If a RFQ transaction was executed under a pre-trade waiver, the relevant Waiver Flag will be sent in the Execution Report for RFQ trades and trade cancellations.

The matrices below show in which scenario each of the flags will be sent.

RFQ Trades/ Trade Cancels	Instrument Category		Liquidity		Pre-Trade Transparency Model of the RFQ	Waiver Indicator Flag
	Equity	Non-equity	Liquid	Illiquid	NPT	
		✓		✓	✓	**ILQD**

2.10.3 Order Capacity

The Order Capacities are shown below.

Pre-MiFID II name	MiFID II name
Principal	Dealing on own account (DEAL)
Agency	Any other trading capacity (AOTC)
Riskless Principal	N/A
N/A	Matched Principal (MTCH)

2.10.4 Order record-keeping information

The participants should provide the short code with PartyRole (452) = ‘Client ID (3)’, ‘Investment Decision Maker (122)’ or ‘Executing Trader (12)’. These new party identifiers are named as ‘Client ID’, ‘Investment decision within firm’ and ‘Execution within firm’ in the MiFID II/MiFIR RTS 24 regulatory documentation. Further information about these new party identifiers has been added in the Party identification section.

3.0 Connectivity

3.1 CompIDs

The CompID of each client must be registered with London Stock Exchange before FIX communications can begin. A single client may have multiple connections to the server (i.e., multiple FIX sessions, each with its own CompID).

The CompID of the server is FGW. The messages sent to the server should contain the CompID assigned to the client in the field SenderCompID (49) and the Exchange CompID in the field TargetCompID (56). The messages sent from the server to the client will contain the Exchange CompID in the field SenderCompID (49) and the CompID assigned to the client in the field TargetCompID (56).

3.1.1 Passwords

Each new CompID will be assigned a password on registration. Clients are required to change the password to one of their choosing via the Logon message. The status of the new password (i.e., whether it is accepted or rejected) will be specified in the SessionStatus (1409) field of the Logon sent by the server to confirm the establishment of a FIX connection. If accepted, the new password will be effective for subsequent logins.

In terms of London Stock Exchange password policy, the initial password of each username must be changed at least once. If not, the client will be unable to log in to the server. In such a case, the client should contact London Stock Exchange.

New passwords should adhere to the rules below:

- Minimum length – eight characters
- Maximum length – 14 characters
- Minimum numeric characters – one character
- Minimum alpha characters – one character
- Minimum special characters – one character

3.2 Monitoring users (Sponsored access and Non-sponsored zero-latency monitoring)

London Stock Exchange supports the monitoring of sponsored users' orders by sponsoring firms along with performing additional risk checks. It is also possible to set up zero-latency monitoring of non-sponsored users' orders by monitoring firms. The Technology Account Management (TAM) team will, on request, set up 'Monitoring Users' and 'Monitored Users' with or without sponsored access risk checks.

Monitored Users will have their orders rejected if the Monitoring User is not connected and successfully logged into the Drop Copy Gateway. And when the monitoring user loses the ability to monitor the orders of the Monitored User (e.g., disconnection, logout and does not reconnect and log in within a specified duration), then all the open orders of the Monitored Users will be expired and new order submissions will not be allowed.

Any orders submitted by Monitored Users and carried forward to the next trading day with a Time in Force of GTD will be expired at the start of Pre-trading session if the Monitoring User is not connected and logged in to the Drop Copy Gateway.

3.3 Production IP addresses and ports

The IP addresses and ports for the drop copy gateway are published in a separate configuration document which can found on the Millennium Exchange Technical Information website.

3.4 Failover and recovery

The system has been designed with fault tolerance and disaster recovery technology that ensures that trading should continue in the unlikely event of a process, gateway or site outage. On unexpected disconnection from the primary gateway, a customer should ensure that their application behaves in accordance with the connectivity policy of London Stock Exchange.

If a service interruption occurs while servicing an Order Mass Status Request, Drop Copy Gateway will send an unsolicited Execution Report with a 'Rejected' state (it should include the MassStatus ReqID (584) of the request, an ExecID (17) of “0”, an ExecType (150) of Order Status (I) an OrdStatus (39) of Rejected (8)) and an OrdRejReason (103) of “10005”). However, if the service interruption occurs before sending the request, a Business message reject with reason “Application Unavailable” will be sent. Upon receipt of this, the client is expected to try and re-request.

3.5 Connectivity Policy

An application should attempt to connect a maximum of three times to the primary gateway with a minimum time-out value of three seconds between attempts before attempting to connect to the secondary gateway – and this should be retried a maximum of a further three times. After six failed connection attempts (three on each gateway), the clients should contact London Stock Exchange for further guidance.

Upon successful connection to the secondary gateway it is important to note that the system will increment the server side outbound sequence number (i.e., customer inbound sequence number) by 5,000. Since customers need to comply with FIX Session rules, they should submit a Resend Request (handled by the FIX Session layer) after receiving a response to the login request. This would result in syncing the inbound sequence number on the customer side. In this scenario, there is a low probability that the customer might receive duplicate messages (i.e., messages the customer has already received before the Fail-over). All these duplicate messages will have PossResend (97) field set to “Y”. It is expected for the customer to perform a check for duplicate messages with PossResend (97) set “Y”. The customer might receive Business Rejects with reject reason ‘Application not Available’ for requests that were submitted during a failover, although this also has a low probability of occurring. It should be noted that these requests have not been accepted by the system and the customer should resubmit if required.

Information on the Connectivity Policy of London Stock Exchange can be found at the following link:
http://www.londonstockexchange.com/products-and-services/technical-library/technical-guidance-notes/technical-guidance-notes.htm

3.6 Message Rate Throttling

London Stock Exchange has implemented a scheme for throttling message traffic where each CompID is only permitted to submit up to a specified number of messages per second.

Additional information is provided in the MIT201 Guide to the New Trading System document, and also in the Trading Technical Parameters document, both of which are available at
http://www.londonstockexchange.com/products-and-services/technical-library/millennium-exchange-technical-specifications/millennium-exchange-technical-specifications.htm.

Every message which exceeds the maximum rate of a CompID will be rejected via a Business Message Reject (with BusinessRejectReason (380) of Other (0) and Text (58) field = “Message rate exceeded”). A client’s connection will be disconnected by the server if its message rate exceeds the maximum rate for a specific time duration. In such a case, the server will transmit a Logout message (with SessionStatus (1409) = 102 (Logout by market operations) and Text (58) = "Maximum Message Rate Exceeded”) and five seconds afterwards will terminate the TCP/IP connection.

Please note that client Heartbeat messages, reject messages and any other client-initiated administrative messages are not counted towards the throttling limits.

4.0 FIX connections and sessions

4.1 Establishing a FIX connection

FIX connections and sessions between the client and server are maintained as specified in the FIXT protocol.

Each client will use the assigned IP address and port to establish a TCP/IP session with the server. The client will initiate a FIX session at the start of each trading day by sending the Logon message. The client will identify itself using the SenderCompID (49) field. The server will validate the CompID, password and IP address of the client.

Once the client is authenticated, the server will respond with a Logon message. The SessionStatus (1409) of this message will be Session Active (0). If the client's Logon message included the field NewPassword (925) and the client is authenticated, the SessionStatus (1409) of the Logon sent by the server will indicate whether the new password is accepted or rejected.

The client must wait for the server's Logon before sending additional messages. If the client sends messages prior to sending the Logon message or prior to receiving the Logon response, the server will break the TCP/IP connection with the client without sending any message.

If a logon attempt fails because of an invalid SenderCompID, invalid TargetCompID, invalid IP address, invalid password or incorrect logon privileges, the server will break the TCP/IP connection with the client without sending a Logout or Reject message. If, during a logon of a SenderCompID, the server receives a second connection attempt via different TCP/IP connection while a valid FIX session is already underway for that same SenderCompID, the server will break the TCP/IP connection with the second connection without sending a Logout or Reject message. As the logon attempt failed, the server will not increment the next inbound message sequence number expected from the client.

If a logon attempt fails because of an expired password, a locked CompID or if logins are not currently permitted, the server will send a Logout message and then break the TCP/IP connection with the client. In both these scenarios the next inbound sequence number expected from the client and the outbound sequence number will not be incremented. The message sequence number '1' will be sent with the Logout message.

If a logon attempt fails because of a session level failure (e.g., due to invalid EncryptMethod or DefaultApplVerID…etc.) both the inbound sequence number and the outbound sequence number will not be incremented. The message sequence number '1' will be sent with the Logout message.

However, if a session-level failure occurs due to a message sent by a client which contains a sequence number that is less than what is expected and the PossDupFlag (43) is not set to "Y", then the server will send a Logout message and terminate the FIX connection. In this scenario, the inbound sequence number will not be incremented, but the outbound sequence number will be incremented.

If, during a logon of a SenderCompID, the server receives a second connection attempt via the same TCP/IP connection while a valid FIX session is already underway for that same SenderCompID, the server will immediately break the TCP/IP connection with the client without sending any messages. If the server receives another connection attempt from the same SenderCompID, while a session is already established, 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.

A protection mechanism is in place in order to protect the gateway from rapid login/logouts. If a user reaches the thresholds for rapid login/logouts, any future logins/logouts will be delayed exponentially.

The impact of logon failures on sequence numbers is summarised in the table below:

Reason for Logon Failure	Session status (of logout)	Inbound Sequence Number	Outbound Sequence Number
Invalid or expired password	8 (password expired)	Does not increase	Does not increase (defaulted to 1)
Locked/suspended/inactivated CompID	6 (account locked)	Does not increase	Does not increase (defaulted to 1)
Logins are not currently permitted	7 (logins are not allowed)	Does not increase	Does not increase (defaulted to 1)

Reason for Logon Failure	Session status (of logout)	Inbound Sequence Number	Outbound Sequence Number
Session level failure (e.g., due to invalid EncryptMethod or DefaultApplVerID etc)	101 (logout session level failure)	Does not increase	Does not increase (defaulted to 1)
Login sequence number is less than the expected sequence number	101 (logout session level failure)	Does not increase	Incremented by 1
Second connection attempt	n/a	Incremented by 1	Incremented by 1

London Stock Exchange has configured two separate connections for users that wish to use the real-time drop copy connection and the open order download with the necessary privileges respectively.

4.2 Maintaining a FIX session

4.2.1 Message sequence numbers

As outlined in the FIXT protocol, the client and server will each maintain a separate and independent set of incoming and outgoing message sequence numbers. Sequence numbers should be initialized to 1 (one) at the start of the FIX session and be incremented throughout the session.

Monitoring sequence numbers will enable parties to identify and react to missed messages and to gracefully synchronise applications when reconnecting during a FIX session.

If any message sent by the client contains a sequence number that is less than what is expected and the PossDupFlag (43) is not set to “Y”, the server will send a Logout message and terminate the FIX connection. The Logout will contain the next expected sequence number in the Text (58) field.

A FIX session will not continue to the next trading day. The server will initialise its sequence numbers at the start of each day. The client is expected to employ the same logic.

4.2.2 Heartbeats

The client and server will use the Heartbeat message to exercise the communication line during periods of inactivity and to verify that the interfaces at each end are available. The heartbeat interval will be the HeartBtInt (108) specified in the client’s Logon message.

The server will send a Heartbeat anytime it has not transmitted a message for the heartbeat interval. The client is expected to employ the same logic.

As a safety mechanism, the system will not allow the user to log in if the HeartBtInt is set to 0. Therefore, if the server receives a logon with HeartBtInt = 0, the user will receive a logout message with SessionStatus = 101 (Logout due to session level failure) and Text = ‘HeartBtInt should be greater than zero’.

If the server detects inactivity for a period longer than the heartbeat interval plus a reasonable transmission time, it will send a Test Request message to force a Heartbeat from the client. If a response to the Test Request is not received by a reasonable transmission time, the server will send a Logout and break the TCP/IP connection with the client. The client is expected to employ similar logic if inactivity is detected on the part of the server.

4.2.3 Increasing expected sequence number

The client or server may use the Sequence Reset message in Gap Fill mode if it wishes to increase the expected incoming sequence number of the other party.

The client or server may also use the Sequence Reset message in Sequence Reset mode if it wishes to increase the expected incoming sequence number of the other party. The Sequence Reset mode should only be used to recover from an emergency situation. It should not be relied upon as a regular practice.

4.3 Terminating a FIX connection

The client is expected to terminate each FIX connection at the end of each trading day before the server shuts down. The client will terminate a connection by sending the Logout message. The server will respond with a Logout to confirm the termination. The client will then break the TCP/IP connection with the server.

All open TCP/IP connections will be terminated by the server when it shuts down (a Logout will not be sent). Under exceptional circumstances the server may initiate the termination of a connection during the trading day by sending the Logout message.

If, during the exchange of Logout messages, the client or sever detects a sequence gap, it should send a Resend Request.

4.4 Re-establishing a FIX session

If a FIX connection is terminated during the trading day, it may be re-established via an exchange of Logon messages.

4.4.1 Resetting sequence numbers: starting a new FIX session

4.4.1.1 Reset initiated by the client

If the client requires both parties to initialize (i.e., reset to 1) sequence numbers, it may use the ResetSeqNumFlag (141) field of the Logon message. The server will respond with a Logon with the ResetSeqNumFlag (141) field set to “Y” to confirm the initialization of sequence numbers.

A client may also manually inform the Client Support Team that it would like the server to initialise its sequence numbers prior to the client’s next login attempt.

These features are intended to help a client manage an emergency situation. Initialising sequence numbers on a re-login should not be relied upon as a regular practice.

4.4.1.2 Reset initiated by the server

The system has been designed with fault tolerance and disaster recovery technology that should ensure that the server retains its incoming and outgoing message sequence numbers for each client in the unlikely event of an outage.

However, clients are required to support a manual request by London Stock Exchange to initialise sequence numbers prior to the next login attempt.

5.0 Recovery

5.1 Resend requests

The client may use the Resend Request message to recover any lost messages. As outlined in the FIXT protocol, this message may be used in one of three modes:

- To request a single message. The BeginSeqNo (7) and EndSeqNo (16) should be the same.
- To request a specific range of messages. The BeginSeqNo (7) should be the first message of the range and the EndSeqNo (16) should be the last of the range.
- To request all messages after a particular message. The BeginSeqNo (7) should be the sequence number immediately after that of the last processed message and the EndSeqNo (16) should be zero (0).

The server caches a maximum number of messages transmitted to the client. Clients are unable to use a Resend Request to recover messages not in the server's cache. This cache size is provided in the Trading Technical Parameters document available at http://www.londonstockexchange.com/products-and-services/technical-library/millennium-exchange-technical-specifications/millennium-exchange-technical-specifications.htm.

5.2 Possible duplicates

The server handles possible duplicates according to the FIX protocol. The client and server will use the PossDupFlag (43) field to indicate that a message may have been previously transmitted with the same MsgSeqNum (34).

5.3 Possible resends

The server does not handle possible resends for client-initiated messages and ignores the value in the PossResend (97) field of such messages.

The server may, in the circumstances outlined in Sections 5.4 and 5.5, use the PossResend (97) field to indicate that an Execution Report may have already been sent under a different MsgSeqNum (34). The client should validate the ExecID (17) of such a message against those of Execution Reports already received during the current trading day.

If an Execution Report with same ExecID (17) had been processed, the resent message should be ignored. If the same ExecID (17) had not been processed, the Execution Report should be processed.

5.4 Transmission of missed messages

The Execution Reports generated during a period when a client is disconnected from the server will be sent to the client when it next reconnects. In the unlikely event the disconnection was due to an outage of the server, all such messages will include a PossResend (97) of "Y".

5.5 Resending previous execution reports

A client may manually inform the Service Desk that it would like the server to resend all of the Execution Reports generated during the current trading day that it is eligible to receive when it next logs in. All resent Execution Reports will include a PossResend (97) of "Y".

This feature is intended to help a client manage an emergency situation and it should not be relied upon as a regular practice.

6.0 Message formats

This section provides details on the header and trailer, the seven administrative messages and two application messages utilised by the server. Any message not included in this section will be ignored by the server. Client-initiated messages not included in this section are rejected by the server via a Reject or Business Message Reject. All fields are encoded using printable ASCII.

The system will ignore an undefined tag sent along with any Administrative message and will process the rest of the message. However, if an undefined tag is sent along with an Application message, then the system will completely reject the message.

6.1 Supported message types

6.1.1 Administrative messages

All administrative messages may be initiated by either the client or the server.

Message	MsgType	Usage
Logon	A	Allows the client and server to establish a FIX session.
Logout	5	Allows the client and server to terminate a FIX session.
Heartbeat	0	Allows the client and server to exercise the communication line during periods of inactivity and verify that the interfaces at each end are available.
Test Request	1	Allows the client or server to request a response from the other party if inactivity is detected.
Resend Request	2	Allows for the recovery of messages lost during a malfunction of the communications layers.
Reject	3	Used to reject a message that does not comply with FIXT.
Sequence Reset	4	Allows the client or server to increase the expected incoming sequence number of the other party.

6.1.2 Application messages

6.1.2.1 Client-initiated

Message	MsgType	Usage
Order Mass Status Request	AF	Allows the client to request the status of all active orders for a particular Trader Group.
User Request	BE	Allows the sponsoring user to submit a user activation, suspension or a user status query request.

6.1.2.2 Server-Initiated

Message	MsgType	Usage
Execution Report	8	Indicates one of the following: i. Order or RFQ quote accepted ii. Order or RFQ quote rejected iii. Order or quote/RFQ quote executed iv. Order or RFQ quote expired v. Order RFQ quote cancelled vi. Order cancel/replaced vii. Trade cancellation viii. Order status ix. Order mass status request rejected
User Response	BF	Used to respond to a User Request sent by the risk monitoring user.
News	B	Used to indicate the circuit breaker breach alert.

6.2 Message header and trailer

6.2.1 Message header

Tag	Field name	Req	Description
8	BeginString	Y	FIXT.1.1
9	BodyLength	Y	Number of characters after this field up to and including the delimiter immediately preceding the CheckSum.
35	MsgType	Y	Message type.
49	SenderCompID	Y	CompID of the party sending the message.
56	TargetCompID	Y	CompID of the party the message is sent to.
115	OnBehalfOf CompID	N	Required for server-initiated application messages. This will be the CompID of the connection that originated the order referenced in the message being drop copied.
34	MsgSeqNum	Y	Sequence number of the message.
43	PossDupFlag	N	Whether the message was previously transmitted under the same MsgSeqNum (34). Absence of this field is interpreted as Original Transmission (N). **Value** – **Meaning** Y – Possible Duplicate N – Original Transmission
97	PossResend	N	Whether the message was previously transmitted under a different MsgSeqNum (34). Absence of this field is interpreted as Original Transmission (N). **Value** – **Meaning** Y – Possible Resend N – Original Transmission
52	SendingTime	N	Time the message was transmitted. Not required for incoming messages sent by the clients (even if sent by a client, no validation will be done). Required for outgoing messages sent by the server.

Tag	Field name	Req	Description
122	OrigSendingTime	N	Time the message was originally transmitted. If the original time is not available, this should be the same value as SendingTime (52). Required if PossDupFlag (43) is Possible Duplicate (Y).
1128	ApplVerID	N	Version of FIX used in the message. Required if the message is generated by the server.
			Value **Meaning**
			9 FIX50SP2
128	DeliverToCompID	N	The value specified in the OnBehalfOfCompID(115) field. This will only be used in server-initiated messages. This field won't be received in RFQ-related messages.

6.2.2 Message trailer

Tag	Field name	Req	Description
10	CheckSum	Y	

6.3 Administrative messages

6.3.1 Logon

Tag	Field name	Req	Description
Standard Header			
35	MsgType	Y	A = Logon
Message Body			
98	EncryptMethod	Y	Method of encryption.
			Value **Meaning**
			0 None
108	HeartBtInt	Y	Indicates the heartbeat interval in seconds.
141	ResetSeqNum Flag	N	Indicates whether the client and server should reset sequence numbers. Absence of this field is interpreted as Do Not Reset Sequence Numbers (N).
			Value **Meaning**
			Y Reset Sequence Numbers
			N Do Not Reset Sequence Numbers
554	Password	N	Password assigned to the CompID. Required if the message is generated by the client.
925	NewPassword	N	New password for the CompID

Tag	Field name	Req	Description	
1409	SessionStatus	N	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
			2	Password Due to Expire
			3	New session password does not comply with policy.
1137	DefaultApplVerID	Y	Default version of FIX messages used in this session. This will be validated by the server.	
			Value	**Meaning**
			9	FIX50SP2
Standard Trailer				

6.3.2 Logout

Tag	Field name	Req	Description	
Standard Header				
35	MsgType	Y	5 = Logout	
Message Body				
1409	SessionStatus	N	Status of the FIX session. Required if the message is generated by the server.	
			Value	**Meaning**
			4	Session logout complete
			6	Account locked
			7	Logons are not allowed at this time
			8	Password expired
			100	Other
			101	Logout due to session level failure
			102	Logout by market operations
58	Text	N	The field will contain the next expected sequence number and the received sequence number if the server terminated the connection after receiving a sequence number that was less than what was expected. In other cases, the field will contain the reason for the logout (eg., 'MsgSeqNum' too low, expecting 7 but received '1')	
Standard Trailer				

6.3.3 Heartbeat

Tag	Field name	Req	Description
Standard Header			
35	MsgType	Y	0 = Heartbeat
Message Body			
112	TestReqID	N	Required if the heartbeat is a response to a Test Request. The value in this field should echo the TestReqID (112) received in the Test Request.
Standard Trailer			

6.3.4 Test request

Tag	Field name	Req	Description
Standard Header			
35	MsgType	Y	1 = Test Request
Message Body			
112	TestReqID	Y	Identifier for the request.
Standard Trailer			

6.3.5 Resend request

Tag	Field name	Req	Description
Standard Header			
35	MsgType	Y	2 = Resend Request
Message Body			
7	BeginSeqNo	Y	Sequence number of first message in range.
16	EndSeqNo	Y	Sequence number of last message in range.
Standard Trailer			

6.3.6 Reject

Tag	Field name	Req	Description
Standard Header			
35	MsgType	Y	3 = Reject
Message Body			
45	RefSeqNum	Y	MsgSeqNum (34) of the rejected message.
372	RefMsgType	N	MsgType (35) of the rejected message.
371	RefTagID	N	If a message is rejected due to an issue with a particular field, its tag number will be indicated.
373	SessionReject Reason	N	Code specifying the reason for the reject. Please refer to the Reject Code Specification for the list of reject codes and meanings specific to London Stock Exchange.
58	Text	N	Text specifying the reason for the rejection.
Standard Trailer			

6.3.7 Sequence reset

Tag	Field name	Req	Description
Standard Header			
35	MsgType	Y	4 = Sequence Reset
Message Body			
36	NewSeqNo	Y	Sequence number of the next message to be transmitted.
123	GapFillFlag	N	Mode in which the message is being used. Absence of this field is interpreted as Sequence Reset (N).
			Value **Meaning**
			Y Gap Fill
			N Sequence Reset
Standard Trailer			

6.4 Application messages (client)

6.4.1 Order mass status request

Tag	Field name	Req	Description
Standard Header			
35	MsgType	Y	AF = Order Mass Status Request
Message Body			
584	MassStatus ReqID	Y	Client specified identifier of the mass status request.
585	MassStatus ReqType	Y	Type of mass status request.
			Value **Meaning**
			8 All open orders of specified PartyID
453	NoPartyIDs	Y	Number of party identifiers. The value in this field can be “1”.
➡	448 PartyID	Y	Identifier of the Trader Group.
➡	447 PartyID Source	Y	**Value** **Meaning**
			D Proprietary/Custom Code
➡	452 Party Role	Y	Role of the PartyID (448).
			Value **Meaning**
			12 Trader ID
			76 Trader Group
Standard Trailer			

6.4.2 User Request

Tag	Field name	Req	Description
Standard Header			
35	MsgType	Y	BE = UserRequest
Message Body			
923	UserRequestID	Y	Client specified unique identifier of the user request. Maximum allowed length is 20. The server does not validate each UserRequestID for uniqueness. It is recommended that the clients ensure unique UserRequestIDs per user.
924	UserRequestType	Y	Indicates the action required by the user request. **Value** – **Meaning** 4 – Request individual user status 103 – Suspend user 104 – Activate user
553	Username	Y	User ID of the sponsored user. Maximum allowed length is 11.
Standard Trailer			

6.5 Application messages (server)

6.5.1 Execution report

Tag	Field name	Req	Description
Standard Header			
35	MsgType	Y	8 = Execution Report
Message Body			
17	ExecID	Y	Server specified identifier of the message. Will be “0” if ExecType (150) is Order Status (I).
11	ClOrdID	Y*	Client specified identifier of the order. In the case of a quote, the QuoteMsgID (1166) or QuoteID (117) of the message last used to update the quote. Please note that when an Order Mass Status Request is rejected in its entirety, the ClOrdID (11) will not be present as the rejection is not related to a specific order.
41	OrigClOrdID	N	Will be filled with the actual original client order ID of the order, irrespective of the fact whether OrigClOrdID(41) was specified (valid or invalid value) or not, in the order cancel or cancel/replace request.
37	OrderID	Y*	Server-specified identifier of the order. In the case of a quote, the server-specified identifier of the executed side. This will be a 62 base encoded value in ASCII format. By converting this to binary, this can be mapped with GTP Order ID.
584	MassStatus ReqID	N	Client-specified identifier of the mass status request. Required if the message is sent in response to such a request.
30006	RFQID	N	Server-specified identifier of a RFQ.

Tag	Field name	Req	Description
694	QuoteRespType	N	Indicates the status of the RFQ quote. Note that this tag is not sent in the Trading Gateway Execution Report. **Value** – **Meaning** 3 – Expired 11 – Cancelled 101 – Executable
2668	NoTrdRegPublications	N	The number of regulatory publication rules in the repeating group.
➡	2669 TrdReg PublicationType	N	Specifies the type of regulatory trade publication. **Value** – **Meaning** 0 – Pre-trade transparency waiver
➡	2670 TrdReg Publication Reason	N	Populated when Execution Type is F or H. The Pre-trade Waiver Flags section describes in which scenarios the values are populated. **Value** – **Meaning** 4 – ILQD
Component Block <Order Attributes>		N	Please refer to section 6.7.2.
1724	OrderOrigination	N	Whether the order, quote or RFQ was generated via Direct Electronic Access (DEA) or not. Only the following value will be sent. **Value** – **Meaning** 5 – DEA
912	LastRpt Requested	N	Indicates the last message sent in response to a mass order status request. This will be set for the last message sent for each partition. **Value** – **Meaning** Y – Last Message
150	ExecType	Y	Reason the execution report was generated. **Value** – **Meaning** 0 – New 4 – Cancelled 5 – Replaced 8 – Rejected C – Expired D – Restated F – Trade H – Trade Cancel I – Order Status 9 – Suspended
19	ExecRefID	N	Reference to the execution being cancelled. Required if ExecType (150) is Trade Cancel (H).

Tag	Field name	Req	Description	
378	Exec Restatement Reason	N	Reason the order was restated. Required if ExecType (150) is Restated (D) and if order is cancelled via Market Operations.	
			Value	**Meaning**
			3	Order re-priced at start of CPX
			8	Market Option – Order is cancelled by market operations – Trade is cancelled by market operations – On-book trade is cancelled via Post Trade Gateway
			100	Order replenishment
39	OrdStatus	Y	Current status of the order.	
			Value	**Meaning**
			0	New
			1	Partially Filled
			2	Filled
			4	Cancelled
			8	Rejected
			C	Expired
			9	Suspended
103	OrdRejReason	N	Code specifying the reason for the reject. Please refer to MIT801 for a list of reject codes. Required if ExecType (150) is Rejected (8) or for orders expired (C) due to Self-Execution Prevention validations.	
336	TradingSessionID	N	Value submitted with the order.	
58	Text	N	Text specifying the reason for the rejection, cancellation or expiration.	
32	LastQty	N	Quantity executed in this fill. Required if ExecType (150) is Trade (F).	
31	LastPx	N	Price of this fill. Required if ExecType (150) is Trade (F). Will note be populated if Exec Type (150) is restated as (D).	
151	LeavesQty	Y*	Quantity available for further execution. Will be “0” if OrdStatus (39) is Filled (2), Cancelled (4), Rejected (8) or Expired (C).	
14	CumQty	Y*	Total cumulative quantity filled. Will always be “0” in the case of a quote.	
48	SecurityID	Y	Identifier of the instrument.	
22	SecurityIDSource	Y*	Identifier of the source of the SecurityID (48) value.	
			Value	**Meaning**
			8	Exchange Symbol
Component Block <Trading Party>		Y	Identifier of the trading party.	
1	Account	N	Client reference information.	
40	OrdType	Y	Type of the order.	
			Value	**Meaning**

Tag	Field name	Req	Description	
			1	Market
			2	Limit
			3	Stop
			4	Stop Limit
			P	Pegged
			F	Offset
59	TimeInForce	N	Time qualifier of the order. Absence of this field is interpreted as Day (0).	
			Value	**Meaning**
			0	Day
			1	Good Till Cancel (GTC)
			2	At the Opening (OPG)
			3	Immediate or Cancel (IOC)
			4	Fill or Kill (FOK)
			6	Good Till Date (GTD)
			7	At the Close
			8	Good for Intra-Day Auction (GFX)
			9	Good for Auction (GFA)
			C	Good for Scheduled Auction (GFS)
126	ExpireTime	N	Time the order expires, which must be a time during the current trading day. Required if TimeInForce (59) is GTD (6) and ExpireDate (432) is not specified.	
432	ExpireDate	N	Date the order expires. Required if TimeInForce (59) is GTD (6) and ExpireTime (126) is not specified.	
54	Side	Y*	Side of the order or quote that was executed.	
			Value	**Meaning**
			1	Buy
			2	Sell
38	OrderQty	Y*	Total order quantity. In the case of a quote, order quantity is always not set to the bid or offer size submitted with the last quote update. It can even be the order quantity if it was an order which satisfies the below formula: Order Quantity = Leaves Quantity + Cumulative Executed Quantity	
1138	DisplayQty	N	Quantity currently displayed in the order book. This field will also be populated for un-elected/parked orders.	
1084	DisplayMethod	N	Populated only if the value submitted with the order was 4 or the display size submitted with the initial order was zero.	
44	Price	N	Limit price. Required if OrderType (40) is Limit (2) or Stop Limit (4). In the case of a quote, the bid or offer price submitted with the last quote update.	

Tag	Field name	Req	Description	
			This field is not populated in the execution report sent for an RFQ. For Offset orders (OrdType (40) = F): If an order is parked (Order Status (39) = 9 'Suspended), it will be populated with the Price (44) submitted by the user. Otherwise, it will be populated with the calculated price based on the DRP and the offset OR Price (44) submitted by the user (whichever is more conservative).	
99	StopPx	N	Stop price. Required if OrderType (40) is Stop (3) or Stop Limit (4).	
1091	PreTradeAnonymity	N	Whether the order is anonymous or named. Absence of this field is interpreted as Anonymous (Y).	
			Value	**Meaning**
			Y	Anonymous
			N	Named
278	MDEntryID	N	Public Order ID	
581	AccountType	N	Type of account associated with the order.	
			Value	**Meaning**
			1	Client
			3	House
528	OrderCapacity	N	Capacity of the order	
			Value	**Meaning**
			A	Any other trading capacity (AOTC)
			P	Dealing on own account (DEAL)
			R	Matched Principal (MTCH)
60	TransactTime	Y*	Time the transaction represented by the Execution Report occurred.	
526	SecondaryClOrdID	N	A secondary ID assigned by the trading party.	
583	ClOrdLinkID	N	Personal exposure of the trading party.	
9730	TradeLiquidityIndicator	N	Whether the order added or removed liquidity. Required only for messages generated for a trade or trade cancellations. Will be populated for both automatic trades (AT) and auction trades (UT). Possible values are:	
			Value	**Meaning**
			A	Added Liquidity
			R	Removed Liquidity
			C	Auction
880	TradeMatchID (TVTIC)	N	The unique ID of the trade. This will be a 36 base encoded value in ASCII format. The base 10 format is available in tag 27020 DecimalTVTIC. Required only for messages generated for a trade (F) or trade cancellation (H).	

Tag	Field name	Req	Description	
20000	TypeOfTrade	N	Indicates whether the executed portion of a passive order during continuous trading session is visible or hidden. The below values are populated accordingly during Regular trading and CPX sessions, while for all other sessions enum 2 will be stamped. Valid only if ExecType (150) = F. Ignore value in all other cases.	
			Value	**Meaning**
			0	Visible
			1	Hidden
			2	Not specified (for aggressive side and auction trades)
27010	PassiveOnlyOrder	N	Value submitted with the order or order amend request.	
			Value	**Meaning**
			0	No constraint
			99	Only accept order if it will not match with visible contra order. Otherwise expire order
			100	Only accept order if setting new visible BBO, otherwise expire order
			1	Only accept order if setting new BBO or joining existing BBO. Otherwise expire order
			2	Only accept order if will be at BBO or within one visible price-point. Otherwise expire order
			3	Only accept order if will be at BBO or within two visible price-points. Otherwise expire order
110	MinQty	N	Minimum Execution Size (MES) where specified on a pegged order. Following an execution, if the remaining quantity of order < MES specified in the order, Minimum Quantity = Remaining Quantity. For pegged orders with no MES and order types other than pegged, this tag will not be present. For orders with no MES submitted via the Native Trading Gateway, this tag will contain '0'.	
851	LastLiquidityIn	N	Whether the order added or removed liquidity. Required only for messages generated for trades (Exec Type F) or trade cancellations (Exec Type H) during continuous trading and auctions. For other execution types, the value in this tag should be ignored.	
			Value	**Meaning**
			1	Added Liquidity
			2	Removed Liquidity
			4	Auction
33007	ContraOrderBook	N	Identifier of the order book of the contra party of an RFQ execution. This field will only be populated in the Execution Report sent to the requestor when an RFQ executes with an order in the normal book. Absence of this field is interpreted as RFQ Trade book for RFQ related executions.	
			Value	**Meaning**
			1	Regular

Tag	Field name	Req	Description
27017	GroupID	Y*	The Group ID of an Order. Will carry any value from 0 to 255. Zero is an ungrouped order.
6	AvgPx	N	Volume Weighted Average Price of all the executions reported so far for an RFQ on the requestor side and it will be the executed price on the quote side. This will be updated for trade cancels/corrections as well. AvgPx will be populated for all types of RFQs with an execution.
30	LastMkt	N	Market (Segment MIC) where execution took place. The value in this field should be disregarded if Exec Type is not Trade (F). **Value** – **Meaning** XLON – On Exchange LSE RM XLOM – On Exchange Non-AIM MTF AIMX – On Exchange AIM MTF
27018	Offset	N	Offset for ATC TIF orders submitted with the order.
27020	DecimalTVTIC	N	The base 10 format of TradeMatchID (TVTIC) (880) in the FIX Execution Report. This is the same value as provided by the GTP Trade ID and Native Trade Match ID (TVTIC). Required if ExecType (150) is Trade (F) or Trade Cancel (H).
828	TrdType	N	Type of Trade. Populated only if ExecType (150) = F or H. **Value** – **Meaning** 0 – Regular trade 67 – CLSE (Trade at closing price) 99 – RFQ trade
Standard Trailer			

* These tags are not required to be present in an Execution Report generated as a response to Order Mass Status Request, as the message is not related to a specific order.

6.5.2 User Response

Tag	Field name	Req	Description
Standard Header			
35	MsgType	Y	BF = UserResponse
Message Body			
923	UserRequestID	Y	Client-specified identifier of the user request (MsgType=BE) the response corresponds to.
553	Username	Y	User ID of the sponsored user in the corresponding user request.
926	UserStaus	Y	Indicates the status of the user. **Value** – **Meaning** 3 – User Not Recognised

Tag	Field name	Req	Description	
			6	Other
			103	User suspended
			104	User active
927	UserStatusText	N	Gives the reason for rejecting the user request.	
Standard Trailer				

6.5.3 News

Tag	Field name	Req	Description	
Standard Header				
35	MsgType	Y	B = News	
Message Body				
1180	ApplID	Y	Identifier of the partition.	
42	OrigTime	Y	Time the circuit breaker was breached (in UTC and in the YYYYMMDD-HH:MM:SS.uuuuuu format).	
61	Urgency	Y	Level of urgency of the alert. Always set as '1' (High Priority).	
148	Headline	Y	Headline or the subject of the alert. Always set as 'Circuit Breaker Breach'.	
33	NoLinesOfText	Y	Number of lines of text. The value in this field will always be “1”.	
→	58 Text	Y	TRADING HALT: An order to [buy/sell] [Order Quantity] @ [Price] breached the outer CB limit (Ref. price = [Price], CB lower limit = [Price], CB upper limit = [Price]) [Order ID]	
146	NoRelatedSym	Y	Number of related instruments. The value in this field will always be “1”.	
→	48 SecurityID	Y	Unique identifier of the instrument.	
→	22 SecurityIDSource	Y	Identifier of the source of the SecurityID (48) value.	
			Value	**Meaning**
			8	Exchange Symbol
215	NoRoutingIDs	Y	Number of repeating groups of RoutingID (217) and RoutingType (216) values. Specifies the user to whom the alert should be sent and the firm the user belongs to. The value in this field will always be “2”.	
→	216 RoutingType	Y	Indicates the type of RoutingID (217) specified.	
			Value	**Meaning**
			1	Firms
			10	Users
→	217 RoutingID	Y	Identifies the recipient of the circuit breaker alert. RoutingID will be the Firm ID for RoutingType(216) = Firm(1). RoutingID will be the User ID for RoutingType(216) = User(10).	
Standard Trailer				

6.6.1 Trading party

Tag	Field name	Req	Description
453	NoPartyIDs	Y	Number of party identifiers. The value in this field can be ‘4’, ‘5’ or ‘6’.
➡	448 PartyID	Y	Identifier of the party. If a trade is cleared when the PartyRole = CounterPartyFirm (17), PartyID will be stamped with the CCP value. If a trade is internalized when PartyRole = CounterPartyFirm (17), PartyID will be stamped with the Executing Firm. If a trade is not cleared when PartyRole = CounterPartyFirm (17), PartyID will be stamped with Contra Broker Firm. If the optional field TraderID (PartyRole=100) is specified in New Order or Order Cancel/Replace Request message, Execution Report message will stamp the value specified in the New order or the latest order modification request. However, TraderID specified in Order Cancel Request messages are ignored by the system. Short code in a range from 4 to 4294967295 can be used to identify the Client, Investment Decision Maker or Executing Trader. Value ‘0’ is valid only for Client ID (PartyRole = 3) and Investment Decision Maker (PartyRole = 122) party roles. Value ‘1’ and ‘2’ are valid only for Client ID (PartyRole = 3). Value ‘3’ is valid only for Executing Trader (PartyRole = 12). Short Code is valid only for Client ID (3) Investment Decision Maker (122) and Executing Trader (12) party roles

Value	Meaning
0	None
1	AGGR (Aggregated Order)
2	PNAL (Pending Allocations)
3	CLIENT

Tag	Field name		Req	Description	
➡	447	PartyIDSource	Y	**Value**	**Meaning**
				D	Proprietary/Custom Code
				P	Short Code
➡	452	PartyRole	Y	Role of the specified PartyID (448).	
				Value	**Meaning**
				100	Trader ID
				17	Counterparty Firm
				76	Trader Group
				3	Client ID
				122	Investment Decision Maker
				12	Executing Trader
				Counterparty Firm (17) will only be populated if Exec Type (150) is set to any of the following values: – Trade (F) or Trade Cancel (H) for any order Counterparty Firm (17) will be populated with a CCP if the trade is cleared.	
➡	2376	PartyRole Qualifier	N	Provides a further qualification for the value specified in the PartyRole (452).	
				Value	**Meaning**
				22	Algorithm
				23	Firm or Legal Entity
				24	Natural Person

6.7.2 Order Attributes

Tag	Field name		Req	Description	
2593	NoOrderAttributes		N	Number of order attributes.	
➡	2594	OrderAttribute Type	N	Indicates if the order was generated via an algorithm or is submitted as a part of liquidity provision (i.e., as a part of the market making strategy).	
				Value	**Meaning**
				4	Algorithm
				2	Liquidity Provision
	2595	OrderAttribute Value	N	Mandatory if OrderAttributeType (2594) is specified.	
				Value	**Meaning**
				Y	Yes

6.6 Application Messages: Others

6.7.1 Business Message Reject

Tag	Field name	Req	Description
Standard Header			
35	MsgType	Y	j = Business Message Reject
Message Body			
379	BusinessReject RefID	N	Client specified identifier of the rejected message if it is available.
45	RefSeqNum	Y	MsgSeqNum (34) of the rejected message.
372	RefMsgType	Y	MsgType (35) of the rejected message.
371	RefTagID	N	If a message is rejected due to an issue with a particular field, its tag number will be indicated.
380	BusinessReject Reason	Y	Code specifying the reason for the reject. Please refer to MIT801 for a list of reject codes.
58	Text	N	Text specifying the reason for the rejection.
Standard Trailer			

7.0 Service availability

Customer/Service Activity	Availability
Telnet Access	04:00 – 17:40
Login Access	04:00 – 17:40
Message Dissemination	04:00 – 17:40
OOBD Request	05:00 – 17:40

Clients wishing to test connectivity outside of these hours should review MIT501 – Guide to Testing Services for more information.

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